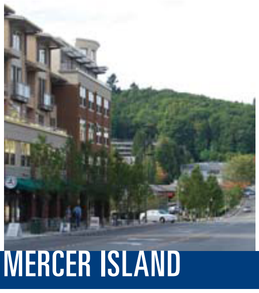
FINAL EIS

EAST LINK PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

SOUND TRANSIT
102B
Link
SoundTransit

SEATTLE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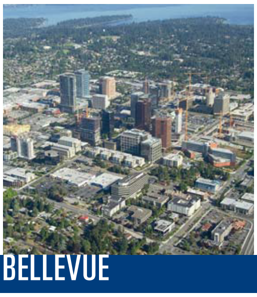
BELLEVUE

OVERLAKE

REDMOND

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CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State
Department of Transportation

U.S. Department of Transportation
Federal Transit
Administration

July 2011

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Joni Earl

July 15, 2011

Dear Recipient:

The U.S. Department of Transportation Federal Transit Administration (FTA), Sound Transit (the Central Puget Sound Regional Transit Authority), and Washington State Department of Transportation (WSDOT) have prepared this Final Environmental Impact Statement (Final EIS) on the proposed East Link light rail transit project. This project is part of Sound Transit 2, the Regional Transit System Plan for Central Puget Sound. Sound Transit is the project proponent.

The Final EIS has been prepared pursuant to the National Environmental Policy Act (42 U.S.C 4321 to 4370e) and the State Environmental Policy Act (Ch. 43.21C RCW). It has been prepared to inform the public, agencies and decision makers about the environmental consequences of building and operating the East link extension of the light rail system from downtown Seattle to Mercer Island, Bellevue, and Redmond via Interstate 90. The Final EIS examines project route and station alternatives, including the preferred alternative identified by the Sound Transit Board.

The major choices for the project involve the route of the light rail line and station locations. The Sound Transit Board will consider the Final EIS and other information before selecting the route and station locations. After the Board selects the project to be built, FTA will issue a Record of Decision, which will state FTA's decision on the project and list Sound Transit mitigation commitments to reduce or avoid impacts.

The Final EIS includes a separately bound Executive Summary. Also available are separately bound appendices consisting of conceptual design drawings, technical reports, background materials, and responses to comments. Please see the Fact Sheet of this Final EIS regarding how to obtain these documents.

For additional information about this Final EIS, please contact Kent Hale, Senior Environmental Planner (206) 398-5103 or kent.hale@soundtransit.org.

Sincerely,

James Irish

James Irish
Deputy Director
Office of Environmental Affairs and Sustainability

Central Puget Sound Regional Transit Authority • Union Station
401 S. Jackson St. • Seattle, WA 98104-2826 • Reception: (206) 398-5000 • FAX: (206) 398-5499 • www.soundtransit.org

EAST LINK LIGHT RAIL TRANSIT PROJECT
SEATTLE, WASHINGTON

FINAL ENVIRONMENTAL IMPACT STATEMENT

Submitted pursuant to
The National Environmental Policy Act (NEPA) (42 U.S.C. 4322 (2)(c))
and the State Environmental Policy Act (SEPA) (Ch. 43.21 C RCW)
by the

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
and

CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY (SOUND TRANSIT)

and

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
(For SEPA)

In cooperation with

FEDERAL HIGHWAY ADMINISTRATION
CITY OF SEATTLE
CITY OF MERCER ISLAND
CITY OF BELLEVUE
CITY OF REDMOND
KING COUNTY
U.S. ARMY CORPS OF ENGINEERS
U.S. COAST GUARD

6/15/2011	
Date of approval	R. F. Krochalis, Regional Administrator For Federal Transit Administration, Region 10
6/15/11	Perry Weinberg
Date of approval	Perry Weinberg, Director, Office of Environmental Affairs and Sustainability For Central Puget Sound Regional Transit Authority
6/14/2011	Megan White
Date of approval	Megan White, Director of Environmental Services For Washington State Department of Transportation

See the Fact Sheet for persons who may be contacted for additional information concerning this document.

Abstract

Sound Transit proposes to construct and operate an eastern extension of the Link light rail system providing urban transportation improvements in the Central Puget Sound metropolitan region. The East Link project would connect to the existing light rail system in downtown Seattle and extend the system east to Mercer Island, Bellevue, and Redmond. Alternatives are considered in five geographic segments in this EIS. **Segment A, Interstate 90,** connects downtown Seattle to Mercer Island and South Bellevue via I-90. **Segment B, South Bellevue,** connects I-90 to approximately SE 6th Street along one of three corridors: Bellevue Way, 112th Avenue SE, or the BNSF Railway right-of-way**. Segment C, Downtown Bellevue,** would travel through downtown Bellevue between approximately SE 6th Street and an I-405 crossing at either NE 6th Street or NE 12th Street on either an at-grade, elevated, or tunnel profile. **Segment D, Bel-Red/Overlake,** would travel from the I-405 crossing to the Overlake Transit Center, either through the Bel-Red corridor or along SR 520. **Segment E, Downtown Redmond,** would travel from Overlake Transit Center to Downtown Redmond via the SR 520 corridor until West Lake Sammamish Parkway and then proceed through Downtown Redmond via either Redmond Way or in the former BNSF Railway corridor. Alternatives considered include a No Build Alternative, 24 build alternatives (one in Segment A, six in Segment B, ten in Segment C, four in Segment D, and three in Segment E), the No Build Alternative, and four maintenance facility alternatives (three in Segment D and one in Segment E). Each alternative route includes one to four stations; a total of 19 station alternatives, some with multiple location options, exist in the five segments. Construction is expected to start in 2015, with operation under way between 2022 and 2023. The analysis and impact information in this EIS addresses potential long-term and short-term impacts of transportation; acquisitions, displacements and relocations; land use; economics; social impacts, community facilities, and neighborhoods; visual and aesthetic resources; air quality and greenhouse gas; noise and vibration; ecosystem resources; water resources; energy; geology and soils; hazardous materials; electromagnetic fields; public services; utilities; historic and archaeological resources; and parkland and open space. The analysis also considers issues related to environmental justice, protected park and historic resources, and the cost, funding, and cost-effectiveness of the alternatives.

Fact Sheet

Proposed Action

The Central Puget Sound Regional Transit Authority (Sound Transit) proposes to construct and operate an extension of its electric light rail transit system that would improve transportation connectivity between Seattle, Mercer Island, and the east side of Lake Washington to Bellevue and Redmond. The proposed light rail extension, known as the East Link Light Rail Transit Project (East Link Project), would cross Lake Washington in the center lanes of Interstate 90 (I-90) and would operate in a dedicated right-of-way between Seattle and Redmond. The East Link Light Rail Transit Project is included in Sound Transit 2: A Mass Transit Guide, The Regional Transit System Plan for Central Puget Sound (ST2), also known as the Mass Transit Expansion proposal, which was approved by the voters in November 2008.

The East Link corridor is approximately 18 miles long and has been divided into five segments along distinct geographic boundaries: Segment A, Interstate 90 (Seattle to Mercer Island and Bellevue via I-90); Segment B, South Bellevue; Segment C, Downtown Bellevue; Segment D, Bel-Red/Overlake (Downtown Bellevue to Overlake Transit Center); and Segment E, Downtown Redmond (Overlake Transit Center to Downtown Redmond). Alternatives considered include 24 build alternatives (one in Segment A, six in Segment B, ten in Segment C, four in Segment D, and three in Segment E), the No Build Alternative, and four maintenance facility alternatives (three in Segment D and one in Segment E). Each alternative route includes one to four stations; a total of 19 station alternatives, some with multiple location options, exist in the five segments. The segment alternatives would be linked to create a complete, operable light rail system that would connect with the Central Link light rail system at the Chinatown/International District Station in downtown Seattle. The East Link Project might be constructed in phases, depending on available funding or other factors. Sound Transit anticipates that any station including and beyond the last station in Segment C could be considered an interim station.

Project Proponent

Sound Transit (Central Puget Sound Regional Transit Authority)
Union Station
401 South Jackson Street
Seattle, Washington 98104
www.soundtransit.org

Dates of Construction and Opening

Sound Transit plans to begin construction of East Link by 2015, with operations underway between 2022 and 2023. Segment E to Downtown Redmond would be constructed after 2023.

State Environmental Policy Act (SEPA) Lead Agencies

Sound Transit: Nominal Lead Agency
Union Station
401 South Jackson Street
Seattle, Washington 98104
www.soundtransit.org

Washington State Department of Transportation (WSDOT): Co-Lead Agency
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Seattle, Washington 98104
www.wsdot.wa.gov

National Environmental Policy Act (NEPA) Lead Agency

Federal Transit Administration
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Seattle, Washington 98174-1002
www.fta.dot.gov/office/regional/region10/

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Dylan Counts, Sound Transit Liaison
WSDOT Public Transportation Division
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Seattle, Washington 98104

Anticipated Permits and Approvals

Permit or Approval	Issuing Agency
Federal	
Section 106 Review	Federal Transit Administration
Section 4(f) Review	Federal Transit Administration, U.S. Department of Transportation
Section 6(f) Review	U.S. Department of the Interior
Clean Water Act, Section 404 and Section 10	U.S. Army Corps of Engineers
Federal Endangered Species Act Review	U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration Fisheries Service
Interchange Justification Report	Federal Highway Administration
Airspace Lease for Use of Interstate Right-of-Way	Federal Highway Administration
Breaks-in-Limited Access	Federal Highway Administration
Conversion of highway travel lanes to transit only	Federal Highway Administration
State and County	
Hydraulic Project Approval	Washington Department of Fish and Wildlife
Aquatic Use Authorization: Aquatic Lease	Washington Department of Natural Resources
Public Utility Commission Permits	Washington Public Utility Commission
Section 106 Review	Washington State Department of Archaeology and Historic Preservation
National Pollution Discharge Elimination System Stormwater Discharge Permit	Washington State Department of Ecology
Coastal Zone Management Consistency Certification	Washington State Department of Ecology
Temporary Modification of Water Quality Criteria	Washington State Department of Ecology

Permit or Approval	Issuing Agency
Underground Storage Tank Notification Requirement	Washington State Department of Ecology
Water Quality Certification: Section 401	Washington State Department of Ecology
Air Space Lease: Interstate or State Routes	Washington State Department of Transportation
Cities	
Shoreline Permits	Cities of Seattle, Mercer Island, Bellevue, Redmond
Street Use Permits	Cities of Bellevue and Redmond
Construction Permits	Cities of Seattle, Mercer Island, Bellevue, Redmond
Right-of-Way Permits or Franchise for Use of City Right-of-Way	Cities of Bellevue, Redmond and Port of Seattle
Environmental Critical Areas/Sensitive Areas Review	Cities of Bellevue and Redmond
Development Permits	Cities of Bellevue and Redmond
Noise Variance	Cities of Seattle, Mercer Island, Bellevue and Redmond
Street Vacations	Cities of Bellevue and Redmond
Certificates of Approval	Cities of Seattle and Redmond Landmark Preservation Boards
Other	
Various Approvals: Planning, Design Review, and Arts Commissions	Cities of Bellevue, Redmond, Seattle, Mercer Island
Notification of Intent to Perform Demolition or Asbestos Removal	Puget Sound Clean Air Agency
Pipeline and Utility Crossing: Permits	Utility Providers
Utility Approvals: Easements and Use Agreements	Utility Providers

Principal Contributors

See Appendix A2, List of Preparers.

Date of Issue of the Final EIS

July 15, 2011

Next Actions

Following publication of the Final EIS, the Sound Transit Board of Directors will make a final decision on the route and station locations to be built for the project. Also, after the Final EIS is published, the Federal Transit Administration (FTA) is expected to issue its Record of Decision (ROD) on the project.

Related Documents

Environmental Documents

- 112th Avenue Light Rail Options Concept Design Report (Sound Transit, June 2010)
- Segment C – Evaluation of Hospital Station Options (Sound Transit, June 2010)
- Final Environmental Impact Statement, Transportation 2040: Metropolitan Transportation Plan for the Central Puget Sound Region (Puget Sound Regional Council, March 2010)
- Downtown Bellevue Light Rail Alternatives Concept Design Report (Sound Transit, February 2010)
- East Link Project Draft and Supplemental Draft EIS (Sound Transit, December 2008; November 2010)
- East Link Project Environmental Scoping Information Report Seattle to Bellevue to Redmond (Sound Transit, August 2006)
- North Link Final Supplemental EIS (Sound Transit, April 7, 2006)
- Regional Transit System Plan Final Supplemental EIS (Sound Transit, June 2005)
- Airport Link Environmental Assessment (EA)/SEPA Addendum (Sound Transit, May 26, 2005)

- I-90 Two-Way Transit and HOV Operations Project Final EIS/ROD (WSDOT and Sound Transit, May 2004)
- Central Link Light Rail Transit Project Environmental Assessment Initial Segment (Sound Transit, February 5, 2002)
- Central Link Light Rail Transit Project Final EIS Addendum Initial Segment (Sound Transit, November 16, 2001)
- Central Link Light Rail Transit Project Final Supplemental EIS, Tukwila Freeway Route (Sound Transit, November 16, 2001)
- Central Link Light Rail Transit Project Final EIS (Sound Transit, November 5, 1999)

Other Documents

- Sound Transit 2: A Mass Transit Guide, The Regional Transit System Plan for Central Puget Sound (Sound Transit, July 2008)
- VISION 2040, 2008 Update (PSRC, April 2008)
- Transportation 2040 (PSRC, May 2010)
- East Corridor High-Capacity Transit Mode Analysis History (Sound Transit, 2006)
- Regional Transit Long-Range Plan (Sound Transit, July 2005)
- East Link Project Sound Transit Board Briefing Book Light Rail Alternatives Seattle to Bellevue to Redmond (Sound Transit, November 2006)
- Coordination Plan, Updated December 2008 (Sound Transit, 2008)
- East Link Light Rail B7/C9T to NE 2nd Portal (B7 – Revised) Alternative: City of Bellevue RP03 – Interim Analysis Report (City of Bellevue, 2011)

Cost and Availability

This Final EIS is available for public review in a variety of formats and locations. The Final EIS is available on the Sound Transit website (www.soundtransit.org/eastlink). The Final EIS is also available on DVD or CD at no cost from Sound Transit. Paper copies of the Final EIS are available for the cost listed below:

- Executive Summary: FREE
- Final EIS: $25.00
- Appendices to Final EIS: $15.00 each
- Conceptual design drawings: $25.00
- Technical background reports: $15.00 each

Copies of the Final EIS and related documents listed above are available for review or purchase at the offices of Sound Transit, Union Station, 401 South Jackson Street, Seattle, Washington 98104. To request any of the documents, please contact Elma Borbe at (206) 398-5445. To review these documents, please call the Sound Transit librarian at (206) 398-5344 during normal business hours (weekdays from 8:00 a.m. to 5:00 p.m.) to arrange an appointment.

Paper copies of the Final EIS documents are also available for review at the following public places:

- Bellevue College Library
- King County Library System
  - Bellevue Regional Library
  - Mercer Island Public Library
  - Redmond Regional Library
- Seattle Public Library branches
  - Downtown Branch
  - International District /Chinatown Branch Library
  - Douglas Truth Branch Library
- University of Washington Library
- Washington State Department of Transportation Library
- Washington State Library

Appeals

Washington State Environmental Policy Act (SEPA) challenges to this Final EIS are governed by Sound Transit Resolution R7-1 and the SEPA rules and regulations (Ch. 43.21C RCW and WAC 197-11-680). Sound Transit Resolution R7-1 is available online at: http://www.soundtransit.org/About-Sound-Transit/Board-of-Directors/Board-archives/Resolutions-archive.xml. (1994-1997 Resolutions)

As provided in Resolution R7-1, appeals of SEPA determinations must be made in writing by filing a letter of appeal and paying the required fee within 14 days following the date the environmental document is issued. Letters of appeal should be addressed to Joni Earl, Chief Executive Officer, Sound Transit, Union Station, 401 South Jackson Street, Seattle, Washington 98104-2826.

For this Final EIS, appeals must be received by Sound Transit on or before 5:00 p.m. on July 29, 2011. Additional details about the appeals process and requirements are set out in Resolution R7-1 and in the SEPA rules and regulations.

Preface

Local, regional, and state agencies have been studying high-capacity transportation alternatives to connect Seattle with the Eastside of King County since the mid-1960s. In 1976, when expansion plans for Interstate 90 (I-90) were stalled, the affected entities of Seattle, Mercer Island, Bellevue, and the Washington State Highway Commission signed a Memorandum Agreement on the Design and Construction of the I-90 bridge, which called for conversion of the center roadway to dedicated transit usage in the future.

In 2004, the Puget Sound Regional Council (PSRC) prepared the *Central Puget Sound Regional High Capacity Transit Corridor Assessment* to establish a basis for more detailed planning studies and environmental analysis. Applying the adopted land use and metropolitan transportation plan, the report found that the cross-lake corridor, connecting the urban centers of Seattle, Bellevue, Overlake and Redmond, had the highest potential for near-term development of high-capacity transit (HCT) alternatives. Sound Transit's updated Long-Range Plan (2006) includes HCT across I-90 serving these urban centers, and the Sound Transit Board has adopted light rail as the mode for this corridor, now referred to as the East Link Project.

Today, much of Central Link is in operation, and Sound Transit is moving forward with the next phase of mass transit improvements in the Puget Sound region, Sound Transit 2 (ST2). ST2 includes construction of the East Link Project, which is an extension of light rail service from Seattle to Mercer Island, Bellevue, and Redmond via I-90. The ST2 plan funds East Link construction to the Overlake Transit Center in Redmond and provides for environmental review and preliminary engineering from Overlake Transit Center to Downtown Redmond.

Sound Transit, together with the Federal Transit Administration (FTA) and Washington State Department of Transportation (WSDOT), have prepared this Final Environmental Impact Statement (EIS) for the East Link Project in compliance with the National Environmental Policy Act (NEPA), and the Washington State Environmental Policy Act (SEPA). This Final EIS does the following:

- Describes the alternatives and their potential impacts

REDMOND
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BELLEVUE
SEATTLE
MERCER ISLAND

Aerial of East Link Corridor

- Provides environmental information to assist decision-makers in selecting the project to be built
- Identifies measures to avoid and minimize impacts and, when necessary, compensate for adverse impacts
- Considers cumulative impacts as part of the environmental review process
- Provides information for other environmental processes, including compliance with the following:
    - Endangered Species Act
    - Section 106 of the National Historic Preservation Act of 1966
    - Section 4(f) of the Department of Transportation Act of 1966, 49 United States Code (U.S.C.) 303
    - Section 6(f) of the Land and Water Conservation Funds Act
    - Executive Order 12898 – Environmental Justice

The scope of environmental review and the range of alternatives evaluated in the Final EIS respond to the following: public and agency comments received during the public scoping process that began in September 2006; public and agency comments received on the 2008 Draft EIS and the 2010 Supplemental Draft EIS (SDEIS); and feedback from the public and agencies received through community workshops, briefings, stakeholder presentations, and agency coordination meetings held since the environmental review process began.

In order to comply with NEPA and SEPA and to enhance readability, this Final EIS focuses on the most relevant information regarding project definition, potential adverse impacts, and trade-offs among alternatives. The study area for the Final EIS varies by topic and is described within each section of the document, as appropriate. The Final EIS is organized as follows:

The **Executive Summary** is a separately bound condensed version of the overall document that briefly describes the purpose and need for the project, the project's goals and objectives, and the alternatives being considered. It presents the major impacts for each alternative and potential mitigation, reviews the project's financial characteristics, and provides a brief comparison of the different alternatives. The Executive Summary concludes by identifying the major conclusions, areas of uncertainty, and the project's next steps.

Chapter 1, Purpose and Need, describes the project's purpose and need, background, and goals and objectives.

Chapter 2, Alternatives Considered, describes the alternatives that are studied in this Final EIS. It also presents the history of selecting light rail as the mode of transit and identifies the process used to refine the range of potential project alternatives to the set studied in the Final EIS. This chapter provides a review of construction activities and a comparison of cost estimates by alternative. It concludes by explaining the project's planning and decision-making context, including the major steps in the environmental evaluation and project development process.

Chapter 3, Transportation Environment and Consequences, describes the potentially affected existing and future regional and local transportation system and identifies how the project alternatives could affect that system. It then describes potential strategies to reduce or eliminate transportation impacts. The transportation system elements include transit, highways, arterials, local streets, nonmotorized facilities, freight traffic, and navigable waterways.

Chapter 4, Affected Environment and Environmental Consequences, describes the potentially affected environmental conditions (built and natural) in the study area, explains the impacts from construction and operation of the project alternatives, and describes avoidance and minimization measures. Finally, when adverse impacts cannot be avoided, mitigation is identified as appropriate. This chapter includes the following environmental elements:

- Acquisitions, displacements, and relocations
- Land Use
- Economics
- Social impacts, community facilities, and neighborhoods
- Visual and aesthetic resources
- Air quality
- Noise and vibration
- Ecosystem resources (aquatic resources, vegetation and wildlife, and wetlands)
- Water resources
- Energy
- Geology and soils
- Hazardous materials
- Electromagnetic fields
- Public services
- Utilities
- Historic and archaeological resources
- Parklands and open space

Chapter 5, Cumulative Impacts, describes relevant past, present, and reasonably foreseeable actions and projects in or around the project vicinity and the cumulative impact of the proposed alternatives on each element of the environment.

Chapter 6, Alternatives Evaluation, compares the project alternatives in terms of how effectively they meet the project's goals and objectives.

Chapter 7, Comments and Responses, provides a summary of responses to public and agency comments received on the 2008 Draft EIS and the 2010 SDEIS and responses to common public and agency comments.

Appendices A to **K** provide additional details on the project and Final EIS process. **Appendices A** to **E** and **I**, attached to the main volume of the Final EIS, include document support information (references, lists of preparers and recipients, and acronyms and glossary), public involvement and agency coordination documentation, federally required reports on environmental justice and Section 4(f) and 6(f) resources (park and recreation areas, wildlife refuges, historic sites, and any facilities that have received Land and Water Conservation Act funding), and an operating plan summary; **Appendix I** presents the preliminary mitigation measures and environmental commitments that will be implemented for the

Preferred Alternative identified in the Final EIS. **Appendices F, G2,** and **G3** are separately bound technical appendices related to the affected environment and environmental consequences analyses (materials in **Appendix F** are numbered to match their corresponding environmental elements in **Chapter 4**). **Appendix G2** includes list and maps of all potentially affected parcels, and **Appendix G3** includes a list and maps with general locations for documented hazardous materials sites. **Appendix G1** is a separate large-format document containing conceptual design drawings. **Appendix H**, also bound in separate volumes, contains detailed technical reports prepared for transportation, noise and vibration, ecosystems, and historic and archeological resources. **Appendix J**, also bound in four separate volumes, contains copies of public and agency comments received on the 2008 Draft EIS and 2010 SDEIS and responses to those comments. Last, **Appendix K** includes several reports that evaluated various alignment and station configurations in South Bellevue and Downtown Bellevue. This appendix includes studies prepared jointly by Sound Transit and the City of Bellevue, as well as the City of Bellevue's analysis of their B7R option, which includes potential modifications to the B7 alternative.

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Chapter 1

Purpose and Need for East Link Project

1.1 Purpose of the Project

The purpose of the East Link Project is to expand the Sound Transit Link light rail system from Seattle to Mercer Island, Bellevue and Redmond via Interstate 90 (I-90) and to provide a reliable and efficient alternative for moving people throughout the region.

1.1.1 Project Vicinity

The project corridor is located in King County, Washington, the most densely populated county of the Puget Sound region. The project vicinity includes urban centers on both sides of Lake Washington (Exhibit 1-1). The project corridor originates at the Downtown Seattle Transit Tunnel at the International District/Chinatown Station, and then travels eastward on I-90 to the Rainier Valley Neighborhood before entering the Mount Baker Tunnel and crossing Lake Washington on the I-90 Floating Bridge to the Mercer Island Town Center. It remains on I-90, crossing the East Channel Bridge to the City of Bellevue. The project corridor extends north from I-90 between Bellevue Way and the I-405/former BNSF Railway corridor toward Downtown Bellevue. From Downtown Bellevue, the project corridor extends east, parallel to State Route (SR) 520 through Bellevue's Bel-Red subarea and Overlake, a subarea in the City of Redmond. From Overlake, the project corridor continues northeast parallel to SR 520 to Downtown Redmond, which is the terminus of the project.

1.1.2 Support for Project Purpose

The purpose of the East Link Project is based upon over 40 years of continuous and cooperative regional and local transportation planning. The research, joint planning efforts, and decision-making processes are recorded in *East Corridor High-Capacity Transit Mode Analysis History* (Sound Transit, 2006) and summarized in Section 1.3 of this chapter. The conclusions and findings from that history were used to develop the following support for the East Link Project purpose:

- Improve speed and reliability and expand the region's transportation system capacity through an exclusive light rail transit right-of-way, while preserving the environment.
- Increase mobility and accessibility to and from the region's highest employment and housing concentrations.

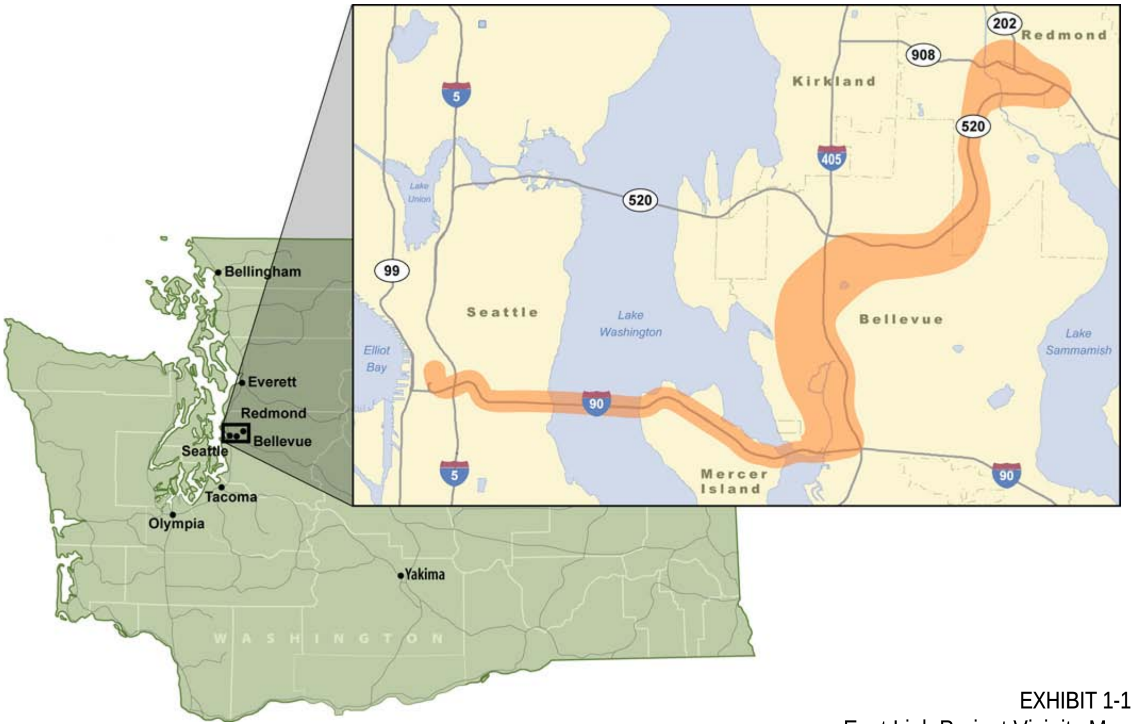


EXHIBIT 1-1
East Link Project Vicinity Map

- Support regional land use and transportation plans—*VISION 2040* (Puget Sound Regional Council [PSRC], 2009) and *Transportation 2040* (PSRC, 2010)—to direct growth into high-density urban and manufacturing centers in Downtown Bellevue, Overlake, and Redmond by providing a high-capacity transit (HCT) connection between these centers, Seattle, and other regional destinations.
- Implement the goals and objectives identified in Sound Transit's Long-Range Plan (Sound Transit, 2005), which guides the development of the regional HCT system. The main transportation goal is to "provide a public transportation system that helps ensure long-term mobility, connectivity, and convenience for the citizens of the Puget Sound Region for generations to come" and to "provide reliable, convenient, and safe public transportation services between regional growth centers and create an integrated system of transit services."
- Implement the HCT element of the Washington State Department of Transportation (WSDOT*) I-90 Two-Way Transit and High Occupancy Vehicle (HOV) Operations Project Final Environmental Impact Statement* (EIS) (WSDOT and Sound Transit, 2004); the Federal Highway Administration (FHWA) Record of Decision (FHWA, 2004); the Federal Transit Administration (FTA) Record of Decision (April 15, 2011); and the August 2004 Amendment to the 1976 Memorandum Agreement between King County, City of Bellevue, City of Seattle, City of Mercer Island, Washington State Transportation Commission, and Sound Transit (City of Mercer Island et al., 2004). These documents stipulate that the ultimate configuration of I-90 should accommodate all phases of the I-90 Two-Way Transit and HOV Operations Project with HCT in the center lanes. The amendment directs the agencies "to provide high-capacity transit in the center lanes of I-90 between Bellevue and Seattle as quickly as possible..." The amendment and Final EIS define HCT as "… a transit system operating in dedicated right-of-way, such as light rail, monorail, or a substantially equivalent system."
- More fully develop a regional transit system that would integrate with the Central Link light rail line, providing direct connections among the largest urban centers in King County.
- Fulfill Sound Transit's legislative mandate to meet public transportation and mobility needs for HCT infrastructure in the Central Puget Sound region, as established by the State High-Capacity Transportation Systems Act (Ch. 81.104 Revised Code of Washington).

1.2 Need for East Link Project

Current and projected population and employment trends reveal a need to provide light rail transit between Seattle and the Bellevue and Redmond urban centers. This section explains why existing transit will not be able to serve the future transit needs in the project corridor. In brief, these reasons are as follows:

- **Increased demand for transit services** across Lake Washington is expected to double by 2030 as a result of residential and employment growth on both sides of Lake Washington.
- **Regional urban center growth plans supported by HCT investments** in accordance with PSRC's adopted *Transportation 2040*.
- **Increased congestion on I-90** will further limit transit performance as the I-90 corridor reaches maximum vehicle capacity during peak-hour travel as early as 2015 (WSDOT, 2006).
- **Operating deficiencies in regional bus transit service** will continue to occur due to lower speeds and decreasing reliability.
- **Limited transit capacity and connectivity** between the areas of highest employment density in the region will occur due to constraints of the current road system.

1.2.1 Growth and Increased Demand for Transit Services

Regional planning for growth and transportation is conducted by PSRC, the metropolitan planning organization for the Puget Sound region, which includes King, Kitsap, Pierce, and Snohomish Counties. Population and employment growth in this region is strong. Rapid population and employment growth in the Puget Sound region in recent decades has exceeded national averages (PSRC, 2006). Between 2000 and 2030, PSRC projections show that the region's population will increase almost 40 percent (an additional 1.3 million people). Corridor-specific population projections are shown in Table 1-1.

Regional employment will grow approximately 42 percent (more than 737,000 new jobs); Table 1-2 lists city-specific employment projections. More than 30 percent of the region's employment is in the Downtown Seattle, Bellevue, and Redmond growth centers, and regional planning has focused new housing and employment growth within these urban areas.

TABLE 1-1
City and King County Population Forecasts

City	2000 Population	2030 Projected Population	Percent Change 2000 to 2030 (percent)
Seattle	563,374[a]	672,441[b]	19
Mercer Island	22,036 [a]	25,340 [b]	15
Bellevue [c]	108,936	141,401	30
Redmond [d]	60,461	92,451	53
King County	1,737,000	2,235,000	29

[a] 2000 Census data.

[b] PSRC (2006)

[c] Forecast Analysis Zones (FAZs) 4505, 4506, 4810, 4820, 4900, 5010, and 5020 (PSRC, 2006) and 5205 (PSRC, 2009).

[d] FAZs 5415 and 5425 (PSRC, 2009) and 5426 (PSRC, 2006).

TABLE 1-2
Employment Forecasts by City

City	2000	2030	Percent Change 2000 to 2030 (percent)
Seattle[a]	536,595	708,349	32
Mercer Island[b]	7,218	7,916	10
Bellevue[c]	124,407	194,908	57
Redmond[d]	72709	122,997	69

[a] City of Seattle, 2007a

[b] PSRC (2006)

[c] Forecast Analysis Zones (FAZs) 4505, 4506, 4810, 4820, 4900, 5010, and 5020 (PSRC, 2006) and 5205 (PSRC, 2009).

[d] FAZs 5415 and 5425 (PSRC, 2009) and 5426 (PSRC, 2006).

Exhibit 1-2 shows the location of high-growth population and employment centers in 2030 that would be served directly by the East Link Project.

This projected growth, however, will increase the daily hours of delay 83 percent on regional freeways (I-90, I-405, and I-5) and 66 percent on arterials between 2006 and 2040, according to the *Transportation 2040* Final EIS. Implementing PSRC's *Transportation 2040* plan, which includes the East Link Project, would reduce delays on freeways by 32 percent and increase delay on arterials by 55 percent from 2006 to 2040.

In response to the combination of population and employment growth and associated congestion, transit demand across Lake Washington is expected to double over the next 20 years. The vehicle demand for I-90 is expected to grow by at least 50 percent.

As growing populations increase, residents and employees require more transportation options such as dedicated transit because single-occupant vehicle travel times are expected to increase and parking options decrease. Increasing the proportion of travel by transit, HOVs, and walking or bicycling reduces dependence on single-occupant vehicles and alleviates pressure on limited road capacity.

Finally, surges in gasoline prices over the 2007- 2008 period and more recently have influenced people's daily transportation choices. American Public Transportation Association (APTA) recorded strong increases in transit ridership within United States' metropolitan cities (APTA, 2008). In the Puget Sound Region, the 2008 winter quarter showed a 15 percent increase in transit ridership as compared to the previous winter quarter. This trend is likely to continue, which increases the pressure for expanding transit options.

1.2.2 Regional Urban Center Growth Plan Supported by HCT Investments

PSRC's *VISION 2040*, the regional land use plan, focuses growth in urbanized areas. *VISION 2040* re-dedicates the region's commitment, as stated in *VISION 2020*, to enable residents to live near jobs and other urban activities; to help strengthen existing communities; and to promote bicycling, walking, and transit use. These focus areas are identified as "urban centers."

In response to the state Growth Management Act (GMA), PSRC's metropolitan transportation plan, *Transportation 2040*, establishes policies that prioritize new transportation services in areas that accept an increased share of growth. Because of limited funding, the Regional Transportation Improvement Program strategically focuses funding on development of regional growth centers and the corridors between these centers. The goal of this prioritization is to concentrate growth in existing urbanized areas, which is considered the most efficient way to serve a greater share of the region's population.

This regional growth strategy involves strengthening and revitalizing existing centers that offer a wide variety of jobs, services, and important civic and cultural resources as well as encouraging development in suburban areas that are emerging as new community and regional hubs. *VISION 2040* and *Transportation 2040* recognize areas of Seattle, Bellevue, and Redmond as regional growth centers. Specifically, the growth centers of Downtown Seattle, Downtown Bellevue, Overlake, and Redmond are in the proposed East Link Project's study area. In addition, the study

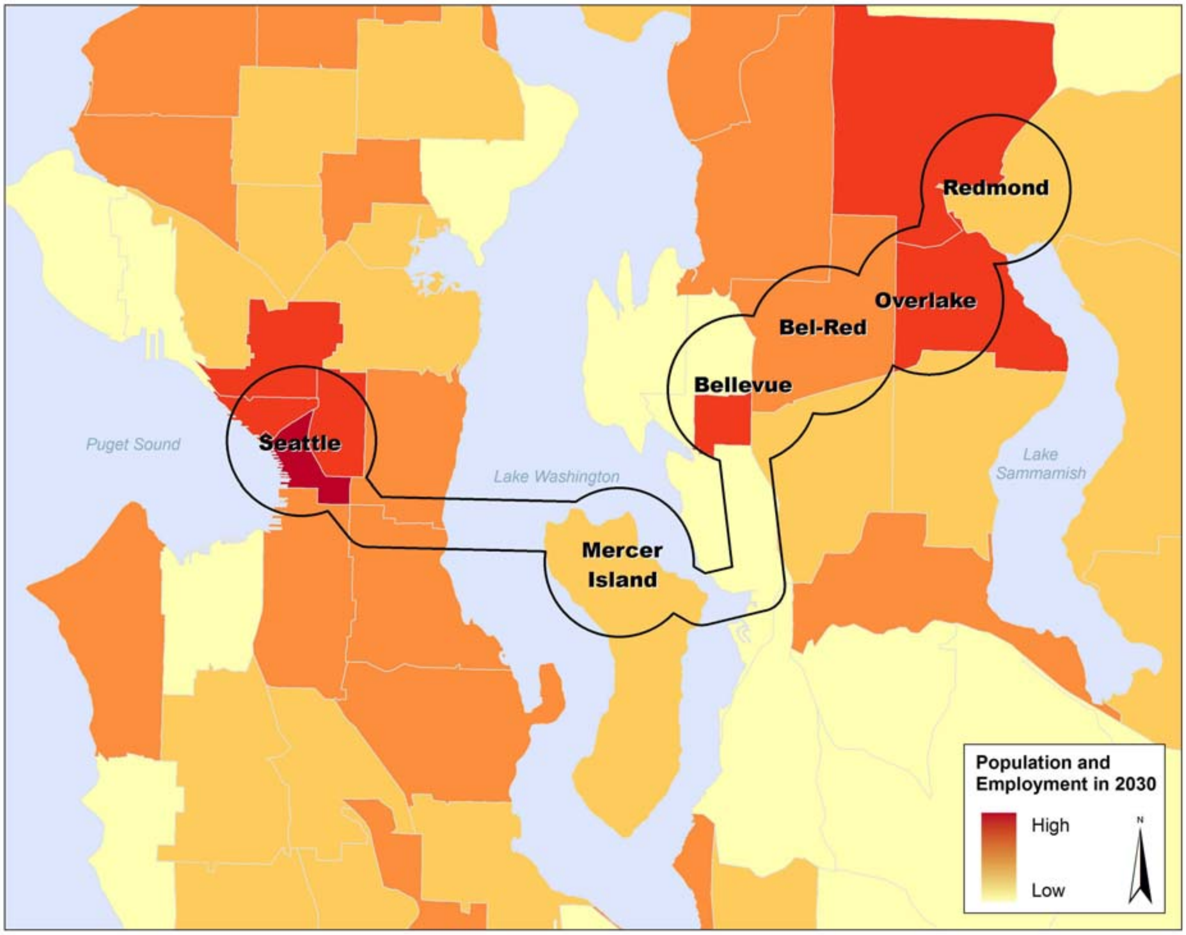


EXHIBIT 1-2
Location of High-Growth Employment and Population Centers in East Link Corridor

area includes connections to identified urban centers that are going to be served by the completion of Central Link, such as Capitol Hill, the University District, and the airport.

Today, Redmond and Bellevue are rapidly developing and expanding, causing them to approach density goals (targets) earlier than expected and increasing the pressure to implement efficient transportation alternatives to improve connections between these regional urban centers (Table 1-3). By 2000, the Downtown Bellevue regional growth center had reached 60 percent of its population target, 64 percent of its housing target, and 75 percent of its employment target for 2030. The (Downtown) Redmond regional growth center had reached 32 percent of its population target, 41 percent of its housing target, and 56 percent of its employment target for 2030. With ongoing development, Bellevue and Redmond are on track to meet their targets by 2030 or earlier.

Seattle, Mercer Island, Bellevue, and Redmond have adopted or are adopting plans to create concentrated centers of high-density, mixed-use, pedestrian-scale development, based upon the assumption that they would receive HCT to support changing transportation needs. Methods to increase density and promote nonmotorized transportation in these plans include increasing maximum building height; requiring sidewalks; limiting parking availability; and integrating multiple land uses such as residential, commercial, office, and public spaces. In Seattle, the *Center City Seattle* (2007c) strategy identifies 10 specific neighborhoods within the city that will represent a new urban identity for Seattle's urban core, while creating jobs and providing economic opportunities. One of those neighborhoods, the International District/Chinatown, would be directly served by the East Link Project, while others such as Capitol Hill, Pike/Pine, First Hill, and the Commercial Core would be served through connections to Central Link.

Mercer Island's comprehensive plan seeks to maintain the city primarily as a community of single-family homes and focuses mixed-use growth in the Town Center adjacent to I-90. Bellevue has adopted the *Downtown Subarea Plan* (2004) and *Bel-Red Subarea Plan* (2008).

TABLE 1-3
Expected Growth in Seattle, Bellevue, and Redmond Urban Centers

	Population			Housing Units			Employment		
	2000 Population	2030 Target Population	Total Percent Increase	2000 Housing	2030 Housing Target	Total Percent Increase	2000 Employment	2030 Target Employment	Total Percent Increase
Seattle[a,b]	80,100	105,700	32	42,200[c]	69,500 [c]	65	256,500	333,500	30
Downtown Bellevue[d]	2,588	17.456	574	1,559[c]	12,388 [c]	695	33,907	77,511	129
Overlake[c,b]	2,500	N/A	N/A	862	8,700	1,000	19,300	N/A	N/A
Downtown [b]Redmond	2,300	7,000	304	1,300	3,200	246	5,800	10,300	78

[a] Includes Downtown, First Hill/Capitol Hill, Northgate, and University Communities Growth Centers.
[b]PSRC (2002a, 2002b, and 2002c).
[c]Housing information is in households, not housing units.
[d] PSRC (2006) for FAZ 4900.
[e] Manufacturing/Industrial Center changing to Urban Center.
N/A not available

These plans establish how Bellevue will accommodate planned increases in housing and jobs while trying to reduce the anticipated traffic congestion that could occur if unchecked growth were to occur. The *Bel-Red Subarea Plan* was developed to accommodate HCT in this corridor. Finally, Redmond has adopted the *Overlake Neighborhood Plan* (2007) and *Downtown Neighborhood Plan* (2005). Overlake (a neighborhood of Redmond) was previously identified as one of eight manufacturing/ industrial centers due to the presence of Microsoft headquarters, among other high-tech industries. In 2007, its designation was changed to an urban center, reflecting an expected increase in residential, commercial, and office uses in the area. Additionally, in anticipation of HCT, the *Overlake Neighborhood Plan* was revised to allow building heights to increase from five to nine stories in some areas, to develop 152nd Avenue NE as a pedestrian-friendly corridor, and to create pathways to provide connections for nonmotorized transportation uses.

Table 1-4 provides estimates of planned development in the major growth centers identified in the East Link Project corridor as of 2008. The data provided for Downtown Bellevue are for projects under construction or under review, while data provided for the other centers are for projects proposed in recent planning efforts.

1.2.3 Increased Congestion on I-90

There are only two crossings of Lake Washington between Seattle and the Eastside: SR 520 and I-90. Planning to replace the SR 520 bridge and improve transportation in that corridor is still underway. In the I-90 corridor, Sound Transit and WSDOT have been implementing the initial phases of the I-90 Two-Way Transit and HOV Operations Project, which will ultimately add HOV lanes to the outer roadways. However, even with planned improvements on the SR 520 and I-90 bridge crossings, the travel times on I-90 are expected to increase.

Recent WSDOT and Sound Transit transportation models predict that I-90 across Lake Washington will reach its vehicle capacity during the peak periods as early as 2015 (WSDOT, 2006). Reaching capacity in such a short time frame will limit roadway performance and its ability to accommodate the increase in traffic volume associated with the expected job and housing growth in Seattle and Eastside communities. As a major freight corridor, increased traffic demand also adversely affects freight mobility.

TABLE 1-4
Planned New Development

	New Housing Units	New Retail (square feet)	New Office Space (square feet)
Seattle CBD[a]	8,400	N/A	6,400,000
Bellevue CBD[b]	11,000	1,700,000	8,600,000
Bel-Red Corridor[c]	5,000	500,000	4,000,000
Overlake[d]	7,000	5,000,000	7,000,000
Downtown Redmond[e]	1,300	75,800	108,600

[a] City of Seattle (2007b)
[b] King, Emil (City of Bellevue 2008)
[c] City of Bellevue (2007)
[d] City of Redmond (2007)
[e] See Chapter 5.
CDB Central Business District
N/A not available

Even with the roadway improvements already constructed or planned for I-90, the interchanges at I-405 and Bellevue Way on the Eastside and at I-5 in Seattle constrain I-90's vehicle capacity. Further improvements are physically constrained by existing urban development and infrastructure.

In the morning (AM) and afternoon (PM) peak hours, the travel times that exist now are expected to get worse. By 2030, Sound Transit and WSDOT project that the PM peak hour travel time between I-405 and Seattle will increase by about 60 percent westbound (reaching 30 minutes) and by approximately 20 percent eastbound (reaching 20 minutes). In the AM peak hour, travel times are expected to increase even more substantially. In both the westbound and eastbound directions, the travel time will increase by approximately 70 percent. These increases reflect the fact that there are high-density urban centers on both sides of the lake, resulting in a more balanced commute pattern in either direction, rather than the historical pattern of commuters going to work in Seattle and living in East King County. The largest increase in travel times is forecast in the reverse-peak direction, which means that travel in both directions will become more balanced.

As with increases in travel time, the peak period of congestion on I-90 will increase by at least 1 hour in each direction. By year 2030, the duration of congestion in the westbound general-purpose lanes during the afternoon is expected to increase from 1.5 hours to 2.5 hours or longer. In the eastbound direction during the PM peak, the duration of congestion in the general-purpose lanes will increase from just over 1 hour to more than 2 hours. Congestion extending outside the peak commuting hours will negatively affect the transportation system's reliability and its ability to serve demand, and it will further constrain the region's mobility and movement of goods.

Even though the morning westbound and afternoon eastbound HOVs and transit on I-90 can use the reversible center roadway, which is two lanes, the capacity constraints on either end only allow it to carry the equivalent of about one lane of traffic. The center reversible roadway will continue to be underutilized in the future because of constraints in accessing these lanes, which prevents the center roadway from realizing its full capacity. However, the outer roadway is expected to reach its maximum vehicle capacity by 2015. Increased congestion will further exacerbate bus service delays.

1.2.4 Operating Deficiencies in Regional Bus Transit Service

As congestion throughout the region increases, it is imperative to examine options and take action to overcome the limitations in the existing regional bus system that are caused by the lower speeds, decreasing reliability, and service capacity constraints of buses.

Reliability is defined as the degree to which transit service can be counted on for consistent, on-time performance. Current transit service in the project vicinity has poor reliability due to congestion on local arterials and I-90 (King County, 2007), and the average transit route at the International District/Chinatown Station, Mercer Island, and Bellevue Transit Center has the lowest reliability rating—level of service (LOS) F (Transportation Research Board, 2003). This reliability rating means that routes are late at least 50 percent of the time. Most transit routes at Overlake Transit Center and Redmond Transit Center also operate with LOS F.

The urban center-to-urban center express routes are Sound Transit's Seattle to Bellevue 550 and the Seattle to Redmond 545. These express service routes feed a broader network of King County Metro buses. When the 550 and 545 are late, passenger connections are in jeopardy. Westbound Express Route 550 trips from Bellevue to the Mercer Island Transit Center are late during the peak period 50 percent of the time and when it reaches Seattle, it is late 70 percent of the time during the peak period. To avoid being late no more than twice a month, riders on this route need to build an additional 15 minutes into their daily schedule. This lack of reliability makes it difficult for users to have confidence that they will reach their destinations on time and it reduces the attractiveness of transit service throughout the project corridor.

Bus speeds from Seattle to Bellevue and from Bellevue to Redmond are projected to decrease by 30 percent or more by 2030, even assuming major I-90 infrastructure improvements (Sound Transit, 2006). Transit patronage is highly sensitive to travel time expectancy. Increasing use of HOV lanes and added congestion on the local and arterial streets in the corridor threatens to further worsen the urban center-to-urban center bus travel times. Because speeds on HOV lanes without a separating barrier are affected by congestion in adjacent lanes, transit travel time will likely mirror congestion periods, thus reducing the benefits of transit. At present, bus travel times in the corridor are typically over 30 minutes between the International District/Chinatown Station and the Bellevue Transit

Center in the PM peak, with an average bus speed of 16 miles per hour. By 2030, speeds on the same bus route are expected to decrease to 11 miles per hour based on Sound Transit model projections, with the bus travel time between the International District/Chinatown Station and the Bellevue Transit Center in the PM peak reaching close to an hour long (Sound Transit, 2006). If unhindered, bus travel time for this trip is expected to be less than 25 minutes.

Transit reliability and speed of travel are also currently negatively affected by congestion on arterial routes, such as Bellevue Way SE, NE 8th Street, 148th Avenue NE, and 156th Avenue NE. Within Bellevue and Redmond, several major bus routes operate on these and other arterial roads. Congestion on many of these streets is also anticipated to worsen over the next 20 years. Exhibits 1-3 and 1-4 illustrate key intersections in the project vicinity that are expected to be at or below failing conditions (LOS E or F) by 2030. These intersections affect travel on the surrounding roadways, including transit service.

The Bellevue Way and 112th Avenue SE corridors between Downtown Bellevue and I-90 are substantially congested during the PM peak period, and the congestion is expected to get worse. In particular, the intersection of Bellevue Way SE and the South Bellevue Park-and-Ride Lot operates at LOS F, with southbound vehicle queues often extending beyond the 112th Avenue SE intersection. Sound Transit Route 550 is often caught in this afternoon congestion, which contributes considerably to the poor speed and reliability of this route. Congestion near the Wilburton Park-and-Ride Lot along SE 8th Street is also high during the PM peak period because it is near the I-405 ramps.

Within Downtown Bellevue, 10 intersections are expected to operate at LOS E or F by 2030. Many transit routes in the east corridor travel through these intersections to access the Bellevue Transit Center. Five intersections along 112th Avenue SE and four intersections along NE 8th Street are expected to operate poorly (either at LOS E or F). Congestion on these key arterials affects many of the transit routes in Downtown Bellevue, and it restricts the ability for these transit routes to maintain their schedules, affecting reliability.

The Bel-Red corridor from Downtown Bellevue to Overlake includes several intersections that operate at a LOS D or worse, and by 2030, most of the intersections in the Overlake area east of 140th Avenue NE will operate at LOS E or F, causing substantial delays to buses traveling along NE 24th Street, Bel-Red

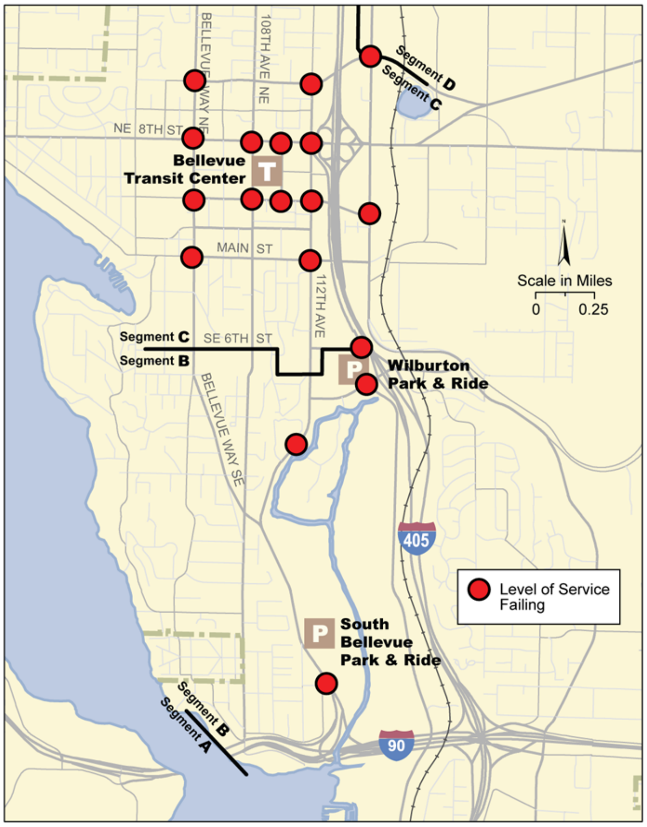

BELLEVUE WAY NE
108TH AVE NE
Segment D
Segment C
NE 8TH ST
Bellevue Transit Center
MAIN ST
112TH AVE
Scale in Miles
0
0.25
Segment C
Segment B
SE 6TH ST
Wilburton Park & Ride
BELLEVUE WAY SE
405
● Level of Service Failing
South Bellevue Park & Ride
Segment B
Segment A
90

EXHIBIT 1-3
Failing Intersections in South and Downtown Bellevue in 2030

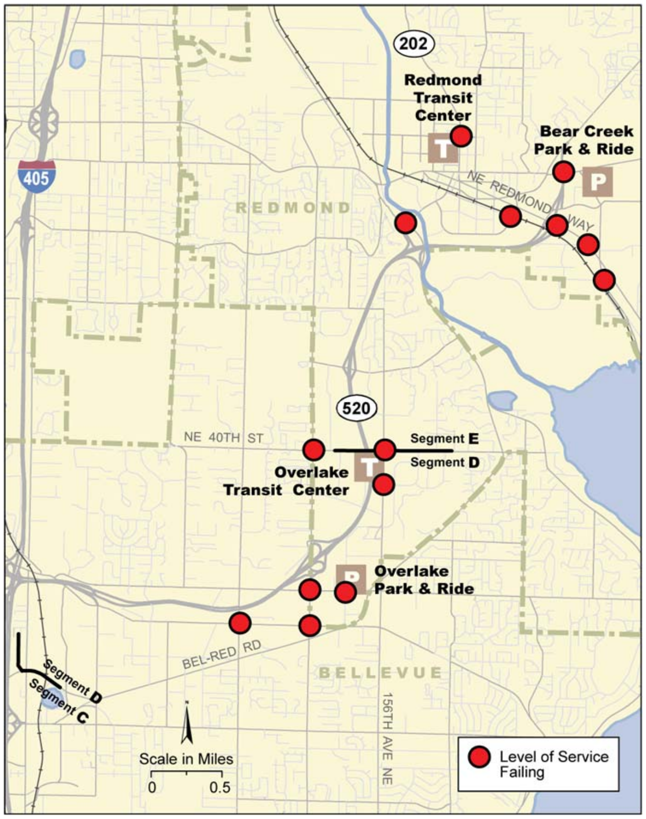

202
Redmond Transit Center
Bear Creek Park & Ride
405
REDMOND
NE REDMOND WAY
520
NE 40TH ST
Segment E
Segment D
Overlake Transit Center
Overlake Park & Ride
BEL-RED RD
BELLEVUE
Segment D
Segment C
156TH AVE NE
Scale in Miles
0
0.5
● Level of Service Failing

EXHIBIT 1-4
Failing Intersections in Bel-Red, Overlake, and Downtown Redmond in 2030

Road, 148th Avenue NE, 156th Avenue NE, and NE 20th Street. These arterials serve two transit facilities in the project vicinity: Overlake Village and Overlake Transit Center. The congestion on these arterials is a result of major employment and retail centers located in this area, as well as congestion on SR 520, which forces through traffic onto these arterials. Congestion on these arterials will affect transit speeds and negatively affect reliability of routes throughout the region. Transit access to and from SR 520 is also hindered by the high traffic volumes using the interchanges at 148th Avenue NE, NE 40th Street, and NE 51st Street. Transit performance is at LOS F conditions approaching Downtown Redmond and at Redmond's two transit centers due to transportation congestion at the SR 520 access ramps and from West Lake Sammamish Parkway and Redmond Way (SR 202). These conditions affect bus speed and reliability.

As development plans in the project vicinity encourage development of denser and more mixed uses, access and traffic constraints into and out of the urban centers will continue to hinder the ability of regional buses to meet the larger transit network needs and therefore reduce transit's ability to provide a viable alternative to the automobile. If a more reliable system is made available, overall dependence on one mode of transportation will decrease and travel via all modes will improve, allowing the region's urban centers to efficiently absorb growth.

1.2.5 Limited Transit Capacity and Connectivity

Infrastructure constraints limit the ability of transit to meet the untapped demand for reliable daily business and commuter travel, as explained in Sections 1.2.3 and 1.2.4. Even with increases in congestion and delays, the preferred mode of travel across I-90 is not expected to substantially change from today's preference for single-occupant vehicles to bus transit service. Because of poor connectivity and speed of travel between destinations, more than 60 percent of people using I-90 to cross Lake Washington in 2030 are projected to use single-occupant vehicles in the AM peak period and more than 50 percent in the PM peak period. Existing bus routes connecting urban centers have to use the same roadways as other vehicles and therefore cannot compete with the door-to-door service of the single-occupant vehicles unless transit can save travelers time. Furthermore, there are physical constraints to widening many of the roadways, such as I-5 and the connections between I-90 and its adjoining arterials, which are at capacity.

Bus transit capacity is also limited within the central business districts within the project vicinity. In the Seattle Downtown Transit Tunnel, bus operations will decrease and eventually be eliminated as light rail ridership on Central Link and the frequency of light rail trains increases. This will redirect buses to already congested urban surface streets in Downtown Seattle, increasing travel time and decreasing reliability for these routes. In Downtown Bellevue, the 14 transit bays at the Bellevue Transit Center currently must accommodate multiple bus routes on tight schedules during peak travel periods. Frequently, buses that are on time here must wait while delayed buses board passengers, thus causing delays for these routes as well. In addition, local arterial capacity and on-street stops will limit the ability to increase the frequency of buses. More frequent bus service may increase capacity for users, but congestion still limits travel time, which ultimately determines the ability for transit to attract passengers.

The urban center-to-urban center connections determine the effectiveness of the overall transit system. Increasing center-to-center transit service reliability would help passengers meet transit connections and make it easier to depend on transit as a viable alternative mode to the automobile. Also, adding dependable service and capacity would improve economic linkages across Lake Washington, offer increased employment-to-housing connections, and expand the functionality of the transit service in the Puget Sound Region.

1.3 Brief History of East Corridor

The East Link Project builds on the conclusions of previous planning, studies, and public involvement processes dating back to the mid-1960s. Sound Transit has assembled the *East Corridor High-Capacity Transit Mode Analysis History* (Sound Transit, 2006) documenting the outcome of this local public transportation planning process, which forms the basis for the Purpose and Need statement for the East Link Project EIS. Consistent with the memorandum titled *Integration of Planning and NEPA Processes* (Appendix A to 49 Code of Federal Regulations [CFR] Part 613), the decision process is based on comprehensive studies that were completed in cooperation with state and local agencies and broad public input. In particular, the Sound Transit Board made the following two major decisions after extensive evaluation and review with other agencies and the public before beginning this East Link Project EIS:

- Regional HCT to the Eastside via I–90 is necessary.

- Light rail is the preferred HCT technology for the I–90/East Corridor connecting Seattle, Mercer Island, Bellevue, Overlake, and Redmond.

The following subsections summarize this history, the involvement of agencies and the public, and the results of the extensive study of HCT.

1.3.1 Evaluation of Regional HCT to the Eastside via I-90

The history of HCT in the East Corridor is illustrated at a glance in Exhibit 1-5. Although local jurisdictions had earlier reviewed HCT options for regional travel, the first official public action was sought in 1968. A bond measure proposing an extensive rail system for King County was put to voters in 1968 and again in 1970. The measures received support but did not pass.

The State of Washington, local jurisdictions, and transit agencies have been involved in studying transit options across Lake Washington. In 1976, after extensive review and discussion, a memorandum agreement for I–90 was signed by the Cities of Seattle, Mercer Island, and Bellevue; King County; Metro Transit; and the State Highway Commission that confirmed the configuration of the I-90 roadway and specified that the I–90 center roadway should be designed and constructed for future conversion to fixed guideway transit (i.e., rail). (City of Seattle et al., 1976).

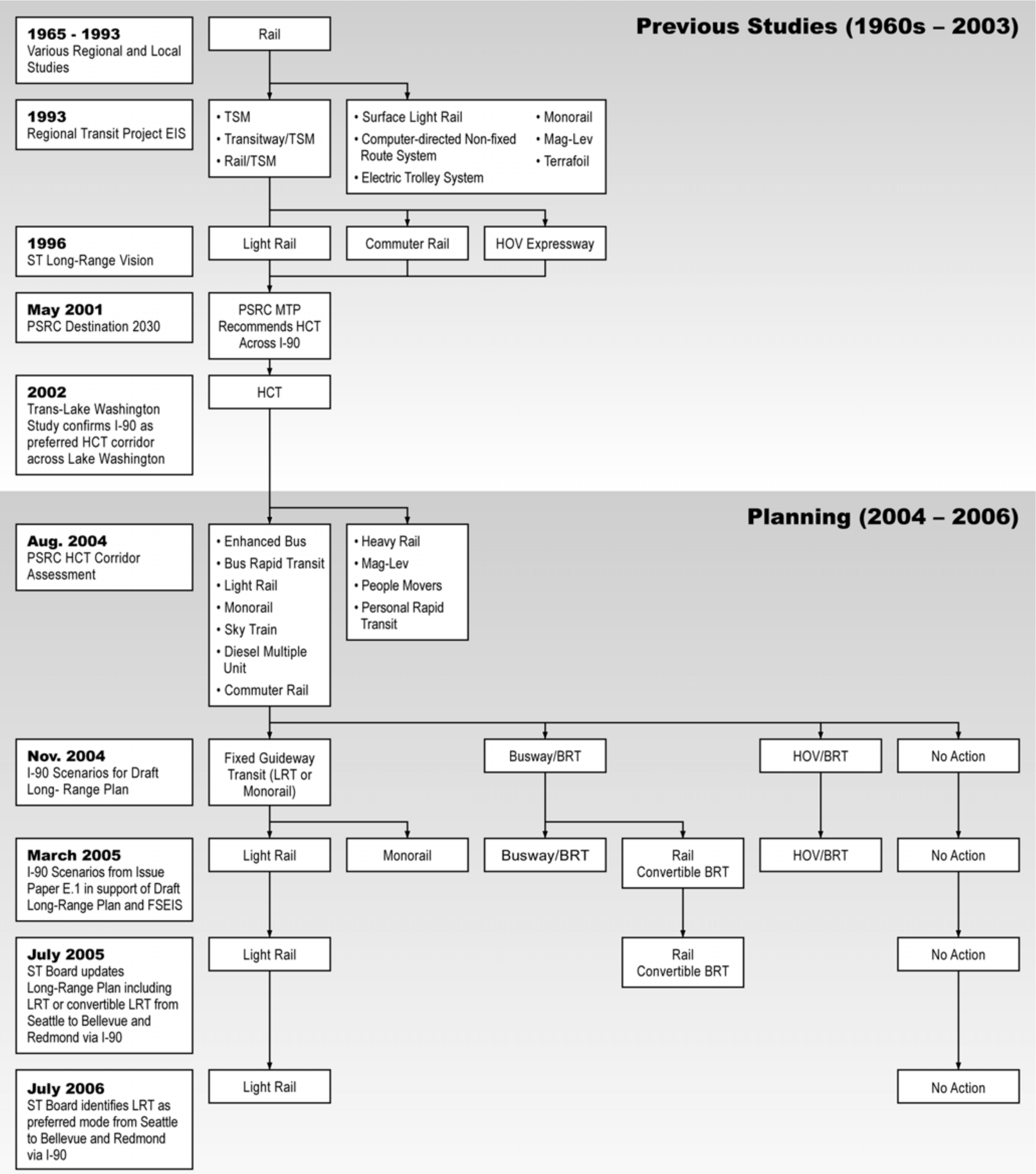
In 1981, PSRC (formerly the Puget Sound Council of Governments [PSCOG]) conducted a study to evaluate and prioritize major corridors for HCT in the Puget Sound region for 1990 and beyond. The East corridor from the Seattle Central Business District across I–90 to northeast Bellevue was ranked second highest, with only the north corridor from the Seattle Central Business District to Snohomish County ranking higher (PSCOG, 1981). The Regional Transportation Plan Update (PSCOG, 1982) was amended in September 1982 to include this prioritization. It stated that, because of high peak-period volumes projected in the major corridors, an HCT system would be required to serve high volumes of people, and it identified light rail as a feasible alternative.

In the 1990s, in response to an advisory ballot measure passed by King County voters, the region began the planning work associated with developing a regional HCT system. In August 1990, a regional planning entity, the Joint Regional Policy Committee (JRPC), was formed through an interlocal agreement among the transit agencies of Pierce, King, and Snohomish Counties to coordinate regional transit planning (consistent with Chapter 81.104 Revised Code of Washington [RCW]). Four broad regional HCT system plan alternatives were evaluated in an EIS, including a no-build alternative, a transportation systems management (TSM) alternative, an exclusive bus transitway/TSM option, and a rail/TSM option. In 1993, following approximately 4 years of study and extensive public involvement, the JRPC identified rail/TSM as the preferred system alternative and, specifically, rail as the preferred HCT mode on I–90. Next, with approval by the Snohomish, King, and Pierce county councils, the Central Puget Sound Regional Transit Authority (RTA), now known as Sound Transit, was formed later in 1993 (consistent with Chapter 81.112 RCW).

In 1996, the voters approved Sound Transit's (i.e., RTA's) first phase of HCT investments in the regional transit investment plan called "Sound Move" (Sound Transit, 1996a). Sound Move included two-way bus transit and HOV improvements on I–90 between Seattle and Bellevue. The Sound Transit Board adopted Sound Move, along with *The Regional Transit Long-Range Vision* (Sound Transit, 1996b), which identified the framework for HCT investments in the region, including potential for future light rail extensions. The *Long-Range Vision* and *Sound Move* plans reflected public input on regional priorities and were consistent with Sound Transit's enabling legislation (which explicitly identifies interim express bus service as a precursor to HCT investments) as well as the 1976 Memorandum Agreement for I–90. Concurrent with the adoption of the *Regional Transit Long-Range Vision*, the Sound Transit Board identified the I–90 corridor as a potential future light rail corridor.

Starting in 1998, WSDOT and Sound Transit served as co-leads on the *Trans-Lake Washington Study*, which identified a set of solutions to improve transportation across and/or around Lake Washington (WSDOT and Sound Transit, 2002). As part of this study, a 47-member study committee (composed of cities, public agencies, businesses, and neighborhood and advocacy groups) reaffirmed earlier decisions that had identified I–90 as the first priority for crossing Lake Washington with HCT.

As part of the implementation of Sound Move, in 2004 WSDOT, Sound Transit, and the Federal Highway Administration (FHWA) collaborated on the I–90 Two-Way Transit and HOV Operations Project. Extensive public outreach and coordination with local jurisdictions occurred during the conceptual design and environmental phase of the project, from 1998 to 2004. The Final EIS for the I–90 Two-Way Transit and HOV Operations Project was issued in May 2004 (WSDOT and Sound Transit, 2004) with a Record of Decision by FHWA in September 2004 (FHWA, 2004).


Previous Studies (1960s – 2003)
1965 - 1993
Various Regional and Local Studies
Rail
1993
Regional Transit Project EIS
• TSM
• Transitway/TSM
• Rail/TSM
• Surface Light Rail
• Computer-directed Non-fixed Route System
• Electric Trolley System
• Monorail
• Mag-Lev
• Terrafoil
1996
ST Long-Range Vision
Light Rail
Commuter Rail
HOV Expressway
May 2001
PSRC Destination 2030
PSRC MTP Recommends HCT Across I-90
2002
Trans-Lake Washington Study confirms I-90 as preferred HCT corridor across Lake Washington
HCT
Planning (2004 – 2006)
Aug. 2004
PSRC HCT Corridor Assessment
• Enhanced Bus
• Bus Rapid Transit
• Light Rail
• Monorail
• Sky Train
• Diesel Multiple Unit
• Commuter Rail
• Heavy Rail
• Mag-Lev
• People Movers
• Personal Rapid Transit
Nov. 2004
I-90 Scenarios for Draft Long- Range Plan
Fixed Guideway Transit (LRT or Monorail)
Busway/BRT
HOV/BRT
No Action
March 2005
I-90 Scenarios from Issue Paper E.1 in support of Draft Long-Range Plan and FSEIS
Light Rail
Monorail
Busway/BRT
Rail Convertible BRT
HOV/BRT
No Action
July 2005
ST Board updates Long-Range Plan including LRT or convertible LRT from Seattle to Bellevue and Redmond via I-90
Light Rail
Rail Convertible BRT
No Action
July 2006
ST Board identifies LRT as preferred mode from Seattle to Bellevue and Redmond via I-90
Light Rail
No Action

Acronyms

BRT	Bus Rapid Transit	MTP	Metropolitan Transportation Plan
FSEIS	Final Supplemental EIS	PSRC	Puget Sound Regional Council
HCT	High-Capacity Transit	ST	Sound Transit
HOV	High-Occupancy Vehicle	TSM	Transportation Systems Management
LRT	Light Rail Transit		

EXHIBIT 1-5
History of High-Capacity Transit in the East Corridor

Although HCT was not directly considered as an element of the EIS, the alternatives were analyzed to assess whether the project could accommodate future plans to convert the center roadway to HCT, in accordance with the MA for I–90. The preferred alternative, known as R-8A, will narrow the outer roadway lanes and shoulders in order to add an HOV lane in each direction, while maintaining the current reversible operation in the center roadway (as illustrated in Exhibit 1-6). The project also includes new and reconfigured direct-access HOV on- and off-ramps in Mercer Island and south Bellevue. Construction of I–90 Two-Way Transit and HOV Operations Project was initiated in 2007.

As part of the identification of the preferred alternative for the I–90 Two-Way Transit and HOV Operations Project, the parties to the 1976 Memorandum Agreement for I–90 developed an amendment that identified R-8A (i.e., HOV lanes on the I–90 outer roadways) as the first step towards the ultimate configuration of I–90 with HCT deployed in the center roadway. HCT was defined in the amendment as "a transit system operating in dedicated right-of-way such as light rail, monorail or a substantially equivalent system" (City of Seattle et al., 2004).

1.3.2 Identification of Light Rail as the Preferred Mode

Although alternative HCT transportation modes have been included in previous studies, Sound Transit conducted a series of studies of high-capacity modes for the region, and on I–90 in particular, as part of the update to its Long-Range Plan (Sound Transit, 2005).

At the request of Sound Transit, PSRC prepared an assessment of HCT corridors and technologies (PSRC, 2004). PSRC established a base of fully updated population, employment, and travel demand forecasts to be used in this assessment and in the process to update Sound Transit's Long-Range Plan. Using updated land use and transportation plans as adopted in the regional *VISION 2020* Growth Strategy and Transportation Plan (PSRC, 1995), PSRC found that, after the North Corridor between Downtown Seattle and Northgate, the East Corridor is the highest-priority HCT corridor for development. The study reviewed a range of HCT technologies using updated land-use and population projections for the planned HCT corridors. Bus rapid transit, light rail transit, and monorail were deemed appropriate for the East Corridor.

At approximately the same time, Sound Transit initiated preparation of a supplemental draft and final EIS as part of the process to update the agency's Long-Range Plan. The EIS included analysis of potential HCT projects, including the North, East, and South corridors in the Sound Transit district at a programmatic level (Sound Transit, 2005). An extensive public outreach process was implemented for the preparation of the updated Long-Range Plan and Final EIS.

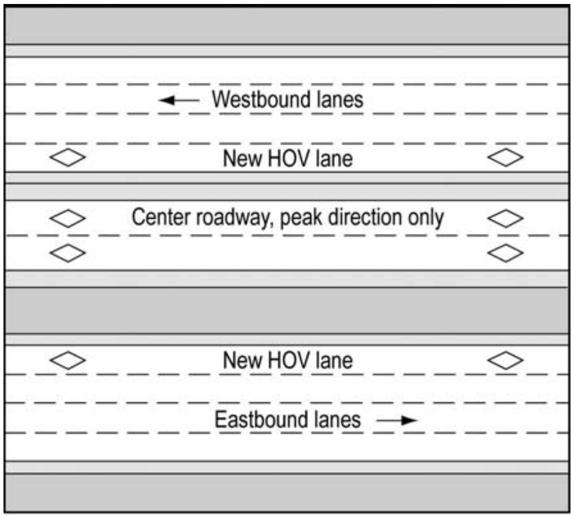


EXHIBIT 1-6
I–90 Two-Way Transit and HOV Operations Project

The Sound Transit Board adopted the updated Long-Range Plan (Sound Transit, 2005), which identified two alternative HCT modes on exclusive right-of-way for further consideration in the I–90/East Corridor between Downtown Seattle, Downtown Bellevue, Overlake, and Redmond: light rail transit and rail-convertible bus rapid transit. The Sound Transit Board also directed staff to complete additional transportation analysis of the I–90 corridor and to present the results of that analysis to the Board for consideration in the development of the next phase of HCT system investments. The following further analyses were completed:

- A full-scale "load test" that simulated light rail operations on the I–90 Homer Hadley Floating Bridge and elevated superstructure and confirmed its capacity to support light rail infrastructure and operations
- A planning-level analysis of the feasibility of the rail expansion joint necessary for construction and operation of light rail on the I–90 floating bridge
- A WSDOT report that detailed future congestion on I–90 and projected traffic impacts on I–90 that would result from growth in traffic volumes (WSDOT, 2006)

- A historical review of the more than 40 years of transportation planning studies and agreements relevant to the I–90 corridor between the Eastside and Seattle (Sound Transit, 2006)

Based on the results of the analyses described above and the technical reports and issue papers on alternative HCT modes, the Sound Transit Board, on July 13, 2006, identified light rail as the preferred HCT transportation mode for the East Corridor (Seattle to Bellevue to Redmond via I–90).

The Sound Transit Board identified light rail because it provides the benefits of operating in an exclusive right-of-way separated from general-purpose and HOV traffic. These benefits include increased reliability and predictability, shorter travel times, and higher ridership compared to nonexclusive HCT modes. Light rail in the East Corridor would use the same technology as the Central Link line and build on that investment. It would provide a higher level of system integration by interlining directly with the Central Link line and providing a direct ride between the Eastside, Downtown Seattle, and the North Corridor stations, including Capitol Hill, University of Washington, and Northgate. Light rail provides the highest level of ridership and the shortest travel times of all technologies evaluated in the corridor.

In July 2008, the Sound Transit Board adopted Sound Transit 2: A Mass Transit Guide, the Regional Transit System Plan for Central Puget Sound (ST2), also known as the Mass Transit Expansion proposal. ST2 is a package of HCT investments in the regional transit system and includes the East Link Light Rail Transit Project. ST2 was approved by the voters in November 2008.

1.4 East Link Project Planning Goals and Objectives

Based on the project purpose, Sound Transit developed evaluation criteria. Sound Transit applied the following goals and objectives in evaluating potential alternatives for the East Link Project. These goals and objectives uphold Sound Transit's legislative mandate to meet public transportation and mobility needs for HCT infrastructure while also being a responsible steward of the environment and being considerate of affected agencies and community members when planning a fiscally responsible project.

1. Transportation goal: Improve transit mobility in the East Link Corridor.
   a. Improve the quality of transit service.
   b. Increase transit accessibility.
   c. Maximize East Link ridership.
2. Environmental goal: Preserve environmental quality in the corridor.
   a. Minimize potential adverse operating impacts on the natural and built environment.
   b. Minimize potential adverse construction. impacts on the natural and built environment.
3. Land use goal: Support regional and local land use goals and objectives.
   a. Support adopted land use and transportation plans.
4. Implementation goal: Minimize risk in the corridor.
   a. Enhance stakeholder and community support.
   b. Design system to reduce construction risk.
5. Financial goal: Provide a financially feasible solution.
   a. Build a system within project budget.
   b. Build a system that can be operated and maintained within available revenue.
   c. Build a system that is cost-effective.

Chapter 2

Alternatives Considered

2.1 Introduction

This chapter describes the alternatives and how they were developed for study in this Final Environmental Impact Statement (EIS). The 2008 Draft EIS evaluated a No Build Alternative and 19 build alternatives within five segments (Segments A to E) for an approximately 18-mile extension of the Link light rail system, from Downtown Seattle to Redmond across the Interstate 90 (I-90) bridge. Since the 2008 Draft EIS was published, the Sound Transit Board has reviewed public and agency comments; added five additional alternatives and some design options to existing alternatives, most of which were analyzed in the 2010 Supplemental Draft EIS (SDEIS); and identified and refined the preferred alternatives for each segment. In response to the SDEIS, additional design options have been included and analyzed in this Final EIS.

The alternatives described here meet the East Link Project purpose and need and include alternatives reviewed as part of the environmental review process as well as those eliminated from consideration.

The evaluation processes that were used comply with guidelines of the National Environmental Policy Act (NEPA); the Washington State Environmental Policy Act (SEPA); and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU).

The proposed project consists of constructing and operating an approximately 18-mile light rail system known as East Link. This system would connect with Sound Transit's Central Link at the International District/Chinatown Station, and it then would travel east across Lake Washington via I–90 to Mercer Island, Downtown Bellevue, and Bel-Red/Overlake, terminating in Downtown Redmond. Exhibit 2-1 shows the five project segments and the 24 alternative routes with the proposed stations that are considered for detailed environmental review in this Final EIS. A No Build Alternative is also included to describe how the transportation system would operate if the proposed project were not built, thus serving to compare effects of the build alternatives.

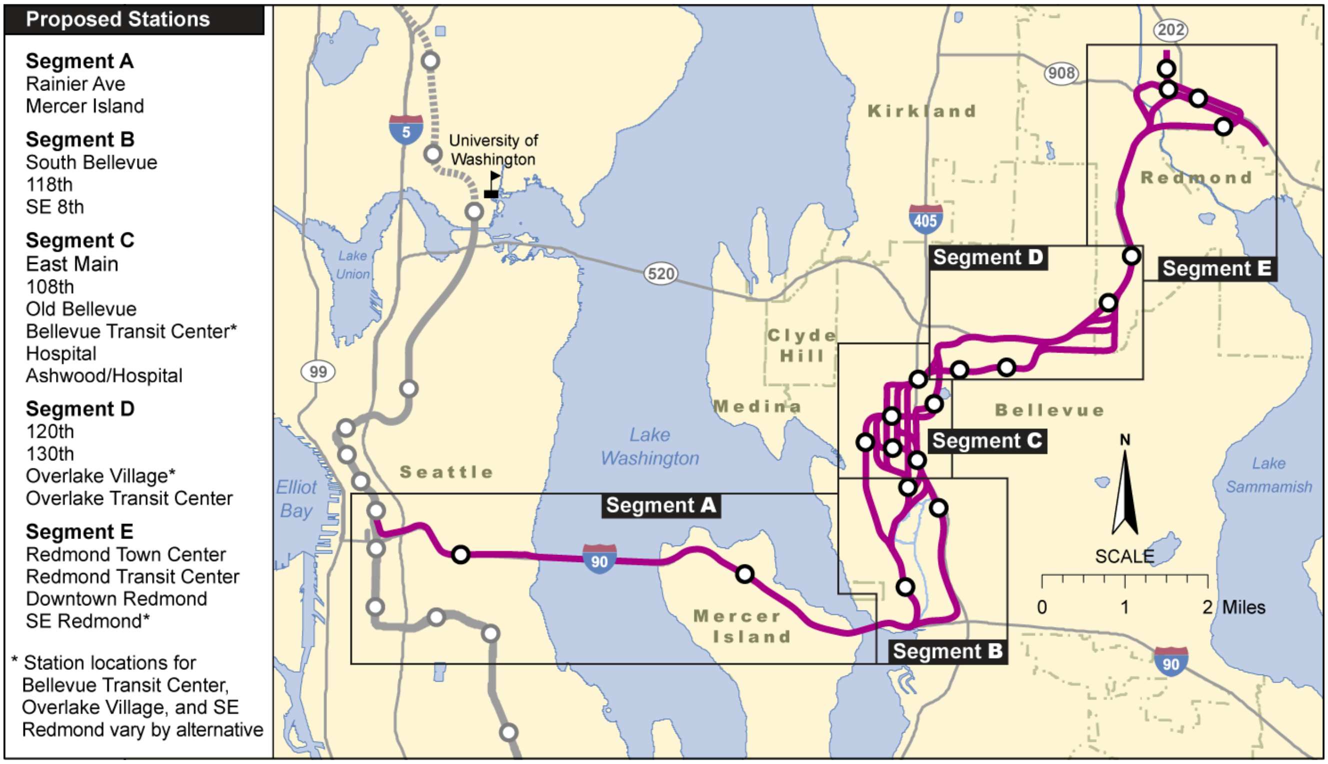

Proposed Stations
Segment A
Rainier Ave
Mercer Island
Segment B
South Bellevue
118th
SE 8th
Segment C
East Main
108th
Old Bellevue
Bellevue Transit Center*
Hospital
Ashwood/Hospital
Segment D
120th
130th
Overlake Village*
Overlake Transit Center
Segment E
Redmond Town Center
Redmond Transit Center
Downtown Redmond
SE Redmond*
* Station locations for Bellevue Transit Center, Overlake Village, and SE Redmond vary by alternative
202
908
Kirkland
Redmond
5
University of Washington
405
Segment D
Segment E
Lake Union
520
99
Clyde Hill
Medina
Bellevue
Segment C
Lake Washington
Seattle
Elliot Bay
Segment A
N
Lake Sammamish
SCALE
0
1
2 Miles
90
Mercer Island
Segment B
90

EXHIBIT 2-1
East Link Project Segments and Alternatives

The remainder of this chapter is organized into the following subsections:

- 2.2 Alternative Development and Public Scoping Process
- 2.3 Project Alternatives
- 2.4 Overview of Construction Approach
- 2.5 Environmental Commitments
- 2.6 Estimated Projects Costs and Funding
- 2.7 Next Steps and Schedule

2.2 Alternative Development and Public Scoping Process

As stated in Chapter 1, the East Link Project and the alternatives considered in this document build on the conclusions of previous planning, studies, and public involvement processes dating back to the mid-1960s. In particular, the Sound Transit Board made the following major decisions after extensive evaluation and review with agencies and the public before beginning this EIS process:

- Regional high-capacity transit (HCT) to the Eastside via I–90 is necessary.
- Light rail is the selected HCT technology for the I-90/East Corridor connecting Seattle, Mercer Island, Bellevue, Overlake, and Redmond.

Sound Transit's light rail alternatives development process for this Final EIS included the following steps:

- Identifying feasible alternatives
- Obtaining scoping comments on alternatives
- Conducting a detailed evaluation of refined alternatives
- Receiving input on the Draft EIS and SDEIS alternatives and responding with modifications and new alternatives for analysis

For evaluation purposes, the East Link study area was divided into five segments along distinct geographic boundaries (see Exhibit 2-1). The five segments are as follows:

- **Segment A, Interstate-90,** travels from the Downtown Seattle Transit Tunnel (where the East Link Project would connect to the Central Link light rail system) to South Bellevue, where I–90 touches land in Bellevue.
- **Segment B, South Bellevue**, travels from where I–90 touches land in Bellevue to SE 6th Street, including the south boundary of Surrey Downs Park.
- **Segment C, Downtown Bellevue,** travels from SE 6th Street north to NE 12th Street, encompassing Downtown Bellevue and the area east of I-405 to the former BNSF Railway corridor.
- **Segment D, Bel-Red/Overlake,** travels from Downtown Bellevue (from the former BNSF Railway corridor or NE 12th Street) to the Overlake Transit Center at the intersection of NE 40th Street and State Route 520 (SR 520).
- **Segment E, Downtown Redmond,** travels from the Overlake Transit Center to Downtown Redmond, with three potential project terminus locations.

The alternative evaluation process was also informed by an Inter-Agency Team that included the Washington State Department of Transportation (WSDOT); U.S. Army Corps of Engineers (USACE); Federal Transit Administration (FTA); Federal Highway Administration (FHWA); Cities of Seattle, Mercer Island, Bellevue, and Redmond; and King County. In addition, Sound Transit attended and presented information about East Link at neighborhood organizations, stakeholder gatherings, and upon request, city council and other board meetings. Refer to Appendix B for more detail.

2.2.1 Criteria for Evaluation

The Sound Transit evaluation criteria were designed to satisfy the following project planning goals and supporting objectives as directed in the East Link Project purpose and need (see Chapter 1):

- Transportation goal: Improve transit mobility in the East Link corridor.
  - Maximize East Link ridership.
  - Improve the quality of transit service.
  - Increase transit accessibility.
- Environmental goal: Preserve environmental quality.
  - Minimize potential adverse operating impacts on the natural and built environments.
  - Minimize potential adverse construction impacts on the natural and built environments.
- Land use goal: Support regional and local land use goals and objectives.
  - Support adopted land use and transportation plans.

- Implementation goal: Minimize risk.
  - Design system to reduce construction risk.
  - Enhance stakeholder and community support.
- Financial goal: Provide a financially feasible solution.
  - Build a system within project budget.
  - Build a system that can be operated and maintained with available revenue.
  - Build a system that is cost-effective.

2.2.2 Draft EIS Alternatives Identification

To identify the most promising alternatives to propose during the public scoping process, Sound Transit developed 36 preliminary alternatives for the East Corridor between Seattle and the East Link growth centers of Bellevue, Overlake, and Downtown Redmond. In developing the preliminary alternatives, Sound Transit reviewed past planning studies in the corridor and consulted with state, federal, and local agencies in the corridor.

Segment A included only the Interstate 90 Alternative (A1). Of the 35 alternatives in Segments B through E, Sound Transit, in consultation with the Inter-Agency Team, eliminated 9 alternatives based on the initial analysis because of ridership, cost, construction risk, and environmental impacts. Sound Transit recorded this process in *East Link Alternatives Evaluation Report, Seattle to Bellevue to Redmond* (Sound Transit, 2006c).

Sound Transit advanced 27 alternatives and 5 potential maintenance facility locations for further evaluation. Sound Transit summarized the results of the evaluation in *Sound Transit Board Briefing Book, Light Rail Alternatives* (Sound Transit, 2006b), which was presented to the Sound Transit Board and posted on the project website (www.soundtransit.org). This evaluation highlighted the results in the five comparative areas for all alternatives:

- **Ridership:** Additional systemwide boardings from adding East Link to Central Link were calculated.
- **Environmental Impacts:** Impacts were compared for relocations and impacts associated with parks, historic properties, traffic, noise, visual resources, ecology, and removal of parking and lanes, and construction disturbances on adjacent properties.
- **Markets Served:** Markets served are potential station areas with concentrations of employees and/or residents.
- **Construction Risk:** Risks were compared against an average risk of geologic and utilities constraints.
- **Cost:** The lowest cost alternatives in each segment were compared.

Four maintenance facility sites were identified in Segment D and one in Segment E using the criteria of compatible land use zoning, relatively flat areas of approximately 15 acres, and convenient access to the light rail vehicles and tracks.

2.2.3 NEPA and SEPA Scoping Process

The FTA and Sound Transit held a public scoping and comment period to officially initiate the NEPA and SEPA EIS process. The scoping period took place from September 1 to October 2, 2006. Sound Transit invited city and county agencies; affected tribes; regional, state, and federal agencies; interest groups; businesses; affected communities; individuals; and the public to comment on the proposed routes and stations, the environmental resources to be evaluated, and the project's preliminary Purpose and Need Statement. The public and agencies were asked to identify areas of concern, opportunities, and stakeholder interests to be further addressed in the subsequent EIS.

During the scoping period, Sound Transit hosted four public scoping meetings and one scoping meeting for agencies and tribes. The public meetings were held in Seattle, Mercer Island, Bellevue, and Redmond. Oral and written comments were accepted. In addition, the public submitted comments directly by mail and email. Details of the scoping and outreach activities can be found in Section B.4 of Appendix B, Public Involvement and Agency Coordination.

Following this process, on December 14, 2006, the Sound Transit Board identified the alternatives to be evaluated in the Draft EIS. In December 2008, Sound Transit, WSDOT, and FTA published the East Link Project Draft EIS, which evaluated a No Build Alternative and 19 build alternatives.

2.2.4 Supplemental Draft EIS Alternative Identification

After the 2008 Draft EIS was published, the Sound Transit Board reviewed public and agency comments, developed and evaluated new alternatives and design modifications, identified the preferred alternatives for each segment, and then revised the preferred alternatives while directing staff to include more alternatives for study. After the 2008 Draft EIS was published, the City of Bellevue proposed multiple new alternatives and design modifications. Sound Transit has considered each of them, and some of the alternatives have been evaluated in joint studies with the City of Bellevue or other technical reviews.

New alternatives were added to Segments B and C, and design modifications to alternatives previously studied in the Draft EIS were added in Segments B, C, D, and E. Sound Transit published the SDEIS in November 2010 to review the new alternatives and design modifications to existing alternatives that could result in substantial impacts not disclosed in the 2008 Draft EIS.

To help develop the SDEIS, Sound Transit received input through the public process associated with three studies for project elements in Bellevue: the *Downtown Bellevue Light Rail Alternatives Concept Design Report* (Sound Transit and City of Bellevue, 2010a); the *112th Avenue Design Options Concept Design Report* (Sound Transit and City of Bellevue, 2010b); and the *Evaluation of Hospital Station Options* (Sound Transit and City of Bellevue, 2010c). Sound Transit and the City of Bellevue cooperatively developed each study. Each study can be found in Appendix K of this Final EIS or found at http://www.soundtransit.org. Additionally, these studies are summarized in Appendix B, Public Involvement and Agency Coordination. The City of Redmond also held workshops and community outreach meetings that helped further define modifications to Segment D and E alternatives.

The *Downtown Bellevue Concept Design Report* explored new at-grade and grade-separated alternatives in Downtown Bellevue, emphasizing traffic flow and cost trade-offs. The report evaluated six alternatives: two from the 2008 Draft EIS and four new alternatives; all new downtown alternatives studied were included in the SDEIS. Next, the Hospital Station and the 112th Avenue Design Options were explored with extensive public involvement from the community and interested stakeholders. This process reviewed three new locations for the Hospital Station, with optional access points to the hospital district, in addition to the one from the 2008 Draft EIS; the location from the 2008 Draft EIS was chosen to be carried forward. Along 112th Avenue SE, six at-grade and retained-cut profiles traveling in the center and on the east and west sides of 112th Avenue SE were studied. Information from the study and input from the community led the Sound Transit Board to identify the preferred alternative as the west side-running alignment along 112th Avenue SE north of SE 6th Street, which was considered in the SDEIS.

In July 2010, the City of Bellevue requested that the Sound Transit Board consider new modifications to the BNSF Alternative (B7) and the *Preferred 110th NE Tunnel Alternative (C9T)*, including a new South Bellevue Station adjacent to I-90 and a NE 2nd Street portal for the *Preferred Alternative C9T* tunnel. After the SDEIS was published, the City initiated a conceptual design and screening-level evaluation of these options or modifications to Alternative B7, referred to as B7-Revised (B7R). A brief description of these options is provided following Segment C in Section 2.2.5.1 of this chapter, and the results of the City's study are summarized in Section 7.6 of Chapter 7. The City of Bellevue's B7-Revised Interim Analysis Report (May 2011) can be found in Appendix K of this Final EIS.

2.2.5 Alternatives Eliminated

2.2.5.1 Alternatives Eliminated During Screening

After reviewing evaluation results and public and agency comments, the Sound Transit Board in December 2006 identified the alternatives to be analyzed in the Draft EIS. The Board eliminated eight alternatives and one maintenance facility site from further consideration, leaving 19 alternatives and 4 maintenance sites for review in the Draft EIS. The process of elimination is discussed below.

Segment B

In Segment B, three alternatives were eliminated, two of which traveled east along the south edge of Mercer Slough Nature Park and then turned north along the east boundary of the park adjacent to 118th Avenue SE. North of the park, the two alternatives diverged to follow different roadways. Sound Transit eliminated these alternatives because they would result in the highest environmental impacts along the Mercer Slough Nature Park and wetland areas, without providing any additional benefit compared to a remaining parallel alternative with lesser park impacts. The third alternative eliminated in Segment B had unnecessary out-of direction travel, resulting in higher costs and inefficiencies, without higher ridership than other alternatives in Segment B. This alternative traveled east, across the south edge of the Mercer Slough Nature Park, paralleling north of I-90, and turned north inside the former BNSF Railway corridor. This alternative then transitioned to parallel I-405, where the former BNSF Railway corridor continues east across I-405. At SE 8th Street, this alternative returned west to 112th Avenue SE, where it continued north.

Segment C

In Segment C, two alternatives were eliminated because of lack of available right-of-way at NE 7th Street. One alternative traveled along 110th Avenue NE and turned to cross over I-405 at approximately NE 7th Street, where there was thought to be inadequate separation between Meydenbauer Center and the newly constructed The Shops at Bravern. The other alternative followed 112th Avenue and transitioned to 110th Avenue NE via NE 4th Street before turning east at NE 7th Street. Again, there would be inadequate separation between Meydenbauer Center and the Shops at Bravern.

Segment D

Two alternatives in Segment D were found to result in excessive impacts along Bel-Red Road. One alternative traveled the length of Bel-Red Road from 124th to 152nd Avenue NE. The other traveled along NE 16th Street, a new planned roadway, then merged onto Bel-Red Road at 140th Avenue NE and continued to 152nd Avenue NE. Placing light rail in the median and widening the Bel-Red Road right-of-way would result in higher impacts on adjacent uses and greater construction and other environmental impacts. None of the remaining alternatives would travel along Bel-Red Road.

Segment E

Only one alternative was eliminated in Segment E. Segment E alternatives diverge from the same route at the SR 520 interchange with West Lake Sammamish Parkway. The alternative that was eliminated followed the south side of Bear Creek Parkway and traveled along several minor arterials up to the Bear Creek Park-and-Ride. This alternative was eliminated because it would have excessive impacts on ecosystems, parks, and traffic compared with other alternatives in Segment E. In addition, the Bear Creek Park-and-Ride location would present circulation and accessibility constraints related to adding a large terminus parking garage.

Maintenance Facilities

Five maintenance facility sites were considered, and only one, located near 136th Street NE in Segment D, was eliminated. Its location would have high environmental impacts and would limit transit-oriented development potential near a potential station.

2.2.5.2 Alternatives Eliminated after the Draft EIS and SDEIS

Comments on the 2008 Draft EIS resulted in a number of suggestions of new or previously studied alternatives, most of which have been eliminated from consideration for engineering, cost, and/or environmental issues. Specific responses to each letter and the suggestions are provided in Appendix J, Public and Agency Comments and Responses.

The *112th Avenue Light Rail Options Concept Design Report* evaluated six alternatives for connecting *Preferred 112th SE Modified Alternative (B2M)* with either *Preferred 108th NE At-Grade Alternative (C11A)* or *Preferred 110th NE Tunnel Alternative (C9T)*, with a portal at either Main Street or NE 2nd Street. Those alternatives that were not carried forward were eliminated primarily due to noise, transportation, and/or construction impacts; cost; and/or community input.

Sound Transit reviewed four Hospital Station options with the City of Bellevue and decided to carry forward the original alternative location based on criteria of optimizing station spacing, visibility, accessibility, and cost.

The City of Bellevue also requested that Sound Transit examine two design modifications to the route east of the Bellevue Transit Center Station and east of I-405: (1) moving the route along NE 6th Street further south and (2) crossing underneath NE 8th Street east of I-405 before entering the Hospital Station. Both requests would affect the *Preferred Alternatives C11A* and *C9T* routes similarly. Shifting the route to the south side of NE 6th Street is not evaluated further because it would not reduce costs and would result in greater impacts on Bellevue City Hall and the King County Metro site redevelopment (located on the vacant lot next to the city hall building); it would require longer span structures over I-405 and 116th Avenue NE; and it would acquire an additional office building. Crossing underneath NE 8th Street is not evaluated further because it would increase costs by adding a tunnel and would push the Hospital Station location further north near NE 12th Street. This station location would have less desirable access, as demonstrated in the *Evaluation of Hospital Station Options* study and, due to the tunnel, would be approximately 30 feet below grade, resulting in higher cost and lower accessibility to riders.

Comments on the 2010 SDEIS resulted in a number of suggested modifications to existing alternatives in order to avoid impacts to specific properties; these have not been included in the Final EIS because they generally would result in greater impacts to different properties, including parks, and potentially would increase other impact categories, such as noise, visual, and traffic. The East Link Project Final EIS addresses each suggestion in the response to comments (Appendix J).

2.3 Project Alternatives

Following the alternatives evaluation process, Sound Transit identified a No Build Alternative, 24 build alternatives, and 4 maintenance facility alternatives to carry forward to analyze in this Final EIS. This section describes each of these alternatives and the key project components that help to distinguish the alternatives. The *Preferred Alternative* is called out in italics to indicate the current preference identified by the Sound Transit Board. Identifying a *Preferred Alternative* in this Final EIS is a statement of the Board's current intent based on the input and analysis to date; it is not a final decision. Exhibit 2-2 illustrates the preferred alternatives in all segments:

- Segment A: *Preferred Interstate 90 Alternative (A1)*
- Segment B: *Preferred 112th SE Modified Alternative (B2M)*
- Segment C: *Preferred 108th NE At-Grade Alternative (C11A)* and *Preferred 110th NE Tunnel Alternative (C9T)*
- Segment D: *Preferred NE 16th At-Grade Alternative (D2A)*
- Segment E: *Preferred Marymoor Alternative (E2)*

Sound Transit 2 Plan (ST2) provides funding for an at-grade or elevated alternative in Downtown Bellevue (Segment C); the Sound Transit Board would require additional funding sources in order to select a tunnel alternative in this segment. The Sound Transit Board identified two preferred alternatives in Segment C in April 2010: *Preferred 108th NE At-Grade Alternative (C11A)* and *Preferred 110th NE Tunnel Alternative (C9T)*. *Preferred Tunnel Alternative C9T* is preferred based on a term sheet (a preliminary agreement) executed between Sound Transit and the City of Bellevue related to finding additional funding sources and scope reductions that would reduce the affordability gap for this tunnel alternative. *Preferred Alternative C11A* is preferred if additional funding and scope reductions cannot be found to afford the tunnel.

Environmental review and preliminary engineering are funded for the portion of the East Link Project from the Overlake Transit Center Station to Downtown Redmond. While the final length and configuration of the constructed project would depend on project funding, final project design, track profiles, and project costs, this Final EIS covers the entire Seattle to Redmond East Link Project corridor. A separately bound document, Appendix G1, provides the detailed design drawings for each alternative.

The East Link Project might be constructed in phases, depending on available funding and other factors. Sound Transit anticipates that any station including and east of the Hospital Station could be considered an interim terminus station. The minimum planned project would be to open East Link from Seattle to the Hospital Station in Bellevue (Segments A through C).

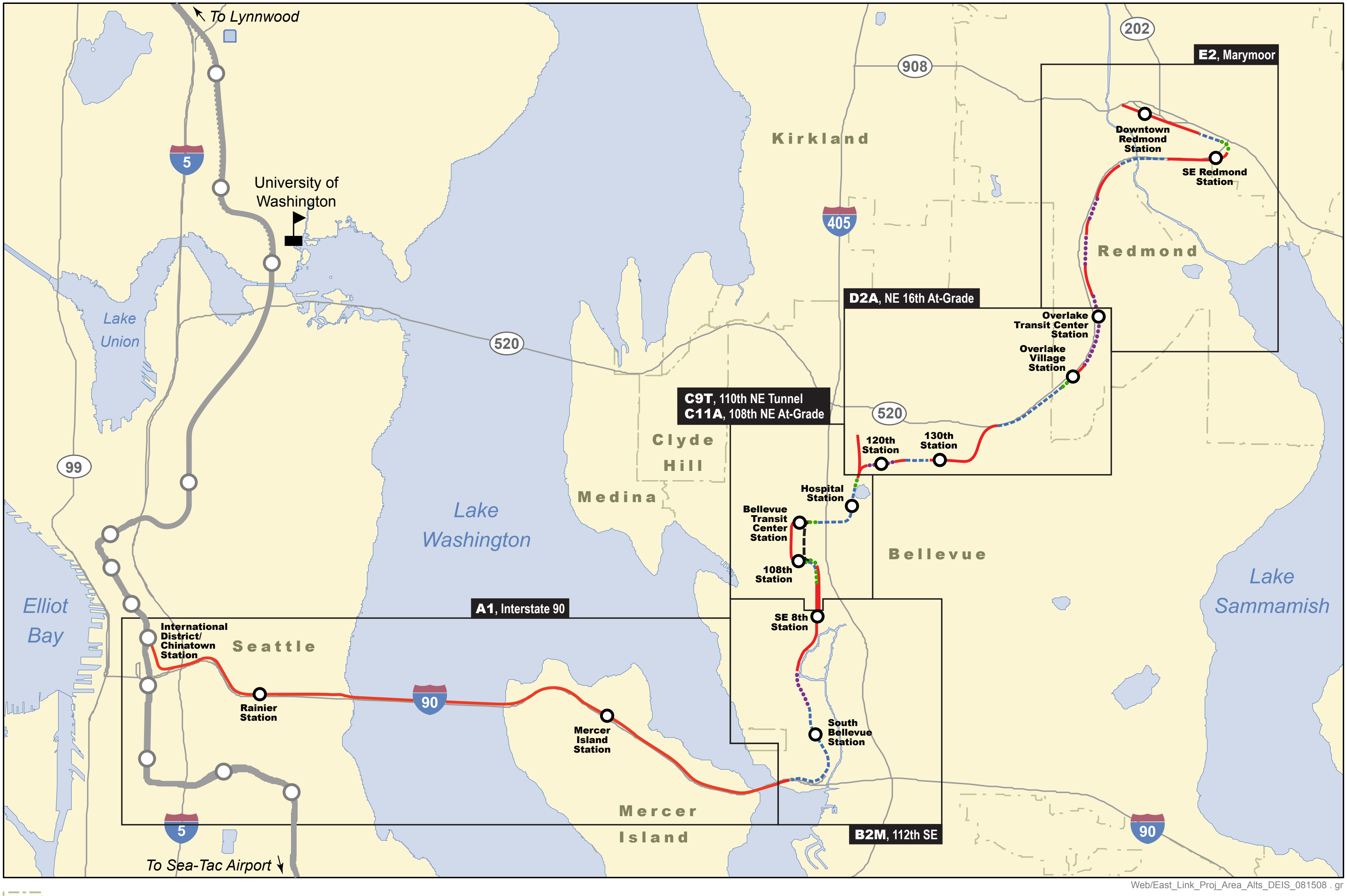
2.3.1 No Build Alternative

The No Build Alternative represents the transportation system and environment as they would exist without the proposed project. The No Build Alternative provides a baseline condition for comparing impacts of the build alternatives and includes two future transportation forecast years, 2020 and 2030.

The No Build Alternative includes a variety of projects, funding packages, and proposals in the central Puget Sound region. The projects primarily consist of funded or committed roadway and transit actions by state, regional, and local agencies combined with other projects that are considered likely to be implemented based on approval and committed funding. The No Build Alternative includes completing the express bus, high-occupancy vehicle (HOV), and Transportation System Management projects described in Sound Move (Sound Transit, 1996) and also includes the Rapid Ride and other transit enhancements in the King County *TransitNow Program* (King County Metro, 2006). Table 2-1 summarizes roadway and transit projects that are included in the No Build Alternative. Appendix H1, *Transportation Technical Report* (Appendix A), details major projects assumed as part of this No Build Alternative.

For the transportation analysis, there are two No Build Alternatives related to implementing the I–90 Two-Way Transit and HOV Operations Project (also referred to as the R-8A Project). The two variations in the No Build Alternative lie in implementing the I–90 Two-Way Transit and HOV Operations Project from Bellevue to Mercer Island to Seattle. Exhibit 2-3 illustrates how that project has been separated into three stages for funding purposes and describes what is included in each phase.

The East Link Project would dedicate the I-90 center roadway for light rail use as stipulated in the 1976 Memorandum Agreement (and as amended in 2004; WSDOT, 2004) among Seattle, Mercer Island, Bellevue, King County Metro, and WSDOT. Today, the reversible center roadway is dedicated as HOV lanes traveling in the peak direction (Exhibit 2-4), and the outer roadways are general-purpose lanes. HOV lanes are being built on the outer roadways in three stages (Exhibit 2-5) so that HOVs can travel in both directions any time of the day. Funding for Stage 3 of the I-90 Two-Way Transit and HOV Operations Project is included in ST2. With ST2 approved, Sound Transit intends to work with WSDOT to complete Stage 3 and then close the center roadway for light rail conversion.


To Lynnwood
University of Washington
Kirkland
Redmond
Lake Union
520
908
202
405
99
5
90
E2, Marymoor
Downtown Redmond Station
SE Redmond Station
D2A, NE 16th At-Grade
Overlake Transit Center Station
Overlake Village Station
120th Station
130th Station
C9T, 110th NE Tunnel
C11A, 108th NE At-Grade
Clyde Hill
Medina
Hospital Station
Bellevue Transit Center Station
108th Station
Bellevue
Lake Washington
Lake Sammamish
Elliot Bay
A1, Interstate 90
International District/ Chinatown Station
Seattle
Rainier Station
Mercer Island Station
SE 8th Station
South Bellevue Station
B2M, 112th SE
Mercer Island
To Sea-Tac Airport
City Limits
East Link Light Rail Alternatives
East Link Segment
Station
Route Profile
At-Grade
Elevated
Retained-Cut
Retained-Fill
Tunnel
Link Light Rail
Link Alignment and Stations
N
0
0.5
1 Mile

Web/East_Link_Proj_Area_Alts_DEIS_081508 . gr

Exhibit 2-2
East Link Preferred Alternative
East Link Project

TABLE 2-1
Components of No Build Alternative

Project/Program	Horizon Year		Comments
	2020	2030	
Roadway			
Nickel Funding Package	X	X	Approved 2003
Transportation Partnership Funding Package	X	X	Approved 2005
I-90 Two-Way Transit and HOV Operations Project	X	X	Stages 1 and 2, and with and without Stage 3 (see Exhibit 2-2)
Local Agencies			
Capital improvement plans (CIPs)/ transportation facility plans	X	X	Typically 6-year (or near-term) funding commitments
Comprehensive plans and transportation plans	X	X	Typically 15- to 20-year list of funded and unfunded projects; funded projects included as part of CIP/transportation facility plan lists
Puget Sound Regional Council			
Destination 2030 (including SR 520 between I-405 and Montlake Boulevard)		X	Selected projects included
Transit			
Sound Transit			
Sound Move Program	X	X	Approved 1996
ST2 Program	X[a]	X	Approved November 2008; the package of projects is projected to be built by 2023
King County Metro			
Service Implementation Plans	X	X	
Transit Service Integration Plan	X	X	Prepared for East Link Project
Transit Now Plan	X	X	Approved 2006

[a] Not all projects identified in this program are expected to be built by 2020. The *Transportation Technical Report* in Appendix H1 contains the project list by horizon year.

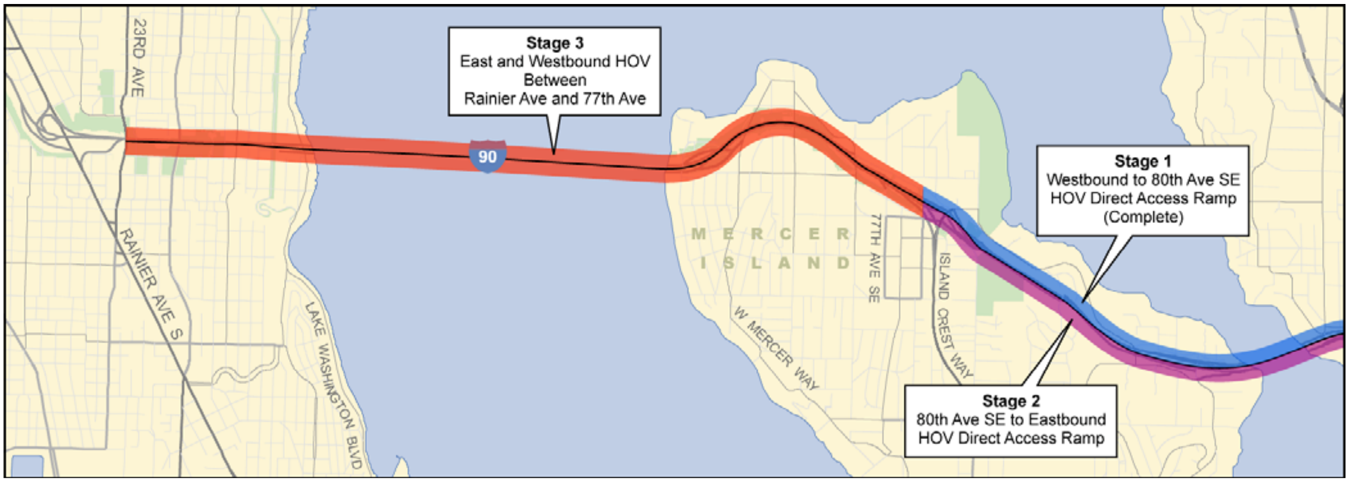

Stage 3
East and Westbound HOV Between Rainier Ave and 77th Ave
Stage 1
Westbound to 80th Ave SE HOV Direct Access Ramp (Complete)
Stage 2
80th Ave SE to Eastbound HOV Direct Access Ramp
23RD AVE
RAINIER AVE S
LAKE WASHINGTON BLVD
90
MERCER ISLAND
77TH AVE SE
W MERCER WAY
ISLAND CREST WAY

EXHIBIT 2-3
Stages for Implementation of I-90 Two-way Transit and HOV Operations Project Alternative

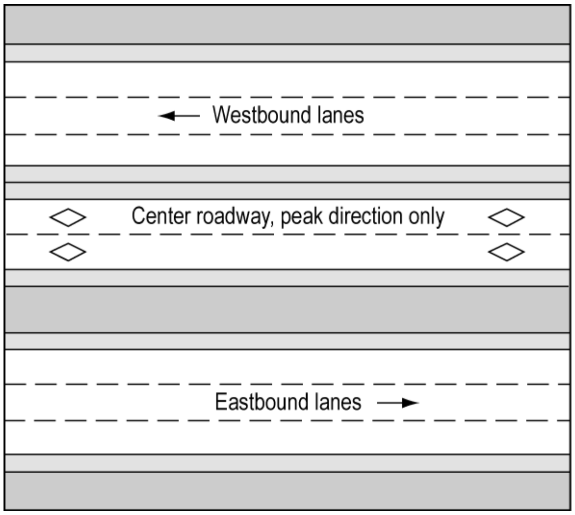


EXHIBIT 2-4
I-90 Existing Conditions and No Build Alternative with I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2 only

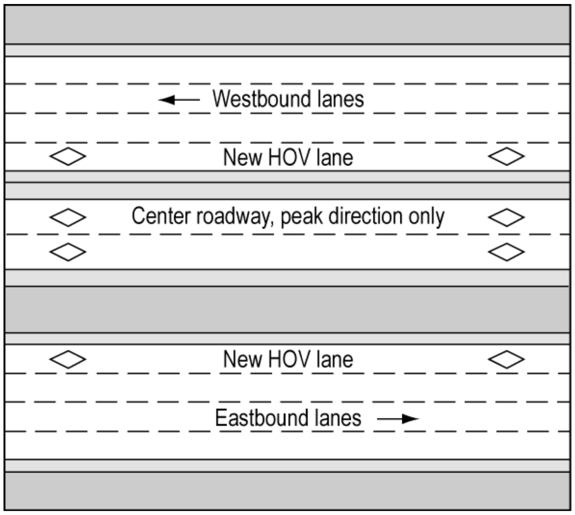


EXHIBIT 2-5
I-90 No Build Alternative with I-90 Two-Way Transit and HOV Operations Project Stages 1, 2, and 3

In other words, the center roadway might close in order to construct the light rail project immediately after the HOV lanes on the outer roadway are completed, and the new HOV lanes in the outer roadway would never operate in conjunction with the center roadway. As a result, the No Build Alternative was analyzed with and without Stage 3 completion.

Without Stage 3, HOV and transit travel between Mercer Island and Seattle would be restricted to the center reversible lanes in the peak direction only (i.e., westbound in the morning and eastbound in the evening). If Stage 3 were implemented, however, and began operating in conjunction with the center roadway before East Link construction begins, then both outer lanes of I-90 and the center reversible lanes would be available to transit and HOV. This variation in the lane configuration would only influence vehicle movements on I-90 and connecting transportation facilities.

2.3.2 Build Alternatives

Light rail is a conventional term for urban electric rail systems that have the flexibility to operate along an exclusive right-of-way at ground level, on elevated structures, in subways, or in streets. Sound Transit plans for light rail consist of electrically powered, low-floor, low-platform trains of up to four cars, with a total length of approximately 380 feet (90 feet per car, 96.5 feet per car with couplers), running on steel rails. The vehicles can carry as many as 200 passengers per car in the typical light rail car shown in Exhibit 2-6. East Link light rail would operate at speeds up to 55 miles per hour (mph) in a dedicated right-of-way and would generally not be constrained by congestion or accidents. The dedicated right-of-way might be in public roadway or in existing railroad or acquired right-of-way.

The build alternatives are made up of a range of light rail routes and stations, with and without adjoining park-and-ride facilities. Maintenance facility alternatives are evaluated separately from the alternative routes and stations. Each build alternative is designed as a double-track rail system to accommodate planned project operational needs for uninterrupted light rail movement. The length of the entire East Link Project would vary between 17 and 19 miles, with up to 19 stations, depending on how the alternatives are combined. This section describes the

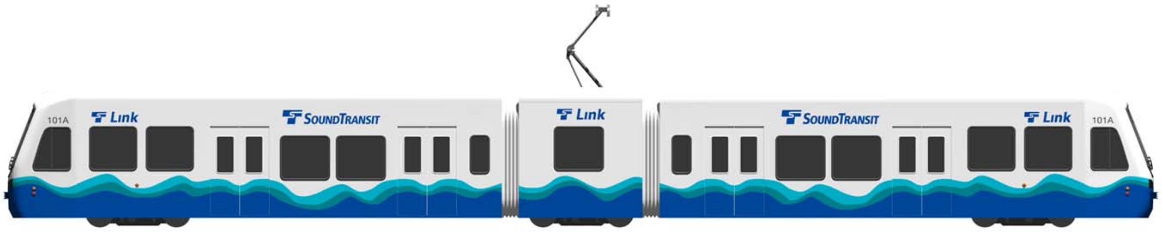


EXHIBIT 2-6
Typical Light Rail Car

alternative routes and stations by segment. The alternatives have been developed to a conceptual engineering level of design (i.e., approximately 5 percent). Section 2.3.3 describes the maintenance facilities, and detailed drawings are included in Appendix G1, Conceptual Design Drawings.

2.3.2.1 Components of Alternatives

This section describes key components, such as the rail and station profile, to assist the reader in the understanding the alternatives. Other aspects of the project, including capital equipment and project operations, are described in Section 2.4.

The proposed route and station alternatives vary in profile as traveling at-grade (sometimes a retained cut or a retained fill), in an elevated configuration, or in a tunnel. Maximum allowable grades for light rail are typically 5 to 6 percent. Because of the conditions along the corridor, the East Link Project is largely elevated or at-grade; however, tunnel alternatives were also considered in Downtown Bellevue (Segment C). At-grade operation is typically less costly, although each profile type has usefulness, as discussed in the following subsections.

At-Grade Profile

Light rail operating at-grade is best suited in areas where the grade is 5 to 6 percent or less and where there is adequate room within reserved street rights-of-way or off-street corridors. At-grade operation works well with a moderate number of riders and train frequencies as often as every 4 minutes. Where located within a street right-of-way, East Link at-grade routes travel either in the median or along the side of existing roadways (Exhibit 2-7) and operate through intersections with advance signal detection and prioritization.

Retained Cuts and Retained Fills

A variation of the at-grade profile is a retained cut or a retained fill. With a retained cut the trackway is cut into the ground with a retaining wall on one or both sides (Exhibit 2-8). With a retained fill the trackway is built up above the ground surface with a retaining wall on one or both sides. Exhibits 2-9 and 2-10 show possible retained fill profiles. Portions of the routes might involve retained cut or retained fill to meet train operation grade requirements or to separate the grade under heavily traveled roadways.

Elevated Profile

Light rail on elevated structures works well where the system must be grade-separated to cross over geographic or physical barriers and accommodate higher train frequencies and where at-grade trackway might not be appropriate for a surface corridor. Transitions between at-grade and elevated profiles are typically compacted fill support. An elevated profile must have a minimum clearance of about 16.5 feet near roadways, but topography and other consideration might result in a profile as high as 50 feet or more. Pier supports are typically approximately 10 feet by 10 feet square at the ground, although the support structure below the ground might be wider. Just as for at-grade routes, the elevated guideway can travel either in the median of existing roadways (Exhibit 2-11), along the side of the roadway (Exhibit 2-12), or in off-street corridors.

Tunnels

Tunnels might be used where slopes are steep (more than 5 to 6 percent), physical barriers must be crossed, right-of-way is inadequate for at-grade or elevated profiles, the density of homes and businesses is high, and/or ridership and resulting train frequencies would be so high as to make street-level operations impractical. They are also appropriate where major ridership areas cannot be served in another way. There are substantially greater costs and risks with building tunnels. The two most common construction methods are cut-and-cover or bored tunnels. Cut-and-cover construction is built from the surface while bored (or mined) tunnels are constructed with no surface disturbance beyond entering and exiting the tunnel portals. The bored method is typically the most expensive. A cut-and-cover box and bored tunnel are shown in Exhibits 2-13 and 2-14.

Stations

Stations are designed according to the alternative profile. Depending on the location, stations can be designed with center or side platforms. Center platforms allow passengers to access trains going in opposite directions from the same platform. Side platforms, much like a sidewalk on either side of a roadway, require the riders to cross over or under the tracks to access trains in the opposite direction. A station is typically 400 feet long to accommodate a four-car train but varies in width depending on the location of the platform and the profile.

East Link stations would include pedestrian, bicycle, and bus access (with one exception) and may include paratransit access. All stations are Americans with Disabilities Act (ADA) accessible. In some cases, automotive access including park-and-ride lots and automobile drop off would be provided. Exhibit 2-15 illustrates four typical station designs: at-grade, elevated side platform, elevated center platform, and a tunnel station. The size of each station is determined by the site-specific access and parking requirements.

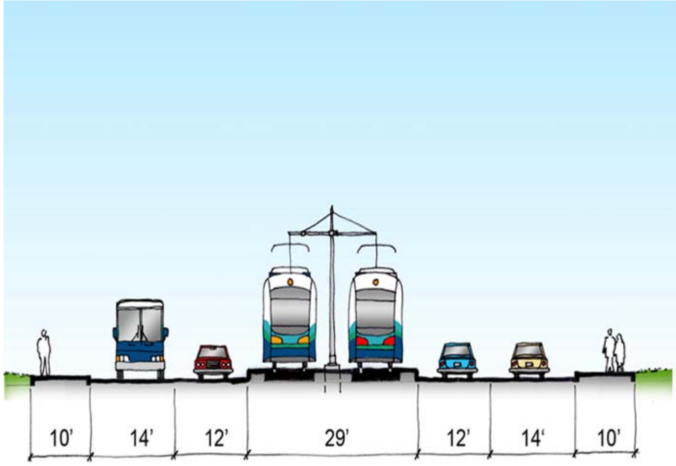

10’
14’
12’
29’
12’
14’
10’

EXHIBIT 2-7
At-Grade Center-Running

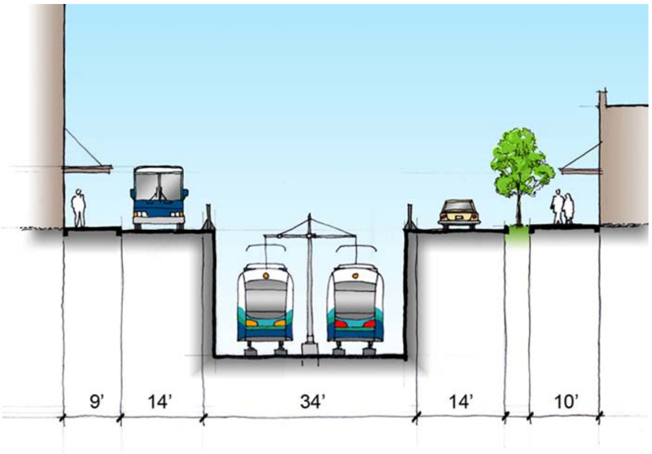


EXHIBIT 2-8
Retained Cut

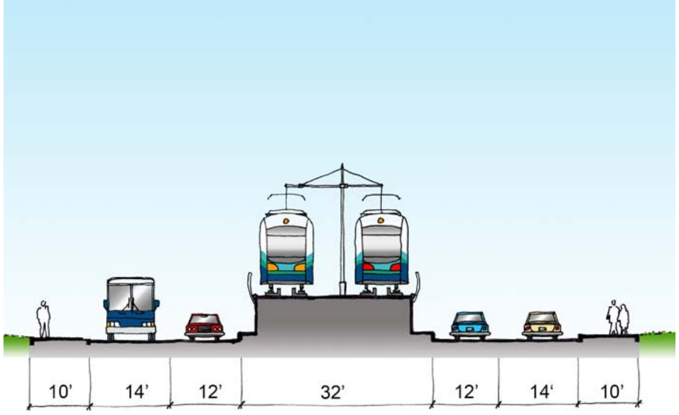

10’
14’
12’
32’
12’
14’
10’

EXHIBIT 2-9
Retained Fill, Center-Running

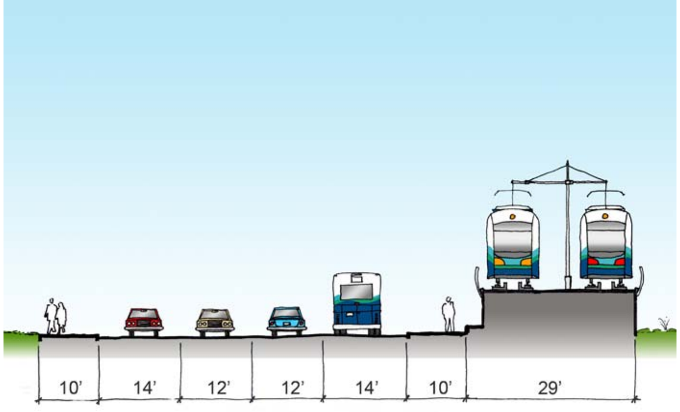

10’
14’
12’
12’
14’
10’
29’

EXHIBIT 2-10
Retained Fill, Side-Running

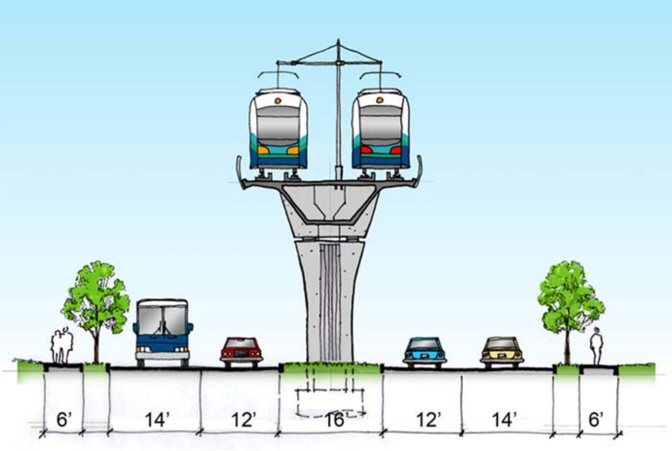

6’
14’
12’
16’
12’
14’
6’

EXHIBIT 2-11
Elevated Center-Running

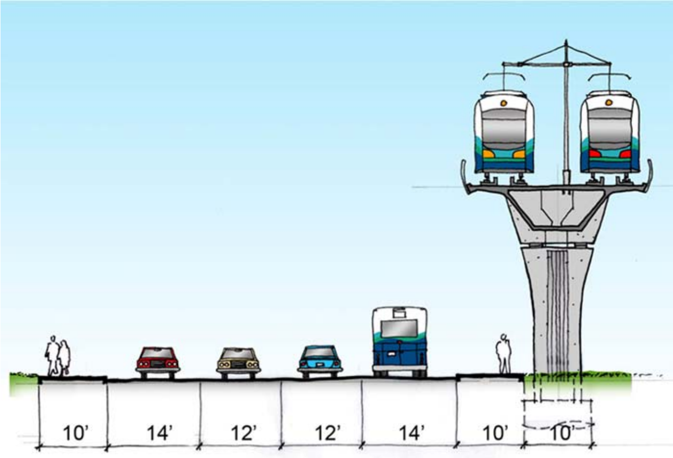

10’
14’
12’
12’
14’
10’
10’

EXHIBIT 2-12
Elevated Side-Running

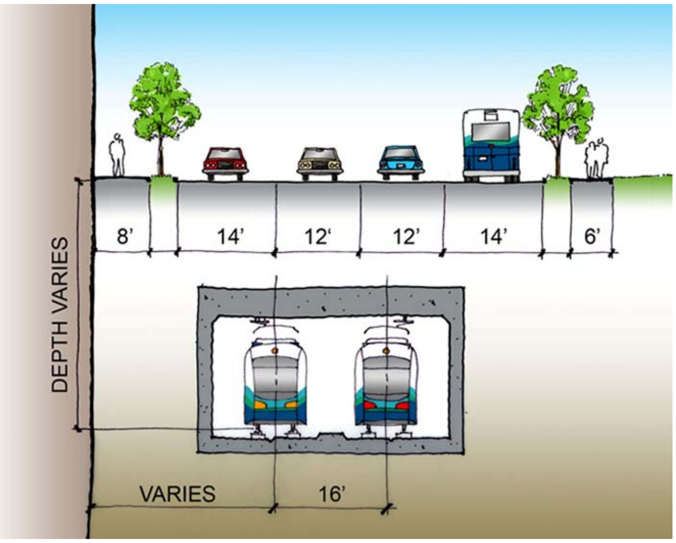

DEPTH VARIES
8'
14'
12'
12'
14'
6'
VARIES
16'

EXHIBIT 2-13
Cut-and-Cover Tunnel

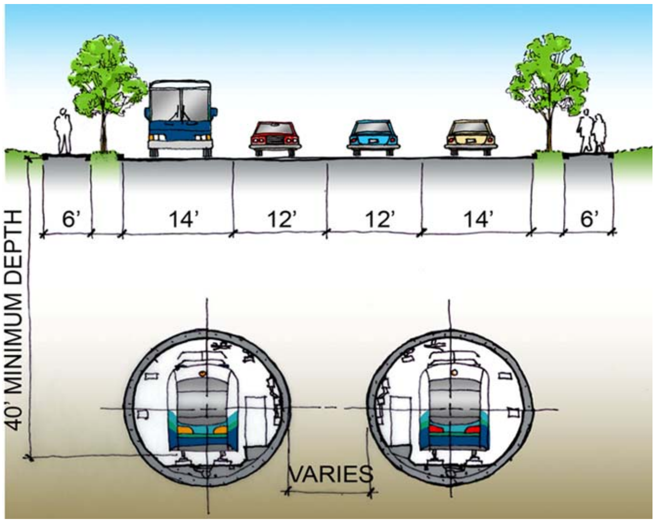
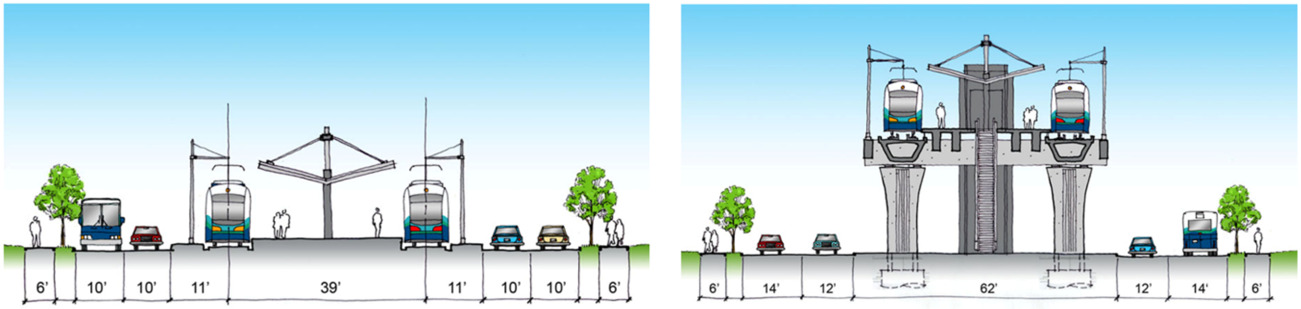
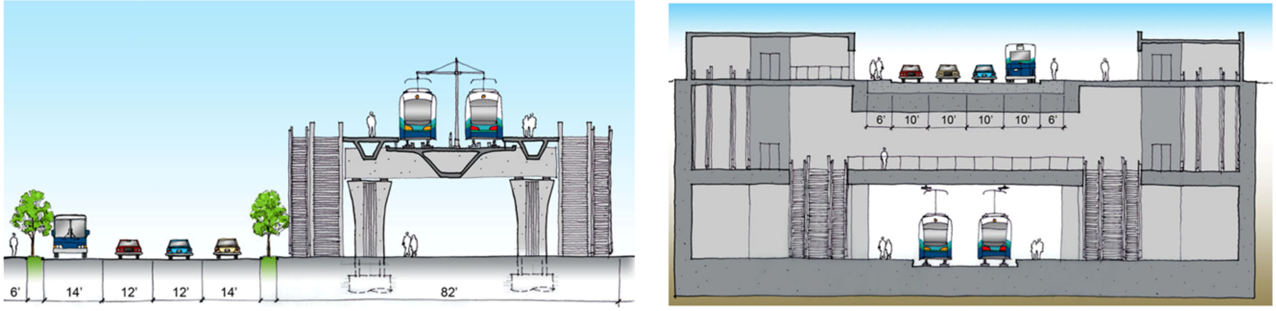

40' MINIMUM DEPTH
6'
14'
12'
12'
14'
6'
VARIES

EXHIBIT 2-14
Bored Tunnel


6'
10'
10'
11'
39'
11'
10'
10'
6'
6'
14'
12'
62'
12'
14'
6'

At-Grade Center Platform Station

Elevated Center Platform Station


6'
14'
12'
12'
14'
82'
6'
10'
10'
10'
10'
6'

Elevated Side Platform Station

Side Platform Tunnel Station

EXHIBIT 2-15
Typical Station Designs

East Link stations would be designed to meet all local and federal accessibility requirements. At-grade stations would have passenger access walkways and ramps. Any elevated or tunnel station would be furnished with stairs, elevators, and, in some cases, escalators. Each station would have ticket vending machines, closed-circuit television, public address, emergency phones, and variable message signage. Additionally, tunnel stations would have systems that monitor and control ventilation and fire/life/safety functions.

Interim Termini

The East Link Project might be constructed in phases, depending on available funding and other factors. Sound Transit anticipates that any station including and east of the Hospital Station could be considered an interim terminus station. The minimum planned project would be to open East Link from Seattle to the Hospital Station in Bellevue (Segments A through C).

If the East Link Project were built in phases, a station in Segment C or D would be selected as the interim terminus station. The Hospital or Ashwood/Hospital Station in Segment C or any Segment D station could serve as an interim terminus. The Overlake Transit Center Station in Segment D is identified as an interim terminus in ST2, because funding for constructing Segment E is not included in the plan. With any interim terminus station, a storage or tail track could be built beyond the station. The preferred location is a storage track in the former BNSF Railway north of the Hospital Station. If such a feature were built at an interim terminus station, then the project might also include parking for operators and office and storage space for light maintenance activities, such as cleaning interiors of vehicles.

Railbanked Corridors

Several of the build alternatives would use portions of the former BNSF Railway corridor. In 2008, the BNSF Railway Company filed a Notice of Interim Trail Use or Abandonment (NITU) with the Surface Transportation Board. This filing "railbanked" the right-of-way for interim trail use and keeps the right-of-way available for the reactivation of freight rail service. In addition to being the "trail sponsor" under the NITU, King County owns a trail easement over the former BNSF Railway right-of-way. In 2009, the Port of Seattle acquired the former BNSF Railway right-of-way from Snohomish to north Renton, including a spur from Woodinville to Redmond. The Port entered into a Memorandum of Understanding (MOU) with King County, the City of Redmond, Sound Transit, Puget Sound Energy, and the Cascade Water Alliance with regard to the Port's sale to the other parties of the former BNSF Railway right-of-way within King County. Sound Transit is in the process of acquiring 1.1 miles of this corridor in Segments C and D as well as an easement in other portions of the corridor potentially used by East Link.

Sound Transit and the Puget Sound Regional Council (PSRC) have studied the feasibility of commuter rail service in the former BNSF Railway corridor. This study, published by Sound Transit in 2008, found that operating commuter/passenger rail in the former BNSF Railway corridor is feasible although a variety of capital improvements would be needed to accommodate higher speeds and to improve the safety of the track, structures, and roadway crossings in the corridor. The study also determined that a pedestrian/bicycle trail could also fit within the existing right-of-way throughout much of the corridor; however, in some locations, property acquisition would be required to accommodate commuter/passenger rail and a trail. Sound Transit is working with the MOU parties to plan for using the former BNSF Railway corridor while protecting the interim trail use and possible reactivation for freight rail. The corridor can accommodate both the trail (or a reactivated freight rail service) and the light rail route in most places, with some areas requiring a small right-of-way acquisition.

Numbering of East Link Alternatives

East Link Project alternatives are designated by either two or three characters: the segment letter (A, B, C, D, E), the number of the alternative, and, sometimes, a descriptive indicator consisting of A for at-grade, E for elevated, or T for tunnel. The letter M signifies "modified" from a previous Draft EIS alternative. For example, B2M indicates the second alternative in Segment B, and that it has been modified since the 2008 Draft EIS. C9A indicates the ninth alternative in Segment in C, and that it is an at-grade profile. A break in the numeric sequencing for the alternatives indicates that a previous alternative was eliminated in the alternative development process (see Section 2.2.5).

2.3.2.2 Description of Alternatives

The route and station alternatives are described below, and their characteristics are summarized in Tables 2-2 and 2-3. Exhibits 2-16 to 2-20 show the alternatives by segment. The four maintenance facility alternative sites located in Segments D and E are described in Section 2.3.3 and in Exhibits 2-19 and 2-20. The alternatives are designated by letters and numbers that describe their location and nature, as described in the text box on this page. The types of tunnels for each alternative are discussed in Section 2.4.6, and stations are listed in the following alternative descriptions and summarized in Table 2-3.

TABLE 2-2
Characteristics of Light Rail Alternatives

Alternative		Segment Length (miles)[a]	Segment Travel Time (minutes: seconds)[a]	Number of Stations	Stations
Segment A, Interstate 90					
Preferred Interstate 90 Alternative (A1)		6.9	11	2	Rainier, Mercer Island
Segment B, South Bellevue					
Preferred 112th SE Modified Alternative (B2M)	To *C11A*	2.2	5	1	South Bellevue
	To *C9T*	2.2	5	2	South Bellevue, SE 8th[b]
Bellevue Way Alternative (B1)		2.3	5	1	South Bellevue
112th SE At-Grade Alternative (B2A)		2.1	5	2	South Bellevue, SE 8th
112th SE Elevated Alternative (B2E)		2.1	5	2	South Bellevue, SE 8th
112th SE Bypass Alternative (B3)		2.3 to 2.4	5	1	South Bellevue
BNSF Alternative (B7)		2.6	5	1	118th
Segment C, Downtown Bellevue					
Preferred 108th NE At-Grade Alternative (C11A)		2.0 to 2.1	7 to 10	3	108th, Bellevue Transit Center, Hospital
Preferred 110th NE Tunnel Alternative (C9T) [b]		1.7 to 1.8	6	2 to 3	East Main, Bellevue Transit Center, Hospital
Bellevue Way Tunnel Alternative (C1T)		1.9	5	3	Old Bellevue, Bellevue Transit Center, Hospital
106th NE Tunnel Alternative (C2T)		2.1 to 2.2	5	2 to 3	East Main, Bellevue Transit Center, Hospital
108th NE Tunnel Alternative (C3T)		1.8 to 2.0	4	2 to 3	East Main, Bellevue Transit Center, Ashwood/Hospital
Couplet Alternative (C4A)		1.6 to 1.7	7 to 11	2 to 3	East Main, Bellevue Transit Center, Ashwood/Hospital
112th NE Elevated Alternative (C7E)		1.4 to 1.5	4	2 to 3	East Main, Bellevue Transit Center, Ashwood/Hospital
110th NE Elevated Alternative (C8E)		1.6 to 1.7	4	2 to 3	East Main, Bellevue Transit Center, Ashwood/Hospital
110th NE At-Grade Alternative (C9A)		1.7	7 to 9	2 to 3	East Main, Bellevue Transit Center, Hospital
114th NE Elevated Alternative (C14E)		1.3	4	2	Bellevue Transit Center, Hospital
Segment D, Bel-Red/Overlake					
Preferred NE 16th At-Grade Alternative (D2A)		3.3 to 3.5	8 to 10	3 to 4	120th, 130th, Overlake Village, Overlake Transit Center
NE 16th Elevated Alternative (D2E)		3.4 to 3.5	9	3 to 4	120th, 130th, Overlake Village, Overlake Transit Center
NE 20th Alternative (D3)		3.5 to 3.6	10	3 to 4	120th, 130th, Overlake Village, Overlake Transit Center
SR 520 Alternative (D5)		3.5	7	2	Overlake Village, Overlake Transit Center
Segment E, Downtown Redmond					
Preferred Marymoor Alternative (E2)		3.7 to 3.8	6	2 to 3	SE Redmond, Downtown Redmond (Redmond Town Center, Redmond Transit Center)[c]
Redmond Way Alternative (E1)		3.7	6	2	Redmond Town Center, SE Redmond
Leary Way Alternative (E4)		3.3	6	2	Redmond Town Center, SE Redmond

[a] Ranges are due to variation in length of connections from previous segment and design options considered.

[b] *Preferred Alternative C9T* includes a design option (C9T - East Main Station Design Option) that, when connecting to *Preferred Alternative B2M* only, would have an East Main Station and eliminate *Preferred Alternative B2M*'s SE 8th Station.

[c] *Preferred Alternative E2* includes a design option that would eliminate the Downtown Redmond Station and instead would have both the Redmond Town Center and the Redmond Transit Center Stations.

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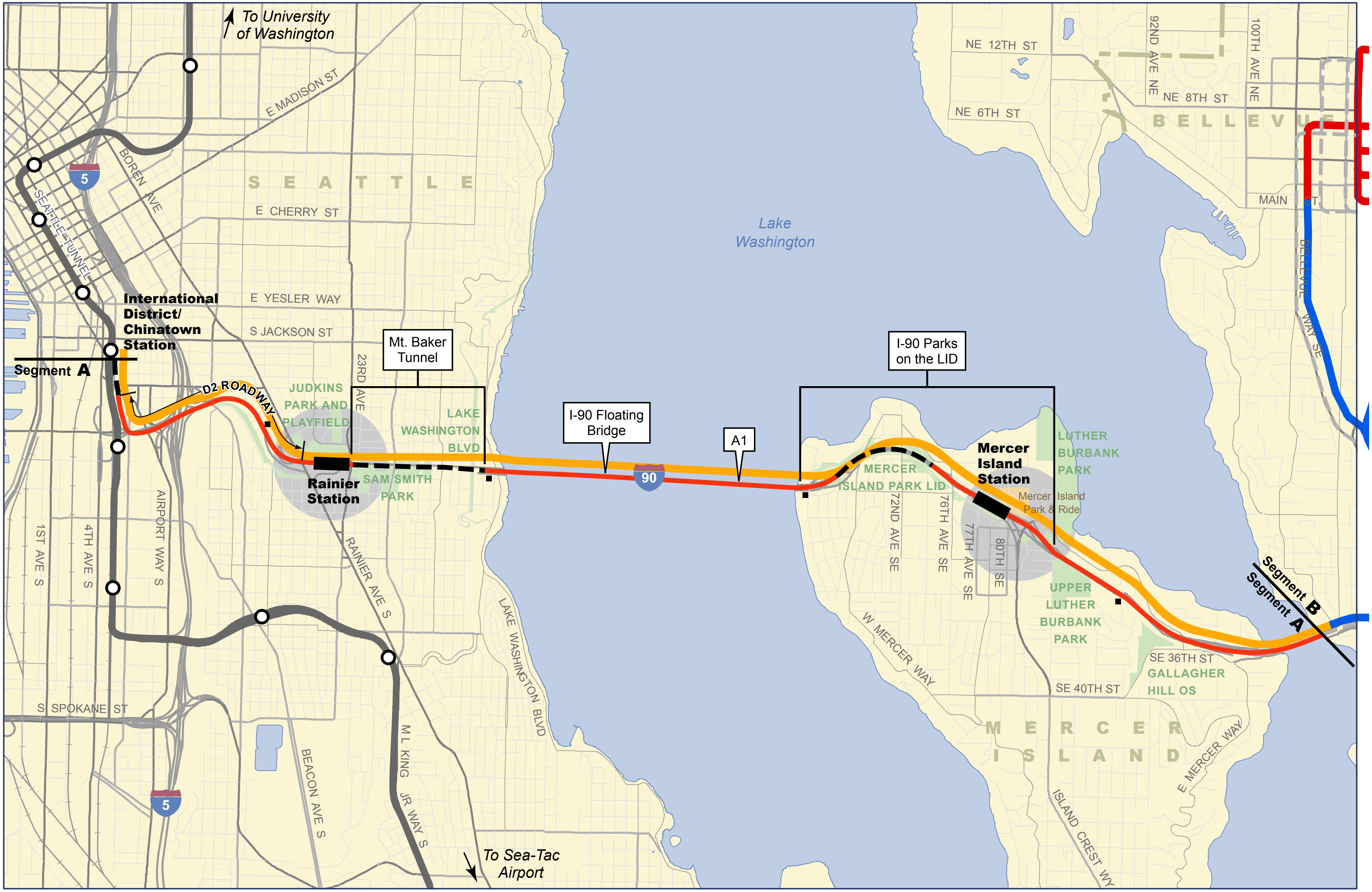
To University of Washington
To Sea-Tac Airport
S E A T T L E
B E L L E V U E
M E R C E R I S L A N D
Lake Washington
E MADISON ST
BOREN AVE
E CHERRY ST
E YESLER WAY
S JACKSON ST
SEATTLE TUNNEL
5
90
International District/ Chinatown Station
Segment A
D2 ROADWAY
JUDKINS PARK AND PLAYFIELD
23RD AVE
Mt. Baker Tunnel
LAKE WASHINGTON BLVD
Rainier Station
SAM SMITH PARK
RAINIER AVE S
I-90 Floating Bridge
A1
I-90 Parks on the LID
MERCER ISLAND PARK LID
Mercer Island Station
Mercer Island Park & Ride
LUTHER BURBANK PARK
UPPER LUTHER BURBANK PARK
72ND AVE SE
76TH AVE SE
77TH AVE SE
80TH SE
W MERCER WAY
SE 36TH ST
SE 40TH ST
GALLAGHER HILL OS
E MERCER WAY
ISLAND CREST WY
Segment B
Segment A
NE 12TH ST
NE 6TH ST
NE 8TH ST
92ND AVE NE
100TH AVE NE
MAIN ST
BELLEVUE WAY SE
1ST AVE S
4TH AVE S
AIRPORT WAY S
S SPOKANE ST
BEACON AVE S
ML KING JR WAY S
LAKE WASHINGTON BLVD

Preferred Alternative

🟥 At-Grade Route

▬ ▬ Tunnel Route

Other Alternatives

▬ At-Grade Route

▬ ▬ Tunnel Route

▪ Traction Power Substation

▬ Station

A | B Segment Limit

○ Central Link Alignment and Station

Segment Limit

Adjacent Segment

Central Link Alignment and Station

N

SCALE

0 0.5 Mile

Exhibit 2-16

Segment A, Interstate 90

East Link Project

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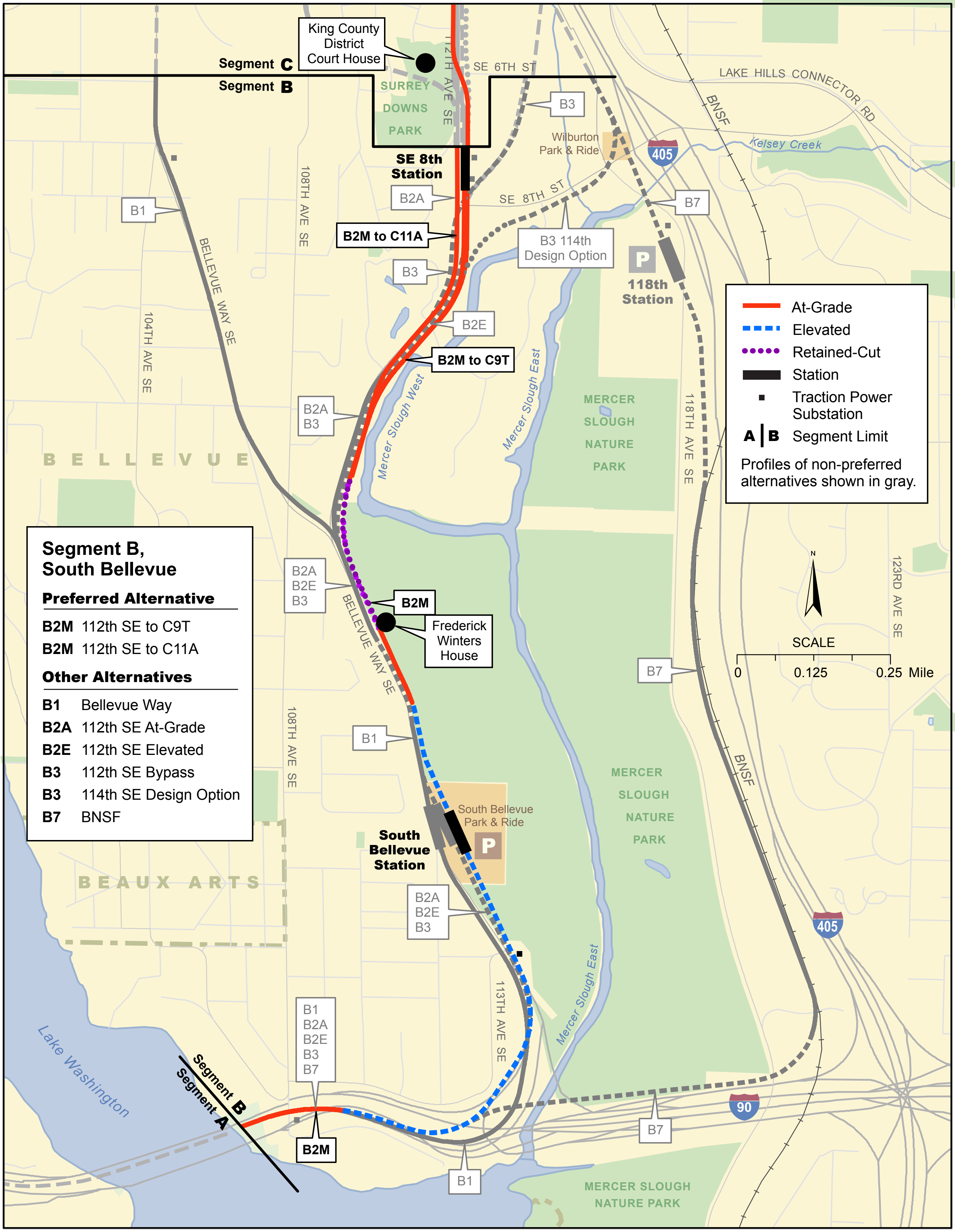
King County District Court House
Segment C
Segment B
SURREY DOWNS PARK
112TH AVE SE
SE 6TH ST
B3
Wilburton Park & Ride
LAKE HILLS CONNECTOR RD
BNSF
405
Kelsey Creek
SE 8th Station
B2A
SE 8TH ST
B7
B1
B2M to C11A
B3 114th Design Option
108TH AVE SE
B3
118th Station
BELLEVUE WAY SE
B2E
B2M to C9T
104TH AVE SE
B2A B3
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE SE
BELLEVUE
At-Grade
Elevated
Retained-Cut
Station
Traction Power Substation
A | B Segment Limit
Profiles of non-preferred alternatives shown in gray.
B2A B2E B3
B2M
Frederick Winters House
N
SCALE
0 0.125 0.25 Mile
123RD AVE SE
B7
B1
108TH AVE SE
South Bellevue Park & Ride
P
South Bellevue Station
MERCER SLOUGH NATURE PARK
BEAUX ARTS
B2A B2E B3
405
113TH AVE SE
B1 B2A B2E B3 B7
Lake Washington
Segment B
Segment A
90
B7
B2M
B1
MERCER SLOUGH NATURE PARK

Segment B, South Bellevue

Preferred Alternative

B2M 112th SE to C9T
B2M 112th SE to C11A

Other Alternatives

B1 Bellevue Way
B2A 112th SE At-Grade
B2E 112th SE Elevated
B3 112th SE Bypass
B3 114th SE Design Option
B7 BNSF

Source: City of Bellevue (2005) and King County (2006).

Preferred Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route

OtherAlternatives
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route

- Traction Power Substation
- Station
- P New and/or Expanded Park-and-Ride Lot
- A | B Segment Limit
- Adjacent Segment

Exhibit 2-17
Segment B, South Bellevue
East Link Project

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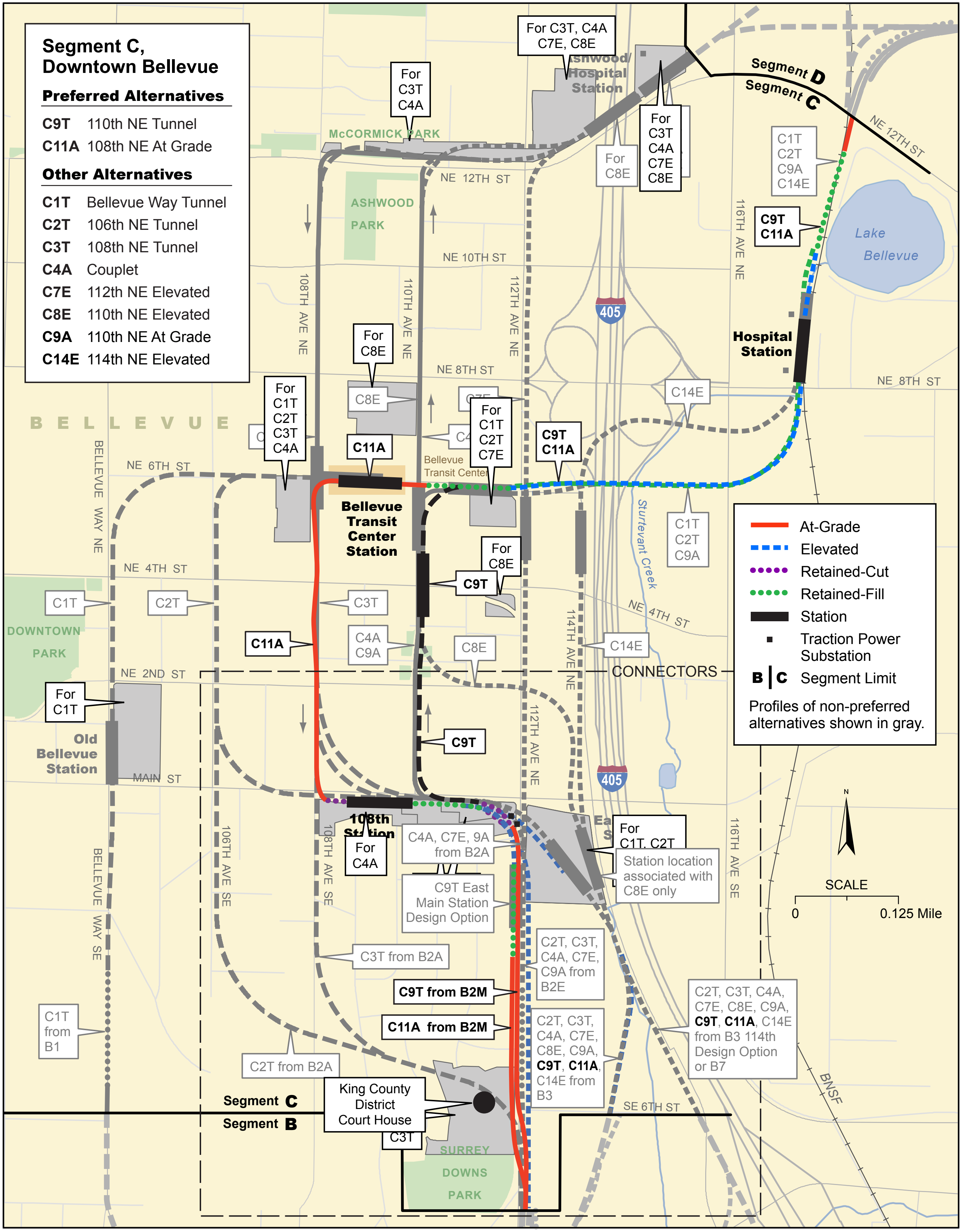
Segment C, Downtown Bellevue
Preferred Alternatives
C9T 110th NE Tunnel
C11A 108th NE At Grade
Other Alternatives
C1T Bellevue Way Tunnel
C2T 106th NE Tunnel
C3T 108th NE Tunnel
C4A Couplet
C7E 112th NE Elevated
C8E 110th NE Elevated
C9A 110th NE At Grade
C14E 114th NE Elevated
For C3T, C4A C7E, C8E
Ashwood/Hospital Station
For C3T C4A
McCORMICK PARK
For C3T C4A C7E C8E
For C8E
Segment D
Segment C
NE 12TH ST
C1T C2T C9A C14E
C9T C11A
Lake Bellevue
116TH AVE NE
ASHWOOD PARK
NE 10TH ST
405
108TH AVE NE
110TH AVE NE
112TH AVE NE
Hospital Station
For C8E
NE 8TH ST
C8E
C7E
For C1T C2T C7E
C4
C9T C11A
C14E
BELLEVUE
For C1T C2T C3T C4A
C11A
Bellevue Transit Center
NE 6TH ST
BELLEVUE WAY NE
Bellevue Transit Center Station
Sturtevant Creek
C1T C2T C9A
For C8E
C9T
NE 4TH ST
C1T
C2T
C3T
C11A
C4A C9A
C8E
C14E
114TH AVE NE
DOWNTOWN PARK
NE 2ND ST
CONNECTORS
For C1T
Old Bellevue Station
MAIN ST
C9T
112TH AVE NE
108th Station
For C4A
C4A, C7E, 9A from B2A
C9T East Main Station Design Option
For C1T, C2T
Station location associated with C8E only
106TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
116TH AVE SE
C3T from B2A
C2T, C3T, C4A, C7E, C9A from B2E
C9T from B2M
C11A from B2M
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A, C14E from B3
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A, C14E from B3 114th Design Option or B7
C1T from B1
C2T from B2A
BNSF
King County District Court House
C3T
Segment C
Segment B
SE 6TH ST
SURREY DOWNS PARK
At-Grade
Elevated
Retained-Cut
Retained-Fill
Station
Traction Power Substation
B | C Segment Limit
Profiles of non-preferred alternatives shown in gray.
N
SCALE
0
0.125 Mile

Source: City of Bellevue (2005) and King County (2006).

Preferred Alternative
- 🟥 At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel

Other Alternatives
- At-Grade
- Elevated
- Retained-Cut
- Retained-Fill
- Tunnel

- ▪ Traction Power Substation
- Staging Area
- Segment Limit
- Station
- P New and/or Expanded Park-and-Ride Lot
- B | C Segment Limit
- Adjacent Segment

Exhibit 2-18
Segment C, Downtown Bellevue
East Link Project

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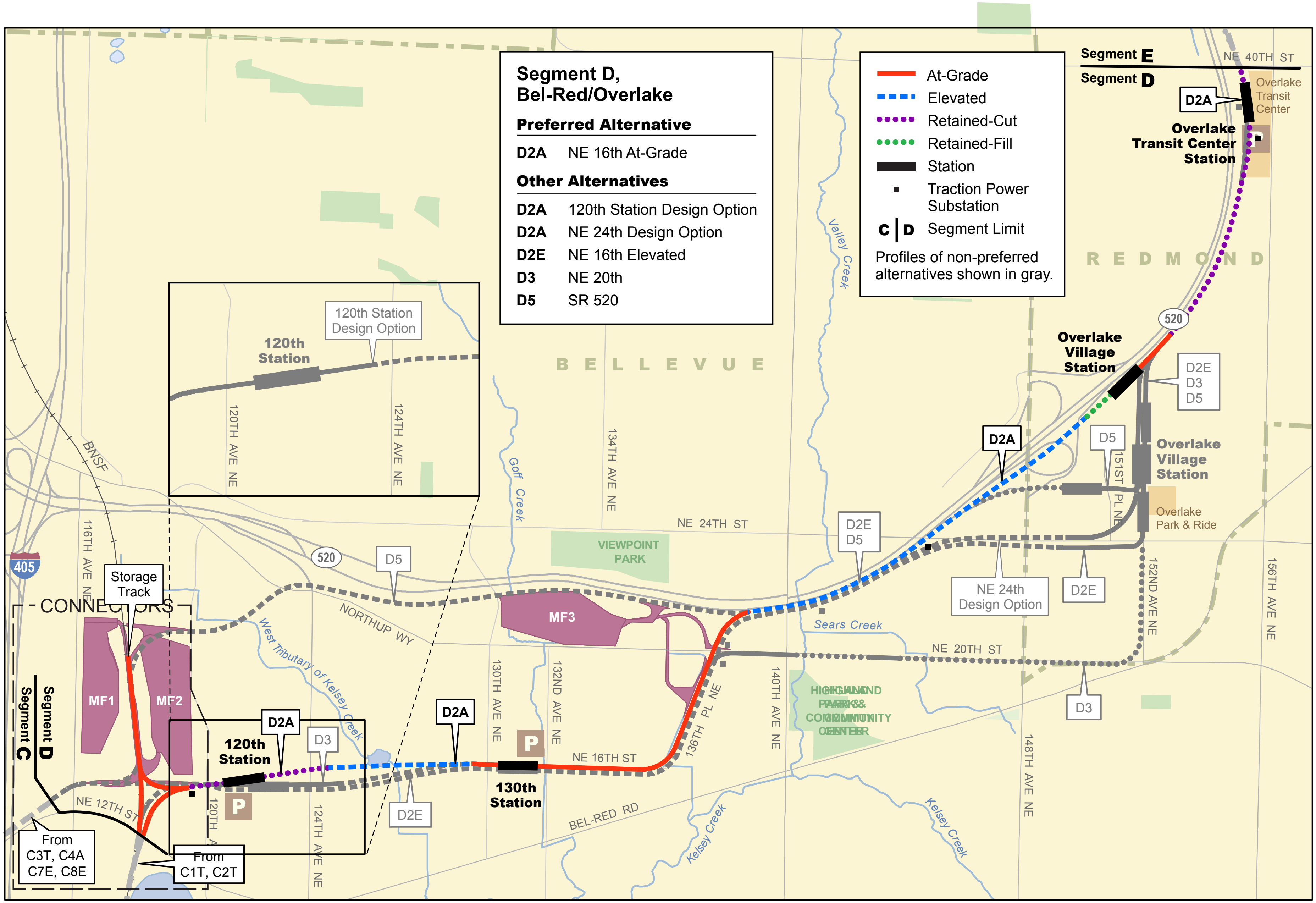
Segment D,
Bel-Red/Overlake
Preferred Alternative
D2A NE 16th At-Grade
Other Alternatives
D2A 120th Station Design Option
D2A NE 24th Design Option
D2E NE 16th Elevated
D3 NE 20th
D5 SR 520
At-Grade
Elevated
Retained-Cut
Retained-Fill
Station
Traction Power Substation
C | D Segment Limit
Profiles of non-preferred alternatives shown in gray.
Segment E
Segment D
NE 40TH ST
D2A
Overlake Transit Center
Overlake Transit Center Station
REDMOND
BELLEVUE
520
Overlake Village Station
D2E
D3
D5
D2A
D5
151ST PL NE
Overlake Village Station
Overlake Park & Ride
NE 24TH ST
D2E
D5
NE 24th Design Option
D2E
152ND AVE NE
156TH AVE NE
Sears Creek
NE 20TH ST
D3
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
140TH AVE NE
136TH PL NE
Kelsey Creek
Valley Creek
134TH AVE NE
VIEWPOINT PARK
Goff Creek
MF3
NE 16TH ST
132ND AVE NE
130TH AVE NE
130th Station
P
BEL-RED RD
Kelsey Creek
D2A
D2E
120th Station Design Option
120th Station
120TH AVE NE
124TH AVE NE
D5
NORTHUP WY
West Tributary of Kelsey Creek
D2A
D3
120th Station
P
120TH AVE NE
124TH AVE NE
BNSF
405
116TH AVE NE
Storage Track
CONNECTORS
MF1
MF2
Segment D
Segment C
NE 12TH ST
From C3T, C4A C7E, C8E
From C1T, C2T
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut Route
Traction Power Substation
Station
New and/or Expanded Park-and-Ride Lot
Maintenance Facility and Access Track
C | D Segment Limit
N
SCALE
0
0.25 Mile

Source: City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Exhibit 2-19
Segment D, Bel-Red/Overlake
East Link Project

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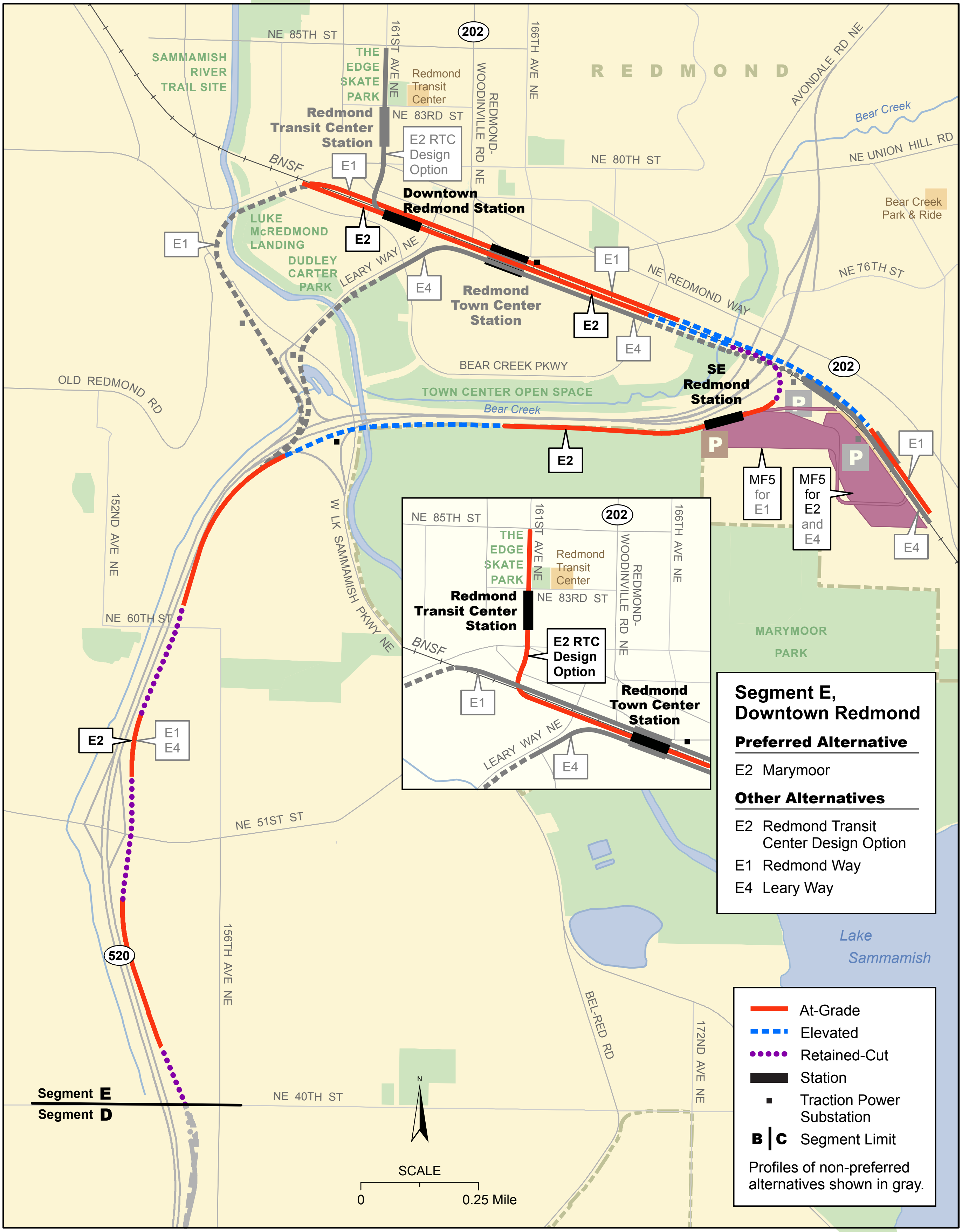
NE 85TH ST
161ST AVE NE
202
166TH AVE NE
SAMMAMISH RIVER TRAIL SITE
THE EDGE SKATE PARK
Redmond Transit Center
REDMOND
AVONDALE RD NE
Bear Creek
WOODINVILLE RD NE
REDMOND-
NE 83RD ST
Redmond Transit Center Station
E2 RTC Design Option
NE 80TH ST
NE UNION HILL RD
BNSF
E1
Downtown Redmond Station
Bear Creek Park & Ride
LUKE McREDMOND LANDING
E2
DUDLEY CARTER PARK
LEARY WAY NE
E4
Redmond Town Center Station
NE REDMOND WAY
NE 76TH ST
BEAR CREEK PKWY
SE Redmond Station
TOWN CENTER OPEN SPACE
Bear Creek
OLD REDMOND RD
P
MF5 for E1
MF5 for E2 and E4
152ND AVE NE
W LK SAMMAMISH PKWY NE
NE 60TH ST
MARYMOOR PARK
Segment E, Downtown Redmond
Preferred Alternative
E2 Marymoor
Other Alternatives
E2 Redmond Transit Center Design Option
E1 Redmond Way
E4 Leary Way
NE 51ST ST
Lake Sammamish
520
156TH AVE NE
BEL-RED RD
172ND AVE NE
At-Grade
Elevated
Retained-Cut
Station
Traction Power Substation
B | C Segment Limit
Profiles of non-preferred alternatives shown in gray.
Segment E
Segment D
NE 40TH ST
N
SCALE
0
0.25 Mile

Source: King County (2006).

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut Route

■ Traction Power Substation
Station
P New and/or Expanded Park-and-Ride Lot
D | E Segment Limit

Segment Limit
Adjacent Segment
Maintenance Facility and Access Track

Exhibit 2-20
Segment E, Downtown Redmond
East Link Project

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TABLE 2-3
Characteristics of Stations

Station Name	Associated Alternative	Location	Station Profile	Park-and-Ride Lot	
				Existing Parking Spaces	**Total Parking Spaces (Configuration)**
Segment A, Interstate 90					
Rainier	*Preferred Alternative A1*	Between Rainier and 23rd Avenues South on I-90	At-grade	None	None
Mercer Island	*Preferred Alternative A1*	Between 77th and 80th Avenues SE on I-90	At-grade	450	450
Segment B, South Bellevue					
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 -114th Extension Design Option	Along Bellevue Way at existing park-and-ride	At-grade or elevated	520	Approximately 1,400 (surface and 4- to 5-story structure)
SE 8th	Alternative B2A and B2E and *Preferred Alternative B2M to C9T*	SE 8th Street and 112th Avenue SE	At-grade, retained cut, or elevated	None	None
118th	Alternative B7	118th Avenue SE south of SE 8th Street	elevated	None	1,030 (4-story structure)
Segment C, Downtown Bellevue					
Old Bellevue	Alternative C1T	Bellevue Way and Main Street	Tunnel	None	None
Bellevue Transit Center	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C3T, C4A, C7E, C8E, C9A, and C14E	On or near NE 6th Street at the Bellevue Transit Center	Tunnel, at-grade, or elevated	None	None
Hospital[b]	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E	NE 8th Street and former BNSF Railway	Elevated	None	None
Ashwood/ Hospital[b]	Alternatives C3T, C4A, C7E, and C8E	Over I-405 on NE 12th Street	Elevated	None	None
East Main[a]	*Preferred Alternative C9T* and Alternatives C9A, C2T, C3T, C4A, C7E, C8E, and C9A	East of 112th Avenue SE south of Main Street	Elevated or retained cut	None	None
108th	*Preferred Alternative C11A*	108th Avenue SE south of Main Street	Retained cut	None	None
Segment D, Bel-Red/Overlake					
120th[b]	*Preferred Alternative D2A* and Alternatives D2E and D3	Approximately NE 15th Street at 122nd Avenue NE	At-grade or elevated	None	300 (surface) (*D2A* only)
130th[b]	*Preferred Alternative D2A* and Alternatives D2E and D3	Approximately NE 15th Street at 130th Avenue NE	At-grade or elevated	None	300 (surface)
Overlake Village[b]	*Preferred Alternative D2A* and Alternatives D2E, D3, and D5	Depending on the alternative, on or near 152nd Avenue NE and near SR 520 or NE 24th Street	At-grade or retained cut	205	205
Overlake Transit Center[b]	*Preferred Alternative D2A* and Alternatives D2E, D3, and D5	NE 40th Street and 156th Avenue NE	At-grade	170	320 (3-story structure)
Segment E, Downtown Redmond					
Downtown Redmond	*Preferred Alternative E2*	Former BNSF Railway west of Leary Way	At-grade	None	None

TABLE 2-3 CONTINUED
Characteristics of Stations

Station Name	Associated Alternative	Location	Station Profile	Park-and-Ride Lot	
				Existing Parking Spaces	Total Parking Spaces (Configuration)
Redmond Town Center[b]	Alternatives E2 - Redmond Transit Center Design Option, E1, and E4	Former BNSF Railway at approximately 166th Avenue NE	At-grade	None	None
SE Redmond	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option, E1, and E4	Southeast of the SR 202 and Redmond Way SR 520 interchange	At-grade or elevated	None	1,400 (5-story structure)
Redmond Transit Center	Alternative E2 - Redmond Transit Center Design Option	161st Avenue NE at NE 83rd Street	At-grade	380	380

Note: Italicized alternatives signify Preferred Alternatives.

[a] This indicates if connecting from Alternative B3, B3 - 114th Extension Design Option, or B7 for *Preferred Alternative C9T* or Alternative C2T, C3T, C4A, C7E, C8E, or C9A. Also, this indicates connecting from *Preferred Alternative B2M* for *Preferred Alternative* C9T as a design option, which would replace the SE 8th Station on *Preferred Alternative B2M*.

[b] Could serve as an interim terminus station for phasing East Link Project development. Three hundred stalls would be provided at either the 130th Station or the 120th Station, but not at both.

Segment A: Interstate 90, *Preferred Interstate 90 Alternative (A1)*

This segment has one alternative, *Preferred Interstate 90 Alternative (A1),* which crosses Lake Washington and connects Seattle and Mercer Island with Segment B, South Bellevue. This alternative has two stations, one in Seattle and one on Mercer Island. Additional information on the proposed stations is provided in Table 2-3. *Preferred Alternative A1* begins in the Downtown Seattle Transit Tunnel at the International District/Chinatown Station where it connects to the Central Link light rail system.

From there, the alternative enters the D2 Bridge and Roadway. The D2 Roadway is a ramp between Downtown Seattle and Rainier Avenue providing HOV access to I–90. Two potential operational options exist for this section of the D2 Roadway; the preferred option is where the roadway would operate as a joint light rail/bus facility with embedded track. The other option would operate light rail exclusively on the D2 Roadway. In both options, nontransit HOV automobiles would be prohibited. The existing Rainier Avenue bus flyer stop would remain on I–90 for either scenario. Joint operations would allow buses to bypass congestion in the I-90 general-purpose lanes during peak periods. Gates and other security devices would prevent nontransit vehicles from entering this segment of the D2 Roadway. Should a vehicle enter the bus queuing area, provisions would be made for the vehicle to exit back into the westbound I-90 mainline lanes (at the Rainier Avenue interchange) or turn around (at 5th Avenue) to leave the area.

Preferred Alternative A1 proceeds in the I–90 center roadway to the Rainier Station east of the existing Rainier Valley Bus Stop. Pedestrian access to the Rainier Station is from Rainier Avenue South via a new retained-cut ramp and from 23rd Avenue South via elevators and escalators/stairs. *Preferred Alternative A1* then passes through the Mount Baker Tunnel, travels in an exclusive right-of-way in the center roadway on the floating bridge and continues to the Mercer Island Station located between 77th and 80th Avenues SE by the existing Mercer Island Park-and-Ride (see Exhibit 2-21 for plan view of East Link on the I-90 bridge). The preferred pedestrian access is from both 77th and 80th Avenues SE. There is an option (not preferred) to construct access from 80th Avenue

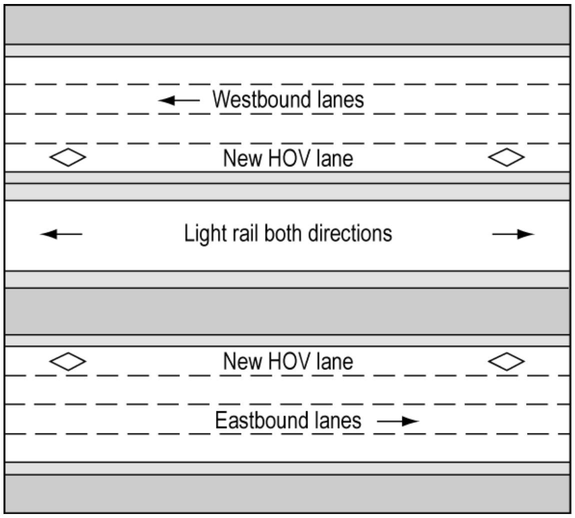


EXHIBIT 2-21
I-90 with *Preferred Alternative A1*

SE along with a new pedestrian bridge over the eastbound lanes of I–90 to the station with direct connection from the Mercer Island Sculpture Garden and Town Center Shopping district (approximately 78th Avenue SE). A portion of the center roadway on the floating bridge would be dedicated to a WSDOT maintenance road to allow continued access to the bridge pontoon hatches. Both the I-90 tunnels and the floating bridge would require modifications to incorporate light rail. Modifications to the tunnels would include adding wall dividers, drainage, and ventilation. To equalize weight on the bridge from installing steel rail, concrete barriers along the south side would be replaced with cable railing, and/or the concrete surface might be made thinner by removing the upper layers. Finally, to accommodate movement of the floating bridge in relation to the fixed approach bridge structure at both ends, a specialized rail expansion joint would be installed on the bridge.

From the Mercer Island Station to Segment B, *Preferred Alternative A1* continues along the I–90 center roadway in exclusive right-of-way. Converting the center roadway to light rail would close the existing ramps that connect the center roadway to the westbound and eastbound general-purpose lanes near the Rainier Avenue South interchange on the west and the East Channel bridge on the east. In addition, the ramps connecting both 77th Avenue SE and Island Crest Way to the center roadway would be closed. *Preferred Alternative A1* would relocate the planned eastbound HOV off-ramp to Mercer Island from 77th Avenue SE to Island Crest Way by connecting the existing eastbound center roadway off-ramp to Island Crest Way with the future eastbound HOV lane, which is part of the I-90 Two-Way Transit and HOV Operations Project. A second option would leave the planned eastbound HOV off-ramp to Mercer Island at 77th Avenue SE. Finally, a third option removes the eastbound HOV off-ramp to Mercer Island altogether. The eastbound I-90 general purpose ramp to 77th Avenue SE and the ramp from Island Crest Way to the westbound I-90 general-purpose lanes would remain open with the project.

Four traction power substations (TPSS) are planned for Segment A, two on the Seattle side and two on Mercer Island. The first TPSS on the Seattle side is located along the D2 Roadway near the intersection of South Norman Street and Poplar Place South. The second TPSS is located at the west end of the I-90 floating bridge. On Mercer Island, the first TPSS is located at the east end of the I-90 floating bridge, adjacent to a WSDOT maintenance facility. The second TPSS on Mercer Island is located near the Shorewood Drive crossing of I-90 (see Exhibit 2-16).

I-90 Floating Bridge Design Considerations

Preferred Alternative A1 has several design considerations regarding the compatibility of light rail with the I-90 floating bridge. The Washington State Legislature Joint Transportation Committee commissioned an independent review team (IRT) to evaluate the bridge analysis. Specific concerns (described below) involve the expansion joints between the approach bridges and the transition spans and between the transition spans and the floating bridge, the additional weight of rail and trains on the bridge pontoons, stray electrical currents, seismic upgrades, installation of light rail components on the bridge, and bridge maintenance changes. The IRT concluded that all issues identified as potentially affecting feasibility can be addressed through project design measures.

Expansion Joints

The I-90 floating bridge includes land-based fixed spans connected by transition spans to the floating midsection of the bridge. The existing traffic expansion joints between the fixed and floating portions of the bridge allow for bridge movements, and the new light rail expansion joints would also need to accommodate these movements. Because this would be the first known example of rail operation on a floating bridge, Sound Transit compared the anticipated movement on the I-90 bridge with the movements of modern passenger rail suspension bridges, since suspension bridges have flexibility in slight up-down and sideways movements, just as water movements have on the floating bridge. This comparison demonstrates that it is feasible to design a light rail track system to accommodate the movements of the I-90 floating bridge. Sound Transit developed a conceptual design for the track expansion joints and will further develop plans for early design and prototyping of the joint, with continued coordination with WSDOT during the design.

Additional East Link Weight

WSDOT and Sound Transit conducted load testing in September 2005. Results of the load test confirmed previous findings that the bridge can be structurally retrofitted to carry the loads associated with the light rail system in addition to general roadway traffic. The additional weight would not change the bridge's ability to remain safe during storm events.

Stray Currents

Stray electrical current from light rail operation could corrode the steel bridge components. The project would include up to three layers of protection: isolating the rail by constructing special insulating systems, installing a stray current collector mat, and potentially upgrading the cathodic protection system. Additionally, the project would place a monitoring system on the bridge to monitor stray current levels.

Seismic Upgrade

Sound Transit would improve the earthquake resistance of the structures in the corridor used by light rail. Structures assumed to be retrofitted include the columns, bridge seats and restrainers for the light rail portions of the D2 Roadway, Rainier Avenue South overcrossing, approach spans to the floating bridge, and the East Channel bridge, using the currently known FHWA/American Association of State Highway Transportation Officials (AASHTO) policies, consistent with WSDOT's own practices for retrofitting existing structures. Retrofits might involve in-water work to improve the earthquake resistance of the floating bridge approach spans and East Channel bridge. The floating bridge is generally not vulnerable to seismic events due to the dampening effect of the lake water.

Light Rail Installation

The rails are typically attached to a bridge by placing them on concrete plinth blocks. These, the overhead catenary poles, and other pieces of rail equipment are normally attached to a bridge deck with mechanical attachments. However, the bridge deck has a dense fabric of reinforcing steel and post-tensioning cable. Therefore, if mechanical attachments are used, it is important to locate this steel to avoid damaging it. Sound Transit has demonstrated that it can locate the steel using the proven method of ground-penetrating radar. Sound Transit would work with WSDOT to determine the most appropriate method for attaching the rail components on the bridge.

Bridge Maintenance

Some maintenance procedures might change with light rail on the bridge. Sound Transit would work with WSDOT to make sure that the bridge can continue to be maintained satisfactorily.

Segment B: South Bellevue Alternatives

Segment B has six alternatives that connect to Downtown Bellevue in Segment C. The alternatives in Segment B have one or two stations at three possible locations: the South Bellevue Station, the SE 8th Station, and the 118th Station. Exhibit 2-17 shows the locations and overall features of the six alternatives, Exhibits 2-22 to 2-28 show details of each alternative, and Table 2-3 provides additional information on the proposed stations.

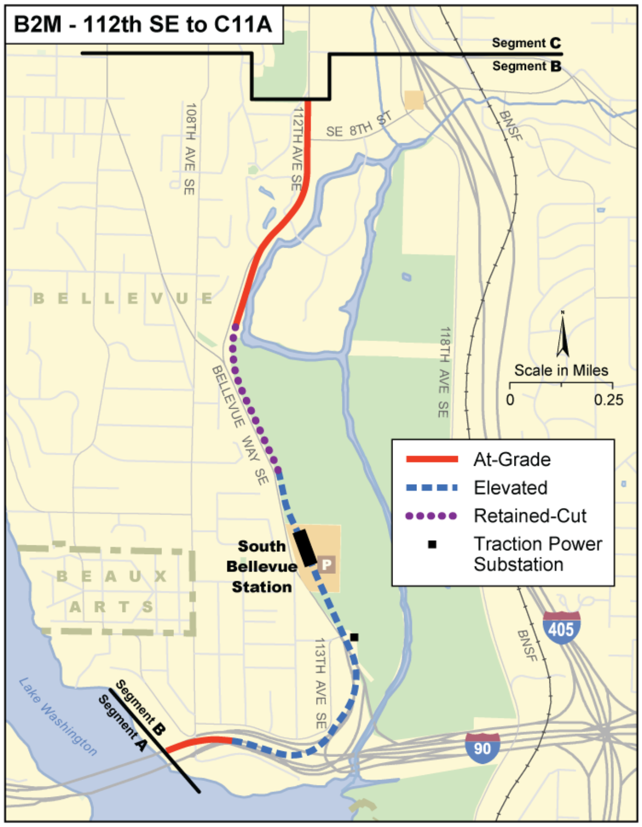

B2M - 112th SE to C11A
Segment C
Segment B
108TH AVE SE
112TH AVE SE
SE 8TH ST
BNSF
BELLEVUE
118TH AVE SE
BELLEVUE WAY SE
Scale in Miles
0
0.25
At-Grade
Elevated
Retained-Cut
Traction Power Substation
South Bellevue Station
P
BEAUX ARTS
405
113TH AVE SE
Lake Washington
Segment B
Segment A
90

EXHIBIT 2-22
Preferred 112th SE Modified Alternative (B2M) to C11A

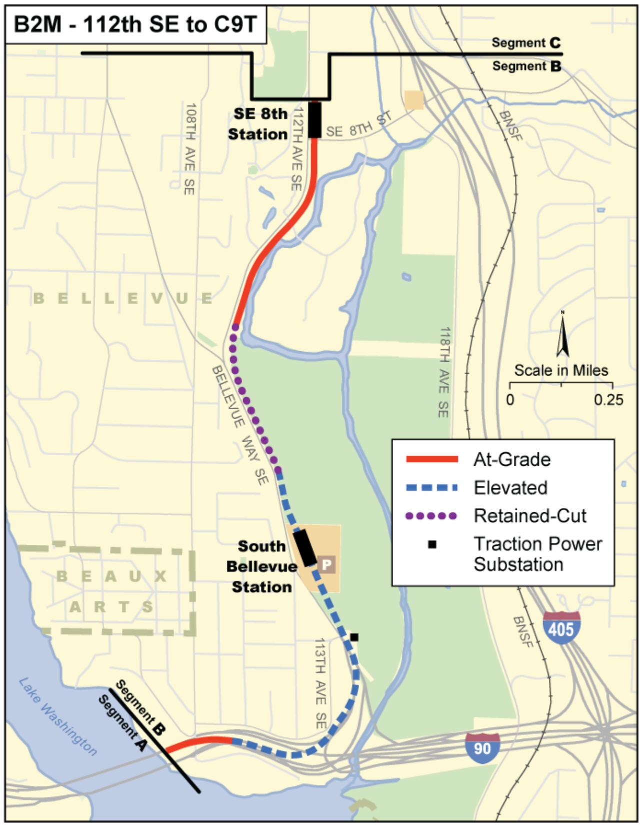

B2M - 112th SE to C9T
Segment C
Segment B
SE 8th Station
108TH AVE SE
112TH AVE SE
SE 8TH ST
BNSF
BELLEVUE
118TH AVE SE
BELLEVUE WAY SE
Scale in Miles
0
0.25
At-Grade
Elevated
Retained-Cut
Traction Power Substation
South Bellevue Station
P
BEAUX ARTS
405
113TH AVE SE
Lake Washington
Segment B
Segment A
90

EXHIBIT 2-23
Preferred 112th SE Modified Alternative (B2M) to C9T

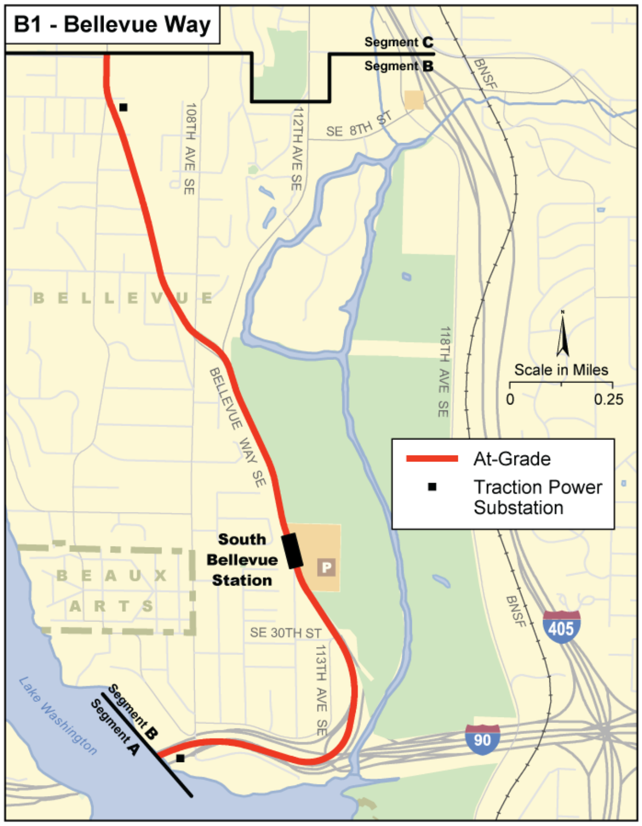

B1 - Bellevue Way
Segment C
Segment B
SE 8TH ST
108TH AVE SE
112TH AVE SE
BNSF
BELLEVUE
118TH AVE SE
Scale in Miles
0
0.25
At-Grade
Traction Power Substation
BELLEVUE WAY SE
South Bellevue Station
P
BEAUX ARTS
SE 30TH ST
113TH AVE SE
BNSF
405
90
Segment B
Segment A
Lake Washington

EXHIBIT 2-24
Bellevue Way Alternative (B1)

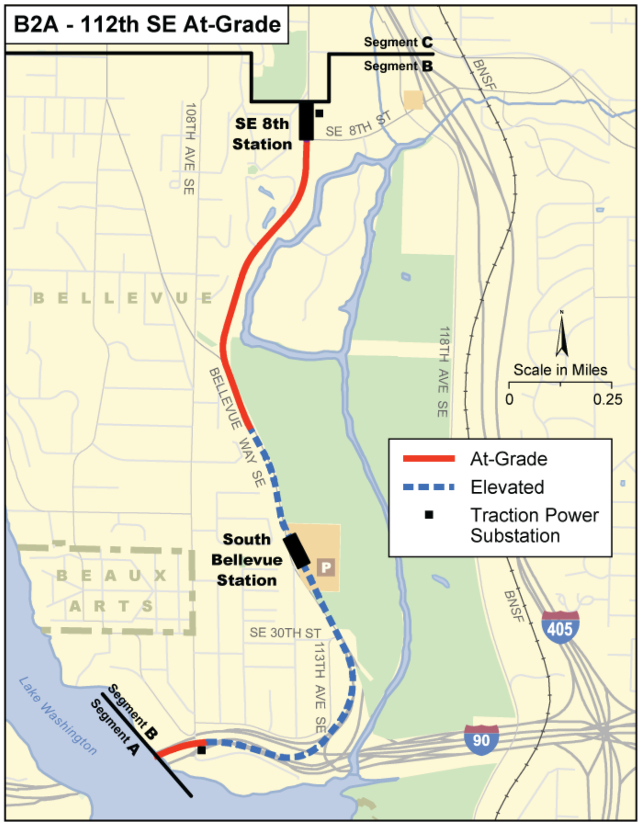

B2A - 112th SE At-Grade
Segment C
Segment B
SE 8th Station
SE 8TH ST
108TH AVE SE
BNSF
BELLEVUE
118TH AVE SE
Scale in Miles
0
0.25
At-Grade
Elevated
Traction Power Substation
BELLEVUE WAY SE
South Bellevue Station
P
BEAUX ARTS
SE 30TH ST
113TH AVE SE
BNSF
405
90
Segment B
Segment A
Lake Washington

EXHIBIT 2-25
112th SE At-Grade Alternative (B2A)

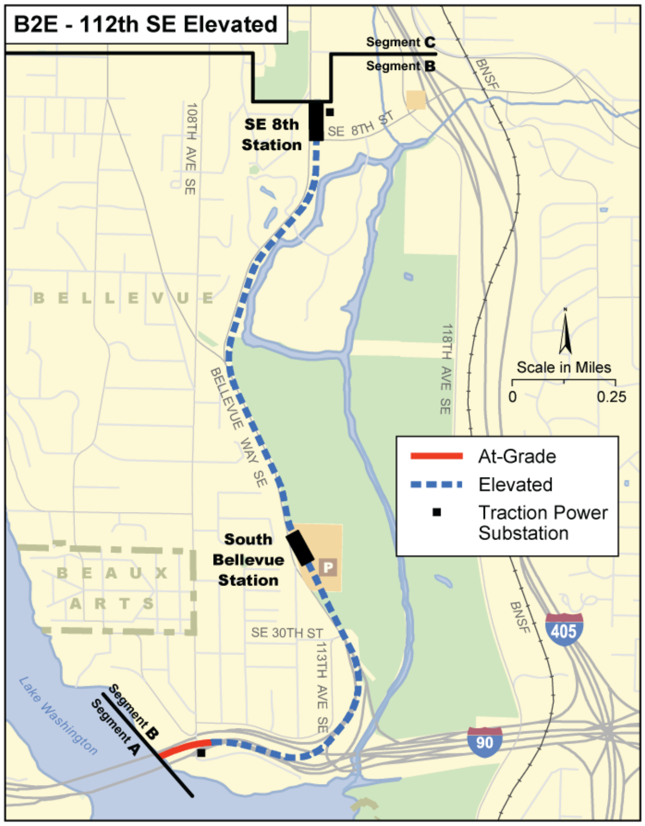

B2E - 112th SE Elevated
Segment C
Segment B
SE 8th Station
SE 8TH ST
108TH AVE SE
BNSF
BELLEVUE
118TH AVE SE
Scale in Miles
0
0.25
At-Grade
Elevated
Traction Power Substation
BELLEVUE WAY SE
South Bellevue Station
P
BEAUX ARTS
SE 30TH ST
113TH AVE SE
BNSF
405
90
Segment B
Segment A
Lake Washington

EXHIBIT 2-26
112th SE Elevated Alternative (B2E)

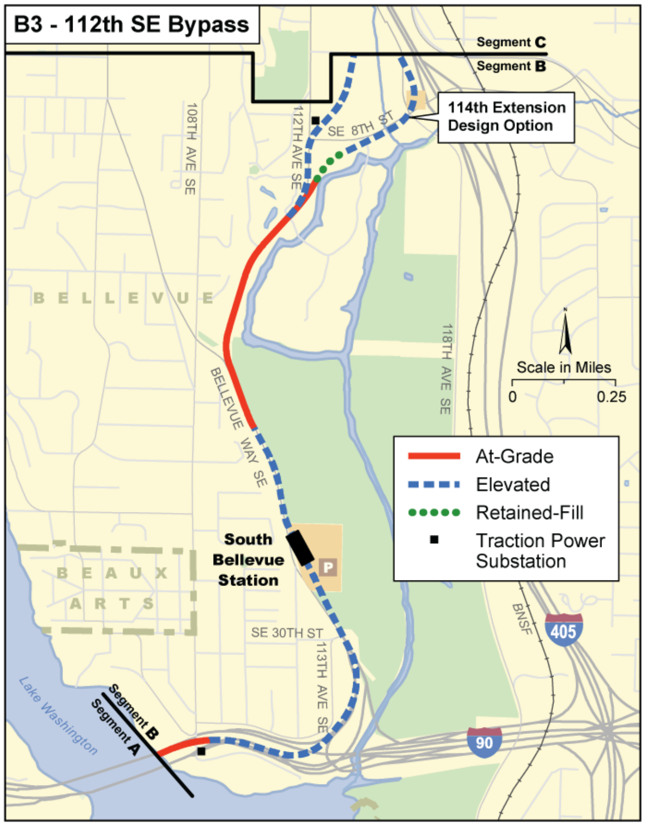

B3 - 112th SE Bypass
Segment C
Segment B
114th Extension Design Option
SE 8TH ST
108TH AVE SE
112TH AVE SE
BELLEVUE
118TH AVE SE
Scale in Miles
0
0.25
At-Grade
Elevated
Retained-Fill
Traction Power Substation
BELLEVUE WAY SE
South Bellevue Station
P
BEAUX ARTS
SE 30TH ST
113TH AVE SE
BNSF
405
90
Segment B
Segment A
Lake Washington

EXHIBIT 2-27
112th SE Bypass Alternative (B3)

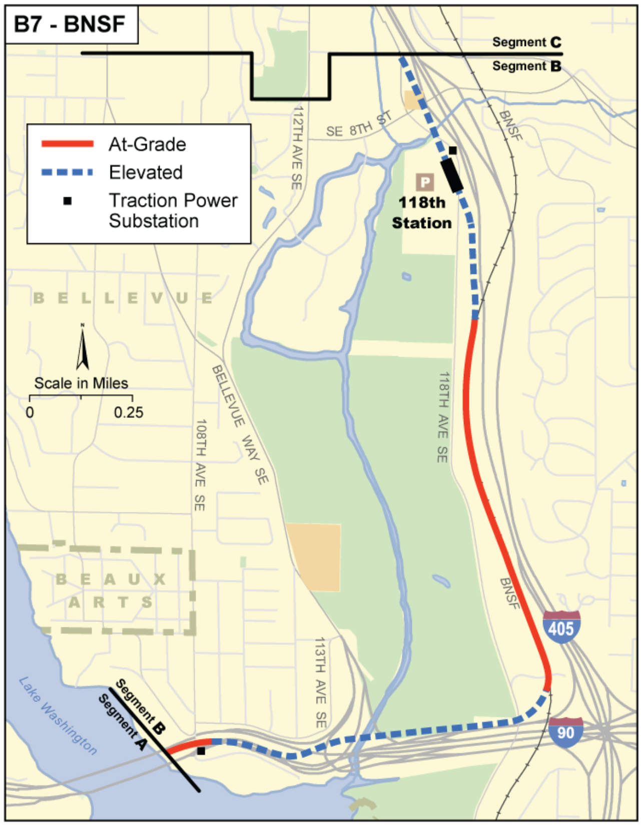


EXHIBIT 2-28
BNSF Alternative (B7)

The Sound Transit Board identified *Preferred 112th SE Modified Alternative (B2M)* as the *Preferred Alternative* in Segment B. This alternative was selected based on technical analysis and input from the community.

Preferred 112th SE Modified Alternative (B2M)
Preferred Alternative B2M (see Exhibits 2-22 and 2-23) is elevated in the I-90 center roadway, crosses over westbound I-90, and continues elevated on the east side of Bellevue Way SE to the South Bellevue Station, located at the current South Bellevue Park-and-Ride; this alternative also maintains the westbound and eastbound I-90 HOV direct access ramps.

The South Bellevue Station includes a parking structure with up to five levels built on the site of the existing South Bellevue Park-and-Ride; however, only three stories would be visible above Bellevue Way SE. After leaving the station, the route transitions to a retained cut on the east side of Bellevue Way within Mercer Slough Nature Park to the intersection of Bellevue Way SE and 112th Avenue SE. In front of the Winters House the route is in a lidded retained cut approximately 170 feet long. From this point, *Preferred Alternative B2M* has two variations that connect to one of the Segment C *Preferred Alternatives*: one provides a connection to the *Preferred 108th NE At-Grade Alternative (C11A)* and one connects with the *Preferred 110th NE Tunnel Alternative (C9T)*. The following describes the two variations:

- When connecting to *Preferred Alternative C11A*, *Preferred Alternative B2M* transitions from a retained cut to at-grade on the east side of 112th Avenue SE. South of SE 15th Street, *Preferred Alternative B2M* crosses the northbound lanes of 112th Avenue SE at a gated crossing and continues north in the center of 112th Avenue SE at-grade until reaching Segment C at SE 6th Street. This variation does not have a SE 8th Station (Exhibit 2-23).
- When connecting to *Preferred Alternative C9T*, *Preferred Alternative B2M* transitions from retained cut to at-grade on the east side of 112th Avenue SE to the at-grade SE 8th Station north of SE 8th Street. If an East Main is selected for C9T, this station would not be built. From there, *Preferred Alternative B2M* remains at-grade until reaching Segment C at SE 6th Street (Exhibit 2-23). This variation of *Preferred Alternative B2M* has a gated crossing (preferred) or an option to close the Bellefield Office Park entrance at SE 15th Street.

For both variations of *Preferred Alternative B2M*, a TPSS is located on the east side of Bellevue Way at SE 30th Street, near the Sweylocken boat launch.

Bellevue Way Alternative (B1)
The Bellevue Way Alternative (B1) (see Exhibit 2-24) travels within the I–90 center roadway and continues in the Bellevue Way SE HOV direct-access ramp under the westbound lanes of I–90 onto Bellevue Way at-grade to the South Bellevue Station and Park-and–Ride; use of the westbound and eastbound HOV access ramps would be eliminated. Alternative B1 travels in the median of Bellevue Way SE up to Segment C at SE 6th Street. The South Bellevue Station includes a four-story parking structure; however, only about two stories appear above the grade of Bellevue Way. To maintain two travel lanes in either direction with light rail in the median, the stretch of Bellevue Way from north of the South Bellevue Station up to SE 6th Street would generally be widened to the west. However, north of the 112th Avenue SE intersection, the widening of Bellevue Way might fluctuate to either side in some locations. There are two TPSSs for B1, one under I–90 where I–90 touches Bellevue and the other near SE 8th Street.

112th SE At-Grade Alternative (B2A)
The 112th SE At-Grade Alternative (B2A) (see Exhibit 2-25) is elevated in the I–90 center roadway, crosses over westbound I–90, and touches down on the east side of Bellevue Way in an elevated profile. With this alternative, the westbound ramp would be

maintained and the eastbound I–90 HOV ramp would either be closed or be kept open by reconstructing the ramp and making other interchange modifications. An elevated station would be located at the South Bellevue Park-and-Ride, with additional parking as provided Alternative B1. After leaving the station, Alternative B2A transitions to at-grade in the median of Bellevue Way, turning into the median of 112th Avenue SE and extending to SE 6th Street.

Additional right-of-way would be required along the east side of Bellevue Way SE, both north and south of the Winters House, as well as across from the Winters House on the west side of the road. Also, 112th Avenue SE would be widened to the east and west within existing right-of-way to maintain existing travel lanes. The profile of the SE 8th Station on 112th Avenue SE depends on which alternative it connects with in Segment C: a retained-cut station if connecting with the tunnel alternatives or an at-grade station if connecting with at-grade and elevated alternatives.

There are two TPSSs for Alternative B2A, one under I–90 where I–90 touches Bellevue and the other at the SE 8th Station.

112th SE Elevated Alternative (B2E)
The 112th SE Elevated Alternative (B2E) (see Exhibit 2-26) is the same as Alternative B2A up to the South Bellevue Station and Park-and-Ride. After the station, Alternative B2E crosses to the west side of Bellevue Way SE until just south of the Bellevue Way SE/112th Avenue SE intersection, where the alternative crosses over to continue along the east side of 112th Avenue SE to SE 6th Street. The SE 8th Station is elevated for Alternative B2E. Most of the additional right-of-way would be required along the west side of Bellevue Way SE north of the South Bellevue Station and on the east side of 112th Avenue SE just south and north of SE 8th Street. There are two TPSSs for Alternative B2E, one under I–90 where I–90 touches Bellevue and the other at the SE 8th Station.

112th SE Bypass Alternative (B3)
The 112th SE Bypass Alternative (B3) (see Exhibit 2-27) follows the same route as Alternatives B2A and B2E to the South Bellevue Park-and-Ride. North of the park-and-ride, Alternative B3 mimics Alternative B2A in profile and right-of-way requirements, except that it becomes elevated along 112th Avenue SE, south of SE 8th Street, and then turns northeast in new right-of-way behind commercial buildings and up to SE 6th Street; this alternative does not include a SE 8th Station. There are two TPSSs for Alternative B3, one under I–90 where I–90 touches Bellevue and the other north of SE 8th Street.

The Alternative B3 - 114th Extension Design Option (Exhibit 2-27) is a design option to Alternative B3 that crosses the northbound lanes of 112th Avenue SE at a gated crossing north of the SE 15th Street intersection, then crosses Bellefield Office Park at-grade, transitions from at-grade to elevated structure, and extends the route at SE 8th Street farther east to 114th Avenue SE, then north along the east side of 114th Avenue SE. The extension travels through the Wilburton Park-and-Ride and then crosses 114th Avenue SE to connect to Segment C.

BNSF Alternative (B7)
The BNSF Alternative (B7) (see Exhibit 2-28) is elevated in the I–90 center roadway similar to Alternatives B2A, B2E, and B3, except that it crosses over westbound I-90 and the HOV off-ramp near Bellevue Way SE and moves to the north side of I–90. It continues eastbound elevated across Mercer Slough in a new 30-foot right-of-way until it turns north inside the former BNSF Railway corridor. As with Alternatives B2A, B2E, and B3, the eastbound I–90 HOV ramp would be closed or reconstructed and the westbound ramp would be retained with this alternative. When inside the former BNSF Railway right-of-way, Alternative B7 transitions to at-grade until the former BNSF Railway corridor turns east over I-405, at which point Alternative B7 becomes elevated, veers west, and crosses 118th Avenue SE to the 118th Station south of SE 8th Street. Automobile and pedestrian access to the 118th Station would be from 118th Avenue SE. This location is proposed as a new four-story park-and-ride structure that would replace the existing Wilburton Park-and-Ride. Alternative B7 continues northward, adjacent to the I-405 right-of-way, up to SE 6th Street. There are two TPSSs for Alternative B7, one under I–90 where I–90 touches Bellevue and the other at the 118th Station.

After the 2008 Draft EIS was published, the I-405 South Bellevue Widening Project removed the Wilburton Tunnel over I-405 and widened I-405 to the west near the Alternative B7 alignment. This widening changed the topography near the alignment for approximately 500 feet, which changed this part of the alternative from at-grade to elevated; the alternative's horizontal alignment, however, was not changed. The I-405 South Bellevue Widening Project also constructed sound walls between I-405 and some residences along 118th Avenue SE.

As described earlier, the former BNSF Railway corridor is railbanked. Exhibit 2-29 depicts a conceptual cross-section of the former BNSF Railway corridor showing an at-grade light rail route and a

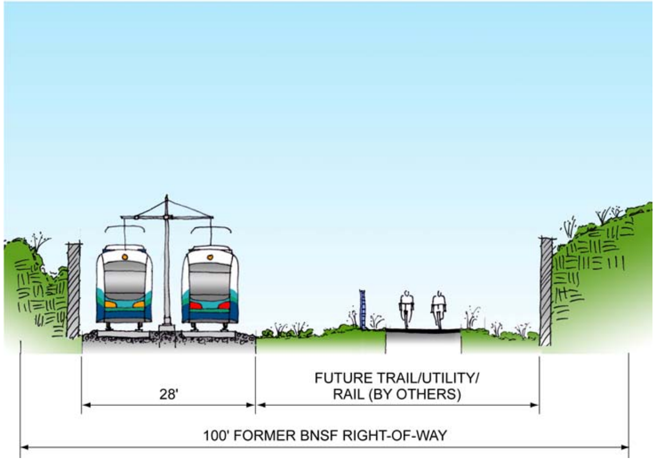

28'
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
100' FORMER BNSF RIGHT-OF-WAY

EXHIBIT 2-29
At-Grade Track with Planned Trail in Former BNSF Railway Corridor (looking north)

future pedestrian/bicycle trail or rail use, which would be constructed by others.

Segment C: Downtown Bellevue

This segment has ten alternatives through Downtown Bellevue, crossing I-405 to connect with Segment D at NE 12th Street. The Segment C alternatives connect with most of the Segment B alternatives, although the Bellevue Way Tunnel Alternative (C1T) connects only with the Bellevue Way Alternative (B1), and the 110th NE Elevated (C8E) and the 114th NE Elevated (C14E) Alternatives connect only with Alternatives B3 (including the B3 - 114th Extension Design Option) and B7. Each alternative in this segment has two or three stations at six possible locations: Old Bellevue, 108th, Bellevue Transit Center, Hospital, Ashwood/Hospital, and East Main stations. Exhibit 2-18 shows the locations and overall features of the ten alternatives, and Exhibits 2-30 to 2-41 show details of each alternative. Additional information on the proposed stations is provided in Table 2-3.

As discussed previously, the Sound Transit Board identified two preferred alternatives in Segment C in April and July 2010: *Preferred 108th NE At-Grade Alternative (C11A)* and *Preferred 110th NE Tunnel Alternative (C9T)*. *Preferred Alternative C11A* is at-grade in Downtown Bellevue, while *Preferred Alternative C9T* is in a tunnel in Downtown Bellevue. *Preferred Alternative C9T* is preferred based on a term sheet (a preliminary agreement) executed between Sound Transit and the City of Bellevue related to finding additional funding sources and scope reductions that would decrease the affordability gap between *Preferred Alternative C11A* and this tunnel alternative. *Preferred Alternative C11A* is preferred if additional funding and scope reductions cannot be found to afford the tunnel.

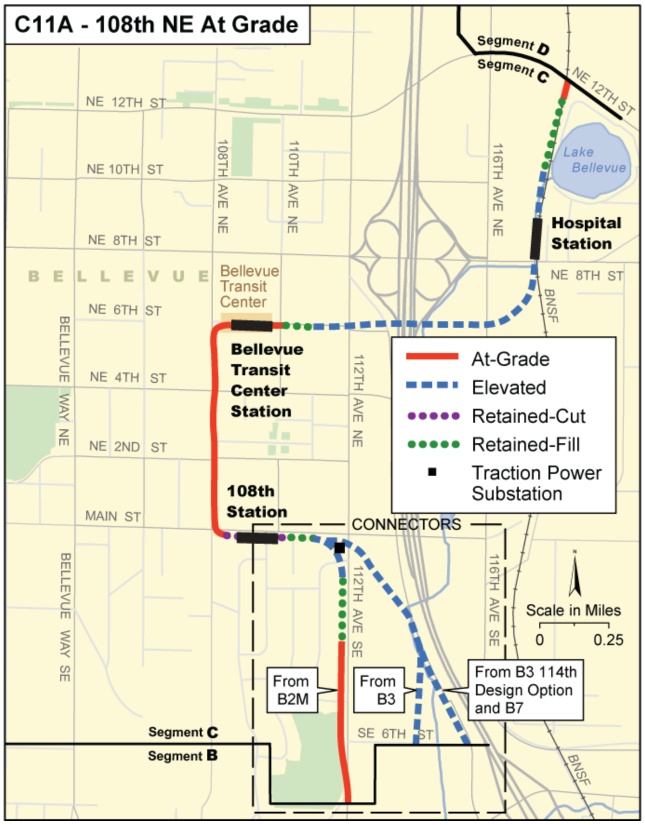

C11A - 108th NE At Grade
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
112TH AVE SE
116TH AVE SE
BELLEVUE WAY NE
BELLEVUE WAY SE
SE 6TH ST
NE 8TH ST
BNSF
BNSF
Lake Bellevue
BELLEVUE
Bellevue Transit Center
Bellevue Transit Center Station
108th Station
Hospital Station
CONNECTORS
From B2M
From B3
From B3 114th Design Option and B7
Segment C
Segment B
At-Grade
Elevated
Retained-Cut
Retained-Fill
Traction Power Substation
Scale in Miles
0
0.25

EXHIBIT 2-30
Preferred 108th NE At-Grade Alternative (C11A)

In the following descriptions of alternatives, the connectors are described where applicable, then the mainline portion of the alternative is described. The descriptions of the connectors end at the common point where the mainline description continues.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A (see Exhibit 2-30) travels from Segment B at-grade north along 108th Avenue NE, turns east at NE 6th Street, and crosses over I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From *Preferred Alternative B2M*, *Preferred Alternative C11A* transitions from center-running on 112th Avenue SE to side-running on the west side, crossing the southbound lanes south of SE 6th Street. It continues north from SE 6th Street, remaining at-grade along the west side of 112th Ave SE, transitioning from an at-grade profile to retained fill on the west side of 112th Avenue SE, and then becomes elevated to cross SE 1st Place and turns west. *Preferred Alternative C11A* then travels on the south side of Main Street in a retained fill to the 108th Station between 108th and 110th Avenues.

- From Alternatives B3, B3 - 114th Extension Design Option, and B7, the connectors are elevated and converge to a single route just north of SE 6th Street. The connector then heads northwest, crossing over 112th Avenue SE to travel along the south side of Main Street to the 108th Station.

From the 108th Station, *Preferred Alternative C11A* turns north at-grade, crossing Main Street to the center of 108th Avenue NE. At NE 6th Street, *Preferred Alternative C11A* turns east along the center of NE 6th Street to the at-grade Bellevue Transit Center Station, located at the existing Bellevue Transit Center between 108th and 110th Avenues NE. *Preferred Alternative C11A* then crosses 110th Avenue NE at-grade and transitions to a retained fill and then to an elevated profile between 110th and 112th Avenues NE before crossing 112th Avenue NE. *Preferred Alternative C11A* transitions from center-running on NE 6th Street between 110th and 112th Avenues NE to the north side of NE 6th Street before crossing I-405 and 116th Avenue NE. *Preferred Alternative C11A* then turns north along the former BNSF Railway corridor to cross NE 8th Street and reach the elevated Hospital Station before connecting with Segment D alternatives from the former BNSF Railway corridor. The Hospital Station would not preclude the development of a pedestrian or trail connection over NE 8th Street that would be designed and constructed by others. There is only one TPSS for *Preferred Alternative C11A*, located near the intersection of Main Street and 112th Avenue SE.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T (see Exhibit 2-31) travels from Segment B in a tunnel north along 110th Avenue NE, turns east at NE 6th Street, and crosses over I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From *Preferred Alternative B2M*, *Preferred Alternative C9T* begins on the east side of 112th Avenue SE at SE 6th Street and then transitions to the west side of 112th Avenue SE at SE 6th Street. *Preferred Alternative C9T* then travels at-grade on the west side of 112th Avenue SE before turning west at Main Street to enter the tunnel portal on Main Street. This connector requires realigning SE 4th Street through Surrey Downs Park to connect to 112th Avenue SE farther south, forming a four-way intersection at SE 6th Street.
- From Alternatives B3, B3 - 114th Extension Design Option, and B7, the connectors are elevated and converge to a single route just north of SE 6th Street. The connector then heads northwest to the elevated East Main Station south of Main Street. The connector then crosses over 112th Avenue SE to travel along the south side of Main Street and enter the tunnel portal on Main Street.

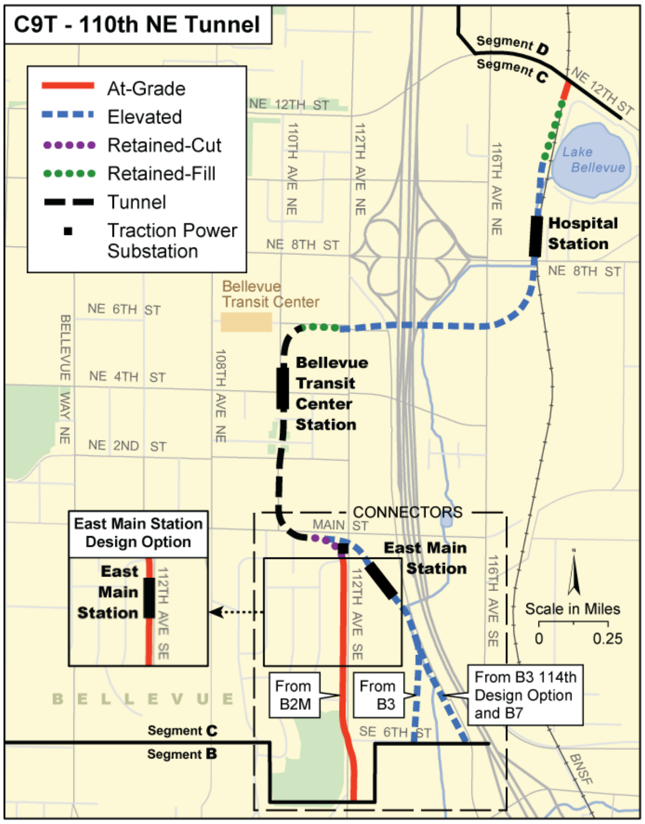

C9T - 110th NE Tunnel
At-Grade
Elevated
Retained-Cut
Retained-Fill
Tunnel
Traction Power Substation
Segment D
Segment C
NE 12TH ST
NE 12TH ST
Lake Bellevue
110TH AVE NE
112TH AVE NE
116TH AVE NE
Hospital Station
NE 8TH ST
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
BELLEVUE WAY NE
NE 4TH ST
108TH AVE NE
NE 2ND ST
Bellevue Transit Center Station
CONNECTORS
MAIN ST
East Main Station Design Option
East Main Station
112TH AVE SE
East Main Station
112TH AVE SE
116TH AVE SE
Scale in Miles
0
0.25
BELLEVUE
From B2M
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B
BNSF

EXHIBIT 2-31
Preferred 110th NE Tunnel Alternative (C9T)

From the tunnel portal on Main Street, *Preferred Alternative C9T* continues on the south side of Main Street before turning north under 110th Avenue NE. *Preferred Alternative C9T* includes the Bellevue Transit Center Station at NE 4th Street. From this station, *Preferred Alternative C9T* continues north to NE 6th Street, where it turns east and transitions to an elevated profile in the center of NE 6th Street, and then swings to the north side of NE 6th Street to cross 112th Avenue NE, I-405, and 116th Avenue NE. *Preferred Alternative C9T* then turns north along the former BNSF Railway corridor to cross NE 8th Street and reach the elevated Hospital Station; it then connects with Segment D alternatives from the former BNSF Railway corridor. The Hospital Station would not preclude development of a pedestrian or trail connection over NE 8th Street that would be designed and constructed by others. There is only one TPSS for *Preferred Alternative C9T*, located near the intersection of Main Street and 112th Avenue SE.

Preferred Alternative C9T also has a design option, Alternative C9T – East Main Station Design Option, which would include an at-grade station just south of the intersection of 112th Avenue SE and Main Street on the west side of 112th Avenue SE (see Exhibit 2-31). This design option would only be implemented with a connection to *Preferred Alternative B2M*. Under this configuration, the SE 8th Station on *Preferred Alternative B2M* would not be built.

Bellevue Way Tunnel Alternative (C1T)
The Bellevue Way Tunnel Alternative (C1T) (see Exhibit 2-32) continues at-grade in the median of Bellevue Way SE from Alternative B1, then transitions to a tunnel in a retained cut from approximately SE 4th Street to SE 2nd Street. C1T continues in a tunnel to the underground Old Bellevue Station between Main Street and NE 2nd Street. The alternative turns east at NE 6th Street under the Bellevue Arts Museum to an underground station at the Bellevue Transit Center. Alternative C1T exits the tunnel after 110th Avenue NE in an elevated profile in the median of NE 6th and crosses 112th Avenue NE, I-405, and 116th Avenue NE before turning north inside the former BNSF Railway corridor. The Hospital Station is elevated just north of NE 8th Street. Alternative C1T then descends to an at-grade profile to cross under NE 12th Street, where it connects to Segment D alternatives. The Hospital Station could include development of a pedestrian or trail connection over NE 8th Street that would be designed and constructed by others. There is only one TPSS for Alternative C1T, located under the elevated guideway near NE 8th Street.

106th NE Tunnel Alternative (C2T)
The 106th NE Tunnel Alternative (C2T) (see Exhibit 2-33) travels from Segment B in a tunnel under 106th Avenue NE, turns east at NE 6th Street, and crosses over I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From Alternative B2A, Alternative C2T transitions into a retained cut, then into a tunnel in the median of 112th Avenue SE before turning northwest under the Surrey Downs Park, on the District Court House side, and travels diagonally to connect to 106th Avenue NE at Main Street.
- From Alternative B2E, elevated on the east side of 112th Avenue, the connector turns west at Main Street and descends into a tunnel west of 112th Avenue SE along the south side of Main Street, where it turns to align under 106th Avenue NE.
- From Alternatives B3 and B7, the connector converges in new right-of-way just south of Main Street to the retained-cut East Main Station. From there, the connector turns west at Main Street and

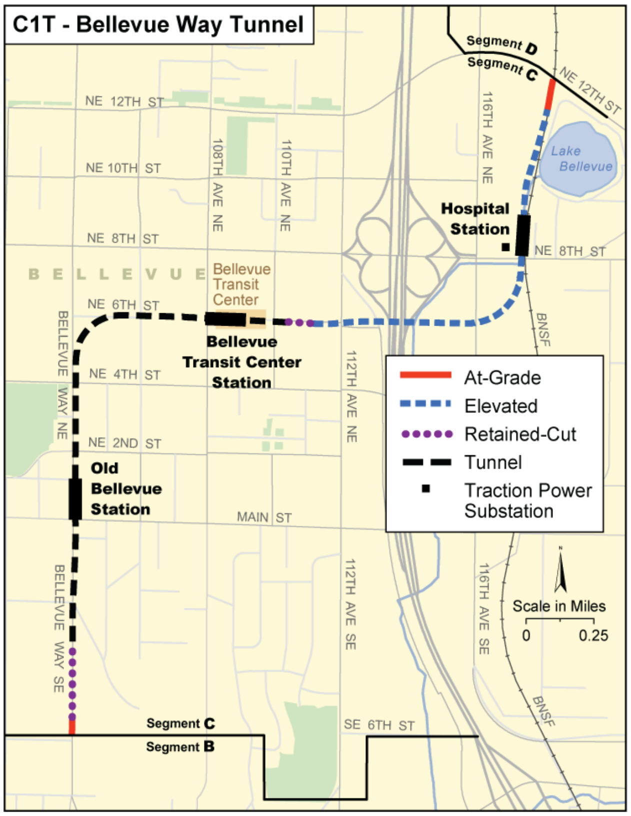

C1T - Bellevue Way Tunnel
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
116TH AVE NE
Lake Bellevue
Hospital Station
NE 8TH ST
NE 8TH ST
BELLEVUE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
BNSF
BELLEVUE WAY NE
NE 4TH ST
112TH AVE NE
NE 2ND ST
Old Bellevue Station
MAIN ST
BELLEVUE WAY SE
112TH AVE SE
116TH AVE SE
SE 6TH ST
BNSF
Segment C
Segment B
At-Grade
Elevated
Retained-Cut
Tunnel
Traction Power Substation
Scale in Miles
0
0.25

EXHIBIT 2-32
Bellevue Way Tunnel Alternative (C1T)

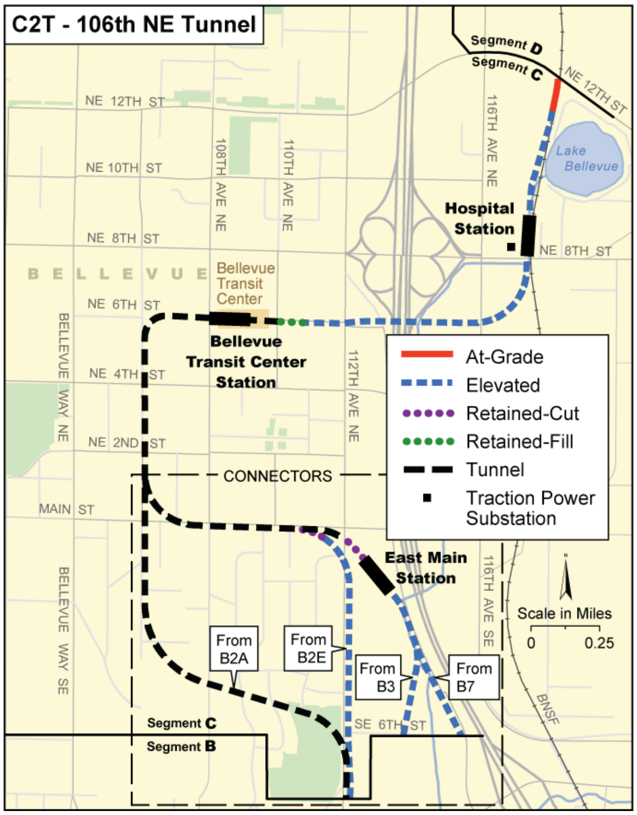

C2T - 106th NE Tunnel
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
116TH AVE NE
Lake Bellevue
Hospital Station
NE 8TH ST
NE 8TH ST
BELLEVUE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
BELLEVUE WAY NE
NE 4TH ST
112TH AVE NE
NE 2ND ST
CONNECTORS
MAIN ST
East Main Station
116TH AVE SE
BELLEVUE WAY SE
From B2A
From B2E
From B3
From B7
SE 6TH ST
BNSF
Segment C
Segment B
At-Grade
Elevated
Retained-Cut
Retained-Fill
Tunnel
Traction Power Substation
Scale in Miles
0
0.25

EXHIBIT 2-33
106th NE Tunnel Alternative (C2T)

descends into a tunnel under 112th Avenue SE along the south side of Main Street, where it turns under a small retail complex to align under 106th Avenue NE.

North of Main Street**,** Alternative C2T continues under 106th Avenue NE in a tunnel and turns east under NE 6th Street to the underground Bellevue Transit Center Station. From this point eastward, the Alternative C2T route is identical to Alternative C1T as it connects to Segment D alternatives. There is only one TPSS for Alternative C2T, located under the elevated guideway near NE 8th Street.

108th NE Tunnel Alternative (C3T)

The 108th NE Tunnel Alternative (C3T) (see Exhibit 2-34) travels from Segment B in a tunnel under 108th Avenue NE, turns east at NE 12th Street, and crosses I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From Alternative B2A, Alternative C3T transitions into a retained cut, then tunnels in the median of 112th Avenue SE before turning northwest under the Surrey Downs Park/District Court House site and diagonally to where it connects to 108th Avenue NE at Main Street.
- From Alternative B2E, elevated on the east side of 112th Avenue, the connector turns west at Main Street and descends into a tunnel west of 112th Avenue SE along the south side of Main Street, where it turns in an easement under 108th Avenue NE.
- From Alternatives B3 and B7, the connectors converge into a new right-of-way west of I-405; then, south of Main Street, the connector descends into a retained-cut to East Main Station. From there, the connector turns west at Main Street and descends into a tunnel under 112th Avenue SE along the south side of Main Street, where it turns under 108th Avenue NE.

North of Main Street, Alternative C3T continues along 108th Avenue NE in a tunnel to the underground Bellevue Transit Center Station. The alternative continues north until turning east onto the north side of NE 12th Street. The exit portal is at approximately 110th Avenue NE, and then the guideway transitions to an elevated profile to cross over 112th Avenue NE and I-405 with the Ashwood/Hospital Station located just east of I-405. There is only one TPSS for Alternative C3T, located at the Ashwood/Hospital Station east of I-405 and north of NE 12th Street.

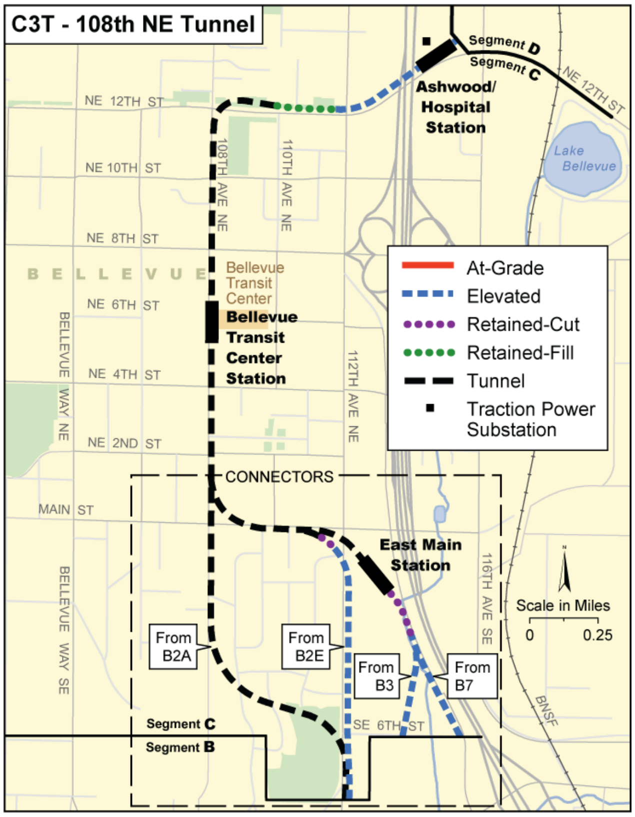

C3T - 108th NE Tunnel
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
Lake Bellevue
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
NE 8TH ST
BELLEVUE
Bellevue Transit Center
Bellevue Transit Center Station
NE 6TH ST
NE 4TH ST
BELLEVUE WAY NE
112TH AVE NE
NE 2ND ST
At-Grade
Elevated
Retained-Cut
Retained-Fill
Tunnel
Traction Power Substation
CONNECTORS
MAIN ST
East Main Station
116TH AVE SE
Scale in Miles
0
0.25
BELLEVUE WAY SE
From B2A
From B2E
From B3
From B7
BNSF
Segment C
Segment B
SE 6TH ST

EXHIBIT 2-34
108th NE Tunnel Alternative (C3T)

Couplet Alternative (C4A)

The Couplet Alternative (C4A) (see Exhibit 2-35) travels from Segment B at-grade with a northbound track on 110th Avenue NE and southbound track on 108th Avenue NE. It turns east at NE 12th Street and crosses I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From Alternative B2A, the connector transitions from an at-grade to elevated profile on the east side of 112th Avenue. The connector turns west at Main Street and returns at-grade along the south side of the road, with single tracks to 110th and 108th Avenues NE.
- From Alternative B2E, elevated on the east side of 112th Avenue, the connector is the same as Alternative B2A.

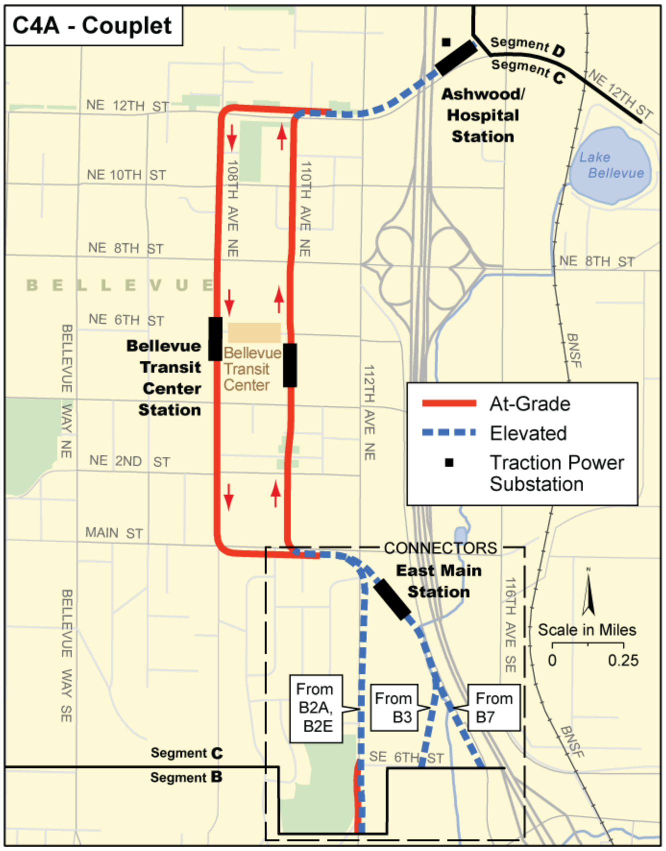

C4A - Couplet
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
Lake Bellevue
NE 10TH ST
108TH AVE NE
110TH AVE NE
NE 8TH ST
NE 8TH ST
BELLEVUE
NE 6TH ST
BNSF
BELLEVUE WAY NE
Bellevue Transit Center Station
Bellevue Transit Center
112TH AVE NE
At-Grade
Elevated
■ Traction Power Substation
NE 2ND ST
MAIN ST
CONNECTORS
East Main Station
116TH AVE SE
Scale in Miles
0
0.25
BELLEVUE WAY SE
From B2A, B2E
From B3
From B7
BNSF
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-35
Couplet Alternative (C4A)

- From Alternatives B3 and B7, the connectors converge just south of Main Street to the elevated East Main Station. From there, the connector turns west at Main Street, crosses over 112th Avenue SE, and descends to an at-grade profile along the south side of Main Street, with tracks to 110th and 108th Avenues NE.

Between Main Street and NE 12th Street, Alternative C4A is an at-grade couplet using 110th and 108th Avenues NE. The northbound track on 110th Avenue NE would remove one lane of traffic and 110th would become one-way in the southbound direction (Exhibit 2-36). The southbound track on 108th Avenue NE would remove one lane of traffic and assumes that 108th would become one way in the northbound direction. Under Alternative C4A, the light rail would run counterflow to automobile traffic on 108th and 110th Avenues NE, which would improve visibility with automobiles and provide protected movement through the intersection. Operating light rail vehicles in the opposite direction as automobile traffic would also allow two-way bus service in a joint-use lane between NE 4th and NE 8th Streets in Downtown Bellevue. The Bellevue Transit Center Station would be on 108th and 110th Avenues NE south of NE 6th Street. The couplet would combine into a double track going east north of NE 12th Street in an elevated profile to cross over 112th Avenue NE and I-405, with the Ashwood/Hospital Station located just east of I-405. There would be only one TPSS for Alternative C4A, located at the Ashwood/Hospital Station east of I-405 and north of NE 12th Street.

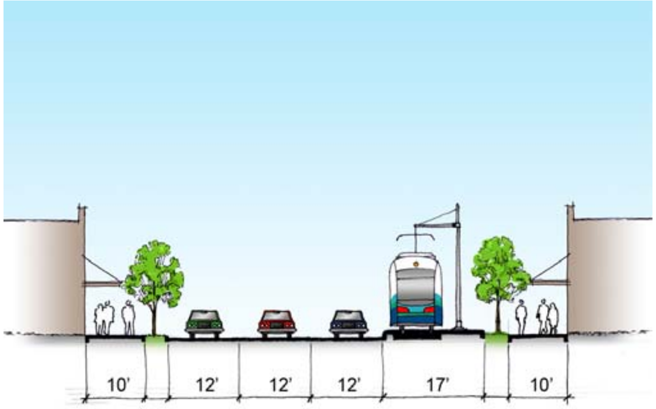

10'
12'
12'
12'
17'
10'

EXHIBIT 2-36
C4A, At-Grade, Side Running on 110th and 108th Avenue NE

112th NE Elevated Alternative (C7E)

The 112th NE Elevated Alternative (C7E) (see Exhibit 2-37) travels from Segment B, elevated along 112th Avenue, turns east at NE 12th Street, and crosses I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From Alternative B2A, an at-grade to elevated profile on the east side of 112th Avenue SE, the connector crosses Main Street.
- From Alternative B2E, elevated on the east side of 112th Avenue SE, the connector is the same as Alternative B2A.

From Alternatives B3 and B7, the connectors converge just south of Main Street to an elevated East Main Station. From there, the connector turns northwest along the east side of 112th Avenue SE and crosses Main Street.

North of Main Street, Alternative C7E is an elevated profile along the east side of 112th Avenue SE, with the Bellevue Transit Center Station south of NE 6th Street and a pedestrian overpass connecting to the Bellevue Transit Center. Alternative C7E continues elevated, turning east at NE 12th Street to cross over 112th Avenue SE and I-405, with the Ashwood/Hospital Station located just east of I-405. There is only one TPSS for Alternative C7E, located at the Ashwood/Hospital Station east of I-405 and north of NE 12th Street.

110th NE Elevated Alternative (C8E)

The 110th NE Elevated Alternative (C8E) (see Exhibit 2-38) travels from Segment B adjacent to 114th Avenue/I-405, turns west at NE 2nd Street and north elevated along 110th Avenue NE, turns east at NE 12th Street, and crosses I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From Alternatives B3 and B7, the connectors converge just south of Main Street to the elevated East Main Station. From there, the connectors continue north over Main Street adjacent to I-405/114th Avenue.

North of Main Street, Alternative C8E is an elevated profile adjacent to 114th Avenue NE/ I-405, turning west at NE 2nd Street, crossing over 112th Avenue NE, and turning north at 110th Avenue NE to the median of the road and to an elevated Bellevue Transit Center station south of NE 6th Street. Alternative C8E continues elevated in the median of 110th Avenue NE, turning east at NE 12th Street to cross over 112th Avenue NE and I-405, with the Ashwood/Hospital Station located over I-405. There is only one TPSS for C8E, located under the elevated guideway after the I-405 crossing, north of NE 12th Street.

110th NE At-Grade Alternative (C9A)

110th NE At-Grade Alternative (C9A) (see Exhibit 2-39) travels from Segment B at-grade north along 110th Avenue NE, turns east at NE 6th Street, and crosses over I-405 to connect with the Segment D alternatives.

Connectors from Segment B:

- From Alternative B2A, Alternative C9A begins at-grade in the center of 112th Avenue SE and transitions to retained fill just north of SE 6th Street. The alternative then transitions to elevated and curves slightly to the east side of 112th Avenue SE before turning west and crossing over 112th Avenue SE and transitioning to at-grade along Main Street. This connector requires widening 112th Avenue SE to the east for

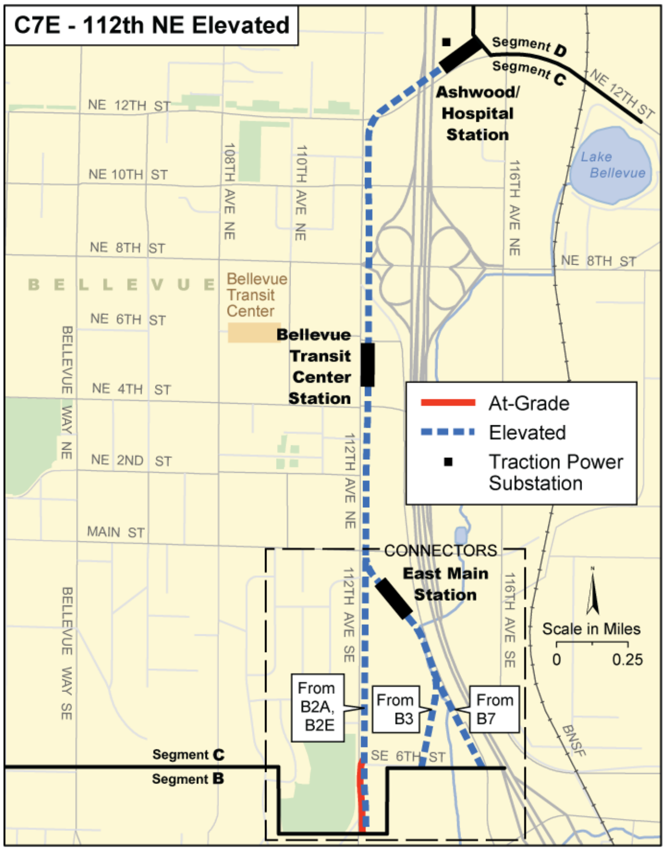

C7E - 112th NE Elevated
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
Lake Bellevue
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
116TH AVE NE
NE 8TH ST
NE 8TH ST
BELLEVUE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
BELLEVUE WAY NE
NE 4TH ST
At-Grade
Elevated
Traction Power Substation
NE 2ND ST
112TH AVE NE
MAIN ST
CONNECTORS
East Main Station
112TH AVE SE
116TH AVE SE
Scale in Miles
0
0.25
BELLEVUE WAY SE
From B2A, B2E
From B3
From B7
BNSF
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-37
112th NE Elevated Alternative (C7E)

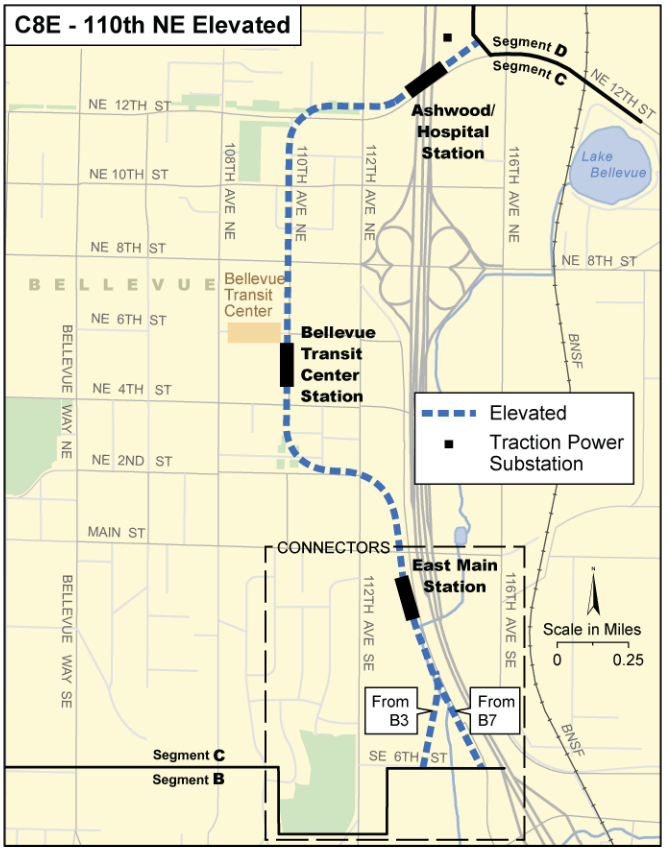

C8E - 110th NE Elevated
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
Lake Bellevue
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
NE 8TH ST
NE 8TH ST
BELLEVUE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
BNSF
BELLEVUE WAY NE
NE 4TH ST
Elevated
Traction Power Substation
NE 2ND ST
MAIN ST
CONNECTORS
East Main Station
112TH AVE SE
116TH AVE SE
Scale in Miles
0
0.25
BELLEVUE WAY SE
From B3
From B7
BNSF
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-38
110th NE Elevated Alternative (C8E)

northbound traffic where the profile is at-grade and transitioning to elevated. Once the connector is elevated, northbound traffic travels under the elevated portions before 112th Avenue SE rejoins the original alignment.

- From Alternatives B3, B3 - 114th Extension Design Option, and B7, the connectors are elevated and converge to a single route just north of SE 6th Street. The connector then heads northwest to the elevated East Main Station south of Main Street. The connector then crosses over 112th Avenue SE to travel west along the south side of Main Street.

Alternative C9A heads west on the south side of Main Street at-grade before turning north in the center of 110th Avenue NE and traveling at-grade in the center of the street to NE 6th Street, where it turns east to a Bellevue Transit Center Station located between 110th and 112th Avenues NE. From the station, this alternative travels east in an elevated profile over 112th Avenue NE, I-405, and 116th Avenue NE. Alternative C9A then turns north along the former BNSF Railway corridor to cross NE 8th Street and reach the elevated Hospital Station, then connects with Segment D alternatives from the former BNSF Railway corridor. The Hospital Station could include development of a pedestrian or trail connection over NE 8th Street that would be designed and constructed by others. There is only one TPSS for Alternative C9A, located near the Hospital Station.

114th NE Elevated Alternative (C14E)

The 114th NE Elevated Alternative (C14E) (see Exhibit 2-40) travels from Segment B adjacent to 114th Avenue/I-405, turns east to cross I-405 between NE 6th Street and NE 8th Street, and connects with the Segment D alternatives.

Connectors from Segment B:

- From Alternatives B3, B3 - 114th Extension Design Option, and B7, the connectors are elevated and converge to a single route just north of SE 6th Street. The connector then heads north, crossing over Main Street just west of and adjacent to I-405/114th Avenue NE. This alternative does not include the East Main Station.

North of Main Street, Alternative C14E is elevated the entire distance and crosses over I-405 beginning at NE 6th Street. The Bellevue Transit Center Station is located on an elevated structure above 114th Avenue NE, between NE 4th and 6th Streets, east of the existing Bellevue Transit Center. To provide better access from the existing Bellevue Transit Center, a moving sidewalk connects the station to City Hall Plaza, located across the street from the Bellevue

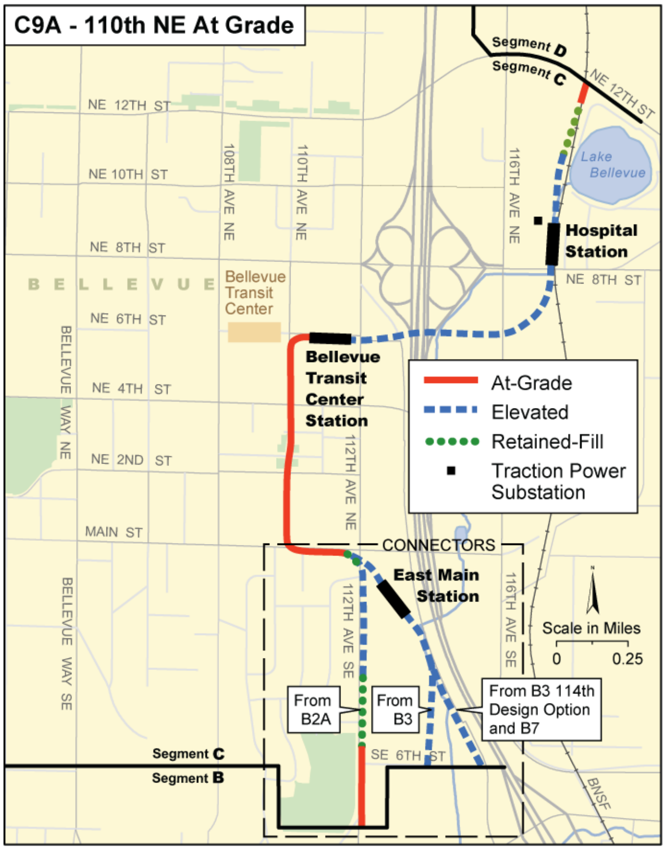

C9A - 110th NE At Grade
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
116TH AVE NE
112TH AVE NE
112TH AVE SE
116TH AVE SE
BELLEVUE WAY NE
BELLEVUE WAY SE
B E L L E V U E
Bellevue Transit Center
Bellevue Transit Center Station
Lake Bellevue
Hospital Station
NE 8TH ST
East Main Station
CONNECTORS
From B2A
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B
BNSF
At-Grade
Elevated
Retained-Fill
Traction Power Substation
Scale in Miles
0
0.25

EXHIBIT 2-39
110th NE At-Grade Alternative (C9A)

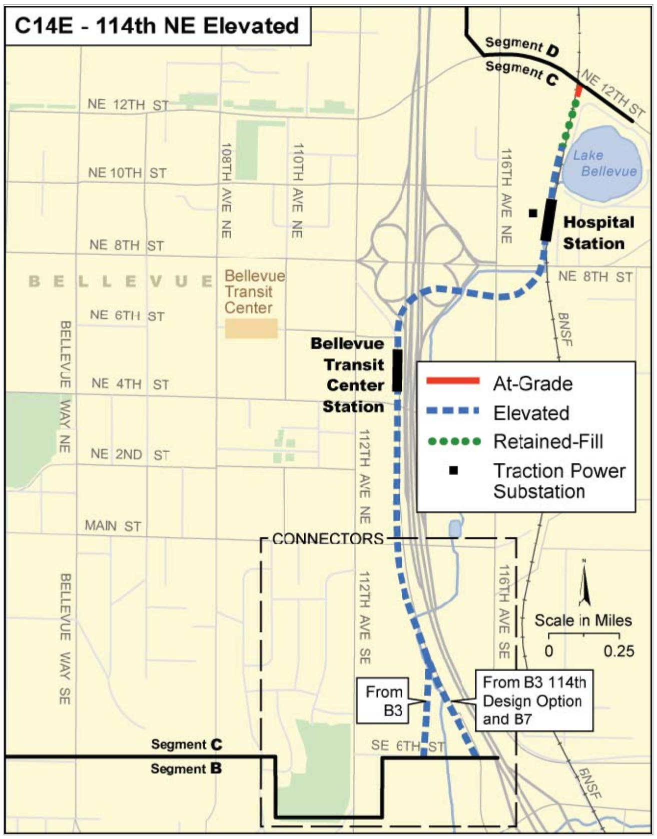

C14E - 114th NE Elevated
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
116TH AVE NE
112TH AVE NE
112TH AVE SE
116TH AVE SE
BELLEVUE WAY NE
BELLEVUE WAY SE
B E L L E V U E
Bellevue Transit Center
Bellevue Transit Center Station
Lake Bellevue
Hospital Station
NE 8TH ST
BNSF
CONNECTORS
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B
BNSF
At-Grade
Elevated
Retained-Fill
Traction Power Substation
Scale in Miles
0
0.25

EXHIBIT 2-40
114th NE Elevated Alternative (C14E)

Transit Center. Under Alternative C14E, a 200-space underground parking structure could be implemented by others as part of a larger development project on nearby property. After crossing I-405, Alternative C14E crosses 116th Avenue NE in an elevated profile and then turns north in the former BNSF Railway corridor to an elevated Hospital Station. The Hospital Station could include development of a pedestrian or trail connection over NE 8th Street that would be designed and constructed by others. There is only one TPSS for Alternative C14E, located near the Hospital Station.

Interim Termini in Segment C

The East Link Project might be constructed in phases, depending on available funding or other factors. In Segment C, an interim terminus might be located at the Hospital Station or Ashwood/Hospital Station, depending on the alternative selected. However, operational plans might require constructing a maintenance facility. The closest of the proposed maintenance facility alternative sites is in Segment D, so an access track and maintenance facility would be built beyond Segment C under this phasing scenario. In addition, an interim terminus would require storage tracks up to 850 feet beyond the station platform for temporary layover of a four-car train. The preferred location for these storage tracks would be an extension within the former BNSF Railway corridor, north of the Hospital Station.

City of Bellevue's Proposed B7-Revised (B7R)

In response to the Draft EIS and the SDEIS, the City of Bellevue developed conceptual designs for modifications to Alternative B7 connecting to *Preferred Alternative C9T* and referred to this set of modifications as B7R (see Exhibit 2-41). The City of Bellevue also commissioned a preliminary study of the B7R modifications (City of Bellevue's *B7R Interim Analysis Report* [2011] in Appendix K). While the City's study was not as detailed as the environmental work prepared by Sound Transit (and in some areas it used different methodologies), information from the study is included and discussed in Chapter 7 for purposes of comparison. The B7R is compared with the combination of Alternative B7 and *Preferred Alternative C9T* in Chapter 7.

The B7R, studied by the City of Bellevue, follows the same general route as Alternative B7 and *Preferred Alternative C9T* except the route between the East Main Station and the Bellevue Transit Center Station is different than *C9T*. B7R has a light rail station (referred to as the A2 Station) located adjacent to and north of I-90 over the I-90/Bellevue Way SE interchange, with a pedestrian walkway to a new parking garage and transit center on the west side of Bellevue Way SE in the Enatai neighborhood (Exhibit 2-41). The A2 Station replaces the 118th Station of Alternative B7, and the South Bellevue Park-and-Ride Lot is assumed to be closed. Roadway access to the A2 Station parking garage and transit center would be from Bellevue Way SE and 113th Avenue SE and would require a new overpass over Bellevue Way SE. B7R modifies the *Preferred Alternative C9T* route by crossing under Main Street north of the East Main Station and then enters a tunnel north of Main Street that turns west at NE 2nd Street and connects to the Bellevue Transit Center Station, as opposed to *Preferred Alternative C9T,* which enters a tunnel portal at the southwest corner of Main Street and 112th Avenue. B7R includes East Main and Bellevue Transit Center Stations. While not studied by the City of Bellevue, the extension north to the Hospital Station is assumed to be the same as with *Preferred Alternative C9T*.

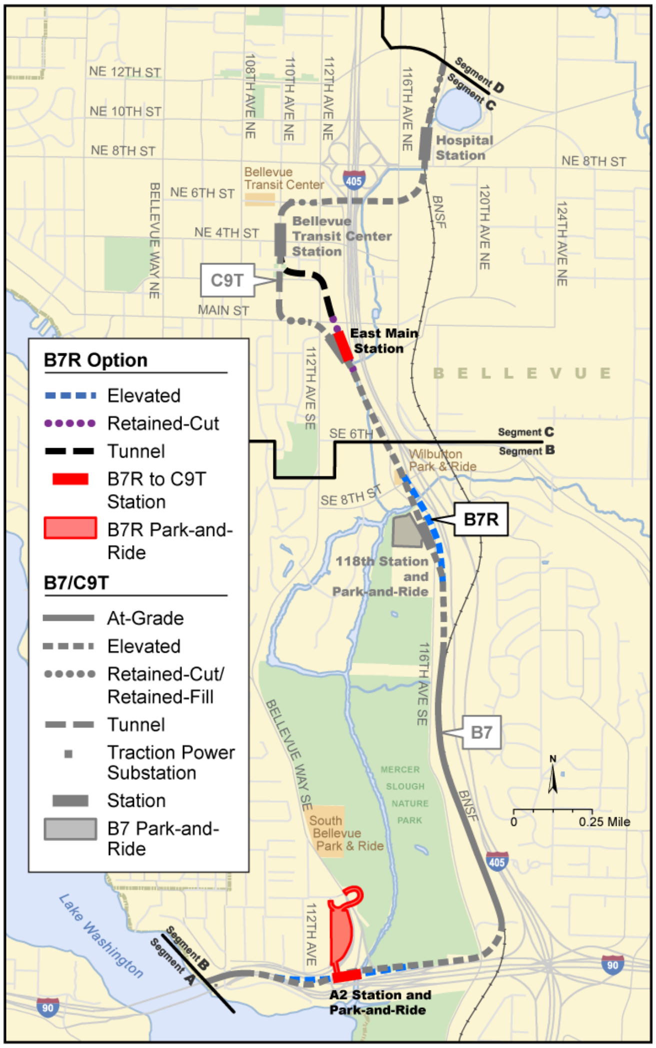

NE 12TH ST
NE 10TH ST
NE 8TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
Segment D
Segment C
Hospital Station
NE 8TH ST
405
Bellevue Transit Center
NE 6TH ST
NE 4TH ST
Bellevue Transit Center Station
BNSF
120TH AVE NE
124TH AVE NE
BELLEVUE WAY NE
C9T
MAIN ST
East Main Station
BELLEVUE
112TH AVE SE
SE 6TH
Segment C
Segment B
Wilburton Park & Ride
SE 8TH ST
B7R
118th Station and Park-and-Ride
116TH AVE SE
B7
MERCER SLOUGH NATURE PARK
BELLEVUE WAY SE
South Bellevue Park & Ride
BNSF
N
0
0.25 Mile
405
Lake Washington
Segment B
Segment A
112TH AVE
A2 Station and Park-and-Ride
90
90
B7R Option
Elevated
Retained-Cut
Tunnel
B7R to C9T Station
B7R Park-and-Ride
B7/C9T
At-Grade
Elevated
Retained-Cut/ Retained-Fill
Tunnel
Traction Power Substation
Station
B7 Park-and-Ride

EXHIBIT 2-41
City of Bellevue Proposed B7/C9T Revised (B7R)

Segment D: Downtown Bellevue to Overlake Transit Center

There are four alternatives in Segment D, which serve both the City of Bellevue's Bel-Red Corridor and Redmond's Overlake Village planning areas. All Segment D alternatives begin with connections from either the north side of NE 12th Street across 116th Avenue NE or from the former BNSF Railway corridor coming from NE 6th Street. These are referred to below as connections from "NE 12th" or "former BNSF." Segment D alternatives have between two and four stations at four possible locations: the 120th, 130th, Overlake Village, and Overlake Transit Center stations. *Preferred NE 16th At-Grade (D2A),* NE 16th Elevated (D2E), and NE 20th (D3) Alternatives have the option of building either the 120th Station or the 130th Station, or building both stations. Exhibit 2-19 shows the locations and overall features of the Segment D alternatives, and Exhibits 2-42 to 2-45 show details of each alternative. Additional information on the proposed stations is provided in Table 2-3. The Sound Transit Board identified the *Preferred NE 16th At-Grade Alternative (D2A)* as the preferred alternative in Segment D.

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A (see Exhibit 2-42) travels parallel to and north of a new NE 15th Street corridor east from the former BNSF Railway corridor in a mixed at-grade, retained-cut, and elevated profile.

Preferred Alternative D2A leaves the former BNSF Railway corridor at-grade and then transitions to a retained cut under 120th Avenue NE to a retained-cut 120th Station. After leaving the 120th Station, the route continues in a retained cut under 124th Avenue NE before transitioning to an elevated profile over the West Tributary of Kelsey Creek and then returns to the at-grade 130th Station. This alternative would also construct a surface park-and-ride lot at either the 120th or the 130th Station, but not at both stations. *Preferred Alternative D2A* continues at-grade on NE 16th Street, turns north at 136th Place NE, and crosses NE 20th Street at-grade until it transitions to an elevated structure along the south side of SR 520. This alternative then continues northeast to the Overlake Village Station west of 152nd Avenue NE, next to SR 520, and transitions to a retained-cut profile after the station until reaching the retained-cut Overlake Transit Center Station, which includes a proposed four-story parking structure.

Two bicycle/pedestrian bridges connecting to the north side of SR 520 are being considered and would be funded by others at the Overlake Village and Overlake Transit Center Stations. From the Overlake Transit Center Station, the route descends into a retained-cut profile on the east side of SR 520 and crosses under NE 40th Street before connecting with all Segment E alternatives.

Any station on *Preferred Alternative D2A* might serve as an interim terminus, which would include tracks north of the station for train storage and turnback operations. However, the preferred location for these storage tracks would be in the former BNSF Railway corridor north of the Segment C/D break. If such a feature were built at an interim terminus station, then the project might also include parking for operators, and office/storage space for light maintenance activities such as cleaning interiors of vehicles.

Preferred Alternative D2A also includes two design options (as shown in Exhibit 2-42). The Alternative D2A - 120th Station Design Option follows the same horizontal alignment between 120th and 124th Avenues NE, but it is at-grade instead of in a retained cut, with an at-grade 120th Station, then transitions to elevated over 124th Avenue NE. The Alternative D2A - NE 24th Design Option leaves the SR 520 corridor at NE 24th Street and runs elevated along the north side of NE 24th Street. After crossing 148th Avenue NE, D2A - NE 24th Design Option turns north, then becomes at-grade along the west side of 152nd Avenue NE to the Overlake Village Station, then continues north to rejoin the SR 520 right-of-way. There are three TPSSs for *Preferred Alternative D2A*: one near the 120th Station, one located under the elevated guideway at NE 24th Street, and a third at the Overlake Transit Center Station.

NE 16th Elevated Alternative (D2E)

The NE 16th Elevated Alternative (D2E*)* (see Exhibit 2-43) is approximately an elevated version of *Preferred Alternative D2A* until 132nd Avenue NE, where Alternative D2E crosses to the south side of NE 16th Street, requiring street widening, then transitions to the west side of 136th Place NE, also requiring about 10 feet of street widening. Just north of NE 20th Street, D2E has a similar route to the Alternative D2A - NE 24th Design Option, except D2E remains on the south side of NE 24th Street before turning north along the west side of 152nd Avenue NE. There are two TPSSs for D2E: one located under the elevated guideway north of NE 20th Street and another at the Overlake Transit Center Station.

NE 20th Alternative (D3)

The NE 20th Alternative (D3) (see Exhibit 2-44) follows approximately the same route as *Preferred Alternative D2A* until Alternative D3 approaches NE 20th Street, where it turns east into the median of NE 20th Street at-grade, requiring widening on either side of the road, then into a retained cut east of 140th Avenue NE.

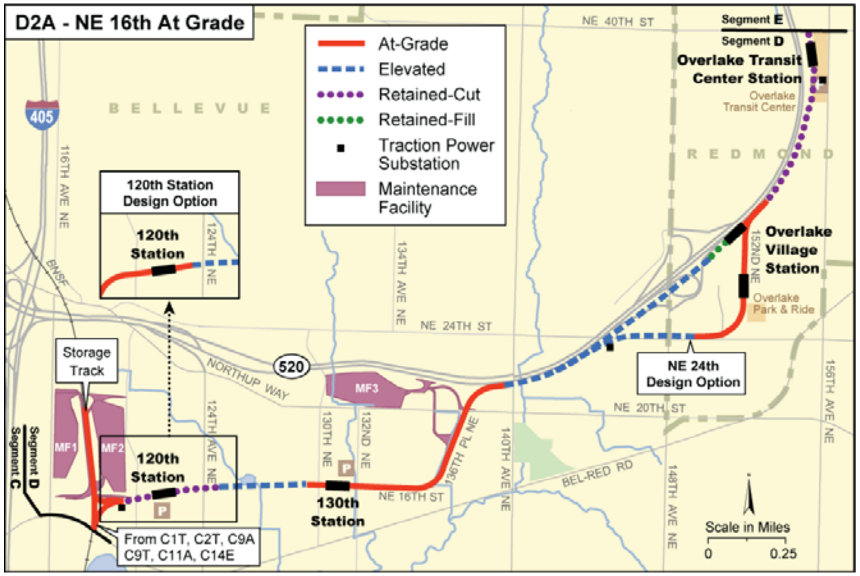

D2A - NE 16th At Grade
At-Grade
Elevated
Retained-Cut
Retained-Fill
Traction Power Substation
Maintenance Facility
120th Station Design Option
120th Station
124TH AVE NE
Storage Track
120th Station
130th Station
Overlake Transit Center Station
Overlake Transit Center
Overlake Village Station
Overlake Park & Ride
NE 24th Design Option
Segment E
Segment D
Segment C
BELLEVUE
REDMOND
405
520
NE 40TH ST
NE 24TH ST
NE 20TH ST
NE 16TH ST
NORTHUP WAY
BEL-RED RD
116TH AVE NE
130TH NE
132ND NE
134TH AVE NE
136TH PL NE
140TH AVE NE
148TH AVE NE
152ND NE
156TH AVE NE
BNSF
MF1
MF2
MF3
From C1T, C2T, C9A C9T, C11A, C14E
Scale in Miles
0
0.25

EXHIBIT 2-42
Preferred Alternative D2A

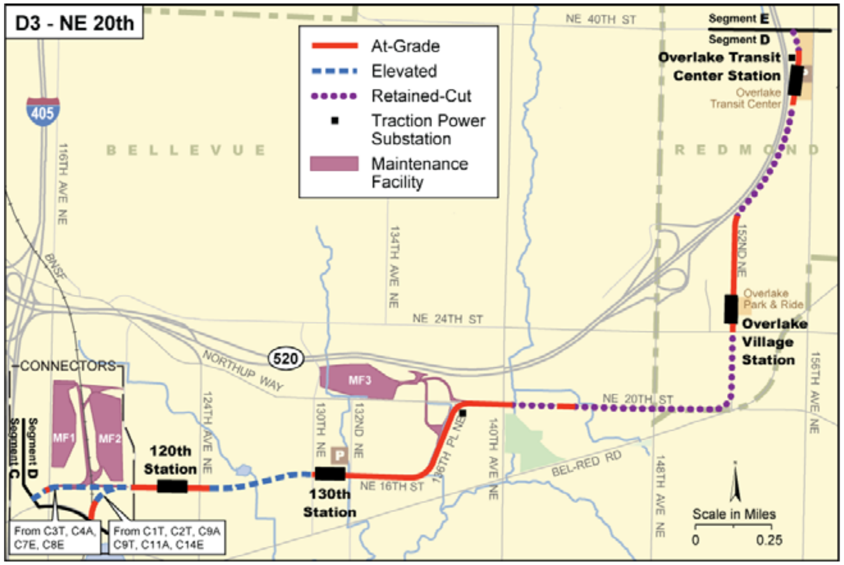

D3 - NE 20th
At-Grade
Elevated
Retained-Cut
Traction Power Substation
Maintenance Facility
Overlake Transit Center Station
Overlake Transit Center
Overlake Village Station
Overlake Park & Ride
120th Station
130th Station
CONNECTORS
Segment E
Segment D
Segment C
BELLEVUE
REDMOND
405
520
NE 40TH ST
NE 24TH ST
NE 20TH ST
NE 16TH ST
NORTHUP WAY
BEL-RED RD
116TH AVE NE
124TH AVE NE
130TH NE
132ND NE
134TH AVE NE
136TH PL NE
140TH AVE NE
148TH AVE NE
152ND NE
156TH AVE NE
BNSF
MF1
MF2
MF3
From C3T, C4A, C7E, C8E
From C1T, C2T, C9A C9T, C11A, C14E
Scale in Miles
0
0.25

EXHIBIT 2-44
NE 20th Alternative (D3)

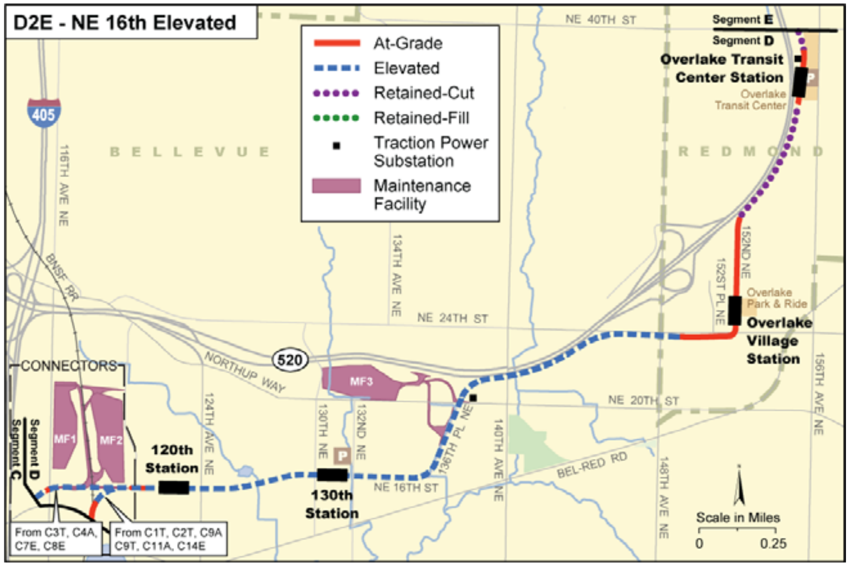

D2E - NE 16th Elevated
At-Grade
Elevated
Retained-Cut
Retained-Fill
Traction Power Substation
Maintenance Facility
Overlake Transit Center Station
Overlake Transit Center
Overlake Village Station
Overlake Park & Ride
120th Station
130th Station
CONNECTORS
Segment E
Segment D
Segment C
BELLEVUE
REDMOND
405
520
NE 40TH ST
NE 24TH ST
NE 20TH ST
NE 16TH ST
NORTHUP WAY
BEL-RED RD
116TH AVE NE
124TH AVE NE
130TH NE
132ND NE
134TH AVE NE
136TH PL NE
140TH AVE NE
148TH AVE NE
152ST PL NE
152ND NE
156TH AVE NE
BNSF RR
MF1
MF2
MF3
From C3T, C4A, C7E, C8E
From C1T, C2T, C9A C9T, C11A, C14E
Scale in Miles
0
0.25

EXHIBIT 2-43
NE 16th Elevated Alternative (D2E)

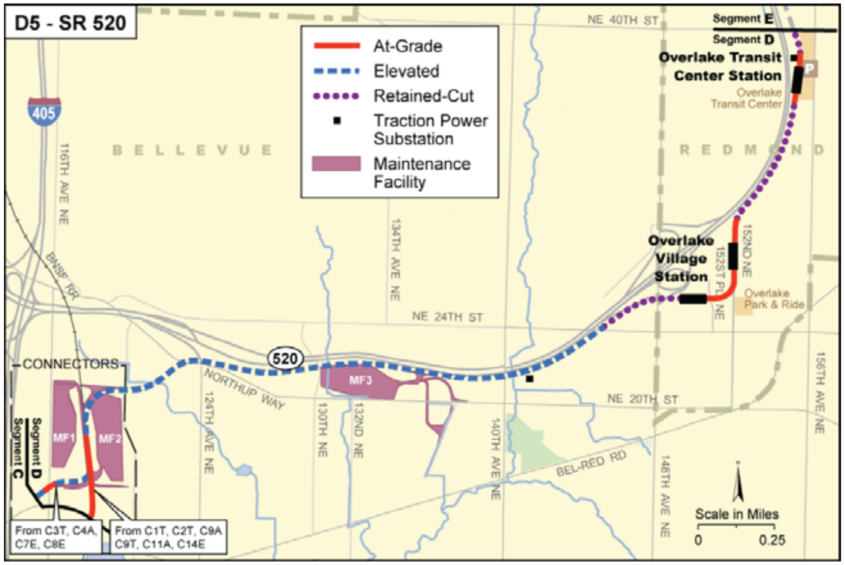

D5 - SR 520
At-Grade
Elevated
Retained-Cut
Traction Power Substation
Maintenance Facility
Overlake Transit Center Station
Overlake Transit Center
Overlake Village Station
Overlake Park & Ride
CONNECTORS
Segment E
Segment D
Segment C
BELLEVUE
REDMOND
405
520
NE 40TH ST
NE 24TH ST
NE 20TH ST
NORTHUP WAY
BEL-RED RD
116TH AVE NE
124TH AVE NE
130TH NE
132ND NE
134TH AVE NE
140TH AVE NE
148TH AVE NE
152ST PL NE
152ND NE
156TH AVE NE
BNSF RR
MF1
MF2
MF3
From C3T, C4A, C7E, C8E
From C1T, C2T, C9A C9T, C11A, C14E
Scale in Miles
0
0.25

EXHIBIT 2-45
SR 520 Alternative (D5)

Alternative D3 remains in a retained-cut profile, heading north at 152nd Avenue NE, and transitions to an at-grade center-running route just south of NE 24th Street. 152nd Avenue NE would be widened to the east and west. The alternative continues north to Overlake Village and then is similar to the D2A - NE 24th Design Option profile and station descriptions, except that D3 is in the median of 152nd Avenue NE and the Overlake Village Station is closer to NE 24th Street. There are two TPSSs for Alternative D3: one located adjacent to the route at the intersection of 136th Place NE and NE 20th Street, and another at the Overlake Transit Center Station.

SR 520 Alternative (D5)

The SR 520 Alternative (D5) (see Exhibit 2-45) is elevated from the north side of NE 12th Street, or at-grade in the former BNSF Railway corridor, turns east at approximately NE 20th Street, crosses Northup Way, and continues east on the south side of SR 520. The alternative crosses over NE 24th Street and then transitions into a retained-cut profile under 148th Avenue NE and then into the retained cut/at-grade station at the Overlake Village Station behind the Safeway store or at the Overlake Village Station at NE 25th Street along the west side of 152nd Avenue NE. From 152nd Avenue NE, Alternative D5 is similar to the D2A - NE 24th Design Option, going to Segment E. There are two TPSSs for Alternative D5: one located under the elevated guideway east of 140th Avenue NE and another at the Overlake Transit Center Station.

Interim Termini in Segment D

Depending on available funding, buildout of the selected alternative in Segment D may have an interim terminus at any of the proposed stations. This would include access tracks to connect with a maintenance facility within Segment D, if one is constructed. In addition, an interim terminus would require storage tracks up to 850 feet beyond the terminus station platform for temporary layover of a four-car train.

Segment E: Overlake Transit Center to Downtown Redmond

Three alternatives are considered for Segment E. All Segment E alternatives follow one route from Segment D along the south side of SR 520 until they split into three different routes accessing Downtown Redmond. From the Overlake Transit Center, all Segment E alternatives follow the south side of SR 520 and under NE 40th Street, NE 51st Street, and NE 60th Street in a retained-cut profile. The three alternatives split into three different routes at the SR 520 interchange with West Lake Sammamish Parkway. The *Preferred Marymoor Alternative (E2)* crosses the interchange to continue east along the south side of SR 520.

Alternatives in this segment have either two or three stations at these potential locations: Redmond Town Center, SE Redmond, Downtown Redmond, and Redmond Transit Center. Exhibit 2-20 shows the locations and overall features of the Segment E alternatives, and Exhibits 2-46 to 2-48 show details of each alternative and the design option. Additional information on the proposed stations is provided in Table 2-3. The Sound Transit Board identified *Preferred Marymoor Alternative (E2)* as the preferred alternative in Segment E.

Preferred Marymoor Alternative (E2)

Preferred Marymoor Alternative (E2) (Exhibit 2-46) travels parallel to and east of SR 520 in a combination of retained-cut and at-grade profiles and transitions to an elevated profile on the south side of SR 520 on a new bridge over the Sammamish River. *Preferred Alternative E2* then descends to at-grade, straddling the SR 520 right-of-way and Marymoor Park property line to the SE Redmond Station on the south side of the SR 520 and SR 202 interchange. This station includes a park-and-ride with a structured parking garage.

After the SE Redmond Station, *Preferred Alternative E2* turns northwest, goes under the SR 520 and SR 202 interchange, and enters the former BNSF Railway corridor elevated over Bear Creek. *Preferred Alternative*

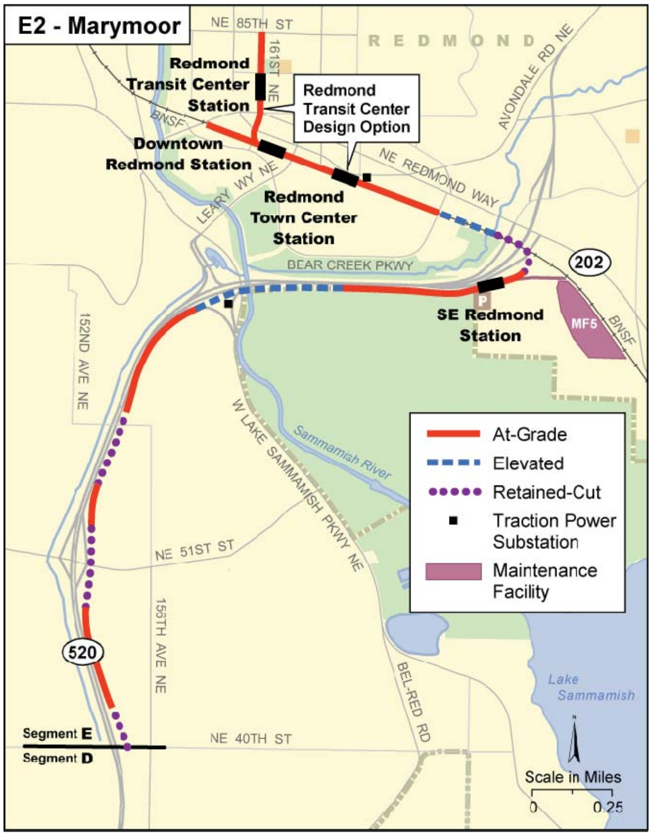

E2 - Marymoor
NE 85TH ST
REDMOND
161ST NE
AVONDALE RD NE
Redmond Transit Center Station
Redmond Transit Center Design Option
BNSF
Downtown Redmond Station
NE REDMOND WAY
LEARY WY NE
Redmond Town Center Station
BEAR CREEK PKWY
202
P
SE Redmond Station
MF5
BNSF
152ND AVE NE
W LAKE SAMMAMISH PKWY NE
Sammamish River
At-Grade
Elevated
Retained-Cut
Traction Power Substation
Maintenance Facility
NE 51ST ST
155TH AVE NE
520
BEL-RED RD
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Scale in Miles
0
0.25

EXHIBIT 2-46
Preferred Marymoor Alternative (E2)

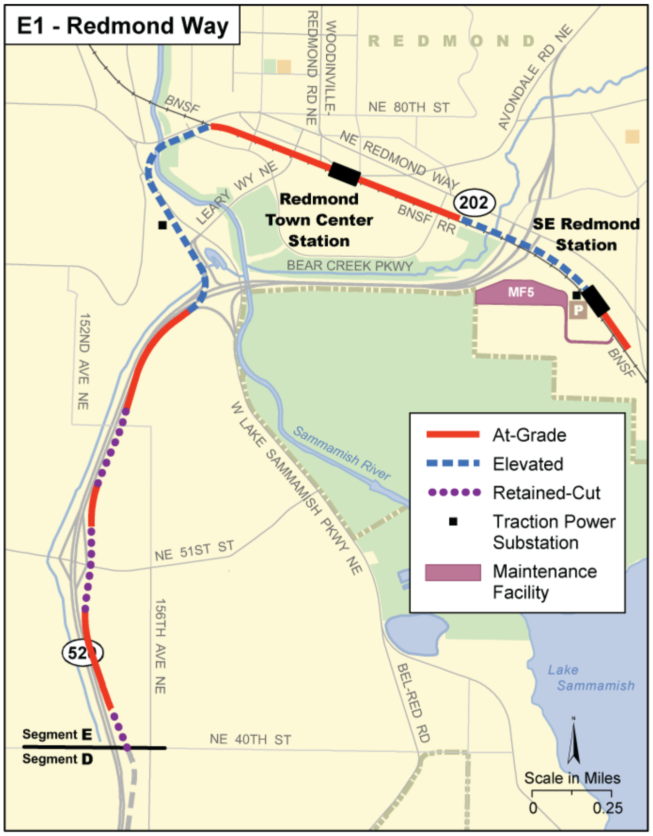

E1 - Redmond Way
REDMOND
REDMOND RD NE
WOODINVILLE-
NE 80TH ST
AVONDALE RD NE
BNSF
NE REDMOND WAY
LEARY WY NE
Redmond Town Center Station
202
BNSF RR
SE Redmond Station
BEAR CREEK PKWY
MF5
P
BNSF
152ND AVE NE
W LAKE SAMMAMISH PKWY NE
Sammamish River
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
BEL-RED RD
NE 40TH ST
Segment E
Segment D
Scale in Miles
0
0.25
At-Grade
Elevated
Retained-Cut
Traction Power Substation
Maintenance Facility

EXHIBIT 2-47
Redmond Way Alternative (E1)

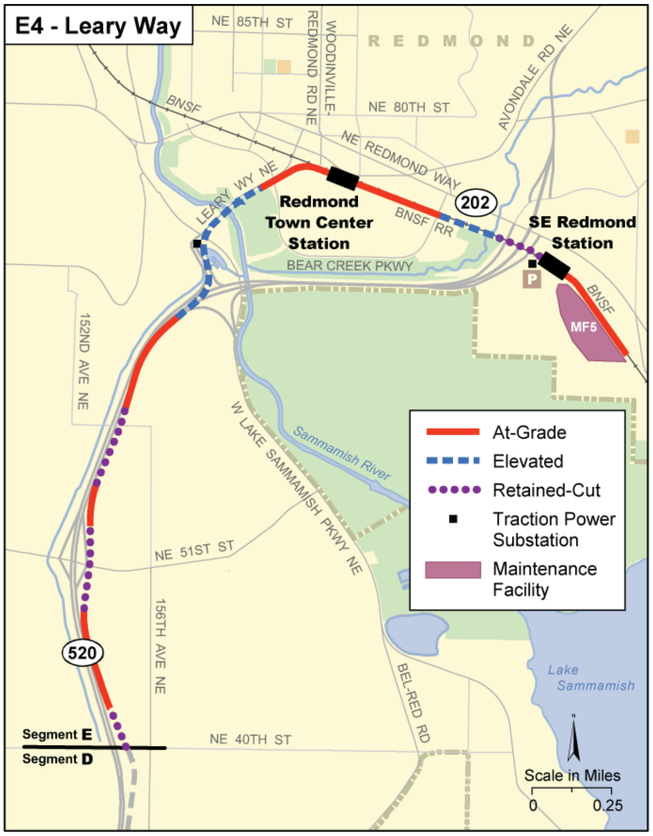

E4 - Leary Way
NE 85TH ST
REDMOND
REDMOND RD NE
WOODINVILLE-
NE 80TH ST
AVONDALE RD NE
BNSF
NE REDMOND WAY
LEARY WY NE
Redmond Town Center Station
202
BNSF RR
SE Redmond Station
P
BEAR CREEK PKWY
BNSF
MF5
152ND AVE NE
W LAKE SAMMAMISH PKWY NE
Sammamish River
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
BEL-RED RD
NE 40TH ST
Segment E
Segment D
Scale in Miles
0
0.25
At-Grade
Elevated
Retained-Cut
Traction Power Substation
Maintenance Facility

EXHIBIT 2-48
Leary Way Alternative (E4)

E2 then becomes at-grade to cross 170th Avenue NE and continue in the former BNSF Railway corridor to the Downtown Redmond Station and terminates northwest of Leary Way. An 800-foot-long tail track extends past the station for train layovers and turnbacks. This tail track includes a maintenance building and an employee parking lot with approximately 20 parking stalls.

There are two TPSSs for *Preferred Alternative E2*: one located under the elevated guideway near the West Lake Sammamish Parkway/SR 520 interchange and another along the former BNSF Railway corridor near 166th Avenue NE.

The alignment of *Preferred Alternative E2* in Downtown Redmond as shown in Appendix G1 (Conceptual Design Drawings) and the City of Redmond's *Central Connector Master Plan,* to be adopted in June 2011, are not entirely consistent primarily because of City plans for utility upgrades and the regional trail extension in the former BNSF Railway corridor and NE 76th Street rights-of-way. When funding is available to advance the design work for Segment E, Sound Transit will work with the City of Redmond to adjust the design within the BNSF and NE 76th Street right-of-way to accommodate the potential for future freight/commuter rail, local and regional utilities, the trail, and automobile traffic on NE 76th Street as well as East Link light rail. *Preferred Alternative E2* also has a design option, Alternative E2 - Redmond Transit Center Station Design Option, that has a station at Redmond Town Center, after which the route would turn north on 161st Avenue NE in the center of the roadway, with a terminus station at the Redmond Transit Center. An 800-foot-long tail track extends past the station for train layovers (see Exhibit 2-46).

Redmond Way Alternative (E1)

The Redmond Way Alternative (E1) becomes elevated and crosses north over SR 520 (see Exhibit 2-47), follows the northwest side of West Lake Sammamish Parkway, and turns northeast on the south side of Redmond Way in a new bridge structure over the Sammamish River. Alternative E1 continues along Redmond Way and turns southeast into an at-grade profile in the former BNSF Railway corridor to Redmond Town Center Station at NE 76th Street, then transitions to an elevated structure over Bear Creek and the SR 520/SR 202 interchange to the terminus, SE Redmond Station. This station includes a four-story park-and-ride facility in the industrial park adjacent to the former BNSF Railway corridor. An 800-foot-long tail track extends past the station for train layovers.

There are two TPSSs for E1: one located under the elevated guideway adjacent to West Lake Sammamish Parkway and another at the SE Redmond Station.

Leary Way Alternative (E4)

The Leary Way Alternative (E4) (see Exhibit 2-48) crosses north over SR 520 and is elevated on the northwest side of West Lake Sammamish Parkway, and then turns northeast along the south side of Leary Way, crossing the Sammamish River on a new bridge structure. The alternative then transitions to an at-grade profile south of Bear Creek Parkway and turns southeast in the former BNSF Railway corridor to the Redmond Town Center Station between 164th Avenue NE and 166th Avenue NE. The alternative continues along the former BNSF Railway corridor, crosses over Bear Creek on a bridge, and then transitions into a retained-cut profile under SR 520 before terminating in an at-grade profile at the SE Redmond Station.

The SE Redmond terminus station includes a four-story park-and-ride facility in the industrial park adjacent to the former BNSF Railway corridor. A 1,600-foot-long tail track extends past the station for train layovers. There are two TPSSs for Alternative E4: one located adjacent to the route before approaching West Lake Sammamish Parkway and another at the SE Redmond Station.

Interim Termini in Segment E

In Segment E, either the SE Redmond or the Downtown Redmond Station for *Preferred Alternative E2* or the Redmond Town Center Station for Alternatives E1 or E4 could become an interim terminus. Remaining stations in Segment E are considered to be the final terminus station for East Link.

2.3.3 Maintenance Facility Alternatives

Sound Transit's Link Operations and Maintenance Facility is located south of Downtown Seattle. A second storage and light maintenance facility would be needed with full buildout of the East Link Project. A second light rail storage and light maintenance facility was funded as part of ST2 to support systemwide expansion, with funding contributions from the King County and Snohomish County subareas. This facility's location will be determined through future operations analysis and site planning. Because the facility could be located in the East Link corridor, this Final EIS evaluates alternative sites but does not identify a preferred facility location. This facility would require approximately 10 to 15 acres of land and would primarily serve the following functions:

- Overnight and midday storage for approximately 40 to 50 vehicles
- Carwashing facility for exterior vehicle cleaning
- Interior cleaning of light rail vehicles
- Daily service and inspection of revenue vehicles
- Corrective and preventive maintenance
- Maintenance of track facilities
- Operating offices
- Light rail vehicle operator reporting and ready-room areas

With East Link service to Overlake Transit Center as an interim terminus, overnight vehicle storage would be located at the tail tracks at the end of the line and/or in the storage track in the former BNSF Railway corridor described as part of *Preferred Alternative D2A*. Vehicle maintenance and repair would remain at the existing Link Operations and Maintenance Facility in Seattle. Exhibit 2-49 illustrates a prototypical maintenance facility layout. Table 2-4 describes the characteristics of the proposed maintenance facilities.

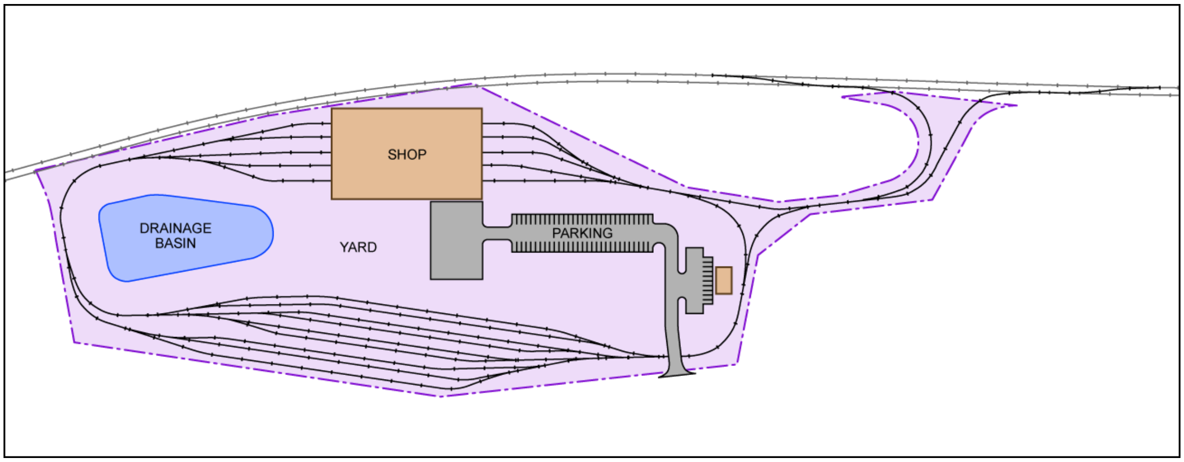


EXHIBIT 2-49
Prototypical Layout of East Link Maintenance Facility

TABLE 2-4
Maintenance Facility Characteristics

	Maintenance Facility Size (acres)	Access Track (feet)
MF1, NE 116th Maintenance Facility		
From *Preferred NE 16th At-Grade (D2A)*, NE 16th Elevated (D2E), and NE 20th (D3) Alternative	11.6	1,800
From SR 520 Alternative (D5)	11.7	1,050
MF2, BNSF Maintenance Facility		
From *Preferred NE 16th At-Grade (D2A)*, NE 16th Elevated (D2E), and NE 20th (D3) Alternative	12.3	1,600
From SR 520 Alternative (D5)	14.7	1,500
MF3, SR 520 Maintenance Facility		
From *NE 16th At-Grade (D2A)* and Elevated (D2E) Alternatives	14.2	1,100
From NE 20th Alternative (D3)	14.2	460
From SR 520 Alternative (D5)	14.2	1,300
MF5, SE Redmond Maintenance Facility		
From Redmond Way Alternative (E1)	11.5	1,300
From Marymoor Alternative (E2)	14.9	1,000
From Leary Way Alternative (E4)	14.9	800

There are four alternative maintenance facility sites, three in Segment D and one in Segment E. All the route alternatives in Segment D were designed with access to any of its three alternative maintenance facilities; likewise, all Segment E alternatives could connect to the maintenance facility MF5. Exhibits 2-19 and 2-20 show the potential maintenance facility locations in Segments D and E. Details are shown in Exhibits 2-42 to 2-45 for the Segment D sites and in Exhibits 2-46 to 2-48 for the Segment E sites. As described above, no preferred maintenance facility alternative has been identified.

116th Avenue NE Maintenance Facility (MF1). MF1 is between 116th Avenue NE and the former BNSF Railway corridor. Constructing this facility would require substantial cut and fill to create a flat area for operations.

124th Avenue NE Maintenance Facility (MF2). MF2 is between 120th Avenue NE and the former BNSF corridor and would require a minor amount of cut and fill to create a flat area.

SR 520 Maintenance Facility (MF3). MF3 is adjacent to the south side of the SR 520 right-of-way between roughly 130th Avenue NE and 135th Avenue NE.

SE Redmond Maintenance Facility (MF5). MF5 has two possible locations. For the Redmond Way Alternative (E1), the maintenance facility would be located southwest of the SR 520/SR 202 interchange and would be accessed via an access track from the former BNSF Railway corridor. This site would require a moderate amount of cut and fill to create a flat area.

For *Preferred Alternative E2* and Alternative E4, the maintenance facility would be located adjacent to the former BNSF Railway corridor south of the SR 520/SR 202 interchange. For *Preferred Alternative E2*, which does not enter the former BNSF Railway corridor in this area, an access track from the new park-and-ride facility south of SR 520 would access the maintenance facility. These sites would require minimal to no grading to create a flat area for operations.

With any interim terminus station, a storage or tail track would be built beyond the station. The preferred location is a storage track in the former BNSF Railway north of the Hospital Station. If such a feature were built at an interim terminus station, the project might also include up to 10 parking spaces for operators, and office/storage space for light maintenance activities such as cleaning interiors of vehicles.

2.3.4 Capital Equipment and Operations

2.3.4.1 Overhead Contact System

Light rail vehicles are electrically powered by an overhead contact system (commonly called an "overhead catenary system," or OCS) (Exhibit 2-50). Support poles are typically located between the two tracks for at-grade and elevated profiles, except in special circumstances such as at stations, at crossover tracks, curves, and on the I–90 bridge. The support poles are between 15 and 23 feet high, and a zone clear of vegetation is maintained within about 15 feet of the centerline of the tracks. Only on I–90, the OCS would be supported either by two poles, one on each side of the guideway, or by poles on one side. In tunnels, the OCS is attached to the tunnel ceiling. Catenary poles are located approximately 200 feet apart. Two wires (the messenger wire and the contact wire) are visible between each pole for each track, or four wires for two tracks.

EXHIBIT 2-50
Overhead Catenary System

2.3.4.2 Traction Power Substations

Electric power for the trains would be provided from the existing electrical grid through TPSSs. The TPSSs are completely enclosed small metal buildings, about 20 feet by 60 feet in size, with an additional 10 to 20 feet required around each unit (Exhibit 2-51). They can be screened from view with a wall or fence. These electric substations would be installed at about 2-mile intervals. The purpose of the TPSS is to boost the power to the OCS. Automobile access is also required for each TPSS.

The locations of the TPSS are based on power distribution needs. While the approximate locations of TPSS are shown in the alternative maps in Exhibits 2-16 through 2-20, there is some flexibility in the ultimate location of these facilities. When possible, they would be placed in the footprint of a light rail station or trackway, or adjacent to the track where remaining right-of-way is available.

2.3.4.3 Tunnel Vents

Ventilation structures provide emergency ventilation and climate control for alternatives that are in a tunnel or are lidded. They require a set of vent shafts, which are typically located at stations. The surface building enclosing the shaft would include an exhaust and intake in the roof, a fan room, and space for electrical and communications equipment. These may be integrated with the structures for vertical station access. Ventilation would also be provided at the tunnel portals by jet fans, including at the portals of existing I-90 tunnels used by light rail.

EXHIBIT 2-51
Traction Power Substation

2.3.4.4 Tail Tracks and Crossover Tracks

Tail tracks are tracks that extend past a terminus station far enough for temporary layover of one four-car train—typically 850 feet beyond the last station platform. Tail tracks also enable trains to enter terminal stations at higher speeds because they provide longer safe braking distances. These tracks would be necessary at two locations as well as the ultimate terminus station. If a tail track were built at an interim terminus station, it may also include parking for operators and office/storage space for light maintenance activities such as cleaning interiors of vehicles.

Crossover tracks connect the two parallel tracks and allow trains to pass safely from one track to the other (Exhibit 2-52). Crossovers would be provided along the line to allow for scheduled maintenance that requires removing one track from service during track maintenance, to bypass a stalled train, to turn to the opposite direction, or to operate in the event of emergencies and blockages.

2.3.4.5 Vehicles and Operations

Operation of the East Link system would be integrated with the Central Link system and any future extensions north and south of Central Link. East Link is planned to operate 20 hours per day Monday through Saturday and 18 hours per day on Sunday.

Service levels would vary during the day according to ridership demand. Table 2-5 shows the expected service schedule for weekdays based on 2030 ridership forecasts.

EXHIBIT 2-52
Crossover Tracks

TABLE 2-5
Weekday Service Periods

Service Period	Time Period	Service Level	Train Frequency (minutes)
Early morning	5:00 a.m. to 6:00 a.m.	early/late	15
Morning peak	6:00 a.m. to 8:30 a.m.	peak	7
Midday	8:30 a.m. to 3:00 p.m.	base	10
Afternoon peak	3:00 p.m. to 6:30 p.m.	peak	7
Evening	6:30 p.m. to 10:00 p.m.	base	10
Evening late night	10:00 p.m. to 1:00 a.m.	early/late	15

Weekend and holiday service levels are based on early/late service levels, as shown in the table. Conventional low-floor light rail vehicles would be used to provide level boarding for all passengers and would be easily accessible by people with disabilities. Trains would operate with up to three cars during peak and off-peak periods (see Appendix E, Operating Plan Summary), although the system is designed for, and could operate with, four-car trains.

2.3.4.6 Crossing Gates and Bells

Some at-grade crossings of existing roadways would be controlled by traffic signals and/or crossing gates as traffic volumes, track alignment, and train operating speeds dictate. Crossing gates would include gate arms, flashing lights, and warning bells to warn of oncoming trains. Warning bells are electronic and sound as the gates are lowered and raised.

2.4 Overview of Construction Approach

This section provides an overview of potential construction activities and timing. The overall period from start of construction to opening the light rail line would be about 7 years. Activities would include civil construction, systems installation, testing, and startup activities. During civil construction, site preparation, primary construction, and finish construction take place. Civil construction durations for the project would range from approximately 2 to 5 years in any given portion of the corridor. Activities would be most intense in the initial part of construction, with later years involving station and tunnel finishing, and systems installation.

The major construction activities that could cause environmental impacts are as follows:

- Demolition (buildings, pavement)
- Clearing and vegetation removal
- Fill and excavation
- Utility extensions, relocations, or disruptions
- Drainage changes
- Construction easements and staging area use
- Construction activity in or near a water body or sensitive area
- Tunneling, including spoils removal and transport
- Elevated structure construction
- Ground improvements such as stone columns
- Retaining wall construction
- Pile driving or auguring piles
- Blasting (not likely)
- Temporary partial or total road or lane closures and detour routes
- Temporary, partial, or limited access
- Building temporary vehicular and pedestrian detour routes
- Delivery of materials and equipment

The following subsections provide a brief description of the methods for each major construction component.

2.4.1 Construction Sequence and Activities

Construction of linear projects is typically divided into various segments or line sections based on similarities in configurations such as at-grade, elevated structures, tunnels, or retained-cut/fill sections. These segments or line sections may include underground stations, park-and-ride facilities, station platforms, transit centers, maintenance facilities, substation and signal control facilities, and other related improvements.

A work-specific construction plan would be developed during final design to establish the various construction phases and construction contracts, their estimated schedule and duration, and appropriate sequencing. Where possible, construction activities would be coordinated with other capital improvement projects being carried out by or permitted by the local jurisdictions to help minimize construction impacts.

Typical construction for surface, elevated, and cut-and-cover tunnel guideways and stations would occur on a 5- to 6-day work week schedule and would occur primarily between the hours of 7 a.m. and 10 p.m. In some locations (such as when street or freeway detours are involved and/or daytime construction periods need to be abbreviated to reduce impacts), additional shifts, all-week, nighttime, or 24-hour construction activities could be necessary. Tunneling contractors typically work extended periods when using large and expensive tunneling equipment such as a tunnel boring machine. A typical operating regime is two 10-hour shifts each weekday with 4 hours overnight for maintenance and repair. Bored tunneling operations could take place 24 hours per day from 5 to 7 days per week.

Surface hauling operations do not need to be on the same daily working schedule as tunneling operations as long as there is sufficient spoils storage area in the construction staging areas. Excess excavated material would be removed and hauled to a permitted disposal site. Truck hauling would require a loading area, staging space for trucks awaiting loading, and provisions to prevent tracking soil on public streets. Truck haul routes would require approval by local jurisdictions. This would allow surface hauling activities to occur in off-peak periods if necessary, to be concentrated during daytime periods to minimize potential impacts from noise on sensitive receptors such as residences, or to avoid peak traffic periods.

Following excavation and completion of structures, the next phase of construction would include track work, at-grade system facilities, and other facilities such as station platforms, park-and-ride lots, transit stations, and maintenance facilities.

2.4.2 Staging Areas and Construction Easements

Construction staging areas are needed before, during, and for a short time after construction work occurs. Staging areas would be used for construction, equipment storage, construction materials delivery and storage, demolition or spoils handling (in accordance with applicable regulations), contractor trailers, access roads, and construction crew parking. At-grade, elevated, and retained cut-and-fill line sections would have construction staging areas along the routes. Where roadway right-of-way does not already exist, generally a 50-foot to 100-foot total area (including the route right-of-way) would be needed to construct the route. Contractors would generally use the property in which the facility is being constructed and property that has been acquired for right-of-way or other properties as negotiated by the contractor. Additional property may be required for contractor employee parking. Also, construction may require using one lane or even temporarily closing the road entirely for construction purposes.

In Segment A, construction of the East Link Project would require a connection to the Central Link light rail system in the Downtown Seattle Transit Tunnel at the International District/Chinatown Station. Sound Transit would plan and coordinate construction activities related to building this connection to minimize the effect on the operation of the Central Link system and bus operations. East Link Project construction would also require long-term closures of the D2 Bridge and Roadway. Buses and other vehicles that currently use the D2 Roadway would be rerouted during the active construction period.

Because the Downtown Bellevue area is densely urbanized, Segment C staging areas have been identified in order to determine associated potential impacts. Furthermore, Alternatives C2T and C3T involve a bored tunnel, which would require approximately 4 to 6 acres immediately adjacent to each tunnel portal to support tunneling activities. In addition to the activities stated above, tunnel staging areas may include many of the following activities:

- Stockpile, load, and haul tunnel spoils
- Receive and stockpile precast tunnel liners;
- Assemble the tunnel boring machine and other boring/mining equipment
- Assemble slurry wall equipment, a shotcrete plant, or a concrete batch plant

- Collect, store, and discharge construction water and groundwater

Following construction, staging sites may be redeveloped consistent with the current zoning. Exhibits 2-53 to 2-62 show the staging locations and construction methods for each alternative in Segment C. Construction easements are temporary use of property during construction and would be required in numerous locations along the route. In undeveloped land areas, 50- to 100-foot easements would be necessary to maneuver equipment and materials along the corridor during construction. Where the project has limited acquisitions on either side, construction activities may require narrow temporary easements from adjacent properties. Following construction, easements would be restored similar to preconstruction conditions.

Where the project would partially or fully close streets, traffic would need to be rerouted via detours so construction could proceed in an efficient and timely manner while still maintaining access to existing businesses and residences. Traffic closures or detours would require approval by local jurisdictions and/or WSDOT.

2.4.3 At-Grade Light Rail Construction

Construction methods and impacts would be similar to those associated with typical road construction. Utilities may be relocated first. Shallow, near-surface excavations would be required to construct the subgrade and track and station platform slabs for at-grade segments. Within road segments or paved areas, pavement would be removed first. In areas where access is not available from existing roads, a temporary construction road would be built. During the grading phase, the contractors would install culverts or other permanent drainage structures and below-grade light rail infrastructure. Underground utility work may require temporary steel plates in the roadway and temporary lane closures. Where in-street track is proposed within existing or expanded street right-of-way, grading would likely be minimal, but extensive reconstruction of streets, sidewalks, and other existing facilities may occur.

2.4.4 Retained Cut and Retained Fill Light Rail Construction

Construction of retained cut and retained fill trackway would be similar to construction of at-grade trackway, but may be more intensive and of longer duration due to the need to construct retaining walls. Construction of retained cuts and fills may include demolition of existing structures, clearing and grading, utility relocation, construction of temporary access roads, and temporary traffic detours and lane closures. Depending on the depth of the retained cut and groundwater conditions, dewatering may be necessary during construction. Fill material for retained fill construction would be delivered to the site by truck. Retained fill structures may require ground improvement, depending on the ability of existing soils to support the increased loads. Reconstruction of streets, sidewalks, and other existing facilities may also be necessary, depending on the final alignment and profile of the retained cut or retained fill.

2.4.5 Elevated Light Rail Construction

Similar to construction of at-grade trackway, construction of elevated guideway would involve demolition, clearing, grading, relocating utilities, and preparing necessary construction access. A temporary construction road would typically be built when constructing an elevated guideway in undeveloped areas or where access is not available from existing roads (primarily in parts of Segments B and D). An elevated guideway can have vegetation under and around it, although there would be a tree-clear zone within 14 feet of the closest track centerline. Constructing an elevated guideway within existing street right-of-way may cause temporary closure of some traffic lanes and require detours.

Elevated guideways and stations for light rail, similar to structures such as highway bridges, are generally reinforced concrete, steel, or combinations of both. Construction would begin with preparation work to build foundations that may consist of shallow spread footings, deep-driven or augured piles, or drilled shafts. Once foundations are in place, concrete columns would be constructed. The elevated superstructure may be steel, cast-in-place concrete, pre-cast concrete, or segmental. If steel and/or cast-in-place concrete is used, false-work would be required to support the superstructure while the cast concrete gains enough strength during curing to support itself or while the steel beams are joined through welding or bolting. If the elevated guideway is close to or within the roadway, the false-work would require temporary lane closures and traffic detours until a sufficient portion of the elevated structure is complete. Segmental construction can be built without false-work between the columns. Some short-term, partial to full street closures may be required to accommodate segmental construction activities.

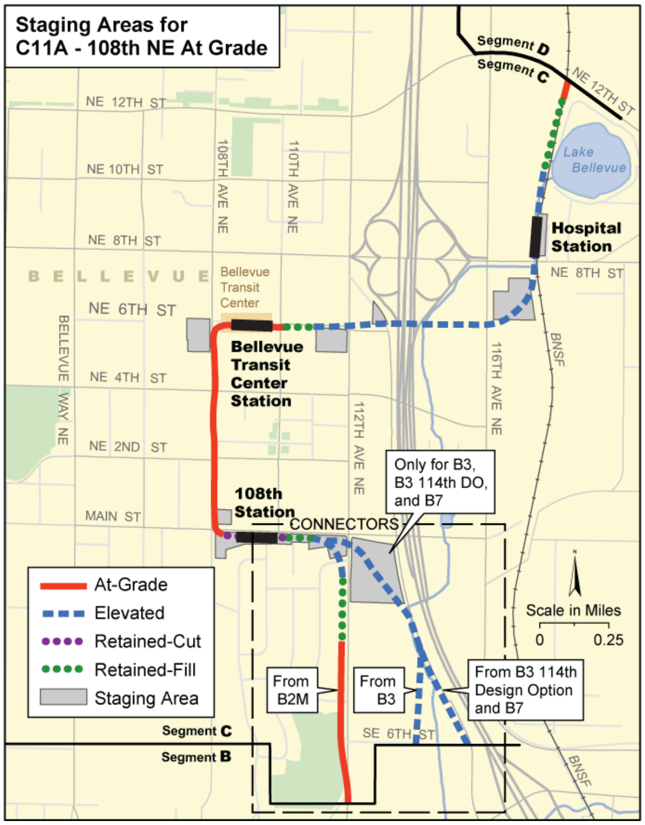

Staging Areas for
C11A - 108th NE At Grade
Segment D
Segment C
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
Lake Bellevue
Hospital Station
NE 8TH ST
BELLEVUE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
BELLEVUE WAY NE
NE 4TH ST
116TH AVE NE
BNSF
NE 2ND ST
112TH AVE NE
Only for B3, B3 114th DO, and B7
108th Station
MAIN ST
CONNECTORS
At-Grade
Elevated
Retained-Cut
Retained-Fill
Staging Area
Scale in Miles
0
0.25
From B2M
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-53

Preferred Alternative C11A Construction Staging Areas

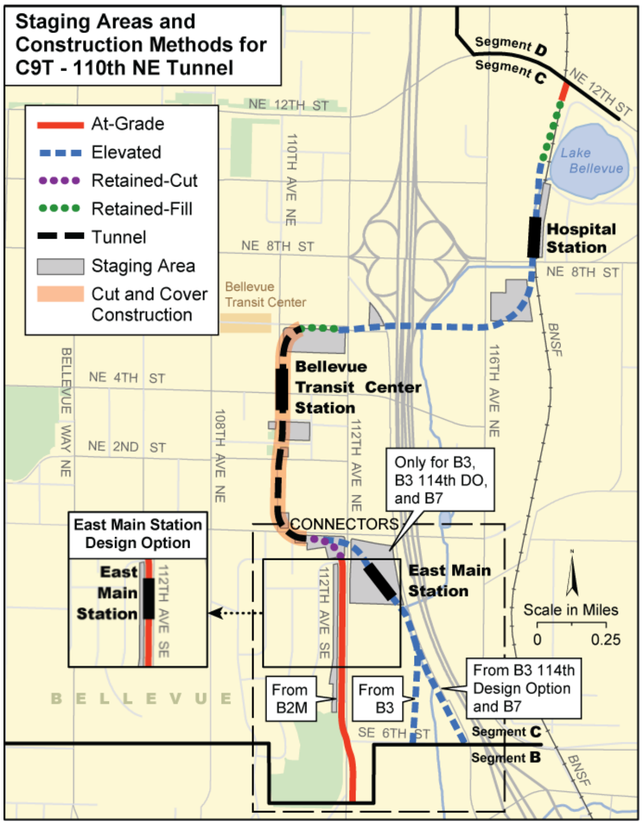

Staging Areas and
Construction Methods for
C9T - 110th NE Tunnel
Segment D
Segment C
NE 12TH ST
At-Grade
Elevated
Retained-Cut
Retained-Fill
Tunnel
Staging Area
Cut and Cover Construction
110TH AVE NE
Lake Bellevue
Hospital Station
NE 8TH ST
Bellevue Transit Center
BELLEVUE WAY NE
NE 4TH ST
Bellevue Transit Center Station
116TH AVE NE
BNSF
NE 2ND ST
108TH AVE NE
112TH AVE NE
Only for B3, B3 114th DO, and B7
East Main Station Design Option
CONNECTORS
East Main Station
112TH AVE SE
Scale in Miles
0
0.25
BELLEVUE
From B2M
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-54

Preferred Alternative C9T Construction Staging Areas

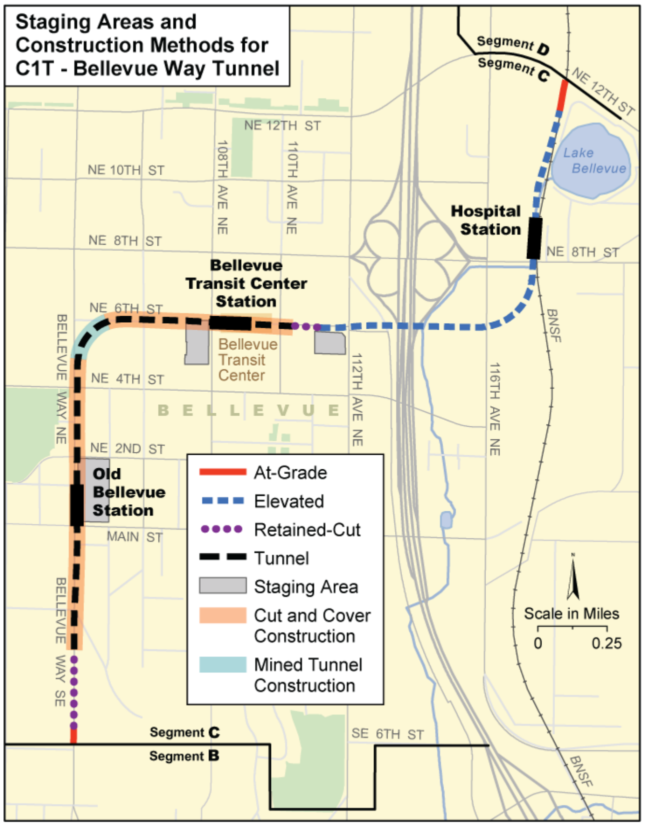

Staging Areas and
Construction Methods for
C1T - Bellevue Way Tunnel
Segment D
Segment C
NE 12TH ST
NE 10TH ST
108TH AVE NE
110TH AVE NE
Lake Bellevue
Hospital Station
NE 8TH ST
Bellevue Transit Center Station
NE 6TH ST
Bellevue Transit Center
BELLEVUE WAY NE
NE 4TH ST
112TH AVE NE
116TH AVE NE
BNSF
BELLEVUE
NE 2ND ST
Old Bellevue Station
MAIN ST
At-Grade
Elevated
Retained-Cut
Tunnel
Staging Area
Cut and Cover Construction
Mined Tunnel Construction
BELLEVUE WAY SE
Scale in Miles
0
0.25
Segment C
Segment B
SE 6TH ST

EXHIBIT 2-55

Alternative C1T Construction Staging Areas

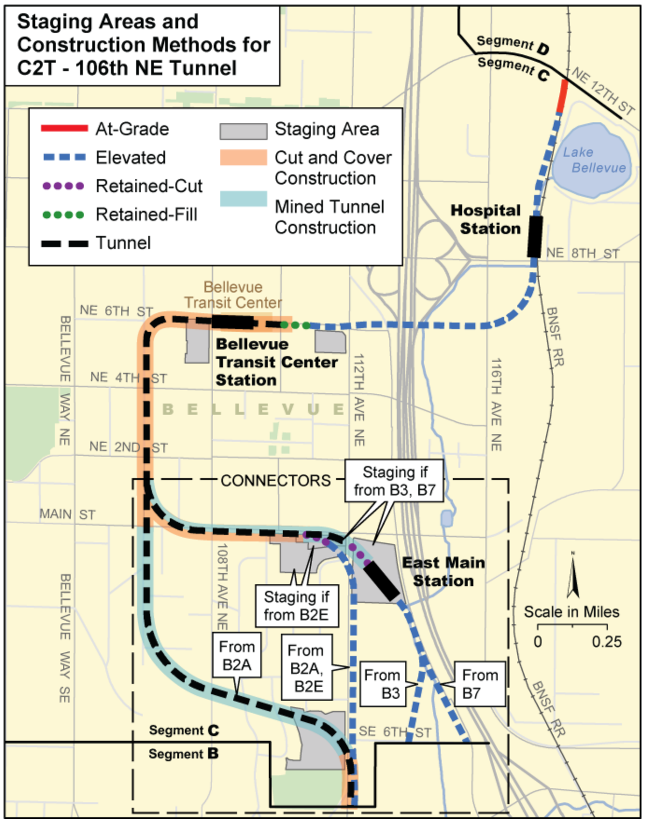

Staging Areas and
Construction Methods for
C2T - 106th NE Tunnel
Segment D
Segment C
At-Grade
Elevated
Retained-Cut
Retained-Fill
Tunnel
Staging Area
Cut and Cover Construction
Mined Tunnel Construction
Lake Bellevue
Hospital Station
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
BELLEVUE WAY NE
NE 4TH ST
Bellevue Transit Center Station
BELLEVUE
112TH AVE NE
116TH AVE NE
BNSF RR
NE 2ND ST
CONNECTORS
Staging if from B3, B7
MAIN ST
108TH AVE NE
East Main Station
Staging if from B2E
BELLEVUE WAY SE
From B2A
From B2A, B2E
From B3
From B7
Scale in Miles
0
0.25
Segment C
Segment B
SE 6TH ST

EXHIBIT 2-56

Alternative C2T Construction Staging Areas

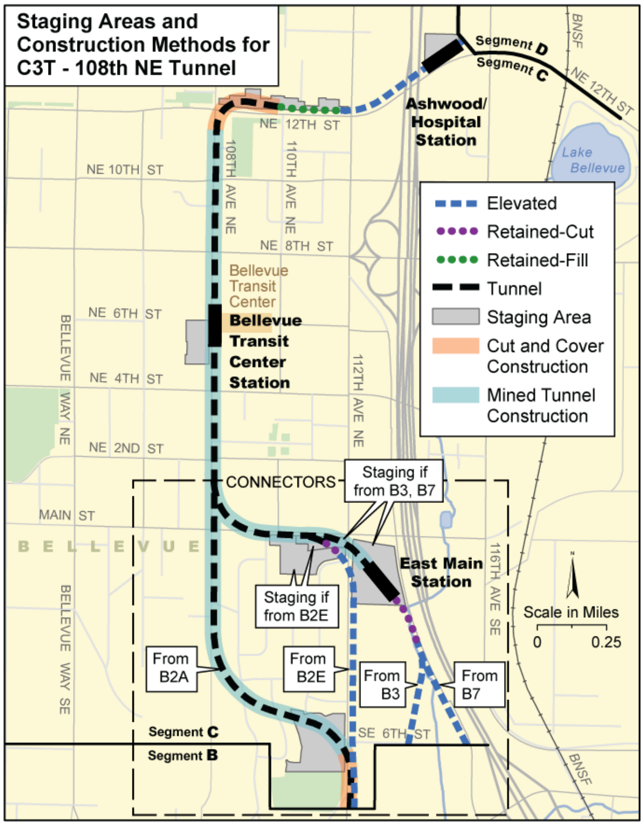

Staging Areas and Construction Methods for C3T - 108th NE Tunnel
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
NE 10TH ST
108TH AVE NE
110TH AVE NE
NE 8TH ST
Lake Bellevue
Elevated
Retained-Cut
Retained-Fill
Tunnel
Staging Area
Cut and Cover Construction
Mined Tunnel Construction
Bellevue Transit Center
Bellevue Transit Center Station
NE 6TH ST
NE 4TH ST
NE 2ND ST
BELLEVUE WAY NE
112TH AVE NE
CONNECTORS
Staging if from B3, B7
MAIN ST
BELLEVUE
East Main Station
Staging if from B2E
116TH AVE SE
Scale in Miles
0
0.25
BELLEVUE WAY SE
From B2A
From B2E
From B3
From B7
SE 6TH ST
Segment C
Segment B
BNSF
NE 12TH ST

EXHIBIT 2-57
Alternative C3T Construction Staging Areas

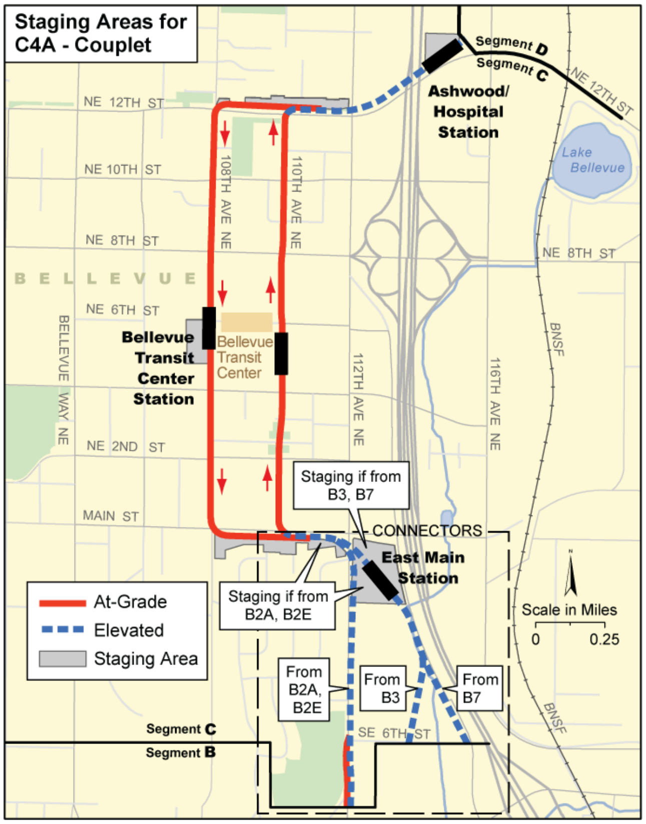

Staging Areas for C4A - Couplet
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
NE 10TH ST
108TH AVE NE
110TH AVE NE
Lake Bellevue
NE 8TH ST
BELLEVUE
NE 6TH ST
Bellevue Transit Center Station
Bellevue Transit Center
BELLEVUE WAY NE
112TH AVE NE
116TH AVE NE
NE 2ND ST
MAIN ST
Staging if from B3, B7
CONNECTORS
East Main Station
At-Grade
Elevated
Staging Area
Staging if from B2A, B2E
Scale in Miles
0
0.25
From B2A, B2E
From B3
From B7
Segment C
Segment B
SE 6TH ST
BNSF
NE 12TH ST

EXHIBIT 2-58
Alternative C4A Construction Staging Areas

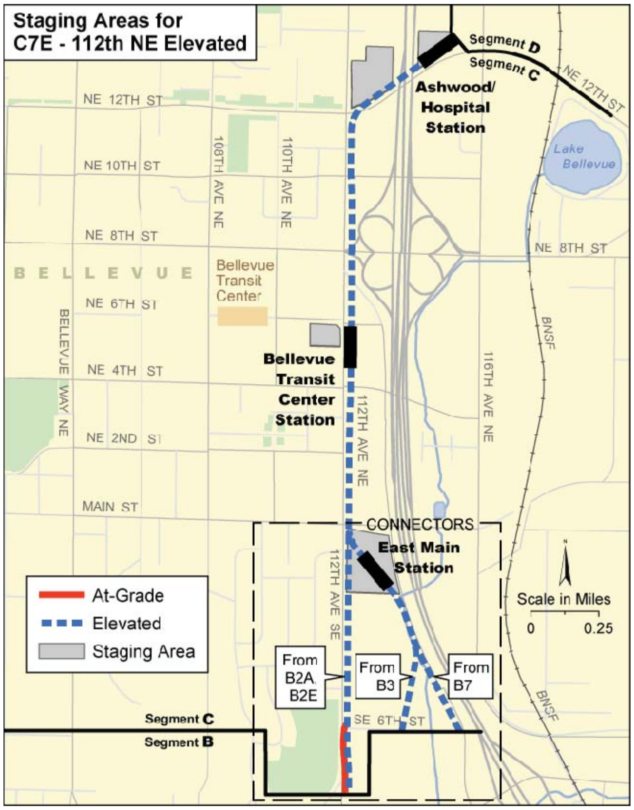

Staging Areas for C7E - 112th NE Elevated
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
NE 10TH ST
108TH AVE NE
110TH AVE NE
Lake Bellevue
NE 8TH ST
NE 8TH ST
BELLEVUE
Bellevue Transit Center
NE 6TH ST
BELLEVUE WAY NE
NE 4TH ST
Bellevue Transit Center Station
116TH AVE NE
112TH AVE NE
NE 2ND ST
MAIN ST
CONNECTORS
East Main Station
112TH AVE SE
At-Grade
Elevated
Staging Area
Scale in Miles
0
0.25
From B2A B2E
From B3
From B7
SE 6TH ST
Segment C
Segment B
BNSF
NE 12TH ST

EXHIBIT 2-59
Alternative C7E Construction Staging Areas

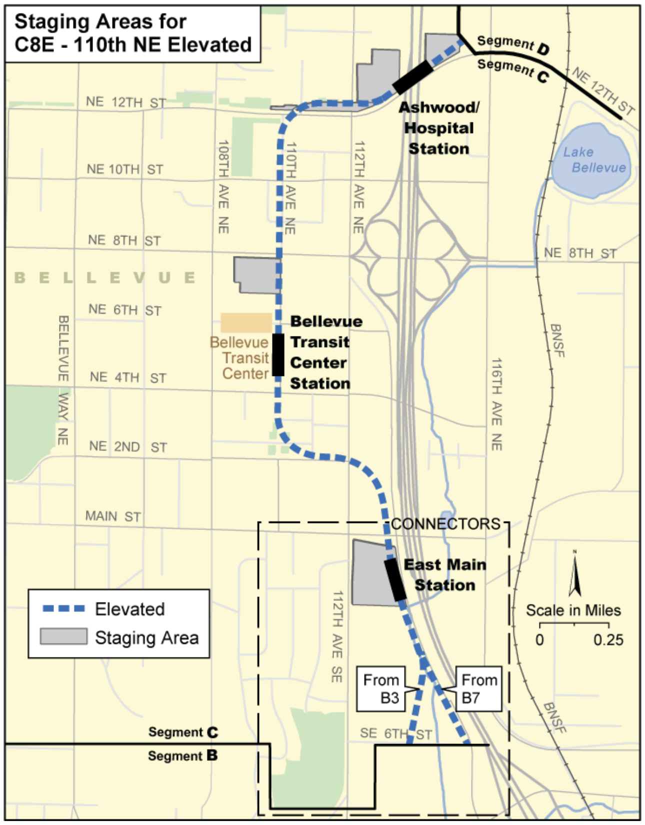

Staging Areas for C8E - 110th NE Elevated
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
NE 10TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
Lake Bellevue
NE 8TH ST
NE 8TH ST
BELLEVUE
NE 6TH ST
Bellevue Transit Center Station
Bellevue Transit Center
BELLEVUE WAY NE
NE 4TH ST
116TH AVE NE
NE 2ND ST
MAIN ST
CONNECTORS
East Main Station
112TH AVE SE
Elevated
Staging Area
Scale in Miles
0
0.25
From B3
From B7
SE 6TH ST
Segment C
Segment B
BNSF
NE 12TH ST

EXHIBIT 2-60
Alternative C8E Construction Staging Areas

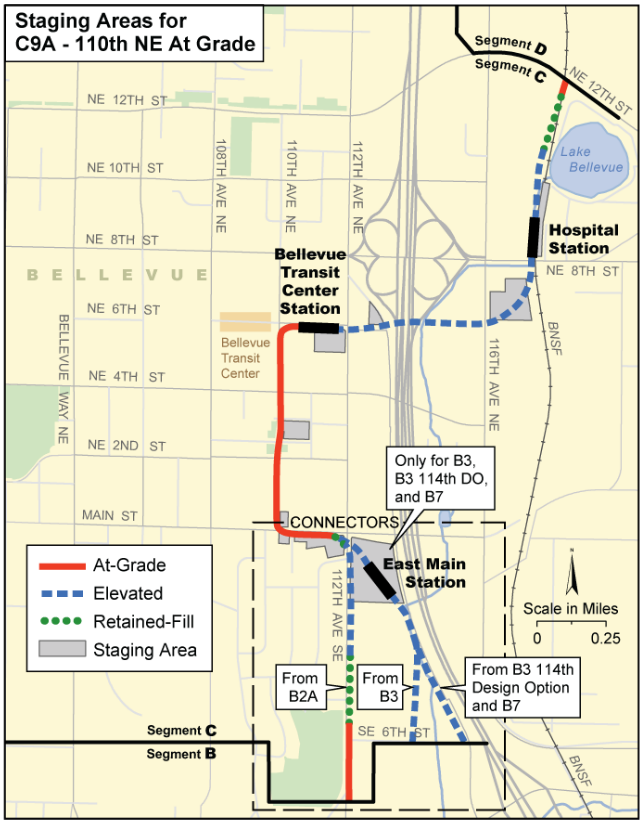

Staging Areas for
C9A - 110th NE At Grade
Segment D
Segment C
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
BELLEVUE
BELLEVUE WAY NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
112TH AVE SE
Lake Bellevue
Hospital Station
Bellevue Transit Center Station
Bellevue Transit Center
BNSF
Only for B3, B3 114th DO, and B7
CONNECTORS
East Main Station
At-Grade
Elevated
Retained-Fill
Staging Area
Scale in Miles
0
0.25
From B2A
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-61
Alternative C9A Construction Staging Areas

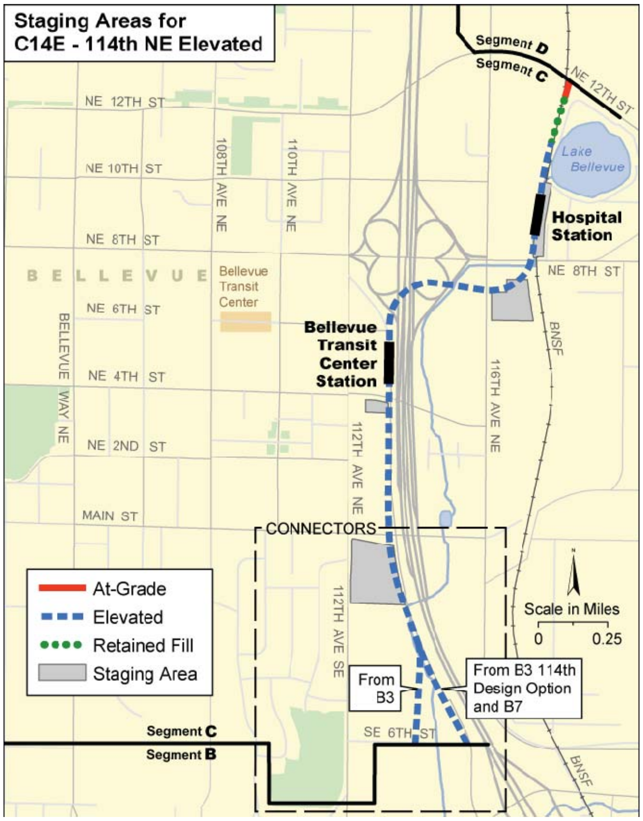

Staging Areas for
C14E - 114th NE Elevated
Segment D
Segment C
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
BELLEVUE
BELLEVUE WAY NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
112TH AVE SE
Lake Bellevue
Hospital Station
Bellevue Transit Center
Bellevue Transit Center Station
BNSF
CONNECTORS
At-Grade
Elevated
Retained Fill
Staging Area
Scale in Miles
0
0.25
From B3
From B3 114th Design Option and B7
SE 6TH ST
Segment C
Segment B

EXHIBIT 2-62
Alternative C14E Construction Staging Areas

2.4.6 Below-Grade Light Rail Construction

Tunnel and underground station construction may include cut-and-cover, tunnel-boring, and/or sequential excavation mining methods. Exhibits 2-54 to 2-57 illustrate which technique is planned for each of the tunnel alternatives. In general, cut-and-cover techniques would be used for all stations, where tunnels are too short to justify boring, where tunnel depths are shallow, and where tunneling may encounter soil nails or tie-backs from adjacent underground parking garages and deep building foundations. Tunneling areas could require some form of soil stabilization ahead of tunneling operations. Potential methods include jet grouting, ground freezing, rock displacement, or a combination of these. These methods are often performed from the surface. Operations entail grout storage, grout mixing, cleanup facilities, noise suppression enclosures, and other environmental considerations.

Mining is done through two techniques: using a tunnel boring machine or sequential excavation. Mined construction begins with construction of an access portal. On hillsides, the access portal can be dug directly into the hillside (using the cut-and-cover method). In flatter areas, an access shaft must first be excavated. Once a portal or shaft is dug, the mining equipment, such as a tunnel boring machine, can begin excavating earth. The resulting excavated materials (spoils) are transported to the shaft or portal for stockpiling and/or hauling.

The type of tunnel boring machine used depends on geological conditions. Some tunnel boring machines are supported by a small supply train that brings in materials and takes out the excavated spoils. Conveyors or pipes can also be used to bring out the spoils, depending on the machine type.

Sequential excavation mining consists of the excavation of a tunnel by many smaller but defined steps. This technique can use conventional excavation equipment or a rapid excavation machine rather than a tunnel boring machine. Sequential excavation is slower and more expensive than using a boring machine.

The need for fresh air requires that a mechanical ventilation system and fans be in place during mined construction. Fans may run for 24 hours a day and could be audible at tunnel portals, stations, or access locations.

Cut-and-cover stations (like cut-and-cover tunnel segments) would be excavated from the surface and are essentially large retained cuts. Utilities must be temporarily or permanently diverted or supported across the excavation. The excavation may be decked over at the street level to allow traffic to continue once the excavation is deep enough (10 to 15 feet) to allow earthmoving equipment below. Openings in the decking or bridge are needed to allow removal of the excavated material. Cut-and-cover work also requires backfill following tunnel construction. This work requires the use of material that is imported from other sites or suitable material from the excavation.

For underground construction, it is often necessary to install dewatering facilities. Dewatering can be accomplished by a number of mechanical methods, including sumps, pumps, and dewatering wells. These systems require that water be pumped to the surface and discharged or stored or recharged into the ground. Discharge would follow the National Pollutant Discharge Elimination System (NPDES) regulations enforced by the Washington State Department of Ecology (Ecology).

2.5 Environmental Commitments

Sound Transit is committed to restoring and enhancing the environment. From the agency's inception, Sound Transit has made every effort to avoid impacts on the environment on all of its projects. Sound Transit is committed to satisfying all applicable federal, state, and local environmental regulations and to mitigate significant adverse environmental project impacts responsibly and reasonably, consistent with Sound Transit policies and applicable regulations. In addition to meeting environmental commitments, Sound Transit would continue to avoid and minimize impacts where possible.

Adjustments have been made during conceptual design to avoid or minimize impacts. Following the identification of alternatives for study in this EIS, continual community outreach, workshops, and detailed studies were conducted to receive input from community members and stakeholders and hear their concerns about the alternatives, so that designs might be made sensitive to community facilities. In addition, as environmental impact information was developed, it informed the decision-making on the alternative designs. Minimization and avoidance measures have been considered for all elements of the environment in the EIS. Sometimes it is impossible to completely avoid environmental impacts. Where adverse impacts could not be avoided at this stage of design, the environmental analysis includes potential mitigation measures to reduce the overall impacts (see Chapter 3, Transportation Environment and Consequences, and Chapter 4, Affected Environment and Environmental Consequences).

This Final EIS identifies many potential measures to mitigate the adverse impacts of the project alternatives. Sound Transit has committed to some measures as part of the project; other potential measures are noted that might reduce or eliminate impacts. Mitigation measures will be refined through final design and permitting. The Record of Decision (ROD) for East Link will be issued after the Final EIS and will include a list of committed mitigation measures for the project to be built. Appendix I contains a preliminary description of mitigation commitments for the Preferred Alternative. Once an alternative is selected to be built, mitigation commitments will be finalized and documented in the NEPA Record of Decision.

In 2004, Sound Transit launched an environmental sustainability program to integrate sustainable business practices throughout the agency. The program called for annually setting and meeting measurable targets for fuel consumption, vehicle emissions, ecosystem protection, "green" procurement, recycling and waste prevention, energy and water conservation, sustainable design and building, and education and awareness programs, among others. The East Link Project selected to be built will be refined during final design. Throughout final design, Sound Transit will continue to incorporate sustainable design measures into the East Link Project.

2.6 Estimated Project Costs and Funding

The current level of project design includes uncertainties regarding the project scope, engineering data, mitigation requirements, schedule, and project delivery methods. Therefore, the project cost estimates at this stage are conceptual costs. These estimates focus on the project elements that are defined consistently across alternatives, that capture the essential physical features of alternatives, and that help distinguish alternatives from one another. The project cost estimates include the following cost elements:

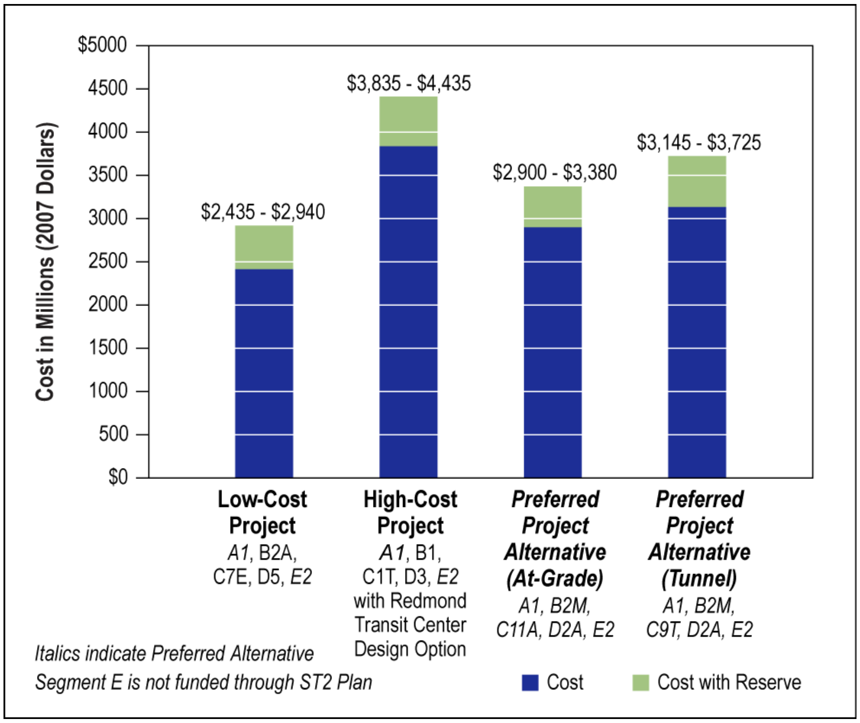


EXHIBIT 2-63
Overall Project Cost Range

- Construction costs for facilities, including the trackway/guideway, stations, maintenance facilities and associated improvements, and anticipated mitigation requirements
- Contingencies that address the varying levels of uncertainty and construction risk that have been identified for alternatives
- Right-of-way acquisition costs, including tunnel and temporary construction easements
- Costs for design, permitting, agency administration, and program management

In addition, costs for construction change orders, unallocated contingency, and project reserve were estimated as a percentage of the above estimates. Project reserve is an additional contingency intended to cover unforeseen cost impacts. The assignment and allocation of project reserve requires approval by a two-thirds (super) majority of the Sound Transit Board. Sound Transit has updated revenue forecasts to reflect the effects of the recession. The 2010 revenue forecasts lower available funds over the life of the ST2 period by an estimated 25 percent. Consequently, Sound Transit is now managing projects to the base cost estimates without project reserve. The comparative costs presented in this Final EIS reflect a range, with the low end being the base cost estimates and the high end including a project reserve. The range reflects the risk that final project costs could still exceed the base project estimate.

The East Link Project would be a composite of one alternative from each segment. Exhibit 2-63 shows a comparison of project cost for the composite of alternatives from Segment A through Segment E. It illustrates the lowest possible cost combination, the highest possible cost combination, and then the two variations in the Preferred Alternatives—with and without a tunnel in Segment C, Downtown Bellevue. The high cost includes a tunnel alternative in Segment C, and the low cost includes an elevated alternative in Downtown Bellevue.

If the project were only built to the Hospital or Ashwood/Hospital Station (east end of Segment C), the preferred alternative tunnel would be approximately $1.9 billion or $2.3 billion with reserve, and the preferred alternative at-grade would be $1.7 to just under $2 billion with reserve. In comparison, the high-cost shortened project would be approximately $2.4 to $2.8 billion with reserve, whereas the low-cost shortened project would be approximately $1.5 to $1.8 billion with reserve.

Ending at the Overlake Transit Center—the easternmost station of Segment D—the high-cost project would increase to $3.1 to $3.6 billion with reserve, whereas the preferred tunnel project would be $2.6 billion or $3.1 billion with reserve. The preferred at-grade project would be approximately $2.3 to $2.7 billion with reserve compared to the low-cost project of about $1.9 to $2.4 billion with reserve to the Overlake Transit Center. While the biggest difference is whether or not Segment C includes a tunnel, other factors influence the cost range, such as whether both the 120th and the 130th stations are built and whether portions of the route are primarily at-grade or elevated. The cost estimates by segment are presented in Section 2.6.2 after the funding discussion in Section 2.6.1.

2.6.1 Funding

Sound Transit's regional transit programs are typically funded through a combination of voter-approved tax initiatives, FTA grants, issuing bonds, and fare box revenue. Sound Transit projects are in large part funded through taxes collected in a three-county district. In November 2008, voters approved a proposition known as the Mass Transit Expansion proposal, authorizing Sound Transit to impose an additional five-tenths of one percent sales and use tax and use existing taxes to fund the local share of ST2. The East Link Light Rail Transit Project is included in ST2, which was adopted by the Sound Transit Board on July 24, 2008. The ST2 funds construction and operation of the portion of the East Link Project from Seattle to the Overlake Transit Center Station (Segments A through D).

ST2 provides funding for an at-grade or elevated alternative through Downtown Bellevue (Segment C). If the Sound Transit Board selects a tunnel alternative in this segment, additional funding sources would be required. ST2 includes environmental review but not construction for Segment E from the Overlake Transit Center Station to downtown Redmond.

The Sound Transit District has five designated subareas: Snohomish County, North King County, South King County, East King County, and Pierce County. According to current Sound Transit policy, revenues from taxes collected in each of the five subareas must generally be spent for projects and services that benefit the local subarea providing the funding. The project would use revenues from the North King County and East King County subareas. The Rainier Station would be funded from revenues from North King County, and funding for the majority of the project would come from the East King County Subarea.

2.6.2 Project Cost Estimates

The following subsections describe the range of cost estimates by segment to help compare alternatives that serve similar ridership markets.

2.6.2.1 Segment A

Preferred Alternative A1 is located exclusively within WSDOT and City of Seattle rights-of-way. The range for *Preferred Alternative A1* falls between $635 million without project reserve to up to $750 million (Exhibit 2-64) with project reserve and joint bus-rail operations between Downtown Seattle and Rainier Avenue. The I–90 Two-Way Transit and HOV Operations Project is not part of East Link and is funded separately. The cost for the project to use the I-90 center roadway is addressed in a term sheet between WSDOT and Sound Transit. Sound Transit will receive credit toward a center roadway lease for its funding contributions to the I-90 Two-Way Transit and HOV Operations Project. While the lease amount is not yet finalized, the term sheet anticipates that Sound Transit's funding of the HOV project will fully offset the cost of the I-90 Center Roadway lease.

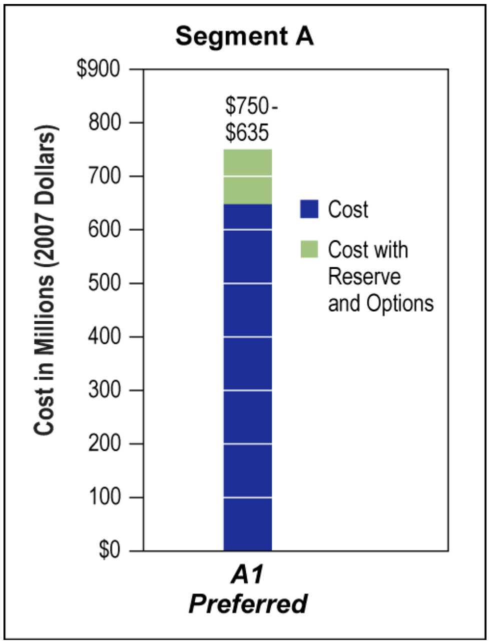


EXHIBIT 2-64
Segment A Cost Estimate

The preferred alternative that includes joint light rail and bus operation on the D2 Roadway would cost $16 million to $18 million more than the exclusive operation design option. The only other design option consideration for *Preferred Alternative A1* is a possible pedestrian bridge to the Mercer Island Station instead of access off 77th Avenue SE. The pedestrian bridge option would require approximately $6 million more than the preferred station option with access from 77th Avenue SE.

2.6.2.2 Segment B

The cost of the Segment B alternatives ranges from approximately $355 million to $590 million with reserve (Exhibit 2-65). The Bellevue Way Alternative (B1) is the lowest cost, primarily because it is completely at-grade. However, to accommodate WSDOT's requirement to maintain both HOV ramps at the I-90/Bellevue way interchange, Alternative B1 would need design revisions that would add approximately $63 million. The next lowest cost alternative is 112th SE At-Grade (B2A) followed by *Preferred 112th SE Modified Alternative (B2M)*. The *Preferred Alternative* cost range is between $470 million without reserve to $550 million with project reserve. *Preferred Alternative B2M* would result in lower costs in Segment C connecting to *Preferred Alternatives C11A* or *C9T* than the 112th SE Bypass (B3) or BNSF (B7) Alternatives because the route continues north along 112th Avenue SE at-grade while B3 and B7 are elevated and longer as they continue into downtown.

The difference in cost of *Preferred Alternative B2M* as compared with the less expensive Alternative B2A is primarily due to lidded retained cut in front of the Winters House. Alternative B7 is the most expensive of any Segment B alternative and ranges from $515 to $590 million with and without a project reserve (Exhibit 2-65). Alternative B7 is longer than the other alternatives, includes a new bridge over the Mercer Slough, and constructs a new park-and-ride rather than expanding the existing South Bellevue Park-and-Ride. The former BNSF Railway corridor also accommodates possible future freight rail or a pedestrian and bicycle trail to be built and funded by others. B3 - 114th Extension Design Option adds approximately $70 to 80 million to Alternative B3, making it comparable to BNSF Alternative (B7). The primary reasons for this high cost are both these alternatives are longer than the others and they are primarily elevated.

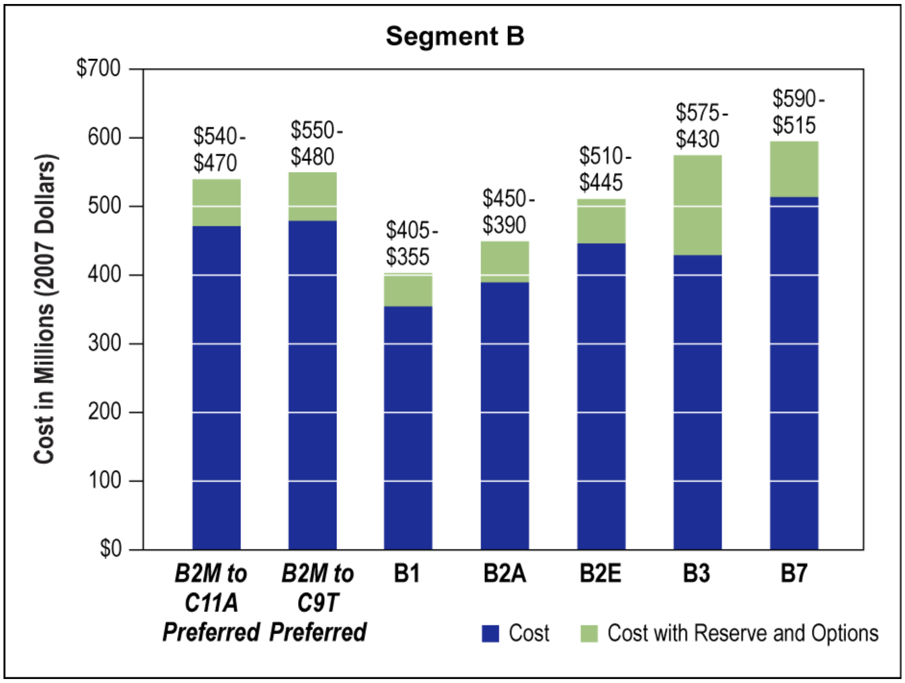


EXHIBIT 2-65
Segment B Cost Estimate

Finally, to accommodate WSDOT's requirement to maintain the east-to-northbound HOV ramp from I-90 to Bellevue Way, the non-preferred Segment B alternatives that use Bellevue Way (Alternatives B2A, B2E, and B3) would cost an additional $23 million to reconfigure the ramp. This is not reflected in the costs as discussed above.

2.6.2.3 Segment C

Segment C alternatives range from $435 million without project reserve to $1,615 million with project reserve. Segment C alternative cost estimates have the greatest cost range among the alternatives due to the inclusion of at-grade, elevated, and tunnel profiles (Exhibit 2-66). The most costly profile is a tunnel. The at-grade and elevated alternatives have similar costs in this segment due to the amount of utility relocation for at-grade profile in Segment C. The lowest cost alternative is 112th NE Elevated Alternative (C7E) because it is the shortest route and is primarily elevated.

The cost range also includes the impacts of Segment B connections. *Preferred 108th NE At-Grade (C11A)* or *Preferred 110th NE Tunnel (C9T) Alternatives* would be the lowest cost connection to *Preferred Alternative B2M.* For *C11A,* the B3 and B7 connectors are approximately $50 million more than the *B2M* connector, whereas the difference is approximately $100 million for *C9T*. The Bellevue Way Tunnel Alternative (C1T) has only one connection from Segment B—Alternative B1—and therefore has no range in project costs (other than project reserve) and remains the highest-cost Segment C alternative. The 110th NE Elevated (C8E) and 114th NE Elevated (C14E) Alternatives connect only to Alternatives B3 and B7.

Preferred Alternative C9T from *B2M,* which is estimated to range between $790 million without project reserve and $910 million with project reserve, is still substantially less than the cost of the other tunnel alternatives that range from $970 to $1,615 million. *Preferred Alternative C11A* is $555 million without project reserve and $635 million with project reserve. While the 112th NE Elevated (C7E) and the 114th NE Elevated (C14E) Alternatives are elevated, they are shorter and have lower property acquisition and utility relocation costs and therefore still result in a lower overall cost estimate than *Preferred Alternative C11A*. The 110th NE At-Grade Alternative (C9A) is comparable to *C11A*, but shorter in length and avoids rebuilding the Bellevue Transit Center and therefore costs less by approximately $100 million with and $90 million without project reserve. In addition, there are two options for the Ashwood/Hospital Station, either over I-405 for Alternative C8E or east of I-405 for Alternative C3T, C4A, or C7E. The less expensive of the two options is the station east of I-405 because of either less property acquisition or lower construction difficulty. The station located over I-405 includes an

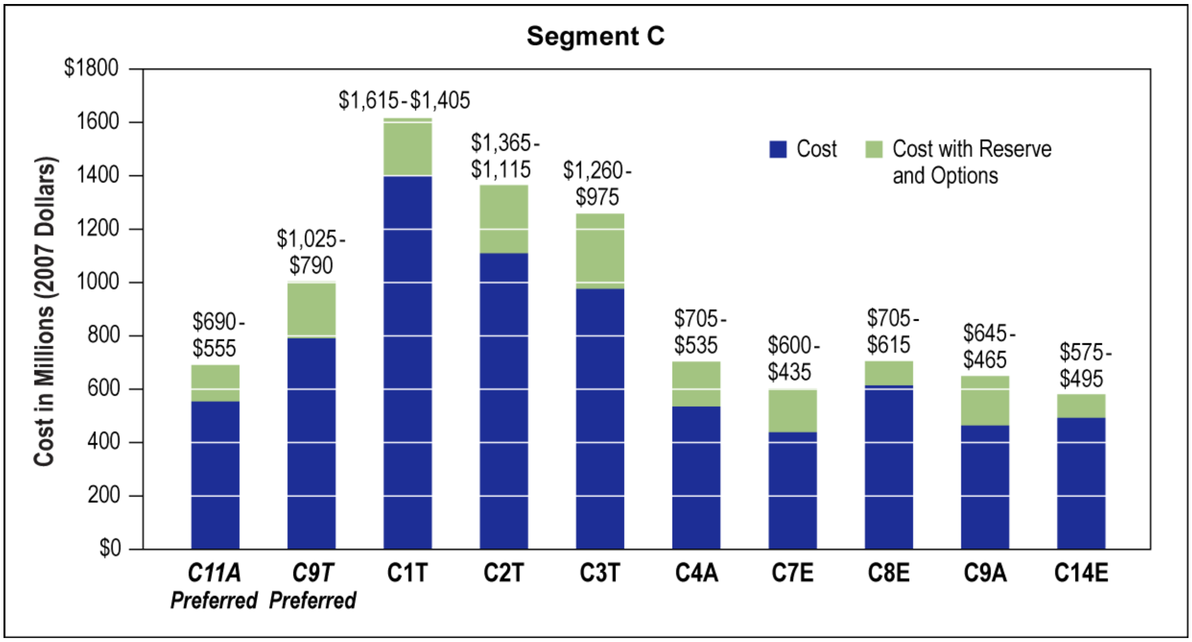


EXHIBIT 2-66
Segment C Cost Estimate

additional 25 percent cost ($12 million) for construction over I-405.

As shown in Table 2-6, the total cost of combining Segment B with Segment C alternatives provides another cost comparison. The combined cost in Table 2-6 of Segment B alternatives with Segment C alternatives reflects only the low and high cost with project reserve relative to that unique combination, whereas the low and the high costs presented in the preceding bar graphs reflect the cost range for each alternative with any of the possible combinations. Some of the cost savings in Segment B are lost when connecting to Segment C. For instance, Alternative B1 is the least expensive in Segment B, but when combined with C1T, they collectively become the most expensive combination. For *Preferred Alternative C9T,* the cost difference connecting to *B2M* is $45 to $140 million less than connecting to B3 or B7, respectively, whereas for *Preferred Alternative C11A*, connecting from B2M and B3 are similar but connecting from B7 would be $90 million more. Generally, the Segment C alternatives cost less when connecting from the alternatives that travel up 112th Avenue SE because they are shorter and on average, the connection from B7 is $100 million more than connections from 112th Avenue NE connectors. The exception is the B2A connector for both the 106th NE Tunnel (C2T) and 108th NE Tunnel (C3T) alternatives. The B2A connection through the King County District Court House site is the most costly (between $85 and $140 million more than the least costly connector because it extends these tunnels further south).

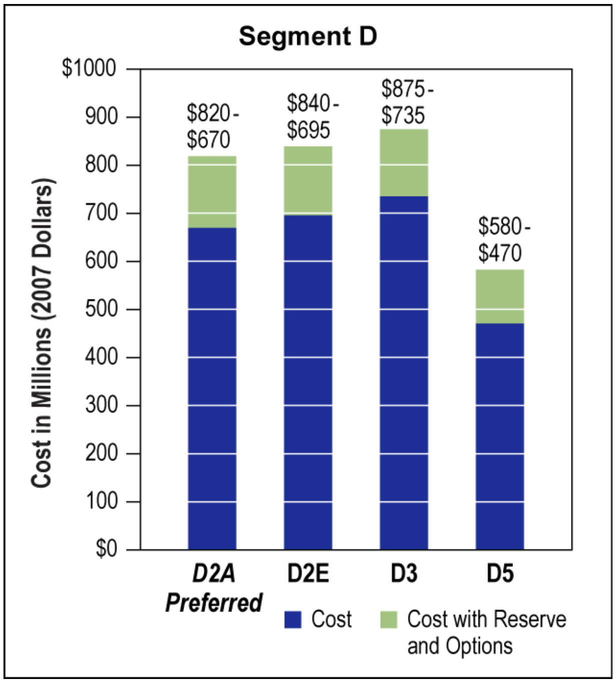


EXHIBIT 2-67
Segment D Cost Estimate

Although some of the Segment B to C alternative combinations presented in Table 2-6 are not directly studied in the EIS, they are possible, and therefore, costs are provided to complete the comparison.

2.6.2.4 Segment D

The Segment D alternatives range from approximately $470 million without project reserve to $875 million with reserve (Exhibit 2-67).

TABLE 2-6
Total Costs of Combining Segment B and C Alternatives [a] ($ millions 2007 dollars)

Alternative	***Preferred 112th SE Modified Alternative (B2M)***	**Bellevue Way Alternative (B1)**	**112th SE At-Grade Alternative (B2A)**	**112th SE Elevated Alternative (B2E)**	**112th SE Bypass Alternative (B3)**	**BNSF Alternative (B7)**
Preferred 108th NE At-Grade Alternative (C11A)	$1,020 to $1,170	NA [b]	$940 to 1,080[c]	$995 to $1,145[c]	$1,020 to $1,260	$1,110 to $1,280
Preferred 110th NE Tunnel Alternative (C9T)	$1,270 to $1,460	N/A [b]	$1,180 to 1,355[c]	1,235 to 1,420[c]	$1,315 to $1,595	$1,405 to $1,615
Bellevue Way Tunnel Alternative (C1T)	N/A[b]	$1,760 to $2,020	N/A[b]	N/A[b]	N/A[b]	N/A[b]
106th Tunnel Alternative (C2T)	N/A[b]	N/A[b]	$1,575 to $1,810	$1,565 to $1,795	$1,540 to $1,770	$1,640 to $1,885
108th Tunnel Alternative (C3T)	N/A[b]	N/A[b]	$1,480 to $1,705	$1,415 to $1,630	$1,450 to $1,670	$1,560 to $1,795
Couplet Alternative (C4A)	N/A[b]	N/A[b]	$935 to $1,075	$975 to $1,120	$1,035 to $1,195	$1,125 to $1,295
112th NE Elevated Alternative (C7E)	N/A[b]	N/A[b]	$850 to $975	$880 to $1,010	$945 to $1,085	$1,035 to $1,190
110th NE Elevated Alternative (C8E)	N/A[b]	N/A[b]	N/A[b]	N/A[b]	$1,040 to $1,195	$1,125 to $1,295
110th NE At-Grade Alternative (C9A)	N/A[b]	N/A[b]	$850 to $980[c]	$905 to $1,045[b]	$985 to $1,135	$1,070 to 1,230
114th Avenue NE Elevated Alternative (C14E)	N/A[b]	N/A[b]	N/A[b]	N/A[b]	$925 to $1,145	$1,015 to $1,165

[a] Range reflects both project cost reserves and options unique to each combination of alternatives.

[b] These Segment B-C alternative combinations are not possible.

[c] Although these Segment B-C alternative combinations are not directly studied in the EIS, they are possible, and therefore, costs are provided.

The design options for *Preferred NE 16th At-Grade Alternative (D2A)* fall within the same range— $670 million without reserve to $765 million with project reserve. *Preferred Alternative D2A* is less expensive overall than the Alternative D2A - NE 24th Design Option because remaining along SR 520 and positioning the Overlake Village Station adjacent to SR 520 as opposed to traveling along the north side of NE 24th Street and the west side of 152nd Avenue NE results in a savings of up to $50 million (or close to a 10 percent savings). The savings is a result of fewer real estate acquisitions and shorter linear miles of light rail track compared to traveling on NE 24th Street and 152nd Avenue NE. There is relatively little difference in cost among Segment D alternatives, with one exception. The SR 520 Alternative (D5) is the lowest because it avoids the construction of two stations, the 120th and 130th stations. *Preferred Alternative D2A* is somewhat lower in cost than the remaining alternatives because an at-grade profile can be less expensive than elevated and retained-cut profiles.

For the connection options to Segment C, property acquisition is the primary factor in the cost difference between the NE 12th Street connector (from C3T, C4A, C7E, or C8E) versus the former BNSF Railway connector (from *C11A, C9T*, C1T, C2T, C9A, or C14E). The former BNSF Railway connector would cost up to 7 percent more than the NE 12th Street connector for all Segment D alternatives except for Alternative D5, for which the BNSF connector would be as much as 5 percent less than the NE 12th Street connector. Alternative D5 also has two design options on the east end of Segment D, which account for less than a $3 million difference in the estimate.

For the alternatives following NE 15/16th Street Corridor, either the 120th or 130th Station may be built, or both. For *Preferred Alternative D2A* or Alternative D3, a single station rather than both stations would reduce the overall project costs by almost $11 million. For the NE 16th Elevated Alternative (D2E), the cost reduction would be approximately $47 million because an elevated station is more costly.

2.6.2.5 Segment E

Exhibit 2-68 shows the costs range in Segment E and highlights the *Preferred Marymoor Alternative (E2)* cost estimate. Segment E alternatives range from $505 million without project reserve to $795 million with project reserve. The Segment E alternatives have many portions of their routes in common. The differences lie in how they serve Downtown Redmond. *Preferred Alternative E2* costs among the lowest of the Segment E alternatives at a projected $555 million without reserve to $635 million with project reserve. Adding the Redmond Transit Center Design Option onto Alternative E2 would increase this cost by approximately $150 million. E2 - Redmond Transit Center Station Design Option is the most expensive alternative because it has the longest route with an additional station and is the only alternative with right-of-way costs along 161st Avenue NE. However, when considering *Preferred Alternative E2* (without E2 - Redmond Transit Center Design Option), then *Preferred Alternative E2* and Alternative E4 are both somewhat equal in being the lowest cost alternatives.

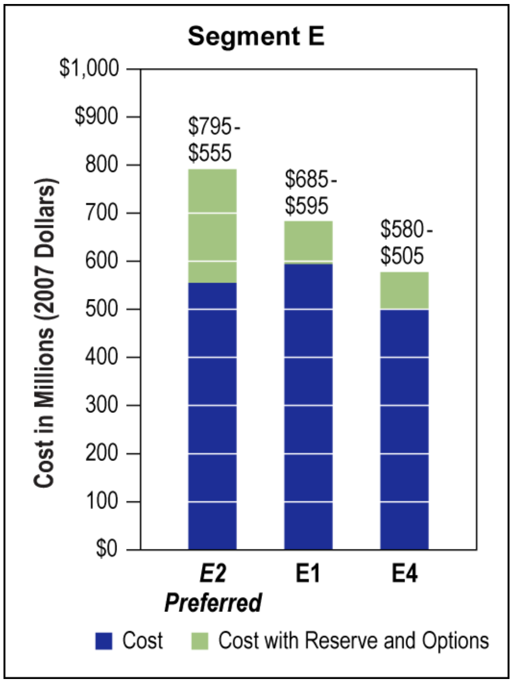


EXHIBIT 2-68
Segment E Cost Estimate

One important design consideration is where all alternatives cross the SR 520/SR 202 interchange and Bear Creek. The Redmond Way Alternative (E1) is elevated over both Bear Creek and the SR 520/SR 202 interchange. This option is approximately $11 million more than passing under the SR 520/SR 202 interchange in a retained cut and then crossing over Bear Creek, as the other two alternatives do. The range in Segment E costs is shown in Exhibit 2-68.

2.6.2.6 Maintenance Facilities

The range in maintenance facility costs is shown in Exhibit 2-69. The 116th Maintenance Facility (MF1) would be the most expensive alternative due to the amount of excavation required to create a level site, ranging from approximately $430 million without project reserve to $465 million with reserve. The variation of cost for the maintenance facility is influenced by the alternative connections. Simply stated, the longer the access track from the alternative to the maintenance facility, the higher the associated costs.

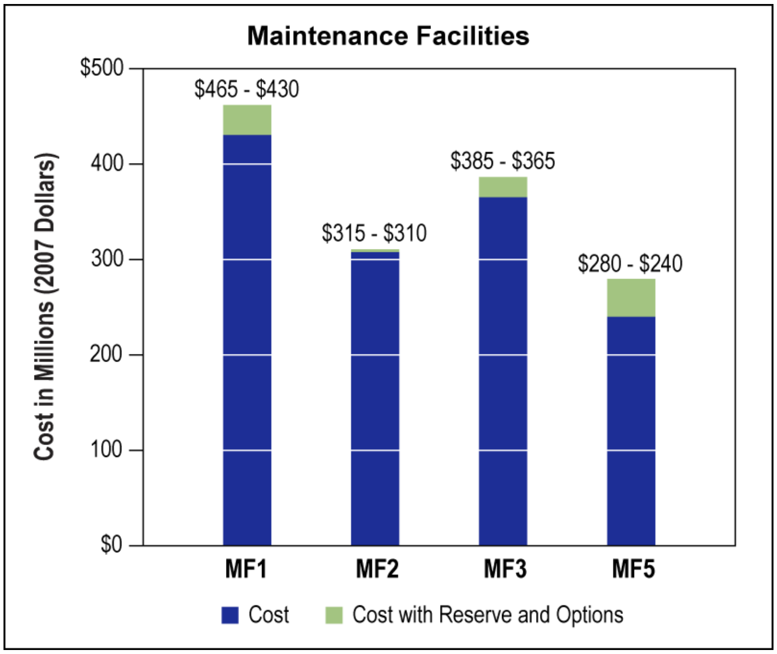


EXHIBIT 2-69
Maintenance Facilities Cost Estimate

The BNSF Maintenance Facility (MF2), at approximately $310 million to $315 million with project reserve, and the SE Redmond Maintenance Facility (MF5), between $240 million without project reserve and $280 million with reserve, would be the lowest cost alternatives due to lower site development costs, with MF5 the least expensive due to slightly lower right-of-way costs.

The SR 520 Maintenance Facility (MF3) would have higher site development costs than either MF2 or MF5, but lower costs than MF1. MF1 and MF3 would be the least expensive for Alternative D5 connection, whereas MF2 would be slightly less expensive for all other

Segment D alternatives. MF5 would have the lowest cost with connection from Alternative E1.

2.6.2.7 Operating and Maintenance Costs

Operating and maintenance costs for the East Link Project were estimated based on the estimates developed for the ST2 adopted in July 2008. East Link operating costs are the annual system operating costs for the completed light rail system in the ST2 as allocated to the East Link extension from Seattle. The light rail system operating costs are based on a labor build-up model of a type used for FTA New Starts cost estimates; it was calibrated to the relatively well-established operating and maintenance costs for the Link Initial Segment under the existing agreements with King County.

The major determinants of operating costs are service levels, running time, and trackway profile. The more frequent the service and the longer the line, the more vehicles it takes to maintain equivalent headways. Shorter alternatives with fewer stations have lower operating costs. In terms of line and station maintenance, at-grade is the lowest cost, elevated the next highest, and tunnels the highest.

The ST2 estimated annual operating cost for the East Link alternatives from Seattle to the Overlake Transit Center Station is $25 million (2007$) for 2030 (ST2, Appendix C). An additional $6 million annual operating cost is estimated for Segment E, for a total estimated annual operating cost for the entire East Link Project of about $31 million. These estimates will be refined as the project definition evolves and detailed operating plans are developed.

2.7 Next Steps and Schedule

2.7.1 Project Decision

After the Final EIS has been issued, the Sound Transit Board will make a final decision on the project alternative to be built, amending or confirming the *Preferred Alternative* identified in the this Final EIS. In addition, a second light rail storage and light maintenance facility was funded as part of ST2 to support systemwide expansion, including East Link. The location of this facility will be determined through operations analysis and future site planning which will consider locations throughout the Sound Transit service area. This future analysis would also include additional environmental review of the potential maintenance facility whether located at one of the sites evaluated in the East Link EIS or in another part of the service area.

2.7.2 Federal Approval

FTA will issue a decision document referred to as the federal Record of Design (ROD). The ROD states FTA's decision on the project, identifies the alternatives considered by FTA in reaching its decision, and itemizes Sound Transit's commitments to mitigate project impacts. Issuance of the ROD completes the NEPA process and is a prerequisite for federal funding or approvals.

2.7.3 Project Schedule

Table 2-7 shows the anticipated schedule milestones for the East Link Project. The length of time for the project would depend on available funds and construction costs. The East Link Project is included in the ST2. The ST2 funds construction and operation of the portion of the East Link Project from Seattle to the Overlake Transit Center.

Sound Transit anticipates beginning construction on the East Link Project in 2015, and construction from Seattle to Overlake would be completed in approximately 6 years, followed by approximately 1 year of startup and testing activities. Sound Transit anticipates that service would be provided to Overlake by 2022 or 2023.

2.7.4 Benefits and Disadvantages of Delaying Project Implementation

As required by SEPA (Washington Administrative Code 197-11-440(5)(c)), this section discusses the

TABLE 2-7
Project Milestones

Preliminary Design and Environmental Review	
Draft EIS published	December 2008
Draft EIS comment period	75 days
Sound Transit Board identifies preferred alternative	Spring 2009/ Spring 2010/ Summer 2010
SDEIS published	Fall 2010
SDEIS comment period	60 days
Final EIS published	Summer 2011
Sound Transit Board selects project to be built	Summer 2011
Federal Record of Decision	Fall 2011
Final Design, Construction, and Operation — ST2 Targets	
Final Design	2012 - 2015
Construction: Seattle to Overlake	2015 - 2022
Start of Service: Seattle to Overlake	2022 - 2023

benefits and disadvantages of reserving for some future time the implementation of the proposed project, as compared with possible approval at this time. The primary benefit to delaying the project would be to postpone impacts associated with project construction. Also, during project delays, planned transit-oriented development along the project corridor may be further developed to benefit transit ridership.

There are several disadvantages of delaying implementation of all or part of the project. The primary disadvantage of delaying the project would be the inability to realize a major component of the region's long-range plans for managing growth and transportation, and the benefits that result from those plans, such as increased mobility, more compact development, and a reduction in greenhouse gas emissions. PSRC and Sound Transit have studied many times the increasing congestion in the cross-lake corridor and determined that light rail to the Eastside is needed. In anticipation, local jurisdictions are meeting land use density objectives established in *Transportation 2040* (PSRC, 2010), which established long-range growth management, economic, and transportation strategies. Bellevue and Redmond have adopted transit-oriented development plans in the Bel-Red and Overlake corridor in anticipation of East Link. They have conducted feasibility studies that indicate the market forces that support dense, mixed-use development. Delays to East Link could change development patterns, leading to less dense development and lost opportunity. A substantial delay in implementing East Link would inhibit the ability of the region to accommodate growth as planned.

Implementing the East Link Project would increase person capacity on I–90 and reduce travel time during peak hours, particularly in the reverse peak direction. This would provide a benefit not only to the overall performance and mobility of I-90 but also to the key urban centers of Seattle, Bellevue, Overlake, and Redmond. If this project is delayed, this benefit would not be realized nor would the associated benefits of improved freight movement, reduced pollutants affecting air quality and global climate change, and the overall reduction of energy consumption by travelers between Seattle and Redmond. Delays would limit economic development as influenced by the movement of people and goods and the lost opportunity of linking neighborhoods and the primary Puget Sound regional employment centers. Also, developments in the project vicinity could preclude elements of the project or make it more difficult, and costly.

The potential funding implications associated with delaying the project could result in delays in project construction, which could result in higher construction costs due to inflation in future years. Delays would be likely to increase overall project and right-of-way costs. If an interim terminus is built but the rest of the project is delayed, impacts at the terminus station could increase, and costs for the overall project could increase. However, delaying all portions of the project until the entire project could be funded would delay the transportation improvements and other benefits that would be provided by that first interim segment.

Chapter 3

Transportation Environment and Consequences

3.1 Introduction

This chapter summarizes the characteristics of the transportation system in the East Link Project study area and discusses potential impacts and mitigation associated with the project alternatives described in Chapter 2. This chapter first describes the existing transportation environment, and then presents the analysis and results showing potential impacts and mitigation. A more detailed discussion of the transportation analysis and results is provided in the *Transportation Technical Report*, located in Appendix H1 of this Final Environmental Impact Statement (EIS).

3.1.1 Transportation Elements and Study Area

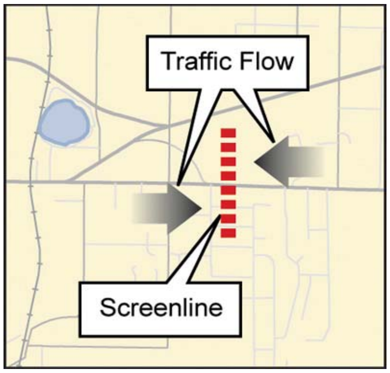
The analysis of the transportation system considered the following transportation elements:

- Regional facilities and travel patterns
- Transit operations
- Highway operations and safety
- Arterial and local street operations, safety, and parking
- Nonmotorized facilities
- Freight mobility and access
- Navigable waterways

This chapter is organized with a section on each transportation element. Each section discusses its methodology, affected environment, environmental impacts, and potential mitigation. For each of these elements, the affected environment is described under current conditions (2007), and the environmental impacts are described for the two future years, 2020 and 2030. The year 2020 was selected for analysis because it aligns with the project's estimated year of opening. The year 2030 provides a horizon-year analysis consistent with the planning period of regional and local agencies. The impact analysis compares the No Build Alternative with the East Link (light rail) alternatives.

The study area for this transportation analysis consists of the Interstate 90 (I-90) corridor between Seattle and Interstate 405 (I-405), South Bellevue, Downtown Bellevue, the Bel-Red area of Bellevue and Redmond, State Route (SR) 520 between Overlake and Downtown Redmond, and Downtown Redmond.

Exhibits 3-1 through 3-3 identify the transportation and local street analysis study area. Within the study area, approximately 151 intersections were analyzed. Pedestrian circulation was evaluated within a one-half mile radius surrounding stations, and sidewalks and on-street parking within a one-quarter-mile radius. Bicycle circulation was evaluated within a one-mile radius around the stations. Regional and corridor roadway operations were evaluated using six screenlines that assessed transit and vehicle travel performance in key subareas through the study area. As described in the transit section of this chapter (3.4), Sound Transit and King County Metro (Metro) service planners reviewed future bus routes as part of this project.

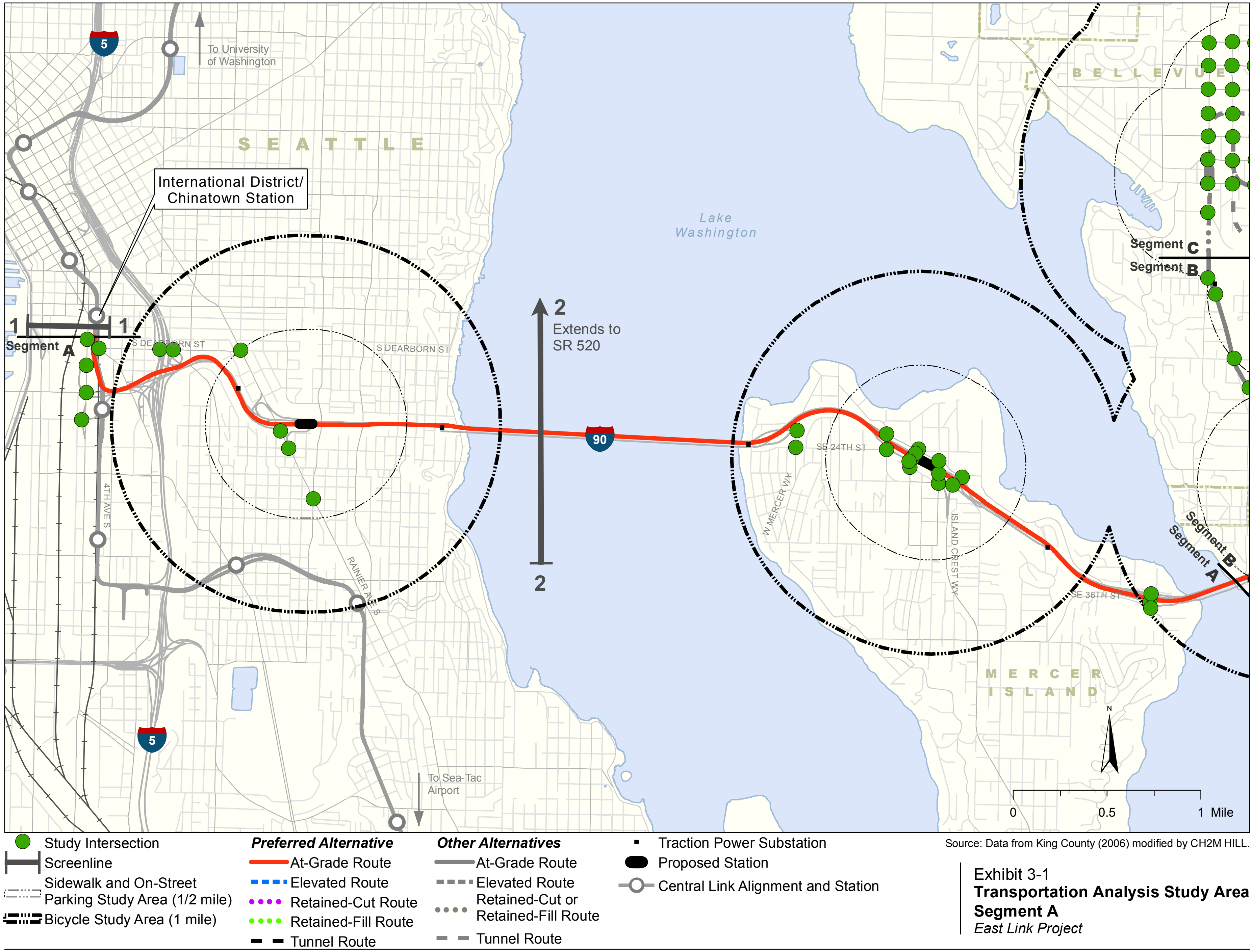


A **screenline** is an imaginary line across a section of freeways or arterials. These screenlines are used to provide a snapshot of how much volume is entering or exiting a particular area.

3.1.2 Meeting the Need for the Project

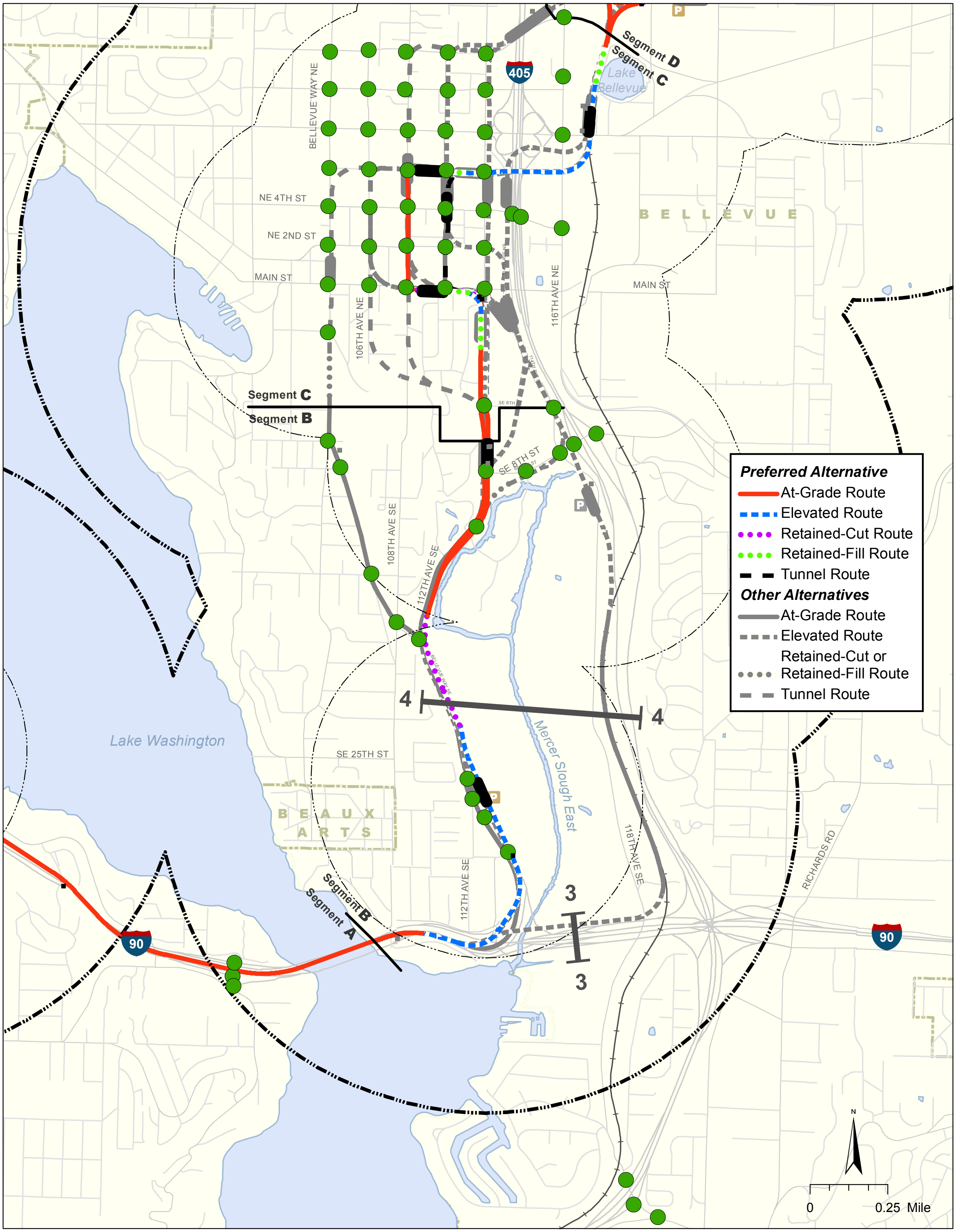
As summarized in the following points, the analysis in this chapter demonstrates that the East Link Project would meet and exceed the need for the project in all the categories presented in Chapter 1:

- **Increased Demand for Transit Services.** Without East Link, existing and projected transit service would not meet transportation reliability and capacity needs for the Eastside corridor. Projected residential and employment growth is expected to double the demand for transit services across Lake Washington and between Bellevue and Redmond by 2030 with the No Build Alternative, further highlighting the importance of providing reliable transit service. The East Link Project would more than double the I-90 person capacity across Lake Washington without any roadway widening.


5
To University of Washington
S E A T T L E
International District/ Chinatown Station
1
1
Segment A
S DEARBORN ST
S DEARBORN ST
4TH AVE S
RAINIER AVE S
5
To Sea-Tac Airport
Lake Washington
2
Extends to SR 520
2
90
B E L L E V U E
Segment C
Segment B
SE 24TH ST
W MERCER WY
ISLAND CREST WY
SE 36TH ST
Segment B
Segment A
M E R C E R
I S L A N D
N
0
0.5
1 Mile
Study Intersection
Screenline
Sidewalk and On-Street Parking Study Area (1/2 mile)
Bicycle Study Area (1 mile)
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Central Link Alignment and Station

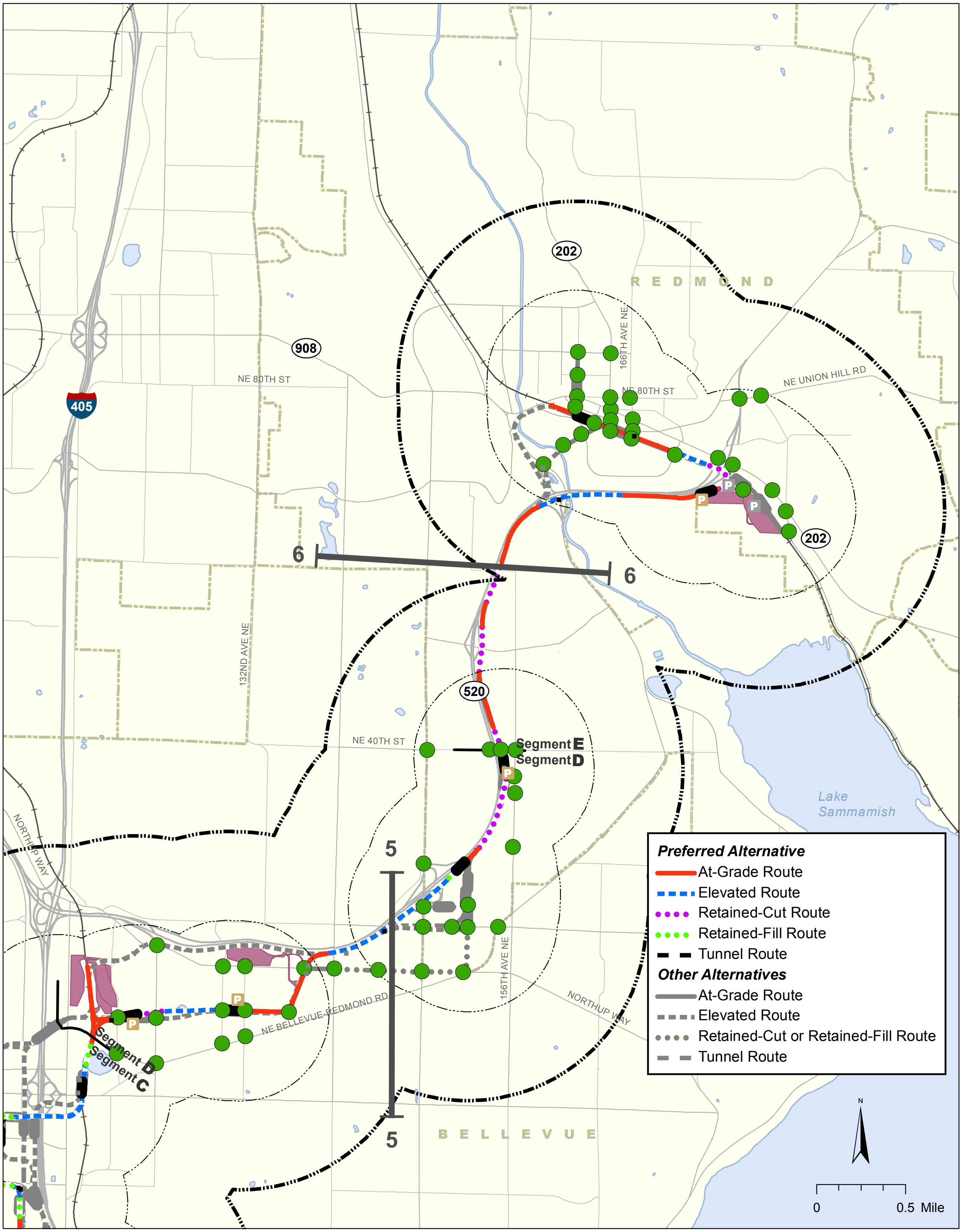
Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 3-1
Transportation Analysis Study Area
Segment A
East Link Project


Segment D
Segment C
Lake Bellevue
405
BELLEVUE WAY NE
NE 4TH ST
NE 2ND ST
MAIN ST
106TH AVE NE
116TH AVE NE
B E L L E V U E
MAIN ST
Segment C
Segment B
SE 6TH
SE 8TH ST
108TH AVE SE
112TH AVE SE
4
4
Mercer Slough East
Lake Washington
SE 25TH ST
B E A U X
A R T S
118TH AVE SE
RICHARDS RD
112TH AVE SE
3
3
Segment B
Segment A
90
90
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Study Intersection
Screenline
Sidewalk and On-Street Parking Study Area (1/2 mile)
Bicycle Study Area (1 mile)
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006).

Exhibit 3-2 **Transportation Analysis Study Area Segments B and C**
East Link Project


202
R E D M O N D
908
NE 80TH ST
405
166TH AVE NE
NE 80TH ST
NE UNION HILL RD
P
P
P
202
6
6
132ND AVE NE
520
NE 40TH ST
Segment E
Segment D
P
Lake Sammamish
NORTHUP WAY
5
5
156TH AVE NE
NORTHUP WAY
NE BELLEVUE-REDMOND RD
P
P
Segment D
Segment C
B E L L E V U E
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
N
0
0.5 Mile

Source: Data from King County (2006).

● Study Intersection

Screenline

Sidewalk and On-Street Parking Study Area (1/2 mile)

Bicycle Study Area (1 mile)

Traction Power Substation

Proposed Station

Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Exhibit 3-3 **Transportation Analysis Study Area Segments D and E**
East Link Project

Being able to move more people in both directions, especially in the reverse-peak direction (eastbound in the morning [AM] and westbound in the afternoon [PM]), when travel times are expected to double in the future, would improve the mobility into and out of the urban centers (Seattle, Bellevue, Overlake, and Redmond) on both sides of Lake Washington that this project would serve.

East Link would meet a growing demand for reliable transit alternatives. Within the East Link corridor, the travel mode in the future is predicted to shift, generally reducing the percentage of single-occupant vehicles (SOVs) and increasing the percentage of high-occupancy vehicles (HOVs [vanpools and carpools]) and transit (buses and light rail), a mode that carries more people within the limited transportation space. With the project, transit ridership across Lake Washington would increase by about 25 percent compared with the no-build condition during the PM peak period; therefore, an estimated 16 percent of the total number of people traveling across the lake would be in transit. This shift to transit indicates the growing demand for reliable high-capacity modes of travel that are consistent with urban environments and are crucial to providing person mobility rather than vehicle capacity.

- **Increased Congestion on I-90.** The vehicular capacity of I-90 during the peak periods is expected to be reached within the near future (around year 2015) (Washington State Department of Transportation [WSDOT], 2006). This would further constrain travel for all modes, including freight, HOVs, and buses. In addition, roads leading into and out of the urban centers of Seattle and Downtown Bellevue are forecasted to be at or near capacity in the near future, increasing travel time between these two key employment and population centers. This would substantially constrain the ability to travel to key employment and population areas of the region and highlights the need for increased transit service, which provides greater capacity and is more reliable than SOVs. Light rail also provides a safer transportation alternative because it operates in its own right-of-way for most of the project.
- **Regional Urban Center Growth Plans Supported by High-Capacity Transit Investments.** In accordance with Puget Sound Regional Council's (PSRC's) adopted *Transportation 2040* plan (PSRC, 2010) and the Growth Management Act objectives, Bellevue, Seattle, and Redmond have made land use and planning decisions for increased employment and residential density based in part on the long-term promise of high-capacity transit (HCT) connections across I-90. Traffic projections indicate that most major roadways in the study area would be congested and would fail to move vehicles effectively by 2030. This would occur even with implementation of planned transportation improvements on SR 520, I-90 (without East Link), and I-405. With the East Link Project, HCT would connect the region's dense commercial and residential centers, as well as major employers, across Lake Washington without being hindered by the increasingly congested highway conditions.
- **Operating Deficiencies in Regional Bus Transit.** The travel time between the key urban centers of Seattle and Downtown Bellevue would improve with light rail because light rail is faster and more reliable than bus or automobile. The East Link Project analysis estimates that light rail travel between Seattle and Downtown Bellevue would take less than 20 minutes, and between Seattle and Downtown Redmond, 29 to 39 minutes, regardless of time of day or level of traffic congestion. This is a savings of up to 25 minutes compared with an automobile currently traveling between these locations—in the afternoon peak period it currently can take approximately 45 minutes to travel between Seattle and Bellevue (via I-90) and approximately 55 minutes to travel between Seattle and Redmond (via SR 520) (WSDOT, 2011). In the future, these automobile times are expected to continue to rise, and therefore light rail would provide an even greater travel-time savings.

  Light rail service to the Eastside would substantially improve transit service reliability throughout the project vicinity. It is expected that bus reliability in the future would continue to operate at failing levels (not meeting level of service [LOS] standards) without the project, and a majority of the bus routes would not meet scheduled headways (the time between bus arrivals). Buses would continue to be an unreliable travel choice in the project area, for instance across Lake Washington and in Downtown Bellevue and

Traffic Level of Service

Describes traffic conditions in terms of speed and travel time, freedom to maneuver, comfort, convenience, and safety. LOS A is considered to be the ideal "free-flowing" condition, while LOS F is considered to be the least desirable condition, with stop-and-go traffic.

Redmond, because bus service would be slowed by heavily congested roadways. Bus speeds between Downtown Seattle and Downtown Bellevue are predicted to decrease approximately 30 percent by year 2030 as congestion worsens, even with improvements to I-90, because arterials connecting I-90 to these urban centers would not be improved. This poor bus reliability would not benefit transit ridership and would not provide an attractive transportation choice for the region.

The frequency of transit throughout the day would also improve because light rail would arrive every 15 minutes or less, in comparison with buses arriving on average every 30 minutes or more during off-peak hours. Light rail would also serve more hours of the day with expanded service coverage of 20 hours—a substantial improvement over existing and planned bus service.

- **Limited Transit Capacity and Connectivity.** Light rail service not only provides increased service frequency, faster travel times, and longer hours of service throughout the day, it would also be able to carry more passengers to connecting bus routes. The bus routes that share connections with the light rail system would likely experience higher ridership. By the year 2030, approximately 10,000 new riders would choose to ride transit each day with the addition of light rail serving Eastside communities. Overall, the East Link Project is forecasted to contribute between 48,000 and 52,500 daily riders to the region's light rail system. This is expected to eliminate close to 230,000 vehicle miles traveled and about 10,000 hours of travel each day in the region in 2030.

  The East Link light rail project has the capacity to carry from 9,000 to 12,000 people per hour in each direction, which would more than double the person-carrying capacity of I-90. The ability to carry this many people is equivalent to about seven to ten freeway lanes of vehicle traffic. Without light rail's ability to move more people in both directions across Lake Washington, there would continue to be roadway capacity constraints that would not efficiently and reliably serve the growing residential and commercial land use densities on the Eastside.

3.2 Methodology and Assumptions

The transportation impacts of the East Link Project were analyzed from three different perspectives: regional, corridor, and operations. The regional and corridor assessments addressed larger areas in the overall project vicinity. The operational assessment identified and analyzed specific roadways and intersections. The following types of information were developed and evaluated in these three analysis areas:

- Regional analysis includes information such as projectwide ridership and daily vehicle miles and hours of travel.
- Corridor analysis includes information such as transit service and ridership, roadway volume-to-capacity (v/c) ratios, and mode share.
- Operational analysis includes information on the operations (traffic LOS) and safety of the highways, arterial and local streets, and intermodal network(s).
- The arterial and local street analysis focused on intersection operations and safety analysis, whereas the highway analysis focused on person throughput and capacity, travel time, and safety. Impacts on parking, nonmotorized facilities, transit, and freight movement were also addressed. Construction impacts on traffic circulation were assessed qualitatively for local traffic and quantitatively for I-90.

The methodology and assumptions that were used to analyze the project impacts are discussed in detail in Appendix A of the *Transportation Technical Report* (see Appendix H1 of this Final EIS). That appendix includes further information on the following topics:

- Agency guidelines and regulations regarding the analysis of local and regionwide project impacts
- Transportation analysis methodology, including relevant definitions, data collection, regional traffic analysis, corridor traffic analysis, intersection impact analysis, and construction impact analysis
- Methods for traffic forecasting and assessing local and projectwide LOS standards and safety
- Methods for assessing impacts related to light rail station and park-and-ride areas, parking, nonmotorized facilities and modes, property access circulation, freight, transit, and construction.

3.3 Regional Travel

3.3.1 Methodology

This section describes the project's existing conditions (year 2007) and potential project impacts on regional transportation facilities in the study area in years 2020 and 2030. Regional travel conditions for the East Link

Project were evaluated based on future travel information obtained using the PSRC transportation demand model and Sound Transit's transit ridership model, which includes the urbanized areas of King, Pierce, and Snohomish counties. These travel demand models were used to create 2020 and 2030 vehicle and transit ridership forecasts for the study area. Based on these forecasts and driver travel patterns, the number of miles and hours traveled were estimated to create vehicle miles traveled (VMT) and vehicle hours traveled (VHT). On roadways in the study area, the vehicle traffic and mode share were predicted, giving the v/c ratios (congestion) and mode share at each of the six project screenlines shown in Exhibits 3-1 through 3-3.

Vehicle Miles Traveled (VMT). The total number of miles traveled each day by drivers in the region.

Vehicle Hours Traveled (VHT). The total number of hours that people drive each day in the region.

Volume-to-Capacity (v/c) Ratio. The ratio of how many vehicles are on a road compared to that road's capacity. A v/c ratio between 0.90 and 1.0 indicates slow traffic conditions, a v/c ratio between 1.0 to 1.2 indicates stop-and-go conditions, and a v/c ratio over 1.2 indicates severe traffic congestion.

Mode Share. The percentage of people using different travel modes (methods) such as single-occupant vehicles, high-occupancy vehicles (HOVs), and transit.

3.3.2 Affected Environment

3.3.2.1 Vehicle Miles Traveled and Vehicle Hours Traveled

In the Puget Sound region, vehicles travel more than 70 million miles each day. This results in close to 2 million hours of travel for all users of the transportation system. In the AM peak period (6 to 9 a.m.), daily regional travel is about 12 million total vehicle miles and over 300,000 total vehicle hours. In the PM peak period (3 to 6 p.m.), there are about 15 million total VMT and over 400,000 total VHT daily. Thirty-seven percent of all miles traveled and more than 40 percent of all hours of travel occur in the AM peak and PM peak periods, indicating that the most congested periods in this region are during the AM and PM commuting periods. Within the morning and afternoon peak periods, the highest hour of congestion is known as the AM and PM peak hours. Depending on the type of analysis, the performance measures used are based on either the peak period or the peak hour. The major regional highways within the East Link study area are I-90, I-5, I-405, and SR 520, and these highways serve a substantial amount of the vehicle trips within the Central Puget Sound region. SOVs were the dominant mode of regionwide travel in year 2006, accounting for 44 percent of the trips made. A large number of trips also occurred in vehicles with two or more passengers (HOV). Together, SOV and HOV travel accounted for 84 percent of the person trips made in 2006. The remaining trips were by transit, walk, and other modes (PSRC, 2007). The primary transit service providers within the project vicinity are King County Metro, Sound Transit, and Community Transit.

3.3.2.2 Regional Highways

I-90 is a major east-west interstate highway that extends from Boston through Chicago, and ends in Seattle at I-5, the western portion of the East Link Project corridor. In Washington, I-90 connects various freight and state routes originating in Seattle, through Mercer Island and Bellevue, to the eastern side of the state and beyond. The section of I-90 that crosses Lake Washington, including the floating bridges (Lacey V. Murrow Memorial Bridge and Homer M. Hadley Memorial Bridge), has three general-purpose lanes in each direction and a reversible center roadway that operates as a westbound expressway during the morning and as an eastbound expressway during the afternoon and evenings. The reversible center roadway is currently used for HOVs, buses, and Mercer Island drivers. These reversible lanes are located between the Mount Baker Tunnel in Seattle and the Bellevue Way SE interchange. On the floating bridges, the average daily traffic volume is 140,000 to 150,000 vehicles. This consists of about 135,000 vehicles per day in the eastbound and westbound mainline lanes and about 15,000 daily vehicles in the reversible center roadway (WSDOT, 2007).

I-5 is the primary north-south West Coast route in the region, connecting the U.S. borders with Canada and Mexico. In Washington, this interstate is a major transportation corridor in the Puget Sound region and serves as a main highway connection among the urban communities between Portland and Seattle.

I-405 is a key interstate facility that parallels I-5 on the east side of Lake Washington and connects to I-5 in Tukwila and Lynnwood. I-405 has interchanges that connect with I-90 and with state routes. In urban areas of the project corridor, specifically Downtown Bellevue, I-405 consists of six lanes with HOV facilities.

SR 520 provides an east-west connection across Lake Washington between Seattle and the Eastside communities, such as Kirkland, Bellevue, and Redmond, and connects large employment centers in Bellevue, Redmond, and Seattle.

3.3.2.3 Screenline Performance

A v/c ratio of 0.90 and above indicates slow to severe traffic conditions. Screenline 2, which crosses I-90 and SR 520 (see Exhibit 3-1), and Screenline 4, which crosses I-405 (see Exhibit 3-2), cross areas of heavy congestion in both directions in the peak periods, as indicated by a v/c ratio above 1.0. This level of congestion is expected because these screenlines intersect three of the most heavily traveled highways in the region (SR 520, I-90, and I-405). Most of the other screenlines have a v/c ratio less than 0.70. Although Screenline 3 (Exhibit 3-2) is also located on I-90, its v/c ratio is considerably less than at Screenline 2 because of the additional roadway capacity (collector-distributor system) that is provided between Bellevue Way and I-405 to better manage the flow of traffic.

Within the study area, the current use of different transportation modes (mode share) varies depending on available transportation choices, congestion, and land use (e.g., commercial, residential, retail) surrounding the area. For example, some of the higher HOV and transit mode shares are found at locations leaving Seattle (Screenline 1 southbound and screenlines 2 and 3 eastbound). At Screenline 5 (Exhibit 3-3) westbound and Screenline 6 southbound (these routes include trips to Seattle across SR 520), a higher HOV mode share occurs compared with its counter eastbound direction into Redmond.
Exhibit 3-4 shows the existing mode share during the PM peak hour at each screenline.

3.3.3 Environmental Impacts

This section describes the potential regional travel impacts associated with the No Build Alternative and with the proposed East Link Project. The analysis shows that the East Link Project would reduce the rate of growth of regional VMT and VHT, lower v/c ratios at the screenlines, and produce a mode share with an increased emphasis on transit. The *Transportation Technical Report* provides a more detailed year 2020 and 2030 discussion of the regional VMT and VHT, v/c ratios, and mode share.

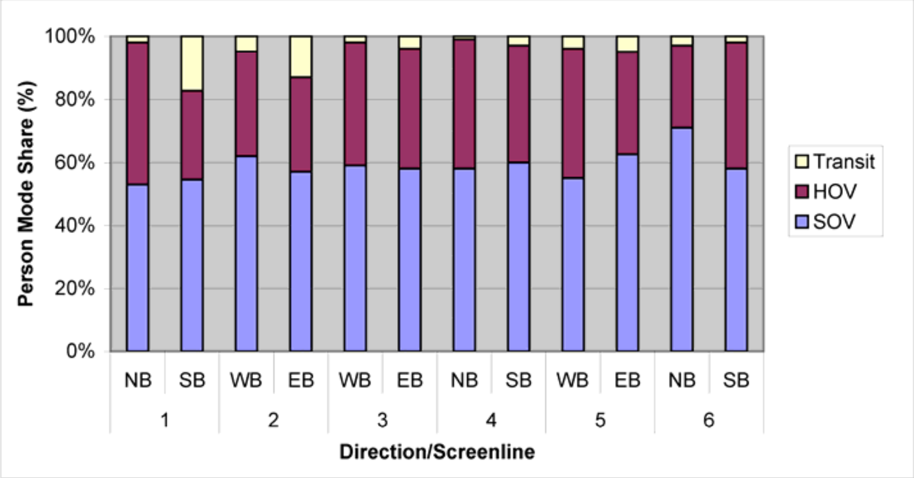
3.3.3.1 Traffic Forecasts

Future-year analysis was based on PSRC's current population and land uses forecasts for years 2020 and 2030 in the regional travel demand model. The programs and/or projects that were assumed in the analysis to occur in the future, both with and without the East Link Project, were selected because they are considered reasonably foreseeable. These projects include a mixture of state highway and local roadway projects as well as Sound Transit and Metro enhancements. Attachment 1 in Appendix A of the *Transportation Technical Report* gives a complete list of future projects that were assumed to occur in the future.

According to PSRC's regional trip forecasting and regional population and employment forecasts, travel on major highway facilities will continue to increase through 2030. Future roadway projects will improve the HOV system, allowing more carpool trips, but will not include substantial improvements in high-capacity modes of travel. Roadways that lead into and out of the urban centers of Seattle and Downtown Bellevue will be at capacity in the near future. Exhibit 3-5 depicts PSRC's 2030 PM forecast without East Link for roadways with a v/c ratio of greater than 0.90, meaning slow to severe traffic conditions. This exhibit shows that, in 2030, the afternoon commute across Lake Washington on SR 520 and I-90 and on I-5 and I-405 will range from slow, to stop-and-go, to severe traffic conditions.

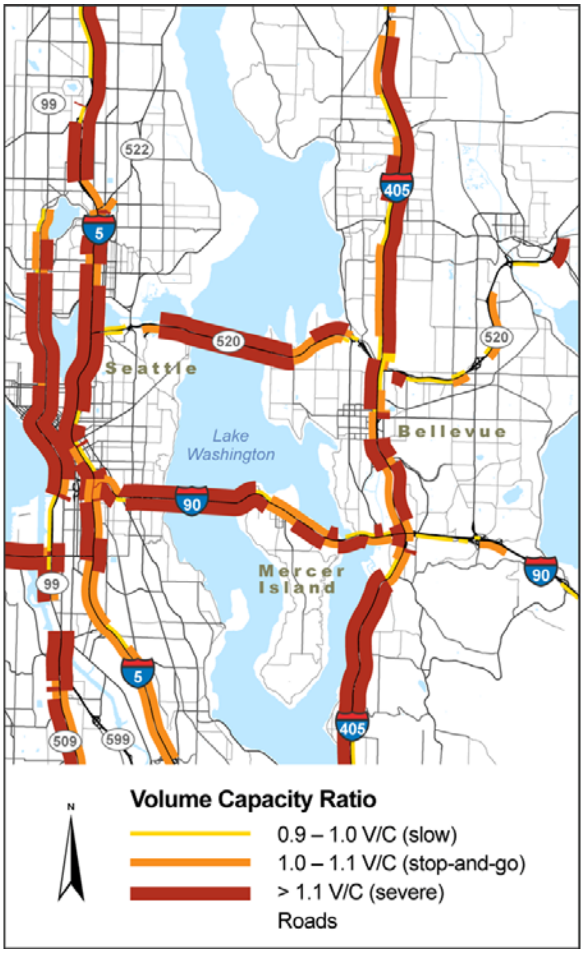
This congestion would substantially constrain the ability to travel into key employment and population areas of the region and highlights the importance of increased utilization of transit.

The East Link Project would link Seattle, the region's main urban downtown area, with the Eastside communities, connecting the region's dense commercial and residential centers as well as major



HOV = high-occupancy vehicle
SOV = single-occupant vehicle

EXHIBIT 3-4
Existing PM Peak-Hour Screenline Mode Share



Source: PSRC, 2007

EXHIBIT 3-5
PSRC 2030 PM Highway Volume-to-Capacity Ratios without East Link

employers across Lake Washington. Light rail would support increased density in Bellevue and Redmond, as well as Seattle, consistent with regional land use plans and Washington Growth Management Act goals to preserve natural resources. Higher density provides economic growth and opportunities for more effective infrastructure development with HCT. Travel between the key urban centers (Seattle and Downtown Bellevue) would improve with light rail service because it has greater capacity and is a more reliable mode of travel than SOVs.

Year 2020 and 2030 annual traffic growth rates for the PM peak hour are listed in Table 3-1. These are based on PSRC travel demand model forecasts. By year 2030, the annual vehicle growth rates within the study area would be less than 2 percent per year. With East Link, a slight reduction in auto usage is forecasted as approximately 10,000 people shift their mode of transportation and use light rail by year 2030.

TABLE 3-1
Future PM Peak-Hour Traffic Growth Rate for No Build Alternative

Segment	Boundary	Annual Vehicle Growth Rate (percent) Year 2020	Annual Vehicle Growth Rate (percent) Year 2030
Segment A	Seattle to South Bellevue	2.5	1.8
Segment B	South Bellevue to Bellevue Central Business District	0.8	1.0
Segment C	Bellevue Central Business District	1.3	1.7
Segment D	Bellevue Central Business District to NE 40th (Redmond)	2.5	1.9
Segment E	NE 40th (Redmond) to Downtown Redmond	1.7	1.5

3.3.3.2 Vehicle Miles Traveled and Vehicle Hours Traveled

VMT and VHT are regional performance measures used to assess the impacts of the project alternatives on travel. Changes in VMT mean people are traveling either less or more distance (miles) to get to their destinations. Changes in VHT generally reflect the change in traffic congestion or the amount of time required to travel.

The PSRC and Sound Transit travel demand models were used to predict traffic conditions with the East Link Project. The results indicate that the regionwide VMT and VHT would decrease by about 0.20 percent, with the majority of the reductions occurring in the AM and PM peak periods. This is a reduction of slightly less than 230,000 VMT and 10,000 hours of travel each day in year 2030. Total regional VMT and VHT for year 2030 with and without East Link are shown in Table 3-2.

TABLE 3-2
2030 Regional Travel Impact Comparison Summary

	No Build	East Link	Percent Change
Total VMT	116,690,200	116,461,200	-0.20
Total VHT	4,463,000	4,453,900	-0.20

Source: PSRC and Sound Transit demand models.

3.3.3.3 Screenline Performance

Generally, with the project, regional roadway v/c ratios would remain the same or improve slightly (lower values) compared with the No Build Alternative. Removing vehicle use from the center roadway to accommodate light rail would not affect other regional highways, such as SR 520, I-5, and I-405. Mode shares generally would become less dominated by SOVs as the transit share increases. With the project, transit ridership across Lake Washington would increase by about 25 percent compared with no-build condition during the PM peak period; therefore, an estimated 16 percent of the total number of people traveling across the lake would be using transit. This mode shift provides increased person mobility in a corridor with limited opportunities for road expansion. The projected v/c ratios and mode shares are summarized in this section for each screenline. Year 2030 v/c ratios at each screenline are shown in Table 3-3. Exhibit 3-6 shows the PM peak-hour mode share at each screenline for year 2030.

TABLE 3-3
2030 PM Peak-Hour Volume-to-Capacity Ratios at Screenlines

Screenline	Direction	2030	
		No Build[a]	East Link
1	Northbound	0.95	0.94
	Southbound	1.16	1.14
2	Westbound	1.13	1.12
	Eastbound	1.02	1.17
3	Westbound	0.70	0.68
	Eastbound	0.82	0.72
4	Northbound	1.12	1.10
	Southbound	1.22	1.23
5	Westbound	0.75	0.75
	Eastbound	0.77	0.78
6	Northbound	0.86	0.86
	Southbound	.059	0.58

Source: PSRC travel demand model.

[a] No-build condition with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

Screenline 1: City of Seattle

For the No Build Alternative, the mode share among SOV, HOV, and transit usage in Seattle (across Screenline 1) is expected to change little in the future. With East Link, transit usage would more than double, and the Screenline 1 v/c ratios would improve. This increase in transit share is due to modifications in transit service and the addition of light rail service across this screenline.

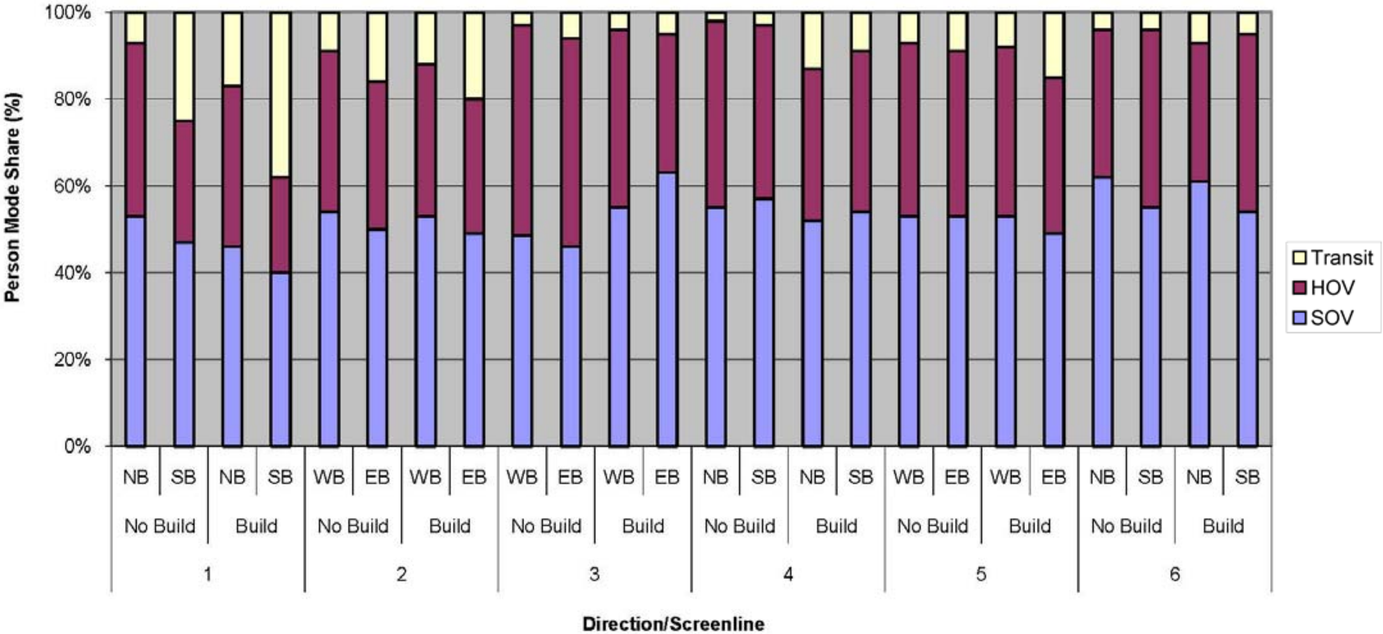
Screenline 2: Lake Washington (Includes I-90 and SR 520)

In the future, the v/c ratios crossing Lake Washington on both I-90 and SR 520 (across Screenline 2) would remain similar to today's highly congested conditions with or without light rail. Because the I-90 reversible center roadway would be removed by the East Link Project, the v/c ratio in the peak directions (into Seattle in the morning and out of Seattle in the afternoon) is expected to become slightly higher than with the No Build Alternative, although increased transit use with the project would increase person throughput and provide increased capacity for future growth (see Section 3.5.3.3). Forecasted travel on both I-90 and SR 520 with the East Link Project is expected to remain similar to the No Build Alternative, indicating no substantial diversion to other facilities.

For travel across Screenline 2 in 2020 and 2030, the percentage of SOVs would slightly decrease with the No Build Alternative as congestion worsens and people choose alternative modes, such as HOVs and transit. With light rail, both SOV and HOV usage would decrease as people choose to use transit. Providing light rail would increase transit usage in 2030 by up to 25 percent, which is a substantial shift to transit. There is also an expected slight shift in HOV usage from I-90 to SR 520. This shift would be caused in part by the planned SR 520 HOV lane improvements and closure of the I-90 center roadway. Section 3.5 discusses I-90 traffic operations and congestion patterns in detail, including vehicle and person throughput, vehicle travel time, level-of-service, and safety.

Screenline 3: Interstate 90 (at Mercer Slough)

With the No Build Alternative, congestion in the future would increase slightly compared with existing conditions. With the East Link Project, v/c ratios across Screenline 3 would decrease slightly because of a shift in travel patterns during the PM peak hour, indicating that congestion would improve slightly. Mode shift patterns indicate that, with the future No Build Alternative, SOV usage would decrease and HOV and transit usage would increase. With light rail, the HOV share would decrease slightly due to the reasons noted above for Screenline 2.



Note: No-build condition with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

EXHIBIT 3-6
2030 PM Peak-Hour Mode Share at Screenlines

Screenline 4: South Bellevue

In 2020 and 2030 with the No Build Alternative, v/c ratios at Screenline 4 are expected to be near or above 1.0. This indicates that future travel into and out of the key Eastside urban center of Downtown Bellevue would remain constrained. With the East Link Project, congestion would improve slightly, but v/c ratios would still be at or over capacity. The percentage of people using SOVs, HOVs, and transit at this location is expected to remain fairly similar between existing conditions and the No Build Alternative. With light rail, the transit mode share would increase substantially as people adjust their travel patterns and choose to use light rail to travel into and out of Bellevue. Overall, by 2030 the transit share of total trips is expected to reach over 10 percent with light rail. This is a substantial increase from the 2 to 3 percent transit share in the No Build Alternative. This increase in transit share is due to the addition of light rail service across this screenline. For a discussion of cross-lake mode share, refer to the Screenline 2 (Lake Washington) discussion above.

Screenlines 5 and 6: Bellevue-Redmond (Bel-Red) and Redmond (Grasslawn)

Across screenlines 5 and 6, future v/c ratios are expected to increase and further constrain vehicle travel with the No Build Alternative. With East Link, v/c ratios would either remain similar or slightly decrease as people use light rail. Mode share percentages for the No Build Alternative would remain similar to existing conditions, with approximately 55 to 65 percent SOV vehicle users and 30 to 40 percent HOV users. With East Link, transit is expected to increase to 7 percent of the total mode share.

3.3.4 Potential Mitigation

No mitigation would be required for regional travel impacts because, overall, the highways and arterials would not experience adverse changes in operations. The v/c ratios and mode share would generally remain similar or would improve with the East Link Project. For specific mitigation along I-90, refer to Section 3.5.

3.4 Transit

3.4.1 Methodology

The six screenlines established for evaluating the East Link Project, along with the areas served by the project, were used to measure the transit LOS performance (buses and light rail) along key corridors within the study area (see Exhibits 3-1 through 3-3 for the screenline locations). The project alternatives include both light rail and bus service on the Eastside, whereas the No Build Alternative includes only bus service on the Eastside. The bus routes that were selected for evaluation are those most likely to have their ridership influenced by the project.

The impacts on existing and future regional and local transit services were evaluated based on the following categories:

- Coverage and circulation
- Transit LOS performance
  - Service frequency LOS
  - Hours of service LOS
  - Passenger load LOS
  - Reliability of service LOS
- Transit travel time
- Transit transfers
- Light rail ridership

The coverage area is defined as the area(s) for which transit provides service. Circulation is defined as the route(s) on which transit operates. Transit LOS performance was analyzed for the PM peak hour (5 to 6 p.m.) to describe transit performance during the period when traffic congestion and transit ridership are highest. For transit LOS performance, LOS A indicates more frequent service, more hours served during the day, high reliability, and minimal passenger crowding in a transit vehicle. LOS F indicates less frequent service, fewer hours served during the day, low reliability, and passenger crowding in a transit vehicle. Individual components of transit LOS performance are defined as follows:

- Service frequency LOS is the number of times within the PM peak hour that a bus or light rail train stops at a specific location. Generally, the less time riders have to wait between bus arrivals, the better the service frequency LOS. Bus routes that have headways less than 10 minutes are considered LOS A, whereas more than 60-minute headways are LOS F.
- The hours of service LOS measures the total number of transit operating hours provided within a 24-hour (daily) period. Hours of service LOS is intended to measure the availability of transit service to riders and potential users. The longer the period that transit service is provided throughout the day, the better the LOS.
- The passenger load LOS, which is measured at screenlines, is intended to measure passenger comfort and the ability of a rider to find a seat during the on-board portion of the trip during the PM peak hour. Passenger load LOS also measures crowding in the transit vehicle. A passenger load LOS at or worse than LOS D may reflect overcrowding, and, therefore, the transit service provider could consider service changes, such as increasing the transit frequency. In addition, a large number of passengers can cause the bus to wait (dwell) longer at stops because of crowded passenger boarding and alighting. A longer dwell time can negatively affect travel time and service reliability.
- Service reliability LOS was analyzed at major transit hubs along the East Link route. The reliability LOS measures the degree to which a transit vehicle meets or misses its scheduled headway at its arrival station. The routes evaluated at each major transit hub were chosen using the same criteria as the routes used in passenger load LOS evaluation. Two methods were used to determine transit reliability. For transit routes with scheduled headways greater than 10 minutes, on-time reliability was analyzed in terms of on-time performance, defined as being 0 to 5 minutes late. For transit routes operating at scheduled headways of 10 minutes or less, headway adherence was used to determine reliability. Headway adherence reliability was calculated comparing actual headways with scheduled headways of transit routes at major transit centers and park-and-ride lots within the study area. Future on-time performance and headway adherence for buses was not forecasted, so future bus reliability LOS was based on existing conditions. It was assumed that both Metro and Sound Transit would adjust their bus services according to the demand and congestion levels to maintain existing reliability, although unforeseen conditions may limit what is implemented.

Transit Level of Service. Transit conditions, such as delays at intersections, that influence how passengers perceive the quality of a transit trip. Measures of transit LOS include:

Transit Coverage. The areas for which transit routes provide service.

Service Frequency. How often the bus arrives at scheduled stops.

Transit Headway. The length of time between transit vehicles arriving at a location.

Hours of Service. How many hours the transit route operates in a day.

Passenger Load. How full a transit vehicle is compared to its capacity.

Transit Reliability. How often the transit vehicle arrives on time at its scheduled stops.

Alighting. Transit passengers exiting the transit vehicle.

From a bus rider's perspective, all individual bus routes that serve two areas can sometimes be perceived as a single service between these two areas. To reflect these connections, pairs of specific areas served by East Link were evaluated. These areas are Northgate, University District, Downtown Seattle, Mercer Island, South Bellevue, Downtown Bellevue, Bel-Red, Overlake, and Downtown Redmond. Transit performance of these area connections was evaluated for service frequency LOS and hours of service LOS.

The *Transportation Technical Report*, located in Appendix H1 of this Final EIS, provides a detailed discussion of the routes within the study area as well as the transit LOS performance analysis methodology.

3.4.2 Affected Environment

Within the study area, transit services, including regional express buses and local buses, are provided by Metro, Sound Transit, and Community Transit. The frequency and number of bus routes in service increases during the peak periods (6 to 9 a.m. and 3 to 6 p.m.), most noticeably in the peak direction of travel (into employment areas in the AM, exiting employment areas in the PM). Sound Transit and Metro transit services crossing Lake Washington and connecting Downtown Seattle to Downtown Bellevue, Overlake, and Downtown Redmond currently serve over 13,000 transit riders (King County Metro, 2008a).

Major transit activities within the study area occur at transit centers and park-and-ride lots. A transit center is a central transportation hub where transportation modes and routes meet, providing transit users a central location to connect with multiple transit services and providers. There are four transit centers within the study area: International District/ Chinatown Station, Bellevue Transit Center, Overlake Transit Center, and Redmond Transit Center.

A park-and-ride lot is a parking facility in which people can park their vehicles and transfer to other modes (e.g., bus, rail, carpool, nonmotorized) to travel to destinations, mainly urban centers (e.g., Downtown Seattle, Bellevue). There are park-and-ride lots in segments A, B, D, and E. Metro and Sound Transit provide service to transit centers and park-and-ride lots so riders can make transfers to reach their destinations. Within the study area, Community Transit provides service only to the Overlake area. Table 3-4 lists the existing transit facilities in the study area.

TABLE 3-4
Existing Transit Facilities in Study Area

Transit Facility	Type of Facility	Served by Routes[a]	Park-and-Ride Stalls[a]
International District/Chinatown Station	Station	KCM 41, 71, 72, 73, 74X, 101, 106, 150, 174, 194, 212, 217, 225, 229, 255, 256, 301 ST 550	none
Bellevue Transit Center	Transit center station	KCM 220, 222, 230, 232, 233, 234, 237, 240, 243, 249, 253, 261, 271, 280, 342, 630, 885, 886, 921 ST 532, 535, 550, 555, 556, 560, 564, 565	none
South Bellevue Park-and-Ride	Park-and-ride facility	KCM 222, 240, 942 ST 550, 560	519
Wilburton Park-and-Ride	Park-and-ride facility	KCM 167, 243, 280, 342, 885, 921, 952 ST 560	186
Mercer Island Park-and-Ride	Park-and-ride facility	KCM 201, 202, 203, 204, 205, 213, 216, 942 ST 550, 554	447
Bear Creek Park-and-Ride	Park-and-ride facility	KCM 216, 233, 251, 253, 266, 268, 269, 922 ST 540, 545	283
Overlake Village Park-and-Ride	Park-and-ride facility	KCM 222, 242, 247, 249, 250, 253, 261, 269 CT 441	203
Overlake Transit Center	Transit center station, park-and-ride facility	KCM 222, 225, 229, 230, 232, 233, 245, 247, 256, 268, 269, 644 CT 441 ST 545, 564, 565	170
Redmond Transit Center	Transit center station, park-and-ride facility	KCM 220, 232, 249, 250, 251, 253, 254, 265, 266, 291, 922, 929 ST 540, 545	377

[a] Transit routes and park-and-ride stalls as of spring 2007 except for Mercer Island Park-and-Ride lot, which was inventoried in February 2008 (King County Metro, 2008b).

CT	Community Transit
KCM	King County Metro.
ST	Sound Transit

Sound Transit's Regional Express buses provide regional transit service to commuters within the study area as well as in other parts of King County and Pierce and Snohomish counties. Average headways of buses within the study area are 30 minutes. A few Sound Transit routes (such as ST 550 between Bellevue and Seattle) offer more frequent service, with headways around 10 minutes. In Downtown Seattle, Sound Transit also offers other services, including the Sounder commuter rail and Central Link light rail. The International District/Chinatown Station, a bus and Central Link station in the downtown Seattle Transit Tunnel, provides a connection to Sounder and Amtrak services at the nearby King Street Station. Sounder operates during peak periods with train service between Seattle and Tacoma and between Seattle and Everett. Central Link light rail offers light rail service between Downtown Seattle and the Seattle-Tacoma International Airport (Sea-Tac Airport). Headways for the light rail line are currently 7.5 minutes in each direction during the peak periods.

Metro provides regional and local service throughout King County. Within the study area, Metro operates most of the local fixed-route and express bus service in addition to other transit services. During peak periods, the average headway for Metro buses is about 30 minutes. Community Transit provides service between Snohomish and King counties and has one bus route within the study area.

3.4.3 Environmental Impacts

The East Link Project would improve transit operations and LOS within the regional transit system. Light rail would provide regional travel benefits by extending transit access and mobility into the growing urban areas east of Lake Washington. Enhancing transit service connections with light rail between major employment centers in the Puget Sound region—Seattle, Bellevue and Redmond—would improve overall transit usage by providing these communities with more reliable transit service.

By 2030 with this project, between 48,000 and 52,500 riders would use East Link, and slightly over 10,000 more people would use transit compared to the no-build condition where only bus service is provided to the Eastside communities. These people would not use transit if this project is not built. Light rail would provide service between Seattle and Downtown Bellevue in under 20 minutes and between Seattle and Redmond in 29 to 39 minutes. Light rail service would close gaps in the existing transit network. Bus routes that share connections with the light rail system would likely experience higher ridership, while light rail would be able to carry an increased number of passengers to connecting bus routes. As further described in this section, light rail would improve transit service by providing increased service frequency, faster travel times, and longer hours of service throughout the day, in addition to serving both the peak and reverse-peak directions.

3.4.3.1 Coverage and Circulation

Sound Transit and Metro service planners developed a bus service plan for the 2020 and 2030 years for both the No Build and the East Link alternatives. Although the service plans would not be finalized until close to system operation, the plans provide a snapshot of how bus service would look with and without the project. Some of these plans are currently being implemented through Transit Now, an initiative to expand Metro service that was approved by King County voters in the general election in November 2006, and Sound Transit's ST2 program approved by King, Snohomish, and Pierce County voters in the November 2008 general election.

In general, the future bus service frequency and coverage area would increase both with and without the East Link Project because of changes in travel demand patterns and regional growth. With the project, bus service within the study area would change to feed the light rail system: some routes would be modified to end at the light rail stations where bus layover areas would be provided, and other routes would continue from the stations. Bus routes that serve the same markets as light rail and that are far less reliable would be reduced or eliminated. The following subsections briefly describe transit coverage and circulation changes associated with the project alternatives in each of the project segments. For more detailed information please refer to Section 4.3.1 and Appendix C of the *Transportation Technical Report.*

Segment A, *Preferred Interstate 90 Alternative (A1)*

Along I-90 between Seattle and the Bellevue Way interchange, light rail would use the reversible center roadway. Peak direction buses would be rerouted from the reversible center roadway to the HOV lanes in the outer roadways constructed as part of the I-90 Two-Way Transit and HOV Operations Project. Bus access to and from Mercer Island and the Rainier Avenue flyer stop would be maintained in all directions with a combination of the existing ramps provided on the outer roadways and the future HOV lanes and ramps built as part of the I-90 Two-Way Transit and HOV Operations Project. East of I-405, the I-90 HOV lanes and transit access that currently exists would not change with the East Link project. Changes to key transit routes on I-90 east of I-405 are further described in this section and are included in the transit LOS and ridership forecasts, where applicable.

In Seattle, if the D2 Roadway (the ramp connection between I-90 at Rainier Avenue S and the Airport Way S and 5th Avenue S intersection) is not designated as joint use for buses and light rail, Downtown Seattle bus routes that use the D2 Roadway would more than likely be rerouted to 4th Avenue S via SR 519. Sections 3.4.3.2 and 3.5.3.3 identify the bus reliability and bus travel times with and without joint use operations on the D2 Roadway, respectively. Also in Seattle, as evaluated in the North Link Supplemental Final EIS (Sound Transit, 2006), buses might not operate in the Downtown Seattle Transit Tunnel once light rail extends to Northgate, which is an assumption for the East Link No Build Alternative and project alternatives for both 2020 and 2030 years.

Direct transit service between Mercer Island and the University District would not occur in the No Build Alternative because the bus route that connects these areas would be deleted per the future bus service plan. With East Link, the direct connection between these areas would be reestablished via light rail. Additional connections would also be created with light rail between Mercer Island and Northgate, Bel-Red, Overlake, and Downtown Redmond.

With the project, Sound Transit Regional Express Route 554 (ST 554) would be assumed to terminate at the Mercer Island Station. With this change, bus stops would be relocated on Mercer Island to serve ST 554 when it arrives from the east. Route ST 550 would also be eliminated because it would provide parallel service to light rail.

On Mercer Island, if the future eastbound HOV off-ramp is not connected to 77th Avenue SE (connecting to Island Crest Way is Sound Transit's and WSDOT's preferred configuration), buses traveling eastbound on I-90 would continue to be able to serve the Mercer Island Park-and-Ride via the general-purpose eastbound off-ramps similar to current eastbound I-90 bus operations when the center roadway is closed to eastbound traffic.

Segment B

Under the No Build Alternative, direct transit connections to South Bellevue would not change. With light rail, however, South Bellevue would be directly connected to the Bel-Red, Overlake, Downtown Redmond, Northgate, and University District areas.

Preferred 112th SE Modified Alternative (B2M)

Under the *Preferred Alternative B2M*, route ST 550 would be eliminated, and other bus routes would continue to serve Bellevue Way between the South Bellevue Park-and-Ride and the Bellevue Transit Center. All other modifications to the future transit service coverage and circulation for Segment B would be similar in the no-build and build conditions.

Other Segment B Alternatives

For the BNSF Alternative (B7) at the 118th Station, some bus routes that could be effectively rerouted would begin and end at this station. Without the project, many of these routes would begin and end at the Wilburton Park-and-Ride. Current bus service on Mercer Island would connect to the South Bellevue Park-and-Ride and Downtown Bellevue with Alternative B7. For all other Segment B alternatives, transit service coverage and circulation would remain similar to the *Preferred Alternative B2M.*

Closing the eastbound HOV off-ramp at the I-90 and Bellevue Way SE interchange is a design option for all Segment B alternatives, while closing the westbound HOV on-ramp is a design option for only Alternative B1. The potential closure of the HOV direct-access ramps would not affect bus services because the project would eliminate buses currently using these ramps; the exception, however, is Alternative B7, for which one bus route would be rerouted to the general-purpose ramp if the eastbound HOV direct-access off-ramp were to be closed.

Segment C

With light rail, there would be more direct transit connections between Downtown Bellevue and the areas served by East Link. In both the No Build Alternative and build alternatives, a Metro RapidRide route would connect downtown Bellevue, Overlake, and Redmond.

Preferred 108th NE At-Grade Alternative (C11A)

Under *Preferred Alternative C11A*, routes ST 550 and ST 556 would be eliminated. Other bus routes, such as ST 555 and ST 564/565, would be truncated to end at the Bellevue Transit Center and reduce redundancy with light rail service. All other modifications to the future transit service coverage and circulation for the Segment C area would be similar under the no-build and build conditions.

Preferred 110th NE Tunnel Alternative (C9T)

Under *Preferred Alternative C9T*, transit service coverage and circulation would be similar to the *Preferred Alternative C11A.*

Other Segment C Alternatives

Under the Couplet Alternative (C4A), transit that travels on 108th Avenue NE and 110th Avenue NE might need to be revised depending on the direction of the one-way vehicle couplet. All other modifications to the future transit service coverage and circulation under the Alternative C4A would be similar to the *Preferred Alternative C11A*.

For all other Segment C alternatives, bus service and circulation would be similar to the *Preferred Alternative C11A*.

Segment D

Without the East Link Project, there would be no direct transit connection between Bel-Red and Downtown Redmond because the bus routes connecting these areas would be deleted or modified. East Link would provide a direct connection between these areas. In addition, light rail would directly connect Bel-Red and Overlake to the South Bellevue, Mercer Island, University District, and Northgate areas. Light rail would also directly connect the Bel-Red area to Downtown Seattle.

Preferred NE 16th At-Grade Alternative (D2A)

Under the *Preferred Alternative D2A*, to serve the 120th Station, some bus routes' circulation patterns would be modified to use 120th Avenue NE instead of 116th Avenue NE between NE Bel-Red Road and NE 20th Street. Some services between the Bellevue Transit Center and the Overlake Transit Center would be reduced or eliminated if light rail extended to the Overlake Transit Center. If light rail terminated at Overlake Village Station, then some bus routes would be changed to serve that station. All other modifications to the future transit service coverage and circulation for the Segment D area would be similar under the no-build and build conditions.

Other Segment D Alternatives

For all other Segment D alternatives, transit service coverage and circulation would be similar to the *Preferred Alternative D2A*, except for Alternative D5, which does not have a 120th Station and, therefore, would not have any of the bus route modifications associated with that station.

Segment E

Under the No Build Alternative, there would be no direct transit connection between the downtown Redmond and Bel-Red areas. With light rail, new direct transit connections would be established between Downtown Redmond and the Bel-Red, South Bellevue, Mercer Island, and Northgate areas.

Preferred Marymoor Alternative (E2)

Under *Preferred Alternative E2*, the SE Redmond Station would be added, which would change transit service. Some bus routes would be revised to serve the SE Redmond Station, and these buses would use NE Redmond Way and NE 70th Street to access the SE Redmond Station. Some bus routes would continue using the Bear Creek Park-and-Ride as they would in the no-build condition. It was assumed that similar transit services would be provided at either the Redmond Transit Center or Downtown Redmond Station because they are both located in Downtown Redmond. All other modifications to the future transit service coverage and circulation for the Segment E area would be similar under the no-build and build conditions.

Other Segment E Alternatives

For all other Segment E alternatives, transit service coverage and circulation would be similar to the *Preferred Alternative E2*.

3.4.3.2 Transit Level of Service and Operations

Future transit hours of service and frequency would change with or without East Link to meet future transit needs. With the project, Metro and Sound Transit bus routes would be modified to develop an integrated transit network with transit hubs at many East Link stations. Some routes would be reduced or eliminated where bus service duplicates light rail service. Other routes would be modified to end at light rail stations. Some would be modified to stop at the new stations and continue. It was assumed that future Community Transit service in the area would be unaffected.

The following subsections show results for each of the measures used to evaluate transit LOS performance**.** Table 3-5 provides LOS values and associated grades for each of the transit LOS measures. Appendices B and C in the *Transportation Technical Report* provide more information on the LOS values and descriptions.

Service Frequency Level of Service

With the No Build Alternative, some areas would be connected by frequent service; however, many other areas would not have direct transit connections. Service frequency in the reverse-peak direction (eastbound in the morning [AM] and westbound in the afternoon [PM]) between Overlake and Downtown Seattle, and between Downtown Redmond and Downtown Seattle, would improve from the existing LOS C to LOS A. This service frequency improvement would be a result of planned more frequent headways of ST Route 545. Between Downtown Seattle and Downtown Bellevue, the service frequency would remain at a LOS B or better. With a few exceptions, the University District, Northgate, Mercer Island, South Bellevue, Bel-Red, Overlake and Downtown Redmond areas would not have direct bus service between them.

TABLE 3-5
Transit LOS Definitions

LOS	Service Frequency (minutes between arrivals)	Service Hours (in a day)	Passenger Load		Reliability (percent on-time)[a]
			Buses (passengers per seat)	Light Rail (square feet per standing passenger)	
A	Less than10	19 to 24	0.00 to 0.50	More than10.8[b]	95.0 to 100
B	10 to 14	17 to 18	0.51 to 0.75	8.2 to 10.8	90.0 to 94.9
C	15 to 20	14 to 16	0.76 to 1.00	5.5 to 8.1	85.0 to 89.9
D	21 to 30	12 to 13	1.01 to 1.25	3.9 to 5.4	80.0 to 84.9
E	31 to 60	4 to 11	1.26 to 1.50	2.2 to 3.8	75.0 to 79.9
F	More than 60	0 to 3	More than 1.5	Less than 2.2	Less than 75.0

Source: Transit Capacity and Quality Service Manual, Transportation Research Board (TRB), 2003.

[a] "On time" is 0 to 5 minutes late; early departures are not considered on time.

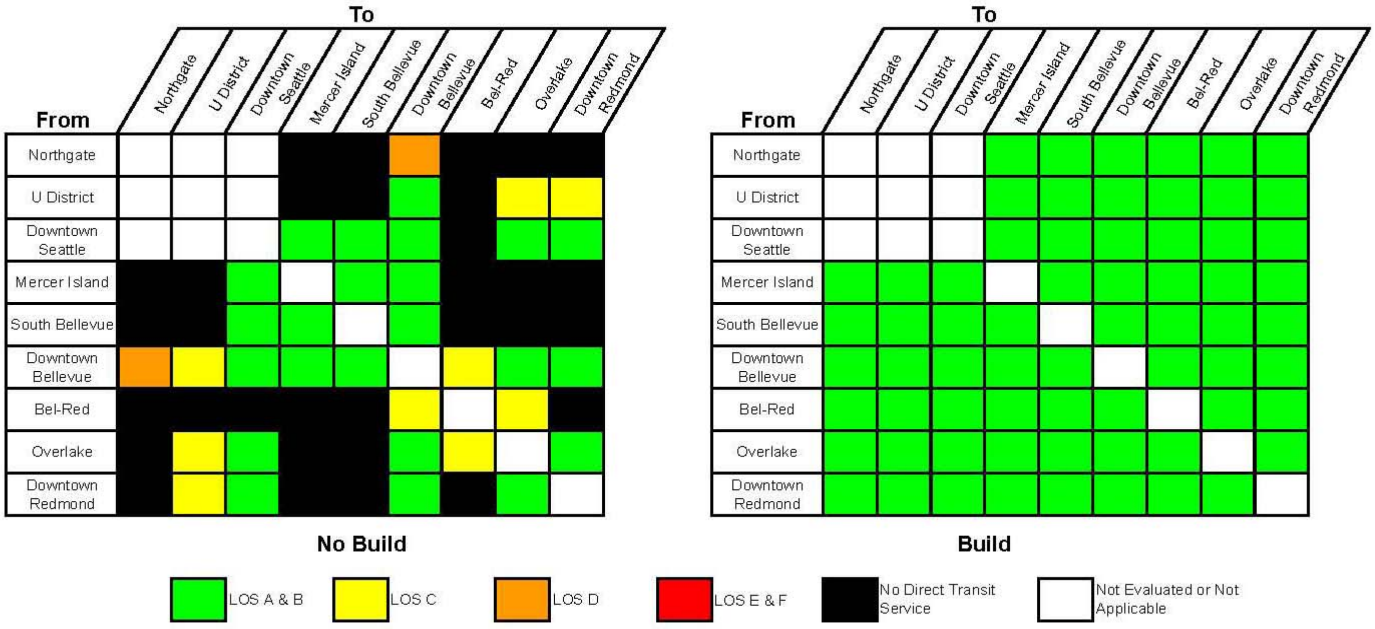
[b] This includes the potential for some cars to have no standing passengers.

Planned modification of some routes (elimination, truncation, and rerouting) would also decrease the service frequency LOS with some of the connections to and from the Bel-Red area. Service frequency would improve from LOS D to LOS C between the Downtown Bellevue and University District areas because headways would improve from 25 minutes to 15 minutes. Even though many of the bus routes are planned for more frequent headways, buses would likely be unable to meet their scheduled headways in the future due to additional congestion on roadways.

In both years 2020 and 2030, East Link would connect all of the areas with more frequent service. East Link trains would have a peak-period headway of up to 7 minutes (in year 2030) resulting in LOS A. The Eastside areas would be directly connected with light rail service, with frequent direct connections with the Bel-Red, Overlake, and Downtown Redmond areas. The chart on the left in Exhibit 3-7 shows the service frequency LOS for the No Build Alternative, and the chart on the right shows the service frequency LOS with the project during the PM peak period. Because the transit integration plan did not alter the transit service frequencies enough to shift the LOS between years 2020 and 2030 conditions, this exhibit analyzes both years.

Hours of Service Level of Service

With the No Build Alternative, in both years 2020 and 2030, the hours of service for direct bus service between most areas would be similar to the existing



From \ To	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	⬛	⬛	🟧	⬛	⬛	⬛
U District	⬜	⬜	⬜	⬛	⬛	🟩	⬛	🟨	🟨
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	⬛	🟩	🟩
Mercer Island	⬛	⬛	🟩	⬜	🟩	🟩	⬛	⬛	⬛
South Bellevue	⬛	⬛	🟩	🟩	⬜	🟩	⬛	⬛	⬛
Downtown Bellevue	🟧	🟨	🟩	🟩	🟩	⬜	🟨	🟩	🟩
Bel-Red	⬛	⬛	⬛	⬛	⬛	🟨	⬜	🟨	⬛
Overlake	⬛	🟨	🟩	⬛	⬛	🟩	🟨	⬜	🟩
Downtown Redmond	⬛	🟨	🟩	⬛	⬛	🟩	⬛	🟩	⬜

No Build

From \ To	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
U District	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Mercer Island	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩	🟩
South Bellevue	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩
Downtown Bellevue	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩
Bel-Red	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩
Overlake	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩
Downtown Redmond	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜

Build

🟩 LOS A & B
🟨 LOS C
🟧 LOS D
🟥 LOS E & F
⬛ No Direct Transit Service
⬜ Not Evaluated or Not Applicable

EXHIBIT 3-7
2020 and 2030 PM Peak-Period Service Frequency LOS

conditions. Service between Downtown Seattle and Downtown Redmond would continue to operate over 19 hours per day (LOS A). All connections with the Bel-Red area would operate at LOS C or worse. With a few exceptions, the University District, Northgate, Mercer Island, South Bellevue, Bel-Red, Overlake and Downtown Redmond areas would not have direct bus service between them. The connection between Downtown Bellevue and Northgate would continue to operate at hours of service LOS E (11 hours or less) or worse.

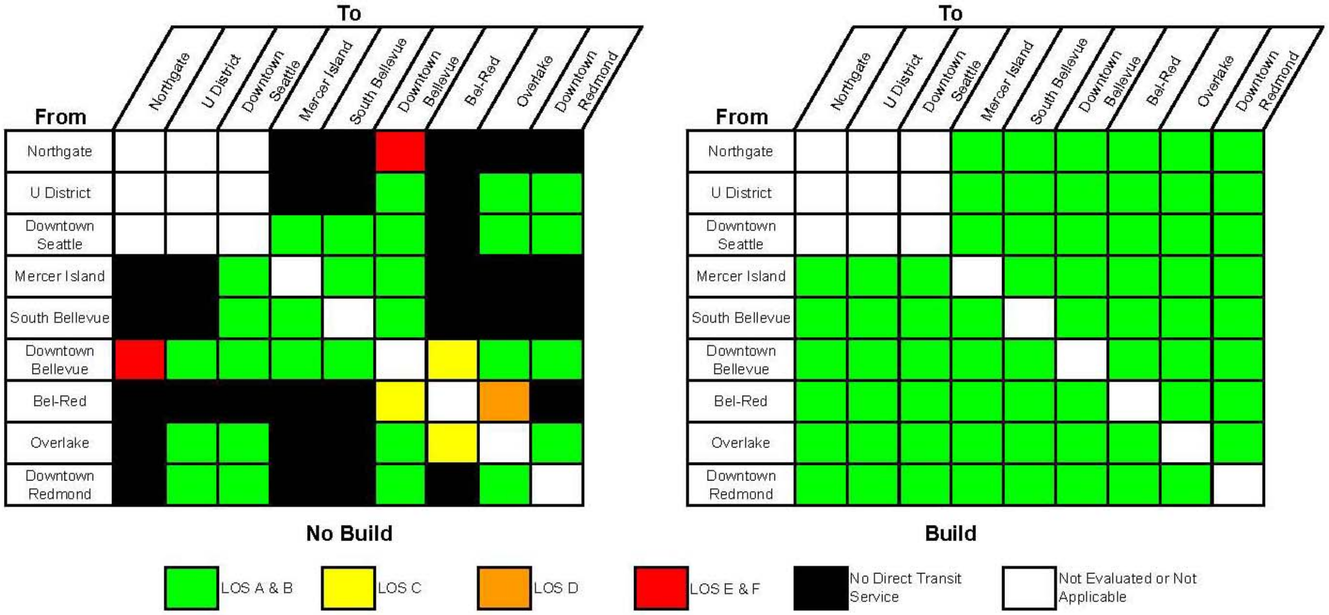
With the East Link Project, the hours of service would be LOS A between all areas directly connected by light rail. East Link would either introduce new direct connections among them or would substantially improve existing service areas. East Link would operate for 20 hours each day, which would be a longer operating duration than a majority of the future bus routes. The Eastside areas would be directly connected with light rail service, with most noticeable hours of service improvements in the connections with Bel-Red, Overlake, and Downtown Redmond. Downtown Seattle to Downtown Bellevue, and Downtown Seattle to Downtown Redmond, would continue to have hours of service LOS A. Northgate and the University District, with light rail, would have direct connections with Mercer Island and all the Eastside areas (South Bellevue, Downtown Bellevue, Bel-Red, Overlake, and Downtown Redmond).

The chart on the left in Exhibit 3-8 shows the hours of service LOS without the East Link Project, and the chart on the right shows the hours of service LOS with the project. Because the transit integration plan did not alter the hours of transit service enough to shift the LOS between years 2020 and 2030 conditions, this exhibit analyzes both years.

Passenger Load Level of Service

The future passenger load LOS was calculated differently for buses and light rail per the *Transit Capacity and Quality of Service Manual* (Transit Cooperative Research Program, 2003). Because buses are intended to provide mostly seated transit service, the number of available seats was compared with the forecasted number of passengers. A ratio of more than one passenger per seat would mean that some passengers must stand. Light rail, however, is intended to provide both seated and standing service. When the number of passengers exceeds the number of available seats, some passengers must stand. Passenger load for light rail was calculated as the square footage available per standing passenger. As the available square footage decreases, the LOS degrades.

Compared with existing conditions, the number of transit passengers in the No Build Alternative in both 2020 and 2030 years would increase. Overall, the passenger load LOS with the No Build Alternative would be expected to operate at LOS C or better. A greater number of passengers per bus would occur at Screenlines 1 (Seattle) and 2 (Lake Washington). Across Screenline 2, the passenger load for Seattle-to-Bellevue bus routes would be LOS D, indicating all bus seats are used by passengers. Although the total number of transit passengers across the other screenlines would increase in the future No Build



From \ To	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	⬛	⬛	🟥	⬛	⬛	⬛
U District	⬜	⬜	⬜	⬛	⬛	🟩	⬛	🟩	🟩
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	⬛	🟩	🟩
Mercer Island	⬛	⬛	🟩	⬜	🟩	🟩	⬛	⬛	⬛
South Bellevue	⬛	⬛	🟩	🟩	⬜	🟩	⬛	⬛	⬛
Downtown Bellevue	🟥	🟩	🟩	🟩	🟩	⬜	🟨	🟩	🟩
Bel-Red	⬛	⬛	⬛	⬛	⬛	🟨	⬜	🟧	⬛
Overlake	⬛	🟩	🟩	⬛	⬛	🟩	🟨	⬜	🟩
Downtown Redmond	⬛	🟩	🟩	⬛	⬛	🟩	⬛	🟩	⬜

No Build

From \ To	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
U District	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Mercer Island	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩	🟩
South Bellevue	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩
Downtown Bellevue	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩
Bel-Red	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩
Overlake	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩
Downtown Redmond	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜

Build

🟩 LOS A & B
🟨 LOS C
🟧 LOS D
🟥 LOS E & F
⬛ No Direct Transit Service
⬜ Not Evaluated or Not Applicable

EXHIBIT 3-8
2020 and 2030 Hours of Service LOS

Alternative, depending on the bus service modifications, the passenger load LOS would increase or decrease compared with existing conditions.

With East Link, the light rail 2020 passenger load LOS would be expected to operate at LOS A. Transit use would continue to increase in 2030 with light rail as more people choose to travel on light rail because of its frequency and reliability. By 2030, light rail passenger load operations are expected to be LOS A and B. With East Link, the number of passengers per bus would decrease and the bus passenger load LOS would be LOS A in both 2020 and 2030. The improvement to LOS A for buses with the project would be notable at Screenline 2, where the bus passenger load without the project in the year 2030 would operate at LOS C in both directions. While the passenger load LOS would improve with light rail, the number of transit (bus and light rail combined) riders would increase by about 25 percent across the lake compared with the No Build Alternative.

In the future, if the light rail passenger load LOS becomes unacceptable, the transit service provider might consider increasing service frequency or train length to improve the passenger load LOS and passenger comfort. In Segment A, if in the future the D2 Roadway did not operate as joint use for bus and light rail, the buses that use the D2 Roadway would be rerouted to other roadways such as SR 519 to access Downtown Seattle. This rerouting would slightly increase bus travel time, which could potentially affect bus passenger load. Screenline passenger load LOS levels are presented in Table 3-6.

Transit Reliability Level of Service

Future on-time performance and reliability LOS in the no-build and build conditions were analyzed using data from existing conditions because deviations from future headways cannot be predicted. It was assumed that in the future both Metro and Sound Transit would adjust their bus services according to the demand and congestion levels to maintain existing reliability, although unforeseen conditions could limit what would be implemented.

Bus Reliability

In the future both with and without East Link, the majority of bus routes at each of the five stations (International District/Chinatown, Mercer Island, Bellevue Transit Center, Overlake Transit Center, and Redmond Transit Center) are expected to operate with a reliability of LOS E or F. None of the 23 bus routes at either the International District/Chinatown or Mercer Island stations are expected to have a reliability better than LOS E. Only 3 out of the 18 evaluated routes at the Bellevue Transit Center would operate better than LOS E. Sound Transit Route 550, a key transit route in the study area that follows a route similar to that of the light rail alternatives between Seattle and Downtown Bellevue, would operate at LOS F in both directions at the Mercer Island Park-and-Ride Lot, which indicates that this route would almost always be off schedule and would have about a 50 percent probability of arriving on time. Only at the Overlake Transit Center and Redmond Transit Center would some bus routes operate with a reliability better than LOS D.

TABLE 3-6
PM Peak-Hour Passenger Load Level of Service at Screenlines

Screenline	Direction	Existing Bus	2020 No Build Bus	2020 Build		2030 No Build Bus	2030 Build	
				Bus	Light Rail		Bus	Light Rail
1	Southbound	A	B	A	B	B	A	B
	Northbound	A	A	A	A	B	A	A
2	Eastbound	B	C	A	A	C	A	A
	Westbound	B	B	A	A	C	A	A
3	Eastbound	A	A	A	N/A	B	A	N/A
	Westbound	A	B	A	N/A	B	A	N/A
4	Northbound	A	A	A	A	A	A	A
	Southbound	B	A	A	A	B	A	A
5	Eastbound	A	B	A	A	C	A	A
	Westbound	A	A	A	A	B	A	A
6	Northbound	A	A	A	A	A	A	A
	Southbound	A	A	A	A	A	A	A

N/A Not applicable because light rail would not cross this screenline.

The continuation of poor reliability between Downtown Seattle and Downtown Bellevue would be expected because bus speeds between these two major urban centers are predicted to decrease slightly more than 30 percent by year 2030, even with improvements to I-90. This would occur because roadways connecting I-90 to these urban centers, especially to and from Bellevue, are not planned for improvements; therefore, congestion would worsen. Bus reliability LOS is presented in Table 3-7. While the bus reliability presented in Table 3-7 is based on existing data, future bus performance is expected to operate similar to or worse than existing conditions.

TABLE 3-7
Transit Reliability Level of Service at Stations

Station	Existing Bus		Future Light Rail[a] Level of Service[b]
	Percent On-Time Performance	Level of Service[b]	
International District/ Chinatown	48.8	F/E	A
Mercer Island	52.2	F/F	A
Bellevue Transit Center	53.3	F/E	A
Overlake Transit Center	52.4	F/C	A
Redmond Transit Center	45.3	F/D	A

[a] Light rail reliability performance was projected using St. Louis light rail data.

[b] LOS values are station averages; existing bus average LOS X/Y, where X=LOS for percent on-time performance station average, Y=LOS for coefficient of variation station average (definitions provided in the *Transportation Technical Report* [Appendix H1]).

Note: While the data used in this analysis were gathered during Downtown Seattle Transit Tunnel closure, data collected before the tunnel closure showed similar reliabilities (i.e., LOS E/F).

In Segment A, with light rail using the center roadway, buses would use the HOV lanes in the outer roadway during both construction and light rail operation. If performance of these HOV lanes is degraded, buses would likely not be able to maintain acceptable reliability because they would be operating in congested conditions in these HOV lanes.

If light rail and buses jointly use the D2 Roadway in Seattle, buses would gain up to a 2-minute savings inbound in the AM peak period to Downtown Seattle and up to a 6-minute savings outbound in the PM peak period from Downtown Seattle on I-90 compared to the operational option where buses would not be eligible to use the D2 Roadway. However, some of the savings would be reduced when buses travel along 5th Avenue South to and from the D2 Roadway. It would take up to 2 additional minutes to travel along 5th Avenue South compared to 4th Avenue South. Additionally, depending on the joint-use operating policy of the D2 Roadway, up to 3 additional minutes of average delay, in either direction, could be incurred by buses while waiting for clearance to enter the D2 Roadway. However, during evening events at the stadiums, bus routes along 4th Avenue South would incur additional travel time due to increased congestion along this street.

With an interim terminus station at the Ashwood/Hospital or Hospital station in Bellevue, current bus service would continue to serve the Bel-Red and Overlake areas with poor reliability. With an interim terminus farther east, the transit reliability in the Bel-Red and Overlake areas would improve with the direct service provided by light rail.

Light Rail Reliability

The poor bus reliability discussed above indicates that buses would be unable to meet their scheduled arrival times and would frequently arrive close together rather than at the desired intervals due to highly congested local and regional roadways. Poor reliability can make buses an unattractive mode for potential users and would be a major deterrent to transit use. Light rail would not experience the same disruptions in transit reliability as buses because light rail would operate in its own dedicated right-of-way, separate from vehicle congestion, and therefore would be able to accommodate higher ridership through more frequent and reliable service. In most cases, at-grade light rail routes would have priority at traffic signals.

The Puget Sound region's light rail system (Central Link) is in its first years of operation. The 2010 third quarter year-to-date service reliability indicates that the year-to-date adherence to schedule is around 80 percent, and the headway adherence is above 90 percent (Sound Transit, 2010). Refer to Appendix H1, *Transportation Technical Report*, of this Final EIS for information on how these percentages are calculated. Because the Puget Sound region's light rail system has different characteristics than assumed with the East Link Project (for example, current joint bus and rail operations in the Downtown Seattle Transit Tunnel are not assumed during East Link operations), and because Central Link is continuing to adjust operations to improve its reliability, East Link's expected reliability was estimated using the St. Louis light rail system's on-time performance data. St. Louis light rail includes features similar to East Link (such as at-grade crossings and tunnels) and is reported to be 93 percent on time. Other U.S. light rail lines report between 92 and 98 percent on-time performance. The *Transportation Technical Report* contains additional St. Louis light rail data. The estimated light rail reliability LOS for future conditions is presented in Table 3-7.

3.4.3.3 Transit Travel Time Savings

Door-to-door (from the beginning to the end of your trip—for example, when you leave your place of work, ride transit, and then reach your destination, such as entering your home) travel time is a key factor in forecasting potential transit ridership. For some potential transit riders, especially riders who have other available travel options, the ability to provide a transit service that saves them time is an important factor in their decision-making process. Table 3-8 shows the average transit travel times for the No Build Alternative and East Link in the PM peak period in year 2030. The comparisons reflect an average person's door-to-door transit travel time using a particular station and include the following factors:

- Bicycle or walk time to stop or station
- Wait time
- Transfer wait time(s), if any
- In-vehicle time (in bus and/or light rail)
- Drive, bicycle, or walk time to destination

Compared with the No Build Alternative, East Link patrons in the representative alternative would save between 4 and 16 minutes during the PM peak period in year 2030. While the values presented in Table 3-8 represent a travel time for any transit rider in the region connecting to transit at the East Link stations, transit riders making trips where their origin and destination areas are both served by East Link would have the greatest travel-time benefits. This is due to shorter waits, no transfer times, and high in-vehicle speeds. Travel time savings would be similar in years 2020 and 2030 with East Link.

An important component of the overall transit travel time is the actual time for a train to travel between stations. With the East Link Project, a passenger's travel time between Downtown Seattle and Downtown Redmond, after boarding light rail, would be between 29 and 39 minutes. Light rail travel time between Downtown Seattle and Downtown Bellevue would be less than 20 minutes. This would be a savings of about 25 minutes compared with an automobile currently traveling between these locations, as in the afternoon peak period it now takes up to 45 minutes to travel between Seattle and Bellevue (via I-90) and up to 55 minutes to travel between Seattle and Redmond (via SR 520) (WSDOT, 2011).

TABLE 3-8
Comparative Analysis of Year 2030 Average Door-to-Door PM Peak-Period Transit Travel Times[a]

	Travel Time (minutes)			
	Year 2020		Year 2030	
Station	**No Build Alternative**	**Build Alternatives**	**No Build Alternative**	**Build Alternatives**
Segment A, Interstate 90				
Rainier	52	43	52	45
Mercer Island	49	41	50	41
Segment B, South Bellevue				
South Bellevue	51	43	50	43
SE 8th[b]	57	48	58	47
118th[b]	58	47	60	48
Segment C, Downtown Bellevue				
Old Bellevue[b]	59	50	60	51
Bellevue Transit Center	59	51	60	52
108th[b]	60	51	62	52
East Main	61	51	64	52
Hospital[b]	63	54	64	55
Ashwood/ Hospital	59	52	60	52
Segment D, Bel-Red/Overlake				
120th	62	53	62	54
130th	63	55	64	58
Overlake Village	66	56	63	56
Overlake Transit Center	63	55	60	56
Segment E, Downtown Redmond				
Redmond Town Center	69	54	70	56
Downtown Redmond	69	56	71	58
SE Redmond	64	59	66	50
Redmond Transit Center[b]	69	58	71	61
Weighted average (all stations)	**60**	**51**	**61**	**52**

[a] Door-to-door means from the beginning to the end of your trip, for instance from when you leave your place of work to when you enter your home.

[b] Travel times for these stations were derived from their alternative, which is not included in the representative alternative combination. These alternatives are Alternative B1 (connecting with Alternative C1T), Alternative B7, *Preferred Alternatives C11A* and *C9T*, and E2 - Redmond Transit Center Design Option.

In the future these automobile travel times are expected to continue to get even longer, and therefore light rail would provide an even greater travel time savings. Exhibit 3-9 shows light rail travel times between key stations.

3.4.3.4 Transfers

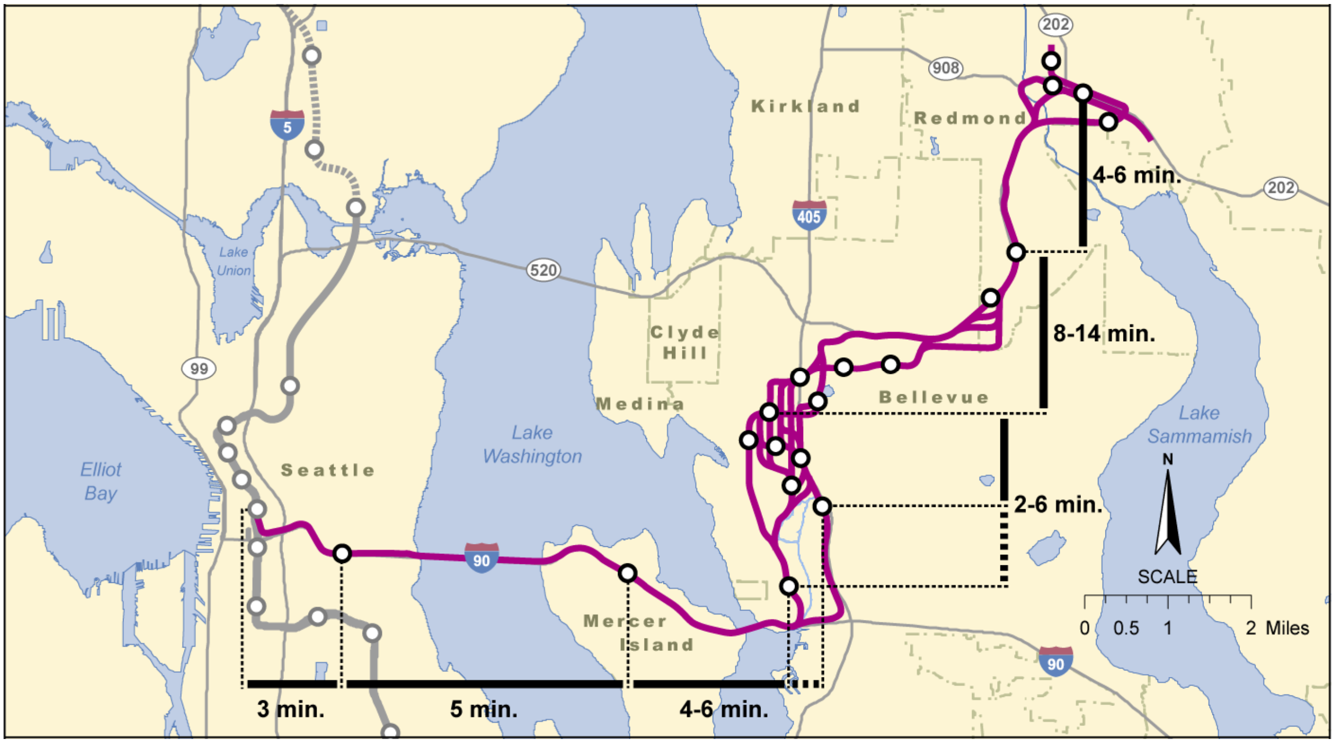
When transit riders are required to transfer, it is often perceived as a negative attribute of transit systems and an impediment to transit use. However, it is recognized that the quality of transfers, whether between buses or between bus and rail, has a dramatic impact on how negatively transfers are perceived. Factors determining quality of transfers include proximity of transfer location, wait time, waiting area conditions, and service reliability.

A slight reduction in transfer rate would be predicted with East Link because it would connect to the planned North Link light rail line and provide a one-seat transit trip between North Seattle and the Eastside.

Passengers transferring from bus to light rail would have shorter wait times compared with bus-to-bus transfers because the East Link operating plan assumes light rail trains in the peak periods would arrive every 8 minutes in 2020 and every 7 minutes in 2030. Even during off-peak hours, East Link would operate with 12-minute headways in 2020 and 10-minute headways in 2030. Because of the high reliability of light rail service, riders might choose a light rail trip that would result in a shorter wait time for transfers than a longer and potentially less reliable bus-only trip.

3.4.3.5 Station Parking

With the No Build Alternative, no expansion or changes would occur in existing park-and-ride capacities in the study area. With East Link, parking provided at the Mercer Island, Overlake Village, and Redmond Transit Center stations would remain unchanged. Depending on the alternative, new park-and-ride lots would be constructed at the 130th Station or 120th Station (proposed 300 stalls) with *Preferred Alternative D2A* and SE Redmond Station (proposed 1,400 stalls) and existing park-and-ride lots proposed to be expanded include the South Bellevue Station (approximately 1,400 additional stalls), 118th Station (proposed 1,030 stalls), and Overlake Transit Center Station (proposed 320 stalls) to better accommodate the expected ridership. Section 3.6 provides further details on parking and parking utilization at East Link stations.



Note: Estimated East Link travel time between the Mercer Island Station and the South Bellevue Station is about 4 minutes (solid line), between the Mercer Island Station and the 118th Station it is about 6 minutes (solid plus dashed line), between the South Bellevue Station and Bellevue Transit Center it is between 4 and 6 minutes (solid plus dashed line), and between the 118th Station and the Bellevue Transit Center it is about 2 to 4 minutes (solid line).

EXHIBIT 3-9
East Link Travel Times between Key Stations

3.4.3.6 Light Rail Ridership

The Sound Transit ridership forecasting model was used to develop the 2020 and 2030 light rail system ridership forecasts for each of the project alternatives.

The ridership forecasts use 2020 and 2030 land use forecasts based on the PSRC projections developed in 2005 and released in spring 2006. The transit ridership model also accounts for the voter-approved ST2 program and recent changes to background project schedules. The ridership forecasts and analysis also include the City of Bellevue's adopted Bel-Red Subarea Plan and the City of Redmond's Overlake Village Plan Update.

The segment ridership for each project alternative is the sum of the daily boardings at the stations in that alternative. Because the route, profile, and station locations vary for each alternative, changes are expected not only in the station boardings but also in the segment and projectwide ridership. The projectwide ridership is the total number of daily riders that would use East Link.

Daily ridership differences would be considered substantial if the forecasted variation among alternatives for total East Link ridership exceeded about 2,000 daily boardings. Generally, the variation among segment alternatives is expected to be less than 2,000 daily boardings because many of the segments include similar numbers of stations and the travel times are not different enough to cause a dramatic change in patronage. Station mode of access is discussed in Section 3.6. Ridership analysis methodology and results are presented in detail in Appendix H1, *Transportation Technical Report*, of this Final EIS.

Projectwide Ridership Summary

Based on the segment ridership forecasts discussed in the following sections, the full-length East Link Project would generate up to 45,000 riders in 2020 and up to 52,500 in 2030. There are several reasons for the variation in ridership among the alternatives. Alternatives C1T and C3T would generate the highest ridership among Segment C alternatives by connecting the commercial, retail, and office core of Downtown Bellevue through tunnel profiles that provide a relatively fast travel time. *Preferred Alternatives C11A* and *C9T* would generate ridership forecasts near the middle to lower end of the Segment C alternatives. Alternative B7, which generates the lowest projectwide ridership among Segment B alternatives, travels along a former BNSF Railway/I-405 route that would not stop at the South Bellevue Park-and-Ride. Alternative C14E would also generate a low projectwide ridership because it does not enter into the business and retail core of Downtown Bellevue as much as the other Segment C alternatives and, therefore, requires a longer walk to access the station. *Preferred Alternative D2A* would generate the highest ridership among Segment D alternatives. Exhibit 3-10 displays the 2030 projectwide ridership for each alternative by segment.

Preferred Alternative Ridership

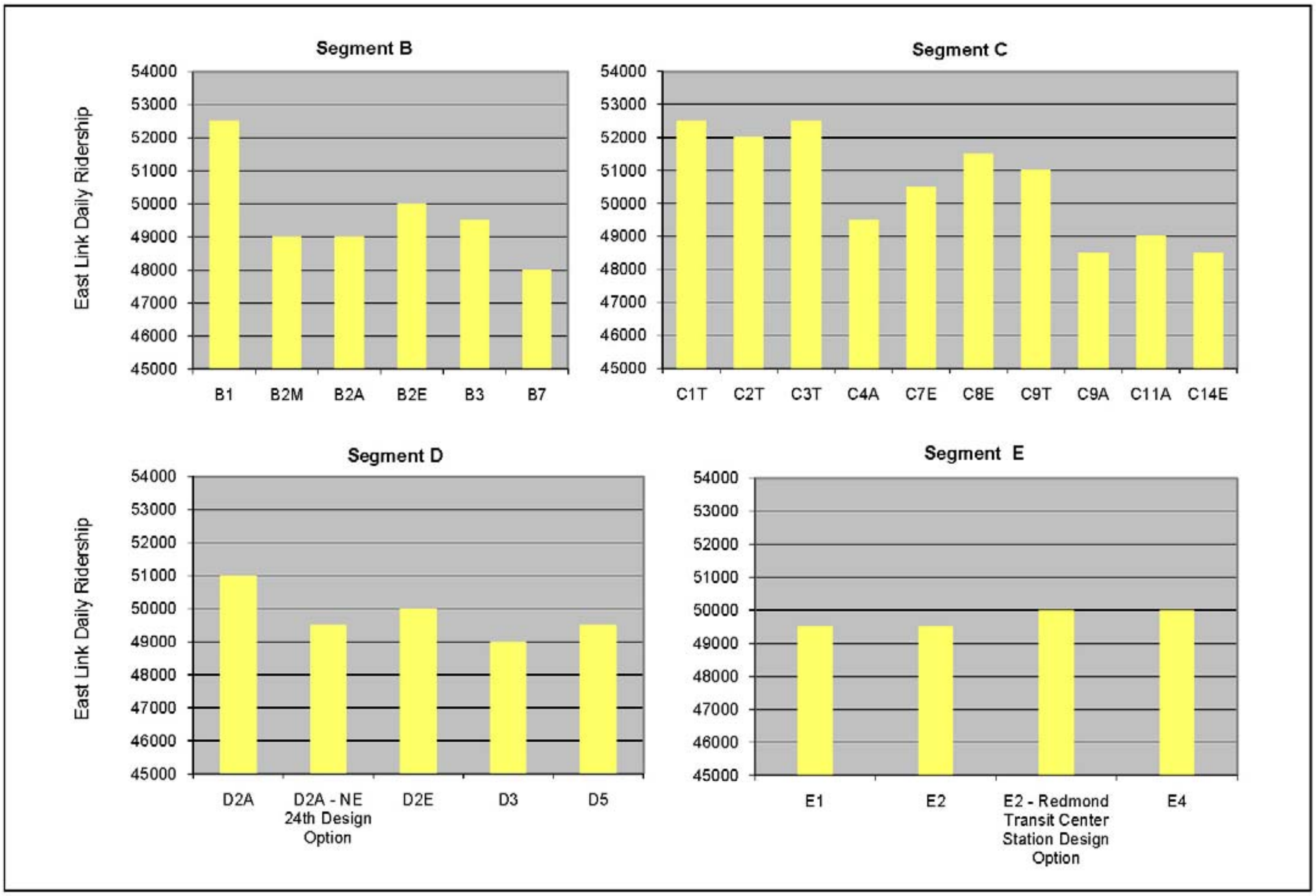
Table 3-9 lists the 2020 and 2030 projectwide ridership and boardings for the East Link *Preferred Alternative* (*Preferred Alternatives A1*, *B2M*, *C11A* and *C9T*, *D2A* and *E2*) in all five segments. The ridership forecasts presented in this table use a different approach from the forecasts that compare segment alternatives. Because the *Preferred Alternative* spans all five project segments, a "representative alternative" was not required to create a consistent ridership comparison for individual segments. For each year, two forecasts are provided in Table 3-9 because of the two preferred alternatives (*Preferred Alternatives C11A* and *C9T*) in Segment C.

Overall, projectwide ridership is very similar between the two preferred alternative forecasts, with 49,000 riders for *Preferred Alternative C11A* and 50,000 for *Preferred Alternative C9T*. The two alternatives would have very similar station and segment boardings within Segments A, D, and E. In Segment B, *Preferred Alternative C9T* would have 1,000 more boardings (5,500 compared with *Preferred Alternative C11A* with 4,500). The opposite is true for Segment C where *Preferred Alternative C11A* would have 1,000 more boardings than *Preferred Alternative C9T* (8,000 versus 7,000). One reason for the boarding differences between these two segments is the station locations. *Preferred Alternative C11A* has a 108th Station in Segment C and *Preferred Alternative C9T* has a SE 8th Station in Segment B.

Although not included in these ridership results, ridership between the Eastside and Seattle would be expected to be higher on days with special events at Safeco Field, Qwest Field, or other venues near the light rail system (e.g., for concerts, trade shows, other sporting events). East Link ridership would be anticipated to increase more than 8 percent on days with special events.

Alternative Ridership Forecasts by Segment

To forecast ridership for each alternative, a representative alternative was created to provide a baseline for the East Link Project. This representative alternative generally follows a combination of the *Preferred Interstate 90 Alternative (A1)*, 112th SE Bypass Alternative (B3), Couplet Alternative (C4A), NE 16th At-Grade Alternative (D2A) NE 24th Design Option,



Note: In Segment A, *Preferred Alternative A1* is forecasted to have a 2030 daily projectwide ridership of 49,500.

EXHIBIT 3-10
2030 Projectwide Daily Ridership

and the *Preferred Marymoor Alternative (E2)*. To assess each of the alternatives within a segment, the alternatives outside that segment being analyzed reflected the representative alternative, and, within the segment, each alternative was coded and ridership forecasts were prepared. This method provides a common baseline to compare the alternatives within each of the segments. Tables 3-10 through 3-14 provide the alternative ridership forecasts by segment. Included in these tables is a forecast for the preferred alternative for that segment. These forecasts, as described in this paragraph, are defined differently than the forecasts presented in Table 3-9. Refer to Appendix H1, *Transportation Technical Report*, of this Final EIS for further information on the methodology to forecast ridership for segment alternatives.

Segment A, *Preferred Interstate 90 Alternative (A1)* and Projectwide Ridership

Although there is only one project alternative in Segment A (the *Preferred Alternative I-90 [A1]*), the adjacent Segment B alternatives would affect its daily boardings because of the Segment B station's proximity to Segment A. The Segment A ridership forecasts are similar for all the Segment B alternatives except one because of a proposed station at the South Bellevue Park-and-Ride. Alternative B7 would have a station at 118th Avenue NE, not at South Bellevue, and it would cause a shift in travel patterns of the light rail users to the surrounding stations. Projectwide ridership would be about 40,000 riders in 2020 and up to 49,500 riders in 2030. The daily boardings at the Mercer Island Station in Segment A are expected to increase by around 1,000 under Alternative B7 in 2020 and 1,500 in 2030. Although this boarding information suggests a potential increase in the number of riders at the Mercer Island Station, the park-and-ride lot can only accommodate 447 vehicles; therefore, potential park-and-ride light rail riders exceeding this parking capacity would either use another station or alter their mode of transportation to access the station. Table 3-10 lists the projected 2020 and 2030 daily station boardings for Segment A.

TABLE 3-9
Year 2020 and 2030 Daily Ridership Forecasts for the Preferred Alternatives

Station	***2020***		***2030***	
	Preferred Alternative **with *C11A* (and *A1, B2M, D2A,* and *E2)***	***Preferred Alternative*** **with *C9T* (and *A1, B2M, D2A,* and *E2)***	***Preferred Alternative*** **with *C11A* (and *A1, B2M, D2A,* and *E2)***	***Preferred Alternative*** **with *C9T* (and *A1, B2M, D2A,* and *E2)***
	Preferred Alternative A1			
Rainier	3,000	3,000	3,000	3,000
Mercer Island	1,500	1,500	2,000	2,000
Segment A Totals	**4,500**	**4,500**	**5,000**	**5,000**
	Preferred Alternative B2M			
South Bellevue	4,000	4,000	4,500	4,500
SE 8th	-	500	-	500
Segment B Totals	**4,000**	**4,500**	**4,500**	**5,500**
	Preferred Alternative C11A[a]	***Preferred Alternative C9T***	***Preferred Alternative C11A***[a]	***Preferred Alternative C9T***
108th	1,500	-	2,000	-
Bellevue Transit Center	4,000	5,000	5,000	6,000
Hospital	500	500	1,000	1,000
Segment C Totals	**6,500**	**5,500**	**8,000**	**7,000**
	Preferred Alternative D2A		***Preferred Alternative D2A***	
120th Station	500	500	1,000	1,000
130th Station	1,000	1,000	1,000	1,500
Overlake Village	1,000	1,000	1,000	1,500
Overlake Transit Center	2,500	2,500	3,500	4,000
Segment D Totals	**5,000**	**5,500**	**6,500**	**7,000**
	Preferred Alternative E2		***Preferred Alternative E2***	
Downtown Redmond	1,000	1,000	1,500	1,500
SE Redmond	1,500	1,500	2,000	2,000
Segment E Totals	**3,000**	**3,000**	**3,500**	**3,500**
Projectwide Ridership	***39,500***	***40,500***	***49,000***	***50,000***

- = Station not included in alternative.

Note: Due to rounding, station ridership may not sum exactly to segment totals.

[a] A low level of transit signal priority is assumed to ensure key east-west arterials in Downtown Bellevue are not affected. This assumption is consistent with the traffic analysis presented in this chapter.

If the D2 Roadway that connects I-90 and the Downtown Seattle Transit Tunnel operated with exclusive light rail service, transit (bus and rail) ridership along I-90 in the peak periods would not noticeably change because a slight increase in rail ridership would be offset by a slight decrease in bus ridership.

Segment B Alternative and Projectwide Ridership

Table 3-11 lists the projected 2020 and 2030 Segment B alternative and station daily boardings.

Preferred 112th SE Modified Alternative (B2M)

In Segment B, projectwide ridership for *Preferred Alternative B2M* would be in the middle of the range in 2020 and 2030 with 39,500 and 49,000 riders, respectively. In terms of segment boardings, *Preferred Alternative B2M* would have similar ridership as the other Segment B alternatives, other than Alternative B7, with 4,500 in 2020 and 5,000 in 2030.

TABLE 3-10
Year 2020 and 2030 Daily Ridership Forecast in Segment A

Station	2020		2030	
	A1	***A1* (combined with B7)**	***A1***	***A1* (combined with B7)**
Rainier	3,000	3,000	3,000	3,000
Mercer Island	1,500	2,500	1,500	3,000
Segment A totals	**4,500**	**5,500**	**5,000**	**6,000**
Projectwide ridership	**40,000**	**39,000**	**49,500**	**48,000**

Note: Due to rounding, station ridership might not sum exactly to segment totals.

The reason the ridership varies between Alternatives B2M and B7 is because the locations and numbers of Segment B stations by alternative are different. With Alternative B7, riders may choose to access East Link in another segment (such as Segments A or C) due to the relative ease of accessing those stations rather than the stations in Segment B. This is reflected in the East Link project-wide ridership, which varies less between these alternatives compared to the segment boarding forecasts because riders are choosing to access East Link in a different segment.

Other Segment B Alternatives

Alternative B1 connecting with Alternative C1T would generate the highest projectwide daily ridership among Segment B alternatives: 42,500 riders in year 2020 and 52,500 riders in year 2030. Alternative B7 would generate the lowest projectwide daily ridership among Segment B alternatives with 39,000 riders in 2020 and 48,000 in 2030. The Old Bellevue Station, immediately north of the Segment B boundary, would contribute to the higher projectwide ridership for Alternative B1 because it is surrounded by a high concentration of medium- to high-density, mixed-use neighborhoods and it is close to commercial, retail, and office properties.

In year 2020, Segment B ridership for each alternative would range from a low of 1,500 daily boardings under Alternative B7 to a high of 4,500 daily boardings generated by *Preferred Alternative B2M* and Alternatives B2E and B2A. By 2030, ridership in Segment B would range from a low of 1,500 daily boardings with Alternative B7 to a high of 5,000 daily boardings with the *Preferred Alternative B2M* and Alternatives B2A and B2E.

The South Bellevue Station ridership would be similar for all alternatives that include this station. The year 2020 daily boardings at this station would be 4,000. In year 2030, this station would generate 4,500 daily boardings. In both years 2020 and 2030, the SE 8th Station would generate 500 daily boardings for all alternatives with this station. Alternative B7 would be the only route that would stop at the 118th Station, which would produce 1,500 daily boardings in both years 2020 and 2030. Boardings at the 118th Station are lower than at the South Bellevue Station because it would have less convenient auto and transit access with I-90.

Alternatives B3 and B7 also have an East Main Station in Segment C just north of the Segment B boundary. Under Alternative B3, this station is expected to generate 2,000 and 2,500 daily boardings in years 2020 and 2030, respectively, while under Alternative B7, the station would generate 2,500 and 3,000 daily boardings in these same forecast years, respectively.

TABLE 3-11
Year 2020 and 2030 Daily Ridership Forecast in Segment B

Station	2020						2030					
	B2M	**B1**	**B2E**	**B2A**	**B3[a]**	**B7**	***B2M***	**B1**	**B2E**	**B2A**	**B3[a]**	**B7**
South Bellevue	4,000	4,000	4,000	4,000	4,000	-	4,500	4,500	4,500	4,500	4,500	-
SE 8th	500	-	500	500	-	-	500	-	500	500	-	-
118th	-	-	-	-	-	1,500	-	-	-	-	-	1,500
Segment B totals	**4,500**	**4,000**	**4,500**	**4,500**	**4,000**	**1,500**	**5,000**	**4,500**	**5,000**	**5,000**	**4,500**	**1,500**
Projectwide ridership	**39,500**	**42,500**	**40,500**	**39,500**	**40,000**	**39,000**	**49,000**	**52,500**	**50,000**	**49,000**	**49,500**	**48,000**

[a] Alternative B3 and the B3 - 114th Extension Design Option would produce similar ridership forecasts.

- = Station not included in alternative.

Notes:
All Segment B alternatives are connected to Alternative C4A in Segment C to create a consistent ridership comparison except Alternative B1, which is connected to Alternative C1T. Due to rounding, station ridership might not sum exactly to segment totals.

Segment C Alternative and Projectwide Ridership

Tables 3-12 and 3-13 lists the projected 2020 and 2030 Segment C alternative and station daily boardings with a connection to Alternatives B3 and B7 and with a connection to *Preferred Alternative B2M* or Alternative B2A, respectively.

Preferred 108th NE At-Grade Alternative (C11A)

By year 2030, projectwide daily ridership for *Preferred Alternative C11A*, with a connection to Alternative B3, would be 49,000. This would be near the lower end of the range for Segment C alternatives. *Preferred Alternative C11A* would be the only Segment C alternative that provides the 108th Station, which would be in lieu of an East Main Station or a SE 8th Station. *Preferred Alternative C11A* is forecasted to be in the middle of the range for segment boardings with 6,500 in 2020 and 8,000 in 2030 with a connection to Alternative B3.

With a connection to Alternative B7, projectwide ridership decreases to 47,000, but segment boardings increase to 9,000 in year 2030 compared with Alternative B3. With a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership and segment boardings would remain similar to a connection with Alternative B3 due to a similar number of stations and location for these Segment B Alternatives.

Preferred 110th NE Tunnel Alternative (C9T)

By the year 2030, daily projectwide ridership for *Preferred Alternative C9T,* with a connection to Alternative B3, would be 51,000. This would be in the middle of the range for Segment C alternatives. *Preferred Alternative C9T* is forecasted to have 6,500 boardings in 2020 and 8,000 boardings in 2030 with this B3 connection. With a connection to Alternative B7, projectwide ridership would decrease to 49,000, but segment boardings increase to 9,000 in year 2030 compared to Alternative B3. With a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership, compared with Alternative B3, would decrease to 50,000 and segment boardings to 7,000. This is due to a change in the station locations as a SE 8th station is provided with *Preferred Alternative B2M* or Alternative B2A instead of an East Main Station with Alternative B3.

Other Segment C Alternatives

In 2020, the projectwide ridership under the Segment C alternatives would range from 39,000 to 43,000 with a connection to Alternative B3 and range from 37,000 to 41,500 with a connection to Alternative B7. By 2030, the projectwide ridership under the Segment C alternatives would range from 48,500 to 52,500 with a connection to Alternative B3 and range from 46,000 to 51,000 with a connection to Alternative B7.

With a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership for Segment C alternative would range from 39,000 to 42,500 in year 2020 and by year 2030 would range from 48,500 to 52,000. The following discussion of Segment C ridership assumes a connection to Alternative B3; refer to Tables 3-14 and 3-15 for the comparison with Alternative B7 and *Preferred Alternative B2M* and Alternative B2A, respectively. In general, with a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership would either remain similar or be slightly reduced compared with a connection with Alternative B3, but would be higher than with a connection to Alternative B7.

Alternatives C1T and C3T would result in the highest East Link projectwide ridership by connecting to the center of the commercial, retail, and office core of Downtown Bellevue and the Bellevue Transit Center. These alternatives are also expected to have shorter Segment C travel times because they would be inside a tunnel with a relatively direct route. The projectwide ridership under Alternatives C1T and C3T would be 52,500 daily boardings in year 2030.

In year 2020, Alternatives C9A and C14E would result in the lowest East Link ridership among the Segment C alternatives, with 39,000 daily riders. By year 2030, both of these alternatives would continue to have the lowest East Link ridership, 48,500 riders. Alternative C14E has a lower ridership compared to other Segment C alternatives because it would be located on the edge of downtown Bellevue.

In year 2020, total Segment C ridership for each alternative would range from a low of 4,500 daily boardings for the Alternative C14E to a high of 7,000 daily boardings for Alternatives C1T, C2T, and C3T. By 2030, Segment C total ridership would be expected to increase from a low of 5,500 daily boardings for Alternative C14E to a high of 9,000 daily boardings for Alternatives C1 and C3T. The Old Bellevue Station, which would be only included in Alternative C1T, would generate 1,500 and 2,500 daily boardings in years 2020 and 2030, respectively. The East Main Station would have ridership of 2,000 daily boardings in 2020 and 2,500 daily boardings in 2030. Ridership at the East Main Street Station Design Option under *Preferred Alternative C9T* would be similar to the East Main Station. The 108th Station, which would only be included in *Preferred Alternative C11A*, would generate 1,500 daily boardings in 2020 and 2,000 daily boardings in 2030.

TABLE 3-12
Year 2020 and 2030 Ridership Forecasts in Segment C (connecting from Alternative B3 or B7)

	2020										2030									
Station	***C11A*[a]**	***C9T***	**C1T**	**C2T**	**C3T**	**C4A[a]**	**C7E**	**C8E**	**C9A[a]**	**C14E**	***C11A*[a]**	***C9T***	**C1T**	**C2T**	**C3T**	**C4A[a]**	**C7E**	**C8E**	**C9A[a]**	**C14E**
Old Bellevue	-	-	1,500	-	-	-	-	-	-	-	-	-	2,500	-	-	-	-	-	-	-
East Main	-	2,000 (2,500)	-	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	-	-	2,500 (3,000)	-	2,500 (3,000)	2,500 (3,000)	2,500 (3,000)	2,500 (3,500)	2,500 (3,000)	2,500 (3,000)	-
108th	1,500 (2,000)	-	-	-	-	-	-	-	-	-	2,000 (2,500)	-	-	-	-	-	-	-	-	-
Bellevue Transit Center	4,000 (4,500)	4,000 (4,000)	5,000	4,500 (5,000)	4,500 (5,000)	4,000 (4,500)	3,500 (3,500)	4,000 (4,000)	3,500 (3,500)	3,500 (3,500)	5,000 (5,500)	4,500 (5,000)	6,000	5,500 (6,000)	5,500 (6,000)	5,000 (5,000)	3,500 (4,000)	4,500 (5,000)	4,000 (4,500)	4,000 (4,000)
Ashwood/ Hospital	-	-	-	-	500 (500)	500 (500)	500 (500)	500 (500)	-	-	-	-	-	-	1,000 (1,000)	1,000 (1,000)	1,000 (1,000)	1,000 (1,000)	-	-
Hospital	500 (500)	500 (500)	500	500 (500)	-	-	-	-	500 (500)	1,000 (1,000)	1,000 (1,000)	1,000 (1,000)	1,000	1,000 (1,000)	-	-	-	-	1,000 (1,000)	1,500 (1,500)
Segment C totals	**6,500 (7,500)**	**6,500 (7,000)**	**7,000**	**7,000 (7,500)**	**7,000 (8,000)**	**6,500 (7,000)**	**6,000 (7,000)**	**6,500 (7,000)**	**6,000 (6,500)**	**4,500 (4,500)**	**8,000 (9,000)**	**8,000 (9,000)**	**9,000**	**8,500 (9,500)**	**9,000 (10,000)**	**8,000 (9,000)**	**7,000 (8,000)**	**8,000 (9,000)**	**7,500 (8,500)**	**5,500 (5,500)**
Projectwide ridership	**39,500 (38,000)**	**41,000 (39,500)**	**42,500**	**42,000 (40,500)**	**43,000 (41,500)**	**40,000 (39,000)**	**41,500 (40,000)**	**41,500 (40,500)**	**39,000 (38,500)**	**39,000 (37,000)**	**49,000 (47,000)**	**51,000 (49,000)**	**52,500**	**52,000 (50,000)**	**52,500 (51,000)**	**49,500 (48,000)**	**50,500 (48,500)**	**51,500 (49,500)**	**48,500 (46,500)**	**48,500 (46,000)**

Notes: Ridership forecasts outside the parentheses are when Segment C alternatives are connected to Alternative B3. Forecasts within the parentheses are when Segment C alternatives are connected to Alternative B7. The exception to this is Alternative C1T, which is connected to Alternative B1.

Due to rounding, station ridership might not sum exactly to segment totals.

[a] A low level of transit signal priority is assumed to ensure key east-west arterials in downtown Bellevue are not affected. This assumption is consistent with the traffic analysis presented in this report.

- Station not included in alternative.

TABLE 3-13
Year 2020 and 2030 Ridership Forecasts in Segment C (connecting from *Preferred Alternative B2M* or Alternative B2A)

Station	**2020**										**2030**									
	C11A[a]	***C9T***	**C1T**	**C2T**	**C3T**	**C4A**[a]	**C7E**	**C8E**	**C9A**[a]	**C14E**	***C11A***[a]	***C9T***	**C1T**	**C2T**	**C3T**	**C4A**[a]	**C7E**	**C8E**	**C9A**[a]	**C14E**
Old Bellevue	-	-		-	-	-	-		-		-	-		-	-	-	-		-	
East Main	-	-		-	-	-	-		-		-	-		-	-	-	-		-	
108th	1,500	-		-	-	-	-		-		2,000	-		-	-	-	-		-	
Bellevue Transit Center	4,000	5,000		6,000	6,000	5,000	4,500		4,500		5,000	6,000		7,000	7,000	6,500	5,500		6,000	
Ashwood/ Hospital	-	-		-	500	500	500		-		-	-		-	1,000	1,000	1,000		-	
Hospital	500	500		500	-	-	-		500		1,000	1,000		1,000	-	-	-		1,000	
Segment C totals	**6,500**	**5,500**	**N/A**	**6,500**	**6,500**	**5,500**	**5,500**	**N/A**	**5,000**	**N/A**	**8,000**	**7,000**	**N/A**	**8,000**	**8,000**	**7,000**	**6,000**	**N/A**	**7,000**	**N/A**
Projectwide ridership	**39,500**	**40,500**	**N/A**	**41,500**	**42,500**	**39,500**	**41,000**	**N/A**	**39,000**	**N/A**	**49,000**	**50,000**	**N/A**	**51,500**	**52,000**	**49,000**	**50,000**	**N/A**	**48,500**	**N/A**

Notes: Ridership forecasts provided in this table are based on Segment C Alternatives connected to *Preferred Alternative B2M* or Alternative B2A. The exceptions to this (noted with N/A) are Alternatives C1T, C8E, and C14E; which can only be connected to Alternative B1 or Alternatives B3/B7, respectively.

Due to rounding, station ridership might not sum exactly to segment totals.

[a] A low level of transit signal priority is assumed to ensure key east-west arterials in downtown Bellevue are not affected. This assumption is consistent with the traffic analysis presented in this report.

- Station not included in alternative.

N/A	not applicable

TABLE 3-14
Year 2020 and 2030 Daily Ridership Forecasts in Segment D

Station	2020					2030				
	D2A	D2A – NE 24th Design Option	D2E	D3	D5	*D2A*	D2A – NE 24th Design Option	D2E	D3	D5
120th	500	500	500	500	-	1,000	1,000	500	1,000	-
130th	1,000	1,000	1,000	1,000	-	1,000	1,000	1,000	1,000	-
Overlake Village	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,500	1,000	1,500
Overlake Transit Center	3,000	2,500	2,500	2,500	3,000	4,000	3,500	3,500	3,500	4,500
Segment D totals	**5,500**	**5,000**	**5,000**	**5,000**	**4,500**	**7,000**	**7,000**	**7,000**	**6,500**	**6,000**
Projectwide ridership	**41,500**	**40,000**	**40,500**	**40,000**	**40,000**	**51,000**	**49,500**	**50,000**	**49,000**	**49,500**

Notes:
Due to rounding, station ridership might not sum exactly to segment totals.

D2A - 120th Design Option would have the same ridership as the *Preferred Alternative D2A*.

- Station not included in alternative.

TABLE 3-15
Year 2020 and 2030 Daily Ridership Forecasts In Segment E

Station	2020				2030			
	E2	E2 - Redmond Transit Center Design Option	E1	E4	*E2*	E2 - Redmond Transit Center Design Option	E1	E4
Redmond Town Center	-	1,000	1,500	1,500	-	1,500	2,000	2,000
Downtown Redmond	1,000	-	-	-	1,500	-	-	-
Redmond Transit Center	-	500	-	-	-	500	-	-
SE Redmond	1,500	1,500	1,500	1,500	2,000	1,500	1,500	2,000
Segment E totals	**3,000**	**3,000**	**3,000**	**3,000**	**3,500**	**4,000**	**3,500**	**3,500**
Projectwide ridership	**40,000**	**40,500**	**40,000**	**40,500**	**49,500**	**50,000**	**49,500**	**50,000**

Note: Due to rounding, station ridership might not sum exactly to segment totals.

- Station not included in alternative

The Bellevue Transit Center Station would have a range of ridership between 3,500 and 5,000 daily boardings in 2020 and between 4,000 and 6,000 daily boardings in 2030. Alternative C1T would generate the highest daily boardings at the Bellevue Transit Center, with 5,000 daily boardings in 2020 and 6,000 in 2030. In contrast, Alternatives C7E, C9A, and C14E would generate the lowest daily boardings of 3,500, in year 2020. Alternative C7E would generate 3,500 daily boardings at the Bellevue Transit Center, the lowest daily boardings in 2030.

The Ashwood/Hospital Station is projected to generate 500 daily boardings in 2020 and 1,000 in 2030 for all alternatives. The Hospital Station would be expected to generate 500 daily boardings in 2020 for all alternatives except Alternative C14E, which would produce 1,000 in 2020. The same pattern would be expected in 2030 with 1,000 daily boardings for all alternatives except Alternative C14E, which would produce 1,500 daily boardings in 2030. This slight increase in boardings under Alternative C14E is due in part to decrease of accessibility at Bellevue Transit Center relative to the Hospital Station and slightly faster travel times because the alternative is located along the eastern edge of downtown Bellevue.

Segment D Alternative and Projectwide Ridership

Table 3-14 lists the projected 2020 and 2030 Segment D alternative and station daily boardings.

Preferred NE 16th At-Grade Alternative (D2A)
By year 2030, projectwide daily ridership for *Preferred Alternative D2A* would be 51,000, which would be the highest for Segment D alternatives. *Preferred Alternative D2A* would also have the highest segment boardings in both 2020 and 2030 with 5,500 and 7,000 boardings, respectively. This would be due in part to the alternative having a shorter route in this segment than most of the other Segment D alternatives while serving the key retail, commercial, and employment areas proposed as part of the Bel-Red Corridor Project EIS by the City of Bellevue. The D2A – 120th Station Design Option would be expected to have a similar ridership forecast as the *Preferred Alternative D2A*.

Other Segment D Alternatives
In year 2020, while the *Preferred Alternative D2A* would have the highest daily projectwide ridership with 41,500 in 2020, D2A - NE 24th Design Option and Alternatives D3 and D5 would result in the lowest daily ridership projectwide with 40,000 in 2020. In 2030, *Preferred Alternative D2A* would again result in the highest number of projectwide riders at 51,000, and Alternative D3 would result in the lowest projectwide ridership of 49,000. These differences do not constitute a substantial difference in ridership between the Segment D alternatives. In year 2020, ridership for Segment D alternatives would range from 4,500 to 5,500 daily boardings. By 2030, Segment D total ridership for Segment D alternatives would be expected to range from 6,000 to 7,000 daily boardings.

The 120th Station, which would be included in all alternatives except Alternative D5, would generate 500 daily boardings in year 2020. In 2030, daily boardings at the 120th Station would range between 500 and 1,000. The 130th Station, which is also included in all Segment D alternatives except Alternative D5, would generate 1,000 daily boardings in both years 2020 and 2030. If parking were provided at the 120th Station instead of the 130th Station, the station boarding forecasts would switch between the two stations.

The Overlake Village Station would have 1,000 daily boardings for all alternatives in year 2020 and between 1,000 and 1,500 daily boardings in 2030. *Preferred Alternative D2A*, D2A - NE 24th Design Option, and Alternative D3 are expected to generate 1,000 daily boardings at this station in 2030, whereas Alternatives D2E and D5 are expected to generate 1,500 daily boardings at this station.

In year 2020, Overlake Transit Center would be expected to generate 2,500 daily boardings for all alternatives except *Preferred Alternative D2A* and Alternative D5, for which they would generate 3,000 daily boardings. In year 2030, the daily boardings would range from a low of 3,500 with Alternatives D2A - NE 24th Design Option, D2E and D3 to a high of 4,500 under Alternative D5. Because only two stations would serve the Bel-Red and Overlake areas under Alternative D5, this alternative would generate slightly higher station ridership at the Overlake Village and Overlake Transit Center stations than the other alternatives. Nearby stations in adjacent segments also would have slightly higher ridership because Alternative D5 would require less travel time than the other alternatives. If a pedestrian/bicycle bridge were constructed connecting Overlake Transit Center Station to the properties west of SR 520, then transit ridership would be expected to increase at this station.

Although both the 120th and 130th Stations were analyzed for the *Preferred Alternative D2A,* D2A - NE 24th Design Option, and Alternatives D2E and D3, only one station may ultimately be constructed. If this were to occur, then ridership would not substantially change from what is presented in Table 3-14 because these stations' coverage areas overlap. Riders would likely consolidate to the one station.

Sound Transit's ridership model uses population and employment growth for future forecast years that have been adopted by the regional planning agency, PSRC. The future growth from the City of Bellevue and City of Redmond studies (Bel-Red Corridor Project EIS [City of Bellevue, 2007] and Overlake Neighborhood Plan [City of Redmond, 2007]) has yet to be fully adopted by the PSRC. However, these two studies are included in both cities' long-range development and economic goals. Therefore, growth in these areas was adjusted in these ridership forecasts with assistance from PSRC, the City of Bellevue, and the City of Redmond. Based on ridership forecasts included in the Bel-Red Corridor Project EIS [City of Bellevue, 2007], if the land uses surrounding the stations were developed to be oriented toward transit use, then the projected East Link ridership could be higher. Any increase in ridership caused by this type of development would be pedestrian or bicycle trips from the areas immediately surrounding the stations.

Segment E Alternative and Projectwide Ridership

Table 3-15 lists the projected 2020 and 2030 Segment E alternative and station daily boardings.

Preferred Marymoor Alternative (E2)
By year 2030, projectwide daily ridership for *Preferred Alternative E2* would be 49,500. *Preferred Alternative E2* would have segment boardings of 3,000 in 2020 and 3,500 in 2030.

Other Segment E Alternatives

All Segment E alternatives generate very similar daily projectwide ridership, varying by 500 in both 2020 and 2030. These differences do not constitute a substantial difference in ridership between the Segment E alternatives. In forecast year 2020, total Segment E ridership for all alternatives would be 3,000 daily boardings. By 2030, Segment E total ridership would be expected to increase to 3,500 and 4,000 daily boardings.

The SE Redmond Station would be expected to generate 1,500 daily boardings in 2020 and between 1,500 and 2,000 in 2030. The Redmond Town Center Station is expected to generate between 1,000 and 1,500 daily boardings in years 2020 and between 1,500 and 2,000 in 2030. The Downtown Redmond Station, which would only be included with *Preferred Alternative E2*, would be expected to generate 1,000 daily boardings in year 2020 and 1,500 daily boardings in year 2030.

Interim Terminus Ridership

The Hospital, Ashwood/Hospital, 120th, 130th, Overlake Village, Overlake Transit Center, SE Redmond, and the Redmond Town Center Stations could potentially serve as interim terminus stations although the East Link Project is funded to extend as far as the Overlake Transit Center. The Overlake Transit Center is therefore considered the most reasonable interim terminus. Table 3-16 compares the projected year 2020 and 2030 daily interim terminus station and projectwide ridership for each station as an interim terminus. The three interim terminus stations that would expect to have a noticeable increase in ridership are at the Hospital, Overlake Village and Overlake Transit Center Stations. By 2030, up to 3,000 daily riders are expected at the Hospital Station, up to 3,500 daily riders are expected at the Overlake Village Station, and up to 6,000 daily riders are expected at the Overlake Transit Center Station.

3.4.4 Construction Impacts

During construction of East Link, current bus routes would be affected at some locations along the corridor. Bus reliability could potentially degrade along arterials with construction for East Link due to lane closures and other construction-related activity. For areas with construction in the roadway right-of-way, arterials may be reduced to one lane in each direction, affecting roadway operations, including bus service along those arterials. In general, alternatives constructed outside the roadway right-of-way would have minimal impacts on bus routes.

3.4.4.1 Segment A, Preferred Interstate 90 Alternative (A1)

East Link construction impacts on Central Link operations would be minimal. Impacts would occur with the connection of East Link to Central Link in the Downtown Seattle Transit Tunnel. The Downtown Seattle Transit Tunnel construction activities would likely be scheduled to occur over a limited number of full weekend closures. Minor additional evening closures likely would be required for other technical work. When possible, the evening closures would be outside of revenue service hours. These construction impacts would be to Central Link service only because bus service would have previously shifted from the tunnel to surface streets.

Along I-90, construction would affect the bus routes stopping at Rainier Avenue S and at Mercer Island. Bus service would continue at these locations during the D2 Roadway construction but buses would use the outer I-90 mainline roadways to access the Rainier Avenue S and Mercer Island stops. During construction of light rail track on the D2 Roadway, buses would be rerouted to the I-90 mainline and use the HOV lanes completed as part of the I-90 Two-Way Transit and HOV Project. These HOV lanes would be completed before East Link is constructed on I-90.

3.4.4.2 Segment B

At the South Bellevue Park-and-Ride, the entire parking lot would be closed due to parking garage and station construction, but bus service and bus stops would remain on Bellevue Way SE.

For *Preferred Alternative B2M*, it is likely that less disruption would occur to transit service than Alternatives B1, B2A, B2E, B3, and the B3 - 114th Extension Design Option because only one lane of Bellevue Way SE would likely be closed for most of the civil construction period rather than multiple lanes. *Preferred Alternative B2M* and Alternatives B2A, B2E, and B3, and the B3 - 114th Extension Design Option would reconstruct a portion of the roadway on 112th Avenue SE. This construction would close lanes, thereby reducing the reliability of buses that travel along these roads during periods when lanes are closed. For Alternative B7, bus service at the Wilburton Park-and-Ride would continue, but all or some parking would be removed.

TABLE 3-16
Year 2020 and 2030 Daily Terminus Station and Projectwide Ridership Forecasts for Interim Terminus Stations

Year	Ridership Category	Full-Length Project[a]	Interim Terminus at: Ashwood/ Hospital	Hospital	120th	130th	Overlake Village	Overlake Transit Center	Redmond Town Center	SE Redmond
2020	Interim terminus station ridership[b]	N/A	1,000	2,000	1,000	1,000	2,500	4,500	2,000	2,000
	Projectwide ridership	40,000	31,000	27,000	30,500	31,500	32,500	37,500	39,500	39,000
2030	Interim terminus station ridership[b]	N/A	1,000	3,000	1,500	1,500	3,500	6,000	2,500	2,500
	Projectwide ridership	49,500	37,500	33,000	37,000	38,500	39,500	46,500	49,000	48,000

[a] Full-length project alternative is the combination of Alternatives A1, B3, C4A, D2A – NE 24th Design Option, and E2.

[b] Station and projectwide ridership might vary depending on which alternative connects to the terminus station.

Note: Due to rounding, station ridership might not total exactly to segment totals.

3.4.4.3 Segment C

Constructing *Preferred Alternatives C11A* and *C9T* would either consist of a full closure or a staged partial closure of the Bellevue Transit Center. In either scenario, impacted bus routes and stops would be rerouted along 106th, 108th, and 110th Avenues NE. Bus routes and stops might also be relocated to a nearby off-street location. One potential off-street location is on 108th Avenue NE, near NE 6th Street. This site would be able to accommodate some of the existing Bellevue Transit Center routes and stops.

For Alternatives C1T, C2T, and C3T, buses would not be able to access the transit center during construction. The Bellevue Transit Center would be closed for more than a year to construct the new station for these three alternatives; therefore, bus services and stops associated with these alternatives would be rerouted and relocated along 106th, 108th, and 110th Avenues NE.

The remaining Segment C alternatives likely would be able to retain current bus service within the Bellevue Transit Center during the construction period. Constructing the at-grade track along 108th Avenue NE (*Preferred Alternative C11A*) would affect bus routes along this road. Cut-and-cover construction on Bellevue Way (for Alternative C1T) between SE 6th and NE 6th Streets, on 106th Avenue NE (for Alternative C2T) between Main and NE 6th Streets, and on 110th Avenue NE (for *Preferred Alternative C9T*) would affect bus routes along these roadways. Alternative C4A would reconstruct 108th and 110th Avenues NE, which would affect bus service. The elevated construction of Alternative C8E and the at-grade construction of Alternative C9A would affect bus routes traveling on 110th Avenue NE. Construction activities surrounding NE 6th Street between 110th Avenue NE and the I-405 direct-access ramps (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C3T, C9A, and C14E) could affect bus routes. All of these potential construction impacts could increase bus travel times.

3.4.4.4 Segment D

During construction at the Overlake Transit Center Station, bus service and stops could be routed along 156th Avenue NE and/or other nearby arterials because the parking lot would be closed to construct the parking garage and station. For Alternative D3, buses traveling on 152nd Avenue NE, north of NE 24th Street, would be affected by the at-grade station construction in the median and also along NE 20th Street between 136th Avenue NE and 152nd Avenue NE, due to median trench construction. These impacts could increase bus travel times.

3.4.4.5 Segment E

Buses traveling along 161st Avenue NE between Cleveland Street (SR 202) and NE 87th Street would be affected by at-grade construction of E2 - Redmond Transit Center Design Option and would likely need to be rerouted. Under *Preferred Alternative E2*, which would terminate at the Downtown Redmond Station, and all other Segment E alternatives, potential impacts along 161st Avenue NE would be avoided.

3.4.5 Potential Mitigation

If the D2 Roadway is not designated for joint use operations with bus and light rail in the future, then bus routes that currently use the D2 Roadway would be expected to be rerouted to 4th Avenue South to access Downtown Seattle via SR 519. Transit signal priority could be implemented on 4th Avenue South at the I-90 western terminus and Airport Way South to improve bus reliability for these affected routes.

During East Link operations, bus routes on I-90 would not require any mitigation because the I-90 Two-Way Transit and HOV Project would be completed prior to East Link construction. This project would provide HOV lanes in both directions on I-90 between Mercer Island and the Rainier Avenue S interchange. Consistent with WSDOT's HOV Speed and Reliability Standard of a vehicle able to travel at least 45 miles per hour (mph) during the peak commuting hour 90 percent of the time, bus reliability would remain similar to that of the No Build Alternative.

No other transit mitigation during East Link operations would be required for the East Link Project because the project would have a beneficial impact on transit service. The transit integration plan provides coordinated bus service with the light rail system, and major park-and-ride lots in the study area would be expanded to better accommodate the increase in transit ridership with the project.

During construction, the existing South Bellevue (associated with all Segment B alternatives, except B7) and Overlake Transit Center (associated with all Segment D alternatives) park-and-ride lots would either be partially or fully closed. Measures to mitigate the loss of parking at these locations could include the following:

- Route transit riders that use these locations to available spaces at nearby park-and-ride lots, such as the Eastgate or Overlake Village Park-and-Rides.
- Lease parking lots and/or new parking areas within the vicinity of the closed park-and-ride lots.

During construction, transit service mitigation measures for the South Bellevue, Bellevue Transit Center (associated with *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, and C3T) and Overlake Transit Center partial or full closure could include the following:

- Relocate transit stops to adjacent streets.
- Provide a temporary transit center at a nearby off-street location.
- Revise transit services. For example, at South Bellevue and Overlake Transit Center, bus routes that stop within the park-and-ride would be rerouted, to the extent possible, to on-street stops (for example along Bellevue Way SE and 156th Avenue NE) to ensure service during construction.

During construction of alternatives within street rights-of-way, buses would be rerouted to nearby arterials where appropriate to maintain transit service. For example in Downtown Bellevue, transit could be rerouted to parallel streets. In other areas, such as Bellevue Way SE, buses would continue to operate along this arterial due to lack of alternative routes.

Transit service modifications would be coordinated with King County Metro and private transit service providers to minimize construction impacts and disruptions to bus facilities and service. This could include posting informative signage before construction at existing transit stops that would be affected by construction activities. Refer to Section 3.5 for mitigation regarding future I-90 operations and Section 3.6 for mitigation regarding arterial and local street traffic operations.

3.5 Highway Operations and Safety

This section describes highway operations within the study area and the potential impacts on highways from the East Link Project. I-90 is the only regional highway that would be directly affected by the project; direct impacts on SR 520 and I-405 would be limited to light rail transit overpasses, parallel routes, and construction; therefore, operations on these two highways would be similar with or without the project.

For discussion of regional travel, including VMT, VHT, roadway v/c ratio, and mode choice at the six project screenline locations, refer to Section 3.3. For the analysis of intersection operations at or near I-90 ramp terminals refer to Section 3.6.

3.5.1 Methodology

Four key measures were established to evaluate the quality of operating conditions on I-90: vehicle and person throughput, travel time by transportation mode, LOS, and safety. Vehicle and person throughput is a measure of the number of vehicles and people who are able to cross a specific location. Person throughput is a more appropriate assessment measure than vehicle throughput for analysis of a transit project because it illustrates the overall efficiency of the system through number of people moved instead of vehicles. I-90 throughput information is presented at the Lake Washington Screenline (Screenline 2; see Exhibit 3-1) to explain changes in travel patterns across the lake, while the Mercer Slough Screenline (Screenline 3; see Exhibit 3-2) is intended to be used to understand I-90 conditions, east of the study area.

Travel times provide information on how long it would take to travel through the corridor or certain paths within the corridor. Congestion maps, which indicate roadway LOS, are charts that indicate when, how long, and how severe congestion would be on I-90. A safety comparison between the No Build Alternative and the East Link Project is provided to show how the project might affect the number of I-90 accidents. Appendix H1, *Transportation Technical Report*, of this Final EIS provides more details on the freeway operations analysis.

Vehicle Throughput. The number of vehicles that cross a location.

Person Throughput. The number of people in vehicles (autos and transit) who cross a location.

3.5.2 Affected Environment

Segment A is the only segment in which the East Link Project would directly affect a regional highway, I-90, during project operations. Potential impacts on SR 520, I-5, and I-405 from East Link Project operation are not considered to be substantial, as indicated in Section 3.3. Therefore, traffic operations on SR 520 (which also crosses Screenline 2) and I-5 and I-405 were not evaluated further. SR 520 is addressed in this section only when describing travel predictions across the lake in Section 3.5.2.2 and potential construction impacts (along with I-405) in Section 3.5.3.4.

Segment A spans approximately 7 miles, originating at the International District/Chinatown Station in Seattle and terminating where I-90 reaches South Bellevue. Within this segment that crosses Lake Washington, I-90 consists of two "outer" roadways that are the westbound and eastbound mainline lanes and a two-lane center roadway that has peak-directional reversible lanes that are for transit, HOVs, and Mercer Island residents driving between Seattle and Mercer Island, per the 1976 Memorandum of Agreement. Consistent with long-standing regional objectives of connecting the urban communities in the Puget Sound region, the center roadway has always been intended as an HCT connection between Bellevue and Seattle to support higher density employment and residential land uses on both sides of Lake Washington. This is documented in Appendix H of the *Transportation Technical Report* (Appendix H1), where a 2004 amendment to the 1976 I-90 Memorandum Agreement states "Alternative R-8A, with HCT deployed in the center lanes, is the ultimate configuration for I-90 in this segment."

3.5.2.1 Vehicle and Person Throughput

In existing conditions, slightly over 55 percent of the total number of vehicles on I-90 travel in the peak direction (westbound in the AM peak hour and eastbound in the PM peak hour). In the AM peak hour, slightly less than 13,000 vehicles travel on I-90, while in the PM peak hour, slightly over 13,500 vehicles travel on I-90. In both AM and PM peak hours, the center roadway accommodates less than 15 percent of the total vehicles on I-90 due to its limited access. Access is provided by ramps from the outer mainline roadways and the 5th Avenue South and South Dearborn Street intersection, neither of which provides enough capacity to effectively use the two lanes across Lake Washington in the reversible center roadway (WSDOT and Sound Transit, 2004, p 3-28). Table 3-17 lists I-90 vehicle throughput data for Screenlines 2 and 3 in the AM and PM peak hours.

TABLE 3-17
Existing (2007) I-90 AM and PM Peak-Hour Vehicles and Persons

Screenline/ Direction	AM Peak Hour				PM Peak Hour			
	Vehicles	Persons	Vehicle Percent of Total	Person Percent of Total	Vehicles	Persons	Vehicle Percent of Total	Person Percent of Total
Screenline 2 (Lake Washington)								
Westbound outer roadway	5,450	6,250	43	39	6,000	7,500	44	43
Reversible center roadway	1,750	3,350	14	21	1,850	3,450	14	20
Eastbound outer roadway	5,500	6,500	43	40	5,650	6,500	42	37
Screenline 2 Total	**12,700**	**16,100**	**100**	**100**	**13,500**	**17,450**	**100**	**100**
Screenline 3 (Mercer Slough)								
Westbound outer roadway	7,200	9,550	58	61	6,000	6,500	45	45
Eastbound outer roadway	5,300	6,000	42	39	7,250	7,950	55	55
Screenline 3 total	**12,500**	**15,550**	**100**	**100**	**13,250**	**14,450**	**100**	**100**

Source: Results from VISSIM software (CH2M HILL, 2007).

In terms of person throughput, in the AM peak hour on the Lake Washington Screenline (Screenline 2), the westbound outer roadway throughput approaches 6,300 persons. The reversible center roadway (westbound direction in the AM peak hour) person throughput is approximately 3,300 persons (of which about 25 percent are in buses). The eastbound throughput is about 6,500 persons. Overall, about 16,100 people travel I-90 in both directions during the AM peak hour.

In the PM peak hour on the I-90 floating bridges, the westbound throughput is about 7,500 persons. The eastbound outer roadway throughput is slightly over 6,500 persons, and the reversible center roadway (eastbound direction in PM peak hour) throughput is about 3,500 persons (of which about 20 percent are in buses). Overall, about 17,500 people travel I-90 in both directions during PM peak hour.

Similar person throughput trends occur at Screenline 3, except in the eastbound direction during the PM peak hour. Transit usage decreases compared to Screenline 2 because some passengers disembark at Mercer Island and some buses exit I-90 at Bellevue Way and therefore do not cross Screenline 3.
Exhibit 3-11 shows the existing AM and PM peak-hour person throughput by direction and mode at Screenlines 2 and 3. The person and vehicle throughput in the reversible center roadway is included in the direction it operates, depending on the time period.

3.5.2.2 Travel Time

Travel time paths between Seattle, Mercer Island, Bellevue Way, and I-405 were identified to help understand local and regional trip times. The selected travel paths are listed in Table 3-18 along with the existing AM and PM travel times for single-occupant vehicle (SOV), HOV, and transit modes on these paths.

During the AM peak period, the travel time for SOVs traveling westbound on I-90 to Seattle from I-405 is approximately 12 minutes. In the eastbound direction, the travel time for SOVs traveling between Seattle and I-405 is approximately 14 minutes. The PM peak-period travel time for SOVs traveling westbound to Seattle from I-405 is about 19 minutes. The travel time for SOVs traveling eastbound from Seattle to I-405 is 17 minutes.

3.5.2.3 Level of Service

The existing LOS on I-90 varies throughout the study area. There is substantial congestion where vehicles travel at stop-and-go conditions (LOS F), and vehicle queues are observed throughout most of the peak periods, especially in the PM peak period. The congestion maps in Exhibit 3-12 illustrate the I-90 mainline LOS.

These congestion maps indicate vehicle speeds over time (vertical axis) and distance (horizontal axis). The time indicated on these maps is a 2.5-hour duration in both the AM (6:30 to 9 a.m.) and PM (3:30 to 6 p.m.) peak periods.

TABLE 3-18
I-90 Existing Travel Times by Mode

Travel Time Path Endpoints		Travel Time (minutes)					
		AM Peak Period			PM Peak Period		
Beginning Point	**Ending Point**	**SOV**	**HOV**	**Transit[a]**	**SOV**	**HOV**	**Transit[a]**
Westbound Outer Roadway							
Mercer Island (Island Crest Way)	I-5 to Downtown Seattle	7	7	-/-	9	9	11/8
Bellevue Way	I-5 to Downtown Seattle	10	10	-/-	17	17	19/-
I-405	I-5 to Downtown Seattle	12	12	-/-	19	18	21/18
Reversible Center Roadway[b]							
Mercer Island (77th Avenue SE)	I-5 to Downtown Seattle[c]	7	N/A	-/-	8	N/A	-/-
Mercer Island (77th Avenue SE)	Seattle (5th Avenue South)[d]	N/A	5	6/6	N/A	5	6/6
Bellevue Way	Seattle (5th Avenue South)[d]	N/A	7	11/-	N/A	8	11/-
I-405	Seattle (5th Avenue South)[d]	N/A	10	13/11	N/A	10	13/11
Eastbound Outer Roadway							
I-5 from Downtown Seattle	Mercer Island (Island Crest Way)	8	8	10/9	12	12	-/-
I-5 from Downtown Seattle	Bellevue Way	12	12	20/-	15	15	-/-
I-5 from Downtown Seattle	I-405	14	14	25/17	17	17	-/-

[a] Numbers are for bus routes with stops on Mercer Island /bus routes with no stops on Mercer Island.
[b] Reversible center roadway operates westbound in the AM peak and eastbound in the PM peak.
[c] SOVs are required to exit/enter the reversible center roadway near Rainier Avenue South.
[d] Travel time is to/from 5th Avenue South via the D2 Roadway.
Note: Travel times are rounded to the nearest minute.
N/A = not applicable because the mode is not eligible to travel this path or the path is not prohibited.
- = Buses do not travel on this roadway during this period and/or do not travel between these points.

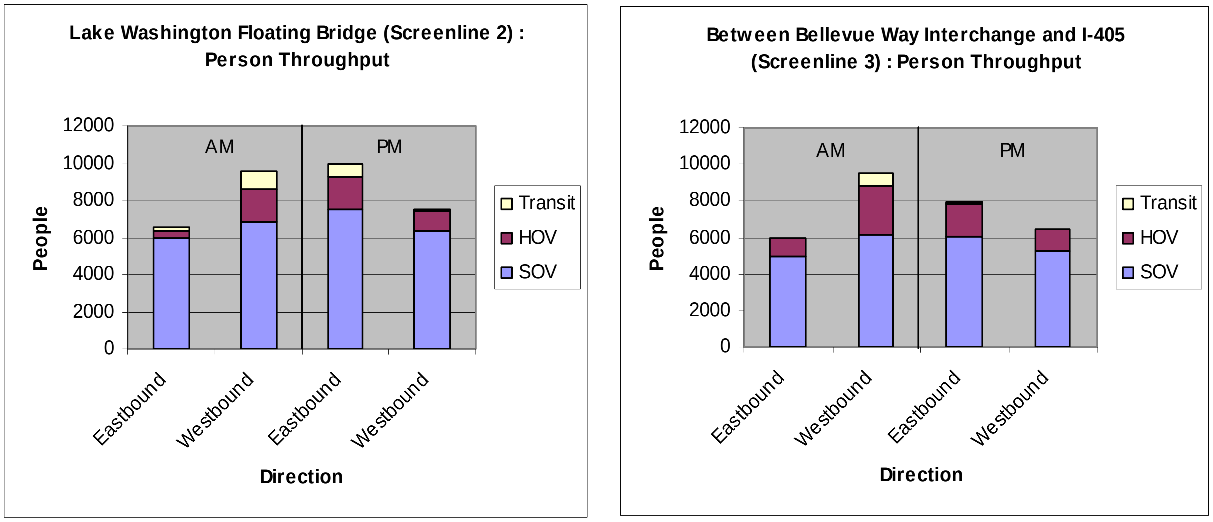


EXHIBIT 3-11
I-90 Existing AM and PM Peak-Hour Person Throughput by Mode at Screenlines 2 and 3

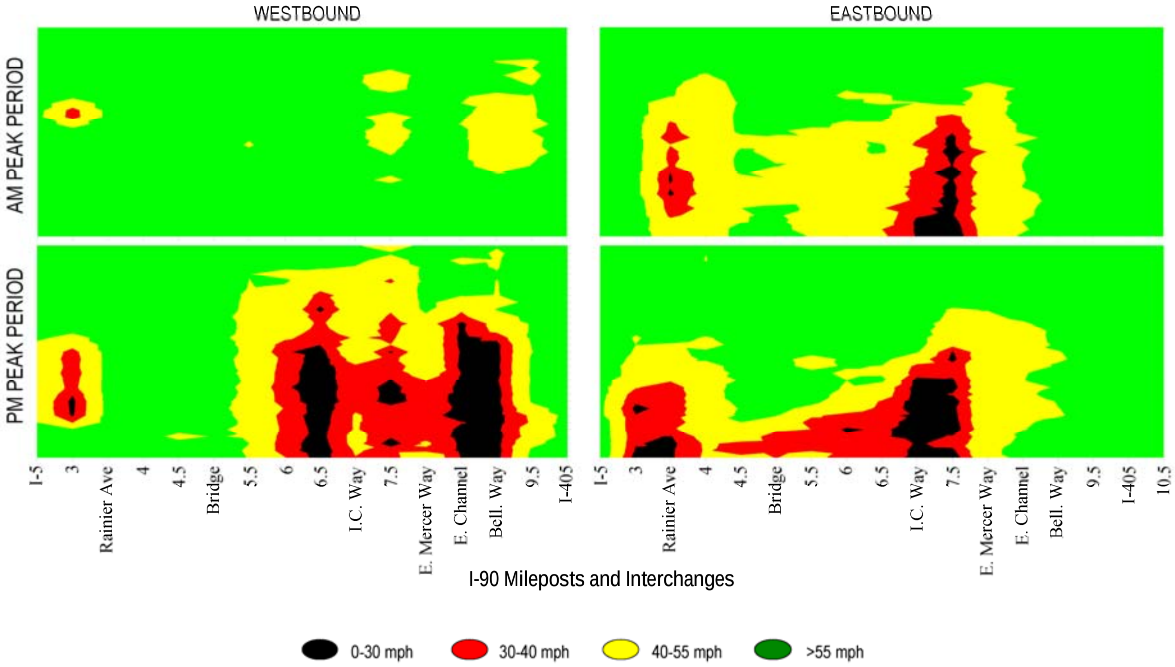


EXHIBIT 3-12
I-90 Existing Year AM and PM Peak-Period Vehicle Speeds in General-Purpose Lanes

The distance covers I-90 from the western terminus at SR 519 to east of the I-405 interchange. Although LOS is based on vehicle density and the congestion maps are based on speed, the two measurements are generally related to one another. On the congestion maps, LOS E and F conditions (speeds at or below 55 mph) are indicated where areas of yellow, red, or black occur. LOS D or better conditions are portrayed by areas of green (vehicle speeds over 55 mph) occur.

During the AM peak period in the westbound direction, I-90 starting east of I-405 operates at LOS E or better until the area between the Rainier Avenue South interchange and the I-5 interchange, which operates at LOS F. Traveling in the eastbound direction, I-90 operates at LOS E or worse from the Rainier Avenue South interchange to the East Mercer Way interchange. East of the East Mercer interchange, I-90 operates at LOS D or better. The reversible center roadway operates at LOS B or better. The greatest congestion is at the western terminus of the reversible center roadway where center roadway vehicles merge back onto the I-90 mainline.

During the PM peak period, westbound I-90 operates at LOS E or worse between Bellevue Way and the First Hill Tunnel in Mercer Island. West of Mercer Island, I-90 then operates at LOS D or better, with the exception of the area just east of I-5, which operates at LOS F due to vehicles merging with I-5 traffic. I-90 in the eastbound direction operates at LOS F between I-5 and the East Mercer Way interchange. Across the East Channel Bridge, I-90 operates at LOS E until the Bellevue Way interchange. East of Bellevue Way, I-90 operates at LOS D or better. The reversible center roadway operates at LOS B or better. The highest congestion is at the western origin of the reversible center roadway where automobiles coming from the D2 Roadway and the I-90 mainline access the reversible center roadway.

3.5.2.4 Freeway Safety

WSDOT's existing I-90 accident data were collected for the 5-year period (2004 to 2008). The accident analysis included the westbound, eastbound, and reversible center roadways. The extent of the analysis was from the I-90 western terminus to just east of I-405, which is slightly more than 8 miles. The corridor-length accident rates for the eastbound, westbound, and center roadways are well below the average accident rate for urban interstate facilities in WSDOT's Northwest Region.

The accident analysis also identified collision analysis locations (CALs) and collision analysis corridors (CACs), as defined by WSDOT. A CAL is a spot location determined to have a clustering rate of severe accidents during the previous 5 years. A CAC is defined as a 5-mile corridor with a 5-year history of at least 11 fatal or serious collisions. No CACs were identified in the study area, and the only CAL was essentially I-90 between the Bellevue Way and I-405 ramps near the eastern edge of the East Link Project study area.

3.5.3 Environmental Impacts

This section describes the physical and operational changes on I-90 resulting from the No Build Alternative and from implementation of light rail for the years 2020 and 2030. Consistent with the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Supplemental Draft EIS* (WDSOT, January 2010), SR 520 improvements and tolling strategies are assumed to be in place by year 2020; therefore, the East Link Project assumed these improvements in both future year conditions.

Although the entire I-90 Two-Way Transit and HOV Operations Project is expected to be completed before beginning construction of the East Link Project, the East Link Project was compared to two different No Build Alternatives along I-90. HOV traffic would be moved from the center roadway to the outer roadways when construction of the East Link Project begins. Stage 1 of the I-90 Two-Way Transit and HOV Operations Project was recently completed and Stage 2 is being constructed, but Stage 3 might not be completed until just before East Link construction on I-90 begins. If the entire I-90 Two-Way Transit and HOV Operations Project is completed well before East Link construction begins, then the reversible center roadway would be available for vehicle use as well as the new HOV outer roadway lanes. Because the HOV lanes in the outer roadway might not be completed until just before construction of East Link, the following two No Build Alternatives were analyzed:

1. One with the Stage 3 HOV lanes completed immediately before East Link construction on I-90, so HOVs and transit can shift from the center roadway to the outer roadway HOV lanes. In this scenario, the new HOV lanes in the outer roadway would never operate in conjunction with the center roadway. This is referred as the No Build Alternative with Stages 1 and 2 only.
2. One with the Stage 3 HOV lanes completed and the center roadway available for transit, HOV, and Mercer Island drivers. In this No Build Alternative, both the center roadway and outer HOV lanes are open the entire distance between Seattle and Bellevue. This is referred to as the No Build Alternative with Stages 1 through 3.

Exhibit 3-13 is a schematic of the three stages of the I-90 Two-Way Transit and HOV Operations Project, and Exhibit 3-14 provides the I-90 configurations between Seattle and Mercer Island with and without East Link. The following subsection describes the proposed future access and circulation modifications to I-90. These changes were incorporated into the 2020 and 2030 No Build Alternative and East Link travel forecasts (Section 3.5.3.2) and in the operational and safety analysis (Section 3.5.3.3). The *Transportation Technical Report* further describes these future access and circulation modifications.

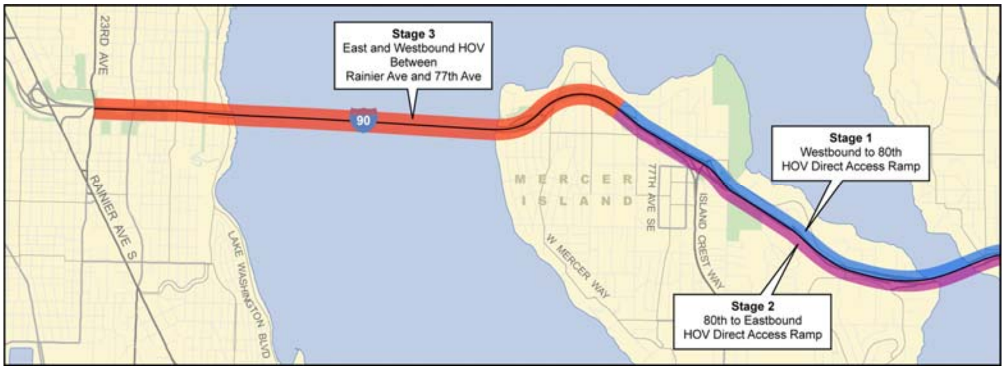


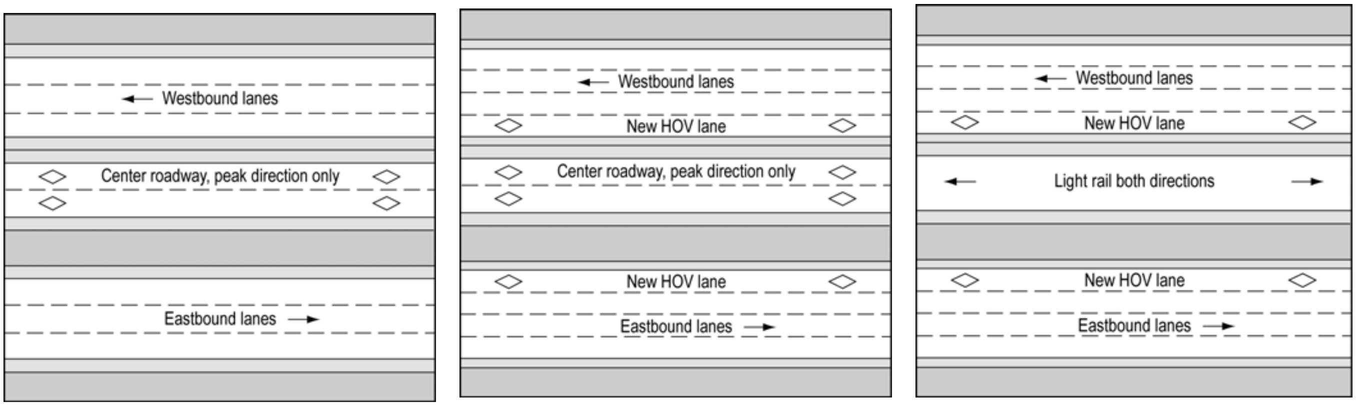
EXHIBIT 3-13
I-90 Two-Way Transit and HOV Project Stages

3.5.3.1 Access and Circulation Modifications

Preferred Interstate 90 Alternative (A1)

Access and circulation along the I-90 corridor will be modified in the No Build Alternative by the I-90 Two-Way Transit and HOV Operations Project. With the East Link Project, access and circulation modifications would affect the D2 Roadway, access to the reversible center roadway, eastbound HOV access near Mercer Island, and potentially the HOV ramps connecting to Bellevue Way SE.

With the East Link Project, the *Preferred Alternative* includes joint operations of buses and light rail for the D2 Roadway that connects the south area of Downtown Seattle with the I-90 center roadway. A operational option is also evaluated that includes rail-only operations on the D2 Roadway. HOVs would not be allowed to use this roadway in either condition with the East Link Project. For the operational option that has exclusive light rail in the D2 Roadway, buses would be rerouted to other roadways to access I-90 from the south area of Downtown Seattle (such as 4th Avenue South via SR 519).



I-90 Existing Conditions

I-90 Two-Way Transit and HOV Project

I-90 with Preferred Alternative A1

EXHIBIT 3-14
I-90 Configuration Before and After East Link

During East Link construction and operations, access to and from the I-90 reversible center roadway would be removed as well as its ramps connecting to Mercer Island (77th Avenue SE and Island Crest Way). With the access modifications from the I-90 Two-Way Transit and HOV Operations Project and the changes in access with light rail construction, the traffic analysis assumed Mercer Island SOVs would be able to use the HOV lanes in both directions of I-90 between Seattle and Island Crest Way to demonstrate that it does not affect the results of the East Link analysis and represents a worst case condition. This assumption does not represent approval of SOVs using the outer roadway HOV lanes or the eastbound left-side off-ramp to Island Crest Way. Any changes to the HOV lane eligibility such as tolling or managed lanes or Mercer Island SOV use would be addressed in a future analysis, approval, and agreement.

As part of the *Preferred Alternative A1*, an eastbound HOV off-ramp to would be constructed at Island Crest Way. In lieu of providing this HOV off-ramp at Island Crest Way, a design option to construct the eastbound HOV off-ramp at 77th Avenue SE was considered. A second design option that would construct neither of these eastbound HOV off-ramp options was also evaluated. With this design option, all HOV and bus traffic would utilize the eastbound general-purpose ramps at 77th Street and Island Crest Way to access Mercer Island. With either the *Preferred Alternative* or the design options, the existing eastbound general-purpose off-ramps at Island Crest Way and 77th Avenue SE would remain.

Preferred 112th SE Modified Alternative (B2M) and other Segment B Alternatives

In Segment B, *Preferred Alternative B2M* would preserve both the westbound HOV on-ramp and eastbound HOV off-ramps at the I-90 and Bellevue Way SE interchange by exiting the center roadway on a new elevated structure over the westbound mainline. With *Preferred Alternative B2M* and Alternatives B2A, B2E, B3, B3 – 114th Extension Design Option, and B7, a design option is considered that would preserve only the westbound HOV on-ramp. Specific to Alternative B1, another design option is considered that would close both westbound general-purpose and westbound HOV ramps as the light rail track would use the space currently used by both ramps beneath the westbound mainline roadway. However, WSDOT's preference is to maintain both the westbound HOV on-ramp and the eastbound HOV off-ramp at this interchange. This would require modifying the design for all nonpreferred alternatives that use Bellevue Way SE. The analysis of these access modifications is discussed in Section 3.5.3.3, Highway Operational and Safety Impacts.

3.5.3.2 Traffic Forecasts

Vehicle traffic and transit ridership forecasts for I-90 were prepared using the PSRC and Sound Transit travel demand models, as discussed in Section 3.3.3. The overall AM and PM peak-period growth rates to the year 2030 are estimated to be between 1 and 2 percent with the higher growth forecasted in the non-peak direction (eastbound in the morning and westbound in the afternoon). By year 2030, the peak-period demand in each direction would become more balanced than today as the population and employment density on the Eastside increases. With the project, slightly less vehicle traffic growth was predicted compared to the no-build condition, as the model predicts people would shift from driving to riding light rail. This is because East Link would provide a more reliable mode of travel with substantial travel-time savings compared to a vehicle travelling in a congested regional roadway network, especially between the urban centers of Seattle and Bellevue.

As part of the forecasting, the SOV, HOV, and transit mode shares were calculated both with and without East Link. As expected with more congestion, the forecasts for the future No Build Alternative suggest that people would slightly shift toward HOV and bus usage. With the East Link Project, the forecasts suggest a substantial shift to transit across Lake Washington (Screenline 2), compared to the No Build Alternative, because light rail would provide shorter travel times than other transportation choices.

By 2030, the transit mode share percentage across Lake Washington (SR 520 and I-90) would increase by up to 33 percent from the No Build Alternative (Table 3-19). People would readjust their mode choices and choose to ride light rail because of faster travel times when compared to bus or auto modes. The overall transit mode share (combined eastbound and westbound) on I-90 alone would more than double from about a 10 and 7 percent share (AM and PM conditions) without the project to slightly over a 20 percent share with the project in both AM and PM conditions. The pie charts in Exhibit 3-15 compare mode share between the No Build Alternative and East Link on I-90 in the year 2030 at Screenline 2. In conjunction with the increased transit mode share increase, the SOV and HOV mode share would decrease as people choose to ride light rail.

At Screenline 3, the transit mode share shifts would be less pronounced with the project because light rail would not cross the screenline. Slight changes in mode share are forecast at Screenline 3 in 2020 and 2030 with East Link.

3.5.3.3 Highway Operational and Safety Impacts

Based on the traffic forecasts discussed in Section 3.5.3.2, freeway operations during the AM and PM peak periods were analyzed for years 2020 and 2030. The following measures were used to assess potential project impacts on I-90:

- Vehicle and person throughput and capacity
- Vehicle and person demand served
- Travel time
- Congestion and LOS
- Safety

Person and Vehicle Throughput and Capacity

Vehicle and person throughput on I-90 was tabulated at Lake Washington (Screenline 2) and Mercer Slough (Screenline 3) in the SOV, HOV, and transit modes. Transit includes both bus and light rail passengers for the project alternatives.

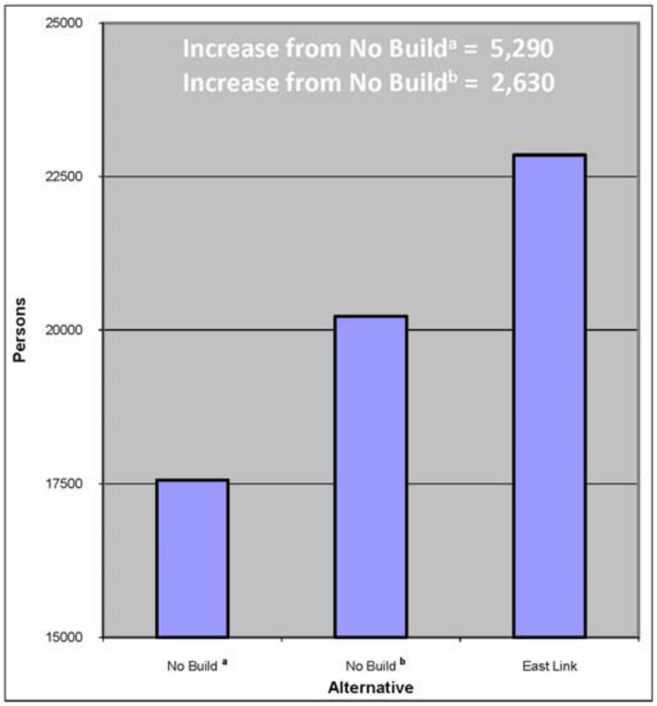
With East Link, the overall person throughput across Lake Washington (Screenline 2) in the AM and PM peak hours in 2030 would increase by about 5,300 people (about 30 percent) compared to the No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed. Throughput would increase by about 2,600 people (about 15 percent) compared to the No Build Alternative with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project completed (Exhibit 3-16).

One of the key reasons the East Link Project would transport more people across I-90 is because bidirectional light rail would be a more efficient use of the center roadway space than the current reversible one-directional vehicle operations. The roadway's restricted access and egress also limit vehicle capacity and throughput.

TABLE 3-19
Screenline 2 Existing, 2020, and 2030 Mode Share for I-90 and SR 520

Direction	Existing	2020 SOV/HOV/Transit Mode Share (Percent)			2030 SOV/HOV/Transit Mode Share (Percent)		
		No Build[a]	No Build[b]	Light Rail	No Build[a]	No Build[b]	Light Rail
AM Peak Period							
Westbound	65/20/15	59/23/18	59/24/17	56/22/22	58/23/19	57/24/19	55/21/24
Eastbound	76/18/6	74/15/11	74/16/10	72/14/14	70/17/13	69/18/13	68/16/16
PM Peak Period							
Westbound	62/33/5	58/35/7	58/35/7	58/33/9	47/42/11	54/37/9	53/35/12
Eastbound	57/30/13	55/30/15	53/32/15	52/30/18	52/32/16	50/34/16	49/31/20

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] `With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
Source: PSRC and Sound Transit travel demand models.



[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project

EXHIBIT 3-16
I-90 2030 AM and PM Peak-Hour Person Throughput across Lake Washington

Compared with the No Build Alternative, the East Link project would also increase the I-90 person capacity across Lake Washington as light rail in the center roadway would serve both directions of travel at all times and would provide a substantial capacity increase over the existing reversible center roadway. Along I-90, the project would use dedicated right-of-way, allowing East Link to operate reliably, independent of congested roadway conditions. The project is planned to operate during the peak periods with a train-arrival frequency (i.e., headway) of every 7 minutes by 2030. The project could carry 600 persons per four-car train comfortably and 800 persons during crowded conditions, operated with 4-minute headways; this would more than double the person-carrying capacity of I-90, as East Link could carry a total of 18,000 to 24,000 people (9,000 to 12,000 per direction) during the peak period. This is the equivalent of about seven to ten freeway lanes of traffic (assuming that automobiles in the Puget Sound region average 1.17 persons per vehicle during commute hours, or about 2,300 persons per hour per freeway lane). The following subsections present the vehicle and person throughput results at Screenlines 2 and 3.

Screenline 2 (I-90 across Lake Washington)

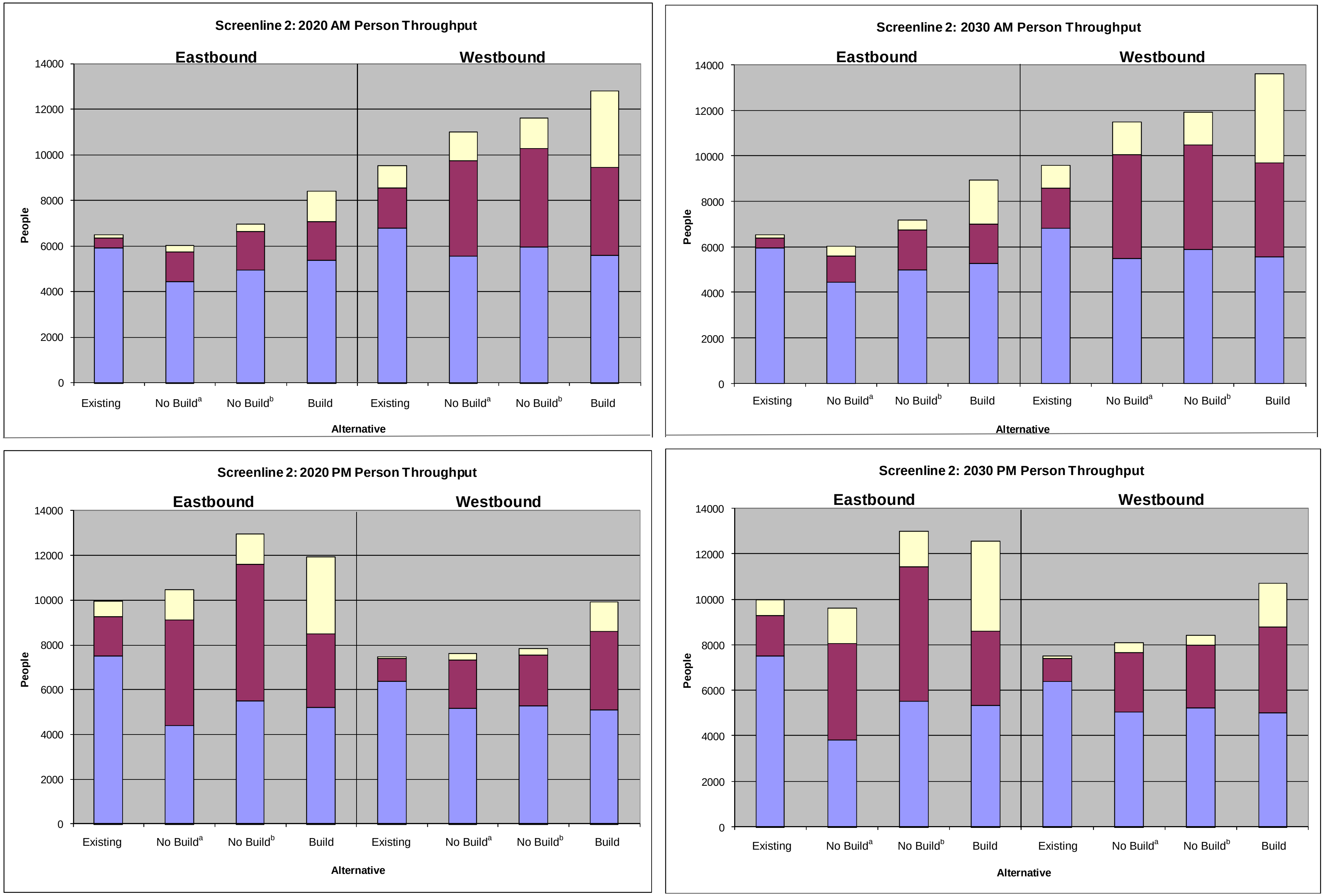
At Screenline 2, compared to both No Build Alternatives, person throughput would be substantially higher with the project for both AM and PM peak hours in 2020, as indicated in Table 3-20 and Exhibit 3-17. The greatest increase in person throughput is expected in the reverse-peak direction on I-90 (reverse peak is defined as eastbound in the AM peak period and westbound in the PM peak period) because light rail would provide a more reliable transportation option and would provide capacity in the direction opposite of vehicle travel in the reversible center roadway (no-build conditions only). In the reverse-peak directions, there would be no modification to the I-90 roadway (vehicular) capacity across Lake Washington.

Overall, the East Link Project would increase total person throughput by 14 to 25 percent compared to the no-build condition (with Stages 1 through 3 or Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project, respectively) in the 2020 AM peak hour, and a 5 to 21 percent increase in the PM peak hour, respectively.

In 2030, the East Link Project would increase total person throughput by 18 to 29 percent in the AM peak hour and 9 to 31 percent in the PM peak hour compared to the two no-build conditions. In every comparison with the No Build Alternative, the person throughput with East Link is higher in the westbound direction in year 2020 and 2030, higher in the eastbound direction in the AM peak hour (reverse-peak direction), and slightly lower (less than 4 percent in 2030) for the eastbound direction in the PM peak hour.

The lower eastbound PM person throughput is because of a relatively low throughput in the eastbound HOV lane that crosses the screenline. Lane changing associated with the transition of the general-purpose lane to an HOV lane near the Rainier Avenue South interchange and the additional vehicles involved in the lane changing due to the center roadway closure result in reduced throughput in the HOV lane. If the lane were managed to accommodate more people, the throughput should be comparable for the no-build and build conditions.

In terms of vehicle throughput, the project would have a similar to higher vehicle throughput compared to either of the two no-build conditions in the reverse-peak directions because roadway capacity would be unaffected in combination with people riding light rail. People riding light rail would slightly reduce congestion and, therefore, increase vehicle throughput.



[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project

■ SOV ■ HOV □ Transit

EXHIBIT 3-17
2020 and 2030 I-90 Peak-Hour Person Throughput by Mode at Lake Washington (Screenline 2)

TABLE 3-20
2020 and 2030 Vehicle and Person Peak-Hour Throughput for I-90 at Lake Washington (Screenline 2)

	2020 AM		2020 PM		2030 AM		2030 PM	
	Vehicles	Persons	Vehicles	Persons	Vehicles	Persons	Vehicles	Persons
Westbound								
No Build[a]	7,600	11,050	6,150	7,600	7,700	11,450	6,200	8,050
No Build[b]	8,100	11,600	6,300	7,850	8,100	11,900	6,400	8,400
East Link Project	7,450	12,850	6,650	9,950	7,550	13,600	6,650	10,700
Percent change in persons[c]	+16/+11		+31/+27		+19/+14		+33/+27	
Eastbound								
No Build[a]	5,050	6,050	6,650	10,500	4,950	6,000	5,850	9,600
No Build[b]	5,750	6,950	8,350	12,950	5,800	7,150	8,050	13,000
East Link Project	6,150	8,400	6,750	11,950	6,050	8,900	6,850	12,500
Percent change in persons[c]	+39/+21		+14/-8		+48/+24		+30/-4	
Total								
No Build[a]	12,650	17,100	12,750	18,100	12,650	17,450	12,050	17,650
No Build[b]	13,800	18,600	14,650	20,800	13,900	19,050	14,450	21,350
East Link Project	13,600	21,250	13,400	21,900	13,550	22,500	13,550	23,200
Percent change in persons[c]	+25/+14		+21/+5		+29/+18		+31/+9	

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
[c] Numbers indicate percent change between No Build Alternative (Stages 1 and 2) and East Link/ percent change between No Build Alternative (Stages 1 through 3) and East Link.
Note: Due to rounding, values may not sum correctly.

Although in most cases the East Link Project would increase the person throughput in the peak direction (the peak direction is westbound in the AM peak period and eastbound in the PM peak period), the vehicle throughput in the peak direction would be similar to improved compared to the No Build Alternative (with Stages 1 and 2 of I-90 Two-Way Transit and HOV Operations Project) or slightly reduced compared to the No Build Alternative (with Stages 1 through 3 of I-90 Two-Way Transit and HOV Operations Project). This decrease is due to a relatively low throughput in the eastbound HOV lane that crosses the screenline, as previously discussed. Table 3-20 provide Screenline 2 vehicle throughput for years 2020 and 2030.

Person and vehicle throughput at Screenline 2 for both the 77th Avenue SE eastbound HOV off-ramp design option and the design option without an HOV eastbound off-ramp to Mercer Island are expected to be similar (within 3 percent) to *Preferred Alternative A1* with the eastbound HOV off-ramp at Island Crest Way. These access modifications are not expected to substantially affect I-90 mainline operations because connections to Mercer Island residents to the south currently exist.

The operational option at the D2 Roadway and design option at the I-90 at Bellevue Way interchange would have person and vehicle throughput across Screenline 2 similar to the *Preferred Alternative A1*.

Screenline 3 (Mercer Slough)

Compared to Screenline 2, changes in throughput at Screenline 3 would be fewer between the no-build and build conditions because light rail would not cross this screenline and HOV lanes are already provided in this area. For the 2020 and 2030 total person throughput at Screenline 3, the East Link Project would increase total person throughput in both of the AM and PM peak hours when compared to the No Build Alternative with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project completed. Total person throughput would remain similar if Stage 3 of the I-90 Two-Way

Transit and HOV Project is completed as indicated in Table 3-21 and Exhibit 3-18.

The build condition would accommodate a higher person throughput than either of the two no-build conditions in the reverse-peak direction (eastbound in the AM and westbound in the PM). This is because the vehicle capacity would not change in this direction and people would choose to ride light rail. As people shift to ride light rail, vehicle congestion would decrease slightly and, therefore, vehicle throughput would increase.

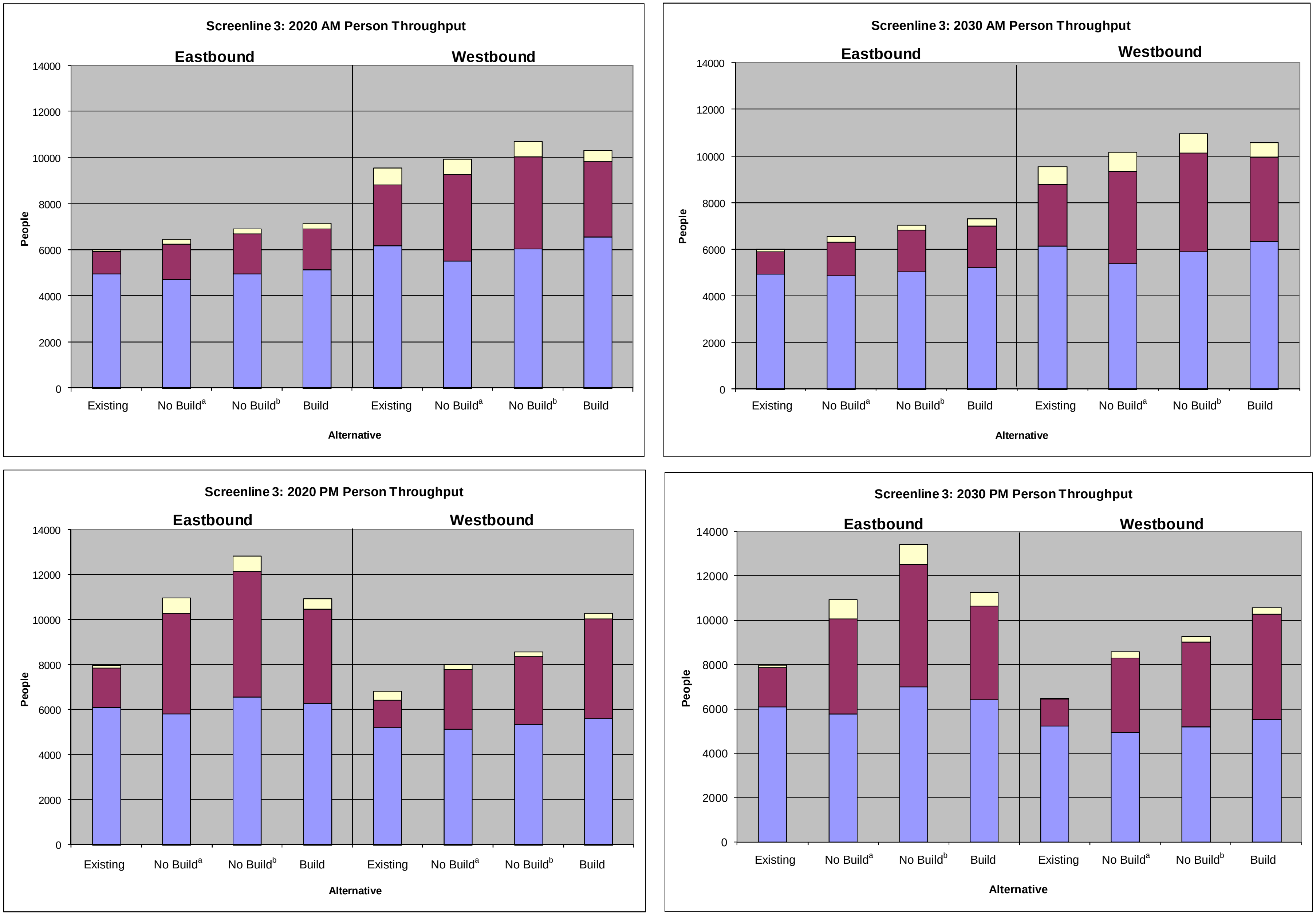
In the peak directions (westbound in the AM and eastbound in the PM), the build condition would generally increase person throughput compared to the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed, but would be similar or slightly decrease when compared to the no-build condition that includes Stage 3. This decrease in person throughput is most noticeable in the eastbound direction during the PM peak hour. As noted in the Screenline 2 (Lake Washington) discussion, the reduced eastbound (PM peak) HOV throughput would reduce the HOV throughput at Screenline 3.

In the 2020 and 2030 reverse-peak directions (eastbound in the AM and westbound in the PM), the vehicle throughput in the build condition would increase compared to either of the two no-build conditions, and would be similar or decrease in the peak directions; reasons for these changes are discussed earlier in this section. Overall, total vehicle throughput across Screenline 3 would increase compared to the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed, and would be similar compared to the no-build condition that includes Stage 3. Table 3-21 provide Screenline 3 vehicle throughput for years 2020 and 2030.

TABLE 3-21
2020 and 2030 Vehicle and Person Peak-Hour Throughput for I-90 at Mercer Slough (Screenline 3)

	2020 AM		2020 PM		2030 AM		2030 PM	
	Vehicles	Persons	Vehicles	Persons	Vehicles	Persons	Vehicles	Persons
Westbound								
No Build[a]	7,300	9,900	6,300	8,000	7,300	10,200	6,400	8,550
No Build[b]	7,950	10,700	6,650	8,550	7,950	10,950	6,850	9,250
East Link Project	8,150	10,300	7,550	10,250	8,100	10,600	7,600	10,550
Percent change in persons[c]	+4/-4		+28/+20		+4/-3		+23/+14	
Eastbound								
No Build[a]	5,400	6,400	7,900	10,950	5,500	6,550	7,800	10,950
No Build[b]	5,750	6,900	9,200	12,800	5,850	7,050	9,600	13,400
East Link Project	5,900	7,150	8,250	10,900	6,000	7,300	8,400	11,250
Percent change in persons[c]	+12/4		+0/-15		+11/+4		+3/-16	
TOTAL								
No Build[a]	12,700	16,350	14,200	18,950	12,850	16,700	14,200	19,500
No Build[b]	13,700	17,550	15,850	21,400	13,800	18,000	16,450	22,650
East Link Project	14,050	17,450	15,800	21,200	14,150	17,900	16,000	21,800
Percent change in persons[c]	+7/-1		+12/-1		+7/-1		+12/-4	

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
[c] Numbers indicate percent change between No Build Alternative (Stages 1 and 2) and East Link/percent change between No Build Alternative (Stages 1 through 3) and East Link.
Note: Due to rounding, values might not sum correctly.



[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project

🟦 SOV 🟥 HOV ☐ Transit

EXHIBIT 3-18
2020 and 2030 I-90 Peak-Hour Person Throughput by Mode at Mercer Slough (Screenline 3)

Vehicle and Person Demand Served

In conjunction with person and vehicle throughput, the percentage of the forecasted travel demand that can be accommodated was evaluated. This measure compares the person and vehicle throughput with the expected demand across each screenline. A percent served value less than 100 indicates congested conditions that limit the number of vehicles (or people) crossing the screenline. The ability to serve more of the demand indicates that congestion patterns might not be as significant and that congestion might not occur for as long a period. Table 3-22 provides the vehicle and person demand served across Screenlines 2 and 3 for year 2030 conditions.

At Screenline 2, the AM and PM peak-hour total (combined eastbound and westbound directions) vehicle- and person-demand served percentage would increase in the build condition compared to both no-build conditions. Total vehicle percent demand served would increase between 14 and 22 percent in the build condition compared to the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed; the increase would be between 2 and 4 percent with Stage 3 completed. Total person percent demand served would increase between 19 and 24 percent in the build condition compared to the no-build conditions with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed; the increase would be between 6 and 9 percent with Stage 3 completed. At Screenline 3, the build condition total (eastbound and westbound directions) vehicle and person demand served would increase between 9 and 17 percent compared to the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed. Compared to the no-build condition when Stage 3 is completed, the vehicle and person demand served would increase up to 4 percent.

Travel Time

In the 2020 and 2030 no-build conditions, travel times would continue to become longer as congestion would increase in the future. Table 3-23 lists 2020 and 2030 AM and PM peak-period travel times for SOVs, HOVs, and transit between Seattle and I-405, and the *Transportation Technical Report* (Appendix H1) further describes and compares the travel times. It is expected

TABLE 3-22
2030 Vehicle and Person Peak-Hour Demand Served for I-90 at Lake Washington (Screenlines 2 and 3)

	Vehicles			Persons		
Direction	**Demand**	**Throughput**	**Percent Served**	**Demand**	**Throughput**	**Percent Served**
Screenline 2						
AM Total						
No Build[a]	21,000	12,600	60.2	27,100	17,500	64.5
No Build[b]	20,900	13,900	66.4	27,000	19,100	70.7
Build	19,700	13,600	68.8	29,200	22,500	76.9
PM Total						
No Build[a]	22,200	12,000	54.3	30,000	17,700	58.9
No Build[b]	22,300	14,500	64.7	30,500	21,100	69.2
Build	20,500	13,500	66.1	31,800	23,200	73.1
Screenline 3						
AM Total						
No Build[a]	20,300	12,800	63.3	25,000	16,700	66.8
No Build[b]	20,300	13,800	67.9	25,300	18,000	71.0
Build	20,000	14,100	70.5	24,500	17,900	73.0
PM Total						
No Build[a]	22,300	14,200	63.8	29,200	19,500	66.7
No Build[b]	22,700	16,400	72.5	30,100	22,700	75.4
Build	21,500	16,000	74.4	28,800	21,800	75.8

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

that by 2030 in the no-build condition, SOV travel time from I-405 to Seattle in the AM peak period could more than double and take up to 27 minutes. In the eastbound direction, SOV travel time could increase by approximately 50 percent and would be close to 21 minutes. In the PM peak period, a similar increase in travel time is expected. In the westbound direction, to go from I-405 to Seattle, the trip would take close to 30 minutes—an increase of about 60 percent from existing conditions. In the eastbound direction, an SOV going from Seattle to I-405 could take close to 19 minutes. The following subsections provide travel time comparisons for each of the three modes (SOV, HOV, and transit) between the no-build conditions and conditions with the East Link Project.

SOV

With light rail in 2020 and 2030, SOV travel times in the AM peak period are expected to decrease by approximately 5 minutes in the westbound direction and increase by up to 4 minutes in the eastbound direction when compared to the No Build Alternative (with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project) in the AM peak period. In the 2020 PM peak period, SOV travel times are expected to be similar (eastbound direction) or improve by up to 8 minutes (westbound direction) when compared to the No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project. By 2030, smaller travel time improvements in the PM peak period are expected as congestion would increase in the build condition. In the 2030 PM peak period, SOV travel times with East Link would improve by 6 minutes in the westbound direction and travel times would be similar in the eastbound direction compared to the No Build Alternative with the I-90 Two-Way Transit and HOV Project Stages 1 and 2. Westbound travel time improvements would be attributed to a shift from people driving their automobiles to riding light rail and the additional capacity provided with the outer roadway HOV lanes.

In year 2020, SOV travel times with East Link compared to the No Build Alternative that assumes the I-90 Two-Way Transit and HOV Project Stages 1 through 3 are completed would be similar (eastbound direction) or improve by up to 3 minutes (westbound direction) in the AM peak period. Travel time comparisons in the PM peak period would be similar to. In year 2030, SOV travel time comparisons between these two conditions in the AM peak period would be similar to those in 2020. In the PM peak period, westbound travel times with light rail are expected to improve by approximately 6 minutes and improve by about 2 minutes in the eastbound direction compared to the No Build Alternative, assuming that I- 90 Two-Way Transit and HOV Operations Project Stages 1 through 3 are completed.

SOV travel times between Seattle and Mercer Island would remain similar or improve by as much as 2 minutes with East Link compared to the No Build Alternative, except in the PM eastbound direction. In this direction, travel times from Seattle to Mercer Island would take between 6 (using the reversible roadway) and 12 (using the eastbound mainline roadway) minutes with the No Build Alternative, but would take about 11 minutes with East Link. For trucks, a similar travel time comparison between the no-build conditions and the East Link Project would be expected because they also travel in the general-purpose lanes.

HOV and Bus Transit

HOV and bus travel times on I-90 in years 2020 and 2030 under the No Build Alternative (with only the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2) would stay similar or get longer than existing conditions as congestion would increase in the future. HOV and bus travel times would be similar in the peak direction and improve in the reverse-peak direction for East Link and the No Build Alternative that assumes the I-90 Two-Way Transit and HOV Project is completed (Stages 1 through 3) compared to existing conditions. In the AM and PM peak periods, it could take between 10 and 15 minutes for an HOV to travel between Seattle and I-405 for the No Build Alternative (with only Stages 1 and 2).

For the No Build Alternative (Stages 1 through 3), HOV travel between Seattle and I-405 could take between 10 and 17 minutes. With East Link, it would take between 11 and 15 minutes. Buses traveling along I-90 in the reverse-peak direction would be expected to have similar or improved travel times because the outer HOV lane would provide buses with a faster lane than the general-purpose lanes they would be required to use when the reversible center roadway would be operating in the opposite direction. In the peak directions, buses travelling between Seattle and I-405 would have up to 3 minutes longer travel time with the East Link Project than in either of the no-build conditions.

Light rail travel between Seattle and Mercer Island and between Seattle and Bellevue Way would take 8 and 12 minutes, respectively; this would be a substantial improvement compared to an SOV trip, which could take up to 15 minutes between Seattle and Mercer Island and up to 24 minutes between Seattle and Bellevue Way in the No Build Alternative.

TABLE 3-23
2020 and 2030 Travel Times on I-90 between Seattle and I-405 by Mode for No Build Alternative and Light Rail (minutes)

Travel Time Path Endpoint			**AM Peak Period**									**PM Peak Period**								
			SOV			**HOV**			**Transit[d]**			**SOV**			**HOV**			**Transit[d]**		
Year	**Beginning Point**	**Ending Point**	**NB[a]**	**NB[b]**	**Bld[c]**	**NB[a]**	**NB[b]**	**Bld[c]**	**NB[a]**	**NB[b]**	**Bld[c]**	**NB[a]**	**NB[b]**	**Bld[c]**	**NB[a]**	**NB[b]**	**Bld[c]**	**NB[a]**	**NB[b]**	**Bld[c]**
Westbound Outer Roadway																				
2020	I-405	I-5 to Downtown Seattle	27	24	22	14	12	11	- /-	-/-	13/12	29	28	21	13	12	12	16/15	17/12	-/12
2030	I-405	I-5 to Downtown Seattle	27	25	22	14	13	11	-/-	-/-	16/12	29	29	23	13	12	12	17/15	17/12	-/12
Reversible Center Roadway[e]																				
2020	I-405	Seattle (5th Avenue South)[f]	N/A	N/A	N/A	10	11	N/A	13/11	14/12	12[g]/ -	N/A	N/A	N/A	10	10	N/A	13/11	14/11	12[g]/-
2030	I-405	Seattle (5th Avenue South)[f]	N/A	N/A	N/A	10	12	N/A	13/11	13/13	12[g]/ -	N/A	N/A	N/A	10	10	N/A	13/11	14/11	12[g]/-
Eastbound Outer Roadway																				
2020	I-5 from Downtown Seattle	I-405	15	19	19	15	17	14	16/14	14/13	-/14	16	17	17	14	10	12	-/-	-/-	17/14
2030	I-5 from Downtown Seattle	I-405	16	21	20	15	17	15	16/14	14/13	-/15	16	19	17	13	11	12	-/-	-/-	16/14

[a] The No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] The No Build Alternative with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

[c] "Bld" represents the East Link Project 's *Preferred Alternative A1* (joint bus/light rail operations in the D2 Roadway, an eastbound HOV direct-access off-ramp at Island Crest Way, and both eastbound and westbound HOV direct-access ramps preserved at Bellevue Way).

[d] Numbers are for transit routes with stops on Mercer Island /transit routes with no stops on Mercer Island.

[e] Reversible center roadway operates westbound in the AM peak and eastbound in the PM peak for the No Build Alternative; it would be used by light rail with the project.

[f] Travel time is to/from 5th Avenue South via the I-90 D2 Roadway.

[g] Light rail travel time between International District/Chinatown Station and South Bellevue Station.

Note: Travel times are rounded to the nearest minute.

N/A = not applicable because the mode is not eligible to travel this path or the path is not prohibited.

NB = No Build Alternative

- = Buses do not travel on this roadway during this period and/or do not travel between these points.

The *Preferred Alternative A1* assumes joint use of the D2 Roadway. For the operational option that has exclusive light rail use in the D2 Roadway, buses would be rerouted to other roadways to access I-90 from South Seattle (such as 4th Avenue South), and the bus travel time would increase. With the *Preferred Alternative A1*, buses would experience up to a 2-minute savings inbound in the AM peak period to Downtown Seattle and experience up to a 6-minute savings outbound in the PM peak period from Downtown Seattle on I-90 compared to the operational option in which buses are not eligible to use the D2 Roadway. Some of this savings would be reduced when buses travel along 5th Avenue South to and from D2 Roadway. It would take up to 2 additional minutes of time to travel along 5th Avenue South compared to 4th Avenue South. Additionally, depending on the joint-use operating policy of the D2 Roadway, up to 3 additional minutes of average delay, in either direction, could be incurred by buses while waiting for clearance to enter the D2 Roadway. However, during evening events at the stadiums, bus routes along 4th Avenue South would incur additional travel time due to increased congestion along this street.

For the design option with an HOV off-ramp to 77th Avenue SE, HOV and bus travel times are expected to be approximately 1 to 2 minutes faster in both the AM and the PM peak hours when compared to the Island Crest Way off-ramp in the *Preferred Alternative A1*. Compared to the *Preferred Alternative A1*, HOV and bus travel times are similar in both AM and PM peak hours for the design option that does not include an eastbound HOV off-ramp and uses the 77th Avenue SE general purpose ramp only.

The preferred alternative preserves both the eastbound and westbound HOV ramps from I-90 to Bellevue Way SE as preferred by WSDOT. For the design option at I-90 and Bellevue Way interchange that would close the eastbound HOV off-ramp to Bellevue Way, HOVs using this ramp would reroute to use the general-purpose Bellevue Way off-ramp. Closing the eastbound HOV ramp would have a negligible effect on travel time for HOVs, as minimal congestion is expected between Mercer Island and the Bellevue Way interchange. This is a result of the I-90 Two-Way Transit and HOV Operations Project improvements, which include an auxiliary lane between East Mercer Way and I-405 ramps.

For Alternative B1, which closes the westbound direct-access HOV on-ramp from Bellevue Way, HOVs traveling between Bellevue and Seattle would use the general-purpose Bellevue Way on-ramp and weave across the general-purpose lanes to enter the HOV lane. This maneuver would increase the westbound HOV travel time from Bellevue Way to Seattle by approximately 8 to 12 minutes, depending on the peak period.

With any operational option at the D2 Roadway or design option at the eastbound Mercer Island HOV off-ramp or HOV ramps at the Bellevue Way interchange, the travel times for the other vehicles (SOV and trucks) on I-90 would not be expected to change from the travel times already described.

Congestion and Level of Service

Congestion on I-90 is expected to be worse in the future, as indicated by longer travel times described in the previous section. Therefore, the LOS on I-90 would continue to degrade and generally operate at LOS E or F conditions throughout the peak periods with the No Build Alternative. Without light rail, increased congestion on I-90 is expected to occur for longer distances and longer periods each day. More congestion and longer travel times would make travel more difficult between Seattle and Bellevue, two of the key employment and population centers of Puget Sound. Congestion and resulting vehicle hours of travel would be expected to extend for longer periods, exceeding 3 hours for each peak period. Without light rail's ability to move more people, an imbalance in vehicle capacity with the reversible center roadway across I-90 would impede efficient and reliable transit service to the growing residential and commercial areas on the Eastside.

The congestion maps in Exhibit 3-19 indicate vehicle speeds over time (vertical axis) and distance (horizontal axis) for the year 2030. The time indicated on these maps is for a 2.5-hour duration in both the AM (6:30 to 9 a.m.) and PM (3:30 to 6 p.m.) peak periods. The distance covers I-90 from the western terminus (west of I-5) to east of the I-405 interchange. On the map, areas with yellow, red, and black are generally considered LOS E or F conditions with vehicle speeds typically at or below 55 mph. Green areas generally indicate LOS D or better conditions with vehicle speeds over 55 mph. This section focuses on year 2030 conditions, as the comparison between no-build and build conditions in year 2020 is similar to year 2030.

In the AM peak period, congestion in the westbound direction would slightly improve under the No Build Alternative if the I-90 HOV lanes are completed by the I-90 Two-Way Transit and HOV Operations Project (Stages 1 through 3). With the East Link Project, congestion in the westbound direction would have traits similar to those of the No Build Alternative with the I-90 Two-Way Transit and HOV Project Stages 1 and 3, although less congestion would occur across the I-90 bridge. In the eastbound direction with East Link operating, there would be less AM peak congestion between the I-5 and Mount Baker Tunnel area as people shift modes and ride light rail.

In the PM peak period, the freeway LOS would generally operate at LOS E or F conditions throughout the peak period. The center roadway would continue to be underutilized because access is constrained by congested roadways and traffic signals. These constraints reduce the ability to move high volumes of people to and from key urban centers across the lake. With the project, congestion in the westbound direction would be substantially reduced compared to either of the two no-build conditions; as a result of people riding light rail in the corridor. In the eastbound direction, congestion would be heavier in the Rainier Avenue South interchange and Mount Baker Tunnel area because the reversible center roadway would be closed, but there would be less congestion east of this area, near Mercer Island, because slightly less vehicle throughput could occur at the Rainier Avenue South/Mount Baker Tunnel area.

With the operational option to have exclusive light rail in the D2 Roadway, there would be no change in the eastbound or westbound congestion on I-90 in the AM or PM peak period compared to the *Preferred Alternative A1*. AM and PM peak period congestion on I-90 would also be comparable between the *Preferred Alternative A1* and either of the eastbound Mercer Island HOV off-ramp design options. If either of the Bellevue Way HOV direct-access ramps (westbound on-ramp and eastbound off-ramp) were closed, the impact on I-90 congestion would be nearly negligible. Minor variations would occur, but they would not be noticeable enough to affect overall congestion.

In addition to the general I-90 operating conditions, the performance of the HOV lanes was evaluated to identify where they would fail to meet WSDOT’s HOV Speed and Reliability Standard of vehicles travelling at least 45 mph during the peak commuting hour 90 percent of the time. It was assumed in the traffic analysis that, in no-build conditions, Mercer Island SOVs would not be allowed in the outer roadway HOV lanes but would have access to the center roadway. However, in the build condition, all vehicles traveling to and from Mercer Island were assumed for the traffic analysis to be able to use the outer roadway HOV lanes. This assumption does not represent approval of SOVs using the outer roadway HOV lanes. Any changes to the HOV lane eligibility such as tolling or managed lanes or Mercer Island SOV use would be addressed in a future analysis, approval, and agreement.

During the AM peak period in the 2030 no-build condition, the westbound HOV lane would not meet WSDOT’s HOV Speed and Reliability Standard near Rainier Avenue South, as the lane transitions from an HOV lane to a general-purpose lane and vehicles begin to slow due to the congestion in the general-purpose lanes. In the 2030 *Preferred Alternative* condition, the westbound HOV lane would meet WSDOT’s HOV Speed and Reliability Standard at all locations in the westbound direction.

In the eastbound direction, the HOV lane in both the 2030 no-build and *Preferred Alternative* conditions would meet WSDOT’s HOV Speed and Reliability Standard at all locations except Rainier Avenue South interchange, where the general-purpose lane transitions to an HOV lane and vehicles begin to accelerate as they leave the congested general-purpose lanes.

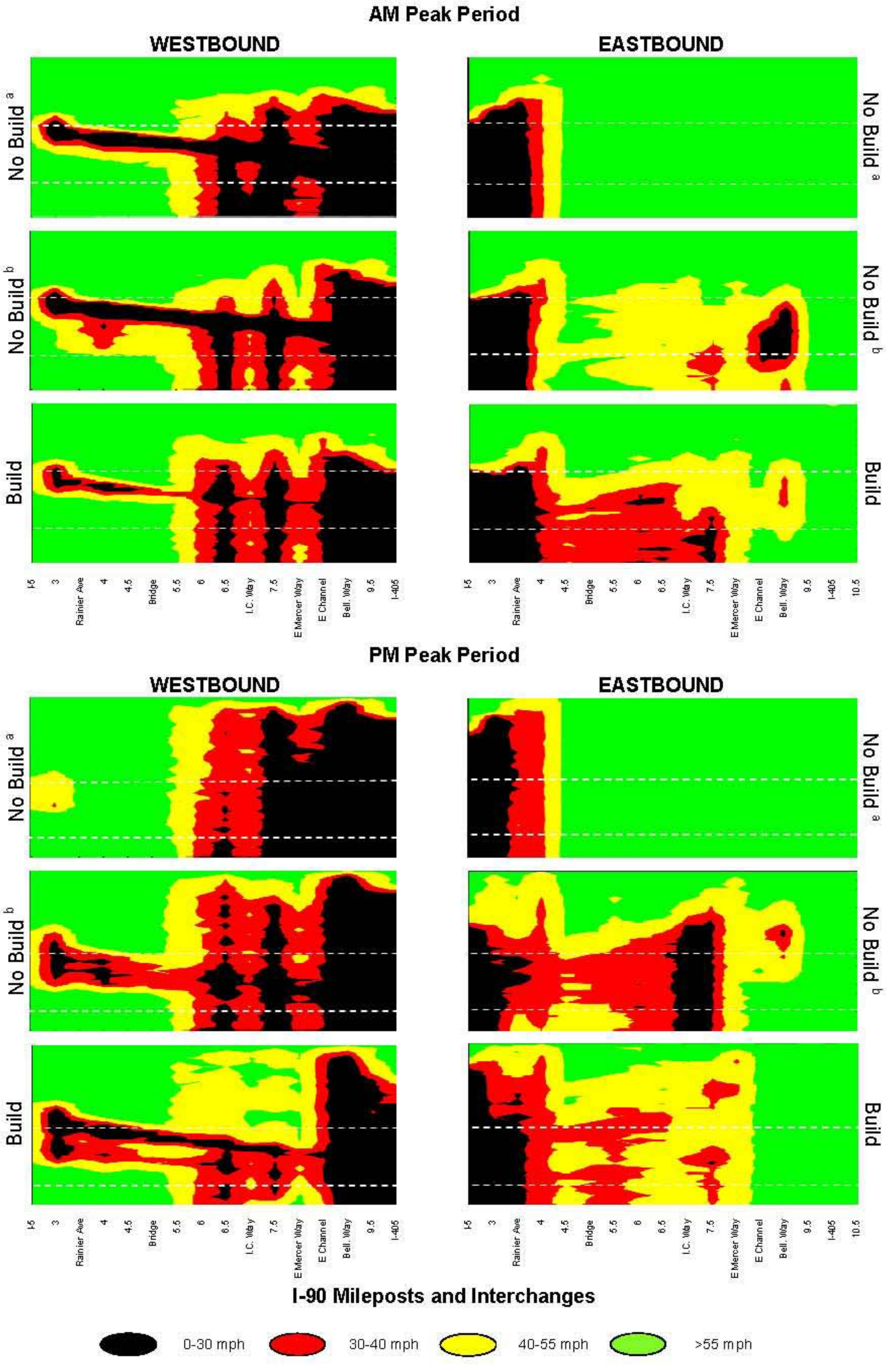
With the project, under the design option where the westbound HOV direct-access on-ramp from Bellevue Way is closed (Alternative B1), HOVs would use the general-purpose on-ramp and weave across the general-purpose lanes to enter the HOV lane. This would likely occur near Island Crest Way and would degrade the HOV lane performance at this location as vehicles travel at slow speeds.

During the PM peak period in the 2030 no-build condition, the westbound HOV lane would have some increased congestion between Island Crest Way and Rainier Avenue South. In the 2030 *Preferred Alternative* condition, the westbound HOV lane would meet WSDOT’s HOV Speed and Reliability Standard in all locations except near Rainier Avenue South, where a small amount of congestion would be expected due to the weaving described in the previous paragraph.

In the 2030 no-build condition, the eastbound HOV lane would meet WSDOT’s HOV Speed and Reliability Standard. In the 2030 *Preferred Alternative* conditions, the eastbound HOV lane would perform similarly to the no-build condition except that it would operate worse at the transition to an HOV lane near Rainier Avenue South due to weaving.

Safety

Implementing the East Link Project would not increase the total number of accidents in the corridor because the number of accidents in the corridor would be similar to no-build conditions. Overall, with more people moving across Lake Washington with East Link and a similar number of accidents, the overall collision rates on I-90 would improve with the project.



[a] The No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] The No Build Alternative with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

EXHIBIT 3-19
I-90 Year 2030 AM and PM Peak-Period Vehicle Speeds in General-Purpose Lanes

The methodology used to predict future accident frequency for the I-90 roadways is predicated on the basis that accident rates are not uniform throughout the day. As volumes increase and congestion worsens, the accident frequency increases, resulting in higher peak-period accident rates. Based on the I-90 patterns observed, existing accident rates (using 2004 to 2008 accident data) were calculated for four time periods—morning, afternoon, midday, and evening—plus early morning periods. Additionally, a qualitative assessment regarding the proposed access changes with the East Link Project was prepared. Specifically, access modifications that might influence lane changes from a general-purpose on-ramp to the center roadway or outer roadway HOV lane and from the center roadway or outer roadway HOV lane to a general-purpose off-ramp.

It was estimated that, in 2030, East Link would have no impact on the total number of crashes in the I-90 corridor (the westbound outer roadway, eastbound outer roadway, and reversible center roadway combined). East Link would replace the vehicle operations in the reversible center roadway with light rail; as a result, the six to seven annual vehicle accidents predicted in the reversible center roadway would be eliminated. This number is offset by the expected increase in vehicle accidents in the outer mainline roadways as East Link shifts vehicles to the outer eastbound and westbound roadways. When East Link is constructed, the higher VMT in the outer mainline roadway can result in a 1.4 percent increase (a potential for five additional accidents per year) in crashes when compared to the No Build Alternative with the I-90 Two-Way Transit and HOV Project Stages 1 through 3.

Measuring the accident rate in terms of how many people are moved across the lake is another method for assessing safety with the development of the light rail system. Because more people would travel through the corridor with the East Link Project and the expected accident frequency is expected to be similar to the No Build Alternative, the accident frequency on I-90 in terms of moving people would be lower. Overall, the East Link Project would eliminate the potential vehicle conflicts for all modes in the center roadway, improving traveler safety.

Specific to the D2 Roadway operations with light rail, if designated for joint use with buses, there would be about 30 vehicles (including light rail) per hour during the peak periods, or a vehicle about every 2 minutes using this roadway. This number of light rail and bus vehicles would be substantially less than the maximum number of vehicles for safe operations that was determined for Central Link and the bus/light rail joint operations in the Downtown Seattle Transit Tunnel. The findings from the *Central Link Initial Segment Environmental Assessment* (Sound Transit, 2002) established that 60 buses and up to 10 trains per hour would operate jointly. To provide safer vehicle separation and management of bus and light rail vehicle movements on the D2 Roadway, a vehicle identification and signal system would be installed. In addition, bus on-ramps to the D2 Roadway would be equipped with gates to prevent vehicles from entering this roadway. These gates would be raised when buses designated to enter the D2 Roadway are detected.

Qualitative Safety Review of Lane Changes near Interchanges

As mentioned earlier, a qualitative assessment was completed of lane changes from a general-purpose on-ramp to the center roadway or outer roadway HOV lane and from the center roadway or outer roadway HOV lane to a general-purpose off-ramp. This assessment only compared the build condition to the no-build condition with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project completed, as these two conditions include the completed outer roadway HOV lane. Data used in this assessment were based on the 2030 peak-hour throughput presented earlier in this section.

In the no-build condition, the reversible center roadway is open to westbound HOVs and Mercer Island traffic in the AM peak hour and eastbound HOVs and Mercer Island traffic in the PM peak hour; therefore, the East Link Project would result in no physical roadway differences in the off-peak direction, except for eastbound I-90 through downtown Mercer Island where the proposed ramp options result in slight differences during both AM and PM peak periods. Thus, the review of weaving volumes focuses on the following three lane-changing movements:

- **Westbound I-90 from the center roadway or the HOV lane to the ramp to I-5 northbound (AM peak hour) and northbound I-5 to the eastbound I-90 entrance into the center roadway or the HOV lane (PM peak hour):** The number of lane changes to/from I-90 and the northbound I-5 ramps in the peak travel direction for the AM and PM peak hour would likely decrease with the East Link Project due to the closure of the center roadway. This should reduce the potential for related incidents in the build condition compared to the no-build condition with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project completed.
- **76th Street westbound on-ramp to the HOV lane (AM peak hour):** The 76th Street on-ramp to

westbound I-90 would see an increase in the expected number of lane changes; however, the frequency should be negligible in terms of the overall safety impact on the corridor.

- **Eastbound I-90 from the HOV lane to either the 77th Street or Island Crest Way off-ramps (AM and PM peak hours):** Eastbound I-90 weaving volumes to the 77th Street off-ramp and Island Crest Way off-ramp would likely increase in comparison with the no-build condition. This is due to the fact that, under build conditions, HOV vehicles are required to weave across several lanes of traffic to access general-purpose Mercer Island off-ramps at 77th Street and Island Crest Way. Under no-build conditions, this weaving condition is less significant because HOV vehicles are able to use the eastbound center roadway to access Mercer Island.

Overall, the East Link Project would result in a lower number of lane changes, but this would be offset by a higher volume of mainline general-purpose vehicles than the no-build condition. Appendix H1, *Transportation Technical Report*, of this Final EIS further describes the qualitative safety review of the lane changes at the analyzed interchanges.

3.5.3.4 Construction Impacts

This section discusses potential impacts on I-90 and on other regional freeways. Appendix H1, *Transportation Technical Report*, of this Final EIS provides further information and data supporting the conclusions described in this section.

Interstate 90

The impacts due to construction of the light rail along I-90 were analyzed assuming a 2020 construction year. Before light rail is constructed on I-90, the I-90 Two-Way Transit and HOV Project would be completed and the reversible center roadway would be closed. As a result, all bus routes, HOVs, and Mercer Island drivers would be rerouted to the outer roadways. To construct East Link along I-90, the reversible center roadway and D2 Roadway would be affected. Constructing light rail tracks on these facilities would require their full closure. Buses that currently travel on the D2 Roadway would be detoured to adjacent I-90 accesses, either the SR 519/South Atlantic Street or Rainier Avenue South interchanges. While most construction activities would be on the reversible center roadway, activities might occur for the short term along the I-90 shoulder and outer roadway HOV lanes near the East Channel Bridge and Rainier Avenue South interchange.

The amount of automobile congestion on the outer roadways during the East Link construction period would be similar to East Link operations because the reversible center roadway would be removed in both of these conditions. Therefore, the vehicle travel times during the construction period would be similar to the travel times during East Link operations. Although the number of automobiles able to travel across Lake Washington on I-90 would be similar in both of these conditions, the auto demand to use the outer roadway would be greater in the construction period because light rail would not be operating. The person throughput would be less in the construction period than during East Link operations because the reversible center roadway would not be operational for vehicles or light rail; therefore fewer people would cross Lake Washington.

Compared to the No Build Alternative with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project completed, the SOV travel times in the construction period would generally be similar or better because the outer roadway HOV lanes would be constructed prior to the construction period. Vehicle throughput during the construction period compared to the No Build Alternative with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project would be similar in the peak directions and higher in the reverse-peak directions because of the completion of the outer roadway HOV lanes. Person throughput, with the same comparison, would be less in the peak directions and higher in the reverse-peak directions.

Similar to the previous comparison, when East Link construction is compared with the No Build Alternative when all three stages of the I-90 Two-Way Transit and HOV Operations Project are completed, the SOV travel times would generally be similar or better during the construction period. One reason for this is the lower number of lane changes near the closed center roadway ramps creating less congestion. Person throughput in the reverse-peak directions (eastbound in the AM period and westbound in the PM period) at Screenline 2 (I-90 Floating Bridge) would be slightly higher during the East Link construction period than for the No Build Alternative when all three stages of the I-90 Two-Way Transit and HOV Project are completed. This is partly because the traffic analysis assumed Mercer Island drivers would be eligible to use the outer roadway HOV lanes when the center roadway is closed.

In the peak directions (westbound in the AM period and eastbound in the PM period), person throughput at Screenline 2 (Lake Washington) is expected to be higher in the No Build Alternative when all three stages of the I-90 Two-Way Transit and HOV Project are completed than in the East Link construction period as the center roadway and the outer roadway HOV lanes are open in this No Build Alternative. Although more people would cross Lake Washington in the No Build Alternative, during East Link construction the outer roadway HOV lanes would accommodate a substantial portion of the vehicles displaced from the center roadway as the center roadway is underutilized due to its connections not providing enough capacity to effectively use the two lanes in the center roadway.

At the I-90 and Bellevue Way interchange, the westbound mainline, HOV direct-access ramps, and ramps to and from I-90 to the east would experience short-term partial (likely nighttime) closures for construction of the elevated structures for the *Preferred Alternative B2M* or Alternatives B2A, B2E, B3, and B7. Alternative B1 would not require these closures because it would be at-grade underneath the mainline roadway. During periods when ramps are closed, vehicles would be detoured to the corresponding general-purpose or HOV ramp, but vehicles could also be detoured to another interchange.

Other Regional Freeways

Short-term impacts on I-405 and SR 520 are expected with the light rail construction. All Segment C alternatives would close multiple lanes of I-405, likely at night or on weekends depending on the construction method of the elevated structure over I-405, potentially causing drivers to detour and take alternative routes. I-405 impacts due to *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E would occur adjacent to the NE 6th Street direct-access ramps and NE 8th Street ramps to and from the south of NE 8th Street. Impacts associated with Alternatives C3T, C4A, C7E, and C8E would occur immediately north of the NE 12th Street overpass across I-405.

Along the SR 520 mainline, impacts would be limited to short-term shoulder or lane closures. SR 520 eastbound on- and off-ramps from 148th Avenue NE to West Lake Sammamish Parkway would experience shoulder or lane closures and temporary lane shifts for all Segment D and E alternatives, except Alternative D3 would not have any impacts to the 148th Avenue NE interchange, and when the elevated portions of Alternatives E1 and E4 cross SR 520 near the Lake Sammamish Parkway interchange and the elevated portion of Alternative E1 crosses SR 520 near the SR 202 interchange. These elevated crossings would result in each direction of SR 520 being closed at night, causing drivers to detour and take alternative routes. The westbound on-ramp and eastbound off-ramp at the SR 520 and SR 202 intersection would be reconstructed to provide clearance for the light rail structure that would be constructed for *Preferred Alternative E2* and Alternative E4.

3.5.4 Potential Mitigation

No mitigation would be necessary along the I-90 mainline during project operations because the project would have either similar or improved vehicle travel times and increased person throughput across Lake Washington in both the AM and PM peak periods compared to the No Build Alternative. In addition, before the East Link Project is constructed, the I-90 Two-Way Transit and HOV Project would be completed to provide HOV lanes on I-90 west to Seattle that replace the reversible center roadway used by East Link. During East Link construction, Sound Transit would coordinate with WSDOT on incident management, construction staging, and traffic control where the light rail construction may affect freeway traffic. Sound Transit would also coordinate with WSDOT to disseminate construction closure information to the public as needed.

For potential mitigation regarding transit on I-90, including mitigation for transit when the D2 Roadway is closed, refer to Section 3.4. For potential mitigation regarding freight on I-90, refer to Section 3.8. For potential intersection mitigation at or near I-90 ramp terminals, refer to Section 3.6.5.

3.6 Arterials and Local Streets

3.6.1 Methodology

This section describes the methodology applied to the analysis of existing conditions and environmental impacts on arterial and local street transportation elements, including roadway characteristics, intersection levels of service, safety, and parking.

3.6.1.1 Operations and Level of Service

Existing intersection vehicle movement counts were collected for the daily and AM and PM peak periods from local and state agencies (WSDOT, City of Seattle, City of Mercer Island, City of Bellevue, and City of Redmond). When study intersection count data were not available, new counts were acquired for the project. Additional information that was used in the intersection analysis included lane geometry, existing traffic signal timing, truck percentages, on-street parking, proximity to bus stops, and speed limits.

The quality of roadway traffic operations is described in terms of LOS. LOS grades range from LOS A to F, where LOS A represents the best operation (most vehicles do not stop at all) and LOS F represents the poorest operation (most of the drivers stop and will wait more than a minute until proceeding through the intersection). Traffic volumes were analyzed using *Highway Capacity Manual* methodology (Transportation Research Board [TRB], 2000), and LOS was calculated at signalized and unsignalized intersections. A more detailed discussion of the intersection analysis, results, and LOS descriptions is provided in the *Transportation Technical Report*.

3.6.1.2 Traffic Safety

Accident data for arterial intersections were collected from each jurisdiction and reviewed within the study area. Existing accident rates were calculated as the number of accidents per million entering vehicles (MEV). An assessment of the potential for accidents to occur with each alternative is provided based on existing accident patterns and how the East Link track profile aligns with roadway operations.

3.6.1.3 Parking

The analysis of parking supply and usage and of potential parking impacts from the East Link Project focused on areas with the greatest potential impact within an approximately 0.25-mile radius of stations. Parking supply and demand data were collected during spring 2007 for the area surrounding each proposed station. The survey included a space occupancy count, taken once during the morning and afternoon on a weekday. The time of the count was outside the peak periods to reflect longer-duration parking. The time periods selected represent "typical" conditions for parking demand based on the type of land use surrounding each station. Parking supply and demand were inventoried for two types of on-street parking: unrestricted and restricted. Restricted on-street parking includes all on-street parking that is restricted by meters, time limit signs, parking zones, or other restrictions.

3.6.2 Affected Environment

Because this Affected Environment (existing conditions) section was based on the year 2007, a few projects (such as some of the projects in the I-405 program, the NE 10th Street extension in Downtown Bellevue, and other minor intersection improvements) that have been constructed are included in the future no-build condition. Refer to the *Transportation Technical Report* for the list of these already completed projects.

3.6.2.1 Intersection Operations and Level of Service

Intersections were analyzed to understand whether they are operating acceptably or failing. Intersections are considered failing when they do not operate at or better than the agency's intersection LOS standard. Intersections that fail typically mean that vehicles incur substantial delay and queuing. Table 3-24 lists the LOS standards for each of the jurisdictions in the East Link study area. These standards were compared to the existing and future intersection LOS results to indicate when an intersection is operating acceptably or failing. The following subsections summarize existing LOS conditions in existing AM and PM peak hours at the study area intersections that were analyzed.

TABLE 3-24
Intersection Level of Service Standards

Jurisdiction	LOS Standard
Seattle	LOS D
WSDOT	LOS E
Mercer Island	LOS C
Bellevue: Segment B	LOS D
Bellevue: Segment C	LOS E
Bellevue: Segment D	LOS E
Redmond: Segments D and E	LOS E

Segment A

In Segment A, 11 intersections in Seattle and 20 intersections on Mercer Island were analyzed for existing AM and PM peak-hour conditions. Five of the intersections in Seattle and 13 of the intersections on Mercer Island are within WSDOT's jurisdiction because the intersection is at the ramp end or located near a ramp.

Six intersections in Segment A currently fail to meet the LOS standards in the existing condition: five in the PM peak hour and one in the AM peak hour. Out of all the intersections that fail, most operate at LOS E or F except for the 77th Avenue SE and North Mercer Way intersection on Mercer Island (LOS D in AM peak hour). Other failing intersections are at or near I-90 ramps: I-90 at 4th Avenue S in Seattle (western terminus of I-90) and East Mercer Way at the I-90 westbound off-ramp in the PM peak hour. The three other failing intersections in the PM peak hour are at S Dearborn Street and Rainier Avenue S, S Royal Brougham Way and 4th Avenue S, and 77th Avenue SE and SE 27th Street.

Segment B

In Segment B, 13 intersections in Bellevue and 6 intersections in WSDOT's jurisdiction were analyzed for existing PM peak-hour conditions. Four intersections—118th Avenue SE and SE 8th Street, 112th Avenue SE and SE 15th Street, Bellevue Way SE and SE 30th Street, and Bellevue Way SE and South Bellevue Park-and-Ride Lot—currently operate at LOS F in the PM peak hour. All four intersections are close to interstate facilities. All other intersections within Segment B meet the applicable intersection operation standard.

Segment C

In Segment C, 36 intersections in Bellevue and 7 intersections in WSDOT's jurisdiction were analyzed for PM peak-hour conditions. Of the 43 study intersections in Segment C, only the intersection at NE 8th Street at 112th Avenue NE operates at LOS F in the PM peak hour. Twelve intersections operate at LOS D or E, which indicates that these intersections are operating near or at capacity.

Segment D

In Segment D, 16 intersections in Bellevue and 12 intersections in Redmond were analyzed for PM peak-hour conditions. Of the 28 intersections studied in Segment D, 5 are in WSDOT's jurisdiction. None of the intersections in Segment D currently operate at LOS F. Three intersections along 148th Avenue NE operate at LOS E: SR 520 westbound ramp, NE 24th Street, and 20th Avenue NE. All other intersections operate at LOS D or better. Generally, the worst operating intersections are located along the highest-volume and most congested arterials: 140th Avenue NE, 148th Avenue NE, 20th Avenue, and 156th Avenue NE. An analysis of the AM peak hour along 156th Avenue NE and NE 40th Street was prepared because of the unique travel patterns created by the surrounding land uses. This analysis included five intersections and all those intersections met agency LOS standards.

Segment E

In Segment E, 22 intersections are in Redmond and 3 are in WSDOT's jurisdiction. The intersections of NE Leary Way and West Lake Sammamish Parkway, Avondale Road NE and NE Union Hill Road, and SR 202 and East Lake Sammamish Parkway operate at LOS F in the PM peak hour. The intersection of SR 202 and SR 520 westbound ramps operates at LOS E, while all other intersections in Segment E operate at or better than LOS D.

3.6.2.2 Traffic Safety

None of the study area intersections in Seattle have yearly accident totals higher than the City's standard 10 or more accidents per year at a signalized intersection and 5 or more accidents at an unsignalized intersection. Of the study intersections, the Rainier Avenue S and S Massachusetts Street intersection has the highest number of accidents, with seven accidents per year. The highest intersection accident rate on Mercer Island is at Island Crest Way and the I-90 eastbound off-ramp, with a rate of 0.75 accidents per MEV.

The intersection with the highest accident rate in Segment B is at 118th Avenue SE and SE 8th Street, with a rate of 0.27 accidents per MEV. In Segment C, two intersections have accident rates near or above 1.00 accident per MEV: 112th Avenue NE at NE 8th Street/I-405, and 110th Avenue NE at NE 10th Street. The highest accident rate in Segment D is at 130th Avenue NE and NE 20th Street, with an accident rate of 0.72 accidents per MEV. In Segment E, two intersections have intersection accidents rates over 1.00 accident per MEV: 164th Avenue NE and NE 76th Street and at 166th Avenue NE and SR 202, which have accident rates of 1.51 and 1.32 accidents per MEV, respectively.

3.6.2.3 Parking

Areas surrounding the proposed light rail stations have an on-street parking utilization rate of 88 percent or less, indicating that there is generally available on-street parking. Over half of the areas surrounding stations have a parking utilization of 50 percent or less.

Table 3-25 lists the existing unrestricted on-street parking utilization and supply information near the proposed stations. Restricted parking is not as likely to be used by light rail riders. Parking impacts identified due to the East Link Project primarily affect unrestricted parking near light rail stations, as discussed in the following Environmental Impacts section. In Segment A, 26 time-restricted on-street parking stalls with a utilization of 23 spaces were identified on Mercer Island. The parking survey on Mercer Island had the highest utilization rate in the study area at 68 percent. The parking located in the residential neighborhoods north of I-90 surrounding the Mercer Island Park-and-Ride Lot is restricted through a residential parking zone (RPZ) to reduce the impacts of park-and-ride spillover.

The Mercer Island Park-and-Ride Lot has approximately 450 parking spaces, of which 435 are currently used on the typical weekday (King County Metro, 2008b). On-street parking surrounding the Rainier Station site is unrestricted and has a utilization of approximately 40 percent.

Private parking garages in the Seattle neighborhoods serve most of the parking demand within Segment A. Much of the private parking surrounding the Rainier Station is located on commercial and light industrial properties along Rainier Avenue S. Private off-street parking garages are located throughout the Mercer Island Town Center, and private off-street parking is within moderate walking distance of the Mercer Island Station. Regulations for private parking are enforced by the private property owners at their discretion.

TABLE 3-25
Existing Unrestricted On-Street Parking Supply and Utilization by Station

Station	AM Period			PM Period		
	Supply[a]	Utilization	% Utilization	Supply[a]	Utilization	% Utilization
Segment A, Interstate 90						
Rainier	879	363	41	879	335	38
Mercer Island [b]	108	73	68	108	67	62
Segment B, South Bellevue						
South Bellevue	438	51	12	438	31	7
SE 8th [b]	301	24	8	301	27	9
118th	127	5	4	127	5	4
Segment C, Downtown Bellevue						
Old Bellevue	38	22	58	38	20	53
Bellevue Transit Center	–	–	–	–	–	–
108th [c]	29	19	66	29	13	45
East Main	50	5	10	50	4	8
Ashwood/Hospital	–	–	–	–	–	–
Hospital	26	8	31	26	8	31
Segment D, Bel-Red/Overlake						
120th	177	44	25	177	55	31
130th	152	63	41	152	59	39
Overlake Village	42	21	50	42	18	43
Overlake Transit Center	21	14	67	21	14	67
Segment E, Downtown Redmond						
Redmond Town Center [b]	393	162	41	393	175	45
SE Redmond	41	29	71	41	29	71
Downtown Redmond [b]	253	121	48	253	120	47
Redmond Transit Center [b]	485	303	62	485	303	62

[a] Total on-street unrestricted parking.

[b] Restricted parking zones (RPZs) near the proposed stations have been implemented since the 2007 parking survey. These RPZs would reduce the available on-street unrestricted parking.

[c] Parking survey was conducted in spring of 2010 after initiation of Surrey Downs Residential Parking Zone.

Notes: Parking supply and demand data were collected in spring 2007 on all roads within a 0.25-mile radius of the stations.

Parking near the Mercer Island Station was collected in spring 2008 on all roads within a 0.25-mile radius of the station because the park-and-ride lot was closed during spring 2007.

In Segment B, on-street parking utilization rates were the lowest of any segment, with utilization rates around 10 percent. The on-street parking supply near the South Bellevue Station extended into the Enatai neighborhood, while most of the parking supply on 118th Avenue SE was east of I-405. No restricted on-street parking exists in any of the areas surrounding the stations in Segment B. The two park-and-ride lots in the South Bellevue segment, South Bellevue Park-and-Ride and the Wilburton Park-and-Ride, are both currently used at or near capacity on weekdays (King County Metro, 2007). People do not appear to be parking on-street in nearby neighborhoods and walking to these lots. Most off-street private parking within Segment B comprises parking lots surrounding office and commercial areas adjacent to SE 8th Street.

In Segment C, most on-street parking in Downtown Bellevue is restricted; therefore, the parking utilization rates were generally low, with the majority of the surveys calculating between 20 and 60 percent utilization. The on-street parking surrounding the Bellevue Transit Center had the highest utilization rate in Segment C, with percentages between 43 and 62 percent. There is no unrestricted on-street parking available in the areas around the Bellevue Transit Center and Ashwood/Hospital stations.

Private off-street parking within Segment C is located at major commercial and employment centers in Downtown Bellevue and the Ashwood/Hospital area. Hourly parking rates, monthly permits, and validation policies are typically enforced at private garages. Demand for private parking is highest in the day during traditional business hours.

All of the on-street parking surveyed in Segment D is considered unrestricted, with all of the surrounding areas near stations having parking utilization rates lower than 70 percent. The areas near the Overlake Village and Overlake Transit Center have the highest parking utilization rates (between 43 and 67 percent), but also have the lowest supply. The Overlake Village Park-and-Ride lot has 203 spaces, of which 33 percent are typically used each weekday. The Overlake Transit Center has 170 parking spaces, which are fully used each weekday (King County Metro, 2007). Within Segment D, the bulk of off-street parking occurs on private property throughout the Bel-Red Corridor in Bellevue and the Overlake area in Redmond.

In Segment E, parking utilization rates varied between 42 percent near the Redmond Town Center and Downtown Redmond Stations and 71 percent near the SE Redmond Station. Of the 377 parking spaces at the Redmond Transit Center, 80 percent are generally used each weekday. The Bear Creek Park- and-Ride lot, located about one mile east of the Redmond Transit Center, has 273 parking spaces, of which over 100 percent are used on a typical weekday (King County Metro, 2007). Private off-street parking is located at major employment and commercial centers within Segment E. Free parking is available at the Redmond Town Center.

3.6.3 Environmental Impacts

This section provides the future vehicular traffic and trips forecasted with each East Link station. Potential impacts on the arterial and local street operations (including property access and circulation patterns), traffic safety, and parking were assessed. A major component of the impact analysis for arterial and local street operations was the intersection LOS analysis for future years 2020 and 2030. A detailed discussion of the roadway and intersection impact analysis assumptions is presented in the *Transportation Technical Report*.

The intersection LOS analysis compared the 2020 and 2030 years for the East Link Project and the No Build Alternative in each segment study area. In general, the analysis predicted that, for light rail along at-grade profiles or elevated within the roadway right-of-way, intersections generally would operate at an LOS similar to that of the No Build Alternative, although a few intersections in the study area may degrade depending on the alternative and intersection movements. The similarity occurs partly because a similar roadway capacity is provided in most cases with East Link, but also because light rail trains, operating in at-grade profiles, are generally able to safely travel through intersections without substantial signal timing adjustments. At-grade alternatives outside of Downtown Bellevue would receive some level of priority at the traffic signals, although changes to the signal coordination are expected to be minimal because the traffic signals would have advanced detection of an approaching light rail train. Within Downtown Bellevue, at-grade alternatives would also likely receive some signal priority, but traffic signal coordination for autos would be maintained along key east-west arterials. For alternatives with either elevated or tunneled sections, intersections are expected to have operations similar to the No Build Alternative because these profiles are generally outside the roadway right-of-way.

Individual station impacts are described in each of the following segment discussions, but intersections near potential stations are expected to operate in most cases at an LOS similar to the No Build Alternative. Stations that include park-and-ride facilities are expected to generate more auto trips than other stations.

Therefore, at these locations, the intersections immediately adjacent to the stations may operate worse with the East Link Project than under the No Build Alternative because of the potential traffic increases at these intersections.

3.6.3.1 Traffic Forecasts and Station Trips

To evaluate impacts of the No Build Alternative and East Link Project on arterials and local streets, safety, and parking facilities, traffic was forecasted to determine the number of vehicles that would be on these facilities in the years 2020 and 2030. The analysis in this section uses the traffic forecasts presented in Section 3.3.3 and the ridership estimates presented in Section 3.4.3.6.

Overall, the annual traffic growth rate by year 2030 is expected to be between 1 and 2 percent per year within each segment for the No Build Alternative. With East Link, however, the study area is expected to experience slight changes in travel patterns as people adjust their mode of transportation and shift to light rail, thereby avoiding vehicle congestion and improving their travel times and trip reliability. This is further discussed in Section 3.3, Regional Travel. Additional information on the traffic forecasts is provided in the *Transportation Technical Report* in Appendix H1.

The number of person trips at each station was calculated based on the alternative that generates the highest PM peak-period (3-hour) ridership forecasts at that station. Included in this calculation is the number of park-and-ride and passenger drop-off and pick-up trips (also known as a kiss-and-ride trip) for each proposed East Link station. Additionally, PM peak bus service levels were provided by Metro and Sound Transit as part of the transit integration plan prepared for this project (Sound Transit, 2007). Year 2020 and 2030 daily, PM peak-period ridership and PM peak-hour vehicle trips for the highest ridership alternatives at each station are summarized by total auto and person trips in Table 3-26. Further information on the vehicle trip generation information associated with each station is provided in Appendix H1, Transportation Technical Report.

Within the study area, five of the proposed park-and-ride stations already exist as park-and-ride facilities. These are at Mercer Island, South Bellevue, Overlake Village, Overlake Transit Center, and Redmond Transit Center stations. With the project, the total number of parking stalls at the South Bellevue and Overlake Transit Center stations would increase. The 118th, 130th, and SE Redmond stations are proposed to be new park-and-ride facilities with this project. Instead of providing a park and ride at the 130th Station, this lot could be relocated to 120th Station with the *Preferred Alternative D2A*. The number of parking stalls at the Mercer Island, Overlake Village, and Redmond Transit Center stations would not be increased with this project. For the traffic analysis, all park-and-ride lots were assumed to be at full capacity, regardless of the vehicle demand from the ridership model. Section 3.6.3.4 identifies the existing and proposed parking stalls at park-and-ride stations and the number of autos expected to park there.

Kiss-and-ride trip: A vehicle trip where people drive to the station and drop off or pick up a passenger.

For the interim terminus ridership forecasts, three stations are predicted to have a noticeable increase in daily boardings: Hospital Station, Overlake Village Station, and Overlake Transit Center Station. These increases are largely due to the changes in bus service that would be planned to serve these stations if they are interim termini. Therefore, the increase in boardings is mainly due to people transferring to and from bus service, which would not be expected to have a noticeable impact on roadway operations.

In either year 2020 or 2030, the Hospital, Overlake Village, and Redmond Town Center stations are anticipated to have a noticeable increase in PM peak-hour vehicle trips, primarily due to an increase in kiss-and-ride trips. An additional traffic analysis has been conducted at these stations because of this increase in vehicle trips when they are an interim terminus. Table 3-27 provides daily PM peak-period ridership and PM peak-hour vehicle trips information at each potential interim terminus station.

3.6.3.2 Arterial and Local Street Operations

This section provides information by segment for arterial and local street operations. This includes impacts on intersection LOS and operations, traffic control, property access and circulation for the project alternatives, interim terminus stations, and maintenance facilities. Traffic safety on the arterial and local streets is addressed in Section 3.6.3.3, and parking impacts are discussed in Section 3.6.3.4. The *Transportation Technical Report* provides the complete list of roadway and intersection projects assumed in 2020 and 2030 in each project segment. Exhibits 3-20 through 3-26 illustrate year 2030 intersection operations with and without the project. For the year 2020 intersection exhibits, refer to the *Transportation Technical Report* in Appendix H1. Refer to the engineering drawings located in Appendix G1 for the proposed roadway channelization and traffic control for all alternatives.

TABLE 3-26
2020 and 2030 Station Boardings, Vehicle Trips, and Person Trips Forecasts

Station	Alternative	2020				2030			
		Daily Station Boardings[a]	PM Peak Period Kiss-and-Ride/ Park-and-Ride Vehicle Trips[b]	PM Peak Period Person Trips[c]	PM Peak-Hour Vehicle Trips[d]	Daily Station Boardings[a]	PM Peak Period Kiss-and-Ride/ Park-and-Ride Vehicle Trips[b]	PM Peak Period Person Trips[c]	PM Peak-Hour Vehicle Trips[d]
Segment A, Interstate 90									
Rainier	*Preferred Alternative A1*	3,000	220/0	1,490	190	3,000	220/0	1,550	200
Mercer Island	*Preferred Alternative A1*	2,500	70/390	1,280	70	3,000	90/460	1,670	80
Segment B, South Bellevue									
South Bellevue	*Preferred Alternative B2M,* and Alternatives B1, B2A, B2E, B3, and B3 – 114th Extension Design Option	4,000	250/1,310	2,780	590	5,000	300/1,560	3,600	630
SE 8th	*Preferred Alternative B2M to Preferred Alternative C9T* and Alternatives B2A and B2E	500	50/0	310	40	500	60/0	380	50
118th	Alternative B7	2,000	110/580	1,390	455	2,500	140/760	2,010	485
Segment C, Downtown Bellevue									
Old Bellevue	Alternative C1	1,500	160/0	1,070	140	2,500	210/0	1,450	190
Bellevue Transit Center	All Segment C alternatives	6,000	460/0	5,650	400	7,000	510/0	6,240	440
East Main	Segment C alternatives (except *Preferred Alternative C11A*) from Alternatives B3 and B7[e]	2,500	210/0	1,440	180	3,500	310/0	2,120	270
108th	*Preferred Alternative C11A*	2,000	200/0	1,360	170	2,500	250/0	1,700	220
Ashwood/ Hospital	Alternatives C3T, C4A, C7E, and C8E	1,000	110/0	740	100	1,000	110/0	740	100
Hospital	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E	1,000	100/0	680	90	1,500	230/0	1,610	210
Segment D, Bel-Red/Overlake									
120th[f]	*Preferred Alternative D2A* and Alternatives D2E and D3	500	70/0	460	60	1,000	80/0	560	70

TABLE 3-26 CONTINUED
2020 and 2030 Station Boardings, Vehicle Trips, and Person Trips Forecasts

		2020				2030			
Station	**Alternative**	**Daily Station Boardings[a]**	**PM Peak Period Kiss-and-Ride/ Park-and-Ride Vehicle Trips[b]**	**PM Peak Period Person Trips[c]**	**PM Peak-Hour Vehicle Trips[d]**	**Daily Station Boardings[a]**	**PM Peak Period Kiss-and-Ride/ Park-and-Ride Vehicle Trips[b]**	**PM Peak Period Person Trips[c]**	**PM Peak-Hour Vehicle Trips[d]**
130th[f]	*Preferred Alternative D2A* and Alternatives D2E andD3	1,000	50/270	680	180	1,500	70/380	1,230	200
Overlake Village	All Segment D alternatives	1,000	50/260	740	110	1,500	90/480	1,510	140
Overlake Transit Center	All Segment D alternatives	3,000	90/460	2,140	140	4,500	130/670	3,230	170
Segment E, Downtown Redmond									
Redmond Town Center	Alternatives E1, E4, and E2 – Redmond Transit Center Design Option	1,500	120/0	790	100	2,000	140/0	950	120
SE Redmond	All Segment E alternatives	2,000	200/1,030	1,470	775	2,000	200/1,030	1,470	775
Downtown Redmond	*Preferred Alternative E2*	1,500	140/0	980	130	2,000	160/0	1,130	150
Redmond Transit Center	E2 – Redmond Transit Center Design Option	500	30/150	310	65	500	30/180	390	65

[a] The daily station boardings provided in this table represent the highest ridership at that station from any East Link alternative.

[b] The PM peak-period (3-hour) park-and-ride forecasts shown are not constrained by the available parking supply.

[C] The PM peak-period (3-hour) person trips include all people boarding and alighting (exiting) bus and light rail.

[d] These peak-hour vehicle trips are the total number of new kiss-and-ride and park-and-ride trips associated with the East Link Project; these trips are incorporated in the traffic analysis. For bus volumes at each station refer to Section 6.3.1 of Appendix H1, Transportation Technical Report.

[e] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* would have no change in forecasts for either *Preferred Alternative C9T* or *B2M*.

[f] Instead of providing a park and ride at the 130th Station, this lot could be relocated to 120th Station with the *Preferred Alternative D2A*.

Note: Due to rounding, ridership might not sum exactly to totals.

TABLE 3-27
2020 and 2030 Interim Terminus Station Boardings, Vehicle Trips, and Person Trips Forecasts

Interim Terminus Station	2020						2030					
	Daily Station Boardings[a]	Increase in Daily Station Boarding[b]	PM Peak Period Kiss-and-Ride/ Park-and-Ride Vehicle Trips[c]	PM Peak Period Person Trips[d]	PM Peak-Hour Vehicle Trips	Increase in PM Peak-Hour Vehicle Trips[b,e]	Daily Station Boarding[a]	Increase in Daily Station Boardings[b]	PM Peak Period Kiss-and-Ride/ Park-and-Ride Vehicle Trips[c]	PM Peak Period Person Trips[d]	PM Peak-Hour Vehicle Trips	Increase in PM Peak-Hour Vehicle Trips[b,e]
Hospital	2000	1,000	170/0	1160	150	60	3,000	1,500	250/0	1,740	220	20
Ashwood/Hospital	1000	0	80/0	530	70	0	1,000	0	120/0	850	110	10
120th	1000	500	100/0	660	90	30	1,500	500	130/0	880	110	40
130th	1,000	0	90/450	880	210	30	1,500	0	100/510	1,120	220	20
Overlake Village	2,500	1,500	150/770	1,720	190	80	3,500	2,000	180/960	2,310	220	80
Overlake Transit Center	4,500	1,500	80/440	2,940	140	0	6,000	1,500	110/560	3,960	160	0
SE Redmond	2,000	0	180/960	1,460	765	0	2,500	500	200/1,050	1,630	785	10
Redmond Town Center	2,000	500	200/0	1,350	170	70	2,500	500	240/0	1,630	210	90

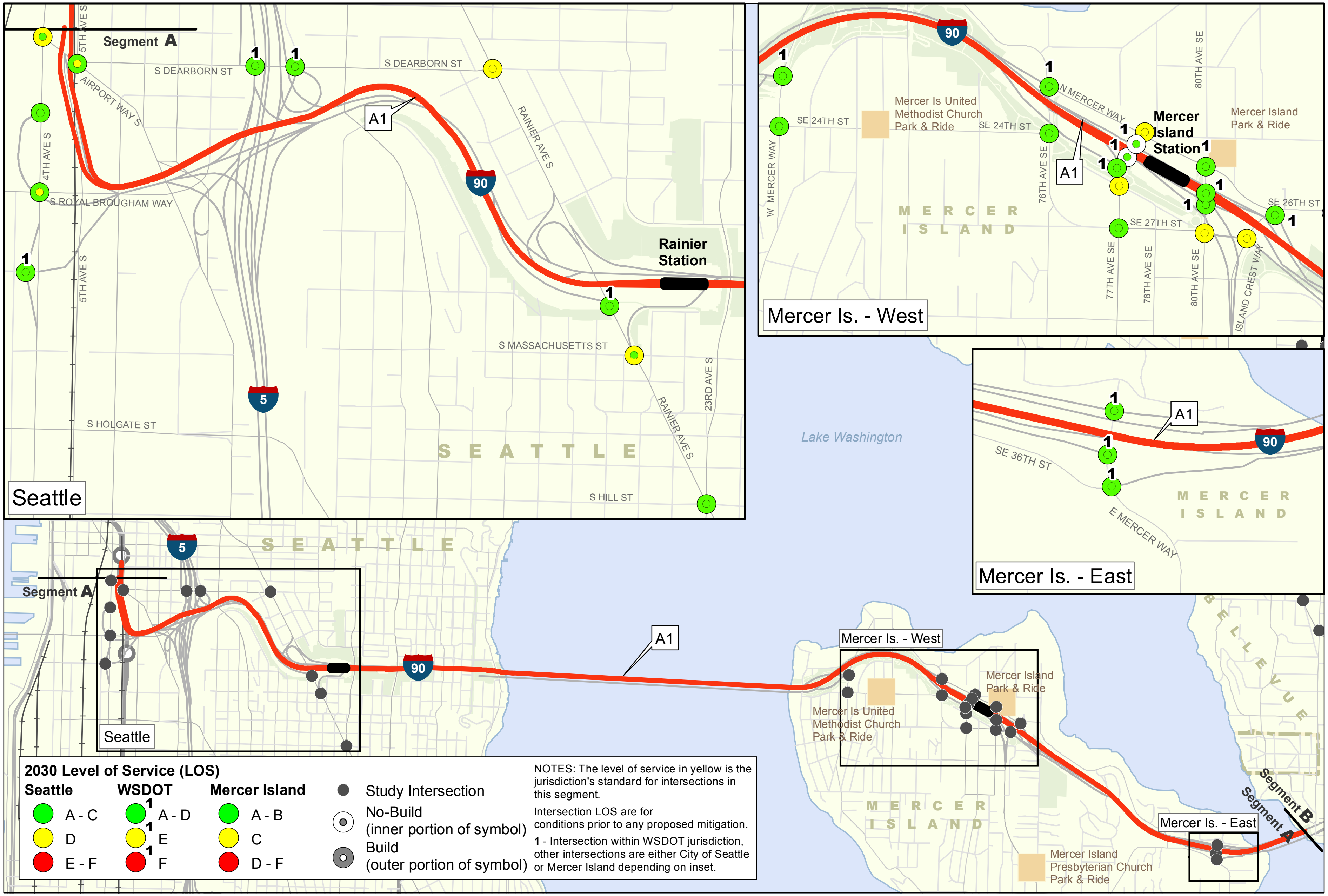
[a] The highest ridership alternative is shown for each interim terminus station.

[b] Increase from Table 3-26 numbers.

[c] The PM peak-period (3-hour) park-and-ride forecasts shown are not constrained by the available parking supply.

[d] PM peak-period (3-hour) person trips include all people boarding and alighting (exiting) bus and light rail.

[e] These vehicle trips are the total increase number of new kiss-and-ride and park-and-ride trips associated with an East Link interim terminus station. These trips are incorporated in the interim terminus traffic analysis, where required. For bus volumes changes at each interim terminus station refer to Section 6.3.1 of Appendix H1, Transportation Technical Report.


Seattle
Segment A
S DEARBORN ST
S DEARBORN ST
5TH AVE S
AIRPORT WAY S
4TH AVE S
S ROYAL BROUGHAM WAY
5TH AVE S
A1
90
RAINIER AVE S
Rainier Station
S MASSACHUSETTS ST
5
S HOLGATE ST
23RD AVE S
RAINIER AVE S
S E A T T L E
S HILL ST
1
Mercer Is. - West
90
1
N MERCER WAY
SE 24TH ST
Mercer Is United Methodist Church Park & Ride
SE 24TH ST
Mercer Island Station
Mercer Island Park & Ride
80TH AVE SE
76TH AVE SE
A1
W MERCER WAY
M E R C E R I S L A N D
SE 27TH ST
SE 26TH ST
77TH AVE SE
78TH AVE SE
80TH AVE SE
ISLAND CREST WAY
Mercer Is. - East
A1
90
SE 36TH ST
E MERCER WAY
M E R C E R I S L A N D
Lake Washington
S E A T T L E
5
Segment A
Seattle
90
A1
Mercer Is. - West
Mercer Island Park & Ride
Mercer Is United Methodist Church Park & Ride
M E R C E R I S L A N D
Mercer Island Presbyterian Church Park & Ride
Mercer Is. - East
B E L L E V U E
Segment B
Segment A
2030 Level of Service (LOS)
Seattle
🟢 A - C
🟡 D
🔴 E - F
WSDOT
🟢 1 A - D
🟡 1 E
🔴 1 F
Mercer Island
🟢 A - B
🟡 C
🔴 D - F
● Study Intersection
No-Build (inner portion of symbol)
Build (outer portion of symbol)
NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

At-Grade Route

Elevated Route

Retained-Cut Route

Tunnel Route

Proposed Station

Central Link Alignment and Station

N

0 0.5 Mile

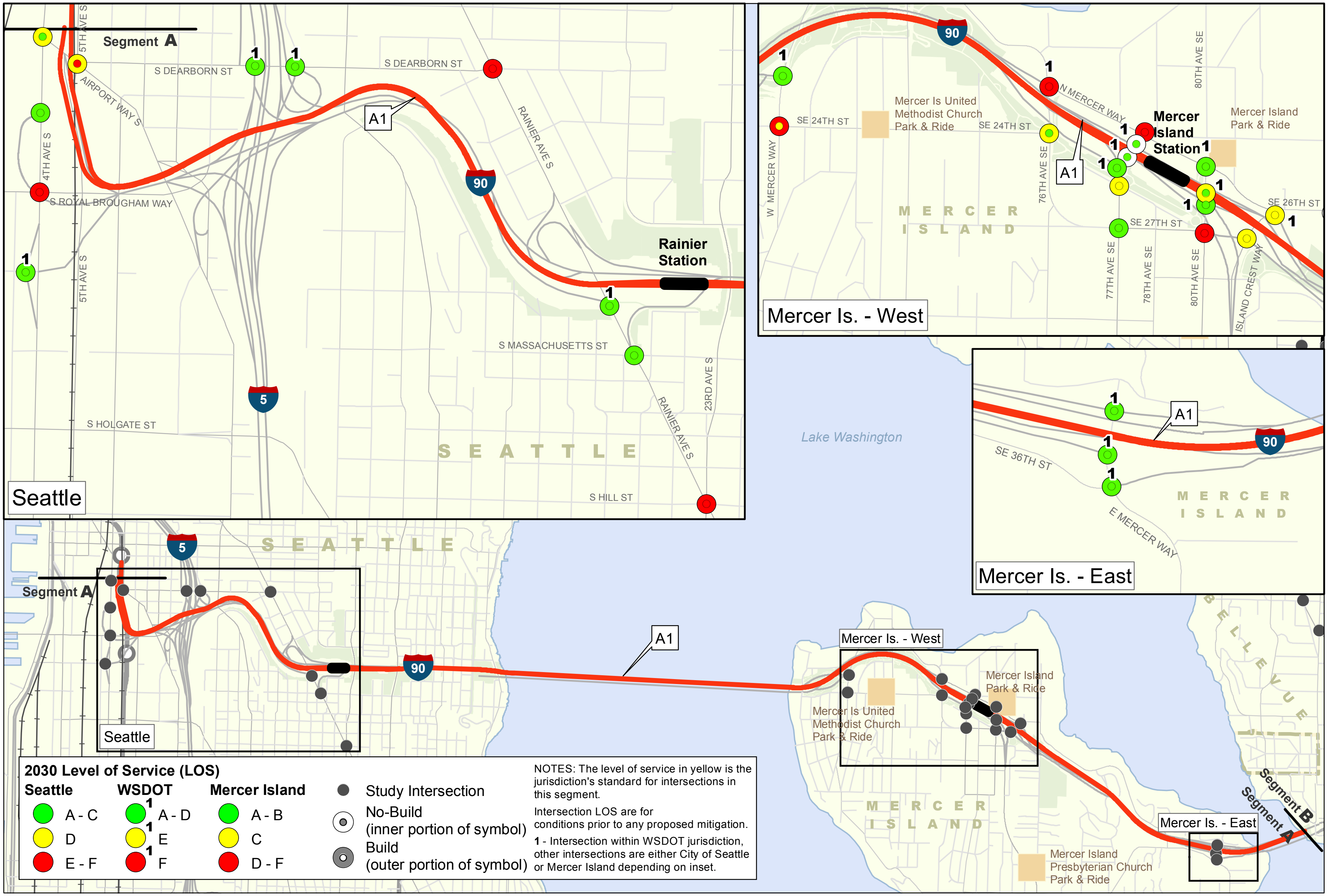
NOTES: The level of service in white indicates that this intersection does not exist for the build condition.

Intersection LOS indicated in the Mercer Island - West inset map is for the Preferred Alternative (A1) which provides an eastbound HOV direct-access off-ramp at Island Crest Way. For the intersection LOS results of the two eastbound off-ramp design options refer to Appendix D of the Transportation Technical Report.

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 3-20 **2030 AM No Build and Build Level of Service at Intersections Segment A**

East Link Project


Seattle
Segment A
S DEARBORN ST
AIRPORT WAY S
5TH AVE S
4TH AVE S
S ROYAL BROUGHAM WAY
A1
90
5
RAINIER AVE S
Rainier Station
S MASSACHUSETTS ST
23RD AVE S
S HOLGATE ST
S HILL ST
S E A T T L E
1
Mercer Is. - West
SE 24TH ST
W MERCER WAY
Mercer Is United Methodist Church Park & Ride
N MERCER WAY
76TH AVE SE
Mercer Island Station
Mercer Island Park & Ride
80TH AVE SE
SE 26TH ST
SE 27TH ST
77TH AVE SE
78TH AVE SE
ISLAND CREST WAY
M E R C E R I S L A N D
Mercer Is. - East
SE 36TH ST
E MERCER WAY
Lake Washington
B E L L E V U E
Segment B
Mercer Island Presbyterian Church Park & Ride

2030 Level of Service (LOS)

Seattle		**WSDOT**		**Mercer Island**	
🟢	A - C	🟢 1	A - D	🟢	A - B
🟡	D	🟡 1	E	🟡	C
🔴	E - F	🔴 1	F	🔴	D - F

● Study Intersection
No-Build (inner portion of symbol)
Build (outer portion of symbol)

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
Proposed Station
Central Link Alignment and Station

N

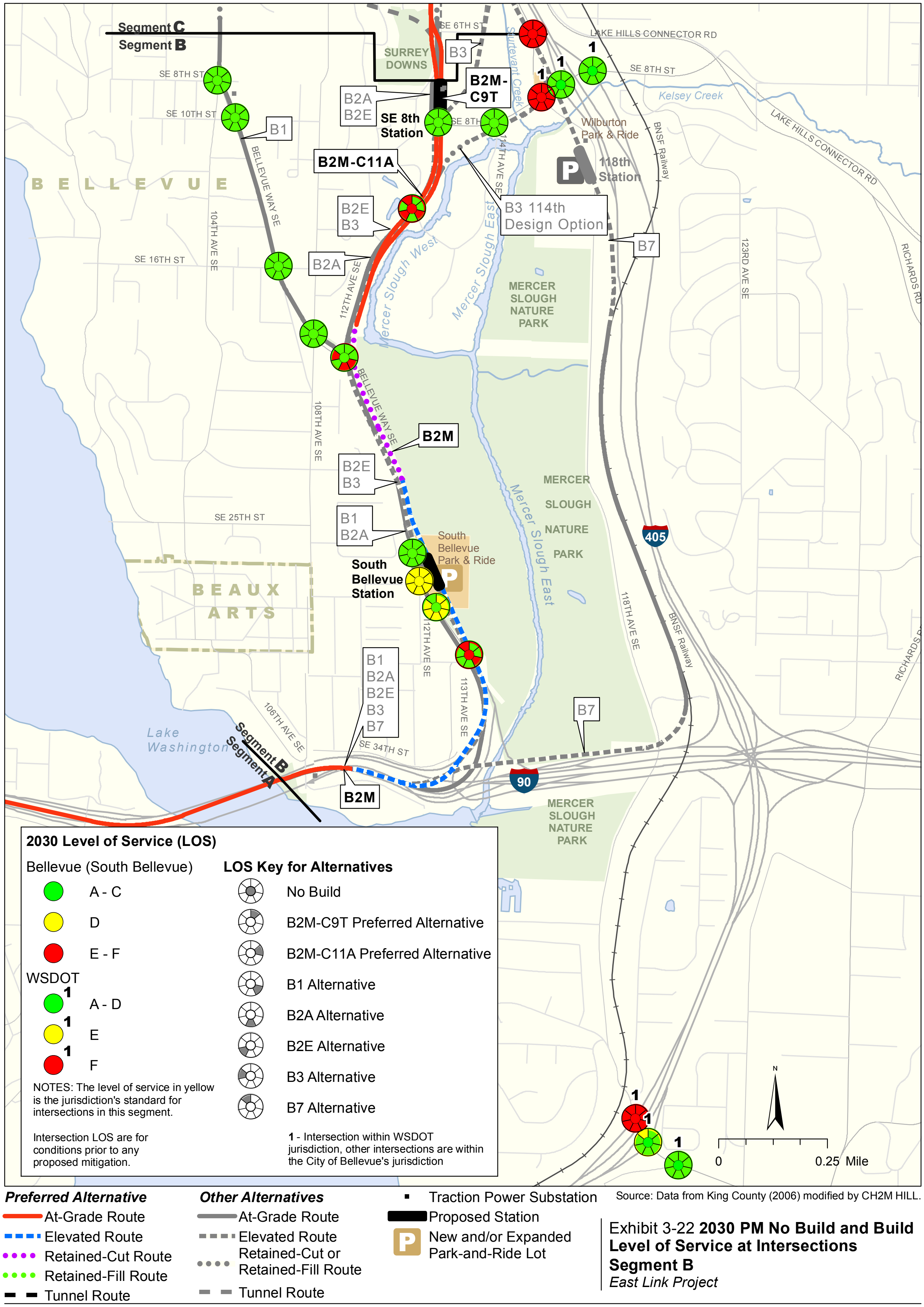
0 0.5 Mile

NOTES: The level of service in white indicates that this intersection does not exist for the build condition.

Intersection LOS indicated in the Mercer Island - West inset map is for the Preferred Alternative (A1) which provides an eastbound HOV direct-access off-ramp at Island Crest Way. For the intersection LOS results of the two eastbound off-ramp design options refer to Appendix D of the Transportation Technical Report.

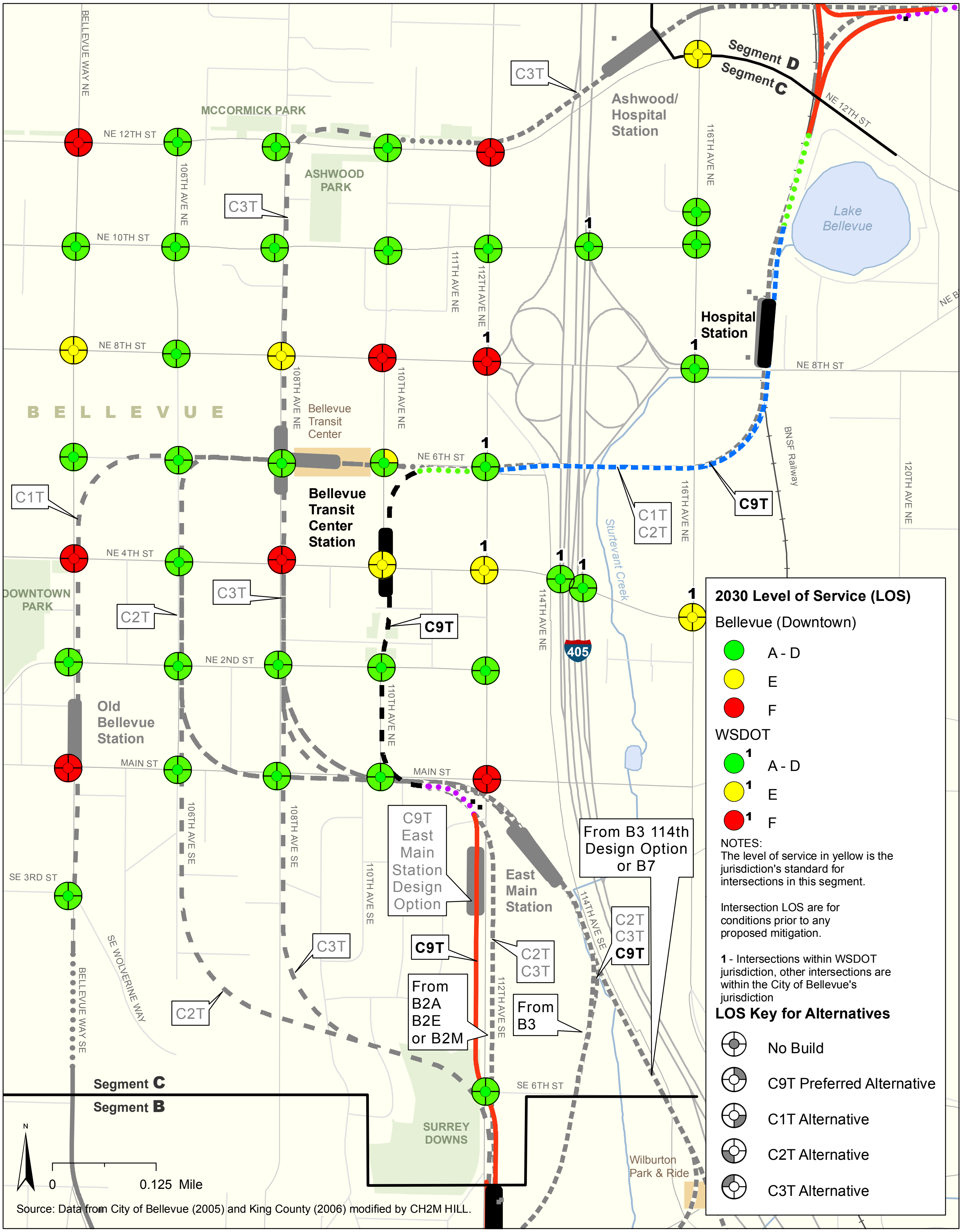
Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 3-21 **2030 PM No Build and Build Level of Service at Intersections**
Segment A
East Link Project


Segment C
Segment B
SE 6TH ST
SURREY DOWNS
B3
B2M-C9T
B2A
B2E
SE 8th Station
SE 8TH ST
SE 10TH ST
B1
LAKE HILLS CONNECTOR RD
SE 8TH ST
Kelsey Creek
Sturtevant Creek
1
1
1
Wilburton Park & Ride
118th Station
BNSF Railway
LAKE HILLS CONNECTOR RD
B2M-C11A
B E L L E V U E
BELLEVUE WAY SE
104TH AVE SE
114TH AVE SE
B2E
B3
B3 114th Design Option
B7
SE 16TH ST
B2A
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
RICHARDS RD
108TH AVE SE
BELLEVUE WAY SE
B2M
B2E
B3
MERCER SLOUGH NATURE PARK
SE 25TH ST
B1
B2A
South Bellevue Park & Ride
Mercer Slough East
405
South Bellevue Station
B E A U X A R T S
118TH AVE SE
BNSF Railway
112TH AVE SE
B1
B2A
B2E
B3
B7
106TH AVE SE
113TH AVE SE
RICHARDS RD
B7
Lake Washington
Segment B
Segment A
SE 34TH ST
B2M
90
MERCER SLOUGH NATURE PARK
2030 Level of Service (LOS)
Bellevue (South Bellevue)
A - C
D
E - F
WSDOT
1 A - D
1 E
1 F
NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
LOS Key for Alternatives
No Build
B2M-C9T Preferred Alternative
B2M-C11A Preferred Alternative
B1 Alternative
B2A Alternative
B2E Alternative
B3 Alternative
B7 Alternative
1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction
1
1
1
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 3-22 **2030 PM No Build and Build Level of Service at Intersections Segment B**
East Link Project


BELLEVUE WAY NE
MCCORMICK PARK
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
C3T
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
NE 10TH ST
111TH AVE NE
112TH AVE NE
1
NE 8TH ST
108TH AVE NE
110TH AVE NE
Hospital Station
NE 8TH ST
NE B
B E L L E V U E
Bellevue Transit Center
BNSF Railway
NE 6TH ST
C1T
Bellevue Transit Center Station
C1T
C2T
C9T
116TH AVE NE
120TH AVE NE
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
C2T
114TH AVE NE
405
NE 2ND ST
Old Bellevue Station
110TH AVE NE
MAIN ST
MAIN ST
106TH AVE SE
108TH AVE SE
C9T East Main Station Design Option
From B3 114th Design Option or B7
SE 3RD ST
110TH AVE SE
East Main Station
114TH AVE SE
SE WOLVERINE WAY
C3T
C2T C3T C9T
BELLEVUE WAY SE
From B2A B2E or B2M
112TH AVE SE
From B3
SE 6TH ST
Segment C
Segment B
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile

2030 Level of Service (LOS)

Bellevue (Downtown)

🟢 A - D

🟡 E

🔴 F

WSDOT

🟢1 A - D

🟡1 E

🔴1 F

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

LOS Key for Alternatives

- ⊕ No Build
- ⊕ C9T Preferred Alternative
- ⊕ C1T Alternative
- ⊕ C2T Alternative
- ⊕ C3T Alternative

Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative

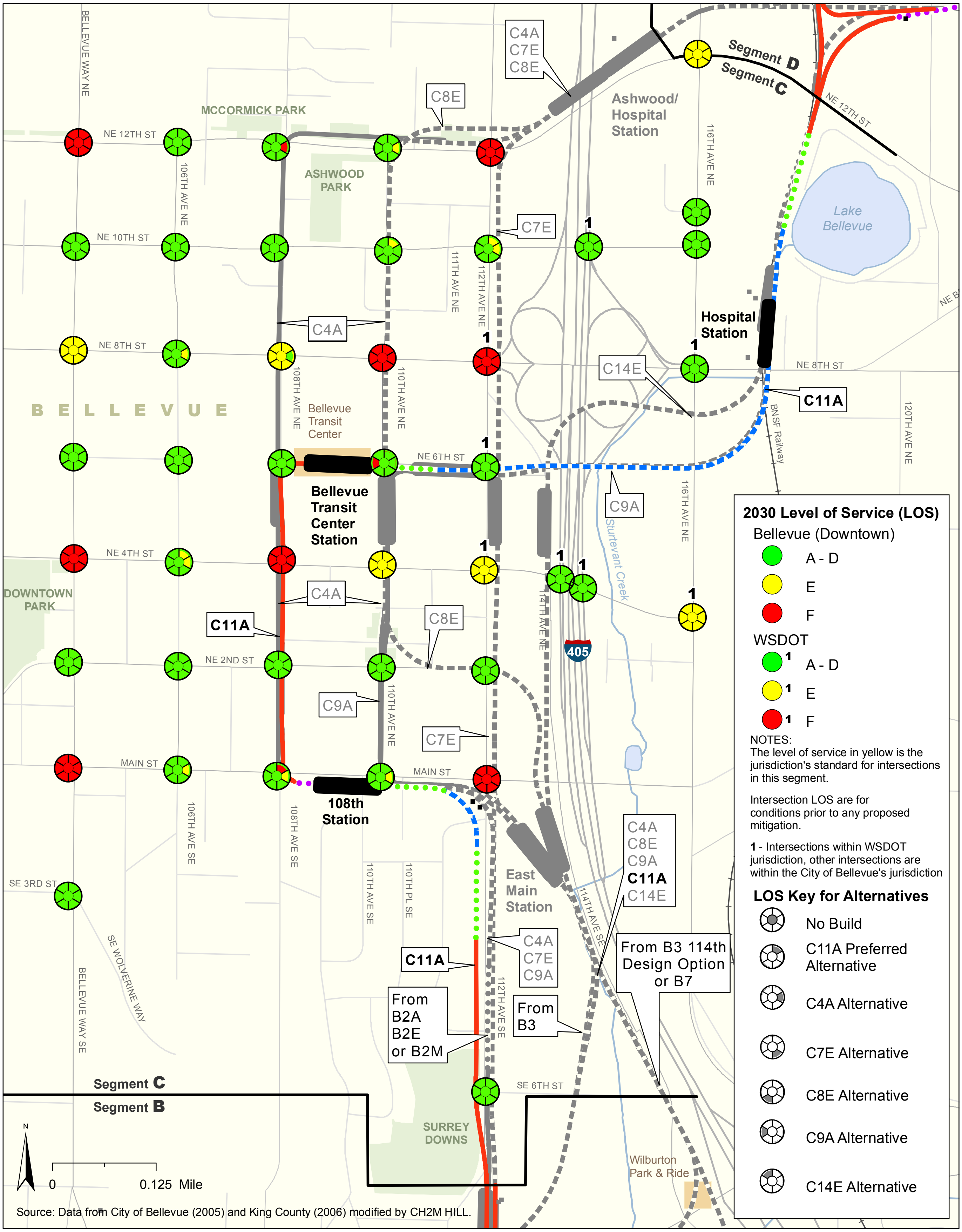
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 3-23 **2030 PM No Build and Build Level of Service at Intersections, Tunneled Alignments**
Segment C
East Link Project


BELLEVUE WAY NE
MCCORMICK PARK
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
C8E
C4A
C7E
C8E
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
NE 10TH ST
C7E
111TH AVE NE
112TH AVE NE
1
C4A
Hospital Station
NE 8TH ST
1
1
C14E
NE 8TH ST
C11A
108TH AVE NE
110TH AVE NE
BELLEVUE
Bellevue Transit Center
BNSF Railway
120TH AVE NE
1
NE 6TH ST
C9A
116TH AVE NE
Bellevue Transit Center Station
Sturtevant Creek
NE 4TH ST
1
1
1
1
DOWNTOWN PARK
C4A
C11A
C8E
114TH AVE NE
405
NE 2ND ST
C9A
110TH AVE NE
C7E
MAIN ST
MAIN ST
108th Station
106TH AVE SE
108TH AVE SE
C4A
C8E
C9A
C11A
C14E
SE 3RD ST
110TH AVE SE
110TH PL SE
East Main Station
114TH AVE SE
SE WOLVERINE WAY
C11A
C4A
C7E
C9A
From B3 114th Design Option or B7
From B2A B2E or B2M
From B3
BELLEVUE WAY SE
12TH AVE SE
SE 6TH ST
Segment C
Segment B
N
SURREY DOWNS
0
0.125 Mile
Wilburton Park & Ride
2030 Level of Service (LOS)
Bellevue (Downtown)
A - D
E
F
WSDOT
1 A - D
1 E
1 F
LOS Key for Alternatives
No Build
C11A Preferred Alternative
C4A Alternative
C7E Alternative
C8E Alternative
C9A Alternative
C14E Alternative

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

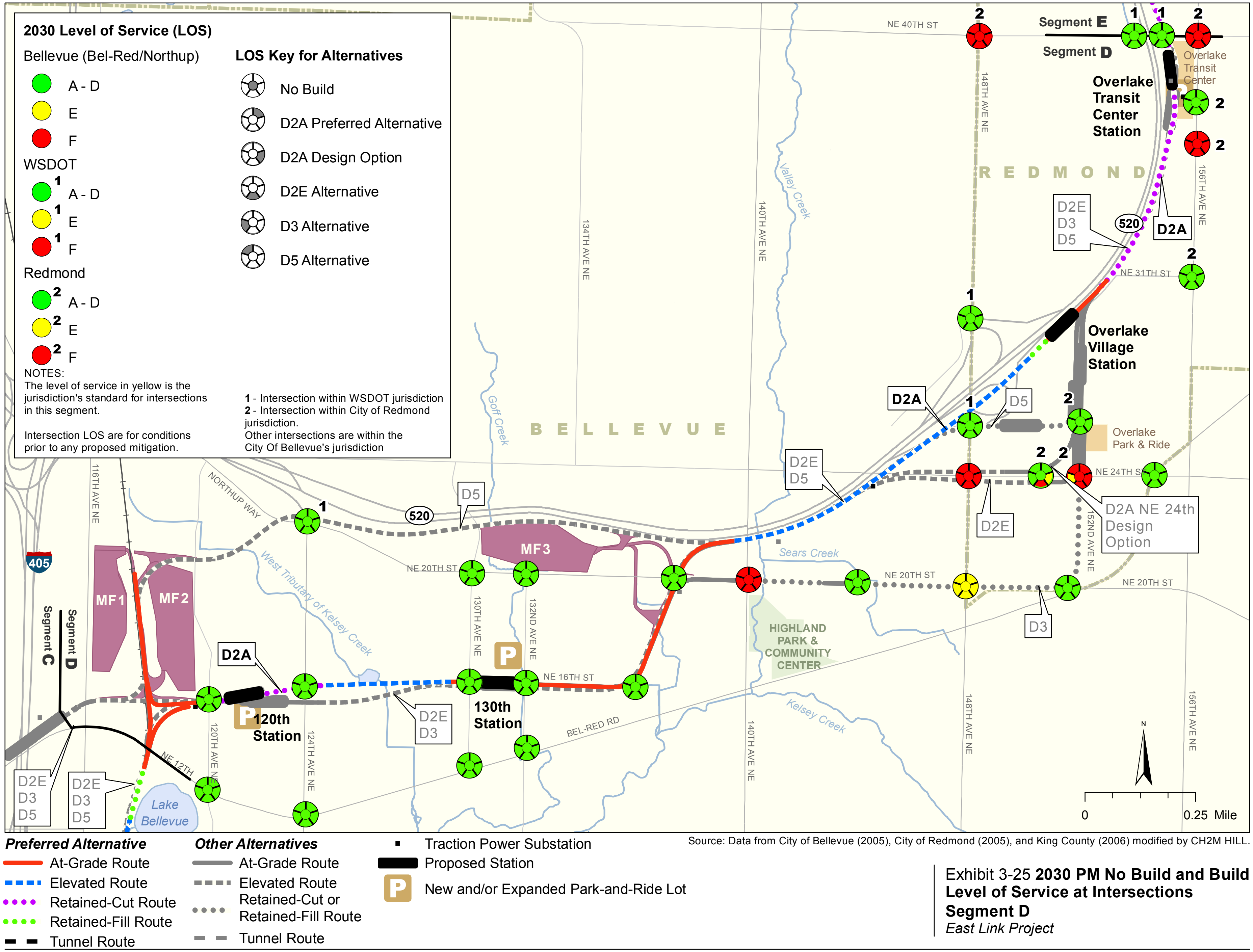
Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

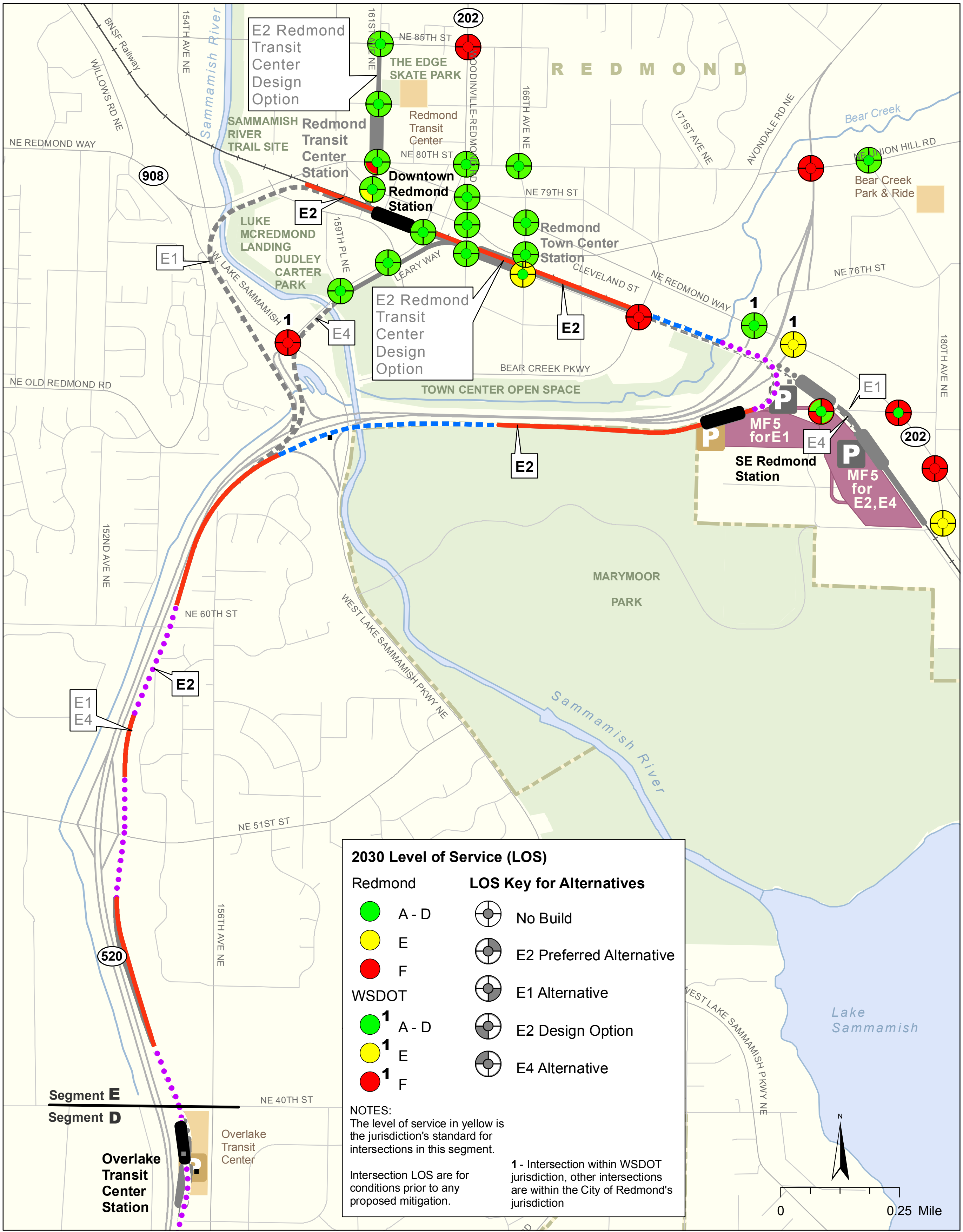
- Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 3-24 **2030 PM No Build and Build Level of Service at Intersections, Non-Tunneled Alignments Segment C**
East Link Project


2030 Level of Service (LOS)
Bellevue (Bel-Red/Northup)
A - D
E
F
WSDOT
1 A - D
1 E
1 F
Redmond
2 A - D
2 E
2 F
NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
LOS Key for Alternatives
No Build
D2A Preferred Alternative
D2A Design Option
D2E Alternative
D3 Alternative
D5 Alternative
1 - Intersection within WSDOT jurisdiction
2 - Intersection within City of Redmond jurisdiction.
Other intersections are within the City Of Bellevue's jurisdiction
NE 40TH ST
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
148TH AVE NE
156TH AVE NE
REDMOND
D2E
D3
D5
520
D2A
NE 31TH ST
Overlake Village Station
D2A
D5
Overlake Park & Ride
D2E
D5
NE 24TH ST
D2E
D2A NE 24th Design Option
152ND AVE NE
134TH AVE NE
140TH AVE NE
Valley Creek
Goff Creek
BELLEVUE
NORTHUP WAY
D5
520
MF3
NE 20TH ST
Sears Creek
NE 20TH ST
NE 20TH ST
D3
HIGHLAND PARK & COMMUNITY CENTER
116TH AVE NE
405
MF1
MF2
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
NE 16TH ST
P
Segment C
Segment D
D2A
120th Station
130th Station
D2E
D3
BEL-RED RD
Kelsey Creek
148TH AVE NE
140TH AVE NE
156TH AVE NE
N
D2E
D3
D5
D2E
D3
D5
NE 12TH
120TH AVE NE
124TH AVE NE
Lake Bellevue
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006) modified by CH2M HILL.

Exhibit 3-25 **2030 PM No Build and Build Level of Service at Intersections Segment D**
East Link Project


E2 Redmond Transit Center Design Option
202
NE 85TH ST
161ST AVE NE
THE EDGE SKATE PARK
R E D M O N D
154TH AVE NE
Sammamish River
BNSF Railway
WILLOWS RD NE
Redmond Transit Center
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
NE 80TH ST
WOODINVILLE-REDMOND RD
NE REDMOND WAY
908
Downtown Redmond Station
NE 79TH ST
E2
LUKE MCREDMOND LANDING
159TH PL NE
Redmond Town Center Station
E1
DUDLEY CARTER PARK
LEARY WAY
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
W. LAKE SAMMAMISH
1
E4
E2 Redmond Transit Center Design Option
E2
1
1
180TH AVE NE
BEAR CREEK PKWY
E1
NE OLD REDMOND RD
TOWN CENTER OPEN SPACE
MF5 for E1
E4
202
E2
SE Redmond Station
MF5 for E2, E4
MARYMOOR PARK
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
E2
E1
E4
Sammamish River
NE 51ST ST
156TH AVE NE
520
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
Overlake Transit Center Station
N
0
0.25 Mile

2030 Level of Service (LOS)

Redmond

🟢	A - D
🟡	E
🔴	F

WSDOT

🟢 1	A - D
🟡 1	E
🔴 1	F

LOS Key for Alternatives

- No Build
- E2 Preferred Alternative
- E1 Alternative
- E2 Design Option
- E4 Alternative

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Redmond's jurisdiction

Source: Data from City of Redmond (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- Traction Power Substation
- Proposed Station
- New and/or Expanded Park-and-Ride Lot

Exhibit 3-26 **2030 PM No Build and Build Level of Service at Intersections Segment E**
East Link Project

Segment A, *Preferred Interstate 90 Alternative (A1)*

In Segment A, arterial and local streets are within the cities of Seattle and Mercer Island. With the No Build Alternative, local roadway access on Mercer Island to the I-90 outer roadway HOV lanes is provided by direct-access ramps as part of the I-90 Two-Way Transit and HOV Operations Project. No substantial arterial and local roadway improvements are considered in Segment A with the No Build Alternative.

Preferred Alternative A1 would convert the I-90 reversible center roadway for exclusive light rail use, as discussed in Section 3.5, while providing joint use by bus and light rail in the D2 Roadway. After converting the center roadway to light rail, the 77th Avenue SE and Island Crest Way reversible center roadway accesses would be eliminated and vehicles would use other I-90 access points. These access points could include the West Mercer Way, 76th Avenue SE, 77th Avenue SE, Island Crest Way, and East Mercer Way interchanges.

Additionally, as part of Stage 3 of the I-90 Two-Way Transit and HOV Operations Project, the current proposal to build the eastbound HOV off-ramp at 77th Avenue SE on Mercer Island is not the preferred design option in conjunction with the East Link Project, as bus use of the 77th Avenue SE ramp would be partially or wholly replaced by light rail service. Sound Transit, WSDOT, and the City of Mercer Island prefer to connect this access with the Island Crest Way eastbound off-ramp from the center roadway. A third design option that would construct neither of these eastbound off-ramp options is also considered. All three of these options were analyzed for impacts on the street system surrounding I-90 on Mercer Island.

Traffic Control, Property Access, and Circulation

Within Segment A, East Link is not expected to substantially affect traffic control, property access, or vehicular circulation on arterial streets because the *Preferred Alternative A1* and any of its design options are located on I-90 and do not travel along arterial or local street; however, circulation patterns are expected to change near the I-90 ramps on Mercer Island due to the closures of the reversible center roadway. Gates would be installed at the D2 Roadway ramps to ensure that general-purpose vehicles do not enter this facility.

If light rail operated exclusively in the D2 Roadway, then buses would need to modify their route and use another access location with I-90 (such as Rainier or SR 519 interchanges). This would not affect general vehicles and is discussed in more depth in Sections 3.4 and 3.5.

Operations and Level of Service

Throughout Segment A, the light rail profile is in an exclusive right-of-way separated from vehicle traffic, except in the D2 Roadway with joint bus and rail operations. Year 2030 intersection operations in Segment A for the No Build Alternative and East Link are depicted in Exhibits 3-20 and 3-21.

With East Link, the following intersections on Mercer Island (including the design option where the impact occurs) would not meet agency standards and operate worse than in the no-build condition:

- West Mercer Way and 24th Avenue SE (*Preferred Alternative A1* and both HOV off-ramp design options).
- 80th Avenue SE and SE 27th Street (*Preferred Alternative A1* and both HOV off-ramp design options)
- 77th Avenue SE and Sunset Highway (design option that provides a 77th HOV off-ramp)
- 77th Avenue SE and the I-90 eastbound HOV off-ramp (design option that provides a 77th HOV off-ramp)
- 77th Avenue SE and N Mercer Way (*Preferred Alternative A1* and both HOV off-ramp design options)
- 77th Avenue SE and I-90 eastbound off-ramp (Preferred Alternative A1 and design option that provides neither eastbound HOV off-ramp)
- 76th Avenue SE/N Mercer Way and I-90 westbound on-ramp (*Preferred Alternative A1* and both HOV off-ramp design options)

During the AM and PM peak hours, intersection operations in Seattle with East Link would vary only slightly when compared to the No Build Alternative. In the AM peak hour, intersection operations would generally stay the same or improve in Seattle, especially along Airport Way South and South Dearborn Street, because HOV access from the I-90 D2 Roadway would be restricted. HOVs would likely shift to the I-90 western terminus at South Atlantic Street/SR 519, which could lead to slightly worse intersection operations in this area.

During the PM peak hour, intersection operations in Seattle would vary slightly when comparing the East Link Project to the No Build Alternative. At the I-90 D2 Roadway terminus at 5th Avenue South and Airport Way South/South Dearborn Street, intersection operations again are expected to improve because the HOV access to the D2 Roadway would not be permitted. In the operational option to have exclusive light rail use in the D2 Roadway (i.e., bus services are not permitted), AM and PM peak-hour intersection operations would further improve at the D2 Roadway terminus and slightly degrade at the I-90 terminus on 4th Avenue.

On Mercer Island, some intersections that provide access to or are adjacent to I-90 in the build condition might experience some degradation in operations because of the changes in I-90 access between no-build and build conditions.

In *Preferred Alternative A1* (providing an eastbound HOV off-ramp at Island Crest Way) and the design option that does not provide any eastbound HOV off-ramp, all Mercer Island intersections would meet agency standards in the 2020 and 2030 AM peak hours. With the design option that would provide the eastbound 77th Avenue SE HOV off-ramp, the intersection of 77th Avenue SE and Sunset Highway would not meet agency standards in the 2020 and 2030 AM peak hours.

In the 2020 PM peak hour, the *Preferred Alternative A1* (eastbound HOV off-ramp to Island Crest Way) and the design option that provides neither eastbound HOV off-ramp, three intersections would not meet agency standards. These intersections are North Mercer Way and 77th Avenue SE, SE 24th Street and West Mercer Way, and SE 27th Street and 80th Avenue SE. These intersections are expected to operate at LOS D or E conditions. In addition, the I-90 eastbound off-ramp and 77th Avenue SE would exhibit vehicle queue lengths that extend onto the I-90 mainline. With the design option to provide a 77th Avenue SE HOV off-ramp, the intersection of 77th Avenue SE and I-90 eastbound HOV off-ramp would fail to meet agency standards in addition to those already identified above, except the I-90 eastbound off-ramp at 77th Avenue SE, which would not exhibit queues extending onto the I-90 mainline under this design option.

By 2030, the *Preferred Alternative A1* and the design option that provides neither eastbound HOV off-ramp, the 76th Avenue SE and I-90 westbound on-ramp intersection would fail to meet agency standards, in addition to those identified for the 2020 PM peak hour. With the design option to provide a 77th Avenue SE HOV off-ramp, the intersection of 77th Avenue SE and Sunset Highway would fail to meet agency standards in addition to those identified for the 2020 PM peak hour under this design option. Overall, by 2030, with the *Preferred Alternative A1* and the design option that does not provide any eastbound HOV off-ramp, five intersections would fail to meet agency standards, all in the PM peak hour. With the design option to provide a 77th Avenue SE HOV off-ramp, six intersections would fail to meet agency standards by 2030, five in the PM peak hour and one in both the AM and PM peak hours.

Segment B

With the No Build Alternative, the physical characteristics of the arterials and local roadways in 2020 and 2030 would remain the same as in existing conditions, except for modifications to the SE 8th Street interchange as part of the State's I-405 improvements.

With any Segment B alternative, roadway channelization generally remains similar to the No Build Alternative, except near the South Bellevue Station (described in the following section), as the alternatives are either outside the roadway right-of-way or, when the alternative is within the roadway, channelization is restored to no-build conditions.

Traffic Control, Property Access, and Circulation

Alternative B1 would have the highest number of traffic control revisions because it travels in the median along Bellevue Way SE, while Alternative B7 would have the fewest.

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M (with either Segment C connection) would operate in exclusive right-of-way along the east side of Bellevue Way SE. Two roadway modification options are proposed to improve the station and neighborhood access along Bellevue Way near the South Bellevue Station. Of the two options, the second option, which does not install a traffic signal at SE 30th Street or provide a southbound HOV lane, is more consistent with the City of Bellevue's adopted long-range plans.

The first option would install two new traffic signals along Bellevue Way SE at the south driveway to the South Bellevue Station and at SE 30th Street and would convert the center two-way left-turn lane from the South Bellevue Station to I-90 into a southbound HOV lane. With the signal at the south driveway, westbound left turns exiting the South Bellevue Station would be allowed. Right-in/right-out access would be provided to residences south of the South Bellevue Station, and northbound and southbound U-turn movements would be allowed at the intersection of Bellevue Way SE, 112th Avenue SE, and the South Bellevue Station. At the SE 30th Street intersection, northbound traffic from I-90 would not be stopped by the signal. Access to the Sweylochen Boat Ramp would be right-in/right-out, and a northbound left turn into the Enatai neighborhood would be provided. The eastbound left turn exiting the Enatai neighborhood at SE 30th Street would be prohibited, and vehicles would be rerouted to 112th Avenue SE or another location.

The second option would also install a traffic signal at Bellevue Way SE and the south driveway to the South Bellevue Station. With this signal, northbound U-turn movements would be allowed at this intersection, and southbound U-turns would be allowed at the intersection of Bellevue Way SE, 112th Avenue SE, and the South Bellevue Station. No changes to property access and circulation along Bellevue Way would occur south of the south driveway, and the current movements allowed at SE 30th Street and Bellevue Way SE would remain.

For the connection to *Preferred Alternative C11A*, *Preferred Alternative B2M* along 112th Avenue SE would transition to at-grade center-running south of SE 15th Street, with the light rail train crossing of the northbound lanes controlled by gates. A signalized crossing would be provided at the SE 8th Street intersection. This variation of *Preferred Alternative B2M* would provide right-in/right-out access along 112th Avenue SE from Bellevue Way to SE 6th Street except at SE 8th Street, where left-turn and U-turn movements would be allowed. The pedestrian, bicycle, and maintenance driveways to Lincoln Plaza just south of SE 6th Street would be closed. Emergency access from south of the two driveways, however, would be maintained. Access to this property would be maintained on SE 6th Street, which would minimize the impact.

Along 112th Avenue SE, the connection from *Preferred Alternative B2M* to *Preferred Alternative C9T* would operate on the east side of 112th Avenue SE and cross SE 15th and SE 8th Streets as signalized gated crossings. A northbound right-turn pocket would be provided at the intersections of SE 8th Street and 112th Avenue SE and SE 15th Street and 112th. The emergency access driveway to Lincoln Plaza from 112th Avenue SE just south of SE 6th Street would be maintained, but the pedestrian, bicycle, and maintenance driveway would be closed. Access to this property is maintained on SE 6th Street, which would minimize the impact.

An option with the *Preferred Alternative B2M* connection to *Preferred Alternative C9T* would close the east approach at SE 15th Street to the Bellefield Office Park. Closing SE 15th Street would eliminate the conflict between light rail and vehicles, pedestrians, and bicyclists at this location. This closure would recirculate vehicles in the office park to the intersection of 114th Avenue SE and SE 8th Street. During emergencies, SE 15th Street might need to be opened, allowing for a secondary access into and out of the Bellefield Office Park.

Other Segment B Alternatives
For all alternatives, with the exception of Alternatives B1 and B7, traffic control, property access, and circulation near the South Bellevue Station to I-90 would be the same as described in *Preferred Alternative B2M.*

Alternative B1 would modify property access along Bellevue Way north of the 112th Avenue SE intersection and between the South Bellevue Station and I-90 to right-turn in/right-turn out because of the at-grade median profile. Between the 112th Avenue SE intersection and the South Bellevue Station an existing median is already in place, therefore, no change in property access would occur for this section. Where feasible, u-turn movements would be provided at signalized intersections along Bellevue Way to minimize circulation impacts.

South of the 112th Avenue SE intersection, Alternatives B2A, B3, and B3 - 114th Extension Design Option would have minimal impacts along Bellevue Way, similar to those of Alternative B1. North of this intersection, these three alternatives proceed along 112th Avenue SE until approximately SE 8th Street, restricting access to the Bellefield Office Park to the east and the residential properties to the west, allowing only right in/right-out movements. With the B3 – 114th Extension Design Option, an at-grade gated crossing of the northbound lanes on 112th Avenue SE, south of SE 8th Street, is provided.

Alternatives B2E and B7 would have minimal impacts on property access and/or traffic circulation because most of the length of these two alternatives would be either elevated or outside the roadway rights-of-way.

Operations and Level of Service
Year 2030 intersection operations in Segment B for the No Build Alternative and East Link are shown in Exhibit 3-22.

Under the No Build Alternative, intersection LOS in 2020 and 2030 is expected to degrade as traffic volumes increase on the roadways. Three intersections are expected to operate at LOS F in year 2020.

- SE 30th Street and Bellevue Way SE
- 112th Ave SE and SE 15th Street
- SE 8th Street and 118th Avenue SE

By 2030, the SE 6th Street and 114th Avenue SE and I-405 southbound ramps and Coal Creek Parkway intersections are also expected to operate at a failing LOS in the No Build Alternative.

The following intersections (including with the alternative where the impact occurs) would not meet agency standards with East Link and would operate worse than in the no-build condition.

- 112th Avenue SE and Bellevue Way SE (Alternatives B1, B2A, and B3)
- 112th Avenue SE/South Bellevue Station and Bellevue Way SE (Alternative B1)
- 112th Avenue SE and SE 15th Street (Alternatives B1, B2E, and B7)
- Coal Creek Parkway and I-405 southbound ramps (Alternative B7)
- 118th Avenue SE and SE 8th Street/I-405 southbound on-ramp (Alternative B7)

Preferred 112th SE Modified Alternative (B2M)
Under *Preferred Alternative B2M* with connections to *Preferred Alternatives C11A* or *C9T*, intersection operations would be similar to the no-build condition because of roadway and signal modifications along Bellevue Way SE and 112th Avenue SE.

The resulting intersection LOS along SE 8th Street at 112th Avenue SE and at 114th Avenue SE would still meet City of Bellevue LOS standards with the option to close the east approach at SE 15th Street to the Bellefield Office Park with the *Preferred Alternative B2M* connection to *Preferred Alternative C9T*. There would be, however, an increase in the northbound vehicle queues at the SE 8th Street and 114th Avenue SE intersection.

Other Segment B Alternatives
Alternatives B1, B2A, and B3 are at-grade throughout most of Segment B. These at-grade profiles would degrade intersection operations on Bellevue Way SE at the Bellevue Way SE and 112th Avenue SE intersection because of increased traffic associated with the expanded park-and-ride lot and changes in channelization due to the at-grade profile. Alternatives B2A and B3 are not expected to have any other intersection impacts. In addition to the proposed roadway modifications, under Alternative B1, pedestrians would access the light rail platform in one pedestrian crossing cycle, while pedestrians crossing Bellevue Way SE would require two pedestrian crossing cycles; this change in pedestrian crossing time would allow for improved intersection operations. No other intersections along Bellevue Way where light rail would operate at-grade are expected to experience worse intersection operations than in the no-build condition.

Because Alternative B2E is elevated throughout Segment B, intersection operations would not degrade due to route modifications. Only one intersection—112th Avenue SE and SE 15th Street—would degrade noticeably in this alternative. This effect is due to the increased traffic associated with the nearby stations.

The 118th Avenue SE and SE 8th Street intersection would operate at LOS F with the no-build condition and all Segment B alternatives. In Alternative B7, however, this intersection would operate with a higher delay than in the no-build condition due to the increased traffic from the new park-and-ride lot at the 118th Station. The intersection of Coal Creek Parkway and I-405 southbound ramps would also operate with a higher delay under Alternative B7 than in the no-build condition.

Segment C

Multiple projects are planned by the City of Bellevue and WSDOT within Segment C that will change the physical characteristics of major roadways from their existing condition, with or without the East Link Project, including the following:

- 110th Avenue NE widening from a three- and four-lane cross section to a five-lane cross section between NE 4th and NE 8th Streets
- NE 4th Street extension from 116th Avenue NE to 120th Avenue NE
- By 2030, NE 2nd Street widening from three lanes with on-street parking to five lanes between 112th Avenue NE and Bellevue Way NE

In general, Segment C tunnel alternatives (*Preferred Alternative C9T* and Alternatives C1T, C2T, and C3T) would not impact the roadway channelization except in some instances near the tunnel portals. At-grade alternatives within Segment C (*Preferred Alternative C11A* and Alternatives C4A and C9A) would require roadway modifications to 108th Avenue NE or 110th Avenue NE and NE 6th Street. Elevated alternatives in Segment C (Alternatives C7E, C8E, and C14E) would not impact roadway channelization except where the columns supporting the elevated structure are within the roadway right-of-way.

Traffic Control, Property Access, and Circulation
Alternative C4A would have the highest number of traffic control revisions because it travels at-grade along the side of 108th and 110th Avenues NE. The tunnel alternatives (Alternatives C1T, C2T, C3T, and C9T) and elevated alternatives along or east of 112th Avenue NE (C7E and C14E) would have the fewest revisions.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A has signalized crossings along 108th Avenue NE at Main, NE 2nd, NE 4th, and NE 6th Streets, a midblock pedestrian crossing north of NE 2nd Place, and signalized crossings at 112th Avenue SE and SE 6th Street and 110th Avenue NE and NE 6th Street. A southbound left-turn pocket would be provided at the 112th Avenue SE and SE 6th Street intersection. As *Preferred Alternative C11A* operates along portions of 108th Avenue NE and NE 6th Street in the median, property access and circulation is right-in/right-out except at signalized intersections, where all movements are allowed (including U-turn movements where appropriate) except the northbound left turns at NE 2nd Street and NE 4th Street. SE 4th Street would be closed to 112th Avenue SE. Access to SE 4th Street would be maintained via 111th Avenue SE. 110th Place SE and 110th Avenue SE would not have access to Main Street, but would have a new connection to one another. At Surrey Downs Park, the north driveway would be closed and the south driveway would allow right-in and right-out movements. No gates would be required. Due to the roadway realignment, the driveway may need to be rebuilt to the appropriate standards with this alternative.

With a connection to Alternatives B3, B3 - 114th Extension Design Option, or B7, no traffic control, property access, or circulation changes would occur along 112th Avenue SE because *Preferred Alternative C11A* would operate grade-separated east of 112th Avenue SE before transitioning to at-grade south of Main Street, west of 112th Avenue SE.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T has one signalized crossing at 112th Avenue SE and SE 6th Street. *Preferred Alternative C9T* would not affect roadway and property access and circulation except along 112th Avenue SE and NE 6th Street. SE 1st Street would be closed and not have access to 112th Avenue SE. Access to SE 1st Place would be maintained via 111th Avenue SE. SE 4th Street would be realigned to the intersection of 112th Avenue SE and SE 6th Street. With this realignment, northbound and southbound left turn pockets would be provided at SE 6th Street and 112th Avenue SE. Along NE 6th Street, property access would be similar to property access under *Preferred Alternative C11A*.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, *Preferred Alternative C9T* would operate in the same manner as *Preferred Alternative C11A* with no traffic control, property access, or circulation changes along 112th Avenue SE.

Other Segment C Alternatives

The tunnel alternatives (Alternatives C1T, C2T, and C3T) would have minimal traffic control, property access, and circulation impacts because they would mainly operate underground and would not affect vehicle circulation. Alternative C1T would restrict driveway access on Bellevue Way between the short section of SE 6th Street and SE Kilmarnock Street by allowing only right-in/right-out movements as it transitions to below grade; further, a new signal would be installed at the Bellevue Way SE and SE Kilmarnock Street intersection. Alternatives C2T and C3T would restrict driveway access on 112th Avenue SE south of SE 6th Street when connecting to Alternative B2A. All other Segment B connections to Alternatives C2T and C3T would not result in additional traffic control, property access, and circulation impacts on 112th Avenue SE. Alternatives C1T and C2T are similar to *Preferred Alternative C11A* once they exit their tunnel profiles east of the Bellevue Transit Station along NE 6th Street. Alternative C3T would require two road modifications north of NE 12th Street to serve the remaining residential properties. New connections to 110th Avenue NE would be constructed to the north and connect with 110th Avenue NE.

Alternative C4A would impact traffic circulation along 108th and 110th Avenues NE, and vehicles would operate one-way northbound along 108th Avenue NE and one-way southbound along 110th Avenue NE. Driveway locations on 108th and 110th Avenues NE where vehicles would cross light rail tracks would be potentially closed if access is available at another driveway location. The intersection at Main Street and 110th Avenue NE would be reconfigured to accommodate the realignment of 110th Avenue SE and 110th Place SE so that 110th Avenue south of Main Street would be realigned to match 110th Avenue NE north of Main Street. Minor impacts on traffic circulation at the NE 12th Street and 110th Avenue NE intersection are expected as a result of realigning 111th Avenue NE to connect to 110th Avenue NE. Private driveway access from existing properties on 111th Avenue NE would be maintained, and impacts on circulation would be expected to be minimal.

The Bellevue Transit Station location with Alternative C4A would close the City Hall visitor parking entrance on 110th Avenue NE; parking access would remain on NE 6th Street.

If Alternative C4A connects with Alternative B2A, there would be some property access and circulation impacts along 112th Avenue SE between SE 6th Street and just south of Main Street because the profile is at-grade and elevated in the median. Turning movements at driveways would be restricted to right-in/right-out movements. U-turn movements would be provided at the SE 6th Street and Main Street intersections along 112th Avenue NE to minimize circulation impacts. With the other Segment B connections, there would not be any traffic control, property access, or circulation impacts.

Alternative C7E is elevated along the east side of 112th Avenue NE, and its configuration would have minimal traffic control, property access, and circulation impacts. When connecting to Alternative B2A, traffic control, property access, and circulation along 112th Avenue SE between Main and SE 6th Streets would be similar to those under Alternative C4A. The signal at NE 6th Street and 112th Avenue NE also would be modified because of column placement. With the other Segment B connections, there would be no traffic control, property access, or circulation impacts.

Alternative C8E is expected to have some impacts on traffic control, property access, and circulation. Column placement along 110th Avenue NE between NE 2nd and NE 12th Streets would restrict turning movements to right-in/right-out at driveways. To minimize circulation impacts, U-turn movements at signalized intersections along this roadway section would be provided, where appropriate. Due to right-of-way constraints along 110th Avenue NE, northbound left turns at NE 8th Street would be prohibited and vehicles in this direction would have to turn left at either NE 4th or NE 10th Street. As this alternative only connects with Alternative B3, B3 - 114th Extension Design Option, or B7, traffic control, property access, or circulation would not be affected along 112th Avenue SE south of Main Street.

Alternative C9A, with a connection to Alternative B2A, would have traffic control, property access, and circulation impacts along 112th Avenue SE between Main and SE 6th Streets similar to those under Alternative C4A. A gated crossing would be provided to the properties south of Main Street at 110th Place SE. Alternative C9A would have signalized crossings along 110th Avenue NE at Main, NE 2nd, NE 4th, and NE 6th Streets. Because Alternative C9A would operate along 110th Avenue SE in the center median, property access and circulation would be right-in/right-out. This alternative would be similar to *Preferred Alternative C11A* once it becomes elevated on NE 6th Street. With the other Segment B connections, there would be no traffic control, property access, or circulation impacts.

Alternative C14E would have no signalized crossings or access and circulation impacts.

Operations and Level of Service

Year 2030 intersection operations with the No Build Alternative and East Link project are shown in Exhibits 3-23 and 3-24.

Under the No Build Alternative, intersections in Downtown Bellevue are expected to become more congested even as roadway projects are completed in the area. Four intersections in the study area are expected to operate at LOS F in 2020, and by the year 2030, four additional intersections are expected to operate at LOS F. These eight intersections are as follows:

- Bellevue Way and Main Street
- Bellevue Way and NE 4th Street
- Bellevue Way and NE 12th Street
- 112th Avenue NE and NE 8th Street (I-405 southbound off-ramp)
- 112th Avenue NE and Main Street
- 110th Avenue NE and NE 8th Street
- 112th Avenue NE and NE 12th Street
- 108th Avenue NE and NE 4th Street

With East Link, the majority of intersections in Segment C are expected to operate similarly to the No Build Alternative. This is due to the roadway modifications incorporated into each alternative and modified travel patterns related to a shift to transit. The following intersections (along with the alternative where the impact occurs) would not meet agency standards and would operate worse than in the no-build condition by 2030:

- Bellevue Way and Main Street (Alternative C1T)
- 112th Avenue NE and NE 12th Street (Alternatives C3T, C7E, and C8E)
- 112th Avenue NE and NE 8th Street (Alternatives C4A and C8E)
- 112th Avenue NE and Main Street (*Preferred Alternative C11A*)
- 110th Avenue NE and NE 8th Street (Alternatives C4A, C8E, and C9A)
- 110th Avenue NE and NE 6th Street (Alternative C9A)
- 108th Avenue NE and NE 12th Street (Alternative C4A)
- 108th Avenue NE and NE 4th Street (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C3T, C8E, and C9A)
- 108th Avenue NE and Main Street (*Preferred Alternative* C11A)

Preferred 108th NE At-Grade Alternative (C11A)

Most intersections in downtown Bellevue under *Preferred Alternative C11A* would operate similar to the No Build Alternative. The intersections of Main Street and 112th Avenue NE, Main Street and 108th Avenue NE, and NE 4th Street and 108th Avenue NE would not meet City of Bellevue LOS standards and would operate worse than the No Build Alternative. These impacts are due to roadway modifications and signal adjustments along 108th Avenue NE and because of passenger drop-off and pick-up traffic at the 108th Station and Bellevue Transit Center Station.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or Alternative B7, operations along 112th Avenue SE would be similar to a connection with *Preferred Alternative B2M*.

Preferred 110th NE Tunnel Alternative (C9T)

Most intersections in downtown Bellevue under the *Preferred Alternative C9T* would operate similar to the No Build Alternative because this alternative is mostly grade-separated from the street system. The intersection of NE 4th Street and 108th Avenue NE would not meet City intersection LOS standards and would operate slightly worse than the No Build Alternative condition with the additional drop-off/pick-up traffic at the Bellevue Transit Center Station.

A design option under *Preferred Alternative C9T* provides a Bellevue Transit Center Station exit and entrance on the west side of 110th Avenue NE. This would improve intersection operations at the intersection of 110th Avenue NE and NE 6th Street because the pedestrian-only signal phase would no longer be proposed to provide convenient pedestrian access to the station exit and entrance on the east side of 110th Avenue NE.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, operations along 112th Avenue SE would be similar to a connection with *Preferred Alternative B2M*.

Intersection LOS results for the East Main Street Station design option under *Preferred Alternative C9T* would be similar to a connection with Alternative B3, B3 - 114th Extension Design Option, or B7 that have an East Main Station.

Other Segment C Alternatives

Alternative C1T is grade-separated throughout most of Segment C except on Bellevue Way SE south of Kilmarnock Street, where the profile transitions from at-grade to a tunnel. The intersection operations at Bellevue Way and Main Street in both 2020 and 2030 are expected to get slightly worse from the traffic associated with the Old Bellevue Station. Overall, however, Alternative C1T is expected to cause little to no impact on the intersection LOS compared to the No Build Alternative.

Alternatives C2T and C3T are grade-separated throughout most of the Segment C. The intersection operations for both of these alternatives are expected to experience little change in LOS compared to the No Build Alternative except at the intersections of 108th Avenue NE and NE 4th Street under both alternatives and 112th Avenue NE and NE 12th Street under Alternative C3T. At both intersections, an increase in delay would result from additional trips associated with nearby stations.

The Alternative C4A is an at-grade profile throughout Segment C except south of Main Street when connecting to an elevated Segment B alternative. Alternative C4A operates as a light rail track couplet along 110th Avenue NE and 108th Avenue NE. Light rail would operate northbound along the east side of 110th Avenue NE and southbound along the west side of 108th Avenue NE between Main Street and NE 12th Street. Along 110th Avenue NE, to improve safety, auto traffic would be limited to the southbound direction with left-turn lanes at each intersection. Similarly, along 108th Avenue NE, auto traffic would be limited to the northbound direction with left-turn lanes at each intersection. Light rail gates are required at two intersections, at 111th Avenue NE north of NE 12th Street and at 110th Avenue SE south of Main Street, for the westbound light rail track.

Intersection operations with Alternative C4A are expected to experience some change compared to the No Build Alternative. Under Alternative C4A, three intersections would fail to meet standards and would operate worse than in the no-build condition: 108th Avenue NE and NE 12th Street, 110th Avenue NE and NE 8th Street, and 112th Avenue NE and NE 8th Street. These impacts would result from the changes in trip patterns and recirculation that would occur with a one-way couplet except at 108th Avenue NE and NE 12th Street, which is due to the at-grade light rail operations.

The 112th NE Elevated Alternative (C7E) is elevated throughout Segment C. With Alternative C7E, the Bellevue Transit Center Station would be located on 112th Avenue NE between NE 4th and NE 6th Streets. The resulting shift in passenger drop-off/pick-up traffic would not create additional delays at the intersections near this station. Intersection operations at 112th Avenue NE and NE 12th Street would fail to meet the intersection LOS standards due to additional trips associated with the Ashwood/Hospital Station.

Otherwise, this alternative is expected to cause little change in intersection LOS compared to the No Build Alternative.

Alternative C8E is elevated throughout Segment C. Along 110th Avenue NE between NE 2nd and NE 12th Streets, the number of lanes are reduced from a three- to five-lane section (planned by the City of Bellevue) for the No Build Alternative to a two- to four-lane section with the East Link Project. This is due to column placements and right-of-way constraints. The intersections of NE 8th Street at 110th Avenue NE, NE 8th Street at 112th Avenue NE, NE 12th Street at 112th Avenue NE, and 108th Avenue NE and NE 4th Street would operate at LOS F and worse than the no-build condition. This is a result of the shift in travel patterns associated with the reduction in travel lanes because of the median column placements and additional trips associated with the Bellevue Transit Center and Ashwood/Hospital stations. Otherwise, this alternative is expected to cause little change in intersection LOS compared to the No Build Alternative.

Under Alternative C9A, most intersections operate similar to the No Build Alternative. Along 112th Avenue SE, intersection impacts would be similar to those described for Alternative C4A. The intersections of NE 4th Street and 108th Avenue NE and NE 8th Street and 110th Avenue NE would not meet the City of Bellevue's intersection LOS standards and would operate worse than the No Build Alternative condition. Intersection delays along 110th Avenue NE would be higher with Alternative C9A than under the No Build Alternative, but would continue to operate within the City of Bellevue's LOS standards unless where noted.

Intersection operations with Alternative C14E would operate similar to the No Build Alternative condition due to the elevated alignment on the eastern edge of downtown Bellevue. If a parking garage were provided to support the Bellevue Transit Center Station with Alternative C14E, stalls would need to be managed to prohibit use by non-transit passengers. Also, congestion along NE 6th Street and 112th Avenue NE would likely become slightly worse and possibly require mitigation with the additional traffic associated with a parking garage.

With any of the nonpreferred Segment C alternatives, a connection to Alternative B3, B3 - 114th Extension Design Option, or B7 would not impact operations along 112th Avenue SE and intersection LOS results would be similar to the No Build Alternative.

With Alternatives C3T, C4A, C7E, and C8E, the gated crossing of 116th Avenue NE would be coordinated with the traffic signal at NE 12th Street and 116th Avenue NE to allow enough clearance for southbound vehicles potentially queued between NE 12th Street and the gated crossing. Intersection operations would meet City standards.

Concept Design Report Analysis

In addition to the analysis provided in this Final EIS, Sound Transit and the City of Bellevue cooperatively explored at-grade and grade-separated alternatives in Segment C and analyzed their effects on traffic operations using different models than those applied in this Final EIS. Results of the study are presented in the *Downtown Bellevue Light Rail Alternatives Concept Design Report* (CH2M HILL, 2010). A peer review of the study by traffic engineering and transit operations professionals from Seattle, Portland, Denver, and San Diego concluded that the traffic modeling, simulation, and operational analysis were sufficient to compare build alternatives. Based upon their experience in all four cities, the panel concluded that the surface alternatives studied would impact traffic operations in Bellevue similarly to those of the surface light rail systems in the comparable downtown environments of Portland, Denver, and San Diego. The panel noted that most changes in forecasted future traffic operating conditions in Downtown Bellevue would result from traffic volume growth and not from the introduction of surface light rail.

This analysis is not included in the Final EIS because the methodology is not consistent with the EIS approach reviewed by all cooperating agencies, a no-build condition was not analyzed, and some of the Segment C alternatives were not included. Even so, some of the key downtown traffic analysis findings are important to note. Specifically, two criteria (average vehicle delay for all downtown intersections and average vehicle delay for intersections adjacent to the at-grade light rail alignments) produced conclusions similar to those of the EIS analysis when comparing the grade-separated (*Preferred Alternative C9T* and Alternative C14E) and at-grade (Alternative C9A and *Preferred Alternative C11A*) alternatives. In both analyses, the difference between the grade-separated and the at-grade alternative for the average downtown vehicle delay was within 10 percent. The Final EIS analysis also projected percentage differences in vehicle delay for the key affected intersections similar to those presented in the *Downtown Bellevue Light Rail Alternatives Concept Design Report*.

Interim Terminus Stations

The Ashwood/Hospital and Hospital stations are potential interim termini. The ridership at the Ashwood/Hospital Station would not substantially increase as an interim terminus. The ridership at the Hospital Station would increase as an interim terminus. With a Hospital Station interim terminus, most additional ridership would result from transfers to and from buses. Therefore, no transportation impacts beyond what is described in the alternative route analysis would be expected.

Segment D

Within Segment D, multiple roadway projects planned by the cities of Bellevue and Redmond will change the physical characteristics of major roadways from their existing conditions, both with and without the East Link Project. Some of these planned roadway projects are:

- Extending NE 15th Street and NE 16th Street with widths varying between three and five lanes between 116th and 132nd Avenues NE
- Widening 120th and 124th Avenues NE to five lanes
- Widening 130th Avenue NE to provide a center two-way left-turn lane
- Widening Northup Way between 120th and 124th Avenues NE to accommodate an additional eastbound lane
- Implementing a multimodal pedestrian corridor along 152nd Avenue NE with one vehicle lane in each direction and left-turn lanes, bicycle lanes, parking and sidewalks

With any Segment D alternative, roadway channelization generally would remain similar to the No Build Alternative because the alternatives are either outside the roadway right-of-way or, when the alternative is within the roadway, the channelization is replaced.

Traffic Control, Property Access, and Circulation

Impacts on property access and circulation in Segment D are expected to affect mainly NE 16th Street, 136th Avenue NE, NE 20th Street, NE 24th Street, and 152nd Avenue NE. Substantial sections of the light rail track for each of the alternatives in Segment D would be outside the roadway right-of-way.

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A would be located north of the planned NE 15th Street extension and would be grade-separated beneath 120th and 124th Avenues NE, with minimal impacts on property access and circulation in this area. *Preferred Alternative D2A* would then transition to at-grade center-running on NE 16th Street and 136th Place NE, with signalized crossings at 130th Avenue NE, 132nd Avenue NE, 136th Place NE, and NE 20th Street. Where *Preferred Alternative D2A* would operate center-running along NE 16th Street and 136th Place NE, property access and circulation would be right-in/right-out except at signalized intersections, where U-turn movements are provided.

The D2A - 120th Station Design Option associated with *Preferred Alternative D2A* includes a gated at-grade crossing at 120th Avenue NE, while the D2A - NE 24th Design Option includes a gated crossing at 151st Avenue NE and driveways along the west side of 152nd Avenue NE are closed. Access to these properties would be provided at the intersection of 151st Avenue NE and NE 24th Street. Two driveways on the north side of NE 24th Street would be closed, but vehicle access to these properties would remain at one driveway and at the NE 24th Street and 151st Avenue NE intersection. Because there are up to two remaining access locations along NE 24th Street, no substantial impacts would be anticipated.

Other Segment D Alternatives

Alternative D2E would travel outside the roadway right-of-way for most of the route length, and traffic control treatments would be minimal. At the intersections of 151st and 152nd Avenues NE and NE 24th Street, light rail crossings signals and gates would be provided. Driveway access on the south side of NE 24th Street between 148th Avenue NE and 151st Place NE would be removed to prevent vehicles from crossing the at-grade track. Internal circulation within properties would be modified to allow access via 148th Avenue NE and/or 151st Place NE. Similarly, driveways on the west side of 152nd Avenue NE between NE 24th and NE 28th Streets would be closed. Vehicle circulation within the surrounding office park would be routed to 151st Place NE.

Alternative D3 would have the most property access and circulation impacts because it would operate in the median along NE 16th and NE 20th Streets, prohibiting all midblock left-turn movements along these arterials between 120th Avenue NE and 136th Place NE along NE 16th Street, and between 136th Place NE and 152nd Avenue NE along NE 20th Street. Drivers would either be rerouted to the nearest signalized intersection to perform a U-turn movement, or they would adjust their travel patterns to use the surrounding street system. Signalized crossings would be provided along the NE 15th Street extension at 120th, 124th, 130th, and 132nd Avenues NE and at 136th Place NE. Signalized crossings would be provided along NE 20th Street at 140th Avenue NE and at the Ross Plaza entrance (14300 block). A signalized crossing would also be provided at the intersection of NE 24th and 152nd Avenue NE. North of NE 20th Street, Alternative D3 would proceed along 152nd Avenue NE as a median at-grade profile. This profile would prohibit midblock left-turn movements and potentially create U-turn movements at the signalized intersections of NE 24th and NE 26th Streets. Unlike Alternative D2E, the western property access along 152nd Avenue NE between NE 24th and NE 28th Streets would remain and allow right-in/right-out movements.

Alternative D5 would have the fewest property access and circulation impacts because most of the route is outside of arterial right-of-way. Similar to Alternative D2E, the driveways on the west side of 152nd Avenue NE between NE 26th and NE 28th Streets would be closed, and vehicle circulation would be routed to 151st Place NE.

For all Segment D alternatives, vehicle access to the park-and-ride at the Overlake Transit Center would be reconfigured to the NE 36th Street and 156th Avenue NE intersection.

Operations and Level of Service

Year 2030 intersection operations for the No Build Alternative and East Link are shown in Exhibit 3-25.

Intersection operations under the No Build Alternative in Segment D are expected to worsen as traffic volumes increase on the roadways. By year 2030, the following six intersections are expected to operate at LOS F:

- NE 20th Street and 140th Avenue NE
- NE 24th Street and 148th Avenue NE
- NE 24th Street and 152nd Avenue NE
- NE 40th Street and 156th Avenue NE
- NE 40th Street and 148th Avenue NE
- NE 36th Street and 156th Avenue NE

With East Link, the following intersections (including with the alternative where the impact occurs) would not meet agency standards and would operate worse than in the no-build condition:

- 120th Avenue NE and NE 16th Street (D2A – 120th Design Option, 2020 only)
- 148th Avenue NE and NE 20th Street (Alternative D3, year 2020 only)
- 151st Avenue NE and NE 24th Street (Alternative D2E)
- 152nd Avenue NE and NE 24th Street (*Preferred Alternative D2A*, D2A – NE 24th Design Option, Alternative D2E, and Alternative D5)

Preferred NE 16th At-Grade Alternative (D2A)

Intersection operations with *Preferred Alternative D2A* would operate similar to the No Build Alternative because this alternative would be either grade-separated from the roadway or, when at-grade, it generally would operate parallel to the major traffic movements and the number of roadway lanes provided would remain the same as the No Build Alternative.

With the D2A - 120th Station Design Option, the intersection of NE 15th Street and 120th Avenue NE would not meet City intersection LOS standards and would operate worse than the No Build Alternative condition in year 2020. By year 2030, the intersection would meet City LOS standards as a result of planned City of Bellevue improvements along 120th Avenue NE.

Although the *Preferred Alternative D2A* and the D2A - NE 24th Design Option would not cross the intersection of NE 24th Street and 152nd Avenue NE, this intersection would not meet City of Redmond intersection LOS standards because of additional trips associated with the Overlake Village Station. The intersection of NE 24th Street and 151st Avenue NE would also not meet City intersection LOS standards because of driveway closures along the west side of 152nd Avenue NE and train operations associated with the D2A - NE 24th Design Option.

With the *Preferred Alternative D2A* there is the potential to locate the park-and-ride lot at either the 130th Station or 120th Station. With either location, traffic operations, including the number of intersections failing to meet the intersection LOS standards, would be similar to the previously described analysis for the *Preferred Alternative D2A*.

Other Segment D Alternatives

Because Alternative D2E generally shares the same route as *Preferred Alternative D2A*, the intersection results are similar. Intersection operations would degrade at the intersections of NE 24th Street and 151st Avenue NE and NE 24th Street and 152nd Avenue NE due to signal adjustments necessary for safe operation of light rail as it transitions from the south side of NE 24th Street to the west side of 152nd Avenue NE.

Alternative D3 would be at-grade or in a trench throughout most of Segment D. Along 152nd Avenue NE, Alternative D3 would operate at-grade in the median until it becomes aligned with the west side of the road north of Microsoft Road. By operating in the median on 152nd Avenue NE, light rail trains would be able to travel with the north-south through traffic, minimizing impacts at NE 24th Street and 152nd Avenue NE intersection. Otherwise, there would be little difference in intersection operations from the No Build Alternative.

Because Alternative D5 would be primarily elevated or within SR 520 right-of-way, there would be little difference in intersection operations from the No Build Alternative except at NE 24th Street and 152nd Avenue NE, where additional trips from the nearby Overlake Village Station would cause an increase in delay compared to the no-build condition.

Under any Segment D alternative, AM peak hour intersection operations along 156th Avenue NE and NE 40th Street would vary only slightly when compared to the no-build condition. In 2030, no intersections would fail to meet intersection operating standards in the build condition and none would operate worse than the no-build condition.

Interim Terminus Stations

The 120th, 130th, Overlake Village, and Overlake Transit Center Stations are potential interim termini. Even though ridership at these interim termini stations would increase by up to 1,500 (Table 3-27), only the Overlake Village Station warranted further traffic impact analysis. This additional ridership at the Overlake Village Station would be largely comprised of people using bus service; therefore, bus services would be increased to accommodate this additional ridership. This increase in bus service would have minimal impact on vehicle operations. Therefore, no change in intersection LOS is expected. The increase in bus service at the Overlake Village Station would be mainly with routes to and from the north along 156th Avenue NE.

Segment E

In Downtown Redmond, Cleveland Street and Redmond Way currently operate as a one-way couplet with traffic operating eastbound and westbound, respectively. In the future no-build condition, these two streets are planned to be converted to two-way operations, with Redmond Way providing one through lane and one left-turn pocket in both directions at intersections and Cleveland Street providing one lane in each direction. In addition, right-turn pockets will be provided for the eastbound and westbound approach at the intersection of Redmond Way and 164th Avenue NE. 164th Avenue NE will be extended between NE 76th Street and Cleveland Street. Bear Creek Parkway and 161st Avenue NE will also be extended to intersect south of the former BNSF Railway right-of-way.

With any Segment E alternative, roadway channelization generally remains similar to the No Build Alternative, as the alternatives are either outside the roadway right-of-way or when the alternative is within the roadway the channelization is replaced.

Traffic Control, Property Access, and Circulation

The alternatives in Segment E follow a general route that parallels SR 520 for a large portion of the segment length and use a substantial portion of existing former BNSF Railway right-of-way parallel to NE Redmond Way, so property access and circulation issues would generally be minimal.

Preferred Marymoor Alternative (E2)

For *Preferred Alternative E2,* light rail crossing gates would replace the existing railroad gates and serve as traffic controls along the former BNSF Railway corridor (at the 161st Avenue NE, Leary Way, 164th Avenue NE, 166th Avenue NE, and 170th Avenue NE crossings). *Preferred Alternative E2* would not affect the roadway channelization along the Segment E roadways. There would be no property access or circulation impacts with the *Preferred Alternative E2*.

The E2 – Redmond Transit Center Design Option would extend from *Preferred Alternative E2* and into Downtown Redmond along 161st Avenue NE between Cleveland and NE 85th Streets. The E2 – Redmond Transit Center Design Option would have more impacts on property access and circulation than *Preferred Alternative E2* because this design option would be at-grade in the median of 161st Avenue NE, restricting midblock property access to only right-in and right-out movements. To minimize vehicle recirculation, NE 83rd Street and 161st Avenue NE would be signalized, and U-turn movements would be allowed at the intersection of NE 85th Street and 161st Avenue NE.

Other Segment E Alternatives

With Alternative E1, properties with access on the south side of Redmond Way near the 159th Place NE intersection might have their access altered to accommodate the light rail track. West Lake Sammamish Parkway and the former BNSF Railway right-of-way would be modified to accommodate the tracks along the road. With Alternative E4, access to a residential property along the south side of Leary Way, just west of the Sammamish River, could potentially be modified to accommodate the light rail tracks along the road. Similar to *Preferred Alternative E2*, both Alternatives E1 and E4 would have light rail crossing gates along the former BNSF Railway corridor (at the 164th Avenue NE, 166th Avenue NE, and 170th Avenue NE crossings). Alternative E1 would have additional crossings at 161st Avenue NE and NE Leary Way, while Alternative E4 would have additional crossings at the intersection of Bear Creek Parkway and NE Leary Way and along NE 76th Street between NE Leary Way and 164th Avenue NE.

A service access road would be constructed near the SR 520 eastbound on-ramp and West Lake Sammamish Parkway to allow access to a traction power substation. However, this access point would be used by service vehicles only, and it would not likely affect circulation or property access near the on-ramp.

Traffic control and circulation along the former BNSF Railway corridor would be the same under all Segment E alternatives.

Operations and Level of Service

Year 2030 intersection operations in Segment E for the No Build Alternative and East Link are shown in Exhibit 3-26. As traffic volumes increase in 2020 and 2030, the intersection LOS results for the No Build Alternative would worsen from existing conditions. In the year 2020, three intersections are expected to operate at LOS F. By year 2030, two additional intersections for a total of five intersections are expected to operate at LOS F:

- NE Leary Way and West lake Sammamish Parkway
- NE 76th Street and 170th Avenue NE
- Avondale Road NE and Union Hill Road
- SR 202 and East Lake Sammamish Parkway (180th Avenue NE)
- NE 85th Street and 164th Avenue NE

With East Link, the following intersections (including the alternative where the impact occurs) would not meet agency standards and would operate worse than in the no-build condition in both 2020 and 2030:

- NE 76th Street and 170th Avenue NE (all Segment E alternatives)
- SR 202 and East Lake Sammamish (all Segment E alternatives)
- NE 70th Street and 176th Avenue NE (*Preferred Alternative E2* and E2 – Redmond Transit Center Design Option)

With East Link, the following intersections (including the alternative where the impact occurs) would not meet agency standards and would operate worse than in the no-build condition in year 2030 only:

- Redmond Way and 161st Avenue NE (E2 – Redmond Transit Center Design Option)
- SR 202 and NE 70th Street (all Segment E alternatives)

Preferred Marymoor Alternative (E2)

Intersection operations with the *Preferred Alternative E2* would be similar to the no-build condition except at the following four intersections where operations are expected to be worse and fail to meet City LOS standards: NE 76th Street and 170th Avenue NE, SR 202 and NE 70th Street, NE 70th Street and 176th Avenue NE, and SR 202 and East Lake Sammamish Parkway (180th Avenue NE). These impacts are due to the increase in traffic associated with the SE Redmond Station and the at-grade light rail crossing adjacent to the NE 76th Street and 170th Avenue NE intersection.

For the E2 – Redmond Transit Center Design Option, the intersection operations would be similar to those of *Preferred Alternative E2*, except at the Redmond Way and 161st Avenue NE intersection. This intersection is expected to operate at LOS F in 2030 because of roadway modifications along 161st Avenue NE to accommodate the median track alignment.

Independent of the *Preferred Alternative E2* alignment adjacent to NE 76th Street, the intersection signal phasing and operations along NE 76th Street would be similar as discussed under the *Preferred Alternative E2* and E2 – Redmond Transit Center Design Option.

Other Segment E Alternatives

With Alternative E1, intersection operations in year 2020 would be similar to the No Build Alternative except at the intersections of NE 76th Street at 170th Avenue NE and SR 202 at East Lake Sammamish Parkway. These two intersections would fail to meet intersection LOS standards. In year 2030, intersection operations would be similar to the No Build Alternative except at the two already identified as failing in year 2020 and at the intersection of SR 202 at NE 70th Street, which would fail to meet intersection LOS standards. These impacts are due to the increase in traffic associated with the SE Redmond Station and the at-grade light rail crossing adjacent to the NE 76th Street and 170th Avenue NE intersection.

Year 2020 and 2030 intersection operations with Alternative E4 would be similar to those of Alternative E1.

Interim Terminus Stations

The SE Redmond and Redmond Town Center stations are potential interim termini. The SE Redmond Station is not expected to generate enough automobile trips beyond the full-length alternative to warrant further traffic analysis because the full-length analysis assumed the SE Redmond Park–and-Ride will be at capacity. From Table 3-27, only the Redmond Town Center Station would generate enough additional PM peak-hour vehicles trips as an interim terminus to warrant further traffic analysis. Intersections near the Redmond Town Center Station are expected to meet City of Redmond LOS standards in the future except the intersection of NE 76th Street and 170th Avenue

NE. The increase in delay at this intersection is attributed to the at-grade light rail crossing adjacent to the intersection, similar to all Segment E Alternatives.

Maintenance Facilities

The potential maintenance facility sites in segments D and E are not expected to adversely affect intersection operations, property access, or traffic circulation. The *Transportation Technical Report* provides a detailed discussion of the traffic circulation at each of these potential maintenance facilities.

All maintenance facility alternatives would have approximately 60 parking stalls for employees and visitors. Maintenance facility staff shift hours would be similar to Central Link operation and maintenance facilities—6:00 a.m. to 2:00 p.m. and 2:00 p.m. to 10:00 p.m. These shift hours occur outside the peak periods, so little shift traffic is expected to occur during the peak hour. Fewer than 10 vehicle trips would occur to and from the maintenance facilities during the peak periods. These trips would include visitors and deliveries to and from the maintenance facilities.

Light rail vehicle storage track would be located along the former BNSF Railway right-of-way within Segment D. Light rail vehicles entering or exiting this vehicle storage track would have no impact on traffic operations as this activity would occur outside of vehicle roadways. Parking and limited office space for vehicle maintenance, such as cleaning, would occur at this location, but no impacts on traffic operations are anticipated.

3.6.3.3 Traffic Safety

This section provides a safety impact assessment of each alternative. The safety impact assessments are based upon *Integration of Light Rail Transit into City Streets* (Korve et al., 1996) and *Light Rail Service, Vehicular and Pedestrian Safety* (TRB, 1999). The *Transportation Technical Report* provides further discussion of safety impacts.

No substantial change from the existing accident conditions is expected with the No Build Alternative in any segment. Overall, the project-generated trips created by the East Link alternatives are not expected to increase the accident rates for automobiles because the roadway conditions would remain similar to or improve compared to the No Build Alternative.

Many of the at-grade alternatives (*Preferred Alternatives B2M* [when connecting to *Preferred Alternative C11A*], *C11A*, and *D2A* and Alternatives B1, B2A, B3, C9A, and E2 – Redmond Transit Center Design Option) would operate in the roadway median for some portion along the route and resemble the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 through June 2010), seven light rail train and vehicle accidents and one light rail train and pedestrian accident occurred, and overall corridor accidents per year decreased from 327 (before light rail) to 134 (after light rail). The light rail train accidents constitute about 6 percent of the total number of accidents along the corridor, and the corridor total was reduced by close to 60 percent once the light rail train revenue service began. The light rail train median barrier, which restricts vehicle turns to signalized intersections, is considered one of the contributing factors in the overall accident reduction along the corridor. Additionally, none of the light rail train-related accidents were considered life-threatening, and all of the light rail train-vehicle accidents involved vehicles illegally turning.

Segment A, *Preferred Interstate Alternative (A1)*

The proposed alternatives in Segment A consist of an at-grade profile located on I-90. Impacts on traffic safety on arterial and local streets are not expected because the proposed alternative would not operate on or require any right-of-way from local streets in the city of Seattle or the city of Mercer Island.

Segment B

Preferred 112th SE Modified Alternative (B2M)

The *Preferred Alternative B2M* when connecting to *Preferred Alternative C11A* would operate at-grade in the median along 112th Avenue SE, which would have a greater potential for vehicle-train accidents at roadway crossings than routes outside the roadway right-of-way. At-grade crossings occur south of SE 15th Street and at SE 8th Street. However, potential safety benefits related to eliminating midblock turning movements could reduce the overall accident rate. The *Preferred Alternative B2M* when connecting to *Preferred Alternative C9T* would operate at-grade and side-aligned, with crossings at SE 15th Street and SE 8th Street. An option to close the minor approach at SE 15th Street would result in only one crossing at SE 8th Street under *Preferred Alternative B2M* when connecting to *Preferred Alternative C9T.*

Other Segment B Alternatives

Alternatives B7 and B2E are expected to have minimal or no impact on the number of accidents because the light rail profile is separate from other travel modes. Alternatives B2A and B3 have some at-grade median sections with similar safety characteristics and numbers of crossings to the *Preferred Alternative B2M* with a connection to *Preferred Alternative C11A*. Alternative B1 has the greatest length of median at-grade design with seven crossings along Bellevue Way, but there would be the potential for an overall decrease in the accident rate through the elimination of mid-block turning accidents and protecting all left-turn movements on Bellevue Way, similar to the accident experience with Central Link along Martin Luther King Jr. Way in Seattle.

Segment C

Preferred 108th NE At-Grade Alternative (C11A)

The *Preferred Alternative C11A* would operate at-grade in the median along a portion of 112th Avenue SE, 108th Avenue NE, and NE 6th Street, with crossings at SE 6th Street, Main Street, NE 2nd Street, NE 4th Street, NE 6th Street, and 110th Avenue NE. These crossings would have a greater potential for vehicle-train accidents than routes outside the roadway right-of-way. However, potential safety benefits related to eliminating midblock turning movements could reduce the overall accident rate similar to the Central Link accident experience along Martin Luther King Jr. Way.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, no impact on accidents along 112th Avenue SE would be expected because the light rail profile would be grade-separated.

Preferred 110th NE Tunnel Alternative (C9T)

The *Preferred Alternative C9T* operates at-grade and side-aligned, with one signalized crossing along 112th Avenue SE, and grade-separated elsewhere in Segment C. At this crossing the train would operate in its own signal phase, so no substantial change in the number of accidents is expected.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, no effect on accidents along 112th Avenue SE would be expected because the light rail profile would be grade-separated.

Other Segment C Alternatives

Alternative C4A operates at-grade along 108th Avenue NE and 110th Avenue NE with crossings at Main, NE 2nd, NE 4th, NE 6th, NE 8th, NE 10th, and NE 12th Streets. These crossings would have a greater potential for vehicle-train accidents than routes outside the roadway right-of-way, but the design minimizes the interaction between at-grade light rail trains and vehicles. Converting both 108th and 110th Avenues NE to one-way vehicle streets, in the opposite direction of the light rail train, would reduce the number of movements that cross the light rail tracks and allow drivers to see approaching trains. Business driveways that cross the light rail track would potentially be closed if an alternate access to the business is available.

Alternatives C1T, C2T, C3T, C7E, C8E, and C14E are either tunnel or elevated alternatives mainly outside the roadway right-of-way. The biggest safety issue expected would be column placement in side-aligned elevated sections to avoid blocking driver visibility at intersections and driveways. For elevated sections in medians, column placement is not expected to create driver visibility issues because left turns between the columns would be prohibited and left turns at intersections would be controlled by traffic signals.

For alternatives with a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, no impact on accidents along 112th Avenue SE would be expected because the light rail profile would be grade-separated. For alternatives with a connection to Alternative B2A, operations would be median at-grade for a short distance and then transition to side-aligned elevated, and would have a similar accident experience as Central Link along Martin Luther King Jr. Way.

Alternative C9A would have safety characteristics along 110th Avenue NE similar to the P*referred Alternative C11A* along 108th Avenue NE.

Segment D

Preferred NE 16th At-Grade Alternative (D2A)

The *Preferred Alternative D2A* would operate primarily grade-separated or outside the roadway, but it has some sections of at-grade median operations along NE 16th Street and 136th Place NE with crossings at 130th Avenue NE, 132nd Avenue NE, NE 16th Street, and NE 20th Street. These at-grade median sections would have a greater potential for vehicle-train accidents than routes outside the roadway right-of-way. However, potential safety benefits related to the elimination of midblock turning movements could reduce the overall accident rate similar to the Central Link accident experience along Martin Luther King Jr. Way.

The D2A – 120th Station and NE 24th design options would have safety characteristics similar to *Preferred Alternative D2A* except with the one additional at-grade gated crossing in each design option.

Other Segment D Alternatives

Alternatives D2E and D5 would mostly operate outside of the roadway right-of-way; consequently, no substantial changes are expected in the accident frequency. In the elevated sections of Alternative D2E, columns would be placed so that driver visibility at driveways and intersections would not be obstructed. The at-grade crossing of 151st Avenue NE and 152nd Avenue NE would be gated and signalized for Alternative D2E.

Alternative D3 includes segments within the roadway right-of-way. Alternative D3 operates in the median on NE 16th Street, 136th Place NE, and 152nd Avenue NE with crossings at 120th, 124th, 130th, 132nd, and 140th

Avenues NE; NE 16th and NE 20th Streets; and the 14300 block (Ross Plaza) of NE 20th Street. These at-grade median sections would have a greater potential for vehicle-train accidents than routes outside the roadway right-of-way. However, potential safety benefits related to eliminating midblock turning movements could reduce the overall accident rate similar to the accident experience along Martin Luther King Jr., Way. Alternative D3 also operates in a retained cut on NE 20th Street and 152nd Avenue NE. Some at-grade crossings would also be gated. Providing traffic signals and/or gates at crossings minimizes the risk of increasing the accident frequency.

Segment E

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would mostly operate outside roadway right-of-way, and combined with the use of gated crossings, the risk of increasing the accident frequency would be minimal. Therefore, no substantial change in the number of accidents is expected. At-grade crossings would occur at 170th, 166th, 164th, and 161st Avenues NE and Leary Way NE.

Under the E2 – Redmond Transit Center Design Option, a portion of the alternative would be within the 161st Avenue NE right-of-way. Even so, the accident frequency is not expected to substantially change. Any accidents that occur in this median at-grade section would likely be relatively minor due to the low speed of the light rail train as it is entering and exiting the station. Additional at-grade crossings with this design option would occur at Redmond Way NE; and Cleveland, NE 83rd, and NE 85th Streets.

Other Segment E Alternatives

The Redmond Way (E1) and Leary Way (E4) Alternatives would have the same safety characteristics as *Preferred Alternative E2.*

Maintenance Facilities

No substantial changes are expected in the accident frequency along the roadways surrounding the maintenance facilities. Two maintenance facilities would have track crossing roadways: Maintenance Facility 3 (MF3), where track would spur off the main light rail track and cross NE 20th Street, and the SE Redmond Maintenance Facility (MF5), where track would cross NE 70th Street. Light rail trains would not cross these roads frequently and they would be protected with gates, so there would be no expected change in roadway safety conditions.

3.6.3.4 Parking

This section describes the key impacts on parking due to light rail within each segment, including on- and off-street parking removal and the potential for hide-and-ride and spillover parking impacts. Section 3.6.5 discusses possible parking mitigation strategies to reduce the hide-and-ride potential. Table 3-28 lists the parking impacts from each alternative. These are briefly discussed in the following subsections. This parking assessment is based on the current level of design completed for each alternative. In subsequent design refinements, the on- and off-street parking impacts may be adjusted. Parking impacts for each alternative are discussed in further detail in the *Transportation Technical Report* (Appendix H1). Table 3-29 lists the existing and proposed park-and-ride stalls and the forecasted PM peak-period (3-hour) vehicle usage at station park-and-ride facilities for years 2020 and 2030.

Spillover Parking. Transit riders that park on-street near park-and-ride lots due to the lot being full.

Hide-and-Ride Parking. Transit riders who park on-street near a transit stop and board transit.

Segment A, *Preferred Interstate 90 Alternative (A1)*

There would be no direct on-street or off-street parking impacts associated with the *Preferred Alternative A1* or any of the design options in Segment A. The potential for hide-and-ride parking impacts at the Rainier Station is expected to be high because there is a substantial amount of surrounding on-street parking available to accommodate riders. At the Mercer Island Station, there is a low potential for impacts with alternatives that include the South Bellevue Station (*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3). The location of the South Bellevue Station, which is proposed to provide over 1,400 stalls, provides riders with a higher-parking capacity option for drivers along I-90. In addition, although the current demand for the Mercer Island Park-and-Ride is near its parking capacity, there is minimal parking spillover into the surrounding areas due to the restricted parking, which indicates that the future level for hide-and-ride impacts is low.

For Alternative B7, there could be a slightly greater potential for spillover parking at the Mercer Island Station because the forecasted auto usage is higher than the Mercer Island Park-and-Ride capacity. Because the current park-and-ride lot is almost fully utilized and this alternative does not include a nearby light rail station with a park-and-ride lot, there might be a potential for parking spillover in the unoccupied on-street parking spaces (see Table 3-25). However, the City of Mercer Island recently implemented restricted (time-limited) parking in selected areas surrounding the Town Center, and those restrictions combined with the enforced RPZs in the residential neighborhoods north of I-90 would limit hide-and-ride parking at the Mercer Island Station.

TABLE 3-28
Parking Impacts by Alternative

Alternative	Parking Spaces Removed	
	On-Street	**Off-Street**[e]
Segment A		
Preferred Alternative A1	0	0
Segment B		
Preferred Alternative B2M to *Preferred Alternative C11A*	0	20
Preferred Alternative B2M to *Preferred Alternative C9T*	0	20
Alternative B1	0	57
Alternative B2A	0	7
Alternative B2E	0	18
Alternative B3	0	3
B3 - 114th Extension Design Option	0	73
Alternative B7	0	18
Segment C[a,b]		
Preferred Alternative C11A	10	340 to 360
Preferred Alternative C9T[c]	0	385 to 410
Alternative C1T	0	158
Alternative C2T	0	82 to 172
Alternative C3T	0	26 to 106
Alternative C4A	11	39 to 94
Alternative C7E	0	198 to 226
Alternative C8E	0	92 to 125
Alternative C9A	20	315 to 345
Alternative C14E	0	220
Segment D[a]		
Preferred Alternative D2A and D2A – 120th Station Design Option	30	376
D2A – NE 24th Design Option	30	382
Alternative D2E	0	348 to 356
Alternative D3	30	808 to 816
Alternative D5	0	239
Segment E[b]		
Preferred Alternative E2	0	20
E2 - Redmond Transit Center Design Option	16	94
Alternative E1	0	37
Alternative E4	0	45

[a] The range of off-street parking removal is due to connectors with Segments B and C.

[b] Segment C and E on-street parking is the total of unrestricted and restricted on-street parking. Restricted parking includes all parking spaces with special-use restrictions, such as drop-off/loading zones.

[c] C9T – East Main Station Design Option connecting from Preferred Alternative B2M would have no change in impacts on either Preferred Alternative C9T or B2M.

[e] Includes parking spaces removed at the station areas.

Notes: Indicated parking impacts are permanent displacements. Parking losses associated with construction are not included.

Segment B

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M would remove 20 off-street parking spaces in properties along Bellevue Way SE and 112th Avenue SE and zero on-street spaces.

Other Segment B Alternatives

The B3 – 114th Extension Design Option is expected to require removing the most parking spaces of the eight alternatives proposed in Segment B. Most of these spaces are located in the Wilburton Park-and-Ride. Among the alternatives in Segment B, Alternative B3 would remove the fewest parking spaces, which are located in the Mercer Slough Park. None of the alternatives in Segment B are expected to remove on-street parking. No on- or off-street spaces would be removed for the proposed stations. There is a low potential for parking spillover to occur at the South Bellevue Station in year 2020, but there is some potential for parking spillover at this station in year 2030 when the expected 1,560 autos exceeds the proposed parking (approximately 1,400 stalls). Even though there could be a potential for spillover by year 2030, the potential spillover is expected to be low.

The South Bellevue Park-and-Ride lot is currently at capacity and there is minimal parking spillover in the nearby residential areas because most of the parking in the area is not easily identifiable and/or accessible from Bellevue Way. This is illustrated by the low on-street parking utilization in the Enatai neighborhood (Table 3-29). In addition, the City of Bellevue constructed a sidewalk and eliminated on-street parking on 112th Avenue SE, south of the South Bellevue park-and-ride, to remove the potential for hide-and-ride parking near the station.

At the SE 8th Station, there would be a low potential for hide-and-ride parking because of the recently established residential parking zone for the Surrey Downs neighborhood. Additionally, this parking is not easily accessible to the SE 8th Station location. At the 118th Station, there is a low potential for hide-and-ride impacts because the park-and-ride lot is expected to accommodate year 2020 and 2030 auto demand.

Segment C

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would remove approximately 10 on-street parking spaces—located along 108th Avenue NE—and 340 off-street parking spaces. These off-street parking spaces are parcels along 108th, 112th, and 116th Avenues NE and Main and NE 2nd Streets. With a connection to Alternative B3, B3 - 114th Extension Design Option or B7, 10 on-street parking spaces and 360 off-street parking spaces would be removed.

TABLE 3-29
Existing and Proposed Park-and-Ride Parking Stalls and Forecasted Auto Use

Station	Alternative	Total Existing Parking Stalls	Total Proposed Parking Stalls	2020 Park-and-Ride Auto Demand[a]	2030 Park-and-Ride Auto Demand[a]
Mercer Island[b]	*Preferred Alternative A1*	447	447	390	460
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3	519	1,400	1,310	1,560
118th	Alternative B7	-	1,030	580	760
130th[c]	*Preferred Alternative D2A* and Alternatives D2E and D3	-	300	270	380
Overlake Village	All D alternatives	203	203	260	480
Overlake Transit Center	All D alternatives	170	320	460	670
SE Redmond	All E alternatives	-	1,400	1,030	1,030
Redmond Transit Center	E2 – Redmond Transit Center Design Option	377	377	150	180

[a] The 3-hour PM peak-period park-and-ride auto demand from Sound Transit's transit ridership model; 3-hour PM peak-period is a close representation of daily park-and-ride demand.

[b] The park-and-ride auto demand is associated with Alternative B7. With any Segment B alternative that includes a South Bellevue Station, the park-and-ride forecast is less than the proposed number of parking stalls.

[c] With *Preferred Alternative D2A*, there is the potential to locate the park-and-ride lot at either the 130th Station or 120th Station. With either location, park-and-ride auto demand would be similar.

Preferred 110th NE Tunnel Alternative (C9T)

With *Preferred Alternative C9T*, no on-street parking spaces would be removed, but 385 off-street parking spaces would be removed, the highest of any Segment C alternative. These removed off-street parking spaces would be associated with parcels along 112th Avenue NE, Lake Bellevue Drive, and 116th Avenue NE and would include parking spaces for approximately 105 vehicles and 20 motorcycles at the Bellevue City Hall parking garage.

Other Segment C Alternatives

The parking impacts associated with each alternative in Segment C depend upon the connection to Segment B alternatives. For example, either Alternative C3T or C4A would remove the fewest off-street stalls of any Segment C alternative, depending on their connection to Segment B. Seven unrestricted on-street spaces and four on-street spaces that have been designated as short-term loading zones would be removed under Alternative C4A.

Alternative C9A would remove the most off-street parking spaces after *Preferred Alternatives C9T* and *C11A*. Additionally, approximately 20 on-street parking spaces would also be removed under Alternative C9A. Impacts on the Bellevue City Hall parking garage would be less than those described with *Preferred Alterative C9T*.

The design of the Bellevue Transit Center Station with the Alternative C3T would require the removal of off-street parking spaces in a private parking lot on the northeast corner of the NE 6th Street and 108th Avenue NE intersection. For Alternative C7E, this station is expected to require the removal of parking spaces on the southeast corner of the intersection of NE 6th Street and 112th Avenue NE.

No impacts on parking spaces are expected with the construction of the Old Bellevue, East Main, 108th, Hospital or Ashwood/Hospital stations for any alternative in Segment C.

In general, the stations in Segment C are designed to accommodate bus transfers, pedestrians, and bicyclists. These stations would not be attractive stations for auto access (and the potential for hide-and-ride parking) due to the surrounding congestion and restricted public parking opportunities. At the Old Bellevue, Ashwood/Hospital, and Bellevue Transit Center stations, there is some available nearby on-street parking; however, there is a low potential for hide-and-ride parking at these stations because most of the on-street parking provided in this area is either restricted or in private lots that are monitored. There is also a low potential for hide-and-ride parking at the East Main and Hospital stations because of the minimal amount of available on-street parking surrounding the stations. At the 108th Station, hide-and-ride parking would be unlikely because the City of Bellevue has established a residential parking zone in the Surrey Downs neighborhood.

Segment D

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A would remove approximately 376 off-street parking spaces and 30 on-street parking spaces located on the north side of NE 16th Street between 132nd and 134th Avenues NE and on the east side of 136th Place NE between NE 16th and NE 20th Streets. The largest off-street parking impacts occur at the light industrial properties on the southwest end of Segment D near 120th Avenue NE between NE 14th and NE 15th Streets.

With the D2A – 120th Design Option, parking impacts would be similar to *Preferred Alternative D2A*. With the D2A - NE 24th Design Option, 382 parking spaces would be removed.

Other Segment D Alternatives

Alternative D3 would remove a relatively high number of off-street parking spaces, the largest being associated with a commercial space on the northwest corner of the intersection of NE 20th Street and 152nd Avenue NE. At an adjacent shopping center on the northeast corner of the intersection of NE 20th Street and 148th Avenue NE, parking spaces would be removed by Alternative D3. Alternative D3 would also require the removal of off-street parking spaces on multiple properties located along 152nd Avenue NE between NE 20th Street and NE 24th Street.

Alternatives D2E and D3 would affect the parking at light industrial properties at the southwest end of Segment D near 120th Avenue NE between NE 14th Street and NE 15th Street. Alternative D3 would have similar on-street parking impacts as *Preferred Alternative D2A*. Alternative D5 would remove the fewest off-street stalls of the Segment D alternatives.

Several areas where parking would be removed are near the 130th Station and the Overlake Village Station. Twenty off-street parking spaces near the 130th Station would be removed with *Preferred Alternative D2A,* D2E and Alternative D3. All of these affected parking spaces are located between 130th and 132nd Avenues NE, near NE 16th Street.

For *Preferred Alternative D2A,* the Overlake Village Station is located approximately 450 feet further north on the west side of 152nd Avenue NE from the existing Overlake Village Park-and-Ride. The *Preferred Alternative D2A* would remove parking spaces located in off-street parking lots adjacent to SR 520 and west of 152nd Avenue NE. For Alternative D2A – NE 24th Design Option and Alternative D2E, the design of the Overlake Village Station would require the removal of parking spaces located in private off-street parking lots on the northwest corner of the intersection of NE 24th Street and 152nd Avenue NE. Alternative D5 would affect the same private parking lots, but the number of affected parking spaces would vary depending on which of the two potential station locations is chosen. The design of the Overlake Village Station associated with Alternative D3 requires the removal of parking spaces located in private lots along 152nd Avenue NE, north of NE 24th Street.

At the 130th, Overlake Village, and Overlake Transit Center stations, there is a potential for parking spillover because the future parking forecast is higher than the station’s parking capacity. However, because there is a minimal amount of available on-street parking surrounding these stations, there is a low potential for hide-and-ride impacts. At the Overlake Transit Center, while the potential spillover could infringe on nearby private businesses, they are currently monitored. Therefore, hide-and-ride parking near this station is expected to be low.

Although there is currently available on-street parking that surrounds the 120th Station, planned land use and transportation changes surrounding the Bel-Red area could result in a decrease of available on-street parking and therefore a lower potential for hide-and-ride impacts. In Segment D, because there are numerous private parking lots surrounding the stations, measures such as security enforcement or time-limited parking by private owners would minimize the potential for hide-and-ride activities.

Segment E

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would have the least impact on parking of the four Segment E alternatives. A total of 20 off-street private parking spaces and zero on-street parking spaces would be removed under *Preferred Alternative E2.*

The E2 – Redmond Transit Center Design Option would have the greatest impact on parking of the four Segment E alternatives due to impacts along 161st Avenue NE. A total of 94 off-street private parking spaces and 16 on-street parking spaces would be removed. All of the on-street parking impacts would be located along 161st Avenue NE between NE 83rd and NE 85th Streets.

If the *Preferred Alternative E2* alignment adjacent to NE 76th Street requires the roadway to be reconstructed, its on-street parking may be removed.

Other Segment E Alternatives

Alternatives E1 and E4 would remove slightly more off-street parking than *Preferred Alternative E2* with 37 and 45 spaces, respectively.

The only station that would remove parking spaces in Segment E is the Redmond Transit Center Station with the E2 – Redmond Transit Center Design Option. This station would remove 30 off-street parking spaces located on the west side of 161st Avenue NE between NE 80th and NE 83rd Streets.

At the two stations with park-and-ride lots, Redmond Transit Center and SE Redmond, the expected auto forecasts would be less than the available parking capacity; therefore, there is a low potential for parking spillover at these stations. In addition, with the low amount of on-street parking available near the SE Redmond Station, there would not likely be hide-and-ride impacts at this station even if the parking demand exceeded the park-and-ride capacity.

At the Redmond Town Center and Downtown Redmond Stations, with no proposed park-and-ride lot and with a substantial amount of available on-street parking surrounding the station, high potential for hide-and-ride impacts could occur. However, the City of Redmond has recently implemented a restricted (time-limited) parking policy for much of their downtown area. This would limit hide-and-ride activity. Hide-and-ride parking could also occur in the neighboring retail center, but with the current security enforcement and planned time-limited parking, the potential for hide-and-ride activities in this development would be minimized. Owners of other private parking lots near the stations could implement measures such as security enforcement or time-limited parking that would minimize the potential for hide-and-ride activities in their parking lots.

3.6.4 Construction Impacts

Construction of the project alternatives would result in temporary impacts on arterials, local streets, and parking within the construction areas. While the overall construction duration would be about 7 years, most impacts would occur during the civil construction period (i.e. light rail and/or roadway construction) that would range from approximately 2 to 5 years in any given portion of the corridor.

Construction activities expected to have roadway impacts include utility relocation, roadway construction, light rail construction, truck hauling, demolition, and construction staging. The impacts from truck hauling were evaluated based on the number of truck trips and potential haul routes as discussed in the following subsection. For discussion of construction impacts on I-90, I-405, and SR 520, refer to Section 3.5; for construction impacts on transit, refer to Section 3.4. The *Transportation Technical Report* provides further discussion of the roadway impacts, including haul routes and truck trips, associated with the construction of each alternative.

3.6.4.1 Truck Volumes and Haul Routes

The exact number of construction truck trips that would be needed for the construction of each alternative is dependent on many variables that cannot be fully determined or finalized at this time, but an estimate was prepared to understand potential East Link Project construction impacts on the local and regional transportation system.

A range of truck trips is provided in Table 3-30 based on estimated quantities for the main trip generation activities, including imported fill material, concrete, asphalt concrete pavement, and excavated material that would be generated for the construction of each alternative. Truck trips associated with activities such as miscellaneous deliveries have not yet been quantified and are excluded from this estimate.

Preliminary truck haul routes were identified using the classified truck routes from WSDOT, King County, and the cities of Seattle, Bellevue, and Redmond, and are shown in Appendix G1. In general, multiple truck haul routes are proposed for each alternative based on access to regional transportation facilities and the alternative's route. Final truck haul routes would be determined in conjunction with the affected jurisdictions through the project's permitting processes.

Segment A

In Segment A, a relatively low amount of truck activity (less than 20 trucks per day) is expected because the alternative requires minimal excavation and import of loose materials. Trucks would access and use I-90 as a haul route. Trucks might also access a potential construction staging site within the I-90 right-of-way along Dearborn Street. In Segment A, the most intensive period of truck trips would last approximately 2 years.

Segment B

Of the alternatives in Segment B, *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* would likely require the most truck trips due to the amount of excavation and asphalt concrete pavement required. With this alternative, between 80 and 90 truck trips per day are estimated to be needed to access Bellevue Way SE, SE 8th Street, 112th Avenue SE, and 118th Avenue SE from I-90 and I-405. For all the Segment B alternatives, the trucks would access construction areas from these same streets. In Segment B, the most intensive period of truck trips would last approximately 2 to 3 years.

TABLE 3-30
Average Truck Trips for Construction of Alternatives

Alternative	Average Truck Trips To and From Location[a]	
	Per Day	Per Hour[b]
Segment A		
Preferred Alternative B, A, C	12 to 14	1 to 2
Segment B		
Preferred Alternative B2M to *Preferred Alternative C9T*	60 to 70	6 to 7
Preferred Alternative B2M to *Preferred Alternative C11A*	80 to 90	8 to 9
Alternative B1	54 to 66	5 to 7
Alternative B2A	35 to 42	3 to 4
Alternative B2E	18 to 23	2
Alternative B3	26 to 32	3
Alternative B7	24 to 30	2 to 3
Segment C		
Preferred Alternative C9T[c]	75 to 85	7 to 9
Preferred Alternative C11A	35 to 40	3 to 4
Alternative C1T	135 to 165	13 to 17
Alternative C2T	100 to 120	10 to 12
Alternative C3T	140 to 170	14 to 17
Alternative C4A	105 to 130	10 to 13
Alternative C7E	20 to 30	2 to 3
Alternative C8E	100 to 125	10 to 13
Alternative C9A	25 to 30	2 to 3
Alternative C14E	40 to 45	4 to 5
Segment D		
Preferred Alternative D2A	85 to 95	8 to 10
D2A – NE 24th Design Option	95 to 105	9 to 11
Alternative D2E	25 to 30	2 to 3
Alternative D3	50 to 60	5 to 6
Alternative D5	20 to 30	2 to 3
Segment E		
Preferred Alternative E2	55 to 65	5 to 7
E2 – Redmond Transit Center Design Option	55 to 70	5 to 7
Alternative E1	50 to 65	5 to 7
Alternative E4	50 to 60	5 to 6

[a] Truck trips presented are for connections to alternatives in adjacent segments that would produce the highest truck volumes.

[b] Assuming a minimum of 10 construction hours per day.

[c] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* only would have no change in impacts on either *Preferred Alternative C9T* or *B2M*.

Note: For haul origin/destination and preliminary truck haul routes for each alternative, refer to the Appendix H1, Transportation Technical Report, and the conceptual design drawings in Appendix G1.

Segment C

In Segment C, Alternative C3T would likely result in the greatest number of truck trips per day of the alternatives in Segment C. Between 140 and 170 truck trips per day would be required to access 108th Avenue NE and 112th Avenue NE between SE 8th and NE 12th Streets. In Segment C, the most intensive period of truck trips would last approximately 3 years for surface and elevated alternatives and approximately 4 years for tunneled alternatives. Generally, truck trips would access Segment C construction areas from I-405 via SE 8th, NE 4th, and NE 8th Streets.

Segment D

The D2A – NE 24th Design Option would require the most truck trips of all Segment D alternatives due to the amount of retained-cut, fill, and elevated structure. Between 95 and 105 truck trips per day could be expected with this alternative. In Segment D, the most intensive period of truck trips would last approximately 3 to 4 years. Generally, truck trips would access Segment D construction areas from SR 520 via 124th and 148th Avenues NE and NE 40th Street.

Segment E

In Segment E, each alternative would require about the same number of truck trips: between 50 and 70 trips per day. In Segment E, the most intensive period of truck trips would last approximately 2 to 3 years. These trips would likely be routed on a frontage road along SR 520 and along SR 202, West Lake Sammamish Parkway NE, and other streets.

Maintenance Facilities

For the proposed maintenance facilities in Segment D, the 116th Maintenance Facility (MF1) is expected to have the greatest number of truck trips, up to 140 per day. MF1 is located between 116th Avenue NE and the former BNSF Railway and has auto access to 120th Avenue NE. Truck trips are assumed to use the SR 520 interchange with 124th Avenue NE to deliver and haul materials. In Segment E, the SE Redmond Maintenance Facility (MF5) would require about 25 trips per day. The suggested truck route for this facility would use the SR 520 interchange with SR 202. The most intensive period of truck trips would last approximately 2 years.

3.6.4.2 Roadway and Parking Impacts

Construction impacts are estimated based on the level of design completed to date and the known construction activities. Traffic maintenance and construction plans would continue to be refined through the final design and permitting stages of this project and subject to approval by WSDOT and the cities of Bellevue, Seattle, Mercer Island, and

Redmond. The construction impacts, including construction truck traffic level, type and duration of road closure, availability of detour routes, and potential for neighborhood traffic intrusion, are detailed by segment in Table 3-31. Detour routes are available near most alternatives, but for detour routes that require longer out-of-direction travel, potential detour routes are identified. For roadways classified as collector or local arterials, these roads could be signed to only provide local access.

This section also discusses potential impacts for each of the maintenance facilities. For the preferred alternatives in Segments B and C, a PM peak-hour traffic analysis on the local streets and arterials is provided assuming the preliminary lane closures and possible detour routes described during the civil construction period. This was not performed for the preferred alternatives in Segments D and E as any roadway impacts would be on relatively low-volume local and collector streets therefore impacts to traffic would be less. This analysis is compared with the 2020 no-build condition, which indicates how the roadway conditions would change during the construction period. For nonpreferred alternatives, relative comparisons with the impacts described for the preferred alternatives are provided, where applicable.

For the discussion of the construction impacts on transit service and facilities, and to regional highways (I-90, I-405, SR 520), refer to sections 3.4.4 and 3.5.3.4, respectively.

Impacts Common to All Segments

In all segments, construction would affect roads, close lanes, require detours, and alter traffic patterns. Cross streets that intersect the alternatives would likely be partially closed for short durations to construct the track or other associated features through the intersection. Likewise, temporary closures of private driveways and any roads that need to be paved would also occur. If driveway closures are required, then property access to residences and businesses would be maintained to the extent possible. If alternative access is not available, then the specific construction activity would be reviewed to determine if it could occur during nonbusiness hours, or if parking could be provided at an alternative location.

A relatively high number of construction workers (producing traffic and requiring parking) would be needed to construct the project. The largest number of employees at any given site is anticipated during two periods: excavation for tunnel or retained-cut activities, and construction of the guideway and stations, especially if grade-separated. Contractors and construction workers parking near designated construction staging areas could affect area parking supply during heavy construction periods by using unrestricted on-street parking in residential or other areas near the construction site. The contractor is generally responsible for providing parking for construction workers where necessary. It is expected that some worker parking could be accommodated at the staging areas and along the route. Sound Transit or its contractors may lease parking for construction workers near construction sites. Sound Transit may acquire additional properties for temporary use for contractor parking.

Segment A, *Preferred Interstate 90 Alternative (A1)*

Within Segment A, short-term roadway shoulder and/or lane closures may occur on Rainier Avenue South, 23rd Avenue South, 77th Avenue SE and 80th Avenue SE for station area construction.

Segment B

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M connecting to either *Preferred Alternative C11A* or *C9T* would result in construction impacts along Bellevue Way, south of 112th Avenue SE and along 112th Avenue SE north of Bellevue Way SE.

Along Bellevue Way SE, between the South Bellevue Park-and-Ride and 112th Avenue SE, one lane would likely be closed for most of the civil construction period, and additional lane closures could be required at certain times depending on the construction activity. To construct the improvements on Bellevue Way SE south of the South Bellevue Park-and-Ride, *Preferred Alternative B2M* would close lanes on Bellevue Way SE for short periods to install the traffic signals and perform the necessary roadwork.

Civil construction activities would likely close one northbound lane along Bellevue Way SE for the *Preferred Alternative B2M* with additional lane closures possible at times. Motorist information and advance signing would be provided to encourage usage of parallel routes, such as I-405. Even with signed detour routes, congestion would likely increase for northbound traffic on Bellevue Way SE between I-90 and 112th Avenue SE, and therefore, up to two intersections would operate at LOS F compared with one intersection in the no-build condition during the civil construction period. Additionally, increased congestion would be expected along the signed alternate routes. The potential for traffic to cut through the Enatai neighborhood and travel along 108th Avenue SE to bypass the construction zone along Bellevue Way SE during the afternoon peak would be low because cut-through routes in this area are limited and circuitous.

TABLE 3-31
Roadway Construction Impacts by Segment

Segment/Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	Neighborhood Traffic Intrusion		
Segment A, Interstate 90								
Rainier Avenue South	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
23rd Avenue South	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
77th Avenue SE	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
80th Avenue SE	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
Refer to Section 3.5.3.4 for I-90 mainline construction impacts								
Segment B, South Bellevue								
Bellevue Way (south of 112th Avenue SE)	*Preferred Alternative B2M*	Principal arterial	Moderate	Partial, long-term	Yes, via I-405	Low	No	Yes
	Alternative B1	Principal arterial	Moderate	Partial, long-term	Yes, via I-405	Moderate	No	Yes
	Alternative B2A	Principal arterial	Low	Partial, long-term	Yes, via I-405	Moderate	No	Yes
	Alternative B2E	Principal arterial	Low	Partial, long-term	Yes, via I-405	Moderate	No	Yes
	Alternative B3	Principal arterial	Low	Partial, long-term	Yes, via I-405	Moderate	No	Yes
Bellevue Way (north of 112th Avenue SE)	Alternative B1	Principal arterial	Moderate	Partial, long-term	Yes	Moderate	No	Yes
112th Avenue SE	*Preferred Alternative B2M* to *Preferred Alternative C9T*[d]	Principal arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
	Preferred Alternative *B2M* to *Preferred Alternative C11A*	Principal arterial	Moderate	Partial, long-term	Yes	Moderate	No	Yes
	Alternative B2A	Principal arterial	Low	Partial, long-term	Yes	Moderate	No	Yes
	Alternative B2E	Principal arterial	Low	Partial, short-term	Yes	Moderate	No	Yes
	Alternative B3	Principal arterial	Low	Partial, long-term	Yes	Moderate	No	Yes
118th Avenue SE	Alternative B7	Collector arterial	Low	Partial, long-term	Yes	Low	No	No
Segment C, Downtown Bellevue								
Bellevue Way	Alternative C1T	Principal arterial	High	Partial, long-term	Yes	Moderate	No	Yes
106th Avenue NE	Alternative C2T	Local arterial	Moderate	Partial, long-term	Yes	Low	No	Yes

TABLE 3-31 CONTINUED
Roadway Construction Impacts by Segment

Segment/Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	Neighborhood Traffic Intrusion		
108th Avenue NE	Alternative C3T	Minor arterial	High	Partial, short-term with possible full, short-term	Yes	Low	No	No
108th Avenue NE (Main Street to NE 6th Street)	*Preferred Alternative C11A*	Minor arterial	Moderate	Partial, long-term	Yes	Low	Yes	Yes
108th Avenue NE (Main Street to NE 12th Street)	Alternative C4A	Minor arterial	High	Partial, long-term with possible full, short-term	Yes	Low	Yes	No
110th Avenue NE (Main Street to NE 6th Street)	*Preferred* Alternative *C9T*[d] and Alternative C9A	Minor arterial	High	Partial, long-term with possible full, short-term	Yes	Low	Yes	Yes
110th Avenue NE (Main Street to NE 12th Street)	Alternative C4A	Minor arterial	High	Partial, long-term with possible full, short-term	Yes	Low	yes	Yes
110th Avenue NE (NE 2nd Street to NE 12th Street)	Alternative C8E	Minor arterial	High	Partial, long-term	Yes	Low	No	Yes
112th Avenue SE (south of Main Street)	*Preferred Alternatives C11A* and *C9T*[d]	Principal arterial	Moderate	Partial, short-term	Yes	Low	No	Yes
112th Avenue SE (south of Main Street)	Alternatives C2T, C3T, C4A, C7E, and C9A (with *Preferred Alternative B2M and* Alternative B2A or B2E	Principal arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
112th Avenue NE (north of Main Street)	Alternative C7E	Principal arterial	Low	Partial, short-term	Yes	Low	No	No
Main Street	*Preferred Alternatives C11A* and *C9T*[d] and Alternatives C4A and C9A	Minor arterial	Moderate	Partial, short-term	Yes	Low	No	Yes
NE 2nd Street (110th Avenue NE to 112th Avenue NE)	Alternative C8E	Minor arterial	Moderate	Partial, short-term	Yes	Low	No	No
NE 12th Street	Alternatives C4A, C3T, and C8E	Principal arterial	Moderate	Partial, short-term	Yes	Low	No	No
NE 6th Street (between Bellevue Way and 106th Avenue NE)	Alternative C1T	Local arterial	High	Full, long-term	Yes	Low	No	Yes
NE 6th Street (between 110th Avenue NE and I-405)	*Preferred Alternatives C11A* and *C9T*[d] and Alternatives C1T, C2T, and C9A	Minor arterial	Moderate	Partial, long-term	Yes	Low	No	Yes

TABLE 3-31 CONTINUED
Roadway Construction Impacts by Segment

Segment/Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	Neighborhood Traffic Intrusion		
114th Avenue NE	Alternatives C8E and C14E	Minor arterial	Low	Partial, long-term	Yes	Low	No	No
Segment D, Bel-Red/Overlake								
NE 16th Street (between 120th Avenue NE and 124th Avenue NE)	Alternatives D2E and D3	Local arterial	Low	Partial, long-term	Yes	Low	No	No
NE 16th Street (between 132nd Avenue NE and 136th Place NE)	*Preferred Alternative D2A,* D2A – 120th Station and NE 24th Design Options, and Alternatives D2E and D3	Local arterial	Low	Partial long-term, and full, short-term	Yes	Low	Yes	Yes
136th Place NE (between NE16th Street and NE 20th Street)	*Preferred Alternative D2A,* D2A – 120th Station and NE 24th Design Options, and Alternatives D2E and D3	Collector arterial	Low	Partial long-term, and full, short-term	Yes	Low	Yes	Yes
NE 20th Street (between 136th Avenue and 152nd Avenue NE)	Alternative D3	Minor arterial	Moderate	Partial, long-term	Yes	Moderate	No	Yes
NE 24th Street (between 148th Avenue NE and 152nd Avenue NE)	Alternatives D2E and D2A - NE 24th Design Option	Minor arterial	Low	Partial, long-term	Yes	Low	No	Yes
151st Place NE at NE 24th Street	Alternatives D2A - NE 24th Design Option and D2E	Minor arterial	Low	Full, short-term	Yes	Low	No	No
152nd Avenue NE (north of NE 24th Street)	Alternative D2A - NE 24th Design Option and D2E	Local arterial	Low	Partial, long-term	Yes	Low	No	Yes
152nd Avenue NE (between NE 20th Street and SR520)	Alternative D3	Local arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
Microsoft Road	All Segment D Alternatives	Local arterial	Low	Partial, short-term	Yes	Low	No	No
Segment E, Downtown Redmond								
NE 40th, NE 51st, and NE 60th Streets overcrossings	All Segment E alternatives	Collector arterial	Moderate	Partial, short-term	Yes, via nearest overcrossing	Moderate	No	No
Leary Way, 164th and 166th Aves NE, 170th Avenue NE crossings	All Segment E alternatives	Local arterial	Moderate	Partial, short-term	Yes	Low	No	Yes
NE Leary Way	Alternative E4	Principal arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
NE 70th Street	All Segment E alternatives	Local arterial	Moderate	Full, short-term	Yes	Low	Yes	No
161st Avenue NE (between Redmond Way and NE 85th Street)	E2 – Redmond Transit Center Design Option	Collector arterial	Moderate	Full, long-term	Yes	Moderate	Yes	Yes

TABLE 3-31 CONTINUED
Roadway Construction Impacts by Segment

Segment/Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	**Neighborhood Traffic Intrusion**		
SR 520 on- and off-ramps at SR 202	*Preferred Alternative E2* and Alternative E2 – Redmond Transit Center Design Option and E4	State highway	Moderate	Partial, long-term	Yes, via West Lake Sammamish Parkway or SR 520 terminus	Low	No	No

[a] Low truck traffic is associated with alternatives that would have minimal fill, excavation, and concrete work; high truck traffic is associated with major fill, excavation, and concrete work. Moderate is between these two boundaries.

[b] Partial road closure assumes some lanes are open to traffic. Short- and long-term durations were determined to be less than or more than 1 year. Full short-term closures would be required for specific activities like station construction, retained cut and fill construction, column drilling, or girder placement, and can be as short as 1 night/day closure or as long as less than 1 year.

[c] On-street parking loss is characterized for street parking only and does not consider that some off-street parking might be lost due to the location of construction and staging areas.

[d] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* only would have no change in impacts on either *Preferred Alternative C9T* or *B2M*.

[e] Roadways classified as collector or local arterial could be signed to only provide local access during East Link civil construction. Additionally, if detour routes within the immediate vicinity are not available possible routes are suggested.

For *Preferred Alternative B2M* connecting to *Preferred Alternative C11A*, lane closures along 112th Avenue SE could include one northbound and one southbound lane from Bellevue Way SE to SE 6th.

For *Preferred Alternative B2M* connecting to *Preferred Alternative C9T*, one lane of 112th Avenue SE from Bellevue Way SE to SE 6th could be closed for some of the civil construction period. Similar to the construction impacts on Bellevue Way SE, depending on the construction activity, more or fewer lanes could be closed along 112th Avenue SE for short periods.

During construction along 112th Avenue SE for *Preferred Alternative B2M* connecting to *Preferred Alternative C11A*, traffic diversions to other parallel arterials, such as Bellevue Way SE and SE 8th Street, and regional facilities, such as I-405, would be likely. Although congestion would likely increase in the northbound and southbound directions on 112th Avenue SE, the number of intersections along 112th Avenue SE not meeting the City of Bellevue LOS threshold would be similar to the no-build condition. The probability of traffic using 108th Avenue SE between Bellevue Way SE and Main Street to bypass the construction zones along 112th Avenue SE would be discouraged by the existing traffic-calming devices (slow speeds and speed bumps) and motorist information and advance signing directing vehicles to other arterials and regional facilities.

For Preferred Alternative *B2M* connecting to *Preferred Alternative C9T,* some increase in congestion for the northbound traffic during the afternoon peak is expected with a northbound lane closed, but it would have lower impacts compared to *Preferred Alternative B2M* connecting to *Preferred Alternative C11A*.

Other Segment B Alternatives

With Alternative B1, construction impacts would affect Bellevue Way throughout the segment and would likely close multiple lanes (one northbound and one southbound lane) for some of the civil construction duration; also, additional lane closures could be required at certain times depending on the construction activity. Under Alternatives B2A, B2E, B3, and B3 - 114th Extension Design Option, construction impacts would occur along Bellevue Way south of 112th Avenue SE, and along 112th Avenue SE north of Bellevue Way. Alternatives B2A, B3, and B3 - 114th Extension Design Option would have roadway impacts similar to Alternative B1, and Alternative B2E would have roadway impacts similar to *Preferred Alternative B2M* along Bellevue Way south of 112th Avenue SE. Along 112th Avenue SE, these four alternatives (B2A, B3, B3 – 114th Extension Design Option, and B2E) would likely have impacts similar to those under *Preferred Alternative B2M*. Alternative B7 would result in construction impacts on 118th Avenue SE with short-term lane closures at certain times depending on the construction activity.

Detour routes for the Segment B alternatives along Bellevue Way and/or 112th Avenue SE (B1, B2A, B2E, B3, and B3 – 114th Extension Design Option) would be similar to *Preferred Alternative B2M*. Detour routes for Alternative B7 construction activities include I-405, Bellevue Way, and 112th Avenue SE, but would likely not be required because the traffic volumes on 118th Avenue SE are relatively low compared to volumes on Bellevue Way and 112th Avenue SE.

Traffic congestion for the alternatives along Bellevue Way SE or 112th Avenue SE is expected to be similar to or worse than the *Preferred Alternative B2M* depending on the number of lane closures. Traffic congestion with any lane closures proposed for Alternative B7 would likely be limited to along 118th Avenue SE.

Segment C

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would affect 112th Avenue SE near SE 6th Street, 108th Avenue NE between Main Street and NE 6th Street, and NE 6th Street between 108th and 112th Avenues NE. One or more lanes along 112th Avenue SE south of SE 6th Street would be closed for a short time for construction of the rail crossing from the median to the west side. For some of the *Preferred Alternative C11A* civil construction period, one eastbound lane on Main Street between 108th and 112th Avenues NE would likely be closed, but more or fewer lanes could be closed for short terms, depending on construction activities. Construction activities would close lanes along 108th Avenue NE. Property access to the residences and businesses along 108th Avenue NE between Main and NE 6th Streets would be maintained to the extent possible, either through access on 108th Avenue NE or alternative routes. Changes in property access would be coordinated with the appropriate residences and businesses. With any of the lane closures in downtown Bellevue, motorist information and advance signing would be provided that would encourage travel on parallel streets, and signal operations could be modified to optimize vehicle flow during construction.

Even with vehicles diverted to parallel streets, increased congestion would likely occur on 108th Avenue NE, and one intersection would operate at LOS F with the lane closures. In addition to 108th Avenue NE, 106th and 110th Avenues NE would likely also experience some increase in congestion as vehicles are detoured to avoid 108th Avenue NE.

Up to two additional intersections on these parallel streets between Main Street and NE 8th Street would operate at LOS F compared with the no-build condition.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, *Preferred Alternative C11A* would result in short-term temporary lane closures on 112th Avenue SE south of Main Street during the construction of the elevated track across 112th Avenue SE.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T would affect 112th Avenue SE near SE 6th Street, 110th Avenue NE between Main and NE 6th Streets, and NE 6th Street between 110th and I-405. One or more lanes along 112th Avenue SE south of SE 6th Street would be closed for the short-term construction of the at-grade crossing through the intersection of 112th Avenue SE and SE 6th Street. *Preferred Alternative C9T* would likely close one eastbound lane on Main Street between 110th and 112th Avenues NE, but more or fewer lanes also could be closed, depending on the construction approach. Construction activities would close some and possibly all lanes at times along 110th Avenue NE between Main and NE 6th Streets. Property access to the residences and businesses along 110th Avenue NE between Main and NE 6th Streets would be maintained to the extent possible either through access on 110th Avenue NE or alternative routes. Changes in property access would be coordinated with the appropriate residences and businesses. With any of the lane closures in downtown Bellevue, motorist information and advance signing would be provided that would encourage travel on parallel streets, and signal operations could be modified to optimize vehicle flow during construction.

Even with vehicles diverted to parallel streets, congestion would likely increase on 110th Avenue NE. In addition to 110th Avenue NE, 108th and 112th Avenues NE would likely also experience some increase in congestion as vehicles are detoured to avoid 110th Avenue NE. Up to three additional intersections, compared with the no-build condition, along these parallel streets between Main Street and NE 8th Street would operate at LOS F.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, *Preferred Alternative C9T* would have impacts similar to *Preferred Alternative C11A* crossing 112th Avenue SE.

Other Segment C Alternatives

Alternative C1T would affect Bellevue Way and NE 6th Street, and Alternative C2T would have impacts along 112th Avenue SE, 106th Avenue NE, and NE 6th Street along the alignment. Construction activities under Alternatives C1T and C2T would close lanes on the affected roadways. Property access to the residences and businesses along affected roadways would be maintained to the extent possible through those roadways or alternative routes. Increased congestion would likely occur along Bellevue Way under Alternative C1T and 106th Avenue NE under Alternative C2T. Adjacent roads would also likely experience increased congestion due to the lane closures. Alternative C3T would have impacts along the alignment on 112th Avenue SE, 108th Avenue NE, and NE 12th Street, but because of its construction methods, there would be fewer impacts along 108th Avenue NE relative to the Alternative C1T and Alternative C2T roadway impacts. For Alternative C3T, one or more lanes along 112th Avenue SE might be closed for a short time to construct the light rail crossing of 112th Avenue SE. One westbound lane on NE 12th Street between 108th and 112th Avenues NE would likely be closed, more or fewer lanes could be closed for short periods, depending on construction activities.

Alternative C4A would have impacts along 112th Avenue SE, Main Street, 108th Avenue NE, 110th Avenue NE, and NE 12th Street. Along 112th Avenue SE and NE 12th Street, impacts would be similar to those of Alternative C3T. Along Main Street, impacts would be similar to those under *Preferred Alternative C11A*. Along 108th and 110th Avenues NE, multiple lanes would be closed in order to convert the two-way traffic to a one-way couplet and to construct the light rail. Increased congestion would likely occur along both of these streets during the road modification and light rail civil construction periods.

With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, Alternative C4A impacts would be similar to those under *Preferred Alternative C11A* crossing 112th Avenue SE.

Alternative C7E would have impacts along 112th Avenue NE. Likely one northbound lane on 112th Avenue NE from the southern Segment C boundary to NE 12th Street would be closed during construction activities. With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, no additional roadway impacts would be experienced.

Alternative C8E would have impacts along the alignment on 114th Avenue, NE 2nd Street, 110th Avenue NE between NE 2nd Street and NE 12th Street, and NE 12th Street. One lane on 114th Avenue SE and one or more lanes on 110th Avenue NE would likely be closed during construction activities.

Alternative C9A would have impacts along 112th Avenue SE, 110th Avenue NE between Main and NE 6th Street, and NE 6th Street between 110th Avenue NE and 112th Avenue NE. With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, Alternative C9A would have construction impacts along 112th Avenue SE similar to *Preferred Alternative C11A*.

Alternative C14E would have impacts along 114th Avenue NE. Property and emergency access along 114th Avenue NE between Main and NE 6th Streets would be maintained either through access on 114th Avenue NE or alternate routes. This is not expected to create traffic impacts beyond this roadway.

Detour routes would be determined through final design and construction permitting. Because of the gridded street network in Downtown Bellevue, detour routes would likely be provided via adjacent parallel streets. Neighborhood traffic intrusion would range from low to moderate, depending on whether the construction activity occurs near residential areas to the north and south of downtown, but for most of the construction period neighborhood traffic intrusion would be minimal. Where partial and full roadway closures occur, increased congestion can be expected at adjacent intersections as vehicles avoid construction areas.

Within Segment C where tunneled alternatives cross roadways, short-term full street closures would likely occur. These closures are necessary for material excavation at these locations, such as the intersections of Main, NE 2nd, and NE 4th Streets with 110th Avenue NE under *Preferred Alternative C9T.*

Segment D

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A would have roadway impacts along NE 16th Street (between 132nd Avenue NE and 136th Place NE), 136th Place NE, and Microsoft Road. At-grade crossings would occur at 130th Avenue NE, 132nd Avenue NE, 136th Place NE, and NE 20th Street. Property access along NE 16th Street and 136th Place NE would be maintained to the extent possible through access either on these streets or on an alternate route, depending on the construction activity. However, short periods of full closures might occur along NE 16th Street and 136th Place NE. Increases in congestion are expected to remain isolated to these low-volume roadways and not extend into surrounding arterials.

The D2A – 120th Design Option would have impacts similar to the *Preferred Alternative D2A* with an additional at-grade crossing at 120th Avenue NE. The D2A – NE 24th Design Option would have roadway impacts similar to those under *Preferred Alternative D2A*, except that one lane along NE 24th Street and 152nd Avenue NE could be closed for most of the civil construction period and additional lane closures could be required at certain times, depending on the construction activity.

Detours would be available through many of the parallel arterial routes available in Segment D. The potential for detoured traffic and construction vehicles in neighborhood areas would be low because there is not a substantial amount of residential development in the area and the construction would occur on or near designated truck routes. There would be some on-street parking loss associated with construction impacts within Segment D.

Other Segment D Alternatives

Alternative D2E would have impacts along NE 16th Street, 136th Place NE, NE 24th Street, 152nd Avenue NE, and Microsoft Road. Alternative D3 would have impacts along NE 16th Street, 136th Place NE, NE 20th Street, 152nd Avenue NE, and Microsoft Road with at-grade crossings of 120th Avenue NE, 124th Avenue NE, 130th Avenue NE, 132nd Avenue NE, 136th Place NE, NE 20th Street, 140th Avenue NE, Ross Plaza entrance (14300 block), and NE 24th Street.

With Alternatives D2E and D3, impacts along the existing NE 16th Street and 136th Place NE would be similar to those under *Preferred Alternative D2A.* Along NE 24th Street and 152nd Avenue NE, Alternative D2E impacts would be similar to those under D2A – 24th Design Option. Alternative D3 could have multiple lanes closed along NE 20th Street and 152nd Avenue NE for most of the civil construction period, and additional lane closures could be required at certain times, depending on the construction activity. During periods of multiple lane closures, increased traffic congestion and poor intersection operations would likely occur along NE 20th Street.

Alternative D5 would have impacts along Microsoft Road similar to the *Preferred Alternative D2A*.

Traffic detours would be available under Alternative D3 during the construction along NE 20th Street and 152nd Avenue NE. Motorist information and signs directing vehicles to other arterials (NE 24th Street, Bel-Red Road, and 156th Avenue NE) would be provided. All other alternatives would have detours similar to those under *Preferred Alternative* D2A, with the exception of Alternative D5, which would have no detours.

Segment E

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would have impacts at the SR 520 on- and off-ramps at SR 202 and with the at-grade crossings at Leary Way, 164th Avenue NE, 166th Avenue NE, and 170th Avenue NE. All Segment E alternatives would have grade-separated crossings of NE 40th, NE 51st, and NE 60th Streets, with multiple lanes closed for most of the civil construction period, and additional lane closures could be required at certain times depending on the construction activity. Increased traffic congestion would likely occur during multiple lane closures on the NE 40th Street overpass during civil construction activities. Detours to adjacent SR 520 crossings and interchanges would be provided. NE 70th Street would be a full closure also for all Segment E alternatives.

The E2 – Redmond Transit Center Design Option would have the same impacts as *Preferred Alternative E2,* in addition to impacts along 161st Avenue NE between Redmond Way and NE 85th Street. 161st Avenue NE would likely be closed for most of the civil construction period. Property access along 161st Avenue NE between Redmond Way and NE 85th Street would be maintained to the extent possible either through access on 161st Avenue NE or alternative routes.

Detours through the commercial areas would occur along parallel routes (160th or 164th Avenues NE if 161st Avenue NE is closed). Throughout Segment E for all Segment E alternatives, the potential for traffic to detour through residential neighborhoods is low as most of the construction activities occur along SR 520 and in Downtown Redmond. There would be some on-street parking loss associated with construction impacts within Segment E.

If the *Preferred Alternative E2* alignment adjacent to NE 76th Street requires the roadway to be reconstructed, it would be constructed prior to the East Link construction along this section of roadway.

Other Segment E Alternatives

Alternative E1 would have impacts at the Leary Way, 164th Avenue NE, 166th Avenue NE, and 170th Avenue NE crossings, and on NE 70th Street. The Leary Way Alternative (E4) would have impacts along Leary Way, 164th Avenue NE, 166th Avenue NE, 170th Avenue NE, and NE 70th Street, and at the SR 520 on- and off-ramps at SR 202. Many of the construction impacts and potential detours under Alternatives E1 and E4 would be similar to *Preferred Alternative E2*.

Maintenance Facilities

Constructing the maintenance facilities would temporarily close streets that intersect the track leading to and from the maintenance facility. These closures would most likely occur during off-peak hours to avoid traffic disruptions and would generally last for less than a week. Also, private driveways and any roads that need to be paved could be temporarily closed. Otherwise, there would be no impacts from construction of the maintenance facilities.

3.6.5 Potential Mitigation

This section discusses mitigation for impacts on intersection LOS and parking during project operation, and mitigation for impacts during project construction. Final mitigation would be coordinated with each affected jurisdiction through subsequent phases of this project.

3.6.5.1 Intersection Level of Service

Arterial and local street mitigation is potentially required at intersections where the intersection LOS with the East Link Project, compared with the no-build condition, would degrade to levels that do not meet the LOS standards of the jurisdiction. The intersections that are potentially affected and their related improvements are discussed in the following subsections.

Segment A

In Segment A, no mitigation would be required in the City of Seattle. However, several intersections on Mercer Island might potentially require turn pockets or traffic signal improvements to adjust for the change in travel patterns to and from the island. Improvements at intersections within the City of Mercer Island's jurisdiction would include:

- West Mercer Way and 24th Avenue SE: Provide southbound left-turn pocket (*Preferred Alternative A1* and both eastbound HOV off-ramp design options at Mercer Island).
- 80th Avenue SE and SE 27th Street: Install a traffic signal (*Preferred Alternative A1* and both eastbound HOV off-ramp design options at Mercer Island).
- 77th Avenue SE and Sunset Highway: Install a traffic signal (design option that provides an eastbound HOV off-ramp at 77th Avenue SE).
- 77th Avenue SE and North Mercer Way: Install a traffic signal (*Preferred Alternative A1* and both eastbound HOV off-ramp design options at Mercer Island).

Improvements at intersections within WSDOT's jurisdiction include:

- 77th Avenue SE and I-90 eastbound HOV off-ramp: Install a traffic signal (design option that provides an eastbound HOV off-ramp at 77th Avenue SE).
- 77th Avenue SE and I-90 eastbound off-ramp: Install a traffic signal (*Preferred Alternative A1* and design option that provides no eastbound HOV off-ramp at Mercer Island).
- 76th Avenue SE/North Mercer Way and I-90 Westbound on-ramp: Modify the westbound channelization to provide left-turn pocket and through/right shared lane (*Preferred Alternative A1* and both eastbound HOV off-ramp design options at Mercer Island).

All of these improvements would improve the AM and PM peak-hour intersection delay to the same as or better than the no-build conditions. Sound Transit would be responsible for implementing improvements at the WSDOT-controlled intersections prior to East Link opening service. Sound Transit would contribute a proportionate share of costs to improve project-affected intersections controlled by Mercer Island. Sound Transit's contribution would be determined by the project's ratio of trips at the intersection or another equitable method. Through this contribution, the City of Mercer Island may determine other improvements than the intersection modifications listed that are more compatible with Downtown Mercer Island. Refer to Appendix H1, *Transportation Technical Report*, for the intersection results with these proposed intersection improvements.

Segment B

Depending on the Segment B alternative, the project would potentially require mitigation at the following intersections (with *Preferred Alternative B2M*, no intersection mitigation is required):

- 112th Avenue SE and Bellevue Way SE: Provide a northbound right-turn pocket (Alternatives B1, B2A, B3 and B3 – 114th Extension Design Option).
- 112th Avenue SE and SE 15th Street: Install a traffic signal (Alternatives B1, B2E, and B7).
- Coal Creek Parkway and I-405 southbound ramps: Provide an additional westbound left-turn pocket (Alternative B7).
- 118th Avenue SE and SE 8th Street/I-405 southbound on ramp: Provide a northbound right-turn pocket (Alternative B7).

While not considered mitigation, as part of the East Link Project, two roadway options that modify Bellevue Way SE near the South Bellevue Station are proposed for alternatives that include this station. These modifications are proposed to improve the station and neighborhood access and are described in Section 3.6.3.2.

Segment C

Depending on which Segment C alternative is selected, the project would potentially require mitigation at the following intersections:

- Bellevue Way and Main Street: Provide a northbound right-turn pocket (Alternative C1T).
- 112th Avenue NE and NE 12th Street: Provide a westbound right-turn pocket (Alternatives C3T, C7E, and C8E).
- 112th Avenue NE and Main Street: Provide an eastbound right-turn pocket (*Preferred Alternative C11A*).
- 110th Avenue NE and NE 8th Street: Provide an eastbound right-turn pocket (Alternatives C4A and C9A). Provide a northbound right-turn pocket (Alternative C8E).
- 108th Avenue NE and NE 12th Street: Provide a northbound right-turn pocket (Alternative C4A).

Additionally, at the intersections listed below, mitigation to better use the roadway capacity could be implemented, such as providing active traffic management strategies. For example, active signing could be installed to more effectively route vehicles to less congested streets, turn movements could be restricted during congested periods, or adaptive signal controllers could be installed to better respond to changing traffic conditions:

- Main Street and 108th Avenue NE (*Preferred Alternative C11A)*
- NE 4th Street and 108th Avenue NE (*Preferred Alternatives C11A* and *C9T*, and Alternatives C1T, C2T, C3T, C8E, and C9A)
- NE 6th Street and 110th Avenue NE (Alternative C9A)
- NE 8th Street and 112th Avenue NE (Alternatives C4A and C8E)

Segment D

Depending on which Segment D alternative is selected, the project would potentially require mitigation at the following intersections:

- 120th Avenue NE and NE 16th Street: Provide a southbound right-turn pocket (D2A – 120th Design Option, year 2020 only; once background improvements along 120th Avenue NE are completed this intersection will operate acceptably with the project).
- 152nd Avenue NE and NE 24th Street: Provide a southbound right-turn pocket (All Segment D alternatives except Alternative D3). This or a similar intersection improvement would be coordinated with the City of Redmond.
- 148th Avenue NE and NE 20th Street: Accelerate planned eastbound and westbound left-turn improvements by year 2030 (Alternative D3).

Alternative D2E would require mitigation at the intersections of 151st and 152nd Avenues NE on NE 24th Street. The increase in delay would result from the two intersections being closely spaced and the intersection phasing and timing needed so that the light rail train can safely travel across NE 24th Street. As the light rail train approaches this street crossing, the traffic signals would only serve the westbound approach at 151st Avenue NE and the eastbound approach at 152nd Avenue NE to release any stopped or queued vehicles in this roadway section. Once the section is clear of vehicles, the light rail train could then proceed. While this might not substantially delay the light rail train, it might create unacceptable vehicle operations on NE 24th Street. If the track were to be realigned through the NE 24th Street and NE 152nd Avenue NE intersection, then it would remove the need to provide a vehicle clearance phase prior to the train arriving. With this realignment the alternative would be similar to Alternative D3, north of the intersection of 152nd Avenue NE and NE 24th Street.

Segment E

Depending on which Segment E alternative is selected, the project would potentially require mitigation at the following intersections:

- NE 76th Street and 170th Avenue NE: Install a traffic signal (all Segment E alternatives and Redmond Town Center interim terminus station).
- SR 202 and NE 70th Street: Provide a southbound right-turn pocket (all Segment E alternatives).
- Redmond Way and 161st Avenue NE: Provide a westbound right-turn pocket (E2 – Redmond Transit Center Design Option only); this improvement might be included as part of the City’s future roadway improvements, but has yet to be designed.
- SR 202 and East Lake Sammamish Parkway: Rechannelize to provide an additional southbound through lane (all Segment E alternatives).
- NE 70th Street and 176th Avenue NE: Install a traffic signal (*Preferred Alternative E2*, E2 – Redmond Transit Center Design Option).

3.6.5.2 Parking

Mitigation may be required where there are potential impacts on parking around stations. The potential for hide-and-ride activities near stations and the best ways to mitigate such activities is specific to each area surrounding a station. Stations that may generate hide-and-ride users are locations where the auto forecast is higher than the available parking at the station, or the station does not provide parking, and there is a substantial amount of on-street parking available surrounding the station. The station most likely to generate hide-and-ride impacts is the Rainier Station. At the Mercer Island and South Bellevue stations, the parking analysis determined a low potential for hide–and-ride impacts. However, given the locations of these stations, Sound Transit will evaluate hide-and-ride impacts within one year of East Link operations. If impacts are determined, Sound Transit would implement appropriate mitigation measures as discussed in this section.

Prior to implementing any parking mitigation measures, Sound Transit would inventory on-street parking around each of the three stations listed up to one year prior to the start of light rail revenue service. These inventories would document the current on-street parking supply within a quarter-mile radius of the stations. Based on the inventory results, Sound Transit and the local jurisdiction would work with the affected stakeholders to identify and implement appropriate mitigation measures, if necessary.

Parking control measures could consist of parking meters, restricted parking signage, passenger and truck load zones, and residential parking zone (RPZ) signage. Other parking mitigation strategies could include promotion of alternative transportation services (e.g., encourage the use of buses, vanpool or carpool services, walking, or bicycle riding).

For parking controls agreed to with the local jurisdiction and community, Sound Transit would be responsible for the cost of installing the signage or other parking controls and any expansion of the parking controls for one year after opening the light rail system. The local jurisdictions would be responsible for monitoring the parking controls and providing all enforcement and maintenance of the parking controls. The local residents would be responsible for any RPZ-related costs imposed by the local jurisdiction.

3.6.5.3 Construction Mitigation

All mitigation measures associated with East Link Project construction would comply with local regulations governing construction traffic control and construction truck routing. Sound Transit would finalize detailed construction mitigation plans in coordination with local jurisdictions and WSDOT during the final design and permitting phase of the project. Mitigation measures for traffic impacts due to light rail construction could include the following:

- Follow standard construction safety measures, such as installation of advance warning signs, highly visible construction barriers, and the use of flaggers.
- Use lighted or reflective signage to direct drivers to truck haul routes and enhance visibility during nighttime work hours.
- Use temporary reflective truck prohibition signs on streets with a high likelihood of cut-through truck traffic.
- In areas with high levels of traffic congestion, schedule traffic lane closures and high volumes of construction traffic during off-peak hours to minimize delays where practical.
- Communicate public information through tools such as print, radio, posted signs, websites and email to provide information regarding street closures, hours of construction, business access, and parking impacts.
- Coordinate access closures in person with affected businesses and residents. If access closures are required, property access to residences and businesses would be maintained to the extent possible. If access to the property is not able to be maintained, the specific construction activity would be reviewed to determine if it could occur during nonbusiness hours, or if the parking and users of this access (for example deliveries) could be provided at an alternative location.
- Where necessary, ensure that the contractor is responsible for providing parking areas for construction workers.

For potential transit (and associated park-and-ride) and regional highway (I-90, I-405, and SR 520) mitigation during East Link Project construction, refer to Sections 3.4 and 3.5, respectively.

3.7 Nonmotorized Facilities

3.7.1 Methodology

Within the study area, Sound Transit inventoried existing nonmotorized facilities consisting of sidewalks, designated bicycle routes, marked bicycle lanes, and regional multiuse trails. Sidewalks were inventoried and evaluated along arterial streets within an area 0.5 mile from proposed stations, and bicycle routes were inventoried within an area one mile from stations. Missing sidewalk areas were identified on either one or both sides of arterial streets in consideration of local agency comprehensive plan and transportation element policies.

Regional multiuse trails as well as local agency-recommended school walk routes were identified and analyzed for any potential impacts based on their proximity to stations. Surrounding land uses, sidewalk and bicycle facilities and their barriers were included in the nonmotorized analysis evaluating the existing and future nonmotorized activity surrounding each proposed station. Tables 7-6, 7-9, 7-11, 7-13, and 7-15 in Section 7 of the *Transportation Technical Report* (Appendix H1) provide further detail on the pedestrian and bicycle activity discussed in this section. Pedestrian LOS was also analyzed within 300 feet of station entrances using the methodology from the *Highway Capacity Manual* (TRB, 2000) and the *Transit Capacity and Quality of Service Manual* (Transit Cooperative Research Program, 2003). For a more in depth discussion on nonmotorized facilities refer to Section 7 in the *Transportation Technical Report* (Appendix H1).

3.7.2 Affected Environment

3.7.2.1 Pedestrian Activity, Sidewalks, and School Walk Routes

Sidewalks are available along most arterial streets within the study area, providing sufficient pedestrian connections. Generally, there are only a few areas that are missing sidewalks on one or both sides of the street. Exhibits 7-1 through 7-12 in Section 7 in the *Transportation Technical Report* (Appendix H1) provide further detail on the sidewalks and trails in the study area. Streets that lack sidewalks are typically in residential neighborhoods, on local access streets, or on streets with low pedestrian volumes. The following subsections describe the pedestrian activity, sidewalks, and crosswalks in each segment.

Pedestrian Level of Service

A measure of the walking conditions on a sidewalk, route, or path. LOS A represents ample spacing between pedestrians on a sidewalk or path, allowing for free-flow walk speeds. LOS F represents unavoidable crowding between pedestrians on a sidewalk or path, preventing free-flow walking speed and movement.

Segment A

The Rainier Station in Segment A is located between the Central Area and North Rainier Valley neighborhoods in Seattle. Pedestrians using bus facilities in this area mostly originate from or are destined to the surrounding neighborhoods, including the International District. A few small segments with missing sidewalks, less than .25 mile in length, were identified along Rainier Avenue South. Crosswalks are present at most arterial intersections in this area. Sidewalks are present along both sides of Rainier Avenue S, south of I-90. North of I-90, sidewalks are present along the western side of Rainier Avenue South. On the east side of Rainier Avenue South, under I-90, the sidewalk terminates and connects to a paved trail that continues into Judkins Park and Playfield. The crosswalk and sidewalk configuration in this area is discontinuous and, therefore, can create slightly longer walking distances for pedestrians. Additionally, there is a midblock crossing on 23rd Avenue South connecting South Day Street to the western portion of the I-90 Lid Park and Rainier Station. Generally, pedestrian and bicycle circulation in this area is from residents and some commercial users as well as recreational users where Judkins Park connects to the I-90 trail.

On Mercer Island, a more walkable area has been created in the northern part of the island as a result of recent mixed-use developments at the Mercer Island Town Center, completion of the new Mercer Island Park-and-Ride Lot, and improvements in pedestrian connectivity between the Town Center and North Mercer Island. Nearly all of the commercial activity in Mercer Island is centralized at the Mercer Island Town Center, making it a common destination for residents and pedestrians. The Mercer Island I-90 Lid Park provides multiple connection points across I-90 between North Mercer Island and the Town Center and provides the largest area of nonmotorized recreational use on Mercer Island.

Sidewalks located along 76th Avenue SE, 77th Avenue SE, and 80th Avenue SE provide pedestrian and bicycle connectivity across I-90. Crosswalks and wider sidewalks are present throughout most of the commercial area on Mercer Island in addition to some pedestrian-friendly roadway elements such as bulb-outs and street trees.

School walk routes are not present on arterial streets within Segment A.

Segment B

The South Bellevue Park-and-Ride Lot is the primary transit facility serving the South Bellevue neighborhoods. Pedestrian activity around this park-and-ride area is not as high as in other areas in the study area because of the surrounding residential neighborhoods and Mercer Slough Nature Park. Crosswalks are located at the signalized entrance to the park-and-ride lot. Sidewalk is absent along the western side of Bellevue Way SE, south of 112th Avenue SE, because of right-of-way constraints associated with the topography. Common walking origins or destinations in this area include the Enatai neighborhood, nearby office parks, and the Mercer Slough recreational area.

The existing sidewalks surrounding the proposed 118th and SE 8th stations are generally present along arterial streets, although sidewalks are absent on the east side of 114th Avenue NE (along I-405) and 118th Avenue SE because of right-of-way constraints. At the interchange of SE 8th Street and I-405, crosswalks are marked along the north side of SE 8th Street, although they are absent along the south side of SE 8th Street.

In Segment B, a missing sidewalk was also identified on SE 25th Street, which serves the school walk route for Enatai Elementary School. Most of the school walk routes for this school are located on collector and local residential streets.

Segment C

The highest pedestrian activity in Segment C and in the study area is focused around the Bellevue Transit Center in Downtown Bellevue. Currently, almost 700 pedestrians during the PM peak hour cross through the intersection of 108th Avenue NE and NE 6th Street (adjacent to the Bellevue Transit Center). Many pedestrians using this transit center originate from or are destined to nearby employers throughout downtown. An east-west pedestrian pathway provides connectivity between the Bellevue Transit Center and the Bellevue Square Mall/Lincoln Square and surrounding retail uses. Sidewalks and crosswalks are generally present throughout Segment C.

The City of Bellevue has installed or signalized several midblock crosswalks within the downtown area to improve the connectivity between major destinations and land uses.

East of I-405, pedestrian activity occurs near the Overlake Hospital. Crosswalks and sidewalks are present along 116th Avenue NE. Pedestrian connectivity between Downtown Bellevue and the Overlake Hospital area is limited to a few connections across I-405. Crosswalks and sidewalks are also present along NE 8th Street east of I-405, although there is a considerable distance between the crosswalk locations at the 116th and 120th Avenue NE intersections.

Sidewalks are present along arterials that serve the Bellevue High School walk route in Segment C. Similarly to the other segments, many of the school walk routes are located on collector and local streets.

Segment D

Pedestrian activity in Segment D is lower than in the other segments. Most pedestrian activity in Segment D occurs east of 140th Avenue NE near the area surrounding Overlake Village, where retail, medical, and commercial uses are more predominant, and between the Overlake Transit Center and surrounding commercial and office land uses. More sidewalks and traffic signals are present in these areas than in the western part of Segment D.

Pedestrian activity in the Bel-Red area between 116th and 140th Avenues NE is minimal because much of the current land use consists of light industrial, office park, and commercial uses. Either no sidewalk is provided or large portions of missing sidewalk occur on both sides of arterial streets in this area (120th, 124th, 130th, and 136th Avenues NE). Additionally, long walking distances between the two east-west arterials, Bel-Red Road and NE 20th Street, discourage pedestrian activity in this area. However, there are sidewalk facilities on both sides of NE Bel-Red Road and NE 20th Street. Crosswalks are located at all signalized intersections in Segment D.

School walk routes are not present on arterial streets within segment D.

Segment E

Pedestrian activity is high within the Downtown Redmond, Redmond Town Center, and Marymoor Park areas because sidewalks, bicycle lanes, and recreational facilities have contributed to a more walkable area. Sidewalks are generally present within Segment E, although there are some sidewalks gaps on Bear Creek Parkway and 166th Avenue NE between Redmond Town Center and Downtown Redmond. Although the Redmond Town Center and Marymoor Park are popular pedestrian destinations, they are separated by SR 520, which presents a barrier for pedestrians wishing to cross between the two areas. The Sammamish River Trail passes beneath SR 520 at the West Lake Sammamish Parkway interchange and provides a pedestrian connection between the park and Downtown Redmond. Crosswalks are present at all signalized intersections in Segment E with the exception of the SR 520 entrance/exit ramps along NE 76th St and NE Redmond Way.

A school walk route for the Redmond Elementary School is located within a 0.5-mile radius of the Redmond Town Center Station.

3.7.2.2 Bicycle Routes, Bicycle Lanes, and Multiuse Trails

Trails used only for recreation are not addressed in this section. For information about recreational facilities, see Section 4.17, Parkland and Open Space, of the Final EIS. The exhibits in Section 7 of the *Transportation Technical Report* (Appendix H1) indicate where existing bicycle facilities are present for arterials within the study area.

Throughout the East Link study area, while there are bicycle lanes present on some arterials, designated and signed bicycle routes are located on most arterial or collector streets. Some arterials in the study area also have a wide shoulder that allows bicycle activity. Designated bicycle routes, marked bicycle lanes, and regional multiuse trails include 12th Avenue South in Seattle; the I-90 trail (includes North Mercer Way) on Mercer Island; Bellevue Way, 108th Avenue SE, 112th Avenue SE, 118th Avenue SE, NE 20th and 24th Streets, and 140th Avenue NE in Bellevue; and 156th Avenue, West and East Lake Sammamish Parkway, and SR 202/Redmond Way in Redmond.

In Seattle, 12th Avenue South is a designated bicycle route, and there are marked bicycle lanes on South Dearborn Street and Martin Luther King Jr. Way South. East-west bicycle connectivity to these streets is achieved primarily through routes on collector and local streets. There are bicycle facilities and sidewalk facilities on both sides of most arterial streets on Mercer Island, including North Mercer Way, Island Crest Way, and 78th Avenue SE. Bicycle activity in Segment B occurs more frequently along the I-90 Trail through Bellevue, within the local street network in the Enatai and Beaux Arts neighborhoods, and within the Mercer Slough recreational area. There are designated routes on some arterial streets in Segment C along 112th and 116th Avenues NE that connect to the SR 520 multiuse trail. Within Segment D, designated bike routes are present on some local and arterial streets north of NE 24th Street in the Cherry Crest neighborhood. The SR 520 multiuse trail provides most of the continuous bicycle coverage through Segment D. In the City of Redmond, bicycle lanes are present along segments of NE 85th Street, NE 83rd Street, and 171st Avenue NE. Most other streets through Downtown Redmond are designated bicycle routes. The Sammamish River Trail, Bear Creek Parkway Trail, and Marymoor Park trail network are bicycle facilities.

Multiuse trails provide regional mobility for nonmotorized users. There are several regional multiuse trails within the study area, and some of the accesses to these trails are located within close walking or bicycle distance to the stations, providing transit commuters with a location to easily transfer to and from nonmotorized modes. Regional multiuse trails located in the project vicinity include the I-90 Multiuse Regional Trail (Mountains to Sound Greenway), Mercer Slough Nature Park and Multiuse trails, SR 520 Regional Trail, Bridle Crest Trail, Sammamish River Trail, East Lake Sammamish Trail, and Bear Creek Trail. These trails are connected to one another by local designated bicycle routes. In Segment D, access to the SR 520 Regional Trail is provided along various arterials in the area. In Segment E, the SR 520 Regional Trail is accessible through public park areas and a few access points along the trail from designated bicycle routes on arterial streets.

3.7.3 Environmental Impacts

In the no-build condition, pedestrian and bicycle facilities would improve with numerous planned improvements included in agency long-range plans. The East Link Project would support, and in most cases enhance, these improvements as the project proposes a number of nonmotorized amenities in and around stations to minimize impacts on pedestrian and bicycle circulation, both during construction and after light rail is operational.

Transit facility designs would be flexible, allowing each station to reflect and fit into the community it serves while providing standard features to facilitate smooth and accessible transfers for transit customers from one type of transportation to another. Standard design features would include the following:

- Security and safety design standards
- Easy-to-read and consistent signs
- Pedestrian-friendly design and full access for people with disabilities
- Bicycle access and storage
- Sidewalks immediately adjacent to stations as shown on the conceptual design drawings in Appendix G1

Each station would provide bicycle storage, including racks and often lockers. The proposed number of bicycle facilities at the light rail stations is listed in the tables in the Environmental Impacts discussion of Section 7.0 of the *Transportation Technical Report*

(Appendix H1). Stations would include additional capacity for further expansion of bicycle racks and lockers in the future. Because of the proximity of some stations to regional trails such as the I-90 Regional Trail, the East Lake Sammamish Trail, and the potential BNSF Railway trail, wayfinding signage for nearby regional trails and other local destinations could be incorporated into station site design elements.

Estimates of PM peak-period pedestrian and bicycle trips generated by each station, as shown in Table 3-32, were used to qualitatively assess the degree of nonmotorized user activity in station areas. As expected, the stations with the highest number of pedestrian and bicycle trips—East Main, Old Bellevue, Bellevue Transit Center, and Overlake Transit Center—are located near major employment and residential areas (Downtown Bellevue and Overlake).

TABLE 3-32
PM Peak-Period (3-Hour) Pedestrian and Bicycle Trips Generated at Stations

Station	2020 Pedestrian and Bicycle Trips[a,b]	2030 Pedestrian and Bicycle Trips[a,b]
Segment A		
Rainier Station (*Preferred Alternative A1*)	600	660
Mercer Island Station (*Preferred Alternative A1*)	360	490
Segment B		
South Bellevue (*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 – 114th Extension Design Option)	90	130
SE 8th (*Preferred Alternative B2M* to *Preferred Alternative C9T* and Alternatives B2A and B2E)	240	290
118th (Alternative B7)	280	420
Segment C		
108th (*Preferred Alternative C11A*)	970	1,210
East Main (*Preferred Alternative C9T* and Alternatives C3T, C4A, C2T, C7E, C8E, and C9A)	970	1,450
Old Bellevue (Alternative C1T)	890	1,200
Bellevue Transit Center (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C3T, C4A, C7E, C8E, C9A, and C14E)	3,150	3,770
Ashwood/Hospital (Alternatives C3T, C4A, C7E, and C8E)	580	580
Hospital (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E)	380	910
Segment D		
120th (*Preferred Alternative D2A*, D2A – 120th Design Option (Alternatives D2E and D3)	360	430
130th (*Preferred Alternative D2A* and Alternatives D2E and D3)	320	730
Overlake Village (*Preferred Alternative D2A*, D2A - NE 24th Design Option, and Alternatives D2E, D3, and D5)	220	500
Overlake Transit Center (All Segment D Alternatives)	730	1,120
Segment E		
Redmond Town Center (Alternatives E1 and E4 and E2 – Redmond Transit Center Design Option)	280	320
SE Redmond (*Preferred Alternative E2* and Alternatives E1 and E4)	70	70
Downtown Redmond (*Preferred Alternative E2*)	320	380
Redmond Transit Center (E2 – Redmond Transit Center Design Option)	110	140

[a] Pedestrian and bicycle trips reported for the alternative with the highest ridership.
[b] Trips include both boarding and alighting (exiting).

Although the East Link Project would substantially increase the number of pedestrians in and around the stations, sidewalks and intersection crossings throughout the study area were shown to operate at pedestrian LOS C or better with both the No Build Alternative and East Link. LOS C or better means that there is enough spacing between pedestrians on the sidewalk so that they are able to walk freely at their own speed, with an ability to cross paths without potential collisions with other pedestrians. The pedestrian location in the study area that is expected to operate at LOS C is the 108th Avenue NE and NE 6th Street intersection near the Bellevue Transit Center. The pedestrian LOS at all other locations is expected to operate at LOS B or better.

The following subsections describe the pedestrian and bicycle circulation and conditions by segment during East Link operation. Impacts during construction are also addressed.

3.7.3.1 Segment A, *Preferred Interstate 90 Alternative (A1)*

Pedestrian Circulation

With the project, during the PM peak period, the pedestrian activity at the Rainier Station would be split evenly by year 2030 between people boarding and alighting (exiting) light rail and would be a little less than half of the total person trips at this station. Most of these trips would likely be destined for the surrounding residential neighborhoods, which constitute close to 70 percent of the surrounding land uses, during the PM peak period. Some trips might also be destined for the surrounding commercial and retail land uses along Rainier Avenue South. Overcrowding on sidewalks or at crosswalks is not expected as a result of the activity in the station area.

Pedestrian and bicycle connectivity to the I-90 Lid Park and I-90 Trail from Rainier Station is provided by the midblock crosswalk on 23rd Avenue South. Existing pedestrian access points to the I-90 Regional Trail from South Irving Street would not be affected. Crosswalks at the Rainier Station and the I-90 ramp areas would be maintained and walking distances surrounding the station would not change from existing conditions. Adding wayfinding signage along Rainier Avenue South would help pedestrians navigate through the I-90 ramp area as there are long distances between crosswalks. Nearby school walk routes along local and collector streets would not likely be affected because bus routes serving the Rainier Station would not use these residential local and collector streets.

At the Mercer Island Station, the PM peak-period activity would be split evenly between people boarding and alighting light rail, indicating there would be people destined to the surrounding residential areas and people boarding from the commercial land uses at Mercer Island Town Center.

The access to the Mercer Island Station would be located along 80th Avenue SE. If the passenger drop-off/pick-up area is located along 77th Avenue SE, station access would also be provided along this street. If the passenger drop-off/pick-up area is not located along 77th Avenue SE, then it would remain in the Mercer Island Park-and-Ride lot. An additional station access is being evaluated that would provide a pedestrian bridge extending over eastbound I-90, improving station access to and from the Mercer Island Town Center. About 25 percent of the riders at the station would be expected to use this bridge during the 3-hour peak period. Because *Preferred Alternative A1* is located on I-90, walking distances, sidewalks, and crosswalks on the arterial streets are expected to remain similar to no-build conditions. Overcrowding on sidewalks is not expected near the Mercer Island Station.

School walk routes are not present within walking distance of the Mercer Island Station.

Bicycle Circulation

The proposed bicycle facilities at the Segment A stations are shown in Table 7-6 in Section 7 of the *Transportation Technical Report* (Appendix H1).

The future bicycle circulation on arterial streets surrounding the Rainier and Mercer Island stations would remain similar to existing conditions with and without the project.

With East Link, new access points to the I-90 Trail at the 23rd Avenue South entrance to Rainier Station would be created, increasing the transferability between transit and nonmotorized modes at this location and likely resulting in increased recreational or commuter bicycle activity surrounding the station.

On Mercer Island, locally designated bicycle routes are present on N Mercer Way, 77th Avenue SE, and 80th Avenue SE. Bicycle circulation surrounding the Mercer Island Station would be similar to existing and no-build conditions.

There is no expected change in bicycle circulation along I-90 with the East Link Project, although an increased number of bicycle commuters transferring to and from light rail can be expected because both stations are also conveniently located close to the I-90 Multiuse Regional Trail. Bicycle connection to the I-90 Regional Trail from the Rainier Station would be located at the 23rd Avenue South station entrance, where bicyclists can access the I-90 Lid Park and follow the I-90 Multiuse Regional Trail to the Mt. Baker bicycle and pedestrian tunnel.

3.7.3.2 Segment B

Pedestrian Circulation

Preferred 112th SE Modified Alternative (B2M)

With light rail, most trips at the South Bellevue Station with *Preferred Alternative B2M* would consist of people making transfers among different motorized modes (i.e., automobile or bus); therefore, most pedestrian activity at the South Bellevue Station would occur within the station and park-and-ride lot areas. Much of the land use surrounding the station is a combination of residential and recreational uses. Generally, the pedestrian circulation between the South Bellevue Station and the surrounding neighborhoods is disconnected because of the uphill terrain west of the station. Pedestrian circulation and safety surrounding the South Bellevue Station would improve compared with existing conditions with City of Bellevue's planned sidewalk improvements on 108th and 113th Avenues SE. In addition, the East Link project would not preclude any future improvements planned along Bellevue Way SE.

With *Preferred Alternative B2M*, connecting to either *Preferred Alternative C9T* or *C11A*, a pedestrian and bicycle access to Lincoln Plaza on the east side of 112th Avenue SE would be closed. Alternative access would be available within 300 feet of the existing driveway on SE 6th Street. An option with *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* would close the east approach at SE 15th Street to the Bellefield Office Park. This closure would recirculate pedestrians entering or exiting the office park to the intersection of 114th Avenue SE and SE 8th Street.

Most of the estimated PM peak-period person trips at the SE 8th Station with *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* would consist of pedestrians accessing the station from the surrounding office parks or the South Bellevue neighborhoods. Similar to the other stations in South Bellevue, the SE 8th Station presents longer walking distances because the average block length surrounding this station is longer than other segments. Pedestrian circulation and safety surrounding the SE 8th Station would improve compared with existing conditions with planned sidewalk improvements on SE 8th Street. Access to the at-grade SE 8th Station would be improved with a new crosswalk on the north leg of SE 8th Street.

Overcrowding on sidewalks near the South Bellevue and SE 8th Stations is not expected with *Preferred Alternative B2M*. Crosswalks would be maintained at signalized intersections; therefore, new midblock pedestrian crossings would not be needed within Segment B.

Road widening at intersections related to the at-grade median profile of the *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* would cause increases in walking distances and wait times at crosswalks along 112th Avenue SE.

Other Segment B Alternatives

For Alternatives B2A, B2E, B3, and B3 – 114th Extension Design Option, pedestrian access and circulation at the South Bellevue Station would be similar to conditions under *Preferred Alternative B2M*. The at-grade South Bellevue Station in Alternative B1 would require an increase in the crossing times for pedestrians to walk safely across Bellevue Way at the South Bellevue Station (and throughout the segment).

With Alternative B7, pedestrian facilities would not be affected because most of this alternative is outside the roadway right-of-way. At the 118th Station with Alternative B7, most transit users would consist of riders transferring between light rail and other motorized modes, so most of the pedestrian circulation would occur within the station area. The proximity of I-405 and lack of residential land use immediately surrounding the station do not encourage walk routes. Therefore, substantial pedestrian activity beyond the immediate station area is not expected except to the commercial land uses along SE 8th Street. Pedestrian circulation and safety surrounding the 118th SE Station would improve with planned sidewalk improvements on 114th and 118th Avenues SE at locations immediately surrounding the stations, although crosswalks are not presently provided at the station site, limiting pedestrian mobility.

The existing crosswalk locations would not change with any of the Segment B alternatives except for the new crosswalk on the north leg of 112th Avenue SE and SE 8th Street to improve pedestrian access to the SE 8th Station.

East Link is not expected to affect the Enatai Elementary School walk route.

Bicycle Circulation

Bicycle circulation within Segment B is likely to improve in the no-build condition (compared to existing conditions) with planned improvements along 108th Avenue SE, Bellevue Way, 112th Avenue SE, SE 8th Street, 114th Avenue SE, and the former BNSF Railway. The City of Bellevue 2009 *Pedestrian and Bicycle Transportation Plan Report* identifies future connections between the I-90 Trail and other existing regional and local trails that might increase the number of trail users (City of Bellevue, 2009).

The proposed BNSF Railway Trail, a major multiuse trail, would follow the existing BNSF Railway corridor located along the easternmost boundary of Segment B, proceed through Segments C and D, and terminate in Segment E where it would connect with the East Lake Sammamish Trail. Sound Transit is currently coordinating with the Port of Seattle and King County to cooperatively plan the future trail, possibly including passenger rail and light rail in the same right-of-way while maintaining the ability to provide future freight use.

In general, bicycle circulation with the project would remain similar to the no-build conditions. Bicycle storage and wayfinding at Segment B stations would be provided. Refer to Table 7-9 in Section 7 of the *Transportation Technical Report* (Appendix H1) for the proposed bicycle facilities at the Segment B stations.

Preferred 112th SE Modified Alternative (B2M)
With *Preferred Alternative B2M*, the South Bellevue station would be located near the Mercer Slough where bicyclists could connect to the I-90 Trail and the 118th Avenue SE Regional Multiuse Trail. As a result, an increase in bicycle activity on these trails would likely occur.

Impacts on trails in Segment B would include acquiring right-of-way along 112th Avenue SE for the *Preferred Alternative B2M*. This alternative would require using narrow portions of the Mercer Slough Park's western boundary, requiring a portion of the Heritage Trail that is within the Mercer Slough to be relocated. Impacts on the I-90 Trail at the I-405 interchange are not expected with the *Preferred Alternative B2M*.

A pedestrian and bicycle access to Lincoln Plaza on the east side of 112th Avenue SE would be closed with *Preferred Alternative B2M*. Alternative access would be available within 300 feet on SE 6th Street. An option with *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* would close the east approach at SE 15th Street to the Bellefield Office Park. This closure would recirculate bicyclists entering or exiting the Bellefield Office Park to the intersection of 114th Avenue SE and SE 8th Street. This would affect bicycle mobility between the Bellefield Office Park and areas to the south.

Other Segment B Alternatives
Similar to *Preferred Alternative B2M*, impacts to trails along Bellevue Way and near the South Bellevue Station would occur under Alternatives B1, B2A, B2E, B3, and B3 – 114th Design Option. Alternatives B2A and B2E would close the pedestrian and bicycle access to the Lincoln Plaza on the east side of 112th Avenue SE, similar to *Preferred Alternative B2M.*

Under Alternative B7, existing bicycle access to the east side of the Mercer Slough Nature Park along 118th Avenue SE would be maintained and would connect to the Mercer Slough Trails and I-90 Regional Trail.

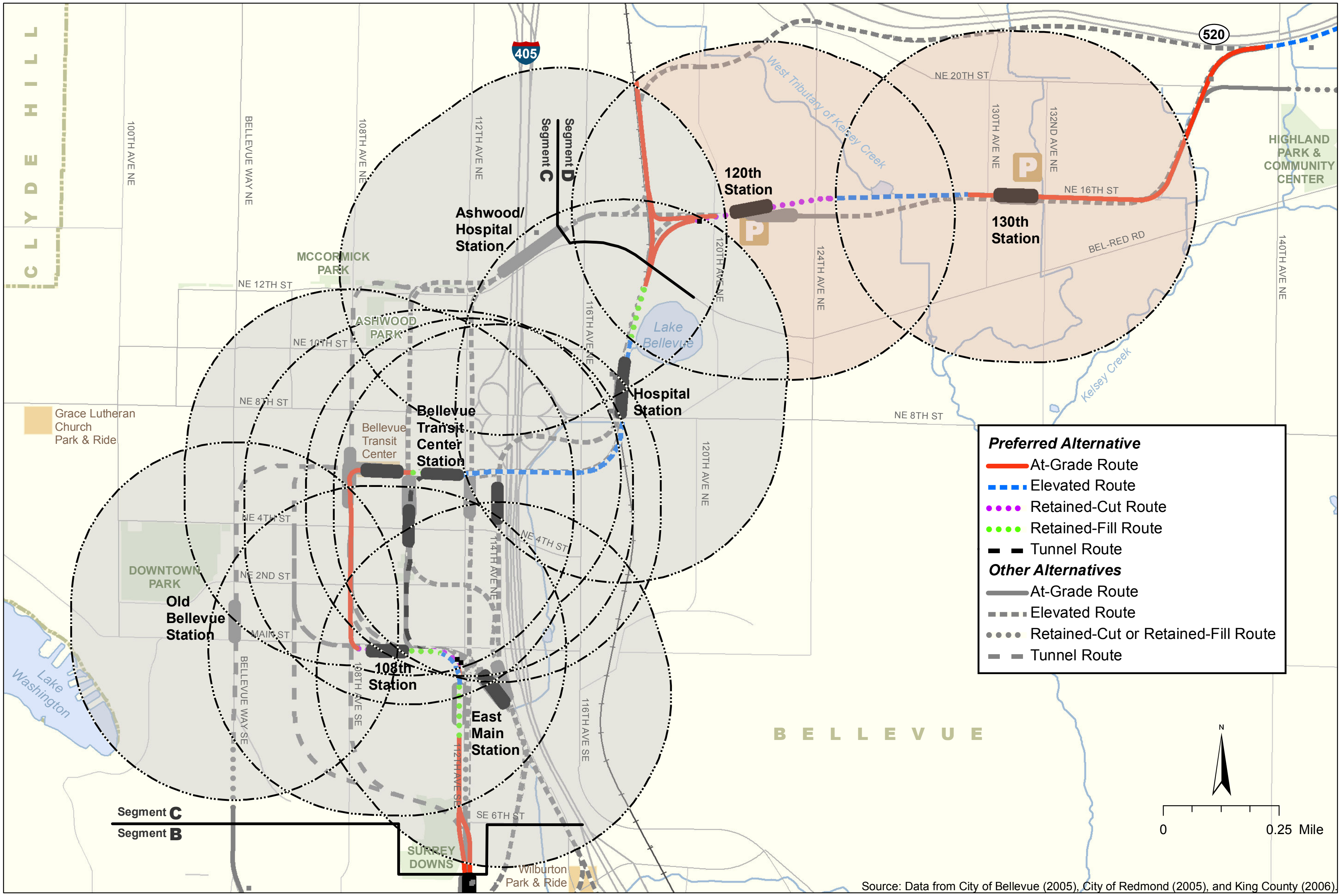
3.7.3.3 Segment C

The East Link Project would serve Downtown Bellevue, one of the major business and employment centers in the Puget Sound region. Compared to other segments, pedestrian activity is much higher in Downtown Bellevue. To provide adequate sidewalk circulation, future development projects or planned city capital improvements are expected to fill in the identified missing sidewalk segments within the downtown area, although nearly all the streets in Downtown Bellevue already provide continuous sidewalks on both sides of the street. In general, pedestrian circulation conditions under any Segment C alternative would not differ substantially except for the changes described in the following subsections. Street widening would generally be minimal due to right-of-way constraints; therefore, pedestrian crossing distances are generally similar to no-build conditions.

As shown in Exhibit 3-27, among the proposed stations in Segment C, the light rail stations located closer to the existing Bellevue Transit Center would be expected to attract more riders because those stations would better serve Downtown Bellevue as a result of their proximity to denser employment and residential areas. The farther east the stations are located from Downtown Bellevue, the less pedestrian activity would be expected. Because the Ashwood/Hospital Station would be within walking distance from both Overlake Hospital and Downtown Bellevue, it would have more pedestrian activity in connection with downtown than the Hospital Station; however, the Hospital Station would have the potential for higher pedestrian activity in connection with the planned redevelopment of the Wilburton area. These trends are discussed in Section 3.4.3.6, Light Rail Ridership.

Pedestrian Circulation

Preferred 108th NE At-Grade Alternative (C11A)
Preferred Alternative C11A would not impact pedestrian facilities. The midblock crossing on 108th Avenue NE between NE 2nd and 4th Streets would be maintained and signalized to provide a safe crossing. At the 112th Avenue SE and SE 6th Street intersection, pedestrians and bicyclists would cross the at-grade light rail tracks on the west side of 112th Avenue SE.


CLYDE HILL
405
520
Segment C
Segment D
Ashwood/
Hospital
Station
120th
Station
130th
Station
Hospital
Station
Bellevue
Transit
Center
Station
Bellevue
Transit
Center
Old
Bellevue
Station
108th
Station
East
Main
Station
MCCORMICK
PARK
ASHWOOD
PARK
DOWNTOWN
PARK
SURREY
DOWNS
HIGHLAND
PARK &
COMMUNITY
CENTER
Grace Lutheran
Church
Park & Ride
Wilburton
Park & Ride
Lake
Bellevue
Lake
Washington
West Tributary of Kelsey Creek
Kelsey Creek
NE 20TH ST
NE 16TH ST
BEL-RED RD
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 8TH ST
NE 4TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 6TH ST
100TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
140TH AVE NE
114TH AVE NE
BELLEVUE WAY SE
108TH AVE SE
112TH AVE SE
116TH AVE SE
Segment C
Segment B
BELLEVUE
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Pedestrian Walking Area Segment C (0.35 mile)

Pedestrian Walking Area Segment D (0.35 mile)

Traction Power Substation

Proposed Station

P New and/or Expanded Park-and-Ride Lot

NOTE: To account for a street grid system, a radius of 0.35 mile was used in place of a radius of 0.50 mile.

Exhibit 3-27 **Pedestrian Walking Areas by Stations in Downtown Bellevue and Bel-Red Area Segments C and D**

East Link Project

Similarly, pedestrians would cross the at-grade light rail tracks on the southeast corner of Main Street and 108th Avenue. Features such as fencing, signing, pavement markings, warning bells, and traffic signals would be provided at these locations for pedestrian safety.

Although this alternative is an at-grade profile, street widening would be minimal because of right-of-way constraints; therefore, relatively small changes to pedestrian crossing distances are expected. However, some increase in crosswalk distances would occur at Main Street and 108th Avenue NE and along NE 6th Street to accommodate the light rail track alignment.

The 108th Station location with *Preferred Alternative C11A* would not affect pedestrian facilities because it is located off-street, south of Main Street. This station location would be convenient to a higher percentage of the Downtown Bellevue residents and employment centers compared to the East Main Station location.

The Bellevue Transit Center Station area would have the highest number of PM peak-period pedestrian trips compared to other East Link stations, as close to 3,800 pedestrians and bicyclists would use this station in 2030. This would be about 60 percent of the estimated total PM peak-period person trips at this station. Most pedestrian activity at this station would be people boarding light rail in the PM peak period, mainly people walking from the surrounding office and commercial land uses. This degree of activity would be consistent with an urban downtown environment that is expected to become denser in the future.

Major pedestrian crossings and sidewalks near the Bellevue Transit Center Station area for *Preferred Alternative C11A* would provide sufficient pedestrian space, although sidewalks and intersections connecting to entrances to the Bellevue Transit Center Station on 108th and 110th Avenues NE would experience some pedestrian crowding during peak periods. In the no-build condition, the sidewalks near the Bellevue Transit Center would degrade from existing conditions to LOS C but would continue to operate well as pedestrian activity is expected to continue moving freely. With East Link, the pedestrian LOS near the Bellevue Transit Center would continue to operate no worse than LOS C. Any crowding would generally be contained within the station near the platforms. The location of the Bellevue Transit Center Station with *Preferred Alternative C11A* would be the most convenient for bus connections and would serve the majority of downtown Bellevue residents and employment centers.

Preferred Alternative C11A also would serve the Hospital Station located north of NE 8th Street, east of 116th Avenue NE. The location of the Hospital Station is near the Overlake Hospital area and other retail and commercial land uses. Pedestrian trips are estimated to comprise about 60 percent of the future PM peak-period person trips and primarily include people leaving Overlake Hospital and the surrounding office, retail, and commercial areas and boarding light rail. This station's location would also serve the Wilburton neighborhood, where future nonmotorized improvements are planned by others near the station to improve the connectivity for pedestrians and bicyclists navigating along NE 8th Street (sidewalk improvements) and along the former BNSF Railway corridor (BNSF Railway regional multiuse trail).

With connections to Alternatives B3, B7, or B3 – 114th Design Option, *Preferred Alternative C11A* would serve the East Main Station. Pedestrian trips are estimated to comprise close to 70 percent of the future PM peak-period person trips, with most of these being people boarding light rail. These pedestrians are expected to originate from the adjacent residential and commercial areas. Topography constraints to the west into central downtown Bellevue may limit pedestrian activity.

Preferred 110th NE Tunnel Alternative (C9T)

Because *Preferred Alternative C9T* profiles would be mostly elevated and tunnel north of Main Street, there would be minimal impacts on pedestrian circulation. Impacts on crosswalks are not expected with the *Preferred Alternative C9T* except along NE 6th Street, which would be widened to accommodate the tunnel portal and, therefore, would require slightly longer distances for pedestrians to cross. At the at-grade light rail crossing at the SE 6th Street and 112th Avenue SE intersection, pedestrians and bicyclists would cross over the tracks on both sides of 112th Avenue SE. Features such as fencing, signing, pavement markings, warning bells, and traffic signals would be provided for pedestrian safety.

Major pedestrian crossings and sidewalks near the Bellevue Transit Center Station area for *Preferred Alternative C9T* provide sufficient pedestrian space, although sidewalks and intersections connecting to entrances to the Bellevue Transit Center Station along 110th Avenue NE would experience some pedestrian crowding during peak periods. Pedestrian access between Bellevue Transit Center Station and the Bellevue Transit Center would be through the northern station entrance on the north side of NE 4th Street with a crossing at NE 6th Street and 110th Avenue NE to access the Bellevue Transit Center bus platform. The design option to include an additional northern entrance of the Bellevue Transit Center Station to the west side of 110th Avenue NE would provide a more direct bus transfer connection between the Bellevue Transit Center Station and the Bellevue Transit Center bus platforms.

Preferred Alternative C9T would also serve the Hospital Station. Pedestrian activity in and around this station would be similar to *Preferred Alternative C11A*.

With the option to connect to Alternative B3, B3 – 114th Design Option, or B7, *Preferred Alternative C9T* would serve the East Main Station, and nonmotorized activity would be similar to *Preferred Alternative C11A*. Nonmotorized activity for the East Main Street Station design option under *Preferred Alternative C9T* would be similar to a connection with Alternative B3, B3 - 114th Extension Design Option, or B7 that have an East Main Station.

Other Segment C Alternatives
The Bellevue Way Tunnel Alternative (C1T) is the only alternative that would include the underground Old Bellevue Station. Much of the pedestrian activity at the Old Bellevue Station would be a result of neighboring commercial and residential land uses surrounding the station. The location of this station is expected to capture a portion of pedestrian activity on the fringe of Downtown Bellevue that would otherwise require farther walking distance to the Bellevue Transit Center.

Alternatives C2T, C3T, C4A, C7E, C8E, and C9A would serve the East Main Station, depending on the connections from Segment B (Alternative B3, B3 – 114th Design Option, or B7). Pedestrian activity at this station would be similar to that of *Preferred Alternative C9T* (with connections to Alternatives B3, B3 – 114th Design Option, and B7). Alternative C14E would not include an East Main Station.

Pedestrian circulation at the Bellevue Transit Center Station for Alternatives C1T, C2T, and C3T would be similar to that of the *Preferred Alternative C9T,* although Alternatives C1T and C2T would have a more direct connection to the Bellevue Transit Center. At-grade Alternatives C4A and C9A would have slightly different pedestrian circulation and access at the Bellevue Transit Center Station than *Preferred Alternative C11A*. While both of these alternatives are within one block of the Bellevue Transit Center, the station is not directly integrated with the Bellevue Transit Center; therefore, connections with other transit services are not as convenient as with *Preferred Alternative C11A*. Additionally, Alternative C4A includes two stations, one on 108th Avenue NE and one on 110th Avenue NE, as track is only provided in one direction along each of these streets. Pedestrian access between Bellevue Transit Center Station and the Bellevue Transit Center for Alternative C9A would be through the western station entrance located at NE 6th Street and 110th Avenue NE, with one crossing at NE 6th Street and 110th Avenue NE to connect the station with the bus platforms. With any of these alternatives, major pedestrian crossings and sidewalks near the Bellevue Transit Center Station would experience some pedestrian crowding during peak periods. Alternative C8E would have similar pedestrian circulation at the Bellevue Transit Center Station under *Preferred Alternative C9T.* Although it is an elevated station and Alternative C9T is a tunnel station, both would have similar pedestrian effects.

Alternatives C7E and C14E are both elevated profiles outside the downtown core; therefore, minimal impacts to the pedestrian circulation and connectivity in downtown Bellevue are expected. To provide a connection between the Bellevue Transit Center and the Bellevue Transit Center Station (along 112th Avenue NE [C7E] or 114th Avenue NE [C14E]) an elevated and covered moving walkway would be constructed as part of these two alternatives. With the Bellevue Transit Center station location further east than other Segment C alternatives, the pedestrian connections would not be as convenient and the distances to many locations in Downtown Bellevue would be greater with these two alternatives.

Most pedestrian trips during the PM peak-period at the Ashwood/Hospital Station would consist of people leaving Overlake Hospital and the surrounding office and commercial areas. Pedestrian access to this station would be provided on both sides of I-405. The Hospital Station would have a similar amount of pedestrian activity as the Ashwood/Hospital Station because they both capture the land uses along 116th Avenue NE. Alternatives C3T, C4A, C7E, and C8E would serve the Ashwood/Hospital Station, while Alternatives C1T, C2T, C9A, and C14E would serve the Hospital Station. Pedestrian activity at the Hospital Station for Alternatives C1T, C2T, C9A, and C14E would be similar to *Preferred Alternatives C11A* and *C9T*.

Similar to *Preferred Alternative C11A*, most of Alternatives C4A, C8E, and C9A would be within the roadway right-of-way in Downtown Bellevue. Even so, these alternatives would generally not increase the pedestrian crossing distances at intersections because roadway widening is constrained by the available right-of-way. Crosswalk locations along 108th and 110th Avenues NE with the Couplet Alternative (C4A) would remain but would require signal phasing adjustments. Similar to *Preferred Alternative C9T*, crosswalk impacts are not expected with the tunnel alternatives (C1T, C2T, and C3T) because these alternatives would be mainly underground in Downtown Bellevue. Alternatives C1T, C2T, and C9A would become elevated on NE 6th Street, east of 110th Avenue NE, and similar to *Preferred Alternatives C11A* and *C9T*, some roadway widening is proposed. This would lengthen the pedestrian crossing distances on this street. Alternatives C7E and C14E would not impact pedestrian crossings because most of the alternative would be outside the roadway right-of-way.

The school walk route along 108th Avenue SE is not expected to be affected by any of the Segment C alternatives because it is located south of Main Street.

Bicycle Circulation

With East Link, bicycle circulation through Downtown Bellevue would remain similar to existing conditions and the No Build Alternative. Currently, nearly all arterial streets in the downtown area are designated bicycle routes and the City of Bellevue plans to provide bicycle improvements along 112th Avenue NE north of NE 12th Street and along 108th Avenue NE in Downtown Bellevue in the future.

Bicycle storage and wayfinding at Segment C stations would be provided. Refer to Table 7-11 in Section 7 of the *Transportation Technical Report* (Appendix H1) for the proposed bicycle facilities at the Segment C stations.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would not likely affect bicycle facilities as a wide vehicle lane in both directions would be provided on 108th Avenue NE to accommodate bicyclists. Additionally, the location of the 108th, Bellevue Transit Center, and Hospital stations would not likely affect bicycle facilities. At the at-grade crossings, the light rail tracks would be designed so that bicyclists along designated bicycle routes cross the light rail tracks at a perpendicular angle (to the extent possible) for bicyclist safety.

With a connection to Alternative B3, B7, or B3 - 114th Design Option, *Preferred Alternative C11A* would not affect bicycle facilities along 112th Avenue SE.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T is mostly comprised of elevated and tunnel profiles north of Main Street and an at-grade profile south of Main Street, thereby resulting in minimal bicycle circulation impacts. At the at-grade crossing at SE 6th Street and 112th Avenue SE, bicycle routes would be designed so that bicyclists cross the light rail tracks at a perpendicular angle for bicyclist safety.

With a connection to Alternatives B3, B7, or B3 - 114th Design Option, *Preferred Alternative C9T* would not affect bicycle facilities along 112th Avenue SE.

Other Segment C Alternatives

The other Segment C alternatives with elevated profiles (Alternatives C7E, C8E, and C14E) and tunnel profiles (Alternatives C1T, C2T, and C3T) would have minimal impacts on downtown bicycle circulation. Crosswalk access for bicyclists would operate under the same conditions as pedestrian access previously described.

Alternative C4A would change circulation patterns for bicyclists traveling on 108th Avenue NE and 110th Avenue NE by converting these streets to a one-way couplet. This could create some recirculation of bicycle activity because cyclists would not have the ability for two-way travel on these streets. The side-track alignment Alternative C4A creates the potential for bicyclists to turn across the light rail tracks.

Alternative C9A would not affect planned bicycle facilities, similar to *Preferred Alternative C11A*.

With any of the Segment C alternatives that include a connection to Alternative B3, B7, or B3 - 114th Design Option, similar effects on bicycle facilities along 112th Avenue SE would occur as with the *Preferred Alternative C11A*.

3.7.3.4 Segment D

In the Bel-Red area, the pedestrian and bicycle facilities planned as part of the City of Bellevue's Bel-Red Subarea Plan would support the East Link project. Implementing the Bel-Red Subarea Plan would improve the pedestrian and bicycle connections in this area, as the planned high-density, transit-oriented land uses would be expected to substantially increase the pedestrian and bicycle activity.

Pedestrian Circulation

Preferred NE 16th At-Grade Alternative (D2A)

In the Bel-Red area, the 120th and 130th stations would support the pedestrian facilities planned as part of the transportation and land use projects in the City of Bellevue's Bel-Red Subarea Plan. Implementing the Bel-Red Subarea Plan would improve the pedestrian connections near the station areas.

More than half the transit users at the 120th Station during the PM peak period would be walk and bicycle trips that would likely originate from the surrounding planned commercial, retail, and office land uses.

The D2A - 120th At-Grade Design Option would provide a slightly more convenient pedestrian and bicycle access to the street system because it is at-grade compared with the *Preferred Alternative D2A* retained-cut 120th Station.

Pedestrian activity would be higher at the 130th Station, and most of the trips would consist of pedestrians or bicyclists, with most boarding light rail during the PM peak period. Many of the light rail boardings would likely originate from nearby commercial, retail, and office parks planned as part of the redevelopment strategy in the Bel-Red Subarea Plan.

The 120th Station and 130th Station are within moderately close walking distance of each other. This is illustrated in Exhibit 3-27. Pedestrians would access the station that is closest to their walk route. The western edge of the 120th Station walking area is constrained by terrain and presents a barrier to effectively connect with this station. These factors would likely be the cause of the lower level of pedestrian activity at the 120th Station.

At the Overlake Village Station, the future PM peak volumes of pedestrians would primarily consist of riders transferring between light rail and other modes. Many of the pedestrian trips would originate from nearby office park, commercial, and mixed land uses. For improved bicycle and pedestrian connections between the Overlake Village Station (associated with *Preferred Alternative D2A*) and the commercial properties north of SR 520, the City of Redmond could build a new nonmotorized, multiuse bridge over SR 520.

At the Overlake Transit Center Station, about two-thirds of the transit riders would transfer among modes and the remaining third would be pedestrians and bicyclists. Most of the pedestrian activity at this station in the PM peak period is expected to consist of commuters coming from large employment centers near the station and boarding light rail. To help facilitate pedestrian movements across 156th Avenue NE, the project would provide another crosswalk at the intersection of NE 38th Street and 156th Avenue NE. For improved bicycle and pedestrian connections between the Overlake Transit Center Station and the properties west of SR 520, a new nonmotorized, multiuse bridge over SR 520 could be constructed by others.

Currently, there are limited sidewalks and crosswalks on NE 16th Street between 132nd Street and 136th Place NE and on 136th Place NE between NE 16th and NE 20th Streets. The *Preferred Alternative D2A* would provide sidewalks on both streets, and crosswalks would be located at the NE 16th Street and 132nd Avenue NE and at the NE 16th Street and 136th Place NE intersections. Increases in the pedestrian crossing distance would occur along NE 16th Street and 136th Place NE. Additionally, planned improvements included in the Bel-Red Subarea Plan would provide sidewalks and crosswalks near both 120th and 130th stations with the NE 15th/16th Street extension project being designed by the City of Bellevue.

Sidewalks at the intersections nearest to all station entrances for *Preferred Alternative D2A* would operate at LOS A in the no-build and build conditions, indicating that pedestrian flows to and from the station would occur without crowding (refer to the *Transportation Technical Report* [Appendix H1] for a more detailed discussion of pedestrian LOS).

There would be no impacts on any school walk routes with the *Preferred Alternative D2A*.

Other Segment D Alternatives

Similar to the *Preferred Alternative D2A*, the pedestrian facilities planned as part of the City of Bellevue's Bel-Red Subarea Plan would support and connect to the 120th and 130th stations for Alternatives D2E and D3. Because neither the 120th Station nor 130th Station is considered with Alternative D5, there would be no nonmotorized benefits to East Link Project with the Bel-Red Subarea Plan.

The PM peak-period pedestrian trips generated at the 120th Station for Alternatives D2E and D3 would be similar to the trips generated at the 120th Station with the *Preferred Alternative D2A*. The 130th Station pedestrian trips for Alternatives D2E and D3 would be similar to the 130th Station trips generated with *Preferred Alternative D2A*.

Pedestrian circulation to and from the private properties west of 152nd Avenue NE, near the Overlake Village Station, would be relocated to 151st Avenue NE with Alternatives D2A – NE 24th Design Option, D2E, and D5 as these alternatives prohibit pedestrians from crossing the tracks. This would create some out-of-direction travel for pedestrians. Alternative D3 would provide an additional crosswalk north of the Overlake Village Station at NE 26th Street to accommodate pedestrian movements to and from the station platform.

Pedestrian circulation at the Overlake Transit Center for Alternatives D2E, D3, and D5 is similar to the conditions for *Preferred Alternative D2A*.

Similar to *Preferred Alternative D2A*, sidewalks would be provided on NE 16th Street between 132nd Street and 136th Place NE and on 136th Place NE between NE 16th and NE 20th Streets for Alternatives D2E and D3. Increases in pedestrian crossing distances would occur at the signalized intersections along NE 16th Street and 136th Place NE (similar to *Preferred Alternative D2A*) and at the NE 24th Street and 152nd Avenue NE intersection with Alternatives D2E and D3. In addition, with Alternative D3, increases in pedestrian crossing distances would occur along NE 20th Street between 136th Place NE and 152nd Avenue NE.

Similar to *Preferred Alternative D2A*, sidewalks at the intersections nearest to all the Alternative D2E, D3, and D5, station entrances would operate at LOS A in the no-build and build conditions (see Table F-4 in Appendix F of the *Transportation Technical Report* [Appendix H1]).

There would be no impacts on any school walk routes with Alternatives D2E, D3, and D5.

Bicycle Circulation

The stations in Segment D would have minimal to no impacts on existing bicycle circulation. All arterial streets are part of a designated bicycle route network; however, bicycle circulation is currently limited because designated bicycle lanes are not present on arterial streets. In the future, substantial bicycle facility improvements are included in the City of Bellevue's Bel-Red Subarea Plan. These improvements would support and connect the 120th and 130th stations.

Bicycle storage and wayfinding at Segment D stations would be provided. The proposed bicycle facilities at the Segment D stations are shown in Table 7-13 in Section 7 of the *Transportation Technical Report* (Appendix H1).

Preferred NE 16th At-Grade Alternative (D2A)

Similar to the pedestrian circulation, bicycle facilities planned as part of the City of Bellevue's Bel-Red Subarea Plan would support and connect to the 120th and 130th stations. Both of these stations would be close to the SR 520 Multiuse Regional Trail; however, trail access would be limited to public park areas, and direct access from arterial streets would be constrained by terrain and private properties.

Bicycle circulation conditions near the Overlake Village Station and Overlake Transit Center Station would be similar to existing conditions. The City of Redmond could construct a new nonmotorized, multiuse bridge over SR 520 to improve nonmotorized connections between the Overlake Village Station (associated with *Preferred Alternative D2A*) and the commercial properties north of SR 520. Additionally, improved bicycle and pedestrian connections between the Overlake Transit Center Station and the properties west of SR 520, could occur if a new nonmotorized, multiuse bridge over SR 520 were built by others.

Even though the Overlake Village and Overlake Transit Center Stations are located close to the SR 520 Regional Multiuse Trail, access between the trail and these stations would be indirect as trail users would need to cross SR 520 unless the nonmotorized bridges proposed by others were to be built.

Other Segment D Alternatives

All other Segment D alternatives except Alternative D5 (D2A – 120th and 24th Design Options, D2E, and D3) would have bicycle impacts at the 120th and 130th stations similar to those of *Preferred Alternative D2A*.

Similar to the pedestrian circulation, because neither 120th Station nor 130th Station is considered with Alternative D5, there would be no nonmotorized benefits with this alternative in conjunction with the Bel-Red Subarea Plan.

All other Segment D alternatives would have bicycle impacts at the Overlake Village and Overlake Transit Center similar to those of the *Preferred Alternative D2A*.

3.7.3.5 Segment E

Pedestrian and bicycle circulation and connectivity within Segment E would be improved with development projects or planned city capital improvements.

Pedestrian Circulation

Preferred Marymoor Alternative (E2)

Preferred Alternative Marymoor (E2) would be the only Segment E alternative that would serve the at-grade Downtown Redmond Station. This station would have the highest PM peak-period bicycle and pedestrian trips compared with the other Segment E stations as it surrounds major commercial and retail areas. This is indicated in Table 3-32. If light rail riders were to park at the Redmond Transit Center, then they would need to cross SR 202 to access this station. Most light rail riders at this station would likely make bus transfers or walk to and from the surrounding commercial and retail areas.

Preferred Alternative E2 would also serve the SE Redmond Station. The pedestrian activity at the SE Redmond Station would primarily be within the facility and occur at the park-and-ride area as a result of many people transferring from light rail to autos. This travel pattern would be expected because the surrounding land uses include industrial and commercial buildings. Pedestrian circulation near this station would also be limited by wide, multilane arterials with heavy traffic volumes and by the proximity to SR 520, which is a physical barrier to travel to and from Downtown Redmond.

The future BNSF Railway regional multiuse trail would provide pedestrian access to and from both of these stations. With *Preferred Alternative E2*, crossings at 161st, 164th, 166th, and 170th Avenues NE and NE Leary Way would be maintained. Gates would be installed at at-grade intersections and at driveways along the BNSF Railway corridor through Downtown Redmond. Pedestrian crosswalks at these locations would be maintained.

Other Segment E Alternatives

The Redmond Way Alternative (E1), E2 - Redmond Transit Center Design Option, and Leary Way Alternative (E4) would serve the at-grade Redmond Town Center Station. Most light rail pedestrian activity at the Redmond Town Center Station would be similar to the Downtown Redmond Station with *Preferred Alternative E2*. Close to one-third of the riders at the Redmond Town Center Station would likely walk to and from the surrounding commercial and retail areas.

With the Alternative E2 – Redmond Transit Center Design Option, while 35 percent of the future PM peak-period person trips at the Redmond Transit Center Station would be pedestrians or bicyclists there are less than 150 walk and bike trips forecasted at this station. This is likely because of the nearby Redmond Town Center Station. The highest pedestrian activity at the Redmond Transit Center Station would occur within the station at the park-and-ride lot, as many riders would be transferring between modes.

Pedestrian circulation and connectivity at the SE Redmond Station for Alternatives E1 and E4 would be similar to those discussed for *Preferred Alternative E2*.

In terms of pedestrian crosswalk conditions, minimal increases in walking distances are expected only with the Alternative E2 - Redmond Transit Center Design Option, along 161st Avenue NE, from Cleveland Street to NE 85th Street.

Similar to *Preferred Alternative E2*, Alternatives E1 and E4 would use the former BNSF Railway right-of-way. Both of these alternatives would have street crossings at 164th, 166th, and 170th Avenues NE. Alternative E1 would have additional street crossings at 161st Avenue NE and NE Leary Way, similar to *Preferred Alternative E2*. Alternative E4 would have additional crossings at Bear Creek Parkway and NE 76th Street. Pedestrian crosswalks at these locations would be maintained. To provide safe vehicle and pedestrian movements across the tracks, gates would be installed at at-grade intersections and driveways along the corridor through Downtown Redmond. At the Redmond Transit Center, pedestrian access to the station platform would occur at the crosswalks at NE 80th and 83rd streets.

The recommended school walk route for Redmond Elementary School consists of collector and local streets in residential areas of Segment E, and impacts on the walk route are not expected as none of the East Link alternatives would cross these routes.

Bicycle Circulation

With the East Link Project, circulation for bicyclists in Segment E would likely not differ greatly from circulation under the No Build Alternative. Future bicycle improvement projects would enhance bicycle circulation by improving access to Marymoor Park and the Sammamish Regional Multiuse Trail system. These bicycle facilities are close to the proposed stations; however, direct access to them would be hindered by SR 520, especially from the Redmond Town Center.

Bicycle storage and wayfinding would be provided at Segment E stations. The proposed bicycle facilities at the Segment E stations are shown in Table 7-15 in Section 7 of the *Transportation Technical Report* (Appendix H1).

Preferred Marymoor Alternative (E2)

The *Preferred Alternative E2* would not preclude the potential development of a multiuse trail located along the former BNSF Railway tracks parallel to light rail tracks. Developing a multiuse trail in this corridor would create a pedestrian and bicycle connection between the Bear Creek Trail and Lake Sammamish.. The trail would be directly accessible from the SE Redmond Station and Downtown Redmond Station and allow nonmotorized commuters to transfer to light rail.

Other Segment E Alternatives

The bicycle lanes along 161st Avenue NE would be maintained with Alternative E2 – Redmond Transit Center Design Option to ensure nonmotorized connectivity between the Redmond Transit Center Station and the nearby Sammamish Regional Multiuse Trail and proposed multiuse trail located along the former BNSF Railway corridor.

Similar to the *Preferred Alternative E2*, Alternatives E2 – Redmond Transit Center Design Option and E1 and E4 would not preclude the potential multiuse trail located along the former BNSF Railway corridor. The trail would be directly accessible from SE Redmond Station and Redmond Town Center Station and would allow nonmotorized commuters to transfer to light rail.

3.7.3.6 Construction Impacts

Potential construction impacts for pedestrian and bicycle circulation could occur along streets with partial or full closures because these types of construction areas may restrict or provide detour routes for pedestrians and/or bicyclists. Regional multiuse trails might experience some temporary construction impacts due to their proximity to the alternatives. Section 3.6 discusses and Table 3-31 lists the streets with expected closures during construction. Sound Transit would minimize disruptions to the sidewalk or bicycle network and provide detours as practical during construction.

In Bellevue, a number of bicycle facilities are planned as part of the City's future transportation improvement projects within the study area (Exhibits 7-9 through 7-11 in Appendix H1 [*Transportation Technical Report*]). If these projects are completed before light rail construction, then the bicycle lanes and routes that are located within or adjacent to light rail construction areas could be temporarily affected during construction and would be closed or detours would be provided, depending on the type of construction activity. In Segments B, C, D, and E, the potential multiuse trail along the former BNSF Railway corridor would be affected in some areas if constructed prior to East Link.

In Redmond, most arterials are designated as existing bicycle routes or provide bike lanes. Similar to the potential impacts on bicycle facilities in Bellevue, some bicycle facilities in Redmond would be temporarily closed or detours provided during construction.

Segment A, *Preferred Interstate 90 Alternative (A1)*

The portion of the I-90 Multiuse Regional Trail located on the I-90 bridge would not be affected by light rail construction.

Segment B

Preferred 112th SE Modified Alternative (B2M)

Near the I-90 and Bellevue Way interchange, the I-90 Trail could be temporarily affected by construction associated with any of the Segment B alternatives. During construction, temporary trail closures or detours could occur where the trail is close to the I-90 and Bellevue Way ramps, and near the western boundary of the Mercer Slough Nature Park.

During the civil construction period for *Preferred Alternative B2M*, the sidewalk on the eastern side of Bellevue Way SE and 112th Avenue SE would likely close and require detours. A portion of the Periphery Loop Trail would be closed during construction and require detours. Impacts on the trail network within the Mercer Slough Nature Park are not expected.

Other Segment B Alternatives

During the civil construction period along Bellevue Way for Alternatives B1, B2A, B2E, and B3, the sidewalk along Bellevue Way SE and 112th Avenue SE would likely close and require detours similar to *Preferred Alternative B2M*. Impacts on the Periphery Loop Trail and Mercer Slough Nature Park trail network would be similar to *Preferred Alternative B2M*.

The 118th Avenue Regional Multiuse Trail could be temporarily affected near I-90 by construction associated with Alternative B7. Also with construction of Alternative B7, short-term nonmotorized construction impacts would occur with the elevated portion of the Alternative B7 construction along 118th Avenue SE.

Segment C

Preferred 108th NE At-Grade Alternative (C11A)

With the construction of *Preferred Alternative C11A*, sidewalks along 112th Avenue SE, Main Street, 108th Avenue NE, and NE 6th Street would likely remain open on at least one side and, to the extent possible, pedestrian connections would be maintained at intersections. Pedestrian access to buildings would also be maintained.

Preferred 110th NE Tunnel Alternative (C9T)

During construction for the *Preferred Alternative C9T*, sidewalks along 112th Avenue SE, Main Street, 110th Avenue NE, and NE 6th Street would likely remain open on one side during construction. Pedestrian connections would be maintained at intersections to the extent possible. Pedestrian access to buildings would also be maintained.

Other Segment C Alternatives

Civil construction activities with Alternatives C1T, C2T, and C3T would likely close sidewalks on at least one side of the street along the construction route, although pedestrian connections would be maintained, to the extent possible, at intersections. The pedestrian connection along NE 6th Street would be maintained with Alternative C1T and C2T construction either along this route or nearby depending on the construction activity.

During the civil construction period of Alternative C4A, the sidewalk would likely be closed on one side of 108th and 110th Avenues NE and along one side of Main and NE 12th Streets between 108th and 112th Avenues NE.

Alternative C9A would have nonmotorized construction impacts similar to *Preferred Alternative C9T*.

There would be minimal impacts on pedestrians and bicyclists during construction of Alternatives C7E and C14E. The bicycle route along 114th Avenue SE between SE 6th and Main Streets would likely be rerouted along SE 6th Street and 112th Avenue SE during construction of Alternative C14E. Construction associated with Alternative C8E would likely close sidewalks on one side along the construction route of NE 2nd Street, 110th Avenue NE, and NE 12th Street.

Segment D

Civil construction impacts on the SR 520 Multiuse Regional Trail are not expected because the East Link Project does not require widening or realignment of SR 520 and does not require relocation of the trail. The SR 520 trail in Segment D is located along the north side of SR 520, and construction impacts are not foreseen because the alternatives in Segment D are located on the south side of SR 520.

The construction of a pedestrian bridge across SR 520 to the Overlake Village Station with the *Preferred Alternative D2A* and/or to the Overlake Transit Center (all Segment D alternatives) would create short-term lane closures on SR 520.

Preferred NE 16th At-Grade Alternative (D2A)

In Segment D, sidewalk, associated with the construction of the *Preferred Alternative D2A* (and both the D2A – 120th and NE 24th Design Options) would likely remain open on one side of the road along NE 16th Street between 132nd Street and 136th Place NE, and 136th Place NE and the west side of Microsoft Road.

Other Segment D Alternatives

Similar sidewalk closures along NE 16th Street between 132nd Street and 136th Place NE, 136th Place NE, and Microsoft Road would likely occur under Alternatives D2E and D3. Along the proposed NE 15th Street between 120th and 124th Avenues NE, sidewalk closures would be likely under Alternatives D2E and D3.

Sidewalks on one side of 24th Street between 148th Avenue NE and 152nd Avenue NE would likely be closed with Alternative D2A - NE 24th Design Option and Alternative D2E. Alternative D3 would likely have sidewalk closures along NE 20th Street between 136th Place NE and 152nd Avenue NE and along 152nd Avenue NE.

Alternative D5 would likely have sidewalk closures along the west side of 152nd Avenue NE and Microsoft Road.

Segment E

The elevated alternatives in Segment E would cross the Sammamish River Trail, resulting in minor short-term trail detours. Alternative E1 would cross the Bridle Crest Trail and the Bear Creek Trail. Alternative E1 would require minor realignment of the East Lake Sammamish Trail in the area along the former BNSF Railway tracks. With Alternative E2 - Redmond Transit Center Design Option, the sidewalk along 161st Avenue NE would be closed.

3.7.4 Potential Mitigation

No adverse impacts have been identified due to East Link operations and therefore no mitigation to nonmotorized facilities is proposed. As described in Section 3.7.3, Sound Transit would provide pedestrian and bicycle improvements at East Link stations. Sound Transit would work with the local agencies regarding alternatives and stations that are located within the median of roadways so that the most appropriate treatments are provided for safe and effective pedestrian crossings and access. These treatments could include painted crosswalks or signals, street lighting, warning lights or bells, or signage.

During construction, Sound Transit would minimize potential impacts on pedestrian and bicycle facilities by providing detours or clearly delineated facilities within construction areas, such as protected walkways, and notify the public as appropriate. For example, with the sidewalk closed along Bellevue Way SE during the construction of the *Preferred Alternative B2M*, methods to maintain pedestrian access could include the use of a protected walkway adjacent to the construction area or a similar provision.

Multiuse trails that may be affected by construction would generally be kept open for use, but detours would be provided when trails are closed unless they are closed for short durations or in areas where a detour option is not feasible. Public notification efforts would be conducted for temporary trail closures during construction.

3.8 Freight Mobility and Access

3.8.1 Methodology

Truck routes within the study area were identified and analyzed to compare potential impacts on freight movement from the No Build Alternative and the East Link Project. Freight movements were analyzed along I-90, on arterial and local routes, and on railways. Additional truck data and analysis are provided in Appendix H1, *Transportation Technical Report*.

3.8.2 Affected Environment

Truck mobility within the Puget Sound region is largely supported by a system of designated truck routes consisting of freeways and arterial streets that connect major freight destinations. WSDOT has adopted the Freight Goods Transportation System (FGTS), which classifies roadways according to the amount of annual tonnage transported along these roads. All interstates and state routes are designated as truck routes, and each jurisdiction locally determines its designated truck route system on arterial streets according to the FGTS classification. Within the study area, I-90 and I-405 are designated as T-1 freight routes, which indicate that over 10,000,000 gross tons of freight goods are moved every year. SR 520 is classified as a T-2 freight route, indicating between 4,000,000 and 10,000,000 gross tons of freight goods are moved yearly.

Within the East Link study area, there are key freight corridors that serve not only the Puget Sound region but also national and international markets, such as I-90 and I-405. There also are many local truck routes that facilitate the flow of deliveries to local businesses. These transportation corridors are vital to the movement of freight and goods among major transportation hubs such as the Port of Seattle, the Seattle-Tacoma International Airport (Sea-Tac Airport), and other business and consumer destinations. Within the East Link study area, freight goods and services are only transported on roadways, although some of the freight transported on I-90 and the other highways (I-405 and SR 520) in the study area is associated with marine facilities, such as the ports of Tacoma and Seattle.

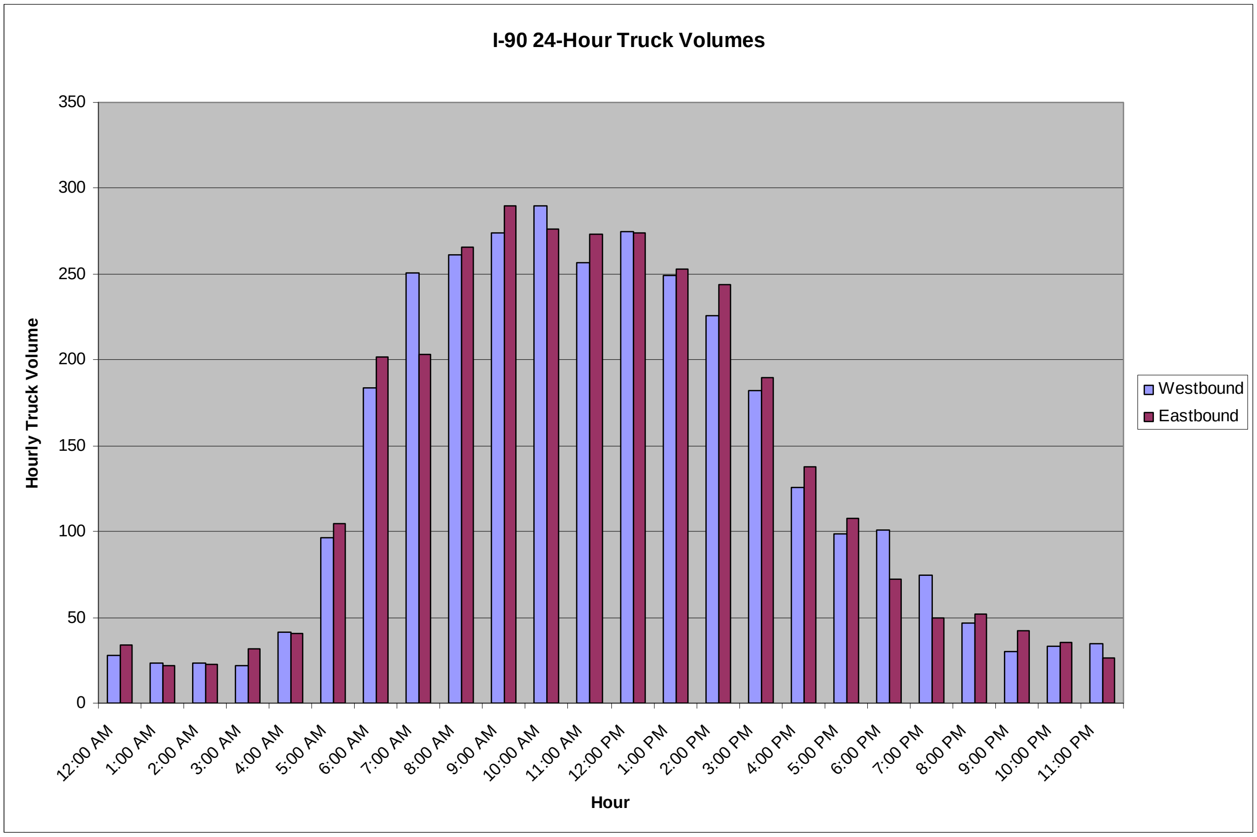
3.8.2.1 Regional Highways

In Segment A (see Exhibit 3-1), I-90 is a key east-west truck route within the study area, connecting local, interstate, and regional freight with the ports of Seattle and Tacoma and surrounding industrial areas. Following I-5, I-90 is the second most heavily used highway for truck movements in Washington (WSDOT, 2008). From 1993 to 2003, I-90 truck traffic grew by 72 percent (WSDOT, 2008).

Overall, about 6,300 trucks travel on I-90 across Lake Washington each day. This is about 4.5 percent of the approximately 140,000 vehicles that travel on the I-90 floating bridges every day. About half of the trucks are considered small-sized, which includes vehicles such as delivery vans and recreational vehicles. Approximately 12 percent of the total trucks crossing I-90 are large-sized tractor-trailer trucks. Trucks over 10,000 pounds (e.g., tractor-trailers) only travel on the outer I-90 mainline roadways because vehicles over 10,000 pounds are prohibited from using the reversible center lanes. Trucks under 10,000 pounds (e.g., delivery and recreational vehicles) are allowed to use the center roadway if they are either a high-occupancy vehicle or heading to/from Mercer Island. Therefore, there is only a small percentage of trucks in the reversible center roadway compared with the outer roadways in the study area. Throughout an average day, slightly over 100 small-sized trucks use the center roadway. This is about one percent of all the vehicles in this roadway.

About two-thirds of the trucks on I-90 travel during nonpeak hours, indicating many trucks avoid the more heavily congested times of the day. The highest amount of truck activity on I-90 crossing Lake Washington occurs during the period from late morning to mid-day. During the early afternoon, truck volumes dramatically decreases they avoid the afternoon peak period. Only about 3 percent of total traffic during the PM peak period is trucks. Exhibit 3-28 shows hourly truck volumes throughout the day.

During the AM peak period, about 40 percent of the trucks crossing Lake Washington on I-90 are heading to or from east of I-405, with many passing over Snoqualmie Pass. Overall, about 800 trucks travel on the I-90 mainline during the AM 2-hour peak period. This percentage of trucks continuing east on I-90 increases in the PM peak period to just over 50 percent, but, as described in the previous paragraph, the total number of trucks decreases dramatically in this period to about half, as approximately 400 trucks travel on I-90 during the PM peak period.



Source: Sound Transit, 2007

Note: I-90 total daily volume is approximately 140,000

EXHIBIT 3-28

I-90 Existing 24-Hour Truck Volumes

3.8.2.2 Arterials and Local Streets

In Seattle, most of the arterial streets within the study area (such as Rainier Avenue South, 4th Avenue South, and South Dearborn Street) are designated as Major Truck Streets, for which standards for design provide for higher volume truck travel. On Mercer Island, no roadways are identified as truck routes.

In Segments B and C, many of the arterial roadways with access to and from I-90 or I-405 are designated trucks routes, including Bellevue Way SE, 112th Avenue SE, SE 8th Street, NE 4th Street, and NE 8th Street. In addition, NE 12th Street is a truck route connecting Bellevue Way, 112th Avenue NE, and 116th Avenue NE, which are also designated as truck routes in Bellevue. Within Segment C, trucks mainly serve the commercial, office, and retail areas for delivery trips.

Within Segment D, Bel-Red Road is identified as a truck route. Other truck routes that access the commercial and industrial land uses along the Bel-Red corridor are 116th, 120th, 124th, and 148th Avenues NE. 148th Avenue NE, with access to SR 520, is also a designated truck route within Segment E. Also in Segment E, 148th Avenue NE and a small section of NE 51st Street are designated as truck routes in the city of Redmond. Near Downtown Redmond, West Lake Sammamish Parkway and SR 202 are designated truck routes that serve the commercial, retail, and office land uses.

3.8.2.3 Rail Freight

Within the study area, the only rail-line is the former BNSF Railway, which travels through Segments B, C, and D. There are no rail freight operations within Segments A and E. The Port of Seattle has acquired the former BNSF Railway right-of-way from Snohomish to north Renton, including a spur from Woodinville to Redmond. The Port of Seattle intends to secure the corridor for potential future freight rail use but is also interested in optimizing the use of this corridor for other transportation modes compatible with freight rail (Port of Seattle, 2008). The former BNSF Railway no longer is used for freight movements as the Wilburton Tunnel that crosses over southbound I-405 was recently removed, and therefore the rail corridor is no longer continuous.

3.8.3 Environmental Impacts

3.8.3.1 Impacts during Operation

Freight on Regional Highways

Future truck travel was analyzed along I-90 to understand future conditions with and without the project. This analysis provided 2-hour peak truck travel time data that are presented in Table 3-33.

As further described in this section, the East Link Project would have an overall beneficial impact on trucks traveling on I-90. As more people choose to use light rail, truck travel times during peak hours would be maintained or improve overall, and the ability for trucks to cross Lake Washington on I-90 would be maintained. Future traffic forecasts indicate that the average annual truck traffic growth by year 2030 on I-90 in the study area will be about 2 percent or less during the AM and PM peak periods. Growth in the peak periods between years 2020 and 2030, especially the PM peak period, is expected to minimize, as traffic congestion on I-90 will be much worse than it is today, and, therefore, a higher percentage of trucks are expected to cross Lake Washington during off-peak times. With more congestion in the future, there will be fewer uncongested off-peak hours available for truck travel in the no-build condition.

With either No Build Alternative (with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project, or with Stages 1-3), afternoon and morning truck travel times in 2030 are expected to take 35 to 75 percent longer than at present due to increasing congestion. Overall, average (combined westbound and eastbound) truck travel time between I-405 and I-5 in the no-build condition would take approximately 24 minutes in the morning peak and 27 minutes in the afternoon peak.

With the East Link project, truck access to and from the I-90 westbound and eastbound outer roadways would be unchanged because none of the general-purpose ramps to and from I-90 would be modified with the project. Regarding truck travel times, the average truck travel time in the morning and afternoon peak periods would be 23 and 22 minutes, respectively, between I-405 and I-5, compared with 24 minutes in the morning peak and 27 minutes in the afternoon peak with either No Build Alternative (see Table 3-32). This equates to a comparable travel time in the morning peak and a 5-minute travel time savings in the afternoon peak. Most of the travel time improvement in the afternoon peak is in the westbound direction as a result of people shifting to ride light rail as their transportation mode, combined with the fact that truck access and circulation on the outer roadways would not be affected by East Link**.**

In addition to truck travel times, Table 3-32 also provides information on how many trucks would travel on I-90 during peak periods in 2030. Overall, the number of trucks traveling on I-90 in the morning and afternoon peak periods would be more with the project compared with the No Build Alternative when Stages 1 through 2 of the I-90 Two-Way Transit and HOV Operations Project are completed and similar when compared with the No Build Alternative when Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project are completed.

TABLE 3-33
2030 2-Hour Peak-Period I-90 Bridge Truck Volumes and Travel Times

Period	Direction	No Build Alternative[a]		No Build Alternative[b]		East Link	
		Number of Trucks[c]	Travel Time[d] (min)	Number of Trucks[c]	Travel Time[d] (min)	Number of Trucks[c]	Travel Time[d] (min)
AM Peak	Westbound	410	30	440	27	430	25
	Eastbound	480	18	570	21	620	22
AM Peak Total		**890**	**24**	**1,010**	**24**	**1,060**	**23**
PM Peak	Westbound	450	33	470	32	660	25
	Eastbound	340	21	570	22	370	20
PM Peak Total		**790**	**27**	**1040**	**27**	**1,020**	**22**

[a] With Stages 1 and 2 I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
[c] Based on I-90 throughput data from the VISSIM analysis at the I-90 Lake Washington bridges.
[d] Travel times are between I-405 (Bellevue) and I-5 (Seattle).

More trucks would cross I-90 in the non-peak directions (eastbound in the morning and westbound in the afternoon) because congestion would improve with people riding light rail instead of driving. In the peak directions, a similar to less number of trucks would cross I-90 because congestion would remain similar with the project as the reversible center roadway would be closed to vehicles.

Currently, during non-peak periods auto congestion on I-90 is substantially reduced even though truck traffic is at much higher levels. Because congestion is less during these periods, the project, compared with the no-build condition, is not expected to have an impact on truck travel times during these periods. Thus, the bulk of the truck traffic would remain unaffected by the project.

The design options to potentially close the eastbound HOV direct-access off-ramp or westbound HOV direct-access on-ramp with Bellevue Way and design options for the eastbound HOV off-ramp at Mercer Island are not expected to cause impacts or circulation changes for trucks because these ramps are restricted to HOV and transit usage. Similarly, closing the Mercer Island ramps to and from the reversible center roadway is not expected to cause truck circulation impacts because similar access would be provided on the outer roadways.

Freight on Arterials and Local Streets

The alternatives in the East Link Project are not anticipated to negatively affect truck circulation or routes on the local street network. In some locations, local designated truck routes would cross or travel alongside of light rail at-grade profiles. At these locations, intersection conditions with East Link would be similar to those under the No Build Alternative. Some intersection operations may improve through mitigation for the East Link Project. Additionally, many of the at-grade alternatives that travel through intersections would be accommodated within the existing traffic signal operations. Therefore, disturbances caused by the light rail would be minimized, although slight delays could occur on the side streets when light rail travels through the intersection.

Rail Freight

Within Segment A, no rail freight impacts are expected. Within Segments B, C, and D, rail freight along the former BNSF Railway corridor is not anticipated to occur in the near-term future because of the recent I-405 expansion that removed a segment of rail line. The project, however, would not preclude future rail freight operations on the former BNSF Railway tracks. There are no rail freight operations within Segment E.

3.8.3.2 Impacts During Construction

This section discusses activities that could occur during construction and the associated impacts on freight. Construction impacts on trucks could include changes in travel time, truck routes, or business access.

Sound Transit would coordinate with WSDOT on incident management, construction staging, and traffic control permitting where the light rail construction might affect freight traffic. Sound Transit would also coordinate with WSDOT to disseminate construction closure information to the freight community.

Interstate 90

In Segment A, the I-90 Two-Way Transit and HOV Project would be completed before East Link is constructed on I-90 and Mercer Island. Therefore, truck travel times during the East Link construction period for the AM and PM peak periods would be similar to or less than the truck travel times with the No Build Alternative when only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project are built.

Similarly, compared to the No Build Alternative when Stages 1 through 3 of the I-90 Two-Way Transit and HOV Project are built, truck travel times during East Link construction would be similar or improved. Overall, a similar or increased number of trucks would cross Lake Washington during East Link construction compared with either No Build Alternative.

Most truck trips currently travel on I-90 during non-peak periods, when congestion is substantially reduced. Since congestion is less during these periods, project construction is not expected to have an impact on travel times for most truck traffic.The D2 Roadway would also be closed for light rail construction of the *Preferred Alternative A1*. This closure would not impact trucks as they are prohibited from using the D2 Roadway.

At the Bellevue Way interchange with I-90, the I-90 westbound mainline, HOV direct-access ramps, and ramps to and from I-90 to the east would experience short-term partial closures (likely during the nighttime) to construct the elevated structures for Alternatives B2A, B2E, B3, and B7 and *Preferred Alternative B2M*. The Bellevue Way Alternative (B1) would not require these closures because it is at-grade underneath the mainline roadway. These closures are not expected to affect trucks because alternative routes are available and truck traffic using these ramps is relatively low.

Other Regional Freeways

Elevated portions of the alternatives in Segment C over I-405 would likely result in multiple lane closures of I-405 at night, causing trucks to potentially detour and be delayed. Likewise, elevated portions of Alternatives E1 and E4 that would cross over SR 520 near the West Lake Sammamish Parkway interchange and the elevated portion of Alternative E1 that would cross SR 520 near the SR 202 interchange would close multiple lanes of SR 520 at night, causing trucks to potentially detour with added delay.

Arterials and Local Streets

Segment A

In Segment A, no truck impacts are expected on the arterial and local streets because light rail construction of the *Preferred Alternative A1* would be on the D2 Roadway and the I-90 reversible center roadway. Closing ramps to and from the I-90 reversible center roadway and constructing the Rainier and Mercer Island stations are not expected to affect trucks along arterials and local streets.

Segment B

Constructing all Segment B alternatives, except Alternative B7, would cause detours and lane closures on arterials and local streets, which could delay truck traffic on Bellevue Way and 112th Avenue SE. However, most of the businesses in South Bellevue are professional offices that do not rely heavily on trucks.

Segment C

Segment C at-grade (*Preferred Alternative C11A* and Alternatives C4A and C9A) and tunnel alternatives that require substantial cut-and-cover construction (*Preferred Alternative C9T* and Alternatives C1T and C2T) would have similar impacts on freight mobility and access on their construction routes. For these alternatives, short-term traffic detours and lane closures are expected. These might affect trucks and could require temporary alternate business access.

Constructing the Alternative C1T along Bellevue Way and NE 6th Street and Alternative C2T along Main Street, 106th Avenue NE, and NE 6th Street would require the largest amount of cut-and-cover tunnel construction. Converting 108th and 110th Avenues NE to one-way operations under Alternative C4A would require traffic detours and lane closures that might affect trucks and might temporarily alter business access.

Along elevated routes in Segment C, some impacts are anticipated as a result of lane closures and access restrictions needed for elevated structure construction. For Alternative C8E, impacts could occur along 110th Avenue NE because of lane closures.

For any of these alternatives, access to the businesses along streets with construction activities would be maintained to the extent possible either through existing or alternative access. Any access closures would be coordinated with the affected business.

Segment D

In Segment D, loss of parking, construction traffic, and lane closures could affect trucks along portions of NE 16th Street, 136th Place NE, NE 20th Street, 152nd Avenue NE, and NE 24th Street. Each alternative within Segment D would cause temporary detours and lane closures along some of these streets. Alternative D3 is expected to have the longest impact because it includes at-grade and retained-cut construction in the median of NE 20th Street. This construction could cause longer impacts on trucks than the other alternatives because other alternatives do not travel along NE 20th Street. *Preferred Alternative D2A* would have the second least impacts on trucks with impacts mainly along NE 16th Street and 136th Place NE. Alternative D5 would likely have the least impacts because most of it would be built adjacent to SR 520.

For the portions of the Segment D and E alternatives adjacent to SR 520, streets that currently provide access to properties would be rebuilt, as appropriate.

Segment E

In Segment E, the potential loss of lanes on Leary Way with Alternative E4 and 161st Avenue NE between Redmond Way and NE 85th Street with the Alternative E2 – Redmond Transit Center Design Option could have a slight impact on trucks. No substantial impacts are expected with the other Segment E alternatives during construction.

Maintenance Facilities

The impacts on trucks from constructing the maintenance facilities (potential detours and/or lane closures) are considered minimal because construction is expected to occur for about one year or less.

Rail Freight

Rail freight would not be affected in any segment during construction because the only rail line near East Link construction—the former BNSF Railway line in Segments B, C, and D—is closed.

3.8.4 Potential Mitigation

The East Link Project is not expected to require mitigation during operation to improve freight mobility and access because truck routes would be maintained and mobility would be improved with the project.

During East Link construction, adverse truck impacts would likely be associated with delays and restricted access for business deliveries on arterials and local streets near surface construction activities. The cut-and-cover tunnels and stations in Segment C would likely have the greatest impact on nearby businesses in terms of restricted access. To minimize these impacts, Sound Transit would work specifically with affected businesses throughout the construction period to maintain access as much as possible to each business.

During East Link construction associated with I-90, SR 520, or I-405, Sound Transit would coordinate with freight stakeholder groups by providing construction information to WSDOT for use in the state's freight notification system. Sound Transit would provide information in a format required by WSDOT and compensate WSDOT for any direct costs associated with use of the freight notification system for East Link construction.

3.9 Navigable Waterways

3.9.1 Affected Environment

Lake Washington is the largest navigable waterway in the study area. Navigation on Lake Washington is restricted to recreational users; commercial activity is prohibited except for some fishing by the Muckleshoot Indian Tribe in the tribe's "usual and accustomed" fishing area. The tribe conducts a fishing event in July in consultation with the Washington Department of Fish and Wildlife (WDFW).

Boaters can cross under I-90 at two locations on Lake Washington: under the east end of the I-90 bridges between Seattle and Mercer Island, and under the East Channel Bridge between Mercer Island and Bellevue.

Other water bodies located in the study area include smaller lakes, streams, and river bodies, including Mercer Slough, Mercer Slough East Creek, East Lake Bellevue, Sturtevant Creek, Kelsey Creek, Goff Creek, Sears Creek, Bear Creek, and the Sammamish River. Mercer Slough and the Sammamish River are navigable to nonmotorized watercraft; the other water bodies are not navigable.

3.9.2 Environmental Impacts

3.9.2.1 Operational Impacts

The operation of the East Link Project in Segment A would not affect navigation on Lake Washington.

Impacts on navigability in Segment B are not anticipated with *Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 - 114th Extension Design Option because they are located outside the navigable waterways of the Mercer Slough Nature Park. The elevated profile of Alternative B7, adjacent to the I-90 overpass, would cross Mercer Slough East; however, recreational navigability on the Mercer Slough under I-90 would not be affected by this alternative.

The project alternatives in Segments D and E are not expected to impact navigability of water bodies crossed by these alternatives because most of these water bodies are not navigable. Alternatives crossing the Sammamish River would be elevated crossings, thus maintaining recreational navigability.

3.9.2.2 Construction Impacts

Some in-water work is anticipated to occur in Lake Washington along I-90, and some construction work could be conducted from a barge. Neither of these activities would affect navigability of the lake.

Over-water construction of Alternative B7 might result in short durations of restricted recreational boating inside Mercer Slough near and under the Alternative B7 crossing.

Similarly, constructing the *Preferred Alternative E2* and Alternatives E1 and E4 might restrict nonmotorized boating on the Sammamish River at light rail crossings for short periods.

3.9.3 Potential Mitigation

During East Link operation, no mitigation of impacts on navigable waterways would be required.

During construction, Sound Transit would minimize impacts on the navigability of the Mercer Slough (Alternative B7) and the Sammamish River (all Segment E alternatives) waterway crossings by minimizing work from within the waterways.

If any barging of construction equipment or materials is required on Lake Washington in July, Sound Transit would consult with the Muckleshoot Indian Tribe to avoid conflict with their tribal fishing event.

Chapter 4

Affected Environment and Environmental Consequences

This chapter reviews the affected environment and environmental consequences for each resource analyzed. Each subsection describes the pertinent study area, the applicable regulations followed, and the effects of the preferred alternatives and other alternatives considered, including the No Build Alternative. Where impacts could not be avoided and minimized to avoid adverse effects, mitigation measures are proposed.

4.1 Acquisitions, Displacements, and Relocations

4.1.1 Introduction to Resources and Regulatory Requirements

Building and operating the East Link light rail system would require acquiring public and private property for right-of-way and other facilities, as well as displacing and relocating some residential, commercial, and public uses. This section summarizes likely property acquisitions, including property needed for elevated guideway easements, based on current conceptual designs and their impacts in each segment, while focusing on major differences among alternatives. This list of acquisitions is representative and should not be considered the final determination regarding property acquisition; the list could be updated as the project design is refined. Furthermore, the estimates described below reflect the existing conditions at the time the analysis was conducted. Because properties that are currently underdeveloped or vacant could be developed between completion of this Final EIS and the time of construction, the number and/or type of displacements could vary between what is disclosed in the Final EIS and what would actually be required.

There are two types of property acquisition discussed in this section:

- **Partial acquisition**, which would acquire part of a parcel and generally would not displace the existing use. In a few instances some of the businesses or residential units on a parcel would be displaced.
- **Full acquisition**, which would acquire the full parcel and displace the current use; full acquisitions include parcels that might not be fully needed for the project but would be affected to the extent that existing uses would be substantially impaired (e.g., loss of parking or access).

Within Segment C, many of the full acquisitions would be for staging areas and would only be needed during construction. Following construction, many of these properties would be available for redevelopment. Because of the length of time needed for civil construction—generally between 2 and 5 years—all displacements presented would be permanently relocated, and future redevelopment of staging areas would attract new businesses and residents.

In addition to the potential property acquisitions described in this section, the East Link Project would require subterranean easements, temporary construction easements, and the use of public rights-of-way owned by the Washington State Department of Transportation (WSDOT), the City of Bellevue, the City of Redmond, the Port of Seattle, and possibly the Cities of Seattle and Mercer Island and King County (Table 4.1-1). The area of these easements is not included in the data presented here. Other impacts associated with acquisitions and displacements are discussed in Section 4.2, Land Use; Section 4.3, Economics; and Section 4.4, Social Impacts, Community Facilities, and Neighborhoods.

TABLE 4.1-1
Potential Permanent Easements for Public Lands or Facilities

Type of Facility	Agency and/or Facility Owner	Facility Name	Segments
State roads	WSDOT	SR 520, SR 202, and SR 908	D, E
Interstates	WSDOT	I-90 and I-405	A, B,C
Local roads and property	Cities of Bellevue, Redmond, and Mercer Island; King County	Multiple	B, C, D, E
State waters	Washington Department of Natural Resources	Lake Washington, Sammamish River and Mercer Slough	A, B, E
Railroad corridor	Port of Seattle	Former BNSF Railway	B, C, D, E

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Code of Federal Regulations [CFR] Title 49, Part 24), as amended, is a federal requirement, and therefore, compliance is assumed as part of the project. The act and its amendments provide guidance on how federal agencies, or agencies receiving federal financial assistance for a project, will compensate for impacts on property owners or tenants who need to relocate if they are displaced by the project.

Sound Transit also has an adopted *Real Property Acquisition and Relocation Policy, Procedures, and Guidelines* to guide its compliance with Chapter 8.26 Revised Code of Washington (RCW) and Chapter 468-100 Washington Administration Code (WAC). Property acquisition will meet these laws and policies so that property owners are treated uniformly and equitably.

4.1.2 Affected Environment

The study area for acquisitions, displacements, and relocations includes parts of the Cities of Seattle, Mercer Island, Bellevue, and Redmond and King County. These jurisdictions are heavily developed with residential, commercial, industrial, and public properties along the proposed light rail corridor. Current and projected land uses along each alternative are discussed in Section 4.2, Land Use.

4.1.3 Environmental Impacts

Sound Transit analyzed the proposed right-of-way boundaries and parcel data from King County Department of Assessments and the City of Bellevue to identify properties that would be affected by each alternative and the area of each parcel that would be required. The tables and maps in Appendix G2 identify each potentially affected parcel by alternative; these maps show the right-of-way needed for the project and identify the parcels that would be affected, but they do not differentiate between partial and full acquisitions.

Sound Transit evaluated the effects on each parcel to determine whether the parcel would be fully or partially acquired. Sound Transit verified the current land use, including the number of businesses or residences on affected parcels, using 2010 King County Assessor data and field verification. The number of acquisitions and displacements for each segment within an alternative, as well as for each connector in Segments C and D, was then summarized in Table 4.1-2 and in Appendix G2.

4.1.3.1 No Build Alternative

Under the No Build Alternative, no acquisitions would be required, and no displacements or relocations would occur.

4.1.3.2 Impacts During Operation

Besides property acquisition, the East Link Project would require a number of permanent easements in public lands, waterways, and roadways. Table 4.1-1 lists the easements required by the alternatives, although actual easement areas required would vary by alternative. Sound Transit is in the process of acquiring 1.1 miles of the former BNSF Railway corridor from the Port of Seattle in Segments C and D, as well as an easement in other sections of the corridor potentially used by East Link.

Table 4.1-2 summarizes the total acres of property that would be required for each alternative (and alternative-connector combination), maintenance facility, and storage tracks, compared with the number of affected parcels, including partial and full property acquisitions. This area does not include public right-of-way that would be used as an easement. Property acquisitions related to stations are included in the total for the alternative but are also discussed separately in the following discussion of acquisitions in each segment. Table 4.1-3 summarizes the number of parcels potentially affected, which includes full and partial property acquisitions. In addition, these acquisitions are broken down by the type of land use affected by each alternative (and connector) in Segments B through E and the maintenance facility alternatives. The property acquisition for each alternative would include the light rail route, station (including park-and-ride lots), traction power substations (TPSS), and other facilities as needed for the build out of the alternative. The number of anticipated business and residential unit displacements are provided and might result from either full or partial acquisitions. These acquisitions and displacements are discussed and compared within each segment. It is important to note that many, but not all, of the partial acquisitions would be considered “sliver” acquisitions because they are small in size and would not affect the use of the property; however, because each “sliver” acquisition is counted among the total acquisitions, it could wrongly be inferred, due to a higher number of these “sliver” acquisitions, that one alternative would result in greater impacts than others would.

TABLE 4.1-2
Summary of Property Acquisition Impacts by Segment [a]

Segment	Alternative and Connector		Area to be Acquired by Project (acres) [a]	Total Number of Parcels Affected
Segment A	*Preferred Interstate 90 Alternative (A1)*		0	0
Segment B	*Preferred 112th SE Modified Alternative (B2M)*	To *Preferred Alternative C11A*	16.8	16
		To *Preferred Alternative C9T*	17	16
	Bellevue Way Alternative (B1)		20.2	92
	112th SE At-Grade Alternative (B2A)		15.2	28
	112th SE Elevated Alternative (B2E)		14.3	29
	112th SE Bypass Alternative (B3)		15.8	23
	B3 - 114th Extension Design Option		14.9	27
	BNSF Alternative (B7)		12.4	17
Segment C	*Preferred 108th NE At-Grade Alternative (C11A)*	*Preferred Alternative B2M*	14.8	58
		Alternative B3	17.8	55
		B3 - 114th Extension Design Option or Alternative B7	17.6	54
	Preferred 110th NE Tunnel Alternative (C9T)[b]	*Preferred Alternative B2M*	11.4	39
		Alternative B3	14.3	34
		B3 - 114th Extension Design Option or Alternative B7	14.1	33
	Bellevue Way Tunnel Alternative (C1T)		17.8	56
	106th NE Tunnel Alternative (C2T)	Alternative B2A	25	25
		Alternative B2E	48	47
		Alternative B3	33	34
		B3 - 14th Extension Design Option or Alternative B7	29	33
	108th NE Tunnel Alternative (C3T)	Alternative B2A	50	29
		Alternative B2E	38	51
		Alternative B3	59	39
		B3 - 114th Extension Design Option or Alternative B7	25	39
	Couplet Alternative (C4A)	Alternative B2A	17.4	57
		Alternative B2E	16.4	53
		Alternative B3	21.4	54
		B3 - 114th Extension Design Option or Alternative B7	21.6	54
	112th NE Elevated Alternative (C7E)	Alternative B2A	12.8	22
		Alternative B2E	11.9	17
		Alternatives B3, B3 - 114th Extension Design Option or Alternative B7	17.5	19
	110th Elevated Alternative (C8E)		19.1	32
	110th Avenue NE At-Grade Alternative (C9A)	Alternative B2A	8.2	29
		Alternative B3	12.9	26
		B3 - 114th Extension Design Option or Alternative B7	12.8	25
	114th Avenue NE Elevated Alternative (C14E)	Alternative B3	15.6	24
		B3 - 114th Extension Design Option or Alternative B7	15.4	24

TABLE 4.1-2 CONTINUED
Summary of Property Acquisition Impacts by Segment [a]

Segment	Alternative and Connector		Area to be Acquired by Project (acres) [a]	Total Number of Parcels Affected
Segment D	*Preferred NE 16th At-Grade Alternative (D2A)* [c]	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A, and C14E (via former BNSF Railway right-of-way)	24)	55
	D2A – NE 24th Design Option		25.8	69
	NE 16th Elevated Alternative (D2E)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A and C14E (via former BNSF Railway right-of-way)	35.2	47
		Alternatives C3T, C4A, C7E, and C8E (via NE 12th Street)	32.3	51
	NE 20th Alternative (D3)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A and C14E (via former BNSF Railway right-of-way)	37.6	103
		Alternatives C3T, C4A, C7E, and C8E (via NE 12th Street)	35	107
	SR 520 Alternative (D5)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A and C14E (via former BNSF Railway right-of-way)	13.5	37
		Alternatives C3T, C4A, C7E, and C8E (via NE 12th Street)	11.1	42
Segment E	*Preferred Marymoor Alternative (E2)*		17.3	36
	E2 – Redmond Transit Center Design Option		19.5	55
	Redmond Way Alternative (E1)		18.4	43
	Leary Way Alternative (E4)		11	35
Maintenance Facilities	NE 116th Maintenance Facility (MF1)	*Preferred Alternative D2A* and Alternatives D2E and D3	22.7	20
		Alternative D5	31.5	23
	BNSF Maintenance Facility (MF2)	*Preferred Alternative D2A* and Alternatives D2E and D3	24.9	10
		Alternative D5	22.9	9
	SR 520 Maintenance Facility (MF3)	*Preferred Alternative D2A*	19.2	14
		Alternative D2E	19.2	14
		Alternative D3	17.2	15
		Alternative D5	15.0	9
	SE Redmond Maintenance Facility (MF5)	Alternative E1	21.1	17
		Preferred Alternative E2	15.1	12
		Alternative E4	14.6	9

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway corridor rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

[a] Includes area that would be acquired in full and partial property acquisitions.

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts with either *Preferred Alternative C9T* or *B2M.*

[c] Impacts with D2A – 120th Station Design Option would be the same as those with *Preferred Alternative D2A*.

TABLE 4.1-3
Property Acquisitions and Displacements

Alternative and Connectors		No. Parcels Affected[a]	Commercial and Industrial[a]		Public and Institutional[a]		Residential Single-Family		Mixed-Use and Residential Multifamily[a]		Vacant Land		Total Parcels[a]		Total Displacements[a]	
			Partial	Full	Partial	Full	Partial	Full	Partial	Full	Partial	Full	Partial	Full	Business	Residential Units
Segment B, South Bellevue																
Preferred 112th SE Modified Alternative (B2M)	To *Preferred Alternative C11A*	16	4	0	7	1	2	0	1	0	1	0	15	1	0	1
	To *Preferred Alternative C9T*	16	4	0	7	1	2	0	1	0	1	0	15	1	0	1
Bellevue Way Alternative (B1)		92	7	2	10	1	40	10	12	1	3	6	72	20	2	12
112th SE At-Grade Alternative (B2A)		28	4	0	6	1	12	3	1	0	1	0	24	4	0	4
112th SE Elevated Alternative (B2E)		29	3	0	5	1	19	1	0	0	0	0	27	2	0	1
112th SE Bypass Alternative (B3)		23	3	0	6	1	8	3	1	0	1	0	19	4	0	4
B3-114th Extension Design Option		27	5	1	7	1	8	3	1	0	1	0	22	5	14	4
BNSF Alternative (B7)		17	6	5	2	1	0	0	1	0	0	2	9	8	6	0
Segment C, Downtown Bellevue																
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred Alternative B2M*	58	21	19	3	0	1	5	2	2	3	2	30	28	39	46
	Alternative B3	55	25	20	2	0	1	0	2	0	3	2	33	22	40	0
	B3 - 114th Extension Design Option or Alternative B7	54	24	20	2	0	1	0	2	0	3	2	32	22	40	0
Preferred 110th NE Tunnel Alternative (C9T)[a]	*Preferred Alternative B2M*	39	12	10	2	0	1	5	1	2	5	1	21	18	17	46
	Alternative B3	34	15	11	1	0	0	0	1	0	5	1	22	12	18	0
	B3 - 114th Extension Design Option or Alternative B7	33	14	11	1	0	0	0	1	0	5	1	21	12	18	0
Bellevue Way Tunnel Alternative (C1T)		56	22	11	2	1	0	0	15	2	1	3	40	16	21	91

TABLE 4.1-3 CONTINUED
Property Acquisitions and Displacements

Alternative and Connectors		No. Parcels Affected[a]	Commercial and Industrial[a]		Public and Institutional[a]		Residential Single-Family		Mixed-Use and Residential Multifamily[a]		Vacant Land		Total Parcels[a]		Total Displacements[a]	
			Partial	Full	Partial	Full	Partial	Full	Partial	Full	Partial	Full	Partial	Full	Business	Residential Units
106th NE Tunnel Alternative (C2T)	Alternative B2A	25	12	7	3	0	0	0	1	0	1	1	17	8	13	0
	Alternative B2E	47	15	14	2	0	1	12	1	0	1	1	20	27	20	12
	Alternative B3	34	15	13	2	0	0	1	1	0	1	1	19	15	19	1
	B3 - 114th Design Option or Alternative B7	33	14	13	2	0	0	1	1	0	1	1	18	15	19	1
108th NE Tunnel Alternative (C3T)	Alternative B2A	29	7	8	1	2	1	7	0	0	3	0	12	17	15	7
	Alternative B2E	50	10	15	0	2	2	19	0	0	3	0	15	36	22	19
	Alternative B3	39	11	14	0	2	1	8	0	0	3	0	15	24	21	8
	B3 - 114th Design Option or Alternative B7	39	11	14	0	2	1	8	0	0	3	0	15	24	21	8
Couplet Alternative (C4A)	Alternative B2A	57	13	18	3	2	3	8	4	0	6	0	29	28	36	8
	Alternative B2E	53	13	18	2	2	1	8	3	0	6	0	25	28	36	8
	Alternatives B3, B3 - 114th Design Option or Alternative B7	54	13	19	2	2	1	8	3	0	0	0	25	29	37	8
112th NE Elevated Alternative (C7E)	Alternative B2A	22	12	3	2	0	2	0	1	0	1	1	18	4	29	0
	Alternative B2E	17	11	3	1	0	0	0	0	0	1	1	13	4	29	0
	Alternatives B3, B3 - 114th Design Option or Alternative B7	19	12	4	1	0	0	0	0	0	1	1	14	5	30	0
110th NE Elevated Alternative (C8E)	Alternatives B3, B3 - 114th Design Option or Alternative B7	32	9	8	3	1	3	2	2	0	4	0	21	11	33	2
110th Avenue NE At-Grade Alternative (C9A)	Alternative B2A	29	8	10	3	0	2	1	1	0	4	0	18	11	17	1
	Alternative B3	26	9	11	2	0	0	0	0	0	4	0	15	11	18	0
	B3 - 114th Design Option or Alternative B7	25	8	11	2	0	0	0	0	0	4	0	14	11	18	0

TABLE 4.1-3 CONTINUED
Property Acquisitions and Displacements

Alternative and Connectors		**No. Parcels Affected[a]**	**Commercial and Industrial[a]**		**Public and Institutional[a]**		**Residential Single-Family**		**Mixed-Use and Residential Multifamily[a]**		**Vacant Land**		**Total Parcels[a]**		**Total Displacements[a]**	
			Partial	**Full**	**Partial**	**Full**	**Partial**	**Full**	**Partial**	**Full**	**Partial**	**Full**	**Partial**	**Full**	**Business**	**Residential Units**
114th Avenue NE Elevated Alternative (C14E)	Alternatives B3	24	13	10	0	0	0	0	0	0	0	1	13	11	24	0
	B3 - 114th Design Option or Alternative B7	24	13	10	0	0	0	0	0	0	0	1	13	11	24	0
Segment D, Bel-Red/Overlake																
Preferred NE 16th At-Grade Alternative (D2A)[b] with storage track		55	40	8	0	0	0	0	0	0	7	0	47	8	34	0
D2A- NE 24th Design Option		69	48	13	1	0	0	0	0	0	7	0	56	13	69	0
NE 16th Elevated Alternative (D2E)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A, and C14E	47	25	16	0	0	0	0	0	0	6	0	31	16	42	0
	Alternatives C3T, C4A, C7E, and C8E	51	27	16	0	0	0	0	0	0	8	0	35	16	42	0
NE 20th Alternative (D3)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A, and C14E	103	74	17	3	0	0	0	2	0	6	1	85	18	74	0
	Alternatives C3T, C4A, C7E, and C8E	107	76	17	3	0	0	0	2	0	8	1	89	18	74	0
SR 520 Alternative (D5)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1,C2T, C9A, and C14E	37	29	2	0	0	0	0	2	0	4	0	35	2	79	0
	Alternatives C3T, C4A, C7E, and C8E	42	31	2	0	0	0	0	2	0	7	0	40	2	79	0

TABLE 4.1-3 CONTINUED
Property Acquisitions and Displacements

Alternative and Connectors		No. Parcels Affected[a]	Commercial and Industrial[a]		Public and Institutional[a]		Residential Single-Family		Mixed-Use and Residential Multifamily[a]		Vacant Land		Total Parcels[a]		Total Displacements[a]	
			Partial	Full	Partial	Full	Partial	Full	Partial	Full	Partial	Full	Partial	Full	Business	Residential Units
Segment E, Downtown Redmond																
Preferred Marymoor Alternative (E2)		36	6	7	2	0	14	2	0	0	4	1	26	10	8	2
E2 - Redmond Transit Center Design Option		55	14	11	4	0	14	2	3	2	4	1	39	16	23	126
Redmond Way Alternative (E1)		43	12	5	1	0	14	2	3	0	5	1	35	8	7	2
Leary Way Alternative (E4)		35	12	3	0	0	12	2	1	0	4	1	29	6	7	2
Maintenance Facilities																
NE 116th Maintenance Facility (MF1)	*Preferred Alternative D2A* and Alternatives D2E and D3	23	5	12	0	3	0	0	0	0	2	1	7	16	77	0
	Alternative D5	23	4	14	0	3	0	0	0	0	1	1	5	18	82	0
BNSF Maintenance Facility (MF2)	*Preferred Alternative D2A* and Alternatives D2E and D3	10	5	3	0	0	0	0	0	0	2	0	7	3	5	0
	Alternative D5	9	1	5	0	0	0	0	0	0	3	0	4	5	6	0
SR 520 Maintenance Facility (MF3)	*Preferred Alternative D2A* and Alternative D2E	14	4	9	0	0	0	0	0	0	1	0	5	9	60	0
	Alternative D3	15	7	8	0	0	0	0	0	0	0	0	7	8	56	0
	Alternative D5	9	0	9	0	0	0	0	0	0	0	0	0	9	57	0
SE Redmond Maintenance Facility (MF5)	Alternative E1	17	3	13	0	0	0	0	0	0	0	1	3	14	38	0
	Preferred Alternative E2	12	4	7	0	0	0	0	0	0	0	1	4	8	16	0
	Alternative E4	9	1	7	0	0	0	0	0	0	0	1	1	8	16	0

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

[a] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M.*

[b] Impacts for D2A – 120th Station Design Option would be the same as they are for *Preferred Alternative D2A*.

The amount of land area converted to public right-of-way (Table 4.1-2) and the number of displacements caused by property acquisitions (Table 4.1-3) are a better representation of the impact than the number of properties affected.

Segment A

Sound Transit identified no right-of-way acquisition needed for *Preferred Interstate 90 Alternative (A1)* in this segment outside the existing public roadway, or highway rights-of-way.

Segment B

Sixteen properties would be affected by *Preferred 112th SE Modified Alternative (B2M)*, with either connection to *Preferred 108th NE At-Grade Alternative (C11A)* or *Preferred 110th NE Tunnel Alternative (C9T)*. Of these 16 properties, only 1 property, the South Bellevue Park-and-Ride, would be fully acquired for the South Bellevue Station and Park-and-Ride.

Of the Segment B alternatives, *Preferred Alternative B2M* and 112th SE Elevated Alternative (B2E) would have the fewest displacements. Neither would displace businesses, and only one residence would be displaced with these alternatives.

The Bellevue Way Alternative (B1) would have the greatest number of acquisitions and displacements—72 partial and 20 full property acquisitions—thereby displacing and relocating 2 businesses and 12 residences. The BNSF Alternative (B7) would affect the fewest number of overall parcels besides *Preferred Alternative B2M* (17) but would fully acquire eight parcels, thereby displacing six businesses. Four of these full acquisitions and three business displacements would be for the 118th Station. The B3 - 114th Extension Design Option would impact four more properties than Alternative B3. This design option would impact properties just north of the Mercer Slough.

Similar to *Preferred Alternative B2M*, most of the Segment B alternatives that run along Bellevue Way SE (Alternatives B1, B2A, B3, and B3 -114th Design Option) would displace the residence at the Mercer Slough Blueberry Farm.

Segment B alternatives serving the South Bellevue Station, similar to *Preferred Alternative B2M*, would fully acquire the South Bellevue Park-and-Ride property. The SE 8th Station would partially acquire two commercial properties under Alternative B2A, but no businesses would be displaced. All Segment B alternatives would acquire a small portion of Mercer Slough Nature Park.

Segment C

Most land for property acquisitions in Segment C would be for construction staging areas. Due to the highly developed nature of the land in this segment, specific staging areas have been identified for each alternative. These staging areas are shown in Section 2.4 of Chapter 2 and in Appendix G2. More detail on the needs of these areas is provided in Section 4.1.3.3, Construction Impacts.

Preferred Alternative C11A connecting to *Preferred Alternative B2M* would partially acquire 30 properties and fully acquire 28 properties. Seven residential properties would be fully acquired, thereby displacing 46 residential units (5 single-family and 41 multifamily units). The multifamily residential displacements include two condominium complexes along 112th Avenue SE. *Preferred Alternative C11A* and its connection to *Preferred Alternative B2M* would displace 39 businesses; most of these business displacements are offices along Main Street and commercial businesses along 108th and 116th Avenues NE. *Preferred Alternative C11A* would require a partial acquisition of Surrey Downs Park, parallel to 112th Avenue SE, which would not affect any uses of the park. Construction of the Hospital Station would require acquisition to the east of the former BNSF Railway corridor. Widening the corridor to the west would likely require additional larger and more costly property acquisitions on the west side of the former BNSF Railway corridor (such as the Whole Foods site) and to other commercial properties on the south side of NE 8th. This widening would also be required for any alternative that includes the Hospital Station.

For the *Preferred Alternative C11A* connection to Alternatives B3, B3 - 114th Extension Design Option or B7, one additional business displacement and one residential displacement would occur; the business displacement would be a hotel on 112th Avenue SE for the East Main Station.

Preferred Alternative C9T connecting to *Preferred Alternative B2M* would displace 17 businesses and 46 residences. These residential displacements would include five single-family residences and two condominium complexes. *Preferred Alternative C9T* would acquire 0.5 acre of Surrey Downs Park for relocation of SE 4th Street, which would impact the eastern portion of the King County District Court building. This portion of the building does not include the core functions of the public facility. If the courthouse is not relocated before project construction, this portion of the building would be removed and the remainder of the building would be restored and the core functions of the courthouse would remain. This public facility, however, might be relocated before East Link construction. This alternative would also partially acquire the NE 2nd Pocket Parks for the south entrance to the Bellevue Transit Center Station, as described in Section 4.17, Parkland and Open Space. If the optional station at Main Street for *Preferred Alternative C9T* were selected, it would not require any additional parcel acquisitions.

For connections to Alternatives B3, B3 - 114th Extension Design Option and B7, a hotel on 112th Avenue SE would be displaced for the East Main Station, similar to *Preferred Alternative C11A*.

For all Segment C alternatives, except the Bellevue Way Tunnel Alternative (C1T), most business displacements and impacts would be related to construction staging areas, which would be a temporary use of this land. Areas of these properties not needed for right-of-way would be available for redevelopment following construction. Park areas used for staging would be restored as described in Section 4.17, Parkland and Open Space.

Alternative C1T would have a high number of residential relocations (91 residential units) related to widening Bellevue Way SE where the light rail would be at-grade and descend to below grade. The 21 business displacements for this alternative would mostly involve smaller buildings or strip malls that contain three or fewer businesses, and would all be for staging areas. The residential displacements would include one 60-unit apartment complex, one 24-unit apartment complex, and one 7-unit apartment building that is part of a larger complex. Part of one public property, which is adjacent to Bellevue City Hall and owned by King County, is currently vacant and would be acquired. This same public property would also be acquired partially for *Preferred Alternatives C11A* and *C9T* and 110th NE At-Grade Alternative (C9A) and fully for 106th NE Tunnel (C2T), 112th NE Elevated (C7E), and 114th NE Elevated (C14E) Alternatives.

Alternative C2T would have the fewest number of business displacements—between 14 and 21—depending on the connection to Segment B. Business displacements for the 108th NE Tunnel (C3T), Couplet (C4A), C7E, 110th NE Elevated (C8E), 110th NE At-Grade (C9A) and 114th Elevated (C14E) Alternatives would be between 15 and 36 businesses. Under these alternatives, most business displacements would be small businesses in buildings that contain one or two businesses. However, Alternatives C7E and C8E would displace a business park with 22 businesses.

Four alternatives could have no residential displacements: Alternatives C2T (when connecting to Alternative B2A), C7E, C9A (when connecting to Alternative B3, B3 – 114th Design Option or B7), and C14E. Residential displacements would range from 1 and 19 units for the remaining connectors with Alternative C2T, and for Alternatives C3T, C4A, C8E, and C9A.

Alternatives C2T and C3T would require partial acquisition of Surrey Downs Park and displace the King County District Court building when connecting to Alternative B2A. This facility, however, might be relocated by King County prior to this project. Alternatives C4A and C7E would also acquire small portions of Surrey Downs Park but would not affect the Court Building. Alternatives C3T, C4A, and C8E would remove portions of McCormick Park, but this area would be replaced in kind following the project so that there would be no loss of parkland; as a result, parkland would actually increase for all three alternatives. Further discussion of impacts on these parks is provided in Section 4.17, Parkland and Open Space.

All Segment C alternatives except C1T and C14E would acquire and displace one business for the East Main Station if connected with Alternative B3, B3 - 114th Extension Design Option, or B7.

Segment D

All Segment D alternatives would connect to *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E via the former BNSF Railway corridor after these alternatives cross I-405 south of NE 8th Street. This connection would require fewer acquisitions for all Segment D alternatives than connecting from NE 12th Street. The remaining Segment C alternatives would cross I-405 at NE 12th Street and would need to cross several commercial properties on the east side of 116th Avenue NE to access the former BNSF Railway corridor, thereby increasing the number of acquisitions for Segment D alternatives connecting to these Segment C alternatives. Segment D alternatives would not displace any residential properties.

With *Preferred NE 16th At-Grade Alternative (D2A)*, eight properties would be fully acquired. *Preferred Alternative D2A* would also displace 34 businesses, most of which are industrial and commercial businesses along NE 15th Street, 130th Avenue NE, and 136th Place NE. The 120th Station would displace 1 business, and 14 businesses would be displaced by the Overlake Village Station.

The storage track, located along the former BNSF Railway corridor north of NE 12th Street would partially acquire only four properties. No business or residences would be displaced by the storage track. For D2A - NE 24th Design Option, 28 businesses along the west side of 152nd Avenue NE would be displaced by the Overlake Village Station.

The NE 20th Alternative (D3) would have the greatest impact, with up to 107 parcels affected and up to 74 businesses displaced when connecting to the Segment C alternatives that cross NE 12th Street. The SR 520 Alternative (D5) would affect the fewest parcels (between 39 and 44) and would displace 79 businesses with either connection to Segment C. The station at 130th Avenue NE would displace eight businesses under Alternative D2E and seven businesses under Alternative D3. The Overlake Village Station option north of NE 24th Street would displace ten businesses under Alternative D5, and six businesses would be displaced by the Overlake Village Station with Alternative D2E.

Segment E

With *Preferred Marymoor Alternative (E2)*, 36 properties would be potentially affected: 10 full acquisitions and 26 partial acquisitions. Two single-family properties and seven commercial properties would be fully acquired. *Preferred Alternative E2* would displace eight business and two residences. With *Preferred Alternative E2*, the SE Redmond Station would displace three businesses. This alternative would also partially acquire an area of Marymoor Park along the south side of SR 520.

The E2 - Redmond Transit Center Design Option would impact the same property as *Preferred Alternative E2*, in addition to properties along 161st Avenue NE. Widening 161st Avenue NE for the Redmond Transit Center Station would displace ten businesses. Property along the southwest edge of a city park along 161st Avenue NE would be acquired for the portion of this design option that runs along 161st Avenue NE.Although the Redmond Way Alternative (E1) would affect a greater number of parcels than the Leary Way Alternative (E4) (43 and 35, respectively), both would displace two single-family residences. Alternative E1 would displace 7 businesses whereas Alternative E4 would displace 7 businesses. Most businesses displaced by this segment would be industrial properties or auto-related businesses that require larger properties. No public or institutional properties would be displaced by Alternative E4.

Alternative E1 would partially acquire Luke McRedmond Park, and all three Segment E alternatives would acquire a small portion of the Sammamish River Trail right-of-way. Public parkland acquired would be mitigated through replacement, financial compensation, or enhancement. The Redmond Town Center Station would not require any displacements.

The City of Redmond has plans for locating a trail within the former BNSF Railway corridor in Downtown Redmond as well as accommodating local and regional infrastructure projects, including Sound Transit’s light rail. Together, these uses have the potential to reduce the amount of space available for light rail under any Segment E alternative. This constraint might require that light rail be shifted to accommodate a stormwater pipe and trail, which in turn might require the partial acquisition of property to accommodate all proposed facilities.

Maintenance Facilities

Developing the maintenance facilities would not displace and residential properties. The 116th Maintenance Facility (MF1) and the SR 520 Maintenance Facility (MF3) could displace between 56 and 82 businesses, most of which are small offices in business parks. A Bellevue Fire Department training facility would be displaced by MF1. The BNSF Maintenance Facility (MF2) would have the fewest displacements overall, with only five or six businesses displaced, depending on to which Segment D alternative it connects. The SE Redmond Maintenance Facility (MF5) would displace between 16 and 38 businesses, depending on to which Segment E alternative it connects. Some public road right-of-way would be required as well for all maintenance facilities. MF5 would also acquire a small portion of the public right-of-way of the East Lake Sammamish Trail. Further discussion of impacts on the trail is located in Section 4.17, Parklands and Open Space.

4.1.3.3 Impacts During Construction

Property impacts during constructions would consist of staging area acquisition and temporary construction easements. Staging areas would be required in all segments, although specific locations for these are highlighted in Segment C, because the land is more heavily developed and the land would be used for the range a construction activities, including equipment storage, work coordination, and contractor offices. In the remaining segments, staging areas would generally be accommodated within areas permanently needed for right-of-way; therefore, additional property acquisition for staging areas is not expected. The contractor might lease or make arrangements for additional staging areas if needed. These are preliminary and might be refined during final design.

Temporary construction easements would be needed along the project alternatives in each segment and possibly the maintenance facilities to allow for project construction. Construction easements are temporary uses of property during construction and would be required in numerous locations along the route. In undeveloped land areas, easements would be necessary to maneuver equipment and materials during construction. Where the project follows an existing transportation corridor, construction activities might require narrow temporary easements from adjacent properties. Following construction, easements would be returned to preconstruction condition.

Major temporary construction easements are described below for each segment. Other smaller temporary easements would be needed throughout the project corridor but have not been identified at this time. The approximate size and location of major easements have been identified in Segments B and E. Refer to Section 2.4.2 for a discussion of construction easements, and refer to the tables and maps in Appendix G2 for the potentially affected properties which have been identified for the project.

Segment A

With *Preferred Alternative A1,* substantial work in Segment A would occur within the I-90 right-of-way, thereby requiring and no additional staging areas. Work might occur in Lake Washington during construction of the East Link Project on the I-90 bridge. Smaller temporary construction easements might be needed, particularly near stations and freeway ramp construction, and would be identified during final design.

Temporary construction easement

A temporary construction easement is the temporary use of a property during construction allowed through an easement from the property owner. Following construction, the easement is terminated, and the property is restored to its previous condition.

Segment B

Construction easements would be needed along the corridor on the west side and the east side of the route with *Preferred Alternative B2M*. While most staging could occur on the South Bellevue Park-and-Ride site, some additional easement would be needed nearby.

A temporary construction easement along the east side of Bellevue Way SE in Mercer Slough might be needed for all other Segment B alternatives except Alternative B7. Alternative B3 would also require a temporary construction easement on the north side of SE 8th Street and east of 112th Avenue SE. A temporary construction easement along the north side of I-90 in Mercer Slough would likely be needed for Alternative B7. These easements would be required to construct the guideway or for road reconstruction for portions of the alternatives. The Mercer Slough Blueberry Farm and the Eastside Heritage Center, located at the Winters House, would be temporarily relocated during construction, as discussed in Section 4.3, Economics, and Section 4.17, Parklands and Open Space.

Segment C

The staging area property acquisition identified in Segment C is generally located either adjacent to proposed stations, around tunnel portals, or where the project occurs outside of public right-of-way. These acquisitions are included in the total acquisitions listed in Table 4.1-3 and are not additional acquisitions.

With *Preferred Alternative C11A*, staging areas would be needed around the Bellevue Transit Center Station, on the west side of I-405 and south of and east of the Hospital Station. Staging would also occur on property to be acquired for project right-of-way along 112th Avenue SE and Main Street.

With *Preferred Alternative C9T*, staging areas would be needed around the Bellevue Transit Center Station and south of and east of the Hospital Station. Staging would also occur on property to be acquired for project right-of-way along 112th Avenue SE and Main Street.

With the other Segment C Alternatives, staging areas in Downtown Bellevue would typically acquire the full property and displace the existing use during the construction period. Staging areas proposed in Surrey Downs and McCormick Parks would be restored to park use. In most cases, parcels not needed for project operation would be available for redevelopment following construction, such as properties around the Bellevue Transit Center and Old Bellevue Stations.

The extent of redevelopment that could be accommodated at staging areas at or around the intersection of Main Street and 112th Avenue SE and the Hospital/Ashwood Station has not yet been determined.

Segment D

With *Preferred Alternative D2A*, temporary construction easements would be needed along the project corridor on each side of the route. This area would be widened or reduced in selected areas to avoid existing buildings or ecologically sensitive areas. With the other Segment D Alternatives, no additional construction areas have been identified.

Segment E

Temporary construction easements would be needed along the project corridor on each side of the *Preferred Alternative E2* route. This area would be widened or reduced in selected areas to avoid existing buildings or ecologically sensitive areas. A temporary construction easement on the south side of SR 520 in Marymoor Park would likely be needed for *Preferred Alternative E2*, in addition to easements around SR 520 and SR 202 discussed below.

All Segment E alternatives would require temporary easements on the west side of the SR 202 and SR 520 interchange within the Bear Creek riparian greenbelt. These areas would also be needed for constructing the guideway or for road reconstruction for portions of the alternatives.

Maintenance Facilities

All work for the selected Maintenance Facility is expected to occur within the acquired right-of-way and no additional easements or acquisition for staging areas is expected.

4.1.4 Eastside Relocation Opportunities

To measure relocation opportunities, Sound Transit researched available residential and commercial real estate in the project vicinity. Although property availability will change over time, this study indicates that there are numerous opportunities for residents and businesses to relocate within the project vicinity, which would minimize difficulties in adjusting to relocation. Table 4.1-4 summarizes the availability of different types of commercial property on the Eastside, generally defined as including Bothell/ Kenmore, Redmond, Kirkland, Bellevue, Issaquah, and Woodinville.

Relocation sites for multifamily residences and small businesses are expected to be readily available in the project vicinity due to a number of newly constructed mixed-use developments.

TABLE 4.1-4
Commercial Property Availability for Relocation on the Eastside

Commercial Property Type	Vacancy Rate (Q4, 2010)
Office [a]	15 percent
Retail [b]	8.7 percent
Industrial [c]	6.8 percent

[a] Colliers International, 2010.
[b] GVA Kidder Matthews, 2010.
[c] Colliers International, 2010.
Q4 - fourth quarter

Currently, over 3,000 apartment and/or condominium units are under construction, permitted, or planned to start construction within the next year on the Eastside (Cities of Bellevue and Redmond, 2010). Within mixed-use developments in Bellevue and Redmond, over 250,000 square feet of retail space is under construction, most of which is located in Redmond. According the Northwest Multiple Listing Service (2011), almost 600 condominiums were for sale in Bellevue and Redmond.

Relocation sites for single-family residences are also expected to be readily available in the same general area, but not necessarily in the same neighborhood. According the Northwest Multiple Listing Service, over 1,000 single-family residences were for sale in Bellevue and Redmond in March 2011. The number of single-family residences to be acquired in each segment is relatively small in proportion to the entire housing stock for the area; therefore, adequate relocations sites are expected to be available.

Relocation sites for industrial-oriented properties might be more difficult to find in the project vicinity because these land uses are being redeveloped for other purposes in some areas of Bellevue and Redmond, especially in Segment D (commonly referred to as the Bel-Red corridor). Under the preferred alternative for the City of Bellevue's Bel-Red Corridor Plan, there will be a loss of approximate 2.49 million square feet of industrial space, and an increase of 4 million square feet of office space and 500,000 square feet of retail space. In addition, 5,000 new housing units will be added to this area. For more information on this planned redevelopment, see Section 4.2, Land Use. According to current market analyses, most of the Eastside is experiencing an areawide increase in vacancies; however, the area's highest vacancies are located in Redmond (Colliers International, 2010). Relocation assistance would mitigate the displacements, but relocation could still represent an inconvenience or hardship to some property owners and tenants.

4.1.5 Sound Transit Acquisition and Relocation Policy Summary

Sound Transit would contact property owners whose property would be directly affected to answer questions and provide additional information about relocation assistance services, payments, and reimbursement eligibility. Sound Transit's relocation assistance and advisory services would include, but not be limited to, measures, facilities, or services that might be necessary or appropriate to determine the relocation needs and preferences of each household, business, and nonprofit organization to be displaced. Sound Transit would provide current information on the availability, purchase prices, and rental costs of comparable replacement dwellings.

Sound Transit is committed to working closely and proactively with residents and businesses to help them plan ahead for relocation, assist them in finding new homes or sites, and help solve problems as they might occur. While the ultimate choice of relocation site would be up to the affected resident or business, Sound Transit would help with detailed investigation of possible locations. For those who wish to remain in their neighborhood, Sound Transit would assist in finding a new location close to their current site. Interpreters have been and will continue to be used to assist those who do not feel comfortable speaking English so they can understand their choices and options.

Owners are not required to surrender possession of property until they have been paid the agreed purchase price or until an amount equal to Sound Transit's established estimate of just compensation has been deposited with the court. Owners and tenants would not be required to move their businesses without first being given at least 90 days written notice by Sound Transit.

Regarding needed improvements, it is generally recommended that property owners proceed with planned improvements to their properties or facilities as they deem necessary.

Property owners whose entire or partial property would be acquired by Sound Transit would receive just compensations for their land and improvements. Just compensation is an amount paid to a property owner for property acquired for public purposes that is not less than the fair market value of the property acquired, including damages or benefits to the remaining property. Compensation would include any measurable loss in value to the remaining property as a result of a partial acquisition. Permanent parking lots from partial acquisition would be mitigated by compensating the property owner or by providing replacement parking.

Sound Transit would pay for normal expenses of sale, including escrow fees, title insurance, prepayment penalties, mortgage release fees, recording fees, and typical costs incurred incident to conveying title. The sale, however, would be exempt from the real estate excise tax and would involve no real estate commissions. Funds remaining at the end of sale closing would be released to the seller.

Other benefits and compensation might include payment of residential moving expenses and replacement housing payments, nonresidential moving expenses, and reestablishment expenses. Sound Transit's Business and Residential Acquisition and Relocation handbooks outline compensation and acquisition procedures in detail.

The application of regulations and statutes to individual cases will be by the letter and intent of the law. Special circumstances can be recognized, and proactive help to solve problems is available. The timing and magnitude of purchase payments can be adjusted to fit circumstances and fundamental concepts of fairness.

4.1.6 Potential Mitigation Measures

As part of the project, Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit's adopted *Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines* (Resolution #R98-20-1) as summarized above. Sound Transit would comply with provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Code of Federal Regulations [CFR] Title 49, Part 24), as amended (49 CFR, Part 24), and the State of Washington's relocation and property acquisition regulations (WAC 468-100 and RCW 8.26). Benefits would vary depending on the level of impact, available relocation options, and other factors. Because of these compliance actions, no additional mitigation would be necessary.

4.2 Land Use

4.2.1 Introduction to Resources and Regulatory Requirements

This section provides information on the existing land uses and current zoning (future allowable land uses), describes changes in land use that would occur as a result of the East Link Project, and evaluates the consistency of the project with local and regional planning policies.

Changes in transportation systems can influence changes in nearby land uses. The project can directly affect land use through property acquisition required for the project. Conversely, the project can be one factor in considering high-density development patterns. Regional plans identify the need to connect the urban centers within the study area with high-capacity transit as a method of efficient use of land, offering a sustainable alternative to increasing congestion problems.

What is transit-oriented development?

Transit-oriented development is a pattern of dense, diverse, pedestrian-friendly land uses located near transit nodes. Under the right conditions, this translates into higher transit patronage (Transit Cooperative Research Program, 2004).

Light rail can act as a catalyst for development and/or redevelopment in those station locations where jurisdictions have identified the desire for a greater density and mixture of land uses. In those areas where no land use changes are desired, the local jurisdictions control land use regulations and only the jurisdictions have the ability to make changes to directly influence land uses. In those areas where the jurisdictions decide to influence land use changes, light rail can indirectly influence development patterns and decisions toward a pedestrian-friendly environment around stations and support of transit ridership. This is because the stations increase transit accessibility and mobility and can draw large numbers of pedestrians to the vicinity. Under circumstances of available redevelopable land, proper market conditions, and appropriate adopted land use policies, transit-oriented development can be an indirect result of a light rail project, consisting of primarily higher-density, mixed-use development. Therefore, the land use study area for this Final EIS consists of the areas immediately adjacent to the route and the area within a 0.5-mile radius around the stations. The areas within 0.5 mile of the stations have the greatest probability of being affected, both directly and indirectly.

Appendix F4.2, Land Use Plans and Policies, lists plans and policies pertaining to the study area. For this evaluation, the project's land use compatibility and conformance with existing land use policies and plans was measured and compared to the following plans:

- Washington State Growth Management Act (GMA) (adopted 1990, as amended)
- *King County Comprehensive Plan* (adopted 2008, amended 2010) (King County, 2008)
- Puget Sound Regional Council (PSRC) *VISION 2040* (PSRC, 2008)
- PSRC *Transportation 2040* (adopted 2010) (PSRC, 2010a)
- *Sound Transit Regional Transit Long-Range Plan* (adopted July 2005)
- *Sound Transit 2, The Regional Transit System Plan for Central Puget Sound* (adopted May 2007)
- *Seattle's Comprehensive Plan: Toward a Sustainable Seattle*. (adopted 1994, amended 2008)
- Neighborhood plans for Chinatown/International District, Central Area, and North Rainier Valley (City of Seattle, 2004)
- Shoreline Master Programs for the Cities of Seattle, Mercer Island, Bellevue, and Redmond, and King County (Amended every 7 years)
- *Comprehensive Plan of the City of Mercer Island* (adopted 1994, amended 2004) (City of Mercer Island, 2005)
- *Design Principles for Mercer Island Town Center Light Rail* (City of Mercer Island, 2008)
- *City of Bellevue Comprehensive Plan* (Adopted 1993, amended 2010) (City of Bellevue, 2006)
- *City of Bellevue Sub-Area Plans and Transportation Facility Plans* (adopted 1993, amended 2010)
- *City of Bellevue Best Practices for Light Rail* (City of Bellevue, 2008)
- *Eastside Transportation Program* (City of Bellevue, 2008)
- *City of Redmond Comprehensive Plan* (adopted 1995, amended 2004/2007) (City of Redmond, 2007)
- *Overlake Hospital Medical Center Master Plan* (adopted 2000, amended 2005)

4.2.2 Affected Environment

The East Link Project is located within King County, and the alternatives travel through and would have stations located within four urbanized cities (Seattle, Mercer Island, Bellevue, and Redmond). Existing land uses in these jurisdictions include a mixture of single-family and multifamily residential, commercial retail and services, office uses, institutional uses, and light industrial uses. There are also a number of recreational and public open spaces located adjacent to the alternatives and within the station areas. Section 4.17, Parkland and Open Space, provides further information on these land uses. Because the project is located within an urban area and primarily within existing transportation rights-of-way, the Farmland Protection Policy Act does not apply.

The following subsections describe existing land uses for each segment. Allowable land uses or zoning are presented in Exhibits 4.2-1 through 4.2-6. Table 4.2-1 describes both the existing and future allowable land uses at each proposed project station, based on information from the comprehensive plans of each jurisdiction, and indicates where zoning represents a change from the existing land use. The percentages are estimates of the amount of land within the 0.5-mile station vicinity and based on information illustrated in Exhibits 4.2-1 through 4.2-6 and information taken from the comprehensive plans of each jurisdiction. Section 4.3, Economics, includes information on projected residential units and employees within 0.5 mile of the proposed stations. All land uses have been generalized into dominant land use categories (single-family, multifamily, commercial, office, mixed use, industrial, and parkland) so that the land use could be presented consistently among jurisdictions to the extent possible.

4.2.2.1 Segment A

Segment A begins in the Seattle Transit Tunnel located in a historic district (Seattle Chinatown Historic District). This area is an urban environment consisting of high-density residential, office, and commercial/industrial land uses. Continuing along I-90, immediately adjacent are Judkins Park, Sam Smith Park, and the I-90 Trail. Beyond the parkland use is a residential area of Rainier Valley, which consists of low-density single-family and multifamily housing with commercial establishments on the primary arterial of Rainier Avenue. East of the Mount Baker Tunnel, I-90 crosses Lake Washington on the way to Mercer Island. Current zoning shown in Exhibit 4.2-1 includes a mixture of single-family, multifamily, and commercial zones.

Suburban, low-density, single-family residential accounts for approximately 75 percent of the existing land use on Mercer Island, and the remaining 25 percent includes parkland, multifamily residential, and the Town Center on the south side of I-90 between 76th Avenue SE and SE Island Crest Way**.** The Town Center has a mix of multifamily residential, commercial, and office businesses, including a number of recently constructed mixed-use developments. There are no major institutions near the study area. Current zoning is shown in Exhibit 4.2-2 and includes single-family, multifamily, and the Town Center zones. The I-90 right-of-way is zoned public institution on Mercer Island. The Town Center zone allows for higher-density development, thereby making the area more pedestrian-friendly and providing easy access to the adjacent Mercer Island Park-and-Ride garage and transit stops.

4.2.2.2 Segment B

The south portion of Segment B is dominated by the large Mercer Slough Nature Park, framed to the west by a suburban residential community of low-density single-family residential and no commercial uses. North of Mercer Slough and the "Y" intersection of Bellevue Way SE and 112th Avenue SE, land uses vary. To the west, following Bellevue Way SE, single-family and multifamily housing are interspersed with some pockets of commercial retail. From Bellevue Way SE north along 112th Avenue SE, to the west are single-family and multifamily residential uses, while office complexes border the east side of 112th Avenue SE to I-405. To the east, Mercer Slough Nature Park is bounded by a strip of multifamily residential, office, and a small pocket of industrial uses adjacent to the former BNSF Railway and I-405 corridors. Other than Mercer Slough Nature Park, community facilities include a few churches located on the west side of Bellevue Way SE. Exhibit 4.2-3 illustrates current zoning for the area.

TABLE 4.2-1
Generalized Land Uses Within 0.5 Mile of Stations[a]

Station Name	Associated Alternative	Existing Land Use	Allowable Land Uses (Current Zoning)	Potential Change From Existing Land Use
Segment A, Interstate 90				
Rainier	*Preferred Interstate 90 Alternative (A1)*	Urban Residential: 40% single-family, 20% multifamily, 20% commercial, 10% industrial, and 10% parkland	Urban Residential: 20% single-family, 50% multifamily, 20% commercial/industrial, and 10% parkland	Changes
Mercer Island	*Preferred Interstate 90 Alternative (A1)*	Suburban Residential: 50% single-family, 25% Redmond Town Center, 15% parkland and right-of-way, and 10% multifamily	Suburban Residential: 50% single-family, 25% Town Center, 15% parkland and right-of-way, and 10% multifamily	No change
Segment B, South Bellevue				
South Bellevue	*Preferred 112th SE Modified (B2M),* and Bellevue Way (B1), 112th SE Modified (B2A), 112th SE Elevated (B2E), 112th SE Bypass (B3) Alternatives	Suburban Residential: 50% single-family and 50% parkland	Suburban Residential: 50% single-family and 50% parkland	No change
SE 8th	*Preferred 11th SE Modified (B2M)*, 112th SE Modified (B2A), and 112th SE Elevated (B2E) Alternatives	Mix of Uses: 45% single-family, 40% office, 5% multifamily, 5% light industrial, and 5% parkland	Mix of Uses: 45% single-family, 40% office, 5% multifamily, 5% light industrial, and 5% parkland	No change
118th	BNSF Alternative (B7)	Mix of Uses: 45% office, 35% single-family, 10% parkland, 5% multifamily, and 5% light industrial	Mix of Uses: 45% office, 35% single family, 10% parkland, 5% multifamily, and 5% light industrial	No change
Segment C, Downtown Bellevue				
108th	*Preferred 108th NE At-Grade Alternative (C11A)*	Mix of Uses: 45% single-family, 10% multifamily, 25% mixed-use, and 20% office	Mix of Uses: 45% single-family, 10% multifamily, 25% mixed-use, 20% office	No change
Old Bellevue	Bellevue Way Tunnel Alternative (C1T)	Mix of Uses: 25% multifamily, 25% single-family, 25% commercial retail, 20% office, 5% parkland	Mix of Uses: 25% multifamily, 25% single-family, 25% commercial retail, 20% office, and 5% parkland	No change
Bellevue Transit Center[b]	*Preferred 108th NE At-Grade (C11A), Preferred 110th NE Tunnel (C9T)*, Bellevue Way Tunnel (C1T), 106th NE Tunnel (C2T), 108th NE Tunnel (C3T), At-Grade Couplet (C4A), 112th NE Elevated (C7E), 110th NE Elevated (C8E), 110th NE At-Grade (C9A), and 114th NE Elevated (C14E) Alternatives	Downtown: 30% office, 25% mixed-use, 15% commercial, 20% multifamily, and 10% single-family	Downtown: 30% office, 25% mixed-use, 15% commercial, 20% multifamily, and 10% single-family	No change
Hospital	*Preferred 108th NE At-Grade (C11A), Preferred 110th NE Tunnel (C9T)*, Bellevue Way Tunnel (C1T), 106th NE Tunnel (C2T), 110th NE At-Grade (C9A), and 114th NE Elevated (C14E) Alternatives	Medical/Office: 25% office, 20% commercial, 20% office-medical, 10% single-family, 10% light industrial, 10% multifamily, and 5% parkland	Medical/Commercial: 20% office, 15% commercial, 5% mixed-use, 15% office-medical, 15% multifamily, 15% housing/office, 10% single-family and 5% parkland	Changes
Ashwood/ Hospital	108th NE Tunnel (C3T), At-Grade Couplet (C4A), 112th NE Elevated (C7E),and 110th NE Elevated (C8E) Alternatives	Medical/Office: 20% single-family, 20% light industrial, 20% office-medical, 15% office, 10% commercial, 10% multifamily, and 5% parkland	Medical/Office: 25% office-medical, 20% housing/office, 20% office, 15% commercial, 5% mixed-use, 10% multifamily, and 5% parkland	Changes

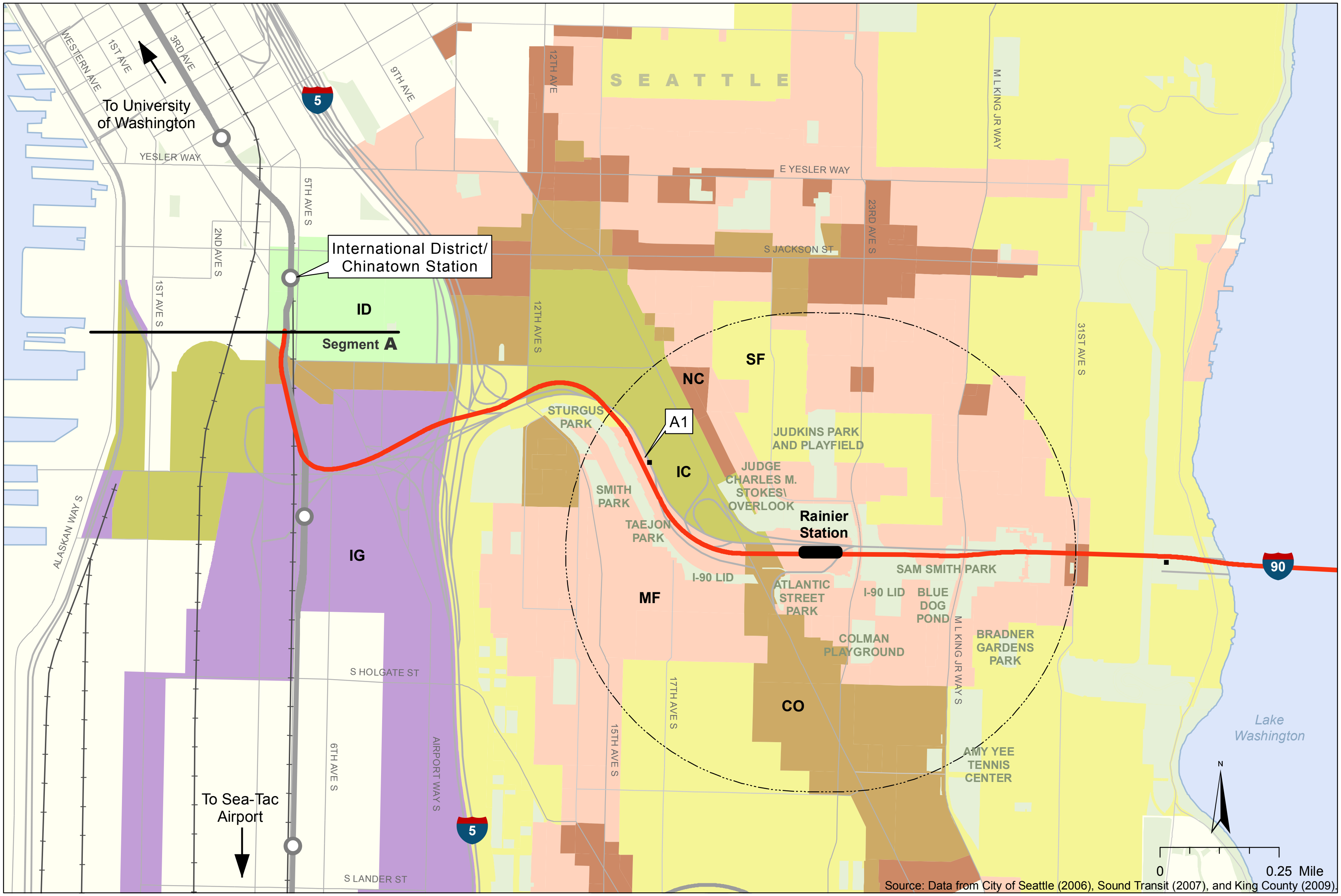
TABLE 4.2-1 CONTINUED

Generalized Land Uses Within 0.5 Mile of Stations[a]

Station Name	Associated Alternative	Existing Land Use	Allowable Land Uses (Current Zoning)	Potential Change From Existing Land Use
East Main	110th NE Elevated Alternative (C8E) (*C9T*, C2T, C3T, C4A, C7E, and C9A with connection to B3, B3 - 114th Extension Design Option, or B7)	Suburban Residential/Urban: 40% office, 25% single-family, 15% mixed-use, 5% commercial service, 10% multifamily, and 5% parkland	Suburban Residential/Urban: 40% office, 25% single-family, 15% mixed-use, 5% commercial service, 10% multifamily, and 5% parkland	No change
Segment D, Bel-Red/Overlake				
120th	*Preferred NE 16th At-Grade (D2A),* NE 16th Elevated (D2E), and NE 20th (D3) Alternatives	Industrial: 100% industrial distribution centers	Mix of Uses: 45% housing/office, 20% medical-office, 10% housing/retail, 10% housing, 10% commercial, and 5% King County Metro base	Changes
130th	*Preferred NE 16th At-Grade (D2A),* NE 16th Elevated (D2E), and NE 20th (D3) Alternatives	Industrial: 100% industrial distribution centers	Mix of Uses: 30% housing/retail, 25% commercial, 20% housing, 15% housing/office, and 10% medical-office	Changes
Overlake Village	*Preferred NE 16th At-Grade (D2A),* NE 16th Elevated (D2E), and NE 20th (D3) Alternatives	Mix of Uses: 40% commercial, 40% office, 10% multifamily, 5% single-family, and 5% medical institution	Mix of Uses: 45% housing/retail/commercial, 40% office, 10% multifamily, and 5% single-family	Changes
Overlake Transit Center	*Preferred NE 16th At-Grade (D2A),* NE 16th Elevated (D2E), NE 20th (D3), and SR 520 (D5) Alternatives	Office Campus: 80% office, 15% multifamily, and 5% single-family	Office Campus: 80% office, 15% multifamily, and 5% single-family	No change
Segment E, Downtown Redmond				
Downtown Redmond Station	*Preferred Marymoor Alternative (E2)*	Mix of Uses: 65% commercial/retail, 25% parkland, 5% multifamily, and 5% single-family	Mix of Uses: 65% commercial/ retail, 25% parkland, 5% multifamily, and 5% single-family	No change
Redmond Town Center	Redmond Way (E1), E2 - Redmond Station Design Option*, and* Leary Way (E4) Alternatives	Mix of Uses: 65% commercial/retail, 25% parkland, 5% multifamily, and 5% single-family	Mix of Uses: 65% commercial/retail, 25% parkland, 5% multifamily, and 5% single-family	No change
SE Redmond	*Preferred Marymoor (E2),* Redmond Way (E1), and Leary Way (E4) Alternatives	Mix of Uses: 45% parkland, 25% light industrial, 15% commercial, and 15% commercial/retail	Mix of Uses: 45% parkland, 25% light industrial, 15% commercial, and 15% mixed use	No change
Redmond Transit Center	E2 - Redmond Station Design Option	Mix of Uses: 60% commercial/ retail/ housing, 15% parkland, 10% multifamily, 10% light industrial, and 5% single-family	Mix of Uses: 60% mixed use, 15% parkland, 10% light industrial, 10% multifamily, and 5% single-family.	No change

[a] Existing land use and allowable land uses are based on information from comprehensive plans and planning documents from the City of Seattle, City of Mercer Island, City of Bellevue, and City of Redmond. The information is a generalization of the information to allow comparisons between the jurisdictions. The percentage of land use is an approximation of the land uses within a half mile of the station area.

[b] Bellevue Transit Center is an aggregate of the area in general around the station since the station location varies depending on alternative

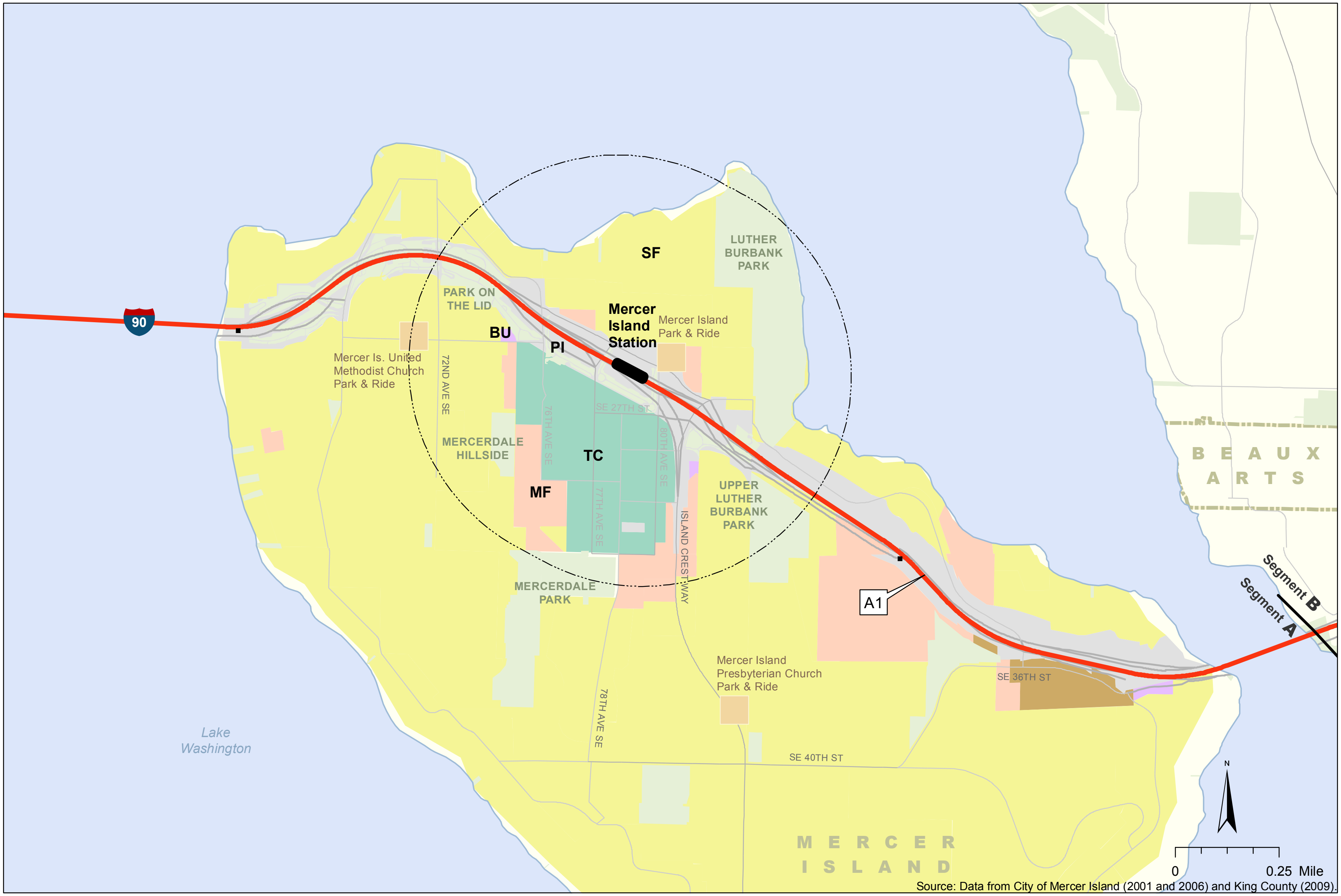

SEATTLE
To University of Washington
WESTERN AVE
1ST AVE
3RD AVE
9TH AVE
12TH AVE
5
YESLER WAY
E YESLER WAY
M L KING JR WAY
5TH AVE S
2ND AVE S
1ST AVE S
International District/ Chinatown Station
ID
Segment A
12TH AVE S
S JACKSON ST
23RD AVE S
31ST AVE S
SF
NC
STURGUS PARK
A1
IC
JUDKINS PARK AND PLAYFIELD
JUDGE CHARLES M. STOKES\ OVERLOOK
SMITH PARK
TAEJON PARK
Rainier Station
SAM SMITH PARK
90
I-90 LID
ATLANTIC STREET PARK
I-90 LID
BLUE DOG POND
M L KING JR WAY S
BRADNER GARDENS PARK
COLMAN PLAYGROUND
MF
IG
ALASKAN WAY S
S HOLGATE ST
CO
17TH AVE S
15TH AVE S
6TH AVE S
AIRPORT WAY S
AMY YEE TENNIS CENTER
Lake Washington
N
0
0.25 Mile
To Sea-Tac Airport
S LANDER ST

Source: Data from City of Seattle (2006), Sound Transit (2007), and King County (2009).

Zoning Category

🟨 Single Family (SF)	🟩 Industrial Commercial (IC)	━ At-Grade Route	▪ Traction Power Substation
🟧 Multi-Family (MF)	🟩 International District (ID)	▬ ▬ Elevated Route	▬ Proposed Station
🟫 Commercial (CO)	🟪 Industrial General (IG)	•••• Retained-Cut Route	◌ 1/2-Mile Station Radius
🟥 Neighborhood Commercial (NC)	⬜ Existing Park	•••• Retained-Fill Route	—○— Central Link Alignment and Station
		▬ ▬ Tunnel Route	

Exhibit 4.2-1 **City of Seattle Generalized Zoning Segment A - Seattle**
East Link Project

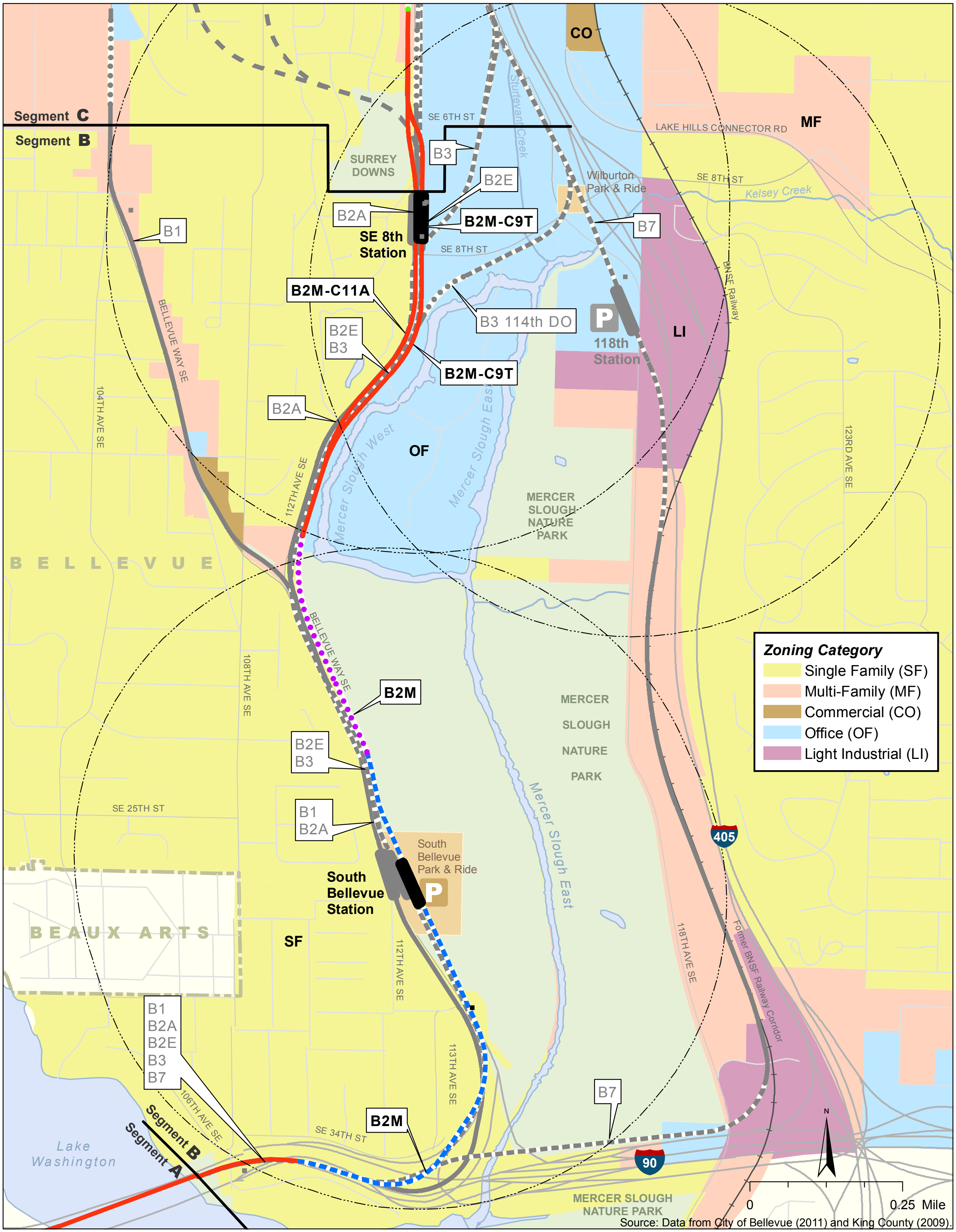

90
SF
LUTHER BURBANK PARK
PARK ON THE LID
Mercer Island Station
Mercer Island Park & Ride
BU
PI
Mercer Is. United Methodist Church Park & Ride
72ND AVE SE
SE 27TH ST
76TH AVE SE
80TH AVE SE
MERCERDALE HILLSIDE
TC
MF
77TH AVE SE
ISLAND CREST WAY
UPPER LUTHER BURBANK PARK
MERCERDALE PARK
A1
BEAUX ARTS
Segment B
Segment A
Mercer Island Presbyterian Church Park & Ride
SE 36TH ST
78TH AVE SE
SE 40TH ST
Lake Washington
MERCER ISLAND
N
0
0.25 Mile

Source: Data from City of Mercer Island (2001 and 2006) and King County (2009).

Zoning Category

Single Family (SF)	Commercial Offices (CO)	At-Grade Route	Traction Power Substation
Multi-Family (MF)	Town Center (TC)	Elevated Route	Proposed Station
Business (BU)	Public Institution (PI)	Retained-Cut Route	1/2-Mile Station Radius
	Existing Park	Retained-Fill Route	
		Tunnel Route	

Exhibit 4.2-2 **City of Mercer Island Generalized Zoning**
Segment A - Mercer Island
East Link Project


CO
SE 6TH ST
Segment C
Segment B
SURREY DOWNS
B3
B2E
B2A
B2M-C9T
SE 8th Station
Wilburton Park & Ride
LAKE HILLS CONNECTOR RD
MF
SE 8TH ST
Kelsey Creek
B7
B1
SE 8TH ST
B2M-C11A
B3 114th DO
P
118th Station
LI
BNSF Railway
B2E
B3
B2M-C9T
BELLEVUE WAY SE
104TH AVE SE
B2A
OF
Mercer Slough West
Mercer Slough East
112TH AVE SE
MERCER SLOUGH NATURE PARK
123RD AVE SE
BELLEVUE
BELLEVUE WAY SE
108TH AVE SE
B2M
MERCER SLOUGH NATURE PARK
B2E
B3
Sturtevant Creek
SE 25TH ST
B1
B2A
405
South Bellevue Park & Ride
South Bellevue Station
Mercer Slough East
BEAUX ARTS
SF
112TH AVE SE
118TH AVE SE
Former BNSF Railway Corridor
B1
B2A
B2E
B3
B7
113TH AVE SE
B7
106TH AVE SE
B2M
SE 34TH ST
Lake Washington
Segment B
Segment A
90
N
MERCER SLOUGH NATURE PARK
0
0.25 Mile
Zoning Category
Single Family (SF)
Multi-Family (MF)
Commercial (CO)
Office (OF)
Light Industrial (LI)

Source: Data from City of Bellevue (2011) and King County (2009).

Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
1/2-Mile Station Radius
P
New and/or Expanded Park-and-Ride Lot
Existing Park

Exhibit 4.2-3
City of Bellevue Generalized Zoning Segment B
East Link Project

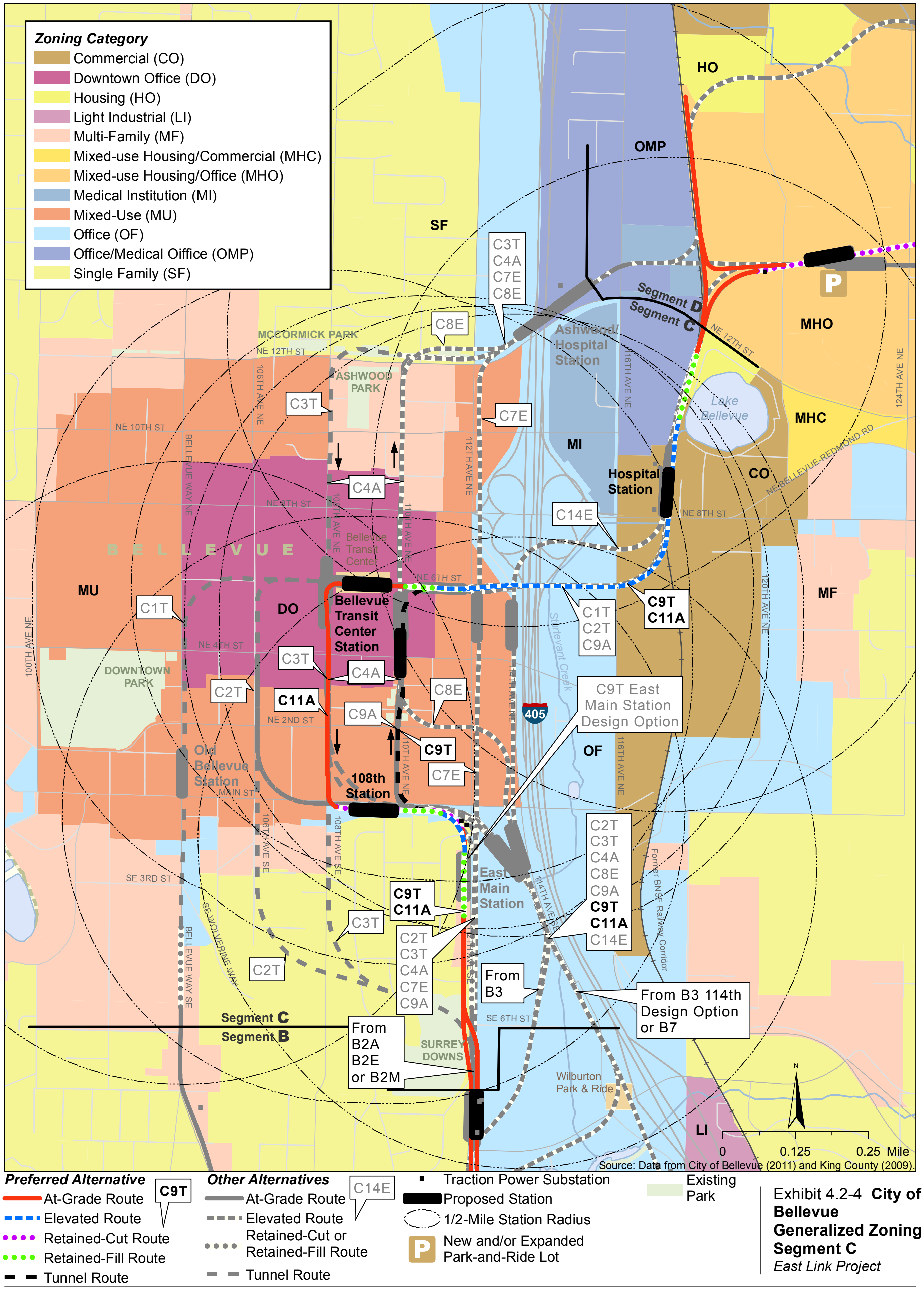
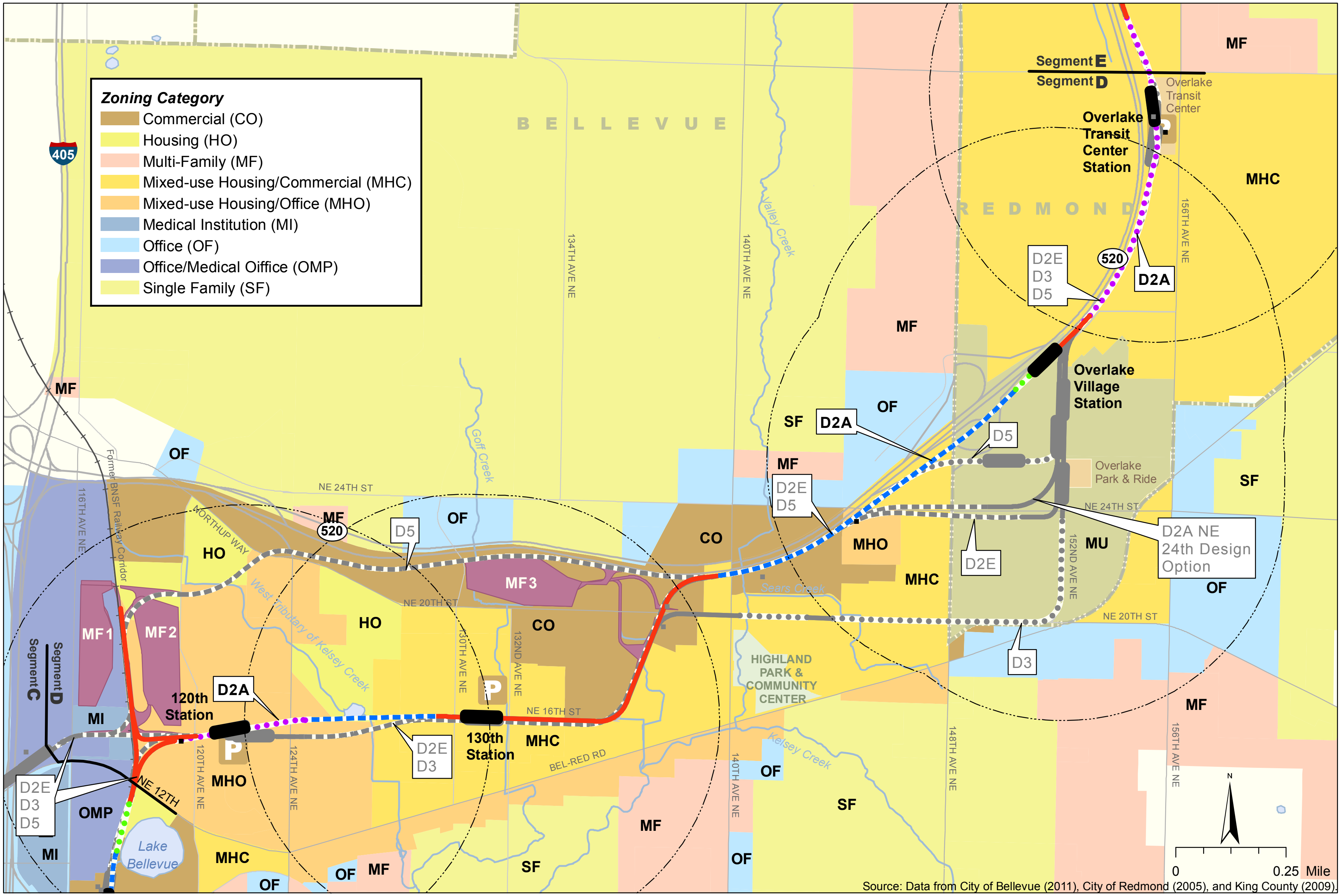

Zoning Category
Commercial (CO)
Downtown Office (DO)
Housing (HO)
Light Industrial (LI)
Multi-Family (MF)
Mixed-use Housing/Commercial (MHC)
Mixed-use Housing/Office (MHO)
Medical Institution (MI)
Mixed-Use (MU)
Office (OF)
Office/Medical Oiffice (OMP)
Single Family (SF)
HO
OMP
SF
MHO
MHC
CO
MI
MU
DO
MF
OF
LI
C3T C4A C7E C8E
C8E
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
MCCORMICK PARK
ASHWOOD PARK
C3T
C7E
Lake Bellevue
NE 10TH ST
106TH AVE NE
116TH AVE NE
124TH AVE NE
NE BELLEVUE-REDMOND RD
112TH AVE NE
Hospital Station
C4A
NE 8TH ST
C14E
BELLEVUE
BELLEVUE WAY NE
108TH AVE NE
110TH AVE NE
Bellevue Transit Center
NE 6TH ST
C9T C11A
C1T
C1T C2T C9A
120TH AVE NE
Bellevue Transit Center Station
NE 4TH ST
C3T
C4A
Sturtevant Creek
DOWNTOWN PARK
C2T
C11A
C8E
C9T East Main Station Design Option
405
NE 2ND ST
C9A
C9T
114TH AVE NE
Old Bellevue Station
108th Station
C7E
MAIN ST
10TH AVE NE
106TH AVE SE
108TH AVE SE
C2T C3T C4A C8E C9A C9T C11A C14E
SE 3RD ST
East Main Station
C9T C11A
Former BNSF Railway Corridor
114TH AVE SE
SE WOLVERINE WAY
C3T
BELLEVUE WAY SE
C2T C3T C4A C7E C9A
C2T
From B3
From B3 114th Design Option or B7
Segment C
Segment B
From B2A B2E or B2M
SE 6TH ST
SURREY DOWNS
Wilburton Park & Ride
N
0 0.125 0.25 Mile
Source: Data from City of Bellevue (2011) and King County (2009).
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
C9T
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
C14E
Traction Power Substation
Proposed Station
1/2-Mile Station Radius
P
New and/or Expanded Park-and-Ride Lot
Existing Park

Exhibit 4.2-4 **City of Bellevue Generalized Zoning Segment C**
East Link Project


Zoning Category
Commercial (CO)
Housing (HO)
Multi-Family (MF)
Mixed-use Housing/Commercial (MHC)
Mixed-use Housing/Office (MHO)
Medical Institution (MI)
Office (OF)
Office/Medical Office (OMP)
Single Family (SF)
405
B E L L E V U E
R E D M O N D
Segment E
Segment D
Segment C
Overlake Transit Center
Overlake Transit Center Station
Overlake Village Station
Overlake Park & Ride
D2A NE 24th Design Option
120th Station
130th Station
D2A
D2E
D3
D5
520
MF
MHC
OF
SF
MHO
MU
CO
HO
MI
OMP
MF 1
MF 2
MF 3
HIGHLAND PARK & COMMUNITY CENTER
Lake Bellevue
Former BNSF Railway Corridor
NORTHUP WAY
NE 24TH ST
NE 20TH ST
NE 16TH ST
NE 12TH
BEL-RED RD
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
140TH AVE NE
148TH AVE NE
152ND AVE NE
156TH AVE NE
Valley Creek
Goff Creek
West Tributary of Kelsey Creek
Sears Creek
Kelsey Creek
N
0
0.25 Mile

Source: Data from City of Bellevue (2011), City of Redmond (2005), and King County (2009).

Preferred Alternative

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
D2A

Other Alternatives

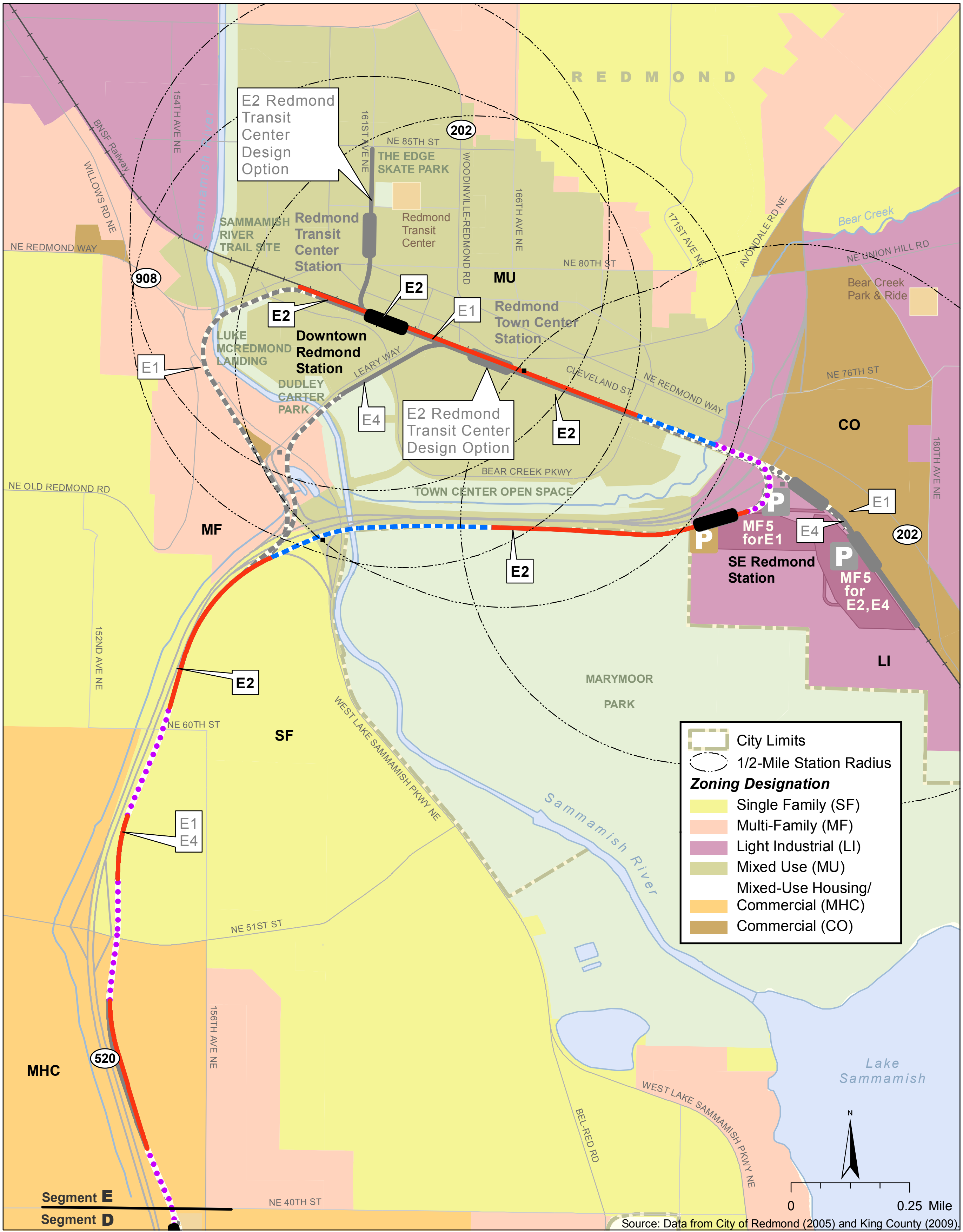
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
D3

■ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
1/2-Mile Station Radius
P New and/or Expanded Park-and-Ride Lot

Existing Park

Exhibit 4.2-5 **City of Bellevue and Redmond Generalized Zoning Segment D**

East Link Project


R E D M O N D
E2 Redmond Transit Center Design Option
202
NE 85TH ST
THE EDGE SKATE PARK
161ST AVE NE
154TH AVE NE
BNSF Railway
WILLOWS RD NE
Sammamish River
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Redmond Transit Center
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE REDMOND WAY
908
NE 80TH ST
MU
E2
E1
Redmond Town Center Station
LUKE MCREDMOND LANDING
Downtown Redmond Station
LEARY WAY
DUDLEY CARTER PARK
E4
E2 Redmond Transit Center Design Option
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
CO
180TH AVE NE
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
MF
MF5 for E1
SE Redmond Station
MF5 for E2, E4
LI
152ND AVE NE
MARYMOOR PARK
NE 60TH ST
SF
WEST LAKE SAMMAMISH PKWY NE
City Limits
1/2-Mile Station Radius
Zoning Designation
Single Family (SF)
Multi-Family (MF)
Light Industrial (LI)
Mixed Use (MU)
Mixed-Use Housing/ Commercial (MHC)
Commercial (CO)
Sammamish River
E1 E4
NE 51ST ST
156TH AVE NE
520
MHC
BEL-RED RD
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
N
0
0.25 Mile
Segment E
Segment D
NE 40TH ST

Source: Data from City of Redmond (2005) and King County (2009).

Preferred Alternative E2

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives E1

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- ▬ Proposed Station
- Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot
- Existing Park

Exhibit 4.2-6 **City of Redmond Generalized Zoning Segment E**
East Link Project

4.2.2.3 Segment C

Beginning at approximately SE 6th Street and moving northward, land uses transition from the suburban-style, single-family residential area and some office and hotel uses near I-405 to the highly urbanized central business district of Downtown Bellevue, which began as an older suburban commercial core. This area has evolved from a lower-density commercial district to high-rise (over 30 stories) office and multifamily residential buildings. Downtown Bellevue is both a regional employment district and a regional shopping destination, interspersed with dense multifamily residential. Although there are numerous commercial retail shops, Bellevue Square, Lincoln Square, and The Bravern are large retail centers located in Downtown Bellevue. Segment C has several centers of activity, including the Bellevue City Hall, Meydenbauer Center, Bellevue Transit Center, the Bellevue Library, and Bellevue Downtown Park. Exhibit 4.2-4 shows that zoning consists of a concentration of office land uses surrounded by commercial land uses, with multifamily residential mixed uses in the northeast quadrant of downtown.

East of I-405, Segment C includes the major land use/community facilities of the Overlake Hospital Medical Center and the Group Health Medical Center, as well as a number of medical-related offices located north of NE 8th Street and centered along 116th Avenue NE. Commercial retail uses are located east of this medical center, with a number of automotive dealerships located both along and south of NE 8th Street. Exhibit 4.2-4 illustrates zoning for the area, which includes office, office-medical, commercial, and multifamily.

4.2.2.4 Segment D

Segment D is located within the cities of Bellevue and Redmond. The segment within Bellevue is primarily within the Bel-Red neighborhood. The City of Bellevue updated and created new policies, land use designations, and zoning for this area and adopted the changes in February 2009. These changes include amendments to the *City of Bellevue Comprehensive Plan* and the *Bel-Red Corridor Subarea Plan*; changes to the maps in the *Crossroads Subarea Plan* and *Wilburton/NE 8th Street Subarea Plan*; and changes to the Bellevue City Code for the Bel-Red neighborhood area. The intent of these changes is to transition the Bel-Red area from industrial/light industrial and commercial land uses to create more dense mixed-use development, and to encourage transit-oriented development. Bellevue conducted a feasibility analysis indicating that market forces are and will be present to support this change in land use.

On the border of Bellevue with Redmond, there is a concentration of large-box retail establishments centered on 148th Avenue NE and NE 20th Street. These uses form the western border of Redmond's Overlake Village inside the Overlake neighborhood and transition to office-related uses.

The City of Redmond adopted its *Redmond Comprehensive Plan*, the *Overlake Neighborhood Plan*, and the *Redmond Community Development Guide* in December 2007 and has also recently updated the *Overlake Neighborhood Plan*. These adopted and updated plans allow for an increased level of development within the Overlake Village area. The changes will allow a greater mix and density of office and commercial uses and will provide more urban residential uses to support a mixture of mobility choices. Inside Overlake Village, the relocation of the Group Health Medical Center (relocated to the medical campus in Segment C), has opened up a 26-acre site for redevelopment just east of 152nd Avenue NE. This area is planned for 9- to 12-story mixed-use developments. Exhibit 4.2-5 shows the updated zoning for both the Bel-Red and Overlake Village areas. On the northeast end of Segment D adjacent to the Overlake Transit Center, Microsoft World Headquarters has approximately 39,000 employees located in a number of buildings west and east of SR 520.

4.2.2.5 Segment E

Segment E parallels SR 520 north and east into the Downtown Redmond area. Beginning with office campuses of 3- to 4-story office buildings, including Microsoft, the land uses transition to suburban low-density single-family residential and then to multifamily residential upon reaching West Lake Sammamish Parkway NE and entering Downtown Redmond. King County's Marymoor Regional Park forms the southern boundary of Downtown Redmond. The land uses in downtown are generally mixed with multifamily residential, commercial retail shopping, and mid-rise office complexes. The former BNSF Railway corridor divides the newer Redmond Town Center commercial district from the older downtown shopping district. Redevelopment is occurring within the northwest portion of Downtown Redmond around the Redmond City Hall and the Redmond Transit Center. Southeast of Downtown Redmond, the land uses change considerably. South of the SR 202 and SR 520 interchange, uses include light industrial/ manufacturing. Northeast and across SR 202, there are large big-box retail establishments. Exhibit 4.2-6 illustrates how Downtown Redmond permits a variety of commercial retail and service uses, as well as multifamily residential uses.

4.2.2.6 Maintenance Facility Surroundings

In Segment D, the 116th (MF1), BNSF (MF2), and SR 520 (MF3) Maintenance Facilities are all located within the Bel-Red neighborhood. Existing land uses associated with MF1 are medical offices and some residences to the west, but otherwise it is surrounded by light industrial uses and the former BNSF Railway corridor. MF2 land uses are related to light industrial, and MF3 includes a mixture of commercial service and retail and office-related uses. As described above, zoning in the Bel-Red neighborhood has recently been updated to move away from industrial land uses. Zoning is the same as described above in Table 4.2-1 for the 120th and the 130th Stations. Within Segment E, the existing land uses and current zoning (Exhibit 4.2-6) around the SE Redmond Maintenance Facility (MF5) are light industrial and manufacturing.

4.2.3 Environmental Impacts

This section discusses the project impacts on the existing and allowable future land use patterns and consistency of the alternatives with regional, state, and local policies. The potential direct and indirect impacts from project operation and construction are based on the following definitions:

- **Direct impacts.** Direct land use impacts would occur in locations where the East Link Project requires private or public property acquisitions for the project alternatives, stations, traction power substation (TPSS), maintenance facility locations, or other transit support facilities. The property acquired would be permanently converted to a transportation-related use. The property acreage is not equal to those quantities found in Section 4.1, Acquisitions, Displacements, and Relocations, of this Final EIS, because there are areas where large property acquisition would be required, but only portions would be permanently converted to transportation uses. This situation occurs for staging areas and some properties where the proposed route bisects a large property that can later be redeveloped. Direct impacts also include proximity impacts (noise and visual impacts) that could cause changes in adjacent land uses.
- **Indirect impacts**. Indirect land use impacts are related to the development and/or redevelopment of land near any of the East Link Project facilities (i.e., light rail line, stations, maintenance facilities, and traction power substations) to uses other than those currently allowed based on current zoning and land use code. These changes would only be allowed to occur when the jurisdictions enact changes in their existing zoning and land use codes to allow for such development and/or redevelopment. One such indirect impact could be transit-oriented development consisting of higher-density mixed-use development, typically around the proposed stations. Negative indirect impacts could be that residential or office uses around a proposed maintenance facility become less desirable, and therefore, property owners would request rezoning for light industrial.
- **Construction impacts**. These include impacts related to temporary land use impacts resulting from construction easements and staging areas and noise, air, visual resources, or congestion on adjacent land uses.

Direct impacts from property acquisitions are described in Section 4.1, Acquisitions, Displacements, and Relocation. Indirect impacts are assessed as the potential for transit-oriented redevelopment at each station and the compatibility of zoned uses with proposed project alternatives and associated facilities. Proximity and construction impacts were determined based on the findings of other environmental elements, including Chapter 3, Transportation Environment and Consequences, and Sections 4.3, Economics; 4.5, Visual and Aesthetic Resources; 4.6, Air Quality; and 4.7, Noise and Vibration.

4.2.3.1 No Build Alternative

The No Build Alternative would not displace any residents or businesses. However, this alternative is inconsistent with many of the regional land use and transportation policies by not instituting a high-capacity transit system connecting the region’s highest-growth centers, nor is it consistent with the local plans that encourage increased density and/or transit-oriented development patterns in anticipation of light rail service. The PSRC policies related to focused and compact growth, frequent transit service, connecting urban centers, and transportation alternatives to the single-occupant vehicle would be either not fully implemented, or only partially implemented. Therefore, the No Build Alternative would constrain transportation options, leading to more traffic congestion where higher density is planned or causing less dense development patterns in the growth centers. This reaction could cause a shift to more automobile-oriented land use patterns, which are typically more spread out and less dense than transit-oriented development patterns. This might lead to developing more land area and creating longer travel patterns.

4.2.3.2 Impacts during Operation

This section evaluates the project's consistency with land use plans and policies and identifies direct impacts common to all alternative, indirect impacts related to transit-oriented development, and direct and indirect impacts by segment.

Consistency with Land Use Plans and Policies

Regional, state, and local land use plans in the study area share the goal of improving transit accessibility and encouraging transit usage by concentrating mixed land uses within the project corridor in areas that the jurisdictions have identified. The project would connect employment centers and provide for uninterrupted access among the four jurisdictions in the corridor. Sound Transit reviewed regional, state, local, and major institution master plans to identify goals and/or policies applicable to the East Link Project to determine whether the project is consistent with the applicable plans. The route and station alternatives are generally consistent with regional plans and polices in the study area. There are, however, certain inconsistencies with local zoning. For example, in the City of Bellevue Land Use Code, "light rail transit facilities" are not defined and are not called out as a permissible use in any zone; "rail transportation" is allowed as a conditional use in all zones except the downtown zones, where it is expressly not allowed as either a permitted or conditional use; a maintenance facility might not be allowed in the Bel-Red corridor. In the *Redmond Community Development Guide*, the definition of "public facilities" that are permitted in downtown and other zones does not explicitly include transit facilities.

The East Link Project complies with goals and polices identified in PSRC's *VISION 2040* by providing a regional transit system serving a growing transportation need for planned density of residential and employment uses within designated urban areas. *VISION 2040* is a regional strategy that provides the environmental framework, growth strategies, and policies to accommodate the 1.7 million additional people and 1.2 million additional jobs expected in the Puget Sound region by 2040. *VISION 2040* identifies focusing the growth in regional growth centers—which are areas of higher densities of population and employment served by multimodal transportation that provide opportunities for arts, civic activity, commerce, and recreation. Downtown Bellevue, Overlake, and Redmond in the East Link Project study area are identified in *VISION 2040* as regional growth centers. The East Link Project is also identified in PSRC's *Transportation 2040* plan and the 2010-2013 *Transportation Improvement Plan* (PSRC, 2010b).

Local planning documents focus on the types of land uses permitted within zones and the scale to which development is allowed to occur within these zones. The East Link Project would increase transit level of service and linkages with other jurisdictions and regional destinations. Development around station areas in lower- density residential areas is not expected to encourage incompatible commercial or office development because the applicable plans and codes preclude such development. In those areas where the local jurisdictions have adopted land use plans, policies, and development regulations to facilitate higher density (including mid- and high-density mixed use of multifamily residential, commercial, and office development), also known as transit-oriented development, the East Link Project would be consistent with the goals and policies.

In addition, the GMA requires that zoning be consistent with comprehensive plans as well as prohibits local governments from precluding the siting of essential public facilities either through its comprehensive plans or zoning. The East Link Project is a "regional transit authority facility" and is, therefore, explicitly recognized as an essential public facility in the GMA (RCW 36.70A.200). Once Sound Transit's routing decision has been finalized, each jurisdiction has a "duty to accommodate" the East Link Project in their land use plans and development regulations.

The Cities of Bellevue and Redmond have recently amended their comprehensive and neighborhood plans to allow a greater density of land uses and a mixture of land uses within the Bel-Red corridor in Bellevue and the Overlake neighborhood in Redmond. Except for the SR 520 Alternative (D5), the East Link Project would be consistent with the desired land use changes and densities. Alternative D5, although consistent with a number of the regional plans and policies, would not support planned changes for the Bel-Red neighborhood. Further, Alternative D5 does not include any stations in the Bel-Red corridor, and is not consistent with the cities' goals and polices identified in the Bel-Red Subarea plan.

King County and the Cities of Seattle and Redmond have recently amended their shoreline master programs to specifically address light rail as an allowed use within the shoreline environment. The Cities of Mercer Island and Bellevue are in the process of updating their shoreline management plan to directly address light rail as well.

Although not part of the comprehensive plan, the city councils of Mercer Island and Bellevue have adopted information in the form of principles or practices related to light rail. The City of Mercer Island adopted the *Design Principles for Mercer Island Town Center Light Rail* in 2008, which includes 12 principles that Sound Transit should incorporate into the East Link Project at the Mercer Island Station. Principles relate to the station design and how the station ties into the Town Center area on Mercer Island.

The City of Bellevue's *Best Practices for Light Rail*, which was developed by a committee comprising members from four city boards and commissions, was finalized in June 2008; it includes a range of actions meant to guide light rail development in Bellevue. While the report does not specifically address any alternative being evaluated through the environmental process, the *Preferred Alternatives* in Segments B, C, and D are consistent with Bellevue's plans and policies. Topics addressed in the *Light Rail Best Practices* document include Community and Neighborhoods; Community Involvement; Connecting People to Light Rail; Land Use; Street Design and Operations; Elevated, At-Grade, and Tunnel; Property Values; Station Security; and Construction Impacts and Mitigation. The range of actions includes several policies adopted by the City Council and amended into the comprehensive plan. These policies are identified in Table F4.2-1 in Appendix F4.2, Land Use Plans and Policies.

Three alternative maintenance facilities are being considered in Segment D (116th [MF1], BNSF [MF2], and SR 520 [MF3] Maintenance Facilities). The *Bel-Red Subarea Plan* indicates that new light industrial land uses would no longer be allowed within the Bel-Red area; however, the *Bel-Red Subarea Plan* does identify the potential need for a maintenance facility in the Bel-Red area and that the City of Bellevue would coordinate with Sound Transit on placing a maintenance facility if one is needed in the subarea. The Bel-Red Subarea zoning designations applicable to all three Segment D maintenance facility locations include "Rail Transportation: Right-of-Way, Yards, Terminals, Maintenance Shops" as a conditional use in those zones (Bellevue City Code 20.25D.070). The SE Redmond Maintenance Facility (MF5) is consistent with existing plans and policies for the proposed locations. Further information on these plans, goals, and polices, and discussion of the project's consistency with them, is provided in Appendix F4.2.

Direct Impacts Common to All Build Alternatives

Aside from Segment A, all of the East Link Project alternatives would acquire properties to allow for project construction. Although property acquisitions, displacements, and the land use conversions would occur before project construction, they would be considered an operational impact because of their potential long-term effects. Any property acquisition would convert existing land uses to public right-of-way (which is a transportation-related use) to be used for East Link Project construction and operation (i.e., light rail track, stations, traction power substations, or maintenance facilities).

Although the final routing of the East Link Project is not known, the land to be acquired would constitute only a small portion of the total residential, commercial, and public land in the project vicinity and would not result in material changes in the regional or local land use or development patterns. Most of the East Link Project alternatives being considered follow existing transportation corridors, which reduces the amount of right-of-way required for construction. In areas where the project would only partially acquire or in areas that would be used for construction staging, the land could be restored to its previous land use or redeveloped with an allowed use under current zoning. Such actions would reduce the amount of property converted to public right-of-way.

It is important to note that a number of the partial acquisitions would be considered "sliver" acquisitions because they are small in size and would not affect property use. Overall, the amount of land converted to public right-of-way and the number of displacements caused by full acquisitions would result in greater impacts on land use than the number of partial acquisitions. Of the known visual and noise impacts associated with the route alternatives, none would negatively affect existing or future use of the land. Refer to Section 4.5, Visual and Aesthetics, and 4.6, Noise and Vibration, for complete information on these impacts.

Table 4.2-2 shows maximum amount of zoned land that would be converted to a transportation-related use for each alternative. The range of acreage that would be required in Segments C and D accounts for the range in potential connectors from alternatives in the adjacent segment. The totals represent the amount of property that would be required outside of the existing roadway rights-of-way and includes neither staging areas required in Segment C nor areas where remnant land could be sold for redevelopment after construction. For the City of Bellevue, the range of acreage converted to a transportation-related use would be approximately .8 to 18.8 acres, which represents less than 0.1 percent of the total area of Bellevue. (Bellevue encompasses 33.9 square miles; 30.8 square miles are land and the rest water.)

TABLE 4.2-2
Potential Land Use Conversion to Transportation-Related Land Use

		Converted Area by Generalized Zoning (acres)						
Alternative		**Commercial**	**Office**	**Light Industrial**	**Multifamily**	**Single Family**	**Mixed Use**	**Total Area (acres)**
Segment B, South Bellevue								
Preferred 112th SE Modified Alternative (B2M)	to *Preferred 108th NE At-Grade Alternative (C11A)*	1.0	2.5	NA	.0.0	3.0	NA	**6.5**
	to *Preferred 110th NE Tunnel Alternative (C9T*)	1.0	2.4	N/A	0.0	3.0	N/A	**6.4**
Bellevue Way Alternative (B1)		0.5	0.2	0	2.9	5	N/A	**8.6**
112th NE At-Grade Alternative (B2A)		0	0.2	0	0.1	2.4	N/A	**2.7**
112th NE Elevated Alternative (B2E)		0	0.6	0	0	1.4	N/A	**2.0**
112th SE Bypass Alternative (B3)		0	0.9	0	0.1	1.8	N/A	**2.8**
B3 – 114th Extension Design Option		0.2	5.5	N/A	0	2.2	N/A	**7.9**
BNSF Alternative (B7)		1.7	6.3	1.3	1.0	0	N/A	**10.3**
Segment C, Downtown Bellevue[a]								
Preferred 108th NE At-Grade Alternative (C11A)		3.8	7.5 to 10.1	N/A	0 to 2.6	0.2 to 2.0	0.3	**14.4 to 16.2**
Preferred 110th NE Tunnel Alternative (C9T)[b]		5.6	3.1 to 9.5	N/A	0 to 2.6	0 to 1.3	N/A	**10.2 to 12.6**
Bellevue Way Tunnel Alternative (C1T)		4.1	2.7	N/A	3.6	0	N/A	**10.4**
106th NE Tunnel Alternative (C2T)		3.5 to 3.6	2.2 to 5.4	N/A	0	0 to 1.2	N/A	**7 to 8.9**
108th NE Tunnel Alternative (C3T)		0	4 to 6.8	N/A	0	1.4 to 2.9	N/A	**6.9 to 8.8**
Couplet Alternative (C4A)		0.4	4.6 to 5.2	N/A	0 to 0.1	1.4 to 2.9	N/A	**6.9 to 9.3**
112th NE Elevated Alternative (C7E)		0.2	5.4 to 6.4	N/A	0 to 0.1	0 to 0.5	N/A	**5.7 to 6.6**
110th NE Elevated Alternative (C8E)		0.2	4.1	N/A	0	0.4	N/A	**4.7**
110th Avenue NE At-Grade Alternative (C9A)		4.1	3.2 to 4.0	N/A	0 to 0.1	0 to 0.7	0.1	**8.1 to 8.2**
114th Avenue NE Elevated Alternative (C14E)		3.8	6.9 to 7.0	N/A	N/A	N/A	N/A	**10.7 to 10.8**
Segment D, Bel-Red/Overlake[a]								
Preferred NE 16th At-Grade Alternative (D2A)		4.6	0.7	17.0	0.5	N/A	15.3	**20.3**
D2A – 120th Station Design Option		9.7	2.3	17.0	N/A	N/A	N/A	**27.4**

TABLE 4.2-2 CONTINUED

Potential Land Use Conversion to Transportation-Related Land Use

	Converted Area by Generalized Zoning (acres)						
Alternative	**Commercial**	**Office**	**Light Industrial**	**Multifamily**	**Single Family**	**Mixed Use**	**Total Area (acres)**
D2A – NE 24th Design Option	4.6	2.3	17.1	0.5	N/A	21.1	**26.1**
NE 16th Elevated Alternative (D2E)	4.9	0.3 to 3.3	17.7 to 22.8	N/A	N/A	26.1 to 26.6	**31 to 31.5**
NE 20th Alternative (D3)	3.7	2.4 to 4.6	14.6 to 19.3	N/A	N/A	28 to 28.5	**32 to 32.5**
SR 520 Alternative (D5)	1.4	2.7 to 5.0	5.7 to 5.9	3.7	N/A	0.7 to 1.1	**5.8 to 6.3**
Segment E, Downtown Redmond							
Preferred Marymoor Alternative (E2)	N/A	N/A	9.4	N/A	6.0	1.9	**17.3**
E2 – Redmond Transit Center Design Option	0	N/A	11.8	0	3.7	9.6	**25.1**
Redmond Way Alternative (E1)	0.2	N/A	11.8	0.7	1.6	4.1	**18.4**
Leary Way Alternative (E4)	0	N/A	5.9	0.2	1.6	3.3	**11.0**
Maintenance Facilities[a]							
MF1, 116th	0	0.4 to 10.2	10.2 to 13.9	5.4 to 13.2	N/A	5.4 to 5.5	**21.4 to 42.8**
MF2, BNSF	0	0 to 1.2	23.1 to 23.4	7.1	N/A	12.2 to 22.4	**42.4 to 54.1**
MF3, SR 520	0.6 to 18.6	0	18.4 to 22.6	N/A	N/A	N/A	**19 to 41.2**
MF5, SE Redmond	0	0.4	17.7 to 20.4	N/A	N/A	N/A	**17.7 to 20.4**

Note: Segment A would not convert any land use to transportation-related land use.

[a] For Segments C and D and the maintenance facilities, the ranges depend on the design option selected. The total area ranges reflect the amount of land converted by a specific route alternative and are not the total of all the areas within each zone. These ranges include the ranges in potential connectors from alternatives in the adjacent segment. Acreage excludes planned staging areas and portions of parcels that are anticipated to be sold after construction is complete

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

N/A Not applicable

For the City of Redmond, the range of acreage converted to a transportation-related use would be 11 to 25.6 acres, which represent less than 0.1 percent of the total area of Redmond (Redmond encompasses 17 square miles). Land use impacts at any potential interim terminus station (Ashwood/Hospital or any station farther east) would be the same whether that station is built as an interim terminus or not.

Indirect Impacts Related to Transit-Oriented Development

Light rail transit contributes to existing market forces that can increase the potential for transit-oriented development or redevelopment. Improved transit access can increase the convenience and desirability of surrounding residential, commercial, and office properties. The type of development or redevelopment near stations with available land and supportive zoning in place tends to be more intense, mixed-use development that supports high-density residential, commercial, and office-related uses.

In a number of cases, transit stations have provided an opportunity for local jurisdictions to focus redevelopment activities. Factors that affect and influence private development include local and regional market conditions and trends, zoning and other land use regulations, accessibility of credit, and interest rates. Experience around the United States, however, indicates that developing new transit facilities has often occurred concurrent with major changes in development near stations (typically within 0.25 mile of the station) (Transit Cooperative Research Program, 1996).

It has been shown that jurisdictions with supportive policies, land use controls, and direct incentives can substantially increase the amount of development or redevelopment occurring near transit stations. Near the East Link stations, surrounding parcels are already developed, and transit-oriented development, if it occurred, would be redevelopment. Transit-oriented development generally takes place under three conditions:

1. When stations are located in prime regional and community centers of activity attractive to typical market forces
2. When regional and local real estate markets are active
3. When public policies and regulations permit or encourage intensive development in station areas

The experience of other U.S. communities has demonstrated that, although light rail transit would not by itself create new development, with transit-supporting plans and policies in place, it can influence where development or redevelopment would occur and the types of development that would occur. The benefits of successful transit-oriented development have included improved mobility; increased supplies of affordable housing; increased transit ridership in a more efficient urban form; and opportunities for urban redevelopment (City of Seattle, 1998). This might result in the synergy of businesses' and employee's interest in locating within convenient access to the light rail line, leading to more dense land uses around stations and therefore resulting in increased economic activity at stations. Section 4.3, Economics, discusses the economic benefits associated with the East Link Project. Station area transit-oriented development would only occur in areas where the current land uses are light industrial. Most other stations areas are already built out per approved land uses.

Table 4.2-3 describes the ratings used by Sound Transit for the likelihood that each proposed light rail station would support indirect changes in existing land use and development patterns, resulting in transit-oriented development patterns in the station areas. The ratings shown indicate the extent to which the light rail system might support indirect land use changes within 0.5 mile of station areas under existing plans and policies. Existing transit-oriented development centers, such as the Bellevue Transit Center, were not rated as high because the density already exists and would not likely be affected by the project.

TABLE 4.2-3
Potential for Station Areas To Support Transit-Oriented Development

Ranking	Description
Low	One or more of the following factors is occurring in the station area: Not located in prime regional and/or community center, regional and local real estate markets are not active in the area, existing transit-oriented development already exists in surrounding area, and/or current plans and policies do not permit or encourage transit-oriented development in station areas.
Moderate	One or more of the following factors is occurring in the station area: Located in somewhat prime regional and/or community center, regional and local real estate market are active, and/or current plans and policies permit or encourage transit-oriented development in station areas.
High	One or more of the following factors is occurring in the station area: Located within prime regional and/or community center, regional and local real estate markets are highly active, and/or current plans and policies promote or encourage the intensive development in station areas.

Implementing the East Link Project would allow jurisdictions to implement regional policies related to high-capacity transit (Appendix F4.2) as well as those planning for increased densities, especially related to transit-oriented development. The following subsections record the specific direct and indirect impacts of the routes, stations, and maintenance facilities.

Impacts during Operation by Alternative

Segment A

No direct impacts would be associated with Preferred Alternative A1 because operation would remain within existing transportation rights-of-way.

Rainier Station

No land use changes are anticipated, and it is anticipated that the station would support the development of multifamily residential uses in the permitted zones around the station. The potential for indirect impacts related to transit-oriented development is rated low/moderate because, although current zoning allows for multifamily residential and commercial uses that would support transit-oriented development, the parks and recreation facilities surrounding the station limit the extent to which development could occur.

Mercer Island Station

The Mercer Island Station would complement the existing land uses and future land uses within the Town Center district and encourage continued density in the Town Center. Residential areas to the north are not anticipated to be affected because they are buffered by I-90, parks and trail facilities, and other uses as specified in the Mercer Island City Code. The potential for indirect impacts related to transit-oriented development would be moderate because current zoning allows for transit-oriented development, and additional capacity for more dense redevelopment exists within the Town Center district (Exhibit 4.2-2).

Segment B

Segment B alternatives would acquire residential and commercial properties. *Preferred 112th SE Modified Alternative (B2M)* would convert approximately 6.4 to 6.5 acres, depending on connection to Segment C, to transportation-related uses, most of which are currently parkland zoned as single-family and undeveloped office. *Preferred Alternative B2M* would have the lowest total number of displacements of the Segment B alternatives along Bellevue Way SE, including only one residential displacement.

Based on current design, the Bellevue Way Alternative (B1) would have the greatest number of acquisitions and displacements and would convert the greatest amount of residentially zoned property (7.9 acres). The BNSF Alternative (B7) would result in the fewest total acquisitions, but as shown in Table 4.2-2, it would result in potentially the greatest land use conversion to transportation-related uses (10.3 acres) primarily from office uses. The 112th SE Elevated Alternative (B2E) would result in the fewest displacements as well as the least amount of land that would need to be converted (see Table 4.2-2).

South Bellevue Station (*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3)

A garage would expand the number of available parking stalls to 1,400 stalls at the South Bellevue Park-and-Ride. However, expanding the parking is not expected to change any of the surrounding land uses because of strong geographic barriers, including the Mercer Slough Nature Park—a large wetland park to the north, east, and south of the station—and the established single-family residential neighborhood of Enatai located above the station and west of Bellevue Way SE. Because of these factors, the station received a low rating for transit-oriented development potential (see Table 4.2-3).

SE 8th Station (*Preferred Alternative B2M* to *Preferred Alternative C9T* and Alternatives B2A and B2E)

No direct or indirect impacts on land use are anticipated. Because of the limited potential to develop around the site and because of the single-family neighborhood to the west, the station received a low rating for the likelihood of the station to cause changes in land use related to transit-oriented development (see Table 4.2-3).

118th Station (Alternative B7)

There would be limited, low potential to develop around the 118th Station because of the adjacent land uses of Mercer Slough Nature Park and the I-405 corridor. Therefore, the station was assigned a low potential for transit-oriented development (see Table 4.2-3). This station is intended to serve as a park-and-ride site for communities to the east and west and could result in the closure of the Wilburton Park-and-Ride Lot north of the proposed station at the intersection of SE 8th Street and I-405.

Segment C

Segment C includes a number of proposed construction staging areas that could be redeveloped to a use conforming to the current zoning. For alternatives located within tunnels, land use impacts are anticipated only in the station areas and tunnel portal locations.

Property acquisitions associated with *Preferred 108th NE At-Grade Alternative (C11A)* would convert approximately 14.4 to 16.2 acres, depending on the connection from Segment B, to transportation-related uses, most of which is currently zoned commercial and office. The connection from *Preferred Alternative B2M* would result in a greater area of properties converted to a transportation-related use and results in the conversion of single family and multifamily areas.

Property acquisitions associated with *Preferred 110th NE Tunnel Alternative (C9T)* would convert approximately 10.2 to 12.6 acres to transportation-related uses, most of which is currently zoned commercial and office. Similar to *Preferred Alternative C11A*, the connection from *Preferred Alternative B2M* would result in the greatest area converted and the conversion of single-family and multifamily zoned areas. If C9T - East Main Station Design Option were selected, then it would not require any additional parcel acquisitions, and impacts on current land uses within the area would be the same.

The Bellevue Way Tunnel Alternative (C1T) would result in the most impacts related to residential-zoned areas, thereby resulting in the greatest number of residential displacements (93, which includes 62-unit, 24-unit, and 7-unit apartment complexes). Alternative C1T could potentially require the conversion of 10.4 acres of commercial, office, and multifamily land uses, which is higher than all other alternatives in Segment C (see Table 4.2-2). The 110th Avenue NE Elevated Alternative (C8E) would result in the lowest amount of land (4.7 acres) converted to transportation-related uses (see Table 4.2-2).

Old Bellevue Station (Alternative C1T)
No change in land use is anticipated at this station because the surrounding area is zoned for uses that would support the East Link Project. This station received a low to moderate rating to influence new transit-oriented development because of the already dense commercial development in the surrounding area and the nearby single-family residential zone.

108th Station (*Preferred Alternative C11A*)
There is low potential for transit-oriented development south of the 108th Station and Main Street because the area is zoned single-family and includes the residential Surrey Downs neighborhood. North of the station and Main Street are mixed use and office uses in Downtown Bellevue that could increase in density. New development might be attracted north of the 108th Station. This area is considered to have low to moderate potential for transit-oriented redevelopment.

East Main Station (*Preferred Alternative C9T* and Alternatives C2T, C3T, C4A, C7E, and C8E)
Remaining lands adjacent to the station would be available to return to uses conforming to zoning; however, no additional changes in land use are anticipated as a result of this station. This station received a low rating for transit-oriented development because of the single-family residential uses to the west and I-405 on the east, which limit the extent to which redevelopment could occur.

Bellevue Transit Center Station (All Segment C alternatives)
Because many of the land uses around the station locations associated with the various alternatives are already high density, the East Link Project would not influence or indirectly change land use patterns, and therefore these locations received a low potential to influence transit-oriented development. Instead of influencing transit-oriented development the stations would help serve existing land uses with improved mobility options, but the stations associated with Alternative C7E and 114th NE Elevated Alternative (C14E) are located farther away and may not influence any additional changes or improve mobility options as greatly as the other alternatives that have stations closer to the existing Bellevue Transit Center.

Hospital Station (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E)
This station may influence redevelopment opportunities for limited, mixed-use developments related to multifamily and office/medical office-related uses occurring around the station. By providing increased access and mobility, the station would support the major land use in the area (Overlake Hospital and Group Health Medical Centers) and the surrounding supporting uses. Because of recent development at the hospital campuses and relatively limited land area around the station, the station received a low/moderate rating for ability to influence redevelopment related to transit-oriented development.

Ashwood/Hospital Station (Alternatives C3T, C4A, C7E, and C8E)
The potential for redevelopment with the Ashwood/Hospital Station is similar to that described above for the Hospital Station. The potential for development around this station resulted in it receiving a low to moderate rating for redevelopment attributed to the station.

Segment D
All of the Segment D alternatives would require property acquisitions and the displacement and relocations of businesses, but there would be no

residential displacements associated with any of the alternatives.

Preferred NE 16th At-Grade Alternative (D2A) would convert 27.4 acres to a transportation-related use, with most the land currently zoned light industrial and commercial. The Alternative D2A - 120th Station Design Option would result in the same land use conversion as *Preferred Alternative D2A,* and the Alternative D2A - NE 24th Design Option would result in 28.7 acres being converted to a transportation-related use. *Preferred Alternative D2A* would be integrated with planned developments around the stations. *Preferred Alternative D2A* would be consistent with the changes in the Bel-Red neighborhood and would support the portions of the City of Bellevue SubArea Plan that address light rail through the corridor, with stations located at 120th and 130th Avenues NE.

The other Segment D alternatives would include a range in the amount of land that would be converted, depending on the connection from Segment C. The NE 20th Alternative (D3) would result in the greatest number of potential business displacements (64 to 72) and the greatest amount of land that could be converted to a transportation-related use (35 to 37.6 acres). The SR 520 Alternative (D5) would result in the least land converted to a transportation-related use (11.1 to 13.5 acres), with the majority being land currently zoned light industrial.

Alternative D5 does not include any stations within the Bel-Red neighborhood. Growth in the Bel-Red area would be dependent on other forms of transit, which would be less consistent with Bellevue's desired densities and planned land use development in this area.

120th and 130th Stations (*Preferred Alternative D2A* and Alternatives D2E and D3)
Negative land use impacts are not expected around these station areas. The City of Bellevue is encouraging redevelopment of the industrial areas to mixed use, high-density employment and residential centers. The stations have a moderate to high rating for a potential to influence development because of the land use changes that encourage development supportive of transit-oriented development (see Table 4.2-3).

Overlake Village Station (All Segment D alternatives)
Like the stations located in Bellevue, a station located within the Overlake Village area would support the City of Redmond to fully implement the recently adopted land use changes and allow for a mixed-use, high-density employment and residential center at Overlake Village. Therefore, the station locations received a moderate to high rating for potential to influence transit-oriented development. The station associated with *Preferred Alternative D2A* along SR 520 would be located farther from the area that could be redeveloped, which may have a lower potential to influence development than the other station alternatives.

Overlake Transit Center Station (All Segment D alternatives)
No change is anticipated on land uses surrounding the station. However, the station would support the existing land use and would increase mobility for expanding numbers of Microsoft and other nearby office employees. The station was assigned a low potential to influence land use changes related to transit-oriented development because of the existing development and the current zoning in the area.

Segment E
All of the alternatives in Segment E would require property acquisitions and the displacement and relocations of businesses and residences.

The property acquisition associated with *Preferred Alternative E2* would convert approximately 17.3 acres to a transportation-related use (see Table 4.2-2). The majority of the area converted is currently zoned light industrial and single family residential.

The E2 - Redmond Transit Center Station Design Option would result in the most the most land that would potentially be converted to a transportation-related use (25.1 acres) (see Table 4.2-2). The Redmond Way Alternative (E1) and the Leary Way Alternative (E4) would have similar amounts of property acquisitions and displacements, and Alternative E4 would result in the least land (11.0 acres) that would be converted to a transportation-related use.

Downtown Redmond Station (*Preferred Alternative E2*)
This station would be located north of the Redmond Town Center Station and closer to the northern areas of Downtown Redmond. It would be a terminus station for *Preferred Alternative E2*. Much of the area around the Downtown Redmond Station has recently been redeveloped with mixed-use and commercial buildings; therefore, there is limited potential for new transit-oriented development directly adjacent to this station. Some properties farther away, however, could be considered for redevelopment due to their proximity to this station; as a result this station has a moderate potential for transit-oriented development.

Redmond Transit Center Station (E2 - Redmond Transit Center Design Option)
The Redmond Transit Center Station would not alter the existing or future land use patterns and would offer additional mobility options for existing mixed-use development being developed near the station. This is a potential terminus station for *Preferred Alternative E2*. This station has a moderate potential for transit-oriented development based on the information in Table 4.2-3 and the King County Metro Transit Center.

Redmond Town Center Station (Alternatives E1 and E4)
This station would not alter existing development patterns. The station area would support continued development of mixed uses and additional buildout consistent with current zoning. Therefore, it was assigned a moderate potential for additional transit-oriented development based on Table 4.2-3.

SE Redmond Station (*Preferred Alternative E2* and Alternatives E1 and E4)
The SE Redmond Station is the proposed terminus station for both Alternatives E1 and E4, and it would be the first station in Redmond for *Preferred Alternative E2*. This station, planned to be a park-and-ride station for communities to the north and east, would not cause the surrounding land uses to deviate from industrial zoning. The station would be located in different areas with the three Segment E alternatives, and all locations were assigned a low/moderate potential for transit-oriented development based on Table 4.2-3 and because of newer developments (i.e., Whole Foods retail center, Fred Meyer, Home Depot) around the station locations.

4.2.3.3 Impacts During Construction

Impacts Common to All Build Alternatives

Construction of the East Link Project would result in temporary impacts on existing land uses as a result of construction activities (e.g., earthmoving, truck traffic). The temporary impacts would include potential increases in noise levels, dust, traffic congestion, visual changes, and increased difficulty accessing residential, commercial, and other uses. Refer to Chapter 2, Alternatives Considered, for information on methods of construction for the alternatives. Although some businesses may experience hardship during construction, this would not affect land use type unless the property became vacant. For more information on impacts, including impacts on the existing uses (i.e., businesses and residences), see Chapter 3, Transportation Environment and Consequences, and Sections 4.3, Economics; 4.4, Social Impacts, Community Facilities, and Neighborhoods; 4.5, Visual and Aesthetic Resources; 4.6, Air Quality; and 4.7, Noise and Vibration.

Construction would also require easements beyond the property acquisition needed within the project limits. These easements might affect portions of property on residential, commercial, industrial, and public properties in all segments except Segment A (because this alternative is located largely within an existing Washington State Department of Transportation [WSDOT] I-90 right-of-way). The easements are temporary and would be returned to preconstruction conditions upon completion. Following construction, redevelopment of remaining parcels would occur consistent with land use zones for the parcels. Section 4.1, Acquisitions, Displacements, and Relocations, provides more information on the methods to be implemented to compensate those affected.

Segment A

There would be no additional impacts in Segment A other than those described above. Impacts on the surrounding land uses would be minimal because construction would occur almost entirely within the center of I-90. In addition, construction staging would also occur within the existing I-90 right-of-way.

Segment B

There are no additional impacts from Segment B alternatives other than those described above; however, the extent of the temporary impacts discussed under Impacts Common to All Build Alternatives would vary depending on the alternative.

Preferred Alternative B2M would require additional construction easements within Mercer Slough Nature Park, and have impacts occurring over a potentially larger area because the trackway would be located farther east of Bellevue Way SE to its intersection with 112th Avenue SE for connections to either *Preferred Alternative C11A* or *Preferred Alternative C9T*. These temporary construction easements would temporarily displace the blueberry farm and the Eastside Heritage Center, which is located in the Winters House. All areas could be returned to their prior use after construction, and no permanent change in land use would occur. *Preferred Alternative B2M to C11A* would include construction activities closer to the residences west of 112th Avenue SE because the trackway would be located in the median, whereas *Preferred Alternative B2M to C9T* would remain east of 112th Avenue SE. However, the construction activities associated with *Preferred Alternative B2M to C11A* is not anticipated to result in any additional impacts.

Alternative B1 would result in temporary impacts on a number of properties located adjacent to construction of the at-grade trackway in the center of the roadway, which has the potential to affect the accessibility of land uses west and east of Bellevue Way SE. Many driveways are more likely to be affected with Alternative B1 when compared with *Preferred Alternative B2M,* including a few businesses that would be affected by limitation in access. Alternative B7 would have the fewest impacts on properties and business access because a majority of the work would occur within existing rights-of-way and away from adjacent land uses. The extent of the impacts from Alternative B1 would be similar for Alternatives B2A, B2E, and B3 because these alternatives follow roughly the same route and would require the same construction methods for much of the alternative length. The B3 - 114th Design Option is similar to other Segment B alternatives along Bellevue Way SE and 112th Avenue SE, but it would curve away and avoid some of the residences along 112th Avenue SE.

Segment C

The extent of the temporary impacts discussed under Impacts Common to All Alternatives would vary depending on the alternative and its connection from Segment B. All of the Segment C alternatives except C1T can connect to Alternatives B3, B3-114th Extension Design Option, or B7, and impacts on land uses between SE 6th Street and Main Street would be similar. For the most part, the connection would be elevated and access points to adjacent land uses would be maintained. With these connections, no adjacent residential land uses would be affected until the alternatives reach Main Street.

With *Preferred Alternative C11A* connection from *Preferred Alternative B2M*, construction activities along 112th Avenue SE and Main Street would primarily be outside of the roadway right-of-way and adjacent to residential land uses within the construction area. Construction would limit access to the residential Surrey Downs neighborhood due to the required closure of SE 4th Street, but access would be maintained at other points. Construction would also occur in the center of the 108th Avenue NE between Main Street and NE 6th Street, restricting access to businesses on either side to right-in, right-out only.

The connection from Alternatives B3 or B7 would result in less construction activity adjacent to Surrey Downs neighborhood and more on adjacent businesses, and the construction impacts along Main Street would be similar.

East of the Bellevue Transit Center Station the trackway would primarily be outside of the dense land use in Downtown Bellevue and within the existing rights-of-way of NE 6th Street, I-405, and the former BNSF Railway corridor. Impacts would be similar to those described above under Impacts Common to All Alternatives.

Construction activities for *Preferred Alternative C9T* along 112th Avenue SE would primarily be outside of the roadway right-of-way, similar to *Preferred Alternative C11A,* with the primary difference between the alternatives being the closure of SE 1st Street limiting access to the Surrey Downs neighborhood. Similarly, the connections from B3 or B7 would reduce construction along Surrey Downs residential areas.

East of the Bellevue Transit Center Station, *Preferred Alternative C9T* would be the same as *Preferred Alternative C11A.*

Preferred Alternative C9T would include cut-and-cover activities to construct the tunnel between Main Street and NE 6th Street, west of 112th Avenue NE. Cut-and-cover activities can result in the greatest impacts on the adjacent land uses because this method requires relatively deep excavation and restricts access until covers can be installed over the excavated area. The exact closure methods used (i.e., partial closure of roadway or full closure of roadway) would be decided prior to construction. When the cut-and-cover activities are complete and the excavated area is covered, vehicle access would be restored and remaining construction activities would have minimal impacts. The impacts associated with cut-and-cover would be similar to those described under Impacts Common to All Alternatives; however, the impacts would likely be more adverse than either at-grade or elevated construction because of the nature of construction activities required.

Alternatives C1T, C2T, and C3T (tunnel alternatives) all would include cut-and-cover activities, resulting in similar impacts as those described under *Preferred Alternative C9T*. Alternatives C1T and C2T would require more cut-and-cover activities than *Preferred Alternative C9T*. Impacts associated with Alternative C1T could be less severe than with Alternative C2T because construction could occur in the middle lanes of traffic, thereby allowing right turns in and out along Bellevue Way SE and restricted left turns until the roadway is covered. Alternative C2T would likely require either a partial closure or full closure of 106th Avenue NE through Downtown Bellevue, depending on construction method; C2T would likely require detours and temporary loss of access to some adjacent land uses.

The Alternative C3T tunnel would be entirely bored except for the portals (Surrey Downs Park, East Main or north boundary of Surrey Downs residential area) and the Bellevue Transit Center Station, and construction impacts with this alternative would result in the least degree of impacts because cut-and-cover impacts would occur in fewer locations and be less severe than the other tunnel alternatives. The tunnel alternatives would have additional truck traffic related to the hauling of materials to allow construction activities to occur.

Alternative C9A would have the shortest duration of construction impacts among Segment C alternatives and would likely result in the fewest impacts on surrounding land uses. The connection from Alternative B2A would require construction activities within 112th Avenue SE and likely would result in limiting access to right-turn in and out of the roadway. Construction activities north of Main Street would occur at-grade along 110th Avenue NE, limiting access to either left- or right-turn in and out. Impacts would be the same as those described under *Preferred Alternative C11A* for the trackway east of the Bellevue Transit Center Station.

Alternative C4A would result in impacts similar to Alternative C9A, to approximately SE 6th Street, but it would affect land uses on two streets north of Main Street: 110th Avenue NE and 108th Avenue NE. However, it is likely that construction requiring substantial street closures would occur on one street and not on the other street, which would limit the impacts on surrounding land uses, compared to construction that is conducted concurrently.

Alternatives C7E, C8E, and C14E would have similar impacts. Construction activities would still permit access to the land uses, except during construction of the elevated structures that would require temporary street or lane closures (for safety and to place the elevated structure) and would limit access to adjacent land uses. Alternative C8E would result in a greater impact on single-family and multifamily land uses adjacent to 110th Avenue NE and NE 12th Street.

For most of the project, remnant parcels from property acquisition or vacant lots would be used for staging areas, except in Segment C, where specific staging areas have been identified, because few open land areas exist in that segment. For the most part the identified staging areas are associated with commercial uses or zoned commercial in Downtown Bellevue. *Preferred Alternatives C11A* and *C9T* would include staging areas along 112th Avenue SE associated with multifamily residential. The staging areas would change existing land uses during construction. However, in most situations, staging areas would be available for redevelopment consistent with current zoning. Refer to Section 4.1 for information on the number of displacements associated with the staging areas. Temporarily, land uses adjacent to the staging area would be affected and could result in some temporary closures or in businesses relocating (refer to Section 4.4 and 4.5 for more discussion on impacts on businesses and proposed mitigation).

The following describes staging areas that may cause changes in land uses upon project completion. For many areas in Segment C, the land uses are associated with commercial uses that would remain after construction; therefore, no impacts on land use are anticipated in these areas. Depending on the sensitivity of the surrounding land uses, a fence or barrier could surround the staging area to provide a buffer to adjacent land uses from noise and visual impacts. All Segment C alternatives except Alternative C1T have a possible connection from Alternative B3, the B3 - 114th Design Option, or B7; these alternatives would require a staging area on the site of the Red Lion Hotel. For all alternatives except *Preferred Alternative C11A* and Alternative C14E, the staging area would become the location of the East Main Station and change the existing land use. Under *Preferred Alternative C11A* and Alternative C14E, the land would likely continue to be zoned for commercial uses and redeveloped after construction.

Staging from *Preferred Alternative B2M* to *C11A* and *C9T*

The staging areas on the west side of 112th Avenue SE and the south side of Main Street would indirectly affect the surrounding land uses through noise and visual impacts during construction. After construction, part of this staging area south of Main Street could be used by the City of Bellevue to construct a transition park south of Main Street, which would buffer residences from the downtown core. Policy S-DT-125 in the Bellevue Comprehensive Plan discusses creating open space buffers to provide transition from downtown to the surrounding residential neighborhoods (City of Bellevue, 2006). In addition, the area along 112th Avenue SE would provide a greenbelt or park between the light rail and the adjacent neighborhood.

Staging from Alternative B2A to Alternatives C2T and C3T

The staging area on the north side of Surrey Downs Park would directly remove the civic use as a courthouse, if it has not previously moved, and a portion of the unimproved park, which would result in temporary indirect impacts on adjacent residential land uses during construction activities. However, there is the potential for the City of Bellevue to redevelop the staging area after construction to its intended future use as a park, free of the courthouse structure.

Staging from Alternative B2E to Alternatives C2T, C3T, and C9A
The staging areas adjacent to Main Street would indirectly affect the surrounding land uses through noise and visual impacts during construction. Similar to *Preferred Alternatives C11A* and *C9T*, part of this staging area could be used by the City of Bellevue to construct a transition park south of Main Street after construction to buffer residences from the downtown core or they could redevelop consistent with local zoning.

Staging Area at Alternatives C3T, C4A, and C8E
These alternatives would disrupt McCormick Park north of NE 12th Street as well as residences north of the park because of noise and visual impacts. The lands used for staging are intended to be returned to a restored McCormick Park, including the acquired properties. This is a change in existing zoned lands but upholds the value of a transition park to buffer residents from the infrastructure.

Segment D

There would be no additional impacts other than the common impacts described above; however, the extent of the temporary impacts discussed under Impacts Common to All Alternatives would vary depending on the alternative. Because the Segment D alternatives are located adjacent to land uses that are primarily industrial and commercial, the extent of the impacts would be generally similar in all the alternatives.

Preferred Alternative D2A would result in fewer land use impacts than other Segment D alternatives because construction activities would be located parallel to and north of a new NE 15th/16th Street corridor and within or adjacent to WSDOT and the former BNSF Railway right-of-way, as well as away from other existing land uses. Work along 136th Place NE would have the greatest disruption for adjacent businesses and likely result in right-turn in and out restrictions.

The storage tracks north of NE 12th Street in the former BNSF Railway corridor would result in a minor property conversion of land use to a transportation facility for the small operator’s building and 14 parking stalls and an access easement through an industrial property.

The D2A - NE 24th Design Option would result in additional impacts on adjacent land uses because construction activities would be adjacent to the existing land uses in the Overlake neighborhood.

The extent of the impacts would be greatest under Alternative D3) because of the retained cut required along NE 20th and 152nd Avenue NE, which would limit access to some adjacent commercial land uses. Alternative D5 would result in the lowest extent of land use impacts because most of the alternative would be located in either former BNSF Railway or WSDOT right-of-way and away from surrounding commercial land uses. Alternative D2E would have impacts similar to *Preferred Alternative D2A,* and the extent would be greater than with Alternative D5 and less than with Alternative D3.

Segment E

There would be no additional land use impacts in Segment E other than the common impacts described above; however, the extent of the temporary impacts discussed under Impacts Common to All Build Alternatives would vary depending on the alternative. The Segment E alternatives are primarily located within or adjacent to existing transportation rights-of-way, which would minimize impacts on surrounding land uses.

Preferred Alternative E2 would be primarily located within or adjacent to existing transportation rights-of-way, which would minimize impacts on surrounding land uses. The E2 - Redmond Transit Center Design Option associated with *Preferred Alternative E2* would extend the guideway along 161st Avenue NE to the Redmond Transit Center Station, which would impact adjacent land uses and could affect access.

Alternatives E1 and E4 would result in the most impacts on surrounding residential land uses related to noise, dust, and visual resources because of their proximity to residential areas near West Lake Sammamish Parkway and Leary Way. Alternative E4 would result in greater impacts because of the at-grade construction required along Leary Way, which would result in additional traffic congestion and could affect access to the existing land uses in the area.

4.2.3.4 Maintenance Facilities

Impacts during Operation

Each of the potential facilities would require acquisition and displacement of properties, with MF3 resulting in the greatest number of displacements; MF2 would result in the greatest potential to convert land uses to transportation-related use (23.1 to 23.8 acres), but the fewest number of displacements and acquisitions; and MF1 would result in the greatest number of property acquisitions. The amount of land required for the maintenance facilities would vary based on how the maintenance facilities connect via the alternatives; refer to Chapter 2 for a complete description of the differences between the connections.

Although the Segment D maintenance facilities (MF1, MF2, and MF3) are consistent with the existing land uses, they are not consistent with the new zoning in the Bel-Red neighborhood. The Bel-Red Corridor Final EIS (City of Bellevue, 2007) indicates that new light industrial land uses would no longer be allowed; however, Bellevue would need to accommodate the East Link maintenance facility as an essential public facility if one of these locations were chosen.

Because Bellevue is intending a reduction of industrial uses, there is the potential for indirect impacts on adjacent land uses from the proposed maintenance facility locations in Segment D. MF2 would be located near property zoned for mixed-use, including housing. These land uses might not easily redevelop to include housing from existing industrial uses because of the proximity of the facility. The design of the maintenance facility would incorporate appropriate measures to minimize impacts and help it blend into the surrounding land uses (i.e., the use of a landscape buffer). MF1 would be located adjacent to property zoned for commercial and office-related uses and should not affect development that would occur nearby. MF3 would be located the farthest away from the stations proposed under *Preferred Alternative D2A* and Alternatives D2E and D3 and therefore would have the least impact on the Bel-Red neighborhood redevelopment.

In Segment E, MF5 would be consistent with existing industrial uses, and no impacts on land use patterns would be expected.

Impacts during Construction

Construction impacts would be similar to those described under Impacts Common to All Alternatives; however, because the maintenance facilities proposed are adjacent to light industrial land uses or away from entrances to commercial uses or residential use, the extent of the impact on adjacent land uses would be anticipated to be minor.

4.2.4 Potential Mitigation Measures

No mitigation related to land use would be required during operation of the East Link Project. In general, the East Link Project would not result in inconsistencies with adopted land use plans. Although Sound Transit cannot minimize all disturbances to adjacent land uses during construction, impacts would not be anticipated to cause substantial changes in land use. Therefore, no specific mitigation related to land use would be required. Refer to Section 4.1 for complete information on how Sound Transit would minimize the impacts associated with required acquisitions, displacements, and relocations. Refer to Chapter 3 and Sections 4.3, 4.5, 4.6, 4.7, 4.8, and 4.17 for measures that would minimize impacts on adjacent land uses.

4.3 Economics

4.3.1 Introduction to Resources and Regulatory Requirements

Transit projects like East Link can change patterns of regional and local mobility and access, which in turn might affect aspects of the regional or local economies such as development patterns, employment opportunities, business accessibility, and/or retail sales. Prior to construction, most of the project alternatives would relocate businesses and displace employees. Section 4.1, Acquisitions, Displacements, and Relocations addresses potential relocation of residences and displacement of residents associated with the East Link Project. The East Link Project also might have economic impacts on cities and counties in the area.

The purpose of this economic impacts analysis is to identify the potential adverse and beneficial impacts of the East Link Project on the local and regional economies. Sound Transit evaluated economic impacts in a study area consisting of three different scales:

- **Regional:** Economic impacts on the regional economy (such as effects on employment, traffic mobility, and congestion) were analyzed for a study area consisting of the four counties in the Puget Sound region: King, Kitsap, Pierce, and Snohomish.
- **City level:** Economics impacts of the project on the tax revenue were assessed for cities with property acquisition (Bellevue and Redmond).
- **Site-specific:** Site-specific impacts were evaluated for a study area of 0.5 mile around the light rail route and stations.

This analysis summarizes the anticipated direct and indirect impacts of the No Build Alternative and the East Link Project alternatives from business displacements, changes in tax revenue, and regional transportation of goods and services during operation and construction.

4.3.2 Affected Environment

4.3.2.1 Regional Demographic and Economic Trends

This section provides demographic and economic regional forecasts for the four-county Puget Sound Region.

Population

The historical and forecast population data for the region and for King, Kitsap, Pierce, and Snohomish Counties individually show that by 2030 the region will grow by over 1.2 million inhabitants to 4.5 million inhabitants (see Appendix F4.3, Table F4.3-1). Between 2000 and 2030, population in the region is expected to increase at an average annual growth rate of 1.1 percent. The greatest average annual growth is forecast to occur in Snohomish County, at approximately 1.6 percent, followed by Pierce, Kitsap, and King Counties at 1.2, 1.2, and 0.8 percent, respectively.

Households

The historical and forecast household data for the region and for King, Kitsap, Pierce, and Snohomish Counties individually show that between 2000 and 2030, the number of households in the region is expected to increase at an average annual growth rate of 1.4 percent (see Appendix F4.3, Table F4.3-2). Like the population growth forecast, the most rapid annual rate of household formation, at 1.9 percent, is expected to occur in Snohomish County. Pierce, Kitsap, and King Counties are forecast to have average annual growth rates of 1.5, 1.5, and 1.1 percent, respectively.

Between 2000 and 2030, the growth rate for new household formation is forecast to exceed the growth rate for population in each of the four counties. This implies that the average number of persons per household will decline. This is relevant because travel demand typically correlates more closely to household formation than to population.

Regionally, the mix of households is expected to change between 2000 and 2030, as shown in Appendix F4.3, Table F4.3-2. The percentage of multifamily households is forecast to increase from 31 percent in 2000 to 35 percent in 2030, while the percentage of single-family households is expected to decline from 69 percent in 2000 to 65 percent in 2030. This trend to multifamily households is forecast to occur in all four Puget Sound counties.

Income

Median household income in King, Kitsap, Pierce, and Snohomish Counties is higher than the state average. According to the U.S. Census Bureau, King County had the highest median household income in the region, at approximately $70,193 in 2008, which is an increase of 32 percent from 1999. In 2008, median household income was $59,333 in Kitsap County, $58,217 in Pierce County, and $66,701 in Snohomish County. Nominal income levels in Kitsap, Pierce, and Snohomish Counties have increased by 27, 29, and 26 percent, respectively, when compared with 1999 U.S. Census levels. However, when adjusted for inflation, Kitsap, Pierce, and Snohomish Counties show a slight decrease in income levels between 1999 and 2008. Within King County, there was a slight increase in inflation-adjusted income over the same time period.

Employment

Between 2000 and 2030, employment in the region is expected to grow at an average annual rate of 1.2 percent. Snohomish County is expected to experience the highest rate of increase in job growth, at an average annual rate of 1.6 percent (see Appendix F4.3, Table F4.3-3). Pierce, King, and Kitsap Counties follow with average annual growth rates of 1.1, 1.1, and 1.0 percent, respectively. Snohomish County's relative share of regional employees is forecast to increase from 12 percent in 2000 to 14 percent in 2030, while the relative shares of King, Kitsap, and Pierce Counties are expected to decline slightly.

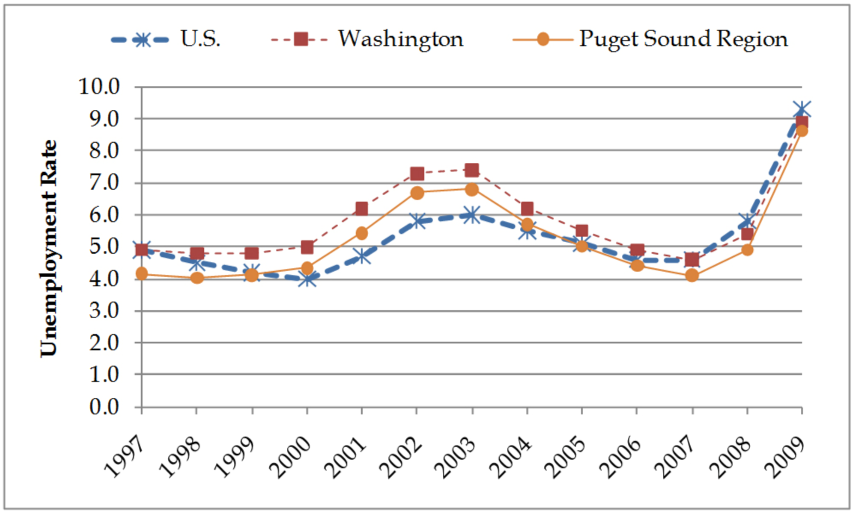


EXHIBIT 4.3-1
Unemployment Rates, 1997 to 2009

Note: Regional unemployment was calculated using an employee-weighted average of the Seattle-Tacoma-Bellevue, Washington, Metropolitan Statistical Area (includes King, Snohomish, and Pierce counties) and the Bremerton-Silverdale, Washington, Metropolitan Statistical Area (includes Kitsap County) annual unemployment rates.

Source: Bureau of Labor Statistics, 2010.

Table F4.3-4 in Appendix F4.3 presents historical and forecast employment by sector, in total, and on a percentage basis, for the region and King, Kitsap, Pierce, and Snohomish Counties. Regionally, the finance, insurance, real estate, and services sector (FIRES) of the economy is forecast to grow the most rapidly. This is also true for King, Pierce, and Snohomish Counties. In Kitsap County, the wholesale trade, transportation services, communication, and utilities sector (WTCU) is forecast to grow most rapidly.

Unemployment

As shown in Exhibit 4.3-1, which charts unemployment rate trends for the region, Washington, and the United States, the region's unemployment rate was lower than that of the state and of the nation from 1997 to 1998. However, between 1999 and 2005, it was higher than the nation but lower than the state. Since 2005, the region's unemployment rate has tended to be lower than the state and the nation. Additionally, since 2000, the unemployment rate within the Cities of Seattle, Bellevue, and Redmond has tended to be lower than that of the Puget Sound region.

4.3.2.2 Demographic and Economic Trends in Study Area

Table 4.3-1 shows the population, household, and employment trends for each segment. The same data for each alternative are available in Appendix F4.3, Table F4.3-5. The tables in Appendix F4.3 provide estimates for 2000 and 2030 forecasts. The estimates for Segment A are based on Seattle Transportation Analysis Zone projections from the City of Seattle; for the remaining segments, the estimates are based on Transportation Analysis Zone projections from the Puget Sound Regional Council (PSRC). As shown in Table 4.3-1, by 2030, Segment C is forecast to have the largest population (52,170) and most households (18,120) and employees (97,540) of the five project segments. Segment C is also forecast to experience the most rapid growth in population, households, and employment, both in total and as a percentage.

The cities within the study area—Seattle, Mercer Island, Bellevue, and Redmond—rely heavily on property tax and sales tax revenues to fund general services to their respective jurisdictions. Revenues collected by each city, other than taxes, consist of funding from state and local sources, internal transfers, and various types of fees collected from government-operated facilities and from issuing licenses and permits. In addition to funding city programs, property tax levies also provide funds for county programs, fire prevention, libraries, schools, and other governmental services.

Table 4.3-2 breaks down funding sources for each city in the study area. Property tax revenues as a percentage of total general fund revenues for the cities range between a low of 9.4 percent for Bellevue and a high of 41.4 percent in Mercer Island. Sales tax revenues, as a percentage of total general fund revenues, range between a low of 10.7 percent in Bellevue to a high of 29.2 percent in Redmond.

TABLE 4.3-1
Population, Household, and Employment Forecasts by Segment

Segment	2000[a]	2030[a]	Average Annual Growth Rate 2000 to 2030 (percent)
Segment A, Interstate 90			
Population	9,240	13,350	1.2
Housing units	3,520	4,930	1.1
Employment	12,550	17,450	1.1
Segment B, South Bellevue			
Population	10,490	13,400	0.8
Housing units	4,110	5,170	0.8
Employment	7,000	9,430	1.0
Segment C, Downtown Bellevue			
Population	15,970	52,170	4.0
Housing units	5,740	18,120	3.9
Employment	51,080	97,540	2.2
Segment D, Bel-Red/Overlake			
Population	16,710	25,170	1.4
Housing units	5,930	8,820	1.3
Employment	64,000	95,310	1.3
Segment E, Downtown Redmond			
Population	19,120	41,780	2.6
Housing units	6,860	14,600	2.6
Employment	23,090	39,900	1.8

[a] Estimates rounded to the nearest 10.
Source: King County Department of Assessments, 2010; City of Seattle, 2007a; PSRC, 2006.

Note: Data were tabulated to fit the study area.

TABLE 4.3-2
Revenue Sources: Percent of Total Revenues by City

City (Budget Year)	Property Tax	Sales Tax	Other Sources
Seattle (2010)	27.6	16.4	55.9
Mercer Island (2010)	41.4	14.1	44.6
Bellevue (2009-2010)	9.4	10.7	79.9
Redmond (2009-2010)	19.5	29.2	51.2

Source: City of Seattle, 2010; City of Mercer Island, 2010; City of Bellevue, 2010; City of Redmond, 2010.

4.3.2.3 Regional Transportation of Goods and Services

In Segment A, I-90 is an important link for regional and interstate commerce. This section describes existing truck trips on I-90 and its current and future importance to the region's economy. A recent study (Sommers, 2003) notes that future growth in the region forecasted by PSRC will be based mainly on the expansion of technology industries and the accompanying expansion of financial and service industries. Long-term growth in King County is projected to be concentrated in the two downtown centers (Seattle and Bellevue) to a much greater extent than in the rest of King County. The growth of the technology sector in Seattle will likely enhance regional economic linkages across Lake Washington to Bellevue and other Eastside communities, where these industries are also well established. The technology and the financial and service industries have a tendency to cluster in downtown areas and dense office parks; they have strong mutual business linkages and tend to locate near each other. These industries will require expansion of both transportation systems and electronic communications infrastructure to carry out their work, suggesting a need for expanded road, transit, and communications capacity between Downtown Bellevue and Downtown Seattle.

Another recent study (Washington State Department of Transportation [WSDOT], 2007) provides insight into how congestion is constraining economic development in the region. Longer travel times, increased costs, and less reliable pick-up and delivery times for truck operators could result in businesses being forced to move all or part of their business to less congested regions or avoid the Puget Sound region altogether. In an effort to avoid moving away from the region, some transport companies are working with their customers to arrange deliveries in nonpeak hours; however, many smaller customers do not find it cost-effective to extend their hours of operation. Congestion also limits access to labor and affects location decisions; as a result, companies might look to less congested parts of the metropolitan region or to other cities entirely for future expansion. The results of a recent Washington State freight movement study (WSDOT, 2005) indicate the following:

- Fourteen billion dollars ($14 billion) in state-originated exports pass through Puget Sound ports, equating to 63 million metric tons of cargo.
- Freight volumes in Washington are growing twice as fast as the state's population and are expected to continue growing rapidly in the future.

- On an average weekday in 2000, congestion in the Puget Sound region resulted in more than 45,000 hours of truck delay.

These results indicate that roadway congestion increases the cost of doing business in the region, particularly for businesses and industries highly dependent on the shipment of goods.

In the Puget Sound region, I-90 is the main highway route for east-west commerce and the secondmost heavily used highway for truck movements in Washington (WSDOT, 2005) after I-5, with over 5,000 truck trips per day, many of which travel over the I-90 bridge en route to the Port of Seattle or other destinations. According to a study of freight movement on Washington state highways (Peterson, et al., 2006), five industries comprise more than half of the freight traffic on I-90: food and related products, crops, lumber and wood products, mixed freight, and transportation equipment. These five industries are particularly vulnerable to delay and unreliable travel times.

PSRC forecasts show that the average annual growth of freight traffic on the I-90 bridge will slow by 2030 during AM and PM peak periods (Table F4.3-6 in Appendix F4.3). (Peak travel time for this analysis is for all vehicles traveling between 7 and 9 a.m. and between 4 and 6 p.m.) This is because, by 2030, traffic congestion on I-90 will be much worse than it is today, and a higher percentage of freight is expected to cross the bridge during off-peak times (peak travel times for freight are generally between the hours of 9 a.m. and 1 p.m.). However, as shown in Appendix F4.3, Table F4.3-6, overall freight movement in the I-90 corridor is still expected to grow annually 1.2 percent in the PM peak hour, which is greater than the region's expected annual population growth rate of 1.1 percent. The overall freight movement in the AM peak hour is expected to grow at a slower pace, 0.3 percent, relative to the region's expected annual population growth.

4.3.3 Environmental Impacts

A new light rail system like East Link can cause changes in the local business environment and surrounding neighborhoods. These changes, in turn, might change the success of existing businesses and influence future economic opportunity in the area. Direct economic impacts of each alternative could include business and employee displacements and the corresponding potential tax impacts, potential changes in development patterns and regional freight mobility, and potential impacts on businesses and property near the routes and stations. Indirect impacts could result from proximity impacts, including changes in parking availability, noise, visual effects, and access. This section evaluates these impacts for each alternative and station.

4.3.3.1 No Build Alternative

The No Build Alternative consists primarily of funded or committed roadway and transit actions by the state and by regional and local agencies; these include other projects that are considered likely to be implemented. Under the No Build Alternative, future economic development or redevelopment would not likely be the same as it would be with the East Link Project. Under the No Build Alternative, planned land use changes in the Bel-Red and Overlake neighborhoods could occur more slowly or might not reach the full density permitted under the zoning regulation. Congestion also would likely worsen and there would be fewer alternatives to single-occupancy vehicle travel, which could impact future economic development.

4.3.3.2 Direct Impacts during Operation

The following subsections discuss direct impacts related to displacing businesses and employees and initial impacts on the local tax base for each alternative and maintenance facility.

Displacements

Table 4.3-3 provides estimates of the number of businesses located at properties that would be partially or fully acquired by the East Link Project alternatives and lists the estimated number of employees at those businesses. The estimates were prepared based on field verification of business names and information included in Section 4.1, Acquisitions, Displacements, and Relocations. PSRC employment data and square foot per employee estimates (Pflum, et al., 2004) were used to estimate the number of employees displaced within each alternative, based on the type of business: civic and quasipublic, commercial, industrial, office, and retail.

To provide a perspective on the relative magnitude of the business displacement impact, Table 4.3-4 compares the number of employees estimated to be displaced with the total forecast average annual growth in employment in each segment. Total employment estimates are not available at the alternative level; therefore, segment-level data were used. As shown for the high employee displacement estimates, in all segments except Segment C, the project would displace more jobs than are added annually in a typical year; however, for the low estimates, the project would displace fewer jobs than are added annually in a typical year.

TABLE 4.3-3
Property Acquisition Impacts on Businesses and Employees

Alternative		Full Displacements		Commercial, Public, and Institutional Property Acquisitions	
		Business	Employees	Partial	Full
Segment A, Interstate 90					
Preferred Interstate 90 Alternative (A1)		0	0	0	0
Segment B, South Bellevue					
Preferred 112th SE Modified Alternative (B2M)	To *Preferred Alternative C11A*	0	0	11	1
	To *Preferred Alternative C9T*	0	0	11	1
Bellevue Way Alternative (B1)		2	10	17	3
112th NE At-Grade Alternative (B2A)		0	0	10	1
112th NE Elevated Alternative (B2E)		0	0	8	1
112th SE Bypass Alternative (B3)		0	0	9	1
B3 – 114th Extension Design Option		14	170	12	2
BNSF Alternative (B7)		6	160	8	6
Segment C, Downtown Bellevue					
Preferred 108th NE At-Grade Alternative (C11A)[a]		39 (39 to 40)	330 (330 to 380)	24 (24 to 27)	19 (19 to 20)
Preferred 110th NE Tunnel Alternative (C9T)[a, b]		17 to 18	160 (160 to 300)	14 (14 to 16)	10 (10 to 11)
Bellevue Way Tunnel Alternative (C1T)		21	250	24	11
106th NE Tunnel Alternative (C2T)		13 to 20	170 to 240	15 to 17	7 to 14
108th NE Tunnel Alternative (C3T)		15 to 22	180 to 270	8 to 11	10 to 17
Couplet Alternative (C4A)		36 to 37	490 to 550	15 to 16	19 to 21
112th NE Elevated Alternative (C7E)		29 to 30	670 to 730	11 to 12	3
110th NE Elevated Alternative (C8E)		33	750	12	9
110th NE At-Grade Alternative (C9A)		17 to 18	170 to 230	10 to 11	10 to 11
114th NE Elevated Alternative (C14E)		24	390	13	10
Segment D, Bel-Red/Overlake					
Preferred NE 16th At-Grade Alternative (D2A)[c]		34	550	40	8
D2A - NE 24th Design Option		69	1,060	49	13
NE 16th Elevated Alternative (D2E)		42	920	25 to 27	16
NE 20th Alternative (D3)		74	1,590	77 to 79	17
SR 520 Alternative (D5)		79	480	29 to 31	2
Segment E, Downtown Redmond					
Preferred Marymoor Alternative (E2)		8	290	8	7
E2 - Redmond Transit Center Design Option		23	350	18	11
Redmond Way Alternative (E1)		7	210	13	5
Leary Way Alternative (E4)		7	120	12	3

TABLE 4.3-3 CONTINUED

Property Acquisition Impacts on Businesses and Employees

Alternative	Full Displacements		Commercial, Public, and Institutional Property Acquisitions	
	Business	Employees	Partial	Full
Maintenance Facilities				
116th Maintenance Facility (MF1)				
Preferred NE16th At-Grade (D2A), NE 16th Elevated (D2E), and NE 20th (D3) Alternatives	77	890	5	15
SR 520 Alternative (D5)	82	630	4	17
BNSF Maintenance Facility (MF2)				
Preferred NE16th At-Grade (D2A), NE 16th Elevated (D2E), and NE 20th (D3) Alternatives	5	450	5	3
SR 520 Alternative (D5)	6	850	1	5
SR 520 Maintenance Facility (MF3)				
Preferred NE16th At-Grade (D2A) and NE 16th Elevated (D2E) Alternatives	60	890	4	9
NE 20th Alternative (D3)	56	840	7	8
SR 520 Alternative (D5)	57	870	0	9
SE Redmond Maintenance Facility (MF5)				
Redmond Way Alternative (E1)	38	410	3	13
Preferred Marymoor Alternative (E2)	16	310	4	7
Leary Way Alternative (E4)	16	310	1	7

Note: Estimates rounded to the nearest 10.

[a] The value before the parentheses indicates impacts associated when the alternative connects to *Preferred Alternative B2M*. The value in parentheses indicates range of impacts associated with the Segment C preferred alternative connections to Segment B alternatives, including *Preferred Alternative B2M*.

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M.*

[c] Impacts associated with D2A - 120th Station Design Option are the same as for the *Preferred Alternative D2A*.

TABLE 4.3-4
Comparison of Annual Average Employment Growth and Total Employees Displaced by Segment

Segment	Employment		Average Annual Growth		Employment Displacements (Total)	
	2000	2030	Percent	New Jobs	Low	High
A, Interstate 90	No business displacements					
B, South Bellevue	7,002	9,431	1.0	70	20	170
C, Downtown Bellevue	51,079	97,330	2.2	1,110	160	750
D, Bel-Red/Overlake	63,996	97,264	1.4	899	475	1,590
E, Downtown Redmond	23,087	37,016	1.6	366	250	350

Note: Excludes displacements from maintenance facilities.

Source: Employment forecasts from PSRC (2006); employment displacements from Table 4.3-3.

More jobs would be added in Segment C annually than would be displaced by the project. Table 4.3-3 also shows the alternatives for which there would be many employees displaced with few property acquisitions. The number of employees displaced would be approximately 2 percent or less of total employment for all segments.

The number of affected employees does not necessarily mean jobs that would be lost, because Sound Transit would provide relocation assistance to displaced businesses. Therefore, it is likely that many of the displaced jobs would be relocated and not lost. However, some displaced businesses and jobs, particularly industrial businesses in the Bel-Red Corridor, would probably relocate outside the City of Bellevue because of the land use and zoning changes planned for that area.

Segment A
As shown in Table 4.3-3, Sound Transit would not acquire any private property for *Preferred Interstate 90 Alternative (A1)*; therefore, no businesses or employees associated with *Preferred Alternative A1* would be displaced.

Segment B
Neither of the *Preferred 112th SE Modified Alternative (B2M)* variations (i.e., connection to *Preferred C11A* or *Preferred C9T*) would displace any businesses or employees. However, the *Preferred Alternative B2M* would displace 1 residence and partially acquire up to 11 properties; these partial acquisitions would not displace any businesses or employees.

The impacts to employees and businesses associated with many of the other Segment B alternatives are similar to the impacts of *Preferred Alternative B2M*. The 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) Alternatives would not displace any businesses or employees. The B3 – 114th Design Option would acquire 14 businesses and displace 170 employees, the most businesses and highest number of employee displacements of any Segment B alternative. The businesses displaced would be associated with acquiring a parcel containing office buildings in the Bellefield Office Park; these displacements would only occur if the B3 - 114th Design Option were implemented. The BNSF Alternative (B7) would acquire 6 businesses and displace 160 employees, the second most employees displaced of any Segment B alternative.

Segment C
Preferred 108th NE At-Grade Alternative (C11A) would displace 39 businesses and 330 employees, which is fewer than many of the other alternatives within Segment C. *Preferred 110th NE Tunnel Alternative (C9T)* would displace 17 to 18 businesses and between 160 and 330 employees, which is similar to the other Segment C tunnel alternatives (Bellevue Way Tunnel [C1T], 106th NE Tunnel [C2T], and 108th NE Tunnel [C3T] Alternatives).

Business displacements that would occur with the other Segment C alternatives would range between a low of 13 associated with Alternative C2T and a high of 37 associated with Couplet Alternative (C4A). The displaced employees associated with other Segment C alternatives range between a low of 170 associated with Alternatives C2T or C9A and a high of 750 associated with 110th NE Elevated Alternative (C8E).

Segment D
Preferred NE 16th At-Grade Alternative (D2A) would displace about 34 businesses and about 550 employees, which is higher than SR 520 Alternative (D5) but lower than all other Segment D alternatives. D2A - 120th Station Design Option would have impacts on businesses and employees that would be similar to *Preferred Alternative D2A;* D2A - NE 24th Design Option would displace about 69 businesses and about 1,060 employees, the second highest number of employee displacement of all Segment D alternatives.

Business displacements related to other Segment D alternatives would range between a low of about 42 associated with NE 16th Elevated Alternative (D2E) and a high of 79 associated with Alternative D5. Displaced employees associated with property acquisition for other Segment D alternatives range between a low of 480 associated with Alternative D5 and a high of 1,590 with NE 20th Alternative (D3).

Segment E
Preferred Marymoor Alternative (E2) would displace about 8 businesses and about 290 employees, which would be similar to the other Segment E alternatives. However, the E2 - Redmond Transit Center Design Option would have the highest overall impact on businesses (23) and employees (350) of any Segment E alternative. The City of Redmond has plans to locate a stormwater pipe and trail within the former BNSF railway, in downtown Redmond, which would reduce the amount of space available for the light rail. This constraint may require that light rail be shifted to accommodate the stormwater pipe and trail, which may require the partial acquisition of properties on the north side of the railway to accommodate all proposed facilities as well as the train. If the alignment is shifted north, it would have no impact on businesses in this area. The two other Segment E alternatives (Redmond Way [E1] and Leary Way [E4] Alternatives) would

each displace about 7 businesses, each alternative would displace 210 and 120 employees, respectively.

Maintenance Facilities
The 116th Maintenance Facility (MF1), with access from Alternative D5, would have the most full property acquisitions: it would relocate 82 businesses and 630 employees from 10 properties. The SR 520 Maintenance Facility (MF3), with access from *Preferred Alternative D2A* and Alternative D2E, would result in the highest overall impact on employees (890) of any of the maintenance facilities.

The SE Redmond Maintenance Facility (MF5), along *Preferred Alternative E2* and Alternative E4, would displace the fewest number of employees (385 employees from 16 businesses located on 7 properties). Although these employees would be displaced through these property acquisitions, Sound Transit estimates that 115 to 144 new jobs, including operators and maintenance staff, would be created at the maintenance facility. As noted above, the number of affected employees does not necessarily mean jobs that would be lost because Sound Transit would provide relocation assistance to displaced businesses. Thus, it is likely that many of the displaced jobs would be relocated, not lost.

Impacts of Displacements on Tax Base of Cities

In each alternative other than *Preferred Alternative A1*, Sound Transit would acquire residential and commercial properties. Table 4.3-5 presents the 2010 initial property tax impacts on cities resulting from property acquisitions and includes potential impacts from full acquisitions. The property tax impacts are annual estimates based on 2010 levy rates and 2009 assessed values. The City of Bellevue would be affected by alternatives in Segments B, C, and D, and the City of Redmond would be affected by alternatives in Segments D and E. When referring to the property tax impacts of acquisitions, the term "initial property tax impacts" is used because the extent of the long-term fiscal impact of the system is uncertain. Initially, property taxes would no longer be collected from full acquisitions along the route. As a result, the rates charged to remaining taxpayers could increase slightly to recover budgeted funds, or budgets for essential government services could be reduced accordingly.

In the long run, some of the excess land purchased by Sound Transit for system construction likely would be released for development once the project is built; this is particularly likely for the staging areas in Segment C. Between 23 percent and 45 percent of the property tax impacts in Segment C would result from purchasing land for staging areas that would likely become available for redevelopment after the project is built. Further, some displaced businesses are likely to rebuild at a new location elsewhere within the jurisdiction's boundary. In addition, the East Link Project might serve as a catalyst for future private development and investment. Thus, the East Link Project's long-term property tax impacts would likely be less, potentially zero, or even beneficial once existing businesses are reestablished, staging areas are released for development, and new development consistent with this project occurs. For example, new development is expected to occur in Segment D where both Bellevue and Redmond have adopted new land use plans to increase density and promote mixed use development. These positive fiscal impacts could be offset somewhat by the absence of new construction that might have occurred on properties acquired and retained by Sound Transit. Thus, the long-term property tax impacts are uncertain but are highly likely to be less than the initial property tax impacts.

Segment A
As shown in Table 4.3-5, Sound Transit would not acquire any private property for Segment A; therefore, there would not be any initial property tax impacts associated with *Preferred Alternative A1*.

Segment B
For both variations of the *Preferred Alternative B2M*, Sound Transit would acquire one residential property, which is located on Mercer Slough Blueberry Farms lot (publicly owned land) and exempt from property taxes.

Sound Transit would acquire private properties for other alternatives within Segment B, which would result in property tax impacts. The B3 - 114th Extension Design Option and Alternative B7 would have the greatest property tax impact of any Segment B alternative, resulting in initial impacts of $17,500 and $14,500, respectively. However, these impacts are relatively small (about 0.03 percent) when compared with the 2010 estimated property tax revenues for the City of Bellevue.

Segment C
Preferred Alternative C11A would fully acquire about 28 private properties and result in an initial property tax impact to the City of Bellevue of about $68,500 (0.10 percent of total city property tax revenues). *Preferred Alternative C9T* would fully acquire about 18 private properties and would result in an initial property tax of about $45,000 (0.07 percent of total city property tax revenues). If the optional station at Main Street for *Preferred Alternative C9T* were selected, it would not have any additional impacts and may add benefit to nearby businesses.

TABLE 4.3-5
Initial Property Tax Impacts on Cities by Alternative

Alternative	Annual Initial Property Tax Impact		Percent of Budgeted City 2009-2010 Property Tax Revenues	
	Low	**High**	**Low**	**High**
Segment A, Interstate 90				
Preferred Interstate 90 Alternative (A1)	0		0.00	
Segment B, South Bellevue				
Preferred 112th SE Modified Alternative (B2M) (connecting to *C11A* or *C9T*)	0		0.00	
Bellevue Way Alternative (B1)	$7,000		0.01	
112th SE At-Grade Alternative (B2A)	$1,500		Less than 0.01	
112th SE Elevated Alternative (B2E)	$500		Less than 0.01	
112th SE Bypass Alternative (B3)	$1,500		Less than 0.01	
B3 – 114th Extension Design Option	$17,500		0.03	
BNSF Alternative (B7)	$15,500		0.02	
Segment C, Downtown Bellevue				
Preferred 108th NE At-Grade Alternative (C11A)	$68,500		0.10	
Preferred 110th NE Tunnel Alternative (C9T)[b]	$45,000		0.07	
Bellevue Way Tunnel Alternative (C1T)	$88,500		0.13	
106th NE Tunnel Alternative (C2T)	$33,000	$53,000	0.05	0.08
108th NE Tunnel Alternative (C3T)	$33,500	$53,500	0.05	0.08
Couplet Alternative (C4A)	$56,000	$71,500	0.08	0.11
112th NE Elevated Alternative (C7E)	$41,000	$56,000	0.06	0.08
110th NE Elevated Alternative (C8E)	$95,000		0.14	
110th Avenue NE At-Grade Alternative (C9A)	$22,000	$37,000	0.03	0.06
114th Avenue NE Elevated Alternative (C14E)	$40,000		0.06	
Segment D, Bel-Red/Overlake				
Preferred NE 16th At-Grade Alternative (D2A) [a]	$45,500 to $60,500		0.06 to 0.09	
D2A - 120th Station Design Option	$60,500		0.09	
D2A - NE 24th Design Option	$45,500	$60,500	0.06	0.09
NE 16th Elevated Alternative (D2E) [a]	$71,500		0.08	
NE 20th Alternative (D3)	$64,500		0.10	
SR 520 Alternative (D5)	$8,500		0.01	
Segment E, Downtown Redmond				
Preferred Marymoor Alternative (E2)	$32,500		0.12	
E2 - Redmond Transit Center Station	$75,500		0.27	
Redmond Way Alternative (E1)	$22,500		0.08	
Leary Way Alternative (E4)	$13,000		0.05	

TABLE 4.3-5 CONTINUED
Initial Property Tax Impacts on Cities by Alternative

Alternative	Annual Initial Property Tax Impact		Percent of Budgeted City 2009-2010 Property Tax Revenues	
	Low	High	Low	High
Maintenance Facilities				
116th Maintenance Facility (MF1)	$53,000 to $56,000		0.08	
BNSF Maintenance Facility (MF2)	$31,500 to $58,000		0.05 to 0.09	
SR 520 Maintenance Facility (MF3)	$42,500 to $49,500		0.06 to 0.07	
SE Redmond Maintenance Facility (MF5)	$37,000 to $54,000		0.13 to 0.19	

[a] Includes both impacts to Cities of Bellevue and Redmond.

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M.*

Source: King County Department of Assessments, 2010; City of Bellevue, 2010; City of Redmond, 2010.

The other Segment C alternatives would result in a range of property tax impacts between a low of $22,000 associated with Alternative C9A and a high of $95,000 associated with Alternative C8E. The range of impact to the City's 2010 estimated property tax revenues would be between 0.03 percent and 0.14 percent.

Segment D

Preferred Alternative D2A would fully acquire about eight private properties and result in an initial property tax of about $45,500 (0.07 percent). The D2A - NE 24th Design Option would fully acquire an additional five properties and result in an initial property tax impact of about $60,500. Many Segment D alternatives would result in full acquisitions and property tax impacts to both the City of Bellevue and Redmond; however, the properties acquired for *Preferred Alternative D2A* would only impact the City of Bellevue (the D2A – NE 24th Design Option would impact both jurisdictions).

The other Segment D alternatives would result in a range of property tax impacts between a low of $8,500 associated with Alternative D5 and a high of $71,500 associated with the Alternative D2E. Of the $71,500, about $60,000 would impact the City of Bellevue's 2010 property tax revenue and about $11,500 would impact the City of Redmond's 2010 property tax revenue.

Segment E

Preferred Alternative E2 would fully acquire about nine private properties and result in an initial property tax of about $32,500 (0.12 percent). This impact would be relatively higher than most other Segment E alternatives. But the E2 - Redmond Transit Center Design Option would result in the highest overall property tax impact with a $75,000 annual impact, which would account for 0.27 percent of 2009-2010 city revenues.

The other Segment E alternatives would result in a range of property tax impacts between a low of $13,000 associated with Alternative E4 and a high of $22,500 associated with the Alternative E1. Similar to property tax impacts, the long-run tax impacts from other taxes are uncertain. There might be some lost sales taxes or revenue from other taxes and fees if displaced businesses do not relocate within the same city. These types of losses would be offset to the extent that existing businesses relocate and business activity increases and/or new businesses are attracted to the area. Local jurisdictions are likely to receive some sales tax revenues from purchases related to project construction.

Impacts on Regional Transportation of Goods and Services

This section discusses the project impacts project on the regional transportation of goods and services. The main impacts would result from changes in freight mobility on the I-90 bridge.

Compared with the No Build Alternative, the East Link Project is expected to allow greater total 2030 peak-period freight volumes on I-90 across Lake Washington and improved overall 2030 peak-period travel times. However, most trucks do not use I-90 during peak hours, and the travel time during off-peak hours would remain unaffected. Improved truck travel times during peak periods would lower the cost of shipping goods and services across I-90. Thus, the proposed project is expected to benefit regional freight mobility, with associated benefits for the regional economy. Support for this conclusion is presented in Table 4.3-6 where PM peak-period travel times (volume-weighted) between 4 and 6 p.m. are expected to be on average 5 minutes faster under the project by 2030. The AM peak-period travel times (volume-weighted) between 7 and 9 a.m. are expected to remain relatively unchanged, on average. Volume-weighted travel times during the sum of the AM and PM peak periods are expected to average approximately 3 minutes faster than under the No Build Alternative. The lower forecasted travel times are mainly because there would be fewer commuters on I-90 with the project because many of them are expected to use light rail as an alternative transportation mode. Chapter 3 Transportation Environment and Consequences fully describes I-90 transportation impacts.

Volume-weighted travel time

Volume-weighted travel time considers the number of trucks traveling at one time in each direction during the peak period. As an example, if there are seven trucks westbound that take 10 minutes each and five trucks eastbound that take 8 minutes each, the volume-weighted travel time would be 9.2 minutes (7x10 + 5x8)/12.

4.3.3.3 Indirect Impacts during Operation

The evaluation of the potential for indirect economic impacts of the alternatives is based on field observations of each alternative, on the number of housing units and employees to be served by the stations (see Table F4.3-5 in Appendix F4.3), and on information presented in Chapter 3, Transportation Environment and Consequences.; Section 4.2, Land Use; Section 4.5, Visual and Aesthetic Resources; and Section 4.7, Noise and Vibration.

Both positive and negative indirect economic impacts can result from East Link Project operation. Positive indirect economic effects from light rail projects can result in increased development and redevelopment potential adjacent to stations. Negative indirect economic effects on business are disturbances that might change access, traffic flow, business sales, or value of adjacent property. Local negative indirect effects include access restrictions, decreased parking availability, noise, and visual impacts on land uses. The following subsections analyze these impacts.

Positive Indirect Impacts

The availability of light rail increases transit access and pedestrian activity, especially in areas surrounding the stations and between important nodes of economic activity. Improved transit access can improve the convenience, visibility, and desirability of surrounding residential and commercial properties. Increased pedestrian activity can increase the patronage of adjacent retail uses. This might result in the synergy of business and employee interest in locating where there is convenient access to the light rail line, leading to more dense land uses around stations and, therefore, resulting in increased economic activity at stations. This pattern is referred to as transit-oriented development (TOD) and is addressed further in the Section 4.2, Land Use. The economic impacts are summarized here.

TABLE 4.3-6
Current and Forecast 2-Hour Peak-Period Freight Truck Volumes and Travel Times across the I-90 Bridge

		Base Year		2030 No Build [a]		2030 No Build [b]		2030 Build	
Period	**Direction**	**Number of Trucks [c]**	**Travel Time (minutes) [d]**	**Number of Trucks [c]**	**Travel Time (minutes) [d]**	**Number of Trucks [c]**	**Travel Time (minutes) [d]**	**Number of Trucks [c]**	**Travel Time (minutes) [d]**
AM Peak	Westbound	480	13	410	30	440	27	430	25
	Eastbound	470	16	480	18	570	21	620	22
AM Peak Total		**950**	**14**	**890**	**24**	**1,010**	**24**	**1,060**	**23**
PM Peak	Westbound	430	20	450	33	470	32	660	25
	Eastbound	360	19	340	21	570	22	370	20
PM Peak Total		**790**	**20**	**790**	**27**	**1,040**	**27**	**1,020**	**22**
AM and PM Peak Total		**1,740**	**17**	**1,680**	**25**	**2,050**	**26**	**2,080**	**23**

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
[c] Screenline 2 data from the VISSIM analysis. Based on I-90 throughput at the I-90 Lake Washington bridge.
[d] Travel times are between I-405 and I-5 (Seattle).

Recent studies indicate that residential and commercial property values near light rail transit stations typically increase and are valued higher than similar properties that are not near the transit stations. In Denver, for instance, a recent market analysis of the apartment market conducted by Grubb & Ellis indicated that people are willing to pay approximately 4 percent more per month to rent an apartment within a 0.25 radius of a light rail station. The analysis also found that, from 2006 to 2010, developers have paid an average of 25 percent more for unimproved apartment land within a 0.25 radius of an existing or planned transit stop (Jackson, 2010) In Buffalo, a 2007 study suggested that homes within a quarter-mile radius of a light rail station typically have an increased property value of 2 to 5 percent of the city's median home value (Hess and Almeida, 2007). Additional studies have suggested similar trends in cities across the country, including Washington D.C., San Francisco, Portland, and various other cities (Parsons Brinckerhoff, 2001).

It should be noted that these payoffs are not automatic, and property-value increases generally require a strong demand for real estate, locations in neighborhoods free from signs of stagnation and distress, and public policies such as zoning bonuses that further leverage TOD and transit system expansion that produces the spillover benefits of a highly integrated transportation network. Property values are also affected by external forces and might change in response to fluctuations in the economy, consumer confidence, and local development pressures. In addition, because TOD takes time to evolve, property value benefits will also take time to accrue (TRB, 2004). While this effect is likely to occur in all segments, the benefits might be most realized in Segment D, where both Bellevue and Redmond have adopted supportive plans for TOD and market conditions appear strong. Each alternative in Segment D except the SR 520 Alternative (D5) is anticipated to cause positive indirect impacts on adjacent economic activity. The length of Alternative D5 adjacent to SR 520 includes fewer stations near planned intensification of land uses; this might cause Alternative D5 to have a smaller positive indirect impact on adjacent economic activity.

Negative Indirect Impacts

As described in the previous section, studies have found property value impacts from light rail transit to be usually positive. However, there are also other studies that have documented decreased property values for properties located near transit stations. A 2009 study in Atlanta, based on an analysis of properties near five stations, suggests that proximity to transit had minimal impact on property values there (Lambert, 2009). Moreover, in the area surrounding Atlanta's only station in a true TOD setting, property values actually increased as the distance from the station increased. In addition, the 2007 Buffalo study found that—despite positive proximity affects overall—low-income station areas actually had negative proximity effects. In other words, in low-income areas, property values decreased as proximity to stations increased. Proximity to a light rail route, rather than a station, might also result in decreased property values (TRB, 2004). Disruptive noise levels; light, shadow, and view impacts; and reductions in vehicle access and parking can affect property values and sales for businesses that depend on vehicular access. Negative impacts on property values are most likely to occur when the light rail project results in noise or visual impacts noticeably greater than what currently exists. These impacts are more often associated with elevated, and to a lesser degree, at-grade alternatives, and are generally negligible for tunnel alternatives. Most of the East Link alternatives are at-grade or elevated.

As with potential positive indirect impacts, potential negative indirect impacts are by no means a guarantee. The same external forces described above—real-estate demand, local zoning, and economic climate, for example—can combine in different ways to result in either positive or negative indirect impacts.

Section 4.5, Visual and Aesthetic Resources, and Section 4.7, Noise and Vibration, suggest that there is relatively little potential for these impacts to be of a sufficient magnitude to result in negative property value impacts. The visual quality analysis (Section 4.5) indicates that residential properties in some alternatives would experience impacts on currently high-quality views, resulting in a permanent change in visual quality. This impact would not occur under *Preferred Alternative B2M* but would occur under the following other alternatives: Alternatives B1, B2A, B2E, B3, C9A, and E4. Of these alternatives, Alternative B2E would have the most potential for impacts. Those impacts may occur at a few residential properties, located along Bellevue Way between the park-and-ride lot and the intersection with 112th Avenue SE, having views that would be directly affected. However, for all of these alternatives, there would be no sensitive views blocked, no solar access impacts, and no light and glare impacts. With the Alternative C14E, if tent structures are used for the elevated Bellevue Transit Center Station and the pedestrian bridge, then views of the Cascade Mountains might be blocked from some locations on NE 6th Street and 110th Avenue NE (such as the City Hall Plaza, the Meydenbauer Conference Center, and the existing Bellevue Transit Center). However, this impact would not affect any residential viewers, and these structures would not be out of scale or character with existing urban development in the general area.

Noise and vibration impacts on residential and commercial properties would potentially occur in a number of alternatives. Noise impacts would be mitigated (see Section 4.7 Noise and Vibration), thus reducing substantially the likelihood that noise or vibration would contribute to negative property value effects. Some residual vibration impacts would occur that may not be mitigated in the following alternatives:

- One commercial location each for Alternatives C8E, C9A, and C14E when connecting to the Alternative B3 or B7 in Segment B
- One multifamily residential location for Alternative C8E
- Two multifamily locations for Alternative C4A
- Two multifamily locations for Alternative C9A
- One single-family residence each for *Preferred Alternative E2*, Alternative E1, and E2 - Redmond Transit Center Design Option

Displaced off-street parking due to partial property acquisitions might reduce business opportunities. The value of displaced parking depends on the quantity of spaces lost and the business type.

Segment A

There would be no negative indirect vehicle access or off-street parking impacts associated with *Preferred Alternative A1*.

Segment B

For *Preferred Alternative B2M*, business access would be maintained at intersections and major ingresses and egresses. When *Preferred Alternative B2M* connects to *Preferred Alternative C9T,* the east approach at SE 15th Street to the Bellefield Office Park would close.

Alternative B1 would reduce drivers' ability to make left-hand turns in the median, affecting some businesses. This change and reduced parking would have a minimal impact on the operation of these businesses. Impacts from the other Segment B alternatives would be similar to the impacts discussed for *Preferred Alternative B2M* above (i.e., business access would be maintained at intersections and major ingress and egresses).

Segment C

There would likely be no adverse economic impacts related to access, off-street customer parking or traffic circulation associated with *Preferred Alternative C11A*. *Preferred Alternative C11A* would remove on-street parking and limit left-turn access to some office complexes and retail businesses. This could potentially economically impact the retail businesses that profit from convenient on-street parking. However, the affected streets are dominated by high-rise buildings that contain underground parking; therefore, this impact would be limited to few businesses. Some of this adverse impact would be offset by improved visibility of some businesses by transit riders.

There would not likely be adverse economic impacts related to access, off-street customer parking, or traffic circulation associated with the *Preferred Alternative C9T*.

Most other Segment C alternatives are grade-separated—tunneled or elevated—with the exceptions of Alternatives C4A and C9A and some short, retained-cut portions of Alternative C1T. These alternatives would not likely result in adverse economic impacts related to access, off-street customer parking, or traffic circulation. Alternatives C4A and C9A would remove on-street parking and limit left-turn access to some office complexes and retail businesses. This could potentially result in similar limited indirect economic impacts to those described under *Preferred Alternative C11A* above.

Segment D

Preferred Alternative D2A would reduce off-street parking and restrict left-turn access due to the at-grade route associated with it. These conflicts could cause some adverse economic impact. However, these conflicts are not located along business frontages except for fairly short distances, because only a short portion of the NE 16th Street corridor currently exists. Indirect economic impacts associated with D2A - 120th Station Design Option would be the same as without this design option. D2A - NE 24th Design Option would result in the same indirect economic impacts as *Preferred Alternative D2A* but would also include access restrictions along NE 24th Street and 152nd Avenue NE.

Similar to the *Preferred Alternative D2A*, portions of Alternatives D2E andD3 would reduce the number of off-street parking stalls and restrict left-turn access. For Alternative D3, the restaurants and retail businesses along NE 20th Street would experience a greater impact relative the impacts cited for the *Preferred Alternative D2A*. In Segment D, the Alternative D5 would have the least adverse economic impact when compared to the other alternatives in Segment D.

Segment E

Preferred Marymoor Alternative (E2) would not be likely to result in adverse economic impacts during operation because most of the alternative is either adjacent to SR 520 or along the former BNSF Railway corridor. However, some restaurants and retail businesses along 161st Avenue NE would experience reduced left-turn access which could result in reduced economic activity for these businesses. Similar to the reasons cited above for the *Preferred Alternative E2*, the other Segment E alternatives would not likely result in adverse economic impacts during operation.

4.3.3.4 Impacts During Construction

This section considers the positive and negative economic impacts that might occur during project construction. Construction brings money into the economy with construction jobs, purchasing of local goods and services for construction, and the money spent by construction crews in the community where construction occurs. On the negative side, constructing any alternative could result in economic impacts by blocking visibility and access to businesses, causing traffic delays, and rerouting traffic on detours that increase travel times and make access to some locations difficult.

Potential Positive Economic Impacts from Construction

Constructing any alternative would result in increased employment and spending in the project vicinity during construction. The extent of these impacts depends on the source of project funding and the makeup of work crews used during project construction.

In economic impact analysis, typically only inflows of funds from outside a region are considered "new money" that will lead to new employment and income in that region. Funds from local or regional sources are transfers that could be spent by residents and businesses on other economic activities. Excepting an estimated $93 million of federal grant funds, the funds required for project construction are anticipated to be raised in the communities benefiting from the project (Sound Transit, 2007a), which seems to imply that there would be relatively little "new money" available for spin-off economic benefits to the region. However, project construction would lead to positive economic effects beyond just the federal grants. Sound Transit would issue bonds to pay for project construction, and this money would go primarily to businesses located within the region within a relatively short period of time. Principal and interest on the bonds would be repaid over many years using a variety of funding mechanisms. Some of the future repayments are likely to be made in the form of taxes on visitors to the region, which represent additional inflows of funds to the region. Thus, there would be a temporal impact because bonded funds would be spent over approximately 8 years stimulating direct and indirect construction spending in the region. This would be offset in the long run by a negative impact on economic activity from added taxes to pay for the project, but some of the negative impact would be offset by taxes on visitors to the region.

Quantifying the economic impacts from project construction is complex, but some indication of the magnitude of the economic stimulus that would result from the project's preferred alternative is shown in Table 4.3-7. This table provides an estimate range of the direct expenditures and the proportion of project employment that would be hired from the three-county region as a result of the low- or high-cost projects. The table also provides ranges within the high and low cost estimates to reflect the two variations in how *Preferred Alternative B2M* connects to Segment C. As shown, the high-cost estimate of the preferred alternative would result in approximately $1.86 billion to $2.00 billion of spending in the region, and 1,925 to 2,075 direct jobs per year in the region over an assumed 8-year period for project design and construction. The low-cost estimate of the preferred alternative would result in approximately $1.61 billion to $1.74 billion of spending in the region and approximately 1,670 to 1,800 direct jobs per year in the region during the 8-year period for project design and construction. In addition to these direct effects, additional indirect benefits would occur when the output of firms in other industries increases to supply the demand for inputs to the construction industry. Wages paid to workers in construction trades or supporting industries would be spent on other goods and services; these are referred to as induced impacts. Direct, indirect, and induced impacts would occur in the region from project construction. The indirect and induced impacts are often called "multiplier" impacts. Multiplier estimates for the three-county region (Minnesota Implan Group, Inc. 2007) suggest that an additional 46 percent of value added (i.e., payments made by industry to workers, interest, profits, and indirect business taxes) would result from new direct construction spending in the region, and an additional 1.56 new jobs would be created for every direct job associated with the project, increasing the potential number of jobs generated in the region to approximately 34,150 to 42,500.

TABLE 4.3-7
Direct Expenditures and Direct Employment in Three-County Region from East Link Construction of Preferred Alternative

	Project Construction	Right-of-Way	Total
High-Cost Estimate			
Direct Expenditures			
Total direct expenditures (million 2007 $)[a]	$2,850 to $3,073	$149 to $161	**$2,999 to $3,234**
Percent in three-county region[b]	60	100	**N/A**
Three-county direct expenditures (million 2007 $)	$1,710 to $1,844	$149 to $161	**$1,859 to $2,004**
Direct Employment			
Total direct employment[b]	21,039 to 22,685	669 to 721	**21,708 to 23,406**
Percent in three-county region[b]	70	100	**N/A**
Three-county direct employment	14,728 to 15,880	669 to 721	**15,396 to 16,601**
Annual direct employment	1,841 to 1,985	84 to 90	**1,925 to 2,075**
Low-Cost Estimate			
Direct Expenditures			
Total direct expenditures (million 2007 $)[a]	$2,471 to $2,665	$129 to $139	**$2,600 to $2,804**
Percent in three-county region[b]	60	100	
Three-county direct expenditures (million 2007 $)	$1,483 to $1,599	$129 to $139	**$1,612 to $1,738**
Direct Employment			
Total direct employment[b]	18,244 to 19,675	580 to 625	**18,823 to 20,300**
Percent in three-county region[b]	70	100	**N/A**
Three-county direct employment	12,770 to 13,772	580 to 625	**13,350 to 14,397**
Annual direct employment	1,596 to 1,722	74 to 78	**1,670 to 1,800**

[a] Sound Transit, 2007a.
[b] Sound Transit, 2007b.

Although the typical methodology for economic impact analysis would count only the $93 million of federal grant funding as new spending for the purposes of determining economic impacts, the actual benefits would be greater and are difficult to determine precisely. Regardless of the specific method used to quantify economic impacts, it is clear that the project would result in substantial short-term economic activity in the region during construction.

Potential Negative Economic Impacts from Construction

The following subsections document the types of activities that could potentially occur during the various phases of construction and their relative impacts on local businesses within each segment. Construction activity can result in impacts on local businesses because of the associated changes in traffic circulation, access, parking, noise, and visual effects. Along any given area of the project, civil construction is anticipated to last approximately 3 to 5 years.

Segment A

In Segment A, *Preferred Alternative A1* would use existing right-of-way with an at-grade trackway throughout the segment. Temporary construction along 5th and 23rd Avenues South in Seattle would affect circulation with minimal impact on parking garages, office, or retail businesses. This would not likely result in a substantial adverse economic impact. No short-term construction impacts are expected on Mercer Island because local traffic circulation would not substantially change in the short term.

Segment B

In Segment B, *Preferred Alternative B2M* would be constructed on the east side of Bellevue Way and either on the east side or in the median of 112th Avenue SE, depending on whether it connects to *Preferred Alternative C11A* or *C9T*. This would avoid roadway reconstruction except where necessary to accommodate additional traffic turn lanes and to restore areas disrupted by construction activities. Project construction would temporarily relocate the Mercer Slough Blueberry Farm sales office and the

Winters House activities within Bellevue, but it would not result in long-term closure of these enterprises. The Eastside Heritage Center is a nonprofit organization and a tenant of the Winters House, which is owned by the City of Bellevue. Alternative B1 runs completely at-grade along Bellevue Way. The other Segment B alternatives, except for Alternatives B1 and B7, run along Bellevue Way and 112th Avenue SE and would substantially reconstruct these roadways. This construction activity would cause temporary detours and lane closures, which would increase congestion on Bellevue Way and 112th Avenue SE. Most businesses along each alternative are professional offices that do not rely heavily on drive-by traffic to attract customers; however, along Alternative B1, there are a few retail businesses that would be likely to suffer adverse impacts during construction. These construction-related impacts would not occur with Alternative B7, as this alternative avoids Bellevue Way and 112th Avenue SE and travels east parallel to I-90, then north along the former BNSF Railway corridor parallel to I-405. Construction at 118th Station could result in minor traffic delays for businesses located south on 118th Avenue SE, but these business do not rely on pass-by traffic.

Segment C

Preferred Alternative C11A would partially close roads along 112th Avenue SE, Main Street, 108th Avenue NE, and NE 6th Street. This would result in reduced accessibility, construction-related noise, and dust during site preparation and construction. Businesses in this area are primarily large office buildings with support services such as restaurants and cafes. Few retail businesses that depend on drive-by traffic are located in this area of downtown.

Preferred Alternative C9T would require a cut-and-cover tunnel, affecting businesses along 110th Avenue NE between Main and NE 6th Streets; however, traffic access would be maintained to the extent possible. Construction noise would be experienced during site preparation and construction.

Alternatives that require cut-and-cover tunnel construction would result in the most substantial adverse economic impacts on local businesses because this construction method requires relatively deep excavation of streets and typically results in access restrictions to businesses near the construction until covers can be installed over the construction area. Alternatives C1T and C2T would require the largest amount of cut-and-cover tunnel construction along Bellevue Way and NE 6th Street and along commercial areas of Main Street, 106th Avenue NE, and NE 6th Street, respectively. Bored tunnels would also have impacts, although they would be smaller than the cut-and-cover alternatives. Because it is mostly a bored tunnel, Alternative C3T could likely have fewer adverse business impacts because surface disruptions on traffic, utilities, and buildings would be minimized during boring; however, construction would result in high noise impacts, truck congestion, and traffic lane closures at tunnel access portals. Types of businesses located along the three tunnel alternatives include offices, retail, and restaurants. Those businesses that rely on drive-by traffic to attract customers would be adversely affected.

Along elevated routes in Segment C, most businesses along each alternative are professional offices that do not rely heavily on drive-by traffic to attract customers; however, there are a few retail businesses that may be adversely affected during construction. For Alternative C8E, there are a number of retail and restaurant businesses between NE 2nd and NE 12th Streets, and these businesses would likely experience more pronounced impacts than would be expected for businesses along the elevated sections of the other alternatives. Businesses along the at-grade portion of Alternative C4A would experience a shorter construction period with fewer disruptions; therefore, impacts on these businesses would likely be less severe than those of any other section of the alternatives. Constructing Alternative C14E along 114th Avenue NE would reduce this road to one lane of traffic between Main Street and NE 6th Street, but business and emergency access would be maintained. Construction noise impacts on local businesses would occur during the site preparation and project construction. At-grade construction activities for Alternative C9A would include detour routes, short-term and long-term lane closures, and loss of on street parking.

Segment D

Construction impacts associated with *Preferred Alternative D2A* would include short-term and long-term lane closures and the loss of on-street parking. Construction activities would close the Overlake Transit Center to construct the light rail station, transit loop, and multilevel parking garage. Under D2A - NE 24th Design Option, lane closures would temporarily affect businesses along portions of NE 24th Street and 152nd Avenue NE. Noise, vibration, vegetation removal, dust, loss of parking, construction traffic, and lane closures would temporarily affect businesses along portions of NE 16th Street and 136th Place NE for *Preferred Alternative D2A*. The D2A - NE 24th Design Option would add NE 24th Street and 152nd Avenue NE to the list of affected roadways.

The preferred storage track within the former BNSF Railway corridor might require temporary easements through business parking lots, but it is not anticipated to impede access or reduce business activities for adjacent businesses.

Similar to *Preferred Alternative D2A*, the other alternatives within Segment D would cause temporary detours and lane closures, but for relatively short periods of time, except for Alternative D3. Alternative D3 would travel in the median of NE 20th Street, both at-grade and retained cut, causing longer impacts on more businesses than any of the other Segment D alternatives, including *Preferred Alternative D2A*. The businesses that would most likely experience a decline in sales during construction are those that rely heavily on drive-by traffic to attract customers, such as fast food restaurants and other retail businesses. Alternative D2E would have impacts similar to those of *Preferred Alternative D2A*, but these impacts would more heavily affect the south side of NE 24th Street, as opposed to the north side with *Preferred Alternative D2A*. All access on NE 24th Street to the Overlake Shopping Center would be closed during construction, possibly resulting in additional economic impacts on these businesses relative to the other Segment D alternatives. Alternative D2E would also cause additional disruption as it turns to the north across NE 24th Street to run along 152nd Avenue NE. Alternative D5 would be constructed adjacent to SR 520 and behind retail businesses; therefore, the impacts on access, parking, and circulation would probably be minor.

Segment E
Preferred Alternative E2 might require temporarily closing some roadway crossings of the former BNSF Railway corridor during station and track construction. Construction noise would occur during the site preparation and project construction. Although there would not likely be any substantial impacts on businesses, because there are roadways on either side of the former BNSF Railway corridor that provide a buffer to adjacent business and preserve accessibility during construction, there might be minor dust, noise, and congestion impacts along side streets. Under E2 - Redmond Transit Center Design Option, construction along 161st Avenue NE could remove several businesses, as well as cause effects from noise, dust, and congestion. Businesses could also experience reduced access and parking during construction.

From the Overlake Transit Center to the West Lake Sammamish Parkway NE interchanges, alternatives in Segment E travel between businesses and SR 520 but would not affect access or parking. However, there might be minor dust, noise, and congestion impacts along side streets. The construction impacts for other Segment E alternatives would be similar to the impacts cited for the *Preferred Alternative E2,* above. Elevated portions of the alternatives over the West Lake Sammamish Parkway NE interchange might result in night closures of SR 520 or short-term detours without causing an adverse impact on traffic. Construction equipment might affect parking and business activity for businesses north of SR 520 for the Alternatives E1 and E4.

Maintenance Facilities
Each maintenance facility is located within existing industrial areas of Segments D and E that support a number of warehousing, industrial, and transportation facilities, except for the SR 520 Maintenance Facility (MF3), which is located on a mix of retail and industrial property north of Northup Way. Businesses in the area require good vehicular, truck, and/or rail freight access. The levels of business and transportation activity, and the likely adverse construction economic impacts, would be greatest for maintenance facilities in Segment D because they are located along already congested streets. The SE Redmond Maintenance Facility (MF5) would probably have the lowest traffic-related construction economic impacts of the four sites because of the presence of fewer nonindustrial businesses and transportation facilities.

4.3.4 Potential Mitigation Measures

Adverse impacts are more likely to occur for businesses near surface construction activities. The cut-and-cover tunnels and stations in Segment C would likely have the greatest impact on nearby businesses in terms of noise, dust, and restricted access. Noise and vibration mitigation is provided in Section 4.7, Noise and Vibration, and mitigation for displaced businesses is discussed in Section 4.1, Acquisition, Relocations, and Displacements. As described in Section 4.3.3.4, construction might cause adverse impacts on businesses due to reduced access or general construction activity. Transportation mitigation is provided in Chapter 3, Transportation Environment and Consequences.

To minimize or limit impacts, Sound Transit would dedicate staff to work specifically with affected businesses during construction to minimize the associated impacts. Construction mitigation plans would be developed to address the needs of businesses and could include, but are not limited to, the following elements:

- Provide a 24-hour construction telephone hotline.
- Provide business cleaning services on a case by case basis.
- Provide detour, open for business, and other signage as appropriate.
- Establish effective communications with the public through measures such as meetings and construction updates, alerts, and schedules.
- Implement promotion and marketing measures to help affected business districts maintain their customer base, to the extent possible, during construction.
- Maintain access as much as possible to each business and coordinate with businesses during times of limited access.
- Provide a community ombudsman.

Please refer to the arterials and local streets construction mitigation measures in Section 3.6.5 of Chapter 3 for additional measures that would help mitigate economics impacts.

4.4 Social Impacts, Community Facilities, and Neighborhoods

4.4.1 Introduction to Resources and Regulatory Requirements

This section evaluates how the East Link Project might affect communities and neighborhoods in the area. Consistent with guidance from the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA), four key neighborhood and community issues are considered when addressing the affected environment and potential impacts of a transportation project: changes in neighborhood quality, barriers to social interaction, impacts on community resources, and impacts on safety and security. The analysis also considers demographics of potentially affected areas.

The study area for social impacts, community facilities, and neighborhoods consists of a 0.5-mile radius from the centerline of alternatives, with emphasis around the stations. Neighborhoods adjacent to the stations are more likely to be directly and indirectly influenced, positively and negatively, by project construction and operation. Much of the impact analysis for this section overlaps with issues evaluated in other sections, so the following sections may be consulted where appropriate:

- Section 4.2, Land Use, describes land uses and zoning in the study area.
- Section 4.3, Economics, details population, housing, and impacts on property values.
- Section 4.6, Air Quality, describes local and regional air quality.
- Section 4.7, Noise and Vibration, describes potential noise and vibration impacts.
- Section 4.14, Public Services, details information on fire, emergency medical, police, schools, and postal services (locations of public services are shown in exhibits in this Section 4.4).
- Section 4.17, Parkland and Open Space, describes the study area recreational resources.
- Chapter 3, Transportation Environment and Consequences, describes impacts on regional and local traffic, transit, and nonmotorized transportation.
- Appendix C, Environmental Justice, describes impacts on minority and low-income populations.

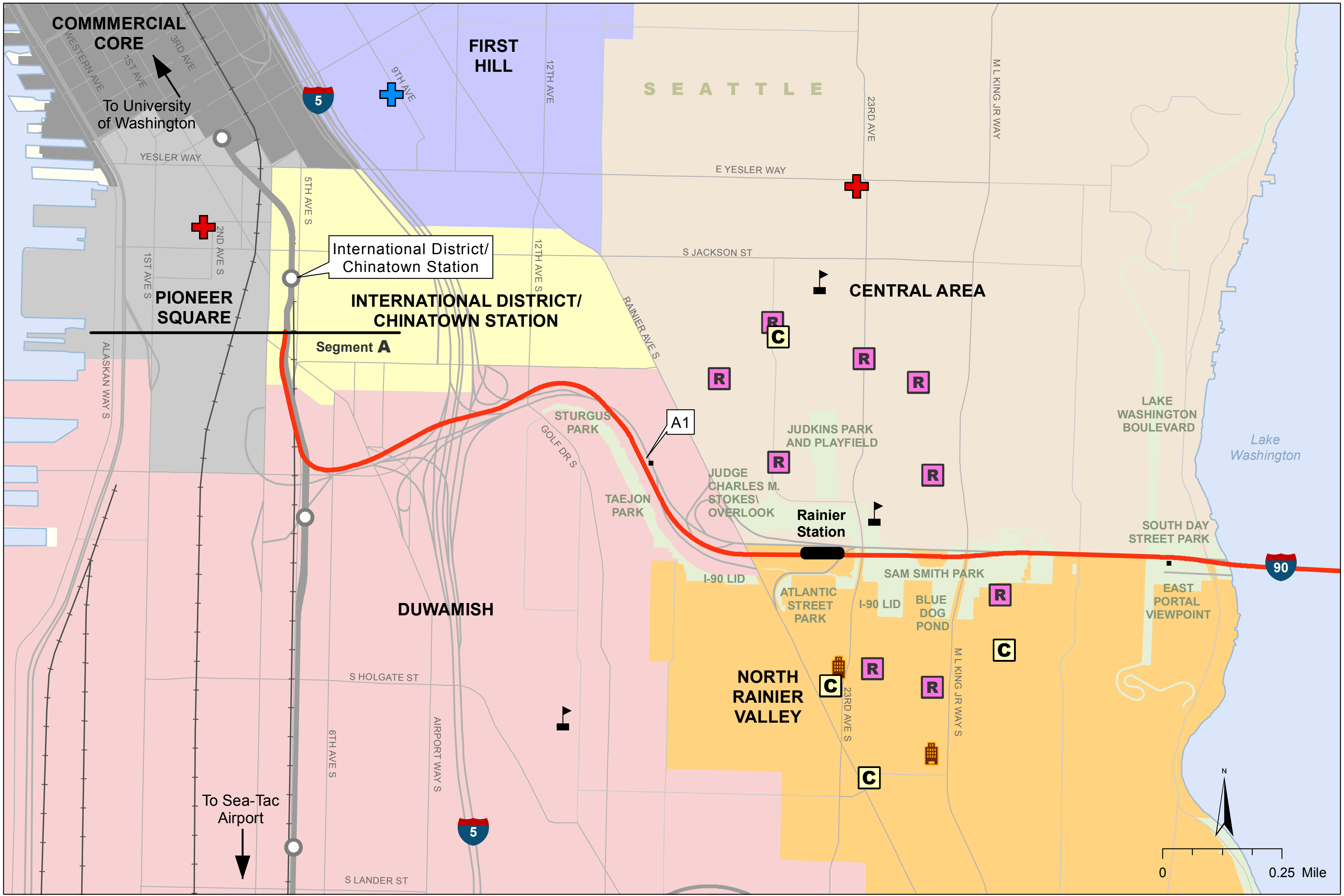
4.4.2 Affected Environment

The East Link Project would connect to Central Link at the International/Chinatown Station in Seattle and provide light rail service to the Eastside communities via Interstate 90 (I-90). The East Link alternatives pass through Seattle, Mercer Island, Bellevue, and Redmond. This section describes neighborhood characteristics, including location, development pattern, demographics, community resources, economic characteristics, safety and security, and accessibility. Neighborhoods located within the study area are identified by segment in Exhibits 4.4-1 to 4.4-6. The exhibits also identity the locations of community facilities, including parks, schools, religious institutions, social services, and public service facilities. A general description of neighborhoods by segment follows.

The demographic makeup of populations in areas within 0.5 mile of the stations for each project alternative is shown in Table 4.4-1. These estimates are based on a geographic information system (GIS) extraction of 2000 Census data for the Census Blocks and Census Block Groups within each station area. The population data for residents living within the station areas were then aggregated to create a demographic profile of the total population that would be affected by the project. The demographic information in the table includes information on the total population within 0.5 mile and the percentage of the total population that is minority, low-income, senior citizens, or households with no vehicle who reside within 0.5 mile of the stations. Based upon the information in the table, Segment A includes the highest percentage of minority, low-income, and households with no vehicle that would have access to the stations, and the stations in Segment C contain the highest percentage of senior citizens within 0.5 mile of the stations.

4.4.2.1 Segment A, Interstate 90

The study area for Segment A includes portions of four City of Seattle neighborhoods and Mercer Island. I-90 is a barrier between the neighborhoods in Seattle and bisects Mercer Island. However, the lids and the public recreation facilities over the freeway provide connections in both cities allowing residents to interact and travel easily across I-90 at several locations. The prominent north-south arterials include Airport Way South, Rainier Avenue South, 23rd Avenue South, and Martin Luther King, Jr. Way in Seattle, and Island Crest Way on Mercer Island.


COMMMERCIAL CORE
WESTERN AVE
1ST AVE
3RD AVE
To University of Washington
5
FIRST HILL
9TH AVE
12TH AVE
S E A T T L E
23RD AVE
M L KING JR WAY
YESLER WAY
E YESLER WAY
5TH AVE S
2ND AVE S
1ST AVE S
International District/ Chinatown Station
S JACKSON ST
12TH AVE S
RAINIER AVE S
CENTRAL AREA
PIONEER SQUARE
INTERNATIONAL DISTRICT/ CHINATOWN STATION
Segment A
ALASKAN WAY S
R
C
STURGUS PARK
A1
GOLF DR S
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
Lake Washington
JUDGE CHARLES M. STOKES\ OVERLOOK
TAEJON PARK
Rainier Station
SOUTH DAY STREET PARK
90
SAM SMITH PARK
I-90 LID
ATLANTIC STREET PARK
I-90 LID
BLUE DOG POND
EAST PORTAL VIEWPOINT
DUWAMISH
NORTH RAINIER VALLEY
M L KING JR WAY S
23RD AVE S
S HOLGATE ST
6TH AVE S
AIRPORT WAY S
To Sea-Tac Airport
5
S LANDER ST
N
0
0.25 Mile

Source: Data From CH2M HILL (2007), City of Seattle (2002), King County (2006), and Sound Transit (2007).

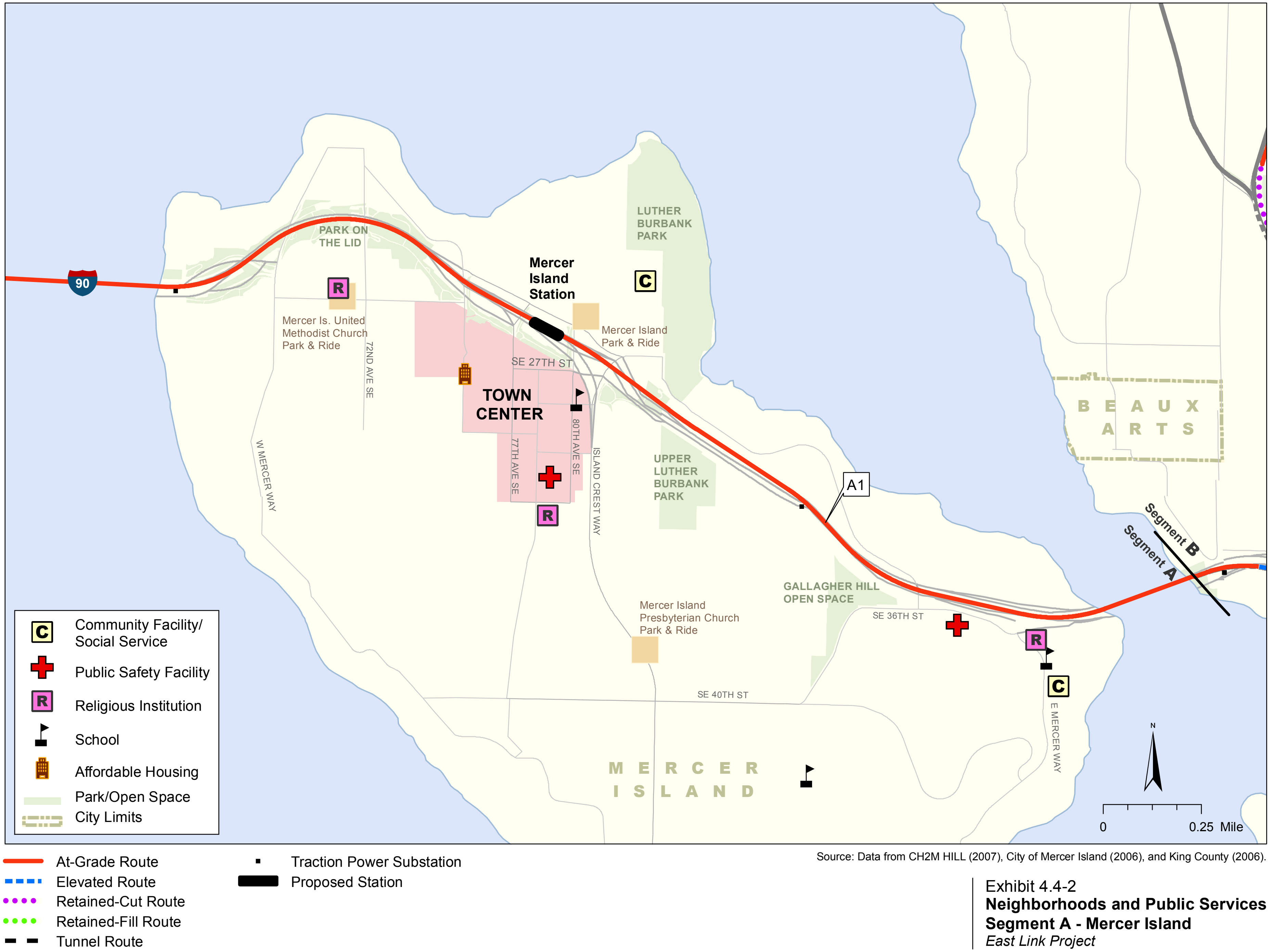
C	Community Facility/ Social Service
✚	Hospital
✚	Public Safety Facility
R	Religious Institution
⚑	School
▦	Affordable Housing
━	At-Grade Route
- - -	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route
▪	Traction Power Substation
▬	Proposed Station
—○—	Central Link Alignment and Station
🟩	Park/Open Space

Exhibit 4.4-1

Neighborhoods and Public Services

Segment A - Seattle

East Link Project


90
PARK ON THE LID
Mercer Is. United Methodist Church Park & Ride
72ND AVE SE
W MERCER WAY
Mercer Island Station
Mercer Island Park & Ride
LUTHER BURBANK PARK
SE 27TH ST
TOWN CENTER
77TH AVE SE
80TH AVE SE
ISLAND CREST WAY
UPPER LUTHER BURBANK PARK
A1
BEAUX ARTS
Segment B
Segment A
GALLAGHER HILL OPEN SPACE
SE 36TH ST
Mercer Island Presbyterian Church Park & Ride
SE 40TH ST
E MERCER WAY
MERCER ISLAND
N
0
0.25 Mile
C Community Facility/ Social Service
Public Safety Facility
R Religious Institution
School
Affordable Housing
Park/Open Space
City Limits
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station

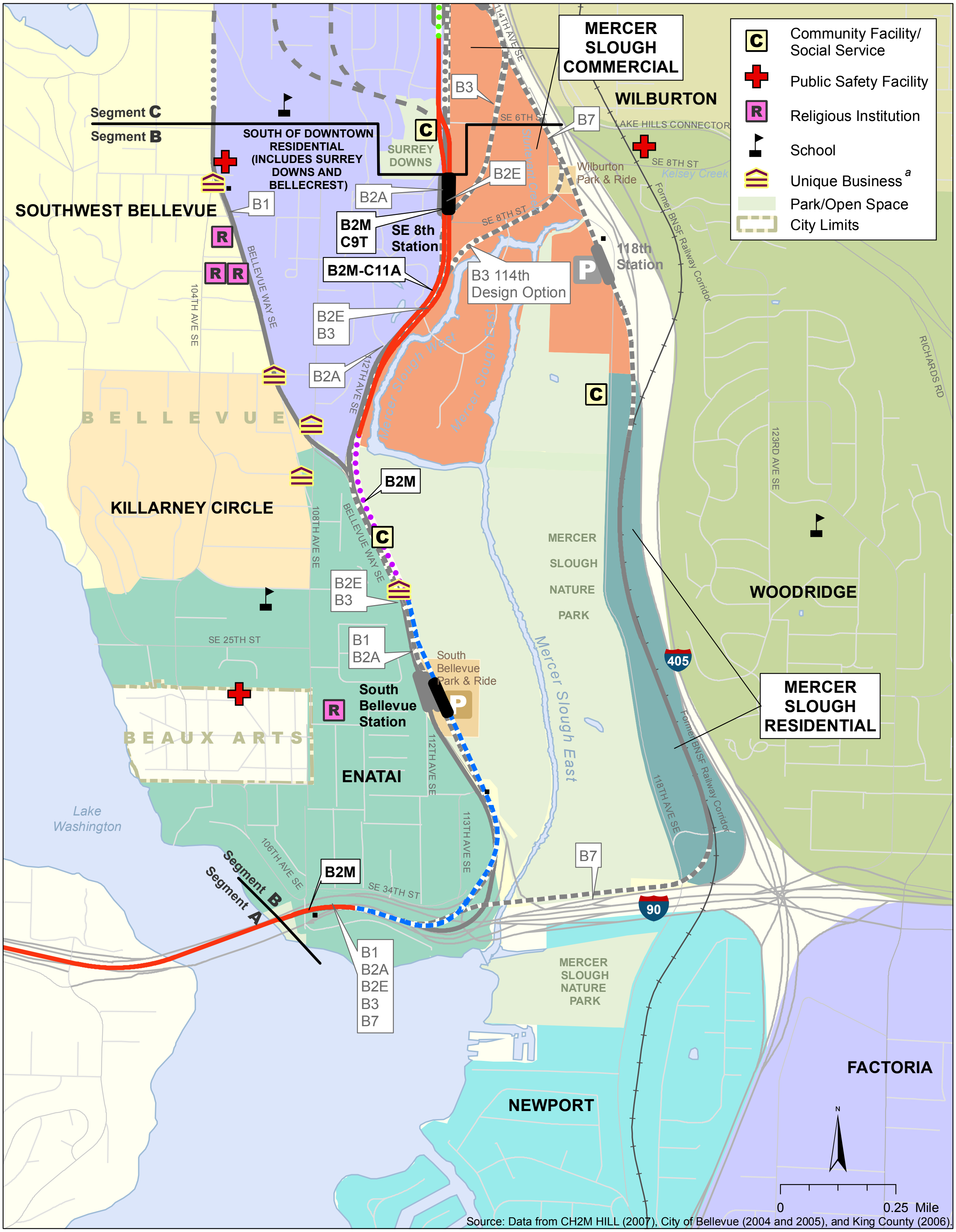
Source: Data from CH2M HILL (2007), City of Mercer Island (2006), and King County (2006).

Exhibit 4.4-2

Neighborhoods and Public Services

Segment A - Mercer Island

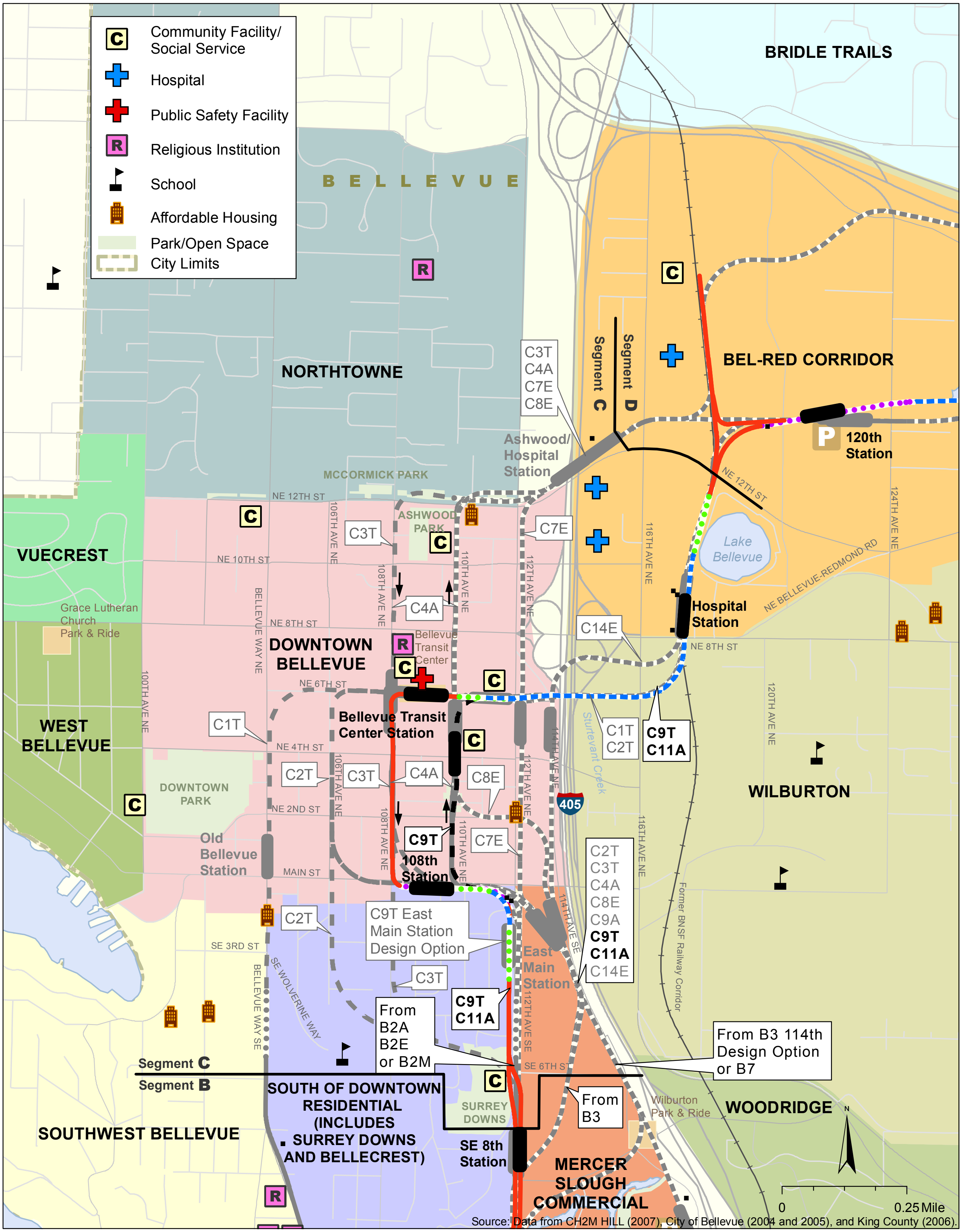
East Link Project


MERCER SLOUGH COMMERCIAL
WILBURTON
Community Facility/ Social Service
Public Safety Facility
Religious Institution
School
Unique Business [a]
Park/Open Space
City Limits
Segment C
Segment B
SOUTH OF DOWNTOWN RESIDENTIAL (INCLUDES SURREY DOWNS AND BELLECREST)
SURREY DOWNS
SOUTHWEST BELLEVUE
B1
B2A
B2E
B3
B7
B2M C9T
SE 8th Station
B2M-C11A
B3 114th Design Option
118th Station
Wilburton Park & Ride
Kelsey Creek
SE 6TH ST
SE 8TH ST
LAKE HILLS CONNECTOR
114TH AVE SE
Former BNSF Railway Corridor
104TH AVE SE
BELLEVUE WAY SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
B E L L E V U E
KILLARNEY CIRCLE
108TH AVE SE
B2M
MERCER SLOUGH NATURE PARK
WOODRIDGE
RICHARDS RD
123RD AVE SE
405
MERCER SLOUGH RESIDENTIAL
SE 25TH ST
South Bellevue Park & Ride
South Bellevue Station
B E A U X A R T S
ENATAI
Lake Washington
106TH AVE SE
113TH AVE SE
118TH AVE SE
SE 34TH ST
Segment B
Segment A
90
B1 B2A B2E B3 B7
MERCER SLOUGH NATURE PARK
NEWPORT
FACTORIA
N
0
0.25 Mile
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Source: Data from CH2M HILL (2007), City of Bellevue (2004 and 2005), and King County (2006).

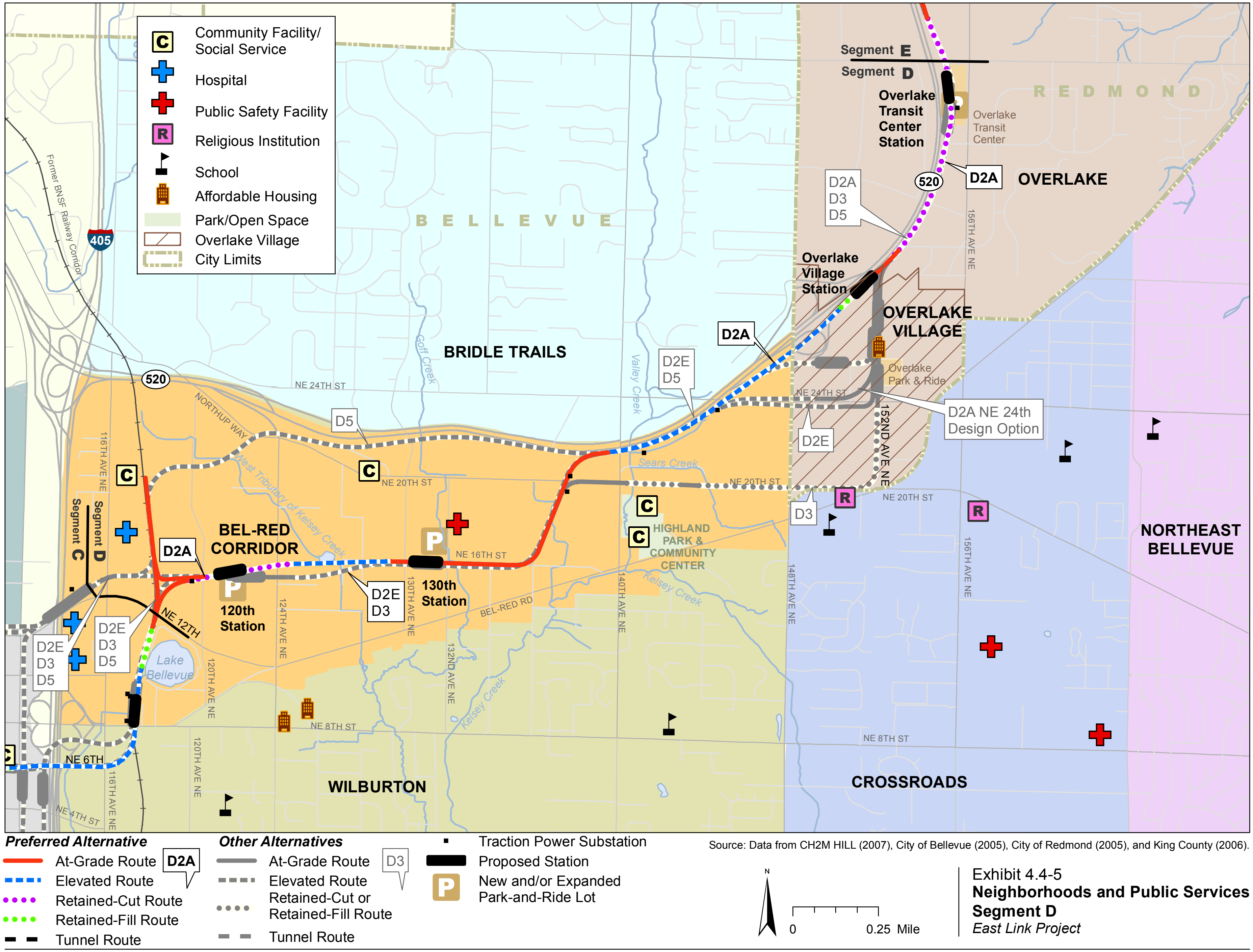
a = Those that provide a sense of place and continuity or is the only service of that kind within the surrounding neighborhood.

Exhibit 4.4-3 **Neighborhoods and Public Services Segment B**
East Link Project


Community Facility/ Social Service
Hospital
Public Safety Facility
Religious Institution
School
Affordable Housing
Park/Open Space
City Limits
BRIDLE TRAILS
B E L L E V U E
NORTHTOWNE
BEL-RED CORRIDOR
Segment C
Segment D
C3T
C4A
C7E
C8E
Ashwood/ Hospital Station
120th Station
MCCORMICK PARK
NE 12TH ST
ASHWOOD PARK
C7E
VUECREST
NE 10TH ST
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
124TH AVE NE
Lake Bellevue
NE BELLEVUE-REDMOND RD
Hospital Station
C4A
Grace Lutheran Church Park & Ride
NE 8TH ST
BELLEVUE WAY NE
100TH AVE NE
C14E
DOWNTOWN BELLEVUE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
WEST BELLEVUE
C1T
NE 4TH ST
C1T
C2T
C9T
C11A
Sturtevant Creek
114TH AVE NE
120TH AVE NE
WILBURTON
DOWNTOWN PARK
C2T
C3T
C4A
C8E
405
NE 2ND ST
Old Bellevue Station
C9T
108th Station
C7E
MAIN ST
C2T
C3T
C4A
C8E
C9A
C9T
C11A
C14E
C2T
C9T East Main Station Design Option
East Main Station
114TH AVE SE
Former BNSF Railway Corridor
SE 3RD ST
BELLEVUE WAY SE
SE WOLVERINE WAY
C3T
C9T
C11A
From B2A B2E or B2M
112TH AVE SE
SE 6TH ST
From B3 114th Design Option or B7
Segment C
Segment B
SOUTH OF DOWNTOWN RESIDENTIAL (INCLUDES SURREY DOWNS AND BELLECREST)
SURREY DOWNS
From B3
Wilburton Park & Ride
WOODRIDGE
SOUTHWEST BELLEVUE
SE 8th Station
MERCER SLOUGH COMMERCIAL
N
0
0.25 Mile
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C14E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Source: Data from CH2M HILL (2007), City of Bellevue (2004 and 2005), and King County (2006).

Exhibit 4.4-4 **Neighborhoods and Public Services Segment C**
East Link Project



Community Facility/ Social Service
Hospital
Public Safety Facility
Religious Institution
School
Affordable Housing
Park/Open Space
Overlake Village
City Limits
Former BNSF Railway Corridor
405
520
B E L L E V U E
R E D M O N D
BRIDLE TRAILS
OVERLAKE
OVERLAKE VILLAGE
BEL-RED CORRIDOR
HIGHLAND PARK & COMMUNITY CENTER
NORTHEAST BELLEVUE
WILBURTON
CROSSROADS
Segment E
Segment D
Segment C
Overlake Transit Center Station
Overlake Transit Center
Overlake Village Station
Overlake Park & Ride
120th Station
130th Station
D2A
D2A D3 D5
D2E D5
D5
D2E
D3
D2A NE 24th Design Option
D2E D3
D2E D3 D5
NE 24TH ST
NE 20TH ST
NE 16TH ST
NE 12TH
NE 8TH ST
NE 6TH
NE 4TH ST
NORTHUP WAY
BEL-RED RD
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
140TH AVE NE
148TH AVE NE
152ND AVE NE
156TH AVE NE
Goff Creek
Valley Creek
Sears Creek
Kelsey Creek
West Tributary of Kelsey Creek
Lake Bellevue
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot
N
0
0.25 Mile

Source: Data from CH2M HILL (2007), City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Exhibit 4.4-5
Neighborhoods and Public Services
Segment D
East Link Project

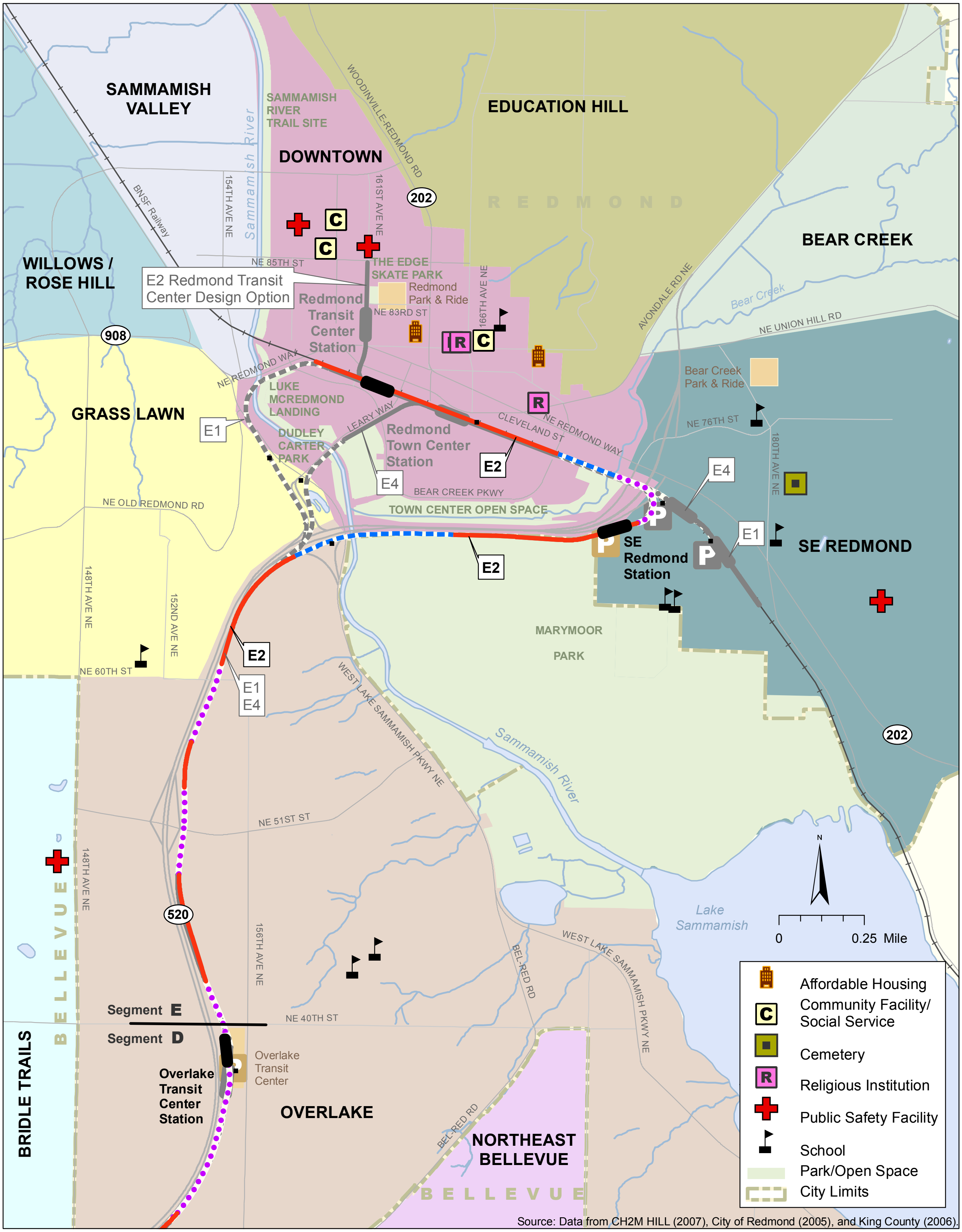

SAMMAMISH VALLEY
EDUCATION HILL
SAMMAMISH RIVER TRAIL SITE
DOWNTOWN
WOODINVILLE-REDMOND RD
202
R E D M O N D
BEAR CREEK
Sammamish River
154TH AVE NE
161ST AVE NE
BNSF Railway
WILLOWS / ROSE HILL
NE 85TH ST
THE EDGE SKATE PARK
Redmond Park & Ride
E2 Redmond Transit Center Design Option
Redmond Transit Center Station
NE 83RD ST
166TH AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
908
NE REDMOND WAY
GRASS LAWN
LUKE MCREDMOND LANDING
Bear Creek Park & Ride
E1
LEARY WAY
Redmond Town Center Station
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
180TH AVE NE
DUDLEY CARTER PARK
E4
E2
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
E4
NE OLD REDMOND RD
SE Redmond Station
E1
SE REDMOND
E2
148TH AVE NE
152ND AVE NE
MARYMOOR PARK
E2
NE 60TH ST
E1
E4
WEST LAKE SAMMAMISH PKWY NE
202
Sammamish River
NE 51ST ST
B E L L E V U E
148TH AVE NE
N
520
Lake Sammamish
0
0.25 Mile
156TH AVE NE
WEST LAKE SAMMAMISH PKWY NE
BEL-RED RD
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
Overlake Transit Center Station
OVERLAKE
BRIDLE TRAILS
BEL-RED RD
NORTHEAST BELLEVUE
B E L L E V U E
Affordable Housing
C Community Facility/ Social Service
Cemetery
R Religious Institution
Public Safety Facility
School
Park/Open Space
City Limits
Source: Data from CH2M HILL (2007), City of Redmond (2005), and King County (2006).
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot

Exhibit 4.4-6 **Neighborhoods and Public Services Segment E**
East Link Project

TABLE 4.4-1
Demographics within 0.5 Mile of the Project Alternative Stations

Alternative and Connector		**2000 Census Block Population**	**Minority Population[a] (percent)**	**2000 Low-Income Population[b] (percent)**	**Senior Citizens Population[c] (percent)**	**No. of Households with No Vehicle[c] (percent)**
Segment A, Interstate 90						
Preferred Interstate 90 Alternative (A1)		12,114	50.7	13.7	19.3	16.8
Segment B, South Bellevue						
Preferred 112th SE Modified Alternative (B2M)	to *C11A*	2,747	14.8	4.7	14.8	2.3
	to C9T[d]	5,664	18.7	5.5	17.3	4.3
Bellevue Way Alternative (B1)		2,810	14.4	4.7	14.8	2.3
112th SE At-Grade Alternative (B2A)		5,417	18.8	5.6	17.5	4.5
112th SE Elevated Alternative (B2E)		5,589	18.6	4.9	15.1	2.5
112th SE Bypass Alternative (B3)[e]		2,747	14.8	4.7	14.8	2.3
BNSF Alternative (B7)		3,024	19.5	4.5	13.7	2.4
Segment C, Downtown Bellevue						
Preferred 108th NE At-Grade Alternative (C11A)	*B2M*	9,264	24.1	7.8	19.8	7.6
	B3/B7	9,264	24.1	7.8	19.8	7.6
Preferred , 110th NE Tunnel Alternative (C9T)[f]	*B2M*	5,393	23.8	7.2	21.2	7.9
	B3/B7	7,027	24.0	6.7	19.8	6.8
	C9T - East Main Station Design Option [d]	7,371	25.4	7.4	19.2	7.3
Bellevue Way Tunnel Alternative (C1T)		10,289	22.7	7.0	21.5	7.7
106th NE Tunnel Alternative (C2T)	B2A/B2E[g, h]	7,095	23.8	6.8	21.8	7.8
	B3/B7[g, h]	9,003	23.6	6.3	20.4	6.8
108th NE Tunnel Alternative (C3T)	B2A/B2E[g, h]	6,557	21.5	6.5	22.8	8.2
	B3/B7[g, h]	8,523	22.4	6.1	21.1	7.1
Couplet Alternative (C4A)	B2A/B2E[g, h]	6,755	21.4	6.5	22.8	8.2
	B3/B7[g, h]	8,721	22.3	6.1	21.1	7.1

TABLE 4.4-1 CONTINUED
Demographics within 0.5 Mile of the Project Alternative Stations

Alternative and Connector		2000 Census Block Population	Minority Population[a] (percent)	2000 Low-Income Population[b] (percent)	Senior Citizens Population[c] (percent)	No. of Households with No Vehicle[c] (percent)
112th NE Elevated Alternative (C7E)	B2A/B2E[g, h]	5,242	23.3	7.0	22.3	8.4
	B3/B7[g, h]	6,352	23.0	6.4	20.6	7.1
110th NE Elevated Alternative (C8E)	B2A/B2E[g, h]	4,526	20.8	7.0	22.3	8.4
	B3/B7[g, h]	6,492	22.2	6.4	20.6	7.1
110th Avenue NE At-Grade Alternative (C9A)	B2A/ B2E	5,024	25.0	7.2	21.2	7.9
	B3/B7	6,900	24.4	6.7	19.8	6.8
114th Avenue NE Elevated Alternative (C14E)	B3/B7	5,659	25.0	7.7	21.5	8.2
Segment D, Bel-Red/Overlake						
Preferred NE 16th At-Grade Alternative (D2A) [i]		14,352	40.0	7.6	13.3	8.5
D2A - NE 24th Design Option		17,652	40.8	8.0	13.3	10.5
NE 16th Elevated Alternative (D2E)/NE 20th		12,158	42.2	8.8	12.9	11.0
Alternative (D3)		15,548	42.2	8.8	12.7	11.3
SR 520 Alternative (D5)		8,243	42.7	8.9	13.4	9.9
Segment E						
Preferred Marymoor Alternative (E2)		8,692	27.5	8.2	7.4	5.7
E2 - Redmond Transit Center Design Option		9,824	26.5	8.2	7.4	5.5
Redmond Way Alternative (E1)/Leary Way Alternative (E4) [g]		8,637	28.0	9.3	8.3	5.98

Source: U.S. Census, 2000.

[a] Being of African, Hispanic, Asian- American, American Indian or Alaskan descent.

[b] Those with a median household income that is at or below the U.S. Department of Health and Human Services poverty guideline as defined by U.S. Department of Transportation Order 5610.2, § Appendix 1(b)

[c] Each alternative has the same population shown.

[d] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* would eliminate the Segment B SE 8th Station; therefore, the demographics are the same as *Preferred Alternative B2M* to *Preferred Alternative C11A.*

[e] B3 – 114th Extension Design Option impacts would be the same as those for Alternative B3.

[f] C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

[g] Population totals are for those census block groups and census blocks with more than 90 percent of the census area within the station radius; overlapping station radii have been clustered by alternative to capture the whole urban cluster and avoid double counts.

[h] Population data are based on the 2000 Census Block population.

[i] D2A – 120th Station Design Option impacts would be the same as those for *Preferred Alternative D2A*.

The International District was the original home of Seattle's Chinese residents and is now the heart of the Asian community. Other focal points in the International District include the Uwajimaya Shopping Center, Union Station, and religious facilities. Land uses adjacent to the alternative within this neighborhood include a mixture of commercial and offices, many unique to the Asian cultures present there.

The Duwamish and Pioneer Square neighborhoods contain regional activity centers of Qwest Field and Events Center, King Street Station, and Safeco Field. The residential areas along Segment A within Seattle are older medium-density neighborhoods with a mixture of mostly single-family and some multifamily housing, although the International District contains some pockets of high-density housing.

Public recreation facilities in the Central Area and North Rainer Valley neighborhoods include Judkins Park and Playfield, Sam Smith Park, and the Mountains-to-Sound Greenway Trail (I-90 Trail), which parallels I-90. The primary commercial area in these neighborhoods is adjacent to Rainier Avenue and 23rd Avenue South. The newly opened Northwest African American Museum (see Exhibit 4.4-1) is located in the historic Colman School, located at South Massachusetts Street and 23rd Avenue South. The building also contains 36 units of mixed-income rental housing managed by the Housing Resources Group.

Segment A travels through Mercer Island, and the Mercer Island Station would be located adjacent to the Town Center Neighborhood (see Exhibit 4.4-2). The Town Center is the commercial core of Mercer Island and includes a mixture of commercial, office, and multifamily residential uses.

Recent mixed-use developments within the 76-acre Town Center have led to greater densities and a more walkable community. Low-density, single-family residential subdivisions surround the Town Center. Community facilities within the study area include public recreation facilities located to the south, the Mountains-to-Sound Greenway Trail (I-90 Trail) to the north, the Community Center at Mercer View, and Ellsworth House senior housing. Access from I-90 is provided at Island Crest Way, 77th Avenue, West Mercer Way, and East Mercer Way. Island Crest Way is the main arterial traveling to the south end of the island from I-90.

4.4.2.2 Segment B, South Bellevue

The Segment B study area includes portions of eight City of Bellevue neighborhoods (see Exhibit 4.4-3). The alternatives follow existing local roadways and transportation infrastructure (Bellevue Way SE, 112th Avenue SE, former BNSF Railway corridor, and I-405), which currently act as boundaries between the study area neighborhoods. The Segment B study area also contains the highly used South Bellevue Park-and-Ride on Bellevue Way SE (520 parking stalls) and the Wilburton Park-and-Ride (186 parking stalls), located at the I-405/SE 8th Street interchange.

The Enatai, Killarney Circle, and Southwest Bellevue neighborhoods are bounded to the east by Bellevue Way SE. These neighborhoods primarily comprise well-established suburban, single-family residences. Community resources include Enatai Elementary School, and Southwest Bellevue's churches serve the residents of the immediate area as well as the larger community. Religious and community events provide many opportunities for residents to come together. The South of Downtown Residential Neighborhood is bounded between Bellevue Way SE and 112th Avenue SE and encompasses the Surrey Downs and Bellecrest neighborhoods. North of the Bellevue Way SE and 112th Avenue SE intersection, land uses consist of a mixture of commercial and retail to the east, and some multifamily, and to the west it is single family transitioning to multifamily.

There are established neighborhood businesses along Bellevue Way SE, which provide a sense of place and continuity for residents in a fast-changing city. Identified by the community as unique businesses (Exhibit 4.4-3), Chace's Pancake Corral, Triangle Swim Club, the Mercer Slough Blueberry Farm, the Chevron Station, and the Bellevue Nursery are located close to these neighborhoods and are among the businesses that have for many years contributed to the unique quality of life of Bellevue residents.

The Mercer Slough residential and commercial neighborhoods are linear neighborhoods located along I-405. The Mercer Slough residential neighborhood consists of a mixture of multifamily residences and office buildings. The only community facility is the Environmental Education Center at Mercer Slough Nature Park. The Mercer Slough commercial neighborhood is located between 112th Avenue SE and I-405 and is composed of commercial buildings, office buildings, and three hotels. The Wilburton Park-and-Ride is also located within the neighborhood. The Mercer Slough Nature Park is located between Bellevue Way SE and the Mercer Slough residential neighborhood, and Winters House and Mercer Slough Blueberry Farm are located within the park (refer to Section 4.17, Parkland and Open Space, for a description of the park and its facilities).

The Woodridge and Wilburton neighborhoods are located east of I-405, separated from the study area by the freeway.

4.4.2.3 Segment C, Downtown Bellevue

The Segment C study area is located primarily within the Downtown Bellevue neighborhood, with outlying sections located in or adjacent to it, including the South of Downtown Residential, Northtowne, Wilburton, and Bel-Red Corridor neighborhoods (see Exhibit 4.4-4). For the most part, the alternatives follow the existing roadway grid between SE 6th Street and NE 12th Street. The Bellevue Transit Center straddles NE 6th Street between 108th and 110th Avenues NE.

Within the South of Downtown Residential neighborhood is the Surrey Downs neighborhood, which consists of primarily single-family residential homes. There are some small businesses located adjacent to Main Street in the northern portion of the neighborhood. Community facilities include Bellevue High School, King County District Court, and Surrey Downs Park located on the site of the Surrey Downs Elementary School, which closed in 1981.

As the name implies, the Downtown Bellevue neighborhood forms the core of Bellevue. Downtown Bellevue, once a suburban business district, is now a large urban center with nearly 6,500 residents and a regional employment center with nearly 45,000 workers (BDA, 2010). Downtown Bellevue includes the regional commercial centers of Bellevue Square, Lincoln Square, and The Shops at Bravern. The new residences in the Downtown Bellevue neighborhood are primarily condominiums and apartments. Land uses in the neighborhood include a mixture of commercial, office, and multifamily residences located in a number of high-rise towers. The area around the Bellevue Transit Center provides transit-oriented development (TOD) with higher densities of residential, commercial, and office development close to the transit center. This area is highly urban with large city blocks, but due to the mixed uses, the neighborhood is walkable. Community facilities within the neighborhood include the Bellevue First Congregational Church, Bradford Center, Meydenbauer Center (events and exhibition facility), the Bellevue Regional Library, the Bellevue Arts Museum, and Bellevue City Hall.

The Northtowne neighborhood consists primarily of single-family residences. McCormick Park is located within this neighborhood and provides a buffer between Northtowne and Downtown Bellevue. Although Downtown Bellevue includes several north-south arterials, only Bellevue Way SE, 108th Avenue NE, and 112th Avenue NE provide access through downtown and into the Northtowne neighborhood. There are no other community facilities located nearby.

The Wilburton and Bel-Red Corridor neighborhoods are located east of I-405. Land uses within the Wilburton neighborhood in this area are primarily auto-oriented commercial, with a number of auto dealerships located along 116th Avenue NE, and also include retail and commercial uses. The Bel-Red Corridor neighborhood within the study area comprises mainly medical-related office buildings and the Overlake Hospital and Group Health Medical Centers. No community facilities are located within these portions of the neighborhoods.

4.4.2.4 Segment D, Bel-Red/Overlake

The Segment D study area includes the Bel-Red Corridor and is generally bounded between SR 520 to the north and Bel-Red Road to the south. SR 520 acts as a barrier between the Bridle Trails neighborhood and the light rail project alternatives. Aside from SR 520, major east-west arterials include NE 20th Street and Bel-Red Road.

The focal area of Segment D is the Bel-Red Corridor in Bellevue, which is predominantly industrial and commercial establishments, and the Overlake Village in Redmond, which consists of commercial retail establishments, hospital services, and senior housing and office parks (see Exhibit 4.4-5). The Bel-Red Corridor in this area is primarily commercial and industrial land uses, including a King County Metro bus base and distribution facilities. The Overlake neighborhood contains a mix of multifamily and single-family housing. The Microsoft campus in Overlake is a major employment center for the region. The Overlake Transit Center serves the Microsoft office campuses as well as the adjacent neighborhood communities.

As discussed in Section 4.2, Land Use, the Bel-Red and Overlake areas have adopted changes in the future land use that would support light rail. These changes also include TOD, which would cause an increase in the overall density and change the character of the neighborhood through mixed-use development of commercial, office, and residential uses.

4.4.2.5 Segment E, Downtown Redmond

The Segment E study area is primarily along SR 520 and ends in the Downtown Redmond neighborhood (see Exhibit 4.4-6). SR 520 is the only freeway to and from Redmond, and it connects to major roadways that serve communities beyond Redmond, including

West Lake Sammamish Parkway NE, SR 202, Redmond Way, and Avondale Road. Otherwise, the Downtown Redmond grid street pattern is interrupted by the former BNSF Railway corridor that runs diagonally through the town center. Redmond Transit Center is located at 161st Avenue NE and NE 83rd Street near the Redmond City Hall.

Neighborhoods within the study area include SE Redmond and Downtown Redmond as well as a large portion of Marymoor Park (Exhibit 4.4-6). The Downtown Redmond neighborhood developed around the former BNSF Railway train station and track, which bisects the town into northern and southern commercial areas. Downtown Redmond includes a mixture of medium-density, multifamily housing and retail uses and a civic center that includes Redmond City Hall, Redmond Library, and the Redmond Police Department. For surrounding communities, downtown is a shopping destination and includes the Redmond Town Center, a mixed-use facility that includes a regional shopping center, a hotel, and office buildings. Other draws to Downtown Redmond include Marymoor Park and open spaces, trails, and the Redmond Saturday Market, an open air market that operates from May to October. The Southeast Redmond neighborhood contains both low-density single-family residential development and a corridor of retail and light industrial commercial uses along SR 202. One regional activity center in Segment E is Marymoor Park, a large regional public recreation and events facility owned and operated by King County.

Located north of Downtown Redmond, the Education Hill and Bear Creek neighborhoods consist primarily of single-family residences. On a bluff west of Downtown Redmond there is an area of primarily multifamily residential units that is part of the Grass Lawn neighborhood. A small portion of the Sammamish Valley is also located within the study area and consists of mostly business parks, with no community facilities located within the study area.

4.4.2.6 Maintenance Facility Surroundings

In Segment D, the maintenance facilities (116th [MF1], BNSF [MF2], and SR 520 [MF3]) are located in the Bel-Red Subarea neighborhood of Bellevue. In Segment E, the SE Redmond Maintenance Facility (MF5) is located within the SE Redmond neighborhood. Sections 4.4.2.4 and 4.4.2 provide information on these neighborhoods.

4.4.3 Environmental Impacts

The analysis of potential impacts of the East Link Project on neighborhoods considers the following key neighborhood and community issues: changes in neighborhood quality, barriers to social interaction, impacts on community resources, and impacts on public services, safety, and security. Much of the impacts evaluation in this section is based on analyses conducted for other sections of this Final EIS, including Chapter 3, Transportation Environment and Consequences; 4.1, Acquisitions, Displacements, and Relocations; 4.2, Land Use; 4.3, Economics; 4.5, Visual and Aesthetic Resources; 4.6, Air Quality and Greenhouse Gases; 4.7, Noise and Vibration; 4.14, Public Services; and 4.17, Parkland and Open Spaces. Impacts from these resources do not automatically constitute an adverse social impact or impact on neighborhood cohesion. Rather, these impacts are evaluated collectively with mitigation measures for their impact on community facilities and neighborhoods. Cohesion is defined as the extent to which residents have a sense of belonging to their neighborhood and considers the interactions between the residents and the resources located in that neighborhood.

Appendix C, Environmental Justice, addresses impacts to minority and low-income populations. Overall, the project would not result in disproportionately high and adverse impacts on minority and low-income populations, but it would provide substantial benefits that would positively affect minority and low-income populations in the areas surrounding the light rail stations. These benefits include improved access to transit; a safer, more reliable, and more efficient transportation system; improved mobility through the project vicinity; transit travel time savings; improved accessibility to employment; and extended transit service hours.

4.4.3.1 No Build Alternative

The No Build Alternative would avoid the property acquisitions and other related changes associated with light rail construction and operation. Those who reside in or travel to and from neighborhoods in the study area would not be provided with a reliable mode of transportation and increased transit accessibility. There would be no change to neighborhood quality.

4.4.3.2 Impacts during Operation

This section addresses the impacts, both positive and negative, that would affect neighborhoods as a whole and is followed by a segment-by-segment analysis of the impacts that would occur within each segment and project alternative.

Neighborhood Quality

A new transportation mode operating on a fixed-rail system has the potential to affect neighborhood quality. Federal guidance states that neighborhood quality impact analysis should be a "qualitative discussion of [the] cumulative impact of" the following factors: property acquisitions and land use changes (including consistency of new development with existing neighborhoods), visual or physical intrusion of the new facility on traffic and parking, and noise and vibration.

In general, neighborhoods served by light rail stations would benefit both from increased transit access and from potential development within station areas in a manner consistent with neighborhood land use goals and plans. Neighborhoods (particularly those portions near station areas) might experience increased vitality in terms of improved access, residential infill, growth in employment base, and greater patronage of local businesses. Goals for regional, local, and station area planning emphasize reducing reliance on automobiles and providing increased pedestrian access and pedestrian-oriented design.

The East Link Project would result in impacts on a number of properties located along neighborhood boundaries. Those nearby might be affected by the changes due to the East Link Project. However, the overall neighborhood quality would not change because the project alternatives travel along existing arterials, which in many instances already act as boundaries for the neighborhoods.

Property Acquisitions and Land Use Changes

Overall, the property acquisitions required for each segment represents a small portion of the land available in adjacent neighborhoods and would not result in changes in the existing neighborhood's intactness or character. Aside from Segment A, all of the alternatives would acquire and displace residential and commercial properties. Although the project would acquire residential dwellings in the neighborhoods, none of the displacements would result in the neighborhoods being bisected or separated from other portions of the neighborhood. Property acquisition impacts would not adversely affect neighborhood quality because the project is primarily located along the edge of the neighborhoods and either on or adjacent to existing roads, which does not create barriers.

Under many alternatives, several businesses might be displaced. Most commercial properties that would be displaced by the East Link alternatives do not provide unique services to the surrounding neighborhoods (i.e., corner store, cafe, coffee shop) and tend to be either office complexes or light industrial uses that are likely to draw employees from the surrounding region. Because most of the commercial properties are not unique to the surrounding neighborhoods, the impacts on the neighborhood character and quality would be minimal.

Some of the properties that would be acquired could be redeveloped consistent with existing zoning after construction. Also, TOD consisting of higher density residential and mixed-use development, typically around the proposed stations, could potentially result as an indirect impact (see Section 4.2, Land Use). These redevelopment opportunities would only occur where allowed by comprehensive and neighborhood plans and where stations can support TOD. For those areas that are primarily single-family residential development, TOD is not allowed under current zoning. TOD allows for creating compact, walkable communities that provide increased transit ridership and reduced traffic congestion and driving. Section 4.2 gives information on potential TOD and identifies those areas where redevelopment would be encouraged and those areas where it would not be encouraged. Redevelopment near stations could enhance economic activity by expanding neighborhood business districts. Section 4.3, Economics, give additional information on the economic benefits from redevelopment near stations.

Visual or Physical Intrusion

Visual changes would be noticeable from some residences located adjacent to or with views of the East Link Project, especially in areas where the alternatives would be elevated above the existing transportation infrastructure or where vegetation would be removed. When possible, vegetation removed for the project would be replaced and landscaping would be provided to screen sensitive visual environments and/or sensitive viewers where necessary, which would minimize the visual impacts. While the East Link Project would introduce another form of transportation, the project would be located primarily within heavily developed urban areas and the alternatives would be located along major transportation facilities where light rail is generally compatible (e.g., local roads, freeway infrastructure, powerlines, tall buildings), so the impacts related to visual quality would generally not adversely affect neighborhood quality for the entire neighborhood. Section 4.5, Visual and Aesthetic Resources, provides complete information on the visual impacts associated with the East Link Project.

Transportation and Parking

Overall, impacts on property access and circulation would be generally limited to the loss of some midblock, left-hand turn movements and turning restrictions of right-in/right-out for alternatives in the roadway's median. Some travelers might be affected by the loss of left turns and the need to travel a more circuitous route. For alternatives that are at-grade or elevated, U-turns would be provided at signalized intersections to minimize the impact on traffic circulation. The Couplet Alternative (C4A) would convert 108th and 110th Avenues NE from two-way streets to a one-way couplet, which would change circulation patterns. Elevated sections would cause minimal access issues because access could be maintained under the guideway.

Traffic impacts that would result from the East Link Project can be mitigated. Park-and-ride lots associated with the stations would be expected to attract more traffic and could impact traffic operations more than if the project were not constructed. In addition, because the alternatives are mostly located within or adjacent to existing arterials, the traffic impacts on the surrounding neighborhoods are expected to be minimal.

Neighborhoods could be affected as a result of light rail riders parking in neighborhoods adjacent to stations. The potential exists for hide-and-ride (when transit users park in neighborhoods surrounding the transit stations), and the best ways to mitigate the impact are unique to each station and the surrounding areas (see Chapter 3 for more information). In neighborhoods where parking does not currently have restrictions, Sound Transit would work with the applicable jurisdictions to implement prevention strategies (i.e., time limits or neighborhood permit programs) in order to maintain neighborhood quality.

The East Link Project would provide a reliable mode of transportation and result in improved transit accessibility and connections for riders between the study area neighborhoods and community facilities within 0.5 mile of the stations, as well as provide connections to regional destinations (i.e., Seattle-Tacoma International Airport and the University of Washington). Overall, the project would improve transit travel times, reliability, and convenience. No alternatives would have negative impacts on pedestrian and bicyclist movements (see Chapter 3 for more information).

Noise and Vibration

The number and severity of noise impacts would vary along each segment and alternative. Where alternatives are at-grade and the roadway must be widened to accommodate the light rail system, traffic noise impacts could increase. However, after noise mitigation has been introduced (e.g., sound walls, special trackwork, and/or building insulation), no adverse noise-related impacts would occur, and noise would not negatively affect the overall neighborhood quality for the entire neighborhood. In addition, there are locations within Segments C and E where vibration impacts might not be mitigated to levels below FTA criteria. Sound Transit would refine analysis of these locations during final design to further minimize or eliminate the impacts. Section 4.7, Noise and Vibration, provides information on potential noise and vibration impacts and potential mitigation measures.

Social Interaction

None of the project alternatives would create new barriers to interaction because they travel along existing arterials that already act as a barrier along the fringe of existing neighborhoods. Stations on these arterials could enhance the cohesion as new meeting points for adjoining neighborhoods. Where portions of the project would be at-grade, crossing points would be maintained at existing signalized intersections to allow continued access within and between communities. Where tunnel alternatives are proposed, there would be no impacts on community cohesion because the trains would be located beneath the neighborhood. In addition, the East Link Project could improve cohesion with increased transit access and TOD, which might indirectly enhance the walking experience and safety of the neighborhoods.

Community Resources

The East Link Project is not expected to result in long-term operation impacts on the civic community resources (e.g., parks, churches, and schools) located within the study area, except for a few park resources where portions of the resource would be permanently impacted, as described in Section 4.17, Parkland and Open Space. These impacts would primarily be felt by those close to the facilities and would not result in permanent adverse impacts on the surrounding neighborhoods.

Safety and Security

Maintaining safety and security at the stations, park-and-ride lots, and the neighborhoods surrounding these facilities is another important consideration for many residents within surrounding neighborhoods. As described in Section 4.14, Public Services, incidences of crime are most likely to occur at the stations; however, crime is not expected to increase as a result of operation of the stations. Typically, crime around stations mirrors crime rates in the surrounding neighborhoods. In the areas around all but one of the proposed stations (Rainier Station), crime is low compared to the surrounding jurisdictions of King County and Washington. Sound Transit would employ security personnel, but also as a matter of practice, Sound Transit implements Crime Prevention through Environmental Design (CPTED) principles directed at reducing crime incidents at stations and park-and-ride lots. Other measures to minimize crime would include using equipment (i.e., closed circuit TV, sealed fareboxes, and automatically sealed exits), using anticrime programs such as antigraffiti programs, and using security personnel. Because these design elements would be integrated throughout the East Link Project, there would not be the potential for project-related safety and security impacts in adjacent neighborhoods.

Segment A

Overall, operating *Preferred Interstate 90 Alternative (A1)* in Segment A would have little impact on neighborhoods because it is located in the center lanes of I-90 and would be similar in character to the areas through which it would pass. There would be no displacements nor land use changes that would affect neighborhood quality. The two proposed stations (Rainier and Mercer Island) would be consistent with the visual character of the areas where they are located and would not reduce visual quality. Noise from light rail operations is not expected to cause a change in the overall noise levels in the adjacent neighborhoods because I-90 would continue to be the dominant noise source. The station would provide enhanced accessibility to Mercer Island neighborhoods. Because *Preferred Alternative A1* travels primarily within existing Washington State Department of Transportation (WSDOT) I-90 right-of-way, no new barriers would be created that would affect community cohesion or access between community resources, and public services. *Preferred Alternative A1* would not negatively affect neighborhoods in Seattle or Mercer Island.

Segment B

The Segment B alternatives follow existing local roadways and transportation infrastructure (Bellevue Way SE, 112th Avenue SE, and former BNSF Railway corridor), which currently act as boundaries along the fringe of adjacent study area neighborhoods (see Exhibit 4.4-3). None of the alternatives would travel through existing neighborhoods but rather would travel along the edges of neighborhoods along existing arterials. The Segment B alternatives would acquire some property acquisitions, displace some residences and businesses, result in some minor changes in property access, remove vegetation, and add new structures; these impacts can negatively affect nearby residents and businesses. These impacts are not expected to markedly alter the overall land use or development character of the neighborhoods located within Segment B because the neighborhoods are well defined, with roadways such as Bellevue Way SE and/or 112th Avenue SE serving as an existing boundary. Therefore, the project is not expected to interrupt neighborhood social interactions. Although there would be impacts associated with the East Link Project, the overall neighborhood quality in the affected study area would not likely change.
Table 4.4-2 summarizes the factors used to assess impacts on neighborhoods by alternative. In addition to assessing how the project might change neighborhood quality, the following discusses possible changes to social interaction, community resources, and safety.

Along Bellevue Way SE, *Preferred 112th SE Modified Alternative (B2M)* is located farther east and, therefore, farther away from the Enatai neighborhood than other Segment B alternatives that travel along Bellevue Way SE and would not affect neighborhood quality. There would be fewer visual impacts because *Preferred Alternative B2M* transitions to a retained cut after leaving the South Bellevue Station. However, constructing the retained cut would remove vegetation from the intersection at 112th Avenue SE and Bellevue Way, which would be a visual change until the new plantings and remaining vegetation mature. *Preferred Alternative B2M* would result in the highest permanent park impacts on the Mercer Slough Nature Park; however, the alternative would not substantially affect park use, features, activities, and attributes, and existing park community resources would be maintained. *Preferred Alternative B2M* would not add new barriers to social interaction.

For *Preferred Alternative B2M* to *C11A*, the landscaped median along 112th Avenue SE would be removed, and the light rail elements would be more visible than with the connection to *C9T*. *Preferred Alternative B2M* to *C9T* would remain east of 112th Avenue SE connecting to the SE 8th Station, which would enhance neighborhood access to transit. If the C9T – East Main Station Design Option were selected, then the SE 8th Station would not be built, but the residents would still be served by the East Main Station, which would be located farther north. SE 15th Street might be closed, which would result in vehicles, pedestrians, and bicyclists needing to enter and/or exit the Bellefield Office Park off of SE 8th Street.

Just one of the businesses that would be affected by Bellevue Way Alternative (B1) was identified as important to the neighborhood. The Chevron station located on the corner of Bellevue Way SE and 108th Avenue SE provides an important service to the area, which is not provided by other business in the immediate vicinity.

TABLE 4.4-2
Factors Considered in Assessing Impacts on Neighborhoods Within Segment B

Alternative	**Potential Impacts by Alternative**			
	Displacements	**Visual/Physical Intrusion**	**Noise Impacts**	**Traffic/Access Changes**
Preferred 112th SE Modified Alternative (B2M) to *C11A*	0 businesses 1 residence	Removing vegetation and adding other project components (e.g., retained cut and overhead guideway) would result in visual change along Bellevue Way SE to the Bellevue Way/112th Avenue SE interchange but not result in visual impact. Lower profile of the guideway minimizes visual impacts along Bellevue Way SE. In addition, light rail would be more visible to residences along 112th Avenue SE than *Preferred Alternative B2M* to *C9T*.	Noise impacts would be mitigated using a combination of sound walls, track lubrication at curves, building sound insulation, or special trackwork at crossovers and turnouts.	Right-in/right-out on 112th Avenue SE and Bellevue Way SE Design options to include signals and U-turn movements to preserve access south of the South Bellevue Park-and-Ride
Preferred 112th SE Modified Alternative (B2M) to *C9T*[a]	0 businesses 1 residence	Removing vegetation and adding other project components (e.g., retained cuts and overhead guideway) would result in visual changes impacts along Bellevue Way SE to the Bellevue Way/112th Avenue SE interchange.	Impacts would be the same as *Preferred Alternative B2M*.	Potential loss of access to SE 15th Street Design options to include signals and U-turn movements to preserve access south of the South Bellevue Park-and-Ride
Bellevue Way Alternative (B1)	2 businesses 12 residences	Intrusions would be the same as *Preferred Alternative B2M* to *C9T*; in addition, retaining walls on the west side of Bellevue Way SE would result in visual impact.	Impacts would be the same as *Preferred Alternative B2M*.	Right-in/right-out on Bellevue Way SE Design options to include signals and U-turn movements to preserve access south of the South Bellevue Park-and-Ride
112th SE At-Grade Alternative (B2A)	0 businesses 4 residences	Intrusions would be the same as *Preferred Alternative B2M* to *C9T;* in addition, elevated structures on Bellevue Way SE would be more visible from nearby residences than with Alternative B1, resulting in a visual impact. Removing vegetation from the west side of Bellevue Way SE would open up views east for some residents. Light rail in the median along 112th Avenue SE would alter visual character of the area for those in close proximity.	Impacts would be the same as *Preferred Alternative B2M*.	Impacts would be the same as Preferred Alternative B2M to C11A
112th SE Elevated Alternative (B2E)	0 businesses 1 residence	Intrusions would be the same as *Preferred Alternative B2M* to *C9T*. In addition, elevated structures on Bellevue Way SE would be more visible from nearby residences and would impact eastward views towards the Mercer Slough Nature Park, resulting in a visual impact. Elevated structures on 112th Avenue SE would be more visible than with *Preferred Alternative* but generally consistent with the existing boulevard-like character.	Impacts would be the same as *Preferred Alternative B2M*.	Design options to include signals and U-turn movements to preserve access south of the South Bellevue Park-and-Ride
112th SE Bypass Alternative (B3)	0 businesses 4 residences	Intrusions would be the same as Alternative B1.	Impacts would be the same as *Preferred Alternative B2M*.	Right-in/right-out on 112th Avenue SE Design options to include signals and U-turn movements to preserve access south of the South Bellevue Park-and-Ride
B3 - 114th Extension Design Option	14 businesses 4 residence	Intrusions would be the same as Alternative B1.	Impacts would be the same as *Preferred Alternative B2M*.	Design options to include signals and U-turn movements to preserve access south of the South Bellevue Park-and-Ride.
BNSF Alternative (B7)	6 businesses 0 residences	Elevated structures passing north of I-90 Trail (part of Mountains-to-Sound Greenway) would be viewed by trail users and residences along 118th Avenue SE.	Impacts would be the same as *Preferred Alternative B2M*.	No changes

[a] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

which is not provided by other business in the immediate vicinity.

Relocating this business would result in an impact on those in the surrounding neighborhood who use this business, resulting in additional travel for gasoline purchases, but this impact in combination with other neighborhood impacts would not degrade neighborhood quality. No new barriers for social interaction would be created by this alternative.

Impacts on community and public services would be minor. Although Alternative B1 travels directly in front of the Bellevue Fire Department Station 1, it would not result in impacts on access and egress because there would be a signal with left-turn access allowed into and out of the fire station. Because constructing sound walls would not be feasible in all locations, Alternative B1 would result in the greatest number of noise impacts compared with the other Segment B alternatives.

Table 4.4-2 lists impacts on the neighborhood quality from 112th SE At-Grade Alternative (B2A), which would be generally minor and have two additional residential displacements compared with *Preferred Alternative B2M*. North of the 112th Avenue SE intersection, widening would remove the existing landscaped median from 112th Avenue SE and Bellevue Way. A longer portion of this median is removed under Alternative B2A than *Preferred Alternative B2M to C11A*. All existing community resources would be maintained. There would be increased neighborhood access to transit through the SE 8th Station.

112th SE Elevated Alternative (B2E) would have similar impacts on neighborhood quality and generally follows the same route as Alternative B2A, except that it continues elevated all the way to the station at SE 8th Street. Alternative B2E would not create any new barriers to social interaction or traffic circulation. Alternative B2E would have the same number of displacements as *Preferred Alternative B2M* (i.e., no businesses and one residence) but would offer more of a visual and physical presence along Bellevue Way SE. North of 112th Avenue SE intersection, Alternative B2E would be elevated and retain the landscaped median, thus maintaining the general boulevardlike character of 112th Avenue SE. All community resources would be preserved, and neighborhood quality would be slightly affected by visual changes for residences on the edges along Bellevue Way and 112th Avenue SE.

For the most part, 112th SE Bypass Alternative (B3) follows the same route as *Preferred Alternative B2M*. Neighborhood impacts would be generally the same, except it would not add the SE 8th Station and, thus, would not provide new accessibility for surrounding residents. At the northern end, it would pass through parking lots, behind office buildings, across an undeveloped open area, and remove some landscaped parking strips. No community resources would be affected, nor would new barriers to social interaction result. Neighborhood quality would be maintained.

The impacts from Alternative B3 - 114th Extension Design Option would be similar to those described above under *Preferred Alternative B2M* until approximately SE 15th Street. North of SE 15th Street, the alternative would curve to the east away from the residential neighborhood and through the Bellefield Office Park, displacing some businesses. There is no SE 8th Station associated with the B3 - 114th Design Option. No community resources would be affected, nor would there be any new barriers to social interaction.

Overall, Alternative B7 would have little impact on neighborhood quality because much of it would follow the I-90 and former BNSF Railway corridors. There would be no changes in access or circulation, and visual and physical intrusion would be minimal because, for the most part, the project would be consistent with the existing rail corridor and the I-90 structure over the Mercer Slough Nature Park. This and all other community resources along this route would remain intact and accessible. Neighborhood quality and social interaction would be maintained.

Segment C

Because the Downtown Bellevue area is densely developed, it was considered important to identify the staging areas needed to construct Segment C to evaluate the associated potential impacts. Segment C staging areas would be located at either end of the segment in Downtown Bellevue and at each station (refer to Chapter 2 for information on staging area locations). Staging areas would acquire properties in different areas, depending on the alternative selected and the specific connection from Segment B. The impacts from the use of the staging areas are discussed later in this section under Section 4.4.3.3. Following construction, most of these areas would be available for redevelopment. For the most part, the Segment C alternatives would follow the existing roadway grid of the highly urbanized Downtown Bellevue. There would be displacements of residences and businesses, some minor changes to property access, the removal of vegetation, and the addition of new structures, which can affect neighborhood quality. The Segment C alternatives that involve tunneling would have minimal impacts because they would be underground and most of the impacts, such as displacement, are anticipated only in the station areas and staging areas. Most of the Segment C alternatives would have minimal property access impacts. Impacts on pedestrian and bicycle circulation within Downtown Bellevue are expected to be minimal because existing pedestrian crossings and bicycle routes would be maintained and the alternatives would not alter the location of future bicycle routes identified in the Bellevue Comprehensive Plan. Overall, the impact of direct property acquisitions, lower visual quality, and access revisions are not expected to markedly alter the overall land use or development character of the neighborhoods in Segment C. There would be no indoor noise impacts after mitigation for any of the Segment C alternatives. Table 4.4-3 summarizes the factors used to assess impacts on neighborhoods by Segment C alternative, and a discussion follows.

Preferred 108th NE At-Grade Alternative (C11A) would result in changes to the Surrey Downs neighborhood along 112th Avenue SE and Main Street but would not result in any negative impacts on the overall neighborhood quality. *Preferred Alternative C11A* would acquire residential properties, including 6 single-family and 41 multifamily units that currently face 112th Avenue SE. The light rail guideway would be consistent with the arterial transportation character of 112th Avenue SE. Currently, 112th Avenue SE acts as a boundary for the eastern portion of the neighborhood. While widening the transportation corridor to include light rail would change the edge of the community, acquiring these residences would not bisect the neighborhood and not negatively affect the overall quality of the Surrey Downs neighborhood.

Most residences that would be acquired are not in character with the overall Surrey Downs neighborhood, and due to their position facing 112th Avenue SE with no direct access into the Surrey Downs neighborhood, relocating them would not impact the larger neighborhood's cohesion. After construction there would be a buffer of approximately 50 feet between the light rail project and the neighborhood. This buffer would include landscaping and provide a visual buffer and a potential open-space amenity for nearby residents. Sound walls would be installed on the guideway or retained fill along the west side of 112th Avenue SE to mitigate noise impacts.

Preferred Alternative C11A would close the SE 4th Street access to 112th Avenue SE. Residents that use this access would need to use alternate access at SE 1st Place or elsewhere in the neighborhood. Additionally, residents accessing Main Street via 110th Place and 110th Street would be redirected to the intersection at 108th Avenue. These changes would require some residents to use a more circuitous route, but the low number of trips that this would redirect would not result in traffic impacts that would affect neighborhood quality or social interaction.

Visual changes would be noticeable to some residents adjacent to the project, especially near the intersection of 112th Avenue SE and Main Street where the alternative would be elevated; however, the alternative would not lower the corridor's overall visual quality and, therefore, would not impact the overall neighborhood quality. *Preferred Alternative C11A* would impact one community facility by acquiring a portion of Surrey Downs Park, and would require reviewing and amending of the City's adopted master plan for the park.

The 108th Station would be adjacent to the neighborhood, and no other land use changes would be expected of the single-family residential zoning. For those near the station, there would be benefits associated with increased transit access. In addition, the neighborhood is an established Residential Parking Zone, which minimizes the possibility of hide-and-ride parking. There would be no noise impacts on the residences in the Surrey Downs Neighborhood after mitigation. There would also be a landscaped buffer and transition area south of Main Street and the commercial area to the north, which is consistent with the City of Bellevue's Comprehensive Plan policy S-DT-125. This policy has to do with transitions between downtown and the residential neighborhood to the southeast. East of the Bellevue Transit Center Station the trackway would be located in a commercial area and there would be no negative impacts within the Wilburton or Bel-Red neighborhoods associated with the East Link Project.

Preferred 110th NE Tunnel Alternative (C9T) would result in similar impacts to those identified above for *Preferred Alternative C11A*. Impacts on the Surrey Downs neighborhood along 112th Avenue SE would be the same as those described above under *Preferred Alternative C11A*.

The differences would be in neighborhood access from 112th Avenue SE—the 108th Station is not associated with *Preferred Alternative C9T*—and impacts on Surrey Downs Park. *Preferred Alternative C9T* would close access to 112th Avenue SE from SE 1st Place, and SE 4th Street would be redirected to a new access point at the intersection of SE 6th Street and 112th Avenue SE with signalized access to 112th Avenue SE. Impacts

TABLE 4.4-3
Factors Considered in Assessing Impacts on Neighborhoods Within Segment C

Alternative	**Potential Impacts by Alternative**			
	Displacements[a]	**Visual/Physical Intrusion**	**Noise Impacts**	**Traffic/Access Changes**
Preferred 108th NE At-Grade Alternative (C11A)	39 to 40 businesses 0 to 46 residences	Vegetation and residences would be removed on west side of 112th Avenue SE and south of Main Street, but the area would be landscaped.	Noise impacts would be mitigated using a combination of sound walls, track lubrication at curves, sound insulation, or special trackwork at crossovers and turnouts.	Changes in circulation in Surrey Downs neighborhood
Preferred 110th NE Tunnel Alternative (C9T)[b]	17 to 18 businesses 0 to 46 residences	Vegetation and residences would be removed on west side of 112th Avenue SE and south of Main, but the area would be landscaped.	Impacts would be the same as *Preferred Alternative C11A*.	Changes in circulation in Surrey Downs neighborhood
Bellevue Way Tunnel Alternative (C1T)	21 businesses 91 residences	Intrusion would be minimal because much of the route is underground.	Impacts would be the same as *Preferred Alternative C11A*.	Minimal because light rail system operates below ground
106th NE Tunnel Alternative (C2T)	13 to 20 businesses, 0 to 12 residences	Intrusion would be minimal because much of the route is underground.	Impacts would be the same as *Preferred Alternative C11A*.	Minimal because light rail system operates below ground
108th NE Tunnel Alternative (C3T)	15 to 22 businesses, 7 to 19 residences	Mature vegetation would be removed in McCormick Park, and the presence of the light rail transition would result in visual impacts that could be fully mitigated.	There would be no impacts after mitigation.	Changes in access to and from the Northtowne Neighborhood.
Couplet Alternative (C4A)	36 to 37 businesses, 8 residences	Intrusions would be the same as Alternative C3T.	Impacts would be the same as *Preferred Alternative C11A*.	Changes in circulation along 110th Avenue NE and 108th Avenue NE in Downtown Bellevue Neighborhood
112th NE Elevated Alternative (C7E)	29 to 30 businesses, 0 residences	Intrusions would be minimal due to the scale and design of the surrounding facilities, including I-405.	There would be no impacts after mitigation.	Minimal because light rail system operates above ground
110th NE Elevated Alternative (C8E)	33 businesses, 2 residences	Intrusions would be the same as with Alternative C3T. In addition, an elevated structure (trackway and station) would be introduced over 110th Avenue NE, which would be out of context with the pedestrian environment near the Bellevue Transit Center and the parklike setting near Bellevue City Hall.	There would be no impacts after mitigation.	Right-in/right-out on 110th Avenue NE
110th Avenue NE At-Grade Alternative (C9A)	17 to 18 businesses, 0 to 1 residences	South of Main Street, the elevated trackway and straddle bents would be out of context with the area, resulting in visual impact.	Impacts would be the same as *Preferred Alternative C11A*.	Right-in/right-out on 112th Avenue NE and 110th Avenue NE
114th Avenue NE Elevated Alternative (C14E)	24 businesses, 0 residences	Intrusions would be similar to Alternative C7E. The elevated walkway and tent structures would block views to the east.	There would be no impacts after mitigation.	Minimal because light rail system operates above ground

[a] The range reflects differences between connectors from Segment B alternatives.

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

related to access would require a more circuitous route for some residents, but the low number of trips that this would redirect would not result in traffic impacts that would affect neighborhood quality. There also would be permanent property acquisition impacts on Surrey Downs Park. *Preferred Alternative C9T* would realign SE 4th Street through the park, but no active recreation facilities would be affected. C9T - Main

Street Station Design Option would provide additional accessibility to residents in this area. Impacts east of the Bellevue Transit Center Station would be the same as those described for *Preferred Alternative C11A*. Impacts from the East Main Station Design Option would be similar to those in C9T.

The Bellevue Way Tunnel Alternative (C1T) would have the highest number of displacements due to the displacement of three multifamily buildings. Because of the urban nature of Downtown Bellevue and surrounding area, however, relocation opportunities are expected to be readily available within a number of mixed-use developments and multifamily units existing, currently planned, or under construction. Given the abundance of available residential dwellings, both single-family and multifamily, in the surrounding area, even if the residents decided to move elsewhere, there would be no negative impact on the neighborhood's cohesion.

Much of the C1T route would be underground (including the Old Bellevue and Bellevue Transit Center stations) and therefore would not change social interaction. The transition of the alternative from tunnel to elevated along NE 6th Street would be visible but consistent with the existing character and visual quality of the area nearby. Traffic movements could become slightly more circuitous to Meydenbauer Center and City of Bellevue offices, but access to these community resources would not be diminished. Neighborhood quality would be enhanced with improved transit accessibility and reliability from two to three light rail stations serving downtown neighborhoods.

Neighborhood impacts and benefits with 106th NE Tunnel Alternative (C2T) would be generally the same as with *Preferred Alternative C9T*, the primary difference being fewer displacements. Regardless of which connector and staging area is used, this alternative would result in the least number of displacements in comparison to the other alternatives in Segment C, and project components would be consistent with the visual character of the surrounding areas. Alternative C2T would have access and circulation impacts similar to those described for Alternative C1T.

Neighborhood impacts and benefits with 108th NE Tunnel Alternative (C3T) would be generally the same as with *Preferred Alternative C9T* and Alternative C2T. Like other tunnel alternatives, this alternative is mostly underground, and impacts would occur primarily at the staging areas (see Section 4.4.3.3, Impacts During Construction, below). Along NE 12th Street, Alternative C3T would alter McCormick Park and result in visual impacts that could not be fully mitigated. This park serves as a neighborhood buffer from downtown business traffic and activities. Following construction, the park would be enlarged by converting the staging area; therefore the buffer would be replaced and the neighborhood quality preserved. A cul-de-sac with access from NE 12th Street would be redirected to access 108th Avenue NE. This would buffer some homes from traffic and generate a few more traffic trips from the redirected residents. No other changes to property access and circulation would be necessary because Alternative C3T mainly operates underground; therefore, no barriers to social interaction would be created.

The Couplet Alternative (C4A), while aboveground, would have similar impacts and benefits as the tunnel alternatives. Although the changes would be more noticeable, the at-grade profile and location in the existing street right-of-way through downtown is consistent with the urban environment and streetscape. Also, the at-grade light rail stations would be more accessible to users than the elevated tunnel alternatives because there are no stairs or elevators. The impacts from the portion of the alternative that would pass along NE 12th Street would be similar to those described for Alternative C3T. While community resources such as McCormick Park would be impacted by the presence of light rail, they would also benefit from increased accessibility. The vibration impact described under Alternative C3T would also occur with Alternative C4A.

Alternative C4A would affect traffic circulation along 110th Avenue NE and 108th Avenue NE in Downtown Bellevue. For the safety of light rail and traffic movement, light rail would travel counterflow to traffic, north along 110th Avenue NE, and south along 108th Avenue NE. There would be some inconveniences of restricted turning movements, but for the most part access would be preserved and no barriers created. For emergency access, the trackway would have mountable curbs. Overall, the neighborhood quality would be enhanced with new transit access by this alternative without adverse impacts on quality of life.

North of Main Street, the 112th NE Elevated Alternative (C7E) elevated profile and pedestrian crossing structure would pass along 112th Avenue NE and would be noticed, but it would be consistent with the character of this section of 112th Avenue NE because of the visual association with large transportation features, such as access to and from I-405. Because Alternative C7E is elevated along 112th Avenue NE, there would be minimal impacts on property access and circulation along this alternative and therefore no impact on social interaction. Overall, this alternative would not impact community resources or add barriers to social interaction, and it would enhance transit accessibility and offer a benefit to neighborhood quality.

The 110th NE Elevated Alternative (C8E) elevated profile and stations at the Bellevue Transit Center would affect the visual environment for residents in nearby multifamily buildings. Circulation impacts would be minor because U-turn movements would be allowed at signalized intersections. For the multifamily residential units located along 110th Avenue NE between NE 10th Street and NE 12th Street, noise impacts would be mitigated, but the visual intrusion cannot be fully mitigated. These impacts would not change the overall neighborhood social interaction, affect community resources, or adversely reduce the neighborhood quality.

Operations impacts on the Bellevue Transit Center from 110th NE At-Grade Alternative (C9A) would be similar to *Preferred Alternative C11A*, except light rail would be located on 110th Avenue NE. East of the Bellevue Transit Center, Alternative C9A would be the same as *Preferred Alternative C11A*.

Impacts during light rail operations from 114th NE Elevated Alternative (C14E) would be similar to Alternative C7E except the guideway is located farther east adjacent to 114th Avenue NE and crosses over I-405 north of NE 6th Street. The Bellevue Transit Center Station would be 1,300 feet away from the existing Bellevue Transit Center, which reduces the accessibility for transit transfers.

Segment D

The Cities of Bellevue and Redmond have updated their comprehensive and neighborhood plans to encourage TOD within the Bel-Red Corridor and Overlake Village area of the Overlake Neighborhood (see Section 4.2, Land Use, for further description of plans and policies). This analysis compares the impacts of Segment D alternatives with the intent of these neighborhood plans while considering impacts on immediate neighborhood uses. Table 4.4-4 summarizes factors considered in assessing impacts on neighborhoods from Segment D alternatives.

TABLE 4.4-4
Factors Considered in Assessing Impacts on Neighborhoods Within Segment D

	Potential Impacts by Alternative			
Alternative	**Displacements**[a]	**Visual/Physical Intrusion**	**Noise Impacts**	**Traffic/Access Changes**
Preferred NE 16th At-Grade Alternative (D2A)[b]	34 businesses, 0 residences	Intrusion would be minimal because the light rail system would be consistent with the urban environment.	There would be no impacts after mitigation; noise impacts would be mitigated using a combination of sound walls, track lubrication at curves, building sound insulation, or special trackwork at crossovers and turnouts.	Right-in/right-out on NE16th Street and 136th Avenue NE where light rail system is at-grade
D2A - NE 24th Design Option	69 businesses 0 residences	Intrusion would be the same as *Preferred Alternative D2A*.	Impacts would be the same as *Preferred Alternative D2A*.	Driveways along the west side of 152nd Avenue NE and the north side of NE 24th Street are closed
NE 16th Elevated Alternative (D2E)	42 businesses, 0 residences	Intrusion would be the same as *Preferred Alternative D2A*.	Impacts would be the same as *Preferred Alternative D2A*.	Minimal because light rail system is elevated
NE 20th Alternative (D3)	74 businesses, 0 residences	Intrusion would be the same as *Preferred Alternative D2A*.	Impacts would be the same as *Preferred Alternative D2A*.	Right-in/right-out on NE16th Street and 136th Avenue NE where light rail system is at-grade and restricted along NE 20th Street
SR 520 Alternative (D5)	79 businesses, 0 residences	Intrusion would be the same as *Preferred Alternative D2A*.	Impacts would be the same as *Preferred Alternative D2A*.	Minimal because light rail system is located off local roadways.

[a] The range reflects differences between connectors from Segment C Alternatives (either from former BNSF Railway or from NE 12th Street).
[b] Impacts with D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

The new light rail stations have a potential to act as a catalyst for redevelopment consistent with recently adopted plans. Adjacent residential neighborhoods would benefit from increased mobility options and additional services created from station development. Like the stations located in Bellevue, a station located within the Overlake Village area would support the City of Redmond in implementing the recently adopted land use plans. The Overlake Transit Center Station would support the existing land use and increase mobility for expanding numbers of Microsoft and other nearby office employees.

Overall impacts on property access and circulation in Segment D are expected to be focused along NE 15th/16th Street, NE 20th Street, and 152nd Avenue NE.

Preferred NE 16th At-Grade Alternative (D2A) would have little impact on existing neighborhood quality because the trackway would primarily be parallel to and north of the new NE 15th Street corridor and adjacent to the SR 520 right-of-way.Property acquisition would not be adverse to the neighborhood because of the planned land use changes for the area.

There would be no differences in impacts on community resources between *Preferred Alternative D2A* and the D2A - 120th Design Option. The D2A - NE 24th Design Option would displace additional businesses compared with *Preferred Alternative D2A*. With the D2A - NE 24th Design Option, driveway access from the north side of NE 24th Street to commercial business between 148th Avenue NE and 151st Place NE would be permanently removed to prevent left-turning vehicles from crossing the at-grade track. Similarly, western access to and from the business park along 152nd Avenue NE between NE 24th Street and NE 28th Street would be closed. Vehicle circulation within surrounding office parks would likely be rerouted onto 151st Place NE.

Although this would affect access to businesses, it is not considered a barrier to social interaction. The new transit stations at planned TOD nodes are considered new centers for increasing social interaction. No community resources would be affected. The influence of *Preferred Alternative D2A* on the neighborhood quality of the area would be minimal to the existing neighborhood and would support the planned mix-use development for the Bel-Red neighborhood.

NE 16th Elevated Alternative (D2E) is an elevated version of *Preferred Alternative D2A* and would have little impact on neighborhood quality. The elevated stations in the western part of the alternative would be compatible in character and would not change the visual quality. Impacts in the eastern portion would be similar to those described for *Preferred Alternative D2A* and D2A - NE 24th Design Option except the lost driveway access would be on the south side of NE 24th Street.

Under Alternative D2E, the route runs along the side of NE 16th Street and 136th Avenue NE, thus minimizing impacts on property access and circulation. Access from NE 24th Street to commercial businesses between 148th Avenue NE and 151st Place NE would be affected as described for *Preferred Alternative D2A*. Like *Preferred Alternative D2A*, there would be no impact on community resources and no barriers to social interaction, but rather enhanced centers for social interaction. Neighborhood quality is expected to improve with D2E.

West of approximately 140th Avenue NE, the impacts of NE 20th Alternative (D3) would be essentially the same as those described for *Preferred Alternative D2A*. Alternative D3 would affect access and circulation along NE 16th Street and 136th Avenue NE similar to those of *Preferred Alternative D2A*, but Alternative D3 would have more property access and circulation issues because it would operate in the median along NE 20th Street and 152nd Avenue, affecting low-density commercial establishments. Although this would affect access to businesses, it is not considered a barrier to social interaction. Also, major intersections would preserve the ability to access businesses on either side of NE 20th. The new transit stations at planned TOD nodes are considered new centers for increasing social interaction. No community resources would be affected. The influence of Alternative D3 on the existing neighborhood quality of the area would be minimal, if not beneficial over time.

The SR 520 Alternative (D5) would have no adverse impacts on neighborhood quality, social interaction, or community resources because it would primarily follow the former BNSF Railway corridor and the south side of SR 520. Alternative D5 also would have the least property access and circulation impacts because most of the alternative is outside the roadway right-of-way.

Similar to *Preferred Alternative D2A* with the NE 24th Design Option and to Alternative D2E, the western driveway access along 152nd Avenue NE between NE 24th Street and NE 28th Street would be closed. However, this alternative would not offer the same neighborhood benefits of the other Segment D alternatives because it does not include the 120th and 130th Stations associated with *Preferred Alternative D2A*. The presence of light rail for this alternative may not have as much influence on Transit Oriented

Development in the Bel-Red Neighborhood, and therefore less benefit on the neighborhood quality.

Segment E

Table 4.4-5 summarizes factors considered in assessing impacts on neighborhoods from Segment E alternatives. A large portion of the light rail alternatives in this segment travels parallel to SR 520 and, therefore, would not affect property access or adjacent neighborhoods. Because all alternatives use the same route in this section of Segment E, the discussion focuses on differences after the alternatives diverge at West Lake Sammamish Parkway NE. Also, all Segment E alternatives use a substantial portion of the former BNSF Railway corridor parallel to NE Redmond Way, so access to and circulation around the Redmond Town Center and surrounding businesses and neighborhoods would not be affected.

Preferred Marymoor Alternative (E2), Redmond Way Alternative (E1), and Leary Way Alternative (E4) would not affect pedestrian circulation on sidewalks within or surrounding the Redmond Town Center or Downtown Redmond.

With *Preferred Alternative E2*, the route along Marymoor Park would be scarcely visible north of SR 520 because of the screening effect of trees that follow Bear Creek and the fact that the alternative would be constructed at-grade on the south side of the raised embankment on which SR 520 is built. The alternative would impact 2.0 acres of Marymoor Park and would be more visible from parts of Marymoor Park, particularly the sports fields at the north end of the park. *Preferred Alternative E2* would be similar in character to SR 520 (but less visible). The alternative would also realign and relocate a planned extension of the East Lake Sammamish Trail, but project operation would not affect access or impair views from the trail.

The Downtown Redmond Station with *Preferred Alternative E2* would enhance transit accessibility to the Redmond Saturday Market that occurs near the intersection of Leary Way NE and the former BNSF Railway corridor, in the northwest corner of the Redmond Town Center.

The E2 - Redmond Transit Center Station Design Option would have a greater impact on properties than the other alternatives due to the displacement of a 60-unit and 62-unit apartment buildings. It would also have more impact on property access and circulation than the other alternatives because it proceeds at-grade in the median of 161st Avenue NE between Cleveland Street and NE 85th Street. Midblock property access would be restricted to only allow right turns in and out of the driveways. To minimize vehicle recirculation, NE 83rd Street and 161st Avenue NE would be signalized, and this intersection as well as NE 80th Street and NE 85th Street would allow U-turn movements.

While these are more impacts on the neighborhood than other Segment E alternatives, this terminus station would augment the Redmond Transit Center, and therefore would be compatible with the neighborhood when in operation. There would be no adverse impacts on community resources, neighborhood quality, or social interaction—only benefits of increased accessibility to reliable transit.

TABLE 4.4-5
Factors Considered in Assessing Impacts on Neighborhoods within Segment E

	Potential Impacts by Alternative			
Alternative	**Displacements**	**Visual/Physical Intrusion**	**Noise Impacts**	**Traffic/Access Changes**
Preferred Marymoor Alternative (E2)	8 businesses, 2 residences	Intrusion would be minimal because the light rail system would be consistent with the urban environment.	Noise impacts would be mitigated using a combination of sound walls, track lubrication at curves, building sound insulation, or special trackwork at crossovers and turnouts.	Changes would be minimal because light rail primarily within existing transportation right-of-way
E2 - Redmond Transit Center Station Design Option	23 businesses, 126 residences	Intrusion would be the same as *Preferred Alternative E2*.	Impacts would be the same as *Preferred Alternative E2*.	Right-in/right-out on 161st Avenue NE
Redmond Way Alternative (E1)	7 businesses, 2 residences	Intrusion would be the same as *Preferred Alternative E2*.	Impacts would be the same as *Preferred Alternative E2*.	Minimal because light rail primarily within existing transportation right-of-way
Leary Way Alternative (E4)	7 businesses, 2 residences	Removing vegetation would temporarily impact the visual quality along Leary Way.	Impacts would be the same as *Preferred Alternative E2*.	Minimal because light rail primarily within existing transportation right-of-way

The other Segment E alternatives would also be near the Redmond Saturday Market, but no impacts are anticipated, and the Redmond Town Center Station would provide improved accessibility. The other alternatives would also require minor realignment of the East Lake Sammamish Trail but would not affect access.

Alternative E1 would not adversely impact adjacent neighborhoods because it would result in only two residential relocations and only minor visual impacts as it travels between SR 520 and NE Redmond Way. The route along West Lake Sammamish Parkway NE would require removing a number of trees on the hillside in front of a large condominium complex. This would change the character of the residences at the edge of this neighborhood but would not diminish the overall neighborhood quality.

This structure and the removal of the trees on the south edge of Luke McRedmond Landing Park would result in visual change, but the visual character of the park itself and transportation facilities adjacent to the park would not change. No other impacts on community resources would result from this alternative.

Alternative E1 would not create barriers to social interaction because it would operate almost fully outside the roadway right-of-way. Property access on the south side of Redmond Way, near the 159th Place NE intersection, may have their access altered to accommodate this alternative. The overall neighborhood quality would not be adversely affected.

Alternative E4 would have impacts similar to those of Alternative E1 along West Lake Sammamish Parkway NE, except that the light rail along Leary Way would require the removal of trees along the south side of Leary Way NE, which is the formal entry into Downtown Redmond, and the relocation of the Justice White House, an important historic resource in the settlement of Redmond. The relocation would not negatively impact the neighborhood because it would be relocated in the same general vicinity. There would be a visual impact for a portion of the neighborhood due to the removal of mature trees along a portion of Leary Way NE in the Town Center open space. However, Sound Transit is proposing mitigation that would partially screen the light rail guideway, and minimize the visual effect on appearance of the Leary Way NE entry into Downtown Redmond. While the removal of the trees would impact those who travel along Leary Way NE, it would not result in adverse impacts on the overall neighborhood quality.

Alternative E4 would also have minimal impact on property access and circulation because the alternative operates almost fully outside the roadway right-of-way. This would require removing some land from the Redmond Saturday Market, but it would be able to operate, and the Redmond City Center Station would provide improved accessibility to the market. No barriers to social interaction would be created, and the alternative would provide enhanced transit access. Because the impact would be on only one building, there would be no adverse impacts on the surrounding neighborhood. The impacts of Alternative E4 would not reduce the neighborhood quality, and the increased accessibility would enhance the neighborhood.

Maintenance Facility

The MF1 would require relocation of the Bellevue Public Safety Training Center, but this would not result in negative impacts on fire and emergency medical services because this facility is primarily used for training and therefore more easily relocated. The MF2, MF3, or MF5 would not result in negative impacts on community facilities. The presence of a maintenance facility in Bellevue (MF1, MF2, or MF3) might limit the anticipated TOD that is identified in the Bellevue comprehensive and neighborhood plans for this area. But the sites have been located in areas that can be screened and would not impact the continuity of the surrounding neighborhood cohesion. No additional impacts on neighborhoods or community facilities are anticipated as a result of the maintenance facilities during operation.

4.4.3.3 Impacts During Construction

Impacts Common to All Alternatives

Similar to the impacts during operation, impacts from construction activities would potentially affect neighborhood quality, social interaction, community resources, and safety and security.

Construction would temporarily affect neighborhood quality. Construction of East Link would affect any given neighborhood for approximately 2 to 5 years, where tunnel construction is generally longer than at-grade and elevated construction (See Chapter 2 for more detail information). Activities related to building the project would include the presence and movement of equipment and materials, clearing and exposure of soils, introduction of lights for nighttime work, storage of construction materials, and general visual changes in the viewed landscape during the period of building the project.

Temporary increases in noise, dust, and traffic congestion would occur along the corridor and at staging areas during construction. Adjacent neighborhoods may experience increased difficulty accessing residential, commercial, and office properties because of road closures, construction equipment, and retained cut construction activities. Roadway closures or lane closures could result in detours and cut-through traffic through neighborhoods and community facilities. Construction would affect nearby neighborhoods to varying degrees for varying amounts of time.

Construction would also require a substantial amount of earthmoving, particularly for the tunnel alternatives. The average number of truck trips per day and per hour for each alternative is discussed in Chapter 3. Haul trucks are expected to arrive and depart from I-90, I-405, and SR 520 to access local construction sites. Truck trips would be required to follow designated haul routes to minimize impacts on neighborhoods. It is anticipated that the primary arterials would be used for the haul routes, and because these arterials are located along the edge of the neighborhoods, no impacts on the overall neighborhood are anticipated.

Although some residents and businesses in the immediate area of construction would experience impacts, the overall neighborhood cohesion would not be permanently affected. Sound Transit would implement measures to minimize construction-related parking and travel in the adjacent residential neighborhoods to the extent possible. During construction, Sound Transit would implement measures (i.e., advertisements and signage) to help businesses maintain open accessible conditions as well as continue to perform public outreach (i.e., public involvement meetings, website, and telephone to allow residents and businesses to voice their concerns and for Sound Transit to respond to any concerns). Refer to Section 4.3, Economics, for additional information on mitigation measures intended to reduce the impacts of construction on businesses.

In general, Sound Transit would maintain access to adjacent properties and prevent barriers to social interaction during construction to the extent possible. Because the alternatives follow major arterials, short-term impacts to pedestrian and vehicular circulation are not considered a barrier to interaction. Noise, dust, and congestion might affect the use of some community resources, and to some extent, the quality of the neighborhood's edge would be reduced for a period of time. Construction would temporarily affect portions of park resources to allow for construction or for staging areas. These closures would affect social interaction during construction, especially if the entire park or large sections of the park are affected. Section 4.17, Parkland and Open Space, describes the resources that would be impacted during construction. As described in Section 4.14, Public Services, Sound Transit would coordinate with public service providers prior to construction on detour routes and lane closures to ensure access for emergency response vehicles is maintained and minimize impacts on response times. The following outlines specific impacts on the neighborhoods by project segment.

Segment A

Neighborhoods would not be affected in Segment A. There could be negative impacts for those who reside close to construction activities; however, because construction activities and construction staging would be within the I-90 right-of-way and because I-90 is lower than the surrounding area, impacts are expected to be minor. Access for construction vehicles and haul routes would be from I-90, and construction traffic through the adjoining neighborhoods would be limited.

Segment B

Construction for the Segment B alternatives would primarily be located within existing transportation rights-of-way. Detour routes are available, with the exception of Bellevue Way SE south of 112th Avenue SE. Neighborhood traffic intrusion is expected to be low, with the exception of Bellevue Way SE heading north of the Y west of 112th Avenue SE. Increased traffic congestion as a result of the construction-related traffic disruptions could temporarily affect transit reliability and auto travel times on the local arterials.

Construction activities associated with *Preferred Alternative B2M* would be located farther east along Bellevue Way when compared to other Segment B alternatives along Bellevue Way SE. Because *Preferred Alternative B2M* is located east of Bellevue Way SE, it would minimize impacts on traffic on Bellevue Way due to lane closures. One lane along Bellevue Way SE would likely be closed for most of the construction period, with periods where additional lane closures could be required, depending on construction activity. It would also temporarily relocate the retail activities associated with the blueberry farm and the Eastside Heritage Center located in the Winters House. Other trail and park activities would be detoured to new points of access, but access would be maintained throughout construction.

Of the other alternatives in Segment B, Alternative B1 is predicted to require the most haul truck trips due to the relatively high amount of excavation and asphalt concrete pavement required. Alternative B1 would result in the greatest impacts on neighborhoods during construction due to the amount of new right-of-way required along Bellevue Way SE, which would disrupt those in the adjoining neighborhoods. Alternative B7 would result in the fewest impacts on the surrounding neighborhoods because much of the construction would be within the former BNSF Railway corridor. Alternatives B2A, B2E, and B3 would result in similar impacts as *Preferred Alternative B2M* because these alternatives follow essentially the same route along Bellevue Way SE and 112th Avenue SE.

Segment C

Construction would require mostly lane and/or road closures. Tunnels and underground stations may include cut-and-cover construction, tunnel-boring construction, and sequential excavation mining construction. Tunnel construction would likely last longer than construction for an elevated or at-grade section, creating a longer period of disruption to adjacent communities and supporting businesses.

Within Segment C, local, minor, and principal arterials would be affected by construction. Road closures range from none at staging areas and partial road closures for short-term durations, to full road closures. Detour routes would be available in the central business district, but commercial vehicles would have limited access in some cases. Construction vehicle traffic ranges from low to high, and neighborhood traffic intrusion would range from low to moderate.

Because Downtown Bellevue is so densely developed, it was considered important to identify the staging areas needed to construct Segment C in order to identify the associated potential impacts. Staging areas would be located at the northern and southern ends of Downtown Bellevue within Segment C to facilitate construction. The Segment C alternatives would also include a staging area at the stations (see Exhibits 2-52 through 2-60 in Chapter 2 for location of staging areas). Staging areas at the southern end of Alternatives C2T, C3T, or C4A would depend on the specific connection from Segment B.

The staging area locations with the greatest potential to affect neighborhoods are staging areas on the north half of Surrey Downs Park where the King County District Courthouse is located, the property southwest of Main Street/112th Avenue NE, the property along 112th Avenue NE, and property at McCormick Park. These staging areas are located adjacent to existing residences that could be affected by the noise, dust, and activity related to construction. Depending on the sensitivity of the surrounding land uses, a barrier could be used to buffer the adjacent land uses from noise and visual impacts where practical. Both the permanent impacts and the temporary construction impacts are discussed below for each alternative within Segment C.

Constructing *Preferred Alternative C11A* would potentially result in impacts related to construction activities near residences along 112th Avenue SE and Main Street. Although some residences would experience impacts, the overall neighborhood cohesion would not be affected. The area where properties would be acquired along 112th Avenue SE and Main Street would also be used for staging areas and to store building materials, equipment, and excavation materials. Construction would result in a temporary closure of a portion of Surrey Downs Park and users might experience increased noise, but access to the park would be maintained.

Because *Preferred Alternative C11A* follows 112th Avenue SE and Main Street, any short-term impacts on pedestrian and vehicular circulation are not considered a barrier to social interaction. Also, Sound Transit would maintain access to adjacent properties to the extent possible. Construction periods would comply with local noise ordinances. Where possible, mature trees would be preserved and noise barriers could be constructed prior to beginning construction. After construction, this area would be restored and would act as a buffer between light rail and the neighborhood. Within Downtown Bellevue, construction activities associated with the Bellevue Transit Center Station would require the temporary relocation of the transit bus bays.

Construction impacts with *Preferred Alternative C9T* would be located in similar areas of Surrey Downs Park and in a shorter-distance area along Main Street as those discussed under *Preferred Alternative C11A* but would involve cut-and-cover construction. Cut-and-cover construction activities have the potential to affect how neighborhood residents access businesses along 110th NE Avenue up to the Bellevue Transit Center. There would be times when roadways are closed due to excavation activities. Some portions of the roadway could possibly be temporarily covered (i.e., using steel plates), thus allowing work to continue below while traffic has access above. The properties used for staging are surrounded by mixed use and commercial uses within the urban downtown area, and would have no impact on single-family residential neighborhoods.

Alternative C1T would have the same construction impacts as *Preferred Alternative C9T*, except that the tunnel is longer and could affect access to Bellevue Arts Museum and the pedestrian path at approximately NE 6th Street between Bellevue Way and the Bellevue Transit Center. Alternative C1T would also relocate the transit bus bays during construction. The properties used for staging are surrounded by mixed use and commercial uses within the urban downtown area, so they would have no impact on single-family residential neighborhoods.

Like *Preferred Alternative C9T* and Alternative C1T, Alternative C2T would have similar construction impacts. Two of the possible staging areas at the south end, however, could potentially affect Surrey Downs located in the South of Downtown residential neighborhood. The first might affect the Surrey Downs neighborhood due to its location at the King County District Courthouse site and temporarily disrupt the quality of residential land uses during tunneling activities. However, this staging site would reduce the number of residential relocations with other connectors. After construction, the staging area would be available for redevelopment consistent with the master planning efforts for Surrey Downs Park.

If the connector from Alternative B2E is used, the relocated businesses and residences, which are isolated from the remaining residences in the neighborhood, would not be considered a negative impact on the overall neighborhood cohesion. Nearby residences would experience temporary disruption from adjacent project construction. When construction is completed, the land could be restored or used to create a park that would provide a buffer to transition between the Surrey Downs and Downtown neighborhoods as recommended in the Downtown Implementation Plan.

The third possible staging area for the southern end of Segment C is located at the East Main Station and is primarily within a commercial area and would not affect residential neighborhoods.

In addition to the possible staging areas and impacts on the Surrey Downs neighborhood described for Alternative C2T, Alternative C3T would use property at its north end that would potentially affect the Northtowne neighborhood. The staging area at McCormick Park would remove six single-family residences along the north side of the park. This represents a small area of the neighborhood. The impact would result in the temporary loss of the park to patrons as well as disruption of the buffer transition between the Northtowne and Downtown neighborhoods. Alternative C3T would include redesigning and reconstructing the park upon completion of the project. Nearby residents in the Northtowne neighborhood would have temporary disruption from adjacent project construction.

Alternative C4A would use primarily the same staging areas (i.e., south of Main Street and at McCormick Park) as Alternative C3T, with similar impacts. South of Main Street, Alternative C4A would require a smaller area.

The properties used for staging for Alternative C7E are surrounded by commercial uses within the urban downtown area, so they would have no impact on existing residential neighborhoods.

Alternative C8E would use the McCormick Park staging area, and impacts would be similar to those described for Alternative C3T. In addition, construction along 110th would affect several multifamily residences.

Impacts resulting from Alternative C9A would be similar to those described for Alternative C4A.

Impacts resulting from Alternative C14E would be similar to those described for Alternative C7E.

Segment D

Construction activities associated with *Preferred Alternative D2A* and the D2A - 120th Station Design Option would have no or limited impacts on neighborhoods because the area is associated with commercial- and industrial-related land uses, and there are no residential neighborhoods or community facilities nearby. Much of the western portions along this alternative may be under redevelopment at or following the construction of East Link. Collector, local, minor, and principal arterials would be affected by construction. Road closures would range from partial closures for short-term durations to full closures for long-term durations. Neighborhood traffic intrusion and construction vehicle traffic would be low because detours are generally available. A large segment of the alternative would be located adjacent to WSDOT right-of-way, thus minimizing the impacts on the local roadways. The D2A - NE 24th Design Option would require construction within the Overlake area, but the adjacent land uses are primarily commercial related and impacts would be the same as those described for above.

The other alternatives in Segment D would have similar impacts as those described for *Preferred Alternative D2A*. Impacts on neighborhoods would be minimal because these roads are surrounded by primarily industrial and commercial uses. Alternative D5 might result in even fewer disruptions because the route is mostly adjacent to SR 520 and away from the commercial corridors and major arterials.

Segment E

All Segment E alternatives travel along the south side of SR 520 and under NE 40th Street, NE 51st Street, and NE 60th Street in a retained-cut profile and then return to at-grade down to West Lake Sammamish Parkway NE. Within Segment E, local and collector arterials as well as state highways would be affected by construction. Barriers, such as road closures, would range from partial closures for short-term durations to full closures for long-term durations. Construction vehicle traffic is expected to be moderate, as would neighborhood traffic intrusion, because detour routes are generally available. In general, large portions of construction would be along or alongside of arterial or collector roads where noise is expected. Construction within the former BNSF Railway corridor is not expected to disrupt neighborhoods.

Preferred Alternative E2 would not likely result in any neighborhood impacts during construction because this alternative is primarily adjacent to the existing SR 520 right-of-way and within the former BNSF Railway corridor. The residential neighborhoods to the east of SR 520 might experience some noise impacts, but cohesion would not be affected. Users of the adjacent park facilities might experience increased noise, but access to and use of the facilities would not be impacted. The E2 - Redmond Transit Center Design Option would also impact the skate park near the existing Redmond Transit Center. This design option would close 161st Avenue NE during construction, which might affect access to businesses and some residential units, but all uses along this roadway have other access points.

In addition to the impacts with all Segment E alternatives, construction activities at the intersection of Leary Way NE and the former BNSF Railway corridor that would result from Alternative E4 may require temporary relocation of the Redmond Saturday Market and affect some multifamily residences. Because the market consists primarily of portable fixtures, temporary relocation elsewhere within the Redmond Town Center or Redmond is not expected to result in adverse impacts. Alternative E1 might affect traffic flow and business access on West Lake Sammamish Parkway and the residents on the bluff above the roadway, but no impacts on community cohesion are anticipated.

Maintenance Facility

No adverse impacts on the surrounding neighborhoods are anticipated from the construction of the maintenance facility alternatives because the facilities would be located within areas having primarily industrial uses. However, in the instance of MF1, which is close to the Children's Hospital Bellevue Clinic and Surgery Center and other medical and office land uses, there could be an increase in noise impacts. The only other exception is MF5, which would be constructed within an area surrounded by existing light industrial uses but could create noise and dust impacts near the Lake Washington Technical College Redmond Corporate Campus. This is not considered an adverse impact on the neighborhood quality.

4.4.4 Potential Mitigation Measures

Sound Transit would incorporate measures to try to minimize the impacts on neighborhood quality, social interaction, and safety and security. The East Link Project would primarily provide net benefits to neighborhood quality during operation, and therefore no mitigation would be necessary beyond mitigation described in other sections of the Final EIS. Project construction would result in temporary reduction of neighborhood quality due to construction barriers and reduced convenience in access and may result in impacts on use of community resources during construction.

Specific mitigation measures during project operation and construction are described in detail in other sections of this Final EIS, including Chapter 3 and Sections 4.1, 4.2, 4.3, 4.5, 4.6, 4.7, and 4.17. No additional mitigation measures related to social impacts, community, and neighborhoods would be required.

4.5 Visual and Aesthetic Resources

4.5.1 Introduction to Resources and Regulatory Requirements

Visual and aesthetic environments are the landscape's natural and cultural features that can be seen and that contribute to the public's appreciation and enjoyment of it. The visual environment encompasses elements from both the built and natural environments; these can include solitary built and natural landmarks (such as buildings, trees, and bodies of water) or entire landscapes. Impacts on the visual environment are defined in terms of the extent to which the project's presence would change the perceived visual character and quality of the environment.

This description of the existing visual conditions and assessment of changes associated with the East Link Project is based on the visual assessment system developed by the Federal Highway Administration (FHWA). The approaches and terminology used in this assessment are found in FHWA's *Visual Impact Assessment for Highway Projects* (FHWA, 1981). Appendix F4.5, Attachment 1, describes this assessment and how the existing visual quality categories were established and the degree to which the segment alternatives impacted visual quality categories. Sound Transit also assessed the project's consistency with visual resource goals and policies of relevant local comprehensive plans.

The study area for visual resources consists of the alternative viewsheds. Viewsheds are the areas from which the alternatives could be viewed. In general, the viewsheds for the East Link Project encompass the foreground viewing distance (within 0 to 0.5 mile from the viewer) but might vary depending upon elements in the landscape (such as terrain, vegetation, and buildings) that can block views of objects.

4.5.2 Affected Environment

Assessment activities for the affected environment included conducting site visits, examining aerial photographs, reviewing conceptual engineering drawings of the proposed alternatives, and preparing an existing conditions inventory. Preparing the existing conditions inventory relied in part on materials from other technical areas that influence the visual environment. These related technical areas are Land Use (Section 4.2); Social Impacts, Community Facilities, and Neighborhoods (Section 4.4); Ecosystem Resources (Section 4.8); and Parkland and Open Space (Section 4.17).

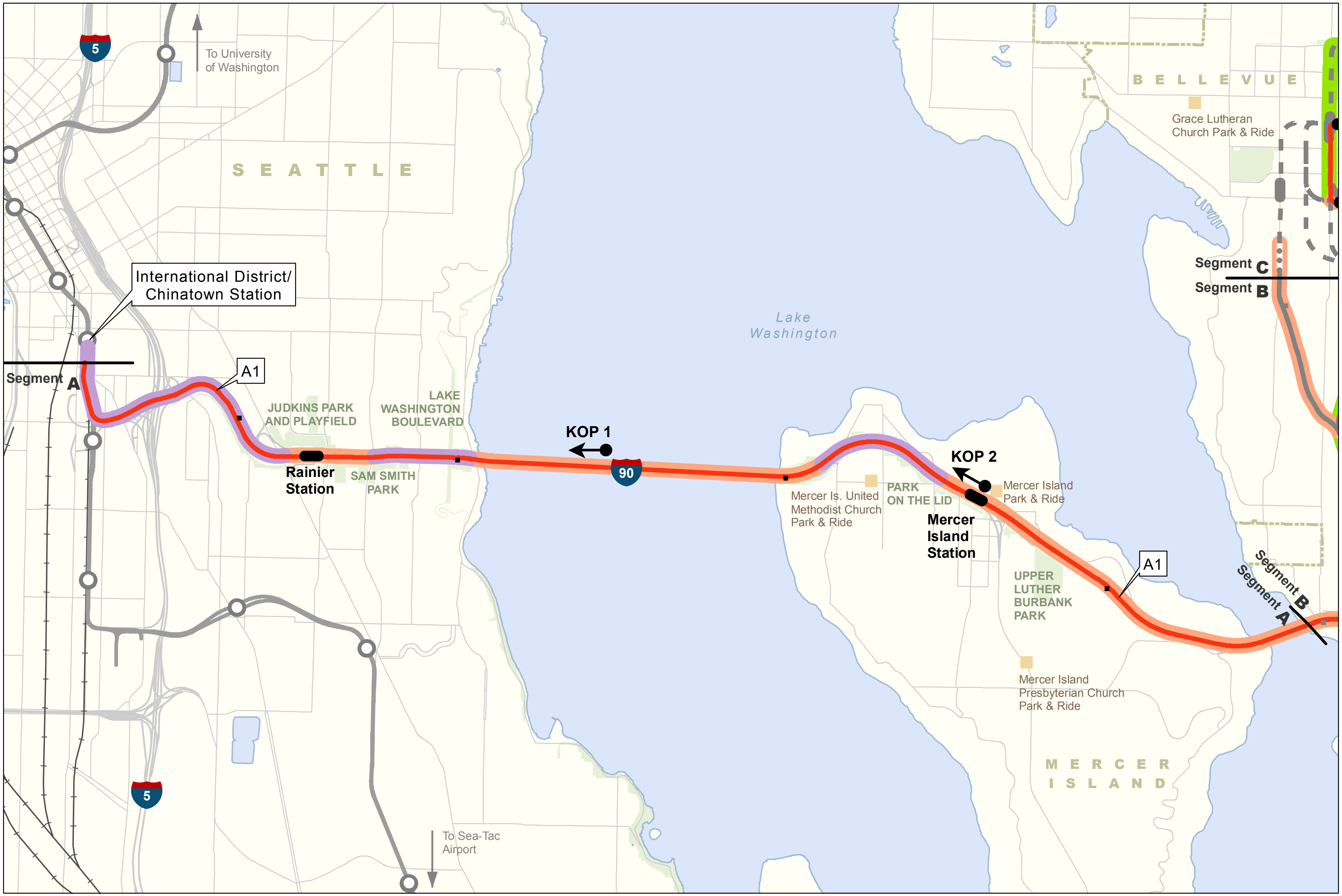
The existing conditions inventory described the existing visual character of the study area, identified the types of viewer groups that would see the alternatives, described their sensitivity to changes in the viewed environment (viewer sensitivity), and categorized the existing visual quality using three categories based on the FHWA system. The visual quality categories helped to assess changes in the visual environment that would occur with the East Link Project. Following are the three visual quality categories:

- **Low Visual Quality.** Areas that have low visual quality might have features that seem visually out of place, lack visual coherence, do not have compositional harmony, and contain eyesores.
- **Medium Visual Quality.** These areas are commonly occurring landscapes that are generally pleasant appearing but might lack enough distinctiveness, memorability, drama, and compositional harmony to place them in the high visual quality category.
- **High Visual Quality.** To be in this category, areas must be memorable, distinctive, unique (in a positive way), and intact—they can be natural, parklike, or urban (with urban areas displaying strong and consistent architectural and urban design features).

Exhibits 4.5-1 through 4.5-5 show the existing visual quality categories (low, medium, and high) by project segment (see Appendix F4.5, Attachment 1 for explanations of specific sections of alternative routes). In addition to categorizing the overall visual quality, Sound Transit selected a series of locations to provide more site-specific information. Because it is not possible to include all the important viewing locations near a proposed project, representative locations—or key observation points (KOPs)—are selected. KOPs are used to describe existing visual conditions and to analyze the effects of a proposed action on visual resources. The KOP locations were chosen after field reconnaissance of the alternative routes and after meetings with the planning departments of the Cities of Bellevue and Redmond.

In addition, important community features, identified in public workshops, were considered in determining KOP locations. Exhibits 4.5-1 through 4.5-5 depict the KOPs selected for the East Link Project.

More detailed information related to the KOPs, including photographs of the existing conditions at these locations as well as simulations of various alternatives, is provided in Appendix F4.5.


5
To University of Washington
SEATTLE
International District/ Chinatown Station
Segment A
A1
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
Rainier Station
SAM SMITH PARK
KOP 1
90
Lake Washington
5
To Sea-Tac Airport
BELLEVUE
Grace Lutheran Church Park & Ride
Segment C
Segment B
Mercer Is. United Methodist Church Park & Ride
PARK ON THE LID
KOP 2
Mercer Island Park & Ride
Mercer Island Station
A1
UPPER LUTHER BURBANK PARK
Segment B
Segment A
Mercer Island Presbyterian Church Park & Ride
MERCER ISLAND

Source: Data from City of Seattle (2002), King County (2006), Sound Transit (2007), and CH2M Hill (2008).

Visual Quality

- 🟩 High
- 🟧 Medium
- 🟪 Low

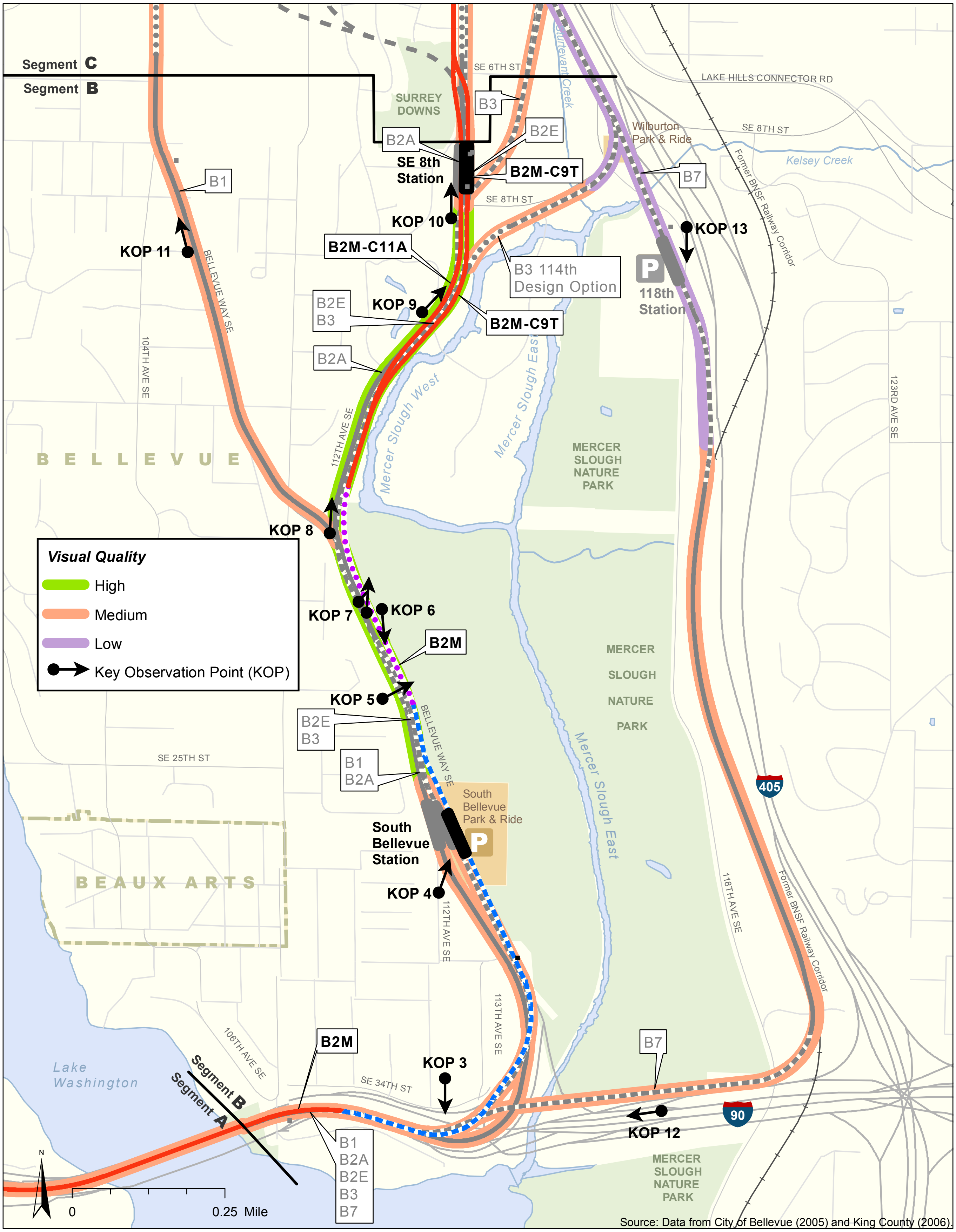
- ●→ Key Observation Point (KOP)
- ▪ Traction Power Substation
- ⬬ Proposed Station
- ○ Central Link Alignment and Station

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

N

0 0.5 1 Mile

Exhibit 4.5-1
Visual Quality
Segment A
East Link Project


Segment C
Segment B
SE 6TH ST
SURREY DOWNS
B3
Sturtevant Creek
LAKE HILLS CONNECTOR RD
Wilburton Park & Ride
SE 8TH ST
B2A
B2E
SE 8th Station
B2M-C9T
Kelsey Creek
B7
Former BNSF Railway Corridor
B1
SE 8TH ST
KOP 10
KOP 13
KOP 11
B2M-C11A
B3 114th Design Option
P
118th Station
BELLEVUE WAY SE
B2E
B3
KOP 9
B2M-C9T
104TH AVE SE
B2A
Mercer Slough West
Mercer Slough East
112TH AVE SE
123RD AVE SE
BELLEVUE
MERCER SLOUGH NATURE PARK
KOP 8
Visual Quality
High
Medium
Low
Key Observation Point (KOP)
KOP 7
KOP 6
B2M
MERCER SLOUGH NATURE PARK
KOP 5
B2E
B3
BELLEVUE WAY SE
B1
B2A
SE 25TH ST
South Bellevue Park & Ride
P
Mercer Slough East
405
South Bellevue Station
BEAUX ARTS
KOP 4
112TH AVE SE
118TH AVE SE
Former BNSF Railway Corridor
113TH AVE SE
106TH AVE SE
B2M
B7
Lake Washington
KOP 3
Segment B
Segment A
SE 34TH ST
90
KOP 12
B1
B2A
B2E
B3
B7
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile

Source: Data from City of Bellevue (2005) and King County (2006).

Preferred Alternative **B2M**

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives B2A

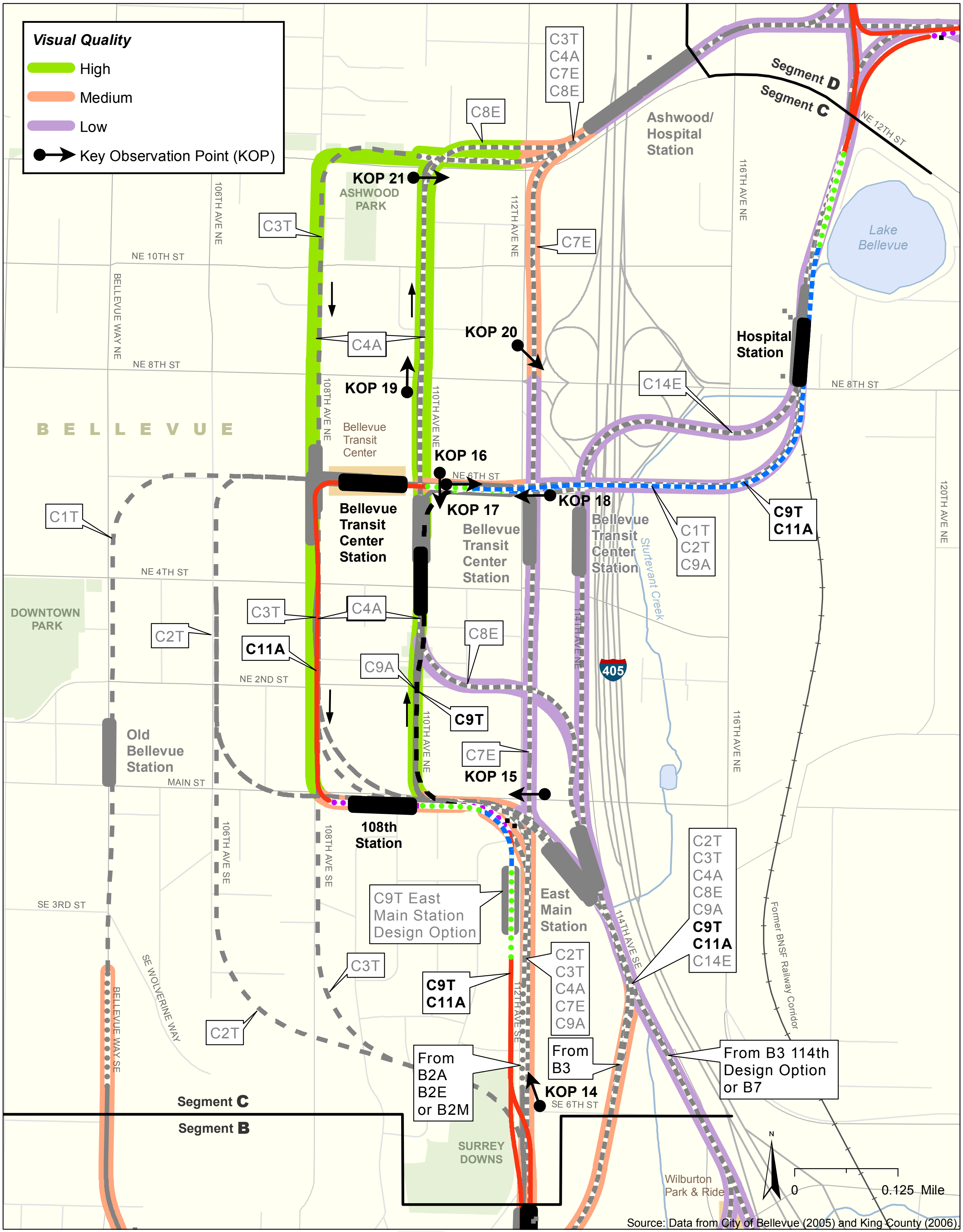
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

▪ Traction Power Substation

▬ Proposed Station

P New and/or Expanded Park-and-Ride Lot

Exhibit 4.5-2
Visual Quality
Segment B
East Link Project


Visual Quality
High
Medium
Low
Key Observation Point (KOP)
C3T
C4A
C7E
C8E
Segment D
Segment C
NE 12TH ST
Ashwood/
Hospital
Station
KOP 21
ASHWOOD
PARK
106TH AVE NE
112TH AVE NE
116TH AVE NE
C7E
C3T
NE 10TH ST
BELLEVUE WAY NE
Lake
Bellevue
C4A
KOP 20
Hospital
Station
NE 8TH ST
KOP 19
C14E
NE 8TH ST
108TH AVE NE
110TH AVE NE
B E L L E V U E
Bellevue
Transit
Center
KOP 16
NE 6TH ST
120TH AVE NE
C1T
KOP 17
KOP 18
C9T
C11A
Bellevue
Transit
Center
Station
Bellevue
Transit
Center
Station
Bellevue
Transit
Center
Station
C1T
C2T
C9A
Sturtevant Creek
NE 4TH ST
DOWNTOWN
PARK
C3T
C4A
C2T
C11A
C8E
114TH AVE NE
405
C9A
NE 2ND ST
C9T
110TH AVE NE
116TH AVE NE
Old
Bellevue
Station
C7E
KOP 15
MAIN ST
108th
Station
106TH AVE SE
108TH AVE SE
C2T
C3T
C4A
C8E
C9A
C9T
C11A
C14E
SE 3RD ST
C9T East
Main Station
Design Option
East
Main
Station
Former BNSF Railway Corridor
114TH AVE SE
SE WOLVERINE WAY
C3T
C9T
C11A
C2T
C3T
C4A
C7E
C9A
112TH AVE SE
BELLEVUE WAY SE
C2T
From
B2A
B2E
or B2M
From
B3
From B3 114th
Design Option
or B7
KOP 14
SE 6TH ST
Segment C
Segment B
SURREY
DOWNS
Wilburton
Park & Ride
N
0
0.125 Mile
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C14E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded
Park-and-Ride Lot

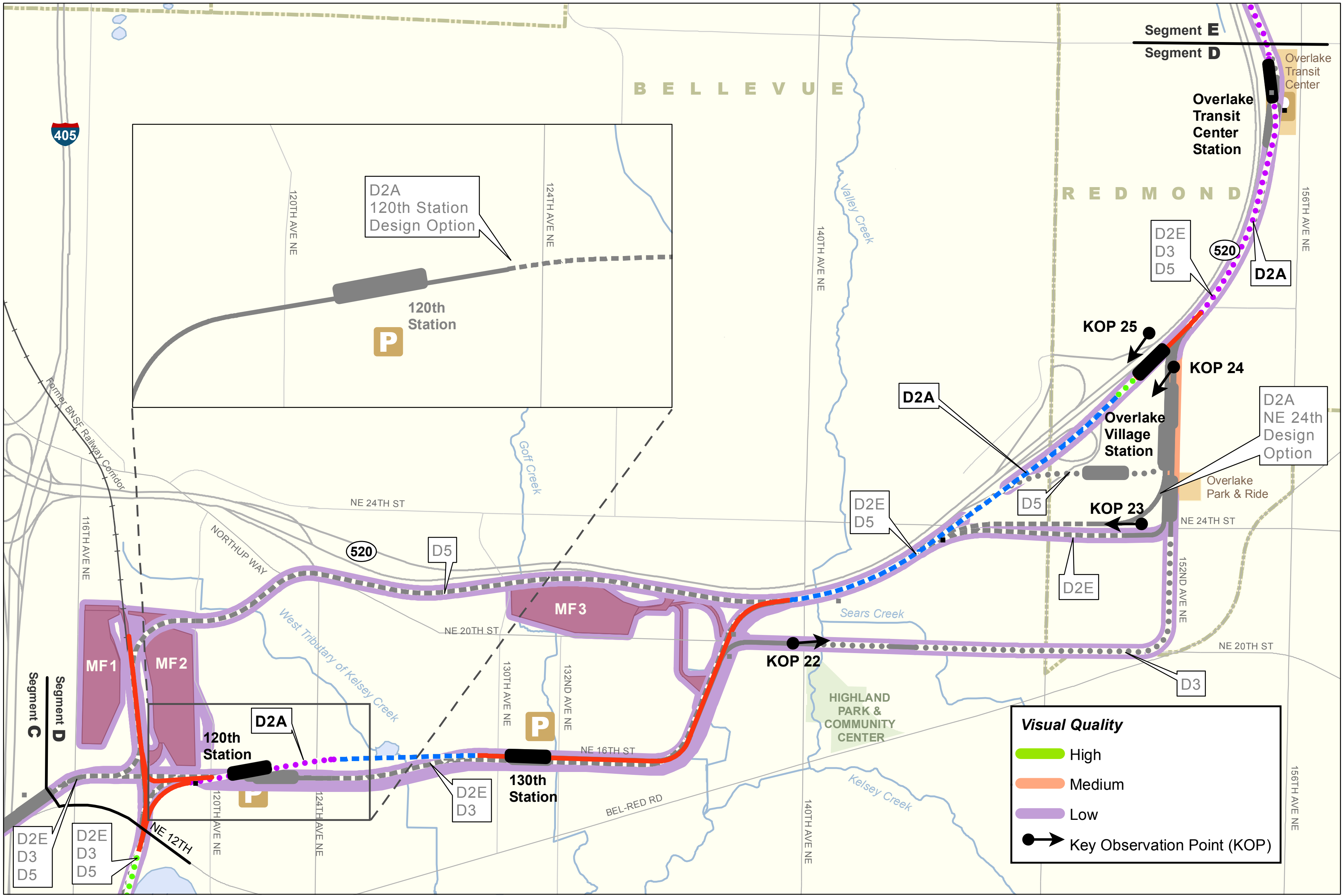
Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit 4.5-3

Visual Quality

Segment C

East Link Project


Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
B E L L E V U E
R E D M O N D
405
520
D2A 120th Station Design Option
120th Station
124TH AVE NE
120TH AVE NE
140TH AVE NE
Valley Creek
156TH AVE NE
D2E D3 D5
D2A
KOP 25
KOP 24
D2A
Overlake Village Station
D2A NE 24th Design Option
D5
Overlake Park & Ride
KOP 23
NE 24TH ST
D2E D5
D2E
Former BNSF Railway Corridor
NORTHUP WAY
NE 24TH ST
Goff Creek
D5
MF3
Sears Creek
NE 20TH ST
152ND AVE NE
NE 20TH ST
KOP 22
D3
116TH AVE NE
MF1
MF2
Segment C
Segment D
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
HIGHLAND PARK & COMMUNITY CENTER
D2A
120th Station
NE 16TH ST
130th Station
D2E D3
BEL-RED RD
Kelsey Creek
140TH AVE NE
156TH AVE NE
NE 12TH
120TH AVE NE
124TH AVE NE
D2E D3 D5
D2E D3 D5
Visual Quality
High
Medium
Low
Key Observation Point (KOP)

Preferred Alternative **D2A**
- 🟥 At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives D3
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

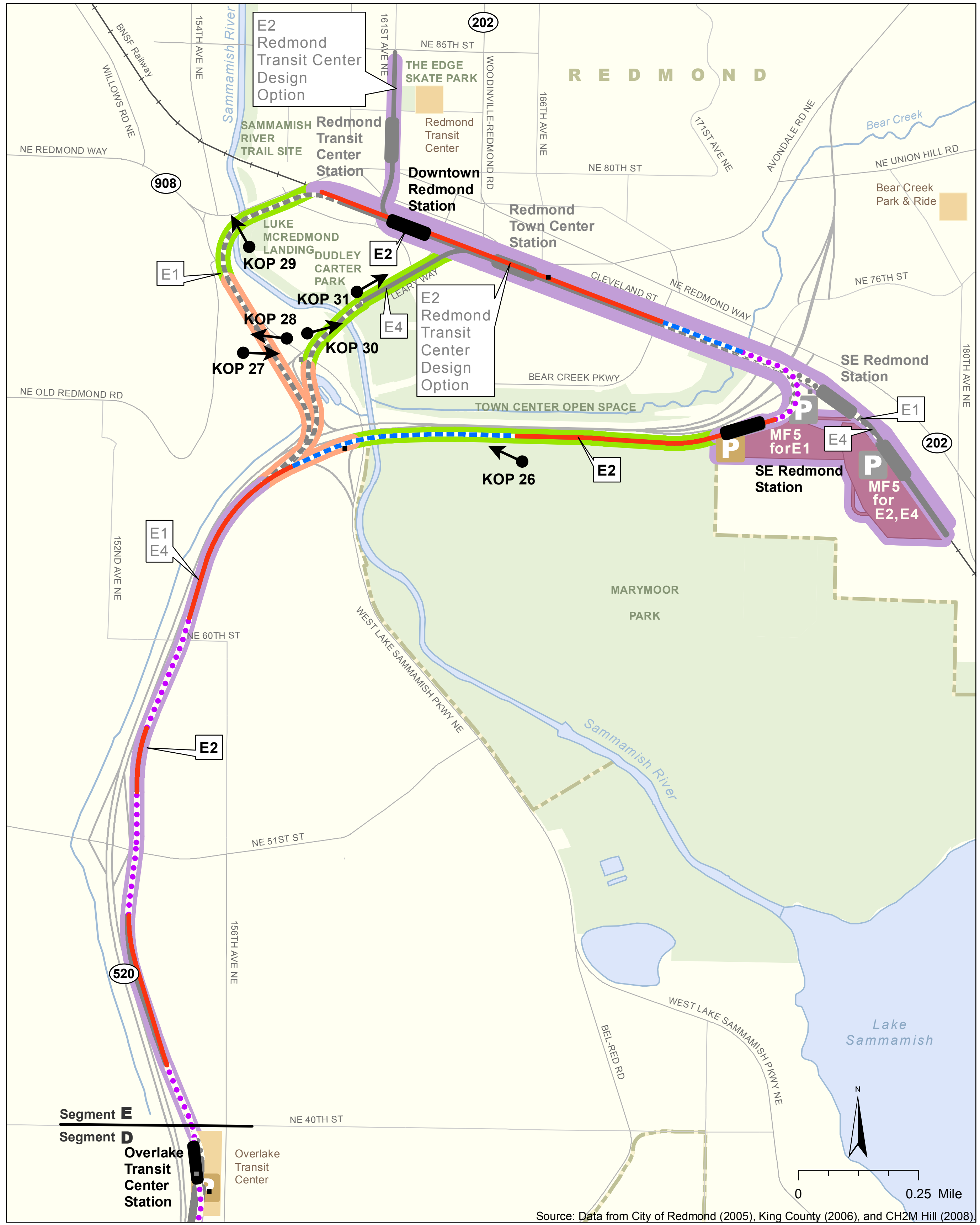
- ▪ Traction Power Substation
- ■ Proposed Station
- ▨ Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot

N

0 0.25 Mile

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Exhibit 4.5-4
Visual Quality
Segment D
East Link Project



E2 Redmond Transit Center Design Option
BNSF Railway
WILLOWS RD NE
154TH AVE NE
Sammamish River
161ST AVE NE
202
NE 85TH ST
THE EDGE SKATE PARK
WOODINVILLE-REDMOND RD
166TH AVE NE
R E D M O N D
Redmond Transit Center
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Downtown Redmond Station
NE REDMOND WAY
908
NE 80TH ST
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
Redmond Town Center Station
LUKE MCREDMOND LANDING
KOP 29
DUDLEY CARTER PARK
E2
E1
LEARY WAY
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
KOP 31
E2 Redmond Transit Center Design Option
KOP 28
E4
KOP 30
KOP 27
BEAR CREEK PKWY
SE Redmond Station
180TH AVE NE
NE OLD REDMOND RD
TOWN CENTER OPEN SPACE
E1
MF5 for E1
E4
202
KOP 26
E2
SE Redmond Station
MF5 for E2, E4
E1 E4
152ND AVE NE
MARYMOOR PARK
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
E2
Sammamish River
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
WEST LAKE SAMMAMISH PKWY NE
BEL-RED RD
N
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
Overlake Transit Center
0
0.25 Mile
Source: Data from City of Redmond (2005), King County (2006), and CH2M Hill (2008).
Key Observation Point (KOP)
Visual Quality
High
Medium
Low
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot
Maintenance Facility and Access Track
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
NE BELLEVUE-REDMOND RD
B E L L E V U E

Exhibit 4.5-5
Visual Quality
Segment E
East Link Project

A wide variety of people (viewers) would see potential changes to the visual environment from the alternatives. Depending on the land uses in the project vicinity, viewers include commuters along major arterials, residents in nearby yards or buildings, park users and/or recreationists, and in commercial areas, workers or customers.

Viewers can be categorized as having low, average, or high sensitivity to changes in the viewed environment. Viewer sensitivity is strongly influenced by a viewer's activity, awareness of his or her surroundings, and amount of time spent looking at a view. People such as residents or regular park users who see a landscape multiple times for long periods of time would be aware of changes in the landscape. They would likely appreciate or be familiar with a landscape's aesthetic qualities and are assumed to have high viewer sensitivity. People who view a landscape infrequently, view it for short periods of time (often as they pass through it), or are not attentive to it due to focusing on other activities (such as driving or working) are often less sensitive to changes and are assumed to have low viewer sensitivity. Viewers with average viewer sensitivity include workers and customers who might expect a somewhat pleasant visual setting for the establishments they work in or frequent but are in the locations for purposes other than enjoying its scenery or visual quality.

The visual quality of an area can indicate how responsive an area's most sensitive viewers would likely be to changes in the visual environment. For example, viewers with high viewer sensitivity in areas that are categorized as having high visual quality would be expected to react more to changes in the visual environment than they would in areas that have medium or low visual quality.

The following subsections describe the visual character, visual quality, viewers, and viewer sensitivity for each project segment and for areas near the maintenance facilities.

4.5.2.1 Segment A

The Seattle portion of Segment A passes through mixed land use types—mainly industrial, transportation, and commercial—that have a generally utilitarian appearance and character. Much of the Seattle subarea of Segment A was categorized as having low visual quality. The exception is the hillside area west of the Interstate 90 (I-90) eastbound tunnel that contains residences and two parks (Judkins Park and Sam Smith Park); this area has a pleasant residential character that was categorized as being of medium visual quality. Some routes connecting to Segment A, including I-5 and I-90, have been identified by the City of Seattle as scenic routes or scenic routes with protected view rights-of-way. Subsection P (Public View Protection) of Seattle Municipal Code 25.05.675 (Specific environmental policies) states that it is the City's policy to protect public views of significant natural and built features, such as Mount Rainier, the downtown skyline, and historic landmarks, from these routes.

The visual quality of the tunneled portions of I-90 was categorized as low. Although the I-90 Floating Bridge and the East Channel Bridge offer memorable and vivid views for people using them, the structures themselves are utilitarian in appearance and are visual encroachments when viewed from Lake Washington or its shoreline. The section of I-90 that is the I-90 floating bridge has been categorized as medium. The portion of I-90 that passes through the Mercer Island retained cut is more attractive than typical freeways due to extensive landscaping and wall treatments. As a result, it was categorized as medium visual quality.

4.5.2.2 Segment B

The character and visual quality of south Bellevue is varied. All Segment B alternatives pass south and southeast of residences in the Enatai neighborhood. A few residences in this area have views to the south and southeast that include Lake Washington and adjacent areas, Mount Rainier, and I-90. Because of the presence and proximity of I-90, this viewshed has been categorized as having medium visual quality. With the exception noted below, most of Bellevue Way SE passes by single-family residential and mixed (i.e., small commercial, churches, and multifamily) land uses that have a pleasant, but not out-of-the-ordinary, appearance with medium visual quality.

Bellevue Way SE between I-90 and the South Bellevue Park-and-Ride has a medium visual quality. The portion of Bellevue Way SE between the north end of the South Bellevue Park-and-Ride and the intersection with 112th Avenue SE, however, was categorized as having high visual quality. The east side of Bellevue Way SE passes by Mercer Slough Nature Park, the Mercer Slough Blueberry Farm, and the Winters House and parking lot. Areas along both sides of the road contain considerable vegetation, particularly the slope west of the Bellevue Way SE. This vegetation screens views into much of Mercer Slough Nature Park from most of Bellevue Way SE. Bellevue Way north of the intersection with 112th Avenue SE is of medium visual quality with no distinctive visual attributes.

The portion of 112th Avenue SE between its intersection with Bellevue Way SE and SE 8th Street has a high visual quality. The areas adjacent to 112th Avenue SE have a "boulevardlike" appearance with well-maintained landscaping and memorable views of Mercer Slough West within the Mercer Slough Nature Park and otherwise suburban residences and the Bellefield Office Park.

The portion of the BNSF Alternative (B7) route that traverses Mercer Slough Nature Park passes over or near wetlands and streams. However, the I-90 bridge and associated structures are visual encroachments; therefore, overall visual quality was categorized as medium. Most views to the north from the I-90 Trail are blocked by vegetation, and most views to the south are blocked by I-90 freeway structures. Parts of the route that follows the former BNSF Railway corridor have a visual connection with the Mercer Slough Nature Park and/or pass through forested areas and have medium visual quality. Views along the portion of the route that is adjacent to I-405 and along 118th Avenue SE are visually dominated by I-405 and nearby large parking lots and were categorized as having low visual quality.

4.5.2.3 Segment C

Downtown Bellevue is an area in transition. Areas adjacent to Bellevue Way SE and 112th Avenue SE leading from Segment B into Downtown are likewise in transition. The areas are not particularly memorable, distinctive, or unique and, thus, have a medium visual quality category. The portion of Main Street that the alternatives would pass through includes low-rise retail and commercial buildings (some of which occupy residential buildings) and also has a medium visual quality category.

Much of Downtown Bellevue is continuing to evolve from areas of low-rise automobile-oriented commercial complexes to dense, large-scale, mixed-use mid- and high-rise buildings that have a highly urban character. A number of these types of developments exist or are being built along 108th and 110th Avenues NE and contribute to the high visual quality of the two streets. In addition to 108th and 110th Avenues NE, part of NE 12th Street has a high visual quality due to the presence of McCormick Park, Ashwood Park, the King County Bellevue Regional Library, and other new projects.

Outside of the Downtown Bellevue core, portions of the alternatives pass next to or over I-405. The routes east over I-405 pass through low-rise nonretail and retail commercial complexes with extensive parking areas are of low visual quality category. The alternative routes that parallel I-405 (or are within a block of it) to the west pass through areas along 114th Avenue SE (and NE) and 112th Avenue SE (and NE) that contain a variety of building types. These complexes are generally located away from the streets and are surrounded by parking lots. The visual presence of nearby I-405 is strong in most of these areas and has either low or medium visual quality.

4.5.2.4 Segment D

Much of Segment D passes through areas that contain a mixture of warehouses, industrial facilities, storage and parking lots, and "big-box" and other retail establishments set back from the street behind large areas of parking. As a result, the existing visual quality of most of Segment D is low. The area generally has a utilitarian appearance and character, although future land use plans that have been adopted by both the Cities of Bellevue and Redmond might improve the appearance by using more pedestrian-oriented urban development, street trees, and landscaping. There are a few areas of mature street trees that provide continuity and uniformity. As a result, a section of Segment D along 152nd Avenue NE in the Overlake area has been categorized as medium visual quality.

4.5.2.5 Segment E

The Downtown Redmond segment has a wide range of visual character and quality. The portion of the segment that follows SR 520 from Overlake Transit Center to the edge of the Sammamish River valley passes through a mixture of land uses (office, commercial, and residential). The visual character varies by location, but all areas are visually dominated by the presence of the freeway. As a result, areas along SR 520 were categorized as having low visual quality. Other areas in Segment E that were categorized as low visual quality include the business parks, industrial areas, developing areas along the former BNSF Railway, and industrial areas near Downtown Redmond. The portions of NE Redmond Way and Leary Way NE that pass over the Sammamish River have views of the river and parklands and serve as entries into parts of Downtown Redmond and were categorized as having high visual quality. The Sammamish River (and trail) also has high visual quality, as does the portion of SR 520 located between Marymoor Park and Redmond Town Center due to the views offered from it and its low horizontal presence on the landscape that is screened by areas of vegetation.

4.5.2.6 Maintenance Facilities

The maintenance facilities would be located in Segment D or E in or near areas that are currently industrial and utilitarian in use, appearance, and character. These areas were categorized as having low visual quality. The viewer sensitivity for these facilities was categorized as follows: commuters and others traveling on SR 520 or arterials (low), workers and customers (average), and residents (high).

4.5.3 Environmental Impacts

The assessment of potential impacts on the visual environment focused on the following:

1. Consistency with existing visual character
2. Changes in visual quality
3. Likely impact on viewers with high viewer sensitivity
4. Blockage of sensitive views with an emphasis placed on views that are identified by local jurisdictions as requiring protection
5. Creation of shadows
6. Light and glare

Regarding changes in visual quality (Item 2) impacts can be low, medium, or high. A high impact is defined as a reduction of the existing visual quality category by one or more categories. For example, if the visual quality category of an area is reduced from high to medium or changes from medium to low, the impact would be considered high. Impacts that are considered low or medium are not discussed but are noted in Appendix F4.5, Attachment 1.

The impact assessment emphasized areas where changes in the visual environment (Items 1 and 2) would be noticed by people with high viewer sensitivity (Item 3) and/or where sensitive views (Item 4) would be affected. For a view to be considered sensitive, it would need to be identified by a local jurisdiction (in comprehensive plans, ordinances, or other directives) as requiring protection or identified during scoping or agency review as requiring protection. The last two items, shading and light and glare, were assessed by examining engineering plans for likely impacts and examining the visual simulations of project features.

4.5.3.1 No Build Alternative

With the No Build Alternative, no new facilities would be constructed and no properties would be acquired that would change the existing visual environment. Under this alternative, the visual environment would remain essentially the same except as changes occur over time in individual properties. The No Build Alternative may contribute to lower density redevelopment, thereby maintaining lower profile commercial development and low to medium visual quality.

4.5.3.2 Impacts during Operation

The East Link Project would have visual impacts of varying degrees throughout the project vicinity, as discussed in the following subsections. Impacts were evaluated assuming that the project would incorporate the following measures used during project planning to avoid and minimize potential visual impacts:

- Selecting and/or modifying routes to avoid or reduce the need to acquire and clear new right-of-way. This measure has already been incorporated to a great degree in identifying route and station alternatives and includes using existing transportation corridors (arterial streets and highways, limited-access highways, and rail corridors), underground profiles, and retained-cut sections.
- Developing design criteria that guide project design issues such as architectural expression being a balanced approach of systemwide elements and contextual elements, systemwide signage for customer ease, and a systemwide art program. Interdisciplinary teams would develop designs, and the community would have opportunities to comment.
- During the design development process, subjecting station and facility designs to appropriate design reviews required by the cities in which they are located.
- Integrating facilities (particularly stations) with existing plans, including plans for redevelopment.
- Minimizing the elevation or height of elevated structures and stations to the extent allowed by required vertical clearances and design standards.
- Minimizing clearing for construction and operation.
- Planting appropriate vegetation within and adjoining the project right-of-way to replace existing street trees and other visually important vegetation that are removed for the project and/or to provide screening for sensitive visual environments and/or sensitive viewers.
- Maintaining remainder parcels and pursuing their redevelopment for land uses, such as residential, commercial, or open space uses, that are consistent with city plans.
- Using source shielding in exterior lighting at stations and ancillary facilities, such as maintenance bases and park-and-ride lots, so light sources (such as bulbs) are not directly visible from residential areas, streets, and highways, and

to limit spillover light and glare in residential areas.

Impacts Common to All Build Alternatives

All the build alternatives would change the visual environments in which they would be built. Construction and operation of the alternatives would require the removal of a variety of visual features such as buildings, street trees, landscaped areas, slopes (replaced with retaining walls), and parking lots. Project components would also be visible to varying degrees, which could change the visual environment in which the components are located. Some of the more potentially visible project components include elevated profiles and/or structures, stations, parking structures, sound walls or berms, and light rail vehicles. Table 4.5-1 lists the main components to be built for the East Link Project, describes their visual characteristics, discusses general types of measures that would be implemented to reduce potential visual impacts, and explains why the measures would be successful in reducing potential impacts.

Potential Impacts by Alternative

Most sections of the alternatives examined in this Final EIS would be consistent with their existing visual surroundings in terms of character and would not change the visual quality category of those surroundings. Table 4.5-2 summarizes areas where the existing visual quality categories would be lowered one or more categories despite the avoidance and minimization measures described in Table 4.5-1. Table 4.5-2 also indicates if there would be potential views blocked that have been identified by local jurisdictions as requiring protection. In addition, alternatives that might cause shading in areas that receive heavy pedestrian use are identified as areas where light and glare associated with the project might be an issue.

Most of the alternatives would not lower the visual quality categories of the areas through which they would pass. Exceptions in each segment are described in subsections below.

The following subsections discuss potential visual changes by segment and alternative. The discussion contains references to visual simulations that are provided in Appendix F4.5. Photographs in the appendix depict the existing views from the KOPs and visual simulations that display how the existing views would change with the alternatives.

Segment A

The overhead catenary support structures would be unique in parts of *Preferred Alternative A1*. The catenary lines on the floating bridge would be hung from a cross member supported by poles on one or both sides of the tracks; this would not likely impact visual quality along the I-90 corridor. The project and the catenary lines would be compatible in character with the D2 Roadway and I-90 (as shown in Appendix F4.5, Exhibit F4.5-1, Photo 1b). It would be consistent with the transportation-oriented character of the areas it would pass through and would reduce neither the visual quality category nor the viewer experience. The alternative and stations would not block view corridors identified by the City of Seattle or lower the visual quality categories of views from Judkins Park and Sam Smith Park in Seattle or from the Park on the Lid in Mercer Island, which overlook the trackway and stations. The two proposed stations, Rainier Avenue and Mercer Island (see Appendix F4.5, Exhibit F4.5-2, Photo 2b), would be consistent with the visual character of their surroundings. Their scale and design would help the project visually connect with adjacent neighborhoods.

Segment B

From Segment A, *Preferred 112th SE Modified Alternative (B2M)* would follow I-90 south of, and past, the Enatai neighborhood. The top of the elevated guideway, the overhead catenary system (OCS), and passing trains would be seen from some areas but would be consistent with the existing character of the view, which is dominated by the elevated I-90 (see Appendix F4.5, Exhibit F4.5-3, Photo 3b).

Preferred Alternative B2M would not change the view's existing medium visual quality category. *Preferred Alternative B2M* would approach the South Bellevue Park-and-Ride from the I-90 corridor as an elevated structure and would remove existing trees south of the park-and-ride lot (in the southwest corner of Mercer Slough Nature Park). The elevated station and parking structure would be noticed from areas such as Bellevue Way SE, parts of the Mercer Slough Nature Park, and residences west of Bellevue Way SE (to varying degrees) (see Appendix F4.5, Exhibit F4.5-4, Photo 4b).

The presence of station, parking structure, and sound walls along the western edge of the South Bellevue Park-and-Ride would change the appearance of the existing South Bellevue Park-and-Ride area. However, its facilities would be consistent with the transportation-oriented character of the existing park-and-ride lot and nearby I-90 structures and would not lower the existing medium visual quality category to low.

TABLE 4.5-1
Visual Characteristics of Project Components

Project Component	Visual Characteristics
Elevated guideways or structures (piers, straddlebents)[a]	These are often the most visible project components. The bottom parts of elevated guideways range between approximately 18 and 50 feet above grade. In some locations, elevated guideways (and their associated OCS components) can intrude on views, although they might not block them altogether. Elevated stations (and guideways, to a lesser extent) can create shadows that could have negative impacts in some areas under some conditions. However, stations and associated structures, such as elevators, escalators, and walkways, would be designed to be attractive architectural elements or features in the areas where they would be built and would add visual interest to the streetscapes near them.
At-grade trackways	At-grade trackways are generally located in or adjacent to existing streets. They would be designed to be compatible with the roadway or adjacent streetscape.
Overhead catenary system (OCS)	The OCS is a highly visible element from close viewing distances. OCS components (wires and poles) become less visible as viewing distances increase. The structures might intrude on views, but they do not block views due to their thin, cablelike profile and appearance.
Widened streets	Street widening can involve removing buildings, trees, and other vegetation and can require excavating hillsides or filling slopes. In some locations and situations, removing trees and other vegetation would be mitigated by replanting similar plants that over time mature enough to become similar in appearance with the vegetation that was removed.
Stations	Depending upon size, bulk, and whether they would be elevated or at-grade, stations can block views, cast shadows, or add built features to the landscape. Elevated stations are generally more visible than at-grade stations. Stations would be designed to be aesthetically and architecturally compatible with their surrounding areas. During station design, the stations would undergo appropriate design review as required by the cities in which they would be located.
Parking structures	Depending upon size and bulk, parking structures can block existing views. They can be designed or assigned criteria to match surrounding architecture types to help them aesthetically fit with their surroundings. Local landscape regulations would be followed to help parking structures visually and aesthetically better blend into the areas in which they would be located. Sound Transit would incorporate downward-directional lighting to minimize excess light spread on adjacent areas.
Parking lots	Parking lots result in additional hard surface, which are low in visual interest. Some jurisdictions require landscaping that can reduce the visual impact. Local parking lot and relevant landscape regulations would be followed to help parking lots visually and aesthetically better blend into the areas in which they would be located.
Lighting	If not properly designed and shielded, project-related lighting can create glare impacts, increase the level of ambient light in nearby areas, and/or increase skyglow, which can adversely affect nighttime views of the stars. This is true of both project operation and construction. Design-related measures such as shielding and altering light direction would be used where appropriate to reduce potential impacts.
Removed buildings	Removing existing buildings can improve or detract from visual settings, depending on building condition, style, scale, and color. Areas where buildings would be removed would contain project components and/or be revegetated to better blend in with nearby areas.
Removed vegetation	Removing vegetation can open up views that are nonexistent or, conversely, expose other nonaesthetic views, such as additional hard surfaces. When possible, Sound Transit would preserve existing vegetation, replant vegetation, replace trees, and screen to minimize effects of vegetation removal.
Retaining walls	Retaining walls often replace vegetated hillsides with hard materials, such as concrete, that might require surface design treatments to reduce impacts. Where appropriate, walls would be treated with surface design enhancements.
Sound walls	Sound walls are built of solid materials and placed adjacent to or attached to the light rail guideway. When this is not effective, sound walls might be constructed along property lines, sometimes replacing existing fences. The height and location of sound walls are not final in this EIS, and they are not depicted in visual simulations.
Maintenance facility	A maintenance facility can potentially block views or be viewed down upon from adjacent areas; however, the alternative sites for such a facility are located in areas that already have similar land uses, visual character, and structures. Maintenance facilities would be designed to be aesthetically compatible with the surrounding uses and would involve screening using fencing, walls, or vegetation to help them blend in with the areas in which they would be located. During facility design, the exterior of the maintenance facilities would undergo appropriate design review if required by the cities in which they would be located.
Retained cuts	These features would only be visible from nearby areas. Design guidelines and coordination with local jurisdictional design review would be applied to fencing and/or walls located at the top of the cut, which are the most visible components of this feature.
Traction power substations (TPSSs)	The TPSSs would be installed at about 2-mile intervals. They would be completely enclosed small metal buildings, measuring about 20 feet by 60 feet in size, with an additional 10 to 20 feet required around each unit. Where appropriate, they would be screened from public view with a wall or fence. The exterior walls or fences would be landscaped according to the landscape regulations of the jurisdictions in which the facilities are located.

[a] Piers are columns holding up the guideway; straddlebents are supports made of two columns and supporting a beam upon which the guideway sits.

TABLE 4.5-2
Summary of Changes to Visual Quality by Alternative

Alternative	Changes in Visual Quality Categories?	Sensitive View Blockage?	Shadows?
Segment A, Interstate 90			
Preferred Interstate 90 Alternative (A1)	**No**	No	No
Segment B, South Bellevue			
Preferred 112th SE Modified Alternative (B2M) to *Preferred Alternative C11A*	**No**	No	No
Preferred 112th SE Modified Alternative (B2M) to *Preferred Alternative C9T*	**No**	No	No
Bellevue Way Alternative (B1)	**Yes**—Removing vegetation and constructing retaining walls along the west side of Bellevue Way SE would lower visual quality from high to medium.	No	No
112th SE At-Grade Alternative (B2A)	**Yes**—Removing vegetation and constructing retaining walls along Bellevue Way SE would reduce high visual quality to medium for area between South Bellevue Station and 112th Avenue SE intersection. In addition, this alternative would be visible to varying degrees to approximately 15 to 20 residences on the hillside west of Bellevue Way SE.	No	No
112th SE Elevated Alternative (B2E)	**Yes**—Alternative B2E would have the same impacts on visual quality as Alternative B2A. The elevated alignment along Bellevue Way SE would be visible to varying degrees to approximately 15 to 20 residences on the hillside west of Bellevue Way SE, and it would intrude on eastern views from some of these residences. The elevated alignment would also be seen from some residences along the west side of 112th Avenue SE.	No	No
112th SE Bypass Alternative (B3)	**Yes**—Similar visual impacts as Alternative B2A would lower visual quality from high to medium along Bellevue Way SE between South Bellevue Station and intersection with 112th Avenue SE.	No	No
B3 - 114th Extension Design Option	**Yes**—Visual impacts would be the same as those for Alternative B3, but the design option portion would not contribute to any new visual impact.	No	No
BNSF Alternative (B7)	**No**	No	No
Segment C, Downtown Bellevue			
Preferred 108th NE At-Grade Alternative (C11A)	**No (for all connections from Segment B)**	No	No
Preferred 110th NE Tunnel Alternative (C9T)	**No (for all connections from Segment B)**	No	No
C9T - East Main Station Design Option	**No (only applicable for connection from Preferred Alternative *B2M*)**	No	No
Bellevue Way Tunnel Alternative (C1T)	**No (for all connections from Segment B)**	No	No
106th NE Tunnel Alternative (C2T)	**No (for all connections from Segment B)**	No	No
108th NE Tunnel Alternative (C3T)	**Yes**—Long-term construction impacts from removing mature trees and constructing the permanent presence of Alternative C3T in McCormick Park would lower visual quality from high to medium.	No	No
At-Grade Couplet Alternative (C4A)	**Yes**—Impacts would be similar to those for Alternative C3T, but a smaller portion of McCormick Park would be affected, and the route would be permanent feature in park, lowering visual quality from high to medium.	No	No
112th NE Elevated Alternative (C7E)	**No**	Yes - in limited areas	Yes – in limited areas

TABLE 4.5-2 CONTINUED
Summary of Changes to Visual Quality by Alternative

Alternative	Changes in Visual Quality Categories?	Sensitive View Blockage?	Shadows?
110th NE Elevated Alternative (C8E)	**Yes**—Elevated structures over 110th Avenue NE would be out of scale with pedestrian-oriented streetscape and would lower the existing high visual quality along 110th Avenue NE from high to medium. There would be the same impact as Alternatives C3T and C4A on McCormick Park from 110th Avenue NE to east end of park, lowering visual quality from high to medium.	Yes, possibly in one limited area	Yes, in limited areas
110th NE At-Grade Alternative (C9A)	**Yes -** Removing landscaped medians and vegetation along the east side of 112th Avenue SE and widening 112th Avenue SE farther north along with retained-fill transition structures on the elevated portion of the trackway and four straddle bents to cross 112th Avenue SE at Main Street would lower the medium visual quality to low.	No	No
114th NE Elevated Alternative (C14E)	**No**	Yes, possibly in one limited area	Yes, in limited areas
Segment D, Bel-Red/Overlake			
All Segment D alternatives and design options	**No**	No	No
Segment E, Downtown Redmond			
Preferred Marymoor Alternative (E2)	**No**	No	No
E2 - Redmond Transit Center Design Option	**No**		
Redmond Way Alternative (E1)	**Yes**—Removing hillside trees and the visual presence of a large-scale elevated horizontal element would temporarily lower visual quality from medium to low in limited areas until replanted trees attained sufficient size to screen views.	No	No
Leary Way Alternative (E4)	**Yes**—Removing the landscaped strip and mature street trees along portions of the south side of Leary Way would lower visual quality from high to medium.	No	No
Maintenance Facilities			
NE 116th Maintenance Facility (MF1)	**No**	No	No
BNSF Maintenance Facility (MF2)	**No**	No	No
SR 520 Maintenance Facility (MF3)	**No**	No	No
SE Redmond Maintenance Facility (MF5)	**No**	No	No

North of the South Bellevue Station, the alternative transitions from elevated to retained cut along the east of Bellevue Way SE. This would remove adjacent street trees and vegetation within Mercer Slough Nature Park. Removing the vegetation would change the existing appearance of this portion of Bellevue Way SE but would open views to the east towards Mercer Slough, the blueberry farm, and hills to the east for some nearby residents. A few residents west of Bellevue Way would have of views of *Preferred Alternative B2M's* OCS, but the guideway and trains would be blocked by nearby vegetation on the hillside west of Bellevue Way SE (see Appendix F4.5, Exhibit F4.5-5, Photo 5b).

North of the blueberry farm, the alignment profile enters a retained cut below the grade of the street and would be less visible to most viewers. Depending on adjacent vegetation and viewing location, viewers might see the catenaries and tops of the retaining walls/fencing and/or sound walls. Fencing above the retained-cut portion of the alternative would be required on top of a traffic barrier adjacent to the sidewalk. It would range from 6 feet to as high as 8 feet (when the guideway transitions into a retained cut) in height. In some locations sound walls would be installed. Because of the low profile provided by the retained cut and the retention of vegetation along the west side of Bellevue Way SE, *Preferred Alternative B2M* would not lower the existing high visual quality of this portion of Bellevue Way SE to enough to re-categorize it as medium.

Near and in front of the Winters House the retained cut would be covered with an approximately 170-foot-long lid. The lid in front of the Winters House would be landscaped (see Appendix F4.5, Exhibit F4.5-7, Photo 7b). North and south of the lid, a landscaping strip between the street and the sidewalk/retained cut barrier and fence would include street trees and plantings (see Appendix F4.5, Exhibit F4.5-7, Photo 7d). Although some mature vegetation, including larger trees near the house and parking area would be removed, this portion of Bellevue Way SE would maintain its high visual quality category.

Near the intersection of Bellevue Way SE and 112th Avenue SE, a number of deciduous trees would be removed within the construction right-of-way. However, vegetation (including trees) between the construction right-of-way and the intersection would be retained and would partially screen views of the retained cut profile. Because of the low retained cut profile, the alignment would not be readily seen from the intersection (see Appendix F4.5, Exhibit F4.5-8, Photo 8b). If necessary, Sound Transit would replant the area between the intersection and the alignment to enhance the visual buffer of *Preferred Alternative B2M* components. Removing vegetation would change the appearance of the intersection, but would not lower the area's high visual quality category to medium.

North of the intersection of Bellevue Way SE and 112th Avenue SE north to the Segment C boundary, *Preferred Alternative B2M* would have two variations when connecting to *Preferred Alternative C11A* or *C9T*. *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* transitions from the east side of 112th Avenue SE to the median of 112th Avenue SE at approximately SE 15th Street (see Appendix F4.5, Exhibit F4.5-9, Photo 9b). Landscaped medians along 112th Avenue SE north of this location would be removed (landscaped medians south of transition area would remain). People driving or walking along 112th Avenue SE would see the light rail track, catenaries, traffic gates at the rail crossing and a sound wall along the tracks or in front of the residential area west of 112th Avenue SE. Removing the landscaped medians would change the appearance of this part of 112th Avenue SE, but overall, the existing landscaped boulevard-like character of this part of 112th Avenue SE would be retained. The area's high visual quality would be retained.

Preferred Alternative B2M connecting to *Preferred Alternative C9T* remains on the east side of 112th Avenue SE in a retained cut or at-grade north to the SE 8th Station. The alignment would have a sound wall next to it along the east side of 112th Avenue SE. This alternative would remove some of the landscaped median between SE 15th and SE 8th Streets (see Appendix F4.5, Exhibit F4.5-9, Photo 9c). The remaining portions of the medians as well as adjacent vegetation would continue to contribute to the boulevard-like character of 112th Avenue SE. Although the presence of the alternative and the removed vegetation would be noticeable along this part of 112th Avenue SE, which would somewhat lower visual quality, the changes would not be enough to lower the existing visual quality category of high to medium.

The effects of *Preferred Alternative B2M* and its two variations would be viewed from parts of the Mercer Slough Nature Park, the Mercer Slough Nature Park Periphery Loop Trail (which in this area is the sidewalk adjacent to Bellevue Way SE and 112th Avenue SE), and the Water Trail. Removing street trees and trees located in the construction right-of-way east of Bellevue Way SE and 112th Avenue SE would be most noticeable from the loop trail and portions of the part of the Water Trail in Mercer Slough West. Trees along with the blackberry-covered slope between Mercer Slough and 112th Avenue SE would be removed and a retaining wall (supporting the at-grade alternative) built into the slope. The area between the trackway and the slough would be replanted with native and noninvasive vegetation. People using this portion of the Water Trail might have upward views of the catenaries and east face of the retaining wall, as they currently have upward views of the adjacent Bellefield Office Park, which is a midrise complex of office buildings, parking lots, and driveways that dominates views along this portion of the Water Trail.

The light rail would not be seen in most parts of the Mercer Slough Nature Park due the alternative's low profile and the presence of trees and large shrubs throughout much of the park. Removing large trees as a result of *Preferred Alternative B2M* would not be particularly noticed in most parts of the park due to the previously mentioned vegetation.

All of Segment B alternatives follow I-90 near the Enatai neighborhood and all but one; Alternative B7 curves away from I-90 to connect with Bellevue Way SE and the South Bellevue Park-and-Ride. Three of the Segment B alternatives—B2A, B2E, and B3—are elevated in this area, and Alternative B1 is at-grade. As with *Preferred Alternative B2M,* these facilities would be consistent with the transportation-oriented character of the I-90 corridor and its associated structures as well as the existing park-and-ride lot and would not lower the area's existing medium visual quality category to low. Because Alternative B1 remains at-grade with the I-90 off-ramp, it would be less visible to the Enatai residents than the other Segment B alternatives. Appendix F4.5, Exhibit F4.5-4, Photos 4c and 4d, depict the changes to the park-and-ride area from these alternatives when viewed from the residential area to the southwest.

In addition to *Preferred Alternative B2M*, Alternatives B2A, B2E, and B3 also travel along Bellevue Way SE and 112th Avenue SE. Unlike *Preferred Alternative B2M,* these alternatives would require varying heights and lengths of retaining wall along the elevated guideway, track, or along the west side of Bellevue Way SE and 112th Avenue SE, and they would remove vegetation along both sides of the roadways. Appendix F4.5, Exhibit F4.5-6, Photos 6b and 6c depict retaining walls along the west side of Bellevue Way associated with Alternatives B1, B2A, and B3 Appendix F4.5, Exhibit F4.5-6, Photo 6d depicts how Alternative B2E would appear from this location. The changes along the west side of Bellevue Way for Alternatives B1, B2A, B2E, and B3 would result in the visual quality category changing from high to medium. This change would likely be seen and noticed by sensitive viewers such as neighborhood residents, visitors to the Mercer Slough Blueberry Farm and the Winters House, and to a lesser degree, people recreating in the Mercer Slough Nature Park (although they would not see these changes from inside the park due to park vegetation that screens views of Bellevue Way SE from most trails). Removing trees and other vegetation along the west side of Bellevue Way SE would open up views to the east for some nearby hillside residents, although project features such as OCSs, guideways, and trains could be seen to varying degrees depending upon location and how much vegetation would be removed (see examples from one location in Appendix F4.5, Exhibit F4.5-5, Photo 5c through 5e).

Unlike *Preferred Alternative B2M*, none of the other Segment B alternatives traveling up Bellevue Way would change the context of the Winters House and its grounds when viewed from Bellevue Way SE. As mentioned previously, removing vegetation and constructing project elements would change the character of the west side Bellevue Way SE (see Appendix F4.5, Exhibit F4.5-6, Photos 6b and 6c). The following discusses the impacts of each of the other Segment B alternatives.

All of Alternative B1 is at-grade along Bellevue Way and, therefore, would not be visible or not very visible and from residences in the Enatai Neighborhood and west of Bellevue Way SE (see Appendix F4.5, Exhibit F4.5-5, Photo 5c). North of the 112th Avenue SE intersection, Alternative B1 would cause noticeable changes along Bellevue Way SE up to the Segment C boundary (112th Avenue SE). Although this alternative would widen the street, remove some vegetation and buildings, build retaining walls (primarily on the west side of the road) it would generally be consistent with the existing visual character of this part of Bellevue Way SE and would not change the existing medium visual quality category. Alternative B2A transitions from an elevated profile near the South Bellevue Station to at-grade and would be visible from approximately 15 to 20 residences west of Bellevue Way SE and could encroach on views to the east (see Appendix F4.5, Exhibit F4.5-5, Photo 5d). The alternative travels in the median of 112th Avenue SE and would remove the existing median vegetation. It would not, however, widen the road nor remove landscaping on either side of the road until just before the SE 8th Station (see Appendix F4.5, Exhibit F4.5-10, Photo 10b). These changes along Bellevue Way and the portion of 112th Avenue SE where the median would be removed would lower the visual quality from high to medium. North of SE 8th Street, an at-grade station built along 112th Avenue SE would widen the road near the station (but south of Surrey Downs Park in Segment C), remove numerous street trees, and increase the area of asphalt. Although these changes would alter the appearance and character of the intersection area and somewhat reduce its visual quality, Alternative B2A would not reduce visual quality enough to change the existing category from medium to low.

Alternative B2E would change the visual quality category (from high to medium) of the same portion of Bellevue Way SE that would be changed by Alternative B2A. The more extensive elevated profile of Alternative B2E would likely be noticed by more viewers than the at-grade alternatives. From several of the residences west of Bellevue Way SE, the project components would encroach on eastward views of the blueberry farm and Mercer Slough Nature Park (see Appendix F4.5, Exhibit F4.5-5, Photo 5e). North of SE 8th Street, an elevated station would result in a large-scale component adjacent to an office park and across the street from a residential area (see Appendix F4.5, Exhibit F4.5-10, Photo 10c), which would reduce the visual quality of the viewed landscape for residents but would not block views. The station would not lower the existing medium visual quality to low. A positive aspect of the elevated portions of this alternative would be that the project riders could enjoy elevated views of features such as parts of Mercer Slough and of the Mercer Slough Nature Park.

From Segment A to approximately 112th Avenue SE and SE 8th Street, the changes in visual quality associated with Alternative B3 would be the same as those described previously for Alternative B2A. North of the intersection of SE 8th Street and 112th Avenue SE, Alternative B3 leaves 112th Avenue SE and transitions from at-grade to an elevated structure (see Appendix F4.5, Exhibit F4.5-10, Photo 10d). Its route travels through an area that contains parking lots, office buildings, and an undeveloped open area, thus minimizing the need to remove large trees along 112th Avenue SE. The presence of the elevated profile would be consistent with the nearby structures, including I-405, and would not change the medium visual quality category of the area it would pass through.

The area that the B3 – 114th Extension Design Option passes through is a mixture of uses that includes office buildings, parking lots, an undeveloped area, and a hotel. From where the alignment parallels 114th Avenue SE, it then follows I-405. There is a lack of visual coherence along this route, and the existing visual quality is medium and low (along I-405). Further, this design option would not lower the existing visual quality of these areas.

Alternative B7 would not change the medium visual quality category along its route. The elevated structure crossing over Mercer Slough Nature Park would be noticeable to I-90 Trail users and would introduce a second major structural element into the view from the trail (see Appendix F4.5, Exhibit F4.5-12, Photo 12b). Some portions of the I-90 Trail would continue to be screened by vegetation immediately adjacent to the trail and by vegetation of varying distances north of the trail; this vegetation is very dense and blocks views north of it. Along portions of the trail where viewers would see the elevated structure, it would partially intrude on north views of park vegetation. Sensitive viewers (i.e., recreationists) would notice the light rail structure from portions of Mercer Slough Nature Park beyond the I-90 Trail (they would also see the existing I-90 structures). Due to the existing dominating presence of the I-90 bridge and its associated ramps along this portion of Alternative B7, as well as due to existing limited views to the north, the alternative's elevated structure would not decrease the area's existing medium visual quality category to low. This alternative would have sound walls along residential areas south of 118th Avenue SE, but it would also not decrease the medium visual quality category of the former BNSF Railway corridor in which it would be located to low. It would be consistent with the character of the portion of the alternative adjacent to 114th Avenue (SE and NE) and I-405 (see Appendix F4.5, Exhibit F4.5-13, Photo 13b).

Segment C

Preferred Alternative C11A from *Preferred Alternative B2M* would remove vegetation along the east side of 112th Avenue SE (including street trees north of SE 6th Street to Main Street). Removing residences and vegetation from Surrey Downs Park to Main Street on the west side of 112th Avenue NE would be noticeable to viewers from adjacent properties and to people travelling on 112th Avenue SE and would create an open space of approximately 50 feet (backed by sound walls) between the light rail and residences that would remain in place. This area would be landscaped and create a more open roadway appearance. The project and its landscaping would maintain the existing medium visual quality category (see Appendix F4.5, Exhibit F4.5-13, Photo 15b).

Most of the 108th Station is in a retained cut and would have a low profile when viewed from Main Street and from the back of the residences to the south of the station area. A landscaped buffer and transition area would be established between the residential neighborhood south of Main Street and the commercial areas and the city center to the north. This would be consistent with the *City of Bellevue Comprehensive Plan* (Policy S-DT-125) regarding transitions between downtown and the residential neighborhood to the southeast of downtown. The consistency with S-DT-125 would depend on coordination with the City of Bellevue for design and function of the linear space. Although *Preferred Alternative C11A* from *Preferred Alternative B2M* would somewhat change the visual appearance of this portion of Main Street, it would not lower the existing visual quality category of medium to low.

From the 108th Station to the at-grade Bellevue Transit Center Station, *Preferred Alternative C11A* would be consistent with the urban setting of 108th Avenue NE. Its right-of-way in the existing street would help it fit into the streetscape. *Preferred Alternative C11A* would change the appearance of 108th Avenue NE, but it would not lower its existing high visual quality category to medium.

A transition structure would be built along NE 6th Street between the Meydenbauer Convention Center and City Hall Plaza (see Exhibit F4.5-18, Photo18b). Sound Transit would collaborate with the City of Bellevue on aesthetic treatment of ornamental patterns or textures on walls of the transition structure and appropriate fencing. The presence of the transition and elevated structures would change the visual character of portions of NE 6th Street, but it would not change the existing medium visual quality category to low.

The portion of *Preferred Alternative C11A* that would cross over I-405 and connect with the Hospital Station would be consistent with the character of this area and would have little effect on visual quality. From the Hospital Station north to the Segment D boundary, *Preferred Alternative C11A* would not change the low visual quality along this part of the route.

Connections from Alternative B3, B3 – 114th Design Option, or B7 cross over 112th Avenue SE and then transition to retained fill before transitioning to at-grade. The elevated guideway and retained fill would be visible from 112th Avenue SE and Main Street, but the existing medium visual quality category would remain along these connections.

From the connection with *Preferred Alternative B2M*, the at-grade portion of *Preferred Alternative C9T* passes through the eastern edge of Surrey Downs Park and would remove vegetation. A SE 4th Street realignment through Surrey Downs Park would change the appearance of the portion of the park through which it passes (part of which is currently partially used for parking). The visual quality of this area would not be lowered from medium to low after construction and replanting.

North of the park, *Preferred Alternative C9T* is the same as *Preferred Alternative C11A* until approximately one block south of Main Street (see Appendix F4.5, Exhibit F4.5-15, Photo 15c). The area along the alternative route would provide opportunities for landscaping that could serve as a buffer between the trackway and nearby residences and function as a transition area between the neighborhood and the commercial and city center to the north. The transition structure and portal at 112th Avenue SE and Main Street would change the residential and small business character of the portion of its route, but it would maintain the area's existing medium visual quality.

With the C9T - East Main Station Design Option, an at-grade station would be located approximately 600 feet north of Surrey Downs Park on the west side of 112th Avenue SE. The area to the west of (and uphill of) the station would provide opportunities for landscaping and along with a sound wall could serve as a buffer between the station and nearby residences. The station would be compatible with the arterial and fronting commercial uses.

The portion of *Preferred Alternative C9T* located within the tunnel would not result in any visual impacts. *Preferred Alternative C9T* exits the tunnel along NE 6th Street (see Appendix F4.5, Exhibit F4.5-18, Photo 18c). After exiting the tunnel and continuing east over I-405 to the Hospital Station, the impacts would be similar to those identified for *Preferred Alternative C11A*, although the transition structure would begin at a lower elevation along NE 6th Street (from a tunnel portal) than the at-grade *Preferred Alternative C11A*.Although the *Preferred Alternatives C11A* and *C9T* would not change the visual quality categories of the areas through which they would pass, infringe on protected views, or cast shadows in heavily use pedestrian areas, the other Segment C alternatives would. The alternatives that would lower the existing visual quality category of part of their routes include Alternatives C3T, C4A, C8E, and C9A. Near sensitive receivers, sound walls would be necessary on the elevated guideway where Alternative C9A is elevated at Main Street and where C8E is elevated along 110th Avenue NE. Two elevated alternatives, C8E and C14E, could potentially intrude on sensitive views (Cascade Mountains) identified by the City of Bellevue. One alternative, C8E, would cast shadows in an area that receives heavy pedestrian traffic during part of the day. The following subsections describe the impacts associated with the Segment C alternatives.

The open portion of the retained cut and the tunnel portal portions of Alternative C1T would be noticeable from along Bellevue Way SE would not decrease the area's medium visual quality. The underground portion of Alternative C1T would have no impact on visual character or quality. After exiting the tunnel along NE 6th Street, this alternative would follow the route of *Preferred Alternative C9T* and would have the same impacts on the adjacent areas character and visual quality (see Appendix F4.5, Exhibit F4.5-18, Photo 18d).

Most of Alternative C2T would be underground and would have no impact on visual character or quality. The connection from Alternative B2A would require a retained cut along part of 112th Avenue SE that would not be visible in Surrey Downs. The retained cut would somewhat change the character of areas next to it but would not lower the existing medium visual quality to low.

The connector along Alternative B2E would widen the street, remove existing mature street trees that line parts of the street. Although the trees partially screen or soften views of parking lots along the east side of the street from residences on the west side, this would not lower the existing medium visual quality category to low. The elevated structure would cast shadows along 112th Avenue SE in the morning period (although less than the existing street trees do). The transition from elevated profile to tunnel along 112th Avenue SE turns west near Main Street before entering the tunnel (see Appendix F4.5, Exhibit F4.5-15, Photo 15d). This portion of Alternative C2T would not lower the existing medium visual quality category to low.

Alternative C2T exits the tunnel at a portal located on SE 6th Street, just south of the Meydenbauer Convention Center (see Appendix F4.5, Exhibit F4.5-18, Photo 18d). This alternative would have the same impacts as those described for *Preferred Alternative C9T* and would not lower the visual quality categories anywhere along the route. The other Alternative C2T connector from Alternative B7 or B3 follows 114th Avenue SE to the transition structure, and it would not change the existing freeway and parking lot dominated character of the route or its low visual quality category.

The impacts related to the Segment B connectors (Alternative B3, B2E, or B7) and for the tunnel described above for Alternative C2T would be the same for Alternative C3T. This alternative exits the tunnel at a portal located on along NE 12th Street and transitions to an elevated alignment over I-405 (see Appendix F4.5, Exhibit F4.5-21, Photo 21b). This alternative would have the same impacts as those described for *Preferred Alternative C9T* and would not permanently lower the visual quality categories anywhere along its route.

Alternative C3T would alter the appearance of McCormick Park between 108th and 112th Avenues NE because of tunnel construction, a permanent section of retained cut (flanked by sound walls on both sides), and a section of elevated structure. Alternative C3T would redesign and rebuild the park once the project is completed. Nearby residents, who have high viewer sensitivity, would be adversely affected by the project for several years until the redesigned park's vegetation (e.g., shrubs and groundcover) began to fill in; trees would take longer to adequately mature. Between the start of construction and several years after the new park is constructed, the visual quality category of the area near the park would be reduced from high to low. Within several years of completing the new park, plants would begin to fill in and visual quality would improve to medium. Visual quality could improve to high after 5 to 10 years, depending on the park design, growth of trees, and effectiveness of landscaping used to reduce the visual dominance of proposed project structures in the park.

Impacts related to the Segment B connectors (Alternative B3, B2E, or B7) described above for Alternative C2T would be the same with Alternative C4A, except these connectors are elevated across 112th Avenue NE and then transition to at-grade as they connect to the main portion of Alternative C4A. For Alternative C4A, the connector from Alternative B2A is the same as Alternative B2E; therefore, large trees would be impacted and an elevated profile would be introduced along 112th Avenue NE and sound walls would be built west of 112th Avenue SE and south of Main Street. Along 108th and 110th Avenues NE, the at-grade profile in the existing street right-of-way of the couplet would be consistent with the urban environment of Segment C and would not change the high visual quality category (see Exhibit F4.5-16, Photo 16b). The impacts from the portion of the route that passes along NE 12th Street would be similar to those described for Alternative C3T except that Alternative C4A remains at-grade as it enters McCormick Park rather than coming from a portal (see Appendix F4.5, Exhibit F4.5-21, Photo 21c) and a sound wall would be built along the north side of the at-grade alignment from 108th Avenue NE to 110th Avenue NE. The existing high visual quality of the area along NE 12th Street near McCormick Park would be reduced to medium, but as with Alternative C3T, it could be restored to high over time.

As with Alternative B3 and the Alternative B2A, B2E, or B7 connector from Segment B, Alternative C7E would not change visual quality categories between Segment B and Main Street. North of Main Street the elevated guideway structure would pass along 112th Avenue NE through areas categorized as having low or medium visual quality due to buildings being set back from the street behind extensive parking lots, and numerous views of, and access points to I-405. Alternative C7E would not change the existing visual quality categories along the route.

During sunny weather, the elevated structure would cast shadows along parts of 112th Avenue NE until early afternoon, when in some locations shadows would be cast across the street by the adjacent buildings. The intent of the urban design element of the *Bellevue Comprehensive Plan* is to reduce shadows in areas that receive heavy pedestrian use. This area is not a heavy pedestrian-traffic area; therefore, shadows from the overhead structure might not conflict under current conditions.

The Bellevue Transit Center Station with Alternative C7E near the intersection with NE 6th Street is connected to 110th Avenue NE by a raised pedestrian walkway (see Appendix F4.5, Exhibit F4.5-17, Photo 17b). The new structures would be visible in this general area, but they would be visually compatible with the area in terms of scale and design. The raised pedestrian walkway would provide a direct pedestrian connection between the station and Bellevue City Hall's plaza and nearby areas, so relatively few passengers would likely use the sidewalks along the section of 112th Avenue NE under the station and experience its shadows. The Alternative C7E elevated pedestrian walkway might intrude on views of some Cascade Mountain peaks from limited areas near 110th Avenue NE and NE 6th Street.

Farther north, along 112th Avenue NE, Alternative C7E passes the I-405/NE 8th Street interchange area (see Appendix F4.5, Exhibit F4.5-20, Photo 20b) while travelling along the east side of 112th Avenue SE. Alternative C7E passes office, mixed-use, and multifamily buildings, and the presence of the elevated structure would be noticeable to residents (who are sensitive viewers), particularly those on the second and third floors. Its presence, however, would not block visual access to the Cascade Mountains nor Mount Rainier due to relatively lower profile from adjacent residences; further, it would not reduce the medium visual quality of this part of 112th Avenue NE to low because the backdrop for these views are predominantly office buildings and I-405, another large transportation infrastructure.

The elevated structure and station associated with the Alternative B3 or B7 connector to Alternative C8E, including the portion located along NE 2nd Street, would be compatible with the character of I-405 and the existing development through which it passes, and it would not change the area's visual quality category. The visual quality of Alternative C8E's route would change along 110th Avenue NE near the Bellevue Transit Center and NE 6th Street due to the elevated profile (particularly the straddlebents [see notes of Table 4.5-1 for definition]) and elevated station. The elevated station would add a large-scale overhead visual element to an area that is pedestrian-oriented and receives heavy pedestrian use; it would not be consistent with the parklike character of Bellevue City Hall Plaza or the nearby streetscape (see Appendix F4.5, Exhibit F4.5-16, Photo 16c). The visual quality category of this portion of 110th Avenue NE would change from high to medium.

The elevated guideway and station would not block street-level views of Cascade Mountain peaks from along east-west running streets that cross 110th Avenue NE (the peaks that are currently visible and not blocked by buildings to the east and south would generally continue to be visible underneath the elevated elements). Shadows cast by the elevated station (and, to a lesser extent, the elevated guideway) during sunny weather might fall on sidewalks in portions of 110th Avenue NE that receive heavy pedestrian use. The shadows cast onto sidewalks by Alternative C8E would be noticed during times of the day when shadows cast by nearby buildings (particularly the highrise buildings on the west side of 110th Avenue NE) are not present, which along most sidewalks would be late morning to midafternoon. The elevated structures continue north along 110th Avenue NE past office and mixed-use buildings (see Appendix F4.5, Exhibit F4.19, Photo 19b).

The north portion of the Alternative C8E route passes through McCormick Park from 110th to 112th Avenue NE and would temporarily lower the area's visual quality. The impact of Alternative C8E would result primarily vegetation removal (particularly mature trees) and the presence of the elevated structure and straddlebent (see Appendix F4.5, Exhibit F4.5-21, Photo 21d) and would lower the visual quality in this area from high to medium until replanted vegetation became sufficiently mature.

Alternative C9A is similar to Alternative C4A in its connections from Segment B and the portion of the route along 110th Avenue NE. However, the connection from Alternative B2A begins at-grade, transitions to retained fill, and then becomes elevated in the center of 112th Avenue SE, which would widen the street to east and remove vegetation. Four straddlebents would be required to cross over 112th Avenue SE to Main Street. These changes would reduce the existing medium visual quality category of this part of 112th Avenue NE to low. Like *Preferred Alternative C11A*, Alternative C9A would maintain the medium visual quality category along Main Street and along 110th Street NE. This alternative would maintain the existing high visual quality category of 110th Avenue NE.

Alternative C14E parallels I-405 for much of its route, which would be consistent with the corridor's transportation infrastructure character. The elevated structure would not change the existing low visual quality category along this part of its route. The elevated profile would not block views of Cascade Mountain peaks from east-west running streets or areas along 108th Avenue NE (such as the City Hall

Plaza or the Bellevue Transit Center Station). If tent structures are used for the elevated station and pedestrian bridge that provide connection between 112th Avenue NE and the Bellevue Transit Center Station, then views of some Cascade Mountain peaks would be blocked from some viewing areas along 110th Avenue NE, NE 6th Street, and the Bellevue Transit Center (see Appendix F4.5, Exhibit F4.5-17, Photo 17c). The elevated pedestrian bridge and its associated tent structures would be large-scale elements but not out of scale with other nearby buildings or out of character with the general area. The elevated structure, station, and pedestrian bridge would not change the low visual quality category along 114th Avenue NE or the medium category along NE 6th Street. Therefore, relatively few pedestrians would experience its shadows.

Segment D

The City of Bellevue and City of Redmond have adopted plans and policies for areas through which *Preferred Alternative D2A* and the other Segment D alternatives would pass. The new plans and polices would, over time, increase pedestrian-oriented land uses and reflect improved urban design standards. The design of the stations would be subject to appropriate design review by the Cities of Bellevue and Redmond. Although the changes in land use and improved urban design standards will result in many areas becoming more attractive over time along the Segment D alternative, the baseline condition that is used to assess impacts is the existing condition. Because the existing condition is the baseline condition, elevated alternatives would not pass by any areas that currently receive heavy pedestrian use; therefore, shadows cast by them are not considered as potential impacts.

Preferred Alternative D2A would be compatible with the areas it would pass through and would not change visual quality categories of these areas, including the storage track location in the former BNSF Railway north of the Segment C/D break. This alternative would be a mix of at-grade, retained-cut, and elevated profiles. Most of the route passes through areas that are currently industrial, commercial (especially automobile-oriented retail), and transportation (the SR 520 corridor).

All of the stations would be designed to respond to the areas in which they would be built and would either improve the low visual quality of the areas where they would be built or would not change it. Both design options near the 120th Station would also be compatible with nearby areas. The at-grade 120th Station might be more visually compatible with the urban fabric than the retained-cut station plan, since the retained cut introduces a sense of a barrier. Appendix F4.5, Exhibit F4.5-25, Photo 25b contains a simulation of the Overlake Village Station that would be constructed alongside SR 520 with *Preferred Alternative D2A*. The station and alignment would be consistent with the transportation character of the portion of the route that would parallel SR 520 and would be a positive aesthetic addition to the area.

D2A - NE 24th Design Option passes through the Overlake Village in an area that has tree-lined streets. Near the Overlake Village Station, the alignment passes along the west side of 152nd Avenue NE (see Appendix F4.5, Exhibit F4.5-24, Photo 24b). The alignment and station would remove existing buildings and their associated vegetation, as well as street trees. The at-grade tracks and station would be consistent with the urban character of the area near the station and would not change the medium visual quality category of this area enough to reduce it to low.

All other Segment D alternatives would be compatible with the character of the areas through and by which they would pass. They pass through areas best described as either (or a combination of) industrial, commercial, transportation (along SR 520), automobile-oriented, or big-box store retail. The other Segment D alternatives would have varying impacts on visual character and quality, but none would lower existing visual quality categories from medium (the highest in this area) to low. The following highlights impacts along some of the routes of the other Segment D alternatives.

The elevated portion of NE 16th Elevated Alternative (D2E) would be noticed, but it would not be considered a visual encroachment and would be consistent with character of the areas it would pass by. Appendix F4.5, Exhibit F4.5-23, Photo 23b depicts a location along NE 24th Street where the Alternative D2E profile transitions from elevated to at-grade. Existing street trees would be removed and new ones planted. Although the elevated structure and at-grade profiles would be seen from this location (and other sections of NE 24th Street) and the removed street trees would be evident (until the replanted ones increased in size), the presence of Alternative D2E would not lower visual quality enough to reduce it from medium to low.

NE 20th Alternative (D3) travels along the median of NE 20th Street and enters a retained cut east of 140th Avenue NE and would widen either side of the road (see Appendix F4.5, Exhibit F4.5-22, Photo 22b). Existing sidewalks and adjacent landscaping would be removed. The appearance of NE 20th Street would change with Alternative D3 and the many parking lots that line the street that are currently somewhat screened by street trees and vegetation would be more clearly seen. The presence of this alternative in conjunction with the vegetation removal would lower the visual quality in this area (which is already categorized as low). Within 5 to 10 years, replanted vegetation would gain enough size to screen views and the overall visual quality of this area would improve.

Much of SR 520 Alternative (D5) parallels the I-405 corridor and would be consistent with the transportation character of the corridor; it would not change the low visual quality category of the corridor. Alternative D5 heads east from I-405 in a retained cut to 152nd Avenue NE, where it transitions to at-grade. Alternative D5 would be consistent with the character of the area through which it passes and would not change the medium visual quality category of the portion of 152nd Avenue NE it travels.

Any station from the last station in Segment C and east could potentially include a storage track. These would be primarily in line with the existing track configuration, except the storage track location proposed in the former BNSF Railway corridor associated with the *Preferred Alternative D2A* north of the Segment C and D break. All storage tracks in Segment D would be consistent with the visual analysis of that alternative. The storage track would reside behind existing industrial building outside of sensitive view areas and, therefore, would not lower the low visual quality category.

Segment E

Preferred Alternative E2 and the other Segment E alternatives parallel SR 520 between from the Overlake Transit Center to Sammamish River, where they diverge and the visual impacts would also vary from this point. The profiles are a combination of at-grade and retained cut and would be compatible with transportation infrastructure character of SR 520. The portions of the alternatives adjacent to SR 520 would not change the low visual quality category of the SR 520 corridor.

The portion of *Preferred Alternative E2* that would pass Marymoor Park would be sited adjacent but south of SR 520, and it would be barely visible from parts of Marymoor Park, (see Appendix F4.5, Exhibit F4.5-26, Photo 26b). *Preferred Alternative E2* would not lower the existing high visual quality category of the park. After leaving the Marymoor Park area, *Preferred Alternative E2* would be visually compatible in scale and urban character with the former BNSF Railway corridor. Both the *Preferred Alternative E2* and the E2 – Redmond Transit Center Design Option would be consistent with the character of areas in Redmond and might slightly improve the areas visual quality. Widening NE 161st Street for the design option would not lower the visual quality of the urban environment near the Redmond Transit Center.

The remaining Segment E Alternatives would have visual impacts. The Redmond Way Alternative (E1) travels west of West Lake Sammamish Parkway NE, is elevated, and passes through a heavily vegetated hillside located above a small commercial strip and below multifamily building complexes. This portion of the guideway may also include noise barriers. The primary impact of Alternative E1 on visual character and quality would be from strong visual presence of the elevated structure. (see Appendix F4.5, Exhibit F4.5-28, Photo 28b). Tree removal on this hillside would contribute to the visual impact (see Appendix F4.5, Exhibit F4.5-27, Photo 27b). Until replanted trees gained stature in 5 to 10 years, Alternative E1 would temporarily lower the existing visual quality of the section of West Lake Sammamish Parkway NE from medium to low in this area.

The portion of the elevated structure that parallels Redmond Way and crosses the Sammamish River would be seen from the Sammamish River Trail and from Luke McRedmond Landing Park (see Appendix F4.5, Exhibit F4.5-29, Photo 29b). This portion of the alternative would be similar to the bridge in character in terms of scale, form, materials, and color and would not lower the area's high visual quality category along Redmond Way, nor would it lower the visual quality of the former BNSF Railway corridor.

The Leary Way Alternative (E4) would remove mature street trees along the existing landscaped strip and the south side of Leary Way NE starting west of the Leary Way NE bridge over the Sammamish River and continuing east to near the former BNSF Railway (see Appendix F4.5, Exhibit F4.5-30, Photo 30b for the Sammamish River crossing simulation). Alternative E4 continues east along a portion of Leary Way NE that serves as a gateway into Downtown Redmond. The transition of elevated profile to at-grade and widening the tree canopy could lower the visual experience of the entryway and lower the visual quality classification of this part of Leary Way NE from high to medium. Sound Transit has prepared designs that show how proposed landscaping may minimize visual effects (see Appendix F4.5, Exhibit F4.5-31, Photo 31b). The portions of Alternative E4 route along the former BNSF Railway corridor and extending over the SR 520 interchange would be visually consistent with the area's character.

Maintenance Facilities
The maintenance facilities would not be out of character with the land uses around them. Most of the alternative maintenance facility sites are located in areas that are not visible to large numbers of people and have been categorized as having low visual quality. The maintenance facilities would have a perimeter fence and/or landscaping where necessary to screen views. The design of the facilities is subject to appropriate design reviews required by the cities where they would be located.

Maintenance facility alternatives located in the Bel-Red Subarea are compatible with adjacent land uses currently, but the City of Bellevue has adopted future land use plans that would limit future industrial uses in the area. The 116th Maintenance Facility (MF1) might require screening from the adjacent medical- and hospital-oriented uses but would not reduce visual quality. The BNSF (MF2) and the SR 520 (MF3) Maintenance Facilities would be visually consistent with the existing visual character and quality of areas near them. MF3 would be the most visible of the maintenance facilities, because it would be located between NE 20th Street and SR 520. However, as confirmed by several car trips along SR 520 to examine the visibility of MF3 from SR 520, most views from the freeway would be screened by vegetation and on-ramps (which would interrupt views towards the MF3 site from most eastbound lanes and all westbound lanes). MF3 would be seen from NE 20th Street and could be seen from some parts of Viewpoint Park and the Bridle Trails Neighborhood. These views would be considered in the MF3 design and landscaping, would be consistent with the character of the areas near it, and would not lower visual quality. The SE Redmond Maintenance Facility (MF5), which would be perhaps the most visually compatible of the maintenance facilities sites, is surrounded by light industrial land uses with no future plans of changing from these current land uses. The industrial park is already screened by commercial uses and mature growth.

4.5.3.3 Impacts during Construction

Constructing the East Link Project would result in temporary impacts on the visual environment. Construction would last in any given area approximately 2 to 5 years (tunnel construction generally takes longer than at-grade or elevated construction). Removing and demolishing existing buildings and implementing the changes in roads, natural vegetation, and landscaping would change the existing condition of the visual environment to varying degrees for varying amounts of time. Activities related to building the project would also have similarly temporary impacts on the visual environment and would include exposing and moving equipment and materials; exposing soils, glare, and lights associated with nighttime construction; storing construction materials; and making general visual changes to the viewed landscape during the project construction period. Staging areas as large as 6 acres would be required in Downtown Bellevue and would contain construction equipment, vehicles, and various activities; these areas would be screened from view where appropriate.

In addition, parks would be affected during construction. Similarly, in Segment B, the alternatives would affect Mercer Slough Nature Park. Some of the Segment C alternatives would affect Surrey Downs Park, the pocket parks, and McCormick Park during construction and require rebuilding affected park areas. All Segment E alternatives would affect trails and nearby parks to some extent. Nearby residents and park users would be adversely affected by the loss of the affected parks and project construction for approximately 3 to 5 years and, in some cases, longer for the restored parks' revegetation to mature. The severity of the impacts on the visual environment would depend upon the duration and the intensity of construction activities and their locations.

4.5.3.4 Consistency with Comprehensive Plans

As discussed throughout the visual analysis by alternative, Sound Transit's assessment of the East Link Project's consistency with visual-resource goals and policies of relevant local comprehensive plans found that with two exceptions, none of the general plans or subarea plans contain specific goals and polices for aesthetic or visual resources. However, most of the plans contain guidance relating to maintaining and improving the appearance of the physical environment. The two exceptions are as follows:

- *Bellevue Comprehensive Plan* urban design element that encourages new projects to be designed to avoid shadows and allow access to sunlight, particularly for areas that receive pedestrian use
- Section 20.25A.100.E.6 (View Preservation Corridor) of the City of Bellevue's *Downtown Core Design District Guidelines* that identifies view preservation corridors

Section F4.5.1 (Visual Consistency with Comprehensive Plans) of Appendix F4.5 (Visual Consistency and Key Observation Point Analysis) discusses the consistency of the *Preferred Alternative* (as well as all others) with the visual resource goals and policies of relevant local comprehensive plans and ordinances. Sound Transit will coordinate with the local jurisdictions to design the project consistent with pertinent policies, design guidelines, and regulations relative to visual and aesthetic resources.

The City of Bellevue developed the Downtown Core Design District to assist in implementing the *Downtown Subarea Comprehensive Plan* policies. Section 20.25A.100.E.6 of the guidelines concerns “View Preservation Corridors,” which would retain the opportunity for viewing “Lake Washington, the Seattle skyline, the Olympic Mountains and the Cascade Mountains from the major public open spaces and the major pedestrian corridor.” Sound Transit assessed Lake Washington views in Segment B and the Cascade Mountain views in Segment C. Two of the three major public spaces (106th and 110th Avenues NE) in the district would have Segment C alternatives passing through them and were assessed accordingly.

4.5.4 Potential Mitigation Measures

The following sections describe mitigation measures associated with the proposed project alternatives.

4.5.4.1 Mitigation for All Alternative Operational Impacts

As discussed at the beginning of Section 4.5.3.2, the project includes a number of measures to minimize visual impacts and build a visually compatible transit facility. No mitigation measures would be necessary for *Preferred Alternatives A1, B2M, C11A, C9T, D2A,* and *E2* because there would be no adverse visual quality impacts associated with these alternatives. Mitigation measures specific to identified locations of visual impact are listed below:

- **Bellevue Way SE between the South Bellevue Park-and-Ride and intersection with 112th Avenue SE.** This section of Bellevue Way SE would have impacts from Alternatives B1, B2A, B2E, and B3. The retaining walls would receive design treatments such as texture, patterns, color, and possible plantings. Vegetative screening would be provided by Sound Transit for residences where it would be practical and effective in screening views of the light rail.
- **112th Avenue SE median removal.** Removing the median in 112th Avenue SE north of Bellevue Way for Alternatives B2A and B3 would be mitigated with additional tree plantings east of 112th Avenue SE as practical.
- **112th Avenue SE straddlebents.** The retained fill and straddlebent for the connection from Alternative B2A to Alternative C9A along 112th Avenue SE would be designed to minimize bulk and reduce shadows as practical.
- **110th Avenue NE residential areas north of NE 8th Street.** Sound Transit would design Alternative C8E to minimize bulk and shadows and to improve pedestrian environment by enhancing visual aesthetics of the columns and elevated structure.
- **NE 12th Street near McCormick Park.** Alternatives C3T, C4T, and C8E would visually impacts this area. Sound Transit would develop plans for a redeveloped McCormick Park in conjunction with the City of Bellevue and with input from the community to reestablish a linear landscaped park along the north side of NE 12th Street and to screen project components from the park and nearby residences where appropriate.
- **Bellevue Transit Center Station Tents**. Sound Transit would work with the Cityof Bellevue to uphold the design of the station for Alternative C14E in conformance with the City’s policy to minimize view blockage of the Cascade Mountain peaks along 110th Avenue NE, NE 6th Street, and the Bellevue Transit Center, by altering or lowering the tent-type design.
- **NE Leary Way.** Alternative E4 would be located as close to Leary Way as practical to minimize clearing mature trees. Sound Transit would coordinate with the City of Redmond and provide landscaping between Leary Way and the light rail elevated guideway and at-grade trackway where there is space to do so (see Appendix F4.5, Exhibit F4.5-31, Photo 31b). This would help screen the light rail and reduce the visual impact to the NE Leary Way entry into Downtown Redmond.
- **West Lake Sammamish Parkway NE.** Sound Transit would minimize clearing during construction and, in consultation with the City of Redmond, plant trees and/or other vegetation along the edge of West Lake Sammamish Parkway NE for Alternative E1, as illustrated in Appendix F4.5, Exhibit F4.5-28, Photo 28b (this simulation does not depict the additional planting); this would help to screen views of the columns and structure from the street and from nearby condominiums and reduce the apparent bulk of this part of the elevated structure as illustrated in Appendix F4.5, Exhibit F4.5-27, Photo 27b (this simulation does not depict the additional planting).

4.5.4.2 Mitigation for Construction Impacts

During construction, Sound Transit would provide visual screening along the south side of Main Street for the 108th Station construction area for *Preferred Alternative C11A*, or along the south side of the tunnel portal construction area along Main Street for *Preferred Alternative C9T*. Visual screening would include construction of a solid barrier to screen ground-level views into the construction area from adjacent historic properties to the south. When possible, Sound Transit would preserve the existing vegetation. The decision whether to revegetate disturbed areas following construction would be determined based on future use of lands outside the trackway. Nighttime construction lighting would be shielded and directed downward to avoid light spillover onto adjacent sensitive uses.

4.6 Air Quality and Greenhouse Gases

4.6.1 Introduction to Resources and Regulatory Requirements

The East Link Project is located in King County in the Puget Sound Region and therefore falls within the jurisdiction of the Puget Sound Clean Air Agency (PSCAA) for local air quality regulation. Characterizing the existing air quality environment is essential in developing a baseline to assess how changes in vehicle traffic patterns related to the East Link Project might affect existing air pollutant concentration levels. Air quality is characterized in this section by discussing the applicable regulatory framework for the Puget Sound region, describing the existing attainment status with established air quality standards in the project vicinity for each regulated pollutant, and presenting existing air quality monitoring data that support the trend of how existing air pollution control measures improve air quality in the region.

On May 3, 2007, the State of Washington passed Senate Bill 6001, which aims to achieve 1990 greenhouse gas (GHG) levels by 2020, a 50 percent reduction below 1990 levels by 2030, and more by 2050. On October 6, 2010, the White House Council on Environmental Quality (CEQ) released Guidance on Federal Greenhouse Gas Accounting and Reporting that establishes government-wide requirements for measuring and reporting GHG emissions associated with federal agency operations. Currently, the Washington State Department of Ecology (Ecology) has prepared a working paper to assist in applying the State Environmental Policy Act (SEPA) to proposals that will result in GHG emissions or that may be vulnerable to the impacts of those emissions: climate change. A final draft is expected to be released in 2011. Although GHG emissions are federally regulated for large industrial sources, guidance on how to address GHG emissions in environmental documents is currently being developed.

4.6.2 Affected Environment

4.6.2.1 Regulatory Agencies and Requirements

Air quality in the Puget Sound region is regulated and enforced by federal, state, and local agencies—the U. S. Environmental Protection Agency (EPA), Ecology, and PSCAA—each with its own role in regulating air quality. Following the requirements of the federal Clean Air Act (CAA), EPA sets the criteria for National Ambient Air Quality Standards (NAAQS) and conformity requirements and has oversight authority over both PSCAA and Ecology. Ecology strives to improve air quality throughout the state by overseeing the development and conformity of the State Implementation Plan (SIP), which is the state's plan for meeting and maintaining NAAQS. The PSCAA has local authority for setting regulations and permitting of stationary air pollutant sources and construction emissions.

EPA's NAAQS sets limits on concentration levels of certain pollutants, commonly referred to as the "criteria pollutants." The six criteria pollutants are carbon monoxide (CO), lead, nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$) in diameter, ozone (O_3), and sulfur dioxide (SO_2) (EPA, 2007b). The NAAQS for these criteria pollutants are separated into two standard categories: the Primary and the Secondary standards (40 Code of Federal Regulations [CFR] 50). The Primary standards were created to protect public health; the secondary pollutant standards were established to protect public welfare and the environment.

Table 4.6-1 displays the Primary and Secondary NAAQS for these six criteria pollutants. Ecology and PSCAA have authority to adopt more stringent standards, although many of the state and local standards are equivalent to the federal mandate.

4.6.2.2 Conformity Requirements

The CAA amendment of 1990 and State of Washington regulation require all transportation projects located in air quality maintenance and nonattainment areas in Washington to follow conformity requirements promulgated in their respective regulations (40 CFR Part 93 and Washington Administrative Code [WAC] 173-420) and to conform to the SIP. By conforming to the SIP, the proponent demonstrates that the transportation project will not add any new air quality violations to the area, will not worsen the current violations, and/or will not delay the attainment goals of the NAAQS. The state regulation requires Ecology and the Washington State Department of Transportation (WSDOT) to develop air quality-based criteria for transportation projects to demonstrate conformity to the SIP, for attaining and maintaining the NAAQS, and for meeting all standards of the CAA.

TABLE 4.6-1
Ambient Air Quality Standards by Government Jurisdiction

Pollutant	National		Washington State	Puget Sound Region
	Primary	Secondary		
Nitrogen Dioxide (NO_2)				
Annual Average	0.053 ppm	0.053 ppm	0.05 ppm	0.05 ppm
Carbon Monoxide (CO)				
1-hour average	35.0 ppm[a]	NS	35.0 ppm	35.0 ppm
8-hour average	9.0 ppm[a]	NS	9.0 ppm	9.0 ppm
Ozone (O_3)				
8-hour average (1997 standard)	0.08 ppm[b]	0.08 ppm[b]	NS	NS
8-hour average (2008 standard)	0.075 ppm[b1]	0.075 ppm[b1]	NS	NS
Lead				
Maximum arithmetic mean (averaged over a calendar quarter)	1.5 μg/m^3	1.5 μg/m^3	NS	1.5 μg/m[c]
Sulfur Dioxide (SO_2)				
1-hour average	NS	NS	0.40 ppm	0.40 ppm
3-hour average	NS	0.5 ppm	NS	NS
24-hour average	0.14 ppm[a]	NS	0.10 ppm	0.10 ppm
Annual arithmetic average	0.03 ppm	NS	0.02 ppm	0.02 ppm
Particulate Matter (PM_{10})				
24-hour average	150 μg/m^3	150 μg/m^3(c)	150 μg/m^3	150.0 μg/m^3
Annual arithmetic average	Revoked[d]	Revoked[d]	50 μg/m^3	50.0 μg/m^3
Particulate Matter ($PM_{2.5}$)				
24-hour average	35 μg/m^3(e)	35 μg/m^3(e)	NS	NS
Annual arithmetic average	15.0 μg/m^3(f)	15 μg/m^3(f)	NS	NS
Particulate Matter (TSP)				
24-hour average	NS	NS	150 μg/m^3	NS
Annual geometric average	NS	NS	60 μg/m^3	NS

Source: EPA, June 2010, Washington State Dept of Ecology**, 2010**

[a] Not to be exceeded more than once per year.

[b] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor station within an area over each year must not exceed 0.08 ppm.

[b1] The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard. EPA is in the process of reconsidering these standards (set in March 2008).

[c] Not to be exceeded more than once per year on average over 3 years.

[d] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} standard in 2006 (effective December 17, 2006).

[e] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor station within an area must not exceed 35 μg/m^3 (effective December 17, 2006).

[f] To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitor station must not exceed 15.0 μg/m^3.

ppm = parts per million

μg/m^3 = microgram per cubic meter

NS = no standard established

TSP = total suspended particulates

The East Link Project is located in the Puget Sound region, which is a maintenance area for CO, with a portion of the project also located in the Duwamish PM_{10} maintenance area. The area is in attainment for all other criteria pollutants.

The project is required to meet conformity requirements both on a regional and project level.

Regional conformity is demonstrated if the project is included in a conforming regional transportation plan (RTP) and a regional transportation improvement program (RTIP). Project-level conformity is demonstrated when three conditions are met:

- The project does not increase the severity or frequency of existing exceedances of the CO and PM_{10} standards.
- The project does not cause a new exceedance of the CO and PM_{10} standards.
- The project does not delay the timely attainment of the CO and PM_{10} standards.

4.6.2.3 Climate and Air Quality

The East Link Project is in the Puget Sound Lowland, which comprises a narrow strip of land along the western side of Puget Sound extending from the Strait of Juan de Fuca in the north to the southern cities of Centralia and Chehalis, and a somewhat wider strip along the eastern side of Puget Sound extending north to the Canadian border. Buffered by the Olympic and Cascade mountain ranges and Puget Sound, the Puget Sound Lowland has a relatively mild, marine climate with cool summers and mild, wet, and cloudy winters.

The prevailing wind direction in the summer is from the north or northwest. The average wind velocity is less than 10 miles per hour (mph). Persistent high-pressure cells often dominate summer weather, creating stagnant air conditions. This weather pattern sometimes contributes to the formation of photochemical smog.

During the winter wet season, the prevailing wind direction is south or southwest. Cold air occasionally flows southward from the interior of Canada through the Fraser River canyon into the Puget Sound Lowland. In the fall and winter, severe storms can produce strong winds that cross the state from the southwest.

Although the Puget Sound Lowland area is the most densely populated and industrialized area in Washington, there is sufficient wind most of the year to disperse air pollutants released into the atmosphere. Air pollution is usually most noticeable in the late fall and winter, under conditions of clear skies, light wind, and a sharp temperature inversion. Temperature inversions occur when cold air is trapped under warm air, preventing vertical mixing in the atmosphere. Inversions can last several days and can prevent pollutants from being dispersed by the wind. Inversions are most likely to occur during the months of October to January. If poor dispersion persists for more than 24 hours, the PSCAA can declare an “air pollution episode” or local “impaired air quality.”

4.6.2.4 Pollutants of Concern

Air quality is affected by pollutants that are generated by both natural and manmade sources. In general, the largest manmade contributors to air emissions are transportation vehicles and power-generating equipment, both of which typically burn fossil fuels. The main criteria pollutants of interest for transportation projects are CO, PM, O_3 and the O_3 precursors, volatile organic compounds (VOCs), and oxides of nitrogen (NO_x). Both federal and state standards regulate these pollutants, along with two other criteria pollutants, SO_2 and lead. However, since the Puget Sound region is in attainment and not a maintenance area for NOx, lead, and SO_2, these pollutants are not addressed in this analysis.

The largest contributors of pollution related to transportation projects are motor vehicles. The main pollutants emitted from motor vehicles are CO, particulates, O_3, GHGs, and air toxic pollutants. Motor vehicles also emit pollutants that contribute to the formation of ground-level ozone. This section discusses the main pollutants of concern and their impact on public health and the environment.

Carbon Monoxide

In assessing the localized air quality impacts of transportation projects, CO is the main pollutant of concern. CO is a colorless, odorless, and tasteless gas that results from the incomplete combustion of fuel. CO is ingested into the body by breathing. In low concentrations, CO can cause fatigue in healthy people and chest pain in people with heart conditions. At higher concentrations, CO can cause dizziness, impaired vision and coordination, confusion, headaches, and nausea. In exceptionally high concentrations, CO can be fatal.

The major source of CO is vehicular traffic, along with industry, wood stoves, and slash burns. For urban areas, motor vehicle internal combustion engines are the principal sources of CO that cause ambient air quality levels to exceed the NAAQS. CO concentration increases occur during vehicle cold-starts and winter months when meteorological conditions favor the build-up of directly emitted contaminants. CO is a pollutant whose impact is usually localized, with the highest ambient concentrations of CO occurring near congested roadways and intersections.

Particulate Matter

Particulate matter consists of small particles of dirt, soot, metals, and organic matter. PM of 10 microns in diameter and smaller pose the greatest health problems because it can bypass the natural filtration systems of the nose and throat and enter deep into the lungs, heart, and even the bloodstream, which can cause difficulty with breathing, aggravation of asthma, irregular heartbeat, nonfatal heart attacks, and death in people with heart or lung problems. Due to the size of PM_{10} and $PM_{2.5}$, the wind easily picks up the particles and transports them over long distances to settle on either the ground or water. PM that lands on the ground has the potential to deplete nutrients in the soil, damage sensitive crops, and change the structure of the ecosystem. PM that lands on water can change the acidity in lakes and streams and change the nutrient balance in coastal waters and large river basins. Major sources of PM are construction activity, smokestacks, fires, power plants, and automobiles.

The EPA has set standards for two different size categories of PM. The first standard set is for PM_{10}: particles that are larger than 2.5 microns and smaller than 10 microns in size. These particles are considered "inhalable course particles" and can be found near roadways and dusty industries. The second set of standards is for $PM_{2.5}$: particles that measure 2.5 microns in size and smaller. These particles are called "fine particles" and can usually be found in smoke and haze. These particles are normally directly emitted from forest fires or they can be formed from gases emitted from power plants and automobiles.

Ozone

Normally, O_3 is not emitted directly into the air; however, at ground level, NO_x and VOCs react under the presence of sunlight to form O_3. Emissions from industrial and electric facilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are major sources of NO_x and VOCs.

Ground-level and stratosphere-level O_3 share the same chemical structure; however, their effects differ greatly due to their positions in the atmosphere. Ground-level O_3 has adverse effects due to its potential impacts on human health, while stratospheric ozone has a protective effect by shielding the earth's surface from harmful radiation. When O_3 is inhaled, it can cause a variety of health problems, such as chest pain, coughing, throat irritation, and congestion. The effects can potentially worsen to bronchitis, emphysema, and asthma, reducing lung function and inflaming the linings of the lungs. Repeated exposure can eventually lead to permanent scarring of the lung tissue. Not only does O_3 cause negative human health effects, but it also causes damage to the environment. O_3 can cause sensitive plants to be more susceptible to certain diseases, insects, and other pollutants, which can lead to reduced crop yields, forest growth, and potentially to impacts on species diversity in ecosystems.

O_3 is also the primary element of smog. Sunlight and hot weather are the main causes of the formation of ground-level O_3. As a result, O_3 is referred to as a summertime air pollutant. Many urban areas tend to have high levels of O_3, although even rural areas are subject to increased O_3 levels because the wind can carry O_3 and the pollutants that form O_3 miles away from their original sources.

Climate Change and Greenhouse Gases

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), which are known as GHGs. These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Gases that trap heat in the atmosphere are often called GHGs, analogous to a greenhouse. GHGs are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without these naturally occurring GHGs, the Earth's temperature would be about 61° Fahrenheit cooler (California EPA, 2006) than it is today. Emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere, leading to even higher ambient temperatures.

Global warming is a regional and ultimately a worldwide concern. Historical records indicate that global climate changes have occurred in the past due to natural phenomena. However, data indicate that the current global conditions differ from past climate changes in rate and magnitude. Since GHG effects are experienced on a global scale, it is impossible to discuss direct effects of a single development project with future specific climate change.

CO_2 is the most abundant GHG and the primary GHG pollutant emitted by the combustion of fossil fuels. Although they are released by natural processes, burning of fossil fuels by humans produces substantial amounts of these gases. Changes in global CO_2 emissions from fossil fuel combustion are influenced by many long-term and short-term factors, including population and economic growth, energy price fluctuations, technological changes, and seasonal temperatures.

In contrast to most criteria pollutants, emissions of GHGs have been rising from many sources (i.e., industrial, residential, commercial, and transportation). Two of the largest contributors to GHG emissions in the United States are transportation and energy production, although residences, offices, and industries contribute as well. In 2003, it was found that combustion of transportation fuels, the largest source of CO_2, contributed 28 percent of the U.S. GHG emissions. In Washington, the transportation sector accounts for roughly 47 percent of GHG emissions, measured in million metric tons of carbon dioxide ($MMTCO_2e$) (Exhibit 4.6-1). One reason that transportation makes up such a large portion of GHG emissions is that in Washington there is a larger percentage of hydroelectric power than in many other states, so GHG use for electricity production is less than the national average, thereby decreasing the state's total GHGs. The decrease in total GHGs increases the percentage of GHGs from transportation.

The state legislature and mayors of the impacted cities intend to address transportation-related GHGs by reducing their communities' GHG emissions by certain percentages by 2020. GHG emissions from transportation sources are directly related to energy consumption and primarily result from the combustion of fossil fuels in vehicles. The GHG emissions associated with electrical transportation vary widely, depending on the source of electricity. For example hydro-electric generation produces much less GHG emissions than coal plants do. Generally, combusting fuel at a power plant to produce electricity is more efficient than fuel combustion in vehicles. To reduce GHG emissions from transportation sources, effective planning must incorporate modes of transport that use less energy per person per mile traveled and/or use energy derived from fuels that have low carbon content per unit of energy. For example, by changing bus fleets from diesel to natural gas, GHG emissions can be reduced through the use of a low carbon-intensity fuel, and they can be further reduced by increasing regional transit ridership, which uses less energy per person per mile traveled than single-occupant vehicles.

High-capacity transit is integral to fostering the urban villages and growth patterns encouraged by the Washington State Growth Management Act (GMA) and *VISION 2040* (PSRC, 2008). Transit provides an alternative to cars and therefore to the dependence on burning fossil fuels, and it reduces individual vehicle miles estimates. Across the country, studies show how rail-based transit is spurring high-quality, dense transit-oriented development (Cervero, 2008). Focusing growth in "urban centers"—and the density and mix of land uses it implies—is intended to enable residents to live near jobs and other urban activities, to

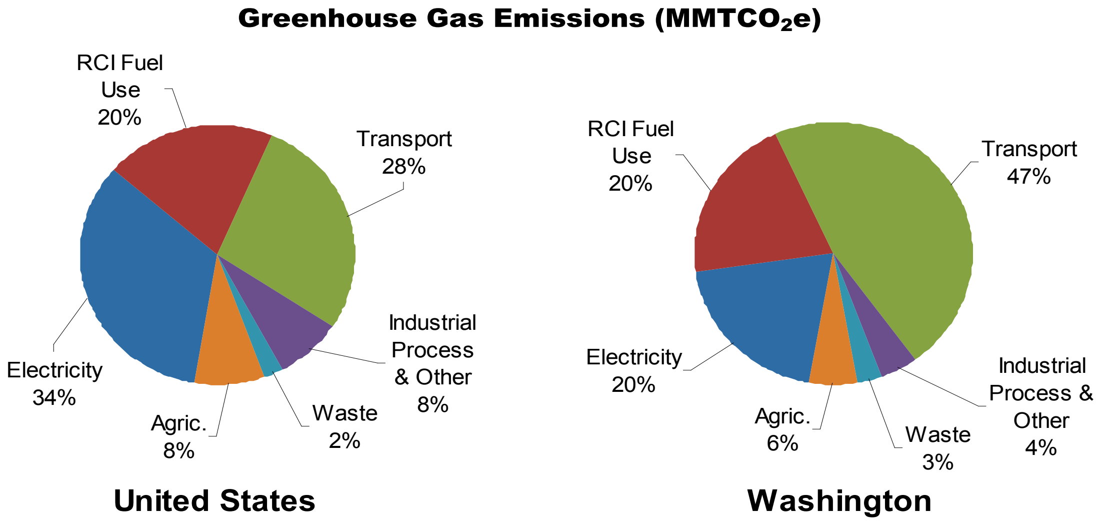


EXHIBIT 4.6-1
Comparison of National and Washington Greenhouse Gas Emissions
Source: Ecology, 2008
(RCI = Residential, Commercial, and Industrial)

help strengthen existing communities, and to promote bicycling, walking, and transit use. The benefits of more walkable communities and convenient alternatives to single-occupant vehicles are well-understood but not easily quantified.

Air Toxic Pollutants

Other pollutants known to cause cancer or other serious health effects are called air toxics. Ecology began monitoring air toxics at the Seattle Beacon Hill site in 2000. In addition to regulating the criteria pollutants, the CAA identifies 188 air toxics, also known as hazardous air pollutants. EPA assessed this expansive toxics list and identified a group of 21 air toxics as mobile source air toxics (MSATs), which are set forth in an EPA final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 *Federal Register* [FR] 17235). The EPA then extracted a subset of this list of 21, which it labels the seven priority MSATs: benzene, formaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, naphthalene, polycyclic organic matter, and 1,3-butadiene. Exposure to these pollutants for long durations and sufficient concentrations increases the chances of cancer or other serious health effects, including damage to the immune system, neurological problems, and reproductive, developmental, respiratory, and other serious health problems.

The 2004 PSCAA inventory shows that on-road vehicles continue to be the greatest contributors to both criteria pollutant and air toxics emissions in the Puget Sound airshed (PSCAA, 2007). Transportation projects with high potential for MSAT impacts are required to perform project-level MSAT analysis.

4.6.2.5 Air Quality Monitoring and Trends

An area is designated a “nonattainment area” when measured concentrations exceed the NAAQS for a particular pollutant. The area remains a nonattainment area for that particular pollutant until concentrations are in compliance with the NAAQS. Only after measured concentrations have fallen below the NAAQS can the state apply for redesignation to attainment, and it must then submit a 10-year plan for continuing to meet and maintain air quality standards that follow the CAA. During this 10-year period, the area is designated as a “maintenance area.” The Puget Sound region, including King County, is currently classified as a maintenance area for CO. The 1-hour O_3 standard was revoked by EPA on June 15, 2005 (40 CFR 50.9(6) and 70 FR 44470). The area currently meets the 8-hour standard; therefore, the maintenance designation for O_3 no longer applies in the Puget Sound region. The approval for PM_{10} in the Seattle Duwamish area came in December 2000 and was redesignated as a maintenance area on March 13, 2002.

The PSCAA monitors criteria air pollutant concentrations at eight facilities in King County, but there are no facilities monitoring NO_2, SO_2, or lead near the project vicinity. CO concentrations are measured at two locations; four locations are currently monitoring O_3 concentrations; three locations are monitoring $PM_{2.5}$ concentrations; and two locations are measuring PM_{10} concentrations. One monitoring station located near Beacon Hill and near the project vicinity measures concentrations of all four pollutants: CO, PM_{10}, $PM_{2.5}$, and O_3. Table 4.6-2 displays the last 3 years of monitoring data to show that the air pollutant concentration trends for these pollutants remain below the NAAQS.

Emission projections and ongoing monitoring throughout the Central Puget Sound region indicate that the ambient air pollution concentrations for CO and PM_{10} have been decreasing over the past decade. Measured O_3 concentrations, in contrast, have remained fairly static. The decline of CO is due primarily to improvements made to emission controls on motor vehicles and the retirement of older, higher-polluting vehicles. However, PSRC estimates that by 2040, the Puget Sound region population will grow by 1.7 million people, increasing 52 percent, to reach a population of 5 million people (PSRC, 2009).

The highest population increase is estimated to be in King County. Estimates like this indicate that CO, PM_{10}, and O_3 emissions will increase , which could lead to future violations. With half of the region’s GHG emissions coming from transportation activities, PSRC’s *VISION 2040* calls for developing a more sustainable transportation system. The transportation policies call for reducing pollution through cleaner cars, buses, and trucks; cleaner fuels; and fewer vehicle miles traveled. Future mobility needs must consider alternatives to fossil fuels, new transportation technologies, and more alternatives to driving alone. If none of these methods succeed in maintaining emissions, more stringent standards might be needed for the central Puget Sound region to stay in attainment for all criteria pollutants.

Air toxic pollutant emissions are also of concern because of the projected growth in vehicle miles traveled (VMT). EPA has been able to reduce benzene, toluene, and other air toxics emissions from mobile sources by placing stringent standards on tailpipe emissions and requiring the use of reformulated gasoline. Future regulations on fuel and motor

TABLE 4.6-2
Ambient Air Quality Monitoring Data at Beacon Hill in Seattle

Pollutant	2006 Maximum Concentration	2007 Maximum Concentration	2008 Maximum Concentration	NAAQS/PSCAA Standard[a]
Carbon Monoxide[b]				
1-hour average	2.3 ppm	1.4 ppm	1.4 ppm	35 ppm
8-hour average	1.5 ppm	1.0 ppm	0.9 ppm	9 ppm
Ozone[c]				
8-hour average	ND	0.05 ppm	0.052	0.08ppm/NS
Particulate Matter (PM_{10})[b]				
24-hour average	42.0 µg/m^3	ND	ND	150 µg/m^3
Particulate Matter ($PM_{2.5}$)[d]				
24-hour average	26.0 µg/m^3	29.4 µg/m^3	20.5 µg/m^3	35 µg/m^3 /NS
Annual arithmetic average	7.9 µg/m^3	7.19 µg/m^3	7.25 µg/m^3	15 µg/m^3 /NS

[a] Source: http://www.epa.gov/air/data/geosel.html NAAQS standard is listed first.

[b] NAAQS and PSCAA standards are the same.

[c] No PSCAA ozone standard has been established. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor station within an area over each year must not exceed 0.08 ppm.

[d] Only an NAAQS standard has been established for $PM_{2.5}$.

Notes:
Monitoring location was at 4103 Beacon Avenue South, Seattle, WA.

ND	no data collected
ppm	parts per million
µg/m^3	micrograms per cubic meter
NS	no standard

vehicles are expected to reduce air pollutant emissions from 1990 by more than 75 percent by 2020 (EPA, 2007a).

4.6.3 Air Quality Impacts

Operational impacts are assessed at both the regional and local scale of the project.

4.6.3.1 Regional Operational Impacts

Regional operational impacts were assessed by calculating tailpipe emissions for all criteria and toxic air pollutants for the East Link Project using the annual traffic forecast for the full-length, low-ridership, and high-ridership projects for 2020 and 2030. These two conditions represent the full range of potential operational impacts for the project. The year 2020 was chosen as the project's initial forecast year and is the estimated year of opening. The year 2030 represents the future forecast year that is consistent with the regional transportation plan adopted when the analysis began (PSRC, 2001).

Criteria Pollutant Emissions

The tailpipe emission burden was determined using Sound Transit's comparison of annual vehicle-miles for each alternative and the pollutant emission rate data from PSRC. The pollutant emission rates vary depending upon the year examined (2007, 2020, and 2030) and the average speed, ranging from 37.7 to 38.3 mph.

Tailpipe emissions for existing conditions were compared to the 2020 and 2030 No Build Alternatives to illustrate the future trend in pollutant emissions for the Puget Sound regional airshed. Table 4.6-3 summarizes tailpipe emissions for the existing, No Build 2020, and No Build 2030 conditions as well as for the low-ridership and high-ridership projects as determined through ridership modeling. Emission rates for all pollutants would fall from existing conditions to 2030 under all ridership conditions represented. All criteria pollutants under the build alternatives would be well below existing conditions and at or below the No Build pollutant levels. Other pollutants would also be at or below the No Build pollutant levels.

Mobile Source Air Toxics

Regional impacts of MSATs must be evaluated in accordance with the Federal Highway

Administration's (FHWA's) Interim Guidance on Air Toxic Analysis in National Environmental Policy Act (NEPA) Documents (FHWA, 2009). Currently, there are no established criteria for determining when MSAT emissions should be considered a problem. For the purpose of MSAT impact evaluation under NEPA, FHWA has developed a tiered approach for analyzing MSATs. Based on this tiered approach, the East Link Project would be considered to have a low potential MSAT effect because it would not add substantial traffic volumes or change the traffic mix considerably from the No Build Alternative. As a result, the East Link Project would generate minimal air quality impacts for CAA criteria pollutants and would not be linked with any special MSAT concerns. Consequently, MSATs impacts are not expected to occur as a result of the East Link Project. EPA has developed several emission control programs for vehicle engines and fuels that will reduce MSATs over the next 20 years. These programs include reformulated gasoline, a product of CAA legislation that targets the nation's more acute O_3 nonattainment areas; National Low Emissions Vehicle standards; Tier 2 motor vehicle emission standards and associated gasoline sulfur control requirements; heavy-duty engine standards and on-highway diesel sulfur control requirements; the final rule for non-road diesel engines; and proposals for marine and locomotive engines and the 2001 MSAT rule toxic emissions performance standard. According to an FHWA analysis, using the EPA's MOBILE6.2 model (2003), implementing these control programs will decrease MSAT emission rates by 72 percent from 1999 to 2050, even if VMT increases by 145 percent (FHWA,2009).

Regardless of the build alternative chosen, emissions would likely be lower than existing levels in the 2030 design year as a result of the EPA's national control programs. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures; however, the magnitude of the EPA-projected reductions is remarkable in that MSAT emissions in the project vicinity are likely to be lower in the future in nearly all cases.

4.6.3.2 Localized Operational Impacts

The East Link Project would generate minimal air pollutant emissions during operation because the proposed trains are electrically powered. However, air quality in the project vicinity could be affected by changes in traffic flow and volumes locally and regionally and as a result of increased vehicular traffic near the light rail stations and park-and-ride lots.

Light rail is anticipated to improve air quality by shifting commuters from motor vehicle to train ridership. Compared to the No Build Alternative, increased use of light rail is projected to decrease peak-hour morning (AM) and afternoon (PM) traffic volumes locally and regionally, although intersections located near the stations and park-and-ride lots would experience an increase in traffic congestion as more commuters transfer at these locations.

corridor. WASIST uses predefined traffic data to estimate the project-generated CO emissions by inputting a combination of worst-case scenarios simultaneously into the model in an effort to produce the highest possible level of CO emissions. High-volume, signalized intersections with a level of service (LOS) of D or worse would produce traffic congestion that could cause localized CO hotspots, thereby impacting air quality.

Traffic data were collected for the project to determine which intersections would meet this criterion and further degrade the LOS from D to E or F under the future build alternatives. Screened intersections meeting this criterion underwent a CO hot-spot modeling analysis. If the worse-case intersections do not cause an air quality impact, all other intersections would have a lesser impact. Exhibits 4.6-2 through 4.6-4 show all the intersections considered and those that meet the WASIST criteria for modeling CO concentrations.

The initial step in the WASIST modeling process is to perform a "pre-screen." If the pre-screen does not provide a passing result, a complete WASIST analysis is required to better estimate the intersection's impact on ambient CO concentrations. Additional information on how the WASIST model was applied to this project is described in the technical memorandum in Appendix F4.6. The results of the WASIST model are also presented in Appendix F4.6.

Affected intersections were modeled using the WASIST pre-screening analysis. However, they all initially were above the WASIST pre-screen analysis, requiring a complete WASIST analysis, for existing conditions and for the future No Build and build alternatives. The tables in Appendix F4.6 provide the model results at all intersections requiring analysis. Although there are CO NAAQS for both 1-hour and 8-hour averaging periods, past monitoring data show that only the 8-hour NAAQS of 9 parts per million (ppm) has the potential to be exceeded, and, therefore, only the 8-hour CO concentrations from the highest receptor at each affected intersection are reported.

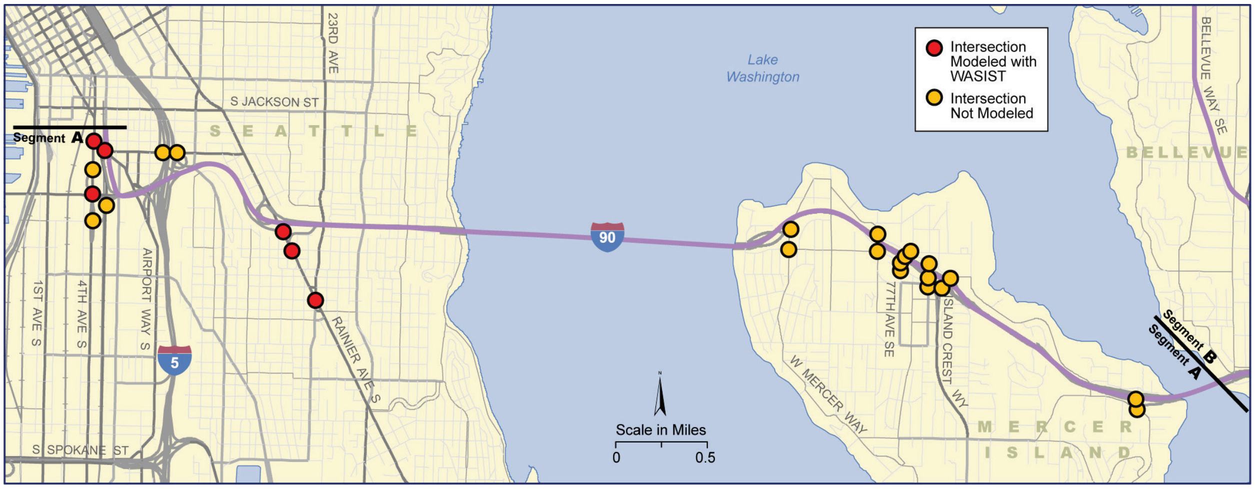

Intersection Modeled with WASIST
Intersection Not Modeled
Lake Washington
23RD AVE
S JACKSON ST
S E A T T L E
Segment A
BELLEVUE
BELLEVUE WAY SE
90
5
1ST AVE S
4TH AVE S
AIRPORT WAY S
RAINIER AVE S
77TH AVE SE
ISLAND CREST WY
W MERCER WAY
Segment B
Segment A
MERCER ISLAND
S SPOKANE ST
Scale in Miles
0
0.5

EXHIBIT 4.6-2
Segment A Intersections Analyzed for CO Concentrations with WASIST Model

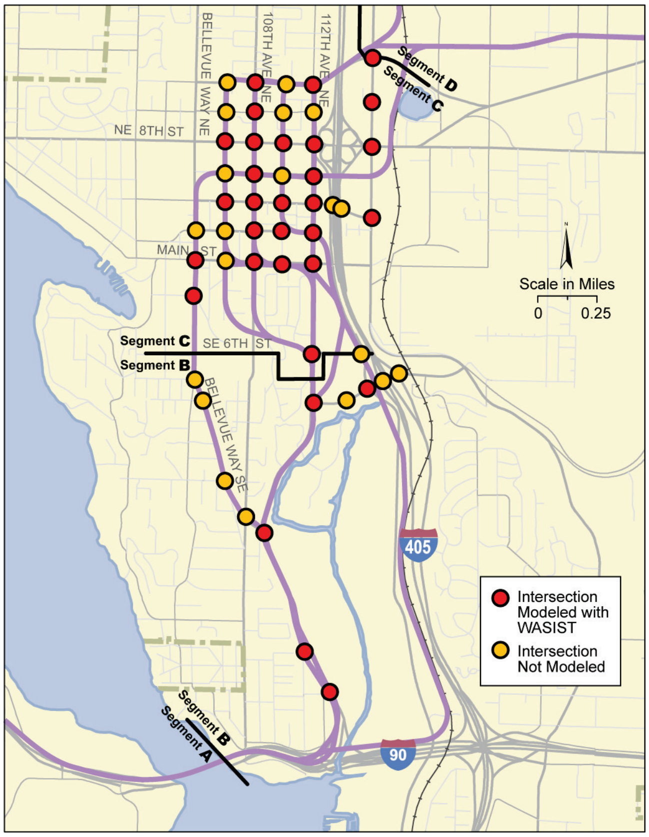

BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Segment D
Segment C
NE 8TH ST
MAIN ST
Scale in Miles
0
0.25
Segment C
Segment B
SE 6TH ST
BELLEVUE WAY SE
405
Intersection Modeled with WASIST
Intersection Not Modeled
Segment B
Segment A
90

EXHIBIT 4.6-3
Segment B and C Intersections Analyzed for CO Concentrations with WASIST Model

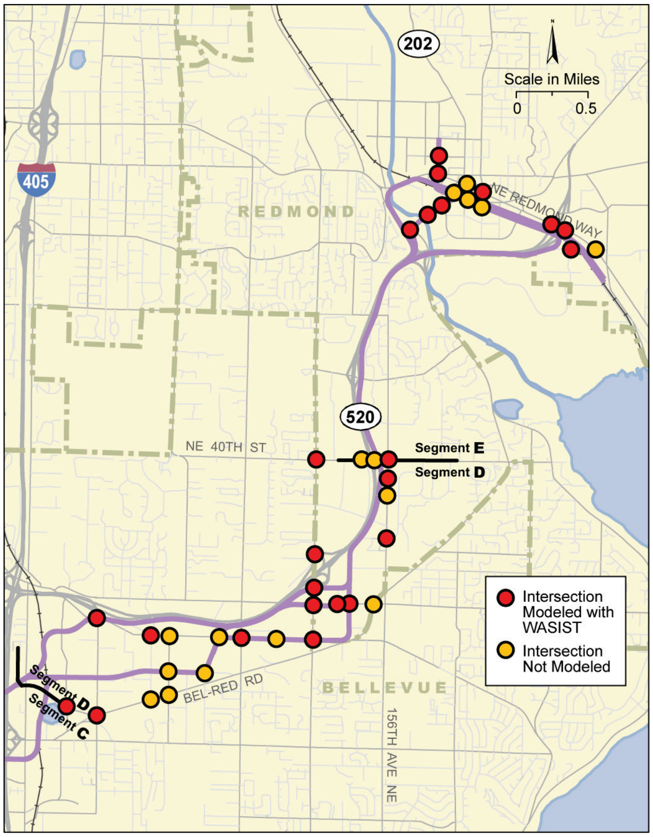

202
Scale in Miles
0
0.5
405
REDMOND
NE REDMOND WAY
520
NE 40TH ST
Segment E
Segment D
Intersection Modeled with WASIST
Intersection Not Modeled
Segment D
Segment C
BEL-RED RD
BELLEVUE
156TH AVE NE

EXHIBIT 4.6-4
Segment D and E Intersections Analyzed for CO Concentrations with WASIST Model

The modeled CO concentrations did not exceed the NAAQS in each case and therefore passed the complete WASIST analysis. Modeled results indicated that the highest CO concentrations would occur under existing conditions. However, these CO levels are still below the 8-hour standard. When existing CO concentrations levels were compared to those in future years, for both the No Build Alternative and the build alternatives, the results indicated a decreasing trend with time.

Higher concentration levels under existing conditions can be attributed to an older vehicle fleet with higher emissions. Under the future years of 2020 and 2030, modeled CO levels decrease as vehicle emissions decrease based on expected future improvements in inspection and maintenance programs, improved vehicle fuel efficiency, and improvements directed by the SIP.

The differences in CO concentrations between the No Build and build alternatives rely mainly on their differences in traffic volume or longer vehicle idle times at intersections. Generally, build CO concentrations were similar to No Build concentrations, except in a few instances where increases in CO concentrations under the build alternatives could be attributed to an intersection’s proximity to one of the stations or park-and-ride lots. Minor CO concentration variations would occur among the build alternatives because of increases in traffic volumes resulting from an alternative and increases in extended idle times causing vehicles to remain longer at intersections. However, as shown in the tables presented in Appendix F4.6, none of the CO concentrations are predicted to exceed the 8-hour CO standard of 9.0 ppm with the project alternatives. The modeled impact levels for the various alternatives are between 3.6 ppm and 6.6 ppm at intersections. Often there are negligible differences between the No Build and the build alternatives at congested intersections, but none exceed the 8-hour standard. A summary by segment is provided in the following subsections.

Segment A

With *Preferred Interstate 90 Alternative (A1),* intersection operations generally would improve in Seattle, especially along Rainier Avenue, because East Link would reduce the amount of auto demand on this corridor and near the Interstate 90 (I-90) HOV ramp (D2 Roadway) terminus at 5th Avenue South and Airport Way/Dearborn Street (vehicle access to the ramp would be restricted). Although these improvements would not change the LOS conditions in the project study area, the reduction in volume would provide a slight air quality benefit at intersections in Seattle. This is indicated by the negligible decrease in CO concentrations from 4.2 to 4.1 during 2020 at the Rainier Avenue South and 23rd Avenue South intersection. CO concentrations for the other affected intersections of South Royal Brougham Way and 4th Avenue South, Dearborn Street, and Rainier Avenue South under this alternative would remain unchanged for both 2020 and 2030.

On Mercer Island, nearly all intersections would maintain a LOS of C or better for future No Build and build alternatives. However, the intersection of North Mercer Way and Island Crest Way would experience a degradation of LOS from existing to future 2020 and 2030 conditions. However, as shown in Appendix F4.6, CO concentrations would remain below the current 8-hour standard of 9 ppm. Further CO concentrations would remain unchanged between the No Build and build levels for 2020 and 2030. All predicted CO concentrations would not exceed current standards, so no potential air quality impacts would be likely.

Segment B

In general, with *Preferred 112th SE Modified Alternative (B2M) to C11A*, CO concentrations at the affected intersections would remain unchanged from the No Build Alternative for both 2020 and 2030. However, minor traffic increases would occur under this alternative that would affect the intersections at 112th Avenue SE/Bellevue Way SE and SE 8th Street/118th Avenue SE, resulting in a negligible increase in CO concentrations over the No Build Alternative in both 2020 and 2030. As shown in Appendix F4.6, CO concentrations for the No Build and build alternatives for 112th Avenue SE and Bellevue Way SE would be 4.6 ppm for 2020 and 5.2 ppm for 2030, which remains below the current 8-hour standard of 9 ppm.

Furthermore, CO concentrations for *Preferred Alternative B2M to C9T* would also experience a negligible increase in CO concentrations over the No Build Alternative similar to *B2M to C11A* at the intersection of 112th Avenue SE and Bellevue Way SE for 2020.

Depending on which Segment B alternative is chosen, minor traffic increases would occur and slightly degrade the LOS from the No Build Alternative at the following intersections:

- Bellevue Way SE at the park-and-ride lot intersection would be affected by an increase in traffic to the site under all other Segment B alternatives except BNSF Alternative (B7).

- 112th SE At-Grade Alternative (B2A) is expected to create additional vehicle delay at the Bellevue Way SE and 112th Avenue SE intersection.
- Alternative B7 is expected to degrade intersection operations at SE 8th Street and 118th Avenue SE due to the increase in vehicle traffic from the 118th Station.

These minor traffic increases would result in minor differences in CO concentrations among the alternatives.

All CO concentrations with the other alternatives in Segment B would experience the same CO concentrations as *Preferred Alternative B2M* for both build years 2020 and 2030. No air quality impacts would be expected from *Preferred Alternative B2M* or any of the other alternatives in Segment B.

Because all predicted CO concentrations would not exceed current standards, no potential air quality impacts would be likely.

Segment C

Modeled CO concentrations for *Preferred 108th NE At-Grade Alternative (C11A)* are nearly identical to the No Build Alternative. For 2020, negligible increases in concentrations with *Preferred Alternative C11A* could be found at the following intersections, resulting from minor increases in vehicle volumes from the No Build to *C11A*:

- Main Street and 112th Avenue NE
- NE 4th Street and 108th Avenue NE
- NE 4th Street and 110th Avenue NE
- NE 8th Street and 106th Avenue NE
- NE 8th Street and 116th Avenue NE

For 2030 there would be no increases in CO concentrations from the No Build Alternative to *Preferred Alternative C11A*. At the intersection of NE 4th Street and 110th Avenue, the CO concentrations would have a negligible decrease with *Preferred Alternative C11A*: 4.8 ppm with No Build Alternative and 4.6 ppm with *C11A*. In this instance, traffic volumes decrease slightly under *Preferred Alternative C11A*.

There would be slight increases in CO concentrations between the No Build Alternative and *Preferred Alternative C11A* in 2020 that would not occur in 2030 because improvements in signal timing and vehicular traffic patterns would reduce congestion and offset the increases in traffic in 2030. As a result, CO concentrations would remain unchanged between the No Build Alternative and *Preferred Alternative C11A* in 2030.

Because all predicted CO concentrations would not exceed current standards, no potential air quality impacts would be expected with *Preferred Alternative C11A*.

Modeled CO concentrations for *Preferred 110th NE Tunnel Alternative (C9T)* are similar to those of *Preferred Alternative C11A*. There would be some negligible changes in CO concentrations from the No Build to *Preferred Alternative C9T* for 2020 and 2030.

In general, there would be a shift to mass transit from personal vehicle use with the East Link Project. The use of transit is expected to provide a slight air quality benefit at intersections in the Downtown Bellevue area. Intersections that would be altered under the various Segment C alternatives due to turn movements, travel lane reduction, safety improvements, and the median requirements for the light rail tracks would not have a noticeable impact on CO concentrations. All CO concentrations for the other Segment C alternatives would be nearly identical to the No Build Alternative. None of the modeled CO concentration exceeded 5.4 ppm under the 2030 Segment C build alternatives.

Modeled CO concentrations for all other alternatives are relatively similar to the CO concentrations predicted for *Preferred Alternatives C11A* and *C9T*. Because all predicted CO concentrations would not exceed current standards, no potential air quality impacts would be likely with any Segment C build alternative.

Segment D

Preferred NE 16th At-Grade Alternative (D2A) would result in minor changes in traffic volumes at the NE 20th Street and 140th Avenue NE, NE 20th Street and 148th Avenue NE, and NE 40th Street and 156th Avenue NE intersections. The increases and decreases in traffic volumes would result from changes in vehicular circulation patterns that cause CO concentrations to fluctuate accordingly. For example, for the NE 20th Street/140th Avenue NE and NE 20th Street/148th Avenue NE intersections, CO concentrations would have a negligible decrease in 2020 from the No Build levels as traffic volumes slightly decrease at these intersections. CO concentrations increases would be negligible near the NE 40th Street and 156th Avenue NE intersection in 2020.

CO concentrations under *Preferred Alternative D2A* would remain unchanged from both the 2020 and 2030 No Build Alternative at the intersection of NE 24th Street and 148th Avenue. This intersection also has the highest modeled future CO concentration of 5.7 ppm.

However, this modeled CO concentration does not exceed the 8-hour concentration standard of 9 ppm. Furthermore, modeled CO concentrations for all other Segment D alternatives are identical to the predicted CO concentrations for *Preferred Alternative D2A*.

No potential air quality impacts would be expected because predicted CO concentrations for all Segment D alternatives would not exceed current standards. None of the modeled CO concentration exceeded 5.7 ppm under any of the Segment D 2030 build alternatives.

Segment E

Modeled CO concentrations for *Preferred Marymoor Alternative (E2)* are nearly identical to the No Build Alternative. However, in 2030 for the Redmond Way and SR 520 eastbound intersection, No Build concentrations are 6.1 ppm and *Preferred Alternative E2* concentrations are 6.6 ppm. The negligible increase in CO concentrations from No Build to *Preferred Alternative E2* can be attributed to the increase in wait times for vehicles at intersection signal lights. For the No Build Alternative, the green light times would be longer, thus allowing more vehicles to pass through the intersection and leaving fewer vehicles to sit idle. Idle vehicles generate more emissions than vehicles traveling at a steady and consistent speed.

Modeled CO concentrations for the other Segment E alternatives were nearly identical to the No Build Alternative, with the exception of the intersection of Redmond Way and SR 520 eastbound in 2030. An increase of 0.5 ppm from No Build to Segment E build alternatives can be explained with the addition of the SE Redmond Station. Adding this station would change the light's cycle length times at this intersection, resulting in an increase of vehicles delayed at red lights. However, a CO concentration of 6.6 ppm is below the federal 8-hour standard of 9 ppm.

The modeled CO concentrations for all other alternatives in Segment E are relatively similar to the CO concentrations predicted for *Preferred Alternative E2*. Because all predicted CO concentrations are below current standards, no potential air quality impacts would be likely result from *Preferred Alternative E2* or the other Segment E alternatives. None of the modeled CO concentration exceeded 6.6 ppm under the 2030 build alternatives.

Greenhouse Gases from Operation

GHG emissions are normally presented as the total CO_2 equivalent (CO_2e) released. The CO_2e emissions take into account the global warming potential of chemical emissions from a source. The combustion of fossil fuels emits small amounts of N_2O and CH_4. The global warming potential of N_2O and CH_4 are, respectively, 310 and 21 times that of CO_2. The total CO_2e emissions take into account the other pollutants and their global warming potential.

Currently, transit operations are expected to reduce the automobile use that causes a high percentage of GHG emissions. The East Link Project would result in lower VMT and would reduce GHG emissions. Additional savings in VMT can be attained from transit-oriented development that is expected to occur around light rail stations. This discussion is expanded in Chapter 5, Cumulative Impacts.

A quantitative analysis was conducted on GHG emissions from project operations in the design year 2030. The potential CO_2e impacts during project operation include reductions from the decreased vehicular traffic, measured as VMT, resulting from the East Link Project. Brief methodology, assumptions, and a summary of the calculations for the GHG emissions analysis from construction and operation are provided in Appendix F4.6.

The analysis estimated fuel or energy consumption by vehicle type from vehicles operating in the region and the project study subarea. The East Link Project study subarea for GHG is defined as the transportation area zones that make up roughly the North and East subareas of the Sound Transit District and includes more than 90 percent of the East Link riders in the 2030 projections. Because most of the potential riders are within the subarea, it can be assumed that the majority of the impacts would occur within this subarea.

Regional and subarea transit bus VMT was allocated between diesel, hybrid, compressed natural gas, and trolley buses. As shown in Table 4.6-3, transit bus VMT was allocated by vehicle type based on the number of vehicles operated by the four transit authorities for the region. The U.S. Department of Energy produces the energy usage for different modes in terms of British thermal unit (Btu) per vehicle mile. This source was also used for light rail energy use. For buses, automobiles, and trucks, EPA's MOBILE6—Mobile Source Emission Factor Program (2003)—was applied as provided by the PSRC.

TABLE 4.6-3
Regional and Subarea Bus Fleet Mix

Type	Region	Subarea
Diesel	69%	75%
Hybrid	12%	19%
Compressed natural gas	11%	0%
Trolley	8%	6%
Total	**100%**	**100%**

Notes:
Regional fleet mix based on number of transit vehicles operated by Sound Transit, King County Metro, Pierce Transit, and Community Transit.

Subarea fleet mix based on fleet VMT reported by King County Metro.

Three fuel types are presented in Table 4.6-4. For this analysis, all energy consumption from trolley, light rail, and commuter rail was converted to gallons of gasoline (g/gal). However, an additional step was applied to East Link energy use because the energy provided for light rail includes non-GHG emission energy sources. Electricity for East Link would be drawn from Seattle City Light for those portions of the route in Seattle and from Puget Sound Energy for the portions on Mercer Island, Bellevue, and Redmond. Both Seattle City Light and Puget Sound Energy rely heavily on hydropower and other non-petroleum energy resources that generate low GHG emissions (See Section 4.10, Energy). In fact, Seattle City Light plans to continue to meet a goal of zero net GHG emissions.

TABLE 4.6-4
CO_2e Emission Rates by Fuel Type

Fuel Type	CO_2e g/gal
Diesel	10,156
Gasoline	8,970
Compressed natural gas	7,899

g/gal = gallons of gasoline

Source: The Climate Registry, 2008.

In 2006 and 2007, Puget Sound Energy sources ranged between 30 to 40 percent zero-GHG-emission and may soon offer clients the ability to choose their energy sources, thereby offering Sound Transit the option to only use non-GHG-emitting power, such as wind, hydropower, and solar. Sound Transit plans to use higher than average hydropower. Therefore, to be conservative, energy use for East Link was reduced by an additional 30 percent and light rail miles in Seattle were removed from the GHG calculation.

Table 4.6-5 shows the total projected GHG emissions for the No Build Alternative and 2030 high- and low-ridership conditions with the build alternatives. The build scenarios show that there would be a range of 21,535 to 28,835 metric tons annual reduction of CO_2e emissions in the region due to the reduction of VMT and the use of cleaner energy sources for operating the light rail system. The gains would be more pronounced in the subarea, as this is where most of the change in VMT would occur. Under the No Build Alternative, the subarea would contribute almost one-third of the Puget Sound region GHG emissions. Implementing the East Link Project could reduce the region's yearly GHG by almost 0.2 percent. This would result in a savings of 0.4 percent annually for the subarea.

According to EPA's website (EPA, 2011), the regional saving for the high ridership East Link Project estimated as 28,835 metric tons of CO_2e per year is the equivalent of the following:

- Supplying electricity for 3,175 homes for 1 year
- Consuming 60,834 barrels of oil per year
- Planting 670,735 trees or saving 248 acres of forest from deforestation

In addition, according to the California Air Resource Board, improving automobile speeds up to 46 miles per hour would reduce GHG emissions (Urban Land Institute, 2008). Sound Transit traffic modeling shows that the build alternatives would result in improved traffic speeds over the No Build Alternative on I-90 during congestion periods. For example, the build alternatives would improve traffic flow by 2 to 4 mph on average in the PM peak-hour commute.

However, there are some places where traffic flow would decrease by 1 mph (westbound between Mercer Island and Seattle) and other places where speeds would improve by as much as 30 mph (eastbound from Mercer Island). Overall, the project would result in an additional reduction in GHG emissions from improved traffic flow during project operation (see Chapter 3 of this Final EIS).

TABLE 4.6-5
Greenhouse Gas Emissions in Terms of CO_{2e} During Light Rail Operation

	2030 No-Build	2030 High Ridership	2030 Low Ridership	Units
Regional				
Daily CO_2e	52,322	52,243	52,263	Metric tons CO_2e emissions daily
Daily CO_2e reduction	Not applicable	79	59	Metric tons CO_2e daily
Annual CO_2e reduction	Not applicable	28,835	21,535	Metric tons CO_{2e} annually
Subarea				
Daily CO_2e	18,807	18,736	18,755	Metric tons CO_2e emissions daily
Daily CO_2e reduction	Not applicable	71	52	Metric tons CO_2e daily
Annual CO_2e reduction	Not applicable	25,915	18,980	Metric tons CO_{2e} annually

Source: Entech Consulting Group GHG Emissions Calculations, 2010

Sound Transit adopted a Sustainability Initiative in 2007 that promotes and implements more energy-efficient alternatives than current practices. According to the initiative, Sound Transit will integrate efficient operating practices at existing and new facilities, use energy-saving equipment to reduce energy demand, and maximize intermodal transit connections to reduce automobile VMT. Many of these practices have been incorporated in the Central Link Initial Segment that opened in 2009. The implementation of the sustainability initiatives will reduce energy consumption and thus GHG emissions during East Link operations.

The East Link Project also includes the operation of a maintenance facility. The maintenance facility would be the equivalent of a light industrial site of approximately 18.344X10 Btu per year. Puget Sound Energy would provide power. Considering that over 30 percent of Puget Sound Energy is already provided by hydropower or other non-CO2e-emitting sources, the East Link maintenance facility would produce approximately 1,503 metric tons of CO_2e per year. This is approximately 8 percent of the yearly GHG emissions from the East Link Project.

4.6.3.3 Project Construction Impacts

During construction, the release of particulate emissions (airborne dust) associated with site preparation, fill operations, and roadway improvements is anticipated to be the primary cause of potential short-term air quality impacts from the East Link Project.

Emissions from construction equipment also are anticipated and would include CO, PM, NO_x, and VOCs. Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces.

Construction-related impacts on air quality would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these construction-related activities would temporarily generate PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_x, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} and $PM_{2.5}$ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} and $PM_{2.5}$ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operation. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

In addition to PM_{10} and $PM_{2.5}$ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, and VOCs in exhaust emissions. If construction traffic were to reduce the speed of hauling trucks and other vehicles in the area, CO emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site. SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Some phases of construction, particularly asphalt paving, would result in short-term odors from VOC in the immediate area of paving sites. Such odors would be quickly dispersed below detectable thresholds as distance from the sites increases.

Increases in air pollutant emissions from construction of the East Link Project are considered temporary impacts. The duration of civil construction for any one particular location along the East Link corridor is expected to range from about 2 to 5 years. The most intense activity, such as site preparation, would occur during the initial phase of construction.

Little is known at this time about the number and exact types of equipment that would be required for each alternative. In lieu of analyzing project construction impacts for each alternative within the different segments, Sound Transit selected two components that would involve a diversity of equipment and materials and potentially high dust and emissions in a concentrated area. These were evaluated to present a worst-case scenario for any given project construction period. The components that were chosen are the proposed garage at the South Bellevue Park-and-Ride Lot and the SE Redmond Maintenance Facility (MF5).

A projected pollutant emission inventory was developed for the parking garage and maintenance facility using a spreadsheet tool titled Road Construction Emissions Model Version 5.2, which was developed by the Sacramento Air Quality Management District (2007). This emission spreadsheet uses a number of default assumptions and detailed, project-specific information. The available project data included specific information about the disturbed surface area, the quantity of cut-and-fill material, and the construction duration period. The model's defaults were used for the number and types of project construction equipment needed, the number of construction workers commuting to the job sites, and the length of their commute.

Because there are no state or local guidelines for evaluating the degree of impact from construction pollutant emissions, criteria proposed in the *California Environmental Quality Act (CEQA) Air Quality Handbook*, prepared by the South Coast Air Quality Management District (SCAQMD, 1993), were used as a guideline for this project. The CEQA Air Quality Handbook establishes recommended daily thresholds for construction-related emissions from construction projects. Construction-related emissions that exceed these established threshold levels are considered to be a concern.

Table 4.6-6 presents the model emission results for the South Bellevue Park-and-Ride garage and MF5. The projected emissions from both of these facilities are essentially the same because, given the estimates that were available at the time of this analysis, they occupy approximately the same area (12 to 15 acres).

TABLE 4.6-6
Projected Construction Emissions

Pollutant	South Bellevue Park-and-Ride Garage (pounds per day)	SE Redmond Maintenance Facility (MF5) (pounds per day)	SCAQMD Construction Emission Threshold (pounds per day)
CO	32	32	550
NO_x	31	31	100
Reactive organic gases	7	7	75
Exhaust PM_{10}	2	2	NA
Fugitive dust	5	5	NA
Total PM_{10}	7	7	150

Source: CH2MHILL Construction Emission Calculations, 2008

CO	carbon monoxide
NO_x	oxides of nitrogen
PM	particulate matter
SCAQMD	South Coast Air Quality Management District

The construction emissions for the two facilities would be substantially below the daily emissions thresholds set by SCAQMD.

Greenhouse Gases from Construction

GHG associated with the construction phase of the East Link Project are expected to be consistent with other projects of this scale. In large-scale construction projects, the major sources of GHG emissions are fossil-fueled construction equipment (mobile and stationary). It was conservatively assumed that all of the fossil fuel used during construction would be diesel. The CO_2e factor for diesel used in the analysis is from The Climate Registry General Reporting Protocol (The Climate Registry, 2008).

The amount of GHG emissions produced by fossil-fueled construction equipment is directly proportional to the quantity of fuel used. Construction fuel consumption is based on recent experience in building light rail in the Seattle region and provides an order-of-magnitude estimate of GHG emissions. The estimate includes the following factors:

- Transportation of construction materials, waste, and fill material
- Equipment used during construction site preparation
- Construction of the rail track and guideway, rail stations, associated park-and-ride lots, and a representative maintenance facility

The fuel used also encompasses the difference in building at-grade, elevated, retained-cut, and tunnel profiles; specific station design; parking structures; and the need for a maintenance facility for the project.

Table 4.6-7 shows the range of the GHG emissions for constructing the project. The construction of one maintenance facility is included in the full project emissions calculation, which alone would be approximately 1,740 metric tons of CO_2e.

TABLE 4.6-7
CO_2e Emission for Construction of Full-Length Project

Project	Tons of CO_2e
High construction emissions	173,197
Low construction emissions	94,893
Potential difference in CO_2e	78,304

Source: CH2MHILL Construction Emission Calculations, 2008
CO_2e carbon dioxide equivalent

The highest potential GHG emissions for the East Link Project would result from building *Preferred Alternative A1* and Alternatives B2E, C2T, D3, and E1. The lowest GHG emissions for the project would result from building *Preferred Alternative A1* and Alternatives B7, C7E, D5, and E4. The difference would be largest in Segment C, where alternatives vary among at-grade, elevated, and tunnel profiles. The tunnels would have almost five to six times more GHG emissions than the elevated profile, and almost four times the emissions for at-grade profile alternatives. In all other segments, alternatives with extensive elevated profiles would result in more GHG emissions to construct over at-grade profile alternatives, but generally only about 10 percent more. One additional difference occurs in Segment D, where Alternative D3 would include a portion of retained-cut profile. Construction of this alternative would have almost 60 percent higher GHG emission than that of the lowest CO2e emissions alternative (Alternative D5), which is extensively elevated but also has two fewer stations than all other Segment D alternatives.

4.6.3.4 Hot Spot Analysis at Station Platforms

The East Link Project is unique in that several of the proposed stations (specifically, the Rainier, the Mercer Island [both in *Preferred Alternative A1*], and the Hospital/Ashwood stations) are along heavily traveled highways that may expose passengers standing at station platforms to CO concentrations resulting from automobile tailpipe emissions. The project would not substantially change the volumes of vehicular traffic in the project vicinity; however, the station platforms are representative of sensitive locations where passengers would be exposed to CO concentrations. The project vicinity is in an attainment maintenance area for CO. As presented in Table 4.6-8, data collected from CO monitoring sites in the project vicinity demonstrate that the area has not exceeded the CO NAAQS in the last 5 years.

TABLE 4.6-8
Ambient Air Quality Monitoring Data from CO Monitoring Sites in the Project Vicinity

Pollutant	Maximum Concentration (ppm)		
	2006	2007	2008
Beacon Hill Monitoring Site			
1-hour average	2.3 ppm	1.4 ppm	1.4 ppm
8-hour average	1.5 ppm	1.0 ppm	0.9 ppm
Bellevue Monitoring Site			
1-hour average	5.1 ppm	3.9 ppm	3.4 ppm
8-hour average	3.7 ppm	2.7 ppm	2.3 ppm

Source: EPA, (2010).

CO	carbon monoxide
ppm	parts per millions

A hot spot modeling analysis was performed for the East Link Project to quantify passenger CO exposure levels at station platforms. The WASIST modeling tool is formatted to estimate CO concentrations only at signalized intersections. Due to the stationary platforms locations near non-signalized highways, the WASIST model cannot be used to estimate CO concentrations at these specific locations. Therefore, two additional modeling programs approved by EPA—MOBILE6.2 and CALINE3—were used to predict CO concentration levels.

The highest predicted 1-hour CO concentration levels were obtained and compared to the EPA NAAQS 1-hour CO primary standard of 35 ppm. The longest amount of time passengers are expected to wait on the station platform is assumed to be 15 minutes. There is currently no 15-minute CO standard; however, it is assumed that if the highest predicted 1-hour CO standard is below the NAAQS, then the passengers' exposure levels for 15 minutes would also be acceptable.

Emission factors for 2030 were estimated using MOBILE6.2, a modeling program developed by the EPA to estimate current and future emissions from highway motor vehicles. This model was used to calculate the CO emission factor for use in the CALINE3 model. The CALINE3 model is used to calculate the dispersion of vehicle emissions and expected concentrations at select points in the vicinity of roadways. The CO emission factor is based on local climate, vehicle speed, and fuel and vehicle registration data specific to the Puget Sound region. Model inputs were provided by the PSRC (Peak, 2008).

Each station has a unique configuration, and the CALINE3 model was run separately for the Rainier, Mercer Island, and Ashwood/Hospital Stations. As shown in Table 4.6-9, the highest predicted 1-hour CO concentrations for all three station platforms were found to be well below the CO NAAQS 1-hour standard of 35 ppm.

TABLE 4.6-9
1-hour CO concentrations at Station Platforms

Station Name	1-hour CO concentrations (ppm)
Rainier Avenue Station [a]	5.5
Mercer Island Station [a]	7.7
Ashwood Station	7.1

Source: Entech Consulting Group CO Hot-Spot Modeling, 2010

[a] In *Preferred Alternative A1*

CO carbon monoxide
ppm parts per million

4.6.4 Conformity Determination

Under the Clean Air Act, a transportation project located in a nonattainment or maintenance area for a given pollutant is required to meet a conformity determination with the SIP. Conformity requirements are met when a project does not cause or contribute to an exceedance of the NAAQS. In air quality maintenance areas, regionally significant projects are evaluated for their conformity to Air Quality Maintenance Plans (AQMP). Projects that conform to the plan are not expected to cause exceedances of the standard. The East Link Project would be located in the Puget Sound region, which is a maintenance area for CO, with a portion of the project also located in the Duwamish PM_{10} maintenance area. In the Puget Sound region, PSRC determines regional conformity by including a project in the Metropolitan Transportation Plan (MTP) and the RTIP.

The proposed project is included in the region's MTP, *Vision 2040/Transportation 2040* (PSRC, 2009), and in the *2010-2013 Regional Transportation Improvement Program* (PSRC, 2010), both of which have been found to meet the CO and PM_{10} conformity tests as identified by federal and state conformity regulations. *Transportation 2040* was adopted in May 2010. The East Link Project is in the regional plan and RTIP, which meets regional conformity. Therefore, the East Link Project has met the requirement of being included in the regional plans, which have been found to conform to the SIP.

A project-level conformity determination was performed by conducting a CO hot spot analysis on affected intersections in the project vicinity. For project level conformity, the 2030 horizon year is consistent with the RTP that was adopted at the time the East Link analysis began in 2006 (PSRC, 2001). Based on modeling, intersections in the project vicinity currently do not exceed the CO NAAQS. Affected intersections under all build alternatives would not create any new exceedances of the CO NAAQS. Therefore, the project meets conformity requirements for CO.

A PM_{10} project-level hot spot analysis is not required for the East Link Project because it is not a project of air quality concern based on the FHWA PM_{10} guidance (2006). Projects of air quality concern are defined in 40 CFR 93.123(b)(1).

Operation of the East Link Project is expected to provide an air quality benefit to the surrounding area due to the shift of bus ridership to light rail ridership. The development of the Bus Integration Plan was created jointly by Sound Transit and King County Metro to coordinate reasonably foreseeable future changes in transit operations with changes specifically associated with East Link Project operations (e.g., reducing or removing overlapping light rail and bus service or changing routes to feed light rail). The Bus Integration Plan would convert existing bus lines to rail lines, thereby decreasing bus VMT, which in turn would decrease diesel particulate emissions generated from bus operations.

Furthermore, this project meets conformity requirements for PM_{10} by its inclusion in the MTP, the AQMP, and the RTIP, which have been found to meet the conformity test for PM_{10}.

4.6.5 Potential Mitigation Measures

There would be no operational impact requiring mitigation because the East Link Project would provide a net benefit over the No Build Alternative. In particular with the preferred alternatives, air quality modeling demonstrates that no air quality impacts would be expected from project operation. All predicted CO concentrations for the preferred alternatives are below the 8-hour federal NAAQS for CO concentrations; therefore, no mitigation measures would be necessary. However, consistent with Sound Transit's sustainability policies, further reductions in fuel and energy use would continue to reduce GHG emissions for project operations.

For construction activities, PSCAA regulates particulate emissions (in the form of fugitive dust). Any emission of fugitive dust requires the use of best practices to minimize impacts. The general policy of PSCAA and WSDOT is to prevent and reduce fugitive dust resulting from construction activities so as not to injure human health, plants and animals, or property, and so as not to unreasonably interfere with the enjoyment of life and property. To comply with PSCAA and WSDOT policy of preventing air quality degradation, the following mitigation measures may be used as necessary and in accordance with standard practice to control PM_{10}, $PM_{2.5}$, and emissions of CO and NO_x during construction of the project. Several of these measures would also reduce GHG emissions.

- Spray exposed soil with dust control agent as necessary to reduce emissions of PM_{10} and deposition of particulate matter.
- Cover all transported loads of soils and wet materials before transport, or provide adequate freeboard (i.e., space from the top of the material to the top of the truck) to reduce PM_{10} and deposition of particulate during transportation.
- Provide wheel washes to reduce dust and mud that would be carried off site by vehicles and to decrease particulate matter on area roadways.
- Remove the dust and mud that are deposited on paved, public roads to decrease particulate matter
- Route and schedule high volumes of construction traffic to reduce congestion during peak travel periods and reduce emissions of CO, NO_x, and CO_2e where practical.
- Require appropriate emission-control devices on all construction equipment powered by gasoline or diesel fuel to reduce CO and NO_X emissions in vehicular exhaust.
- Use well-maintained heavy equipment to reduce CO and NO_X emissions, which may also reduce GHG emissions.
- Cover, install mulch, or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

The following other readily available mitigation measures could potentially be used:

- Encourage contractors to employ emissions reduction technologies and practices for both on-road and off-road equipment/vehicles (e.g., retrofit equipment with diesel control technology and/or use of ultra-low sulfur diesel).
- Implement construction truck-idling restriction (e.g., no longer than 5 minutes).
- Locate construction equipment and truck staging zones away from sensitive receptors as practical and in consideration of other factors such as noise.

Emissions of CO, NO_X, and VOCs are best controlled through use of new construction equipment and proper maintenance of this equipment. Use of low-sulfur diesel fuel controls emissions of SO_2. SO_2 and NO_x emissions are considered precursor to $PM_{2.5}$ emissions; therefore, reductions in SO_2 and NO_x will also help reduce $PM_{2.5}$ emissions. All mitigation measures must comply with local regulations governing air quality, including those for controlling fugitive dust during construction.

4.7 Noise and Vibration

4.7.1 Introduction to Resources and Regulatory Requirements

4.7.1.1 Noise and Vibration Basics

Noise

Noise is defined as unwanted sound; it is measured in terms of sound pressure level and is usually expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to midrange frequencies. To provide a measurement meaningful to humans, a weighting system was developed that reduces the sound level of higher and lower frequency sounds, similar to what the human ear does. This filtering system is used in virtually all noise ordinances. Measurements taken with this "A-weighted" filter are referred to as "dBA" readings.

There are two primary noise measurement descriptors that are used to assess noise impacts from traffic and transit projects, the Leq and the Ldn, described below:

- **Leq:** The equivalent sound level (Leq) is the level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour Leq is used for all traffic and light rail noise analyses at locations with daytime use, such as schools and libraries.
- **Ldn:** The day-night sound level (Ldn) is an Leq over a 24-hour period, with 10 dBA added to nighttime sound levels (between 10 p.m. and 7 a.m.) as a penalty to account for the greater sensitivity and lower background sound levels during this time.

  The Ldn is the primary noise-level descriptor for light rail noise at residential land uses. Exhibit 4.7-1 is a graph of typical Ldn noise levels and residential land use compatibility. More detail on noise and noise descriptors are provided in the Noise and Vibration Technical Report (Appendix H2).

In addition to Leq and Ldn, there is also a descriptor called the Lmax. The Lmax is the loudest 1 second over a measurement period and is used in many local and state ordinances for noise coming from private land uses and for construction impact evaluation.

Vibration

Travel of light rail trains on trackways and guideways associated with the East Link Project would result in vibration that might be felt on adjacent properties. The project was analyzed for two types of vibration impacts:

- **Groundborne vibration:** the movement of the ground (vibration can be experienced either outdoors or indoors)
- **Groundborne noise**: noise generated by the movement of room surfaces, such as walls, resulting from vibration of a building (groundborne noise can only be experienced indoors)

Groundborne vibration can be described in terms of displacement, velocity, or acceleration when evaluating impacts from transit projects. Groundborne noise occurs as a perceptible rumble and is caused by the noise radiated from the vibration of room surfaces. Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to humans within buildings.

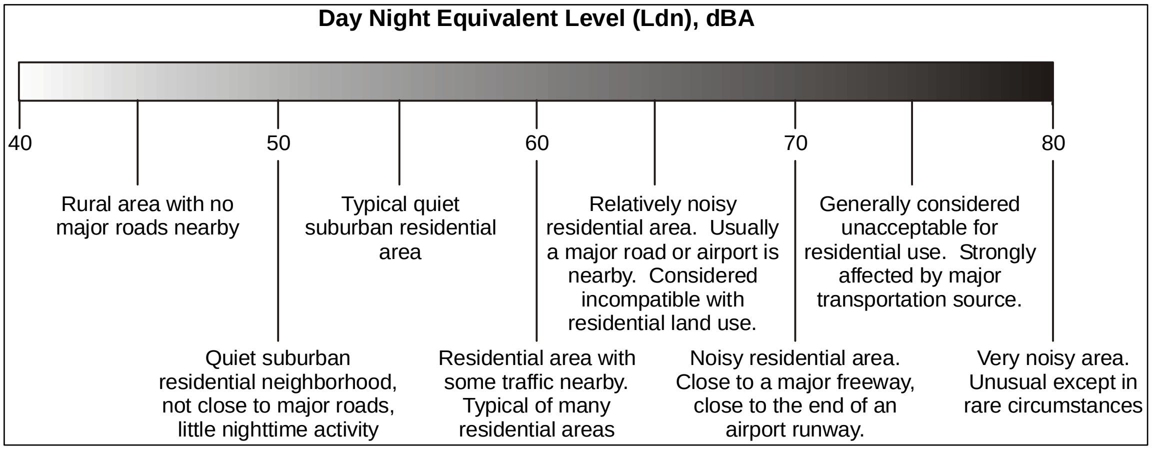
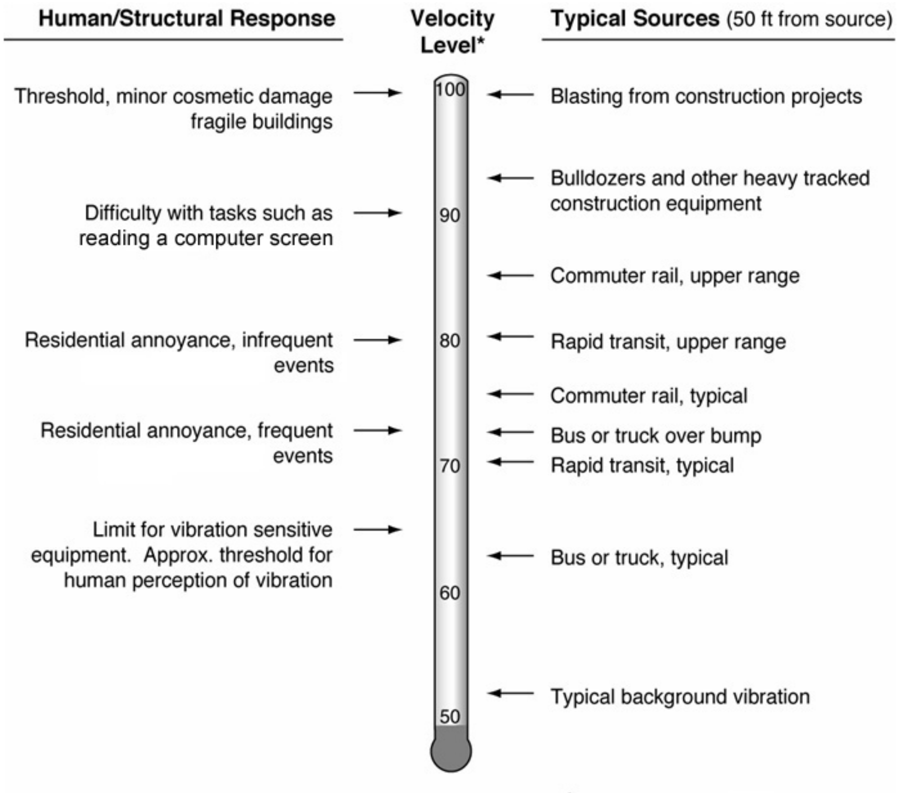

Day Night Equivalent Level (Ldn), dBA
40
50
60
70
80
Rural area with no major roads nearby
Typical quiet suburban residential area
Relatively noisy residential area. Usually a major road or airport is nearby. Considered incompatible with residential land use.
Generally considered unacceptable for residential use. Strongly affected by major transportation source.
Quiet suburban residential neighborhood, not close to major roads, little nighttime activity
Residential area with some traffic nearby. Typical of many residential areas
Noisy residential area. Close to a major freeway, close to the end of an airport runway.
Very noisy area. Unusual except in rare circumstances

EXHIBIT 4.7-1
Typical 24-hour Ldn Noise Levels and Land Use Compatibility
Source: Federal Transit Administration, 2006

The response of humans, buildings, and equipment to vibration is most accurately described using velocity or acceleration. Vibration velocity is used in this analysis as the primary measurement to evaluate the effects of vibration.

Exhibit 4.7-2 illustrates typical groundborne vibration velocity levels for common sources as well as thresholds for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 vibration velocity decibels (VdB) to 100 VdB (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration exceeds 70 VdB.


Human/Structural Response
Velocity Level*
Typical Sources (50 ft from source)
Threshold, minor cosmetic damage fragile buildings
Difficulty with tasks such as reading a computer screen
Residential annoyance, infrequent events
Residential annoyance, frequent events
Limit for vibration sensitive equipment. Approx. threshold for human perception of vibration
100
90
80
70
60
50
Blasting from construction projects
Bulldozers and other heavy tracked construction equipment
Commuter rail, upper range
Rapid transit, upper range
Commuter rail, typical
Bus or truck over bump
Rapid transit, typical
Bus or truck, typical
Typical background vibration

* Vibration Velocity Level in VdB relative to 10^{-6} inches/second

EXHIBIT 4.7-2
Examples of Groundborne Vibration Levels and Human/Structural Response
Source: Federal Transit Administration, 2006

4.7.1.2 Noise and Vibration Impact Criteria

The following sections provide an overview of the criteria used for evaluating East Link Project noise and vibration impacts, which are defined by the Federal Transit Administration (FTA) for transit-related noise and vibration and by the Federal Highway Administration (FHWA) for traffic-related noise. The FTA and FHWA analyses are performed based on actual land use, not land use zoning. Therefore, if a residence is located in an area that has been zoned commercial, the analysis still considers that location to be a residential land use.

Transit Noise Criteria

Noise impacts for the East Link Project are based on the criteria defined in the FTA guidance manual *Transit Noise and Vibration Impact Assessment* (2006). The FTA noise impact criteria are founded on well-documented research of community reaction to noise and are based on changes in noise levels using a sliding scale. Although more transit noise is allowed in neighborhoods with high levels of existing noise, as existing noise levels increase, smaller increases in total noise exposure are allowed than in areas with lower existing noise levels.

FTA's noise impact criteria are grouped into the following noise-sensitive land use categories:

- **Category 1**: Buildings or parks where quiet is an essential element of their purpose
- **Category 2**: Residences and buildings where people normally sleep, including residences, hospitals, and hotels where nighttime sensitivity is assumed to be important
- **Category 3**: Institutional land uses with primarily daytime and evening use, including schools, libraries, churches, and active parks

Ldn is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour Leq during the facility's operating period is used. There are two levels of impact included in the FTA criteria; the interpretation of these two levels of impact is summarized below:

- **Severe impact:** Project-generated noise in the severe impact range can be expected to cause a substantial percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation will normally be specified for severe impact areas unless there are extenuating circumstances that prevent it.

- **Moderate impact:** In this range of noise impact, the change in the cumulative noise level is noticeable to most people but might not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing noise level, the predicted level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views, and the cost of mitigating noise to more acceptable levels.

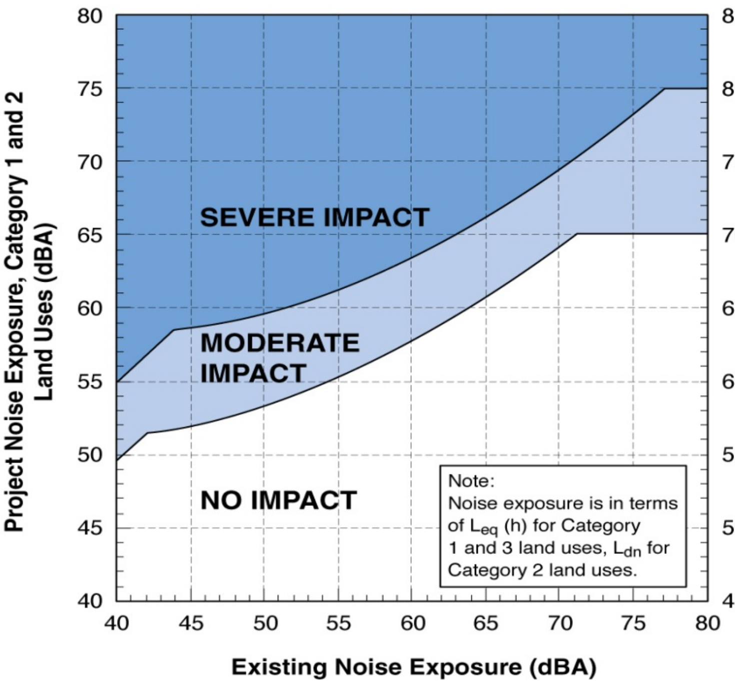


EXHIBIT 4.7-3
FTA Project Noise Impact Criteria
Source: Federal Transit Administration, 2006

Exhibit 4.7-3 depicts the noise impact criteria, as well as the existing noise exposure and the additional noise exposure from a transit project that would cause either moderate or severe impacts. The future noise exposure is determined by combining the existing noise exposure and the additional noise exposure caused by a transit project.

Parks are considered a special case under the FTA criteria. Whether a park is considered noise-sensitive is dependent on the typical use of the park. Parks that are primarily used for recreational activities or sporting events, such as football, baseball, soccer, and other active sports and recreation, are not considered noise-sensitive. Parks that are primarily used for passive activities, such as reading, conversation, and meditation, in contrast, could be considered noise-sensitive, but only those parks with low existing noise levels.

Parks along the proposed corridor were reviewed for use, existing noise levels, and proximity to major noise sources, such as highways and major arterial roadways. Each of these was considered when evaluating the parks and making the determination of the noise sensitivity of the park. In general, parks used for sporting activities or located near highways or major arterial roadways are not considered noise-sensitive.

Traffic Noise Criteria

The criteria for traffic noise impacts are taken from the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise, Title 23, Code of Federal Regulation (CFR) Subchapter H, Section 772 (1982). Table 4.7-1 lists the traffic noise abatement criteria. A noise impact occurs if predicted noise levels approach the levels for specific land use categories listed in Table 4.7-1 or substantially exceed existing noise levels, as defined by the Washington State Department of Transportation (WSDOT). According to these regulations, only projects that include construction of new highway, reconstruction of existing highways with a substantial change in the horizontal alignment or vertical profile, or an increase in the number of through traffic lanes require a traffic noise analysis. If impacts are identified, then noise abatement must be considered. WSDOT is responsible for implementing FHWA regulations in Washington. Under WSDOT policy, a traffic-noise impact occurs if predicted noise levels are within 1 dB of the FHWA criteria shown in Table 4.7-1; therefore, a residential impact occurs at 66 dBA Leq, and a commercial impact occurs at 71 dBA Leq.

WSDOT considers a 10-dB increase in noise to be a substantial impact, regardless of the original noise level.

TABLE 4.7-1
FHWA Traffic Noise Abatement Criteria

Land Use Category		Hourly Leq
Type A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose	57 dBA (exterior)
Type B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals	67 dBA (exterior)
Type C	Developed lands, properties or activities not included in the above categories	72 dBA (exterior)
Type D	Undeveloped land	—
Type E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums	52 dBA (interior)

Source: FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772)

WSDOT policy states that reducing the distance between a noise-sensitive property and traffic lanes by half (or increasing the noise level by 3 dBA) constitutes a substantial change in the horizontal alignment or vertical profile of a roadway, and therefore would also require a traffic noise analysis.

Transit Vibration Criteria

FTA's groundborne vibration impact criteria are based on existing land use and planned train frequencies. Table 4.7-2 shows the criteria for a general vibration assessment. The FTA vibration criteria are applied primarily to residential (including hotels and other places where people sleep) and institutional land uses. Commercial land uses are only considered when they contain vibration-sensitive uses, such as medical offices or sensitive manufacturing equipment. The criterion applied to these locations is dependent on the sensitivity of the use. Some buildings, such as concert halls, recording studios, and theaters, can be very sensitive to vibration but do not fit into any of the three categories listed in Table 4.7-2. Due to their sensitivity, these buildings usually warrant special attention during the vibration analysis.

Within the project corridor, these buildings include the theater at Meydenbauer Center, Bellevue Arts Museum, Overlake Hospital Magnetic Resonance Imaging (MRI) Unit, Overlake Hospital Optical Surgery Unit, Group Health Medical Center, and Children's Hospital Bellevue Clinic and Surgery Center (BCSC). Based on consultation with these facilities, the existing sensitive uses have been identified at the locations described below.

The following criteria apply for these locations:

- Theater at Meydenbauer Center and Bellevue Arts Museum: 72VdB for vibration, 35 dBA for groundborne noise.
- MRI Units at Overlake Hospital, Group Health Medical Center, and Children's Hospital BCSC: 60 VdB for vibration, no criterion for groundborne noise because vibration-sensitive equipment is not sensitive to groundborne noise.

TABLE 4.7-2
Groundborne Vibration and Noise Impact Criteria for Light Rail Transit Service Frequency

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro inch/second): Frequent Events	Groundborne Noise Impact Levels (dB re 20 micro Pascals): Frequent Events
Category 1: Buildings where low ambient vibration is essential for interior operations	65 VdB[a]	N/A[b]
Category 2: Residences and buildings where people normally sleep	72 VdB	35 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	40 dBA

[a] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels. Verifying lower vibration levels in a building often requires special design of the heating, ventilation, and air conditioning (HVAC) systems and stiffened floors.

[b] Vibration-sensitive equipment is generally not sensitive to groundborne noise.
VdB vibration velocity decibels

- Overlake Hospital Optical Surgery Unit: 54 VdB for vibration, no criterion for groundborne noise because vibration-sensitive equipment is not sensitive to groundborne noise.

Table 4.7-2 includes separate FTA criteria for groundborne noise—the "rumble" that can radiate from the motion of room surfaces in buildings due to groundborne vibration. The vibration of floors and walls causes them to act like loudspeakers, generating noise due to the movement of the surfaces.

Although expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are set lower than they are for airborne noise to account for the annoying low-frequency character of groundborne noise. Because airborne noise often masks groundborne noise for aboveground transit systems (i.e., at-grade or elevated), groundborne noise criteria are primarily applied to light rail operations in a tunnel where airborne noise is not a factor. For above-grade transit systems, groundborne noise criteria are applied only to buildings that have sensitive interior spaces that are well insulated from exterior noise.

Washington State Noise Criteria

The State of Washington has a noise control ordinance that applies (together with local noise regulations) to general construction activities, park-and-rides, and maintenance facilities. The Washington State Noise Control Ordinance (WAC 173-60) does not contain a section specific to highway or light rail noise. State law exempts mobile noise sources, including freight rail, aircraft in flight, and vehicles traveling in public right-of-way, as well as safety warning devices (i.e., bells). For stationary land uses with noises originating from outside public roadways and rights-of-way, the Washington State Noise Control Ordinance defines three classes of property usage and the maximum noise levels allowable for each (Table 4.7-3). For example, the noise caused by a commercial property must be less than 57 dBA at the closest residential property line. Between 10 p.m. and 7 a.m., the maximum allowable levels shown in Table 4.7-3 are reduced by a 10-dBA "penalty."

In addition to the property line noise standards, there are exemptions for short-term noise exceedance based on the minutes per hour that the noise limit is exceeded (Table 4.7-4). Local noise limits for construction equipment and specific exceedance exemptions are discussed in Section 4.7.3.5, Impacts during Construction.

TABLE 4.7-3
Washington State Noise Limits

Property Usage	Maximum Allowable Sound Level (dBA)		
	Residential	Commercial	Industrial
Residential	55	57	60
Commercial	57	60	65
Industrial	60	65	70

Source: WAC Chapter 173-60-040.

TABLE 4.7-4
Washington State Short-Term Noise Exceedance Exemptions

Maximum Minutes per Hour	Adjustment to Allowable Sound Level
15	+5 dBA
5	+10 dBA
1.5	+15 dBA

Source: WAC Chapter 173-60-040.

Local Noise Ordinances and Regulations

Because the East Link Project covers several cities, including Seattle, Mercer Island, Bellevue, and Redmond, several additional local noise ordinances are applicable to construction activities, park-and-rides, maintenance facilities, and other ancillary project-related facilities. Most of the cities in the corridor have adopted noise control ordinances similar to WAC 173-60. However, local noise ordinances can include different provisions from the State law. For example, Bellevue applies its exemption for construction noise more stringently, with fewer evening and weekend hours considered exempt. Mercer Island has a noise nuisance code, which would not be applicable to the project, and the WAC 173-60 would govern construction noise. The City of Seattle has a Noise Control Ordinance that is also similar to the WAC 173-60 for ancillary facilities; however, Seattle has an updated section that is specifically for construction that would be applicable to project construction in Segment A. Summaries of the applicable noise regulations for each city are provided in Appendix H2.

4.7.1.3 Methodology

The light rail noise and vibration analysis was performed in accordance with FTA's *Transit Noise and Vibration Guidance Manual* (revised May 2006). An FTA screening level analysis was performed during the initial alternative screening. The noise and vibration analysis that follows was performed using current conceptual project design files and follows the detailed analysis methods described in the FTA manual.

Light rail noise and vibration impacts were evaluated using measured noise and vibration levels from Sound Transit's fleet of light rail vehicles. Detailed noise and vibration prediction models were developed using the methods given in the FTA manual. Input to the models is described in Sections 4.7.3.1 and 4.7.3.2. Locations identified with noise or vibration impacts are considered for noise abatement or vibration reduction options.

A traffic noise analysis was also performed for those locations where project construction would require a substantial movement of the horizontal alignment or vertical profile of existing roadways. Traffic noise levels were projected using FHWA's Traffic Noise Model (TNM) and following the FHWA methods for predicting traffic noise levels. Traffic noise impacts were identified using the WSDOT traffic noise abatement criteria.

4.7.2 Affected Environment

This section summarizes land uses along the project corridor, as well as existing noise and vibration levels measured for the East Link analysis. Exhibits 4.7-4 and 4.7-5 show where existing noise and vibration were measured. More detailed maps showing the locations of the noise-monitoring sites and planned land uses are provided in Appendix H2.

4.7.2.1 Noise- and Vibration-Sensitive Land Uses

While a more detailed presentation of land use can be found in Section 4.3, Land Use, of this Final EIS, the following land uses are summarized for their potential sensitivity to noise and vibration. Most identified land uses are sensitive to both noise and vibration. The exceptions include outdoor parks, which may be noise-sensitive depending on usage, but are not vibration-sensitive, and vibration-sensitive equipment (such as MRI equipment in a hospital), which is not sensitive to noise. It is important to note that the noise and vibration analysis is based on existing land use and not zoning. For example, if a residence is legally located in an area that was rezoned for commercial use, the property would still be considered as a residence for the analysis.

For most of the project corridor, land use and zoning appear to match. Areas that are in transition include the southern end of Downtown Bellevue, the area near Lake Bellevue, and some areas along the former BNSF Railway corridor in Redmond. Other areas where land use is planned to change in the future based on current zoning include the Bel-Red corridor and the Overlake neighborhood. Long-term monitoring locations were measured for 24 hours, while short-term monitoring locations were measured for 20 minutes. Table 4.7-5 summarizes the noise levels at these monitoring locations as measured in February and March 2007, March 2009, September and October 2010, and February 2011. A discussion of land use and noise levels by segment is given below.

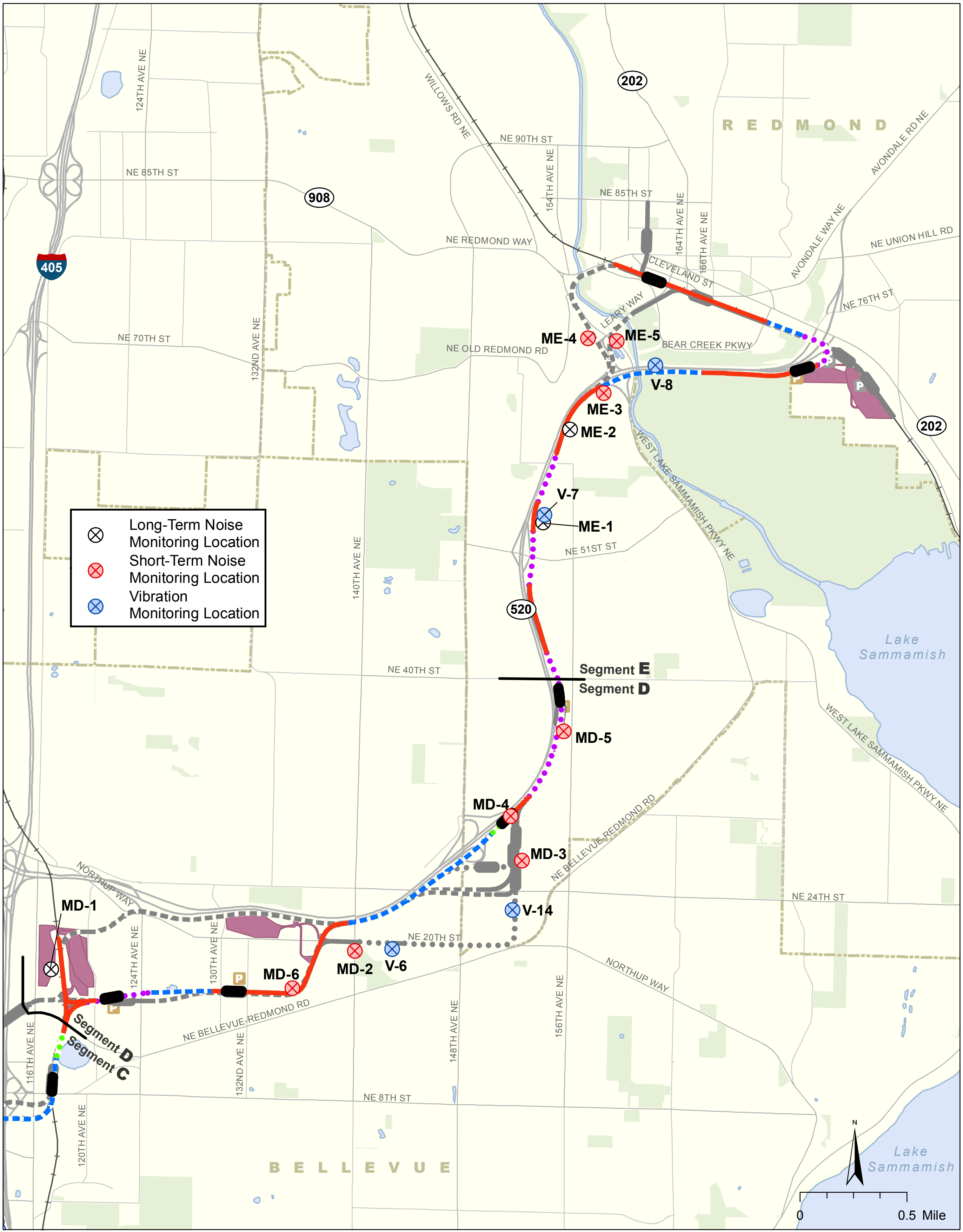
Segment A

Land use near the connection to the existing Downtown Seattle transit tunnel is mainly commercial; however, there are multifamily residences on the upper floors of Uwajimaya Village at 6th Avenue South and South Lane Street, where the route is in the transit tunnel. The route continues eastbound along the D2 Roadway, remaining in the existing Interstate 90 (I-90) corridor to the Mount Baker Ridge Tunnel. Land use along this section of Segment A is mainly commercial until it reaches 12th Avenue South, where there is a large group of single- and multifamily residences. The route then transitions from the tunnel to the floating bridge through an area that is primarily single-family residential.

Land use along Mercer Island is primarily single-family residential with multifamily apartment buildings near the Mercer Island Station. At the east side of Mercer Island, land use is primarily single-family residential with some office buildings south of the highway.

Judkins Park and Playfield is located near the entrance to the Mount Baker Ridge Tunnel. Other parks in Segment A include Taejon Park and East Portal Park. There are also several parks on Mercer Island, including Park on the Lid and Luther Burbank Park, both of which are near I-90. None of these parks are considered noise-sensitive under the FTA criteria because of their proximity to I-90 and the high existing noise levels.

Five locations were monitored in Segment A, one long term and four short term. Existing noise levels along Segment A are dominated by traffic noise from area highways, including Interstate 5 (I-5), I-90, and major arterial roadways. The measured existing Ldn near Segment A in the Seattle area was 69 dBA. Peak-hour noise levels measured at two different representative locations between 4 p.m. and 5 p.m. were 68 dBA Leq. This noise level is typical for sites near major highways and transportation corridors. Noise levels measured at three sites on Mercer Island ranged from 54 to 65 dBA Ldn.


202
REDMOND
AVONDALE RD NE
WILLOWS RD NE
NE 90TH ST
124TH AVE NE
NE 85TH ST
908
154TH AVE NE
NE 85TH ST
164TH AVE NE
166TH AVE NE
AVONDALE WAY NE
NE UNION HILL RD
NE REDMOND WAY
405
CLEVELAND ST
NE 76TH ST
LEARY WAY
NE 70TH ST
132ND AVE NE
ME-4
ME-5
BEAR CREEK PKWY
NE OLD REDMOND RD
V-8
ME-3
ME-2
202
WEST LAKE SAMMAMISH PKWY NE
V-7
ME-1
NE 51ST ST
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
140TH AVE NE
520
Lake Sammamish
NE 40TH ST
Segment E
Segment D
MD-5
WEST LAKE SAMMAMISH PKWY NE
MD-4
NE BELLEVUE-REDMOND RD
MD-3
NORTHUP WAY
V-14
NE 24TH ST
MD-1
124TH AVE NE
130TH AVE NE
NE 20TH ST
MD-6
MD-2
V-6
NORTHUP WAY
Segment D
Segment C
NE BELLEVUE-REDMOND RD
116TH AVE NE
132ND AVE NE
148TH AVE NE
156TH AVE NE
NE 8TH ST
120TH AVE NE
BELLEVUE
N
Lake Sammamish
0
0.5 Mile

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

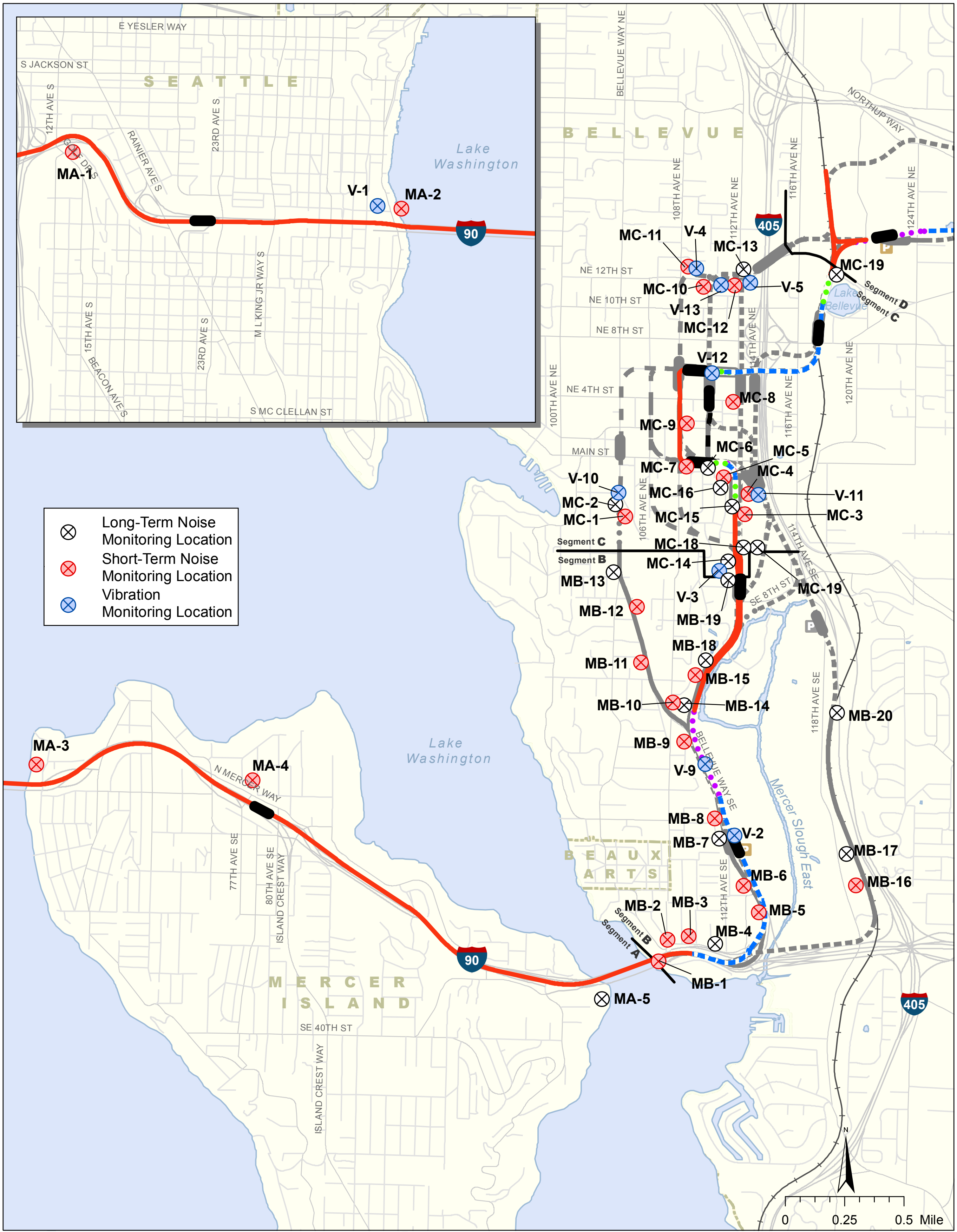
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- Proposed Station
- Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit 4.7-5 **Noise and Vibration Monitoring Locations Segments D and E**

East Link Project


E YESLER WAY
S JACKSON ST
S E A T T L E
12TH AVE S
GILE DR S
RAINIER AVE S
23RD AVE S
Lake Washington
V-1
MA-1
MA-2
90
M L KING JR WAY S
15TH AVE S
23RD AVE S
BEACON AVE S
S MC CLELLAN ST
B E L L E V U E
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
116TH AVE NE
NORTHUP WAY
124TH AVE NE
405
MC-11
V-4
MC-13
MC-19
NE 12TH ST
MC-10
V-5
NE 10TH ST
V-13
Lake Bellevue
Segment D
Segment C
NE 8TH ST
MC-12
114TH AVE NE
V-12
NE 4TH ST
100TH AVE NE
MC-8
116TH AVE NE
120TH AVE NE
MC-9
MAIN ST
MC-6
MC-5
MC-7
MC-4
V-10
MC-16
V-11
MC-2
106TH AVE NE
MC-1
MC-15
MC-3
Segment C
Segment B
MC-18
MC-14
114TH AVE SE
MB-13
MC-19
V-3
SE 8TH ST
MB-12
MB-19
MB-18
MB-11
MB-15
MB-10
MB-14
118TH AVE SE
MB-20
MB-9
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
MA-3
MA-4
N MERCER WAY
Lake Washington
V-9
BELLEVUE WAY SE
Mercer Slough East
MB-8
MB-7
V-2
B E A U X A R T S
77TH AVE SE
80TH AVE SE
ISLAND CREST WAY
112TH AVE SE
MB-17
MB-6
MB-16
MB-2
MB-3
MB-5
Segment B
Segment A
MB-4
90
MB-1
M E R C E R I S L A N D
MA-5
SE 40TH ST
ISLAND CREST WAY
405
N
0
0.25
0.5 Mile

Source: Data from City of Bellevue (2005) and King County (2006).

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

Proposed Station

New and/or Expanded Park-and-Ride Lot

Exhibit 4.7-4 **Noise and Vibration Monitoring Locations Segments A, B, and C**

East Link Project

TABLE 4.7-5
Existing Conditions Noise Monitoring Summary

Monitoring Location[a]	Site Address	Land Use Type	Type of Measurement	Leq (dBA)	Ldn (dBA)
Segment A					
MA-1	Taejon Park	Park	Short-term	68	69
MA-2	East Portal Park	Park	Short-term	68	69
MA-3	West Mercer Way Park	Park	Short-term	65	65
MA-4	2257 80th Avenue SE	Single-family	Short-term	51	54
MA-5	3700 East Mercer Way	Single-family	Long-term	56	55
Segment B					
MB-1	Enatai Beach Park	Park	Short-term	62	62
MB-2	3457 107th Avenue SE	Single-family	Short-term	64	66
MB-3	3246 109th Avenue SE	Single-family	Short-term	72	72
MB-4	3264 111th Avenue SE	Single-family	Long-term	64	66
MB-5	3218 113th Avenue SE	Single-family	Short-term	70	72
MB-6	3005 113th Avenue SE	Single-family	Short-term	67	69
MB-7	11035 SE 26th Street	Single-family	Long-term	50	53
MB-8	11038 SE 25th Street	Single-family	Short-term	61	63
MB-9	1928 109th Avenue SE	Single-family	Short-term	64	66
MB-10	1850 108th Avenue SE	Single-family	Short-term	63	65
MB-11	1435 Bellevue Way SE	Single-family	Short-term	64	66
MB-12	1030 Bellevue Way SE	Multifamily	Short-term	67	69
MB-13	10256 SE 8th Street	Multifamily	Long-term	60	62
MB-14	1638 SE 17th Street	Single-family	Long-term	58	60
MB-15	1600 109th Avenue SE	Single-family	Short-term	55	55
MB-16	1018 111th Avenue SE	Single-family	Short-term	62	64
MB-17	2500 118th Avenue SE, Unit 303	Multifamily	Short-term	62	64
MB-18	1354 Bellefield Residential Park Condominiums	Multifamily	Long-term	64	64
MB-19	900 111th Avenue SE	Single-family	Long-term	62	66
MB-20	1600 118th Avenue SE, Brookshire Condominiums	Multifamily	Long-term	65	69
Segment C					
MC-1	420 Bellevue Way SE	Multifamily	Short-term	66	66
MC-2	321 Bellevue Way SE	Multifamily	Long-term	60	60
MC-3	300 112th Avenue SE	Hotel	Short-term	75	75
MC-4	221 112th Avenue SE, No. 221	Multifamily	Short-term	69	71
MC-5	11039 SE 2nd Street	Single-family	Short-term	57	58
MC-6	80 110th Avenue NE	Single-family	Long-term	57	59
MC-7	100 108th Avenue SE	Office	Short-term	61	63
MC-8	225 112th Avenue SE	Commercial	Short-term	62	63
MC-9	308 108th Avenue NE	Commercial	Short-term	64	65
MC-10	Bellevue Regional Library, 1111 110th Avenue NE	Mixed-use	Short-term	62	63
MC-11	10814 NE 12th Place	Single-family	Short-term	58	59
MC-12	11121 NE 12th Street	Commercial	Short-term	67	68
MC-13	1245 112th Avenue NE	Single-family	Long-term	57	60
MC-14	Surrey Downs Park	Park	Long-term	62	64
MC-15	281 112th Avenue SE	Multifamily	Long-term	68	70
MC-16	112 111th Avenue SE	Single-family	Long-term	58	64
MC-17	Bellevue Hotel and Club[b]	Hotel	Long-term	59	62

TABLE 4.7-5 CONTINUED
Existing Conditions Noise Monitoring Summary

Monitoring Location[a]	Site Address	Land Use Type	Type of Measurement	Leq (dBA)	Ldn (dBA)
MC-18	112th Avenue SE at SE at SE 6th Street[c]	N/A	Long-term	62	64
MC-19	Lake Bellevue Village Condominiums, Building 7, Unit 112	Multifamily	Long-term	55	58
Segment D					
MD-1	1815 116th Avenue NE	Single-family	Long-term	58	58
MD-2	Near Highland Park (trail 50 feet from NE 20th Street)	Park	Short-term	65	65
MD-3	152nd Avenue NE, 550 feet north of NE 26th Street	Commercial	Short-term	64	65
MD-4	Overlake Assisted Living Center	Commercial	Short-term	64	65
MD-5	Near Microsoft Building 44	Mixed-use	Short-term	70	71
MD-6	13440 NE 16th St	Mixed-use	Short-term	56	56
Segment E					
ME-1	5409 154th Avenue NE	Single-family	Long-term	60	64
ME-2	15516 61st Court	Single-family	Long-term	65	68
ME-3	15834 NE 67th Place	Single-family	Short-term	58	60
ME-4	7250 Old Redmond Road	Multifamily	Short-term	63	64
ME-5	15821 Leary Way NE	Multifamily	Short-term	62	64

[a] Sites shown on Exhibits 4.7-4 and 4.7-5

[b] This site was near the tennis courts, which is below grade and well shielded from traffic noise on 112th Avenue SE and SE 6th Street.

[c] This site was near the Bellevue Club Hotel, approximately 75 feet from 112th Avenue SE with some shielding.

Segment B

Land use along Segment B consists primarily of residences and parks, with some institutional and commercial uses. Land use in the southern end of Segment B, near Lake Washington, includes single-family residences and Enatai Beach Park. Land use along Bellevue Way is primarily residential from I-90 to Downtown Bellevue, although there are several churches and some commercial structures north of its intersection with 112th Avenue SE.

Major sources of noise in Segment B include traffic noise from I-90, I-405, Bellevue Way SE, and 112th Avenue SE. Mercer Slough Nature Park and Winters House, a historic structure used for nonresidential uses, are both located along the east side of Bellevue Way SE. The parts of the Enatai Beach Park and the Mercer Slough Nature Park that could be affected by the proposed project are near a major highway or major arterial roadways, including I-90 and Bellevue Way, and therefore are not considered noise-sensitive under FTA criteria. Land use along the west side of the 112th Avenue SE is entirely single- and multifamily residential, with commercial use on the east side transitioning to mixed commercial and hotel use from SE 8th Street to the boundary with Segment C.

Land use along the BNSF Alternative (B7) includes Mercer Slough Nature Park, multifamily residences, and commercial land use.

The only parklands in Segment B considered noise-sensitive under the FTA criteria are interior portions of Mercer Slough Nature Park; these parts of the park are 350 feet or more from the proposed alternatives. The portions of Mercer Slough Nature Park adjacent to the project are already dominated by traffic noise from Bellevue Way, I-90, and I-405.

Noise monitoring was conducted at 20 sites, 7 of which were long-term sites. Overall peak-hour noise levels in south Bellevue ranged from 50 to 72 dBA Leq. Maximum noise levels between I-90 and 112th Avenue SE ranged from 67 to 80 dBA Lmax, with an average of 74 dBA Lmax. North of the intersection of Bellevue Way SE and 112th Avenue SE, maximum noise levels on Bellevue Way or along 112th Avenue SE and vicinity ranged from 75 to over 96 dBA Lmax. The highest noise levels were measured at locations near I-90 and along Bellevue Way SE and 112th Avenue SE. Along the residential areas on Bellevue Way and 112th Avenue SE, noise levels are typical of those that would be expected to occur in a busy urban area near transportation corridors.

Segment C

Land use in the southern section of Segment C includes Surrey Downs Park and the Surrey Downs residential area, which transitions to commercial and office uses around Main Street. Surrey Downs Park is an active park with playfields, located along 112th Avenue SE, a major arterial roadway, and therefore is not considered noise-sensitive. Hotels and office parks are also present along the east side of 112th Avenue SE in this segment. Along Bellevue Way, north of the intersection with 112th Avenue SE under Bellevue Way Alternative (B1), land use is mainly single- and multifamily residential, and also includes the Bellevue Fire Department, churches, and some commercial uses. The commercial core of Downtown Bellevue is located on Bellevue Way between NE 4th Street and NE 8th Street, and includes several large shopping centers and office towers. There are some mixed-use buildings in Downtown Bellevue with commercial use on the ground floor and residential units on the upper floors. Other noise-sensitive properties in this area include the theater at Meydenbauer Convention Center and the Bellevue Regional Library. Parks along the downtown segment of the corridor include the Pocket Parks at NE 2nd Place and 110th Avenue NE, McCormick Park, and the Ashwood Playfield just west of the Bellevue Regional Library. The parks in this area do not have noise-sensitive uses and are near major arterial roadways and therefore are not considered noise-sensitive by the FTA. In addition, single-family residential land uses were identified along the northern edge of Downtown Bellevue, north of NE 12th Street. Sensitive land uses east of I-405 include Overlake Hospital, a broad range of nearby medical offices, and the Group Health medical building. There is also a multifamily residential area at the north end of Lake Bellevue, south of NE 12th Street.

Nineteen locations were monitored in Segment C: ten short-term and nine long-term. Peak-hour noise levels ranged from 55 dBA Leq in quiet areas away from major arterial roads to 75 dBA Leq near the Bellevue Hilton Hotel between 112th Avenue SE and I-405. Noise levels at residences along Bellevue Way ranged from 66 dBA Ldn for properties near the roadway to 60 dBA Ldn for properties shielded from roadway noise.

Along 112th Avenue, north of Surrey Downs Park, noise levels are dominated by local traffic and vehicles on I-405. Measured noise levels in this area ranged from 57 (at MC-5) to 75 (at MC-3) dBA Leq depending on the proximity to the roadway and shielding from existing structures. Noise levels at single-family residences along NE 12th Street ranged from 60 dBA Ldn for shielded properties (MC-13) increasing to as high as 70 dBA Ldn (MC-15) for residences directly adjacent to major arterial roads. The measured noise level at the Bellevue Regional Library (MC-10) was 62 dBA Leq. Noise levels for residences located near NE 12th Street ranged from 60 dBA Ldn at MC-13 to 70 dBA Ldn at MC-15. Finally, noise levels near Lake Bellevue (MC-19) were measured at 58 dBA Ldn. Maximum noise levels in Segment C ranged from 68 to 90 dBA Lmax, with maximum noise levels along 112th Avenue SE consistently in the mid to upper 80s decibel range. For example, over a 70-hour measurement period the Lmax at the condominiums on 112th Avenue SE (MC-15), ranged from 70 to 93 dBA Lmax, with an average Lmax of 80 dBA Lmax.

Segment D

Land use in Segment D is mainly commercial and light industrial, including retail, distribution facilities, and office spaces, which are generally not noise-sensitive. The only noise-sensitive land uses are the Children's Hospital BCSC on 116th Avenue NE, the Pacific Northwest School on NE 16th Street, and several single- and multifamily residences along 116th Avenue NE and on the south side of SR 520. The Overlake area is predominantly office parks and commercial land uses. Major sources of noise in this segment include traffic noise from SR 520 and major arterials, such as Bel-Red Road.

Six locations were monitored in Segment D: one long-term site and five short-term sites. The long-term site was at a residential area along 116th Avenue NE, near the 116th Maintenance Facility Alternative (MF1). The Ldn at residences along 116th Avenue NE was measured at 58 dBA. A short-term site was located near Highland Park, where the Leq and estimated Ldn were 65 dBA. Three short-term sites were located near the Overlake area, including one near the former Group Health Campus, one at the Overlake Assisted Living Center, and one near Microsoft. Estimated Ldn at these sites ranged from 65 to 71 dBA, with measured peak hour Leq levels ranging from 64 to 70 dBA Leq. Finally, a short-term monitoring session was performed at the Pacific Northwest School on NE 16th Street to assist with analysis of potential impacts at the school. The measured daytime noise level at the school was 56 dBA Leq, while the maximum noise level of 83 dBA Lmax was caused by truck traffic.

Segment E

Segment E begins in the commercial area at NE 40th Street and is adjacent to SR 520 and office parks until NE 51st Street. North of NE 51st Street, land use changes to single-family residential. Most residences in this area are located behind a sound wall along SR 520. Land use remains single-family residential to the West Lake Sammamish Parkway exit, where land use changes to multifamily residential, park, and commercial south of Downtown Redmond. Other land uses include Marymoor Park, and several other parks and green spaces, including Luke McRedmond Landing Park; Dudley Carter Park; the Edge Skate Park; and the Sammamish River, East Lake Sammamish and Bear Creek trails. All of these parks are near SR 520 and other major arterial roadways and are not considered noise-sensitive under FTA criteria due to active park uses and high existing noise levels. The one exception to this review is the portion of Marymoor Park that is near Lake Sammamish, which is 2,500 to 3,000 feet from the above-mentioned transportation noise sources, and is a portion of the park where low noise levels are part of its intended purpose. This portion of the park would be considered noise-sensitive under FTA criteria. Land use in the Downtown Redmond area varies but is mainly commercial and retail, with some mixed-use buildings that have residential use on upper floors. Major sources of noise in this segment include traffic noise from SR 520 and major arterials, such as West Lake Sammamish Parkway and SR 202.

There were five noise-monitoring locations in Segment E—two long-term sites and three short-term sites. The initial portion of all light rail alternatives in Segment E is along the east side of SR 520, shielded from nearby residences by existing sound walls. For locations with existing sound walls (represented by ME-1), Ldn ranged from 60 to 64 dBA, with peak-hour levels of 58 to 60 dBA Leq. A small group of homes along 156th Avenue NE does not have a sound wall (ME-2), and the measured Ldn was 68 dBA at this location. Noise at the multifamily units along 156th Place NE (ME-4) was also dominated by traffic on SR 520 and arterial roads, with an estimated Ldn of 64 dBA. The apartments along NE Leary Way and West Lake Sammamish Parkway (ME-5) had an estimated Ldn of 64 dBA, with most noise coming from the two main arterial roadways.

4.7.2.2 Vibration Measurements

Vibration measurement test sites were selected based on a review of aerial photographs, supplemented by a visual land use survey. Unlike noise, human response to vibration is not dependent on existing vibration levels. Humans respond to a new source of vibration based on the frequency of the events. Therefore, rather than measuring existing vibration levels, vibration measurements focused on characterizing the vibration propagation through the ground at representative locations in the project vicinity. This information was used as input for the analysis model. Eight sites, designated as Sites V-1 through V-8, were selected to represent a range of soil conditions near residences and other sensitive land uses along the rail corridor (Exhibits 4.7-4 and 4.7-5). Measurements were conducted at sites in Seattle, Bellevue, and Redmond in March 2007. A refined vibration analysis added six more sites, designated as Sites V-9 through V-14, which were selected to measure both soil conditions and building response at specific locations. Measurements were conducted in Bellevue during May 2010. Appendix H2 provides more detail.

4.7.3 Environmental Impacts

This section summarizes the models used to predict future noise and vibration levels and identifies where levels are predicted to exceed accepted criteria, causing an impact. These sources include light rail operation, changes in traffic due to the project, and construction activities. The projection models for these sources are described below. More detailed information is provided in Appendix H2.

Sound Transit has begun service on the Central Link light rail system in Seattle, which allows for operational noise monitoring that was not available at the time the 2008 Draft EIS was published. Noise measurements of actual train operations on Central Link allow more accurate noise modeling for future light rail conditions. This information, together with further design development, results in a more detailed noise impact analysis. New information includes updated reference noise levels from the existing fleet of light rail vehicles; locations of track crossovers; light rail operational characteristics for at-grade crossings, including train-mounted warning bells and gated crossing bells; and the effectiveness of lubrication to control wheel squeal.

4.7.3.1 Project Assumptions for Noise Analysis

Noise from East Link operations was modeled using the methods described in FTA's *Transit Noise and Vibration Assessment Manual* (2006). Input to the model included the following assumptions:

- Light rail train headways and speeds as described in Appendix E, Operating Plan Summary. The speeds depend on location, track type, and curvature, with a maximum operating speed of 55 miles per hour (mph). Measured reference noise levels for Sound Transit's new state-of-the-art, light rail vehicles equipped with wheel skirts. The reference measurements were taken along the ballast and tie segment of the Central Link Initial Segment in south Seattle in March 2010. The projected Ldn and Lmax assuming a train speed of 50 mph are shown in Appendix H2. Typical noise levels from a light rail pass-by range from 78 to 79 dBA at 50 feet at 40 mph. In comparison, a typical diesel bus produces 82 to 84 dBA Lmax at 50 feet at 40 mph.

- Elevations of sensitive properties and any shielding or other topographical features that could affect noise transmission.
- Plan, profile, and track type of all proposed East Link alternatives and design options. Track types that could be used under the different alternatives include at-grade with ballast and tie or embedded track, and direct fixation track types used for retained cut, retained fill, and elevated track sections. Special track work includes the locations of crossovers, where noise levels could increase as train wheel impact occurs when the train travels over a gap in the rail. For this analysis, measured increases in the light rail pass-by at crossovers was taken from the embedded crossovers along Martin Luther King Jr. Way South in Seattle.
- Noise levels associated with at-grade crossings, including the train-mounted and warning bells that would be used at crossings where gates would be required. The train-mounted bells were measured and validated in October 2009, with several supplemental measurements taken over the last 2 years. Under Sound Transit policy, train-mounted bells would be sounded as a train enters and exits a station and one to three times as it approaches and passes through an at-grade crossing. Train-mounted bells would produce maximum noise levels of 80 dBA Lmax at 50 feet between 6:00 a.m. and 10:00 p.m., reducing to 72 dBA Lmax between 10:00 p.m. and 6:00 a.m. For gated at-grade crossings, the warning bells mounted on the gates would sound as gates are lowered and raised; these bell volumes are adjustable but are typically set to 75 to 85 dBA Lmax at 10 feet near residential properties. For this analysis, the bell volume was conservatively assumed at 85 dBA and the bells were assumed to sound for approximately 25 seconds per train (10 to 13 seconds while rising and 10 to 13 seconds while lowering). Note that the train would also sound the bell as it travels to and through the crossing. As shown on Exhibit 4.7-6, noise levels from the warning bells would reduce at approximately 6 dB per doubling of distance. For example, a noise level of 80 dBA at 50 feet would reduce to 74 dBA at 100 feet.
- Wheel squeal was assumed on all curves with a radius of less than 600 feet, based on experience with the Central Link system. Wheel squeal is not included in the model because Sound Transit has committed to lubricating all curves in noise-sensitive areas with a radius of less than 600 feet, and preparing all curves with radius of less than 1,000 feet for lubrication.

The procedure used to evaluate the impacts of the project alternatives is based upon the change in the noise level that would be caused by each alternative and the number of dwelling units potentially affected by project noise. For this analysis, attenuation for the noise-reducing effects of ground coverage was not included, and all front-line receivers were assumed to have a line-of-sight view of the light rail trackway unless the trackway was in a retained cut, directly shielding the receptor from the tracks. This conservative methodology ensures that all potential noise impacts will be identified. This method is consistent with the FTA *Transit Noise and Vibration Manual*. The FTA noise assessment methodology was also applied to the park-and-rides and maintenance facilities, which are analyzed as stationary transit facilities.

All ancillary facilities would be analyzed using any applicable local noise ordinance or regulations. Therefore, all transit maintenance facilities and park-and-rides must meet the local noise ordinances. This means that the three maintenance base alternatives south of SR 520 in Bellevue and the proposed park-and-ride options would be required to meet the City of Bellevue noise ordinance. In addition, the maintenance base and park-and-rides in Redmond would be required to meet the City of Redmond noise control ordinance.

Traffic noise was evaluated where required by FTA and FHWA. Traffic noise was analyzed using the FHWA methods provided in the *Traffic Noise Abatement Policy and Procedures* (WSDOT, 2006). In accordance with FHWA policy, traffic noise was evaluated for specific locations, meeting the criteria described in Section 4.7.1.2.

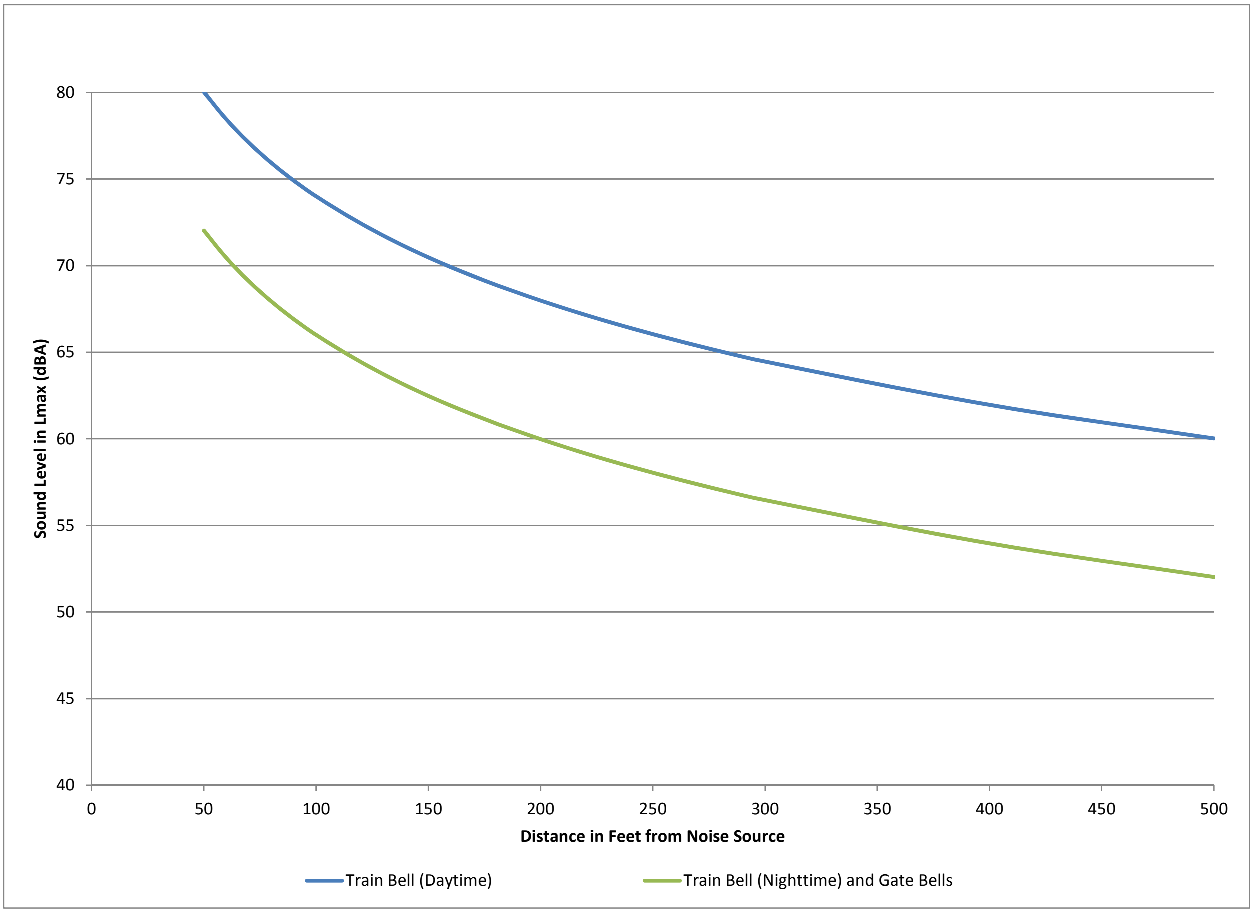


EXHIBIT 4.7-6
Noise Level Reduction with Distance (train bells and warning gate bells)

4.7.3.2 Project Assumptions for Vibration Analysis

Projections of groundborne vibration from East Link operations were based on the following assumptions:

- Vibration source levels were based on measurement data for the Sound Transit new light rail vehicles, as measured by Wilson Ihrig & Associates, Inc. (2007).
- Vibration propagation tests were conducted at representative sites along the corridor near sensitive receptors, as described in Section 4.7.2.2. The results of these tests were combined with the vehicle vibration source-level measurement data to provide projections of vibration levels from vehicles operating on the East Link Project alternatives.
- Light rail train headways and speeds are as described in Appendix E, Operating Plan Summary. The speeds are dependent on location, with a maximum operating speed of 55 mph.
- Wheel impacts at turnouts and crossovers typically cause localized vibration increases of 10 VdB.

The approach used for assessing vibration impact uses many of the same inputs as the noise impact assessment, such as speed, frequency of vehicle events, and distance from the receiver to the tracks. The vibration impact assessment combines vehicle characteristics with soil propagation properties to estimate vibration levels at sensitive receptors, as described in detail in previous sections. The FTA impact threshold for residential vibration is 72 VdB and the impact threshold for residential groundborne noise is 35 dBA, as presented in Table 4.7-2.

4.7.3.3 No Build Alternative

Under the No Build Alternative, there would be no project-related noise or vibration impacts. However, there are areas in the project vicinity where existing and future traffic noise levels would exceed the WSDOT criteria for traffic noise.

4.7.3.4 Impacts during Operations

Light Rail and Traffic Noise Impacts

The following sections present project-related light rail and traffic noise impacts before mitigation. Table 4.7-6 summarizes the noise impacts for the different alternatives, and the general locations of these impacts are shown in Exhibits 4.7-7 through 4.7-11. All noise impacts identified are discussed in this section by segment. Additional information about these impacts is provided in Appendix H2.

Potential impacts on wildlife would be construction-related only and are discussed in Section 4.8, Ecosystems Resources. The parks along the proposed alternatives were reviewed for sensitivity to noise, proximity to the alternative, and the potential for noise impacts. The only parks that are considered noise-sensitive under the FTA regulations are the sections of Mercer Slough Nature Park and Marymoor Park where peace and quiet are an essential part of the park's purpose. In both of these parks, these areas are several hundred feet from the project alternatives, highways, and major arterial roadways. The distance to these areas, and the existing shielding from structures and/or dense vegetation, are sufficient to reduce project noise to below the existing levels. All other park areas along the alternatives do not have noise-sensitive uses and are near major highway or arterial roadways, including I-90, SR 520, Bellevue Way SE, 112th Ave SE, NE 12th Street, and other major roadways, and therefore are not considered noise-sensitive under FTA criteria.

All proposed park-and-rides are at existing park-and-ride lot locations or in well-established transportation corridors that are not near noise-sensitive properties. The one exception to this is the proposed park-and-ride lot at the South Bellevue Station. While this park-and-ride lot would be located at the existing South Bellevue Park-and-Ride Lot, there are noise-sensitive properties nearby (i.e., homes to the west across Bellevue Way SE). In the sections that follow, park-and-ride lots are discussed briefly with the *Preferred Alternatives*. A more general discussion of the park-and-rides is provided at the end of each segment discussion.

Segment A

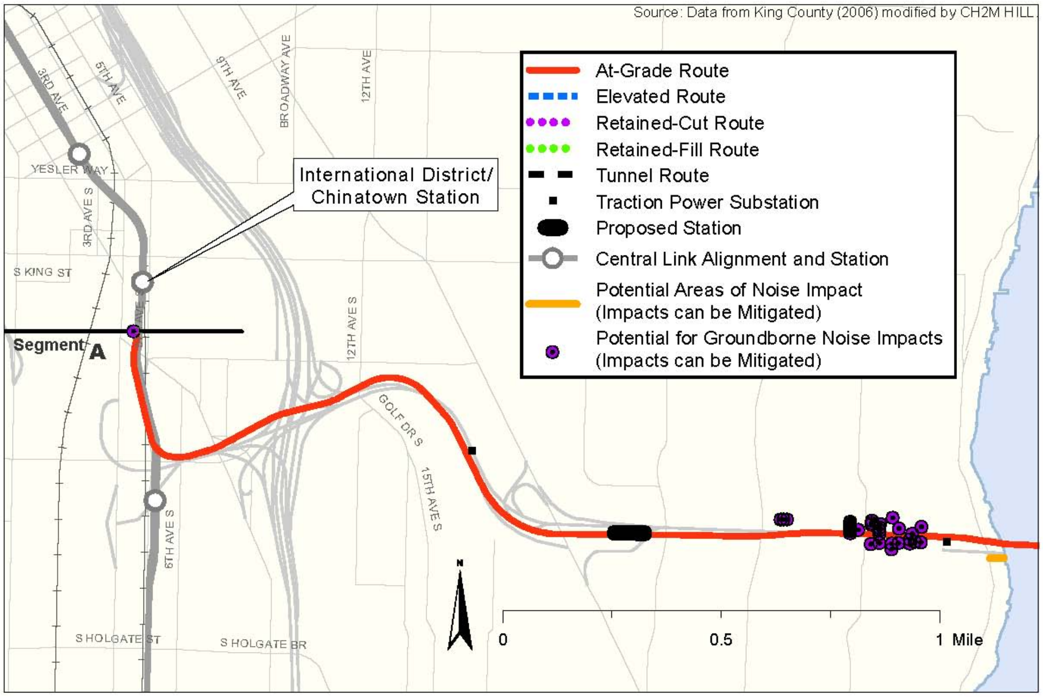
In Segment A, *Preferred Interstate 90 Alternative (A1)* is in the center of I-90 for most areas where there are noise-sensitive properties; therefore, no wayside noise impacts from light rail operations were identified. However, installing light rail on the I-90 floating bridge would require movable rail joints at the existing bridge expansion joints located at each end of the floating bridge structure, which could create added noise. There are no existing joints like the one currently proposed in a location that could be measured for noise levels. Based on the current evaluations, noise levels at a single home could meet the FTA criteria, with a predicted level of 63 dBA Ldn, when a worst-case noise impact from the movable rail joint is included in the analysis. If this impact occurred, it could be mitigated with sound walls near the joints. Sound Transit is currently constructing a prototype of the movable rail joint for testing purposes and will include measuring actual noise levels from the joint. Additional noise analysis will be performed to determine if this impact would actually occur and what mitigation measures would be best suited to reduce noise levels from the joints.

In addition to the expansion joints, there are four other standard crossovers in Segment A: one west of the Mount Baker Ridge Tunnel in Seattle, two on the floating bridge structure (between the two expansion joints), and another on Mercer Island near the Shorewood Drive overpass. The crossover near the tunnel is shielded from nearby residences and park areas by traffic safety barriers and was not predicted to increase noise levels in that area. The western crossover on the floating bridge structure is over 350 feet from any residence, while the eastern crossover is shielded from residences by the structure and traffic safety barriers.

The crossover on Mercer Island is located in an area that is well shielded from residences in a depressed segment of the highway, and therefore no noise impacts were predicted.

There are no new park-and-ride lots or maintenance bases in Segment A, and the new stations are along I-90. Therefore, there would be no noise-related impacts from ancillary facilities in Segment A.

Although there are several parks in Segment A, the parks are not considered noise-sensitive under the FTA criteria, or the parks are well shielded from the alternative and therefore would not be impacted by light rail operations. No other noise impacts from East Link operations or traffic are expected on any adjacent sensitive land uses in Segment A.


3RD AVE
5TH AVE
9TH AVE
BROADWAY AVE
12TH AVE
YESLER WAY
3RD AVE S
S KING ST
International District/
Chinatown Station
Segment A
12TH AVE S
GOLF DR S
15TH AVE S
6TH AVE S
S HOLGATE ST
S HOLGATE BR
N
0
0.5
1 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Central Link Alignment and Station
Potential Areas of Noise Impact
(Impacts can be Mitigated)
Potential for Groundborne Noise Impacts
(Impacts can be Mitigated)

Source: Data from King County (2006) modified by CH2M HILL

EXHIBIT 4.7-7
Noise and Vibration Impacts, Segment A
Preferred Alternative A1

TABLE 4.7-6
Summary of Potential Noise Impacts

Alternative	Connection Alternatives	Light Rail Impacts[a]		Traffic Noise Impacts[b]	Proposed Mitigation
		Moderate	Severe		
Segment A					
Preferred Interstate 90 Alternative (A1)	N/A	1	0	0	Impact due to light rail expansion joint will be reviewed during final design; sound wall if necessary
Segment B					
Preferred 112th SE Modified Alternative (B2M)	*Preferred C11A*	79	0	0	Sound walls, special trackwork, and building insulation
	Preferred C9T	66			
	C9T - East Main Station Design Option	64	2		
Bellevue Way Alternative (B1)[c]	N/A	128	4	136	Special trackwork and building insulation
112th SE At-Grade Alternative (B2A)[d]	N/A	77	1	17	Sound walls, special trackwork, and building insulation
112th SE Elevated Alternative (B2E)	N/A	85	21	0	Sound walls, special trackwork, and building insulation
112th SE Bypass Alternative (B3)[e]	N/A	79	4	17	Sound walls, special trackwork, and building insulation
B3 – 114th Extension Design Option[e]	N/A	76	1	17	Sound walls, special trackwork, and building insulation
BNSF Alternative (B7)	N/A	108	68	0	Sound walls and special trackwork
Segment C					
Preferred 108th NE At-Grade Alternative (C11A)	*B2M*	119	65	0	Sound walls, special trackwork, and building insulation
	B3, B3 – 114th Design Option, or B7	152	52		
Preferred 110th NE Tunnel Alternative (C9T)	*B2M*	62	57	0	Sound walls, special trackwork, and building insulation
	B3, B3 – 114th Design Option, or B7	88	52		

TABLE 4.7-6 CONTINUED
Summary of Potential Noise Impacts

		Light Rail Impacts[a]		Traffic Noise Impacts[b]	
Alternative	Connection Alternatives	Moderate	Severe		Proposed Mitigation
C9T – East Main Station Design Option	*B2M*	67	52	0	Sound walls, special trackwork, and building insulation
Bellevue Way Tunnel Alternative (C1T)[f]	B1	48	52	18	Sound walls, special trackwork, and building insulation
106th NE Tunnel Alternative (C2T)	B2A	48	52	0	Sound walls, special trackwork, and building insulation
	B2E	113	66		
	B3 or B7	66	70		
108th NE Tunnel Alternative (C3T)	B2A	26	0	0	Sound walls
	B2E	91	14		Sound walls and special trackwork
	B3 or B7	44	18		Sound walls
Couplet Alternative (C4A)	B2A or B2E	435	15	0	Sound walls, special trackwork, and building insulation
	B3 or B7	420	19		Sound walls and building insulation
112th NE Elevated Alternative (C7E)	B2A or B2E	270	12	0	Sound walls and special trackwork
	B3 or B7	208	0		Sound walls
110th NE Elevated Alternative (C8E)	B3 or B7	353	72	0	Sound walls
110th NE At-Grade Alternative (C9A)	B2A	185	56	0	Sound walls, special trackwork, and building insulation
	B3, B3 – 114th Design Option, or B7	145	54		
114th NE Elevated Alternative (C14E)	B3, B3 – 114th Design Option, or B7	36	112	0	Sound walls and special trackwork
Segment D					
Preferred NE 16th At-Grade Alternative (D2A)[g]	*Preferred C11A* or *C9T*, C9A, or C14E	0	0	0	None
NE 16th Elevated Alternative (D2E)	C3T, C4A, C7E, or C8E	2	0	0	Sound wall and potential building insulation
	C1T or C2T	1	0	0	Sound wall and potential building insulation
NE 20th Alternative (D3)	C3T, C4A, C7E, or C8E	1	0	0	Sound wall
	C1T or C2T	0	0	0	None
SR 520 Alternative (D5)	C3T, C4A, C7E, or C8E	1	10	0	Sound wall
	C1T or C2T	0	10	0	Sound wall
Segment E					
Preferred Marymoor Alternative (E2)	All Segment D alternatives	33	148	0	Sound wall, building insulation, and special trackwork
E2 - Redmond Transit Center Design Option	All Segment D alternatives	81	100	0	Sound wall, building insulation, and special trackwork
Redmond Way Alternative (E1)	All Segment D alternatives	167	150	0	Sound wall, building insulation, and special trackwork
Leary Way Alternative (E4)	All Segment D alternatives	66	32	0	Sound wall, building insulation, and special trackwork

[a] Moderate and severe noise impacts using the FTA noise impact criteria

[b] Traffic noise impacts based on the FHWA 66 dBA Leq impact criteria.

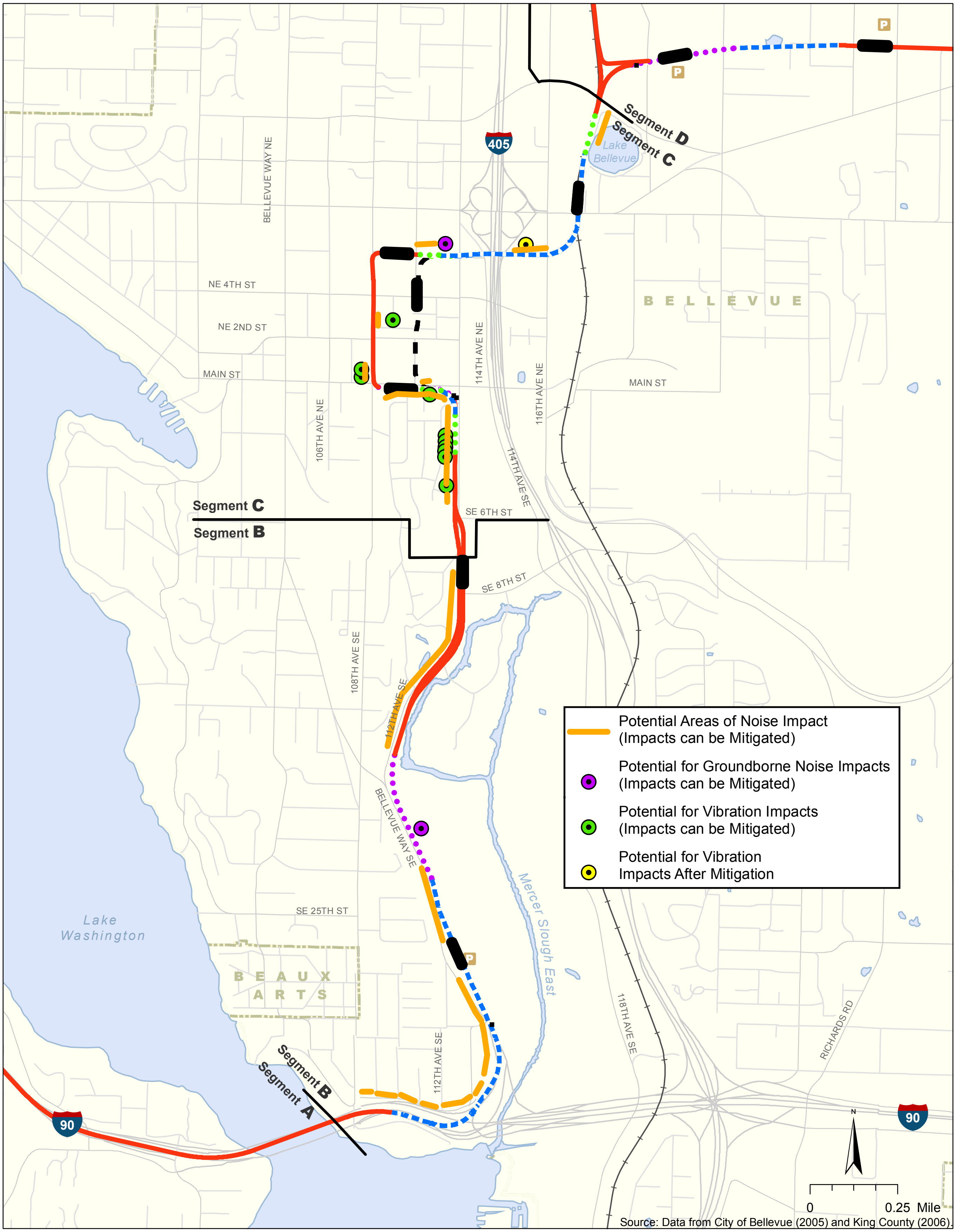
[c] Under Alternative B1 all but nine of the traffic noise impacts would also have light rail noise impacts; conversely, there are only five light rail impacts that would not have traffic noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 141; 5 would be impacted by light rail noise only, 9 would be impacted by traffic noise only, and 127 would be impacted by both traffic noise and light rail noise.

[d] Under Alternative B2A all but one of the traffic noise impacts would also have light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 79; 62 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[e] Under Alternatives B3 and B3 – 114th Extension Design Option all but one of the traffic noise impacts would also have light rail noise impacts. For B3, the total number of residences impacted (single- and multifamily) would be 84; 67 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise. For B3 – 114th Extension Design Option, the total number of residences impacted (single- and multifamily) would be 78; 61 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[f] Under Alternative C1T all the traffic noise impacts are separate from light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 118; 100 would be impacted by light rail noise only, 18 would be impacted by traffic noise only, and 0 would be impacted by both traffic noise and light rail noise.

[g] Impacts for D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.



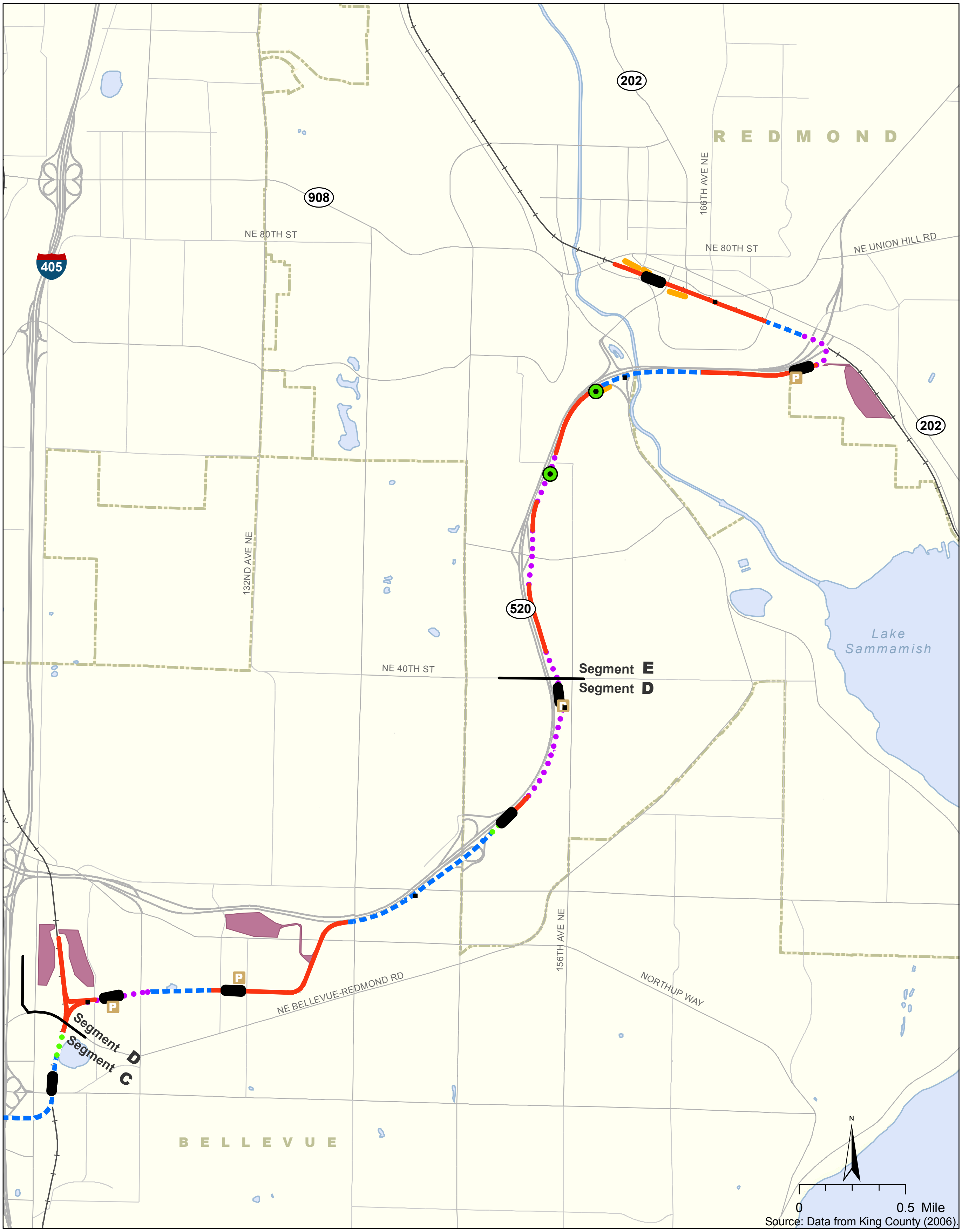
Segment D
Segment C
Lake Bellevue
405
BELLEVUE WAY NE
NE 4TH ST
NE 2ND ST
MAIN ST
106TH AVE NE
114TH AVE NE
116TH AVE NE
114TH AVE SE
MAIN ST
BELLEVUE
Segment C
Segment B
SE 6TH ST
SE 8TH ST
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
Mercer Slough East
Lake Washington
SE 25TH ST
BEAUX ARTS
Segment B
Segment A
112TH AVE SE
118TH AVE SE
RICHARDS RD
90
90
N
0
0.25 Mile
P
Potential Areas of Noise Impact (Impacts can be Mitigated)
Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
Potential for Vibration Impacts (Impacts can be Mitigated)
Potential for Vibration Impacts After Mitigation
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit 4.7-8

Noise and Vibration Impacts, Segments B and C Preferred Alternative

East Link Project


R E D M O N D
202
166TH AVE NE
908
NE 80TH ST
NE 80TH ST
NE UNION HILL RD
405
202
132ND AVE NE
520
Lake Sammamish
NE 40TH ST
Segment E
Segment D
NE BELLEVUE-REDMOND RD
156TH AVE NE
NORTHUP WAY
Segment D
Segment C
B E L L E V U E
N
0
0.5 Mile

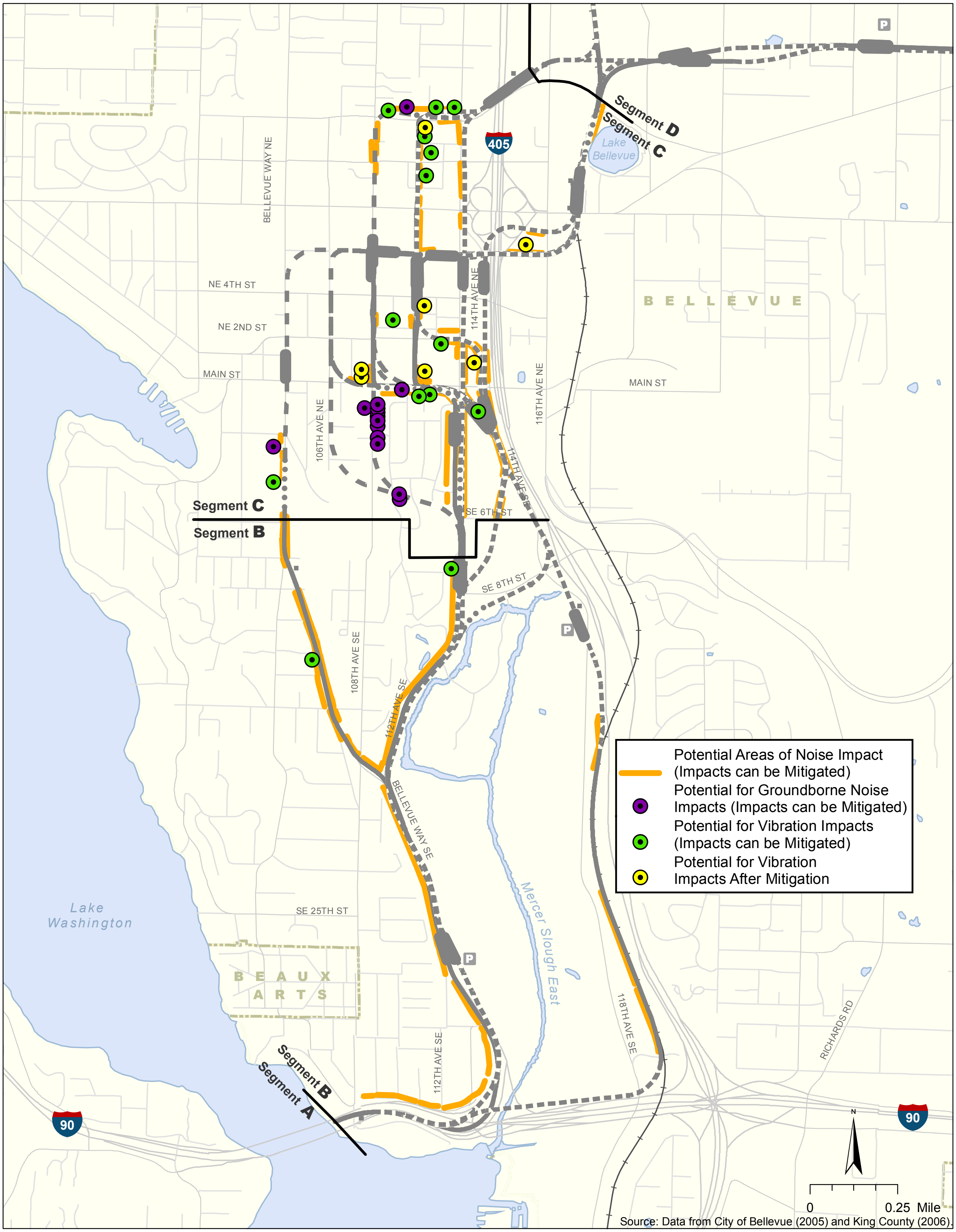
Source: Data from King County (2006).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- Traction Power Substation
- Proposed Station
- Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot
- Potential Areas of Noise Impact (Impacts can be Mitigated)
- ● Potential for Vibration Impacts (Impacts can be Mitigated)

Exhibit 4.7-9

Noise and Vibration Impacts, Segments D and E Preferred Alternative

East Link Project



Segment D
Segment C
Lake Bellevue
405
BELLEVUE WAY NE
NE 4TH ST
NE 2ND ST
MAIN ST
106TH AVE NE
114TH AVE NE
116TH AVE NE
BELLEVUE
MAIN ST
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SE 8TH ST
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
Mercer Slough East
Potential Areas of Noise Impact (Impacts can be Mitigated)
Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
Potential for Vibration Impacts (Impacts can be Mitigated)
Potential for Vibration Impacts After Mitigation
Lake Washington
SE 25TH ST
BEAUX ARTS
Segment B
Segment A
112TH AVE SE
118TH AVE SE
RICHARDS RD
90
90
N
0
0.25 Mile
P
P
P

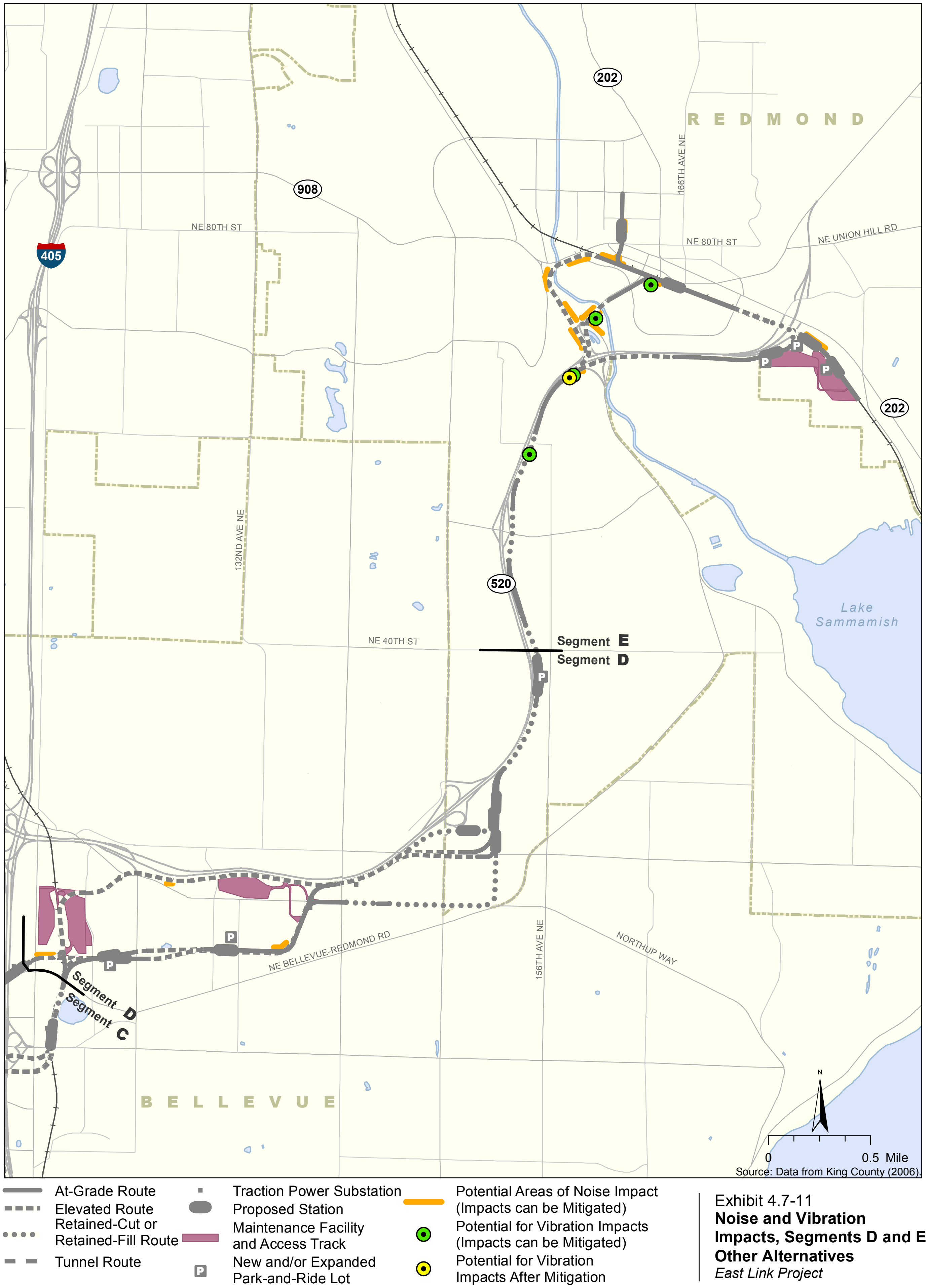
Source: Data from City of Bellevue (2005) and King County (2006).

At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Exhibit 4.7-10

Noise and Vibration Impacts, Segments B and C Other Alternatives

East Link Project


202
R E D M O N D
908
405
NE 80TH ST
166TH AVE NE
NE 80TH ST
NE UNION HILL RD
202
132ND AVE NE
520
Lake Sammamish
NE 40TH ST
Segment E
Segment D
NE BELLEVUE-REDMOND RD
NORTHUP WAY
156TH AVE NE
Segment D
Segment C
B E L L E V U E
N
0
0.5 Mile
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
New and/or Expanded Park-and-Ride Lot
Potential Areas of Noise Impact (Impacts can be Mitigated)
Potential for Vibration Impacts (Impacts can be Mitigated)
Potential for Vibration Impacts After Mitigation

Source: Data from King County (2006).

Exhibit 4.7-11

Noise and Vibration Impacts, Segments D and E Other Alternatives

East Link Project

Segment B

Under *Preferred 112th SE Modified Alternative (B2M)*, the level of noise impacts would vary with the different connections to Segment C. Under *Preferred Alternative B2M* connecting to *Preferred Alternative C11A,* 79 moderate light rail noise impacts are predicted. Forty-one impacts would occur along the elevated segment from I-90 to the intersection with 112th Avenue SE, affecting single-family residences adjacent to SE 34th Street and Bellevue Way SE. North of the Bellevue Way SE/112th Avenue SE intersection, seven noise impacts are predicted at the single-family residences west of 112th Avenue SE, near SE 17th and SE 14th Streets. All noise impacts between I-90 and the retained cut at the Winters House would be related to the elevated guideway, a crossover near SE 30th Street, and, to a lesser extent, train bells at the station.

Under *Preferred Alternative B2M* connecting to *C11A,* 19 moderate noise impacts were also identified at the Bellefield Residential Park Condominiums, and 12 moderate impacts would occur at single-family residences along 111th Avenue SE just south of Surrey Downs Park.

Impacts in this area would be due to lower impact criteria as a result of lower ambient noise levels, gated crossings, and train wayside noise.

Under *Preferred Alternative B2M* connecting to *Preferred Alternative C9T*, 66 moderate light rail noise impacts were identified. Noise impacts from I-90 to 112th Avenue SE would be the same as with *Preferred Alternative B2M* connecting to *C11A*, with 41 moderate impacts along this portion of the alternative. There would also be six impacts on single-family residences west of 112th Avenue SE, near SE 17th and SE 14th Streets, and nine moderate noise impacts at the Bellefield Residential Park Condominiums. There would also be 10 moderate impacts at single-family residences along 111th Avenue SE just south of Surrey Downs Park.

Noise impacts with *Preferred Alternative B2M* connecting to *C9T* would occur for the same reasons as with *Preferred Alternative B2M* connecting to *C11A*, although some impacts would occur in different locations and with different severity. There are no roadway modifications that would move traffic closer to any noise-sensitive properties; therefore, no traffic noise impacts were identified under either of the *Preferred Alternative B2M* connection options.

Under *Preferred Alternative B2M* connecting to *C9T* with the East Main Station Design Option, the SE 8th Station would be relocated to the north in Segment C, and the crossover from Segment C would be relocated to Segment B, just north of SE 8th Street. This change would increase the noise levels at several homes along 111th Place SE by 1 to 4 dB over the *Preferred Alternative* station location. In addition, two of the moderate noise impacts would now be considered severe under the FTA criteria. The overall results under *Preferred Alternative B2M* connecting to *C9T* with the East Main Station Design Option are 64 moderate impacts, and two severe impacts.

The only park-and-ride under *Preferred Alternative B2M* is the South Bellevue Park-and-Ride, which is the same regardless of the connection to Segment C, and would be part of all Segment B alternatives except Alternative B7. The South Bellevue Park-and-Ride Lot is an existing facility, and under the proposed project would be improved to hold approximately 1,400 vehicles. Noise levels for park-and-ride operations were predicted using worst-case operational assumptions that all 1,400 parking spots would be used, and that approximately 450 buses per day would serve the facility in addition to light rail. The nearest residential properties to the park-and-ride are located west of the facility at 100 to 200 feet from the entrance and bus access areas. The projected Ldn at 100 feet from the park–and-ride is 60 dBA Ldn. Based on the existing Ldn noise levels of 67 to 69 dBA, the FTA criteria of 63 to 64 dBA Ldn is not predicted to be exceeded, and no noise impacts were identified. During final design, final station layout and bus route and light rail operations will be reviewed to ensure compliance with the City of Bellevue noise control ordinance.

Under the Bellevue Way Alternative (B1), there would be 4 severe light rail noise impacts, 128 moderate noise impacts, and 136 traffic noise impacts. Severe light rail noise impacts would occur near SE 30th Street because of the nearby crossover track. Traffic noise impacts along Bellevue Way SE, beginning near SE 30th Street, would result from roadway widening and occur at single- and multifamily structures along the project corridor. The total number of residences impacted (single- and multifamily) under Alternative B1 would be 141, and most would be impacted by both light rail noise and traffic noise.

With the 112th SE At-Grade (B2A) and 112th SE Bypass (B3) Alternatives, there would be 78 and 83 light rail noise impacts, respectively, and 17 traffic noise impacts each. The light rail noise impacts would occur along the elevated section from I-90, past the South Bellevue Park-and-Ride, and continue to the at-grade segment just south of the Bellevue Way SE/112th Avenue SE intersection. Light rail noise impacts were identified along 112th Avenue SE at the single- and multifamily residences from SE 17th Street to Surrey Downs Park.

Under Alternative B3 with the Alternative B3 - 114th Extension Design Option, the alternative would divert from 112th Avenue SE and transition to an elevated structure closer to I-405. This would result in a reduction in noise impacts when compared to Alternative B3. The B3 - 114th Extension Design Option would add a new gated crossing near the Bellefield Residential Park Condominiums resulting in three new noise impacts in this area. The design option would divert the alignment away from the single family residences along 111th Place SE, reducing the number of impacts in this area. This results in a net reduction of six noise impacts when compared with Alternative B3. Furthermore, the number of severe impacts is reduced from four to one with the B3 - 114th Extension Design Option.

Noise impacts under Alternatives B2A, B3, and B3 - 114th Extension Design Option would be caused by wayside noise from the elevated structure, crossovers, and, to a lesser extent, train bells at stations. Traffic noise impacts are projected to occur only between the South Bellevue Station and 112th Avenue SE as a result of road widening.

Under 112th SE Elevated Alternative (B2E), 85 moderate and 21 severe noise impacts are projected. There would be no traffic noise impacts under Alternative B2E. Because there are no at-grade crossings with this alternative, the only bell-related noise would be at the stations. Wayside noise from the elevated structure would be the dominant noise source for Alternative B2E.

Alternative B7 along the former BNSF Railway corridor would result in 176 light rail noise impacts, including 68 severe impacts resulting from a crossover near the Emerald Apartments. All other impacts to multifamily residences in this portion of the alternative would be due to higher speeds and close proximity to the alignment.

Under Alternative B7, a new park-and-ride would be constructed at the 118th Avenue Station. The station would be located along 118th Avenue near I-405, and no noise impacts were identified because of the high existing noise levels and lack of adjacent noise-sensitive receivers. The only other park in Segment B is the Enatai Beach Park, which is well-shielded from light rail noise by I-90, and therefore would have no project-related noise impacts All Segment B alternatives except Alternative B7 travel along the west side of Mercer Slough Nature Park. This park is bordered on two sides by two interstate highways—I-90 and I-405—and on a third side by the major arterial Bellevue Way SE, a park-and-ride, and a commercial office park, where "quiet" is not an essential element as outlined in the FTA criteria for park noise analysis. The active uses along the west perimeter include the boat launch, blueberry farm, and Winters House and are not considered noise-sensitive. The central portions of Mercer Slough Nature Park contain uses that do meet the criteria as noise-sensitive, such as nature watching and protected trails.

Sound Transit conducted a noise impact analysis for park users in noise-sensitive areas of the Mercer Slough Nature Park and also predicted noise levels for the areas of the park near Bellevue Way SE. Typical noise levels at the edge of the park, near Bellevue Way SE, are between 61 dBA and 67 dBA Leq. Noise levels in noise sensitive areas of the park, near the center, were measured at 58 dBA Leq during normal daytime hours. The FTA Category 3, which includes certain parks and recreational areas, was used to determine compliance with FTA noise impact criteria at the interior noise-sensitive parts of the park. Light rail noise levels from operation of *Preferred Alternatives B2M* to *C11A* or *B2M* to *C9T* are predicted to be lower than the existing noise levels in the interior noise-sensitive areas of the park, and are under the FTA noise impact criteria for a Category 3 land use.

Segment C

Under *Preferred 108th NE At-Grade Alternative (C11A)* connecting from *Preferred Alternative B2M,* 119 moderate and 65 severe light rail noise impacts are predicted. The 65 severe impacts would include several homes along 111th Avenue SE because of a nearby crossover and loss of shielding from displaced buildings. There would also be severe impacts at several multifamily units along 108th Avenue NE that would occur because of bells and proximity to the tracks. The other severe noise impacts would occur at the Lake Bellevue Village Condominiums and would be due to lower impact criteria because this areas has lower ambient noise levels. Severe impacts are also projected at the Coast Bellevue Hotel because of a nearby crossover and the proximity of the tracks to the hotel rooms. No roadway modifications would be required nor would there be any traffic noise impacts. *Preferred Alternative C11A* from Alternative B3, B7, or B3 – 114th Extension Design Option would result in 152 moderate and 52 severe light rail noise impacts. The change in the number and severity of impacts under Alternatives B3, B7, or B3 – 114th Extension Design Option would be due to the different alternative connections.

Preferred 110th NE Tunnel Alternative (C9T) connecting from *Preferred Alternative B2M* would result in 119 light rail noise impacts, including 62 moderate and 57 severe impacts. The severe impacts would occur at single-family residences along 111th Avenue SE, a multifamily building on NE 6th Street in Downtown Bellevue, and the Lake Bellevue Village Condominiums, and, depending on the location, would result from their proximity to the track, bells at crossings, and crossovers. *Preferred Alternative C9T* from Alternatives B3, B7, or B3 – 114th Extension Design Option would result in 88 moderate and 52 severe light rail noise impacts, with no noise impacts at the single-family residences along 111th Avenue SE because of the different Segment B connector alignments.

Under the C9T – East Main Station Design Option connecting from *Preferred Alternative B2M*, the relocation of the crossover and the new station site would reduce the number of severe impacts when compared to the scenario with the SE 8th Street Station. Relocating the crossover is the reason for the reduction in the severity of impacts. There would still be 119 noise impacts, however, with the East Main Station, 52 severe and 67 moderate.

The number and severity of noise impacts with other alternatives in Segment C would vary depending on the alternative and its connector from Segment B. South of Main Street, the Bellevue Way Tunnel Alternative (C1T) would be the only Segment C alternative with traffic noise impacts, the result of roadway modifications on Bellevue Way that would impact 18 multifamily units. Because the alternative profile transitions to a tunnel on Bellevue Way, there are no at-grade crossing bells in Segment C along Bellevue Way with Alternative C1T. Under Alternative C1T, 48 multifamily units along NE 6th Street would experience moderate impacts and 52 would experience severe impacts, including 36 hotel rooms at the Coast Bellevue Hotel and 12 units with severe impacts at the Lake Bellevue Village Condominiums. Impacts would result from proximity to tracks, a crossover near the Coast Bellevue Hotel, and low existing noise levels at the Lake Bellevue Village Condominiums.

106th NE Tunnel Alternative (C2T) connecting to Alternative B2A would likely have similar light rail impacts as predicted under Alternative C1T, but without any traffic noise impacts because both alternatives are similar when not in the tunnel through Downtown Bellevue. When connecting from Alternative B2E, Alternative C2T would result in 113 moderate and 66 severe light rail impacts. These impacts would result from the elevated profile and a crossover along 112th Avenue SE.

Alternative C2T connecting from Alternatives B3 or B7 would have 48 moderate light rail noise impacts and 16 severe light rail noise impacts at multifamily residences. There would also be 54 severe impacts and 18 moderate impacts at hotel rooms, for a total of 136 impacts under this alternative. Furthermore, Alternative C2T would not have any traffic noise impacts with any of its connection options. Impacts east of the tunnel would be due to proximity to the tracks, and a crossover.

The 108th NE Tunnel Alternative (C3T) would result in 26 noise impacts connecting from Alternative B2A, 105 impacts with an Alternative B2E connection, and 62 impacts connecting from Alternative B3 or B7. The Alternative B2A connection would have the fewest impacts because of the longer tunnel, with 21 multifamily impacts and 5 single-family impacts all located along NE 12th Street near 112th Avenue NE. With the Alternative B2E connection, there would be 15 single family impacts, 2 considered severe; 58 multifamily impacts, of which 12 are considered severe; and 32 hotel room moderate impacts. Finally, the Alternative B3 or B7 connection is predicted to have 18 severe impacts at the Bellevue Hilton Hotel along the side of the structure facing I-405.

Impacts under Alternative C3T near the northern tunnel portal would be the same for all connections because of wayside noise from the transition and elevated structure. South of Downtown Bellevue, the reason for and the location of impacts would vary with each different connection. With the Alternative B2A connection, there would be no impacts due to the tunnel. With the Alternative B2E connection, impacts along 112th Avenue SE would result from the elevated structure and crossover, while with the Alternative B3 or B7 connections, impacts would result from the proximity to the Hilton Hotel.

The Couplet Alternative (C4A) from the 112th SE At-Grade Alternative (B2A) connector would have the most noise impacts because of the high-rise apartments along 108th and 110th Avenues NE, with 435 moderate and 15 severe impacts throughout the alternative corridor. When connecting to Alternative B2E, Alternative C4A would have the same number of noise impacts as the connection to B2A. When connecting to Alternatives B3 or B7, Alternative C4A would have moderate light rail noise impacts on 420 residences and hotel rooms and additional severe impacts on 1 single-family residence and 18 hotel rooms.

South of Main Street, Alternative C4A impacts would result from general wayside noise and a crossover (with the Alternatives B2A or B2E connection), or proximity to a hotel (with the Alternatives B3 or B7 connection). North of Main Street, the impacts would be the result of train bells at each intersection from Main Street to (and including) NE 12th Street and noise from bells at gated crossings.

Under the 112th NE Elevated Alternative (C7E), the connection from Alternative B2A would result in 270 moderate and 12 severe light rail noise impacts. With the elevated connection from Alternative B2E, the number of impacts would be the same as with Alternative B2A. When connecting to Alternative B3 or B7, Alternative C7E would have 208 moderate light rail noise impacts and no severe impacts. All impacts would be related to wayside noise from the elevated structure and a crossover. There are no train bells or crossing bells under Alternative C7E, except at the NE 12th Street Station.

The 110th NE Elevated Alternative (C8E) would have moderate light rail noise impacts at 120 hotel rooms, 9 single-family residences, and 224 multifamily residences. This alternative would also have 72 severe light rail noise impacts at multifamily residences. Alternative C8E only connects to Alternatives B3 or B7. As with the other elevated alternatives, there are no at-grade crossings, so the only train bells would be at the stations; therefore, all impacts under Alternative C8E would be due to wayside noise from the elevated light rail.

The 110th NE At-Grade Alternative (C9A) connects to Alternatives B2A, B3, B3 – 114th Extension Design Option, or B7. Connecting from Alternative B2A, 241 light rail noise impacts are predicted, including 10 moderate and 4 severe impacts at single-family residences, 143 moderate and 16 severe impacts at multifamily residences, and 32 moderate and 36 severe hotel room impacts. With a connection to Alternative B3, B3 – 114th Extension Design Option or B7, that number would decline to 199 total impacts, with severe impacts at 2 single-family units, 16 multifamily units, and 36 hotel rooms. An additional 145 moderate impacts would also occur at residences and hotel rooms along this corridor.

Impacts under Alternative C9A would result from the crossover and elevated light rail south of Main Street, bells and proximity through the Bellevue central business district, and proximity and the crossover east of I-405.

The 114th NE Elevated Alternative (C14E), which is elevated along 114th Avenue NE, is predicted to have 16 severe impacts at multifamily residences, along with 96 severe and 36 moderate impacts at hotel rooms. Impacts would be the result of wayside noise from the elevated structure, crossovers and, at the Lake Bellevue Village Condominiums, low existing noise levels.

There are no park-and-rides in Segment C.

There are several parks and parklands in Segment C, including the Surrey Downs Park, Downtown Park, Ashwood Park, and McCormick Park. Surrey Downs Park is located along 112th Avenue SE, an established transportation corridor. The Downtown Park, as its name implies, is located in Downtown Bellevue, near NE 2nd Street. Ashwood Park and McCormick Park are both located near NE 12th Street, also an established transportation corridor. These parks were all reviewed for sensitivity to noise. Since all these parks have active uses and are located along established transportation corridors, none meet the FTA criteria for a noise-sensitive use.

Segment D

No light rail noise impacts were identified for *Preferred NE 16th At-Grade Alternative (D2A)*.

There are three potential park-and–ride lot locations with *Preferred Alternative D2A*: a new park-and-ride south of the corridor, just east of 120th Avenue SE or near the 130th Station; and expansion of the existing park-and-ride at the Overlake Transit Center Station near SR 520 and NE 40th Street. The new park-and-ride lots near the 120th and 130th Stations are both in existing industrial and commercial areas where no noise-sensitive receivers were identified; therefore, no noise impacts are projected. The expanded park-and-ride lot at Overlake Transit Center has no noise-sensitive receivers that would be impacted by facility operation.

With connections from the former BNSF Railway corridor (*Preferred Alternatives C11A* and *C9T*, and Alternatives C1T, C2T, C9A and C14E*)*, no noise impacts were identified for Alternative D2A - 120th Station Design Option, Alternative D2A - NE 24th Design Option, or NE 20th Alternative (D3). The NE 16th Elevated Alternative (D2E) is predicted to result in a noise impact at the Pacific Northwest Ballet School at the NE 16th Street/136th Place NE intersection. (The ballet school impact would only occur under Alternative D2E.) Alternative D5 would have severe noise impacts at 10 units at an apartment building near SR 520, off Northup Way. The noise impacts would be the result of proximity and the speed of the train in this area.

With connections from NE 12th Street (Alternatives C3T, C4A, C7E, and C8E), one moderate noise impact is predicted under Alternatives D2E, D3, and D5 at the new Children's Hospital facility on 116th Avenue NE; one moderate noise impact is predicted under Alternative D2E at the Pacific Northwest Ballet School; and 10 severe noise impacts are predicted under Alternative D5 at the same apartment identified in the previous paragraph for the connection from the former BNSF Railway corridor. No other noise impacts are expected under Alternative D3. The impact at the Children's Hospital BCSC would be due to the land use type and proximity to tracks.

Under Alternatives D2E and D3, the park-and-ride lot at the 130th Station would have no noise impacts, similar to *Preferred Alternative D2A*. Alternatives D2E, D3, and D5 would have a park-and-ride at the Overlake Transit Center Station at the existing Overlake Transit Center near SR 520 and NE 40th Street. The Overlake Transit Center is an existing facility, and no noise-sensitive receivers are predicted to have impacts related to the new park-and-ride operations.

There are no noise-sensitive parks located near any of the project alternatives in Segment D.

Segment E

Under *Preferred Marymoor Alternative (E2),* 148 severe and 33 moderate noise impacts were identified, for a total of 181 impacts. These include nine moderate and four severe impacts at single-family residences near SR 520 at West Lake Sammamish Parkway NE, 144 severe impacts at newly constructed multifamily units, and 24 moderate impacts at a hotel. No traffic noise impacts are predicted.

Noise impacts near SR 520 would be due to the higher speed of the train on the elevated structure. Noise impacts in other areas would result from crossovers, at-grade and gated crossings, and proximity of the light rail to sensitive land uses.

The park-and-ride under *Preferred Alternative E2* is located near an established commercial and industrial area east of Marymoor Park. No noise impacts are predicted at this site because of the existing land use, high existing noise levels from SR 520, and the commercial and industrial uses near the site.

Noise impacts under the Alternative E2 - Redmond Transit Center Design Option would be similar to the *Preferred Alternative E2*; however, this design option would have 81 moderate and 100 severe noise impacts, also totaling 181 noise impacts. The reason for this difference is because under this design option, one of the newly constructed multifamily buildings would not be impacted as it would be under *Preferred Alternative E2.* However, another building near the terminus would have the same number of severe impacts.

Under Redmond Way Alternative (E1), light rail noise impacts were identified at 9 single-family units, 236 multifamily units, and 72 hotel rooms. These include severe impacts at two single-family residences and 148 multifamily units.

The Leary Way Alternative (E4) would have 66 moderate noise impacts and 32 severe noise impacts related to light rail operations. No traffic or other noise impacts were identified in Segment E.

All new Segment E park-and-rides are located near an established commercial and industrial area, and no noise impacts were identified.

Parks and trails in Segment E include Marymoor Park, Luke McRedmond Landing Park, Dudley Carter Park, the Edge Skate Park, and the Sammamish River, East Lake Sammamish, and Bear Creek trails. Marymoor Park could be divided into three distinct sections: the section along SR 520, the central section, and the portion near Lake Sammamish. The section near SR 520 and the central section of Marymoor Park are primarily used for active sports; concerts; major events, such as circuses; and other events with large crowds, and/or amplified music or entertainment. These sections of the park are also located near SR 520 and adjacent to a commercial and industrial area to the east. Therefore, the sections of Marymoor Park along SR 520 and the central section would not be considered noise-sensitive under FTA criteria. Only the southern section of the Marymoor Park, near Lake Sammamish, was determined to meet the FTA criteria for a noise-sensitive area in a park. Because project alternatives are approximately 2,500 to 3,000 feet, or greater, from this section of the park, project noise levels are predicted to be below ambient levels and below FTA impact criteria, and no noise impacts are projected. The Luke McRedmond Landing Park, Dudley Carter Park, Edge Skate Park, and the Sammamish River, East Lake Sammamish, and Bear Creek trails parks are located along established transportation corridors, and therefore none meets the FTA criteria for a noise-sensitive use.

Maintenance Facilities

There are three maintenance facility alternative sites in Segment D, 116th Maintenance Facility (MF1), BNSF Maintenance Facility (MF2), and SR 520 Maintenance Facility (MF3). MF1 is located along 116th Avenue NE, just west of the former BNSF Railway corridor. MF2 is located just east of MF1, in an established industrial area. MF3 is located along the south side of SR 520, also in an established industrial area. MF1 is the only potential maintenance facility located near residential properties, as there are several single-family residences west of 116th Avenue NE. However, most of the buildings directly along 116th Avenue NE have been converted to office buildings. The new Seattle Children's Hospital BCSC is also located to the south of the MF1 site. Because a maintenance facility is considered a stationary transit facility that is near noise-sensitive properties, a noise analysis was performed using the following assumptions, consistent with FTA methods and criteria:

- Measured noise levels from the existing Sound Transit maintenance facility in South Seattle were used as baseline data.
- Train speeds would be limited to 5 mph inside the facility and horns would be sounded for at-grade employee crossings for safety.
- Wheel squeal noise on the tight-radius curves would not be as severe as noise from normal revenue train operations because of the slower speed and because some form of lubrication or friction modifier would be used to minimize or avoid noise from wheel squeal.
- The majority of noise-producing maintenance operations would occur inside the facility building, thus shielding nearby properties from the operations.
- The typical maximum number of trains at the facility is based on the proposed size and would not exceed 40 to 50 light rail vehicles.

Using the above assumptions, worst-case operational noise levels were projected at several single family residences along 116th Avenue NE and the Children's Hospital BCSC. The projected 24-hour Ldn ranged from 48 to 57 dBA at the sensitive receivers near MF1. A moderate noise impact was identified under the FTA criteria at the rear of the Children's Hospital BCSC. The impact would be due to the lower existing Ldn at the rear of the building, which results from the shielding the building provides from traffic noise along NE 12th Street. The noise analysis also included two single family residences that are located immediately west of MF1 across 116th Avenue NE, and four single family residences located slightly further west, and no noise impacts were identified at these six residences. It is important to note that most of the structures along 116th Avenue NE have been converted to commercial use.

Noise analysis was not conducted for the other two Segment D maintenance facility alternatives (MF2 and MF3) because there are no noise- sensitive properties nearby. Therefore, no noise impacts related to the operation of the maintenance facility alternatives MF2 or MF3 are anticipated.

If one of these maintenance facility alternatives were selected, then a full site design with the location of noise-producing sources would be completed, and a detailed noise analysis would be performed to ensure compliance with the City of Bellevue noise control ordinance. It is assumed that, because this is a fixed site, with most noise-producing activities occurring indoors, any potential noise related issues would be remedied through design modifications or treatments.

There is one maintenance facility alternative in Segment E, the SE Redmond Maintenance Facility (MF5), with two potential site locations. Both of the MF5 sites are located near the end of SR 520, in an established industrial area, with no nearby noise-sensitive properties. Due to the location of Alternative MF5, no noise analysis was conducted and no impacts are anticipated; however, when the site design is finalized, a detailed noise analysis would be performed to ensure compliance with the City of Redmond noise control ordinance.

Wheel Squeal

Wheel squeal is caused by the oscillation of the wheel against the rail on curved sections of train track. Curves with a radius of less than 600 feet will likely produce wheel squeal; curves with a radius of 600 to 1,000 feet have also been known to produce squeal, depending on train speed and track type. Light rail wheel squeal could produce maximum noise levels of 83 to 85 dBA at 50 feet. Table 4.7-7 lists all curves that would have a 600-foot radius or less, are not located in a tunnel, and have the potential for wheel squeal in proximity to noise-sensitive receivers.

Vibration and Groundborne Noise Impacts

Table 4.7-8 summarizes the vibration and groundborne noise impacts for the different build alternatives; the general locations of these impacts are shown in Exhibits 4.7-7 through 4.7-11. Groundborne noise is only assessed for tunnel sections or for buildings with sensitive interior spaces that are well-insulated from exterior noise. At other locations, because of the masking effects of airborne noise, groundborne noise is not a factor.

TABLE 4.7-7
Summary of Curves with Potential Wheel Squeal

Alternative	Curves with Radius of 600 Feet or Less
Segment A	
Preferred Interstate 90 Alternative (A1)	6th Avenue South; Dearborn Street and I-90 just east of 12th Avenue South
Segment B	
Preferred 112th SE Modified Alternative (B2M)	I-90 to Bellevue Way
Bellevue Way Alternative (B1)	I-90 to Bellevue Way
112th SE At-Grade Alternative (B2A)	I-90 to Bellevue Way
112th SE Elevated Alternative (B2E)	I-90 to Bellevue Way
112th SE Bypass Alternative (B3)	I-90 to Bellevue Way; SE 8th Street to I-405
B3 - 114th Extension Design Option	I-90 to Bellevue Way; 112th Avenue SE to the commercial area
BNSF Alternative (B7)	I-90 to I-405/118th Avenue SE
Segment C	
Preferred 108th NE At-Grade Alternative (C11A)	112th Avenue SE at Main Street; Main Street and 108th Avenue NE (all connections); 108th Avenue NE and NE 6th Street; NE 6th Street to the former BNSF Railway corridor; south of the Hilton Hotel under B3 - 114th Extension Design Option
Preferred 110th NE Tunnel Alternative (C9T)[a]	112th Avenue SE at Main Street (all connections); NE 6th Street to the former BNSF Railway corridor; south of the Hilton Hotel under B3 - 114th Extension Design Option
Bellevue Way Tunnel Alternative (C1T)	NE 6th Street to the former BNSF Railway corridor
106th NE Tunnel Alternative (C2T)	Main Street (connecting from Alternatives B2A, B3, and B7); NE 6th Street to the former BNSF Railway corridor
108th NE Tunnel Alternative (C3T)	Main Street (connecting from Alternatives B2A, B3, and B7); 112th Avenue NE at NE 12th Street
Couplet Alternative (C4A)	Main Street (connecting from Alternatives B2A, B3, and B7); Main Street and 110th Avenue NE; Main Street and 108th Avenue NE; NE 12th Street and 110th Avenue NE; NE 12th Street and 108th Avenue NE; 112th Avenue NE along NE 12th Street
112th NE Elevated Alternative (C7E)	112th Avenue NE along NE 12th Street (all connections); t112th Avenue SE south of Main Street (connecting from Alternatives B3 and B7)
110th NE Elevated Alternative (C8E)	114th Avenue NE to NE 2nd Street; NE 2nd Street to 108th Avenue NE; 108th Avenue NE to NE 12th Street; 112th Avenue NE along NE 12th Street (all connections)
110th NE At-Grade Alternative (C9A)	Main Street from 112th Avenue SE; Main Street to 108th Avenue NE; 108th Avenue NE to NE 6th Street; NE 6th Street to the former BNSF Railway corridor south of the Hilton Hotel under B3 - 114th Extension Design Option
114th NE Elevated Alternative (C14E)	I-405 at NE 7th Street; NE 7th Street to the former BNSF Railway corridor; South of the Hilton Hotel under B3 - 114th Extension Design Option
Segment D	
Preferred NE 16th At-Grade Alternative (D2A)[b]	BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE to SR 520
D2A – NE 24th Design Option	BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE to SR 520; NE 24th Street to 152nd Avenue NE; 152nd Avenue NE to SR 520
NE 16th Elevated Alternative (D2E)	BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE to SR 520; NE 24th Street and 152nd Avenue NE; 152nd Avenue NE and SR 520
NE 20th Alternative (D3)	BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE and NE 20th Street; NE 20th Street and 152nd Avenue NE; 152nd Avenue NE and SR 520
SR 520 Alternative (D5)	NE 12th Street (connecting from Alternatives C3T, C4A, C7E, and C8E); two curves between NE 16th Street and SR 520; 152nd Avenue NE; 152nd Avenue NE to SR 520
Maintenance Facilities	All Alternatives
Segment E	
Preferred Marymoor Alternative (E2)	SR 520 and Redmond Way

TABLE 4.7-7 CONTINUED
Summary of Curves with Potential Wheel Squeal

Alternative	Curves with Radius of 600 Feet or Less
E2 - Redmond Transit Center Design Option	SR 520 and Redmond Way; 161st Avenue NE to the Redmond Transit Center
Redmond Way Alternative (E1)	SR 520 to the elevated structure; Redmond Way; former BNSF Railway corridor
Leary Way Alternative (E4)	“S” curves from SR 520 to Leary Way; Leary Way to the former BNSF Railway corridor
Maintenance Facilities	All alternatives

[a] Curves with the C9T – East Main Station Design Option would not differ from *Preferred Alternative C9T*
[b] Curves with the D2A – 120th Station Design Option would not differ from *Preferred Alternative D2A*

TABLE 4.7-8
Summary of Potential Vibration Impacts

Alternative	Connection Alternatives	Before Mitigation		After Mitigation	
		Number of Vibration Impacts[a]	Number of Groundborne Noise Impacts[b]	Number of Vibration Impacts	Number of Groundborne Noise Impacts[b]
Segment A					
Preferred Interstate 90 Alternative (A1)	N/A	None	25 single-family	None	None
Segment B					
Preferred 112th SE Modified Alternative (B2M)	*Preferred C11A* or *C9T*	None	1 (Winters House)	None	None
Preferred 112th SE Modified Alternative (B2M)	C9T – East Main Station Design Option	1 single-family	1 (Winters House)	None	None
Bellevue Way Alternative (B1)	N/A	1 single-family	None	None	None
112th SE At-Grade Alternative (B2A)	N/A	None	None	None	None
112th SE Elevated Alternative (B2E)	N/A	None	None	None	None
112th SE Bypass Alternative (B3)[c]	N/A	None	None	None	None
BNSF Alternative (B7)	N/A	None	None	None	None
Segment C					
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred B2M*	2 single-family, 3 multifamily (108 units), 1 hotel	None	1 hotel	None
	B3 and B7	1 single-family, 3 multifamily (108 units), 1 hotel	None	1 hotel	None
Preferred 110th NE Tunnel Alternative (C9T)	*Preferred B2M*	7 single-family, 1 hotel	1 theater (Meydenbauer Center)	1 hotel	None
	B3 and B7	1 single-family, 1 hotel	1 theater (Meydenbauer Center)	1 hotel	None
C9T – East Main Station Design Option	*Preferred B2M*	2 single-family, 1 hotel	1 theater (Meydenbauer Center)	1 hotel	None
Bellevue Way Tunnel Alternative (C1T)	B1	1 single-family, 1 hotel	1 single-family	None	None
106th NE Tunnel Alternative (C2T)	B2A	None	None	None	None
	B2E	None	1 single-family	None	None
	B3 and B7	None	None	None	None

TABLE 4.7-8 CONTINUED
Summary of Potential Vibration Impacts

Alternative	Connection Alternatives	Before Mitigation		After Mitigation	
		Number of Vibration Impacts[a]	Number of Groundborne Noise Impacts[b]	Number of Vibration Impacts	Number of Groundborne Noise Impacts[b]
108th NE Tunnel Alternative (C3T)	B2A	None	12 single-family	None	None
	B2E	None	2 single-family	None	None
	B3 and B7	None	1 single-family	None	None
Couplet Alternative (C4A)	B2A, B2E, B3, and B7	1 single-family, 6 multifamily (729 units)	None	2 multifamily (176 units)	None
112th NE Elevated Alternative (C7E)	B2A, B2E, B3, and B7	None	None	None	None
110th NE Elevated Alternative (C8E)	B3 and B7	2 single-family, 3 multifamily (418 units), 1 hotel	None	1 multifamily (38 units), 1 hotel	None
110th Avenue NE At-Grade Alternative (C9A)	B2A, B3, and B7	2 single-family, 3 multifamily (108 units), 1 hotel	None	2 multifamily (68 units), 1 hotel	None
114th NE Elevated Alternative (C14E)	B3 and B7	3 hotels	None	1 hotel	None
Segment D					
All alternatives	N/A	None	None	None	None
Segment E					
Preferred Marymoor Alternative (E2)[d]	N/A	3 single-family	None	1 single-family	None
Redmond Way Alternative (E1)	N/A	3 single-family	None	1 single-family	None
Leary Way Alternative (E4)	N/A	1 single-family, 1 multifamily, 1 hotel	None	None	None

[a] Commercial and industrial buildings are only assessed for vibration impact if they contain vibration-sensitive uses.
[b] Groundborne noise is only assessed for tunnel locations.
[c] Impacts for B3 – 114th Extension Design Option would not vary from those of Alternative B3.
[d] Impacts for E2 - Redmond Transit Center Design Option would not vary from those of *Preferred Alternative E2*.

In Table 4.7-8, the columns for the number of vibration and groundborne noise impacts refer to the number and type of buildings where vibration or groundborne noise impact is projected to occur. The number of units for multifamily buildings is provided, although it is likely that not all units would be affected. For multifamily buildings, the actual number of units impacted in each building would be determined after further testing during final engineering and design.

All impacts identified in the sections below are related to the proximity of the proposed tracks to individual buildings and to the speed of the light rail vehicle. In most cases, the impacts would be limited to buildings within 50 feet of the proposed tracks.

Potential vibration and groundborne noise levels and impacts reported in this section are described prior to mitigation considerations. Although most impacts can be mitigated, the residual impacts remaining after mitigation are provided in Table 4.7-8. Detailed information and exhibits for each impact are located in Appendix H2.

Segment A

At the East Link Project connection with the Central Link light rail system, there will be four new switches introduced to allow trains to operate on both light rail systems. These would be located under residential and mixed-use buildings. In order to keep vibration levels the same as from Central Link system operations, special trackwork would be needed at this location.

Under *Preferred Alternative A1*, groundborne noise impacts would occur at 25 single-family residences above the Mount Baker Ridge Tunnel. These impacts would occur because high-frequency vibration travels easily through the ground in this area.

Segment B

Under *Preferred Alternative B2M*, there would be no vibration impacts and only one groundborne noise impact (at the Winters House). The Winters House is no longer used as a residence and is occupied by the Eastside Heritage Center; therefore, it is considered a Category 3 land use—an institutional land use with primarily daytime use—for purposes of vibration and groundborne noise analysis. The FTA impact criteria for groundborne noise, measured in weighted decibels (dBA), are 40 dBA. A groundborne noise impact is projected at the Winters House because of the proximity of the alignment to the foundation of the building. The projected groundborne noise levels would range from 44 to 54 dBA.

For the Winters House, the operational vibration levels, measured in VdB, are projected to be 76 VdB, which would be below the FTA detailed impact criteria of 78 VdB for human annoyance. In addition, the projected operational vibration levels would be well below even the most stringent criteria for damage to structures, which is 90 VdB for buildings extremely susceptible to vibration. The Winters House is in a slightly less susceptible category, which is for nonengineered timber and masonry buildings, with a 94 VdB criteria for damage.

Under *Preferred Alternative B2M* with the C9T – East Main Station Design Option, there would be one vibration impact at a single-family residence due to the relocated crossover at SE 8th Street, as well as the same groundborne noise impact at the Winters House as described in the previous paragraphs.

Under all other Segment B alternatives, the only vibration impact would be to a single-family residence with Alternative B1. This impact would occur because of the proximity of the residence to the track and because high-frequency vibration travels easily through the ground in this area.

Segment C

The vibration impacts in Segment C would result from the proximity of the proposed alternatives and the speed of the light rail vehicles.

In addition to the residential land uses in this corridor, vibration and groundborne noise impacts were also assessed for the special sensitive receptors in this segment, including the Bellevue Arts Museum, the theater in Meydenbauer Center, the Overlake Hospital MRI Unit, the Overlake Hospital Optical Surgery Unit, as well as the MRI unit at the Group Health Medical Center. The results of the vibration analysis at these locations indicated there is no projected impact at the hospitals and MRI units. Details regarding the groundborne noise and vibration levels at these sensitive sites are included in Tables 4-2, 4-3, 4-4, and 7-3 of Appendix H2.

Under *Preferred Alternative C11A*, there would be vibration impacts at two single-family residences, three multifamily buildings, and one hotel.

Preferred Alternative C9T would result in vibration impacts at seven single-family residences and one hotel. Five of the single-family residential impacts would be due to the crossover on 112th Avenue SE. In addition, there would be a groundborne noise impact at the Meydenbauer Center. Under the C9T – East Main Station Design Option, the replacement of this crossover with the East Main Station would reduce the vibration impacts to two single-family residences and one hotel. The groundborne noise impact at the Meydenbauer Center would also still occur as described above under *Preferred Alternative C9T*.

Alternatives C2T connecting from B2A, B3, and B7, and Alternative C7E would not have any projected vibration impacts. All the other Segment C alternatives would have vibration impacts, with the greatest number of impacts occurring with Alternatives C4A, C8E, or C9A. The impacted structures would be mixed use buildings that have ground floor commercial uses with multifamily residences above. The distance to sensitive uses in these buildings might eliminate these impacts.

Segment D

No vibration impacts are projected for Segment D, including at the Children's Hospital BCSC medical facility.

Segment E

Preferred Alternative E2 would result in vibration impacts on three single-family residences. These vibration impacts would result because high-frequency vibration would travel easily through the ground in this area and because of the track's proximity to the residences. These impacts would also occur with the E2 - Redmond Transit Center Design Option.

For the other Segment E alternatives, vibration impacts would occur at three single-family residences with Alternative E1. Alternative E4 would have vibration impacts on one single-family residence, one multifamily building, and one hotel. These vibration impacts would be due to the proximity of the residences and because high-frequency vibration travels easily through the ground in this area.

Maintenance Facilities

Maintenance facility alternatives are not expected to result in any vibration impacts.

4.7.3.5 Impacts during Construction

This section summarizes potential construction noise and vibration impacts. More detailed information is provided in Appendix H2.

Noise

Noise related to construction would result from the operation of heavy equipment needed to construct the project. State and local ordinances regulate construction noise, and the contractor would be required to adhere to these regulations. This section provides a general understanding of average and worst-case noise levels from construction. Because of the varying types of construction activities, the location of noise-sensitive properties, distances from construction sites and staging areas to noise-sensitive properties, and other construction-related variables, it is not possible to provide exact construction noise levels.

The primary construction noise regulations are found in the WAC. The state provisions have been adopted, in some form, by most cities and counties around the state, including the Cities of Seattle, Bellevue, and Redmond. No specific construction noise ordinance was identified for Mercer Island, and therefore the Washington State construction ordinance would also be the governing criteria for construction activities on the island. Information in the WAC, which outlines the specific construction regulations for most locations, is provided below, followed by a construction noise analysis.

Sound Transit would, as practical, limit construction activities that produce the highest noise levels to daytime hours, or when disturbance to sensitive receivers would be minimized.

Contractors would be required to meet the criteria of the noise ordinance for the city within which they are working. Construction outside normal weekday hours (i.e., 7 a.m. to 10 p.m. for locations governed by the WAC) may require a noise variance from the city or county where the work is being performed. For example, the City of Bellevue only exempts construction noise from 7 a.m. to 6 p.m. on weekdays, and from 9 a.m. to 6 p.m. on Saturdays, so any major construction activities outside these hours in the City of Bellevue would require a noise variance.

It is also important to note that unlike the light rail noise analysis, which uses the Ldn and Leq for impact assessment, the WAC and other construction noise ordinances use several other noise metrics in addition to the Ldn and Leq. Instantaneous sound pressure levels in dBA (SPL in dBA), maximum 1-second noise levels in dBA (Lmax), and statistical noise descriptors are all terms that are used to ensure compliance with the WAC. Finally, because of possible restrictions on daytime construction along major arterials (because of traffic disruptions), it is likely that at least some construction along major corridors could occur during nighttime hours. Under alternatives with bored tunnels, it is likely that that the tunnel portals could operate 24 hours per day, and up to 7 days per week. Due to the WAC and local noise control regulations, work outside the allowable hours would require obtaining a noise variance from the local jurisdiction.

Listed below are allowable noise exceedances (referred to "as exempt") for general construction equipment, haul trucks, and alarms, as provided in the WAC.

- **General Equipment:** For construction activities, the limits in Table 4.7-3 may be exceeded between 7 a.m. and 10 p.m. on weekdays, and 9 a.m. and 10 p.m. on weekends, as shown in Table 4.7-4.
- **Haul Trucks:** Noise from haul trucks is exempt when operating on public roadways. Maximum permissible sound levels for haul trucks at the construction site are limited to 86 dBA for speeds of 35 mph or less and 90 dBA for speeds over 35 mph.
- **Alarms:** Sounds created by back-up alarms are exempt when operated for less than 30 minutes per incident.

Project Construction Phases

Several construction phases would be required to complete the East Link Project. This analysis assumes the worst-case noise levels based on three major construction phases, further defined in Table 4.7-9:

- Demolition, site preparation, and utility relocation
- Structure construction, track installation, and paving
- Miscellaneous activities

The actual noise levels experienced during construction would generally be lower than those presented in this section and in Table 4.7-9. The noise levels discussed here (and presented in Table 4.7-9) are for periods of maximum construction activity and are considered worst-case for the major phases of construction, measured at a distance of 50 feet from the construction site. Residential and commercial land uses are most sensitive to construction noise.

General Construction

In Segments B through E, constructing elevated guideways, at-grade trackways, tunnels, stations, and tunnel portals would increase the amount of truck traffic near construction staging areas. Haul truck and delivery truck volumes and times of travel would vary depending on the specific site activities occurring at any one time.

The highest levels shown in Table 4.7-9 would be experienced during the heaviest construction periods. Noise levels would be 5 to 15 dBA lower than the highest levels during minor construction work, such as finishing work and system installation. Constructing bridges and elevated structures might require pile driving, which could produce maximum noise levels of 99 to 105 dBA Lmax at 50 feet from the work site. Actual levels can vary and would depend on the distance and topographical conditions between the pile-driving location and the receiver location. Pile driving might be required in Segments B, C, D, and E for the elevated profiles and might also occur in areas of retained cuts in Segments C and D. Pile driving would be required to meet the WAC impact criteria. Following are segment-specific discussions related to construction noise.

Segment A

In Segment A under *Preferred Alternative A1*, most construction activities would occur during weekday daytime hours in the I-90 corridor, which is some distance from commercial and residential uses. Noise from construction could reach 75 to 78 dBA Lmax because of the distance between the construction and noise-sensitive properties and shielding from the retaining walls along I-90, and no impacts are expected.

Segment B

Preferred Alternative B2M and most other Segment B alternatives consist of a combination of elevated, retained cut, retained fill, and at-grade track types; therefore, the construction techniques for each alternative would be very similar. The main differences would be long-term fixed-site construction, such as those associated with the tunneling alternatives, compared with moving operations, such as paving, at-grade track construction, and elevated structure installations.

Under the Segment B alternatives single- and multifamily residences and several businesses could be affected by construction noise. Under *Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3, adjacent properties would experience maximum noise levels exceeding 80 dBA Lmax for short periods, assuming that these properties are 100 to 125 feet from the construction activity. Construction noise would occur when relocating utilities, installing retaining walls (where required), constructing the lidded retained cut at the Winters House under *Preferred Alternative B2M*, repaving Bellevue Way SE, and constructing the elevated guideways for *Preferred Alternative B2M* and Alternatives B2A, B2E, B3, and B7. Noise levels would be greatest for properties adjacent to Bellevue Way SE and near the elevated segments on I-90, but would be less for those located along 112th Avenue SE, where residences and business parks are set back farther from the project corridor in many places. During construction of elevated structures, noise from pile driving could produce Lmax noise levels of 98 to 105 dBA Lmax at 50 feet from the work site.

With Alternative B7, noise levels at the multifamily apartments and condominiums adjacent to the former BNSF Railway corridor could reach 80 dBA Lmax for short periods. Because this alternative is not on a major roadway, it is unlikely that nighttime work would be required near the noise-sensitive units. Construction of Alternative B7 would also increase noise at some commercial buildings;

In Segment B, construction noise would be exempt if performed between 7:00 a.m. and 6:00 p.m. Monday through Friday, and between 9:00 a.m. and 5:00 p.m. on Saturdays. Construction during all other hours would require authorization from the applicable Bellevue department director, consistent with the criteria set out in the City of Bellevue noise ordinance

TABLE 4.7-9
Maximum Noise Levels for Typical Construction Phases at 50 Feet from the Work Site

Scenario[a]	Equipment[b]	Lm[c]	Leq[d]
Demolition, site preparation, and utility relocation	Air compressors, backhoe, concrete pumps, crane, excavator, forklifts, haul trucks, loader, pumps, power plants, service trucks, tractor trailers, utility trucks, vibratory equipment	94	87
Structure construction, track installation, and paving	Air compressors, backhoe, cement mixers, concrete pumps, crane, forklifts, haul trucks, loader, pavers, pumps, power plants, service trucks, tractor trailers, utility trucks, vibratory equipment, welders	94	88
Miscellaneous activities	Air compressors, backhoe, crane, forklifts, haul trucks, loader, pumps, service trucks, tractor trailers, utility trucks, welders	91	83

Note: Combined worst-case noise levels for all equipment at a distance of 50 feet from work site.
[a] Operational conditions under which the noise levels are projected.
[b] Normal equipment in operation under the given scenario.
[c] Lm (dBA) is an average maximum noise emission for the construction equipment under the given scenario.
[d] Leq (dBA) is an energy average noise emission for construction equipment operating under the given scenario.

Segment C

In Segment C, the longest period of high-intensity construction activities would occur at cut-and-cover tunneling sites and bored tunnel staging areas. Maximum noise levels exceeding 80 dBA Lmax, assuming a distance of 100 to 125 feet from the construction activity, could occur during periods of heavy construction activity. Noise levels would be highest during periods of spoil hauling, when noise levels from haul trucks would be the dominant noise source, with maximum noise levels of 86 dBA Lmax at 50 feet. *Preferred Alternative C9T* would require such a staging area near the portals at Main Street, along NE 6th Street, and on 110th Avenue NE between NE 3rd Place and NE 2nd Place. Under *Preferred Alternative C11A*, staging areas would still be required; however, the level of activity at staging areas for the at-grade profile would typically be less intense than those for tunnels.

Noise levels near the tunnel portals and at-grade alignments along 112th Avenue SE and Main Street with *Preferred Alternatives C11A* and *C9T*, and Alternatives C2T, C3T, C4A, C7E, and C9A, and on Bellevue Way for Alternative C1T, could exceed 80 dBA Lmax at nearby residences during heavy construction periods. Noise levels near the tunnel portals and construction areas during general construction activities are predicted to range from 73 to 84 dBA Lmax at 50 feet from the work site. Similar levels are projected along NE 6th Street with *Preferred Alternative C9T* and Alternatives C1T and C2T. Staging areas along NE 12th Street and McCormick Park for Alternatives C3T, C4A, and C8E would also experience similar noise levels. To construct elevated structures along 112th Avenue NE under Alternative C7E and along 110th Avenue NE under Alternative C8E, maximum noise levels would range from 80 to 85 dBA Lmax at 50 feet from the project construction area. Constructing the light rail along NE 12th Street would increase noise levels at Overlake Hospital. The hospital parking garage would provide shielding for some patient rooms. Construction noise under the other two at-grade alternatives (C4A and C9A) would be similar to those described for *Preferred Alternative C11A*, although Alternative C4A would occur along 108th Avenue NE and 110th Avenue NE, and Alternative C9A would occur only along 110th Avenue NE.

As previously described for Segment B, construction noise in Segment C would be exempt if performed between 7:00 a.m. and 6:00 p.m. Monday through Friday, and between 9:00 a.m. and 5:00 p.m. on Saturdays. Construction during all other hours would not be exempt under the City of Bellevue noise ordinance, and would require a noise variance.

Segment D

In Segment D, *Preferred Alternative D2A* and the other alternatives would produce construction-related noise levels similar to those already discussed in Segments B and C. In Segment D, however, there are fewer residences; therefore, construction noise is not expected to impact as many residences as in Segments B or C.

Constructing the at-grade and elevated profiles through Segment D would result in short-term high noise levels at commercial and retail structures located along the corridor. Constructing the light rail along NE 12th Street would increase noise levels at the Children's Hospital BCSC. Levels would increase to the levels listed in Table 4.7-9 when construction activities are near these properties and would decrease as the activities move away.

Commercial and retail land uses along the proposed corridors would experience maximum noise levels of 80 dBA Lmax, assuming 100 to 125 feet from the construction activity. Constructing Segment D along the south and east shoulder of SR 520 would also increase construction noise and traffic east of 140th Avenue NE to the Segment E connection, depending on the alternative selected. In this area, maximum construction noise levels of 91 to 94 dBA Lmax can be expected for short periods, with typical hourly average noise levels ranging between 70 and 80 dBA Lmax at 50 feet.

Because Segment D is situated in Bellevue and Redmond, two construction noise regulations would apply. In this type of situation, the contract specifications typically would use the most stringent regulations in most areas to ensure compliance. Therefore, in most areas construction noise would be exempt if performed between 7:00 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturdays. However, in the Overlake area, it might be possible for work to continue later in the day because the WAC regulations allow for construction until 10:00 p.m. on weekdays.

Segment E

Constructing *Preferred Alternative E2*, and the other Segment E alternatives along the shoulder of SR 520 from NE 40th Street to West Lake Sammamish Parkway NE, could result in relocating sound walls along the single-family residential area along 156th Avenue NE. During that time, construction noise and traffic would increase for the residential area north of NE 51st Street to maximum noise levels exceeding

80 dBA Lmax, assuming 100 to 125 feet from the construction activity.

Constructing the elevated structures and at-grade profiles would elevate noise levels at the multifamily units along West Lake Sammamish Parkway NE, 156th Place NE, and along Leary Way NE because Alternatives E1 and E4 would require using heavy construction in this immediate area. Pile driving for the Sammamish River crossing for all alternatives and along Leary Way NE for Alternative E4 could result in peak levels exceeding 100 dBA Lmax. In Downtown Redmond, construction noise would be prevalent along the former BNSF Railway corridor under all Segment E alternatives. Constructing the E2 - Redmond Transit Center Design Option would increase noise levels along 161st Avenue NE.

Maintenance Facilities
Construction of the potential maintenance facility alternatives located in Segment D (MF1, MF2, and MF3) could have some impact on adjacent properties. MF1 would have the most likelihood of noise impacts during construction because it is located near several single-family residences and the Children's Hospital BCSC. The MF2 and MF3 maintenance facility alternative sites are located in primarily industrial and commercial areas, which are generally less sensitive to construction noise levels. MF5 would be in an area of primarily commercial use and high existing noise levels, reducing the potential for construction noise impacts.

Vibration

Construction vibration, similar to noise, is highly dependent on the specific equipment and methods employed. Construction vibrations cause a variety of potential effects, ranging from influence on vibration-sensitive equipment and low rumbling or groundborne noise at lower levels, perceptible human vibrations at moderate levels, and potential slight damage to buildings at the highest levels. Generally, construction vibrations are assessed at locations where prolonged annoyance or damage would be expected.

In most cases, the main concern for construction vibration is potential damage to structures. Most construction processes do not generate high enough vibration levels to approach damage criteria. The thresholds for building damage are 1 to 2 orders of magnitude higher than criteria for annoyance. Because construction is a short-term, temporary impact, the potential for structural damage is considered more critical than the potential for annoyance. The only time annoyance is usually addressed for construction vibration is for longer-term impacts, such as those related to the tunneling in Segment C. However, the thresholds for annoyance from construction vibration are substantially lower than those for damage to structures.

The major sources of construction vibration include impact pile driving, augered piling, vibratory rollers, and tunnel boring machines, including associated muck trains. The only project activity with potential to cause building damage is impact pile driving at locations within 25 feet of structures. The Coast Bellevue Hotel is the only structure within 25 feet of *Preferred Alternative C9T* and Alternative C9A. If pile driving were performed at this location, there would be the potential for damage.

There are many alternatives to impact pile driving, including sonic pile driving, and augered or drilled pile construction. Specific locations of piling would not be available until final design, but would likely include locations of elevated structures or retained cuts approaching tunnels. As specific locations of piles are developed, more analysis would be conducted to assess specific impacts. To prevent damage, care would be taken not to pile drive too close to buildings.

Constructing a retained cut near the Winters House, including construction of underground piles to structurally support the cut, could result in vibration impacts. Because of the property's age and type, damage to the building could occur without construction vibration-minimization techniques. The criteria for damage for this type of structure are 94 VdB or 0.2 peak particle velocity (PPV); construction vibration is projected to be 0.2 PPV. Using the techniques and construction methods described below as mitigation would prevent vibration damage or limit damage to minor cosmetic damage. For a discussion of vibration descriptors and damage criteria, refer to Sections 2.2 and 4.5 in Appendix H2.

In order to assess the potential for annoyance from construction vibration, vibration levels for impact pile driving, vibratory rolling, tunneling and muck trains were predicted for the ground floors inside buildings using conservative assumptions. These assumptions include no coupling attenuation (i.e., reduction in vibration levels due to the foundation of the building) for single-family residences, a 10-decibel building coupling attenuation for large masonry buildings, and no floor-to-floor attenuation. The criteria used to assess construction vibration and groundborne noise are the same as those used to assess transit operation impacts.

Table 4.7-10 shows the typical distances at which groundborne vibration annoyance would occur for both single-family residences and large masonry buildings for each piece of construction equipment. The only locations where impacts from tunnel boring and muck trains could occur would be in the tunnel alternative segments. Impacts from pile driving would only occur at locations where piling is planned.

TABLE 4.7-10
Typical Distances from Sources to Vibration and Groundborne Noise Impact

Construction Equipment	Distance to Groundborne Vibration Impact (feet)	Distance to Groundborne Noise Impact (feet) [a]
Tunnel-boring machine in soil (large masonry buildings)	6	7
Tunnel-boring machine in soil (single-family residences)	13	14
Muck trains (large masonry buildings)	8	24
Muck trains (single-family residences)	16	51
Vibratory roller (large masonry buildings)	18	N/A
Vibratory roller (single-family residences)	36	N/A
Impact pile driving (large masonry buildings)	70	N/A
Impact pile driving (single-family residences)	150	N/A

[a] Groundborne noise is only assessed for tunnel locations.

At all other locations, the vibration generated by construction activities would be minimal. However, most activities would be far enough away from buildings that there would not be any impacts.

It is important to note that these are temporary impacts, and the annoyance from these activities would be very limited in duration. For most activities, including tunneling, the duration would be only a few days to a few weeks for each activity. The only activity with a longer duration would be the muck trains near the portals of the tunnels, which could be running between 1 month and 18 months, depending on the tunnel alternative chosen and the speed of tunneling. Sound Transit's experience in monitoring vibration during tunneling on Central Link has found no vibration impacts associated with annoyance to residences throughout the length of the tunnel.

For more information on construction vibration, refer to Appendix H2.

4.7.4 Station Platform Noise Levels

Because of the unique setting of several stations in proximity to major freeways, Sound Transit modeled potential noise levels at proposed station platforms where light rail patrons might be exposed to noise from heavy freeway traffic volumes. These stations included the Rainier, Mercer Island, and Ashwood/ Hospital stations, which are all located within or above a major freeway. The proposed East Link operations plan would result in a typical maximum of 15 minutes between train arrivals at any of these stations, and therefore 15 minutes would typically be the longest period patrons would be exposed to noise while waiting for trains to arrival. Although it is possible that a patron could wait up to 15 minutes or more (if trains are running late), the Leq over a 20-minute period is expected to be the same as for a 15-minute period because of the steady-state nature of traffic along SR 520.

There are no federal standards for noise exposure on transit passengers at station platforms due to traffic noise. The National Institute for Occupational Safety and Health (NIOSH) standard for workplace noise exposure is 85 dBA for up to 8 hours, or 100 dBA for 15 minutes (NIOSH, 1998). The U.S. Environmental Protection Agency (EPA) states that communication at close proximity (2 to 4 feet) can be understood with ambient noise levels of 72 to 78 dBA (EPA, 1974). For contextual comparison, Sound Transit measured noise levels at two existing flyer bus stops located adjacent to heavy freeway traffic. Existing noise levels at the Rainer I-90 flyer stop were measured at 76 dBA Leq, while the typical existing noise level at the SR 520 flyer stop at Montlake was 81 dBA Leq. Based on these standards and existing bus flyer stop noise levels, Sound Transit will use a 78 dBA 15-minute Leq platform noise level goal for designing stations within or above freeways, where reasonable and feasible.

During peak noise hours, station patrons may experience noise levels ranging as high as 85 to 86 dBA at the Rainier Station and 88 dBA at the Mercer Island Station. The higher noise levels on Mercer Island are due to the highway's retained cut and traffic noise being reflected around the station platform off the adjacent retaining walls. Sound Transit would consider including noise-reducing sound walls between the tracks and I-90 traffic lanes for both stations. Modeling sound walls for each station shows that they would reduce noise levels by approximately 8 to 10 dBA on the platform, bringing the station platform noise at both sites to within Sound Transit's station platform design goal of

78 dBA. Complete details on the station analysis are provided in Appendix H2.

4.7.5 Potential Mitigation Measures

4.7.5.1 Noise Mitigation During Operation

Sound Transit is committed to minimizing noise levels at the source. This includes using only state-of-the-art vehicles equipped with wheel skirts to reduce noise. In addition, Sound Transit has committed to a maintenance program that includes periodic rail grinding or replacement, wheel truing or replacement, vehicle maintenance, and operator training, which all help to reduce noise levels along transit corridors. For noise impacts that still exist after these source noise treatments, noise mitigation measures would be provided that are consistent with Sound Transit's Light Rail Noise Mitigation Policy (Motion No. M2004-08). The FTA manual also defines when mitigation is needed and bases this on the impact's severity, with severe impacts requiring the most consideration. During final design, all impacts and mitigation measures will be reviewed for verification. During final design, if it is discovered that mitigation can be achieved by a less costly means or if the detailed analysis show no impact, then the mitigation measure may be eliminated or modified.

The mitigation proposed below follows Sound Transit policy. Table 4.7-6 summarizes potential project light rail and traffic noise mitigation for each alternative.

Transit Noise Mitigation

The potential mitigation options available for noise from transit operations on the East Link Project are primarily sound walls, special trackwork, lubricated curves, and residential building sound insulation. Sound walls are proposed where feasible and reasonable, as determined by Sound Transit based on specific site conditions. Sound walls would be located on the ground for at-grade profiles and on the guideway structure for elevated profiles. Sound walls are preferred because they are effective at reducing noise. For locations where there is a potential for traffic noise to be reflected off the sound walls, Sound Transit would propose to use absorptive treatments to remedy this issue.

A crossover track uses a frog (a rail-crossing structure) to allow the train to either cross over to another track or continue moving on the same track. A gap is provided on top of the frog so that vehicle wheels can pass regardless of which track is in use. With typical frogs, noise and vibration are generated when the wheels pass over the gap. Special trackwork, such as movable point or spring rail frogs, eliminates the gap between tracks at crossovers that causes noise and vibration at these locations.

Sound Transit is currently investigating the use of non-audible warnings for gated and ungated at-grade crossings. If non-audible warning devices are found to be viable, this option could be used to reduce or eliminate bell noise at specific crossings. Where practical, grade separation of at-grade light rail crossings would also be considered to eliminate the need for bells or other audible warning devices. If bells are used at gated crossings, the bells would be set at the minimum noise level that maintains a safe crossing. Finally, the use of acoustic bell shrouds would be examined during final design; the shrouds would direct the bell noise at gated crossings to the intersection.

When source mitigation measures or sound walls are infeasible or not entirely effective at reducing noise levels below the FTA impact criteria, then residential sound insulation would be evaluated and implemented at impacted properties where the existing building does not already achieve a sufficient exterior-to-interior reduction of noise levels. Many newer buildings, particularly in Downtown Bellevue, have good interior noise reduction and additional sound insulation may not be necessary.

Consistent with FTA methods and criteria, residential properties are considered "noise-sensitive" because people sleep there and "nighttime sensitivity to noise is assumed to be of utmost importance" (FTA, 2006). Accordingly, FTA analysis methods artificially increase measured existing noise and predicted project noise levels by 10 dBA (a perceived doubling of the noise level by most people) between 10:00 p.m. and 7:00 a.m. While noise measurements and impacts are analyzed at the exterior of residential properties, FTA methods clearly emphasize noise sensitivity for residential properties at night, because project noise could affect the ability of people to sleep. During the daytime hours, light rail noise levels are very similar to (in many cases less than) common noise levels in urban settings like Downtown Bellevue or along transportation corridors (like I-90, Bellevue Way, 112th Avenue SE, or I-405) where the predominant noise is from existing traffic (buses, trucks, and heavy traffic volumes). During those times of the day when outdoor uses are most frequent, noise from light rail would typically be less noticeable because of the higher ambient noise levels from traffic and other urban sources.

Traffic Noise Mitigation

Traffic noise impacts would be mitigated by sound walls, where determined to be reasonable and feasible.

For locations with residual traffic noise impacts caused by the project, sound insulation might also be considered by Sound Transit. Use of FHWA or WSDOT funds to insulate residences from sound for traffic noise abatement is allowed only in specific situations. Federal regulation 23 CFR 772.13(c)(6), and WSDOT and FHWA policies and procedures limit sound insulation for traffic noise abatement to public use or nonprofit institutional structures and only in situations where a barrier is ineffective, unreasonable, and/or infeasible and interior noise levels are above the impact criteria. Sound insulation of residences is allowed only when noise impacts are severe (i.e., above 80 dBA exterior or above 60 dBA interior) and no other type of abatement is possible. In contrast, Sound Transit considers residential sound insulation for any noise impacts related to light rail projects if a sound wall is ineffective, unreasonable, and/or infeasible.

Segment A

In Segment A, the only potential noise impact resulting from *Preferred Alternative A1* would be near the transition from the Mount Baker Ridge Tunnel to the floating bridge structures. A light rail expansion joint would be required to allow for bridge movement; as a result, increased noise related to this joint could occur. If, after testing of the expansion joint prototype, the expansion joint near the Mount Baker Ridge Tunnel were determined to cause a noise impact, then mitigation would likely be a short, absorbent sound wall along the structure's side or absorbent material applied to the existing traffic safety barriers.

To reduce noise levels on the Rainier Station and Mercer Island Station platforms, Sound Transit would incorporate design measures to reduce freeway noise for patrons waiting at station platforms.

Segment B

In Segment B, mitigation measures under *Preferred Alternative B2M* when connecting to *Preferred Alternative C11A* would include a sound wall running continuously from the elevated section on I-90 to the retained cut section south of the Winters House along Bellevue Way SE. North of the 112th Avenue SE intersection, a sound wall is proposed at-grade, along the west side of the guideway, to just south of the Bellefield Residential Park Condominiums. A new sound wall would start along the west side of 112th Avenue SE and continue to the Segment C connection. The second sound wall would need to overlap with the first wall and would be effective at reducing traffic noise at the Bellefield Residential Park Condominiums. Openings in the wall would be required for vehicle and pedestrian access to the Bellefield Residential Park Condominiums, reducing the overall effectiveness. Supplemental sound insulation might also be required at six multifamily and four single-family residences.

Noise mitigation for *Preferred Alternative B2M* when connecting to *Preferred Alternative C9T* would be identical to *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* south of 112th Avenue SE. A second wall would be installed just north of the 112th Avenue SE intersection, on the west side of the guideway, to just north of the SE 8th Station. Openings would be required for pedestrian and vehicle access at SE 15th Street and SE 8th Street. Special trackwork would also be used for the crossovers. Up to ten residences along 112th Avenue SE might also be provided with sound insulation to complete the noise mitigation measures if the sound walls are not effective at mitigating all impacts.

Impacts under *Preferred Alternative B2M* connecting to C9T – East Main Station Design Option would be similar to *Preferred Alternative B2M* connecting to *Preferred Alternative C9T*; therefore, the proposed mitigation would be similar to that described above for *Preferred Alternative B2M* to *Preferred Alternative C9T*.

For the other Segment B alternatives, a combination of sound walls and sound insulation would be used to mitigate impacts, except for Alternative B7, where all impacts could be mitigated with sound walls. In addition, all crossovers near noise-sensitive properties would include special trackwork to mitigate crossover-related impacts.

There are several locations along Bellevue Way under Alternative B1 where sound walls would block local access, and therefore sound insulation might be considered as the primary mitigation measure. Under Alternatives B2A, B2E, and B3 (including the B3 - 114th Extension Design Option), sound walls would be installed beginning at I-90 and continue past the South Bellevue Park-and-Ride. Under Alternative B2E, the walls would be continuous through to Segment C. Under Alternatives B2A and B3, the walls would end just south of 112th Avenue SE, and several homes in along 112th Avenue SE would be treated with sound insulation. Sound walls would also be used north of the 112th Avenue SE intersection, continuing to Segment C under Alternative B2A, and with the elevated structure for Alternative B3 and the B3 - 114th Extension Design Option. There would be three sound walls along Alternative B7: one along I-90 near Bellevue Way SE, one at the multifamily units north of I-90 along 118th

Avenue SE, and one at a multifamily community near the former BNSF Railway corridor I-405 crossing.

Segment C

In Segment C under *Preferred Alternative C11A* from *Preferred Alternative B2M*, mitigation would include a sound wall along the west side of the alignment beginning near SE 6th Street and continue as a sound barrier to 108th Avenue NE, just south of Main Street. The wall would be located near the tracks on the retained fill and elevated structure to the 108th Station. The sound wall/barrier, along with special trackwork at the crossover along 112th Avenue SE, would mitigate all impacts along this section of the corridor. Sound walls and special trackwork for the crossover would also be used to mitigate impacts on the Coast Bellevue Hotel and Lake Bellevue Village Condominiums. Multifamily units located on Main Street, 108th Avenue NE, and NE 6th Street would be mitigated with sound insulation where necessary. Under connections from B3, B3 - 114th Extension Design Option, or B7, sound walls along the elevated structure would be used for mitigation.

Noise mitigation under *Preferred Alternative C9T* from *Preferred Alternative B2M*, would be similar to that proposed for *Preferred Alternative C11A* and would also include a sound wall along the west side of the alignment beginning near SE 6th Street continuing to the tunnel transition. The wall would likely be located on a retaining wall to the west of the tracks, with final placement determined during final design. This sound wall, along with special trackwork at the crossover along 112th Avenue SE, would mitigate all impacts along this section of the corridor. Sound walls and special trackwork at the crossover would also be used to mitigate impacts on the Coast Bellevue Hotel and Lake Bellevue Village Condominiums. Impacts located on SE 4th Street would be mitigated with a sound wall if possible, otherwise sound insulation would be employed for mitigation. Single- and multifamily units located on Main Street and NE 6th Street would be mitigated with sound insulation where necessary. Under connections from B3, B3 - 114th Extension Design Option, or B7, sound walls along the elevated structure would be used for mitigation.

For the other Segment C alternatives, impacts from the elevated portions could be mitigated with sound walls, while the areas with at-grade profiles could require sound insulation. As with Segment B, crossover related impacts would be mitigated with special trackwork.

There are several traffic noise impacts under Alternative C1T on Bellevue Way that would likely receive sound insulation because sound walls would not be effective due to openings for driveways. Sound insulation would also be used for multifamily units in the Downtown Bellevue area. Finally, east of I-405, a combination of sound walls and special trackwork would mitigate the remaining impacts at the Coast Bellevue Hotel and the Lake Bellevue Village Condominiums. This same mitigation would be used for all alternatives following the same general alignment east of I-405, including Alternatives C2T, C9A, and C14E. Even though Alternative C14E runs north of the Coast Bellevue Hotel, sound walls and special trackwork would still be employed.

South of Main Street, all Segment C alternative connections from Alternatives B2A or B2E along 112th Avenue SE would provide mitigation with a combination of sound walls and special trackwork, except Alternatives C2T and C3T from B2A, which would be in a tunnel in this area. For connections from Alternatives B3, B3 - 114th Extension Design Option, and B7, mitigation would include sound walls along the elevated structures.

Through Downtown Bellevue and the central business district, at-grade alternatives would use sound insulation where existing buildings do not provide sufficient sound reduction because there is no other form of mitigation available for the high-rise residences. Elevated guideways in the same area would use sound walls as the primary form of mitigation. North of Downtown Bellevue along NE 12th Street, under Alternatives C3T, C4A, and C8E, a combination of sound walls, where practical, and sound insulation would be the recommended mitigation measures.

Segment D

There are no anticipated noise impacts for *Preferred Alternative D2A* or the D2A design options, so no noise mitigation is proposed.

For Segment D alternatives that connect to Segment C on NE 12th Street (i.e., Alternatives D2E, D3, and D5), the mitigation for the Children's Hospital BCSC impact would be a sound wall along the north side of the tracks. The impact on the Pacific Northwest Ballet School under Alternative D2E would be reviewed during final design because there are no apparent exterior uses at this facility. Based on a site visit, the interior areas of the building are expected to have noise levels compatible with a school, and additional mitigation may not be warranted. Under Alternative D5, a sound wall would be required near the multifamily units south of SR 520 for both the NE 12th Street and the former BNSF Railway corridor connections to Segment C.

Segment E

Noise mitigation for *Preferred Alternative E2* and the E2 - Redmond Transit Center Design Option would include sound walls along the elevated structures from SR 520, near NE 67th Place, to the at-grade transition by Marymoor Park. All remaining noise impacts would occur at high-rise apartments on Cleveland Street and a hotel on NE 76th Street. If necessary, sound insulation along with special trackwork for the crossover would be used to mitigate these impacts. Under the E2 - Redmond Transit Center Design Option, one of the buildings impacted under *Preferred Alternative E2* would no longer have noise impacts, however, a separate new multifamily building on 161st Avenue NE north of Redmond Way is predicted to have noise impacts, and would receive sound insulation for noise mitigation if necessary.

Alternatives E1 and E4 would both have a sound wall along the at-grade and retained fill transitions to an elevated structure near NE 67th Place. There would also be sound walls along the elevated structures as they transition to the at-grade profiles. All other noise impacts, including those along the former BNSF Railway corridor, would be mitigated with sound insulation. All crossovers would receive special trackwork to keep crossover noise to a minimum.

When Segment E is funded and the design is advanced, Sound Transit will evaluate potential noise impacts again at Marymoor Park, based on the uses in place at that time, consistent with FTA methods and criteria.

Maintenance Facilities

There are three maintenance facility alternatives in Segment D. MF1 is located near several single-family residences, a hospital, and several office buildings. Of the three Segment D maintenance facility options, MF1 has the highest potential for noise impacts. Because noise impacts were identified at the Children's Hospital BCSC, mitigation measures were evaluated for the MF1 site. Noise impacts would be mitigated through the installation of a sound wall approximately 12 feet in height along the southern part of the site. The proposed sound wall would mitigate the noise impact at the hospital. MF2 and MF3 are in established industrial areas and are not anticipated to result in any exceedance of the City of Bellevue noise control ordinance. During the facility design process, mitigation measures (such as lubricating rails on curves and locating compressors and other noise-producing sources in buildings or in a part of the facility that would be shielded from the residences) could be included in the design to ensure compliance with the City of Bellevue noise control ordinance. If necessary, a sound wall could also be installed along the site perimeter to block noise from affecting nearby noise-sensitive properties.

There is one maintenance facility alternative in Segment E. MF5 is in an established industrial area and is not anticipated to result in any exceedance of the City of Redmond noise control ordinance. During the facility design process, if noise impacts are identified, mitigation measures could be included in the design to ensure compliance with the City of Redmond noise control ordinance.

Wheel Squeal

For curves of 600-foot radius or less, a trackside or vehicle-mounted lubrication system would be used to mitigate wheel squeal noise. For curves of 600- to 1,000-foot radius, the project would be designed to accommodate a lubrication system if wheel squeal occurs during operations.

4.7.5.2 Construction Noise Mitigation Measures

As previously described, several different jurisdictions are responsible for the regulation of construction noise. In addition, most daytime construction activities would be exempt from the noise control ordinances. When required, Sound Transit or its contractor would seek the appropriate noise variance from the local jurisdiction. Sound Transit would control nighttime construction noise levels by applying noise level limits, established through the variance process, and use noise control measures where necessary. The contractor would have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet these noise limits. Noise control mitigation for nighttime or daytime work may include the following measures, as necessary, to meet required noise limits:

- Install construction site noise barrier wall by noise-sensitive receivers.
- During nighttime work, use smart backup alarms that automatically adjust or lower the alarm level or tone based on the background noise level, or switch off back-up alarms and replace with spotters.
- Use low-noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Conduct monitoring and maintenance of equipment to meet noise limits.
- Use lined or covered storage bins, conveyors, and chutes with sound-deadening material.

- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Install high-grade engine exhaust silencers and engine-casing sound insulation.
- Prohibit aboveground jack-hammering and impact pile driving during nighttime hours.
- Minimize the use of generators or use whisper quiet generators to power equipment.
- Limit use of public address systems.
- Use movable noise barriers at the source of the construction activity.
- Limit or avoid certain noisy activities during nighttime hours.

Pile driving might be required in Segments B, C, D, and E for construction of elevated profiles and bridges, and might also occur in areas of retained cuts in Segments C and D. To mitigate noise related to pile driving, the use of an augur to install the piles instead of a pile driver would greatly reduce the noise levels. If pile driving is necessary, the only mitigation would be to limit the time of day the activity can occur. Pile driving is not expected at most construction locations.

No segment-specific construction mitigation would be necessary for Segments A, B, or D during allowable daytime construction hours. In Segment C, at the tunnel staging areas near the Surrey Downs neighborhood and McCormick Park, a mitigation measure that could be used includes construction of temporary noise barriers adjacent to the construction staging area. Construction of Segment E alternatives along SR 520 near NE 51st Street could require moving existing sound walls and, if practical, these would be replaced early in project construction.

4.7.5.3 Vibration Mitigation During Operation

Vibration and groundborne noise impacts that exceed FTA criteria warrant mitigation when determined to be reasonable and feasible. The locations requiring mitigation in Table 4.7-8 would be refined during final design. At some locations, however, light rail trackways or guideways would be within 20 feet of buildings and vibration mitigation would not be effective at reducing the vibration level to below the FTA criteria. Exhibits 4.7-7 through 4.7-11 identify these locations as residual vibration impacts. At these locations, project design modification and additional information on affected buildings could eliminate these impacts. For instance, the type of building foundation might reduce vibration impacts and therefore, these residual impacts might be eliminated. In addition, each building would need to be examined in detail to determine where the vibration-sensitive uses are located. For example, the side of a building nearest the proposed alternative might be a vibration-sensitive use. Buildings that are mixed use might not have sensitive uses on lower floors where impacts would occur, and the vibration would not be noticeable by the time it reached higher floors with sensitive uses, such as sleeping quarters. Outdoor-to-indoor vibration testing, which tests how the vibration changes from the soil outside to a sensitive space inside a building, would also help to refine the vibration projections at these locations. A summary of segment-specific vibration mitigation is provided below.

Options for mitigating vibration impacts include the following:

- Install ballast mats, which consist of a pad made of rubber or rubberlike material placed on an asphalt or concrete base with the normal ballast, ties, and rail on top. The reduction in groundborne vibration provided by a ballast mat is strongly dependent on the vibration frequency content and the design and support of the mat.
- Use resilient fasteners to provide vibration isolation between rails and concrete slabs for direct fixation track typically on elevated structures or in tunnels. These fasteners include a soft, resilient element between the rail and concrete to provide greater vibration isolation than standard rail fasteners.
- Use tire-derived aggregate (TDA), which consists of shredded tires wrapped with filter fabric that is added to the base below the track ties.
- Install special trackwork, such as movable point or spring rail frogs, to eliminate the gap between tracks at crossovers that causes noise and vibration at these locations.
- Install floating slabs, which consist of thick concrete slabs supported by resilient pads on a concrete foundation; the tracks are mounted on top of the floating slab. Although floating slabs are designed to reduce vibration at lower frequencies than ballast mats, they are extremely expensive and are rarely used, except in the most extreme situations. Most successful floating slab installations are in subways, and their use for at-grade track is less common and often not reasonable.

In Segment A, approximately 1,900 feet of vibration mitigation would be required along the Mount Baker

Ridge Tunnel area to mitigate groundborne noise impacts at single-family homes along the top of the hillside. No other vibration impacts were identified in Segment A.

In Segment B, mitigation measures under *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* or *C9T* would include up to 600 feet of vibration isolation at the Winters House. Standard vibration mitigation methods, such as resilient fasteners or ballast mats, would reduce the groundborne noise level at the Winters House, but might not eliminate the impact and would be determined in final design. A floating slab might be needed to eliminate the groundborne noise impact. For *Preferred Alternative B2M* connecting to C9T – East Main Station Design Option, the crossover located at SE 8th Street would need to be relocated or special trackwork would need to be used to eliminate the gap due to the crossover. The only other vibration impact in Segment B would be with Alternative B1, where vibration mitigation would be required at one single-family residence near SE 13th Street.

In Segment C, under *Preferred Alternative C11A*, vibration mitigation would be required at two single-family residences south of Main Street, three multifamily structures along 108th Avenue NE, and the elevated structure by the Coast Bellevue Hotel. Under *Preferred Alternative C9T*, vibration mitigation would also be required at the same two single-family residences and the Coast Bellevue Hotel identified under *Preferred Alternative C11A*, along with five single-family residences near the crossover on 112th Avenue SE. These five single-family residential impacts could be eliminated by the relocation of the crossover or the use of special trackwork to eliminate the gap. Both *Preferred Alternatives C9T* and *C11A* identified groundborne noise impacts at the Meydenbauer Center, a highly sensitive location, where impacts would be mitigated using ballast mats or resilient rail fasteners. For the Alternative C9T – East Main Station Design Option, the impacts and required mitigation would be identical to that described above under *Preferred Alternative C9T*, except for the five single-family residences on 112th Avenue SE, which would not have vibration impacts under this design option because the crossover would be relocated to Segment B and replaced with the East Main Station.

Vibration mitigation under Alternative C1T would be included near the tunnel portal and tunnel segment along Bellevue Way for two single-family residences, and on the elevated structure for the Coast Bellevue Hotel. Under Alternative C2T mitigation would only be required at one single-family residence south of Main Street when connecting to Alternative B2E. No other vibration or groundborne noise impacts were identified under Alternative C2T.

With Alternative C3T, the connection to Alternative B2A would require mitigation for groundborne noise at 11 single-family residences. All of the impacts are located on top of the tunnel south of Main Street. Under the Alternative C3T connection to Alternatives B2E, B3 or B7, only one single-family residence, on the south side of Main Street, is identified as having a groundborne noise impact. Alternative C4A would require vibration mitigation for six multifamily residences and one single-family residence, regardless of the connection options. The multifamily noise impacts are along 108th and 110th Avenues NE, while the single-family impact is just south of Main Street.

With Alternative C7E no vibration or groundborne noise impacts are predicted. Alternative C8E would have vibration mitigation along the elevated guideway just north of Main Street for a hotel and multifamily residence, and again along 108th Avenue NE for two additional multifamily units. There would also be vibration mitigation north of NE 12th Street to mitigate two single-family residences with vibration impacts. Alternative C9A would require vibration mitigation for two single-family residences south of Main Street, three multifamily residences along 110th Avenue NE, and at the Coast Bellevue Hotel. Alternative C14E would also require vibration mitigation along the elevated guideway for impacts predicted at three hotels.

There would be no vibration or groundborne noise impacts in Segment D, and no vibration mitigation is recommended.

With *Preferred Alternative E2* and the E2 – Redmond Transit Center Design Option, an estimated 700 feet of vibration mitigation would be required along SR 520 to mitigate vibration impacts on three single-family residences. Vibration impacts and mitigation would be the same under Alternative E1 as described for *Preferred Alternative E2*. With Alternative E4, vibration mitigation would be required at one single-family residence along SR 520, a group of multifamily units off Leary Way, and the Residence Inn Hotel.

4.7.5.4 Construction Vibration Mitigation Measures

In general, building damage from construction vibration would only be anticipated from impact pile driving close to buildings. If piling is more than 50 to 100 feet from buildings, or if alternative methods, such as auger cast piling or drilled shafts are used, then damage from construction would not be anticipated. Other sources of construction vibration, including potential ground improvement activities in Segment B such as construction of subsurface stone columns, could generate high enough vibration levels for localized damage to occur, depending on the soil type and distance between the source of vibration and the nearest building. In any locations of concern, preconstruction surveys would be conducted to document the existing condition of buildings, in case there was an issue during or after construction, and vibration monitoring would be implemented during construction to establish levels of vibration. Where levels of vibration exceed preset limits for damage, the contractor would be required to stop work and switch to alternate construction methods.

Measures to minimize short-term annoyance from groundborne vibration and groundborne noise from construction activities such as pile installation or compaction of earth fills include use of alternate methods that result in less vibration or noise, such as auger cast piles or drilled shafts in place of driven piles, or use of static roller compactors rather than vibratory compactors. The hours and duration of these types of activities can also be restricted to hours when vibrations and noise are less noticeable. Vibration monitoring would be considered for pile driving, tunnel construction, vibratory sheet installation, and other construction activities that have the potential to cause high levels of vibration.

Sound Transit would minimize vibration at the Winters House during construction and prevent damage or limit to minor cosmetic damage by using the following methods:

- Install monitoring equipment and monitor vibration during construction.
- Place limits on the construction vibration levels for the contractor, with the contractor selecting one or more of the following measures or other measures of equivalent effectiveness to limit construction:
  - Using auger-drilling methods
  - Using low vibration or nonimpact methods of installing steel casing required to support construction of drilled shaft or secant pile foundations
  - Using slurry confinement (i.e., temporarily filling the cavity with slurry material to replace the removed soil)
  - Underpinning foundation and employing structural support or soil stabilization if needed
  - Adjusting excavation methods based on monitoring results
  - Installing a shallow temporary supporting wall
  - Monitoring vibration levels associated with equipment to be used for the East Link Project at other construction sites with similar soils before project construction to determine which vibration-minimization method would be necessary
  - Beginning vibration-inducing construction at the site at points more distant from the Winters House to enable the contractor to determine which vibration-minimization method would be necessary
  - Photograph and inventory the building to establish existing conditions to determine if any damage is caused by construction, and repair the building in a manner consistent with the U.S. Department of the Interior Secretary's standards for treating historic properties.

4.8 Ecosystem Resources

4.8.1 Introduction and Regulatory Requirements

An ecosystem is a system formed by the interaction of a community of organisms with its environment (Webster's College Dictionary, 1991). Ecosystems are composed of living organisms, including humans, and the environment they inhabit. Understanding this relationship is basic to the environmental review process and the assessment of impacts on ecosystems. Sound Transit identified vegetation, wetlands, and aquatic habitat in the study area that would support fish and wildlife.

High-value wildlife habitat generally is made up of moderately to mostly vegetated areas consisting of shrubs, forest, and other habitat known to support sensitive wildlife species. Wetland quality was determined using the Washington State Department of Ecology's (Ecology's) *Washington State Wetland Rating System for Western Washington* (Hruby, 2004). High-quality aquatic habitat was identified based on the quality of the riparian habitat and in-stream habitat.

Components of ecosystems are protected by federal, state, and local regulations. Such regulations govern the planning, land use, and management activities that have the potential to affect and influence fish and wildlife species and their habitats within the project vicinity. Key regulations include the following:

- Sections 404, 402, and 401 of the Clean Water Act (CWA)
- Migratory Bird Treaty Act (MBTA)
- International Migratory Bird Treaty Act
- Endangered Species Act (ESA)
- Magnuson-Stevens Fishery Conservation and Management Act (MSA)
- Bald and Golden Eagle Protection Act (Eagle Act)
- Washington State Hydraulic codes
- Washington State Water Pollution Control Act
- Critical Area Ordinances for the Cities of Bellevue, Mercer Island, Redmond, and Seattle
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Management Recommendations
- Coastal Zone Management Act
- Shoreline Management Act (SMA)/local agency Shoreline Master Programs (SMPs)

Sound Transit has prepared the Ecosystems Technical Report (Appendix H3), which covers federal and state threatened, endangered, and species of concern; wildlife and vegetation; wetlands; and aquatic resources. Sound Transit has also prepared a Biological Assessment to meet ESA requirements. This section summarizes the findings in Appendix H3 and is based on literature research, communication with regulatory agencies, field assessment of resources (where property access was allowed), and preliminary field reconnaissance of resources (where property access was not allowed). Habitat types were studied within the following boundaries:

- **Vegetation**. The area within 100 feet of either side of the project alternatives. Vegetation areas were classified and mapped regardless of size or upland/ wetland designation. As a result, the vegetation areas may include upland and/or wetland vegetation, and, therefore, may overlap with wetland areas. This overlap is depicted on Exhibits 4.8-1 through 4.8-4.
- **Wetlands and wetland buffers.** The area within 200 feet of either side of the project alternatives.
- **Aquatic habitat.** A distance extending 100 feet upstream to 300 feet downstream from where project limits cross the stream, and the entire stretch of any stream paralleling the project within 200 feet of the edge of the alternative.

Appendix H3 contains additional detail on methodology, affected environment, impacts, and potential mitigation measures.

4.8.2 Affected Environment

The ecosystem evaluation was based on literature reviews; consultation with federal, state, and local agencies and their websites; field work; and aerial mapping. Habitats in the project vicinity have been modified considerably from predevelopment conditions before the arrival of EuroAmerican settlers to the region. Wildlife species present in these modified habitats have adapted to smaller habitat patches and tolerate moderate to high human activity. Areas with lower levels of human activity and larger patches of relatively undisturbed habitat generally support the largest number and highest diversity of wildlife species in the project vicinity.

The areas in the project vicinity that have the largest habitat patches and that support the most wildlife are Lake Washington; Mercer Slough Nature Park; aquatic and terrestrial habitats associated with streams described in Section 4.8.2.3; and larger patches of deciduous, coniferous, and mixed forests that occur along Segments B, D, and E. A number of these forested areas border the study area and extend for several hundred feet parallel and perpendicular to the alternatives.

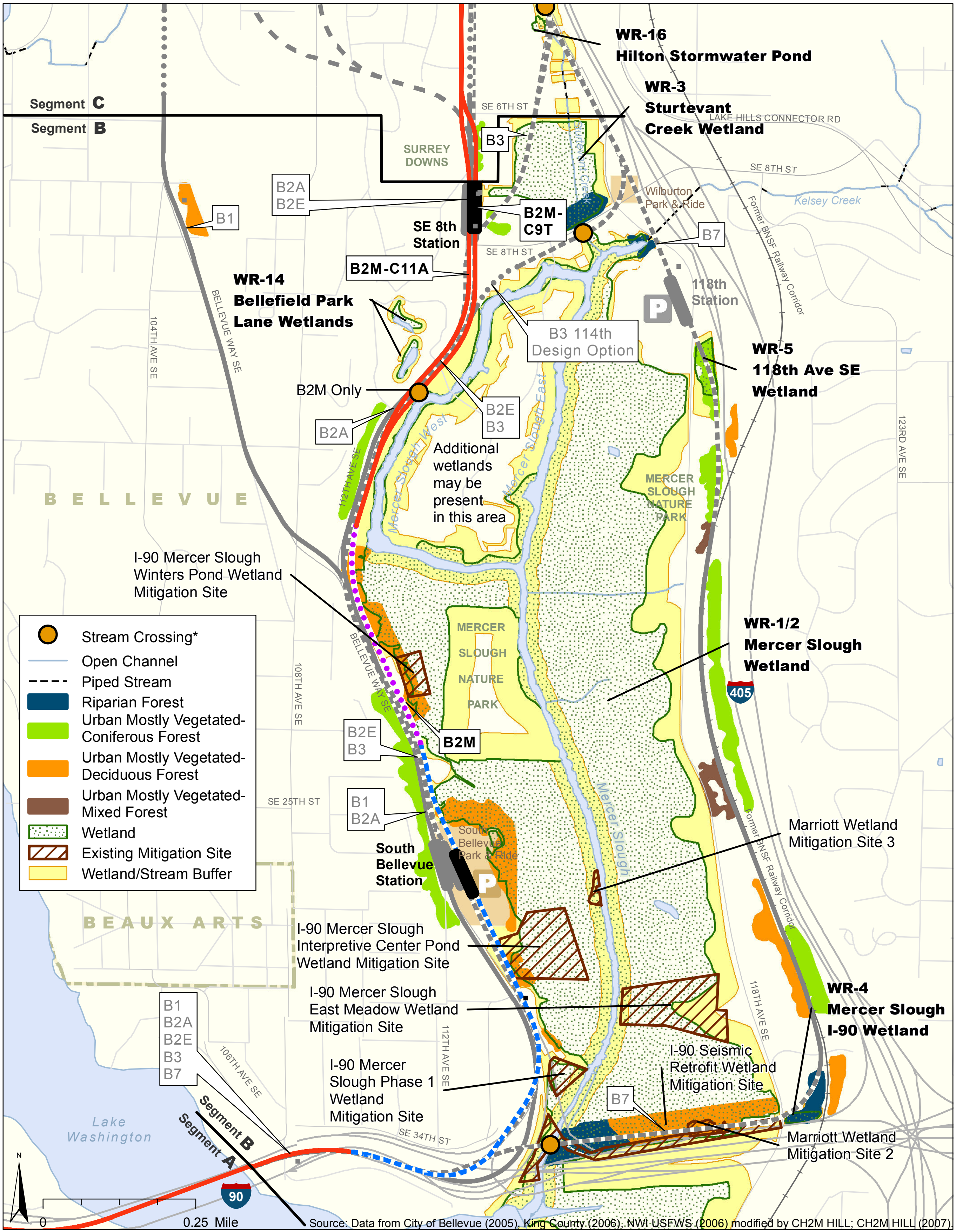
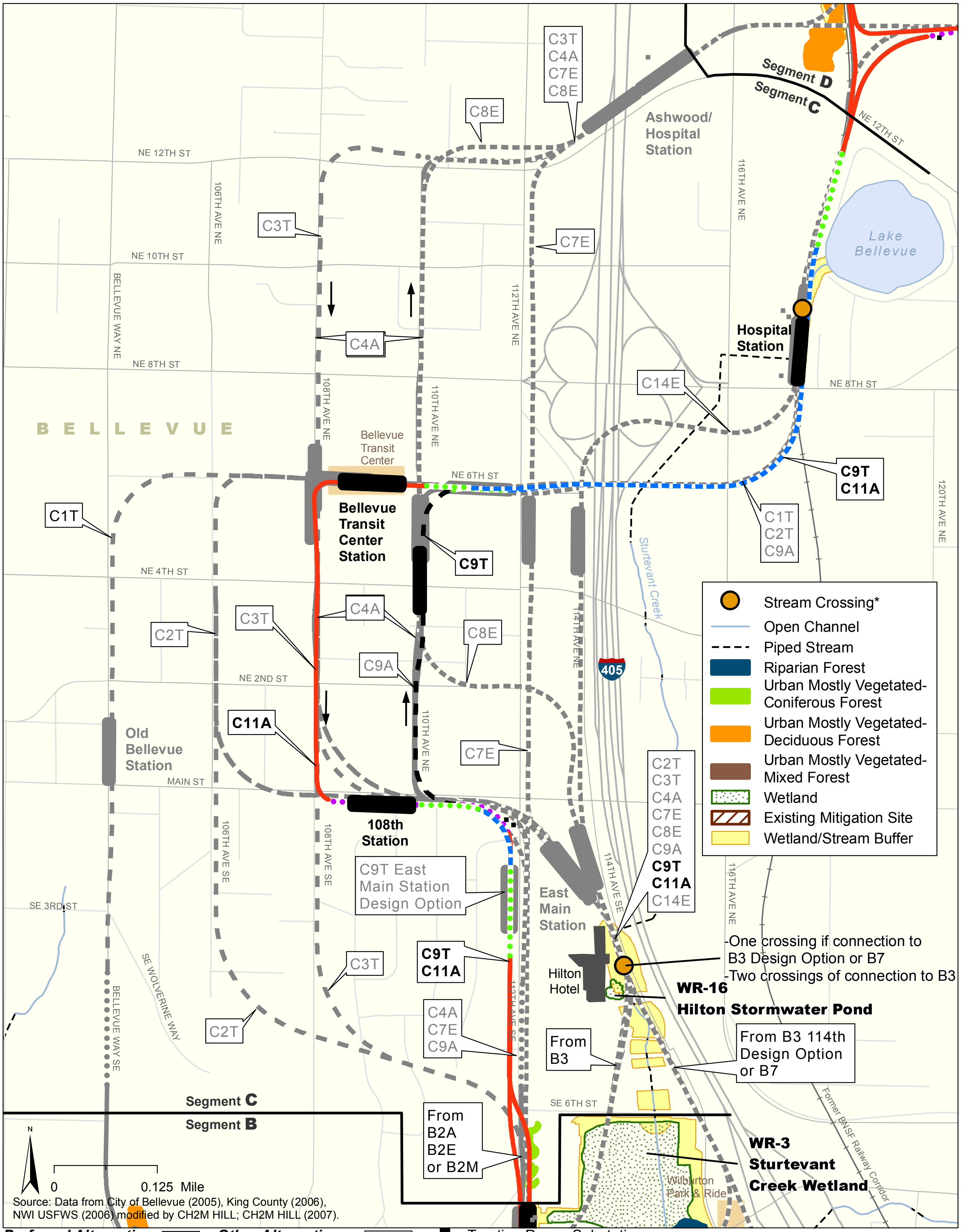

Segment C
Segment B
SURREY DOWNS
SE 6TH ST
B3
WR-16
Hilton Stormwater Pond
WR-3
Sturtevant Creek Wetland
LAKE HILLS CONNECTOR RD
SE 8TH ST
Wilburton Park & Ride
Kelsey Creek
Former BNSF Railway Corridor
B2A
B2E
B1
SE 8th Station
B2M-C9T
B7
SE 8TH ST
B2M-C11A
118th Station
WR-14
Bellefield Park Lane Wetlands
B3 114th Design Option
WR-5
118th Ave SE Wetland
104TH AVE SE
BELLEVUE WAY SE
B2M Only
B2E
B3
B2A
Additional wetlands may be present in this area
Mercer Slough West
Mercer Slough East
112TH AVE SE
MERCER SLOUGH NATURE PARK
123RD AVE SE
BELLEVUE
I-90 Mercer Slough Winters Pond Wetland Mitigation Site
WR-1/2
Mercer Slough Wetland
405
Stream Crossing*
Open Channel
Piped Stream
Riparian Forest
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Wetland
Existing Mitigation Site
Wetland/Stream Buffer
108TH AVE SE
B2M
B2E
B3
SE 25TH ST
B1
B2A
South Bellevue Park & Ride
South Bellevue Station
Mercer Slough
Marriott Wetland Mitigation Site 3
BEAUX ARTS
I-90 Mercer Slough Interpretive Center Pond Wetland Mitigation Site
I-90 Mercer Slough East Meadow Wetland Mitigation Site
WR-4
Mercer Slough I-90 Wetland
B1
B2A
B2E
B3
B7
106TH AVE SE
I-90 Mercer Slough Phase 1 Wetland Mitigation Site
112TH AVE SE
118TH AVE SE
I-90 Seismic Retrofit Wetland Mitigation Site
B7
SE 34TH ST
Marriott Wetland Mitigation Site 2
Lake Washington
Segment B
Segment A
90
N
0
0.25 Mile
Source: Data from City of Bellevue (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007).
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
City Limits
* See definition of stream crossing in notes to Table 4.8-5

Exhibit 4.8-1 **Vegetation/High-Value Wildlife Habitat, Aquatic Habitat, and Wetlands, Segment B**
East Link Project

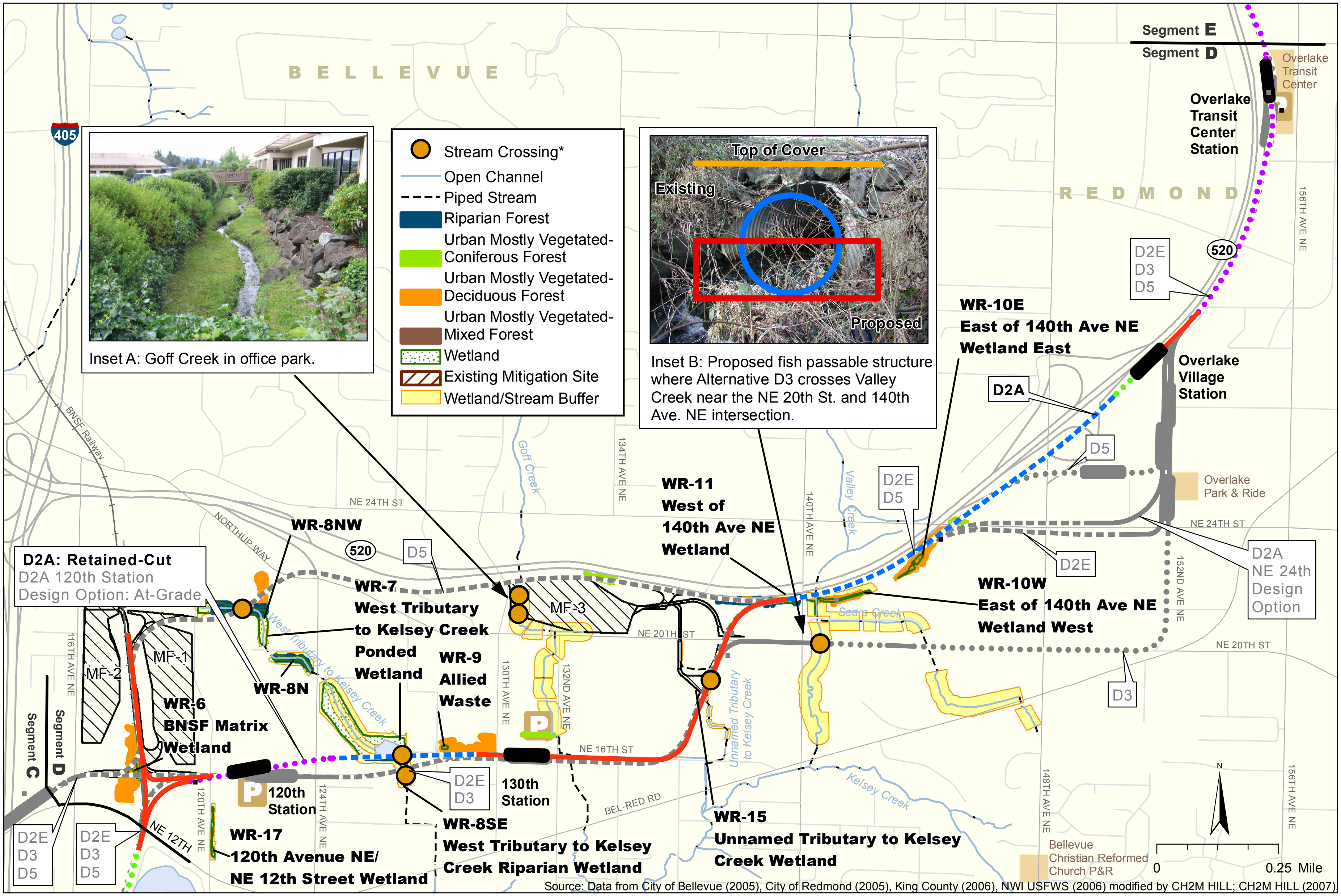

C3T
C4A
C7E
C8E
C8E
Segment D
Segment C
NE 12TH ST
Ashwood/
Hospital
Station
NE 12TH ST
106TH AVE NE
C3T
C7E
116TH AVE NE
Lake
Bellevue
NE 10TH ST
BELLEVUE WAY NE
112TH AVE NE
C4A
Hospital
Station
NE 8TH ST
108TH AVE NE
110TH AVE NE
C14E
NE 8TH ST
B E L L E V U E
Bellevue
Transit
Center
NE 6TH ST
C9T
C11A
120TH AVE NE
C1T
Bellevue
Transit
Center
Station
C9T
C1T
C2T
C9A
Sturtevant Creek
NE 4TH ST
C3T
C4A
C8E
C2T
114TH AVE NE
405
C9A
NE 2ND ST
110TH AVE NE
C11A
Old
Bellevue
Station
C7E
MAIN ST
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
108th
Station
106TH AVE SE
108TH AVE SE
C9T East
Main Station
Design Option
East
Main
Station
114TH AVE SE
116TH AVE NE
SE 3RD ST
C3T
C9T
C11A
Hilton
Hotel
-One crossing if connection to
B3 Design Option or B7
-Two crossings of connection to B3
WR-16
Hilton Stormwater Pond
SE WOLVERINE WAY
BELLEVUE WAY SE
C2T
C4A
C7E
C9A
112TH AVE SE
From
B3
From B3 114th
Design Option
or B7
Former BNSF Railway Corridor
Segment C
Segment B
SE 6TH ST
From
B2A
B2E
or B2M
WR-3
Sturtevant
Creek Wetland
Wilburton
Park & Ride
N
0
0.125 Mile
Stream Crossing*
Open Channel
Piped Stream
Riparian Forest
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Wetland
Existing Mitigation Site
Wetland/Stream Buffer
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C14E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
City Limits

Source: Data from City of Bellevue (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007).

* See definition of stream crossing in notes to Table 4.8-5

Exhibit 4.8-2 **Vegetation/High-Value Wildlife Habitat, Aquatic Habitat, and Wetlands, Segment C**

East Link Project

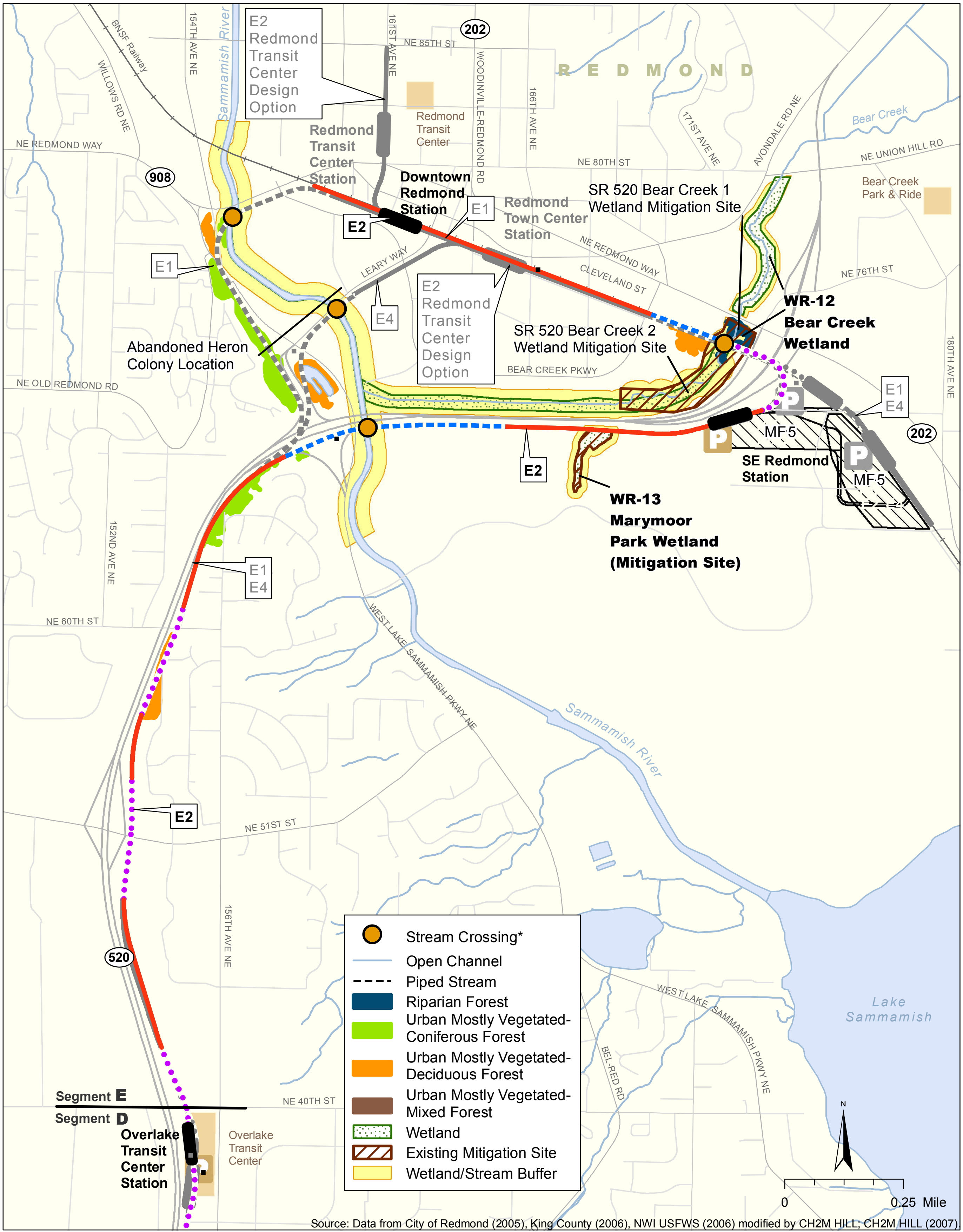

Segment E
Segment D
B E L L E V U E
R E D M O N D
405
520
Overlake Transit Center
Overlake Transit Center Station
Overlake Village Station
Overlake Park & Ride
Bellevue Christian Reformed Church P&R
Inset A: Goff Creek in office park.
Top of Cover
Existing
Proposed
Inset B: Proposed fish passable structure where Alternative D3 crosses Valley Creek near the NE 20th St. and 140th Ave. NE intersection.
Stream Crossing*
Open Channel
Piped Stream
Riparian Forest
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Wetland
Existing Mitigation Site
Wetland/Stream Buffer
WR-10E East of 140th Ave NE Wetland East
WR-10W East of 140th Ave NE Wetland West
WR-11 West of 140th Ave NE Wetland
WR-8NW
WR-7 West Tributary to Kelsey Creek Ponded Wetland
WR-9 Allied Waste
WR-8N
WR-6 BNSF Matrix Wetland
WR-17 120th Avenue NE/ NE 12th Street Wetland
WR-8SE West Tributary to Kelsey Creek Riparian Wetland
WR-15 Unnamed Tributary to Kelsey Creek Wetland
D2A: Retained-Cut
D2A 120th Station Design Option: At-Grade
D2A NE 24th Design Option
D2A
D2E D3 D5
D2E D5
D2E D3
D2E
D3
D5
MF-1
MF-2
MF-3
120th Station
130th Station
Segment C
Segment D
NE 24TH ST
NE 20TH ST
NE 16TH ST
NE 12TH
NORTHUP WAY
BEL-RED RD
BNSF Railway
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
140TH AVE NE
148TH AVE NE
152ND AVE NE
156TH AVE NE
Goff Creek
Valley Creek
Sears Creek
Kelsey Creek
West Tributary to Kelsey Creek
Unnamed Tributary to Kelsey Creek
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
D2A
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
D3
Traction Power Substation
Proposed Station
Maintenance Facility
City Limits

Source: Data from City of Bellevue (2005), City of Redmond (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007)

* See definition of stream crossing in notes to Table 4.8-5

Exhibit 4.8-3 **Vegetation/High-Value Wildlife Habitat, Aquatic Habitat, and Wetlands, Segment D**

East Link Project


E2 Redmond Transit Center Design Option
161ST AVE NE
202
NE 85TH ST
WOODINVILLE-REDMOND RD
R E D M O N D
Redmond Transit Center
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
BNSF Railway
154TH AVE NE
Sammamish River
WILLOWS RD NE
NE REDMOND WAY
908
Redmond Transit Center Station
Downtown Redmond Station
E1
Redmond Town Center Station
NE 80TH ST
SR 520 Bear Creek 1 Wetland Mitigation Site
E2
E1
LEARY WAY
E4
E2 Redmond Transit Center Design Option
NE REDMOND WAY
CLEVELAND ST
NE 76TH ST
WR-12 Bear Creek Wetland
SR 520 Bear Creek 2 Wetland Mitigation Site
BEAR CREEK PKWY
Abandoned Heron Colony Location
NE OLD REDMOND RD
E1
E4
180TH AVE NE
202
MF 5
SE Redmond Station
MF 5
E2
WR-13 Marymoor Park Wetland (Mitigation Site)
152ND AVE NE
E1
E4
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
E2
NE 51ST ST
520
156TH AVE NE
WEST LAKE SAMMAMISH PKWY NE
BEL-RED RD
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
Overlake Transit Center
N
0
0.25 Mile
● Stream Crossing*
Open Channel
Piped Stream
Riparian Forest
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Wetland
Existing Mitigation Site
Wetland/Stream Buffer

Source: Data from City of Redmond (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007)

Preferred Alternative E2
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives E1
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ■ Traction Power Substation
- Proposed Station
- Maintenance Facility
- City Limits

* See definition of stream crossing in notes to Table 4.8-5

Exhibit 4.8-4 **Vegetation/High-Value Wildlife Habitat, Aquatic Habitat, and Wetlands, Segment E**
East Link Project

The following subsections describe the habitat types that are found in the study area and discuss these habitat types by project segment. These habitat types were assessed by applying classification systems specific to the habitat type and as they relate to the likely presence of one or more threatened and/or endangered species or species protected by local critical areas ordinances. This section describes habitats in terms of vegetation types, wetlands, and aquatic resources.

4.8.2.1 Vegetation/High-Value Habitat

Non-aquatic ecosystems typically are defined by vegetation types. The study area crosses through highly urbanized environments with some key pockets of natural vegetation and water bodies. Pockets of vegetation and habitat types in the study area were classified following a system that was used for Sound Transit's Central Link Project. This system was modified from the King County (1987) Wildlife Habitat Profile (Sound Transit, 1999) and categorizes vegetation in terms of high, moderate, and low value as wildlife habitat.

Vegetation types in the study area were characterized as shown in Exhibits 4.8-1 through 4.8-4. These vegetation types are also designated by WDFW as priority habitats and are known to support federal and state threatened and endangered species. Segment A is not included in the exhibits because Lake Washington is the only high-value habitat in that segment.

Habitat Value

Terrestrial plant communities, wetlands, and aquatic systems such as streams provide a variety of functions in the environment. The value of these functions is determined by the habitat's ability to support the needs of biological species. High-value habitats are those that support or may support threatened, endangered, and/or sensitive species as determined by the federal, state, and local jurisdictions. For instance, wetlands generally offer high habitat value because they provide many functions, such as water quality improvement, groundwater recharge, nutrient and sediment filtering, habitat for a variety of animals, and education and recreation opportunities for people.

Low- and moderate-value habitat types are not shown because the habitats are either too narrow to sustain wildlife species or the vegetation types do not readily support federal or state priority species.

The following urban vegetation types with **high-value habitat** are found in the study area:

- Wetlands (wetlands are defined below)
- Coniferous forests, typically containing Douglas–fir, hemlock, and red cedar
- Deciduous forests, including big-leaf maple, black cottonwood, and red alder
- Mixed coniferous and deciduous forests
- Riparian forest, including big-leaf maple, black cottonwood, red alder, and willow, located adjacent to water bodies

These high-value habitats and/or the species they support are often regulated by local Critical Areas Ordinances and state and federal laws and regulations.

4.8.2.2 Wetlands and Wetland Buffers

Seventeen wetlands were identified in the study area. Wetlands are shown in Exhibits 4.8-1 through 4.8-4 and described in Table 4.8-1. There are no wetlands within the defined Segment A study area. In general, wetlands in the study area have been altered and are surrounded by urban and residential environments.

Wetlands are defined by soil characteristics, the presence or absence of hydrology, and dominance of vegetation adapted to wet environments. Many wetlands and aquatic habitats in the study area are considered jurisdictional waters, including wetlands of the United States by the U.S. Army Corps of Engineers (USACE), and are protected under the CWA Section 404. These wetlands require a permit from the USACE for any discharge of dredged or fill material into waters of the United States.

Generally, wetlands provide wildlife habitat, but they can be further classified in terms of the level of wildlife/biological habitat, hydrologic, and water quality function they provide. Sound Transit categorized and classified wetlands using Ecology's *Washington State Wetland Rating System for Western Washington* (Hruby, 2004). Local jurisdictions in the study area have adopted Ecology's rating system without modification. Wetland buffers, as defined by the state or specific local jurisdiction regulating the wetland, were also identified.

Various levels of wetland functions have been identified in the study area. The wetland rating system (Hruby, 2004) defines three main wetland functional categories: water quality, hydrologic, and habitat. The degree to which several functions are performed by a wetland (e.g., enhancing water quality, reducing floods, and providing fish and wildlife habitat) result in a higher category assignment, with Category 1 (I) offering the highest function and Category 4 (IV) offering the lowest. The assessments used for these ratings can be found Appendix H3.

TABLE 4.8-1
Summary of Wetlands Located in the Study Area

Locator	Wetland	Location	Category[a]	Acreage
WR-1/2	Mercer Slough Wetland (includes numerous existing mitigation sites; see Exhibit 4.8-1)	Mercer Slough	2	301
WR-3	Sturtevant Creek	Mercer Slough	2	12.2
WR-4	Mercer Slough I-90	Mercer Slough	4	0.5
WR-5	118th Avenue SE	Mercer Slough	2	1.5
WR-6	BNSF Matrix	Former BNSF Railway corridor at NE 12th Street	3	0.2
WR-7	West Tributary to Kelsey Creek Ponded	West Tributary Kelsey Creek	3	5.8
WR-8 NW	West Tributary to Kelsey Creek Riparian	West Tributary Kelsey Creek	3	2.1
WR-8 N	West Tributary to Kelsey Creek Riparian	West Tributary Kelsey Creek	3	0.5
WR-8 SE	West Tributary to Kelsey Creek Riparian	West Tributary Kelsey Creek	3	0.5
WR-9	Allied Waste	NE 15th Place	3	0.1
WR-10E	East of 140th Ave NE: Eastern	SR 520 east of 140th Avenue NE	4	0.2
WR-10W	East of 140th Ave NE: Western	SR 520 at Valley Creek	2	0.4
WR-11	West of 140th Avenue NE	SR 520 at 140th Avenue NE	3	0.3
WR-12	Bear Creek	Bear Creek	2	25
WR-13	Marymoor Park	Marymoor Park	3	2.0
WR-14	Bellefield Park Lane	Mercer Slough	4	1.0
WR-15	Unnamed Tributary to Kelsey Creek	Kelsey Creek Tributary	4	0.1
WR-16	Hilton Stormwater Pond	Sturtevant Creek	3	0.2
WR-17	120th Avenue NE and NE 12th Street Wetland	120th Avenue NE and NE 12th Street Wetland	3	0.2

[a] Category is based on Ecology's rating system (Hruby, 2004), which the Cities of Bellevue and Redmond adopted without modification.

4.8.2.3 Aquatic Habitat

One lake and 10 streams were identified in the study area. Lake Washington is the second largest natural lake in the state and the largest lake in King County. It is fed by the Sammamish River at its north end and the Cedar River at its south. Lakes are most often classified based on their productivity: the amount of algae and aquatic plants that the lake can support. They also may be classified based on size or hydrology (drainage), plant or animal communities, or the way humans use them (water supply, recreation, amount of development, and navigation). Lake Washington is classified as oligotrophic (low biological productivity) (King County, 2010). Streams in the study area (defined as a body of water with a current, confined within a bed and stream banks) were classified based on existing conditions using King County, Washington Department of Natural Resources (WDNR), City of Bellevue, and City of Redmond classification systems. The classification systems are described in more detail in Appendix H3. Each of these classification systems are based on channel width, flow rate, flow regime, and presence or absence of salmonids. Each system is very similar to the others but has different category names.

Table 4.8-2 identifies and describes water bodies located in the study area and lists those most likely to support salmonids (salmon and trout). There is no nontribal commercial fishing in the aquatic study area. Sound Transit consulted with the Muckleshoot Tribe about Usual and Accustomed Treaty Rights that provide the tribe with unique fishing, hunting, and gathering rights. The Tribe expressed concern about impacts of the project on their fishery on Lake Washington, the Lake Washington Ship Canal, and outside of the Hiram Chittenden (Ballard) Locks. In the recent past, this fishery has been used for sockeye salmon (Oncorhynchus nerka). In the future, however, other fisheries might be opened by the Pacific Fishery Management Council in association with the Western Washington Treaty Tribes.

TABLE 4.8-2
Water Bodies, Aquatic Habitat Quality, and Aquatic Species in the Study Area

Water Body	Aquatic Habitat Quality	Aquatic Species Present	Comments
Segment A, Interstate 90			
Lake Washington	Good, although there are recorded longer, warmer stratification periods linked to declines of key organisms in the food chain that salmonids depend on. Some areas of spawning habitat for sockeye salmon.	Chinook, steelhead, sockeye, coho, bull trout, rainbow and cutthroat trout, smallmouth bass, yellow perch, peamouth, river lamprey, and western toad.	A regionally important lake and designated as a shoreline of statewide significance. An important migratory corridor for Chinook.
Segment B, South Bellevue			
Mercer Slough	Poor; lack of riffles and gravel and high summer temperature. No spawning habitat for salmonids.	Chinook, sockeye, steelhead, and coho pass through to spawn in Kelsey Creek; smallmouth bass.	Chinook gather in the mouth of Mercer Slough under I-90 crossing. All salmonids destined for Kelsey Creek pass through Mercer Slough.
Kelsey Creek	Poor spawning and rearing habitat. Habitat has been degraded by clearing and urban development.	Chinook, sockeye, coho, steelhead, and sea-run cutthroat; peamouth spawning.	Largest stream in Bellevue. This is an urban stream of regional significance due to high presence of Chinook. Urbanized area results in a rapidly fluctuating flow regime. An important migratory corridor for Chinook.
Sturtevant Creek	Poor spawning and rearing habitat. Habitat has been degraded by logging and urban development. All tributary inflows are through piped systems.	Chinook and sockeye up to the impassable culvert at I-405; peamouth spawning.	Urbanized area results in a rapidly fluctuating flow regime.
Segment C, Downtown Bellevue			
Sturtevant Creek	Fair to good spawning and rearing habitat.	Chinook and sockeye up to impassable culvert at I-405. Peamouth spawning.	Urbanized area results in a rapidly fluctuating flow regime.
Segment D, Bel-Red/Overlake			
West Tributary to Kelsey Creek	Poor spawning but good rearing habitat. Habitat has been degraded by urban development.	Chinook, sockeye, coho, steelhead and cutthroat below Bel-Red Road.	Pacific giant salamander documented. Impassable culvert at Bel-Red Road.
Goff Creek	Fair to poor spawning and rearing habitat depending on reach.	Chinook and sockeye salmon below Bel-Red Road; cutthroat trout.	Urbanized area results in a rapidly fluctuating flow regime. Impassable culvert at Bel-Red Road.
Unnamed tributary to Kelsey Creek	Poor spawning and rearing habitat. Very small	None known to use this tributary.	Very small, ditch-like at crossing. Urbanized area and low intermittent flow regime.
Valley Creek	Poor to good spawning and rearing habitat depending on reach.	Sockeye (historically), Chinook, steelhead, coho, and cutthroat trout.	Urbanized area results in a rapidly fluctuating flow regime.
Sears Creek	Fair spawning and rearing habitat because of some presence of pools and clean gravel riffles.	Known use by Chinook, coho, and cutthroat trout up to the NE 20th Street culvert.	Urbanized area results in a rapidly fluctuating flow regime. Most of drainage is piped.
Segment E, Downtown Redmond			
Sammamish River	Highly degraded with very little spawning and poor rearing habitat, limited riparian vegetation, high summer temperatures.	Migratory corridor use by Chinook, coho, and kokanee (resident sockeye); steelhead; cutthroat trout.	No spawning. On the State 303(d) list for high temperatures. Sammamish River provides a critical migratory corridor for salmon returning to Bear Creek.
Bear Creek	Overall good spawning and rearing habitat quality.	Chinook, coho, sockeye, and kokanee salmon; steelhead; and cutthroat trout. All spawn in Bear Creek.	Identified as one of the top six natural resource basins in King County. There is a major watershed planning effort for this watershed. Classified as a shoreline of statewide significance. An important migratory corridor for Chinook.

4.8.2.4 Threatened and Endangered Fish and Wildlife Species, Species of Concern, and WDFW Priority Species

Sound Transit searched the WDFW's PHS database (2010) for priority species within one-half mile from the outermost routes, which is the widest impact analysis area required for any listed species. No priority plant species were found within the study area. The only federal or state threatened or endangered species known to exist in the study area are Puget Sound Chinook salmon (Oncorhynchus *tshawytscha*), coastal-Puget Sound bull trout (*Salvelinus confluentus*), and Puget Sound steelhead *(Oncorhynchus mykiss*). During the nonbreeding season, marbled murrelets (*Brachyramphus marmoratus*) are rare visitors to Lake Washington. They have been observed on the lake in the past but have only been documented once in the past 50 years. Additionally, WDNR requires the submittal of a Bald Eagle Management Plan (WAC 232-12-292) if a bald eagle (*Haliaeetus leucocephalus*) nest is found within one-half mile of the construction limits.

Table 4.8-3 lists all federal endangered, threatened, and candidate species and state endangered, threatened, and sensitive species likely to occur in the study area. This assessment includes research of the existing habitat types that would support these species and investigates known species-sighting locations.

In addition to the listings in Table 4.8-3, a large number of state-monitored species also occur within the project vicinity. WDNR monitors other species for which there is no current protection mandated. Particularly in wetlands and water bodies, many of these species are known to occur within the project vicinity, including the following birds: osprey (Pandion haliaetus), red-necked grebe (Podiceps grisegena), horned grebe (Podiceps auritus), great blue heron (Ardea herodias), great egret (Ardea alba), turkey vulture (Cathartes aura), and black tern (Chlidonias niger), black swift (Cypseloides niger), and Vaux's swift (Chaetura vauxi). Also, the Monarch butterfly (Danaus plexippus), Dreamy duskywing (Erynnis icelus), and Townsend's big-eared bat (Corynorhinus townsendii) are state-monitored species that are likely present within the study area.

In addition to federal and state species of concern, the local jurisdictions' Critical Areas Ordinances were considered. The following summarizes applicable ordinances within the study area:

- **Section 198 of the King County Comprehensive Plan** requires the county to protect the active breeding sites of these species, as well as the immediate area surrounding each site to prevent any disturbance to breeding activities. The species include the bald eagle, great blue heron, osprey, peregrine falcon (*Falco peregrinus*), northern spotted owl (*Strix occidentalis*), marbled murrelet, Townsend's big-eared bat, Vaux's swift, red-tailed hawk (*Buteo jamaicensis)*, and goshawk (*Accipiter gentilis*).
- The **City of Mercer Island Comprehensive Land Use Plan** includes Ordinance No. 05C-12, which details its critical areas regulations. To streamline its critical areas regulations, the City of Mercer Island adopted WDFW's Priority Habitat and Species program in its entirety in 1998.
- **Bellevue's Land Use Code 20.25H.025** requires any habitat associated with a species of local importance to be designated a critical area. Furthermore, if a habitat associated with a species of local importance is impacted by a proposed development, the proposal shall implement the WDFW wildlife management recommendations designed for that species. If the habitat does not include a critical area or critical area buffer but is occupied by a locally important species, then only the guidelines in the wildlife management recommendations need to be followed. Species of local importance in Bellevue are numerous and are listed in Table 4.8-3.
- The **City of Redmond's Critical Areas Ordinance** (Ordinance No. 2259) applies species protection to State Species of Concern, Priority Species designated by WDFW, and locally important species. The only locally important species is the great blue heron.

4.8.2.5 High-Value Habitats, Wetlands, and Aquatic Habitats Supporting Species of Concern

This subsection provides a general description of wetland, aquatic, and high-value upland habitats that support the species listed in Table 4.8-3 for each segment. Also, to the extent available, it provides information on species-of-concern sightings that was obtained through data research, interviews with regulatory representatives, and field surveys. The following descriptions do not include ESA protocol surveys and, therefore, do not provide a complete reconnaissance of present species of concern. For the following federally listed species (marbled murrelet, Chinook salmon, steelhead, and bull trout), critical habitat is noted if designated as such in Table 4.8-3.

TABLE 4.8-3
Federal and State Species of Concern, Including Threatened and Endangered, Found in Western Washington; Locally Important Wildlife; and Potential Occurrence in East Link Study Area

Name	Federal/State Status [a]	Bellevue Species of Local Importance	Presence, Preferred Habitat, and Probable Location in Study Area
Birds			
Bald eagle (*Haliaeetus leucocephalus*)	Federal species of concern and state monitored	Yes	**Known in the study area.** Closely associated with lakes and large rivers with mature trees. Nest near open water in late successional (i.e., mature) forest and occur in areas with low to relatively high levels of human disturbance. Wintering populations are found throughout the Puget Sound region. Bald eagles are sighted in Segments A, B, C, and E.
Marbled murrelet (*Brachyramphus marmoratus*)	Federal and state threatened	No	**Extremely rare in the study area**. Requires conifer forests with trees more than 28 inches in diameter at breast high with platforms for nesting. Spends the winter in marine waters offshore. Rare and infrequent visitors to Lake Washington during the nonbreeding season. Only observed once in the last 50 years on Lake Washington. Only potentially in Segment A. Critical Habitat: None present in the study area.
Peregrine falcon (*Falco peregrinus*)	Federal species of concern and state monitored	Yes	**Likely present in the study area.** Far-ranging flier that nests and roosts on cliffs and, in cities, on bridges and ledges of tall buildings. In winter, peregrine falcons can be found in the southwestern portion of Puget Sound and lowlands in western Washington. Sightings and potential viable habitat in Segments A, B, C, and E.
Pileated woodpecker (*Dryocopus pileatus*)	State candidate	Yes	**Known in the study area.** Typically found in forests with a component of dead and dying trees and snags for foraging and nesting. Found at Marymoor Park and throughout the study area. One bird observed near I-405 south of SE 8th Street. Likely habitat along BNSF Alternative (B7) and *Preferred Marymoor Alternative (E2)* due to larger clusters of larger trees and snags.
Purple martin (*Progne subis*)	State candidate	Yes	**Known in the study area.** Nests in structures over water bodies, including natural cavities, pilings, and manmade housing structures. Forages over open water or wet areas for insects while in flight. Nesting observed at Marymoor Park in 2003 (*Preferred Alternative E2*), but no activity since. Habitat may also be present in Segment B as well.
Western grebe (*Aechmophorus occidentalis*)	State candidate	Yes	**Known in the study area.** Nests in colonies numbering up to several hundred birds east of the Cascade Mountain range and is a winter resident on Lake Washington and Puget Sound. The highest likelihood of occurrence is in Segment A.
Merlin (*Falco columbarius*)	State candidate	Yes	**Likely present in the study area.** Seen during the nesting season at Marymoor Park. Commonly found throughout western Washington, including urban areas, in winter and during migration. May occur in Segments A, B, D, and E.
Olive-sided flycatcher (*Contopus borealis*)	Federal species of concern	No	**Likely present in the study area.** Breeds in coniferous forests in North America. Common in most forest openings throughout Washington and sometimes found in city parks or suburban areas, especially during migration. Potential habitat in Segments B and E.
Willow flycatcher (*Empidonax traillii*)	Federal species of concern	No	**Known in the study area.** Breeds in deciduous thickets, especially in willow thickets. Nest sites are often close to water. Present in Segments B and E.
Great blue heron (*Ardea herodias*)	-	Yes	**Known in the study area.** Nests in small- to medium-sized colonies ranging from 3 to 30 nests. Colonies usually in secluded deciduous forests but can adapt to some levels of disturbance gradually over time. Will use conifer forests occasionally. Colonies often less than 1 mile away from wetland or large water bodies. Listed due to its sensitivity to disturbances and dependence on wetlands, wet meadows, and water bodies.
Red-tailed hawk (*Buteo jamaicensis*)	-	Yes	**Known in the study area.** Found in areas with a mix of forests and open spaces, including agricultural land, grasslands, wetlands, and meadows. Small mammals, especially rodents, are their primary prey.
Osprey (*Pandion haliaetus*)	-	Yes	**Known in the study area.** Nests in exposed trees or platforms that provide a clear, unobstructed view of surrounding area. Nests close to large bodies of water. Territorial. Several known active nests and territories in Segments B, C, and E.
Common loon (*Gavia immer*)	-	Yes	**Known in the study area**. Population has declined due to acid rain, pollution, industrial contamination of water bodies, and lead poisoning. Artificial floating nesting platforms have reduced the negative impact of fluctuating water levels from human activities to nests.
Green heron (*Butorides virescens*)	-	Yes	**Known in the study area**. Breeds in small wetlands on a platform-built nest that is either in a tree or shrub, close to the water. Feeds on small fish, insects, and amphibians. Nests at Marymoor Park.
Vaux's Swift (*Chaetura vauxi*)	-	Yes	**Known in the study area**. Nests and forages in groups with 30 or more birds. Nest is a cup-shaped nest placed in a dark, confined cavity. Breeds in mountains and foothills, usually more than 700 meters in elevation. Forages over wooded areas and more open habitats, including towns.

TABLE 4.8-3 CONTINUED
Federal and State Species of Concern, Including Threatened and Endangered, Found in Western Washington; Locally Important Wildlife; and Potential Occurrence in East Link Study Area

Name	Federal/State Status [a]	Bellevue Species of Local Importance	Presence, Preferred Habitat, and Probable Location in Study Area
Mammals			
Townsend's big-eared bat (*Corynorhinus townsendii*)	-	Yes	**May occur in the study area.** Areas with a mosaic of woodland/grassland and/or shrub land, especially coniferous mosaics. Found in Pierce County, Fort Lewis.
Keen's myotis (*Myotis keenii*)	-	Yes	**Unlikely to occur in the study area.** Keen's myotis has one of the most limited ranges of any bat species in North America**.** Habitat use is restricted to dense forests with old growth characteristics. Range is limited to the Olympia Peninsula and low elevation conifer forests in Puget Sound region.
Long-legged myotis (*Myotis volans*)	-	Yes	**May occur in the study area.** Occurs in forested areas statewide. Prefers mountainous, coniferous forests. Often found along forest edges, can occur at high elevations in cool, wet forests.
Long-eared myotis (*Myotis evotis*)	-	Yes	**May occur in study area.** Found in wooded areas statewide; however, it is most common in eastern Washington lodgepole pine forests. Does occur in humid coastal forests with good ground cover. Will occur in any forested habitat except those with no ground cover or in mid-to-high density developments.
Amphibian and Reptile			
Western toad (*Bufo boreas*)	Federal species of concern/ state candidate	Yes	**Known in the study area.** Found in Lake Washington (Segment A) and possibly other water bodies in the study area. May also be present in Segments B, D, and E.
Oregon spotted frog (*Rana pretiosa*)	-	Yes	**Unlikely to occur in the study area.** Highly aquatic amphibian, usually found in or near permanent bodies of still water 9 acres in size or more, including lakes, marshes, and wetlands, and vegetated, slow-flowing perennial streams. Population has experienced heavy declines in the last 20 years. In 1997, only three known populations remained in Washington.
Western pond turtle (*Clemmys marmorata*)	-	Yes	**Unlikely to occur in the study area.** The western pond turtle is a highly aquatic turtle that has been extirpated from almost all of its Washington range. The Washington population consists of a few isolated and scattered populations. The range historically included streams, ponds, lakes, and permanent and ephemeral wetlands throughout the Puget Sound lowlands.
Fish			
Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*)	Federal threatened/ state candidate	Yes	**Known in the study area.** Found in Lake Washington, Sammamish River, and Bear Creek, Mercer Slough, Kelsey Creek, West Tributary to Kelsey Creek, Goff Creek, Valley Creek, and Sears Creek. Found in Segments A, B, D, and E. Critical Habitat: Present in all of the waters listed above.
Puget Sound-Strait of Georgia coho salmon (*Oncorhynchus kisutch*)	Federal species of concern	Yes	**Known in the study area.** Found in Lake Washington, Sammamish River, and Bear Creek, Mercer Slough, Kelsey Creek, West Tributary to Kelsey Creek, Goff Creek, Valley Creek, and Sears Creek. Found in Segments A, B, D, and E.
Puget Sound Steelhead trout *(Oncorhynchus mykiss*)	Federal threatened	No	**Known in the study area.** Found in Lake Washington. Presumed to be present in Mercer Slough, Kelsey Creek and its tributaries, Sammamish River, and Bear Creek. Possibly present in Sturtevant Creek. Found in Segments A, B, D, and E. Critical Habitat: Not designated at this time.
Coastal-Puget Sound bull trout (*Salvelinus confluentus*)	Federal threatened/ state candidate	Yes	**Known in the study area**. Found in Lake Washington, and possibly in Sammamish River and Bear Creek, but rare in all cases. Found in Segment A, and possibly in Segment E. Critical Habitat: Limited to only Lake Washington within the study area.
River lamprey (*Lampetra fluviatilis*)	Federal species of concern/ state candidate	Yes	**Known in the study area.** Found in Mercer Slough, Kelsey Creek, Sammamish River, and Bear Creek. Found in Segments A, B, and E.

[a] Washington species of concern include only native Washington fish and wildlife species that are listed as endangered, threatened, or sensitive, or as candidates for these designations as established in the Washington Administrative Code.

Source: (Csuti et al., 2001; Friends of Marymoor Park, 2009; Kaufman and Brock, 2003; Opler and Wright, 1999; Seattle Audubon Society, 2009; Sibley, 2000; Stebbins, 2003; UWFWS, 2009; WDFW, 2009; Wahl et al., 2005)

Segment A

Lake Washington is an important water body for aquatic and avian species. Bald eagles, osprey, peregrine falcons, and great blue heron use the lake as foraging grounds. WDFW recorded that three peregrine falcon nests are located within one-half mile of the study area. One is located under the I-90 floating bridge across Lake Washington just above the Seattle shoreline, and the second one is located under the East Channel bridge on the Mercer Island side. During a field visit in March 2007, project biologists were unable to locate either of the nests. The Washington State Department of Transportation (WSDOT) indicates there has not been a recorded successful nest under the I-90 floating bridge for the past 2 years. The nest under the East Channel bridge has been successful for the past 3 to 4 years, and is expected to remain successful as long as the adults live. A third nest is located in Downtown Bellevue (WDFW PHS database, 2010). There are no communal bald eagle roosts, winter concentration areas, or buffers for such areas within one-half mile of any of the proposed project components in Segment A. However, five active eagle territories are located within one-half mile of *Preferred Interstate 90 Alternative (A1)*. Of these, three nests were known to be active, with incubating adults roosting outside the study area in April 2007. Chinook, sockeye, and coho salmon *(Oncorhynchus kisutch)*, steelhead, cutthroat, and bull trout are known to occur in Lake Washington. Table 4.8-4 shows their residence period in the lake and in the particular streams in the study area where these species are known to spawn.

TABLE 4.8-4
Anadromous Salmonids in Lake Washington

Species	Time Period in Lake Washington	Spawning Streams
Summer and fall Chinook salmon	Adults, June to mid-December; smolts, March to July	Cedar River, North Creek, May Creek, Little Bear Creek, Swamp Creek, Kelsey Creek and tributaries, Bear Creek, Issaquah Creek. All are part of designated critical habitat.
Steelhead trout	Adults, December through April; smolts, April and May	Tributary streams and rivers including Bear Creek. Critical habitat not designated.
Bull trout	A few fish documented in the lake each year	Unknown if bull trout spawn in the Lake Washington system. Designated critical habitat limited to Lake Washington only.
Coho salmon	Adults, August to February; smolts, March through June	Too many to list. Most tributaries except the smallest. Issaquah Hatchery
Sockeye salmon	Adults, April to mid-December; fry, juveniles, and smolts, all year	Cedar River, Kelsey Creek and tributaries, North Creek, Little Bear Creek, Bear Creek, and Issaquah Creek
Sea-run cutthroat trout	Adults, April and May; smolts, March through July	Too many to list. Most tributaries except the smallest

Segment B

High-value wildlife habitats (as described in Section 4.8.2.1) are associated with Mercer Slough in Segment B. Mercer Slough serves as a migratory corridor for anadromous salmonids from Lake Washington to reach several streams (Kelsey and Sturtevant Creeks). Mercer Slough Nature Park is the largest freshwater wetland remaining along the shores of Lake Washington. Although not identified during field survey efforts, additional wetlands may be present in the Bellefield Office Park. Several existing wetland mitigation sites are located in the Mercer Slough (see Exhibit 4.8-1). The park encompasses 320 acres and is composed of herbaceous, scrub-shrub, and forested wetland; upland forest; meadows; and a blueberry farm. However, noxious and invasive weeds (such as Japanese knotweed, purple loosestrife, reed canarygrass, and Himalayan blackberry) are invading the wetlands and/or buffers. Red-tailed hawks (*Buteo jamaicensis*) are regularly seen and known to nest in the Mercer Slough Nature Park.

The City of Bellevue indicated that there was a historic heron rookery in Mercer Slough Nature Park, but the rookery is no longer active. However, great blue heron are sighted in the Mercer Slough vicinity (City of Bellevue, 2008).

North of Mercer Slough Nature Park is the Sturtevant Creek Wetland, through which Sturtevant Creek flows. Signs of recent beaver activity have been observed. Habitat is limited by the surrounding roads, office buildings, parking lots, and a new hotel. Noxious and invasive weeds (such as reed canarygrass and Himalayan blackberry) are invading this wetland and its buffers.

Segment C

There is minimal wildlife habitat available in Segment C; however, an osprey nest is located less than one-half mile west of Downtown Bellevue. Lake Bellevue is located east of the former BNSF Railway corridor just east of Overlake Hospital. This lake offers minimal habitat value because the only fish known to exist in the lake are goldfish, vegetation is sparse, the bottom is silt and organic material, and dense development surrounds the lake. Sturtevant Creek leaves Lake Bellevue as a featureless glide in the ditch alongside the tracks in the former BNSF Railway corridor. Riparian vegetation is sparse and mostly grasses or blackberries but also includes some cottonwood and willow trees near Lake Bellevue. The channel substrate composition consists of sand and silt, and habitat quality is poor. Sturtevant Creek is in a pipe system for much of the reach between NE 8th Street and the I-405 crossing. The stream is blocked to fish passage at the I-405 culvert next to the Hilton Hotel.

While most of Sturtevant Creek has minimal habitat value, the short reach adjacent to the Hilton Hotel (shown on Exhibits 4.8-1 and 4.8-2 as Hilton Stormwater Pond), north of the SE 6th Street crossing, has good in-stream habitat because there are pools and riffles with moderately clean gravel; this is virtually the only usable spawning habitat in Sturtevant Creek for salmonids.

Segment D

There are nine wetlands with varying habitat value in this segment. High-value habitats, including a riparian wetland, are located along the West Tributary to Kelsey Creek, along State Route (SR) 520 (some vegetated strips), and along portions of Valley Creek. Lower reaches of Goff Creek and the West Tributary to Kelsey Creek support salmonid spawning, while culverts in the middle reaches block fish passage. Valley Creek has some good in-stream habitat because there are some riffles with a few pools and mature riparian vegetation. Although Sears Creek is confined and there is a lack of riparian vegetation, it provides fair habitat because there are pools and riffles, and there is considerable use of the creek by salmon up to where it is blocked by the culvert under NE 20th Street.

The City of Bellevue plans to enhance Goff Creek and West Tributary to Kelsey Creek as part of implementation of the Bel-Red Corridor Project in Segment D. Funding for early implementation of the Bel-Red Corridor Project is included in the City's 2007-2013 Capital Improvement Program.

The Unnamed Tributary to Kelsey Creek has a very low base flow and is sometimes intermittent. The entire drainage lies within a commercial district and is piped or in a roadside ditch for much of its length. There are no habitat features such as pools or riffles in the potentially affected reach. Gradient is flat, and substrates consist of grass, silt, and sand. The channel has a category 4 wetland fringe in this reach, but it does not add habitat value because it consists of mowed grasses. The entire creek is above a fish passage block and there is no spawning habitat; therefore, it is highly unlikely that salmonids are present.

Segment E

In Segment E, there is limited high-value habitat along the Sammamish River, which is used by a variety of waterfowl and salmon. The 640-acre Marymoor Park has a variety of habitats, including herbaceous, scrub-shrub, and forested wetlands; a riparian corridor; deciduous upland forest; and grassy fields. There is a constructed wetland mitigation site near the northern boundary of the park. There are several permanent or semi-permanent priority species nests in Marymoor Park. Two bald eagle nests, an osprey nest, and a red-tailed hawk nest are located within the park boundaries. The osprey nest is located on an artificial platform within 0.1 mile of SR 520, while the other nests are over one-half mile from the study area. Several nest boxes are set up for purple martins (*Progne subis*) at the south end of the park, and they have used these nest boxes in the past. However, since 2008, usage of these boxes by purple martins is uncertain (Hobbs, 2011). Also, a reported heron rookery near Leary Way has been abandoned.

The Bear Creek basin drains about 50 square miles of suburban and rural land. Bear Creek basin remains one of the more productive stream systems in the region. The diversity and number of aquatic resources in the Bear Creek basin distinguish it as one of the top six natural resource basins in King County in the Waterways 2000 Program (Kerwin, 2001). Bear Creek offers some high-value riparian and in-stream pool habitat near the east portion of the Town Center Open Space. Farther to the west, nonnative vegetation has been removed and replanted with native shrubs and tree saplings as part of a habitat restoration project. The City of Redmond has plans to rehabilitate the lower 3,000 feet of Bear Creek to improve fish habitat.

Maintenance Facility Surroundings

Two small areas of urban, mostly vegetated, deciduous forest are located south of the 116th (MF1) and BNSF (MF2) maintenance facilities. The SR 520 Maintenance Facility (MF3) is surrounded by small office parks and retail stores. The SE Redmond Maintenance Facility (MF5) is surrounded by commercial and light industrial development.

4.8.3 Environmental Impacts

There are two types of impacts discussed in this section: permanent operational impacts within the permanent project right-of-way and temporary construction impacts between the permanent project right-of-way and the construction areas.

For analysis of the East Link Project environmental impacts, it was assumed that Sound Transit would already have implemented a series of avoidance and best management practices (BMPs) during construction. These practices are described in Appendix H3. In short, these include but are not limited to:

- Designating construction zone limits
- Implementing a Temporary Erosion and Sediment Control (TESC) plan
- Implementing the terms and conditions in the Hydraulic Project Approval (HPA) for any work within or below the ordinary high water mark
- Following the requirements of the National Pollution Discharge Elimination System (NPDES) permit program
- Treating and monitoring weeds consistent with the King County Noxious Weed Control Board direction
- Implementing Ecology requirements for permanent stormwater runoff, flow controls, and pest management in accordance with current agreements

For analysis of temporary construction impacts on ecosystem resources, Sound Transit assumed that all uplands and wetlands within the construction and staging areas would be disturbed during construction and that all vegetation would be removed. Short-term temporary turbidity impacts may also occur from sedimentation in streams resulting from vegetation removal. The duration of the temporary construction impacts would vary depending on the recovery time required for the affected habitat type. For example, water quality impacts would be likely to occur over a small spatial and temporal extent because adherence to state water quality standards for turbidity requires implementation of BMPs to minimize the impact. Sound Transit also projected construction noise impacts on wildlife species within the study area described below and in Appendix H3.

Construction activities would also temporarily affect wildlife in the general area. Impacts would occur from losing vegetation and habitat, disrupting travel corridors, creating noise impacts, and displacing wildlife into potentially less suitable habitats where they might not thrive. Wildlife would likely be displaced when construction begins. Species displaced by construction noise would likely return after construction is complete if their habitat was not altered and if post-construction human activity levels return to pre-construction levels. However, reestablishing native vegetation would require 2 to 4 years for herbaceous upland and wetland types and decades for mature forest types. Species that forage on or near the ground, such as urban-dwelling small mammals or birds such as juncos and song sparrows, would use their preferred habitats first. Species that require mature vegetation, and especially those that use large shrubs and trees, such as wrens, chickadees, and woodpecker, would recolonize their preferred habitats last. Operational impacts could include permanent displacement of high-value habitat areas that can cause displacement of associated wildlife species, shading of vegetation, culvert extension, realignment of streams that support aquatic species, and additional runoff from increases in impervious surface area. Sound Transit also evaluated project operation noise levels above existing conditions and line-of-sight impacts that could lead to displacement or disturbance of wildlife species.

Sound Transit would implement BMPs to avoid and minimize impacts on streams and other aquatic habitats to meet federal, state, and local regulatory requirements. These BMPs are documented in Appendix H3 and are environmental commitments that Sound Transit would implement.

Sound Transit conducted surveys to prepare a Biological Assessment for ESA consultation. The determination of effect for ESA-listed species in Sound Transit's Biological Assessment is a "may affect, not likely to adversely affect" listed species, and there would be no adverse effect on Essential Fish Habitat under MSA.

4.8.3.1 No Build Alternative

The No Build Alternative would cause no temporary construction or permanent operational impacts on ecosystem resources. However, without the East Link Project, land use development might not be concentrated in the planned growth centers, causing additional growth elsewhere, including in or near areas of high-value habitat. Higher vehicle miles traveled also would be expected under the No Build Alternative, resulting in higher traffic, which can be associated with introducing more pollutants that might drain to surface waters and reduce water quality.

Implementing the No Build Alternative would not result in potential beneficial environmental improvements such as:

- Reducing pollutant loading to Lake Washington and streams in the study area by reducing 51.7

acres of pollutant-generating surfaces and an estimated 200,000 vehicle miles traveled each year

- Implementing proposed mitigation for wetlands and streams, which would improve the existing conditions of these resources.

4.8.3.2 Impacts during Operation

Impacts Common to All Build Alternatives

Permanent operational impacts common to all alternatives would depend on the ecosystem resource being affected (e.g., aquatic habitat from culvert extension or wildlife displacement from removal of high-value and priority habitat) and are described for each resource below. The following sections and Table 4.8-5 identify permanent operational impacts on high-value wildlife habitat, wetlands, wetland and stream buffers, and aquatic habitat.

High-Value Habitat

Several types of permanent impacts on habitat areas and impacts on associated wildlife would be expected:

- Habitat would be removed (particularly high-value habitat) that supports breeding, foraging, and roosting, which might disturb or even displace some wildlife species. Depending on the combination of alternatives selected, the range of impact (not including impacts on wetlands) could vary from 1.7 to 6.0 acres of high-value habitat removed within the study area before compensatory mitigation. Wildlife, including WDFW priority species that use this habitat type, might vacate the area.
- To prevent trees and branches from interfering with operation of the light rail, existing high-quality forest-dominated vegetation and wildlife habitat under and within 20 feet of each side of the elevated guideways would be converted to shrub and short-tree habitat, which may become high-quality habitat for some species.
- Existing low-quality, weed-dominated, and disturbed vegetation and wildlife habitat under and within 20 feet of each side of the elevated guideways would be converted to shrub and short-tree habitat, which would be a substantial environmental improvement.
- Operational noise impacts on wildlife would likely be relatively minor compared with existing traffic noise in most segments of the proposed corridors. Maximum noise levels from light rail operation would actually be lower than existing maximum noise levels related to other transportation noise sources currently in use in most segments, including heavy trucks, dump trucks, and buses.
- Existing maximum noise levels from buses and heavy trucks on busy arterials typically range from 78 to 86 decibels on the A-weighted scale (dBA) at 50 feet at 35 to 40 miles per hour (mph). The Link light rail trains produce 79 dBA at 50 feet at 40 mph, which is similar to the noise produced by most buses and medium trucks, and lower than heavy trucks by 2 to 6 dBA. Noise levels from East Link operations would not likely adversely impact wildlife for any segment because wildlife using habitats next to the alternatives are more or less accustomed to some level of existing human and vehicular activity.
- Linear disruption of habitat integrity. Losing small, interconnected habitats could increase habitat fragmentation in the area and disrupt wildlife movement between habitat types. In the project vicinity, many smaller habitat types were categorized as being low- or moderate-value habitats. These habitats could be used by a variety of wildlife species, including priority species, although their expected occurrence would be lower than for high-value habitats.
- The only ESA-listed wildlife species in the project vicinity, the marbled murrelet, is extremely rare in the study area (only one sighting in the past 50 years on Lake Washington) and is not expected to be adversely impacted from operations because there would not be any habitat alterations in Lake Washington, and the Segment A alternative would be located in the center of the I-90 roadway and not increase noise levels.
- Impacts on wetlands such as permanently removing wetland and steam buffer area and function, converting forest-dominated wetlands to shrub-dominated wetlands, and generating runoff from new untreated non- pollutant-generating impervious surfaces (PGIS) and new PGIS would also affect high value habitat.
- Potentially spilling fuel, oil, or chemical spills at maintenance facilities
- Beneficial environmental improvements listed above

Wetlands and Wetland Buffers

The alternatives were designed to avoid and minimize impacts on wetlands to reduce overall impacts. The alternatives would involve placing fill or retained cut/fill for at-grade tracks and columns for elevated guideways that could remove or shade wetlands. Permanent impacts on wetlands that would persist throughout East Link operation include the following:

TABLE 4.8-5
Potential Permanent Operational Direct Impacts on Wetland, Wetland/Stream Buffer, High-Value Wildlife Habitat, and Aquatic Habitat

Alternative		**Wetland[a] (acres)**	**Wetland/ Stream Buffer[a,b] (acres)**	**High-Value Wildlife Habitat[a,c] (acres)**	**Aquatic Habitat/Stream Crossings[d]**
Segment A, Interstate 90					
Preferred Interstate 90 Alternative (A1)		No impacts			
Segment B, South Bellevue					
Preferred 112th SE Modified Alternative (B2M)	to *C11A*	0.1	3.3 (0.2 of mitigation site)	0.6	0 crossings
	to *C9T*		4.5 (0.2 of mitigation site)	0.7	1 crossing of a narrow alcove in the shoreline of Mercer Slough
Bellevue Way Alternative (B1)		0.2	1.8	1.7	0 crossings
112th SE At-Grade Alternative (B2A)			3.4 (<0.1 of mitigation site)	0.7	
112th SE Elevated Alternative (B2E)			2.8 (<0.1 of mitigation site)	0.4	
112th SE Bypass Alternative (B3)		0.7	3.4 (<0.1 of mitigation site)	0.7	
B3 - 114th Extension Design Option		0.2	3.6 (<0.1 of mitigation site)	0.7	1 elevated crossing of Sturtevant Creek
BNSF Alternative (B7)		1.9 (0.4 of mitigation site)	0.4 (<0.1 of mitigation site)	3.0	1 elevated crossing of Mercer Slough
Segment C, Downtown Bellevue					
Preferred 108th NE At-Grade Alternative (C11A)	from *B2M*	0	0	0	1 elevated crossing of Sturtevant Creek 1 culvert replacement on Sturtevant Creek
	from B3		0.1		Same as *C11A* from *B2M* except there are 3 elevated crossings of Sturtevant Creek
	from B3 - 114th Design Option or B7				Same as *C11A* from *B2M* except there are 2 elevated crossings of Sturtevant Creek
Preferred 110th NE Tunnel Alternative (C9T)[e]	from *B2M*	0	0	0.3	1 elevated crossing of Sturtevant Creek 1 culvert replacement on Sturtevant Creek
	from B3		0.1	0	Same as *C9T* from *B2M* except there are 3 elevated crossings of Sturtevant Creek
	from B3 - 114th Design Option or B7				Same as *C9T* from *B2M* except there are 2 elevated crossings of Sturtevant Creek
Bellevue Way Tunnel Alternative (C1T)		0	0	0	Same as *C11A* from *B2M*
106th NE Tunnel Alternative (C2T)	from B2A	0	0	0.1	Same as *C11A* from *B2M*
	From B2E			0.2	
	from B3	0	0.1	0	Same as *C11A* from B3
	from B7				Same as *C11A* from B3 - 114th Design Option or B7

TABLE 4.8-5 CONTINUED

Potential Permanent Operational Direct Impacts on Wetland, Wetland/Stream Buffer, High-Value Wildlife Habitat, and Aquatic Habitat

Alternative		Wetland[a] (acres)	Wetland/ Stream Buffer[a,b] (acres)	High-Value Wildlife Habitat[a,c] (acres)	Aquatic Habitat/Stream Crossings[d]
108th NE Tunnel Alternative (C3T)	from B2A	0	0	0.1	0 crossings
	from B2E			0.2	0 crossings
	From B3		0.1	0	2 elevated crossings of Sturtevant Creek
	from B7				1 elevated crossing of Sturtevant Creek
Couplet Alternative (C4A)	from B2A or B2E	0	0	0.2	0 crossings
	from B3		0.1	0	Same as C3T from B3
	from B7				Same as C3T from B7
112th NE Elevated Alternative (C7E)	from B2A or B2E	0	0	0.2	0 crossings
	from B3		0.1	0	Same as C3T from B3
	From B7				Same as C3T from B7
110th NE Elevated Alternative (C8E)	from B3	0	0.1	0	Same as C3T from B3
	from B7				Same as C3T from B7
110th Avenue NE At-Grade Alternative (C9A)	from B2A	0	0	0	Same as *C11A* from *B2M*
	from B3	<0.1	0.1		Same as *C11A* from B3
	from B3 – 114th Design Option or B7	0			Same as *C11A* from B7
114th NE Elevated Alternative (C14E)	from B3	<0.1	0.1	0	Same as C11A from B3
	from B3 – 114th Design Option or B7	0			Same as C11A from B7
Segment D, Bel-Red/Overlake					
Preferred NE 16th At-Grade Alternative (D2A) from former BNSF Railway corridor[f]		0.5	0.6	0.9	1 elevated crossing at the West Tributary to Kelsey Creek; 1 new culvert on a 130-foot segment on the Unnamed Tributary to Kelsey Creek
D2A - NE 24th Design Option		0.5	0.6	0.8	Same as *D2A*
NE 16th Elevated Alternative (D2E) from NE 12th or former BNSF Railway corridor		0.2 to 0.3	0.5	0.5	Same as *D2A* except the Unnamed Tributary to Kelsey Creek Crossing is elevated
NE 20th Alternative (D3) from NE 12th or former BNSF Railway corridor		0.2	0.1	<0.1 to 0.1	Same as *D2A* except for a culvert extension at Valley Creek (loss of 30 feet of channel function/habitat)
SR 520 Alternative (D5) from NE 12th or former BNSF Railway corridor		0.2 to 0.3	0.6 to 0.7	1.3 to 1.4	1 elevated crossing at West Tributary to Kelsey Creek, and Goff, and Valley Creeks culverts
Segment E, Downtown Redmond					
Preferred Marymoor Alternative (E2)		0.1 (0.1 of mitigation site)	0.4 (<0.1 of mitigation site)	1.1	2 elevated stream crossings (Sammamish River and Bear Creek)
E2 - Redmond Transit Center Design Option		0.1 (0.1 of mitigation site)	0.5 (<0.1 of mitigation site)	1.2	Same as *E2*
Redmond Way Alternative (E1)		0.1	0.2 (0.1 of mitigation site)	2.1	

TABLE 4.8-5 CONTINUED
Potential Permanent Operational Direct Impacts on Wetland, Wetland/Stream Buffer, High-Value Wildlife Habitat, and Aquatic Habitat

Alternative	Wetland[a] (acres)	Wetland/ Stream Buffer[a,b] (acres)	High-Value Wildlife Habitat[a,c] (acres)	Aquatic Habitat/Stream Crossings[d]
Leary Way Alternative (E4)	<0.1	0.2 (0.1 of mitigation site)	1.2	
Maintenance Facilities				
116th Maintenance Facility (MF1) (D2A, D2E, D3)	0.1	0.1	0.1	0 stream crossings
116th Maintenance Facility (MF1) (D5)	0	0	0	0 stream crossings
BNSF Maintenance Facility (MF2) (D2A, D2E, D3)	0.1	0.1	0.1	Same as MF1 (D2A, D2E, D3)
BNSF Maintenance Facility (MF2) (D5)	0.1	0.2	0.2	0 stream crossings
SR 520 Maintenance Facility (MF3) (D2, D3, D5)	<0.1	0	0	2 culvert replacements with a gain of 42 feet of open channel on Goff Creek
SE Redmond Maintenance Facility (MF5)	0	0	0	0 stream crossings

[a] Vegetation areas were classified and mapped regardless of size or upland/wetland designation. As a result, the vegetation areas may include upland and/or wetland vegetation. Vegetation areas may overlap with wetlands and/or buffers, and therefore impact acreage numbers for wetlands, buffers, and high-value wildlife habitat cannot be added together. This overlap is depicted on Exhibits 4.8-1 to 4.8-4.

[b] Some of the impacts on stream buffers overlap with impacts on some wetland buffers.

[c] *High-Value Wildlife Habitat* includes riparian forest and three types of urban mostly vegetated forest (coniferous forest, deciduous forest, and mixed coniferous/deciduous forest).

[d] Stream crossings identified in this table are crossings of open channels. Crossings over existing culverts or piped sections of streams are not included.

[e] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

[f] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

- Permanently removing wetland area and function, including wetlands beneath elevated structures and portions of several existing mitigation sites. Depending on the combination of alternatives selected, impacts could vary from permanently filling or altering approximately 0.3 to 2.6 wetland acres.
- Permanently removing wetland and stream buffer area and function, including buffers beneath elevated structures. Depending on the combination of alternatives selected, impacts could vary from permanently filling or altering approximately 0.8 to 5.6 acres of wetland/stream buffer.
- Permanently converting forest-dominated wetlands to shrub-dominated wetlands and buffers under and within 20 feet of each side of the elevated guideways to prevent trees and branches from interfering with operation of the light rail.
- Generating runoff from new untreated non-PGIS and new PGIS (i.e., roadway modifications, park-and-ride lots, and maintenance facilities), potentially increasing pollutant loads to wetlands (see Section 4.9, Water Resources)
- Potentially spilling fuel, oil, or chemical spills at maintenance facilities
- Beneficial environmental improvements listed above

Aquatic Habitat

The range of permanent impacts would vary from no impacts on fish habitats, to beneficial impacts, to only minor adverse impacts before mitigation. In urban areas, new projects may result in beneficial impacts on aquatic resources. New projects that alter streams would have to meet current regulatory requirements on stream restoration, including improving instream habitat and improving riparian vegetation. Permanent impacts on aquatic habitat common to all alternatives would include the following:

- Impervious surfaces preclude normal infiltration of precipitation into groundwater aquifers and reduce dry-season base flows by decreasing water inputs to streams from springs and seeps. The amount of new impervious surface that could result from building the East Link Project between Seattle and Redmond would be between 16 and 35 acres (see Section 4.9, Water Resources).

- Stormwater from all project-related PGIS would be treated to at least basic treatment levels (i.e., removal of at least 80 percent of suspended solids). Stormwater from relocated or widened roadways and those that do not currently receive treatment would also be retrofitted to current standards. Stormwater from maintenance facilities would be treated to enhanced treatment levels to remove heavy metals, including those that are toxic to fish and aquatic invertebrates. Basic and enhanced treatment would reduce heavy metal and hydrocarbon contaminants in stormwater but would not eliminate all of it. In addition, the East Link Project would result in fewer cars on the road and, therefore, less pollutant loading to stream systems. Substantial permanent impacts on water quality, and therefore aquatic species, would not be expected from increased surface runoff.

Permanent Operational Impacts by Alternative

Segment A

With *Preferred Alternative A1,* removing motor vehicles from the center roadway would reduce the pollutant discharge from this roadway, resulting in a net benefit to the water quality of stormwater runoff to Lake Washington. Operation of light rail could discharge stray electrical current into Lake Washington and create electric current fields around the span. An assessment of whether the electric current field would affect aquatic resources estimated that stray current intensity would be one to three orders of magnitude below physiological or behavioral response thresholds for even the most sensitive Lake Washington fish species. Therefore, no operational impacts on high-quality aquatic habitats are anticipated due to this factor.

Segment B

High-Value Habitat

Preferred 112th SE Modified Alternative (B2M) connecting to *Preferred 108th NE At-Grade Alternative (C11A)* or *Preferred 110th NE Tunnel Alternative (C9T)* would permanently affect 0.6 and 0.7 acre of high-value habitat, respectively (all deciduous forest), which would be slightly higher than the smallest total impact among the Segment B alternatives. This impact includes removing some mature deciduous trees near the Bellevue Way SE and 112th Avenue SE intersection.

With the other Segment B alternatives, the potential area of high-value habitat that could be permanently impacted varies from approximately 0.4 acre (112th SE Elevated Alternative [B2E]) to approximately 3.0 acres (BNSF Alternative [B7]). Alternative B7 would affect the most area of riparian forest. Alternatives B1 and B7 would affect the most high-value coniferous forest. Alternative B7 would affect the largest area of high-value deciduous forest (0.8 acre), which exceeds the total amount of high-quality wildlife habitat that would be affected by *Preferred Alternative B2M.* Amphibians are not expected to move from Mercer Slough to uplands west of Bellevue Way SE and are also not expected to be impacted because Bellevue Way is already a barrier.

Wetlands and Wetland Buffers

Preferred Alternative B2M would be located along the east side of Bellevue Way SE and 112th Avenue SE where Mercer Slough is located, but *B2M* almost entirely avoids permanent impacts on wetlands (approximately 0.1 acre). However, *Preferred Alternative B2M to C9T* would have the largest impact on wetland buffers of all the Segment B alternatives.

Portions of *Preferred Alternative B2M* would be constructed in retained cuts along Bellevue Way SE. Without mitigation, the concrete-lined retained cuts could intercept and re-direct local groundwater flow, with resulting adverse impacts to down-gradient wetlands and surface water features. As described in the Water Resources mitigation section (Section 4.9.4), the pervious fill system installed around the outside of the sealed, concrete-lined retained cut would allow the shallow groundwater to continue to flow to the down-gradient wetlands. Similarly, track foundations in many places along this section would be improved with subsurface stone columns, but these are pervious to groundwater movement. The primary sources of hydrology for the Mercer Slough wetlands are the controlled water fluctuation of Lake Washington; input from Kelsey Creek and other small drainages; groundwater from the hillside slopes to the west and east of Mercer Slough wetlands; culverts that enter from the north, west, and east sides; and precipitation. As a result, no impact on hydrology of the Mercer Slough wetland is expected.

Of the other Segment B alternatives, Alternative B7 could have the greatest permanent impact on wetlands (1.9 acres). Nearly one-quarter of this impact would be on existing mitigation sites. Alternative B7 would have the smallest permanent impact on wetland buffers (0.4 acre).

The other Segment B alternatives along Bellevue Way SE (Bellevue Way Alternative [B1], 112th SE At-Grade Alternative [B2A], and B2E) would all permanently affect approximately 0.2 acre of wetland with the new stormwater pond proposed immediately east of the

South Bellevue Park-and-Ride Lot. All of these Segment B alternatives would avoid permanent wetland impacts on existing mitigation sites within the Mercer Slough Nature Park.

The 112th SE Bypass Alternative (B3) could potentially impact 0.7 acre of wetlands. This alternative would have similar impacts on wetlands along Bellevue Way SE as the other Bellevue Way alternatives. However, constructing the elevated guideway through the Sturtevant Creek Wetland (WR-3) would also disturb 0.5 acre of shrub and emergent Category 2 wetlands dominated by reed canarygrass (a state-listed noxious weed). Implementing Alternative B3 - 114th Extension Design Option with Alternative B3 would reduce the potential permanent operational impacts on wetlands or buffers by avoiding the Sturtevant Creek Wetland (WR-3).

The other Segment B alternatives would have varying degrees of potential permanent impacts on wetland/stream buffers. Among the Segment B alternatives along Bellevue Way SE, Alternative B1 would have the least permanent impacts on wetland/stream buffers (1.8 acres). All Bellevue Way alternatives except Alternative B1, including *Preferred Alternative B2M*, would have relatively similar potential permanent impacts on buffers. All of these Segment B alternatives (except B1) would permanently impact wetland buffers of existing mitigation sites within the Mercer Slough Nature Park.

Aquatic Habitat

Preferred Alternative B2M to either *C11A* or *C9T* would have a small direct permanent impact on aquatic habitat. *Preferred Alternative B2M* would install a short bridge over a small unnamed stream inlet to Mercer Slough West near SE 15th Street. Impacts on the stream buffer between the west channel of Mercer Slough and 112th Avenue SE are estimated at 0.4 and 1.0 acre for *Preferred Alternative B2M to C11A* or *C9T*, respectively. The vegetation in this stream buffer that would be affected is low-quality habitat because it is dominated by Himalayan blackberry (a state-listed noxious weed) and mowed lawn with few native trees or shrubs (Exhibit 4.8-5).

The other Segment B alternatives (Alternatives B1, B2A, B2E, B3, B3 – 114th Design Option, and B7) would have no direct permanent impacts on fish and aquatic habitats. Of all the Segment B alternatives, the B3 – 114th Design Option and Alternative B7 would have the greatest impact on stream buffer.

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EXHIBIT 4.8-5
Mercer Slough Buffer along 112th Avenue SE

Segment C

High-Value Habitat

Preferred Alternative C11A would not have permanent impacts on high-value wildlife habitat. *Preferred Tunnel Alternative C9T* would have minor permanent impacts (0.3 acre) on high-value wildlife habitat in Segment C just south of SE 6th Street.

With the 106th NE Tunnel (C2T), 108th NE Tunnel (C3T), Couplet (C4A), 112th NE Elevated (C7E), and 110th NE At-Grade (C9A) Alternatives, there would be a relatively small area of permanent impacts on high-value wildlife habitat (less than 0.1 to 0.2 acre). The other Segment C alternatives would have no impact.

Wetlands and Wetland Buffers

No direct or indirect permanent impacts on wetlands or wetland/stream buffers are expected from either *Preferred Alternative C11A* or *C9T* when connected to *Preferred Alternative B2M*. The connection of either *Preferred Alternative C11A* or *C9T* to Alternatives B3, B3-114th Design Option, or B7 would result in a 0.1 acre wetland/stream buffer impact.

Alternatives C9A and C14E would have a less than 0.1 acre direct permanent impact on wetlands when connecting to B3. No other Segment C alternatives would result in direct permanent impacts on wetlands. No direct permanent impacts on wetland buffers are expected from the other Segment C alternatives, except the 0.1 acre impact to wetland buffers at the Hilton Stormwater pond (WR-16) noted above. This same impact would occur for Alternatives C2T, C3T, C4A, C7E, 110th NE Elevated (C8E), C9A, and 114th NE Elevated (C14E) with connections to either Alternatives B3, B3- 114th Design Option, or B7.

Aquatic Habitat

Identical potential impacts would result with *Preferred Alternatives C11A* and *C9T* (both from *Preferred Alternative B2M*). The Hospital Station would be positioned over the top of the existing Sturtevant Creek channel just north of NE 8th Street (Exhibit 4.8-6). To minimize impacts on the stream and provide for overall improved stream geometry, the channel would be shifted to the west side of the tracks in the former BNSF Railway corridor in a new culvert, thereby realigning the channel to the west approximately 30 feet as an open channel in a landscaped strip next to the station. This reach is approximately 300 feet long. The new channel would be a substantial improvement compared to the existing channel, which is straight, featureless, and lacking any riparian vegetation. The new channel would have landscaped riparian vegetative cover, a gravel streambed, and a curving geometry. However, there is no salmonid presence in this reach because the reach is upstream of several fish-passage blockages.

For connections from Alternative B3 and *Preferred Alternatives C11A* or *C9T* would run near Sturtevant Creek for 420 feet adjacent to the Hilton Hotel. The existing vegetation along this stream reach would be cleared during construction and replanted with short-growing native species (Exhibit 4.8-7). The elevated guideway would be up to 45 feet above the ground and not effectively shade this riparian area. There would be a temporal loss of riparian function while the new riparian trees reestablish. Even though the riparian trees would be smaller, large woody debris recruitment potential would not be diminished because this area is an intensively managed landscape.

Preferred Alternatives C11A or *C9T* connecting from the B3 – 114th Design Option or Alternative B7 would have the same impacts as described above for the Alternative B3 connector but would add approximately 300 feet of clearing (total of 720 feet), and 130 feet of guideway above the channel, approximately 25 feet off the ground. Potential impacts on riparian function would be the same as described above for this additional reach, except that landscaping in this area is not actively managed to the water's edge as it is on the Hilton Hotel property.

Alternatives C3T, C4A, and C7E connecting from Alternative B2E would have no impact on aquatic habitat and, thus, have the least impacts of all Segment C alternatives. The Bellevue Way Tunnel Alternative (C1T), Alternative C2T, and Alternative C9A from Alternatives B2A or B1, would have the same impacts described for *Preferred Alternatives C11A* and *C9T*.

EXHIBIT 4.8-6
Sturtevant Creek upstream of NE 8th Street

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EXHIBIT 4.8-7
Sturtevant Creek next to Hilton Hotel at 114th Avenue SE

Alternatives C2T and C9A from Alternative B3, B3 - 114th Design Option, or B7 would have the same impacts as *Preferred Alternatives C11A* or *C9T* for both the Hospital Station and the area behind the Hilton Hotel along Sturtevant Creek.

Segment D

High-Value Habitat

Preferred NE 16th At-Grade Alternative (D2A) and Alternatives D2A – 120th Station and - NE 24th Design Options would permanently impact approximately 0.8 to 0.9 acre of high-value habitat, including mostly riparian forest and deciduous forest. There would be no impact on vegetation and wildlife related to the storage track or associated improvements to the former BNSF Railway corridor with *Preferred Alternative D2A.*

The estimated area of high-value habitat that would be directly affected during permanent operation with the other Segment D alternatives varies from a low of approximately <0.1 acre (NE 20th Alternative [D3]) to a high of approximately 1.3 to 1.4 acres (SR 520 Alternative [D5]) depending on connection). Alternative D5 would affect the most area of riparian forest, coniferous forest, and deciduous forest.

Wetlands and Wetland Buffers

Preferred Alternative D2A would have permanent operational impacts on wetlands WR-11 and WR-15 (resulting from fill for the at-grade trackway), and wetlands WR-7 and WR-8SE where the elevated guideway would cross over. Potential permanent operational impacts on wetlands and wetland buffers would be 0.5 and 0.6 acre, respectively. This is a small permanent operational impact on these Category 3 and 4 wetlands. The primary impact would be on Wetland WR-7, which is a regional stormwater detention pond. Impacts on wetlands and wetland buffers from both D2A design options would essentially be the same as with *Preferred Alternative D2A*.

The storage track along the former BNSF Railway corridor north of the Lake Bellevue would result in impacts of less than one-eighth of an acre of wetland and one-tenth of an acre wetland buffer to accommodate an access path adjacent to the storage tracks.

The other Segment D alternatives and connection options would have approximately one-half the permanent operational impacts on wetlands compared to *Preferred Alternative D2A,* primarily because they would avoid impacts on wetland WR-7. The NE 16th Elevated Alternative (D2E) would permanently affect 0.2 to 0.3 acre of wetland (depending on connection) due to the elevated guideway over Wetlands WR-6, WR-8SE, WR-11, and WR-15. Alternative D3 would permanently affect 0.2 acre of wetland as a result of fill used to widen 136th Place NE for the at-grade trackway at WR-15 and the elevated guideway over Wetlands WR-6 and WR-8SE. Alternative D5 would permanently affect 0.2 to 0.3 acre of wetland (depending on connection) from the elevated guideway over Wetlands WR-6, WR-8NW, and WR-11. Potential permanent impacts on wetland/stream buffers would be lowest (0.1 acre) with Alternative D3 and slightly greater with Alternatives D2E and D5.

Aquatic Habitat

Preferred Alternative D2A would cross four streams but would have negligible or no direct permanent impact on fish and aquatic species and habitats on these streams.

EXHIBIT 4.8-8
West Tributary to Kelsey Creek at Detention Pond

The elevated crossing at the Kelsey Creek West Tributary would place approximately five support columns along the southern edge (left side of Exhibit 4.8-8) of the regional stormwater detention pond (wetland WR-7). The pond does not support salmonids because there are numerous passage blocks downstream and no spawning areas upstream. This area is artificially flooded by the stormwater detention facility; sometimes this area is dry. Large trees would be removed and replaced with understory vegetation. The elevated guideway would be approximately 55 feet in the air.

During operation of *Preferred Alternative D2A*, there would be no permanent impacts on Goff Creek at this at-grade crossing because the creek is in a pipe system at this location.

Direct permanent impacts on the Unnamed Tributary to Kelsey Creek would result from replacing 130 feet of open channel with a culvert for this at-grade crossing. The existing stream channel is essentially a roadside ditch with no riparian vegetation other than mowed grasses. This tributary does not currently support fish. This reach has no habitat function except, perhaps, nutrient uptake. Therefore impacts would be negligible.

Operating *Preferred Alternative D2A* would not result in any permanent impacts on Valley Creek at this elevated crossing because it is in a culvert at this location. Both D2A design options would have potential impacts identical to that of *Preferred Alternative D2A*. The proposed storage track (located between the potential maintenance facilities MF1 and MF2) would not have any impact on aquatic habitats.

The *City of Bellevue Bel-Red Corridor Project Final Report* (September 2007) identifies the West Tributary to Kelsey Creek and Goff Creek as having the greatest opportunity for stream enhancement. The East Link Project would not preclude these enhancements.

Alternative D2E would have no direct permanent impact on the West Tributary to Kelsey Creek.

Alternative D2E is shifted slightly southward to avoid the regional stormwater detention pond and instead spans West Tributary to Kelsey Creek as an elevated guideway 50 to 60 feet off the ground at this location. Impacts at Goff Creek, the Unnamed Tributary to Kelsey Creek, and Valley Creek would be the same as that described for *Preferred Alternative D2A*.

Alternative D3 would have similar impacts as Alternative D2E, except there would be direct permanent impacts where Alternative D3 crosses Valley Creek along NE 20th Street. Aquatic and riparian functions would be lost for the 30 linear feet of channel enclosed in the lengthened culvert at 20th Street. This reach of Valley Creek was rated as good habitat. Sears Creek would be unaffected because it is piped at this location and the proposed retained cut would not cut deep enough to affect the pipe.

Alternative D5 would have impacts at the West Tributary to Kelsey Creek similar to those described for *Preferred Alternative D2A* and Alternative D2E. Impacts at Goff Creek and Valley Creek would be the same as described for *D2A* at Valley Creek. The Unnamed Tributary to Kelsey Creek would be crossed where it is in a pipe system.

Segment E

High-Value Habitat

Preferred Alternative E2 and Alternative E2 - Redmond Transit Center Station Design Option would permanently affect approximately 1.1 and 1.2 acres, respectively, of high-value coniferous and deciduous forest next to SR 520.

The estimated area of high-value habitat that would be directly affected during East Link operation by the other Segment E alternatives is approximately 1.2 acres with Leary Way Alternative (E4) and approximately 2.1 acres for Redmond Way Alternative (E1) (which is nearly twice the impact as from the *Preferred Alternative E2*). Alternative E1 would impact the high-value coniferous forest.

Wetlands and Wetland Buffers

Preferred Alternative E2 could permanently impact up to 0.1 acre of wetland and 0.4 acre of wetland/stream buffer. *Preferred Alternative E2* would affect the existing mitigation wetland and buffers at Marymoor Park Wetland (WR-13) and the wetland and stream buffer at the railroad crossing at the Bear Creek Wetland (WR-12). Impacts would be only slightly higher with the E2 - Redmond Transit Center Design Option (see Table 4.8-5).

The other Segment E alternatives (E1 and E4) would have impacts on wetlands and wetland buffers comparable to *Preferred Alternative E2*.

Aquatic Habitat

Preferred Alternative E2 would have little direct permanent impacts on aquatic species and habitat. *Preferred Alternative E2* would affect riparian vegetation at the Sammamish River crossing by replacing taller growing tree species with lower understory riparian plants. There would be some shading impacts on approximately 5 feet of streambank and channel on either side of the existing former BNSF Railway Bear Creek railroad bridge. There would be no impact on aquatic habitat from the E2 - Redmond Transit Center Design Option.

Alternative E1 would have the same impacts as *Preferred Alternative E2* at the Sammamish River crossing except that more (0.2 acre) riparian vegetation would be affected. At the Bear Creek crossing, there would be no impacts on riparian vegetation because the guideway would be 48 feet above the top of the stream bank and 53 feet above the water surface. No tall growing tree species are present at this location.

Alternative E4 would have the same impacts as *Preferred Alternative E2* at the Sammamish River crossing. Impacts on the riparian community would be similar to *Preferred Alternative E2* at the Bear Creek crossing except with a higher elevated crossing.

Maintenance Facilities

Table 4.8-5 shows potential permanent operational impacts from maintenance facilities. The three maintenance facilities in Segment D (MF1, MF2, and MF3 maintenance facilities) would require wetlands and/or wetland buffers to be filled. MF3 would result in an increase of 42 linear feet of open stream channel by replacing two culverts with shorter ones on Goff Creek. No permanent operational impacts are expected from the MF5 in Segment E.

4.8.3.3 Construction Impacts

Impacts Common to All Build Alternatives

The following summarizes potential temporary impacts that could occur throughout the study area during construction:

- Impacts on vegetation and wildlife habitat:
  - Loss and degradation of breeding, foraging, and roosting habitat
  - Temporary wildlife displacement and disturbance from construction activity noise
  - Movement of mobile species to adjacent areas where they may or may not survive,

  - depending on the availability of nearby suitable and available habitat
  - Loss of less mobile species and species that retreat to burrows
- Impacts on wetlands and buffers:
  - Temporary disturbance of wetland area and function, including wetlands beneath elevated structures. Depending on the combination of alternatives selected, the range of impact could vary from 0.8 to 4.9 acres of wetland.
  - Vegetation clearing, site grading, and filling for construction access to permanent facilities
  - Soil compaction during construction activities that decreases soil permeability, infiltration, water-storage capacity, and vegetation regrowth
  - Reduction of wetland functions
  - Potential accidental spills of fuel oils, chemicals, and/or concrete leachate used during construction
  - Some increase in sediment loading and turbidity from grading and filling activities that could allow sediment-laden runoff into wetlands and degrade water quality
  - Potential introduction and spread of invasive species as a result of disturbance where weeds do not already exist
- Impacts on aquatic habitat:
  - Sedimentation impacts on waters downstream from earthwork activities
- Clearing of riparian vegetation at stream crossings

Removing high-value habitat can affect wildlife resources, and noise from construction activities can also affect wildlife presence, breeding, and foraging habitats. Noise from typical construction activities for light rail construction can range from 80 to 94 dBA Lmax within 50 feet. Typical construction noise is similar from roadway construction and light rail construction. Pile driving could produce 105 to 110 dBA maximum noise level (Lmax). Loud noises from short-term events such as these can startle nearby wildlife and agitate birds. Most wildlife normally return to their usual lifestyle shortly after the event, depending on duration, species, and proximity of the wildlife to the construction activity. The East Link Project would require no in-water work activity that would generate sound pressure levels that would impact threatened and endangered fish species.

Some wetlands and wetland/stream buffers would be temporarily impacted. Protective fencing would be installed to establish construction limits to minimize impacts in this area during construction, and impacted wetland and wetland buffer would be restored after construction.

Any construction activities requiring work below the ordinary high water mark in water bodies supporting fisheries resources would comply with USFWS-, NMFS-, and WDFW-established construction in-water work windows for protection of fish species, including ESA-listed species. Although a detailed construction schedule has not been developed yet, the allowable construction work window should not affect overall project schedule. See Table 4.8-6 for likely in-water work windows for the resources in the study area. Final work windows would be determined during permitting.

TABLE 4.8-6
In-Water Construction Work Windows for Listed Species[a]

Water Body	Applicable Alternative	ESA Work Window
Lake Washington (western and eastern highrises of I-90 floating bridge)	*Preferred Alternative A-1*	July 16 through December 31
Lake Washington (East Channel Bridge)	*Preferred Alternative A-1*	July 16 through July 31; November 16 through December 31
Kelsey Creek Watershed	All Segment D and Segment E Alternatives	July 1 through August 31
Sammamish River and lower Bear Creek	All Segment E Alternatives	July 16 through July 31; November 16 through March 15

[a]Final work windows would be determined during permitting

Temporary Construction Impacts by Alternative

Table 4.8-7 shows potential temporary construction impacts on wetlands, wetland/stream buffers, high-value wildlife habitat, and aquatic habitat that would occur as a result of the East Link Project. Specific impacts are described in the following sections.

Segment A

Several priority species that use Lake Washington in the vicinity of the I-90 bridge may temporarily avoid the bridge area as a result of construction noise. The construction of East Link may have impacts on avian species, such as impacts on the peregrine falcon nests. WSDOT is currently modifying portions of I-90; no impacts on avian species have been reported as result of this activity, and WSDOT has been monitoring the success and failure of the two nests.

TABLE 4.8-7
Potential Temporary Construction Impacts on Wetland, Wetland/Stream Buffer, High-Value Wildlife Habitat, and Aquatic Resources

Alternative		**Wetland[a] (acres)**	**Wetland/ Stream Buffer[a,b] (acres)**	**High-Value Wildlife Habitat[a,c] (acres)**	**Aquatic Resources**
Segment A, Interstate 90					
Preferred Alternative A1		0	0	0	Over-water and in-water work in Lake Washington
Segment B, South Bellevue					
Preferred Alternative B2M	*to C11A*	0.5 (<0.1 of mitigation site)	4.0 (0.2 of mitigation site)	1.1	Potential sedimentation from construction of crossing at storm drain channel (near "Y" at Bellevue Way and 112th) and crossing of a narrow alcove off of Mercer Slough (near SE 15th Street)
	to C9T		3.7 (0.2 of mitigation site)	1.0	
Alternative B1		0.9	3.0 (0.3 of mitigation site)	2.1	None
Alternative B2A		0.7	3.7 (0.3 of mitigation site)	1.9	
Alternative B2E		0.6	3.5 (0.3 of mitigation site)	1.3	
Alternative B3		1.2	3.9 (0.3 of mitigation site)	1.9	
B3 – 114th Design Option		0.6	4.8 (0.3 of mitigation site)	2.4	Potential sedimentation from construction of elevated crossing over Sturtevant Creek
Alternative B7		2.9 (0.7 of mitigation site)	0.6 (<0.1 of mitigation site)	4.6	Potential sedimentation from construction of elevated crossing over Mercer Slough
Segment C, Downtown Bellevue					
Preferred Alternative C11A	from *B2M*	0	0	<0.1	Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing
	from B3, B3 – 114th Design Option, or B7		0.1	0	
Preferred Alternative C9T[d]	from *B2M*	0	<0.1	0.2	Potential sedimentation from construction in the Sturtevant Creek channel. Vegetation clearing
	from B3 from B3 – 114th Design Option or B7		0.1	0	Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing
Alternative C1T		0	0	0	None
Alternative C2T	from B2A or B2E	0	0	0	Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing
	from B3 or B7		0.1		
Alternative C3T	from B2A or B2E	0	0	0	None
	from B3 or B7		0.1		Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing
Alternative C4A	from B2A or B2E	0	0	0	None
	from B3 or B7		0.1		Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing
Alternative C7E	from B2A or B2E	0	0	0	None
	From B3 or B7		0.1		Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing.
Alternative C8E	from B3 or B7	0	0.1	0	Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing.
Alternative C9A	from B2A	0	0	0.2	Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing.
	from B3	0.1	0.1	0	
	from B3 – 114th Design Option or B7	0			
Alternative C14E	from B3	0.1	0.1	0	Potential sedimentation from construction close to and in the Sturtevant Creek channel. Vegetation clearing.
	from B3 – 114th Design Option or B7	0			

TABLE 4.8-7 CONTINUED
Potential Temporary Construction Impacts on Wetland, Wetland/Stream Buffer, High-Value Wildlife Habitat, and Aquatic Resources

Alternative	Wetland[a] (acres)	Wetland/ Stream Buffer[a,b] (acres)	High-Value Wildlife Habitat[a,c] (acres)	Aquatic Resources
Segment D, Bel-Red/Overlake				
Preferred Alternative D2A from former BNSF Railway corridor[e]	0.5	1.7	1.9	Potential sedimentation from in-water construction in the West Tributary to Kelsey Creek and the Unnamed Tributary to Kelsey Creek. Construction near Valley Creek. Vegetation clearing.
D2A – NE 24th Design Option			2.0	
Alternative D2E from NE 12th or former BNSF Railway corridor	0.2 to 0.3	0.6 to 0.7	0.7 to 0.8	Potential sedimentation from construction near West Tributary to Kelsey Creek, the Unnamed Tributary to Kelsey Creek, and Valley Creek. Vegetation clearing
Alternative D3 from NE 12th or former BNSF Railway corridor	0.1	0.1 to 0.2	0.2 to 0.3	Potential sedimentation from construction near West Tributary to Kelsey Creek and in-water construction in Valley Creek and the Unnamed Tributary to Kelsey Creek. Vegetation clearing.
Alternative D5 from NE 12th or former BNSF Railway corridor	0.4	0.8	1.2 to 1.3	Potential sedimentation from construction near West Tributary to Kelsey Creek, Goff Creek, and Valley Creek.
Segment E, Downtown Redmond				
Preferred Alternative E2	0.1 (<0.1 of mitigation site)	0.9 (0.4 of mitigation site)	1.5	Potential for sedimentation from construction near the Sammamish River and Bear Creek. Vegetation clearing
E2 - Redmond Transit Center Design Option	0.2 (<0.1 of mitigation site)	0.9 (0.3 of mitigation site)	1.6	
Alternative E1	0.1	0.3 (0.1 of mitigation site)	2.1	
Alternative E4	<0.1	0.2 (0.1 of mitigation site)	1.1	

[a] Vegetation areas were classified and mapped regardless of size or upland/wetland designation. As a result, the vegetation areas may include upland and/or wetland vegetation. Vegetation areas may overlap with wetlands and/or buffers, and therefore impact acreage numbers for wetlands, buffers, and high-value wildlife habitat cannot be added together. This overlap is depicted on Exhibits 4.8-1 to 4.8-4.

[b] Some of the impacts on stream buffers overlap with impacts to some wetland buffers.

[c] *High-Value Wildlife Habitat* includes riparian forest and three types of urban mostly vegetated forest (coniferous forest, deciduous forest, and mixed coniferous/deciduous forest).

[d] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

[e] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

Most of the rest of Lake Washington provides comparable suitable habitat for all of the species that may temporarily avoid the project vicinity, and no measureable impacts are expected. Automobiles would be removed from the center lanes of I-90; therefore, no new pollutants would run off from this portion of the bridge.

Sound Transit may to implement special seismic upgrades to the I-90 floating bridge during the construction period. This would include in-water work in Lake Washington to reinforce the structure (see Table 4.8-6 for allowable in-water work windows that Sound Transit would use). The in-water work would consist of bolting or welding the East Channel bridge support column reinforcement jackets together. Impacts from this would be negligible and thus, work isolation BMPs would not be necessary here.

Additionally, construction activities to modify the existing I-90 bridge to accommodate the rail may involve grinding concrete, which could result in concrete dust entering Lake Washington. The lime found in concrete is alkaline, so when concrete comes into contact with water, the water becomes strongly alkaline (pH 11 to 13). High pH can be toxic to fish. Inadvertent spills could affect water quality and aquatic resources. Implementation of BMPs (see Sections 4.9, Water Resources, and 4.12, Hazardous Materials) would avoid and minimize the introduction of concrete dust and accidental spills into the lake. The East Link construction activities in this segment would have a low risk of impacts on ESA-listed fish.

Some work and equipment may be located on a barge in Lake Washington adjacent to the bridge sections. A tribal fishery sometimes occurs in July or August for sockeye, and a tribal fishery may occur at other times for other species in the future. Sound Transit would contact and coordinate with the Muckleshoot Tribe before construction begins on the I-90 bridge so that support boats and barges would not interfere with tribal fisheries.

Segment B

High-Value Habitat

Preferred Alternative B2M would temporarily impact 1.0 to 1.1 acres, depending on the connection to *Preferred Alternative C11A* or *Preferred Alternative C9T*, of high-value deciduous forest habitat, which includes the removal of some mature deciduous trees near the Bellevue Way SE and 112th Avenue SE intersection. Impacts on this area would be minimized to the maximum extent possible, by limiting clearing of mature vegetation to the construction area on each side.

Noise and construction activity in all Segment B alternatives, including *Preferred Alternative B2M*, would have the potential to temporarily displace wildlife in the Mercer Slough Nature Park because construction noise would extend into the parklands. Impacts would be relative to changes in noise levels and the types of human activities. Comparable temporary replacement habitats do not exist in the project vicinity.

WDFW priority species that may use Mercer Slough and forested stands for foraging include the bald eagle, pileated woodpecker (*Dryocopus pileatus*), green heron (*Butorides virescens*), and willow flycatcher (*Empidonax traillii*), which are all relatively sensitive to human disturbance and habitat alteration. Temporary losses of these high-value habitat types would occur. These losses may affect foraging, breeding, and roosting behavior and temporarily displace these species from the project vicinity. Although specific bald eagle foraging locations are not known, construction in Segment B could temporarily displace eagles foraging in the area. Due to the amount of similar available habitat in the Mercer Slough Nature Park, impacts on wildlife would not be substantial. Western toad (*Bufo boreas*) is the only priority species with limited mobility identified as potentially occurring in the study area. If western toads are present close to the construction area during the mating season (spring), construction noise associated with all Segment B alternatives could interfere with the western toad's ability to hear mating and alarm calls and disrupt its reproduction or survival.

With the Segment B alternatives other than *Preferred Alternative B2M*, the estimated area of high-value habitat that would be directly affected during clearing for construction would vary from approximately 1.3 acres (Alternative B2E) to approximately 4.6 acres (Alternative B7). Alternative B7 would affect more area of each high-value habitat than any other Segment B alternative. All the Bellevue Way alternatives would have a similar total impact on high-value wildlife habitat as Alternative B2E.

Wetlands and Wetland Buffers

Preferred Alternative B2M to either *C11A* or *C9T* would temporarily impact 0.5 acre of Category 2 wetland that is located next to Bellevue Way SE and 112th Avenue SE (WR-1/2). This is the lowest temporary wetland impact of the Segment B alternatives. The potential temporary impacts on wetlands would be primarily related to the following:

- Construction staging and access within the construction corridor east of the permanent Sound Transit right-of-way along Bellevue Way SE and 112th Avenue SE.
- Construction staging near the South Bellevue Park-and-Ride Lot, which would affect a portion of the Mercer Slough Wetland (WR-1/2), including modifications to the existing stormwater pond.

The potential temporary impacts on wetland buffers would be 4.0 and 3.7 acres for connections to *Preferred Alternatives C11A* or *C9T,* respectively (see Table 4.8-7). general condition of the wetland buffers affected by construction includes unvegetated areas as well as areas of blackberry, lawn, and some deciduous forest (often with an understory of weeds such as Himalayan blackberry and patches of Japanese knotweed). The potential temporary impacts on wetland buffers would be primarily related to the following:

- Construction near the South Bellevue Park-and-Ride Lot
- Construction of the elevated guideway near the intersection of Bellevue Way SE and 112th Avenue SE, which would affect an area of deciduous forest with high-quality habitat
- Construction staging and access within the area east of the project right-of-way

Included are construction impacts on an existing mitigation site located immediately south of the South Bellevue Park-and-Ride Lot. Restoring these affected buffers after construction could improve buffer function by replacing existing areas that are dominated by noxious and invasive weeds or lawn with native species. This could improve the functions of the existing wetland and stream buffers and result in a beneficial environmental impact. Of the other Segment B alternatives, Alternative B7 would have the greatest temporary construction impacts on wetlands and high-value habitat.

Of all the alternatives evaluated, Alternative B7 has the potential for the largest temporary impact on wetlands (2.9 acres, see Table 4.8-7). The majority of this impact would result from crossing the Mercer Slough wetland (WR-1/2). Alternative B7 would also bisect the WSDOT 118th Avenue SE wetland (WR-5). In order to construct the elevated guideway across Mercer Slough, a temporary work trestle might need to be built. The option of constructing the guideway with an overhead gantry could reduce temporary impacts and would be explored during final design. Alternative B7 would have the lowest potential temporary impact on wetland buffers of all the Segment B alternatives.

Alternatives B1, B2A, and B2E would have relatively similar and low potential impacts on wetlands and similar potential impacts on wetland/stream buffers. These alternatives would also have relatively similar potential buffers impacts that would primarily affect wetland/stream buffers along 112th Avenue SE, which consist of disturbed vegetation dominated by Himalayan blackberry (see Exhibit 4.8-5). Alternatives B1, B2A, B2E, and B3 (with and without the B3 - 114th Design Option) would avoid wetland impacts on existing mitigation sites.

The B3 - 114th Design Option would avoid the temporary impact (approximately 0.6 acre) that Alternative B3 would have on the Sturtevant Creek wetland. This design option would include several small impacts on wetlands near the shoreline of Mercer Slough West, and involve an elevated crossing of Sturtevant Creek along the south side of SE 8th Street that might temporarily affect streamside wetlands and buffers.

Aquatic Habitat

Preferred Alternative B2M to C9T would have no direct temporary impacts on fish and aquatic species and habitats. It could have some indirect temporary impacts. *Preferred Alternative B2M* would be closer to Mercer Slough West than the other alternatives, and thus would have the highest risk of adding sediment to the slough compared with the other alternatives in Segment B. It also may result in vegetation clearing to the water's edge, causing temporary impacts on riparian zone function. *Preferred Alternative B2M to C11A* is similar to *B2M to C9T* but would be set farther away from Mercer Slough. Except for Alternative B7, the construction impacts of the other Segment B alternatives would have aquatic habitat impacts similar to *Preferred Alternative B2M*. The differences lie in the proximity to Mercer Slough. Other alternatives that follow Bellevue Way SE are farther from Mercer Slough and thus would have a smaller risk of impacts on aquatic habitat. Construction activities in this segment would have a low risk of impact on salmonids because there is no spawning or primary rearing habitat and there would be no in-water work.

Alternative B7 would cross Mercer Slough with a free-spanning structure, and the support columns would be located outside of the ordinary high water mark, resulting in minimal impacts on aquatic habitat. Construction would, however, be close to the water and could result in riparian vegetation being cleared to the water's edge and would still pose a potential risk of sediment transport and accidental spills into Mercer Slough.

Segment C

High-Value Habitat

With *Preferred Alternatives C11A* or *C9T*, and Alternative C9A with a connection to B2A there would be a relatively small area of temporary construction impacts on high-value wildlife habitat along Segment C. Segment C is in Downtown Bellevue, a highly developed area. Therefore, no wildlife habitat or wildlife displacement is expected with any of the other Segment C alternatives.

Wetlands and Wetland Buffers

Preferred Alternatives C11A and *C9T* would not impact wetlands. However, if connecting from Alternative B3, B3- 114th Design Option, or B7, there would be a potential temporary construction impact on the buffer to the Hilton Stormwater Pond (WR-16). This potential temporary impact would be primarily related to construction of the elevated guideway over Sturtevant Creek. Impacts on the pond buffer overlap with the impacts on the stream buffer.

All of the other Segment C alternatives connecting from Alternatives B3, B3- 114th Design Option, or B7 may have the same potential temporary construction impact on the buffer to the Hilton Stormwater Pond (WR-16) as discussed above for *Preferred Alternatives C11A* and *C9T*. In addition, Alternatives C9A and C14E may also have a potential temporary construction impact on the Hilton Stormwater Pond (WR-16) itself. The current design for Alternatives C9A and C14E shows a temporary impact on the portion of the pond at its outlet. For purposes of this EIS, it was assumed that the function of the entire 0.1-acre pond would be temporarily disturbed (see Table 4.8-7). Segment C alternatives that connect from Alternatives B2A or B2E would not affect WR-16.

Aquatic Habitat

Preferred Alternatives C11A and *C9T* connection with *Preferred Alternative B2M* would avoid Sturtevant Creek impacts south of Main Street, but relocating the creek for the Hospital Station east of I-405 would require relocating Sturtevant Creek channel just north of NE 8th Street (see Exhibit 4.8-6).

Preferred Alternatives C11A and *C9T* connecting from Alternatives B3, B3 - 114th Design Option, or B7 may result in sediment potentially reaching Sturtevant Creek behind the Hilton Hotel. Construction of support columns in the reach downstream of the I-405 culvert would be close to the channel, and vegetation may be cleared to the water's edge. Temporary construction impacts on riparian zone function would result as well. These construction activities would have a potential to cause sedimentation in Sturtevant Creek. However, careful implementation of BMPs along with the very low flows during the in-water work window would most likely result in a minimal and brief pulse of turbidity when flow is reconnected to the new channel. The route for both *Preferred Alternatives C11A* and *C9T* also crosses Sturtevant Creek just south of the NE 8th Street/ I-405 interchange, but the creek is in an existing pipe system at this location.

Alternatives C1T, C2T, C9A, and C14E would have the same impacts on Sturtevant Creek at the Hospital Station as described for *Preferred Alternatives C11A* and *C9T*. All Segment C alternatives, except Alternatives C1T and C7E, would have similar construction impacts on Sturtevant Creek as *C11A* and *C9T.*

Segment D

High-Value Habitat

Preferred Alternative D2A would affect approximately 1.9 to 2.1 acres of high-value wildlife habitat that would be directly affected during clearing for construction, depending on the connection option. The estimated area of high-value wildlife habitat that would be directly affected during clearing for construction along the other Segment D alternatives varies from approximately 0.2 to 0.3 acre (Alternative D3) to approximately 1.2 to 1.3 acres (Alternative D5). The proposed storage track with *Preferred Alternative D2A* would not affect high-value wildlife habitat.

Wetlands and Wetland Buffers

To construct *Preferred Alternative D2A*, elevated crossings over five wetlands (WR-7, WR-8SE, WR-11, WR-10W, and WR-15) and road construction related to the retained cut across 120th Avenue NE (WR-17) would result in potential temporary impacts on approximately 0.5 acre of wetland and approximately 1.7 acres of wetland/stream buffer. This alternative would have the largest temporary impact on wetlands and wetland/stream buffers compared to the other Segment D alternatives; however, the total impact would be relatively low. The potential temporary impacts on wetlands and wetland/stream buffers would be primarily related to staging and access necessary to construct the elevated guideway and would affect mostly Category 3 wetlands, a very small amount of one Category 2 forested wetland, and buffers that are currently disturbed by surrounding development, noxious weeds, stormwater from parking lots and buildings, and litter. Direct temporary construction impacts on wetland resources would be the same with either D2A design option, and would be the same as described above for *Preferred Alternative D2A*.

Alternative D3 would result in the smallest temporary impact on wetlands (0.1 acre) and wetland/stream buffers (0.1 to 0.2 acre, depending on the connection from the former BNSF Railway corridor versus NE 12th Street, respectively) compared to all the Segment D alternatives (see Table 4.8-7). This alternative would completely avoid all impacts on the wetlands east and west of 140th Avenue NE (WR-10E, WR-10W, and WR-11) and would have minor temporary impacts on wetlands WR-6, WR-8, and WR-15. In addition, connecting from Segment C via the former BNSF Railway corridor (rather than via NE 12th Street) would further avoid a small impact on the BNSF Matrix Wetland (WR-6).

The amount of temporary impact on wetlands and wetland/stream buffers from Alternatives D2E and D5 would be less than *Preferred Alternative D2A* but more than Alternative D3 (see Table 4.8-7). Alternative D5, which is also completely elevated, would have temporary impacts primarily on the West Tributary to Kelsey Creek Riparian Wetland Northwest (WR-8NW) and the wetland west of 140th Avenue NE (WR-11).

Aquatic Habitat

Construction of *Preferred Alternative D2A* would cross four streams (West Tributary to Kelsey Creek, Goff Creek, Unnamed Tributary to Kelsey Creek, and Valley Creek). While there is potential risk of sedimentation, the impacts are likely to be minimal as long as the appropriate BMPs to contain sediment are implemented. In-water work at the West Tributary to Kelsey creek would be isolated with a coffer dam or similar technique. In-water work in the Unnamed Tributary to Kelsey Creek would be isolated by bypass pumping during the connection phase of the culvert/pipe addition in 136th place NE.

All other Segment D alternatives cross streams. This could result in sediment potentially reaching the streams during construction. However, temporary construction impacts on salmonids are not expected because potential impacts that would occur in the West Tributary to Kelsey Creek, Goff Creek, and Unnamed Tributary to Kelsey Creek would be upstream from fish barriers in the streams and sediments would not likely be transported farther downstream to aquatic habitat that supports fisheries resources. Valley Creek would be crossed by an elevated span next to SR 520 by most alternatives and would have limited potential for sedimentation. Alternative D3 would require a culvert replacement at NE 20th Street. Careful implementation of BMPs should be adequate to minimize sedimentation there. Potential inadvertent spills could affect water quality and aquatic resources. Construction for stream crossings could also disturb western toads due to construction noise, interfering with their ability to hear mating or alarm calls.

Segment E

High-Value Habitat

Preferred Alternative E2 and E2 - Redmond Transit Center Design Option would affect approximately 1.5 acres of high-value wildlife habitat that would be directly affected during clearing for construction.

The estimated area of high-value habitat that would be directly affected during clearing for construction with the other Segment E alternatives varies from approximately 1.1 acres (Alterative E4) to approximately 2.1 acres (Alternative E1).

Wetlands and Wetland Buffers

Construction of *Preferred Alternative E2* would result in potential temporary impacts on 0.1 acre of wetland and on 0.9 acre of wetland/stream buffer. These impacts include a potential minor temporary disturbance (less than 0.1 acre of wetland and 0.4 acre of wetland buffer) to existing mitigation wetlands at SR 520 Bear Creek 1 and 2 mitigation sites at NE 76th Street. Constructing E2 - Redmond Transit Center Design Option would result in potential temporary impacts similar to *Preferred Alternative E2*. Potential temporary impacts on wetlands would be 0.2 acre, and 0.9 acre on wetland/stream buffer. Potential impacts on wetlands and wetland buffers from Alternatives E1 and E4 would be slightly less than those described for *Preferred Alternative E2*, as shown in Table 4.8-7.

Aquatic Habitat

Preferred Alternative E2 would cross the Sammamish River and Bear Creek, but no in-water work would be necessary at either crossing; therefore, no direct impacts on salmonid species would occur. Potential sedimentation from clearing and inadvertent spills could affect water quality and aquatic resources. Implementation of BMPs is expected to avoid sediment input and accidental spills. Construction noise near these streams could disrupt western toad reproduction by interfering with their ability to hear mating and alarm calls. The E2 - Redmond Transit Center Design Option would have potential impacts on aquatic habitat identical to those described for *Preferred Alternative E2*. Potential impacts on aquatic habitat from the other Segment E alternatives would be similar to *Preferred Alternative E2*, which would also cross the Sammamish River and Bear Creek.

Construction noise levels could displace wildlife from coniferous forest patches during construction along the Alternative E1 route. Additional minor displacement or disturbance may occur along *Preferred Alternative E2* where it borders Marymoor Park. Although no impacts are anticipated, all Segment E alternatives cross over Bear Creek, near a created wetland mitigation area (WR-12). If the *Preferred Alternative E2* alignment were shifted to accommodate other improvements in the former BNSF corridor, wetland impacts associated with crossing Bear Creek might change. Protective fencing would be installed to establish construction limits to avoid this area during construction.

All Segment E alternatives might affect wildlife at the Bear Creek Parkway crossing. Although specific bald eagle foraging locations are not known, construction of all Segment E alternatives across Bear Creek would cause temporary losses of forested stands and could temporarily displace any eagle foraging in the area.

Maintenance Facilities

Increased sediment inputs from construction of maintenance facilities in Segment D (MF1 and MF2) are not expected because the presence of beaver dams would detain and deposit sediment inputs. Construction of MF3 would require two culvert replacements in Goff Creek, which could result in temporary downstream sedimentation. No impacts are expected at the MF5 in Segment E.

4.8.4 Potential Mitigation Measures

Mitigation for ecosystem impacts is based on a hierarchy of avoiding, minimizing, and compensating for unavoidable adverse impacts. The design of the East Link Project incorporates avoidance and minimization techniques. Avoiding impacts on ecosystems is an important component of alternative development and design. Routes were developed based on numerous constructability issues, including the presence of sensitive areas. Where possible, sensitive areas were avoided, and when not possible, designs were modified to minimize impacts on ecosystems.

Sound Transit would meet all regulatory requirements and continue to implement proactive avoidance and minimization measures, as outlined in Appendix H3, related to BMPs and in adherence with federal, state, and local regulations. The Biological Assessment prepared for ESA consultation also identifies conservation measures and proposed aquatic habitat improvements that would become conditions of federal approvals for the project. Based on this analysis, and the mitigation measures proposed herein, the NMFS and the USFWS concurred on December 7, 2010, and February 23, 2011, respectively, that the determination of effect for ESA-listed species is “may affect, not likely to adversely affect.” The proposed determination of effect on Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act was “No Adverse Effect.”

4.8.4.1 Potential Mitigation for Operational Impacts

The following subsections describe mitigation for specific habitat types. Mitigation measures do not differ between the preferred alternatives and the other East Link alternatives.

High-Value Habitat

Project impacts on high-value wildlife habitats regulated by local agencies would be mitigated with habitat replacement or enhancement. The type of habitat to be established would depend on the affected species. The type of habitat to be replaced and mitigation ratios would be determined through discussions with federal, state, and local permitting agencies during final design and project permitting. Sound Transit would adhere to local ordinances regarding tree replacement ratios.

Wetlands and Wetland Buffers

The preferred alternatives for the proposed East Link Project would permanently affect approximately 0.7 acre of various wetlands and up to 2.5 acres with a combination of other alternatives. This relatively small amount of impact for an 18-mile-long project (a maximum of 0.14 acre of impact per mile of light rail) reflects Sound Transit’s commitment to avoid and minimize environmental impacts. Sound Transit has committed to achieving no net loss of wetland function and area on a project-wide basis. Sound Transit would apply the interagency wetland mitigation guidance prepared by Ecology, USACE, and USEPA (2006).

Compensatory mitigation sites would be identified within the same drainage basin and compensate for lost functions in-kind. The specific compensatory mitigation sites for unavoidable impacts on wetlands would be determined during final design and project permitting. Compensatory mitigation-to-impact ratios for replacement of wetlands would comply with the requirements of the local critical area ordinances (CAOs) and the interagency wetland mitigation guidance (Ecology et al., 2006). During field work, Sound Transit determined there are several opportunities for wetland mitigation within the study area close to potentially impacted areas that are expected to meet required mitigation ratios. Additional compensatory mitigation may be required for impacts on existing wetland mitigation sites and would be determined during final design and project permitting.

There are no existing approved mitigation banks in the Kelsey Creek subbasin. However, it is possible that a bank could become certified in the project study area in the future and could be used to mitigate project impacts.

Aquatic Habitat

On Sturtevant Creek at the Hospital Station where realignment of the stream channel would be required (for *Preferred Alternatives C11A, C9T,* and Alternatives C1T, C2T, C9A, or C14E), Sound Transit would reconstruct the new channel with natural stream habitat features. Riparian habitat functions would be improved with native riparian plantings. This reach is currently lacking shade. The newly shaded reach would help lower stream temperatures in the downstream reaches that support salmonids. Specific requirements and details of these measures would be established during final design and project permitting.

For Alternatives D3 or D5, which have culvert lengthening or shortening (Goff Creek and Valley Creek), habitat improvements might be made in the form of large woody debris placements. For maximum benefit to fisheries, habitat improvements could be done in either Goff Creek, Valley Creek, or West Tributary of Kelsey Creek below the anadromous fish barriers, wherever the best improvements and access exist. Along the West Tributary to Kelsey Creek, enhancement could include creating wider buffers for habitat and open space, environmental education, and stormwater management. Riparian plantings to mitigate impacts in riparian areas from shading by elevated tracks or bridges would be possible in a number of locations, such as in Mercer Slough, West Tributary to Kelsey Creek, Valley Creek, Bear Creek, and Sammamish River. The Sammamish River would receive the most benefit from this mitigation.

As mitigation for the increased culvert length on the Unnamed Tributary to Kelsey Creek (with *Preferred Alternative D2A* and Alternatives D3 and D2E), Sound Transit proposes to coordinate with the City of Bellevue to find and develop instream habitat improvements on Goff Creek in coordination with the City of Bellevue's larger plans to restore and daylight the creek.

4.8.4.2 Potential Mitigation for Construction Impacts

BMPs have been developed to avoid and minimize impacts during construction. These BMPs, listed in Appendix A of Appendix H3 and Section 4.9, Water Resources, involve implementation of conditions set forth in the HPA, WAC 220-110-070, for installing culverts during construction, Section 401 and Section 404 of the CWA, the NPDES permit, and the development of a Stormwater Pollution Prevention Plan (SWPPP) that prescribes implementation of measures for identifying, reducing, eliminating, or preventing sediment and erosion problems on site. The following subsections describe mitigation for specific habitat types for construction impacts by any of the East Link alternatives.

High-Value Habitat

Areas disturbed in the construction staging areas would be revegetated with native vegetation within one year following construction. Sound Transit would update its survey of bird nests during final design. If a bald eagle nest is found within one-half mile of the proposed construction limits, a bald eagle management plan would be prepared. Under the Migratory Bird Treaty Act (MBTA) nesting migratory bird nests cannot be destroyed during the breeding season. Sound Transit would consult with the USFWS on methods to implement during construction to avoid impacts on migratory birds consistent with the MBTA and the Bald and Golden Eagle Protection Act. Such methods would include not clearing vegetation in the Mercer Slough buffer during the nesting season for migratory birds.

Wetlands and Wetland Buffers

Wetlands and wetland/stream buffer areas disturbed by construction would be protected by BMPs and revegetated as soon as possible after construction. BMPs would be implemented to avoid construction impacts on wetlands and wetland buffers. Sound Transit would conduct detailed site surveys to establish existing topography and conduct hydrologic monitoring to restore topography. Restoration would include soil amendment and vegetation replacement.

Aquatic Habitat

BMPs would be implemented to avoid construction impacts on aquatic resources. Except for the in-water construction in Lake Washington, any in-water work would be isolated from adjacent waters using a coffer dam or other suitable technique. Such isolation is not necessary in Lake Washington due to the type of work done there (welding or bolting metal jackets together).

In-water work would be conducted during approved in-water construction windows. Where ESA-listed species may be present, stream crossings would not require in-water work and the project would not install infrastructure below the ordinary high water mark. Disturbed or temporarily cleared riparian vegetation would be replanted with suitable native species. The proposed channel relocation of Sturtevant Creek adjacent to the Hospital Station would follow guidelines found in the Integrated Streambank Protection Guidelines manual (WDFW, et al. 2002) and other current stream design documents.

If over-water construction takes place over Mercer Slough (with Alternative B7) or the Sammamish River (all Segment E alternatives) during the migratory period of ESA-protected species, nighttime lighting would be shielded from the waters below. Sound Transit would consult with the Tribes to avoid impacting Tribal fisheries from construction work in Lake Washington, from barge/boat transit through the Lake Washington ship canal, or through approaches to the Ballard Locks.

4.9 Water Resources

4.9.1 Introduction to Resources and Regulatory Requirements

This section describes the affected water resources and potential hydrologic, flooding, and water quality impacts associated with the East Link Project alternatives. The following laws, statutes, local ordinances, and guidelines address hydrology, water quality, and/or flooding issues:

- National Pollutant Discharge Elimination System (NPDES) Permit Regulations
- Presidential Executive Orders 11988 and 11990
- Washington State Water Quality Standards
- Washington State Department of Ecology (Ecology) *Stormwater Management Manual for Western Washington* (Ecology, 2005)
- WSDOT *Highway Runoff Manual* (WSDOT, 2008)
- Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA) requirements
- The National Flood Insurance Protection Act
- The Flood Disaster Protection Act
- Sections 401, 402, and 404 of the Clean Water Act (CWA)
- Section 10 of the Rivers and Harbors Act
- City and County floodplain and drainage regulations
- City and County critical area ordinances
- City Shoreline Master Programs
- King County industrial rules and regulations
- King County Waste Discharge Permit for discharge of construction water to the sanitary sewer

A detailed discussion of wetlands, stream habitat, and stream/wetland buffers is in Section 4.8, Ecosystem Resources.

4.9.2 Affected Environment

The study area for water resources consists of the stream basins within which the project would be constructed (see Exhibit 4.9-1). The study area is located in Water Resources Inventory Area (WRIA) 8. Topography in the study area ranges from a high elevation of roughly 500 feet to Lake Washington at an elevation of 21 feet (King County, 2007a; City of Bellevue, 2007a; Horizon Systems Corporation [Horizon], 2007). Most of the basin areas crossed by the alternatives are urbanized, with impervious surface cover ranging from approximately 30 percent to a high of nearly 70 percent around Downtown Bellevue (City of Bellevue, 2002). Notable features in the study area include the heavily developed corridors of Interstate (I) 90, I-405, and State Route (SR 520); Seattle; Downtown Bellevue; Downtown Redmond; and surrounding suburban development. The affected environment is described in the following subsections that address surface waters, stormwater management, floodplains, wellhead protection zones (WPZs), and maintenance-facility surroundings. Project segments are addressed separately as applicable.

4.9.2.1 Surface Waters

Each of the water bodies in the study area is designated by Ecology for the following uses: core summer salmonid habitat; extraordinary primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values (WAC 173-201A-602). These uses are used to define the Ecology water quality standards that must be met for each water body.

Table 4.9-1 summarizes the parameters for Ecology's 303(d) water quality standards that have been exceeded within the water bodies in the study area. See the insert on this page for an explanation of 303(d) section of the Clean Water Act.

What is the Ecology 303(d) List?

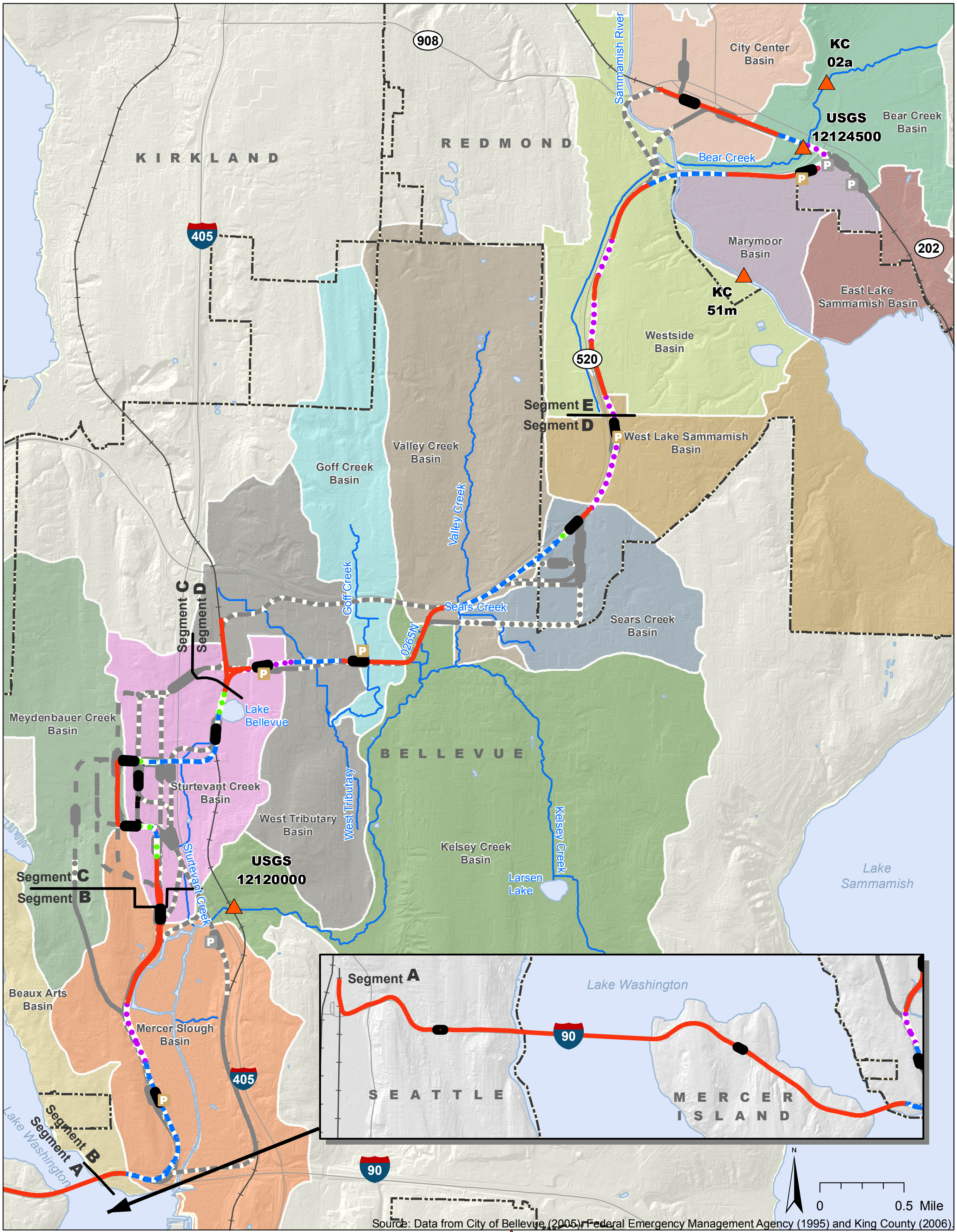
The federal Clean Water Act (CWA), adopted in 1972, requires states to restore their waters to be "fishable and swimmable." The CWA established a process to identify and clean up polluted waters. Every 2 years, all states are required to prepare a list of water bodies that do not meet water quality standards.

Ecology has prepared a preliminary assessment of water quality in Washington. The assessed waters are listed in categories that describe the status of water quality. For those waters that are in the polluted category, beneficial uses—such as drinking, recreation, aquatic habitat, and industrial use—are impaired by pollution.

For 303(d)-listed water bodies, total maximum daily loads (TMDLs) are developed by Ecology for the pollutants that exceed water quality standards as a means for ultimately attaining the standards.

Segment A

Lake Washington is the dominant water resource in Segment A. It is the second largest natural lake in Washington and lies between Seattle and Bellevue, where it would be crossed by Segment A.


908
KIRKLAND
REDMOND
405
Sammamish River
City Center Basin
KC 02a
USGS 12124500
Bear Creek Basin
Bear Creek
Marymoor Basin
202
East Lake Sammamish Basin
KC 51m
Westside Basin
520
Segment E
Segment D
West Lake Sammamish Basin
Valley Creek Basin
Goff Creek Basin
Valley Creek
Goff Creek
Sears Creek
0265N
Sears Creek Basin
Segment C
Segment D
Meydenbauer Creek Basin
Lake Bellevue
BELLEVUE
Sturtevant Creek Basin
West Tributary Basin
West Tributary
Kelsey Creek Basin
Kelsey Creek
Larsen Lake
Lake Sammamish
Segment C
Segment B
USGS 12120000
Sturtevant Creek
Beaux Arts Basin
Mercer Slough Basin
405
Segment B
Segment A
Lake Washington
90
Segment A
Lake Washington
90
SEATTLE
MERCER ISLAND
N
0
0.5 Mile

Source: Data from City of Bellevue (2005), Federal Emergency Management Agency (1995) and King County (2006).

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

▲ Stream Flow Gage

Stream

● Proposed Station

P New and/or Expanded Park-and-Ride Lot

Exhibit 4.9-1

Water Resources Overview

Segments A,B,C,D, and E

East Link Project

TABLE 4.9-1
303(d) Designated Use Violations (2008)

Water Body Basin	Fecal Coliform	Dissolved Oxygen	Temperature	Total Phosphorus
Lake Washington	✓			✓
Mercer Slough	✓		✓	
Sturtevant Creek				
Kelsey Creek	✓	✓	✓	
West Tributary				
Goff Creek				
Valley Creek				
Sears Creek				
Sammamish River	✓	✓	✓	
Bear Creek	✓[a]	✓[a]	✓[a]	

[a] A total maximum daily load (TMDL) has been prepared for this parameter on this water body.

Source: Ecology, 2008
Washington State Department of Ecology (Ecology), 2008. 2008 Water Quality Assessment (303d List) available at: http://www.ecy.wa.gov/programs/wq/303d/2008/index.html

Most of the surface water in this segment drains to this lake, which is 1 to 3 miles wide and extends 18 miles from Renton to Kenmore. Its two largest tributaries are the Cedar and Sammamish Rivers; the Sammamish River lies within the study area and is discussed below. Lake Washington is a major recreational feature in the region, with heavy use for swimming, fishing, and boating. Although algae blooms can occur, the lake generally has good water clarity. Various locations throughout the lake have been placed on the 2008 Ecology 303(d) list of impaired water bodies for violations of standards for nitrogen, fecal coliforms, and total phosphorus (Table 4.9-1).

Segment B

In Segment B, Mercer Slough covers 1,330 acres and receives inflow from Kelsey Creek and Sturtevant Creek. The southern portion of the slough flows through the protected Mercer Slough Nature Park, underneath I-90, and into Lake Washington. In the northern part of the slough, Mercer Slough has an east and a west branch. Sturtevant and Kelsey Creeks flow into the northern portion of the slough, supplying flow to both branches. Both Mercer Slough and Kelsey Creek are within Bellevue's Shoreline Master Program. The gradient is gradual, which creates sluggish flow in these branches. Mercer Slough is at the same elevation as Lake Washington and has no perceptible flow. Approximately 35 percent of the basin area is covered by impervious surface, indicating a moderate level of basin development (City of Bellevue, 2002). The primary functions of Mercer Slough are to provide a migration corridor for salmon and trout and to support one of the largest wetlands within the area. The slough is used extensively for recreation, including nonmotorized boating. The water body is listed on the 2008 Ecology 303(d) list of impaired water bodies with violations of standards for temperature and fecal coliform (Table 4.9-1).

Segments C and D

Sturtevant Creek originates at Lake Bellevue near the Segment C and D boundary and drains southward from an area of just over 770 acres into Mercer Slough (City of Bellevue, 2002). Interstate 405 runs parallel to the creek, crossing it midway between Lake Bellevue and Mercer Slough. The creek is surrounded on both sides by heavy commercial and high traffic use, making the basin approximately 65 percent impervious. The entire basin falls within the City of Bellevue. Lake Bellevue, located in the upper portion of the basin, is completely surrounded by residential and commercial development.

Kelsey Creek drains an area of over 9,200 acres into Mercer Slough (Horizon, 2007). Smaller upstream tributaries include (from east to west) Sears Creek, Valley Creek, Goff Creek, and West Tributary Kelsey Creek. Kelsey Creek flows north through Larson Lake and loops around to the west and south, receiving the flows of the above-mentioned tributaries along the way.

Land use within the associated basins is primarily light to medium residential. An exception is the medium- to high- density commercial development along the southern portion of SR 520, which crosses Goff and Valley creeks. Directly to the west of the West Tributary Kelsey Creek headwaters is the SR 520 and I-405 interchange. These uses contribute to an overall impervious surface coverage of approximately 40 percent of the basin (City of Bellevue, 2002). The U.S. Geological Survey (USGS, 2007) has recorded flows within Kelsey Creek ranging from 2.4 to 412 cubic feet per second (cfs) near its confluence with Mercer Slough. The water body is also listed on the 2008 Ecology 303(d) list of impaired water bodies with violations of standards for temperature, fecal coliform, and dissolved oxygen (Table 4.9-1).

Segment E

In Segment E, the Sammamish River is the largest tributary flowing to Lake Washington, draining over

150,000 acres (Horizon, 2007). The river begins at the outlet from Lake Sammamish, then flows north and west for 15 miles through Redmond, Woodinville, Bothell, and Kenmore. Decades ago the river channel was dredged and straightened. Along its route, it collects flow from Bear Creek, Little Bear Creek, North Creek, and Swamp Creek. Land use within the Sammamish basin varies from urban commercial and residential to recreational, agricultural, and open space. Sammamish River and Bear Creek are within the City of Redmond's Shoreline Master Program.

Multiple subbasins of the Sammamish River watershed lie within the Segment E study area. The study area includes the first 2 miles of the Sammamish River as it flows through Marymoor Park, a large regional park, and past Downtown Redmond. Study area basins draining to the river include East and West Lake Sammamish, Westside, Marymoor, Bear Creek, and City Center (Exhibit 4.9-1). Flow records at a gage midway down the river measured flows ranging from 25 to 2,830 cfs. The Sammamish River has been added to Ecology's 2008 303(d) list of impaired water bodies in Washington because water quality in the river exceeds standards for temperature, fecal coliform, and dissolved oxygen (Table 4.9-1).

The headwaters of Bear Creek are located in southern Snohomish County. The creek drains a total of 31,000 acres and flows into the Sammamish River, just south of Downtown Redmond (Horizon, 2007). Major tributaries include tributary flows from Evans Creek, Cottage Lake Creek, and Seidel Creek. The lower portion of Bear Creek lies within the study area. Recorded flows along the lower portion of Bear Creek have ranged from 16 to 1,040 cfs (King County, 2007b). Bear Creek is on Ecology's 303(d) because it exceeds the allowable water quality standards for dissolved oxygen, fecal coliform, and temperature (Table 4.9-1). The Bear-Evans creek system is recognized as one of the top six natural resource basins in King County in the Waterways 2000 Program (King County, 2010).

4.9.2.2 Stormwater Management

Segment A lies entirely within the I-90 right-of–way. For much of the length of Segment A in Seattle, runoff flows to a combined pipe system that receives both stormwater runoff and sanitary sewage. This combined flow is conveyed to the West Point Treatment Plant, where the water is treated and discharged to Puget Sound. For the portion of I-90 crossing Mercer Island, the highway runoff is conveyed within the WSDOT-owned pipe system and discharged to Lake Washington. Some stormwater treatment is provided within vaults.

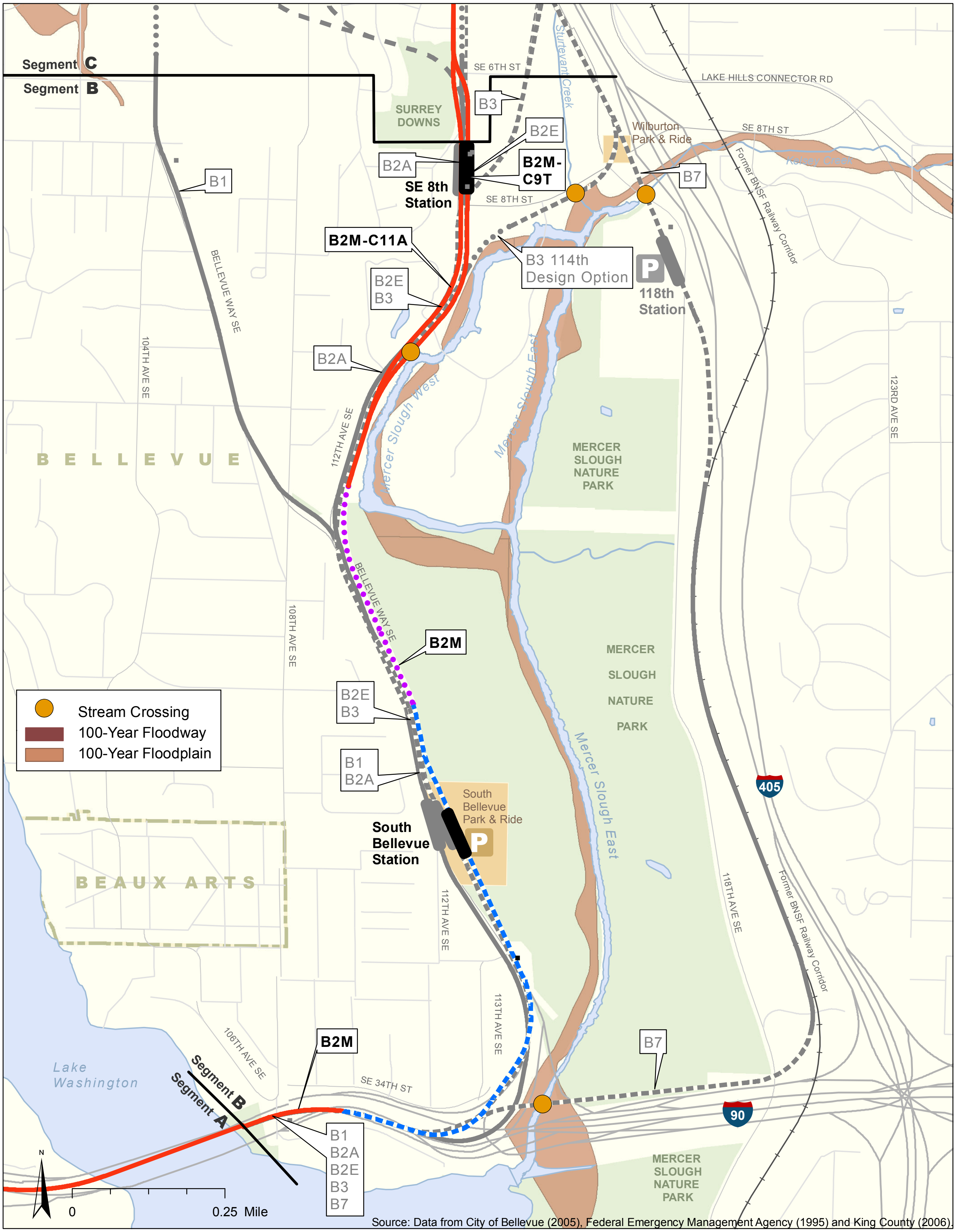
The remaining project segments lie within Bellevue and Redmond. These cities operate separated stormwater systems. These systems only collect and convey stormwater, not sanitary sewage. These systems typically discharge to the local streams. Urbanization within these cities has changed many of the land uses, from forested areas to urban development. Higher peak flows that are caused by impervious surface prevent infiltration from occurring and result in channel scour and degradation of stream habitat. To reduce the high flows that would otherwise occur within the streams, both cities operate a system of regional detention ponds. Runoff from developments constructed less than 15 to 20 years ago generally receives treatment and detention prior to discharging into the city stormwater systems. Each city operates a regional stormwater system within its downtown area. The regional system has the advantage of allowing new development to discharge stormwater to them without having to provide stormwater facilities for each new development. For convenience, these are referred to as the Bellevue or Redmond Stormwater Service Area in this EIS.

The cities in the study area have active stormwater management regulations and programs. Ecology provides guidelines for stormwater management in its *Stormwater Management Manual for Western Washington* (Ecology, 2005), also known as the Ecology Manual. Stormwater management design guidelines for Bellevue and Redmond are generally consistent with the Ecology manual.. The City of Seattle updated its stormwater code to more closely comply with the Ecology Manual in 2009.

4.9.2.3 Floodplains

Federal Emergency Management Agency (FEMA) 100-year floodplains, as mapped by FEMA, are shown in Exhibits 4.9-2 through 4.9-5. In general, 100-year floodplains that are crossed by the project are less than 200 feet wide; however, wider floodplains lie along the lower reaches of Bear Creek and along the Sammamish River. The Sammamish River valley is broad and gently sloping, with a 100-year floodplain that is nearly 1 mile wide in places.

Some of the smaller creeks and tributaries, including Goff Creek, Sears Creek, and Sturtevant Creek, do not have formally delineated floodplains. Occasional flooding has been reported on Sturtevant Creek south of Lake Bellevue and on Valley Creek north of the intersection of NE 20th Street and 140th Avenue NE (Watson, 2007).


Segment C
Segment B
SE 6TH ST
SURREY DOWNS
B3
B2E
B2A
B2M-C9T
SE 8th Station
SE 8TH ST
LAKE HILLS CONNECTOR RD
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
B7
B1
Former BNSF Railway Corridor
B2M-C11A
B3 114th Design Option
P
118th Station
B2E B3
B2A
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
B E L L E V U E
108TH AVE SE
BELLEVUE WAY SE
B2M
MERCER SLOUGH NATURE PARK
Stream Crossing
100-Year Floodway
100-Year Floodplain
B2E B3
B1 B2A
South Bellevue Park & Ride
P
South Bellevue Station
405
Mercer Slough East
118TH AVE SE
Former BNSF Railway Corridor
B E A U X A R T S
112TH AVE SE
113TH AVE SE
106TH AVE SE
Lake Washington
Segment B
Segment A
B2M
SE 34TH ST
B7
90
B1 B2A B2E B3 B7
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile

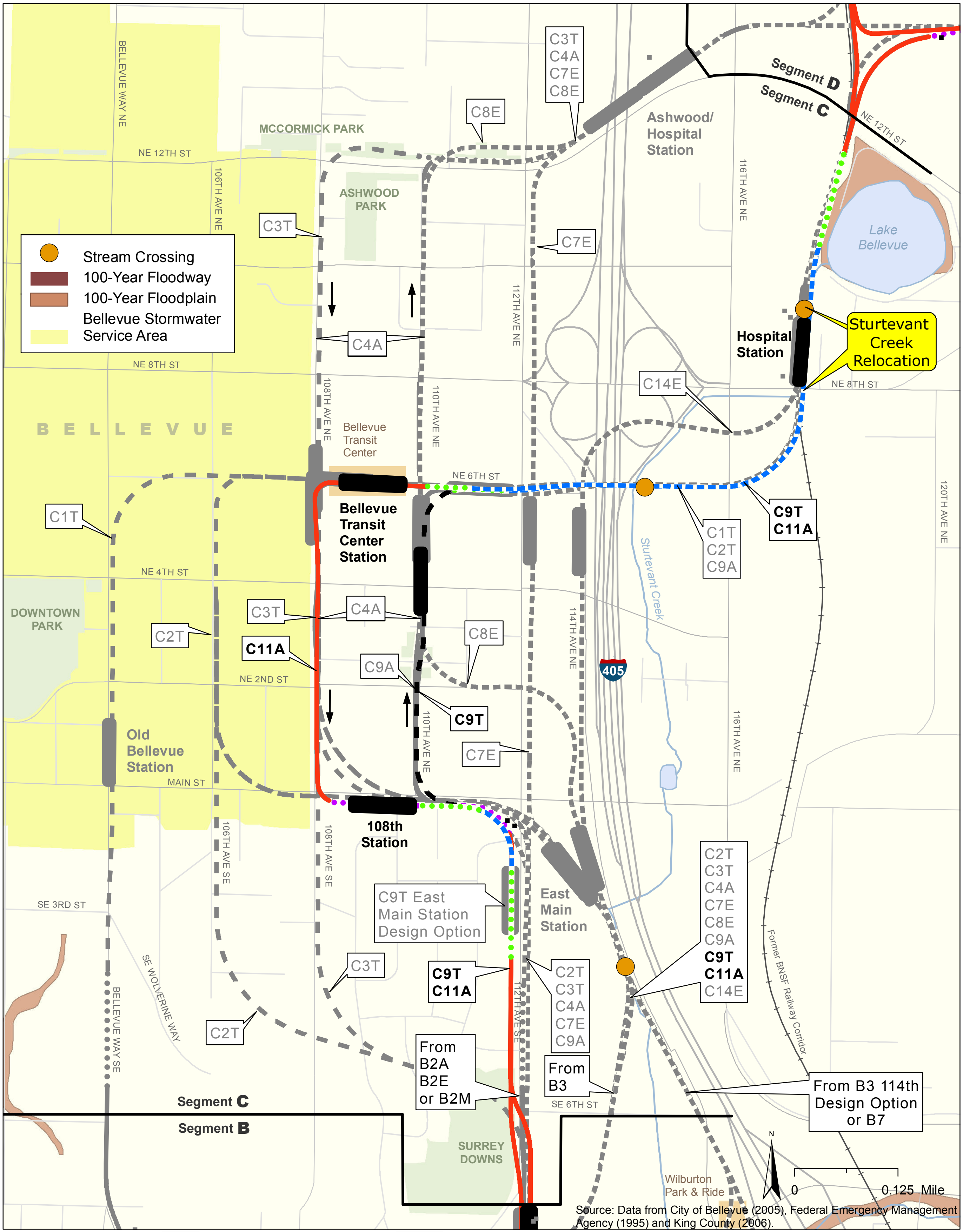
Source: Data from City of Bellevue (2005), Federal Emergency Management Agency (1995) and King County (2006).

Preferred Alternative **B2M**
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives B2A
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ■ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 4.9-2
Water Resources
Segment B
East Link Project


Segment D
Segment C
NE 12TH ST
C3T
C4A
C7E
C8E
C8E
MCCORMICK PARK
ASHWOOD PARK
Ashwood/ Hospital Station
116TH AVE NE
BELLEVUE WAY NE
106TH AVE NE
C3T
C7E
Lake Bellevue
Stream Crossing
100-Year Floodway
100-Year Floodplain
Bellevue Stormwater Service Area
112TH AVE NE
C4A
Hospital Station
Sturtevant Creek Relocation
NE 8TH ST
C14E
NE 8TH ST
108TH AVE NE
110TH AVE NE
B E L L E V U E
Bellevue Transit Center
NE 6TH ST
C1T
Bellevue Transit Center Station
C9T
C11A
C1T
C2T
C9A
Sturtevant Creek
120TH AVE NE
NE 4TH ST
DOWNTOWN PARK
C3T
C4A
C2T
C11A
C8E
114TH AVE NE
C9A
405
NE 2ND ST
C9T
110TH AVE SE
C7E
Old Bellevue Station
MAIN ST
116TH AVE NE
108th Station
106TH AVE SE
108TH AVE SE
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
SE 3RD ST
C9T East Main Station Design Option
East Main Station
Former BNSF Railway Corridor
SE WOLVERINE WAY
C3T
C9T
C11A
112TH AVE SE
C2T
C3T
C4A
C7E
C9A
BELLEVUE WAY SE
C2T
From B2A B2E or B2M
From B3
From B3 114th Design Option or B7
SE 6TH ST
Segment C
Segment B
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile

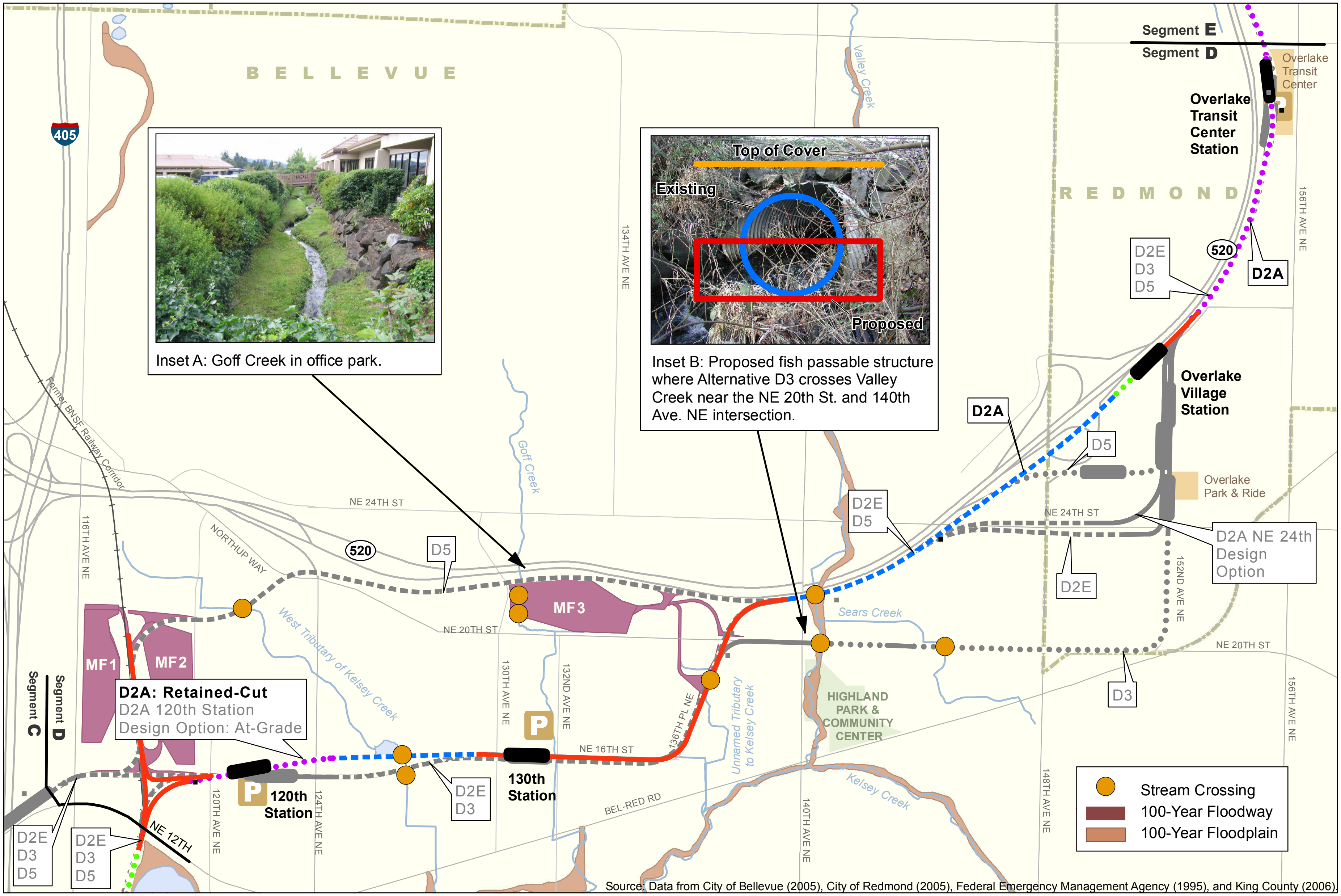
Source: Data from City of Bellevue (2005), Federal Emergency Management Agency (1995) and King County (2006).

Preferred Alternative **C9T**
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives C14E
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 4.9-3
Water Resources
Segment C
East Link Project


Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
BELLEVUE
REDMOND
405
520
Valley Creek
Goff Creek
Top of Cover
Existing
Proposed
156TH AVE NE
134TH AVE NE
D2E
D3
D5
D2A
Overlake Village Station
Overlake Park & Ride
NE 24TH ST
Former BNSF Railway Corridor
NORTHUP WAY
116TH AVE NE
D2A NE 24th Design Option
152ND AVE NE
MF3
MF1
MF2
NE 20TH ST
Sears Creek
West Tributary of Kelsey Creek
Segment C
Segment D
D2A: Retained-Cut
D2A 120th Station
Design Option: At-Grade
130TH AVE NE
132ND AVE NE
136TH PL NE
Unnamed Tributary to Kelsey Creek
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
NE 16TH ST
120th Station
130th Station
120TH AVE NE
124TH AVE NE
NE 12TH
BEL-RED RD
Kelsey Creek
140TH AVE NE
P

Inset A: Goff Creek in office park.

Inset B: Proposed fish passable structure where Alternative D3 crosses Valley Creek near the NE 20th St. and 140th Ave. NE intersection.

● Stream Crossing
🟥 100-Year Floodway
🟧 100-Year Floodplain

Source: Data from City of Bellevue (2005), City of Redmond (2005), Federal Emergency Management Agency (1995), and King County (2006).

Preferred Alternative **D2A**

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

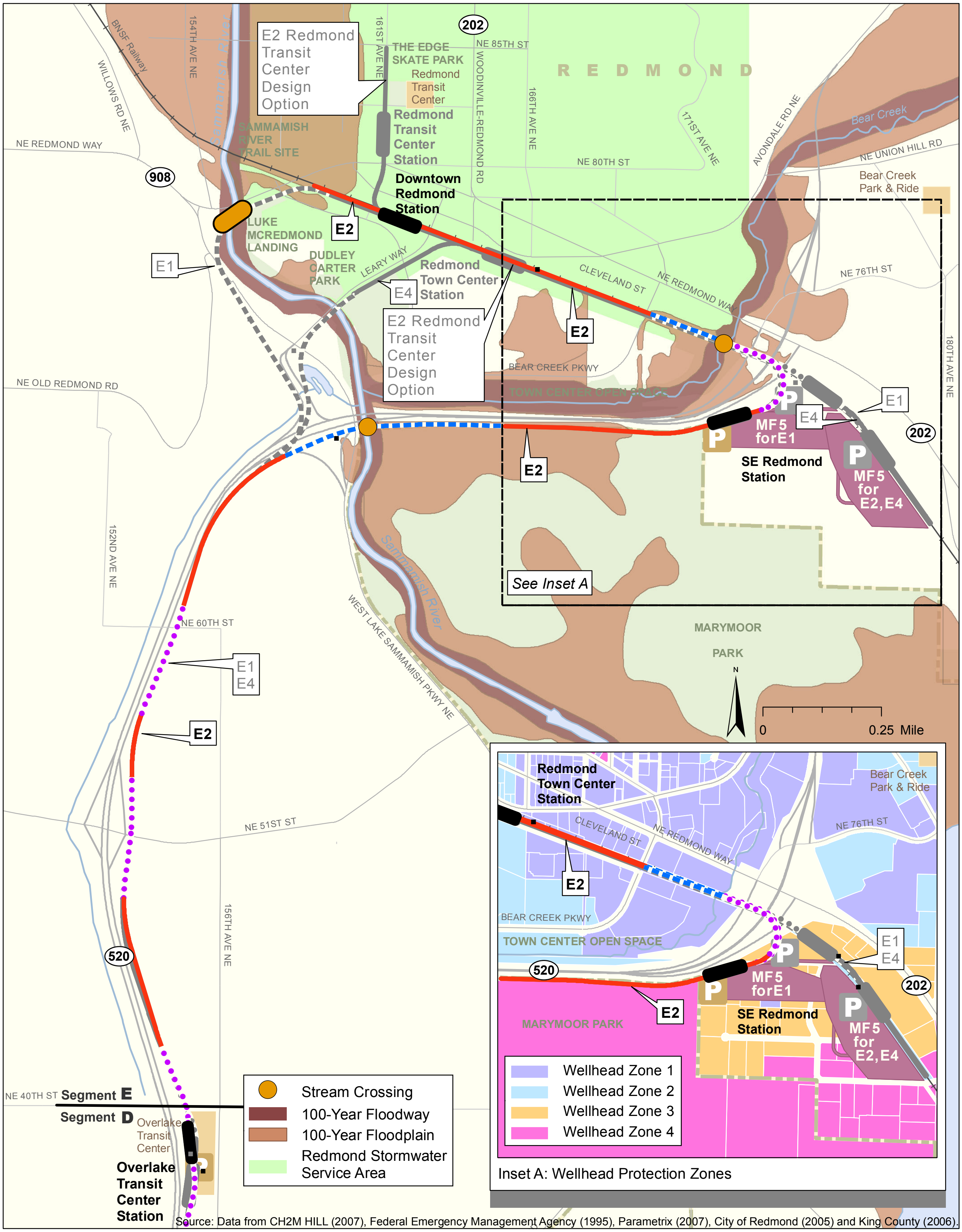
Other Alternatives D3

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

▪ Traction Power Substation
▬ Proposed Station
▬ Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot

N
0 0.25 Mile

Exhibit 4.9-4
Water Resources
Segment D
East Link Project


E2 Redmond Transit Center Design Option
202
NE 85TH ST
161ST AVE NE
THE EDGE SKATE PARK
Redmond Transit Center
R E D M O N D
BNSF Railway
154TH AVE NE
WILLOWS RD NE
Sammamish River
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
NE REDMOND WAY
NE 80TH ST
Bear Creek Park & Ride
908
Downtown Redmond Station
E2
LUKE MCREDMOND LANDING
E1
DUDLEY CARTER PARK
LEARY WAY
Redmond Town Center Station
E4
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
E2 Redmond Transit Center Design Option
E2
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
180TH AVE NE
NE OLD REDMOND RD
E1
E4
202
MF5 forE1
SE Redmond Station
MF5 for E2, E4
E2
152ND AVE NE
See Inset A
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
MARYMOOR PARK
E1
E4
N
E2
0
0.25 Mile
NE 51ST ST
156TH AVE NE
520
NE 40TH ST
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
Stream Crossing
100-Year Floodway
100-Year Floodplain
Redmond Stormwater Service Area
Redmond Town Center Station
Bear Creek Park & Ride
NE 76TH ST
CLEVELAND ST
NE REDMOND WAY
E2
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
520
E1
E4
MF5 forE1
202
E2
SE Redmond Station
MARYMOOR PARK
MF5 for E2, E4
Wellhead Zone 1
Wellhead Zone 2
Wellhead Zone 3
Wellhead Zone 4
Inset A: Wellhead Protection Zones

Source: Data from CH2M HILL (2007), Federal Emergency Management Agency (1995), Parametrix (2007), City of Redmond (2005) and King County (2006).

Preferred Alternative **E2**
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Other Alternatives E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and Expanded Park-and-Ride Lot

Exhibit 4.9-5
Water Resources
Segment E
East Link Project

4.9.2.4 Groundwater

With the exception of Beaux Arts Village and the City of Redmond, which are the only cities in the study area that get their municipal water primarily from groundwater, there is limited use of groundwater in the study area. Groundwater levels vary considerably throughout the project vicinity. Glacial till underlies much of the area at shallow depth. Water infiltrates slowly through this material. It is not uncommon during the rainy season for perched groundwater to pond at the surface. During the drier summer months, groundwater plays a critical role in providing base flow to the streams in the area and recharging aquifers.

The Sammamish Valley supports a productive aquifer that is used by the City of Redmond as a source of drinking water from several municipal wells. The closest municipal well is less than a quarter mile away in Anderson Park, on the north side of SR 202. Thus, the area south of Downtown Redmond is designated as a WPZ (see Exhibit 4.9-5). Such areas serve as recharge areas surrounding domestic wells. The City of Redmond has a Wellhead Protection Ordinance (Chapter 13.07) that specifies measures to minimize the threat of groundwater contamination. Four zones are defined that require increasingly stringent controls and reporting of industrial and related activities that handle or store hazardous materials. This issue is discussed further in Section 4.9.3.2, Impacts During Operation, under the heading Groundwater.

4.9.2.5 Maintenance Facility Surroundings

Each of the maintenance facilities identified in the alternatives would be located in an area that is mostly impervious surface comprising office, commercial, warehouse, and light industrial facilities. Each area is generally well-served with stormwater infrastructure. There are no surface water bodies close to the 116th Maintenance Facility (MF1) or the SE Redmond Maintenance Facility (MF5). A wetland lies along the northern edge of the BNSF Maintenance Facility (MF2). Goff Creek flows through the western portion of the SR 520 Maintenance Facility (MF3). A portion of MF5 lies within the City of Redmond's WPZ 3. Redmond's WPZs are discussed in Section 4.9.2.4 above.

4.9.3 Environmental Impacts

As part of the conceptual engineering prepared for the East Link Project, a preliminary design was developed for the major stormwater detention and treatment facilities required for the proposed alternatives. In general, a conservative approach was taken when developing drainage concepts. Sound Transit applied the Western Washington Hydrology Model, developed by Ecology, to develop project hydrology and to determine facility sizing. Detention facilities were designed to achieve post-project stormwater flows equivalent to forested conditions, as required by Ecology. Further information on project stormwater can be found in Section 4.9.3.2, Impacts During Operation, under the heading Stormwater Treatment and Detention.

4.9.3.1 No Build Alternative

Under the No Build Alternative, some redevelopment and new development in the study area would still occur, with the potential to increase impervious surface and affect surface waters or groundwater flows, duration, and volumes.

Stormwater detention and treatment improvements would likely be delayed until future redevelopment occurs. Higher vehicle miles traveled is also expected under the No Build Alternative. This could result in more traffic, which can increase the amount of pollutants such as oils and heavy metals that, in turn, can degrade water quality.

As documented in Section 4.2, Land Use, a consequence of the No Build Alternative would be that a lower density of residential and commercial development would occur at key points along the proposed light rail corridor because the higher-density, transit-oriented development planned around light rail might not occur, or occur in less dense development patterns. By not building the East Link Project, some portion of this development would likely occur on the urban fringe rather than in the existing urban centers that would by served by the project. This type of development in less developed areas would result in an increase in impervious area and an associated increase in stormwater runoff in the urban fringe. Stormwater facilities associated with new development in the urban fringe area would reduce potential impacts on local streams; however, during the summer they could reduce stream flows, which could degrade water quality.

4.9.3.2 Impacts during Operation

Impacts of the build alternatives are presented by segment and address the following impacts on water resources: impervious area, stormwater treatment and detention, streams and floodplains, and groundwater.

Impervious Area

Impacts Common to All Build Alternatives

Overall, the project would increase the amount of existing impervious surface area by approximately 16 to 35 acres, approximately 14 to 24 percent (including a maintenance facility), depending on the alternatives selected. The route with the lowest increase in impervious surface area would result from the combination of *Preferred Interstate 90 Alternative (A1),* 112th SE Elevated Alternative (B2E), 106th NE Tunnel Alternative (C2T), NE 16th Elevated Alternative (D2E), and Redmond Way Alternative (E1), and MF3. The route with the greatest increase in impervious surface area would be *Preferred Alternative A1, Preferred 112th SE Modified Alternative (B2M), Preferred 108th NE At-Grade Alternative (C11A),* SR 520 Alternative (D5), and *Preferred Marymoor Alternative (E2)* (without the design option), and MF1.

Pollutant-Generating Impervious Surface

Impervious surfaces are considered a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to vehicular use; industrial activities (as defined in the Ecology Manual); and storage of erodible or leachable materials, wastes, or chemicals; and which receive direct rainfall or the run-on or blow-in of rainfall.

Impervious surfaces can increase stormwater runoff rates, volumes, and pollutant loads. These, in turn, can cause higher flows and degraded water quality in storm sewers and streams. Impervious surfaces can also result in decreased infiltration and aquifer recharge. New impervious areas from the project would include tracks and guideways, stations, park-and-ride lots, maintenance facilities, and roads. Ballasted (i.e., gravel) track sections were considered as impervious areas because of the high compaction and low permeability of the subsoils underlying the tracks.

Relocated roads to accommodate the project were also considered as project-associated impervious area because the new and replaced pavement would require stormwater treatment and detention. This includes surface roadways replaced after cut-and-cover tunnel construction. For those cases where elevated track would overlay a relocated road, the underlying impervious area of the road was not considered in the impervious area numbers (to avoid double-counting). Existing impervious area was obtained from a geographic information system (GIS) map of impervious areas developed in 2000 by King County (King County, 2004). This information was supplemented with aerial mapping conducted for the project. This represents the best impervious area data available for the study area.

Table 4.9-2 summarizes total existing and proposed impervious area within the project limits for each project alternative. The project limits include the right-of-way for the rail corridor, relocated streets, the maintenance facility, and new project park-and-ride lots. Appendix F4.9 provides a further breakdown by both project alternative and basin. In general, elevated alternatives would result in less new impervious area than at-grade alternatives because they would be typically narrower and relocate fewer roads. Alternatives with bored tunnels would also add smaller amounts of impervious area. However, tunnel alternatives with cut and cover construction, such as *Preferred 110th NE Tunnel Alternative (C9T)*, would result in more impervious surfaces.

Project pollutant-generating impervious surface (PGIS) comprises primarily roads parallel to the project route that would need to be reconstructed to accommodate the light rail tracks and road intersections with the at-grade rails. PGIS is also composed of access roads and parking areas at the project park-and-ride lots and the access roads, parking surfaces, and equipment maintenance and fuel and chemical transfer areas at the maintenance facilities. Project trackways, guideways, and stations are considered non-PGIS. Project trackways are only considered PGIS when combined with roadways, which carry pollutants from vehicular use. Since the portion *Preferred Alternative A1* east of the Mount Baker Tunnel (more than 5 miles) would be converted from high-capacity vehicle use to exclusive use by light rail, there would be a substantial decrease (about 35 acres) of PGIS for this segment. Other alternatives also convert portions of roadways that are now PGIS to exclusive light rail use. However, since these alternatives are near or comingled with automobile roadways, they are assumed to be PGIS for purposes of stormwater treatment.Some proposed project parking surfaces would contribute between 4 and 5 acres of PGIS unless the area is already PGIS, such as South Bellevue Park-and-Ride Lot or Overlake Transit Center. Elevated alternatives have little to no need for road reconstruction and, thus, would have relatively low PGIS values. For instance, the 112th NE Elevated (C7E) and the 110th NE Elevated (C8E) Alternatives have zero PGIS. In contrast, at-grade alternatives within urban settings (such as the Bellevue Way Alternative [B1], 112th SE At-Grade Alternative [B2A], *Preferred Alternative C11A*, 110th NE At-Grade Alternative [C9A], and NE 20th Alternative [D3]) frequently require relocating multiple lanes of roadway parallel to the alternative, which would result in a relatively large PGIS. Stormwater runoff from project-related PGIS would receive water quality treatment as discussed in the section below titled Stormwater Treatment and Detention.

TABLE 4.9-2
Existing and Proposed Impervious Areas by Project Build Alternative

Segment/Alternative	Total Existing Impervious Area (acres)[a]	Total Proposed Impervious Area (acres)[a, b]	Total Change in Impervious Area (acres)[a, c]	Total Impervious Area Increase (percent)[a]
Preferred Interstate 90 Alternative (A1)	42.4	43.1	0.6	2
Preferred 112th SE Modified Alternative (B2M) to *C11A*	15.2	23.9	8.6	57
Preferred 112th SE Modified Alternative (B2M) to *C9T*	10.8	19.2	8.4	77
Bellevue Way Alternative (B1)	21.5	27.7	6.2	29
112th SE At-Grade Alternative (B2A)	17.1	22.6	5.5	32
112th SE Elevated Alternative (B2E)	10.8	14.5	3.7	35
112th SE Bypass Alternative (B3)	15.0	20.0	5.0	33
B3 - 114th Extension Design Option	15.0	20.4	5.4	36
BNSF Alternative (B7)	13.4	17.3	3.9	29
Preferred 108th NE At-Grade Alternative (C11A)	23.4	28.2	4.9	21
Preferred 110th NE Tunnel Alternative (C9T)[d]	15.0	19.9	4.9	33
Bellevue Way Tunnel Alternative (C1T)	9.7	10.2	0.5	6
106th NE Tunnel Alternative (C2T)	6.5	7.0	0.5	8
108th NE Tunnel Alternative (C3T)	2.4	3.2	0.7	31
Couplet Alternative (C4A)	11.9	14.6	2.7	23
112th NE Elevated Alternative (C7E)	4.2	5.7	1.5	35
110th NE Elevated Alternative (C8E)	4.9	6.8	1.9	38
110th NE At-Grade Alternative (C9A)	24.1	28.8	4.7	19
114th NE Elevated Alternative (C14E)	15.7	18.5	2.8	18
Preferred NE 16th At-Grade Alternative (D2A)[e]	25.8	36.4	10.7	41
D2A - NE 24th Design Option	28.2	38.4	10.3	36
NE 16th Elevated Alternative (D2E)	14.5	23.4	8.9	61
NE 20th Alternative (D3)	29.6	39.4	9.8	33
SR 520 Alternative (D5)	8.5	21.0	12.5	147
Preferred Marymoor Alternative (E2)	18.1	23.9	5.8	32
E2 - Redmond Transit Center Station Design Option	16.8	21.2	4.4	26
Redmond Way Alternative (E1)	16.9	21.1	4.2	25
Leary Way Alternative (E4)	15.5	20.8	5.3	34
MF1, 116th	8.0 to 9.2	11.7	2.5 to 3.7	27 to 46
MF2, BNSF	11.5 to 16.4	11.1 to 12.7	-0.4 to -3.7	-3 to -23
MF3, SR 520	13.8 to 14.5	12.8	-1.0 to -1.7	-7 to -12
MF5, SE Redmond	11.2 to 13.6	13.5 to 15.5	1.8 to 2.3	14 to 21
Project Totals[f]	**88.8 to 142.8**	**114.3 to 174**	**16.2 to 34.9**	**15 to 31**

[a] Range includes the variation in connections evaluated for the maintenance facilities.

[b] Includes reconstruction of existing roads.

[c] Approximate due to rounding.

[d] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

[e] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

[f] Numbers in this row are derived from different combinations of segments in each column.

Segment A
Preferred Alternative A1 and the portion of Segment B within the Beaux Arts basin (see Exhibit 4.9-1) would be constructed completely within the existing I-90 corridor. There would be a limited amount of additional impervious area (0.6 acre, less than a 2 percent increase).

Segment B
Both variations of *Preferred Alternative B2M* add about 8.5 acres of new impervious area, the largest increase of the Segment B alternatives. *Preferred Alternative B2M* would increase impervious areas by 77 percent with the C9T connector and by 57 percent with the C11A connector.

The remaining Segment B alternatives would add between 3.7 and 6.2 acres of impervious area (a 29 percent to 36 percent increase in impervious area). Alternative B2E would add the least amount of impervious area.

Segment C
Preferred Alternatives C11A and *C9T* would add the most impervious area (4.9 acres, a 21 percent and 33 percent increase, respectively) of the Segment C alternatives, primarily along 112th Avenue NE.

Other Segment C alternatives would result in a 6 percent to 38 percent increase in impervious area. New impervious area added by these alternatives would range from a low of 0.5 acre with Bellevue Way Tunnel Alternative (C1T) and Alternative C2T, to a high of 4.7 acres with Alternative C9A.

Segment D
Preferred NE 16th At-Grade Alternative (D2A) would add between 10.3 and 10.7 acres of impervious area, depending upon the design option selected, which would increase impervious area by approximately 36 percent to 41 percent.

Alternative D5 would result in the largest increase in new impervious area (12.5 acres, a 147 percent increase) of all the Segment D alternatives because it would be routed through the largely less developed portion of the corridor immediately south of SR 520. Alternatives D2E and D3 would result in 8.9 acres and 9.8 acres of new impervious area. Alternatives D2E and D3 would result in a 61 percent and 33 percent increase in impervious area, respectively.

Segment E
*Preferred Alternative E2*and E2 - Redmond Transit Center Station Design Option would add 4.4 to 5.8 acres of impervious area (a 26 percent to 32 percent increase), which is the largest increase in impervious area of the Segment E alternatives. Alternative E1 would have the smallest impervious area increase in Segment E (4.2 acres, a 25 percent increase).

Maintenance Facilities
The MF1 and MF5 would result in a local increase in impervious area. Because of the highly developed nature of the areas proposed for the MF2 and MF3, selecting either facility would result in a net local decrease in impervious area. This is because these two maintenance facilities would result in more landscaped, pervious area than currently exists in the respective areas. Impervious surfaces at maintenance facilities would be PGIS except for sidewalks, roofs, and tracks that are not crossed by motor vehicles.

Stormwater Treatment and Detention

In general, stormwater management would meet the requirements of the Ecology Manual. Within WSDOT right-of-way, the requirements of the *Highway Runoff Manual* (WSDOT, 2008) would be met, which is equivalent to Ecology's manual. In addition, local jurisdiction requirements for stormwater management would be met.

Stormwater Detention
The temporary storage of stormwater runoff and subsequent release at a slower rate.

Stormwater Treatment
Stormwater ponds and underground vaults are used to remove sediments and pollutants from stormwater. They collect sediments on the bottom of the pond or vault, where maintenance workers can clean them out on a regular basis.

Total Suspended Solids
Organic and inorganic particles that are entrained within and carried by water. The particles are typically sand, silt, and clay, but may include pebbles and larger rocks in fast-flowing water.

Runoff from PGIS areas would require basic water quality treatment. In accordance with the Ecology Manual, Sound Transit would provide enhanced stormwater treatment for all roadways where the average daily traffic volume exceeds 7,500 vehicles per day. Enhanced stormwater treatment would be provided for runoff from any new and replaced pavement on these high traffic volume streets.

The guideways and stations have no motor vehicle traffic or other sources of pollution-generating activities and are therefore classified as non-PGIS, except where at-grade track crosses intersections. No stormwater treatment facilities would be required in these areas.

Certain water bodies have been designated by Ecology as exempt from requiring detention, including Lake Washington, Mercer Slough, Lake Sammamish, and the Sammamish River. Prior to discharge from the project site, stormwater detention to predevelopment (i.e., forested) levels would be provided for project runoff flowing to the remaining (nonexempt) water bodies, which includes the other study area water bodies except for Sturtevant Creek. Sturtevant Creek lies within a basin designated an urban basin by the City of Bellevue. As a result, project runoff within this basin need only be detained so as to maintain existing peak flows. Non-PGIS runoff would be conveyed separately from PGIS runoff because it does not require water quality treatment. Where practical, runoff would be dispersed over pervious areas from elevated guideways where infiltration could occur. The East Link Project conceptual design for major stormwater facilities, including stormwater ponds and underground vaults, can be found in Appendix G1. As shown in Appendices F4.9 and G1, stormwater detention and treatment facilities (on-site systems such as vaults or ponds) have been sized for the project alternatives. However, in some basins, an alternative approach is to contribute to regional detention or treatment facilities where allowed by the local jurisdiction.

Most of the East Link Project lies within highly urbanized areas, with limited undeveloped area available for surface detention. As a result, most of the stormwater facilities would be within underground vaults. Project runoff in the Downtown Redmond Stormwater Service Area would require neither project-related detention nor treatment facilities because it would be within the Redmond Stormwater Service Area. Project runoff in the Downtown Bellevue Stormwater Service Area in Segments C would only require project-related treatment facilities for the PGIS areas. The stormwater facilities provided by the project would meet the requirements of the local jurisdictions. As a result, stormwater impacts from the project would not be significant. (Appendix F4.9 presents a tabular summary of the project stormwater facilities and compares the alternatives.)

For *Preferred Alternative D2A*, a storage track is planned in the former BNSF Railway corridor, with office space, storage, and parking for vehicle operators. The only anticipated work would be light cleaning of the interiors of the trains. No wastewater would be discharged into the surrounding storm facilities.

With *Preferred Alternative E2,* WSDOT is proposing to reconfigure an Ecology embankment (also referred to as a media filter drain) that borders Marymoor Park and treats runoff from SR 520. Sound Transit proposes reconstructing the highway shoulder and moving the Ecology embankment from the shoulder to the highway median. Stormwater treatment would be provided using a dual filter drain (BMP RT.07.2 of the *Highway Runoff Manual,* WSDOT, 2008). This approach would meet the highway requirements while also providing the required treatment of highway runoff using less land area.

Sound Transit's Environmental and Sustainability Management System encourages innovative measures to reduce stormwater runoff, such as low-impact development or other on-site measures, to be incorporated into the project where feasible. Some opportunities exist for runoff to be dispersed to adjacent natural areas. Other measures could include, but are not limited to, the following and will be considered during detailed design:

- Flow dispersal of runoff from at-grade trackways where they lie adjacent to Mercer Slough in Segment B
- Permanent landscaping of areas above tunnel segments in Segment C following construction
- Drip-dispersion of runoff from elevated guideway along portions of SR 520 that remain landscaped in Segment D

The proposed maintenance facility is categorized as an industrial facility. In addition to motor vehicle traffic, petroleum products and other chemicals would be stored and used at the site, and there would be other maintenance activities as well. Therefore, to meet the requirements of the Ecology Manual, a strategy of enhanced stormwater treatment would be implemented at the maintenance facility. A constructed stormwater wetland would provide the enhanced stormwater treatment for the maintenance facility. On-site stormwater detention would also be provided.

Surface Water and Floodplain Impacts

Impacts Common to All Alternatives

As discussed in Section 4.8, Ecosystem Resources, considerable effort was made during development of the alternatives to avoid critical areas, including streams and lakes, because changes to water bodies can have substantial adverse impacts on aquatic ecosystems, floodplains, and real estate property. This section discusses water features that would be unavoidably impacted by the project.

Floodplains and floodways are subject to federal and local regulations. A floodplain is defined as the area adjacent to a stream or river that is inundated during the 100-year flood event. The floodway is the stream channel and adjacent portions of the floodplain that must be reserved in order to discharge the base flood elevation (100-year flood) without increasing the water surface elevation more than 1 foot. The City of Redmond generally prohibits floodway encroachment unless mitigating measures achieve zero rise in the floodway, or base flood elevations increase less than 1 foot and significant environmental impacts are mitigated (Ordinance 2259). The City of Bellevue prohibits construction that results in any rise of the base flood; an exception is construction using post-and-piling techniques, which is presumed without modeling to cause no rise in the base flood (Ordinance 5680). Fill within the 100-year floodplain must be mitigated by excavating an equal volume of material from within a proximate portion of the FEMA floodplain and at a comparable elevation to create "compensatory storage."

The East Link Project would generally employ elevated guideways to cross water bodies at a number of locations (Exhibits 4.9-1 through 4.9-5). The exact location of columns to support the elevated guideway would be determined during design, but columns would be located outside the stream channel floodway or floodplain when it is possible to span these areas. In general, an elevated guideway crossing of a stream, floodplain, or floodway would cause little or no impact. Impacts on specific streams are discussed below.

Segment A
No impacts on streams, floodplains, or floodways would occur within Segment A.

Segment B
Preferred Alternative B2M is located outside of the Mercer Slough floodplain and, therefore, would result in no adverse impact.

Alternative B7 would cross approximately 415 feet of the Mercer Slough floodplain just north of I-90. A minimum of two columns would be located in the floodplain but not within a waterway channel. Compensatory storage requirements would be minor with no adverse impact. Alternative B3 - 114th Extension Design Option and BNSF Alternative (B7) would cross Sturtevant Creek north of SE 2nd Street on an elevated structure and would not impact the creek. There would be no impacts with the other Segment B alternatives.

Segment C
With *Preferred Alternatives C11A* or *C9T,* Sturtevant Creek would be relocated from the east to the west side of the former BNSF Railway corridor to route the channel around the proposed Hospital Station. This would require installing a new culvert under the NE 8th Street right-of-way and the abandonment of the existing culvert. The new stream would convey the 100-year flow as defined by the City of Bellevue. These two alternatives also cross Sturtevant Creek just south of the NE 8th Street/ I-405 interchange. The creek is in a pipe at this location. A bridge column would be placed in the location where the creek pipe makes a sharp turn. The pipe would be relocated to avoid the bridge column and to allow for future interchange improvements by WSDOT.

Preferred Alternatives C11A or *C9T* connecting to Alternative B3 or Alternative B7 follow Sturtevant Creek for approximately 500 feet and 700 feet, respectively, where Sturtevant Creek first parallels 114th Avenue NE (see Exhibit 4.9-3). The alternatives are elevated through this reach on supporting columns, and supporting columns would be located in the creek's riparian buffer zone, thus avoiding the creek channel. In addition, because a FEMA flood insurance rate map has not been developed for this section of creek, the 100-year floodplain would need to be determined through modeling during final design. The upstream area draining to the creek is of modest size, approximately 400 acres. High flows in the creek would be limited, and the 100-year floodplain would likely be narrow. As stated above, the project design would avoid placing support columns for the elevated guideway in the channel or its streambanks, thereby avoiding disturbance of the creek and minimizing impacts on the floodplain.

The Sturtevant Creek impact near Lake Bellevue for *Preferred Alternatives C11A* or *C9T* would also occur under Alternatives C1T, C2T, C9A, or C14E.

The Sturtevant Creek riparian impact described above for *Preferred Alternatives C11A* and *C9T* would also occur for the other Segment C alternatives that connect from Alternatives B3 and B7, i.e., all Segment C alternatives except C1T.

Segment D
With the exception of *Preferred Alternative D2A* (discussed below), the Segment D alternatives and design options would have no permanent impact on the floodplains or floodways. However, there would be project crossings at several tributaries of Kelsey Creek—West Tributary, Goff, Valley, and Sears Creeks. These are shown in Figure 4.9-4 and Table 4.9-3 and are discussed in this section.

Preferred Alternative D2A crosses four streams in Segment D. It is routed along a portion of the West Tributary of Kelsey Creek. Four columns are proposed within a large impoundment of the stream that serves as a regional detention pond. The pond is greater than 100 feet wide at this point; therefore, the impact of the

TABLE 4.9-3
Segment D Stream Crossings by Alternative

Stream	*Preferred Alternative D2A*	Alternative D2E	Alternative D3	Alternative D5
West Tributary of Kelsey Creek	Elevated crossing with 4 columns placed within a stream impoundment	Elevated crossing	Elevated crossing	Elevated crossing
Goff Creek	Crosses at an existing piped stream that would not be disturbed[a]	Elevated crossing at an existing stream culvert	Crosses at an existing piped stream that would not be disturbed[a]	Elevated crossing
Unnamed Tributary to Kelsey Creek	Portion of stream would be enclosed in a longer pipe	Portion of stream would be enclosed in a longer pipe	Portion of stream would be enclosed in a longer pipe	None
Valley Creek	Elevated crossing	Elevated crossing	Existing culvert would be replaced with a bridge	Elevated crossing
Sears Creek	None	None	Crosses at an existing stream culvert that would not be disturbed	None

[a] A box culvert would be constructed under the alternative to support future city plans to daylight Goff Creek.

columns on the flood storage and conveyance capacity of the creek would be negligible.

Preferred Alternative D2A crosses Goff Creek at NE 16th Street where the stream is currently conveyed in a pipe. It is not anticipated that this pipe would be disturbed during project construction. However, a box culvert would be constructed allowing for the eventual daylighting of Goff Creek as planned by the City of Bellevue. *Preferred Alternative D2A* crosses Valley Creek on an elevated structure over the SR 520 culvert, and it would not affect Sears Creek.

Preferred Alternative D2A would affect a 130-foot-long open channel and a 0.2-mile piped segment of the Unnamed Tributary to Kelsey Creek (see Exhibit 4.9-4). This stream reach carries local runoff and is conveyed through a series of culverts and ditches along 136th Place NE. Most, if not all, of the flow of the creek is routed through a 24-inch-diameter storm drain pipe at 136th Avenue NE and NE 16th Street. *Preferred Alternative D2A* would require widening 136th Place NE. The road passes through a highly commercialized area, and widening the road would eliminate the ditches, thereby enclosing the entire stream in a pipe through this section. The long-term water quality and flow impacts would not be affected by this change. As indicated in Table 4.9-3, Alternative D2E would have elevated crossings at three streams. There would be no stream impacts at three of these crossings. Due to column placement, a portion of the Unnamed Tributary to Kelsey Creek would need to be piped. Alternatives D2E and D3 would impact the same 130 feet of open channel and 0.2-mile piped segment of the Unnamed Tributary to Kelsey Creek along 136th Place NE, as described for *Preferred Alternative D2A*.

Alternative D3 would cross five streams. Alternative D3 would be in a retained cut where it crosses Valley and Sears Creeks. The Sears Creek culvert is approximately 12 feet below the retained cut and would not be affected. The Valley Creek culvert at NE 20th Street is a 6-foot-diameter metal culvert with between about 1 and 1.5 feet of cover. If Alternative D3 is selected, then the existing culvert would need to be replaced with a fish-passable bridge extending 30 feet downstream of the existing culvert outlet, as shown in Exhibit 4.9-4, Inset B. Like D2E, Alternative D3 would result in the piping of a portion of an unnamed tributary to Kelsey Creek.

Alternative D5 would have elevated crossings at three streams and would therefore have no stream impacts.

Segment E

Preferred Alternative E2 would cross the Sammamish River north of Marymoor Park. This alternative would be elevated at the crossing location (see Exhibit 4.9-5), where the floodway is about 235 feet wide and the floodplain is about 3,050 feet wide. At least one column would be located in the floodway, but flooding impacts would be negligible.

Compared to the other Segment E alternatives, the largest amount of fill placed within a floodplain would be required for *Preferred Alternative E2*, where a 1,000-foot-long, at-grade segment in the floodplain adjacent to SR 520 would displace approximately 650 cubic yards of soil below the 100-year water surface elevation. The average depth of fill below the 100-year water elevation would be less than 0.5 foot. *Preferred Alternative E2* would include compensatory storage as required to offset the impacts of any fill placed within floodplains.

Compensatory storage could consider enhancing Marymoor Park through grading, or areas along the Sammamish River north of SR 520.

Preferred Alternative E2 would cross Bear Creek along the route of the former BNSF Railway corridor, located about 250 feet downstream from NE Redmond Way. The existing former BNSF Railway bridge opening creates a channel constriction. Flood modeling performed for the creek (Parametrix, 2007) indicates that the 100-year flood elevation upstream from the bridge is 39.6 feet, approximately 1.5 feet higher than downstream from the bridge. *Preferred Alternative E2* would span Bear Creek on a bridge extending for a distance of about 100 feet on either side of the center of the 30-foot bridge opening. The existing embankment for the former BNSF railroad would be widened to about 50 feet to accommodate both retained fill for the track and a 15-foot-wide parallel strip for a bicycle path (to be constructed by others). The old railroad bridge structure would remain in place, and the geometry of the stream channel would not be changed. The lowest portion of the proposed light rail bridge would be at least 3 feet above the 100-year flood elevation of Bear Creek. The potential future shift in the *Preferred Alternative E2* alignment to accommodate the City of Redmond's utility project and the regional trail could change the position of the crossing over Bear Creek but is unlikely to change the relation to the flood elevation.

The fill placed along the railroad embankment would displace approximately 150 cubic yards of floodplain storage. Compensatory storage would be provided near the edge of the floodplain near the rail crossing. The existing stream opening would remain unaltered. Two culverts about 60 feet south of the bridge would remain as they are. If disturbed during guideway construction, these culverts would be replaced at their existing locations and elevations. In summary, the new project bridge would not permanently impact Bear Creek. The existing stream opening would remain unaltered. Although the height of the existing railroad embankment would be raised by the retained fill, this would not affect the flow conditions through the bridge because the embankment lies above the 100-year water surface elevation and is not overtopped during flood conditions. The flow conditions and flood water surface elevations near the bridge would remain unchanged.

Alternative E1 and the Leary Way Alternative (E4) would also cross Sammamish River and Bear Creek at similar locations as *Preferred Alternative E2* and would therefore have the similar impacts.

Similar to *Preferred Alternative E2*, Alternatives E1 and E4 would cross the Sammamish River north of Marymoor Park. Both alternatives would be elevated at their crossing locations (see Exhibit 4.9-5). Where the two alternatives cross the Sammamish River, the floodway width is about 600 feet (for Alternative E1) and 200 feet (for Alternative E4). Similar to *Preferred Alternative E2*, under either Alternatives E1 or E4, at least one column would be located in the floodway, but flooding impacts would be negligible.

Alternative E1 would have an elevated crossing over Bear Creek along the route of the inactive, former BNSF Railway bridge. Constructing columns on this embankment would minimally impact the floodplain and would not change the existing Bear Creek channel. Similar to *Preferred Alternative E2*, Alternative E4 would span Bear Creek on a bridge. Impacts on Bear Creek from Alternatives E1 and E4 would be similar to those described above for *Preferred Alternative E2*.

Maintenance Facilities

MF3 would be constructed at an existing business park through which Goff Creek flows, as shown in Exhibit 4.9-4 (see Inset A). The west side of MF3 would extend over the creek. Sound Transit would consider two approaches in final design to accommodate the creek that could potentially improve Goff Creek. In the first approach, the creek would remain in its present location, and two short, fish-passable bridges would be constructed under the rail loop on the western end of MF3 to accommodate the creek. A 50-foot-wide riparian buffer would be established on each side of the creek. In the second approach, the stream would be relocated around the west side of MF3, which would increase the length of the stream by about 220 feet.

The Bel-Red Corridor Study identifies redevelopment opportunities for this area (City of Bellevue, 2007b). The riparian buffer mentioned above would be compatible with redevelopment plans identified in the Bel-Red Corridor.

MF2- borders a wetland. The wetland buffers discussed in Section 4.8.3 (Ecosystem Resources) would provide adequate protection against water quality impacts. No other water bodies would be impacted by the other maintenance facilities.

Groundwater

The project could impact groundwater in a number of ways. Adding impervious surface could reduce the amount of infiltration into the soil and reduce groundwater recharge. Reduced groundwater recharge could also result in reductions in the base flows of streams in the project area. Overall, the project would increase the amount of existing impervious surface area by approximately 16 to 35 acres, depending on the alternatives selected. Because of the highly linear nature of the project, this impact would occur across many miles of project path, the groundwater level would not likely substantially decline, and other serious groundwater impacts are not anticipated.

Additionally, interrupting groundwater flows may result in adverse impacts by changing the amount of water that eventually reaches the surface and the location where groundwater surfaces. There are three areas where this project may affect groundwater: (1) in retained-cut areas along *Preferred Alternative B2M*, (2) at the tunnels under Downtown Bellevue in Segment C and (3) in Redmond. These potential impacts are discussed below.

Retained Cut

Portions of *Preferred Alternative B2M* would be constructed in retained cuts along Bellevue Way SE. Without mitigation, the concrete-lined retain cuts could intercept and re-direct local groundwater flow, with potential impacts on down-gradient wetlands and surface water features. Mitigation for this potential impact is discussed in Section 4.9.4.2 below.

Tunnel Seepage

Several alternatives in Segment C involve constructing tunnels under Downtown Bellevue. When constructing tunnels, a drainpipe would be installed to convey groundwater that might seep into the tunnel. The tunnel design criteria for the Central Link Project (the previously constructed Pine Street Stub tunnel) stipulated no greater than 0.2 gallon per minute per 250 feet of tunnel. When similar criteria are applied to the four Bellevue tunnel alternatives (*C9T*, C1T, C2T, or C3T), they are estimated to collect between 6 to 7 gallons per minute (gpm) of tunnel seepage. The seepage rate for the tunnel would be tightly controlled using the same techniques as used for the Central Link Project. These small flows would flow into a storm drain system and be discharged outside of the tunnel to the local stormwater system. This would not be expected to substantially affect the groundwater level in the central Bellevue area.

Redmond Wellhead Protection Zone

As stated in Section 4.9.2.4, the City of Redmond identifies four WPZs. Zones 3, 2, and 1, respectively, lie in increasing proximity to the City's municipal wells and, therefore, have increasingly stringent requirements to protect the underlying aquifer from contaminants that might be introduced as a result of land use activities, Zone 1 being the most stringent. All Segment E alternatives would cross through all four WPZs. As shown in Exhibit 4.9-5, the proposed route and station alternatives in Downtown Redmond would lie within Zones 1 and 2. There would be no vehicle maintenance nor storage or use of hazardous materials associated with the light rail tracks and the stations. Project runoff would be directed to the existing regional stormwater management system for treatment and discharge to the Sammamish River. The project would, therefore, result in no additional impact on the area's groundwater.

South of Bear Creek, the SE Redmond Park-and-Ride Lot and the MF5 would lie within Zone 3. There would be vehicle maintenance work, and some fuels and hazardous materials would be stored at the maintenance facility. The soils in this area are permeable. Runoff from these project facilities would be collected, treated, and infiltrated on site, as is the current practice within this area. The Redmond City Code (WPZ Performance Standards) lists the requirements for stormwater management for developments within Zone 3. Applicable provisions that would be incorporated into project design to protect groundwater quality include the following:

- Containment and treatment of runoff from vehicle fueling, maintenance, and storage areas
- Secondary containment for hazardous materials unloading and storage areas
- Stormwater best management practices (BMPs) approved by the City's Technical Committee

These measures would protect groundwater quality. Standard stormwater BMPs would be required for WPZ4 and would be implemented as discussed below in Section 4.9.3.3.

Best Management Practices

BMPs are activities, construction measures, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to surface and groundwater.

4.9.3.3 Impacts during Construction

Impacts Common to All Build Alternatives

The potential water quality impacts resulting from construction activities would be increased turbidity and sedimentation in the receiving streams as a result of stormwater runoff from disturbed construction sites. Erosion and sedimentation typically occur when rainfall and stormwater runoff erode soil and deposit the eroded materials downslope or downstream from the construction area. Erosion and sedimentation can result from a variety of potential actions associated with construction, including the following:

- Removing vegetation that exposes soil to erosion
- Exposing soil by way of grading, filling, and excavation
- Tracking soils onto roads by vehicles
- Constructing in or near wetlands, lakes, streams, or drainage courses
- Constructing slopes that collect and concentrate stormwater, causing erosion
- Dewatering excavations such as pier foundations, trenches and tunnels

The runoff from newly poured concrete surfaces can have a high pH (parts hydrogen), often above pH 9, which can result in degraded water quality and is lethal to fish. In addition, total suspended solids from the concrete fines might result in a milky-white appearance of the runoff, exceeding turbidity requirements. Both of these issues were encountered during Central Link Project construction.

Because the total amount of ground disturbance during construction would be more than 1 acre, an NPDES general construction stormwater permit would be required for this project. One of the permit requirements is a project-specific stormwater pollution prevention plan (SWPPP). The SWPPP would be developed and implemented in accordance with the Sound Transit Environmental and Sustainability Management System. This plan would include a temporary erosion and sediment control plan (TESC), a hazardous materials management plan, and would employ BMPs during construction to minimize the potential for soil erosion and sedimentation and to protect water quality. Potential BMPs include the following:

- Minimizing the amount of cleared area at a construction site
- Stabilizing construction entrances and haul roads using quarry spalls
- Washing truck tires at construction entrances, as necessary
- Constructing silt fences downslope from exposed soil
- Protecting catch basins from sediment
- Containing and controlling concrete and hazardous materials on site.
- Installing temporary ditches to route runoff around or through construction sites, with periodic straw bales or rock check dams to slow and settle runoff
- Providing temporary plastic or mulch to cover soil stockpiles and exposed soil
- Using straw wattles to reduce the length of unbroken slopes and minimize runoff concentration
- Using temporary erosion control blankets or mulch on exposed steep slopes to minimize erosion before vegetation is established
- Constructing temporary sedimentation ponds to remove solids from concentrated runoff and dewatering before being discharged
- Conducting vehicle fueling and maintenance activities no closer than 100 feet from a water body or ditch

A TESC plan also would include a water quality monitoring plan and a schedule for inspecting the erosion control measures for effectiveness. Water from dewatering, such as from tunnels or guideway pier construction, would be treated as required to meet discharge requirements identified on the SWPPP or hauled off site for proper disposal. Pavement slurry and residue from road cutting and grinding would be collected and properly disposed of off site, and a concrete containment and disposal plan would also be prepared. An Ecology-certified erosion and sediment control lead (CESCL) would be employed to conduct the inspections, and deficiencies would be promptly corrected. These measures would minimize the likelihood for serious water quality problems occurring during construction.

The concrete used for the project would need several months to cure enough so that the pH decreases to acceptable levels. Stormwater runoff would be tested, and if excessive levels of pH or turbidity are found, then the water quality of the runoff would be treated before it is released to storm sewers or a receiving water body. If discharge of treated construction or process water to a sanitary sewer is proposed, approval must be obtained from the King County Industrial Waste Division and the local jurisdiction.

For construction within and over streams or other water bodies, a Hydraulic Project Approval (HPA) would be required. The HPA would be obtained from WDFW before work begins. The project would comply with the HPA's stream protection measures, including diverting stream flow around the construction area and limiting the construction period to the required "work window," a period of the year identified in the HPA when fish would be minimally affected.

Segment A

Preferred Alternative A1 would be constructed within the I-90 corridor. Nearly all construction would occur within the existing roadbed of I-90 and would, therefore, not be expected to pose a substantial erosion risk.

Preferred Alternative A1 would cross over a large area that is designated as an erosion-hazard area in Mercer Island. Clearing, grading, and other construction-related activities in areas with steep slopes or unstable soils has the potential to cause severe erosion problems. No further construction impacts would be anticipated.

Segment B

Preferred Alternative B2M involves construction activity adjacent to Mercer Slough, including constructing a retained cut structure near the Winters House. This poses a sedimentation hazard to the slough. However, the BMPs listed in the previous subsection would provide adequate protection against water quality degradation.

Alternative B7 would be constructed over Mercer Slough. In addition to measures listed above, construction inside Mercer Slough Nature Park and over the slough waterway would include building a stilt and plank temporary roadway to reduce compressing the soils and limiting construction material into and adjacent to Mercer Slough. Dewatering water from pier excavations would be either treated prior to release to remove suspended solids or hauled off site for proper disposal.

Similar measures would also be used to minimize the impact of the elevated portion of the 112th SE Bypass Alternative (B3) that would traverse a large wetland south of SE 6th Street.

Alternative B7 would cross a steep area that is more than 1 mile long, located along the east side of Mercer Slough and west of I-405. However, this portion of the alternative would be constructed within a railroad bed where only minor grading and minimal hillside disturbance would occur.

The other Segment B alternatives that follow Bellevue Way SE would have similar impacts as those described for *Preferred Alternative B2M*.

Segment C

Groundwater seepage from tunnel boring activities for *Preferred Alternative C9T* could be up to 250 gpm; this is typical of other projects with deep underground parking structures or foundations that have recently been constructed in Downtown Bellevue. The existing storm drainage system has adequate capacity to accept this quantity of pumped groundwater. Prior to discharge, the collected groundwater would be treated to meet city discharge requirements before it is discharged into the storm drainage system.

The other Segment C alternatives would have similar impacts as those described above for *Preferred Alternatives C11A* and *C9T*. Groundwater impacts due to seepage from tunnel boring activities for Alternative C2T or 108th NE Tunnel Alternative (C3T) would be similar to those discussed above for *Preferred Alternative C9T*.

Any of the Segment C alternatives that connect from Alternative B3, B3 - 114th Design Option, or Alternative B7 would involve constructing four guideway columns close to Sturtevant Creek channel, north of SE 6th Street. The stream could experience substantial siltation during construction. BMPs discussed earlier in this section would reduce the potential for this impact. An HPA would be required and obtained from the WDFW. Stream protection measures are further discussed in Section 4.8, Ecosystems Resources, and would provide adequate protection of water quality in Sturtevant Creek during construction.

Segment D

Preferred Alternative D2A would construct several columns within the impounded section of the West Tributary of Kelsey Creek. The stilt and plank temporary roadway and proper treatment/disposal of pier excavation water discussed in Segment B would also be carried out at this location. No further construction impacts would be anticipated with *Preferred Alternative D2A* or the D2A design options.

Alternative D3 would require the reconstruction and extension of the Valley Creek culvert under NE 20th Street. Temporary creek relocation and related stream protection measures specified in an HPA obtained for this crossing would ensure that creek water quality was adequately protected. There would be no impacts related to Alternatives D2E or D5.

Segment E

Preferred Alternative E2 includes construction activity along the SR 520 corridor as well as construction activity related to the Sammamish River and Bear Creek crossings. Construction stormwater BMPs and measures stipulated in the HPAs for these stream crossings would be implemented to reduce impacts on these two watercourses.

The other Segment E alternatives would have similar impacts as those described above for *Preferred Alternative E2*.

Maintenance Facilities

The BMPs presented previously under Impacts Common to All Build Alternatives would generally apply to the construction of the maintenance facility. A wetland lies on the north side of the MF2, and Goff Creek flows through the west side of the MF3. Construction could impact these water bodies. Potential impacts would be minimized by implementing BMPs, adhering to the HPA requirements for relocating Goff Creek, and adhering to the buffer recommendations in Section 4.8.3.

4.9.4 Potential Mitigation Measures

A number of regulatory requirements for addressing water resource impacts would be part of the project design, as discussed in Section 4.9.3. Where the project alternatives would result in adverse impacts after the application of minimization measures included in the project design, further mitigation would be necessary as described below.

During final design, opportunities for regional management of project stormwater and on-site control of stormwater runoff would be explored. The project design team would work with local jurisdictions to identify opportunities to incorporate low-impact development features into the project, including consideration of runoff dispersion, permeable pavement, green roofs, and other measures to retain rainfall on site and minimize project runoff. Stormwater management and treatment principles of Low-Impact Development (LID) will be favored over “traditional” stormwater treatment and applied wherever feasible.

For *Preferred Alternative B2M*, the sealed, concrete-lined retained cut constructed near Mercer Slough would prevent groundwater from entering the retained cut but allow groundwater to flow down-gradient beneath the cut. This would maintain the existing groundwater flow toward the Slough and sustain down-gradient wetlands and other surface water features.

If any of the Segment C alternatives that connect from Alternatives B3 or B7 were to be selected, then the elevated guideway columns would be placed outside of the Sturtevant Creek stream channel, avoiding direct impact on the creek. For *Preferred Alternative D2A*, the Unnamed Tributary to Kelsey Creek would be relocated into a new 24-inch-wide storm drain. The stream would remain in the existing storm drain until a new storm drain is constructed. Rerouting the tributary would occur within the permitted work window during the summer when flows in the stream do not typically exist or are extremely low. If Alternative D3 were to be selected, then the existing shallow culvert crossing of NE 20th Street by Valley Creek would be replaced with a bridge that is structurally capable of supporting the light rail crossing at this location. Bridge construction would meet applicable fish passage criteria.

If the MF3 were to be selected, then Goff Creek could be relocated several hundred feet to the west to avoid the facility. Alternatively, the stream could be restored in its present location and the culverts replaced by ones that allow fish passage and migration. The stream would be relocated and restored in a manner compatible with the Bel-Red Corridor redevelopment plans.

4.10 Energy Impacts

4.10.1 Introduction to Resources and Regulatory Requirements

Project construction activities and operating vehicles, commuter trains, and light rail in the East Link Project study area would consume large amounts of energy. This section estimates the amount of energy that would be consumed during project construction and the amount of energy that would be consumed by vehicles operating within the study area.

The study area for this analysis is the Puget Sound Regional Council (PSRC) four-county region, which includes King, Pierce, Snohomish, and Kitsap Counties; this is the same study area used for the traffic data analysis. Some general discussion of statewide energy use and potential energy impacts on local utilities is also included.

Federal and state agencies regulate energy consumption through various policies and programs. Federal guidelines such as the Energy Policy and Conservation Act of 1975 and the Energy Independence and Security Act of 2007 require minimum fuels consumption efficiency standards for new automobiles sold in the United States. The Corporate Average Fuel Economy Program was created to help manufacturers adhere to the efficiency standards. The Safe, Accountable, Flexible, and Efficient Transportation Act: A Legacy for Users (SAFETEA-LU), which was passed in 2005, promotes the reduction of traffic congestion to improve safety, and protect air quality and the environment (Federal Highway Administration [FHWA], 2007).

4.10.2 Affected Environment

This section discusses the existing energy use characteristics at both the state level and in the study area. Detailed information about energy use at the project level is not available; as a result, Sound Transit used the state-level and utility service area trends to help determine energy consumption at the local level.

According to the Energy Information Administration (EIA), Washington consumed over 2,050 trillion British thermal units (Btu) of energy in 2008, which is the energy equivalent of approximately 354 million barrels of oil. In 2008, Washington's per capita energy consumption was approximately 312 million Btu, which is the energy equivalent of approximately 2,500 gallons of gasoline per person per year (EIA, 2010).

In recent years, the increasing popularity of pick-up trucks, vans, and sport utility vehicles has reduced new vehicle fuel efficiency. Although Washington's economy is becoming less energy-intensive because of improved technology and productivity increases, the state's overall energy consumption is expected to grow due to growth in population, jobs, and demand for vehicle travel. If petroleum prices remain high, then growth in energy consumption might moderate as consumers purchase more fuel-efficient vehicles and change travel patterns (Washington State Department of Community, Trade, and Economic Development [CTED], 2007).

The study area's electricity needs are currently served by two utilities: Seattle City Light, a municipal electric utility serving the City of Seattle, and Puget Sound Energy, an investor-owned utility that provides electricity and natural gas to communities throughout western Washington. Table 4.10-1 lists the number of customer and generation capacity for each utility's service area.

TABLE 4.10-1
Utility Data

Utility Data	Seattle City Light	Puget Sound Energy
Number of customers, 2009	394,731	1,075,400
Total generation (MWh), 2009	13,714,000	25,971,000
Btu equivalent	46.8 trillion	88.6 trillion

Source: Seattle City Light, 2010a; Puget Sound Energy, 2010a.
Notes:
1 MWh = 3,412,141 Btu.
Total generation includes generated power and purchased power.

BTU	British thermal unit
MWh	megawatt hour

Both utilities rely on their own generation sources as well as energy purchases through long- and short-term contracts with other energy producers (i.e., Bonneville Power Administration). In 2009, Seattle City Light produced approximately 43 percent of its own power and purchased the other 57 percent; Puget Sound Energy produced approximately 46 percent of its own power and purchased the other 54 percent (Puget Sound Energy, 2010a; Seattle City Light, 2010a) Of the total power generated in 2009 (including own generation and purchased power), hydroelectric generation accounted for approximately 91 percent of Seattle City Light's power (Seattle City Light, 2010b) and approximately 28 percent of Puget Sound Energy's power (Puget Sound Energy, 2010b).

Today, the project vicinity is congested during the peak traffic periods. Excessive idling and stop-and-go traffic conditions substantially reduce fuel economy compared with free-flow conditions. Exhibit 4.10-1 shows the average miles per gallon (mpg) for vehicles traveling at speeds between 15 and 75 miles per hour (mph). As shown on the graph, fuel efficiency is greatest when vehicles are traveling between 45 and 55 mph. Because of current conditions in the project vicinity, there are often times throughout the day when the study area is congested and vehicles are operating at inefficient speeds.

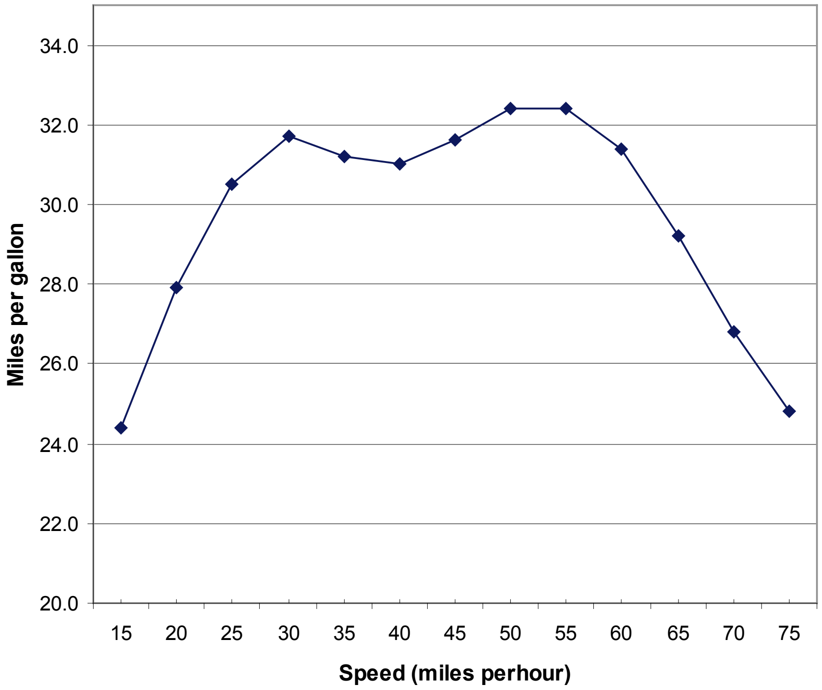


EXHIBIT 4.10-1
Average Fuel Consumption Rates for Automobiles

Table 4.10-2 presents the most recently available daily vehicle miles traveled (VMT) and energy consumption by mode for the PSRC four-county region. The PSRC model did not reflect ridership for Sound Transit Central Link because it was not operational until 2009. Ridership for the Sound Transit Central Link is approximately 6,300 VMT per day.

According to the PSRC traffic model and the Sound Transit ridership model, the existing daily VMT for the region is approximately 71.8 million. The daily energy use by the different transportation modes is approximately 484,000 million Btu.

TABLE 4.10-2
Existing Daily Vehicle Miles Traveled and Energy Consumption (2005)

Vehicle Type	Consumption Factor	Existing Conditions[a]	
		Daily VMT	MMBtu
Passenger vehicle	5,894	68,181,645	401,865
Heavy duty	22,077	3,391,855	74,882
Transit bus	39,906	186,342	7,436
Commuter rail	94,587	854	81
Light rail	62,601	6,296	394
Total		71,766,992	484,658

Source: PSRC, 2007; Sound Transit, 2007; DOE, 2010
[a] Puget Sound Regional Council has not updated VMT records to reflect Central Link VMT effects. Central Link opened service in 2009.

MMBtu million British thermal unit
VMT vehicle miles traveled

4.10.3 Environmental Impacts

4.10.3.1 Impact Estimating Methodology

The energy analysis evaluated operational and construction energy use by the project and the demand on regional energy supply. Sound Transit estimated long-term (operational) impacts from the VMT estimates by mode presented in the PSRC four-county traffic forecast model. The PSRC four-county region total VMT estimates for light rail were modeled based on the projected *Sound Transit 2: A Mass Transit Guide, The Regional Transit System Plan for Central Puget Sound* (ST2). The four-county regional VMT was separated into passenger miles and heavy truck miles to account for differences in energy consumption levels. Passenger vehicles' VMT, which includes light-duty trucks, was assumed to contribute 95 percent, and heavy trucks contribute the remaining 5 percent of the total regional VMT. All energy consumed was converted to Btu to provide a common measure among the energy sources.

The Btu for each VMT category was obtained from the *Transportation Energy Data Book, Edition 29* (U.S. Department of Energy [DOE], 2010). The energy consumption factor for passenger vehicles includes the weighted average for cars, motorcycles, and light trucks. Energy consumption factors by mode are as follows:

- One passenger vehicle mile (includes cars, motorcycles, and light trucks) = 5,894 Btu
- One heavy-duty vehicle (trucks) mile= 22,077 Btu
- One transit bus mile = 39,906 Btu
- One light and heavy rail mile = 62,601 Btu
- One commuter rail mile = 94,587 Btu

During project construction, energy would be consumed when construction materials are produced and then when transported to the site. Operating and maintaining construction equipment would also consume resources. Construction-related impacts were estimated by applying a highway construction energy factor to the total construction cost of the East Link Project. The California Department of Transportation (CALTRANS) derived energy consumption factors for different light rail transit facilities in *Energy and Transportation Systems*, and these factors are still widely used in the industry today (CALTRANS, 1983). For this analysis, the following energy consumption factors were used to estimate the energy consumed during project construction:

- Track work: 5,044 Btu per 2007 dollars
- Structures: 5,044 Btu per 2007 dollars
- Electric substations: 7,752 Btu per 2007 dollars
- Signaling: 2,122 Btu per 2007 dollars
- Stations, stops, and terminals: 5,044 Btu per 2007 dollars
- Parking: 6,203 Btu per 2007 dollars
- Maintenance facilities: 5,044 to 6,203 Btu per 2007 dollars

The consumption factors were reported in Btu per dollars of construction spending. Because the CALTRANS report was developed using 1973 construction dollars, the energy consumption factors had to be adjusted to account for the change in construction costs. The California Construction Cost Index was used to adjust the factors to 2007 dollars.

4.10.3.2 No Build Alternative

Under the No Build Alternative, the daily VMT for the PSRC four-county region would increase from approximately 71.8 million VMT in 2005 to approximately 116.7 million VMT in 2030. As shown in Table 4.10-3, this daily VMT would be slightly higher than the VMT with the East Link Project. Vehicles operating in the study area would consume approximately 778,000 million Btu of energy in 2030. The No Build Alternative would place additional demands on energy in the region as a result of increased passenger trips, greater levels of congestion, and slower speeds when compared with the build alternatives. However, the potential demand on the electric utilities that the East Link light rail system would place on the electric grid would not occur.

The No Build Alternative also involves no construction activities related to the light rail system; therefore, no additional energy would be consumed because of construction activities under the No Build Alternative.

4.10.3.3 Impacts During Operation

The long-term direct energy impacts analysis of the East Link Project are based on projected 2030 regional traffic volumes and daily VMT consistent with PSRC data and the transit modeling performed by Sound Transit. Sound Transit combined one alternative from each segment to develop a "representative project" from Seattle to Redmond. The representative project consisted of the following segments: *Preferred Interstate 90 Alternative (A1)*, 112th SE Bypass Alternative (B3), Couplet Alternative (C4A), *Preferred NE 116th At-Grade Alternative (D2A)*, and *Preferred Marymoor Alternative (E2)*. The passenger vehicles' VMT was then modified to reflect a high- and low-ridership level to provide a high and low range of operational impacts.

The representative project route contains different Segment B and C routes than the *Preferred Alternative*, but the traffic volumes and daily VMT that were developed using the representative project would be similar to the volumes modeled using the segments that make up the *Preferred Alternative*. Therefore, the energy consumption when operating the *Preferred Alternative* is expected to be similar to the energy impacts of the representative project presented below.

TABLE 4.10-3
Daily Vehicle Miles Traveled and Energy Consumed

Vehicle Type	Consumption Factor (Btu per mile)	2030 No Build		2030 Build: High Ridership		2030 Build: Low Ridership	
		Daily VMT	MMBtu	Daily VMT	MMBtu	Daily VMT	MMBtu
Passenger vehicle	5,894	111,389,000	656,531	111,159,647	655,179	111,212,303	655,489
Heavy duty	22,077	5,085,486	112,272	5,084,386	112,248	5,084,386	112,248
Transit bus	39,906	201,916	8,058	199,056	7,944	199,056	7,944
Commuter rail	94,587	1,524	144	1,524	144	1,524	144
Light rail	62,601	12,241	766	16,600	1,039	16,600	1,039
Total		116,690,167	777,771	116,461,213	776,554	116,513,869	776,864

Source: PSRC Transportation Demand Model and; Sound Transit Ridership Model, 2007; USDOE, 2010.
Btu British thermal unit
MMBtu million British thermal unit
VMT vehicle miles traveled

Table 4.10-3 presents the VMT, energy consumption rate (Btu per mile), and total energy consumption for each mode and the high- and low-ridership build scenario. When compared to the No Build Alternative, each build scenario would result in a reduction of passenger and transit bus vehicle miles as people shift their demand to the light rail system. Overall, energy use during project operation in the PSRC four-county region is expected to result in approximately 0.1 to 0.2 percent less energy than the No Build Alternative. Compared with the No Build Alternative, similar energy savings would be expected with the *Preferred Alternative* as with the representative project.

Operating the light rail system would place a demand on the local electricity utilities, Seattle City Light and Puget Sound Energy. The light rail system is estimated to use 1,039 million Btu per day, or approximately 304 megawatt hours (MWh) per day. Assuming that the light rail system would operate 365 days per year, the annual light rail system energy consumption would be approximately 110,000 MWh.

This represents approximately 0.3 percent of the total 2009 generation for Seattle City Light and Puget Sound Energy combined. Operating the light rail system is not expected to have a substantial impact on the electric utilities**.**

Sound Transit adopted a Sustainability Initiative in 2007 that promotes energy efficiency, minimizes waste, and implements more energy-efficient alternatives than current practices.

According to the initiative, Sound Transit will integrate efficient operating practices at existing and new facilities, use energy-saving equipment to reduce energy demand, and maximize intermodal transit connections to reduce automobile VMT. Many of these practices have been incorporated in the Central Link initial segment. Implementing these and other sustainability initiatives will also reduce energy consumption with East Link operation.

4.10.3.4 Impacts During Construction

The amount of energy used during construction of a project is roughly proportional to the project cost. To analyze short-term energy impacts, Sound Transit estimated the amount of energy that would be consumed during construction by applying the CALTRANS construction energy consumption factor to the project construction costs. Only direct construction costs related to this project were used to calculate energy consumption during the construction period. Thus, professional engineering and right-of-way costs were removed from the analysis.

The analysis compared the total energy consumptions for the two *Preferred Alternative* scenarios and the overall low- and high-cost project scenarios (described in the list below). The segment alternatives for each alternative scenario are as follows:

- ***Preferred Alternative* (High-Cost).** This project consists of *Preferred Alternative A1*, *Preferred 112th SE Modified Alternative (B2M)*, *Preferred 110th NE Tunnel Alternative (C9T)*, *Preferred Alternative D2A*, and *Preferred Alternative E2* with E2 - Redmond Transit Center Station Design Option.
- ***Preferred Alternative* (Low-Cost)**. This project consists of *Preferred Alternative A1, Preferred Alternative B2M, Preferred 108th NE At-Grade Alternative (C11A), Preferred Alternative D2A*, and *Preferred Alternative E2* with E2 - Redmond Transit Center Design Option.
- **Low-Cost Project**. This project consists of *Preferred Alternative A1,* 112th SE At-Grade Alternative (B2A), 112th NE Elevated Alternative (C7E), SR 520 Alternative (D5), and *Preferred Alternative E2* with E2 - Redmond Transit Center Design Option.
- **High-Cost Project**. This project consists of the *Preferred Alternative A1,* Bellevue Way Alternative (B1), Bellevue Way Tunnel Alternative (C1T), NE 20th Alternative (D3) and *Preferred Alternative E2* with E2 - Redmond Transit Center Design Option.

Table 4.10-4 lists the energy consumed during construction for each *Preferred Alternative* scenario and the low- and high-cost scenarios. The energy consumption information presented below provides a possible range of energy consumption during construction. The estimated energy consumption for the preferred alternative (low- and high-cost) scenarios would total 7.5 trillion Btu and 8.4 trillion Btu, respectively. The *Preferred Alternative* (high-cost) scenario with *Preferred Alternative C9T* would likely consume approximately 12 percent more energy than the *Preferred Alternative* (low- cost) scenario with *Preferred Alternative C11A*. Respectively, the low-cost and high-cost alignment would consume approximately 8 percent less and 32 percent more energy than the low-cost *Preferred Alternative*. As mentioned previously, no additional energy would be consumed because of construction activities with the No Build Alternative.

Because the project could be phased due to funding availability, interim termini were developed that would end the project at or east of the Ashwood/Hospital Station located in Segment C. The impact of a phased approach would be to delay some of the energy consumption related to construction and possibly delay the operational savings anticipated from the project until the full line is completed.

The maintenance facility was not included in the project energy analysis because it would operate as a project to support the larger Link system. A preferred maintenance facility will be determined through future operations analysis and site in the future and may or may not include the maintenance facility sites studied in this Final EIS. The maintenance facilities do not vary in their conceptual design and elements, and therefore, a representative energy use is projected to be approximately 501,000 million British thermal units (MMbtus). The maintenance facility would include buildings, which based on Sound Transit's sustainability objectives, would be built in accordance with Leadership in Energy and Environmental Design (LEED) principles.

Sound Transit's commitment to sustainability practices includes conserving energy during construction. Sound Transit would work with the contractor on measures that might include, but not be limited to, conserving fuel usage and extracting recyclable materials before demolition.

4.10.4 Potential Mitigation Measures

Operating the light rail system is expected to consume less energy than the No Build Alternative and is not expected to overburden the electric utilities' power availability; therefore, no mitigation would be required.

TABLE 4.10-4
Projected Energy Consumption for *Preferred Alternatives*

Segment	***Preferred Alternative***				**Low Construction-Cost Route**		**High Construction-Cost Route**	
	Low-Cost *Preferred Alternative*	**Energy Consumption (MMBtus)**	**High-Cost *Preferred Alternative***	**Energy Consumption (MMBtus)**	**Segments**	**Energy Consumption (MMBtus)**	**Segments**	**Energy Consumption (MMBtus)**
Segment A	A1	1,760,309	A1	1,760,309	A1	1,760,309	A1	1,760,309
Segment B	*B2M* to *C11A*	1,430,474	*B2M* to *C9T*	1,445,051	B2A	1,231,317	B1	1,230,293
Segment C	*C11A*	1,090,710	*C9T*	1,952,857	C7E from B2A	1,027,244	C1T	3,719,630
Segment D	*D2A*	1,533,643	*D2A*	1,533,643	D5	1,233,522	D3	1,531,239
Segment E	*E2*	1,203,313	*E2*	1,203,313	*E2*	1,203,313	*E2*	1,203,313
Total		7,018,449		7,895,173		6,455,705		9,444,784
Change from Low-Cost *Preferred Alternative* (percent)						**-10**		**34.6**

4.11 Geology and Soils

4.11.1 Introduction to Resources and Regulatory Requirements

Geology and soil considerations important to the East Link Project include topography, geology, soil characteristics, groundwater conditions, and geologic hazards. These considerations affect the type of construction methods used for the project and, if not adequately considered during project design, could affect the long-term operations and safety of the light rail system.

Washington State's Growth Management Act (GMA) (Revised Code of Washington [RCW] Chapter 36.70A) requires all cities and counties to identify critical areas within their jurisdictions and to formulate development regulations for their protection. Among the critical areas designated by the GMA are Geologically Hazardous Areas, which are areas susceptible to erosion, sliding, earthquakes, or other geologic events. These hazards could affect the design, construction, and operation of the project and, if not considered appropriately, could pose a risk to public safety.

Geology and soil considerations are closely related to groundwater conditions. While this section includes general information on groundwater within segments, more detailed information about groundwater along the alternative routes is discussed in Section 4.9, Water Resources. Locations of possible contaminated soils and contaminated groundwater are identified and discussed in Section 4.12, Hazardous Materials.

4.11.2 Affected Environment

Geologic units and soil characteristics along each alternative were assessed within the study area to establish the affected environment for geology and soils. The study area for specific issues related to geology and soils is defined as the area within approximately 100 feet on either side of each alternative and their associated facilities. However, when assessing the geology and soil characteristics, it was also necessary to consider geology on a regional basis to understand the mechanism leading to current geology. The need for a regional review is particularly important to seismicity because the source of this hazard could originate tens to hundreds of miles from the project routes.

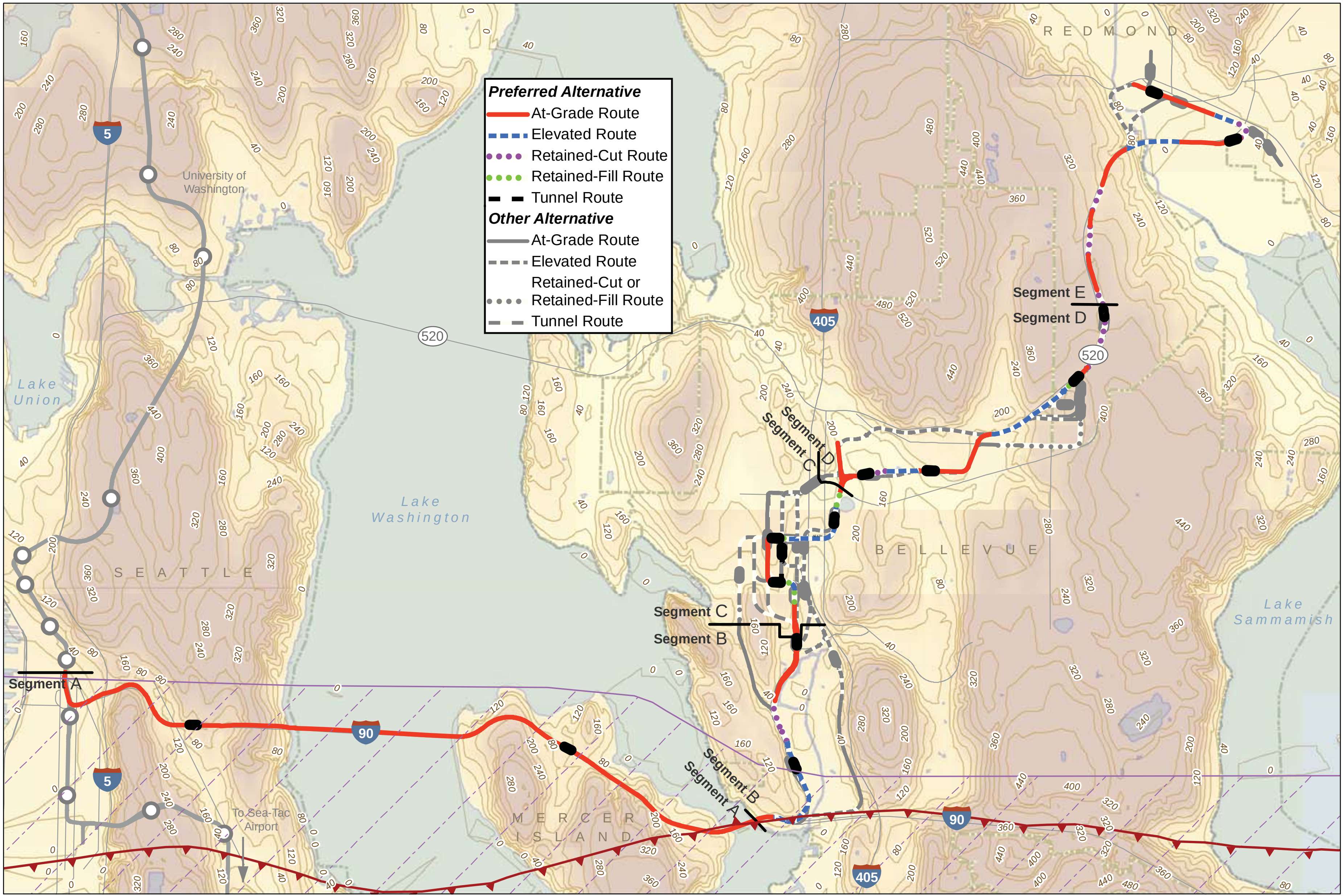
Sound Transit assessed geologic units and soil characteristics using maps—including topographic maps, surficial soils maps, geologic maps, and geologic hazard maps—published by governmental agencies, including the U.S. Department of Agriculture (USDA) and U.S. Geological Survey (USGS). Sound Transit also assessed available site-specific geotechnical information for each alternative based on geotechnical explorations conducted as part of other projects along the alternative routes. The exploration information includes data from over 500 soil borings that were drilled within the study area between 1948 and 2010 (Exhibit F4.11-7 in Appendix F4.11). As part of conceptual and preliminary engineering for the East Link Project, 114 additional borings were drilled between 2007 and 2010 to augment available subsurface soil and groundwater information in Segments A, B, C, and D (Jacobs, 2007; CH2M HILL, 2011*)*. Information from these project-specific explorations was included in the development of the affected environment description for the study area.

4.11.2.1 Topography, Regional Geology, and Seismicity

The East Link Project is located in the central portion of the Puget Sound Basin, an elongated, north-south trending depression situated in western Washington between the Olympic Mountain Range to the west and the Cascade Mountain Range to the east. The regional topography consists of a series of north-south trending ridges separated by deep troughs. The troughs are now occupied by streams, lakes, and waterways, including Puget Sound, Elliott Bay, Lake Washington, and Lake Sammamish. Land elevations range from about 15 to 380 feet (North American Vertical Datum of 1988) across the East Link Project corridor (Exhibit 4.11-1).

This regional topography was shaped mainly by glaciations that moved back and forth across the region over 10,000 years ago. The glaciers were sometimes several thousand feet thick. Soils that were over-ridden by glaciers are generally very hard or compact as a result of the weight of the glaciers. More recently, erosional processes and landform changes made by human development of the area have modified the regional topography.

Geology in the region generally includes recently developed surficial soils (created within the last 10,000 years) over a thick sequence of glacially consolidated soils and then bedrock. Appendix F4.11 shows the surficial geology of the area (see Exhibits F4.11-1 through F4.11-4) and provides descriptions for each of the geologic units and a summary of their engineering properties (Table F4.11-1). Bedrock along the route is generally located more than 500 feet below the ground surface.



Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
R E D M O N D
University of Washington
Lake Union
Lake Washington
S E A T T L E
B E L L E V U E
Lake Sammamish
M E R C E R I S L A N D
To Sea-Tac Airport
Segment A
Segment B
Segment C
Segment D
Segment E
5
90
405
520

Source: Data digitized from GeomapNW at the University of Washington (2005 and 2006), data from U.S. Geological Survey (2007), King County (2006), and Sound Transit (2007).

40-Foot Contour (Vertical Datum NAVD88)

Seattle Fault Strand[a]

Seattle Fault Zone[b]

Proposed Station

Central Link Alignment and Station

Note:[a] USGS (2007)
[B] Troost et. al. (2005) and Troost and Wisher (2006)

N

0 1 Mile

Exhibit 4.11-1

Project Location and Topography

East Link Project

The region is seismically active—the project vicinity has been subject to earthquakes in the historical past and will undoubtedly experience earthquakes again in the future. Earthquakes in the Puget Sound region result from any one of three sources: the Cascadia subduction zone off the coast of Washington, the deep intraslab subduction zone located approximately 20 to 40 miles below the Puget Sound area, or shallow crustal faults. The closest active crustal source is the Seattle Fault Zone. The southern portion of the project is mapped within the Seattle Fault Zone. The northern terminus of the light rail project in Redmond is located within 6.5 miles of the Seattle Fault Zone (USGS, 2007) (as shown in Exhibit 4.11-1).

4.11.2.2 Geologic Hazards

An important consideration for the construction and operation of the East Link Project would be the potential for geologic hazards, including steep slopes, erosion, landslides, seismicity, and soft soils. Geologic hazards from seismicity include ground-shaking, fault movement, and secondary seismic impacts such as liquefaction and liquefaction-induced settlement. Table 4.11-1 identifies the type of geologic hazard areas within or adjacent to each segment. Areas with hazards from liquefaction, steep-slopes, landslides, and peat deposits, are shown in Appendix F4.11, Exhibits F4.11-5 and -6. The geologic hazard potential identified in Table 4.11-1 was established based on Washington state and local regulatory requirements involving steep slopes, erosion, landslides, seismic hazards, and soft soils. The geologic hazard potentials are defined as follows:

- Steep slope hazards are areas where slopes are steeper than 15 to 40 percent. These areas are considered hazards because they are prone to slope failure, either during periods of wet weather or during large seismic events.
- Erosion hazards occur where soils may experience severe to very severe erosion from construction activities. Certain types of soils with fine particles, such as silts, are more prone to erosion from wind and water. The potential for erosion also increases as the slope steepness increases. Surficial soils and topographic maps can be used to identify areas that are particularly susceptible to erosion.
- Landslide hazard areas are mapped where there is evidence of past landslides, where the slope is 15 percent to 40 percent and the soils are underlain by silt or clay that can perch groundwater, or where the slope is steeper than 40 percent, regardless of soil type. This type of hazard is closely associated with the steep slope hazard. A landslide can vary in size from a small, surficial slump to a large, multi-acre occurrence.

Geology and Soils Definitions

Cascadia subduction zone is the place where the Juan de Fuca and North American lithospheric plates (the crust and the uppermost mantle of the earth) come together, with the Juan de Fuca sliding below the North American Plate.

Groundwater is water that is found beneath the earth's surface. The top of the groundwater is referred to as the water table. The water table location can change with the season.

Intraslab subduction zone is the zone between the earth's crustal plates. This zone is the source of large earthquakes below Puget Sound.

Liquefaction is a loss of strength in loose sands and non-plastic (i.e., with little or no cohesion) silts located below the water table.

Lateral spreading is the lateral movement of near-level or sloping ground associated with liquefaction of soil during an earthquake.

Surface faulting is displacement of the land surface by movement along the fault.

Tsunami is a sea wave resulting from an underwater landslide or seafloor movement during an earthquake.

Seiches are periodic oscillations in an enclosed body of water during an earthquake.

TABLE 4.11-1
Potential Geologic Hazards within or Adjacent to Each Segment

Geologic Hazard Potential	Segment				
	A	B	C	D	E
Steep slopes (more than 40 percent)	✓	✓	✓	✓	✓
Erosion	✓	✓	✓	✓	✓
Landslide	✓	✓			✓
Seismic (distance from Seattle Fault Zone)	0 to 2 miles	0 to 2 miles	2 to 3.5 miles	3.5 to 5 miles	5 to 6.5 miles
Liquefaction potential	Moderate to high	Moderate to high	Low to moderate	Low to moderate	Low to moderate
Soft soils (including peat settlement)	✓	✓	✓	✓	✓

- Seismic hazard areas are subject to potential risk from earthquake-induced ground-shaking and fault displacement. The ground-shaking can result in slope failure, settlement, soil liquefaction, a tsunami, or a seiche—all of which pose a risk to the public.
- Liquefaction is of particular concern because it has often been the cause of damage to structures during past earthquakes. Liquefaction occurs where soils are primarily loose and granular in consistency and located below the water table. The consequences of liquefaction include loss in the strength and settlement of the soil. The loss of strength can result in lateral spreading, bearing failures, or flotation of buried vaults and pipes.
- Examples of liquefiable soils located in the study area include:
  - Some artificial fill
  - Tideflat deposits
  - Mass wastage deposits
  - Lake deposits
  - Recessional outwash deposits
- A tsunami or a seiche is a possible secondary impact from a seismic event. Both mechanisms involve water waves that can be created by an earthquake. In general, the East Link alternatives are located either too far from Elliott Bay and Lake Sammamish or too high above Lake Washington for tsunami or seiche inundation to be a concern.
- Soft soil conditions can also be a form of geologic hazard. Peats and soft clays are common soils that result in geologic hazards. These soils have low strengths and are compressible. Without appropriate design consideration, soft soil can lead to embankment failures during construction or long-term settlement and would add to the maintenance requirements for the project.

4.11.2.3 Site Geology

This section summarizes geotechnical characteristics and groundwater conditions for each segment of the study area based on existing geologic maps and geotechnical boring logs. Table F4.11-1 in Appendix F4.11 provides a summary of general geologic unit descriptions. More detailed discussions of the soils and geologic units, as well as groundwater conditions along the segment routes, are provided in geotechnical reports prepared for conceptual and preliminary engineering (Jacobs, 2007; CH2M HILL, 2011).

Segment A

The construction of Interstate 90 (I-90) and adjacent land development has modified the terrain within Segment A, changing the original topography and sometimes altering the type of exposed soil or the depth to groundwater.

The geotechnical characteristics of soils in this segment range from loose sands, which could be unstable if they were to liquefy, to glacially consolidated sands and gravels, which generally provide good bearing support and little settlement.

The groundwater elevation varies along the Segment A alternative.

- Groundwater in the Rainier Valley was typically found at around 20 feet deep and was not encountered in many borings on the hillsides.
- Artesian groundwater conditions were encountered at depths of approximately 30 to 60 feet below the ground surface on the east side of Baker Ridge at the west approach to the I-90 floating bridge. Artesian conditions occur when groundwater is at a greater pressure than the water depth at which groundwater is encountered because a low-permeability soil layer prevents the groundwater from flowing upward.
- Groundwater near each shore of Mercer Island was encountered at the lake level, while groundwater within the center of Mercer Island was approximately 20 feet below the ground surface.

Segment B

Much of the land along the Segment B corridor has been developed with residential and light commercial structures for retail uses. The Mercer Slough Nature Park, which is a large wetland between Bellevue Way SE and I-405, remains relatively undeveloped.

Soil conditions change significantly within Segment B, depending on the proximity of the location to Mercer Slough Nature Park:

- Within the Mercer Slough Nature Park, soft clays and peats are found. These soils are often low in strength and prone to settlement. WSDOT has found the thickness of the soft soil to be in excess of 100 feet at the center of the slough. In addition to being soft and settlement prone, WSDOT also reports that these soils move horizontally as the level of Lake Washington changes, resulting in large soil loading to the existing I-90 structures that cross the slough.

- Away from Mercer Slough, such as along Bellevue Way SE and 112th Avenue SE and along the former BNSF Railway corridor, glacially consolidated soils are found close to the ground surface. These soils are very strong and resistant to settlement, making them very stable during construction and long-term operations.

Steep slopes are present in areas along the west side of Bellevue Way SE and along the east side of the former BNSF Railway corridor.

Groundwater depth varies with topography and the season.

- Kelsey Creek, to the northeast of Mercer Slough, has a shallow unconfined aquifer, which primarily discharges into Mercer Slough.
- Within the Mercer Slough wetlands, groundwater is at or near the ground surface. It also is present and highly pressurized (artesian) in a sand unit at approximately 100 to 125 feet below the ground surface.
- In upland areas on either side of the Mercer Slough, groundwater is often encountered within 10 to 30 feet of the ground surface.

Segment C

Development in Segment C varies from homes, apartments, hotels, and relatively low-rise commercial buildings in the south to Downtown Bellevue, which is dominated by highrise buildings and an extensive amount of underground development for parking garages, building foundations, and utilities. Most of the land in Segment C has been modified by human development.

Soils consist of fill, underlain by deposits of glacial till composed of silt, sand, and gravel.

- The fill is usually less than 15 feet in thickness and is the result of the extensive construction that has taken place in the area. Fill areas along 112th Avenue SE and in the Downtown Bellevue core are highly variable in terms of soil type and consistency. The variability of this fill makes it less dependable for construction, and it can be prone to settlement and/or liquefaction.
- The till below the fill is generally very compact and stable, thus providing good bearing support and posing limited risk of settlement, which makes these soils suitable for constructing and operating various light-rail alternatives, including tunnel options.

Segment C includes alternatives that would involve tunneling through Downtown Bellevue. Geotechnical characteristics and groundwater conditions along potential tunnel alternatives within Segment C are described in Table 4.11-2. This table also identifies typical tunneling methods and tunneling depths for each alternative.

The groundwater elevation varies with topography and season in Segment C. A groundwater table is typically encountered at depths between 20 and 100 feet. In some locations of Downtown Bellevue, there is artesian groundwater pressure. These excess pressures would have to be considered when designing and constructing tunnels and elevated structures.

The presence of relatively shallow groundwater in some locations has meant that dewatering wells have been used to lower groundwater during excavation of basements for new highrise buildings in some parts of Downtown Bellevue, such as at the recently constructed Bravern office buildings. Dewatering during construction can increase the potential for settlement where soils are soft or loose and heavily saturated. At these locations the extent of dewatering would need to be monitored closely to avoid damage to buildings, streets, or utilities from settlement induced by dewatering. Previous excavation experience in Downtown Bellevue indicates that loose or soft soils are fairly shallow and localized, thereby limiting this risk relative to other areas.

Segment D

Land within Segment D varies from a relatively level to gently sloping upland area. Several streams travel through the area toward Lake Washington. This area is dominated by light industrial uses and retail businesses. These developments have modified most of the land. Soil conditions consist primarily of layered sand and gravel. In some localized areas, sands and gravels are of loose or medium density, making these soils potentially prone to liquefaction during a large seismic event. Other areas of glacial till are heavily overconsolidated from the weight of past glaciations, resulting in very high bearing strengths and little potential for settlement or liquefaction. There are steep slopes in areas on the south side of SR 520.

The groundwater elevation in the vicinity of NE 12th Street and the former BNSF Railway corridor is located within 10 to 20 feet of the ground surface, as indicated by the water level in Lake Bellevue. In other areas along the alternative, groundwater was typically encountered between the surface and 15 feet deep or at greater depths, between about 45 and 60 feet. In some locations, there are artesian conditions, indicating that water is confined by low-permeability layers.

TABLE 4.11-2
Geological Conditions for Tunnel Alternatives

Alternative	Geotechnical Characteristics	Groundwater Conditions[a]	Types of Tunnels Proposed	Depth of Expected Excavation
Preferred 110th NE Tunnel Alternative (C9T)	Minimal fill except for some localized areas of up to 5 feet of loose fill. Medium dense to very dense glacial till underlain by very dense advance outwash and very stiff to hard clay and silt.	Depth to groundwater is generally between 30 and 50 feet. Near NE 2nd Street, groundwater was encountered in sand lenses between 12 to 28 feet deep.	Cut and cover	Up to 60 feet
Bellevue Way Tunnel Alternative (C1T)	10 to 15 feet of medium dense fill underlain by very dense glacial till and advance outwash.	Depth to groundwater varies between 65 feet and 90 feet.	Cut and cover, SEM under Bellevue Arts Museum	South of NE 6th Street: up to 80 feet East of Bellevue Way: up to 55 feet
106th NE Tunnel Alternative (C2T)	Conditions unknown south of Main Street. North of Main Street there is minimal fill until NE 6th Street, which is up to 17 feet of medium dense advance outwash underlain by very dense advance outwash. Along NE 6th Street, there is up to 15 feet of medium dense fill underlain by very dense glacial till and stiff to hard glacial lake deposits.	Depth to groundwater is approximately 50 feet south of NE 6th Street. At the Bellevue Transit Center Station, no groundwater was encountered in borings up to 90 feet deep. Groundwater depth unknown north of NE 6th Street.	Cut and cover, bored tunnel	Up to 55 feet
108th NE Tunnel Alternative (C3T)	Conditions unknown south of Main Street. North of Main Street is very dense glacial till, advance outwash, and very stiff silt. At the Bellevue Transit Center Station and north to NE 10th Street, there is up to 16 feet of very loose to medium dense fill underlain by dense glacial till and advance outwash and stiff to very stiff glaciolacustrine deposits. North of NE 10th Street, there is up to 15 feet of loose to medium dense fill underlain by very dense glacial till consisting of sand with silt and silty gravel.	Depth to groundwater is approximately 47 feet south of NE 6th Street. At the Bellevue Transit Center Station, no groundwater was encountered in borings up to 90 feet in depth. Groundwater depth unknown north of NE 6th Street.	Bored, except for cut and cover at tunnel portals and stations	Between 80 and 110 feet for bored sections Up to 65 feet for cut and cover tunnels, and 110 feet at cut and cover Bellevue Transit Center Station

[a] Groundwater depths are approximate and can vary by several feet with the season. Development in the area can also change the depth to the groundwater table.

SEM = sequential excavation mining

Segment E

The area within Segment E transitions from a higher ridge to the Sammamish River Valley. Lake Sammamish and the Sammamish River have influenced the geology and soils of this area. Areas to the west of Sammamish River are upland areas dominated by residential and commercial development. Land east of the Sammamish River and south of SR 520 is a low relatively flat valley area containing a large county park. The area east of the Sammamish River and north of SR 520 consists of a relatively flat area developed with residential and commercial structures forming Downtown Redmond. Soil conditions vary between the upland area and the valley area. In the upland area, geological conditions are similar to those in Segment D. In the valley, soils consist of an upper layer of fill, underlain by sand and gravel and layers of soft, compressible peat and clay up to 25 feet deep. These soils are less suitable for construction and some are prone to liquefaction. Dense glacially consolidated soils are located beneath the fill and surface soil deposits. There are steep slopes in areas along the west side of West Lake Sammamish Parkway.

The groundwater elevation varies in Segment E. In the upland area, zones of groundwater are encountered from the surface to 20 feet deep or more. Adjacent to the Sammamish River, groundwater is within 3 feet of the ground surface in undisturbed areas and deeper in areas where fill has been placed. In the valley area, away from the Sammamish River and Bear Creek, groundwater is encountered at about 20 feet deep.

Maintenance Facility Surroundings

Four potential locations have been identified for siting a maintenance facility. Three of these are located in Segment D, and one is located in Segment E. The surface geology and soil conditions at the ground surface in those locations have been modified by human development. Geotechnical characteristics and groundwater conditions are generally as described above for Segments D and E.

4.11.3 Environmental Impacts

This section summarizes the impacts that could result from the East Link Project and the No Build Alternative. The discussion of impacts covers the general impacts that are common to all segments, and then the key impacts for each segment are discussed.

4.11.3.1 No Build Alternative

Under the No Build Alternative, the East Link Project would not be constructed. The existing geology and soils environment would essentially remain unchanged. The existing risk from seismic hazards would still exist. New development would continue to take place, thus resulting in more geologic risk from existing steep slope, erosion, and seismic hazards.

4.11.3.2 Impacts during Operation

Impacts Common to All Build Alternatives

Operational impacts would result from new excavation slopes and new earth fills required for the light rail facilities. Other impacts would be related to geologic hazards that already exist. For example, there would be a risk of seismic events during the period of operation, and this risk could result in other related geologic hazards, such as liquefaction and seismic-induced slope failures. These hazards could represent risks to the public using the light rail facilities if not adequately considered during project design and construction.

Potential long-term operational impacts that are common to each of the segments are discussed in the following subsections.

Insufficient Stability of Earth Slopes and Retaining Structures

Insufficient long-term stability of earth slopes and retaining wall structures could endanger on-site and off-site properties. The earth slopes could include natural slopes, slopes that have been steepened to meet alignment requirements, or slopes for embankment fills. This risk would be greater if a large seismic event were to occur.

The overall risk of impacts from slope and retaining wall failures would be low for all alternatives. Slope and retaining wall stability would be considered during the design phases of the project, and various mitigation measures could be implemented to stabilize areas of potential risk.

Seismic Ground-Shaking

The project study area is within a seismically active area. Consequences of a seismic event occurring during operations would be strong ground-shaking, which would cause increased inertial loading and movement within structures supporting the light rail system. The ground-shaking could also lead to liquefaction of loose, saturated, cohesionless soils; settlement from densification of loose soils; instability of steep slopes; or increased earth pressures on retaining walls. These impacts could damage the constructed light rail facilities and endanger people using the facility.

The elevated light rail support systems and earth-retaining structures, including retained fills or cuts, would be designed for both the seismic ground-shaking level and the consequences from ground-shaking. The East Link Project would meet current seismic design standards required to minimize the long-term risks to the system and the public. These standards are based on the occurrence of a very rare seismic event.

The tunnel alternative should perform well during strong ground-shaking based on the performance of tunnels around the world during past earthquakes when appropriate designs were applied. The latest seismic design methods would be used to ensure good performance.

Long-Term Settlement from New Earth Fills

New earth fills would be used in some areas to meet track-grade requirements. Walls would typically be used to retain the fill, thereby minimizing the area covered by fill. The fill would cause new earth loads on the existing soil, which could lead to settlement of soft soil.

Settlements from new earth loads could occur in areas that have soft surface soils. Although settlement-prone soils could occur anywhere along the alternatives, the areas of primary concern are near Mercer Slough, near Lake Bellevue, and in the Sammamish River valley where soft, compressible soils have been identified. Where glacially consolidated soils occur at the ground surface, the potential for settlements from new earth loads would be minimal because these soils have already been compressed by the weight of ancient glaciers.

The new earth loads would cause compression of soft soils below and adjacent to the new construction. The extent of compression beyond the footprint of the new earth load can extend 20 feet or more from the load. The impacts on adjacent areas could include the following:

- Settlement of buildings or residential structures
- Damage to roadways and sidewalks, resulting in additional maintenance work
- Damage to buried utilities located next to new fill

Additional geotechnical assessment during final design would be focused on identifying the location of these soft soils. Where found, they could either be replaced, or ground improvement techniques would be used to prevent long-term settlement. Another option in some locations would be to use lightweight fill rather than normal earth fill. These lightweight materials include extruded polystyrene (geofoam) or cellular concrete.

Settlement of compressible soils beneath proposed retaining structures and fill areas could require periodic maintenance of the new infrastructure, which could minimize potentially poor ride quality when maintenance is not performed. Utilities or other structures located adjacent to the new facilities could also settle as a result of increased loads. Over much of the project corridor, the existing soils would provide excellent bearing support, and the potential for long-term settlement would be negligible. In areas where settlement-prone soils exist, mitigation measures would be used to avoid the detrimental impacts of settlements.

Summary

The degree of the impacts described above in each segment would depend on the specific site conditions, development plans, and final design. In all cases, the severity or frequency of the hazard or impact could be avoided or minimized using conventional design and construction methods. Where impacts are found to be moderate to high, more effort would be required during design to evaluate the severity of the impact and identify an adequate avoidance or minimization method. The most important geologic hazard for operations would result from seismic ground-shaking, which would affect all segments, although the hazard would be slightly higher in Segments A and B because of their proximity to the Seattle Fault Zone where the risks from fault movement and ground-shaking are higher. In other segments, the primary seismic hazard would be associated with ground-shaking and secondary impacts of ground-shaking, such as liquefaction, slope failures, and ground settlement.

Segment A

Preferred Interstate 90 Alternative (A1) travels along the existing I-90 roadway in the current HOV lanes. The route would offer overall stable geology and soil conditions during operation except in a limited number of areas. The primary geologic hazards would be strong ground-shaking from a large seismic event in the region or rupture of the Seattle Fault. Portions of the Rainier Valley and the east approach of the I-90 floating bridge are the most vulnerable areas for these hazards. The potential for fault movement along the Segment A route is believed to be very low because of the unlikely occurrence of a rupture and the low likelihood that any fault displacement would occur along the track alignment.

Segment A includes the use of the I-90 existing structures, which were designed during the 1970s and mid 1980s. These structures were designed to meet seismic requirements at the time of construction in the early 1980s. The light-rail system design would be such that placing the light rail on the I-90 structures would not increase their seismic vulnerability.

Sound Transit also commits to funding retrofits necessary to meet current earthquake-resistant structural design requirements. Structures assumed to be retrofitted include the columns, bridge seats, and restrainers for the light rail portions of the D2 Roadway, Rainier Avenue overcrossing, approach spans to the floating bridge, and the East Channel Bridge. These retrofits would be accomplished using current Federal Highway Administration (FHWA)/ American Association of State Highway and Transportation Officials (AASHTO) policies, consistent with WSDOT's own practices for retrofitting existing structures. The floating bridge is generally not vulnerable to seismic events due to the dampening effect of the lake water.

Segment B

Along Bellevue Way SE, *Preferred 112th SE Modified Alternative (B2M)* includes elevated, at-grade, and retained cut portions. This alternative would not affect the slopes on the west side of Bellevue Way SE. However, retaining walls would be required to support the cuts along much of the length on the east side; heights of these retaining walls could be greater than 20 feet. Deposits of liquefiable soils occur in some locations along the Bellevue Way SE portion of the *Preferred Alternative B2M* route. These soils would be replaced or improved. Ground improvement measures could include the use of vibrodensification

Vibrodensification is a ground improvement process used in cohesionless soils to make the soil denser. The vibrator action, usually accompanied by water jetting, reduces the intergranular forces between the soil particles, thereby allowing the soil particles to move into a denser configuration. Compaction can be achieved above and below the water table.

methods, the installation of stone columns, or cement deep soil mixing.

The South Bellevue Park-and-Ride Lot would likely be supported on drilled shaft foundations. This type of foundation is routinely used in the Puget Sound area. The depth of the drilled shaft would extend to glacial tills located within 50 feet of the ground surface.

Preferred Alternative B2M would be located within a lidded, below-grade, retained cut next to the Winters House. The retained cut would consist of retaining walls to support soil on either side of the track. Soils along the retained cut and supporting the Winters House are competent silts, sands, and gravels. Construction methods would be selected to prevent vertical or lateral movement of the soil, thereby minimizing potential for settlement of Bellevue Way SE and of the Winters House.

The retaining walls used to construct the retained cut would potentially create a barrier to groundwater flow originating from west of Bellevue Way SE. However, the sealed, concrete-lined retained cut would prevent groundwater from entering the retained cut but would allow groundwater to flow down-gradient beneath the cut. Additional potential mitigation measures are discussed in Section 4.9, Water Resources.

The *Preferred Alternative B2M* route along 112th Avenue SE runs along one of the Mercer Slough channels (Mercer Slough West) located just to the east of the planned route. Soils generally comprise a limited depth of fill over glacial till except in the vicinity of SE 15th Street, where a deeper thickness of soft material was encountered.

This section of the route would have retaining walls and embankment fills to meet track-grade requirements. Additional slope stability, settlement, and localized liquefaction issues would be implemented with this alternative compared with the alternatives within the median of 112th Avenue SE.

Preferred Alternative B2M would potentially involve maintenance issues adjacent to the north end of the Mercer Slough from long-term settlement of soft clays and peats and would be at a higher risk from liquefaction of saturated sands in Mercer Slough than other Segment B alternatives.

The other Segment B alternatives include at-grade and elevated alternatives located in south Bellevue. These alternatives also would potentially be impacted by ground conditions, as discussed below.

Within Segment B, at-grade alternatives adjacent to the north end of Mercer Slough (112th SE At-Grade Alternative [B2A], 112th SE Bypass Alternative [B3], and Alternative B3 - 114th Extension Design Option [B3 - 114th Design Option]) would potentially involve more maintenance issues because of long-term settlement of soft clays and peats. These alternatives would be at a higher risk for liquefaction in saturated sands than the Bellevue Way Alternative (B1) that runs along Bellevue Way SE and the 112th SE Elevated Alternative (B2E) that is elevated with foundations in competent load-bearing soils.

The slopes along Bellevue Way SE and 112th Avenue SE would require the use of retaining walls to accommodate the roadway widening for the rail system for Alternatives B1, B2A, B3, and B3 - 114th Design Option and *Preferred Alternative B2M*. Heights of the walls are generally limited to 20 feet or less and can be designed to provide long-term stability, even where slopes are located above the walls. Alternative B2E would generally involve fewer cuts into existing slopes than alternatives that have at-grade sections (Alternatives B1, B2A, B3, and B3 - 114th Design Option and *Preferred Alternative B2M*) and, therefore, would involve less risk for long-term slope failures. The grade changes along 112th Avenue SE (with Alternatives B2A, B3, and B3 - 114th Design Option and *Preferred Alternative B2M*) are lower than along Bellevue Way SE (with Alternative B1), suggesting that the 112th Avenue SE alternatives would involve less risk from a sloping ground standpoint.

The BNSF Alternative (B7) includes an elevated structure across Mercer Slough. Soils along the slough consist of very soft peats and clays to a depth of 60 to 100 feet. Support for an elevated structure at the center of the slough crossing would have to be developed at depths of greater than 120 feet because of the thickness of soft soils.

Results of a geotechnical WSDOT monitoring program also show that soils move towards the center of the slough during annual changes in water levels within Lake Washington. The extent of movement has resulted in large soil loading to existing WSDOT bridges, forcing WSDOT to implement special bridge repairs to maintain operation and safety of their bridges.

The slough crossing for Alternative B7 would have to be designed to accommodate these soils loadings. Furthermore, Sound Transit would have to consult closely with WSDOT to ensure that the locations of the Sound Transit structures do not increase loads on existing WSDOT I-90 structures. Elevated structures would also be required for Alternative B7, beginning about one-half mile south of SE 8th Street, to meet grade requirements and because of the likelihood of encountering soft, compressible soils in the upper 10 to 30 feet near SE 8th Street. The potential for failure of steep slopes along Alternative B7 between Mercer Slough and I-405 from seismic loading or from natural processes (e.g., periods of heavy rainfall) would be a higher risk to the light rail system during operations than they would be for other Segment B alternatives because of the greater steepness, height, and length of these slopes.

Segment C

The geology and soils conditions along the *Preferred 108th NE At-Grade Alternative (C11A)* route are generally stable. Soils consist of fill, underlain by deposits of glacial till consisting of silt, sand, and gravel.

Retained fill profiles, which are required for elevated structures along the *Preferred Alternative C11A* route, would result in new earth loads. However, soils underlying the *Preferred Alternative C11A* route are glacial till soils that are compact and pose little risk of settlement. These good conditions extend across I-405 and along the former BNSF Railway corridor south of Lake Bellevue.

For *Preferred 110th NE Tunnel Alternative (C9T)*, a shallow cut-and-cover tunnel would be constructed along 110th Avenue NE. The tunnel depth would range from 40 to 60 feet below the ground surface, depending on location. Soils along the tunnel route generally consist of a layer of fill material over glacial till. The glacial till consists of very dense silts, sands, and gravels. Occasional boulders could occur in this material. These soils are generally compact and pose little risk of settlement.

Obstructions from existing soil nails and tieback anchors used in the construction of the below-grade structures would need to be considered with *Preferred Alternative C9T*, but this alternative would avoid some of the risk of nearby building settlement by having the base of the tunnel at or just slightly below the foundations for the nearby buildings.

The other Segment C alternatives include at-grade, elevated, and tunnel profiles. The geology and soil conditions within Segment C would be generally stable for all alternatives and would not differ substantially for at-grade, elevated, and tunnel profiles. Although ground conditions are generally good and similar for these other alternatives, some difference in the potential for impacts would occur, as discussed below.

The at-grade alternatives (Couplet Alternative [C4A] and 110th NE At-Grade Alternative [C9]) routes are similar to *Preferred Alternative C11A* and generally would have a low risk for long-term settlement during operations because the at-grade track would cause very little change in load to the soils and the soils are relatively strong, with good load-bearing characteristics.

Retained fill profiles, which are required for transition to elevated structures (112th NE Elevated [C7E], 110th NE Elevated [C8E], and 114th NE Elevated [C14E)] Alternatives and *Preferred Alternative C11A*), would result in new earth loads, which could lead to minor long-term settlement and increased maintenance requirements. However, in most locations, the existing soils are relatively incompressible because they are composed of glacial till and can support the loads without detrimental settlement. Alternatives C7E and C8E would have the lowest risk for long-term settlement during operations because of the foundation types used for elevated structures, in combination with good bearing characteristics of the soil along these alternatives.

The other tunnel alternatives (Bellevue Way Tunnel [C1T], 106th NE Tunnel [C2T], and 108th NE Tunnel [C3T] Alternatives) are designed to avoid other underground obstructions from building developments and take advantage of the stable glacial till geologic layers. Long-term settlement of nearby structures would be an important design consideration for these alternatives.

Segment D

Soils along the *Preferred NE 16th At-Grade Alternative (D2A)* route consist primarily of a thin layer of fill over very competent glacial till.

Sections of *Preferred Alternative D2A* that require additional fill to meet grade would have more risk for long-term settlements than sections of the alternatives already at-grade and the NE 16th Elevated (D2E) and the SR 520 (D5) Alternatives because these alternatives are mostly elevated, resulting in fewer areas that would require fill and, therefore, fewer areas of additional load and potential long-term settlement.

Preferred Alternative D2A also has retained cuts under 120th and 124th Avenues NE and retained cuts at the 120th Station. There is a risk for potential settlement behind the walls if the retained cuts move; however, the glacial till in the area is very competent, so the likelihood for movement in the retained cuts is believed to be small.

Preferred Alternative D2A would be located on slopes adjacent to SR 520; therefore, designs would include precautions to address slope stability during a seismic event, and soil movement at column locations.

Preferred Alternative D2A includes a storage track north of the NE 12 Street undercrossing and where the track alignment turns from north-south to east-west. Soils along the tail-track section generally consist of a thin layer of fill over very competent sands and gravels. This section of the track was used for many years by BNSF Railway without impacts from local soils and geology; therefore, the tail track would have few impacts to or from soils and geology. Planned development associated with the tail track (i.e., parking area and a small building) also appear to be suitable for the soils and geology in this area.

The other Segment D design options include at-grade, retained cut, and elevated alternatives located in east Bellevue and west Redmond. Soils along the Alternative D2A - 120th Station Design Option and the Alternative D2A - NE 24th Design Option are similar to *Preferred Alternative D2A*. These soils consist of a thin layer of fill over very competent glacial till. Potential impacts associated with these design options are as summarized below.

The D2A - 120th Design Option has the same footprint location but has at-grade crossings and an at-grade station, which would overall be lower risk than retained-cut crossings and a station constructed using retained cuts because there is not the potential for cut-slope movement and potential settlement behind retaining walls.

The D2A - NE 24th Design Option has at-grade and elevated components. The fills for this design option would overall be minor, but there would be an approach fill supported by a mechanically stabilized-earth (MSE) wall from the elevated structure to at-grade. New earth loads from the fill could result in settlement of the approach fill, the adjacent roadway, and utilities located near the new fill. Soils in this have very good load bearing characteristics; therefore, the potential for settlement would be low. The D2A - NE 24th Design Option also runs along NE 24th Street rather than along SR 520, thus avoiding some of the slopes along SR 520 and having a lower risk for slope movement during a seismic event than *Preferred Alternative D2A*.

Like the other segments, the geology and soil conditions for other alternatives within Segment D would be generally stable for all alternatives and would not differ substantially for at-grade and elevated profiles. Potential impacts associated with these alternatives are summarized discussed below.

The NE 16th Elevated (D2E), NE 20th (D3), and SR 520 (D5) Alternatives are at-grade, within retained cuts, on retained fills, or elevated. Sections of the alternatives could also involve localized areas with steep slopes. The good bearing characteristics of the soil along Segment D would limit the long-term impacts from any of these types of construction.

Sections of Alternative D3 that require additional fill to meet grade would have more risk for long-term settlements than *Preferred Alternative D2A,* Alternative D2E, and sections of all alternatives already at-grade. Retained cuts would also be required in some areas and for substantial portions of Alternatives D3 and D5, and there would be some chance of settlement behind these cuts.

Alternative D5 has the most area of steep slopes compared to the other Segment D alternatives. Areas with steep slopes would need to be evaluated for long-term stability, and the potential impacts of seismic events would have to be established. The seismic loading impacts could include areas of localized liquefaction, seismic-induced settlement, or slope failures.

Segment E

Along the *Preferred Marymoor Alternative (E2)* route, soil conditions to the west of the Sammamish River are competent, which are similar to those along the Segment D routes. However, from just west of the Sammamish River to the east, the *Preferred Alternative E2* route is located in an area that has a low to moderate potential for seismic hazards due to sand and silt layers in the Sammamish Valley and a moderate potential for erosion and slope failures from steep slopes heading into the valley. Areas within the valley could also be prone to settlement of peat deposits.

The Alternative E2 - Redmond Transit Center Station Design Option is located in the Sammamish Valley and includes an additional station. Subsurface soils are similar to *Preferred Alternative E2*, and these soils have a low to moderate potential for seismic hazards, such as liquefaction and liquefaction-related settlement, and could also be prone to settlement of peat deposits. There would be a slightly higher risk of long-term settlement for the E2 - Redmond Transit Center Design Option because this design option has an additional station and a longer route, which increases the areas that could settle compared to *Preferred Alternative E2*.

The geology and soil conditions for other Segment E alternatives would be generally stable and not differ substantially for at-grade and elevated profiles. Although ground conditions are generally good and similar with these other alternatives, some differences in the potential for impacts would occur, as discussed below.

The Redmond Way (E1) and Leary Way (E4) Alternatives routes are in areas of geologic and soil conditions similar to the eastern portion of *Preferred Alternative E2*.

All of the Segment E alternatives generally have similar segment components: at-grade, retained cut, and elevated. Alternative E1 is located within more areas of steep slopes than *Preferred Alternative E2*, E2 - Redmond Transit Center Design Option, or Alternative E4, and would be at a higher risk for long-term erosion and slope instability compared to these alternatives and design option.

Maintenance Facilities

The 116th (MF1), BNSF (MF2), and SR 520 (MF3) maintenance facility locations in Segment D could have lower impacts (fewer settlement and seismic issues) than the SE Redmond Maintenance Facility (MF5), which would be located in Segment E where soils are more compressible and prone to liquefaction.

4.11.3.3 Impacts during Construction

Impacts Common to All Build Alternatives

Impacts during construction are associated with the equipment used to perform the construction, as well as the direct and indirect impacts of the construction activities. Construction activities have the potential to cause a number of geology- and soils-related short-term impacts on the environment. These construction impacts are often quite similar to the operation impacts discussed previously in Section 4.11.3.2, and therefore are only briefly described below.

Erosion Hazards

Clearing vegetation; placing fill; and removing, grading, or stockpiling spoils during construction allows rainfall and runoff to erode soil particles. The severity for erosion to occur is a function of the area of exposed soil, rainfall intensity and duration, soil characteristics, and the volume and configuration of soils stockpiled. BMPs that could help minimize erosion hazards include, but are not limited to, the following:

- Maintaining as much vegetation as possible and designing surface water runoff systems
- Constructing silt fences downslope of all exposed soil and using straw, mulch, or plastic covering over exposed earth
- Using temporary erosion control blankets and mulching to minimize erosion prior to vegetation establishment

Slope Instability Hazard

Construction of the proposed infrastructure would involve grade changes, cuts and fills, or installation of bridge and retaining wall structures that have the potential to cause hillside slumping. Overall risk of impacts due to constructing in steep-slope or landslide hazard areas would be limited for all alternatives due to the limited number of existing steep slopes along the proposed alternatives.

Detailed slope stability evaluations would be conducted during design, and where appropriate, methods of stabilization developed. Methods that could help minimize slope stability hazards include, but are not limited to, the following:

- Use of retaining structures that are designed for the loads from moving soils
- Use of mechanical slope reinforcement such as soil nailing
- Construction specifications and quality assurance programs that prohibit oversteepened slopes

Seismic Ground-Shaking

An earthquake could occur during construction, resulting in strong ground-shaking throughout the region. This shaking could lead to embankment slope failures, liquefaction, or ground settlement. The risk of seismic hazards to construction is considered low because there is a low probability that an earthquake would occur during the actual construction period.

If a large earthquake were to occur, the major risk would be to the ongoing construction activities. Work schedules would likely be delayed as efforts are made to repair damaged components of the work. Some disruption could also occur to utilities or nearby structures from the damage to exposed cuts or fills.

Construction-Induced Vibrations

The use of heavy equipment during construction causes ground vibrations. The level of vibrations depends on the type of heavy equipment, distance from the source, and ability of the soil to transmit vibrations. The main concerns for construction vibration are the annoyance to people working and living in the area when vibrations can be felt and the potential damage to structures if vibration levels are excessive.

Although most construction processes do not generate high enough vibration levels to approach damage criteria, damage could occur with certain procedures, and there could be a perception that vibrations are causing damage. The major sources of construction vibration might include vibratory ground improvement, stone column construction, impact pile-driving, earth excavation in hard ground, and vibratory rollers for subgrade compaction.

Drilled shafts would generally be used for deep foundations, and minor levels of vibration are normally associated with this foundation construction method. The only activity with the potential to cause building damage is ground improvement (e.g., vibrodensification or stone columns) if carried out near structures. Alternate ground improvement methods or structural foundations would be used where there would be risk of structural damage from ground improvement. Contract documents would also require the contractor to monitor vibration levels during construction near sensitive buildings and, if levels exceed allowable limits, alternate construction methods would be required. Section 4.7, Noise and Vibration, provides a detailed review of these potential impacts.

Settlements from New Earth Loads
New earth loads would occur during construction from the temporary stockpiling of earth materials and from placement of permanent fills to meet track grade requirements or as approach fills for elevated structures. These new loads would cause immediate soil settlement. The amount of this settlement would depend on the amount of earth load and the compressibility of the soil. In areas where soft, cohesive soils exist, the settlement could continue after the end of construction, as discussed previously in Section 4.11.3.2, Impacts during Operations.

The impact during construction from the new earth loads would potentially include settlement of nearby buildings and residential structures, roadways and sidewalks, and utilities. Design studies would be conducted to quantify the relative amounts of settlement occurring during construction versus operations, and contract documents would describe what the contractor must do to anticipate construction settlements and repair of damage caused by these settlements. Methods for mitigating these impacts are the same as those described previously in Section 4.11.3.2.

Excavations for Foundations and Removal of Unsuitable Material
Excavations for structure foundations and relocation of utilities, if not supported correctly, could result in failure and collapse of the ground next to the excavations, causing damage to buried utilities and to structures or roadways adjacent to the excavations. The potential for adverse impacts on utilities and buried structures is considered low during construction.

Methods that could help minimize utility and buried structure impacts include, but are not limited to, the following:

- Relocating or supporting utilities where utilities are located in the area of excavation
- Using appropriate excavation-support systems, such as temporary retaining walls or trench boxes, which prevent soil movement for locations with utilities outside the zone of excavation
- Preventing the use of certain equipment by the contractor, if the equipment could lead to soil densification

Existing soils excavated during construction that cannot be used as structural fill or for landscape material would require removal from the project footprint and disposal elsewhere. Disposal of the material at off-site locations would result in additional truck traffic, dust, and other construction-related impacts.

Table 4.11-3 shows waste volumes, which include potential soil excavation volumes. These estimates include all excavation, not just unsuitable soils. The estimated total number of truck trips associated with construction of the alternative is also provided. This estimate includes truck trips for bringing in construction materials, including concrete, as well as trips to haul waste volumes.

Dewatering
Dewatering of excavations located below the groundwater table during construction could result in settlement of nearby structures, if proper consideration is not given to the impacts of water level changes. This impact would most likely be associated with Segment C for the cut-and-cover tunnel alternatives but could also include the retained cut at the Winters House and along Bellevue Way SE. Underground construction for the tunnel and stations could also require dewatering if the combination of permeable soils and high groundwater elevation occurs at, for example, a station location.

The primary dewatering impact could be settlement of nearby buildings, roadways, and utilities. The dewatering impact is considered low if proper avoidance and minimization measures are used. Methods that could help minimize soil settlement during dewatering include, but are not limited to, the following:

- Controlling the changes in groundwater elevation near critical structures by using localized dewatering and groundwater injection methods
- Using sheetpile barrier systems to control the horizontal extent of groundwater withdrawal
- Installing deep foundations systems to support the structure during settlement

TABLE 4.11-3
Estimated Waste Volumes and Truck Trips

Alternative	Estimated Soil Waste (cubic yards)	Estimated Total Truck Trips [a]
Segment A		
Preferred Interstate 90 Alternative (A1)	32,500	11,040
Segment B		
Preferred 112th SE Modified Alternative (B2M) to *C11A*	396,900	67,060
Preferred 112th SE Modified Alternative (B2M) to *C9T*[b]	385,200	68,990
Bellevue Way Alternative (B1)	248,300	34,010
112th SE At-Grade Alternative (B2A)	206,300	32,480
112th SE Elevated Alternative (B2E)	124,100	20,220
112th SE Bypass Alternative (B3)	174,500	28,830
Alternative B3 - 114th Extension Design Option	171,600	34,090
BNSF Alternative (B7)	230,100	30,230
Segment C		
Preferred 108th NE At-Grade Alternative (C11A)	310,100	38,270
Preferred 110th NE Tunnel Alternative(C9T)[b]	802,900	104,230
Bellevue Way Tunnel Alternative (C1T)	1,680,900	211,010
106th NE Tunnel Alternative (C2T)	1,294,300	153,830
108th NE Tunnel Alternative (C3T)	1,031,900	215,560
Couplet Alternative (C4A)	205,700	133,100
112th NE Elevated Alternative (C7E)	165,800	28,530
110th NE Elevated Alternative (C8E)	199,600	128,300
110th Avenue NE At-Grade Alternative (C9A)	187,400	30,610
114th Avenue NE Elevated Alternative (C14E)	468,200	44,720
Segment D		
Preferred NE 16th At-Grade Alternative (D2A)	947,700	117,360
Alternative D2A - 120th Station Design Option	808,600	111,280
Alternative D2A - NE 24th Design Option	1,040,000	130,620
NE 16th Elevated Alternative (D2E)	301,000	37,880
NE 20th Alternative (D3)	643,600	76,510
SR 520 Alternative (D5)	274,700	37,990
Segment E		
Preferred Marymoor Alternative (E2)	521,300	79,020
Alternative E2 - Redmond Transit Center Station Design Option	647,900	89,390

TABLE 4.11-3 CONTINUED
Estimated Waste Volumes and Truck Trips

Alternative	Estimated Soil Waste (cubic yards)	Estimated Total Truck Trips [a]
Redmond Way Alternative (E1)	591,100	82,950
Leary Way Alternative (E4)	560,800	77,930
Maintenance Facilities		
116th Maintenance Facility (MF1)	1,365,400	108,000
BNSF Maintenance Facility (MF2)	406,800	32,040
SR 520 Maintenance Facility (MF3)	599,800	47,350
SE Redmond Maintenance Facility (MF5)	193,600	18,430

Note: Quantities assume all excavation would be wasted. Amount that could be used on site would be defined as design proceeds. The volume of waste is only for the currently known quantities. There is a significant amount of material of which the quantity is unknown that is not contained in this calculation. The quantities only include amounts that can reasonably be estimated at this time.

The number of truck trips is based on trips to remove waste soil, trips to import concrete and other construction materials, and miscellaneous construction travel. Actual numbers would vary depending on the types of equipment used by contractor and the amount of material that would be reused on site.

[a] Includes trips for excavated soil, concrete supply, and other construction materials**.**

[b] Under the C9T - East Main Station Design Option connecting from *Preferred Alternative B2M*, waste volumes and truck trips associated with the SE 8th Station in Segment B would not occur; instead, a similar waste volume and number of truck trips would be expected for the East Main Station in Segment C. The total waste volume and number of truck trips for these two segments combined would, therefore, be approximately the same as with *Preferred Alternatives C9T* and *B2M*.

Summary
The severity or frequency of the construction hazard or impact could be avoided or minimized using conventional design and construction methods. Where impacts are identified as being moderate to high, more effort would be required during design to evaluate the severity of the impact and identify an adequate avoidance and minimization method.

The most important geologic hazard during construction would be erosion control, which would need to be appropriately addressed in all segments. Alternatives with steep slopes would require more consideration than relatively flat areas. Some common methods of erosion control include installing silt fences, providing sedimentation ponds, covering soil, and limiting amounts of exposed earth during wet winter months.

Segment A
As stated previously in Section 4.11.3.2, Sound Transit anticipates seismic retrofits for some I-90 structures that would be used by East Link. This may include in-water work in Lake Washington to reinforce the existing structures. New construction on I-90 would involve impacts that are common to all build alternatives, such as erosion, slope instability, construction vibrations, settlement from new earth loads, and excavation for foundations.

Segment B
Preferred Alternative B2M would have more erosion hazards, slope stability, settlement, and localized liquefaction issues compared with the alternatives within the median of Bellevue Way SE (Alternatives B1, B2A, and B2E) or Alternative B7.

Soil improvements would have to be conducted at the edge of Mercer Slough; therefore, special construction methods would be required to protect the slough from construction impacts, such as erosion of exposed soil and slope instabilities.

Special consideration will be required for construction impacts near the Winters House. The proximity of the excavation to the Winters House would require vibrations associated with construction to be very low and for rigid lateral support systems to be used to prevent settlement of the Winters House when excavating to the track grade.

The alternatives associated with 112th Avenue SE in Segment B, including Alternatives B2A, B2E, and B3 and the B3 – 114th Design Option, have flatter slopes and would be expected to have fewer erosion and landslide issues during construction than with

Alternative B1, where some steep slopes exist. However, there are more locations along 112th Avenue SE (along the *Preferred Alternative B2M* route) where soils are believed to be generally softer at the ground surface than soils within the median of Bellevue Way SE (along the Alternative B1 route), and these softer soils are more susceptible to construction-related issues in areas where fills are placed or where foundations for elevated structures must be constructed. The potential slope and erosion issues along Bellevue Way SE (along B1 route) would likely be easier to address than soft soil conditions along 112th Avenue SE.

Alternative B3 and the B3 - 114th Design Option cross Sturtevant Creek and would, therefore, traverse additional areas of soft soils and shallow groundwater conditions compared to the other alternatives. Soft soils and shallow groundwater are more susceptible to construction-related issues such as dewatering and settlement.

With Alternative B7, special methods would be required for protecting wetlands during construction. Existing WSDOT I-90 structures would also need to be protected from soil loads caused by construction of work trestles, foundations for elevated structures, and other construction requirements within the slough, including potential loads from altering the flow of peat during annual changes in water level within Lake Washington. Finally, design precautions would be taken to address the steep slopes along the west side of the former BNSF Railway corridor, which could pose a risk to construction and to the public using 118th Avenue SE.

Segment C

Tunnel Options

Preferred Alternative C9T is a shallow cut-and-cover tunnel. (Tunnel construction methodology is described in Section 2.4.5 of Chapter 2.) This alternative would be shorter than the other tunnel alternatives, thus producing less soil waste and fewer truck trips; however, there could be more construction issues related to excavation support of buildings, potential need for temporary excavation dewatering, construction vibrations, and potential for roadway damage from ground settlement compared to the deep bore tunnels. The three other alternatives that would involve tunneling (Alternatives C1T, C2T, and C3T) would be constructed by various methods, including using a tunnel-boring machine, sequential excavation mining (SEM), and cut-and-cover methods; Tunneling alternatives within Segment C could result in settlement of the ground above or adjacent to the tunneling work from loss of ground volume. The risk of tunnel-related settlements could include damage to roadways and utilities, residential structures, and buildings.

Loss of Ground Volume

Loss of ground volume refers to the amount of excavated soil in excess of the calculated geometry of the tunnel. If a greater volume of material is excavated than is displaced by the tunnel, then this material was lost from around the tunnel, which could create adverse impacts.

Loss of ground volume could occur with tunnel boring machines (with Alternative C3T) and SEM (with Alternative C1T under the Bellevue Arts Museum) when the amount of soil removed along the path of the tunnel excavation exceeds the planned diameter of the tunnel, resulting in loose zones or voids in the soil behind the tunnel liner. These voids or loose zones in the soil could progressively migrate upward and eventually result in loss of foundation bearing support for any building, utility, or roadway located above the void or loosened soil. The reduced bearing support could result in settlement of any structure supported on the zone of loosened soil or void. Loss of ground is most often encountered in poorly graded sands and gravels located below groundwater, where flowing or raveling ground conditions can develop. Settlement of ground can also occur with the cut-and-cover method of tunnel construction if tunnel side walls cannot support the earth and nearby building loads during ground excavation, leading to settlement of the ground behind the tunnel walls as the wall deflects into the excavation. Alternative C2T would have the least potential for settlement because of the denser substrate underlying its route.

The magnitude of acceptable settlement would depend on the type and dimension of the structure but is generally on the order of 1 inch or less. The settlement is greatest above the centerline of a bored tunnel and decreases outward. Typically, the settlement extends horizontally from the tunnel centerline no more than three times the tunnel diameter, which would be approximately 75 to 85 feet. For a cut-and-cover tunnel, the potential for settlement above the centerline is reduced because of the construction method; however, a potential for settlement would exist behind the tunnel walls. This distance could extend a distance equivalent to the height of the cut-and-cover tunnel, which could be as much as 45 feet. In areas where retained cuts would be used for access to tunnel sections of the alternative, the potential for settlement behind the retaining walls also would exist. Although Alternative C3T would be primarily a bored tunnel, cut-and-cover construction would still be necessary for construction of the Bellevue Transit Center station with this alternative. These potential risks can be minimized by implementing standard design methods and industry best practices, including detailed geotechnical explorations and groundwater evaluations.

Additional geotechnical engineering explorations during final design would be used to select specific tunnel construction methods that control the potential for ground settlement. Because of the nature of the glacial soils along the tunnel alternatives, limited settlement is expected during and after construction. However, localized zone of running sands and raveling gravels could be identified during explorations or encountered during tunneling, which could require special tunnel construction methods. These methods would include treating areas of loose soils by permeation or jet grouting, carefully controlling the steering of tunnel machines to avoid overexcavation of the tunnel diameter, monitoring of the volume of excavated material, using ground conditioning systems to prevent ground loss, controlling conveyor discharge of sands and gravels under groundwater pressure, and compaction or consolidation grouting to compensate for lost ground.

Design and construction would also consider the potential impacts of groundwater elevation changes—either temporary or permanent during and after tunnel construction. Groundwater occurs at or above the tunnel horizon for most of the tunnel alternatives; in parts of Downtown Bellevue, artesian groundwater conditions exist, meaning that the groundwater pressure head is above the ground surface. In many areas groundwater is “perched” on fine-grained material, isolating it from recharge sources. These conditions would potentially affect the selection of tunneling methods and could require localized dewatering, which has the potential to cause subsidence or settlement in soft or loose soils. The potential for settlement from dewatering is higher when soils are loose, tunnels are shallower, excavations for stations are deeper, and adjacent building foundations are shallow. Where soil is settlement-prone, measures could be implemented to limit the settlement from groundwater changes to tolerable levels. These measures could include reinjecting water or using impervious cutoff walls to limit the zone of groundwater elevation change.

During construction, adjacent structures and surface areas would be monitored where there is a potential for settlement. Where critical conditions are identified, it may be necessary to underpin buildings to prevent building settlement or to use active wall bracing systems in the case of cut-and-cover tunnels. These active bracing systems would apply bracing forces to the side walls of the cut-and-cover tunnel to adjust for any tendency to deflect into the excavation as earth is removed in front of the tunnel walls. Prior to and following construction, Sound Transit would conduct detailed inspections of nearby buildings, residences, and utilities to establish conditions before and after construction. Although no damage to structures is anticipated from the tunneling work, any damage that occurs would be repaired.

Raveling Gravels

Raveling gravels are gravels that have very little fines (clay or silt particles). When excavated, they tend to roll downward to the angle of repose of the material. This is a common problem on exposed slopes, where coarse material progressively moves down the slope.

At-Grade and Elevated Options
Preferred Alternative C11A has at-grade, elevated, and retained cut components. Generally good geologic conditions occur along this alternative. Standard construction methods would be used because of the good soils, minimal loading, there would be no deep excavations, and no geologic concerns exist.

For Alternative C4A, relatively standard construction methods would be used because it would be mostly at-grade, and no geologic concerns exist.

Alternatives C7E and C8E both would be elevated systems with at-grade and retained-fill components. Standard construction techniques of retaining walls and compaction methods would be used to address settlement impacts from new earth loads.

The Alternative C9A route, which is similar to the *Preferred Alternative C11A* route except that it follows 110th Avenue NE instead of 108th Avenue NE, also has geologic conditions similar to *C11A*.

Alternative C14E would be an entirely elevated system. Standard retaining wall construction techniques and compaction methods would be used to address settlement impacts from new earth loads from retained fil**ls**.

Segment D

Soils are typically good along the *Preferred Alternative D2A* route; however, there are some soft soils adjacent to Kelsey Creek and the Kelsey Creek tributaries. *Preferred Alternative D2A* is elevated across the tributaries to Kelsey Creek, thereby reducing the potential for settlement compared to an at-grade alternative in this area. Retaining walls would be used to retain fills to meet track grade requirements. If the retaining walls are not designed correctly, settlement could occur behind the wall.

The station at 120th would be in a retained cut 20 feet below grade, but subsurface soil conditions are good for this type of construction. Retained cuts under the 120th and 124th Avenues NE crossings would also be in subsurface conditions that are suitable for this construction type. Retained cut walls for the 120th Station and for the bridges can be constructed with limited construction vibrations and noise, but the cuts would produce excavated materials that would require removal from the area. *Preferred Alternative D2A* would be constructed along slopes adjacent to SR 520, which makes construction activities more difficult than constructing on a flat-grade.

There are some locations with artesian conditions along the alternative that would have to be considered during design and construction of the elevated structures foundations; however, methods for accomplishing such construction are available and have been used in the Puget Sound area.

Impacts during construction of the tail track would be limited because the track system is in place and has been used in the past by heavy rail. Soils at the planned location of parking area and the building should have limited impacts, as long as normal BMPs for erosion control are implemented.

The at-grade Alternative D2A – 120th Station Design Option would be less of a risk to construct than *Preferred Alternative D2A* at the same location because it would not require retaining walls to meet the track grade requirements. The at-grade option also would not produce nearly as much excavated soil that would require removal from the area.

Alternative D2A - NE 24th Design Option would run east down NE 24th Street and then north on 152nd Avenue NE, avoiding some of the slopes adjacent to SR 520.

Alternative D5 appears to have the least amount of risk of the Segment D alternatives for all impact categories, except for the soils along its route, which would have a higher erosion potential along the south side of SR 520 compared to the other Segment D alternatives.

Segment E

Preferred Alternative E2 would cross a hillside that has a moderate potential for erosion and slope instability from steep slopes heading into the valley and a low to moderate potential for liquefaction and settlement in the valley. Available information suggests that the Downtown Redmond Station site is underlain by soft soils that would potentially require ground improvement or deep foundations.

Alternative E2 - Redmond Transit Center Design Option would present a slightly higher risk than *Preferred Alternative E2* during construction because of the additional station at Redmond Town Center. However, both the Redmond Town Center Station and the Downtown Redmond Station would be able to use similar, commonly used construction methods.

Alternatives E1 and E4 are in areas of similar geologic and soils conditions to that of *Preferred Alternative E2* and the E2 - Redmond Transit Center Design Option, and no distinct differences were identified.

Maintenance Facilities

The primary construction impact for the maintenance facilities would be soil erosion, except at the SE Redmond Maintenance Facility.

- MF3 would appear to have a low potential for soil erosion.
- MF1 has the highest potential for erosion due to soil conditions and the deep cut required for construction and soil conditions.
- MF2 has a slightly lower potential for erosion due to the reduced amount of cut and fill required over that of MF1.
- MF5 would likely have more foundation engineering design and construction issues than MF1, MF2, and MF3 because the soils that occur at this general area are prone to settlement.

4.11.4 Potential Mitigation Measures

During final design, additional geotechnical studies will inform and refine development of construction techniques and mitigation measures to avoid potential impacts and geologic risks during operations. Engineering design standards and BMPs would be used to avoid and minimize potential construction impacts. Based on the review of potential impacts, the design and construction process would address seismic hazards, soft soils, settlement, steep-slope hazards, landslide hazards, erosion and sediment control, vibrations, and groundwater.

4.12 Hazardous Materials

4.12.1 Introduction to Resources and Regulatory Requirements

This section discusses the potential for East Link Project alternatives to encounter hazardous materials that could pose risks to human health and the environment or that could create control or cleanup requirements for the project. This section also discusses the potential for alternatives to introduce new sources of hazardous materials contamination. This analysis has been performed in general accordance with American Society for Testing and Materials (ASTM) search radius guidance (ASTM E 1527), as referenced in the Washington State Department of Transportation's (WSDOT's) *Environmental Procedures Manual* M 31-11 (WSDOT, 2007).

Hazardous materials can be classified in a number of different categories based on laws and regulations that define their characteristics and use. These categories include hazardous waste, dangerous waste, hazardous substances, and toxic substances. Applicable laws and regulations include the following:

- Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (42 U.S.C. 9601, *et seq*.)
- Superfund Amendment and Reauthorization Act (SARA)
- Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 U.S.C. 6901, *et seq*.)
- Clean Water Act (CWA) (33 U.S.C. Section 1 251, *et seq*.)
- Toxics Substances Control Act (TSCA) (15 U.S.C. 2601-2629)
- Dangerous Waste Regulations (Washington Administrative Code [WAC] 173-303)
- Model Toxics Control Act (MTCA) and its implementing regulations (RCW 70.105D and WAC 173-340)
- Underground Storage Tank Statute and its implementing regulations (RCW 90-76 and WAC 173-360)
- Sediment Management Standards (WAC 173-204)

Model Toxics Control Act Cleanup Regulation

The Model Toxics Control Act Cleanup Regulation, WAC 173-340, implements the Model Toxics Control Act (MTCA), RCW 70.105D, and sets forth strict requirements regarding site discovery and reporting, site assessments, and site remediation. Most importantly, the regulation defines standard methods used to assess whether a site is contaminated or clean.

Related resources and regulatory requirements are covered under historical and current land uses in the study area (Section 4.2), geologic conditions (Section 4.11), and groundwater conditions (Section 4.9).

4.12.2 Affected Environment

The study area for the hazardous materials analysis is the area within a 660-foot (approximately 1/8 mile) radius buffer surrounding each alternative. This study area was selected because if contamination is present, then the proximity of these sites could affect the project or the project could affect the site.

Sound Transit acquired information about sites with known contamination or potential contamination within the study area, as well as relevant historical conditions within the study area. Sound Transit collected information from multiple data sources, including the following:

- Environmental agency database records (Environmental Data Resources, Inc. [EDR], 2007)
- Washington State Department of Ecology (Ecology) Northwest Region Office site files
- Historical fire insurance maps (Sanborn maps) (King County GIS, 2009)
- Historical aerial photographs (King County GIS (2009)
- Online County Assessor data (KCGIS Center) (King County GIS, 2009)
- Current topographic and geologic maps (King County GIS, 2009)
- Windshield reconnaissance of the study area

Environmental agency records that were reviewed include those maintained by the U.S. Environmental Protection Agency (EPA) and Ecology. These databases track sites with potential or confirmed hazardous material releases to the environment and to monitor facilities that manage hazardous materials as part of their operations.

A search of these EPA and Ecology databases was conducted in February 2007 and again in October 2009 (EDR, 2007, 2009) to identify sites in or adjacent to the study area that have a record of hazardous material, substance, or waste handling, or that could be contaminated or have been contaminated in the past. The database search report identifies the locations of such sites and assigns an identification (ID) number to each site. The approximate locations of these sites are shown in the maps in Appendix G3. Appendix G3 also presents tabular information about these sites. Note that hazardous materials sites newly identified in the October 2009 database search are shown on the maps with the letter "N" added to the site ID to distinguish them from the 2007 database search (e.g., N198).

Based on all of information collected, sites were categorized into three risk categories: high, medium, and low. The purpose of this risk analysis was to prioritize sites to determine the need for avoidance, remediation, or mitigation while considering associated costs and liability. The risk levels are defined as follows:

- **High.** This risk level identifies sites that might be substantially contaminated and might create liability for Sound Transit either due to construction activities or by virtue of acquiring all or a portion of the site, such as for a maintenance facility. High-risk sites typically involve contaminants that are difficult to treat (e.g., perchloroethylene [PCE]), have large volumes of contaminated materials, or have long histories of industrial or commercial use.
- **Medium.** This risk level identifies sites where the nature of potential contamination is known based on existing investigation data, the potential contaminants are not extremely toxic or difficult to treat, and probable remediation approaches are straightforward. It typically involves sites located within or adjacent to project construction limits that have soil contaminated with petroleum products or nonadjacent sites that have groundwater contaminated with petroleum products.
- **Low.** This risk level identifies sites where the nature of potential contamination is known based on existing investigation data, and the sites are not expected to have noticeable impacts on the project due to their location. It typically involves sites that are not directly adjacent to the alternative right-of-way and do not have groundwater contamination.

Table 4.12-1 lists the number of sites and the risk categories identified within 660 feet of each segment and alternative. In addition to sites designated as high, medium, and low risk, there are also sites where the following has occurred:

- Hazardous materials have been used but where no previous releases have been reported.

TABLE 4.12-1
Number of Hazardous Material Sites within 660 Feet of Each Segment and Alternative[a]

Segment/Alternative[b]	High	Medium	Low
Segment A, Interstate 90	**0**	**29**	**16**
Preferred Alternative A1	0	29	16
Segment B, South Bellevue	**7**	**4**	**6**
Preferred Alternative B2M[c]	2	1	2
Alternative B1	2	1	2
Alternative B2A	2	1	2
Alternative B2E	2	1	2
Alternative B3	2	1	2
B3 – 114th Extension Design Option	2	1	2
Alternative B7	3	2	4
Segment C, Downtown Bellevue	**8**	**28**	**19**
Preferred Alternative C11A	2	19	12
Preferred Alternative C9T[c]	2	17	6
Alternative C1T	7	20	13
Alternative C2T	3	20	12
Alternative C3T	2	6	7
Alternative C4A	2	6	5
Alternative C7E	0	3	3
Alternative C8E	0	4	3
Alternative C9A	2	15	8
Alternative C14E	1	13	7
Segment D, Bel-Red/Overlake	**6**	**25**	**12**
Preferred Alternative D2A[d]	2	15	6
D2A – NE 24th Design Option	3	17	7
Alternative D2E	3	17	7
Alternative D3	4	19	8
Alternative D5	3	13	5
Segment E, Downtown Redmond	**6**	**11**	**9**
Alternative E1	5	11	7
Preferred Alternative E2	6	8	5
E2 - Redmond Transit Center Design Option	5	8	6
Alternative E4	4	9	5

TABLE 4.12-1 CONTINUED
Number of Hazardous Material Sites within 660 Feet of Each Segment and Alternative[a]

Segment/Alternative[b]	High	Medium	Low
Maintenance Facilities			
MF1	0	0	0
MF2	2	0	0
MF3	0	0	3
MF5	0 to 1	0	8 to 11

[a] The number of hazardous material sites for all risk levels should be considered as a snap shot in time because actual facility environmental conditions vary over time and environmental databases that are used are constantly being updated; therefore, sites can be added or deleted regularly. In addition, the number of medium- and low-risk sites should be considered as approximate because the site locations have been placed based on a single point and can fall inside or outside of the 1/8 mile (660 feet) buffer.

[b] The number of hazardous material sites for each alternative includes all possible connectors for that alternative.

[c] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change in impacts for either *Preferred Alternative C9T* or *B2M*.

[d] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

- Sites were listed as having regulatory interactions not related to potential release of hazardous materials to the soil or groundwater (i.e. permitted air emissions).
- The sites have had a small one-time spill (i.e. less than 10 gallons) event that is reported to be cleaned up.

These sites are considered as minimal risk sites and are listed in Appendix G3 as Risk Level 4 sites.

4.12.3 Environmental Impacts

This section discusses the potential impacts that the project might have on the environment and potential impacts that the known and suspected contaminated sites might have on project development and Sound Transit liability. Operational impacts and construction impacts are considered. Sound Transit will meet regulatory requirements associated with construction and operation of the East Link Project.

4.12.3.1 No Build Alternative

With the No Build Alternative, removal or cleanup of potentially hazardous materials in the study area, including contaminated soil or groundwater, would not be removed or cleaned up, and the potential uncontrolled migration of existing contaminants might continue.

What is PCE?

PCE, or perchloroethylene, is a manmade chemical used for dry-cleaning clothes, degreasing metal parts, and as an ingredient in the manufacturing of other chemicals.

PCE contamination in soil might be cleaned up by excavating the soil, incinerating it, and disposing of the ash in a landfill.

PCE can also be treated in place using a method known as **soil vapor extraction**. Soil vapor extraction uses a network of perforated pipes placed in the soil to remove PCE vapor from the pore spaces in soil and pass it through activated carbon where it can be captured and eventually destroyed.

The particular method used to clean up PCE contamination in soil depends upon conditions such as PCE concentration, access to contaminated soil, cost of soil disposal, and other site-specific factors.

4.12.3.2 Impacts during Operation

Most impacts associated with encountering sites with existing contamination would occur during construction (as discussed in Section 4.12.3.3). However, long-term operational impacts could occur when Sound Transit acquires properties that are the source of contamination and, therefore, could require an ongoing cleanup responsibility. Such sites are typically associated with groundwater contamination or are large and complex. The actual operational impacts at such hazardous materials sites cannot be identified or assessed without evaluating in detail site-specific conditions, which would be performed before, during, or after construction.

Impacts during normal operation are unlikely since the trains operate through electricity; therefore, fuel spills would not occur. However, minor impacts during operation could result from using hazardous materials during maintenance activities on the tracks and at the maintenance facility to be located in either Segment D or E. During track maintenance, there would be an extremely low chance that a small amount of diesel fuel or hydraulic fluid could spill from the maintenance vehicles. Activities at the maintenance facilities would involve using hazardous materials, including lubricants, solvents, and other chemicals. In addition, hazardous waste (e.g., petroleum products and waste solvents) would be generated. Hazardous waste generated at the maintenance facilities would be managed according to applicable regulatory requirements, which minimize the exposure risk. In addition, the facilities would be constructed with engineering controls to limit and contain releases and spills. The likelihood of impacts (i.e., releases) from project operation and maintenance activities would be low.

Preferred Alternatives

With the *Preferred Alternatives*, long-term operational impacts could occur at the following three high-risk sites if Sound Transit acquires these properties:

- Bellefield Office Park (Site 352) would be partially acquired for *Preferred Alternative B2M*, as well as for Alternative B2E and Alternative B3, both with and without the B3 - 114th Extension Design Option.
- Safeway Warehouse Distribution Center (Site 221C) would be partially acquired for *Preferred Alternative D2A.* Other alternatives that might impact this site are Alternatives D2E and D3.
- King County Materials Lab/City of Redmond Site (Site 38) would be acquired for *Preferred Alternative E2.* Also all segment E alternatives would impact this site.

The Bellefield Office Park (Site 352) was developed in the 1970s using imported fill reported to be demolition wood debris from wood frame residences that were demolished for I-405 construction. Contaminated soil and groundwater were encountered within the Bellefield Office Park, and the contaminants included total petroleum hydrocarbons (TPHs), polychlorinated biphenyls (PCBs), and polynuclear aromatic hydrocarbons (PAHs). A Restrictive Covenant has been in place for this site since 1996; this Restrictive Covenant prohibits activities that would release contaminants at the site without Ecology's approval and prohibits any use of the property that is inconsistent with the Covenant (Ecology, 2009). The Safeway Warehouse Distribution Center (Site 221C) has had petroleum product release from underground storage tanks (USTs). The releases have reportedly been cleaned up, but there might be residual contamination. The King County Materials Lab/City of Redmond Site (Site 38) has confirmed and suspected presence of chlorinated organic compounds (e.g., PCE) in groundwater and soil; therefore, ongoing cleanup might be required.

Property acquisition by Sound Transit could include the former BNSF Railway corridor, which is identified as a high- risk site. Depending on the alternative selected, the project might run within, parallel to, or cross over the former BNSF Railway corridor. However, operational impacts due to acquiring the former BNSF Railway corridor are not expected.

Other Alternatives

For Alternative B7, two sites would be acquired: Eastside Disposal (Site 343A) and Sound Oil Company/Davey Tree (Site 343C) sites.

Site 343A is currently operated by Eastside Disposal, and Allied Waste uses it to store equipment. The soils on the site were contaminated with petroleum products from a leaking UST.

Site 343C was formerly occupied by Sound Oil Company and is now occupied by Davey Tree Service. Sound Oil Company had three USTs containing diesel and stove oil removed in August 1990. Residual petroleum contamination could still be present.

No other sites with potential operational impacts were identified during the regulatory databases review.

4.12.3.3 Impacts during Construction

Potential construction impacts could result from encountering existing soil or groundwater contamination and from encountering containers holding hazardous materials. Soil or groundwater contamination could be found on or adjacent to contaminated sites and in utility corridors, which can be conduits for contamination. Containers that hold hazardous materials include above- and underground storage tanks, which typically contain petroleum products, and pole-mounted electrical transformers, which might contain PCB-contaminated transformer oil. The likelihood of impacts from encountering existing contamination or hazardous materials containers depends upon the extent and characteristics of the contamination and hazardous materials. A variety of impacts, both beneficial and adverse, would be possible, including the following:

- Construction activities, such as grading, in the vicinity of these materials could release contaminants to soil, groundwater, and surface water.
- Contaminated materials might be uncovered, allowing more direct exposure to the public.
- Contamination might spread as a result of construction.
- Dewatering that might occur to further construction activities might generate large quantities of contaminated water that would need to be treated and disposed of.
- Contamination that otherwise would remain in place and potentially migrate might be discovered and addressed by the project.
- To accommodate project construction, contamination might be cleaned up earlier than otherwise would occur.
- Contamination might be prevented by removing potential existing sources, such as USTs and

aboveground storage tanks (ASTs), before they cause releases.

Demolishing, removing, and disposing of existing structures during planned construction could release hazardous materials. Asbestos (commonly used in construction because of its insulation, fireproofing, and soundproofing qualities) causes cancer and other respiratory problems; asbestos is most dangerous when crushed, broken, or otherwise disturbed so that fibers are released to the air and inhaled. Lead is often found in lead pipes, copper pipes with lead solder, and interior and exterior painted wood, siding, window frames, and plaster and could cause lead poisoning if handled inappropriately and inhaled or ingested during demolition.

Contaminated material requiring special disposal—such as old railroad ties and contaminated soil—could also be generated from construction activities within and along railway corridors and crossings. Some historical railroad operations used chemicals that might have resulted in soil contamination. The most commonly reported contamination along rail lines includes metals, pesticides, and constituents of oil or fuel (petroleum products). These chemicals have been associated with normal railroad operations and would likely be found anywhere along the line. For example, arsenic (up to ten times natural background levels) is commonly present in the soil along a railroad right-of-way as a result of old railroad ties dipped in an arsenic solution, arsenic weed-control sprays, and arsenic-laced slag used as railroad bed fill. Lubricating oil and diesel that dripped from the trains would be likely sources of the petroleum product found along the lines. Other sources of contaminants associated with historical railroad operation might include coal ash from engines, creosote from ties, and PAHs from the diesel exhaust.

Potential construction impacts could result from accidental release of hazardous substances (such as lubricants and fuels needed for heavy equipment), a hazard common to all construction projects but particularly acute for construction over water or in areas where stormwater runs off into water bodies such as Lake Washington. Spills of any size, if not contained, could harm water quality, vegetation, and wildlife in the immediate area and downstream; large spills could require emergency response.

Measures Sound Transit would use to minimize the potential for accidental release of hazardous substances during construction include the following:

- Assess sites where contamination might be present to identify the presence and extent of any contaminants. Sites where stormwater facilities are proposed are especially important to survey because any contaminants exposed there could be carried offsite when the stormwater is discharged.
- Locate ASTs, USTs, and fuel lines before construction to reduce the potential for breakage and spills.
- Survey structures that would be demolished to determine whether they contain hazardous building materials such as asbestos, lead-based paint, and PCBs.
- Specify construction techniques that minimize disturbance to areas where contamination might exist, and phase construction activities to follow cleanup activities whenever possible.
- Prepare a comprehensive contingency and hazardous substance management plan and a worker health and safety plan to reduce potential risks to human health.
- Prepare a spill prevention, control, and countermeasure plan and a stormwater pollution prevention plan to manage and prevent the release of pollution and hazardous substances to the environment.

The following subsections describe the potential impacts on the project from known contaminated sites based on their location relative to the proposed alternatives. The focus of the discussion is on high-risk sites because these are the sites that are anticipated to have the greatest impact on project development. Some of these sites could also have long-term impacts if they involve continuing cleanup responsibilities (e.g., groundwater monitoring) even after the project is constructed. The actual impacts on the environment at each hazardous materials site cannot be identified and assessed without detailed evaluations of site-specific conditions, which would be performed prior to or during construction. Site assessment might be conducted in a phased approach to address cost, schedule, and technical requirements associated with the construction process. Details about these high-risk sites are discussed under each segment.

Railroad corridors or crossings occur under *Preferred Alternatives C11A*, *C9T*, *D2A*, and *E2*; Maintenance Facility MF2; and various other alternatives within Segments C, D, and E. Impacted parcels would be acquired by Sound Transit; permanent easements might also be obtained. Construction impacts, such as encountering contaminated soil, as discussed above, should be anticipated everywhere along the railroad corridors and crossings and are not discussed separately under individual segments. For this section, railroad corridors and crossings, referred to as former BNSF Railway corridor throughout this section, are considered as one high-risk site under each segment regardless of how many individual parcels are involved.

Segment A

There are no high-risk sites, 29 medium-risk sites, and 16 low-risk sites within the study area for Segment A. Segment A begins at the Downtown Seattle Transit Tunnel (where the East Link Project would connect to the Central Link light rail system) and extends to South Bellevue where I–90 touches land in Bellevue. All Segment A construction is proposed to occur within the existing I-90 right-of-way and would involve minimal ground-disturbing activities, such as soil excavation or construction dewatering. Therefore, any contamination that might exist or that has migrated from hazardous material sites within the Segment A study area are not expected to affect project construction.

Segment B

There are seven high-risk, four medium-risk, and six low-risk hazardous material sites within the Segment B study area. Table 4.12-2 summarizes the potential impacts related to high-risk sites, and Exhibit 4.12-1 shows their location relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-1. There are two high- and one medium-risk sites along *Preferred Alternative B2M.* In addition, two low-risk sites are located in this alternative.

Site 352 is located on the east side of 112th Avenue SE between SE 8th Street and the Mercer Slough. The Bellefield Office Park was developed using imported fill material reportedly resulting from demolition debris largely consisting of wood wastes from residential construction. Contaminants detected in soil and groundwater at the site include petroleum products, PCBs, and PAHs (Ecology, 2009).

Site N198 is located on SE 8th Street between 112th Avenue SE and Lake Washington Boulevard. The fill material beneath SE 8th Street is believed to be of the same origin as that beneath the Bellefield Office Park (Site 352) (PanGeo, 2000). As part of the SE 8th Street roadway improvement project conducted by the City of Bellevue, soil and groundwater samples were collected; these samples confirmed the presence of petroleum contaminated soil and groundwater in the subgrade soils beneath the roadway (Agra Earth, 2000 and G-Logic, 2003).

Alternatives B2A, B2E, and B3 (with and without B3 - 114th Extension Design Option) could be impacted by the same high-risk sites as *Preferred Alternative B2M.* Alternatives B1 and B7 could be impacted by two and three high-risk sites, respectively.

Site 412A is located adjacent to the at-grade rail profile of Alternative B1, and it has been used as a dry-cleaning business since at least the 1960s; the site is currently occupied by Enatai Cleaners. Soil gas probing and groundwater monitoring investigations indicated that PCE is present in the soil gas and in the groundwater in excess of MTCA Method A cleanup level (Dalton, 1994).

Site 412B is also located adjacent to the at-grade profile of Alternative B1. The site currently operates as a gas station and is hydraulically downgradient from the Kevik Cleaners site (Site 412A). The soils on the site were contaminated with petroleum products from leaking USTs. Soil excavation was conducted in 1992. Petroleum-impacted soil remains in place below the embankment on the east side of the site, adjacent to and below the area of the former heating oil tank excavations. In addition, soil and groundwater at the site have been reported to contain PCE in excess of MTCA Method A cleanup levels (EMCON, 1994a). The former dry cleaners located upgradient of the site is suspected to be the source of the PCE. (EMCON, 1994b).

Site 343A would be acquired to construct the park-and-ride lot and 118th Station for Alternative B7. Eastside Disposal currently operates on the site, and Allied Waste uses it to store equipment. The soils on the site were contaminated with petroleum products from a leaking UST. The soil was excavated until field-screening methods indicated no presence of petroleum hydrocarbons. However, confirmation soil samples indicate that ethylbenzene, diesel, and possibly heavier oil concentrations exceeding MTCA Method A cleanup levels still exist in the soil underneath the welding shop. The contaminated soil near the welding shop footprint was not remediated due to engineering constraints (Hart Crowser, 1990).

Site 343C also would be acquired to construct the park-and-ride lot and 118th Station proposed under Alternative B7. This site was formerly occupied by Sound Oil Company and is now occupied by Davey Tree Service. Sound Oil Company had three USTs containing diesel and stove oil removed in August 1990, and soil was excavated when bioremediation failed at the site (Marsh, 1996). Contamination is reported to be below MTCA Method A cleanup levels (Ecology, 2004). Ecology lists the site status as “reported cleanup” without a detailed review. This site is considered as a high-risk site because residual petroleum contamination could still be present and the site could be acquired by Sound Transit.

TABLE 4.12-2
Potential Impacts of High-Risk Hazardous Material Sites within Segment B

Map ID	Site Name and Address	Potential Impacts by Alternative						
		Potential Impact	*Preferred Alternative B2M*	Alternative B1	Alternative B2A	Alternative B2E	Alternative B3 [a]	Alternative B7
352	Bellefield Office Park, 11201 SE 8th Street	Encounter demolition debris, soil, and groundwater contaminated with petroleum products, PAHs, and PCBs; the Restricted Covenant requirements must be met.	✓		✓	✓	✓	
N198	Planned SE 8th Street Restoration Project, Between 112th Avenue SE and Lake Washington Boulevard	Encounter demolition debris, soil, and groundwater contaminated with petroleum products.	✓		✓	✓	✓	
412A	Kevik Cleaners, 1614 Bellevue Way	Encounter soil and groundwater contaminated with PCE.		✓				
412B	Unocal No. 4384, 1624 Bellevue Way	Encounter soil and groundwater contaminated with PCE and petroleum products.		✓				
343A	Eastside Disposal (also listed as estate of James Bussee), 969 118th Avenue SE	Encounter soil and groundwater contaminated with petroleum products.						✓
343C	Sound Oil Company/ Davey Tree Service, 1021 118th Avenue SE	Encounter soil contaminated with residual petroleum products.						✓
NA	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals.						✓

[a] With and without B3 - 114th Extension Design Option.

N/A	not applicable
PAH	polyaromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	perchloroethylene

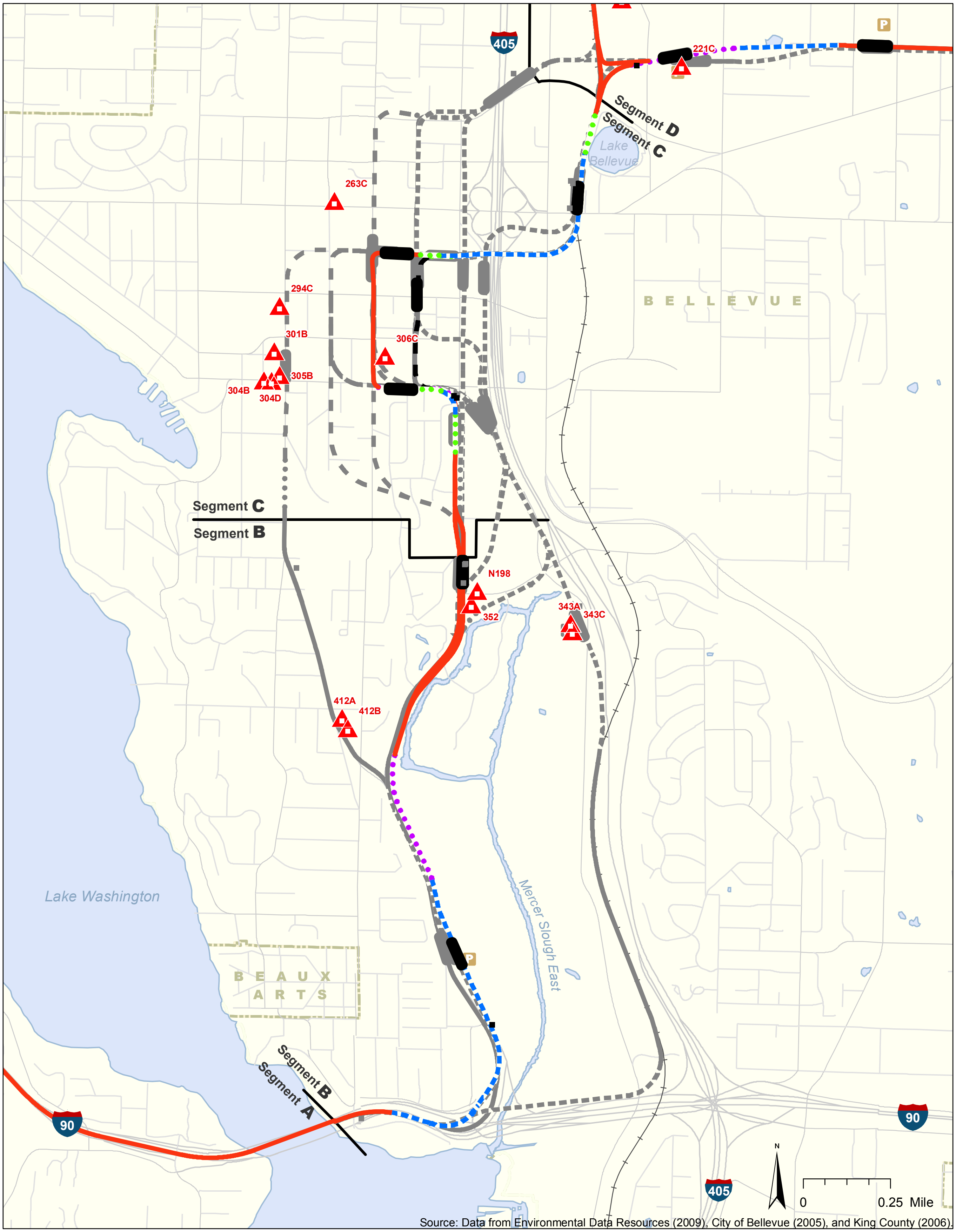
Former BNSF Railway corridor along the east side of Mercer Slough would also be leased or acquired under the Alternative B7. Contaminated material requiring special disposal—such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals—could be present within and along the railway corridor.

Segment C

There are 8 high-risk, 28 medium-risk, and 19 low-risk hazardous material sites within the Segment C study area. The connectors from Segment B do not change the number of affected high-risk sites in Segment C. Table 4.12-3 summarizes the potential impacts, and Exhibit 4.12-1 shows the location relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-1.

Preferred Alternative C11A has 2 high-risk sites; in addition, this alternative includes 19 medium-risk sites and 12 low-risk sites.

Site 306C is adjacent to *Preferred Alternative C11A*. The site was formerly used by a dry cleaner, and a remedial investigation found PCE in a downgradient storm sewer manhole. From 1996 to 2000, a soil vapor extraction system (a device that applies a vacuum to remove airborne chemicals) was used to reduce the PCE concentration in the soil. All soil near the storm sewer manhole containing PCE concentrations greater than Method B cleanup levels were removed (Floyd Snider McCarthy, 2003). According to Ecology, groundwater is believed to be affected by the historical PCE releases (EDR, 2009).


405
221C
Segment D
Segment C
Lake Bellevue
263C
294C
301B
306C
305B
304B
304D
B E L L E V U E
Segment C
Segment B
N198
352
343A
343C
412A
412B
Lake Washington
Mercer Slough East
B E A U X A R T S
Segment B
Segment A
90
90
405
N
0
0.25 Mile

Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).

🔺 High-Risk Site
▪ Traction Power Substation
▬ Proposed Station
P New and/or Expanded Park-and-Ride Lot

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

Exhibit 4.12-1 **High Risk Hazardous Material Sites Within 1/8 Mile of Alternatives Segments B and C**
East Link Project

TABLE 4.12-3
Potential Impacts of High-Risk Hazardous Material Sites within Segment C

Map ID	Site Name and Address	Potential Impacts	Potential Impacts by Alternative									
			Preferred Alternative C11A	***Preferred Alternative C9T***[a]	**Alternative C1T**	**Alternative C2T**	**Alternative C3T**	**Alternative C4A**	**Alternative C7E**	**Alternative C8E**	**Alternative C9A**	**Alternative C14E**
263C	Former Thinker Toys, 10610 NE 8th Street	Encounter soil and groundwater contaminated with PCE			✓	✓	✓	✓				
294C	Capri Property, 315 Bellevue Way NE	Encounter soil and groundwater contaminated with PCE			✓							
301B	Bellevue Way Dry Cleaners, 103 Bellevue Way NE	Encounter soil and groundwater contaminated with PCE			✓							
304B	EV11 LLC, 10335 Main Street	Encounter soil and groundwater contaminated with PCE			✓							
304D	Safeway Property, 10301 Main Street	Encounter soil and groundwater contaminated with petroleum products and PCE			✓							
305B	Unocal No. 0587, 5 Bellevue Way NE	Encounter soil and groundwater contaminated with chlorinated solvents and petroleum products			✓							
306C	Benenson Capital, 110 108th Avenue NE	Encounter soil and groundwater contaminated with PCE	✓	✓		✓	✓	✓			✓	
N/A	Former BNSF Railway corridor (for Hospital Station and alignment)	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals	✓	✓	✓	✓					✓	✓

[a] With and without C9T – East Main Station Design Option

N/A	not applicable
PCE	perchloroethylene

Any construction in this area could expose potentially contaminated soil and groundwater.

Former BNSF Railway corridor between NE 6th and NE 12th Streets would be leased or acquired. Contaminated material requiring special disposal, such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals, could be present within and along the railway corridor.

Preferred Alternative C9T has 2 high-risk (Site 306C, and former BNSF Railway corridor), 17 medium-risk, and 6 low-risk sites. These high-risk sites are discussed above under *Preferred Alternative C11A*.

All other Segment C alternatives have high-risk sites, especially Alternative C1T, which has 7 high-risk, 20 medium-risk, and 13 low-risk sites along the route. Compared with *Preferred Alternative C9T* and all the other alternatives, Alternative C1T would have the greatest risks because of the number of high-risk sites and the nature and extent of potential contamination. For example, PCE is believed to be present in the soil or groundwater at Sites 294C, 301B, 305B, and 304D, which are located along Bellevue Way between NE 4th Street and Main Street (see site descriptions below). In addition to the former BNSF Railway corridor discussed under the *Preferred Alternative C11A* above, the other six high-risk sites are discussed below.

Site 263C is located one block north of the tunnel for Alternatives C1T and C2T and one block west of the tunnel for Alternative C3T and the southbound alignment for Alternative C4A. In the past, the site was used as a gasoline station and dry cleaner. Soil and groundwater were reportedly impacted by a PCE release at a depth between 7 and 18 feet below ground surface (bgs) at the center of the property (Golder Associates, 2004). A shallow groundwater aquifer is located at 14 to 18 feet bgs, and it is not known whether the site's perched groundwater has impacted the deeper regional aquifer.

Site 294C is located adjacent to the tunnel for the Bellevue Way Tunnel (C1T). It was home to a dry-cleaning operation from 1951 to 1962. In the 1960s, the operation moved to an adjacent building. PCE has been detected in the groundwater (Hart Crowser, 2001, 2005). The plume of PCE extends to the south and southeast, south of the 315 Bellevue Way NE to beyond NE 2nd Street.

Site 301B is located adjacent to the tunnel for Alternative C1T. The site has been home to a variety of dry-cleaning establishments since the 1970s, and site investigations have found PCE in the soil and groundwater (Hart Crowser, 1997). Sampling conducted in 1998 further confirmed the presence of PCE in the groundwater (Hart Crowser, 1999). The site is listed as awaiting remedial action.

Site 304B is located one block west of the tunnel for Alternative C1T. The site operated as a dry-cleaning business from the 1950s through the late 1980s. Investigations conducted in 2006 confirmed the presence of petroleum product, petroleum product-related volatile organic compounds (VOCs), and PCE in the soil and groundwater (PES Environmental, 2006). The suspected sources of the petroleum and related VOC contamination include the Unocal property (Site 305B, described below) located to the north. The suspected source of PCE and related chlorinated organic compounds, such as trichloroethylene and vinyl chloride contamination, is the dry cleaners formerly located on Site 304B. There is an east to southeast groundwater flow direction across most of the site.

Site 304D is located one block west of the tunnel for Alternative C1T; Ecology has no information available for this site. The EDR report indicated that the final *Independent Remedial Action Report* has been received. This site is considered to be high-risk because of its location adjacent to the tunnel route and a high level of uncertainty due to lack of information. This site is possibly linked to the petroleum product and PCE releases from nearby sources.

Site 305B, the Unocal property, is located adjacent to the tunnel for Alternative C1T. In the past, the site was used by a gas station. Investigations revealed gasoline product in the groundwater beneath the southern part of the site (Maul, 2003). A groundwater recovery/treatment system and vapor extraction system were installed in 1991 to remediate the groundwater and soil. Chlorinated solvents were detected in the groundwater within the site and its immediate vicinity, particularly to the south (ENSR, 2006).

Alternative C2T has three high-risk sites (Sites 263C, 306C, and the former BNSF Railway corridor), Alternative C3T and C4A each have two high-risk sites (Sites 263C, and 306C), Alternatives C7E and C8E have no high-risk sites, Alternative C9A has two high-risk sites (Sites 306C and former BNSF Railway corridor), and Alternative C14E has one high-risk site (former BNSF Railway corridor).

Segment D

There are 6 high-risk, 25 medium-risk, and 12 low-risk hazardous material sites within the Segment D study area. The number of sites do not differ between the connection points from Segment C, except that the connection from NE 12th Street would eliminate the interaction with the former BNSF Railway corridor site in Segment D. All Segment D alternatives potentially would be impacted from two or more of the sites. Table 4.12-4 summarizes the potential impacts, and Exhibit 4.12-2 shows locations of the high-risk sites relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-2.

Depending on the Overlake Village Station design option selected, the *Preferred Alternative D2A* would be affected by two high-risk sites when the preferred alignment continues adjacent to SR 520 (avoiding Site 146C), or three sites if the NE 24th Design Option is selected.

Site 221C, the former Safeway Warehouse Distribution Center, would be partially acquired for the at-grade profile and stations of *Preferred Alternative D2A*. The 3.5-acre site was formerly used by Safeway as a warehouse and distribution center. The five-building complex includes a retail and warehouse building, cross dock, cold storage, office building, and a former vehicle maintenance shop; the complex is currently vacant. The site has had as many as 20 USTs at one time or another, and leaking USTs were reported in 1995, 1998, and 2001. These leaking USTs were removed, and remedial actions for petroleum-contaminated soil were conducted. In April 2009, Ecology issued a “No Further Action” determination for the site, based on review of submitted documents. This site is of high concern because of the scale of the past operations and its location at a light rail station, which leads to a high likelihood of encountering contamination. During development, previously undiscovered contaminated soil might be encountered within the Safeway warehouse site due to historical releases from these USTs.

Site 146C is located approximately one block south of D2A - NE 24th Design Option alignment. This site has been home to a variety of dry cleaners since 1977. In 2000, PCE was identified in the soil and groundwater, and in November 2004, a soil vapor extraction system began operating to remove the contamination from the soil. Monitoring from September 2004 to October 2005 showed that contaminants still exceed groundwater standards (SCS Engineers, 2006).

Former BNSF Railway corridor north of NE 12th and NE 6th Streets and within the Safeway Warehouse Distribution Center parcel would be leased or acquired. Contaminated material requiring special disposal, such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals, could be present within and along the railway corridor. This is also true for the preferred storage track location located in the former BNSF Railway corridor just north of the proposed Hospital Station. All Segment D alternatives could potentially be affected by the former BNSF Railway corridor, a high-risk site, since they would all interact with the former rail corridor. The potential impact would be greater if the preferred location for an interim terminus is selected since this would include storage tracks in the former BNSF Railway corridor.

All Segment D alternatives, except Alternative D5, could potentially be impacted by Site 221C. In addition, Alternative D2E could potentially be impacted by Sites 146C described previously, Alternative D3 could be impacted by Sites 176C and 188, and Alternative D5 could be impacted by Site 174B. Sites 174B, 176C and 188 are described below.

Site 174B is located within the Alternative D5 alignment. Weyerhaeuser currently uses the site as a manufacturing facility for corrugated containers. The site was occupied by Willamette Industries and used as a forest product manufacturing facility prior to being purchased by Weyerhaeuser in 2002. Petroleum contamination was reportedly cleaned up as of 2002.

Site 176C is located one block east of the retained-cut profile of Alternative D3, and it is currently used by a dry-cleaning business and was formerly used as a gas station. Contaminants of concern, released from these two businesses, include chlorinated solvents and petroleum hydrocarbon. Cleanup activities have been ongoing since 2004 and include soil vapor extraction and air sparging (pumping air underground to aid removal of chemical vapors).

Site 188 is located adjacent to the retained-cut profile of Alternative D3. This site was formerly occupied by a retail gas station, and it is currently occupied by restaurants. Investigations conducted in the early 1990s found benzene concentrations in excess of MTCA Method A cleanup levels in the soil. In 1993, four gasoline USTs were removed, and soil vapor extraction and groundwater air sparging began. In June 2000, soil borings showed no petroleum hydrocarbons exceeding MTCA Method A cleanup levels (Environmental Resolutions, Inc., 2006a). According to a 2006 groundwater monitoring report, three of nine wells sampled contained benzene concentrations in excess of MTCA Method A cleanup levels (Environmental Resolutions, Inc., 2006b).

TABLE 4.12-4
Potential Impacts of High-Risk Hazardous Material Sites within Segment D

Map ID	Site Name and Address	Potential Impacts	Potential Impacts by Alternative				
			Preferred Alternative D2A[a]	D2A - NE 24th Design Option	Alternative D2E	Alternative D3	Alternative D5
146C	Sato Corporation, 14820 NE 24th Street	Encounter soil and groundwater contaminated with PCE		✓	✓		✓
174B	Willamette Industries, 1899 120th Avenue NE	Encounter soil contaminated with petroleum products					✓
176C	Bel-Red Road Retail, LLC, 15260 NE 20th Street	Encounter soil and groundwater contaminated with petroleum products and chlorinated organic compounds				✓	
188	BP Exploration Oil, Inc., 1960 148th Avenue NE	Encounter soil and groundwater contaminated with petroleum products and benzene				✓	
221C	Safeway Warehouse, Inc. Distribution Center, 1227 124th Avenue NE	Encounter soil contaminated with petroleum products	✓	✓	✓	✓	
N/A	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals	✓	✓	✓	✓	✓

[a]With and without D2A – 120th Station Design Option

N/A	not applicable
PAH	polyaromatic hydrocarbon
PCE	perchloroethylene

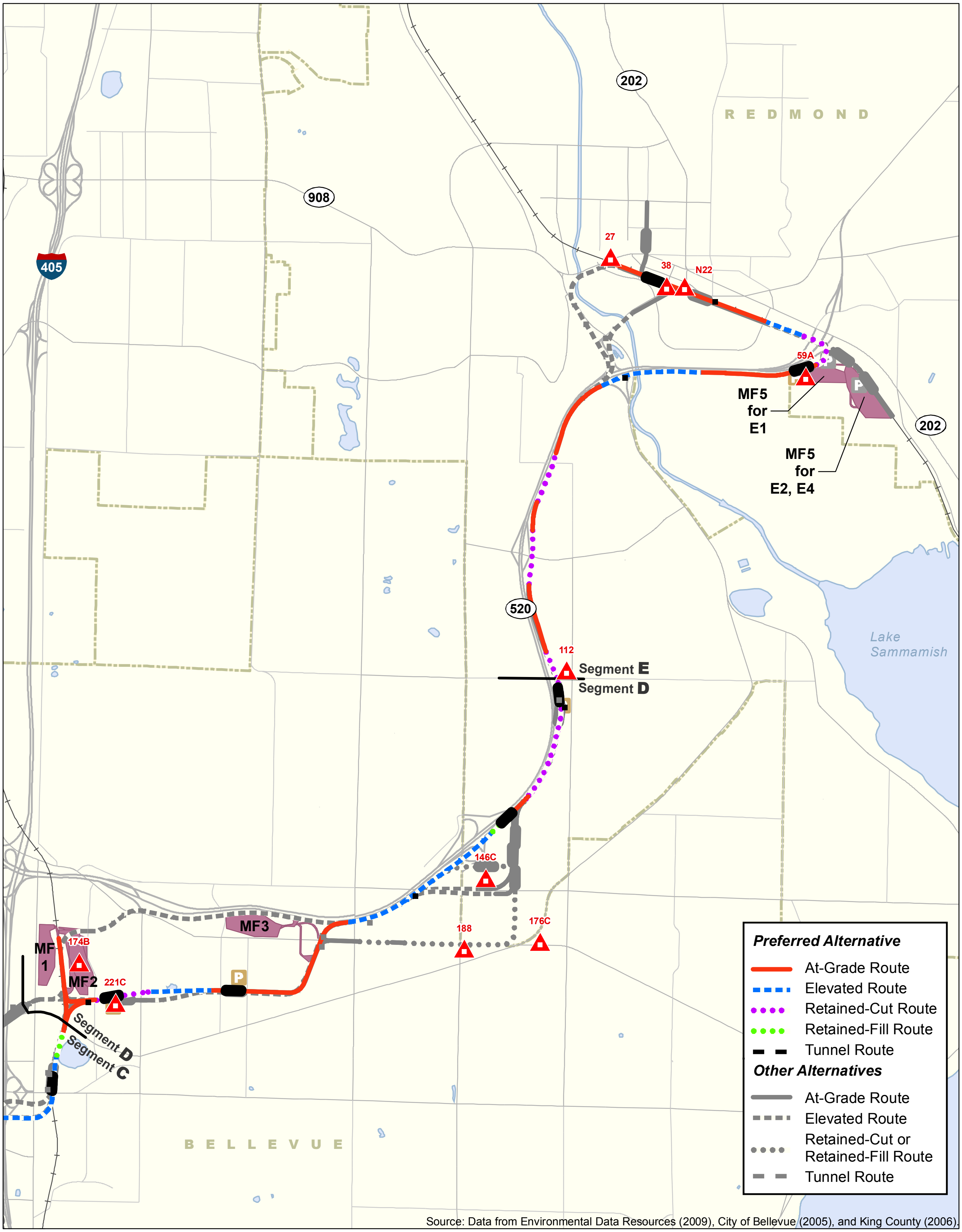
Segment E

There are 6 high-risk, 11 medium-risk, and 9 low-risk hazardous material sites located within the Segment E study area. Table 4.12-5 summarizes the potential impacts, Exhibit 4.12-2 shows locations of the high-risk sites relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-2.

Site 27 is adjacent to the terminus of *Preferred Alternative E2* and is currently used by a dry-cleaning business. Ecology determined that a release of PCE to soil and groundwater from the site represented a significant threat to human health and the environment (Ecology, 1999). Environmental remedial actions conducted at the site included soil vapor extraction and groundwater monitoring (Ecology, 2002). Remedial action is listed as in progress as of February 2008.

Site 38 is adjacent to the at-grade profile of the *Preferred Alternative E2*. The King County Department of Transportation Road Services Division, Materials Laboratory and Surveyors, Animal Control, Office of Civil Defense, Sheriff's Department, and the City of Redmond have all occupied portions of the property at 7733 Leary way NE, Redmond. A subsurface investigation of the site was conducted in 2002, and soil and groundwater samples indicated that TPH as diesel-range organics (DRO) and oil-range organics (ORO), as well as PCE, are present at levels exceeding their applicable cleanup levels (City of Redmond, 2004). A "No Further Action" letter was issued by Ecology for Leary Way Shop Site Buildings 1 through 9; however, this site is also listed in Ecology's list of contaminated sites under the City of Redmond for confirmed presence of chlorinated organic compounds in groundwater, suspected presence of chlorinated organic compounds in soil, and confirmed presence of petroleum products in soil. The City of Redmond site status is listed as "Awaiting Cleanup" as of June 2009.

Site 59A is located adjacent to the at-grade profile *Preferred Alternative E2*. The site is currently used by a large industrial painting contractor that handles solvents and solvent-based paints; also, gasoline USTs are on the site. During an investigation, petroleum products were observed on the ground near the fuel pump area.


202
R E D M O N D
908
405
27
38
N22
59A
MF5 for E1
MF5 for E2, E4
202
520
112
Segment E
Segment D
Lake Sammamish
146C
MF3
188
176C
MF 1
174B
MF2
221C
P
Segment D
Segment C
B E L L E V U E
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
High-Risk Site
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
New and/or Expanded Park-and-Ride Lot
N
0
0.5 Mile

Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).

Exhibit 4.12-2 **High Risk Hazardous Material Sites Within 1/8 Mile of Alternatives Segments D and E**

East Link Project

TABLE 4.12-5
Potential Impacts of High-Risk Hazardous Material Sites within Segment E

		Potential Impacts by Alternative				
Map ID	Site Name and Address	Potential Impacts	*Preferred Alternative E2*	E2 – Redmond Transit Center Design Option	Alternative E1	Alternative E4
27	Cleaning Center of Redmond, 15796 Redmond Way	Encounter soil and groundwater contaminated by PCE	✔		✔	
38	King County Materials Laboratory/City of Redmond, 7733 Leary Way NE	Encounter soil contaminated by petroleum products and possibly chlorinated organic compounds, groundwater contaminated by chlorinated organic compounds	✔	✔	✔	✔
59A	Dunkin and Bush, Inc., 17301 NE 70th Street	Encounter soil and groundwater contaminated by petroleum products, metals, and chlorinated or nonchlorinated organic compounds	✔	✔		
112	Microsoft Corporation/ Fort James Corporation, 4001 and 4111 156th Avenue NE	Encounter soil and groundwater contaminated by petroleum products and chlorinated organic compounds	✔	✔	✔	✔
N22	T&D Feeds, Cleveland Street and 164th Avenue NE	Encounter soil contaminated by petroleum products and PAHs; encounter groundwater contaminated by chlorinated organic compounds	✔	✔	✔	✔
NA	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals	✔	✔	✔	✔

N/A	not applicable
PAH	polyaromatic hydrocarbon
PCE	perchloroethylene

This area was cleaned up in 1992 when two USTs were removed. In 1994, a site hazard assessment was conducted and the soil samples were reportedly below MTCA cleanup levels. Ecology issued a “No Further Action” determination for the site in 1995 (Seattle-King County Department of Public Health, 1995). However, contamination such as petroleum products, metals, and chlorinated or nonchlorinated organic compounds that were used as solvents might still exist at the site in lower levels.

Site 112 is next to the retained-cut profile of all Segment E alternatives. The site was formerly used by Fort James Corporation as a paper product manufacturing facility; the site is currently occupied by Microsoft Corporation. Petroleum products and chlorinated organic compounds have been detected in soil and groundwater at the site. The site is in Ecology’s Voluntary Cleanup Program and cleanup is ongoing as of 2010.

Site N22 is located adjacent to *Preferred Alternative E2*, and it was occupied by T&D Feeds from the 1930s to 2000. T&D Feeds used the site as a store, feed mill, and warehouse complex (Redmond Historical Society, 2011. The structures were demolished in 2001, and the site is currently vacant. Soil at the site was contaminated with petroleum products and carcinogenic PAHs. A remedial action was conducted on the property and resulted in a “No Further Action” determination from Ecology in 2006 for soils at the site. PCE-contaminated groundwater was also detected at the site; however, Ecology has determined that the PCE appeared to be from an offsite location, and therefore, no further action was required by Ecology. The 2006 “No Further Action” letter also noted that an adjacent railroad property to the southeast of the T&D Feeds property contains carcinogenic PAHs in soil that will require further remediation (Ecology, 2006).

Former BNSF Railway corridor is encountered at several locations in all of the Segment E alternatives. Contaminated material requiring special disposal, such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals, could be present within and along the railway corridor.

E2 - Redmond Transit Center Design Option would be impacted by the same sites as *Preferred Alternative E2* described above except for Site 27. Alternatives E4 would have four high-risk sites (Sites 38, 112, N22, and the former BNSF Railway corridor), and Alternative E1 would have the same four high-risk sites plus Site 27.

Site 59A, which impacts *Preferred Alternative E2* and is described above, appears to be south of Alternative E1 and would not appear to impact it. Alternative E4 could be impacted by four hazardous materials sites (Sites 38, 112, N22, and former BNSF Railway corridor); these sites are in areas where the alternatives overlap. Alternative E4 avoids Sites 27 and 59A.

Maintenance Facilities

As with constructing any portion of East Link, potential construction impacts from maintenance facilities could result from using hazardous materials, (e.g., lubricants, fuels, and solvents) during construction or from encountering sites with existing soil or groundwater contamination. The potential for encountering hazardous material during construction of the maintenance facilities is relative to the number of businesses associated with hazardous materials that would be displaced and the extent of excavation that might be required during facility construction.

There are 3 high-risk, 0 medium-risk, and 11 low-risk hazardous material sites for the maintenance facilities. Table 4.12-6 lists the potential impacts related to high-risk sites for each maintenance facility and Exhibit 4.12-2 shows their location. The 116th Maintenance Facility (MF1) and the SR 520 Maintenance Facility (MF3) would not acquire any known sites.

Site 174B, previously discussed under Segment D, and former BNSF Railway corridor, would be acquired as part of the BNSF Maintenance Facility (MF2).

Site 59A, previously discussed under Segment E, would be acquired as part of the SE Redmond Maintenance Facility (MF5).

4.12.4 Potential Mitigation Measures

In order to mitigate potential impacts from all potential sites, including railroad corridors and crossings, Sound Transit would perform a level of environmental due diligence appropriate to the size and presumed past use of the property at all properties along the corridor before they are acquired. Phase 2 Environmental Site Assessments would be conducted where appropriate. Where known hazardous sites are present, Sound Transit would be responsible for the remediation of any contaminated soil and groundwater, including that which would be previously unknown and found during construction. To the extent practical, Sound Transit would limit construction activities that might encounter contaminated groundwater or contaminated soil.

TABLE 4.12-6
Number of Hazardous Material Sites at Maintenance Facilities by Connection from Alternatives

Map ID	Site Name and Address	Potential Impacts	Potential Impacts by Maintenance Facility and Segment E Alternative					
			MF1	MF2	MF3	MF5		
			All	All	All	***Preferred Alternative E2***[a]	**Alternative E1**	**Alternative E4**
174B	Willamette Industries, 1899 120th Avenue NE	Encounter soil contaminated with petroleum products		✓				
59A	Dunkin and Bush, Inc., 17301 NE 70th Street	Encounter soil and groundwater contaminated by petroleum products, metals, and chlorinated or nonchlorinated compounds				✓	✓	
N/A	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals		✓				

[a]With and without E2 – Redmond Transit Center Design Option
N/A not applicable
PAH polyaromatic hydrocarbon

4.13 Electromagnetic Fields

4.13.1 Introduction to Resources and Regulatory Requirements

Electric and magnetic fields, known as electromagnetic fields (EMFs), are produced wherever electricity is used. Electric fields are produced by charges. Magnetic fields are produced by the flow of electric current. The greater the electric charge, the greater the electric field. Similarly, the greater the electric current, the greater the magnetic field. EMFs surround all electrical equipment and facilities, including the electrical conveyance lines and electrical devices as proposed in the East Link Project. Although there are no regulatory requirements for EMF, EMF results in electromagnetic interference (EMI), which can cause disruptions and possibly malfunctions in sensitive equipment. In certain situations with sufficiently high exposure, EMF can result in effects on human health. The EMF study area is dependent on the location of sensitive equipment in relation to the light rail line and the amount of electrical power that the East Link Project requires to accelerate or decelerate near sensitive facilities. However, the potential for a light rail vehicle to adversely affect sensitive equipment from a distance greater than 100 feet is rare.

Where there are electric currents, it is possible that stray currents would occur when a portion of the electrical current finds an alternative conducting path, such as metal, water, or a buried pipe or cable. Over time, a stray current can cause corrosion, which in turn can cause pipes to leak or wires to break.

4.13.2 Affected Environment

The affected environment of the East Link system is the area immediately adjacent to project alternatives and on board the train cars. EMI may temporarily interfere with the operation of sensitive electronics and electrical equipment near the right-of-way, so the concern is for facilities that may be sensitive to EMI, such as hospitals or laboratories that use sensitive electronic equipment. Also, the pipes and cable utilities commonly located under and along roadways, including the floating bridge on I-90, can be susceptible to stray currents, which can be conducted some distance away from the right-of-way.

Sound Transit contacted Children's Hospital Bellevue Clinic and Surgery Center (BCSC), Overlake Hospital, and Group Health, all three of which have facilities near I-405, to identify sensitive receptors. As a result of these discussions, Sound Transit identified three buildings—Overlake's portable magnetic resonance imaging (MRI) unit, the Overlake outpatient optical surgery unit, and the MRI unit at Children's Hospital BCSC—as possibly being susceptible to EMI.

The Overlake portable MRI unit is a parked, trailer-mounted MRI unit located at the west end of the North parking garage at a loading dock shipping and receiving area next to several trash dumpsters and an electrical transformer that provides power to buildings on the hospital campus. This portable MRI unit operates next to large, energized electrical equipment and near roadways and parking garages with moving cars and trucks that produce magnetic fields.

The Overlake outpatient optical surgery unit is located just southeast of the NE 12th Street Overpass east of I-405 in the ground floor of Overlake's west garage.

The Children's Hospital BCSC has an MRI unit located in a magnetically shielded room on the second floor of the building. The MRI in the BCSC is located approximately 75 feet south of the south fence of the 116th Maintenance Facility (MF1) and approximately 240 feet north of where the 108th NE Tunnel (C3T), Couplet (C4A), 112th Elevated (C7E), and 110th Elevated (C8E) Alternatives would cross 116th Avenue NE at approximately NE 15th Street, east of I-405. Similar to the MRI unit at Overlake Hospital, the Children's MRI unit is located close to moving cars because it is in a room immediately above the ground-level parking garage beneath the BCSC.

The MRI in the BCSC is also located about 315 feet northwest of a Puget Sound Energy 115-kilovolt (kV) electrical substation. The substation does not produce EMF outside of the substation fence, but the overhead transmission lines that feed the substation and those that run along the east side of 116th Avenue NE presently produce modest levels of EMF (within the lower end of the range of the values reported in Table 4.13-1).

The BCSC MRI is located about 260 feet north of the overhead 115-kV transmission line that serves the substation and about 130 feet east of the transmission line that runs along the east side of 116th Avenue NE next to the BCSC. An earlier report (LTK Engineering Services, 2006) describes extensive measurements and magnetic field modeling performed for the Sound Transit North Link line near the University of Washington campus. In that report, LTK Engineering evaluated the magnetic fields that could be produced by operation of trains on the North Link line as well by as cars, large trucks, and buses that pass close to several of the campus buildings. Because the North Link and East Link light rail lines are similar and part of the Sound Transit light rail system, the model predictions and measurements described in the LTK Engineering report can also be used to predict the present and future magnetic field environment for the portable MRI unit and the Overlake outpatient optical surgery unit at Overlake Hospital as well as the MRI unit at Children's Hospital BCSC.

TABLE 4.13-1
Estimated External Magnetic Fields Near Children's Hospital Bellevue Clinic and Surgery Center Magnetic Resonance Imaging (MRI) Unit

Source of EMF	Distance from MRI Unit	Estimated Total Peak Magnetic Field [a]
Buses and large trucks moving in northbound lanes of 116th Ave NE	160 feet (46 meters)	0.1 milliGauss
Cars moving in ground level parking garage beneath BCSC	10 feet (3 meters)	20 milliGauss
Cars and trucks on driveway near south entrance to BCSC	135 feet (46 meters)	0.1 milliGauss
Cars moving on north driveway to ground level parking garage	33 feet (10 meters)	<1 milliGauss

[a] Estimates taken from measurements and modeling described in the LTK Engineering Services report (2006).

There are several external periodic magnetic fields located near the BCSC MRI unit, as described in Table 4.13-1. Since the BCSC is a new facility specifically designed for this location, it is not thought that these sources of EMF will cause any malfunctions for the MRI unit.

Similarly, there are several different external periodic magnetic fields located near the Overlake portable MRI unit, as described in Table 4.13-2.

These EMFs result from the perturbations of the earth's magnetic field that are caused by the movement of large metal objects such as cars, trucks, and buses. At present, the EMFs have not caused any malfunctions of the portable MRI unit.

It is likely that there are underground pipe and electrical and telephone cable utility lines along the segment alternatives, especially on I-90 and in Downtown Bellevue, that could be subject to stray currents. Accordingly, these utility lines would need to be carefully evaluated for the possibility of effects from stray currents and the need for protection from stray currents.

TABLE 4.13-2
Estimated External Magnetic Fields Near Overlake Portable Center Magnetic Resonance Imaging (MRI) Unit

Source of EMF	Distance from MRI Unit	Estimated Total Peak Magnetic Field [a]
Buses and large trucks moving in eastbound lanes of NE 12th Street	125 feet (38 meters)	0.1 milliGauss
Cars moving on driveway between West and North Parking Garages	16 feet (5 meters)	5 milliGauss
Large trucks on driveway between West and North Parking Garages	16 feet (5 meters)	10 milliGauss
Cars moving in North Parking Garage	33 feet (10 meters)	<1 milliGauss

[a] Estimates taken from measurements and modeling described in the LTK Engineering Services report (2006).

4.13.3 Environmental Impacts

4.13.3.1 No Build Alternative

The No Build Alternative would not introduce any new sources of EMI into the study area.

4.13.3.2 Impacts during Operation

Electromagnetic Fields

The overhead catenary wires and the power transmission lines that provide power to the traction power substations along the route would produce EMFs. EMFs would also be produced by the train cars themselves, both within and outside the cars, especially when they are moving. The electricity needed to operate the train cars flows from the overhead catenary wires to the traction motors and other electronic equipment. The power flows through cables located either in the ceiling or under the floor of the cars. The amount of electricity flowing in these cables would vary depending on whether the train is accelerating, running at steady speed, decelerating, or is stopped. The electrical current would be highest when the train is accelerating. EMFs would be created whenever the train operates.

Preferred 108th NE At-Grade Alternative (C11A) and *Preferred 110th NE Tunnel Alternative (C9T)* are not located close to any potentially EMF-sensitive sites. Only Alternatives C3T, C4A, C7E, and C8E approach the potentially EMF-sensitive sites. During interviews with staff of Overlake Hospital, Group Health, and Children's Hospital BCSC and personal visits to the Overlake portable MRI unit, the Overlake outpatient optical surgery unit, and the Children's Hospital BCSC MRI unit, the MRI units were the only current equipment found to be potentially sensitive to EMF. Other parts of Overlake Hospital are too distant to be affected, and Children's Hospital BCSC does not have any other equipment that would be of concern.

The Overlake portable MRI unit trailer is located over 100 feet from proposed East Link alternative routes. The Children's Hospital BCSC MRI unit is located approximately 95 feet from proposed turnaround track in the MF1. The Children's Hospital site is also located just north of an existing Puget Sound Energy overhead electric transmission line and electrical substation.

The EMF level for the East Link light rail train operating in Alternatives C3T, C4A, C7E, and C8E over I-405 is expected to be 0.6 milliGauss (mG) at a distance of 220 feet from the MRI unit at Overlake Hospital. (A milliGauss is a unit of intensity of a magnetic field.) The EMFs from the East Link Project routes would have a lower magnitude than those existing near the Overlake MRI Unit, as shown in Table 4.13-2; therefore, the fields from these sources should not cause a problem for the continued successful operation of this unit.

The Children's Hospital BCSC MRI unit is located inside a shielded room on the second floor. The shielding would be expected to lower the level of EMF penetrating from the outside. The MRI in the shielded room would be approximately 240 feet from the operation of Alternatives C3T, C4A, C7E, and C8E south of the hospital. These conditions may result in approximately 0.5 mG transient magnetic field at the shielded MRI room whenever trains pass at full speed (up to 55 miles per hour [mph]). The MRI would be approximately 95 feet from the south turn around loop track at the MF1. Trains operating on this track would be operating at slow train speed (approximately 8 mph speed in the maintenance facility) that would result in an exposure to the MRI shielded room of about 1 mG. Given the existing exposures from sources in or near the BCSC (see Table 4.13-1), especially from cars moving in the BCSC parking garage immediately below the MRI unit (approximately 20 mG), the EMF from East Link operations is not expected to have an impact on the facility.

Stray Currents

Without control measures, a portion of the electrical current flowing through the light rail trains could stray into a buried pipe or cable, then flow along conducting utility lines in the ground back to the traction power substation. To avoid this issue, however, Sound Transit would coordinate control measures with entities that own and operate the utility lines that could be affected.

Sound Transit would minimize or avoid the potential for stray current impacts by selecting best management practices (BMPs) appropriate for the circumstances. The BMPs may include one or a combination of the following:

- Installing cathodic protection systems in nearby utility lines to protect them from corrosion
- Installing insulating unions to break the electrical conductivity of the pipe and thus force the stray current to take another path
- Isolating the electrical rails from ground
- Installing stray-current-control track-fastening systems where appropriate:
  - Tie-and-ballasted track using high-resistance track-fastening systems on concrete ties
  - Direct-fixation track using high-resistance, rubberized track-fastening systems
  - Embedded track using various methods of rail encapsulation such as rail coatings, polyurethane encasement, and rail boots

New natural gas and water lines routed below East Link tracks, and/or new piping systems close to the tracks, would require cathodic protection systems. Cathodic protection system components include the following:

- Galvanic anodes
- Electrical isolation with insulating unions at connections to existing piping
- Pipe coatings
- Bonded mechanical pipe joints
- Permanent test facilities to monitor stray currents and rates of corrosion

Where tracks are elevated on overhead guideway structures, the return current cannot get to ground as easily as on structures that are not elevated; therefore, EMFs from overhead structures are less likely to affect underground utility lines.

Sound Transit and an Independent Review Team (IRT), a team of engineering experts funded by the Washington state legislature and overseen by the Joint Transportation Committee, have investigated the potential impacts of stray current on the Homer M. Hadley (I-90) floating bridge. The concern is that stray current could cause corrosion in the bridge structure, thereby reducing the lifespan of the bridge. To address this concern, the IRT has recommended three layers of protection: isolating the rail by constructing special insulating systems, installing a stray current collector mat, and potentially upgrading the cathodic protection system. An upgraded cathodic protection system could be attached to the floating bridge to mitigate stray current leakage from the light rail track that may accumulate in the reinforcing steel used on the floating bridge. The project would also place a monitoring system on the bridge to monitor stray current levels. Additionally, the cathodic protection system for the adjacent Lacey V. Murrow floating bridge may also be upgraded. With these measures in place, no impact on either bridge would be expected.

Potential Health Effects from Light Rail Alternatives

EMFs can cause a variety of impacts on humans. Certain EMF combinations can cause shock and burn injuries through direct contact with energized components; others can interfere with the operation of electrical and magnetic devices, including heart pacemakers. Based on data available from similar rail systems, however, operation of the light rail is unlikely to generate health impacts for riders or people along the tracks. Anticipated EMF intensities at locations of human exposure within and adjacent to the light rail line are considerably below exposure guidelines established by the American Conference of Governmental Industrial Hygienists and the more recent guidelines established by the International Commission on Non-Ionizing Radiation Protection. These guidelines address known biological effects and do not address speculative concerns about cancer and other possible health effects. Given uncertainties in potential biological effects, these guidelines do incorporate safety factors. Among the various alternatives, no notable differences exist in potential health impacts related to EMFs.

4.13.3.3 Impacts during Construction

No impacts from EMF on nearby sensitive facilities are anticipated during construction.

4.13.4 Potential Mitigation Measures

No mitigation measures for EMI from the East Link Project are needed for sensitive equipment at Overlake Hospital or Children’s Hospital BCSC because the projected EMF from East Link is lower than the existing EMF environment. Standard design measures are necessary for protection against stray currents. These measures would be developed and implemented in consultation with utility owners during final design.

The I-90 section of the light rail would incorporate measures to prevent stray electrical current from corroding the steel components of the I-90 bridge, as agreed to with WSDOT.

4.14 Public Services

4.14.1 Introduction to Resources and Regulatory Requirements

This section discusses public services located within the study area or with service boundaries within the study area. The study area is defined as a 0.5-mile boundary around the project alternatives. The public services that were considered are fire and emergency medical services (including hospitals), police, schools (public and private), mail delivery services, and solid waste and recycling collection in the cities of Seattle, Mercer Island, Bellevue, and Redmond. This section also reviews project-related operations that might lead to increases or changes in emergency response services related to crime or other emergency response incidents.

A safety and security management plan (SSMP) is required for major capital projects funded through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) as indicated in the Federal Transportation Administration (FTA) Circular C5800.1 (FTA, 2007). The SSMP is used to establish the safety and security organization required for the project as well as to integrate safety and security throughout the project life cycle (i.e., design, construction, and operation). Required SSMP contents relevant to fire and emergency medical services include creating a Fire/Life Safety Committee; developing safety, security, and emergency plans; and implementing emergency preparedness (i.e., exercises and drills) to provide a safe environment for Sound Transit passengers, employees, and persons interacting with the project.

4.14.2 Affected Environment

This section discusses the location and service areas for fire, police, emergency providers, hospitals, schools, and solid waste and recycling collection located within the study area. Exhibits showing these facilities are located in Section 4.4, Social Impacts, Community Facilities, and Neighborhoods (see Exhibits 4.4-1 through 4.4-6). The following subsections describe the affected environment for key public services.

4.14.2.1 Fire and Emergency Medical Services

The Cities of Seattle, Mercer Island, Bellevue, and Redmond provide fire and emergency medical services within the study area. The outcome of emergency situations can be determined within minutes of the response. Any delay can make a difference in the effectiveness of the response to an accident or other incident. The following key medical emergency facilities within or near the study area serve the study area:

- Harborview Medical Center, located at 325 9th Street in Seattle, is the nearest hospital to Segment A (see Exhibit 4.4-1 in Section 4.4, Social Impacts, Community Facilities, and Neighborhoods). The Harborview Medical Center is also the headquarters for the Seattle Fire Department’s Medic One Program that provides advanced life-support activities and responds to fires, hazardous materials calls, and rescue calls within the Segment A study area.
- Overlake Hospital Medical Center, a regional medical center, is located at 1035 116th Avenue NE in Bellevue (see Exhibit 4.4-5). Overlake Hospital Medical Center is also the location of one of the four Medic One units that provide service to eastern King County, including Bellevue.
- Group Health Cooperative has two facilities in the study area. The Bellevue Medical Center, located at 11511 NE 10th Street, is immediately south of Overlake Hospital Medical Center, and the Redmond Medical Center at Riverpark, at 15809 Bear Creek Parkway, is located in Downtown Redmond.

In addition, the Bellevue Public Safety Training Center, located at 1838 116th Avenue NE (see Exhibit 4.4-5) in Segment D provides training facilities and services for City of Bellevue police and fire personnel, regional emergency services, the King County Sheriff’s Office, and other rescue groups. This facility also includes a helicopter landing facility.

Seattle, Mercer Island, and Bellevue have prepared response plans and made mutual aid agreements related to responding to calls along Interstate 90 (I-90). They employ a seamless response, which means the closest unit to an incident is dispatched and is not focused on the jurisdiction. The Seattle Fire Department responds to calls eastbound across the I-90 floating bridge. The Department also takes advantage of the D2 Roadway (the high-occupancy vehicle [HOV] ramps) from Seattle to I-90. The Mercer Island Fire Department is responsible for incidents along the I-90 corridor in the westbound direction from the East Channel bridge to west of the Mt. Baker Tunnel and eastbound from the I-90 floating bridge to the Factoria exit. If the peak direction traffic flow permits, then these departments use the I-90 center roadway to access the emergency scene should the westbound or eastbound lanes be congested or hamper the ability to travel to the scene of the incident

(Tubbs, 2007). The Mercer Island Fire Department does not use the 60th Avenue ramp access to the center lanes because it cannot accommodate the turning radius needed for fire trucks and because of its insufficient sight distance.

Table 4.14-1 lists the average response times (i.e., the elapsed time, in minutes) from when the first company of a responding department is dispatched to when the first company arrives at the emergency scene.

4.14.2.2 Police

The police departments for the cities of Seattle, Mercer Island, Bellevue, and Redmond patrol and respond to calls within the city limits for each city within the study area. Average response times for the police departments are approximately 6.5 minutes for Seattle, less than 6 minutes for Mercer Island, and approximately 6 minutes for Bellevue. The City of Redmond does not typically release its average response times. In addition to the police departments within each jurisdiction, the Washington State Patrol also responds to calls for service along I-5, I-90, I-405, State Route (SR) 520, and SR 202, and the King County Sheriff's Office responds to calls along King County Metro routes. Both of these agencies also assist other agencies through mutual aid agreements. Sound Transit contracts with the King County Sheriff's Office and works in partnership with local law enforcement to create a safe regional transit system. The Washington State Patrol and the King County Sheriff's office do not record and maintain response time statistics.

The King County District Court, East Division, Bellevue Facility, at 585 112th Avenue SE (see Section 4.4, Exhibit 4.4-4), provides court services for the cities of Bellevue and Newcastle and is located within Surrey Downs Park in Segment C. King County plans to relocate the facility.

Sound Transit compared Uniform Crime Reporting Program data for the study area with King County and Washington State numbers to illustrate the crime rates at a local, regional, and statewide scale. The review covered the years 2006, 2007, and 2008. The program was created to provide uniform crime statistics for the nation and maintains criminal statistics for violent crimes (i.e., murder, forcible rape, robbery, and aggravated assaults) and property crimes (i.e., burglary, larceny-theft, motor vehicle theft, and arson).

Overall, the total number of crimes has gradually decreased over the past 3 years in the study area for Seattle, Redmond, and King County, as well as for Washington State. Crime statistics for Mercer Island and Bellevue show a small drop in 2007 and a small increase in 2008. Table 4.14-2 compares violent and property crimes in the study area cities with crimes at the county and state level.

4.14.2.3 Schools

The East Link Project alternatives are located within the following school districts: Seattle School District, Mercer Island School District, Bellevue School District, and Lake Washington School District. In addition to the public schools, private schools and a postsecondary school are also located within the study area. Schools within the study area are illustrated in Section 4.4, Exhibits 4.4-1 to 4.4-6. Elementary school students in all of the school districts use school bus transportation provided by the districts. In addition to the bus transportation provided by the school districts, middle school and high school students also use King County Metro buses. Students who attend Lake Washington Technical College primarily use their own vehicles.

4.14.2.4 Solid Waste and Recycling Collection

The following companies provide solid waste and recycling collection for the jurisdictions within the study area:

TABLE 4.14-1
Fire Department Average Response Times

Responder	Average Response Time		
	Fire, Rescue, Hazard Materials	**Basic Life Support**	**Advanced Life Support**
Seattle Fire Department (2008 data)	4.32 minutes	3.75 minutes	3.76 minutes
Mercer Island Fire Department (2006 data)	8.50 minutes	6.17 minutes	6.17 minutes
Bellevue Fire Department (2005 data)	6.57 minutes	6.57 minutes	6.57 minutes
Redmond Fire Department	Not Available	Not Available	Not Available

Source: Seattle Fire Department, 2008; City of Mercer Island, 2007; City of Bellevue, 2007

TABLE 4.14-2
2008 Violent and Property Crime Rates

Jurisdiction	Part I Offenses (Violent and Property Crimes)	Violent Crime Rate (per 1,000 population)	Property Crime Rate (per 1,000 population)
Seattle	36,346	5.8	55.5
Mercer Island	436	0.6	18.7
Bellevue	4,478	1.4	36.2
Redmond	1,751	1.3	32.9
King County	7,693	1.6	20.9
Washington State	264,158	3.2	36.9

Source: Washington Association of Sheriffs and Police Chiefs, 2008.

- Waste Management and Cleanscapes are currently contracted to provide commercial and residential collection within the Seattle portion of the study area. Waste Management provides services south of I-90 and Cleanscapes provides services north of I-90. Solid waste collected in Seattle is currently shipped to landfills outside of King County.
- Rabanco Eastside Disposal and Recycling provides residential and commercial collection within Mercer Island and Bellevue. Materials are taken to two transfer facilities located outside of the study area (Houghton Transfer Station in Kirkland and the Factoria Transfer Station in Bellevue). Solid waste collected at these facilities is compacted and taken to the Cedar Hills Regional Landfill in Maple Valley.
- Waste Management is contracted to provide solid waste collection and recycling from residential and commercial customers for the City of Redmond.

Collection vehicles travel throughout the roadways in the study area.

4.14.2.5 Other Public Services

There are several U.S. Postal Service facilities in the study area vicinity, as follows:

- Pioneer Square, 91 South Jackson Street, Seattle
- International, 414 6th Avenue South, Seattle
- Terminal Finance Station, 2420 4th Avenue South, Seattle
- Mercer Island, 3040 78th Avenue SE, Mercer Island
- Bellevue, 1171 Bellevue Way NE, Bellevue
- Midlakes, 11405 NE 2nd Place, Bellevue
- Crossroads, 15731 NE 8th Street, Bellevue
- Redmond, 16135 NE 85th Street, Redmond
- Redmond Carrier Annex, 7241 185th Avenue NE, Redmond

There is a U.S. Social Security Administration facility at 505 106th Avenue NE in Downtown Bellevue and at 675 South Lane Street in the International District in Seattle.

4.14.3 Environmental Impacts

Public services might be affected by project operation or by project construction. Sound Transit determined impacts by reviewing design drawings and documentation related to project construction to identify what could cause changes in the travel and response times for public service vehicles or impede access to public service facilities. Documents reviewed included those prepared for similar light rail projects: the Seattle Strategic Planning Office document *Staying on Track: Review of Public Safety and Security on Light Rail Systems* (City of Seattle, 1999) and *The Geography of Transit Crime: Documentation and Evaluation of Crime Incidence on and around the Green Line Stations in Los Angeles* (Loukaitou-Sideris et al., 2002). Sound Transit qualitatively compared the crime rates of the cities within the study area with the overall crime rate of King County and then performed literature reviews associated with crime and light rail systems to evaluate potential crime level increases from the project.

This section summarizes the impacts that could result from the East Link Project and the No Build Alternative. For the project, the discussion of impacts covers the general impacts that are common to all segments, and then the key impacts for each segment are discussed.

4.14.3.1 No Build Alternative

The No Build Alternative would have no impacts on public service in the study area.

4.14.3.2 Impacts during Operation

Impacts Common to All Alternatives

Safety is one of the Sound Transit design criteria used to avoid conflicts with vehicular, bicyclist, and pedestrian traffic. The East Link alternatives are located within exclusive or semiexclusive (for at-grade profiles) rights-of-way. Implementing the required SSMP would minimize impacts on fire and emergency medical services during project operation. The project would not lead to an unplanned or induced increase in population, so it would not require additional public services beyond those already planned.

Fire and Emergency Medical Services

The project would be predominantly in its own (exclusive) right-of-way and it would have minimal conflicts with vehicular traffic, bicycles, and pedestrians. In addition, emergency incidents on the project are expected to be minimal because the facilities would be made of nonflammable materials. The vehicles would be electrically powered and would not use combustible fuels.

Fire and emergency service vehicles would have to use different methods and, in some cases, different equipment, when responding to incidents associated with at-grade, elevated, and tunnel profiles. The following text provides information on the methods that would be used to respond to incidents associated with these different profiles.

The at-grade alternatives would not share the right-of-way travel lane with other vehicles because the at-grade right-of-way would be semiexclusive and curb separated from vehicles, except at intersections with cross traffic. Intersection crossings would be designed to provide light rail vehicles with priority signaling over automobile movements. In addition, it is expected that vehicle traffic would have separated left-hand turn lanes with their own signal time; however, emergency response vehicles would be allowed to make these turns at their discretion. To prevent conflicts at unsignalized at-grade crossings, there would be gates with bells to warn people. The vehicles would also have bells and horns. Bells, gates, and horns are activated according to safety guidelines.

Raised curbing is expected to minimize accidents between light rail vehicles and general traffic. However, in certain sections to be determined during final design, the raised curbing would be mountable, allowing emergency response vehicles to travel across the light rail tracks. In areas where there is no mountable curbing, emergency response vehicles would need to take longer routes by backtracking from the next signalized intersection or taking other routes through to the incident. In general, light rail vehicles that travel without gates have a lower signal priority than EMS and law enforcement vehicles in order to improve response times and increase safety of first responders. Light rail trains that cross streets/intersections with automatic gate crossings require emergency vehicles to yield for their movement. However, there are exceptions depending on the prevailing situation. As part of Sound Transit's work with local jurisdictions, further details associated with signal prioritization and protocols would be developed.

Fire department regulations and procedures prevent placing fire hoses over active railroad tracks, so light rail operations would need to temporarily shut down during emergencies. Design considerations could include placing additional fire hydrants on either side of at-grade tracks to avoid laying fire hoses over the tracks. In the event of an emergency incident, access for fire and emergency medical services to elevated and tunnel sections of the track and stations would be more difficult than on the at-grade sections. Access to trains on elevated and tunnel sections would likely be provided via trains on the adjacent guideway. Emergency service providers and Sound Transit personnel would be trained to respond to emergencies.

Access to tunnel sections would be maintained for prompt response times and for the safety of passengers and emergency service providers. To minimize impacts during operation, tunnels and elevated sections would be designed to provide emergency access and evacuation in conformance with state and local codes and with *NFPA 130: Standard for Fixed Guideway Transit Systems, 2010 Edition* (National Fire Protection Association [NFPA], 2010). Methods of access and evacuation that could be implemented during emergencies on the elevated and tunnel sections of rails and stations include using another train on the adjacent track, stairways (public and emergency), emergency walkways, escalators, and elevators as applicable and as long as it is safe to do so. Responders would use water standpipes or other fire fighting and emergency features incorporated in the light rail design. When a second train is not practical, Sound Transit would follow state and local fire codes and NFPA 130. All local fire departments in the study area have ladder trucks to properly respond to elevated incidents.

The tunnel stations would include a number of safety design features. Design features to address fire prevention, ventilation and fire protection, and evacuation could include the following:

- Tunnels and underground stations would be constructed of noncombustible materials.
- Automatic fire suppression equipment would protect electrical components.
- Systems of emergency ventilation shafts, fans, and dampers would direct fresh air into selected areas and remove smoke from areas during an emergency.
- Passengers would be evacuated by reversing trains out of the tunnel; transferring passengers to a rescue train; allowing passengers to exit the tunnel by using elevators or emergency stairways or by walking out of the tunnel; or by having passengers use a cross passage (a passage connecting the two tunnels) to access the other tunnel.
- Signs would be located in tunnels to identify the locations of passages and station and tunnel openings.
- Tunnels would include emergency lighting, telephone connections, and underground communications for safety officials.

A required component of the SSMP is the formation of the Fire/Life Safety Committee, which is reviewing safety requirements and obtaining concurrence from local authorities that have jurisdiction. The Fire/Life Safety Committee comprises representatives from local fire, police, and building code agencies and from Sound Transit. The Fire/Life Safety Committee would develop solutions regarding access to the light rail system, emergency routes, water and fire hydrant needs, training, costs, and other design features so that the light rail system would not compromise fire and life safety in the project vicinity. In addition, safety and security issues would be reviewed at community meetings to identify and address concerns and potential hazards and vulnerabilities.

In addition to the Fire/Life Safety Committee, Sound Transit would continue to consult local jurisdictions throughout design to minimize impacts from the project on response time and accidents requiring fire and emergency medical vehicles. In addition, precise emergency procedures and necessary equipment would be determined during final design. Sound Transit also has a Safety Outreach Program that reaches out to the community to encourage safe driving, bicycling, and walking behavior around the light rail alignment to prevent accidents.

Police

Police vehicles traveling along the light rail corridor should not experience increased response times in areas of exclusive right-of-way. In areas where there is semiexclusive right-of-way, police vehicles would have the same issues described above for fire and emergency medical services. In addition, similar to fire and emergency medical responders, police could experience difficulty in responding to calls at elevated or tunnel sections of track or stations. However, generally, trains would proceed to the nearest station for a response.

A literature review found that crime occurring at stations is directly related to crime levels in the surrounding area. The most common types of crimes relate to property crime and quality of life crimes (i.e., vandalism, public drunkenness, and littering), with violent crime comprising only a small percentage. If crimes were to occur along the project corridor, then it would likely occur at a station or a park-and-ride lot. However, increases in activity (i.e., number of people) and the introduction of security measures could act as a deterrent to crime.

Sound Transit contracts with the King County Sheriff's Office and works in partnership with local law enforcement to create a safe regional transit system. 2010 crime statistics show that the crime rate per number of riders at transit facilities and on light rail and commuter rail trains is substantially lower compared with overall per capita crime rates in Seattle, Tukwila, and SeaTac.

Sound Transit applies principles of Crime Prevention through Environmental Design (CPTED), uses specific hardware and equipment, and employs personnel at the stations as well as on the trains to reduce the potential for criminal activities. The stations would be designed using CPTED principles and include numerous features to address security issues. The design of the stations would be spacious, well lit, and uncluttered and would provide open access. Attention would be given to lines of sight and visibility, with corners, dark or hidden areas, and opaque shelter screens eliminated or minimized. Public waiting areas, including station platforms, would be easily visible to other patrons and to police and Sound Transit security personnel. CPTED design measures minimize impacts by controlling passenger movements with specified traffic flow patterns or a central platform; creating areas that can be easily viewed by closed-circuit television (CCTV) cameras or persons (including transparent exterior walls and good lighting); using vandalproof surfaces and lighting; and using easily maintained materials.

Other measures to minimize crime include using equipment (i.e., CCTV, sealed fareboxes on ticket vending machines, and automatically sealed exits), using anticrime programs (such as anti-graffiti programs), and having Sound Transit police, police from local jurisdictions, and Sound Transit security personnel patrol the stations and the trains. In areas where Sound Transit would provide public restrooms at terminus stations, the restrooms would be located in a safe and secure area of the facility; would provide CCTV security in entry areas and the restrooms; would use durable, easily cleanable, and vandal-resistant materials for construction, including lighting; and would locate the restrooms where they would not conflict with the facility operations or general traffic flow. Sound Transit would implement these measures as appropriate.

Uniformed police officers and Sound Transit security personnel would police the East Link Project during operation (i.e., 20 hours a day). Light rail train operators would be trained in how to respond in emergencies. There would be CCTV cameras feeding images to a 24-hour security office and a passenger emergency telephone at each station platform that connects patrons directly to the security office. Public address systems and variable message signs would be provided in stations throughout the system, as would public telephones at stations.

Sound Transit would build upon existing plans (i.e., *University Link Safety and Security Management Plan, SSMP 2010* [Sound Transit, 2010]) and use its existing design criteria (i.e., design requirements for lighting, unobstructed views, vandalism, alarms, and other measures) to meet the latest FTA guidelines on safety and security. In addition, as part of the SSMP, Sound Transit would address how the project would meet U.S. Department of Homeland Security requirements, including applicable security directives issued by the Transportation Security Administration, in order to address issues related to terrorist threats.

Consistent with literature findings that crime is reflective of the surrounding neighborhoods, no adverse impacts on police services are expected.

Schools

No project alternative would acquire any school property, nor would any alternative travel within established grade school-crossing zones. For the most part, East Link Project alternatives would not travel through residential neighborhoods where school buses travel to pick up elementary school children. The *Transit Service Integration Plan* (Sound Transit, 2007a), developed in cooperation with King County Metro, shows that Metro bus routes would either be modified or eliminated to complement the East Link Project; therefore, no adverse impacts related to school transportation are anticipated. Chapter 3, Transportation Environment and Consequences, explains that there would be overall improved transit travel times. Some school bus routes might need to be modified where left turns conflict with at-grade alternatives.

Postal Services

No adverse impacts on postal collection or delivery in the East Link study area would occur during light rail operation. No postal routes would be negatively affected or experience delay or altered services due to changes in existing roadways. Some collection routes might need to be rerouted where left turns conflict with at-grade alternatives.

Solid Waste and Recycling Collection

No adverse impacts on solid waste collection and disposal in the East Link study area would occur during light rail operation. No collection routes would be negatively affected or experience delay or altered services due to changes in existing roadways. Some collection routes might need to be rerouted where left turns conflict with at-grade alternatives.

Segment A

Fire and Emergency Medical Services

For *Preferred Interstate 90 Alternative (A1)*, Sound Transit has completed a *Mount Baker and First Hill Tunnel/Lids Draft Fire and Life Safety Report* (Sound Transit, 2007b), which identifies the existing conditions and applicable code requirements and recommends retrofitting the existing tunnels in order to provide a safe environment for Sound Transit passengers, employees, and emergency response providers. The report also recommends training for transit and emergency service providers at least twice each year during operation. There are two design options for the light rail tracks with *Preferred Alternative A1*: (1) direct fixation rails with the tracks located on top of the road surface, and (2) embedded rails where the tracks are embedded into the road surface. With direct rail fixation, standard light rail tunnel emergency response procedures would have to be implemented, including accessing emergencies with another light rail car or rail vehicle. With the embedded rails, fire and emergency medical vehicles would be able to drive their equipment into the light rail tunnel when responding to any calls within the tunnel(s) or adjacent tunnels.

Converting the I-90 center roadway for use by light rail vehicles for *Preferred Alternative A1* would prevent large emergency vehicles (i.e., fire trucks and ambulances) from using the center roadway.

Currently, emergency vehicles can use the center roadway when traffic in this HOV lane is going in the direction that they are traveling. Limited emergency access to the center roadway would still be available via the maintenance roadway, but in general, emergency response would be restricted to the outer roadways of I-90, most likely the HOV lanes. Without the unrestricted ability to use the center roadway, response times for emergency vehicles could increase depending on the congestion levels on I-90. However, as discussed in Chapter 3, Transportation Environment and Consequences, congestion periods would be fewer with the project than without.

The *Preferred Alternative A1* design option for joint use of the D2 Roadway (part of the I-90 center roadway) with buses might allow the Seattle Fire Department to continue to use the D2 Roadway (HOV lanes) when responding to calls. In addition, a safety and security plan for D2 Roadway joint operations would be developed and implemented before joint bus and rail use begins. If the D2 Roadway becomes rail only, then fire and emergency vehicles would need to use the other I-90 ramps and the local arterial street network to access incidents; as a result, response times might be impacted.

Police

The Rainier Station with *Preferred Alternative A1* is surrounded by a neighborhood with a crime rate that is the highest in the study area and higher than the county average. This station would be designed with camera surveillance, bright lighting, and other security measures. Sound Transit security personnel would monitor this station as necessary. Similar to fire and emergency vehicles, police vehicles would also lose access to the I-90 center roadway, which would result in impacts similar to those discussed under Segment A, Fire and Emergency Medical Services.

Segment B

Fire and Emergency Medical Services

For both *Preferred 112th SE Modified Alternative (B2M)* connecting to *Preferred Alternative C11A* or *C9T,* there would be minimal access issues for emergency service providers because the alternatives would be located east of Bellevue Way SE and 112th Avenue SE, and there are few access points. *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* includes a design option to close access into Bellefield Office Park at SE 15th Street; however, a crash gate would remain in order to maintain current emergency access service. *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* would cross over to the median of 112th Avenue SE and would require a gate for northbound traffic. Should a light rail train be crossing over the northbound lanes during a response to an emergency, there could be a slight increase in response time. Sound Transit would install EMS signal-priority devices to minimize this occurrence.

Of the other Segment B alternatives, only Alternative B1 might affect emergency service. Alternative B1 would travel directly in front of Bellevue Fire Department Station 1 but would not result in impacts on access and egress because there would be a signal with left-turn access allowed into and out of the fire station. Should a light rail train be passing in front of the station during a response to an emergency, there could be an increase in response time of a few seconds. Sound Transit would install EMS signal priority to minimize this occurrence. In addition, Alternative B1 north of the Bellevue Way SE and 112th Avenue SE intersection has more driveways to adjacent businesses and residences than the other at-grade Segment B alternatives, resulting in a greater access issue for emergency service vehicles.

Alternative B7 would result in the fewest access issues because most of the alternative is located within existing former BNSF Railway right-of-way. The 112th SE Elevated Alternative (B2E) would also result in minimal access issues because the alternative is elevated above the roadway and would not prevent access. The 112th SE At-Grade Alternative (B2A), 112th SE Bypass Alternative (B3), and the B3 - 114th Extension Design Option would have similar access issues along 112th Avenue SE, but there are not as many access points as there are along the Alternative B1 route, and therefore, there would be fewer and less severe impacts.

Police

Both *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* or *C9T* include a South Bellevue Station, which would have a structured park-and-ride facility. By implementing security measures at this structured park-and-ride facility (i.e., lighting and surveillance), the overall crime rate for the surrounding area is not expected to increase as a result of the presence of this facility. In addition, there is an existing park-and-ride lot (i.e., the Wilburton Park-and-Ride) located relatively close to the SE 8th Station, which is part of *Preferred Alternative B2M* connecting to *C9T*. Introducing light rail is unlikely to change the incidence of crime at the Wilburton Park-and-Ride. This station would not be built if the C9T - East Main Station Design Option was chosen. Police response times would have the same impacts as discussed in Fire and Emergency Medical Services in Segment B. Therefore, no impacts are anticipated on local police services.

Each of the other Segment B alternatives, except Alternative B7, would include a South Bellevue Station and an associated structured park-and-ride facility. Alternative B7 would include a station, the 118th Station, which would also have a structured park–and-ride facility. Similar to the structured park-and-ride facility at the South Bellevue Station under *Preferred Alternative B2M*, the 118th Station park-and-ride facility is not expected to increase crime in the surrounding area. Police response times would receive the same effects as discussed in Fire and Emergency Medical Services in Segment B. Therefore, no impacts are anticipated on local police services.

Segment C

Fire and Emergency Medical Services

Preferred Alternative C11A would remove access to 112th Avenue SE from SE 4th Street and also remove access to Main Street from 110th Avenue SE and 110th Place SE. Emergency vehicles would still be able to access homes in the Surrey Downs neighborhood from SE 1st Place, SE 2nd Street, and SE 11th Street. This change is expected to have a minor effect on emergency response times.

Preferred Alternative C11A would also result in a semiexclusive right-of-way in Segment C, which might affect emergency response on 108th Avenue NE. Vehicular traffic would be reduced to one lane in either direction on 108th Avenue NE, thereby reducing travel flow and slightly increasing response times for emergency vehicles using this road. *Preferred Alternative C11A* would also restrict left-hand turns at intersections and would cause minor increases in emergency response times. There would be no impacts on access to or from Overlake Hospital nor impacts to Group Health Medical Center from the I-405 crossing at NE 6th Street. Refer to Chapter 3, Transportation Environment and Consequences, for complete information on changes to intersection movements.

Preferred Alternative C9T would be predominantly grade-separated and is not expected to affect emergency response times due to the relatively minor changes it would make to the existing street network. This alternative is also not expected to affect access to or from Overlake Hospital Medical Center or Group Health Medical Center. This alternative would remove a portion of the King County District Court building; however, the County has plans to move this facility in the near future, and if that occurs, no operational impacts are anticipated.

Alternatives C4A and C9A would result in semiexclusive right-of-way in Segment C, which might affect emergency response on 108th and 110th Avenues NE. Traffic would be reduced in some sections of these roadways to one lane in either direction, thereby reducing travel flow and slightly increasing response times for emergency vehicles using these roadways. Both alternatives would also restrict left-hand turns at several intersections and would cause minor increases in emergency response times.

Alternatives C7E, C8E, and C14E would be predominately grade-separated (i.e., elevated) and are not expected to affect emergency response times in the area. Alternatives C1T and C2T would change NE 6th Street, east of the Bellevue Transit Center, from two lanes in each direction to one lane in each direction for one block in front of the Meydenbauer Center. Emergency response would not be affected by this change due to the relative short distance of roadway that would be affected. In addition, there would be no impacts on access to or from Overlake Hospital Medical Center for Segment C alternatives traveling on NE 12th Street, nor impacts to Group Health Medical Center from the I-405 crossing at NE 6th Street.

There would be no additional impacts or differences in impacts for the connectors from the Segment B and D alternatives associated with Segment C. The connectors from Segment B are either elevated or transition into a tunnel, and the connectors to Segment D are either within the former BNSF Railway right-of-way or elevated along NE 12th Street.

Police

Changes in police response times for *Preferred Alternative C11A* would be similar to those described under Fire and Emergency Medical Services for this alternative. *Preferred Alternative C9T* would include an underground station, the Bellevue Transit Center Station. Studies have shown that underground stations result in more crime than elevated or at-grade stations (Loukaitou-Sideris et al., 2002). However, because of Sound Transit design criteria for lighting, surveillance, and open corridors, and because of project-dedicated police monitoring, crime would be minimized. The impact on local police services as a result of this alternative is, therefore, expected to be minimal.

Other potential design features to address safety and security in tunnels could include the following:

- Spacious, well-lit, and uncluttered station areas with uniform lighting throughout
- Central control center with CCTV monitoring the station, elevators, and stairwells

- Sound Transit staff in a central control center able to operate elevators, fire doors, air vents, and electricity as well as monitor train operations
- Light rail train operators with the capability to provide additional watch in the tunnel and report any problems to the central control center
- Passenger assistance telephones to provide direct contact with security or emergency response personnel
- Roving security personnel

Under *Preferred Alternative C9T*, the north entrance to the Bellevue Transit Center Station would be located adjacent to Bellevue City Hall, which houses the Bellevue Police Department. This alternative would also remove parking at the Bellevue City Hall parking garage. This parking impact is not expected to have a negative effect on local police services. The potential at-grade C9T - East Main Station Design Option would be unlikely to change the incidence of crime along 112th Avenue SE. Because police response times would not be affected, no impacts are anticipated on local police services.

The underground stations associated with Alternatives C1T, C2T, and C3T would have minimal impacts on local police services for the same reasons as those described under Police for *Preferred Alternative C9T*. Alternative C9A would result in the loss of parking at Bellevue City Hall, but to a lesser degree than that described under *Preferred Alternative C9T*. The Bellevue Police Department is also housed at Bellevue City Hall, but this parking loss is not expected to result in a negative impact on local police services. In general, police response times would have the same effects as discussed under Fire and Emergency Medical Services in Segment C. In addition, Alternatives C2T and C3T connecting from Alternative B2A would relocate the King County District Court; however, the County has plans to move this facility in the near future, and if that occurs, then no operational impacts are anticipated.

Segment D

Fire and Emergency Medical Services

Preferred NE 16th At-Grade Alternative (D2A) would cross the intersection of NE 16th Street and 132nd Avenue NE at-grade just south of Bellevue Fire Department Station 6. Should a light rail train be in this intersection during a response to an emergency, there could be a slight increase of a few seconds in response time. Sound Transit would install EMS signal priority to minimize this effect.

Under the NE 20th Alternative (D3), the retained-cut sections along NE 20th Street and 152nd Avenue NE would restrict left-turning movements except at intersections, causing emergency service vehicles to backtrack for some incidents. This would not substantially affect response times, because major intersections would be preserved. Alternative D3 would also cross the intersection of NE 16th Street and 132nd Avenue NE at-grade just south of Bellevue Fire Department Station 6, similar to *Preferred Alternative D2A*. Alternative D3 would have a similar effect on response times from this station as *Preferred Alternative D2A*, and similarly, Sound Transit would install EMS signal priority to minimize this effect.

Police

Preferred Alternative D2A would include structured park-and-ride lots in Bellevue and Redmond (130th and Overlake Transit Center Stations, respectively). These facilities would include the same security design measures as listed for Segment B, resulting in no substantial impact on police services.

Police vehicles would be subject to the same access issues as those described in Fire and Emergency Medical Services for Alternative D3. Alternatives D2E, D3, and D5 would include structured park-and-ride lots in Bellevue and/or Redmond (130th and Overlake Transit Center Stations, respectively) depending on the alternative. These facilities would include the same security design measures as listed for Segment B, resulting in no substantial impact on police services.

Segment E

Fire and Emergency Medical Services

With *Preferred Marymoor Alternative (E2)*, no additional impacts on fire or medical response services are anticipated other than those discussed under Impacts Common to All Alternatives. No additional impacts on fire or medical response services are anticipated other than those discussed under Impacts Common to All Alternatives. The E2 - Redmond Transit Center Station Design Option would travel along 161st Avenue NE adjacent to Redmond Fire Department Station 11 but would not affect response times for emergency services because emergency vehicles exit the station onto NE 85th Street.

Police

No additional impacts on police response times with *Preferred Alternative E2* are anticipated other than those discussed under Impacts Common to All Alternatives. *Preferred Alternative E2* would include a structured park-and-ride lot at the SE Redmond Station that would include the same security design measures as listed for Segment B, resulting in no substantial impact on police services.

With the other Segment E alternatives, no additional impacts on police response times are anticipated other than those discussed under Impacts Common to All Alternatives. Alternatives E1 and E4 both would include a structured park-and-ride lot at the SE Redmond Station with the same security design measures as listed for Segment B, resulting in no substantial impact on police services.

4.14.3.3 Impacts during Construction

Impacts Common to All Alternatives

Construction of the project alternatives would result in increased congestion along adjacent roadways as a result of temporary lane and roadway closures, shifts in roadway alignments, detours necessary for construction, and construction activities associated with the project. This could affect access and response times for public service providers (i.e., fire and emergency medical, police, school buses including King County Metro buses, and solid waste and recycling vehicles). However, Sound Transit would make provisions to maintain the required access during established periods or keep one lane of traffic open (especially on main arterials) and, whenever possible, accommodate additional access during peak travel hours. Prior to construction, traffic control plans would be reviewed and approved by applicable agencies before implementation.

Prior to construction, Sound Transit would coordinate with public service providers on required detour routes and lane closures in order to minimize increases in travel and response times and to avoid interference with the collection of solid waste and recyclables or the transportation of students. As a result, public services would not be adversely affected during construction.

Fire and Emergency Medical

During construction, access and egress for fire and emergency medical vehicles would be maintained at all times, which would minimize impacts on response and travel times within all project segments. Emergency service providers might need to develop contingency plans in coordination with Sound Transit to reduce response and travel times. Coordination would need to occur with any fire departments where construction might affect access to hydrants or require water line relocations. In addition, during construction, the Fire/Life Safety Committee would address any safety issues that happen to arise and propose changes that could affect safety.

Police

In high-traffic and/or pedestrian locations, additional police might be required to direct tunnel traffic, especially in areas where trenching for tunnel, retained-cut, and elevated sections would occur, to minimize impacts on vehicles and pedestrians. Sound Transit would coordinate with the different jurisdictions and the Washington State Patrol to provide adequate police staffing. Police might need to respond to additional incidents associated with traffic congestion due to construction activities, especially along primary arterials. Construction might involve closing roadways for periods of time. Circulation changes would be coordinated with the local police and emergency service providers ahead of time.

Schools

There would be no construction close to schools; therefore, there would be no impacts associated with construction, such as noise and dust, on students or school employees. Construction could result in the temporary rerouting of school buses, along with King County Metro and Sound Transit buses, that might affect middle and high school students. In addition, construction could require temporarily relocating transit bus stops; however, this is not anticipated to affect middle and high school students because it is expected that bus stops would be relocated in the near vicinity.

Postal Services

Postal vehicles could experience delays; however, access and egress for postal vehicles would be maintained at all times to minimize impacts. If certain access points need to be closed, then alternative access points would be developed in coordination with the local post office.

Solid Waste and Recycling Collection

Collection vehicles could experience delays on collection routes; however, access and egress for solid waste and recycling collection vehicles would be maintained at all times to minimize impacts on collection. If certain access points are required to be closed, alternative access points, collection locations, or other measures would be developed in coordination with the solid waste and recycling companies. Construction activities would increase the amount of construction and demolition debris; however, there are a number of facilities in the Puget Sound region where the materials could be disposed or recycled, so no impacts are anticipated.

Segment A

On I-90, construction for *Preferred Alternative A1* would primarily occur within the existing center roadway, separate from westbound and eastbound traffic; therefore, impacts on public services would be minimized. The center roadway would not be available for access to incidents on the outer roadways. This could result in impacts on response times. The new I-90 two-way HOV lanes would be operating during construction of the East Link Project and would provide emergency vehicles with another travel lane to bypass general traffic. Emergency vehicles might need to respond to incidents within the I-90 center roadway during construction and might need to use the outer roadways to access such an incident.

Segment B

Preferred Alternative B2M connecting to *Preferred Alternative C11A* or *C9T* would not result in any additional construction-related impacts other than those described above under Impacts Common to All Alternatives. However, *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* would have a generally higher level of disruption and access issues because it would shift from the east side of 112th Avenue SE to the center of 112th Avenue SE and continues north in the center of this road until reaching Segment C, as opposed to remaining on the east side of 112th Avenue SE with *Preferred Alternative B2M* connecting to *Preferred Alternative C9T*.

There are no additional impacts other than those described above under Impacts Common to All Alternatives; however, there are differences between the alternatives in terms of disruption and access. Alternative B1 would cause more disruption to circulation and public service access because of the greater number of access points to businesses and residences compared with the other Segment B alternatives. In addition, Alternative B1 would require construction to occur directly in front of Bellevue Fire Department Station 1, which might require additional measures to make sure access and egress is maintained. Alternative B7 would have the least impact on circulation and public access because construction would occur within former BNSF Railway and Washington State Department of Transportation (WSDOT) rights-of-way where there are no access or egress points. Access to these rights-of-way would be provided to emergency service providers to respond to emergencies.

Segment C

Construction of *Preferred Alternative C11A* or *C9T* would not result in any additional construction-related impacts other than those described above under Impacts Common to All Alternatives. Construction of the cut-and-cover tunnel under *Preferred Alternative C9T* would likely result in a longer and more intense period of construction than *Preferred Alternative C11A* and would likely result in more general disruption and public service access issues along 110th Avenue NE, including temporary restrictions on ingress and egress from the parking area at Bellevue City Hall, which houses the Bellevue Police Department. In addition, under *Preferred Alternative C9T*, the Bellevue Fire and Police Departments would require special training for any incidents that could occur associated with tunnel construction. This training would be developed as part of the SSMP and in coordination with the Fire/Life Safety Committee.

Construction activity for Alternatives C4A or C9A would cause more disruption to circulation and public service access, including temporary restrictions on ingress and egress from the parking area at Bellevue City Hall, which houses the Bellevue Police Department, but the disruption would also likely have the shortest duration of the Segment C alternatives. Construction of Alternatives C8E, C7E, or C14E might cause longer delays in access but also result in fewer roadway closures than the at-grade Segment C alternatives would. The construction of cut-and-cover tunnel sections for Alternatives C1T or C2T would cause the longest period of construction, would be the most limiting for public service access, and would have similar general disruptive impacts as *Preferred Alternative C9T*. Alternative C3T would be almost entirely bored with limited cut-and-cover construction compared with *Preferred Alternative C9T* and Alternatives C1T and C2T, resulting in fewer impacts related to disruption of circulation and public service access. As with *Preferred Alternative C9T*, tunnel construction for Alternative C1T, C2T, or C3T would require the Bellevue Fire and Police Departments to receive special training for any incidents that could occur associated with tunnel construction. This training would be developed as part of the SSMP and in coordination with the Fire/Life Safety Committee.

Alternatives crossing I-405 at NE 12th Street (i.e., Alternatives C4A, C3T, C7E, and C8E) would result in construction impacts near Overlake Hospital Medical Center and Group Health Medical Center. Any required lane closures or detours would need to be coordinated with these hospitals to maintain access for emergency medical vehicles. Coordination would also need to occur to prevent interruptions in utility service (e.g., water, electrical) to these Medic One facilities. See Section 4.15, Utilities, for further information on utility relocations and disruptions.

There would be no additional impacts or differences related to construction impacts and the connectors from the Segment B and D alternatives associated with Segment C.

Segment D

Preferred Alternative D2A would not result in any additional construction-related impacts other than those described above under Impacts Common to All Alternatives.

There would be no additional impacts other than those described above under Impacts Common to All Alternatives with the other Segment D alternatives; however, there would be differences between the alternatives in terms of levels of disruption and access. Alternative D3 would cause the greatest amount of disruption to circulation and public service access of the Segment D alternatives, because of the construction activities associated with the retained cut along NE 20th Street and 152nd Avenue NE. Alternative D5 would result in the least disruption of the Segment D alternatives, because the alternative would be located on the south side of SR 520, primarily adjacent to WSDOT right-of-way. Alternative D2E would follow the same route as *Preferred Alternative D2A* and would result in similar impacts during construction.

Segment E

Preferred Alternative E2 would not result in any additional construction-related impacts other than those described above under Impacts Common to All Alternatives. The other Segment E alternatives would result in no additional impacts other than those described above under Impacts Common to All Alternatives. Alternative E1 would likely result in slightly more disruption and access issues than Alternative E4 due to its slightly greater length.

4.14.3.4 Maintenance Facilities

Impacts during Operation

No impacts on public services are anticipated from any of the maintenance facility alternatives during operation, because these facilities are closed to public access and do not obstruct access or create new solid waste removal requirements.

Impacts during Construction

Construction of the 116th Maintenance Facility (MF1) would relocate the Bellevue Public Safety Training Center at 1828 116th Avenue NE. This facility is used by the City of Bellevue as a training facility for police and fire department staff. Sound Transit would work with the City of Bellevue to minimize the disruptive effect of this relocation. Construction of the BNSF Maintenance Facility (MF2) or the SR 520 Maintenance Facility (MF3) would not result in negative impacts on public services. Construction of the SE Redmond Maintenance Facility (MF5) could create noise and dust impacts near the Lake Washington Technical College Redmond Corporate Campus.

4.14.4 Potential Mitigation Measures

The Fire/Life Safety Committee and other Sound Transit safety and security specialists would continue to address public service issues throughout design, construction, and operation.

4.14.4.1 Operation Mitigation Measures

Some minor delays in response time might result where alternatives consist of a semi-exclusive (at-grade) trackway. Emergency vehicles might be required to go around these facilities or use other adjacent roadways. Access to fire hydrants might either require temporarily stopping light rail service or, as deemed necessary during final design, installing fire hydrants on either side of at-grade trackway. These situations would not result in an adverse impact on public services, and no mitigation would be necessary during operation.

Although the overall crime rate typically does not increase due to light rail projects, research from other systems shows that some petty crimes might occur at stations and, more likely, at park-and-ride facilities. To minimize these occurrences, Sound Transit would create and implement an SSMP and employ CPTED design principles directed at reducing crime incidents at stations and park-and-ride lots. Other measures to minimize crime would include using equipment (i.e., CCTV cameras, sealed fareboxes on ticket vending machines, and automatically sealed exits), using anti-graffiti materials, and employing security personnel. In addition, Sound Transit contracts with the County Sheriff, a private security firm, and works with local law enforcement to provide police services along the light rail system. With these public safety programs in place, there would be no need for additional mitigation measures.

4.14.4.2 Construction Mitigation Measures

During construction, several roadways would be fully or partially closed, thus limiting access and requiring detours. This might cause minor delays on emergency response times and cause detours for other public services. Sound Transit would coordinate with public service providers before and during construction to maintain reliable emergency access and alternative plans or routes to minimize delays in response times. Sound Transit would also coordinate with solid waste and recycling companies and schools should any rerouting of collection or school bus routes need to occur. Postal collection and delivery and solid waste and recycling collection would be maintained at all addresses. No additional mitigation would be required.

4.15 Utilities

4.15.1 Introduction to Resources and Regulatory Requirements

This section analyzes the short-term construction and long-term operation impacts on utility providers and systems that would serve or could be affected by the light rail system and facilities. Utility providers throughout the study area include municipal agencies, public utility districts, and private companies. The study area is defined as the area within 100 feet of the alternative routes and stations and within the project limits for staging areas and maintenance facilities.

The relationship between transportation projects and utilities within the project corridor is regulated by local policies and procedures for Seattle, Mercer Island, Bellevue, and Redmond, as well as Washington Administrative Code (WAC) 468-34 and Washington State Department of Transportation (WSDOT) policies within their right-of-way.

4.15.2 Affected Environment

Sound Transit identified existing and planned utilities in the study area. Utilities considered in this analysis include water, sanitary sewer, storm sewer, electrical power, natural gas, telephone and communications infrastructure, and petroleum products pipelines. Information on existing utilities was obtained through a database research and by contacting local municipalities and utility companies.

Although the East Link corridor would cross a number of jurisdictions, including Seattle, Mercer Island, Bellevue, and Redmond, a number of utility providers are the same in them. Common utility providers in these jurisdictions include Puget Sound Energy for natural gas, Comcast for cable television, and Qwest Communications for telephone service. A number of other companies (e.g., AT&T, Verizon, Level 3 Communications) maintain fiberoptic cables throughout the area as well. Table 4.15-1 summarizes the utility providers in each jurisdiction.

4.15.2.1 Segment A

Electricity in Seattle is provided by Seattle City Light, and electricity on Mercer Island is provided by Puget Sound Energy; Puget Sound Energy provides natural gas in both locations. In Seattle, Seattle Public Utilities manages the water, sewer, and stormwater utilities. Seattle gets 70 percent of its water from the Cedar River watershed, with the remaining 30 percent coming from the South Fork Tolt River and from groundwater wells in the Highline Well Field. Therefore, Seattle Public Utilities owns water transmission lines that go through Mercer Island, Bellevue, and Redmond. In Mercer Island, the City of Mercer Island provides water and sewer services, with water service contracted to Seattle Public Utilities and sewer service contracted to King County Wastewater.

Qwest Communications provides telephone service throughout the entire project vicinity. Telephone lines in urban areas are typically located within street right-of-way, aboveground on utility poles, or underground in duct banks, often shared with other smaller fiberoptic utilities. Several private companies (Verizon, MFS Network Technologies, Level 3 Communications and others) maintain fiberoptic cables and/or provide long-distance telecommunications services in the project vicinity. In addition, local and state agencies have networks of fiberoptics within the roadway and right-of-way for emergency and traffic uses and for roadway lighting.

4.15.2.2 Segments B, C, D, and E and Maintenance Facilities

Puget Sound Energy is the natural gas and electricity provider in Bellevue and Redmond. Electrical substations are located on the south side of Bellevue Way at 112th Avenue NE, on NE 12th Street east of 116th Avenue NE, and on 152nd Avenue NE at NE 21st Street. Puget Sound Energy intends to expand the substation on NE 12th Street before project construction begins. Major transmission lines (115 kilovolt [kV] and 230 kV) are located along 136th Place NE, 140th Avenue NE, 114th Avenue SE, 116th Avenue NE, and NE 51st Street. Seattle City Light owns major transmission lines located along 124th Avenue NE.

The Cities of Bellevue and Redmond provide water, sewer, and stormwater service within their City limits. Both cities are members of the Cascade Water Alliance, which is an association of water and sewer districts that coordinate management of the water supply for the communities of Bellevue, Kirkland, Redmond, Issaquah, Sammamish, Tukwila, Covington, and Skyway. Seattle Public Utilities also maintains water transmission lines within these segments and supplies water to these areas for the Cascade Water Alliance. Olympic Pipe Line maintains two petroleum pipelines, a 16-inch and a 20-inch, that run north-south through east Bellevue, roughly parallel to 136th Place NE.

Major utility upgrades or expansions identified in the study area include the following:

- Puget Sound Energy plans to expand the substation on NE 12th Street east of 116th Avenue NE and gas lines within the study area.
- City of Bellevue is replacing and upsizing several sewer facilities within the study area.

TABLE 4.15-1
Utility Providers in Study Area

Jurisdiction	Utility	Provider
Seattle	Gas	Puget Sound Energy
	Electricity	Seattle City Light
	Water[a] and sewer (wastewater)	Seattle Public Utilities, King County Wastewater
	Stormwater	Seattle Public Utilities
	Cable	Comcast, Broadstripe
	Communications	Qwest Communications, Verizon, others
Mercer Island	Gas	Puget Sound Energy
	Electricity	Puget Sound Energy
	Water and sewer (wastewater)	City of Mercer Island (from Seattle Public Utilities and King County Wastewater)
	Stormwater	City of Mercer Island
	Cable	Comcast
	Communications	Qwest Communications, Verizon, others
Bellevue	Gas	Puget Sound Energy
	Electricity	Puget Sound Energy
	Water and sewer (wastewater)	City of Bellevue, King County Wastewater
	Stormwater	City of Bellevue
	Cable	Comcast, Broadstripe
	Communications	Qwest Communications, Verizon, others
Redmond	Gas	Puget Sound Energy
	Electricity	Puget Sound Energy
	Water and sewer (wastewater)	City of Redmond, King County Wastewater
	Stormwater	City of Redmond
	Cable	Comcast
	Communications	Qwest Communications, Verizon, others

[a] Seattle Public Utilities owns water transmission lines east of Lake Washington in the cities of Mercer Island, Bellevue, and Redmond.

- City of Redmond plans to construct a new stormwater trunk line within the former BNSF railway right-of-way in Downtown Redmond starting in summer 2011.

These projects would require continued coordination with utility agencies.

4.15.3 Environmental Impacts

4.15.3.1 No Build Alternative

Under the No Build Alternative, no light rail improvements would be constructed in the study area. Changes in land use in the project vicinity would determine the demand for utilities with or without light rail. Typically, automobile-oriented land uses are more spread out and less dense than transit-oriented development patterns. This could lead to development of more land area, creating demand for increased utility infrastructure to cover a greater area.

4.15.3.2 Impacts during Operation

Sound Transit conducted an inventory of impacts on utilities for the East Link Project. These utilities were divided into major utilities and minor utilities, with major utilities defined as follows:

- Water mains of 16-inch diameter or greater
- Sanitary sewer force mains and gravity sewers of 16-inch diameter or greater
- Storm drains of 36-inch diameter or greater
- 115-kV and greater electrical transmission lines
- High-pressure and intermediate-pressure gas lines with a 6-inch diameter or greater
- Telephone and fiberoptic duct banks with three or more conduits
- Petroleum product pipelines

Minor utilities were not inventoried; however, information obtained on the major utilities adequately depicts the degree to which alternatives could impact various utilities and could present potential construction and/or operation impacts. According to this inventory, major utilities affected by all alternatives include storm and sanitary sewers, aboveground electric lines, underground water and natural gas mains, and underground telephone and fiberoptic lines.

As stated in the Utilities Element of the City of Bellevue's Planning and Community Development Policies, existing overhead utilities (power and communications) that require relocation as part of any project are to be relocated underground, which would apply to the utility relocations that are part of the East Link Project. The City of Redmond has a similar ordinance. For power lines, this would not apply to 115-kV and 230-kV transmission lines.

Electricity for the light rail project would be provided by Seattle City Light for the City of Seattle in Segment A and Puget Sound Energy for Mercer Island and in Segments B, C, D, and E. Puget Sound Energy also provides electric services to portions of the I-90 bridge. As discussed in Section 4.10, Energy Impacts, operating the light rail system would increase electricity demand in the study area but would reduce overall transportation energy consumption through reduced automobile use. The energy needed to power the East Link light rail vehicles would not require Seattle City Light or Puget Sound Energy to seek additional energy resources. Availability of power supply to each of the project's traction power substations might, in some cases, require that additional distribution lines to the substation be constructed. The specific needs will not be known until further coordination with Seattle City Light and Puget Sound Energy occurs during final design.

Under Sound Transit's Sustainability Initiative, adopted in 2007, Sound Transit would integrate efficient operating practices at existing and new facilities and use equipment to reduce energy and water demand and recycle water. Implementing these and other sustainability initiatives would reduce consumption and demand on utilities. The Sustainability Initiative is further discussed in Section 4.10, Energy.

The proposed light rail line would use up to four-car electric trains operating on direct-current (DC) power taken from the 26-kV electric distribution facilities. Lighting installed at stations and safety lighting along the routes, the maintenance facilities, parking areas, and other light rail facilities would increase electrical demand. The maximum peak demand for all alternatives would be similar, at approximately 245 million British thermal units (Btu) per day. This represents less than 0.1 percent of the total 2006 generation for Seattle City Light and Puget Sound Energy combined.

To distribute power along the corridor, traction power substations (TPSS) would be located approximately every 2 miles that would provide power to the overhead contact system that powers the light rail vehicles. These stations would be powered by 26-kV electric lines connecting to the nearest power pole. In Segment C, alternatives that require tunnels would have greater electricity requirements, and for all segments, longer alternatives would require more electricity than shorter ones. For further information on energy demands of the project and any additional infrastructure required, see Section 4.10, Energy Impacts. Stray electrical current from the light rail's traction power electrical system can cause damage to nearby utilities if not properly controlled. Section 4.13, Electromagnetic Fields, addresses indirect effects of stray currents from light rail vehicles.

No substantial differences among alternatives are expected in long-term utility service within any of the segments. Major service disruptions to utility customers during light rail repair and maintenance operations are unlikely. The light rail route would be located so that access to utilities for maintenance and repair could be maintained. In some cases, sewer holes, pipes, vaults, and other access points might have to be relocated. During design, Sound Transit would work closely with utility providers to provide required access to these utilities and any relocated sewer holes and vaults, utility mains, fire hydrants, and other features.

Maintenance Facilities

There are no impacts on major utilities from maintenance facilities during operation. At all potential sites, the proposed maintenance facilities would require new water supply connections for vehicle washing and other uses. Approximately 95 percent of maintenance base water demand is for vehicle washing. Vehicle washwater would be recycled. The additional demand would not greatly affect the water providers' existing and projected water supplies. Similarly, water demand would not likely compromise flow for fire protection, but demand should be coordinated with fire departments and water suppliers in order to avoid impacts.

The maintenance facilities drainage system would be designed to filter and recycle a high percentage of the wash and rinse water. Solids, oils, soaps, and other contaminants would be filtered, settled to a sludge tank, and periodically hauled for disposal in accordance with applicable regulations. Some disposal to the local sanitary sewer system would be expected from the recycled, filtered washwater. The water discharged to the sanitary sewer system would be disposed of according to local and state regulations. For the potential sites, existing sewer lines on adjacent streets are available for sewer connections. Any needed stormwater detention facilities and infrastructure to collect storm- and wastewater would connect to both the existing sewer system and stormwater conveyances. Impacts on stormwater are discussed in Section 4.9, Water Resources.

4.15.3.3 Impacts during Construction

Impacts Common to All Build Alternatives

Sound Transit identified utility conflicts for each alternative either where underground utilities would be within the project limits or where the project route and existing utilities would intersect. The goals of identifying these conflicts are to plan for relocating the utilities during construction and, thus, remove conflicts with project construction; to prevent disturbing the route during future maintenance of underground utilities; to keep the profile—whether underground, surface, or elevated—clear of the minimum required distance from overhead utilities; and to account for the relocation costs.

Potential impacts during construction include relocating utility poles supporting overhead lines; constructing new distribution lines to provide power to substations; relocating underground utilities from under the alternatives, station areas, and maintenance facility sites (particularly at-grade segments constructed in road right-of-way); and inspecting, repairing, and encasing underground utilities at track crossings. In some cases, aboveground utilities located on poles could be relocated to taller poles or a different type of pole. Access to underground utilities, such as sewer holes or vaults, for maintenance activities could be affected depending on the location of light rail facilities. In some cases, these access points might need to be relocated. Relocating water mains could also affect access to and use of fire hydrants. In some cases, establishing a parallel water main to avoid utility lines crossing under the trackway might be considered. Some of these impacts might be substantial to some utility service providers in terms of relocation costs incurred, staff time and resources, and temporary loss of existing access to utilities. Relocation approaches and associated costs would be evaluated by Sound Transit on a case-by-case basis. Generally, the terms of a private utility's franchise agreement would be applied to determine the rights of the private utility in the public right-of-way and the responsibility for relocation costs. For public utilities, Sound Transit would seek to establish formal agreements with the public utility, and the relocation costs would be allocated pursuant to local ordinances or codes.

Typically, water lines and high-pressure gas mains are located about 3 to 6 feet underground and sewer pipes located 6 or more feet below the surface. Smaller pipes, fiberoptic cables, telephone lines, and other utilities are often buried less than 3 feet deep. Water, sewer, and storm drain pipelines typically run parallel beneath streets, placed in various locations ranging from the center to the roadway periphery, while fiberoptic cables, telephone lines, underground electrical conduits, and smaller pipes are often located beneath sidewalks. These utilities might or might not be affected during construction, depending on their depth, material composition, the excavation limits, exact location of the proposed route, and other factors. However, most underground utilities crossed by the proposed route are located within approximately 6 feet of the surface and within 35 feet of segment columns. Underground utilities would be relocated or otherwise protected to allow for excavation and to minimize potential load impacts on existing utilities from the weight of the light rail vehicles.

Generally, cut-and-cover construction, followed by at-grade construction, would have the greatest impacts on utility infrastructure, because these segments would relocate more underground pipes and aboveground utility poles for trackways, stations, and right-of-way curb and sidewalk acquisition. At-grade routes and cut-and-cover stations could require relocating longer sections of underground pipes and cables in street rights-of-way.

In most cases where an at-grade profile crosses an underground utility, a split casing could be installed, which is a steel pipe that serves as casing around the utility line or pipe, allowing the utility company to remove or install utilities at that location in the future without disturbing the ground above. Underground utilities, located within public road rights-of-way, parallel to and near or under the alternative would be moved to a different location within the right-of-way. As much as possible, piers for elevated guideways would be located to avoid conflicting with underground utilities. Retained-cut profiles could accommodate underground utilities that are under cross streets, but utilities outside of cross streets may present design problems. Bored tunnel profiles generally avoid utility conflicts except at stations, where temporary conflicts with underground utilities would occur during cut-and-cover construction of the station. For overhead electric lines, conflicts could occur where elevated guideways either run directly underneath the lines or where they cross the lines, which would require raising the lines to go over the overhead catenary system at the required minimum distance of 35 feet from the top of rail for 115-kV lines and 37 feet for 230-kV lines.

Disruptions to utility service during utility relocations would likely be minimal because temporary connections to customers would typically be established before relocating utility conveyances. However, inadvertent damage to underground utilities could occur during construction if utility locations are uncertain or misidentified. Although such incidents do not occur frequently, the numerous relocations required during project construction under any alternative make accidents more likely. Such accidents could temporarily affect service to customers served by the affected utility. Efforts to minimize impacts would include potholing and preconstruction surveys to identify utility locations and outreach to customers to inform them regarding potential service disruptions. Sound Transit would also coordinate with utility providers to establish replacement procedures and standards of facilities as applicable.

Exhibits 4.15-1 through 4.15-4 show areas of major utility conflicts for Segments B, C, D, and E. Table 4.15-2 summarizes the conflicts for each alternative. Where utilities would be directly under or above the project limits, the length of the relocation is provided. Ranges are provided in Segments C and D where different design options would result in varying impacts for the same utilities. Where utilities would intersect with an alternative, the number of crossings is identified because the length of the relocation has not yet been determined, but it would be determined during final design. For many underground intersecting utilities, only a split casing would need to be installed.

Segment A

No utility conflicts are anticipated with *Preferred Interstate 90 Alternative (A1)*, and no utilities would need to be relocated. Utilities presently run underneath or along the side of the I-90 bridge decks and are accessed by the utility companies from underneath. East Link Project construction would not relocate any of these utilities, and future maintenance of these utilities would not disturb light rail operation.

Segment B

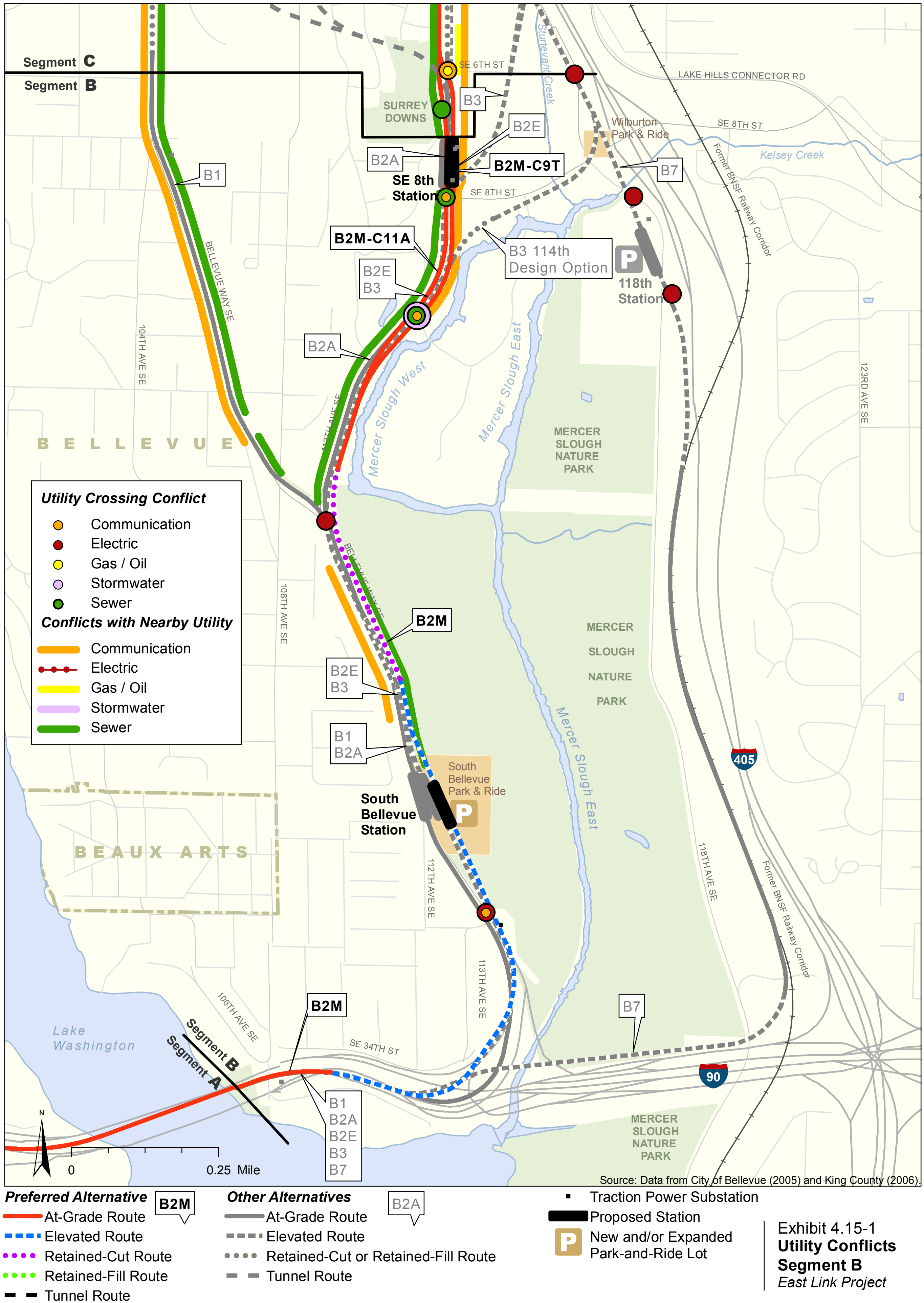
Within Segment B, the Bellevue Way Alternative (B1) would require the most utility relocations, and the BNSF Alternative (B7) would require the fewest. *Preferred 112th SE Modified Alternative (B2M)* and 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) Alternatives would require similar utility relocations.

For *Preferred Alternative B2M*, approximately 500 feet of sanitary sewer line owned by King County would be impacted by the roadway work along Bellevue Way; 300 feet of this line is located in the South Bellevue Park-and-Ride. Puget Sound Energy power transmission lines would conflict with the elevated track where they cross Bellevue Way near SE 30th Street and 112th Avenue SE.

With connections to *Preferred Alternative C11A*, 900 feet of a Qwest Communications conduit located along 112th Avenue SE between SE 15th and SE 8th Streets would be relocated; most of this relocation would result from the construction associated with widening 112th Avenue SE. With the connection to *Preferred Alternative C9T*, 200 feet of a Qwest communications conduit, and associated cabinets would be relocated at the intersection of 112th Avenue SE and SE 15th Street. With a connection to *Preferred Alternative C11A*, 800 feet of a PSE gas line located on the east side of 112th Avenue SE between SE 8th and SE 6th Streets would be relocated; most of this relocation would result from the construction associated with widening 112th Avenue SE. With the connection to *Preferred Alternative C9T*, 500 feet of a PSE gas line located on the east side of 112th Avenue SE between SE 8th and the Segment C boundary would be relocated.

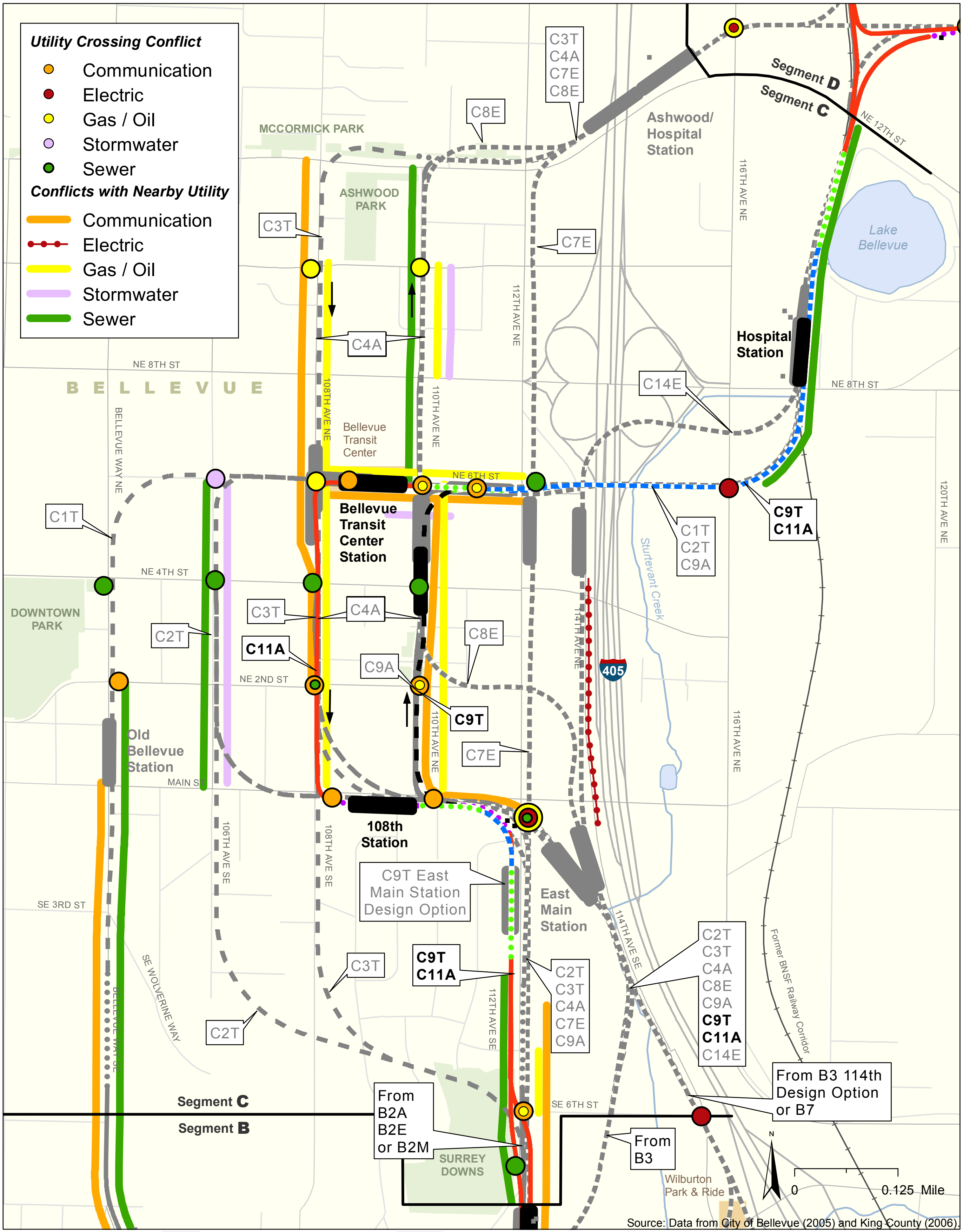
For *Preferred Alternative B2M* to *Preferred Alternative C11A*, a storm drain on 112th Avenue SE, south of SE 15th Street, owned by the City of Bellevue, would be relocated due to track excavation. When connecting to *Preferred Alternative C9T*, this same storm drain would be relocated as well as the east outlet of the storm drain. When connecting to *Preferred Alternative C11A*, along 112th Avenue SE between SE 15th and SE 8th Streets, more than 1,100 feet of sanitary sewer owned by the City of Bellevue would be relocated. When connecting to *Preferred Alternative C9T*, 600 feet of this same sanitary sewer line would be relocated.

At the intersection of SE 8th Street and 112th Avenue SE, with either connection to *Preferred Alternative C11A* or *C9T*, a fiberoptic vault, conduit, and cable owned by multiple agencies would be relocated. Also at this intersection, with either connection to Segment C, segments of Comcast cable would be relocated due to potential track excavation impacts to the duct banks. A City of Bellevue sewer pump station is currently located in the 1300 block of 112th Avenue SE, although the City plans to relocate and expand this facility as part of their Capital Investment Program (CIP).


Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
Sturtevant Creek
B3
SURREY DOWNS
B2E
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
B2A
B2M-C9T
B7
Former BNSF Railway Corridor
B1
SE 8th Station
SE 8TH ST
B2M-C11A
B3 114th Design Option
P
118th Station
B2E
B3
BELLEVUE WAY SE
104TH AVE SE
B2A
Mercer Slough West
Mercer Slough East
112TH AVE SE
MERCER SLOUGH NATURE PARK
123RD AVE SE
BELLEVUE
Utility Crossing Conflict
Communication
Electric
Gas / Oil
Stormwater
Sewer
Conflicts with Nearby Utility
Communication
Electric
Gas / Oil
Stormwater
Sewer
108TH AVE SE
BELLEVUE WAY SE
B2M
MERCER SLOUGH NATURE PARK
B2E
B3
Mercer Slough East
B1
B2A
405
South Bellevue Park & Ride
P
South Bellevue Station
BEAUX ARTS
112TH AVE SE
118TH AVE SE
Former BNSF Railway Corridor
113TH AVE SE
106TH AVE SE
B7
B2M
Lake Washington
Segment B
Segment A
SE 34TH ST
90
B1
B2A
B2E
B3
B7
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit 4.15-1
Utility Conflicts
Segment B
East Link Project


Utility Crossing Conflict
Communication
Electric
Gas / Oil
Stormwater
Sewer
Conflicts with Nearby Utility
Communication
Electric
Gas / Oil
Stormwater
Sewer
C3T
C4A
C7E
C8E
C8E
MCCORMICK PARK
ASHWOOD PARK
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
C3T
C7E
C4A
112TH AVE NE
Hospital Station
NE 8TH ST
BELLEVUE
C14E
NE 8TH ST
BELLEVUE WAY NE
108TH AVE NE
110TH AVE NE
Bellevue Transit Center
NE 6TH ST
C1T
Bellevue Transit Center Station
C1T
C2T
C9A
C9T
C11A
120TH AVE NE
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
C3T
C4A
C8E
C2T
C11A
114TH AVE NE
405
NE 2ND ST
C9A
C9T
Old Bellevue Station
MAIN ST
110TH AVE NE
C7E
116TH AVE NE
108th Station
106TH AVE SE
108TH AVE SE
C9T East Main Station Design Option
East Main Station
114TH AVE SE
SE 3RD ST
Former BNSF Railway Corridor
C3T
C9T
C11A
C2T
C3T
C4A
C7E
C9A
C2T
C3T
C4A
C8E
C9A
C9T
C11A
C14E
SE WOLVERINE WAY
BELLEVUE WAY SE
112TH AVE SE
C2T
SE 6TH ST
From B3 114th Design Option or B7
Segment C
Segment B
From B2A B2E or B2M
From B3
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile

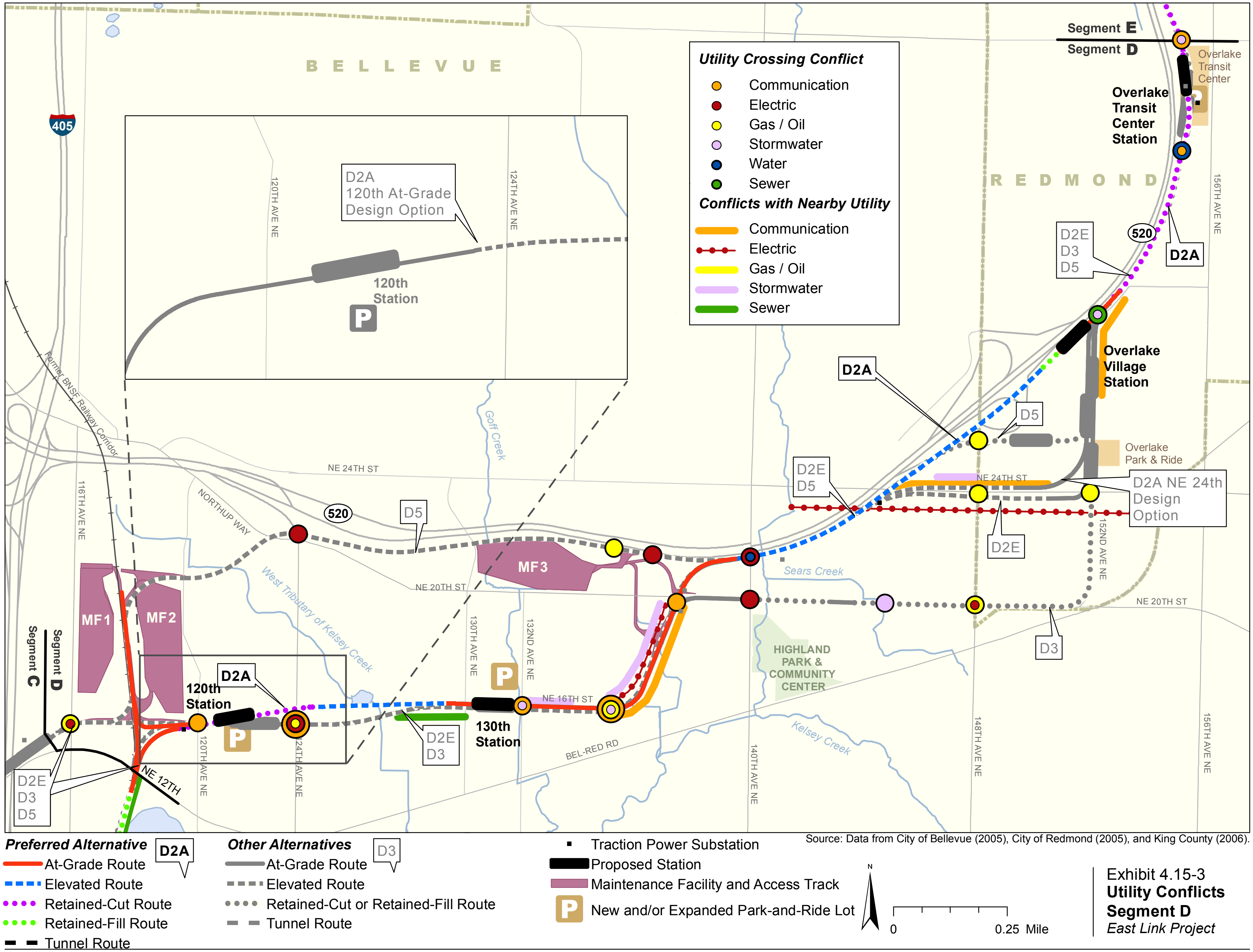
Source: Data from City of Bellevue (2005) and King County (2006).

Preferred Alternative **C9T**
- 🟥 At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives C14E
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

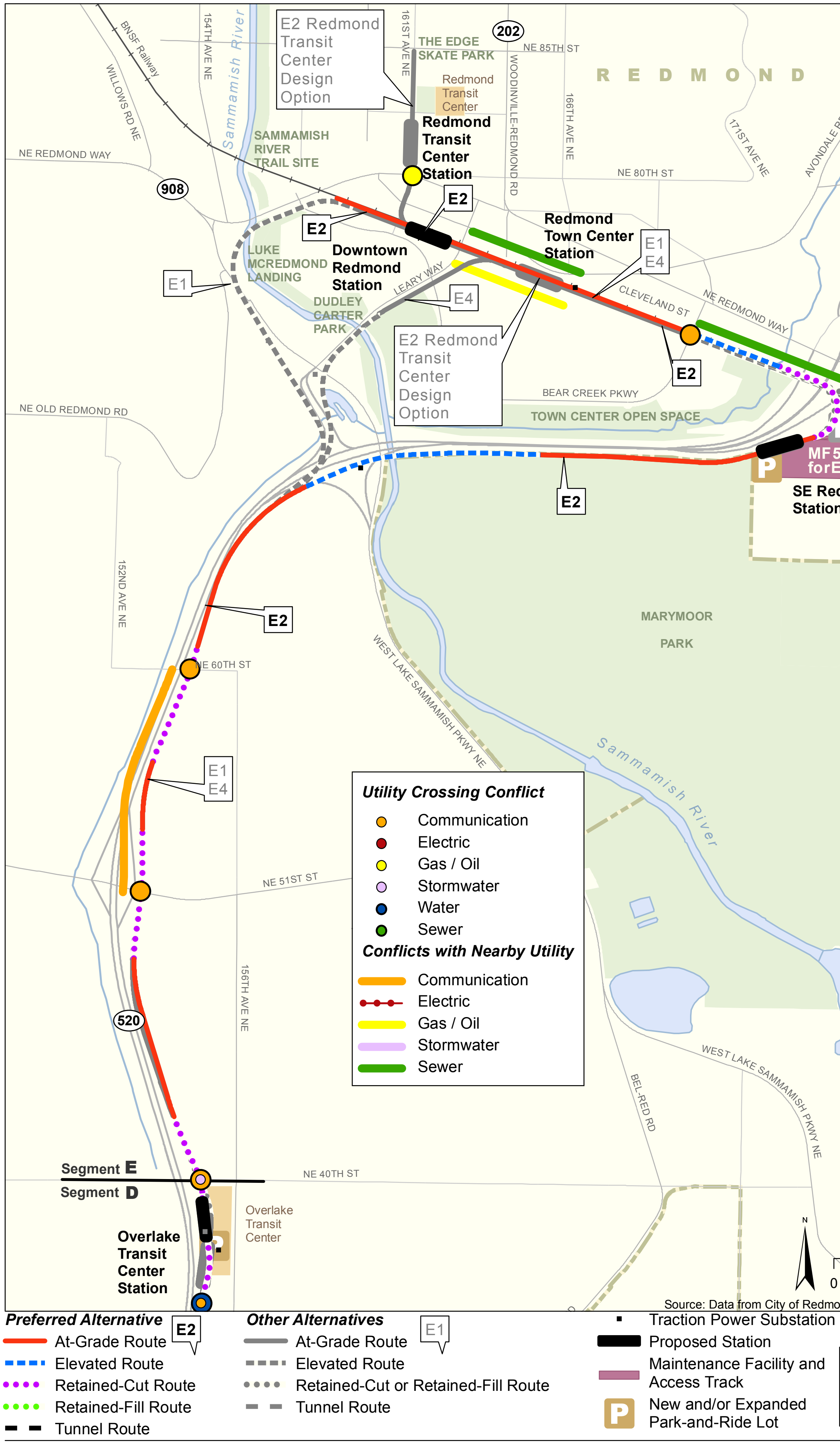
- ▪ Traction Power Substation
- ■ Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 4.15-2
Utility Conflicts
Segment C
East Link Project


Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
BELLEVUE
REDMOND
405
520
Utility Crossing Conflict
Communication
Electric
Gas / Oil
Stormwater
Water
Sewer
Conflicts with Nearby Utility
Communication
Electric
Gas / Oil
Stormwater
Sewer
D2A
120th At-Grade
Design Option
120TH AVE NE
124TH AVE NE
120th Station
P
D2E
D3
D5
D2A
Overlake Village Station
D5
Overlake Park & Ride
D2E
D5
NE 24TH ST
D2A NE 24th Design Option
D2E
152ND AVE NE
156TH AVE NE
Former BNSF Railway Corridor
Goff Creek
NE 24TH ST
NORTHUP WAY
520
D5
MF3
Sears Creek
NE 20TH ST
West Tributary of Kelsey Creek
NE 20TH ST
D3
HIGHLAND PARK & COMMUNITY CENTER
116TH AVE NE
MF1
MF2
Segment C
Segment D
D2A
120th Station
130TH AVE NE
132ND AVE NE
NE 16TH ST
130th Station
D2E
D3
BEL-RED RD
Kelsey Creek
140TH AVE NE
148TH AVE NE
156TH AVE NE
NE 12TH
D2E
D3
D5
Preferred Alternative
D2A
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
D3
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P
New and/or Expanded Park-and-Ride Lot
N
0
0.25 Mile

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Exhibit 4.15-3
Utility Conflicts
Segment D
East Link Project


E2 Redmond Transit Center Design Option
161ST AVE NE
THE EDGE SKATE PARK
202
NE 85TH ST
R E D M O N D
Redmond Transit Center
Redmond Transit Center Station
BNSF Railway
154TH AVE NE
Sammamish River
WILLOWS RD NE
SAMMAMISH RIVER TRAIL SITE
NE REDMOND WAY
908
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
NE 80TH ST
Bear Creek Park & Ride
E2
E2
Redmond Town Center Station
E1
E4
E1
LUKE MCREDMOND LANDING
Downtown Redmond Station
LEARY WAY
E4
DUDLEY CARTER PARK
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
E2 Redmond Transit Center Design Option
E2
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
180TH AVE NE
NE OLD REDMOND RD
E1
MF5 for E1
E4
202
SE Redmond Station
MF5 for E2, E4
E2
MARYMOOR PARK
E2
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
E1
E4
Sammamish River
NE 51ST ST
156TH AVE NE
520
WEST LAKE SAMMAMISH PKWY NE
BEL-RED RD
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
Overlake Transit Center Station
N
0
0.25 Mile
Utility Crossing Conflict
Communication
Electric
Gas / Oil
Stormwater
Water
Sewer
Conflicts with Nearby Utility
Communication
Electric
Gas / Oil
Stormwater
Sewer
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P
New and/or Expanded Park-and-Ride Lot

Source: Data from City of Redmond (2005) and King County (2006).

Exhibit 4.15-4
Utility Conflicts
Segment E
East Link Project

TABLE 4.15-2
Utility Conflict Summary Approximate Length of Relocations and Number of Crossings

Alternative		Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications[a]	Storm Drain
Segment A, Interstate 90							
Preferred Interstate 90 Alternative (A1)		None	None	None	None	None	None
Segment B, South Bellevue							
Preferred 112th SE Modified Alternative (B2M)	To *Preferred Alternative C11A*	2 crossings	None	1,200 feet, 2 crossings	800 feet	1,300 feet, 2 crossings	1 crossing
	To *Preferred Alternative C9T*	2 crossings	None	500 feet, 2 crossings	500 feet	7000 feet, 2 crossings	100 feet
Bellevue Way Alternative (B1)		100 feet, 3 crossings	None	5,200 feet	None	4,200 feet, 1 crossing	None
112th SE At-Grade Alternative (B2A)		100 feet, 2 crossings	None	7,300 feet	None	600 feet	None
112th SE Elevated Alternative (B2E)		100 feet, 1 crossing	None	3,400 feet	None	600 feet	None
112th SE Bypass Alternative (B3)		100 feet, 1 crossing	None	3,400 feet	None	600 feet	None
B3 - 114th Extension Design Option		300 feet, 1 crossing	None	3,500 feet, 1 crossing	None	700 feet, 1 crossing	100 feet
BNSF Alternative (B7)		3 crossings	None	1 crossing	None	None	None
Segment C, Downtown Bellevue							
Preferred 108th NE At-Grade Alternative (C11A)		300 to 600 feet	None	2,400 to 2,500 feet, 2 crossings	1,100 to 1,600 feet, 2 crossings	6,200 to 8,000 feet	100 feet
Preferred 110th NE Tunnel Alternative (C9T)[b]		1 crossing (from Alternative B7 only)	None	2,100 feet, 1 crossing (from Alternatives B3 and B7 only)	2,500 to 3.400 feet	10,400 to 12,300 feet	100 feet
Bellevue Way Tunnel Alternative (C1T)		1 crossing	None	2,700 feet, 3 crossings	2 crossings	2,100 feet, 2 crossings	300 feet, 2 crossings
106th NE Tunnel Alternative (C2T)		200 feet (from Alternative B7 only), 1 crossing	None	2,100 to 2,600, 1 or 2 crossings	1 or 2 crossings	1 crossing	1,500 to 1,600 feet
108th NE Tunnel Alternative (C3T)		4,100 feet (from Alternative B7 only)	None	0 to 500 feet, 1 or 2 crossings	500 feet, 0 or 1 crossing	300 feet, 1 crossing	None
Couplet Alternative (C4A)		300 feet (from Alternative B7 only)	None	0 to 1,100 feet, 1 or 2 crossings	4,600 to 5,000 feet, 3 or 4 crossings	4,800 feet, 1 crossing	700 feet, 1 crossing
112th NE Elevated Alternative (C7E)		300 feet (from Alternative B7 only)	None	1,000 feet (from Alternative B2A only)	0 to 400 feet	None	None

TABLE 4.15-2 CONTINUED
Utility Conflict Summary Approximate Length of Relocations and Number of Crossings

Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications[a]	Storm Drain
110th NE Elevated Alternative (C8E)	1,700 feet (from Alternative B7 only)	None	None	700 feet	None	690 feet
110th NE At-Grade Alternative (C9A)	300 feet 200 feet, 1 crossing (from Alternative B7 only)	None	2,200 feet	1,200 feet	7,700 feet	100 feet
114th NE Elevated Alternative (C14E)	1,500 feet	None	None	None	None	None
Segment D, Bel-Red/Overlake						
Preferred NE 16th At-Grade Alternative (D2A)[c]	2,900 feet	100 feet	900 feet	900 feet	4,600 feet	1,000 feet
D2A - NE 24th Design Option	3,300 feet	100 feet	1,000 feet, 1 crossing	800 feet, 3 crossings	8,200 feet	1,500 feet
NE 16th Elevated Alternative (D2E)	2,100 feet, 4 crossings	1 crossing	Up to 1 crossing	None	1 crossing	1 crossing
NE 20th Alternative (D3)	1 crossing	2 crossings	None	4 crossings	1 crossing	100 feet, 3 crossings
SR 520 Alternative (D5)	3 crossings	2 crossings	None	1 crossing	1 crossing	1 crossing
Segment E, Downtown Redmond						
Preferred Marymoor Alternative (E2)	None	None	1,100 feet, 1 crossing	1,100 feet, 2 crossings	6 crossings	None
E2 - Redmond Transit Center Design Option	None	None	1,100 feet, 1 crossing	1,100 feet, 3 crossings	6 crossings	None
Redmond Way Alternative (E1)	None	None	1,000 feet	1,100 feet, 1 crossing	6 crossings	None
Leary Way Alternative (E4)	None	None	1,000 feet	800 feet	6 crossings	None

[a] Communication utilities include fiberoptic, telephone, and cable.

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts on either *Preferred Alternative C9T* or *B2M*.

[c] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

Note: As-built utility data were used to determine impacts of major utilities; some segments in as-built data might not represent full segment and will be finalized with field check. Length of relocations is rounded.

The pump station would be relocated to a site that does not conflict with the light rail route before East Link construction begins. Once the pump station has been relocated, sewer lines along 112th Avenue SE would be installed as part of the East Central Business District (CBD) Sewer Trunkline Improvements Project.

Similar to *Preferred Alternative B2M,* Alternative B1 would relocate an existing 115-kV electrical transmission line pole and approximately 100 feet of electrical line owned by Puget Sound Energy near vicinity of Bellevue Way SE at 112th Avenue SE. Also, approximately 5,200 feet of sewer lines and sewer holes owned by King County Wastewater would be relocated along Bellevue Way. Communication ducts owned by Qwest Communications are also present along the west side of Bellevue Way SE, and approximately 4,200 feet would be relocated. A conflict would also occur with a Qwest Communication duct that crosses under Bellevue Way SE north of SE 30th Street, where the duct would be relocated deeper below the roadway.

With Alternative B2A, overhead 115-kV electrical lines owned by Puget Sound Energy would conflict with this alternative where they cross Bellevue Way near SE 30th Street and would be raised. Approximately 3,800 feet of 27-inch sewer lines and sewer holes owned by King County Wastewater would be relocated under Bellevue Way where a conflict would occur in front of Mercer Slough Nature Park. Approximately 1,900 feet of 14-inch sewer force main owned by the City of Bellevue would be relocated under 112th Avenue SE between Bellevue Way and SE 15th Street. Approximately 1,650 feet of sewer pipes under 112th Avenue SE between SE 15th Street and 11th Place SE would also need to be relocated.

With Alternative B2E, overhead 115-kV electrical lines owned by Puget Sound Energy would conflict with this alternative and would be raised where they cross Bellevue Way near SE 30th Street and just before 112th Avenue SE. Approximately 1,500 feet of 27-inch sewer lines and sewer holes owned by King County Wastewater and 1,880 feet of sewer lines owned by the City of Bellevue would be relocated under Bellevue Way where a conflict would occur in front of Mercer Slough Nature Park.

With Alternative B3, overhead 115-kV electrical lines owned by Puget Sound Energy would conflict with this alternative where they cross Bellevue Way near SE 30th Street and would be raised. Approximately 450 feet of sewer lines and sewer holes owned by King County Wastewater would be relocated under Bellevue Way SE where a conflict would occur in front of Mercer Slough Nature Park. Approximately 3,000 feet of sewer force main owned by the City of Bellevue would be relocated under 112th Avenue NE between Bellevue Way and SE 15th Street.

The utility impacts with the B3 - 114th Extension Design Option would be similar to those for Alternative B3 between *Preferred Alternative A1* and the Winters House along Bellevue Way SE. Just north of the Winters House, approximately 100 feet of a Qwest Communications duct bank and associated cabinets and 100 feet of a City of Bellevue-owned sanitary sewer line would be relocated due to track excavation. Where the elevated light rail track crosses 114th Avenue SE, more than 100 feet of a 115-kV overhead power line owned by Puget Sound Energy would be relocated.

Alternative B7, overhead 115-kV electrical lines owned by Puget Sound Energy would conflict with this alternative where they cross 114th Avenue SE at three different locations. This would also be required for all Segment C alternatives that connect to Alternative B7.

Segment C

All Segment C alternatives would require extensive utility relocation, many related to cut-and-cover construction of tunnels or stations. Alternatives C7E and C14E are the only alternatives with the potential for few or no conflicts. No water utility lines would be impacted by any of the Segment C alternatives. Where conflicts occur in cut-and-cover construction areas, the utilities would be worked around or temporarily relocated. Bored tunnels would be deep enough to avoid utility conflicts. For tunnel construction, Sound Transit would use industry-standard methods to mitigate the impacts of soil settlement on underground utilities and special infrastructure concerns.

Generally, unless otherwise noted, utilities impacted by *Preferred 108th NE At-Grade Alternative (C11A)* are due to track excavation and the duct banks or pipes work. Along 112th Avenue SE between the end of Segment B and just north of SE 4th Street, approximately 2,000 feet of fiberoptic line owned by City of Bellevue and Integra/Verizon Business would be relocated. West of the 108th Station, 300 feet of Qwest Communication line would be relocated.

Between the beginning of *Preferred Alternative C11A* and SE 6th Street along 112th Avenue SE, more than 400 feet of City of Bellevue sanitary sewer line would be relocated. Beginning at the intersection of 108th Avenue and NE 2nd Street, gas pipe (500 feet), communications line (more than 800 feet), fiberoptic line (more than 1,500 feet), and cable line (800 feet) utilities would be relocated. At the intersection of

NE 4th Street and 108th Avenue, more than 1,000 feet of fiberoptic network and 200 feet of City of Bellevue sanitary sewer would be relocated because track excavation might impact the duct banks and pipes in this area.

North of NE 4th Street, adjacent to the proposed staging area, 600 feet of Puget Sound Energy gas line and 400 feet of Qwest Communications line would be relocated. Along NE 6th Street, between 110th and 112th Avenues NE, 800 feet of Qwest Communications telephone line, 600 feet of fiberoptic network (owned by multiple agencies, and 200 feet of Puget Sound Energy gas line would be relocated.

East of the Bellevue Transit Center Station, several utilities at the intersection of NE 6th Street and 110th Avenue NE would be relocated due to track excavation; these utilities include a Qwest Communications line, a Puget Sound Energy gas pipe, and a fiberoptic duct banks. Where the elevated track crosses 116th Avenue NE, overhead power lines owned by Puget Sound Energy would be relocated to prevent them from interfering with the elevated guideway.

Beginning at the south end of the Hospital Station, 2,000 feet of a sanitary sewer owned by King County would be relocated due to load restrictions. Adjacent to the Hospital Station, a City of Bellevue storm drain and pipes would be relocated due construction impacts to the catch basin and pipes underneath the station.

During tunnel construction for *Preferred Alternative C9T*, utilities located above the tunnel alignment along 110th Avenue NE between Main and NE 6th Streets would be temporarily supported in place and worked around. These utilities include more than 4,700 feet of telephone line owned by Qwest Communications, more than 3,000 feet of fiberoptic line owned by multiple agencies, 1,300 feet of Comcast cable, more than 2,500 feet of Puget Sound Energy gas line, and more than 100 feet of City of Bellevue sanitary sewer line.

Near the intersection of 112th Avenue SE and SE 6th Street, 900 feet of Puget Sound Energy gas line would be relocated due to potential track excavation impacts to the pipe. Also near this intersection, more than 1,500 feet of fiberoptic line, 200 feet of City of Bellevue sanitary sewer, and 300 feet of Qwest Communications line would be relocated.

More than 1,200 feet of Qwest Communications telephone line along NE 6th Street would be relocated due to the potential track excavation impacts to the duct bank. Due to load restrictions, more than 2,000 feet of King County sanitary sewer along the former BNSF Railway corridor near the Hospital Station would be relocated. Similar to *Preferred Alternative C11A*, constructing the Hospital Station would relocate a storm drain catch basin and 50 feet of pipes underneath the station.

With Alternative C1T, utility conflicts would occur in cut-and-cover areas where City of Bellevue storm sewers run under Bellevue Way from SE 6th Street to NE 2nd Street and Qwest Communications ducts run under Bellevue Way from SE 6th Street to Main Street. A Puget Sound Energy natural gas line and Qwest Communications duct would also conflict at the crossing of 108th Avenue NE. A 54-inch concrete storm drain pipe would conflict where this alternative crosses 106th Avenue NE, as would an 18-inch sanitary sewer pipe where it crosses 112th Avenue NE. Overhead 115-kV electrical lines owned by Puget Sound Energy would conflict with this alternative where it becomes elevated and would be raised across 116th Avenue NE. An underground 6-inch gas line that runs under 108th Avenue NE would conflict with the proposed Bellevue Transit Center Station, and the alternative would cross a 12-inch line in 110th Avenue NE at NE 6th Street.

With Alternative C2T, when connected to Alternative B3, B3 - 114th Extension Design Option, or Alternative B7, a conflict would occur with a sanitary sewer crossing and a 12-inch gas line crossing at 112th Avenue SE, coming out of the East Main Station. A 24-inch sanitary sewer line would conflict in the cut-and-cover area where the sewer line crosses 112th Avenue SE for connections to Alternative B3, B3 - 114th Design Option, B7, or B2A. City of Bellevue sanitary and storm sewers also run under 106th Avenue NE and would be worked around during cut-and-cover construction. A City of Bellevue 72-inch storm sewer line would also conflict with the cut-and-cover along NE 6th Street. Overhead 115-kV electrical lines owned by Puget Sound Energy would conflict with this alternative where it becomes elevated and would be raised across 116th Avenue NE. Underground 6-inch gas lines that run under 108th Avenue NE would conflict with the proposed Bellevue Transit Center Station and the alternative would cross a 12-inch line in 110th Avenue NE at NE 6th Street.

With Alternative C3T, cut-and-cover construction would conflict with a 24-inch sanitary sewer line where the sewer line crosses 112th Avenue SE for connections to Alternative B3, B3 – 114th Design Option, B2A, or B7. A Puget Sound Energy natural gas line and Qwest Communications ducts would conflict with the proposed station on 108th Avenue NE. Qwest

Communications ducts would again need to be worked around on 108th Avenue NE just south of NE 12th Street, as well as under the crossing of NE 12th Street. Six-inch gas lines located along NE 12th Street and 112th Avenue SE would be relocated due to potential conflicts with the light rail alignment. A conflict with a 12-inch natural gas line would occur if connecting to Alternative B3, B3 – 114th Design Option, or B7 at 112th Avenue SE near the East Main Station. For Alternative C3T, the 6-inch natural gas line and Qwest Communications fiberoptic lines that run under 108th Avenue NE would not conflict with the alternative because the tunnel could be bored beneath these lines, except at the Bellevue Transit Center Station, which would be cut-and-cover.

With Alternative C4A, a 24-inch sanitary sewer line would conflict where the sewer line runs under 112th Avenue SE for 1,100 feet, as well as where the alternative would cross a King County sanitary sewer line at NE 4th Street. The existing storm detention system under 110th Avenue NE would be relocated for approximately 700 feet. A conflict would occur with a Puget Sound Energy natural gas line where it crosses NE 10th Street, and approximately 4,600 feet would be relocated under 108th Avenue NE. An additional 400 feet of a 12-inch gas line would be relocated between SE 6th and SE 4th Streets when connecting to Alternative B2A, and a conflict with the same gas line would occur if connecting to Alternative B3, B3 - 114th Design Option, or B7 at 112th Avenue SE near the East Main Station. Six-inch gas lines located along NE 12th Street, 112th Avenue NE, and NE 8th Street would also be relocated due to potential conflicts with the light rail alignment. Another conflict with a Puget Sound Energy gas line would occur at 110th Avenue NE (between NE 10th and NE 2nd Street). Approximately 4,800 feet of Qwest Communications fiberoptic ducts would be relocated under 108th Avenue NE so they would not be directly under the westbound couplet route.

With Alternative C7E, a conflict would occur with a Puget Sound Energy natural gas line where it crosses NE 10th Street. If this alternative were to connect with Alternative B2A, then a 24-inch sanitary sewer line would conflict where the sewer line parallels 112th Avenue SE for approximately 900 feet north of SE 6th Street, and a 12-inch natural gas line would be relocated for approximately 400 feet north of SE 6th Street. A conflict with the same gas line would occur if connecting to Alternative B3, B3 – 114th Design Option, or B7 at 112th Avenue SE near the East Main Station.

With Alternative C8E, the existing storm detention system under 110th Avenue NE would be relocated for approximately 700 feet because it would conflict with the project limits. Approximately 700 feet of a 12-inch gas line would be relocated between NE 8th and NE 10th Streets, and approximately 1,700 feet of overhead electric lines would be relocated if this alternative were to connect with Alternative B7 or B3 – 114th Design Option. A conflict with the same gas line would occur at 112th Avenue SE near the East Main Station.

With Alternative C9A, along 110th Avenue NE between Main and NE 6th Streets, more than 3,000 feet of Qwest Communication line would be relocated due to impacts to duct banks from track excavation. Additional communications line along NE 6th Street between 110th and 112th Avenues NE would be relocated. More than 3,500 feet of fiberoptic networks located between Main and NE 6th Streets along 110th Avenue NE, owned by multiple agencies, would be relocated due to impacts to the duct bank located under the proposed track. Along 110th Avenue NE, between NE 2nd and NE 6th Streets, more than 1,200 feet of Puget Sound Energy gas line would be relocated due to track excavation impacts. In the former BNSF Railway corridor, 2,000 feet of King County sanitary sewer line would be relocated near SE 8th Street. Additional sanitary sewer line at the intersection of 110th Avenue NE and NE 4th Street would be relocated. Sanitary sewer would be relocated for Alternative C9A due to duct bank impacts from track excavation or load restrictions. Comcast cable would be relocated at the intersections of 110th Avenue NE and Main Street and 110th Avenue NE and NE 2nd Street due to track excavation impacts to duct banks. Where the track crosses 116th Avenue NE, a segment of a Puget Sound Energy overhead power line would be relocated due to the conflict with the elevated track. With a connection to Alternative B7 or B3 – 114th Extension Design Option, a segment of a Puget Sound Energy overhead power line would be relocated due conflicts with the elevated track south of SE 6th Street along 112th Avenue SE. With connections to Alternative B3, no major utility impacts would occur.

With Alternative C14E, the only major utilities that would be impacted are overhead power lines owned by Puget Sound Energy. These impacts would be where the elevated light rail track would conflict with overhead power lines. Along 114th Avenue SE, beginning at SE 6th Street, 200 feet of 115-kV Puget Sound Energy overhead power lines would be relocated. Along 114th Avenue NE, between Main and NE 2nd Streets, more than 1,000 feet of 115-kV overhead power lines would be relocated. Additional power lines would be relocated where Alternative C14E crosses 116th Avenue NE.

Segment D

Although all Segment D alternatives would require extensive utility relocations, Alternative D3 would present the greatest challenges for utility relocations because of the amount of retained cuts. For all alternatives, a City of Redmond stormwater vault in the southwest quadrant of the NE 40th Street and 156th Avenue NE intersection would be beneath the proposed alternative and would be modified to support the weight of the rail system. With *Preferred NE 16th At-Grade Alternative (D2A)*, west of the 120th Station, more than 300 feet of fiberoptic line would be relocated because the duct bank would potentially be impacted from track excavation. Where the track crosses 124th Avenue NE, a section of a Puget Sound Energy gas pipe and Qwest Communications line would be relocated. Between 124th Avenue NE and the 130th Station, 900 feet of sanitary sewer and associated sewer holes owned by King County would be relocated. At the intersection of 132nd Avenue NE and NE 16th Street, sections of Comcast cable line, Qwest Communications line, and City of Bellevue storm drains would be relocated due to potential track excavation impacts. A storm drain sewer hole would also be relocated. At the intersection of 134th Avenue NE and NE 16th Street, 100 feet of City of Bellevue storm drain and associated sewer holes would be relocated.

Where the alignment runs at-grade along 136th Place NE to NE 20th Street, Puget Sound Energy would replace the towers supporting the power lines due to potential conflict with the light rail overhead power lines. Along 136th Place NE between NE 16th and NE 20th Streets, more than 1,800 feet of Qwest Communications fiberoptic line and a vault would be relocated. At the intersection of NE 20th Street and 136th Place NE, a fiberoptic line and storm drain would be relocated due to potential impacts from track excavation.

The *Preferred Alternative D2A* elevated guideway would be too close to elevated 115-kV overhead power lines owned by Puget Sound Energy, and the power lines would be reinstalled on higher steel poles where the route crosses 140th Avenue NE. Additional Puget Sound Energy overhead power lines near NE 24th Street would be relocated due to potential conflict with the overhead track power lines.

North of the NE 36th Street SR 520 overpass, a Microsoft fiberoptic line, Qwest Communications line, and City of Redmond water line would be relocated because track excavation could impact the duct banks and pipes. North of the Overlake Village Station at 152nd Avenue NE and SR 520, a City of Redmond storm drain pipe would be relocated. This alternative would also conflict with two petroleum pipelines owned by Olympic Pipe Line, and split casings would be installed around these pipes.

With the D2A - NE 24th Design Option, major utility impacts would be similar to *Preferred Alternative D2A* between NE 12th and NE 24th Streets and between 152nd Avenue NE and the Overlake Transit Center Station. Along 24th Street, 900 feet of Puget Sound Energy overhead power lines would be relocated due to conflicts with the elevated track. Also along NE 24th Street, more than 800 feet of Qwest Communications line and 400 feet of City of Bellevue storm drain would be relocated. This communication line and storm drain is located underneath and parallel to the tracks and would be relocated to avoid the columns. Along 152nd Avenue NE north of the Overlake Village Station, more than 2,800 feet of fiberoptic and telephone line owned by multiple companies, would be relocated due to potential track excavation impacts to the duct banks. At the end of 152nd Avenue NE, at SR 520, a sanitary sewer catch basin and a storm drain pipe and catch basin would be relocated due to potential track excavation impacts.

For Alternatives D2E, D3, and D5, two overhead transmission lines would be relocated to avoid conflicts with the construction of Segment D alternatives connecting from Alternative C3T, C4A, C7E, or C8E. With Alternative D2E, for the light rail crossings at 124th Avenue NE, 134th Avenue NE, 136th Place NE, and 140th Avenue NE, electrical overhead power lines would conflict with the elevated guideway. The towers supporting these lines would be raised or replaced in this area. The alternative would also conflict with overhead lines along NE 24th Street near 148th Avenue NE, which would require raising these lines for 2,100 feet.

With Alternative D3, the westbound trackway running along NE 16th Street near 134th Avenue NE and between SR 520 and Microsoft Road would be located over a 36-inch stormwater pipe owned by the City of Bellevue that would be relocated to the north. A 48-inch City of Redmond storm drain crosses this alternative under NE 20th Street where the guideway would be in a retained cut, and the storm drain would be redesigned to accommodate this cut. An 8-inch gas line under 148th Avenue NE and a 6-inch gas line under NE 24th Street would conflict with the retained cut under this road but would be accommodated in the road crossings over these cuts. This alternative would also conflict with two petroleum pipelines owned by Olympic Pipe Line, and split casings would be installed around these pipes. Similar to *Preferred Alternative D2A*, Puget Sound Energy towers along 140th Avenue NE and 136th Place NE would be relocated, as well as towers along 124th Avenue NE. A conflict would also occur between NE 20th and NE 24th Streets where the Interlaken Substation is located on the east side of the road. Underground feeders running north and south from this substation on 152nd Avenue NE would need to be relocated.

With Alternative D5 at 124th Avenue NE, the elevated guideway would conflict with 230-kV electrical overhead transmission lines that run north-south. Conflicts with 115-kV electrical overhead transmission lines would occur at 140th Avenue NE south of NE 24th Street. The towers supporting these lines would be raised or replaced in this area. Conflicts with electric transmission lines also would occur on the south side of NE 24th Street west of 148th Avenue NE. A natural gas line also owned by Puget Sound Energy crosses under NE 24th Street east of 148th Avenue NE and would be relocated beneath the retained cut. A 20-inch water line that runs under SR 520 at NE 36th Street would be relocated under the retained cut. This alternative would also conflict with two petroleum pipelines owned by Olympic Pipe Line, and split casings would be installed around these pipes.

Segment E

For all Segment E alternatives, telephone and fiberoptic conduits owned by Verizon would be relocated where they would conflict with the retained cuts at NE 51st and NE 60th Streets, as would communications conduits owned by Level 3 Communications at NE 60th Street. All alternatives would have sewer, gas, and communications conflicts that are similar.

With *Preferred Alternative E2*, on Redmond Way under the SR 520 crossing, 1,100 feet of a King County Wastewater 42-inch sewer line would be relocated so that it would not be below the trackway. Between Leary Way and 166th Avenue NE, 1,100 feet of an 8-inch gas line owned by Puget Sound Energy would be relocated so that it would not be below the trackway.

The E2 - Redmond Transit Center Design Option would have similar impacts as the *Preferred Alternative E2* up to where 161st Avenue NE meets the former BNSF Railway. At the Redmond Way and NE 80th Street intersection, a Puget Sound Energy 6-inch gas line would be relocated due to its proximity to the alignment.

With Alternative E1, a Verizon/MCI communications vault is located beneath the alternative where it would cross 170th Avenue NE, and would be relocated. An 8-inch natural gas line runs under the trackway for approximately 1,100 feet east between Leary Way and 166th Avenue NE. This gas line would be installed in a casing or relocated out of the project limits. A 42-inch City of Redmond storm sewer would also be relocated for approximately 1,000 feet from 170th Avenue NE to Bear Creek.

With Alternative E4, beneath the trackway in the former BNSF Railway corridor between Leary Way and 166th Avenue NE, approximately 800 feet of an 8-inch gas line owned by Puget Sound Energy would be relocated so that it would not be below the guideway. An 8-inch Puget Sound Energy gas line near the Leary Way and NE 76th Street intersection would also be relocated. Beneath the former BNSF Railway corridor between SR 520 and 170th Avenue NE, approximately 1,000 feet of a 42-inch sanitary sewer owned by King County would be relocated so that it would not be below the guideway. A Verizon/MCI communications vault is located beneath the route where it would cross 170th Avenue NE. This vault would be relocated.

The City of Redmond plans to locate a stormwater pipe and trail within the former BNSF Railway corridor in downtown Redmond, while also accommodating regional utilities and infrastructure, including Sound Transit's light rail project. Corridor space constraints could require that light rail be shifted to accommodate the stormwater pipe and trail. If this occurs for any of the Segment E alternatives, additional utility relocations may be required.

Maintenance Facilities

No impacts on utilities are anticipated during construction of any of the maintenance facilities.

4.15.4 Potential Mitigation Measures

No adverse impacts on utilities during light rail operation are anticipated; therefore, no mitigation is proposed. The project includes implementing design measures and coordinating with utility providers and the public to minimize impacts on utilities during light rail construction. These measures include potholing and preconstruction surveys to identify utility locations. Sound Transit would continue to work with utility providers to minimize any potential service interruptions and perform outreach to notify the community of potential service interruptions.

4.16 Historic and Archaeological Resources

4.16.1 Introduction to Resources and Regulatory Requirements

The National Historic Preservation Act of 1966 (NHPA) Section 106 states that any federal or federally assisted project or any project requiring federal licensing or permitting must consider the project's impacts on historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP or National Register), in accordance with 36 CFR Part 800. Properties include historic and prehistoric archaeological sites, as well as districts, buildings, structures, objects, and landscapes, in addition to cultural or traditional places or resources that have value to a community, such as an Indian Tribal group (NHPA Section 101). To consider the potential concerns of Indian Tribes, Sound Transit also reviewed the following:

- American Indian Religious Freedom Act of 1978
- Executive Order (EO) 13007 (access to and/or ceremonial use of sacred sites by Indian religious practitioners)

Also, Section 4(f) of the Department of Transportation Act of 1966 (23 United State Code 138) prohibits the Federal Transit Administration (FTA) from approving a project or program that uses land from a significant public park, recreation area, wildlife or waterfowl refuge, or historic site, with the following exceptions:

- There is no feasible and prudent alternative to the use of the land.
- The project includes all possible planning to minimize harm to the property.

A Section 4(f) evaluation is included in Appendix D of this Final EIS.

The Cities of Seattle, Mercer Island, and Redmond regulate the impacts of projects on historic resources. The City of Bellevue has no applicable ordinances regarding historic resources.

Local regulations that were reviewed during the assessment include the following:

- City of Seattle Landmarks Preservation Ordinance (SMC 25.12) requires that properties eligible for city landmark designation be at least 25 years old and meet at least one of six criteria of significance.
- City of Mercer Island Ordinance No. 05C-09 (amending Ordinance No. 02-16) contains provisions for historic designation of private and municipal properties 50 years of age or older within the city limits.
- City of Redmond Ordinance No. 2224 contains provisions for historic preservation, including a Redmond Heritage Resource Register, administered by the Landmarks and Heritage Commission. Designation requires that a structure be at least 40 years of age and meet other criteria established by the Commission; archaeological sites also are eligible for designation.

Project historians and archaeologists analyzed 439 buildings or structures and investigated two archaeological sites. Of this total, 12 historic resources have been found to be listed in or eligible for listing in the NRHP. The Federal Transit Administration (FTA), in consultation with the State Historic Preservation Office (SHPO), has made a determination of adverse effect for the project. This determination results from the *preferred alternative's (B2M and C11A)* potential impacts on the Winters House and potential Surrey Downs historic district. Other alternatives would also impact the potential Surrey Downs Historic District and Justice White House.

A separately bounded Appendix H4, Historic and Archaeological Resources Technical Report, provides detail information on these historic resources.

4.16.2 Affected Environment

The FTA and Sound Transit consulted with the Washington State Historic Preservation Officer (SHPO) in the Department of Archaeology and Historic Preservation (DAHP), Washington State Department of Transportation (WSDOT), local jurisdictions, and Indian Tribes during the investigations concerning historic and archaeological resources. In addition, Sound Transit coordinated with staff at the Cities of Seattle, Mercer Island, Bellevue, and Redmond.

Sound Transit and FTA consulted with and received concurrence from DAHP on the Area of Potential Effects (APE) used for this project. The APE is the area within which the project may cause direct or indirect changes to the character of any historic properties. The APE for archaeological resources is limited to the portion of the project where ground-disturbing activities would be conducted, such as areas for demolition, construction, staging, equipment storage locations, and stormwater management facilities (36 CFR 800.16[d]). For the archaeological resource investigation, the vertical extent of the APE may vary according to construction practice—deeper for excavation areas and shallower for at-grade construction—and depending on the subsurface limits of known human use or occupation where the project feature occurs.

The APE for historical buildings and structures is one block (approximately 200 feet) on each side of the centerline of the project routes (i.e., a total corridor width of approximately 400 feet). The APE extends approximately 200 feet from the outer limits of station locations and maintenance facilities. The APE also includes the area one block from where tunnel alternatives could disturb the ground surface or potentially have other surface impacts, depending on terrain and local land use. Uniquely for bored or mined tunnel construction, the APE for noise, vibration, and settlement impacts is 100 feet on each side of the route centerline (i.e., a total corridor width of approximately 200 feet).

The archaeological sensitive areas and those listed or determined to be eligible historic resources within the study area's APE are shown in Exhibit 4.16-1. Detailed maps are available in the Historic and Archaeological Resources Technical Report (Appendix H4).

4.16.2.1 Archaeological Resources

Two archaeological sites have been recorded near the archaeological resource APE. Archaeological site 45KI8 was recorded in 1966 (Greengo, 1966) near the Redmond Way Alternative (E1). The site was described as consisting of scattered artifact finds along the east bank of the river for about one-half mile, including some finds in dredged material. The condition of the site in 1966 was reported as "completely worked over on surface—no midden [organic remains] visible" (Greengo, 1966).

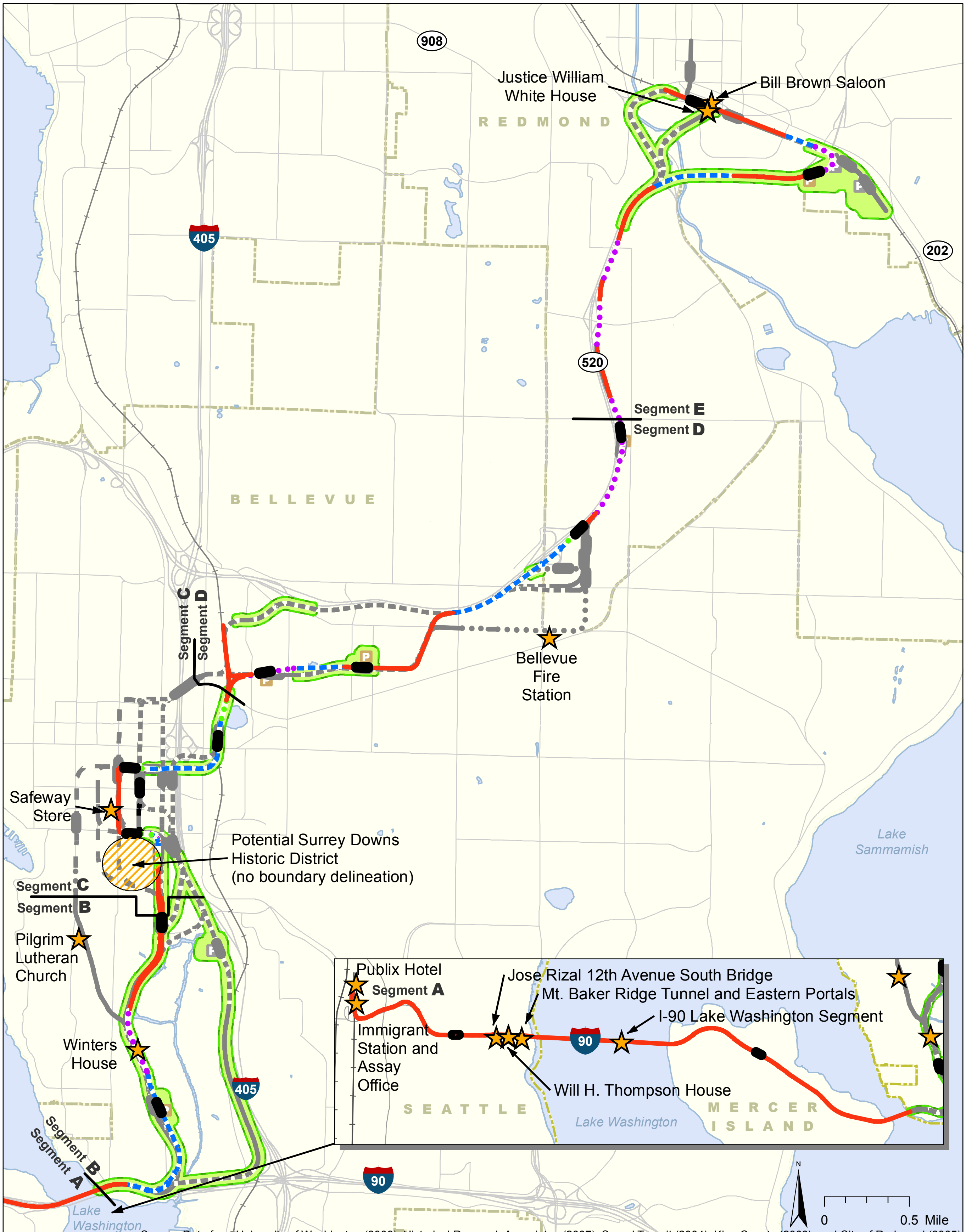
Site 45KI 839 was recorded along lower Bear Creek, near the confluence of Bear Creek with the Sammamish River. The site is buried about 5 feet under the ground surface and consists of several stone tool fragments, stone flakes from tool-making, and fire-cracked rocks that appear to date to several thousand years old (Hodges et al., 2009).

Mapping of landform criteria for archaeological sensitivity identified several portions of the alternatives as having high sensitivity for prehistoric archaeological sites, but did not identify areas with a high sensitivity of important historic-period archaeological sites. The project archaeologist developed maps of areas judged to have high prehistoric archaeological sensitivity for the project alternatives based on historic stream courses, ethnographic land use, and topography of the terrain. These maps were compared with an archaeological model prepared for the DAHP.

Archaeological sensitivity and survey maps are provided in Appendix H4. Much of the Segment B and E alternatives have relatively high levels of archaeological sensitivity based on the presence of Mercer Slough in Segment B and the Sammamish River floodplain in Segment E.

Also shown in Appendix H4 are the survey tracts with shovel test probe locations that were excavated during the archaeological survey. A field crew conducted an archaeological survey for the 2008 Draft EIS in February 2007 and for the Final EIS (Stage 1) in March, June, and July 2010 (Thompson and Gilpin, 2010). The work included 27 survey tracts placed primarily in archaeologically sensitive areas but also included low-sensitivity areas. The survey placed 12 tracts in the archaeologically sensitive portions of Segment B, 7 in Segment D which varied as both low and medium archaeologically sensitive, and 8 in the archaeologically sensitive portions of Segment E. Two survey tracts (in Segment D) were placed in areas considered to have low archaeological sensitivity to control for the bias inherent in focusing surveys on high-sensitivity areas. No tracts were placed in Segments A or C because heavy development and other characteristics provided relatively fewer areas of high archaeological sensitivity. One of the Draft EIS survey tracts and two of the Final EIS survey tracts were unable to be surveyed due to issues with entry and/or significant surface disturbances. A preconstruction archaeological survey will provide additional information and guidance for uncovering historic resources during construction.

The archaeological survey of the Segment B tracts encountered areas of historical disturbance, heavy vegetation, water near or at the ground surface, and modern debris. Survey tracts in Segment D also showed considerable disturbance, while many of those in Segment E (particularly along the Sammamish River) encountered fill covering the native soils up to about 3 feet deep. The project archaeologist identified an additional survey tract to search for recorded archaeological site 45KI8 described above, but encountered no evidence of the site. It is difficult to tell whether the site still exists because the area has been eroded, dredged, rip-rapped, and filled.


908
Justice William White House
Bill Brown Saloon
R E D M O N D
405
202
520
Segment E
Segment D
B E L L E V U E
Segment C
Segment D
Bellevue Fire Station
Safeway Store
Potential Surrey Downs Historic District (no boundary delineation)
Lake Sammamish
Segment C
Segment B
Pilgrim Lutheran Church
Winters House
405
Segment B
Segment A
Lake Washington
90
Publix Hotel
Segment A
Jose Rizal 12th Avenue South Bridge
Mt. Baker Ridge Tunnel and Eastern Portals
I-90 Lake Washington Segment
Immigrant Station and Assay Office
90
Will H. Thompson House
S E A T T L E
Lake Washington
M E R C E R
I S L A N D
N
0
0.5 Mile

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), King County (2006), and City of Redmond (2005).

- ★ NHRP Listed/Eligible Site
- 🟩 Sensitivity Zone
- ● Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

Exhibit 4.16-1

Cultural Resources

Segments A, B, C, D, and E

East Link Project

None of the surveys located prehistoric archaeological remains. One historic-period archaeological site was recorded during the 2010 survey session. This site consisted of a scatter of domestic debris found in a survey tract along Segment B. The site is not eligible for listing in the NRHP because it did not retain many aspects of integrity nor did it meet any of the four criteria for listing.

In summary, the survey located no NRHP-eligible prehistoric or historic-period archaeological remains at archaeological site 45KI8. These results are not conclusive because buried materials and sites could be found, particularly along the Segment B and Segment E alternatives. Although past development has likely damaged or destroyed archaeological sites, some important remains could exist.

4.16.2.2 Traditional Cultural Properties

FTA and Sound Transit have conducted government-to-government consultation with the Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, Duwamish Tribe, Tulalip Tribes of Washington, and Yakama Nation, initially providing project information by mail. Meetings have been held with Snoqualmie and Muckleshoot Tribal representatives to discuss the project and its potential impacts on archaeological sites and traditional cultural properties (TCPs). Consultation with the Tribes has revealed no traditional cultural properties in the project vicinity.

4.16.2.3 Historic Buildings and Structures

A historical records search was performed that identified several properties listed in the National Register, the Washington Heritage Register (WHR), or local registers. Appendix H4 lists the properties inventoried and shows the properties determined to meet the National Register and local ordinance criteria by 2016. Inventoried resources would be 50 years old by the baseline year 2016. Field surveys by project historians and preparation of inventory forms took place primarily from February through June 2007, September through October 2007, and February to April 2010. The field surveys inventoried 439 buildings and structures (including one potential historic district) in the APE, with 12 either listed in the National Register (and thus automatically listed in the WHR) or recommended to be eligible. Sound Transit also conducted field tours with DAHP staff to identify properties that appeared to meet National Register eligibility criteria.

The DAHP reviews NRHP recommendations for concurrence, and the local jurisdictions review local landmark register recommendations. Letters from the DAHP and local jurisdictions concurring on the eligibility of the historic properties can be found in Appendix H4. Table 4.16-1 summarizes the NRHP- or local-listed or eligible properties identified in the APE, Exhibits 4.16-2 through 4.16-11 and 4.16-12 through 4.16-17 are photographs of these properties, and the following subsections discuss these properties.

In addition to resources discussed in the remainder of this section, one potential historic resource, the former BNSF Railway, was surveyed in the APE for multiple project segments. Portions of the former BNSF Railway are within the APE for Segments B, C, D, and E. The portions of the former BNSF Railway within the project’s APE have been determined as not eligible for listing in the NRHP, although the railroad as a whole has been determined eligible from a previous archaeological investigation. These portions are nondescript and do not well represent the theme of the railroad as a whole. Significant intact properties representative of the former BNSF Railway's and the preceding owners’ contributions to railroad technology are not presented by portions of the former BNSF Railway in these segments of the project corridor.

Segment A

The five historic structures and buildings in Segment A are on the NRHP and have already been recorded at the Washington DAHP. They are the Publix Hotel, located within the Seattle Chinatown National Register Historic District and the International Special Review Historic District; the Immigrant Station and Assay Office Building (INS Building); the Jose Rizal 12th Avenue South Bridge; the Will H. Thompson House; and the Mount Baker Ridge Tunnels and Eastern Portals. In addition, WSDOT, on behalf of the Federal Highway Administration and DAHP, identified a segment of I-90 between I-5 and I-405, which includes the Mount Baker Ridge Tunnels and Eastern Portals, as eligible for the NRHP and therefore nominated these as one eligible resource. DAHP concurred with this determination in a letter dated November 23, 2009.

The architecture of the INS Building features Neo-classical and Mediterranean elements, as shown in Exhibit 4.16-2. The building is important for its role in history, particularly that of Asian immigration. The Publix Hotel in the Seattle Chinatown NRHP Historic

TABLE 4-16.1
List of Historic Properties in Area of Potential Effect

Segment	Field No. and Map ID	Property Name/Type	Address	Register Status
A, Interstate 90	376	Publix Hotel (Seattle Chinatown NRHP/ International Special Review Historic District)	504 Fifth Avenue South	Contributing element to NRHP and Seattle Special Review historic districts
A, Interstate 90	132	Immigrant Station and Assay Office	815 Airport Way South	NRHP, WHR, eSL
A, Interstate 90	303	Jose Rizal 12th Avenue South Bridge	12th Avenue South crossing of South Dearborn Street	NRHP, WHR, eSL
A, Interstate 90	166	Will H. Thompson House	3119 South Day Street	NRHP, WHR, SL
A, Interstate 90	I90	I-90 Lake Washington Highway Segment, milepost 3.44-8.9 (includes Mount Baker Ridge Tunnel and Eastern Portals)	I-90 – Washington State Department of Transportation right-of-way between mileposts 3.4 to 8.9 and East end of I-90 tunnel	NRHP, WHR, SL[a]
A, Interstate 90	156	Endresen Residence	1402 32nd Avenue South	eSL
A, Interstate 90	133	Romaine Electric/Washington Iron Works Pattern Shop	1101 Airport Way South	eSL
B, South Bellevue	16	The Winters House	2102 Bellevue Way SE	NRHP, WHR
B, South Bellevue	63	Pilgrim Lutheran Church	10420 SE 11th Street	eNRHP, eWHR
C, Downtown Bellevue	1100	Safeway Store	414 104th Avenue NE	eNRHP, eWHR
C, Downtown Bellevue	various (see Exhibit 4.16-18)	Potential Surrey Downs Historic District	37 structures (see Exhibit 4.16-18)	Potential eNRHP
D, Bel-Red/Overlake	104	Former Bellevue Fire Station	14822 NE Bellevue-Redmond Road	eNRHP, eWHR
E, Downtown Redmond	112	Justice William White House	Leary Way NE and NE 76th Street	eNRHP, eWHR, RHL
E, Downtown Redmond	113	Redmond Trading Company	7805 Leary Way NE	RHL
E, Downtown Redmond	114	Bill Brown Saloon Building	7824 Leary Way NE	RHL, eNRHP, eWHR
E, Downtown Redmond	118	Dudley Carter/Haida House	Sammamish Slough Park	RHL

[a] The Mount Baker Ridge Tunnel and Eastern Tunnel Portals are also designated as Seattle Landmarks.

e	determined eligible
NRHP	National Register of Historic Places
SL	Seattle Landmark
RHL	Redmond Historic Landmark
WHR	Washington Heritage Register

District is significant for its association with Seattle history (Exhibit 4.16-3). The 12th Avenue South Bridge, constructed in 1911, was listed in the NRHP based on its engineering design (Exhibit 4.16-4). The Mount Baker Tunnels' architects designed an impressive gateway to the City of Seattle by combining Art Deco elements and stylized Native American motifs, as shown in Exhibit 4.16-5. Although the tunnels were an engineering feat, the National Register listing focuses on their striking ornamentation.

The Lake Washington Segment of I-90 between Martin Luther King Jr. Way in Seattle and East Channel Bridge in Bellevue was determined eligible for the NRHP as a key piece of transportation history. It included extensive community involvement and design of the centerlanes for transit (Exhibit 4.16-6). It is also significant for its innovative engineering and design that incorporated floating bridges, landscaped lids, and minimized community impacts. Although the facility is less than 50 years old, it qualified for listing in the NRHP under Criteria Consideration G, achieving significance because of its exceptional importance. The Will H. Thompson House is significant due to its architecture and high level of integrity (Exhibit 4.16-7).

EXHIBIT 4.16-2
United States Immigration Station and Assay Office Building

EXHIBIT 4.16-3
Publix Hotel

EXHIBIT 4.16-4
Jose Rizal 12th Avenue South Bridge

EXHIBIT 4.16-5
Mount Baker Ridge Tunnel

EXHIBIT 4.16-6
I-90 Lake Washington Highway Segment

EXHIBIT 4.16-7
Will H. Thompson House

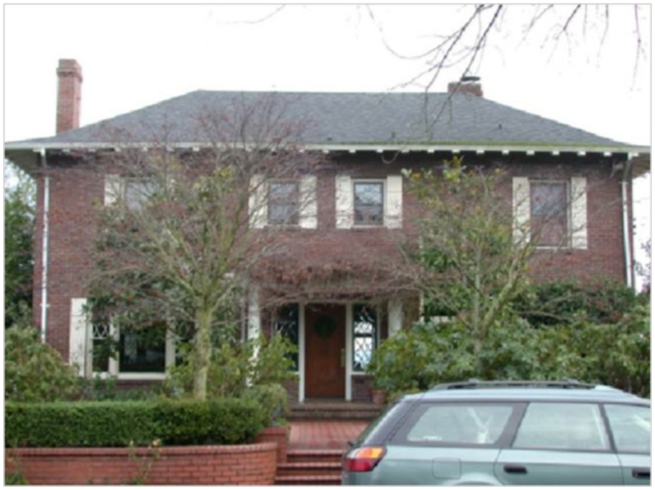


EXHIBIT 4.16-8
Endresen Residence

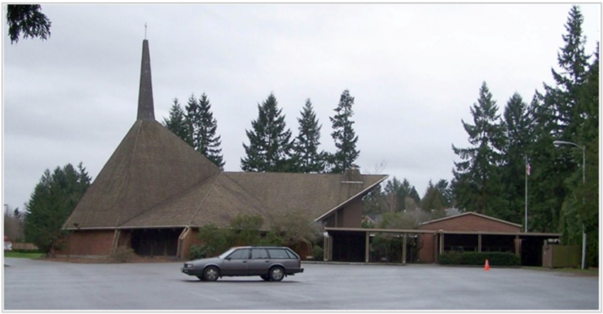


EXHIBIT 4.16-11
Pilgrim Lutheran Church

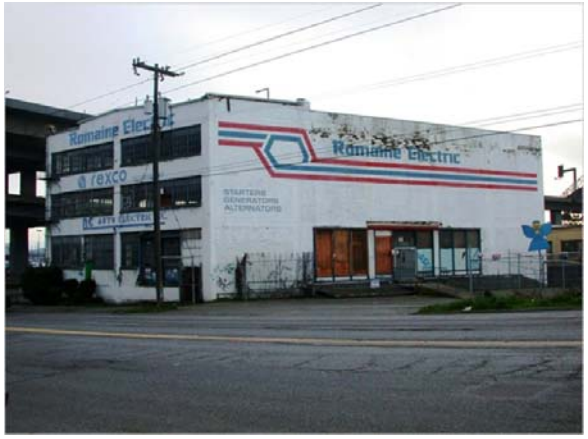


EXHIBIT 4.16-9
Romaine Electric/Washington Iron Works Pattern Shop

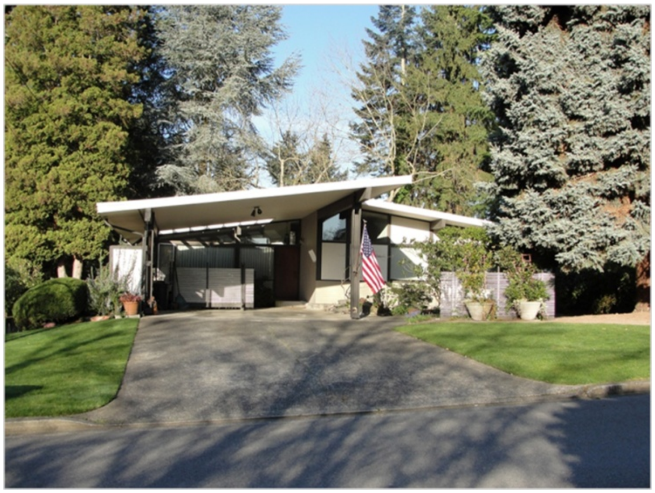


EXHIBIT 4.16-12
Mithun & Nesland Design on 109th Avenue SE in Surrey Downs Subdivision

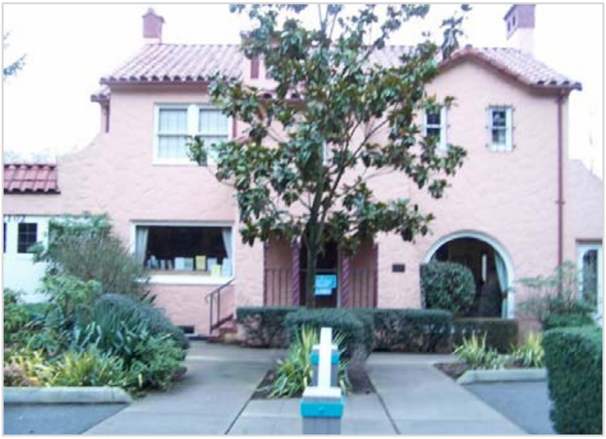


EXHIBIT 4.16-10
The Winters House

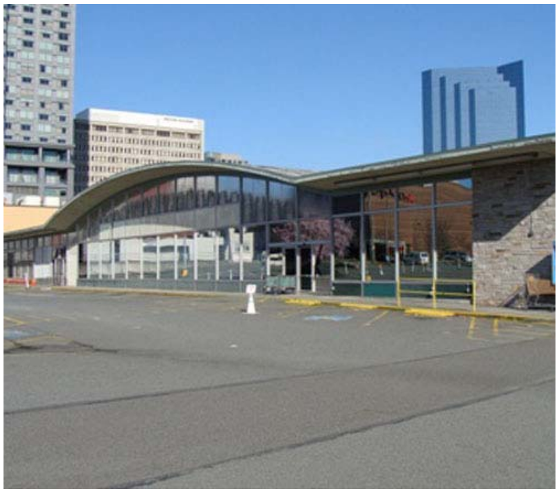


EXHIBIT 4.16-13
Safeway Store

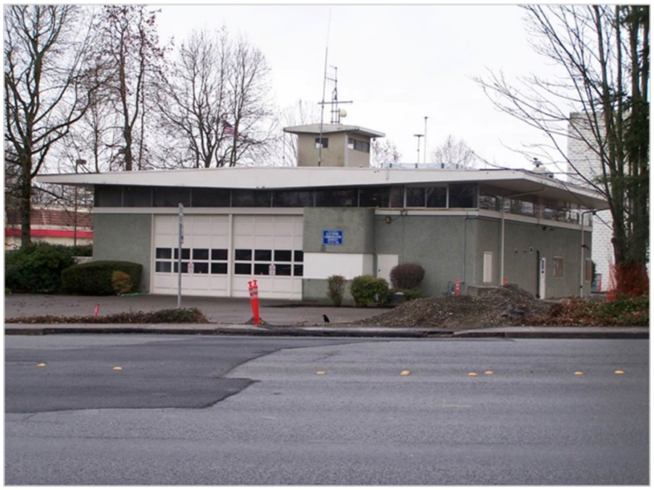


EXHIBIT 4.16-14
Former Bellevue Fire Station, 14822 NE Bellevue-Redmond Road

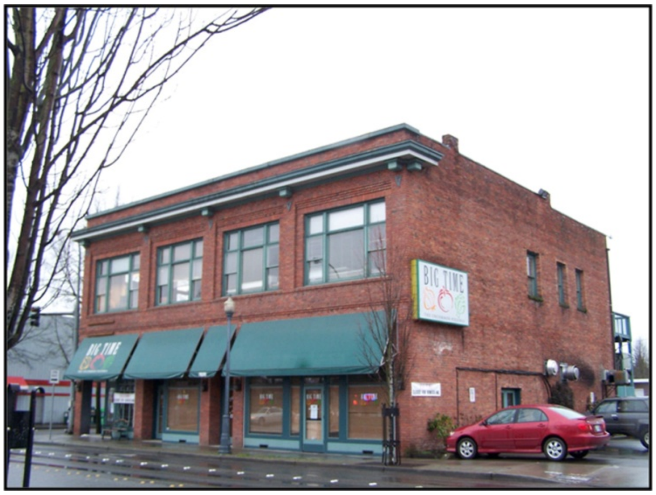


EXHIBIT 4.16-16
Bill Brown Saloon Building

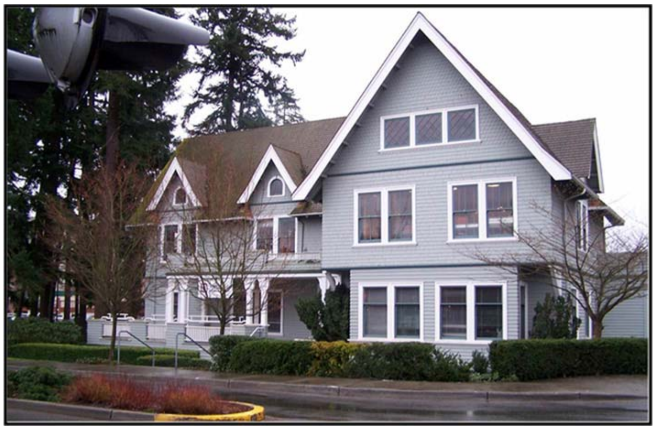


EXHIBIT 4.16-15
Justice William White House

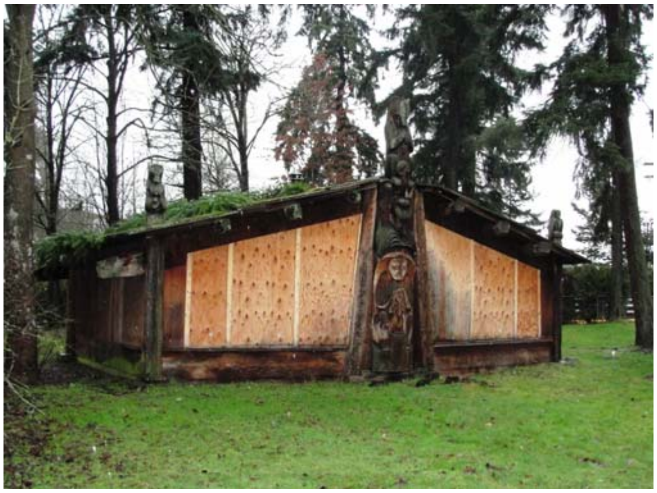


EXHIBIT 4.16-17
Haida House

In addition, City of Seattle has determined that the Endresen Residence at 1402 32nd Avenue (Exhibit 4.16-8) and the Romaine Electric/Washington Iron Works building at 1101 Airport Way (Exhibit 4.16-9) may be eligible for City Landmark status. However, these buildings were determined not eligible for the NRHP.

Segment B

The Winters House was listed in the NRHP in 1992 based on its Spanish Eclectic architecture, as shown in Exhibit 4.16-10, and its association with the bulb-growing and floriculture industry in King County and Washington. The Winters House is currently used by the Eastside Heritage Center as a heritage research center, exhibit space, archive storage, library, and public meeting space. Additionally, the Eastside Heritage Center provides public and educational programming at the Winters House. The Winters House also contains office space for the City of Bellevue Parks and Community Service Department staff and can be used for public or private meeting event space. The Winters House is part of the Heritage Loop Trail in Mercer Slough Nature Park; the site includes historical interpretation and facilities for trail users. The Pilgrim Lutheran Church (Exhibit 4.16-11), completed in 1965, is an outstanding example of Neo-Expressionist architectural style. The firm that designed the building—Grant, Copeland, Chervenak and Associates—won awards for several of their local projects.

Segment C

A portion of the Surrey Downs residential subdivision is potentially eligible for the NRHP as a historic district (see Exhibit 4.16-18). According to discussions with DAHP, this residential area has not been determined eligible because many of the houses in the Surrey Downs neighborhood are outside the Area of Potential Effect and thus were not analyzed for historic significance. A district is a concentration of buildings or other properties that may or may not be individually eligible for the National Register, but are linked by one or more features that define their character. To be considered eligible as part of the potential Surrey Downs historic district, the houses need to be a consistent architectural style and not have been outwardly modified since their construction. The district is unique because the subdivision featured home designs that are of the post-World-War II called "Northwest Modern" Style of design created by Mithun & Nesland, a Seattle architectural firm. The DAHP determined 37 houses would be contributing elements to the potential historic district within the project APE. The historians did not establish boundaries for the district because it extends beyond the project APE. The house in Exhibit 4.16-12 is representative of the Northwest Modern style of design (18 houses in the potential historic district), which includes one-story houses with carports and two-story houses with garages located beneath the living space. Other contributing houses include split-level (11 houses) and ranch (8 houses) styles. Exhibit 4.16-18 shows the location of each of the contributing homes within the APE, and the properties are listed in Appendix H4.

Facing Bellevue Way NE just north of NE 4th Street, the currently closed Safeway store built in 1962 is eligible for the NRHP based on its distinctive character of a large-scale commercial grocery store of the 1960s era (Exhibit 4.16-13).

Segment D

One NRHP-eligible structure was identified in Segment D. The Former Bellevue Fire Station on Bel-Red Road, constructed in 1960, is a good example of Populuxe architecture, a style reminiscent of 1950s aerodynamic design (Exhibit 4.16-14).

Segment E

The Justice William White House (Exhibit 4.16-15) and the Bill Brown Saloon Building (Exhibit 4.16-16) are designated as Redmond Heritage Landmarks and are also eligible for listing in the NRHP (and therefore also for the WHR). The Justice William White House is important because its owners, William and Emma McRedmond White, both played important roles in the history of Redmond and western Washington. They set aside a part of the house, which was built in 1900, as a hotel because it was conveniently located close to the railroad line and the passenger depot, giving guests easy access.

The Redmond Trading Company building, currently occupied by Half Price Books, is a City of Redmond Heritage Landmark. This building was built in 1910 to house the trading company that was Redmond's largest business for decades. This building is not considered eligible for listing in the NRHP or the WHR since the display windows along the Leary Way side of the building is the only remaining characteristic from the original façade.

The Bill Brown Saloon Building is important because of its association with the man who was mayor of Redmond from 1919 to 1948. Beginning about 1915, the building's second floor served as an unofficial Redmond City Hall (Hardy, 2001).

The Dudley Carter/Haida House is a City of Redmond Heritage Landmark, and the City considers it to be eligible for listing in the National Register (Exhibit 4.16-17). It was constructed by nationally known, Canadian-born artist Dudley Carter following methods of the Haida First Nation. Review conducted by DAHP, however, determined that because the building is less than 50 years old and not of exceptional significance, it does not qualify for the National Register.

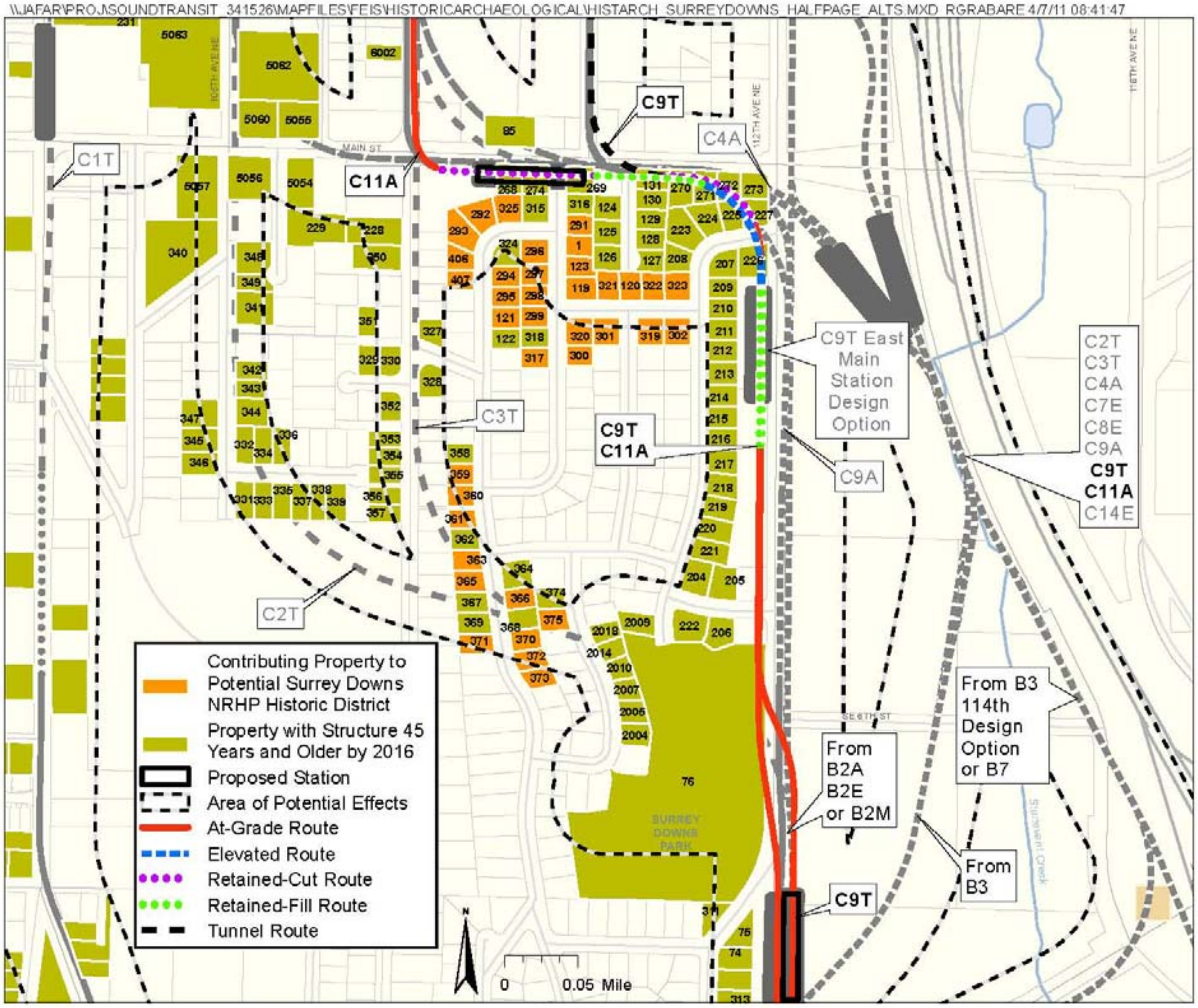
4.16.3 Environmental Impacts

4.16.3.1 Impact Evaluation Methods

The Advisory Council on Historic Preservation's regulations implementing NHPA Section 106 create a process by which federally assisted projects are reviewed for their effects on properties listed in, or eligible for listing in, the NRHP.

After the resource is identified and evaluated, the next step is applying the Criteria of Adverse Effect. These criteria are used to determine whether the undertaking could change the characteristics that qualify the property for NRHP inclusion. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects include, but are not limited to, the following:

- Demolition or alteration of the property
- Alteration of the property's setting
- Introduction of visual, audible, or atmospheric elements that are out of character with the setting of the historic property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108TH AVE NE
112TH AVE NE
116TH AVE NE
SE 6TH ST
SURREY DOWNS PARK
Sturtevant Creek
C1T
C11A
C9T
C4A
C3T
C2T
C9T East Main Station Design Option
C9T
C11A
C9A
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
From B3 114th Design Option or B7
From B2A B2E or B2M
From B3
C9T
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Area of Potential Effects
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
N
0
0.05 Mile
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5063
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372
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374
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2014
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2007
2006
2004
222
206
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313

EXHIBIT 4.16-18
Contributing Properties to the Potential Surrey Downs Historic District

- Physical encroachment upon an archaeological site.
- Pursuant to 36CFR Part 800.5(b), an agency may propose a finding of no adverse effect in consultation with the SHPO when the undertaking is modified or conditions are imposed to avoid adverse effects.

FTA, in consultation with SHPO, has made a determination of adverse effect for the project. This determination results from the project's potential impacts on the Winters House by *Preferred Alternative B2M* and on the potential Surrey Downs Historic District by *Preferred Alternative C11A*, and Alternatives C4A, C2T and C3T. The Justice William White House would be potentially impacted by Alternative E4 because it would require relocation. Minimization and mitigation measures have been developed to resolve the potential impacts on these resources. The project would not adversely impact the other historic resources.

4.16.3.2 No Build Alternative

The No Build Alternative would not affect any historic properties.

4.16.3.3 Impacts during Operation

Although some potentially sensitive archaeological areas are identified, studies to date have identified no NRHP-eligible prehistoric or historic-period archaeological sites in the project APE. If one or more archaeological sites were identified in future studies, evaluation and treatment would be completed. The following subsections discuss the potential effects of project operation on historic buildings and structures.

Segment A

Operation of the light rail system with *Preferred Interstate 90 Alternative (A1)* is not anticipated to affect the eight historic properties identified in Table 4.16-1 because of the position of *Preferred Alternative A1* in the center of I-90.

The Publix Hotel is across the street to the east from the International District Station entrance, and the project would not result in aboveground changes in the immediate vicinity. The INS Building is situated at the Fifth Avenue S/I-90 ramp, and the light rail facility would be under Airport Way and not visible near this building. Due to the location of the project alternative in the existing D2 Roadway right-of-way and the project's consistency with the transit function and appearance of this facility, operation of the project would similarly not adversely impact the Romaine Electric/Washington Iron Works Pattern Shop structure or setting. The operation of the project along I-90 at-grade beneath the 12th Avenue South Bridge would not adversely impact the setting of the bridge because the project is within the boundaries of the existing I-90 roadway.

The Will H. Thompson House would not have vibration or impacts from this project. Due to the distance of *Preferred Alternative A1* from the residence at 1402 32nd Avenue South and the project's location in a tunnel within the existing I-90 right-of-way, operation of the project along I-90 at-grade would not adversely impact this historic property.

Preferred Alternative A1 would be constructed within I-90's existing center roadway and would not require widening of the facility (Exhibit 4.16-19) within Segment A. The design, materials, and workmanship of the tunnels, portals, floating bridges, and lids would not substantially change. The structural integrity and intended use of the facility would be maintained. *Preferred Alternative A1* is consistent with the historical aspects, features, and characteristics of this segment of I-90 and the bridge's long-term planning objectives and would not diminish the resource as a key piece of transportation history with innovative engineering and planning for future rail transit. Due to the context of I-90 as a transportation corridor, with early planning for rail transit, and the East Link project's location in the center roadway, the project would not change the character-defining features that qualify the resource to be included in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. In conclusion, none of the historic buildings and structures in Segment A would be impacted by the project during operations.

Segment B

Preferred 112th SE Modified Alternative (B2M) is proposed to be located within the 50-foot boundary established in the Winters House NRHP nomination form. *Preferred Alternative B2M* passes directly in front of the Winters House in a lidded retained cut. The eastern edge of the *Preferred Alternative B2M* right-of-way measures approximately 10 feet from building foundation and 5 feet from the edge of the Winters House porch but is located in a lidded retained cut that is completely below grade.

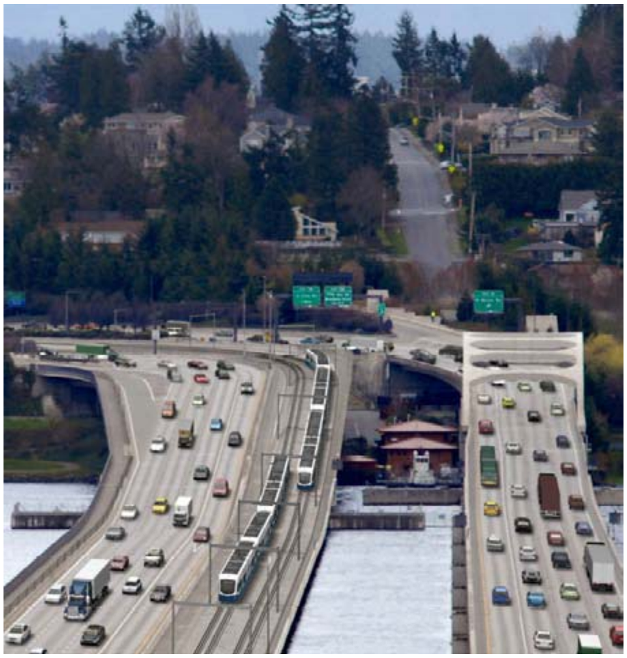


EXHIBIT 4.16-19
I-90 Floating Bridges with Visual Simulation of Light Rail in Center Roadway

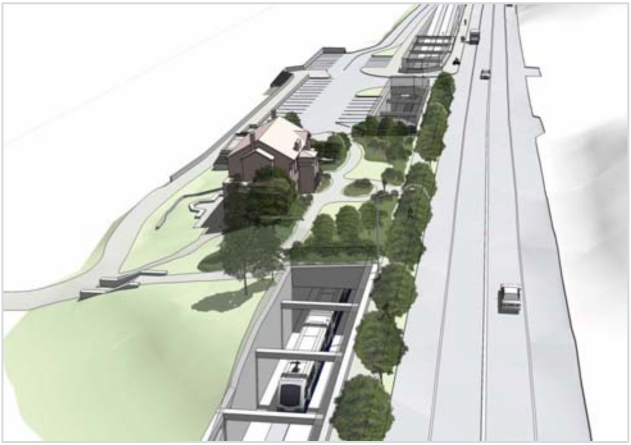
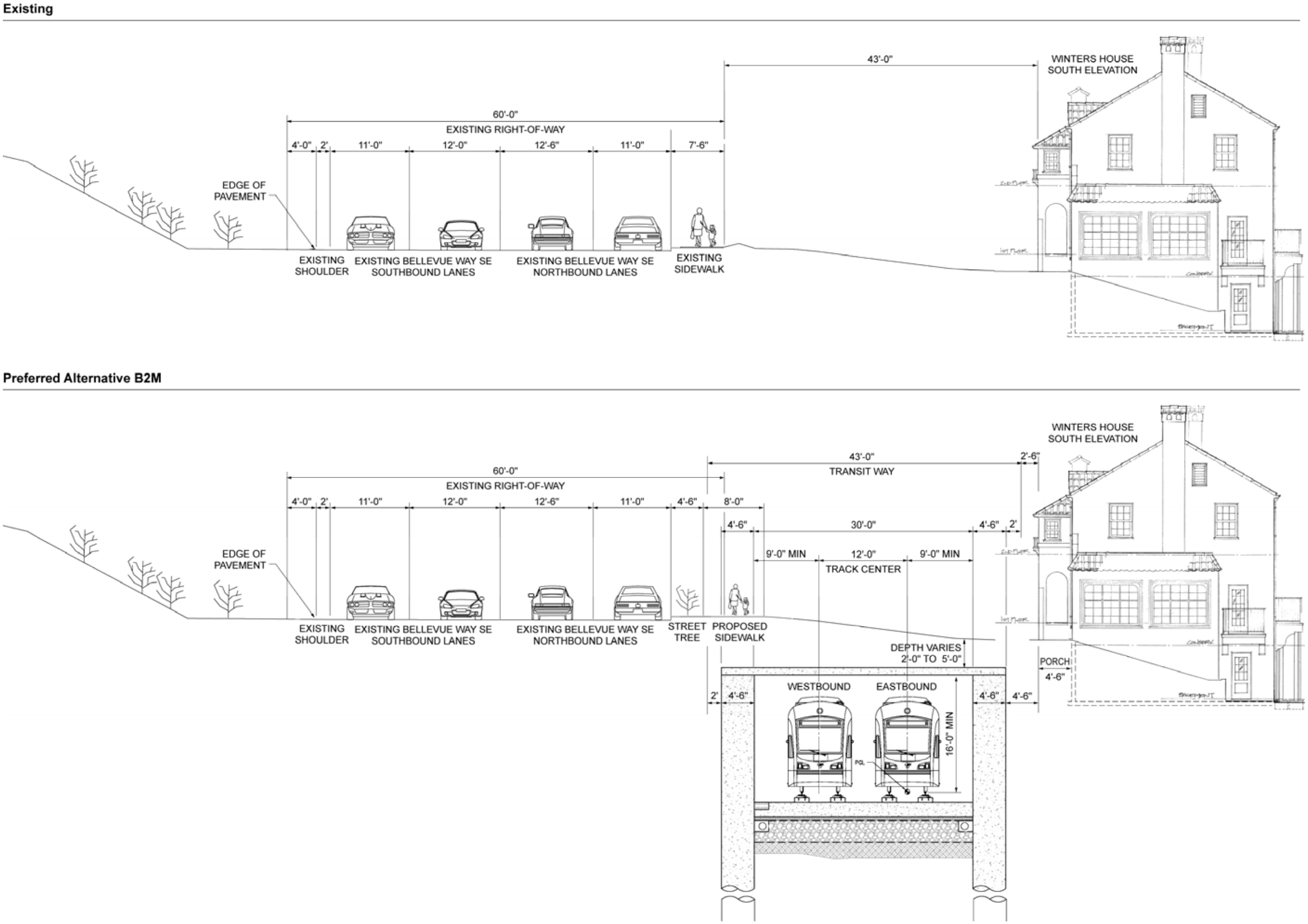


EXHIBIT 4.16-20
Winters House, *Preferred Alternative B2M* Birds' Eye View

Exhibit 4.16-20 depicts the Winters House with the proposed project (*Preferred Alternative B2M*), and Exhibit 4.16-21 shows the existing cross-section as well as the cross-section for *B2M*. The perspective and cross-section views illustrate minimization approaches incorporated into the project design to maintain historic integrity during light rail operation.



Existing

Preferred Alternative B2M

43'-0"
WINTERS HOUSE
SOUTH ELEVATION
60'-0"
EXISTING RIGHT-OF-WAY
4'-0"
2'
11'-0"
12'-0"
12'-6"
11'-0"
7'-6"
EDGE OF
PAVEMENT
EXISTING
SHOULDER
EXISTING BELLEVUE WAY SE
SOUTHBOUND LANES
EXISTING BELLEVUE WAY SE
NORTHBOUND LANES
EXISTING
SIDEWALK
WINTERS HOUSE
SOUTH ELEVATION
43'-0"
TRANSIT WAY
2'-6"
60'-0"
EXISTING RIGHT-OF-WAY
4'-0"
2'
11'-0"
12'-0"
12'-6"
11'-0"
4'-6"
8'-0"
4'-6"
30'-0"
4'-6"
2'
9'-0" MIN
12'-0"
TRACK CENTER
9'-0" MIN
EDGE OF
PAVEMENT
EXISTING
SHOULDER
EXISTING BELLEVUE WAY SE
SOUTHBOUND LANES
EXISTING BELLEVUE WAY SE
NORTHBOUND LANES
STREET
TREE
PROPOSED
SIDEWALK
DEPTH VARIES
2'-0" TO 5'-0"
PORCH
4'-6"
2'
4'-6"
WESTBOUND
EASTBOUND
4'-6"
4'-6"
16'-0" MIN

EXHIBIT 4.16-21
Cross Section of *Preferred Alternative B2M* Adjacent to Winters House

These elements include placing the light rail in a 170-foot-long lidded retained cut that would extend the width of the house and the length of the 50-foot property boundary on each side of the house, as identified in the NRHP nomination. Landscaping sensitive to the historic nature of the building and setting would be installed. Additional impacts on the Winters House property include a required American with Disabilities Act (ADA)-accessible ramp to connect the building to the parking lot; the sidewalk (per the City of Bellevue's requirement), which encroaches onto the front lawn by 5 feet; and a load restriction over the lidded trench that prohibits vehicles from driving on the front lawn, thus requiring deliveries at the first level of the building. Adjacent parking, which is located outside of the 50 feet nomination boundary, would be replaced with a new parking structure.

Whereas the Winters House would continue to fully convey its significance as outlined in its NRHP registration form, the 50-foot boundary around the house has been reduced by the widening of Bellevue Way SE, and the landscaping within this area no longer retain integrity because of several changes to the area over time.

Although the presence of the larger land area surrounding the property on the north, south, and east sides has been a feature since it was constructed and is a character-defining feature, the setting of the residence as it relates to Bellevue Way SE is not a character-defining feature, given past widening and improvements to Bellevue Way SE. As a result, *Preferred Alternative B2M* would not affect a historic resource related to the existing landscape.

Due to the proximity of the lidded retained cut and light rail guideway to the Winters House, the potential for vibration impacts during operation was analyzed and is described in more detail in Section 4.7, Noise and Vibration. No vibration impacts are projected. Using standard track work, the project would likely have groundborne noise impacts at the Winters House. As described in Section 4.7, Noise and Vibration, standard methods of vibration reduction, such as resilient fasteners or ballast mats, would be incorporated into the project and reduce the level of groundborne noise but may not eliminate the impact. The track design would incorporate a floating slab, if necessary, to eliminate the groundborne noise impact.

Sound Transit applied the Criteria of Adverse Effect (36 CFR 800.5) in analyzing each aspect of *Preferred Alternative B2M*, considering the property's character-defining features that convey its significance and qualify its listing in the NRHP.

Operation of *Preferred Alternative B2M* would not diminish the property's location because the Winters House structure would not be moved. The roadway would be the same distance from the house, and the light rail facility would be in a lidded, retained cut below grade in front of the structure and within the 50-foot property boundary on either side established by the NRHP nomination. Removal of the existing driveway would similarly not diminish the setting of the landscaping because it lacks integrity. Similarly, B3 - 114th Extension Design Option would also avoid adverse impacts on the resource.

Operation of Alternative B1 in the center of Bellevue Way SE is not anticipated to adversely impact the Pilgrim Lutheran Church, which is located just west of the street, although Bellevue Way SE would be realigned up to 10 feet into the property for a distance of roughly 250 feet (Exhibit 4.16-22).

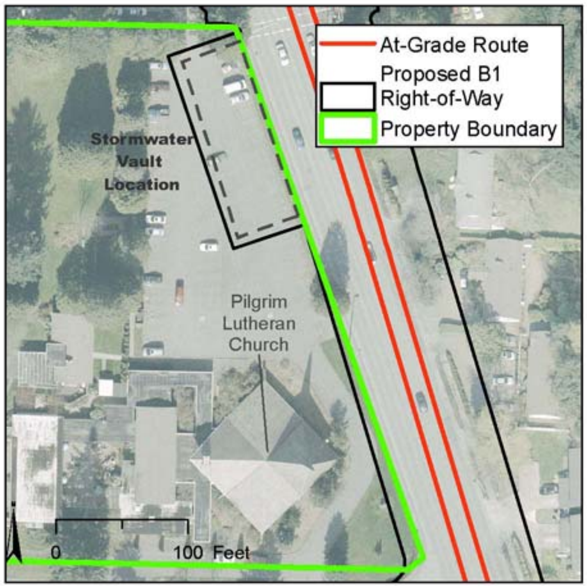


EXHIBIT 4.16-22
Proximity of Alternative B1 to Pilgrim Lutheran Church

In addition, an underground stormwater detention vault would be constructed at the northeast corner of the property in the parking area, but operation of this facility would not adversely impact the Pilgrim Lutheran Church. No parking would be removed. The vault would not be visible after construction, and the only surface element to the vault would be one or two manholes necessary for maintenance. No parking spaces would be removed. Maintenance would consist of periodically parking a truck at the site and opening the manholes for cleaning and maintenance, and maintenance could be scheduled to avoid major events and regular services at the church. The parcel is large and the historic building is sufficiently distant from the portion to be acquired so that the historic property would not be adversely impacted. The location already experiences the visual and noise impacts of heavy street traffic, and no additional impacts are expected to occur from operation of the project. Access from SE 11th Street to the church would not be disrupted. Vibration impacts would not be expected to reach the church.

There are no impacts to historic properties in the Alternative B7 APE. In conclusion, none of the historic buildings in Segment B would be impacted by the project during operations.

Segment C

While *Preferred 108th NE At-Grade Alternative (C11A)* (Exhibit 4.16-23) connecting to *Preferred Alternative B2M* would remove properties along 112th Avenue SE and Main Street, and both streets border the potential Surrey Downs historic district, no properties contributing to the potential historic district would be removed. When connecting to *Preferred Alternative B2M*, *Preferred Alternative C11A* would remove one row of noncontributing properties along 112th Avenue SE, a single row of noncontributing properties along Main Street, and one property along 111th Avenue SE.

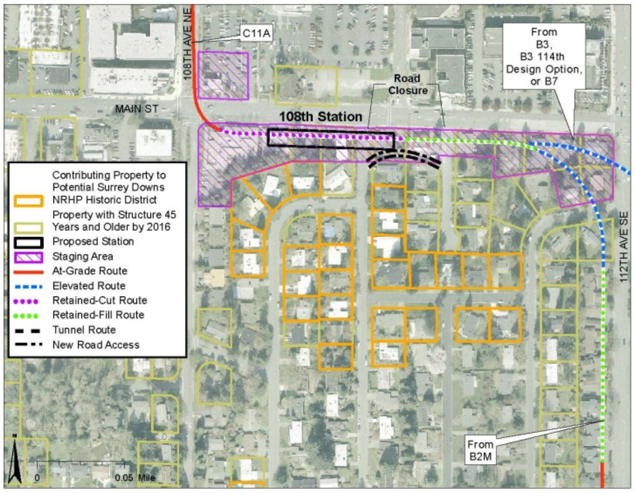


EXHIBIT 4.16-23
Proximity of *Preferred Alternative C11A* to Potential Surrey Downs Historic District

While *Preferred Alternative C11A* would remove properties along 112th Avenue SE and Main Street, it would not remove any of the properties contributing to the potential historic district. Along 112th Avenue SE, the first two rows of properties from the roadway are noncontributing, as are properties nearest the corner of 112th Avenue SE and Main Street and just south of Main Street. Due to the nature and orientation of the properties along the eastern and northern edges of the potential historic district, this impact would not be adverse. One row of noncontributing properties would remain between the contributing properties and the project along 112th Avenue SE and most of Main Street. The contributing properties would be the same distance from 112th Avenue SE and Main Street, and the transit changes to each roadway would not directly affect the district setting that would affect its potential for listing in the NRHP, or for its contributors to convey their significance and that of the district as a whole. The project would not adversely impact the historic setting within the Surrey Downs neighborhood.

Preferred Alternative C11A includes the 108th Station on Main Street adjacent to contributing buildings. Contributing properties nearest the proposed project would be indirectly affected by *Preferred Alternative C11A* operation, and the noncontributing buildings in commercial use along Main Street would be removed. The potential historic district's setting would be affected by the removal of noncontributing properties along the major roadways of 112th Avenue SE and Main Street and the 108th Station. However, due to the surrounding dense, urban nature of the properties along the eastern and northern edges of the potential district, this impact would not be adverse.

When connecting to Alternatives B3, B3 - 114th Extension Design Option, or B7, *Preferred Alternative C11A* would not remove any properties or change access along 112th Ave SE. One row of properties along Main Street would be permanently removed for the light rail guideway and 108th Station.

Preferred Alternative C11A could have potential moderate noise impacts on three contributing properties in the northwest portion of the potential district, south of the proposed station; however, these noise impacts would be minimized and avoided with a permanent sound barrier included along the 112th Avenue SE and Main Street portions of the project.

While *Preferred Alternative C11A* would introduce changes to the setting of the potential Surrey Downs historic district, the project would not affect any contributing properties and would minimize impacts on setting and context. During final design, Sound Transit would assess whether or not the existing large evergreen trees located next to the contributing properties near the 108th Station could be preserved. Sound Transit's intention is to preserve the established trees to the extent practicable. Project components such as station design, landscaping, and a landscaped berm would minimize project visual and noise impacts, create a buffer from the project, and could enhance the neighborhood boundary where noncontributing properties would be removed.

Preferred 110th NE Tunnel Alternative (C9T) would not be adjacent to any contributing properties. It would remove one row of noncontributing properties along 112th Avenue SE and one to two rows of noncontributing properties at the northeast corner of the neighborhood where 112th Avenue SE meets Main Street when connecting to *Preferred Alternative B2M* (Exhibit 4.16-24). Fewer noncontributing properties would be removed along Main Street as compared with *Preferred Alternative C11A* because *Preferred Alternative C9T* enters a tunnel on the south side of Main Street and turns north to tunnel under 110th Avenue NE. The visual change to the area surrounding the potential Surrey Downs historic district would be less than those of *Preferred Alternative C11A* because the properties along Main Street west of 110th Avenue NE would remain. If the East Main Station Design Option is selected, no additional properties would be removed.

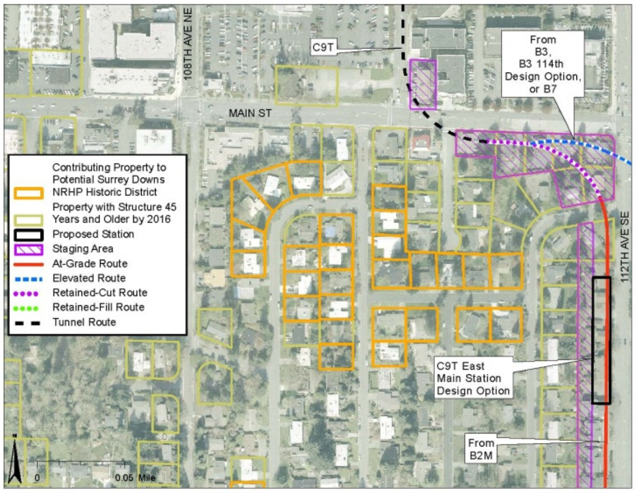

108TH AVE NE
C9T
From B3, B3 114th Design Option, or B7
MAIN ST
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Staging Area
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
112TH AVE SE
C9T East Main Station Design Option
From B2M
0
0.05 Mile

EXHIBIT 4.16-24
Proximity of *Preferred Alternative C9T* to Potential Surrey Downs Historic District

When connecting to Alternatives B3, B3 114th Extension Design Option, or B7, *Preferred Alternative C9T* would not remove any properties or change access along 112th Ave SE. One row of noncontributing properties along Main Street between 112th Avenue SE and 110th Avenue would be permanently removed.

While *Preferred Alternative C9T* would affect the setting of the potentially NRHP-eligible Surrey Downs historic district, the project would not affect any contributing properties and would minimize effects on setting and context. Project components such as landscaping create a buffer from the project and could enhance the neighborhood boundary where noncontributing properties would be removed.

There is only one historic property in the Bellevue Way Tunnel Alternative (C1T) APE: the Safeway store. Alternative C1T would be in a tunnel profile in the Bellevue Way street right-of-way when passing by the Safeway property. Alternative C1T would have no visual, vibration, or noise impacts during operation and therefore would not adversely impact this property.

Operation of the 108th NE Tunnel (C3T) and 106th NE Tunnel (C2T) Alternatives would have no visual impacts on properties that contribute to the potential Surrey Downs historic district within the APE (Exhibit 4.16-25). Vibration and noise impacts also are not anticipated during East Link operation. Similar to *Preferred Alternative C11A*, construction would be directly adjacent to contributing properties and appropriate measures to minimize impacts would be implemented.

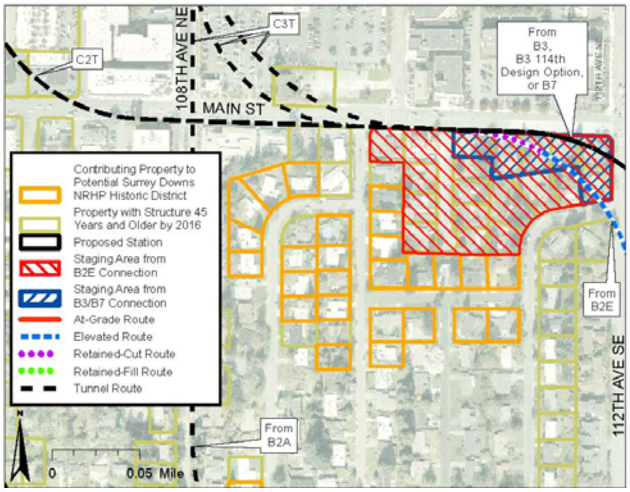

C2T
C3T
108TH AVE NE
MAIN ST
From B3, B3 114th Design Option, or B7
112TH AVE NE
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Staging Area from B2E Connection
Staging Area from B3/B7 Connection
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
From B2E
112TH AVE SE
From B2A
0
0.05 Mile

EXHIBIT 4.16-25
Staging Area for Connections from B2E vs. B3 and B7 for Tunnel Alternatives C2T and C3T

Operation of Couplet Alternative (C4A) along 112th Avenue SE would avoid adverse impacts on properties that contribute to the potential Surrey Downs historic district (Exhibit 4.16-26). Almost all of the contributing properties would be screened by existing vegetation, fences, and other houses. Similar to *Preferred Alternative C11A*, construction would be directly adjacent to contributing properties and appropriate measures to minimize impacts would be implemented.

The 112th NE Elevated (C7E) and 110th NE Elevated (C8E) Alternatives are not anticipated to affect properties that contribute to the potential Surrey Downs historic district within the APE because the alternatives are distant enough (at least 200 feet) to avoid visual, noise, and vibration impacts.

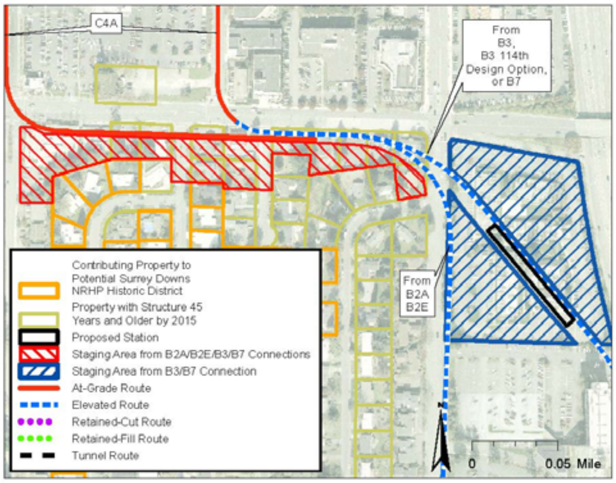

C4A
From B3, B3 114th Design Option, or B7
From B2A B2E
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2015
Proposed Station
Staging Area from B2A/B2E/B3/B7 Connections
Staging Area from B3/B7 Connection
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
N
0
0.05 Mile

EXHIBIT 4.16-26
Staging Area for Connections from B2A and B2E vs. B3 and B7 for Alternative C4A

110th NE At-Grade Alternative (C9A) would be elevated and on the east side of 112th Avenue SE, so there would be no acquisition of properties along the west side of 112th Avenue SE near the potential Surrey Downs historic district. Because this alternative would be elevated, with straddle bents, approximately 40 feet in this area, Alternative C9A would result in visual change. In addition, permanent sound walls would be constructed along the south side of Main Street adjacent to noncontributing structures. However, this change in visual quality would occur outside the Surrey Downs neighborhood and therefore not affect its potential eligibility for the NRHP. In addition, the two rows of noncontributing properties along 112th Avenue SE would remain between the potential Surrey Downs historic district and the project. Alternative C9A would travel at-grade on the south side of Main Street before turning north on 110th Avenue NE, and would require the removal of one row of structures along the south side of Main Street between 112th Avenue SE and 110th Avenue NE. None of the properties that would be removed contribute to the potential Surrey Downs historic district, and the project would not be adjacent to any contributing properties.

The intersection of 110th Place SE would either be gated with right-in/right-out access only or closed. However, access to the north end of the neighborhood would remain. Alternative C9A would not alter or remove contributing resources or otherwise diminish character-defining features of the potential historic district.

The 114th Avenue NE Elevated Alternative (C14E) would avoid adverse impacts on properties that contribute to the potential Surrey Downs historic district because the alternative is distant enough to avoid visual change and noise impacts.

Segment D

There are no historic properties within the APE for *Preferred NE 16th At-Grade Alternative (D2A),* Alternative D2A - 120th Station and - NE 24th Design Options, the NE 16th Elevated (D2E), and SR 520 (D5) Alternatives.

For the NE 20th Alternative (D3), a narrow portion of the parcel that the former Bellevue Fire Station occupies would be incorporated into the project due to road reconstruction (Exhibit 4.16-27). However, the building is located on the portion of the parcel outside of the APE, and the portion of the property that would be acquired is not a character-defining feature of the resource. Operation of the alternative would not result in visual, noise, vibration, or other impacts on the property. Widening of the road and introduction of the retained-cut light rail would not adversely impact the setting, which is characterized by major roadways: Bel-Red Road, 148th Avenue NE, and NE 20th Street. Although the building's parcel is situated inside the APE, the building itself is outside the APE.

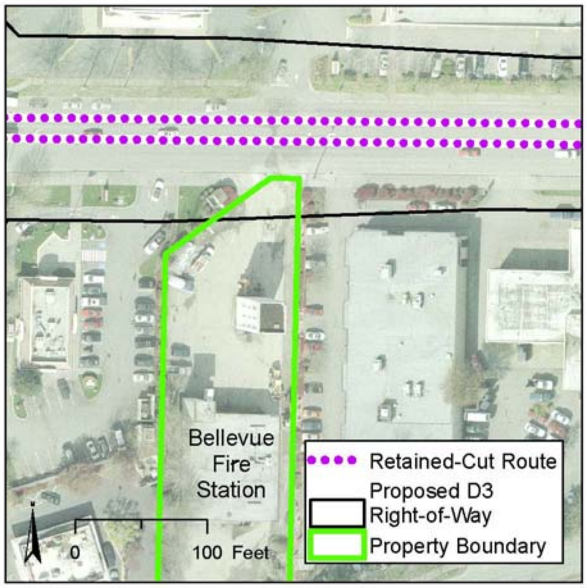

Bellevue Fire Station
0
100 Feet
Retained-Cut Route
Proposed D3 Right-of-Way
Property Boundary

EXHIBIT 4.16-27
Effects of Alternative D3 on former Bellevue Fire Station

Segment E

The Justice William White House, the Redmond Trading Company building, and the Bill Brown Saloon building (Exhibit 4.16-28) are within the APE of *Preferred Marymoor Alternative (E2)* and Alternative E2 - Redmond Transit Center Station Design Option. The Justice William White House is approximately 65 feet from the route and separated by NE 76th Street. The Bill Brown Saloon is at least 100 feet from the route.

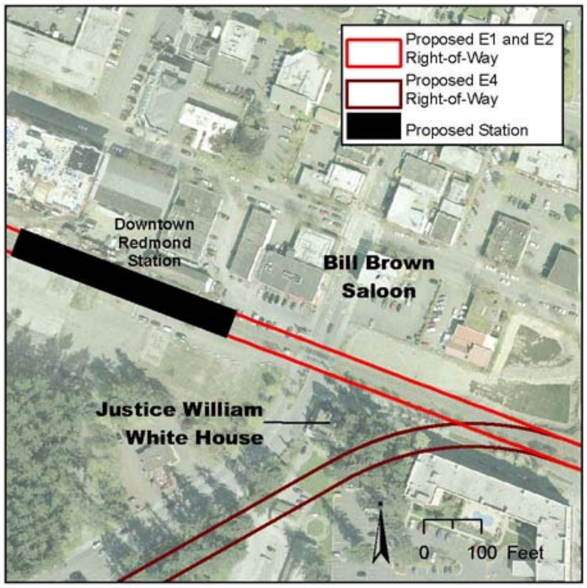


EXHIBIT 4.16-28
Proximity of *Preferred Alternative E2*, and Alternatives E1 and E4 to Bill Brown Saloon Building and Justice William White House

The Redmond Trading Company building is approximately 50 feet from the rail alignment and the Downtown Redmond Station. While *Preferred Alternative E2,* the Downtown Redmond Station, and E2 - Redmond Transit Center Design Option would introduce light rail into the setting of these resources, which are across the former BNSF Railway corridor from each other, including a station just west of Leary Way NE, the project would be at-grade within the existing railroad corridor and consistent with the character of the railroad setting.

The operation of trains for passenger use in the right-of-way is consistent with the historic use of the corridor. The station would be designed in coordination with the City of Redmond and the community to complement the historic setting of Downtown Redmond. In addition, none of the remaining historic period buildings that contribute to the setting would be removed. Therefore, *Preferred Alternative E2* and E2 - Redmond Transit Center Design Option would have no adverse impact on these resources.

During final design, Sound Transit will work with the City of Redmond to adjust the design of *Preferred Alternative E2* within the former BNSF Railway corridor and NE 76th Street right-of-way to accommodate the potential for future freight / commuter rail, the Central Connector utility line, the King County Trail, automobile traffic on NE 76th Street, as well as East Link light rail. Resulting changes may include shifting the *Preferred Alternative E2* rail alignment farther from the Bill Brown Saloon and the Redmond Trading Company building, but closer to the Justice William White House. This shift in the alignment would not affect any of the three properties because *Preferred Alternative E2* would not encroach on the historic boundary, or alter the historic setting of the corridor as a railway in relation to the Justice William White House. The character-defining features of the Justice William White House and the Bill Brown Saloon that convey their significance and qualify the properties for listing in the NRHP would not be adversely impacted by this potential shift of the alignment.

At the Justice William White House, Redmond Trading Company building, and the Bill Brown Saloon building, the Redmond Way Alternative (E1) route is the same as described above for *Preferred Alternative* E2, although it does not include the Downtown Redmond Station. This alternative would result in no impacts on historic properties. The Leary Way Alternative (E4) would require relocating the Justice William White House, which would result in an adverse impact. Sound Transit has consulted with the City of Redmond and DAHP about moving the building to a nearby location that preserves as much of its setting, feeling, and association with the former BNSF Railway as possible to resolve the adverse impacts from building relocation. Furthermore, relocation would occur in a manner that avoids damage to the building during transport and re-establishment. If Alternative E4 is selected, FTA and Sound Transit would continue to consult with the City, DAHP, and other interested parties to determine whether a suitable relocation site can be determined that is feasible within the project alternative. The roles and responsibilities for implementing mitigation measures would be established through a Memorandum of Agreement (MOA). In conclusion, the Justice William White House would be potentially impacted and the remaining historic resources in Segment E would not be impacted by the project during operations.

4.16.3.4 Impacts during Construction

It is unlikely that project alternatives would affect NRHP-eligible archaeological sites because many portions of the project are located within areas not considered sensitive for the occurrence of archaeological sites or are located in high-sensitivity areas that have experienced previous disturbance. In addition, the archaeological investigation to date has encountered no NRHP-eligible archaeological sites, including historically recorded site 45KI8. Past fill and disturbance could have covered, destroyed, or damaged site 45KI8.

Although much of the APE has seen ground disturbance, fill, and development, it is possible that one or more archaeological sites may still exist, deeply buried beneath the ground surface in areas where project excavation would take place. An additional preconstruction survey would be conducted to further identify potential buried resources and would guide the development of an Archaeological Resources Monitoring Plan (ARMP) or an Unanticipated Discovery Plan (UDP). The Segment B and Segment E alternatives have a greater likelihood of containing archaeological sites than the other segments because they are near water bodies that contain resources sought by prehistoric and historic people. *Preferred Alternative B2M,* Alternatives B2A, B2E, B3, and B7 and the B3 - 114th Extension Design Option are near Mercer Slough and its adjacent terraces, while *Preferred Alternative E2* and Alternatives E1 and E4 are near the Sammamish River valley and its adjacent terraces.

The following subsections discuss the potential impacts of project construction on historic buildings and structures. Construction impacts on historic buildings and structures can include temporary loss of access, along with visual impacts, noise, vibration, and the dust and debris of construction activities. Sound Transit would implement minimization and mitigation measures to resolve these potential impacts. For *Preferred Alternatives B2M* and *C11A*, a potential construction impact could occur at the Winters House and potential Surrey Downs historic district. Alternative E4 would potentially impact the Justice William White House as a result of its required relocation.

Segment A

Construction of Segment A and *Preferred Alternative A1* is not anticipated to affect the identified historic properties. The Publix Hotel is located above the transit tunnel, and the INS Building is situated at the east edge of the APE and would not be affected by construction along Fifth Avenue South. The project is also located far enough from the Romaine Electric/Washington Iron Works Pattern Shop that no construction activities are expected to adversely impact the resource. Construction of the at-grade route beneath the 12th Avenue South Bridge also would not adversely impact that property. Project construction would also avoid impacts on the Will H. Thompson House situated above the Mount Baker Ridge Tunnel. Given the distance of construction activities from the resource, the residence at 1402 32nd Avenue South would not be adversely impacted.

Finally, construction would not affect features of the NRHP-eligible I-90 Lake Washington segment, including the portals of the Mount Baker Ridge Tunnels, because the project would be constructed to avoid impacts on the features identified as character-defining by locating all construction activities within the center of I-90, which was originally designed with the intent to allow for such construction. Use of the segment during construction would not affect the property in a manner that would impair future use of the resource as it was intended.

Segment B

The potential for damage from vibration and settlement from construction activity adjacent to the Winters House with *Preferred Alternative B2M*, including construction of underground piles for retained-cut support, may exist. Methods to prevent or limit impacts such as minor cosmetic damage are incorporated as conditions of the project as described in Appendix H4 and Section 4.7, Noise and Vibration. The character-defining features of the NRHP-listed Winters House that convey its significance and qualify the property for listing in the NRHP would not be affected. Construction would introduce visual, audible, and vibration elements that could diminish the character-defining features of the former residence that convey its significance. By employing construction settlement and vibration-minimization measures during construction, the project would minimize damage and alterations to the structure that would affect the design, materials, and workmanship of the resource. Also, if any cosmetic damage occurs, Sound Transit would make the needed repairs consistent with the Secretary of the Interior’s standards.

Construction settlement and vibration minimization measures are described in detail in Appendix H4. Minimization and mitigation measures, which are listed later in this section under Section 4.16.4, Potential Mitigation Measures, would be incorporated into *Preferred Alternative B2M* to resolve potential impacts on the Winters House.

After construction, the landscaping would be restored in a manner sensitive to the historic period. In addition, while the City of Bellevue would not receive rental income from the Winters House during construction, there would be no impacts from the project that would cause a change in the use of the structure or change economic conditions resulting in reduced maintenance of the structure. The public use and the Eastside Heritage Center would be able to return to the building after construction.

With Alternatives B1, B2A, B3, and B3 - 114th Extension Design Option, construction of the at-grade trackway located in the center of Bellevue Way SE would have temporary visual and noise impacts on the Winters House that would not be considered adverse. The character of the setting does not convey or contribute to the significance of the NRHP-listed resource, and, therefore, the temporary change due to construction would not be an adverse impact. Access to the property would be maintained during construction, and the tenant would not need to be relocated. Construction would not alter or damage the building. The same is true for construction of the Alternative B2E route on the west side of Bellevue Way SE across from the Winters House.

Construction of the underground stormwater detention vault at the northeast corner of the Pilgrim Lutheran Church parking lot would have temporary noise impacts on the church and temporarily reduce parking, but these effects would not impair the intended use of the property and are not considered adverse. Sound Transit would avoid construction during church services and special events to the extent possible, and the remainder of the parking area would be available for use.

Alternative B7 would not affect any historic resources during construction.

Segment C

Construction impacts in Segment C would mostly involve connectors from Segment B in the vicinity of the potential Surrey Downs historic district. These issues are outlined below.

Preferred Alternative C11A connecting to *Preferred Alternative B2M* would be constructed and use staging areas along or near Main Street and along 112th Avenue SE (Exhibit 4.16-23). When connecting to Alternatives B3 and B7 and the B3 - 114th Extension Design Option, construction of *Preferred Alternative C11A* would use properties near the corner of Main Street and 112th Avenue SE and one row of properties along Main Street. Construction staging areas are needed before, during, and for a short time after construction work occurs to store and maintain construction equipment and material and fabricate project component. Staging areas might also include contractor trailers (which would act as temporary offices and places for contractors to meet) and construction crew parking.

Construction of *Preferred Alternative C11A* and its staging areas would occur adjacent to and on the edge of the potential Surrey Downs historic district but would not remove properties that contribute to the potential historic district. In most areas, noncontributing buildings would remain between the contributing buildings and project construction except near the intersection of Main Street and 108th Avenue NE, where construction would be adjacent to three contributing buildings. Construction activities could result in noise, visual, and dust impacts on nearby residences. Minimization and avoidance techniques would include installation of a solid construction barrier to shield the homes from construction, and to the extent practical, preservation of the evergreen trees along the south edge of the station area, east of 108th Avenue SE. Construction truck traffic would use the Main Street and 112th Avenue SE arterials without passing through the potential historic district. Street access to the neighborhood might be altered at times, but access would be maintained during construction.

Construction of *Preferred Alternative C11A* along 112th Avenue SE and Main Street is expected to occur largely during daytime working hours. Sound Transit contractors would be required to meet the City’s noise ordinance criteria during all construction and if nighttime or off hours work was required, would seek the appropriate noise variance from the City. Refer to Section 4.7, Noise and Vibration, for additional information.

The *Preferred Alternative C11A* construction impacts would be temporary, lasting about five years overall, with the most intense construction activities (demolition, clearing, and heavy construction) occurring during the first couple years. Construction impact minimization measures included in the project, such as best management practices (such as dust control measures), and a solid construction barrier adjacent to contributing properties would resolve construction impacts. The residences are anticipated to remain habitable during the construction period.

In summary, construction adjacent to the potential historic district would potentially impact the contributing properties without the implementation of appropriate minimization and mitigation measures. Implementing these measures would resolve the potential impacts.

Preferred Alternative C9T would not be adjacent to any contributing properties. It would remove one row of noncontributing properties along 112th Avenue SE and one to two rows of noncontributing properties at the northeast corner of the neighborhood where 112th Avenue SE meets Main Street when connecting to *Preferred Alternative B2M* (Exhibit 4.16-24). Fewer noncontributing properties would be removed along Main Street as compared with *Preferred Alternative C11A* because *Preferred Alternative C9T* enters a tunnel on the south side of Main Street and turns north to tunnel under 110th Avenue NE. The visual change to the area surrounding the potential Surrey Downs historic district would be less than those of *Preferred Alternative C11A* because the properties along Main Street west of 110th Avenue NE would remain. Alterations to neighborhood access would preserve other access points to 112th Avenue SE for the neighborhood.

When connecting to Alternatives B3, B3 - 114th Extension Design Option, or B7, *Preferred Alternative C9T* would not remove any properties or change access along 112th Ave SE. One row of noncontributing properties along Main Street between 112th Avenue SE and 110th Avenue would be permanently removed.

Regardless of the connector, *Preferred Alternative C9T* would not affect any contributing properties in the potential NRHP-eligible Surrey Downs historic district. This alternative would be far enough away from contributing properties to avoid an adverse impact during construction (Exhibit 4.16-24). While construction of *Preferred Alternative C9T* might affect the setting of the potential historic district, these affects would be temporary. Project components such as landscaping, would create a buffer from the project and enhance the neighborhood boundary where noncontributing properties would be removed.

Constructing a tunnel in Bellevue Way for Alternative C1T may require short-term construction easements affecting the sidewalk adjoining the Safeway property, but this would be over 100 feet from the structure, the store is currently closed, and a preliminary land use plan application for new construction is posted on the property. Therefore, there is low potential for indirect effects from East Link during construction. The project includes minimization measures to reduce potential impacts on the Safeway property, as described in Section 4.16.4.

With respect to the potential Surrey Downs historic district, none of the Segment C alternatives would require the removal of property along 112th Avenue SE south of SE First Place adjacent to potential contributing properties.

Alternatives C2T and C3T would involve connectors from Alternatives B2A, B2E, B3, or B7 (Exhibit 4.16-25). The connector from Alternative B2A to C2T or C3T would involve boring beneath the potential Surrey Downs historic district, which would avoid access and visual impacts. Noise and possible vibration could be noticeable to residents during construction but would not affect the buildings. Although the geotechnical analysis shows that the soils in this area are generally resistant to settlement from ground disturbance, precautions during construction and a careful monitoring program would be incorporated into the construction plan.

The connector from Alternative B2E to C2T or C3T would use the northern area of the Surrey Downs subdivision for construction staging at the tunnel portal adjacent to several contributing properties (Exhibit 4.16-25). If connecting from Alternatives B3 or B7, then the staging area would be fewer homes and farther away from contributing residences. Construction would alter access at times during construction and would produce visual, noise, dust, and possible vibration impacts. The impacts would be temporary and would not affect historic structures.

Sound Transit would minimize visual and noise impacts by installing a solid construction barrier adjacent to contributing properties. To meet required noise limits, noise control measures discussed in Section 4.7 would be implemented for Alternatives C2T, C3T, and C4A. The staging area along Main Street created for the Alternative B2E connection to Alternatives C2T or C3T could be developed as a park after construction consistent with the City of Bellevue’s Parks and Recreation Plan or could redevelop consistent with local zoning.

For connectors from Alternatives B2A or B2E to Alternative C4A, construction staging areas would remove one to two rows of properties south of Main Street. Construction would alter access at times during construction and would produce visual, noise, dust, and possible vibration impacts. The impacts would be temporary and not affect historic structures. Sound Transit would minimize visual and noise impacts by installing a solid construction barrier as well as implementing typical best management practices (BMPs) to reduce construction impacts such as dust.

For connectors from Alternatives B3 or B7 to Alternative C4A, construction staging would involve a smaller area but would still be adjacent to portions of the potential Surrey Downs historic district (Exhibit 4.16-26). Construction of connectors to Alternative C4A would be shorter in duration and require less nighttime construction than construction for tunnel alternatives, such as Alternatives C2T and C3T, and *Preferred Alternative C9T*. There would be no effect on the potential Surrey Downs historic district for connectors from Alternatives B3 or B7 to C7E or C8E. Alternative C9A would require similar property acquisition for construction staging as *Preferred Alternative C9T,* with the addition of one building west of 110th Place SE on the south side of Main Street. The elevated and at-grade construction for Alternative C9A is anticipated to have a shorter duration than *Preferred Alternative C11A*, which includes a station on Main Street, and *C9T*, which is a tunnel alternative. Alternative C9A would not impact the potential Surrey Downs historic district.

Alternative C14E is located far enough away from the Surrey Downs subdivision to have no impacts on the resources within it.

Segment D

Preferred Alternative D2A would not affect any historic resources. There are no historic properties within the Alternatives D2A - 120th and - NE 24th Design Options, D2E, or D5 APE.

With Alternative D3, construction in a retained cut near the former Bellevue Fire Station would not affect the property. Although the building's parcel is situated inside the APE, the building itself is outside the APE and would not be adversely impacted by the construction activities proposed. Alternative D3 would not result in any adverse visual, audible, or atmospheric elements that would adversely impact the property or use of the property.

Segment E

Preferred Alternative E2 and E2 - Redmond Transit Center Design Option that continue west and turns north on 161st Avenue NE to Redmond Transit Center would not pass close enough to the Justice William White House, the Redmond Trading Company building, or the Bill Brown Saloon to cause an adverse impact on the historic context or to potentially damage the buildings during construction. *Preferred Alternative E2* would temporarily increase noise and dust and result in visual change from construction activities, but these impacts would not be adverse. In addition, existing vegetation and NE 76th Street, which separate the Justice William White House from the trackway, would further minimize the visual change and dust. Project construction would not adversely impact the character-defining features of the property or use of the historic property. *Preferred Alternative E2* would temporarily increase noise and dust and result in visual change caused by construction activities, but these would not be adverse impacts.

Alternative E1 is in the same location as *Preferred Alternative E2* near the Justice William White House, the Redmond Trading Company building, and Bill Brown Saloon. Therefore, Alternative E1 would have the same temporary noise, dust, and visual impacts on the resource as *Preferred Alternative E2* and would not adversely impact the properties or use of the historic properties.

Alternative E4 would require relocating the Justice William White House, which would cause an adverse impact, as discussed above under Section 4.16.3.3, Impacts during Operations.

4.16.3.5 Maintenance Facilities

There are no historic properties located in the APE for maintenance facilities; therefore, no historic properties would be affected by operation or construction of these facilities.

4.16.4 Potential Mitigation Measures

Given that FTA, in consultation with SHPO, has made a determination of Adverse Effect for the project, an MOA is required pursuant to 36 CFR 800.6[c]. Adverse impacts on historic properties must be resolved through the Section 106 process by preparing an MOA.

An MOA contains stipulations specifying avoidance, minimization, or mitigation measures to be implemented to resolve the potential impacts. A draft MOA, included in Appendix I, addresses potential impacts for the preferred alternative on the Winters House, potential Surrey Downs historic district, and archaeological resources. The proposed measures for these resources are described in this section.

4.16.4.1 Archaeological Sites

Although some potentially sensitive archaeological areas are identified, studies to date have identified no NRHP-eligible prehistoric or historic-period archaeological sites in the project APE.

Although much of the APE has seen ground disturbance, fill, and development, it is possible that one or more archaeological sites may exist beneath the ground surface in areas where project excavation would take place. Project archaeologists would conduct additional subsurface testing before construction— activities referred to as Stage 2 survey— The Stage 2 Survey will provide additional information about the potential for uncovering historic resources for the project.

An archaeological resources monitoring and treatment plan (ARMTP or an Unanticipated Discovery Plan (UDP), would be prepared to guide archaeological monitoring work during East Link Project construction. FTA and Sound Transit would coordinate with SHPO, the Muckleshoot and Snoqualmie Tribes, and other interested parties as appropriate, to review the plan.

In the event that significant archaeological deposits are inadvertently discovered during construction in any portion of the project study area, ground-disturbing activities would be halted and the procedures of the

ARMTP or UDP followed. If ground-disturbing activities encounter human skeletal remains during the course of construction, FTA and Sound Transit would implement relevant procedures in the ARMTP or UDP and follow federal and state laws regarding the discovery of human remains. If the remains are determined to be Indian, FTA and Sound Transit would notify DAHP and the affected Tribes to consult regarding treatment of the remains.

4.16.4.2 Historic Buildings and Structures

The East Link *Preferred Alternative B2M* has the potential to cause an impact on the Winters House. *Preferred Alternative C11A* and Alternatives C4A, C2T, and C3T have the potential to cause an impact on the potential Surrey Downs historic district. The project has the potential to cause an impact on the Justice William White House through Alternative E4.

The following typical BMPs would be incorporated into the project and all resources including the Safeway and the Bellevue Fire Station.

- Take precautions that historic properties are protected from vibrations, excavations, and damage from heavy equipment.
- Protect facades of affected historic buildings from an accumulation of excessive dirt and dust during construction, and/or clean them in an appropriate manner at the conclusion of construction. Sound Transit would consult with the SHPO before implementing any protection or cleaning methods.
- Control fugitive dust using measures listed in Section 4.6, Air Quality.

Resource-specific minimization measures are described below.

Minimization of Operational Impacts on Winters House from *Preferred Alternative B2M*

- Incorporate standard methods of vibration reduction, such as resilient fasteners or ballast mats, into the project as necessary to reduce the level of groundborne noise and eliminate the impact. A floating slab would be incorporated in the project, if necessary, to eliminate the groundborne noise impacts.
- Landscape the area of property between the front (west elevation) of the Winters House and Bellevue Way SE to more closely reflect the landscaping of the historic period, in consultation with the City. Preserve, as practical, historic period plants that would be impacted by the project.
- Provide new interpretive display on or near the Winters House property, in consultation with the City of Bellevue.

Minimization of Construction Impacts on Winters House from *Preferred Alternative B2M*

- Photograph and inventory the building to establish existing conditions.
- Install vibration and settlement monitoring devices and adjust excavation methods based on monitoring results.
- Use specific vibration- and settlement-reducing construction methods (to be determined during final design and construction).
- Potentially build a construction barrier around Winters House to prevent damage and minimize dust.
- Close the Winters House during construction and temporarily relocate the tenant (Sound Transit would provide information to the public regarding how to access the Eastside Heritage Center during construction).
- If damage does occur, make the needed repairs consistent with the U.S. Secretary of the Interior's standards for treating historic properties.

Minimization of Operational Impacts on Pilgrim Lutheran Church from Alternative B1

- Avoid stormwater vault maintenance during church services and special events to the extent possible.
- Minimize parking space obstruction during stormwater vault maintenance.

Minimization of Construction Impacts on Pilgrim Lutheran Church from Alternative B1

- Apply typical BMPs to minimize and avoid construction impact.
- Avoid construction during church services and special events to the extent possible.
- Restore disturbed areas following construction.

Minimization of Operational Impact on NRHP-Eligible Surrey Downs Historic District

From *Preferred Alternative C11A*

- Install a permanent sound barrier along the south side of the guideway along Main Street to prevent noise impacts on contributing properties in the potential Surrey Downs Historic District.
- Landscape along south side of the guideway and the 108th Station along Main Street where noncontributing properties are removed.

From Alternative C4A

- Install a permanent sound barrier along the south side of the guideway along Main Street adjacent to contributing properties.
- Landscape along the south side of the guideway along Main Street to enhance the neighborhood boundary where noncontributing properties are removed.

Minimization of Construction Impact on NRHP-Eligible Surrey Downs Historic District

From *Preferred Alternative C11A* and Alternative C4A

- Apply typical BMPs to minimize and avoid construction impacts.
- Before construction begins, install a solid construction barrier along contributing properties south of Main Street.
- Where possible, preserve the evergreen trees along the south edge of the proposed station area, east of 108th Avenue SE.

From Alternatives C2T and C3T

- Apply typical BMPs to minimize and avoid construction impacts.
- Before construction begins, install a solid construction barrier along contributing properties south of Main Street.

Mitigation Measures for Adverse Impact on Justice William White House from Alternative E4

Consult with SHPO to determine whether an appropriate location can be found to relocate this resource. If such a location can be determined, FTA and Sound Transit would consult with SHPO, the City of Redmond, and other interested parties to develop and to determine a suitable relocation site that preserves the Justice William White House's setting, feeling, and association with the railroad, thus maintaining its eligibility for the NRHP. The relocation would be managed by qualified architects and engineers in a manner to avoid damage to the building and preserve its eligibility for listing in the NRHP. Prior to relocating the building, Sound Transit would fully record the building in its original context through a Level II Historic American Building Survey/Historic American Engineering Record documentation. This would include photographs, measured drawings, and a written history component. If alternative E4 were selected, then the MOA would be altered to include mitigation for the Justice William White House.

4.17 Parkland and Open Space

4.17.1 Introduction to Resources and Regulatory Requirements

The East Link Project study area is situated close to many recreational facilities in communities in Seattle, Mercer Island, Bellevue, and Redmond that vary in size, type, and function. Recreational facilities are discussed in this Final Environmental Impact Statement (EIS) because of their importance to the quality of life of these communities. Federal and local regulations specifically protect parklands. Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 (23 United State Code [U.S.C.] 138) prohibits the Federal Transit Administration (FTA) from approving a project or program that uses land from a significant public park, recreation area, wildlife or waterfowl refuge, or historic site, except if the following conditions are met:

(a) The Administration determines that:
  (1) There is no feasible and prudent avoidance alternative to the use of land from the property; and
  (2) The action includes all possible planning to minimize harm to the property resulting from such use; or
(b) The Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant will have a *de minimis* impact on the property.
(c) If the analysis concludes that there is no feasible and prudent avoidance alternative, then the Administration may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose (23 Code of Federal Regulations [CFR] 774).

In addition, when federal funds granted through Section 6(f) of the Land and Water Conservation Act (administered through the Washington State Recreation and Conservation Funding Board on behalf of the National Park Service) have been used to acquire or develop recreational facilities in the study area, all practical alternatives to the project element that would affect that facility must be evaluated or, if no practical alternative exists, replacement lands of equal value must be identified. This state funding agency also administers other grants, referred to as "RCO," that are subject to similar requirements for conversion as Section 6(f) without requiring approval from the National Park Service. Appendix D provides more detail on the East Link Project Section 4(f)/6(f) evaluation.

Seattle has adopted a similar test for their parklands under Seattle Ordinance 118477, enacted in February 1997. Land or a facility owned by the city may not be sold, transferred, or changed from park use to another use unless the city receives in exchange land or a facility of equivalent or better size, value, location and usefulness.

4.17.2 Affected Environment

The parkland and open space resources evaluated might include one or more of the following: public parks, greenbelts and other undeveloped open spaces, pedestrian and bicycle trails, playfields, and school district play areas that are available for public use during nonschool hours. Except for school district sites, the facilities in the study area are generally owned or maintained by the parks and recreation departments of Seattle, Mercer Island, Bellevue, Redmond, or King County. The Washington State Department of Transportation (WSDOT) also owns property used for both transportation and recreational purposes in the project vicinity.

The study area for parks and other recreational facilities consists of the facilities situated as follows:

- Within 250 feet (approximately one city block) of alternative routes, maintenance facilities, and staging areas (typically, direct impacts occur within this distance)
- Within 0.25 mile (approximately 1,320 feet) of stations (typically, indirect or proximity impacts occur within this distance—see Section 4.17.3 for a description of types of impacts)

Appendix F4.17 provides an inventory and exhibits that show the location of the 41 park and recreational facilities identified in the study area, including existing and proposed facilities. This inventory groups resources by segment and details each resource's size, type, facilities, ownership, whether or not the facility is considered to be a significant resource under Section 4(f), and whether the Recreation and Conservation Office (RCO) or the Land and Water Conservation Fund (LWCF) were used in acquiring or developing the listed recreational resource. Appendix F4.17 lists notable facilities and planned park development within each segment and includes maps showing the location of each developed park and recreational facility.

Included in the study is the former BNSF Railway corridor. The Port of Seattle has acquired the portion of the former BNSF Railway corridor between the cities of Renton and Snohomish and the Redmond Spur into downtown Redmond. Sound Transit is in the process of acquiring 1.1 miles of the former BNSF Railway corridor from the Port of Seattle in Segment C, as well as an easement along the entire corridor. The City of Redmond purchased the Redmond Spur from the Port of Seattle. The portion of the former BNSF Railway corridor between Woodinville and Renton, including the Redmond Spur, is "rail-banked," Which allows interim trail use of a freight rail right-of-way. King County and the City of Redmond intend to develop a regional trail along portions of the corridor. The rail-banked status of the corridor has been considered in the design of these alternatives. However, small additional property acquisitions might be needed to ensure that adequate space exists so as not to preclude either trail or future freight rail reactivation.

The following subsections briefly describe the recreational facilities located closest to the project alternatives. The parks along the project alternatives were also reviewed for sensitivity to noise, proximity to the alternatives and the alternative's potential for noise impacts. The only parks that are considered noise-sensitive under the FTA regulations are the sections of Mercer Slough Nature Park and Marymoor Park where peace and quiet are an essential part of the parks' purpose. Additional information on noise impacts on park resources is available in the Noise Section 4.7 and Appendix H2, *Noise and Vibration Technical Report*.

4.17.2.1 Segment A

A total of 13 park and open space facilities are situated near and over Segment A from Seattle to Bellevue. All but three of these parks—South Day Street Park; Luther Burbank Park, which includes the Upper Luther Burbank Park area; and Gallagher Hill Open Space—are part of the larger network of Interstate 90 (I-90) parks along lids and overpasses. These parks also include the Outdoor Sculpture Gallery located adjacent to the City of Mercer Island's city center. In addition, a bicycle and pedestrian trail parallels the north side of the I-90 freeway. Although recreationists use this trail, the primary purpose of the shared-use path is transportation (see further discussion in Transportation Chapter 3, Section 3.7 Nonmotorized Facilities).

4.17.2.2 Segment B

There are currently a total of four park and open space facilities in Segment B. The most notable of these is Mercer Slough Nature Park, located between Bellevue Way SE and 118th Avenue SE directly north of I-90. Mercer Slough Nature Park is a 320-acre regional park characterized by wetland systems and upland habitat, the Mercer Slough Blueberry Farm (including fruit and vegetable produce sales), the Environmental Education Center on the east side of the park, the Sweylocken boat launch, and various trails including, the I-90 to Sweylocken Trails, among others; the historic Winters House is also located in the park. The I-90 Trail, continued from Segment A, is located within the park just north of the westbound lanes of I-90.

The park provides wetland habitat, environmental education and awareness, agricultural heritage maintenance, nature observation, views of downtown Bellevue, and open space with pedestrian trails, a water trail, benches, and interpretive signs. Bellevue Way SE is the park's western boundary. Portions of Mercer Slough Nature Park were acquired with LWCF and Washington State RCO funds.

Enatai Beach Park, located under the east approach of the East Channel Bridge between Mercer Island and Bellevue, is located under the project and would not be impacted by the project.

The Bellevue Way Greenbelt is located at the "Y" intersection of Bellevue Way SE and 112th Avenue SE; it primarily serves as a landscaping strip along the road.

A portion of the potential pedestrian/bicycle trail proposed by King County, in the former BNSF Railway corridor acquired through the rail banking process by the Port of Seattle, is in Segment B (as well as portions of Segment C, D, and E). The City of Bellevue's 2009 *Pedestrian and Bicycle Transportation Plan* includes a proposed new trail in Mercer Slough Nature Park.

4.17.2.3 Segment C

Six park and open space facilities currently exist in Segment C, and two more are proposed: a buffer park along Main Street and a trail along the former BNSF Railway. Those closest to the alternatives are briefly described here.

To the south, Surrey Downs Park contains two athletic fields, a play structure, internal trails, open space, remnant stands of heritage filbert trees, the King County District Courthouse, and associated parking. Approximately 8.9 acres of the 11.4-acre site are currently used as park, with the remainder occupied by the King County District Courthouse and parking lots. In March 2009, the City of Bellevue adopted the *Surrey Downs Park Master Plan* for redeveloping the park. Proposed improvements include removing the King County District Courthouse (if not already removed), and adding new baseball fields, open space, a community garden, parking, and a recreational building. A levy to approve funding to implement the master plan was approved by Bellevue voters in fall 2009.

Bellevue's Downtown Park, a 20-acre community park on the south side of NE 4th Street between 100th Avenue NE and Bellevue Way SE, is the centerpiece of the City of Bellevue's park system. Facilities include a play area, formal gardens, water features, and benches.

The NE 2nd Pocket Park comprises the four corners of the intersection of NE 2nd Place and 110th Avenue NE. These small, undeveloped areas function primarily as visual green space as there are no facilities. Bellevue proposes to expand and develop this park under Bellevue's *Downtown Implementation Plan* (City of Bellevue, 2004) and the *Parks and Open Space System Plan* (City of Bellevue, 2010); however, no property has been purchased or plans developed specific to this expansion.

A new linear park in this segment is proposed under Bellevue's *Downtown Implementation Plan*, along the south side of Main Street between 110th and 112th Avenues SE. This park would provide a visual buffer area between the single-family residential area south of Main Street (Surrey Downs) and the high-density residential and commercial uses north of Main Street. No property has been purchased or plans developed specific to the proposed park. Similar to Segment B, the former BNSF Railway east of I-405 is proposed by King County to be converted to a multipurpose recreational trail in Segment C.

McCormick Park is located along the north side of NE 12th Street at the north end of the segment boundary. The park, which extends from 107th to 112th Avenue NE, is a neighborhood park with trails, art features, and picnic benches that provides a buffer between the established single-family residences to the north (Northtowne neighborhood) and high-density residential and commercial uses to the south.

4.17.2.4 Segment D

Highland Park and Community Center is the only existing park resource located in Segment D. Similar to Segments B and C, the former BNSF Railway is proposed by King County to be converted to a multipurpose recreational trail in Segment D.

As part of City of Bellevue's vision as adopted in the *Bel-Red Subarea Plan*, a connected open space system is planned to include trails along urban and natural open space areas, community facilities, community and neighborhood parks, and cultural and arts features.

4.17.2.5 Segment E

Segment E has a total of 14 parks and recreational facilities, including a number of trails. And, as in Segments B, C, and D the former BNSF Railway is proposed by King County to be converted to a multipurpose recreational trail.

The most prominent facilities (e.g., Marymoor Park, Town Center Open Space, and Sammamish River Trail) are located in the downtown area of Redmond and adjacent to State Route (SR) 520. The Town Center Open Space, which includes the Bear Creek Trail, has a City/private agreement (City of Redmond, PARCC, 2010) and was conditionally dedicated as part of the adjacent Redmond Town Center retail area, to preserve and enhance the Bear Creek area, and to provide public access to the area. Future plans would include relocating Bear Creek and Bear Creek Trail, enhancing the habitat within the Bear and Evans Creek open space areas, and linking a new trail to Marymoor Park.

Luke McRedmond Landing provides open space, a picnic shelter, and access to the Sammamish River Trail and Sammamish River for kayakers. Dudley Carter Park is north of Leary Way and is scheduled for master planning and development by the City of Redmond in 2011. Also, Edge Skate Park is located adjacent to the existing Redmond Transit Center, providing a unique recreational opportunity for skateboarders. The Bridle Crest Trail connects Bridle Trails State Park and Marymoor Park via NE 60th Street traveling over SR 520. Also, like Segment A's I-90 Trail, a trail parallels SR 520 on the north side and the primary purpose of the path is transportation. Along Segment E, the King County and City of Redmond plan to eventually connect the former BNSF railway to the East Lake Sammamish Trail to the east. King County is currently expanding the East Lake Sammamish Trail north from 187th Avenue NE to Bear Creek Trail. The *Redmond Trail Network Plan* also identifies the former BNSF Railway corridor for future trail use also called the Redmond Central Connector. In 2009, the City of Redmond acquired rights in the portion of the Redmond Spur to develop a park, regional trail, and subsurface utilities. An approximate 100-foot-wide right-of-way is anticipated to be retained for possible future light rail use (City of Redmond 2010).

4.17.3 Environmental Impacts

Types of potential impacts on parks or open spaces as a result of project operation or construction can be categorized as direct operational impacts, indirect (proximity) operational impacts, or construction impacts, defined as follows:

- **Direct operational impacts**. Direct impacts during operation could include permanently acquiring all or part of park or open space property to accommodate right-of-way for project improvements, changing or reducing access affecting park usage, relocating trails, adding noise impacts to passive park uses, or improving access to parks from stations located near park resources.
- **Indirect (proximity) operational impacts.** Indirect impacts during operation could include changed or reduced access that could affect park usage, changes in the nature of surrounding land uses, increased noise and/or vibration, visual intrusion, or a general increase in the level of activity near stations that could substantially diminish or affect the continued availability, integrity, usage, or value of the specific park or recreational facility and could degrade the overall recreational experience.
- **Construction impacts**. These impacts could include construction activities and/or use of staging areas within or near recreational facilities that create impacts such as noise or air pollution, detours that change access to or from the park, or visual clutter.

Potential impacts were identified for both project operation and construction based on the definitions above and the current use of the park and/or open space resource. If a recreational facility or alternative is not mentioned, no impacts would occur for that facility nor from that alternative. Appendix F4.17 provides a full list of park facilities in the study area. Proximity impacts are based on the findings of other environmental elements, such as Chapter 3, Transportation Environment and Consequences, and Sections 4.2, Land Use; 4.5, Visual and Aesthetic Resources; 4.6, Air Quality and Greenhouse Gases; and 4.7, Noise and Vibration. Information about potential impacts to parks is also presented in Appendix D.

4.17.3.1 No Build Alternative

The No Build Alternative would not directly or indirectly affect any park or open space resources in the study area. Some parkland development might not occur under the No Build Alternative because land would not be made available from property acquisitions for project improvements.

4.17.3.2 Impacts during Operation

As previously mentioned, Section 4.7, Noise and Vibration, and Appendix H2, Noise and Vibration Technical Report, provide additional information on noise effects on park resources.

Segment A, *Preferred Alternative Interstate 90 (A1)*

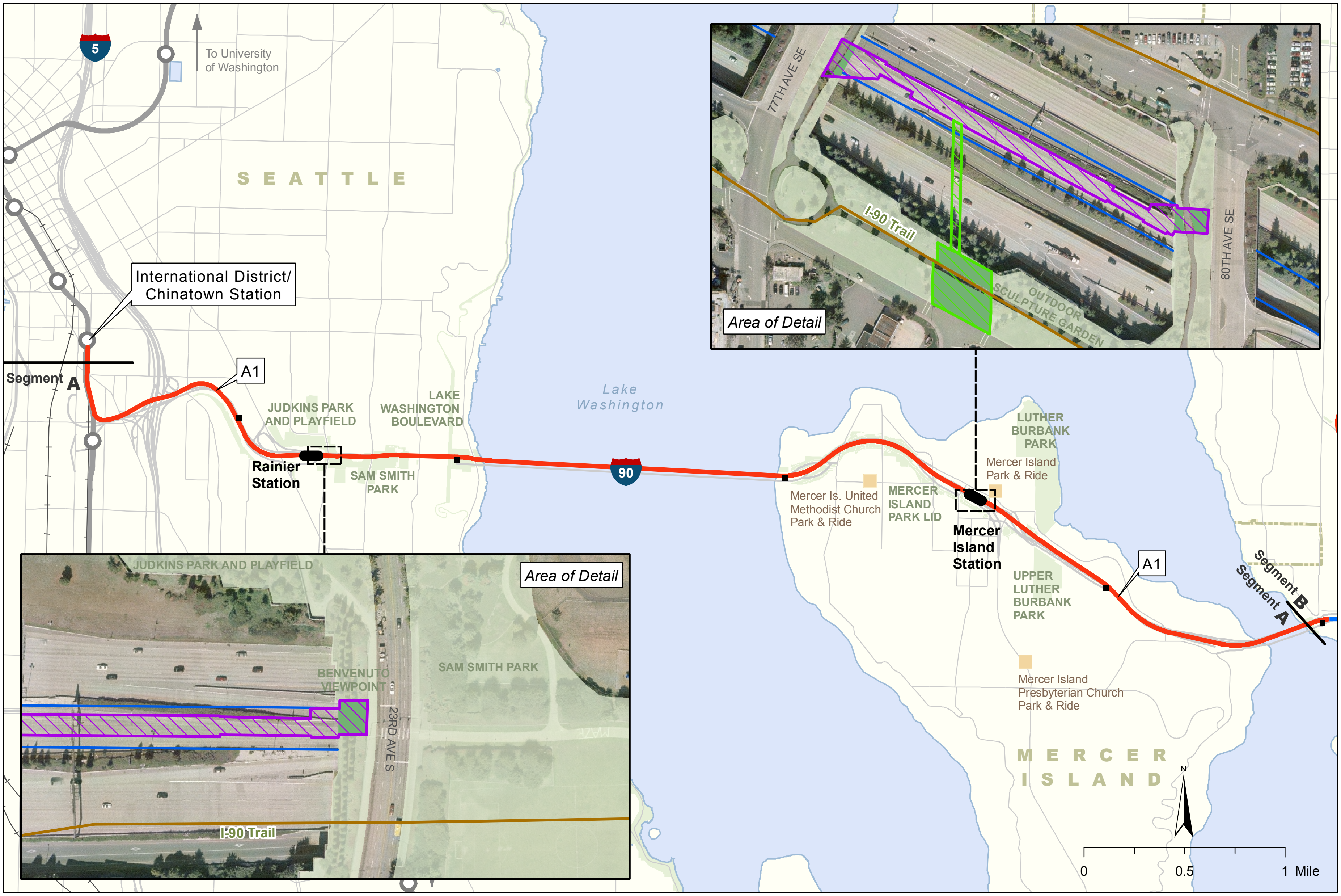
Two to three of the 13 parks identified in Segment A would be permanently impacted by *Preferred Interstate 90 Alternative (A1)* (listed in Table 4.17-1 and shown in Exhibit 4.17-1). The *Preferred Alternative A1* station entrance for the Rainier Station at 23rd Avenue South would impact a narrow planting strip of Benvenuto Park where the park parallels 23rd Avenue South, but visitors would benefit from increased access to Benvenuto Viewpoint from the Rainier Station. Also, the Mercer Island Station access and pedestrian plazas (i.e., ticket vending, elevator, escalator, and stairs) would impact two planting areas and sidewalks in the open space, owned by WSDOT, at 77th and 80th Avenues SE overcrossings. If the pedestrian bridge option is selected, the access area would impact Mercer Island's Outdoor Sculpture Gallery and 80th Avenue SE for a total impact of 0.4 acre. Roughly 0.3 acre of property would be acquired to accommodate the pedestrian bridge option and pedestrian plaza, thereby allowing a more direct connection to Mercer Island's downtown core. Removing the pedestrian bridge option would reduce the impact area to the open space from about 0.4 acre to less than 0.1 acre.

TABLE 4.17-1
Segment A Parks and Open Spaces Impacts

Alternative	Seattle Benvenuto Viewpoint (part of the I-90 lid) (acres)	Mercer Island Park on the Lid (acres)	Mercer Island Outdoor Sculpture Gallery (acres)
Preferred Interstate 90 Alternative (A1)	Less than 0.1	0.1	0
Interstate 90 Alternative (A1) Design Option	Less than 0.1	0.1	0.3

Segment B

The Segment B alternatives would impact two of the four existing park and open space facilities and one transportation facility. All Segment B alternatives affect the Mercer Slough Nature Park, but none affect the Mercer Slough Water Trails.


5
To University of Washington
S E A T T L E
International District/ Chinatown Station
Segment A
A1
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
Rainier Station
SAM SMITH PARK
Lake Washington
90
Mercer Is. United Methodist Church Park & Ride
MERCER ISLAND PARK LID
LUTHER BURBANK PARK
Mercer Island Park & Ride
Mercer Island Station
A1
UPPER LUTHER BURBANK PARK
Segment B
Segment A
Mercer Island Presbyterian Church Park & Ride
M E R C E R I S L A N D
N
0
0.5
1 Mile
Area of Detail
77TH AVE SE
80TH AVE SE
I-90 Trail
OUTDOOR SCULPTURE GARDEN
Area of Detail
JUDKINS PARK AND PLAYFIELD
BENVENUTO VIEWPOINT
SAM SMITH PARK
23RD AVE S
I-90 Trail

Source: Data from City of Seattle (2002), King County (2006), and Sound Transit (2007).

🟩 Affected Park Area
▨ Station Area
▨ Mercer Island Pedestrian Bridge Option
— Trail
▪ Traction Power Substation
● Proposed Station
-○- Central Link Alignment and Station
— At-Grade Route
- - - Elevated Route
• • • • Retained-Cut Route
• • • • Retained-Fill Route
— — Tunnel Route

Exhibit 4.17-1 **Affected Park Area Within Propsed Right-of-Way Segment A**

East Link Project

The Mercer Slough Nature Park was reviewed for noise sensitivity under the FTA *Transit Noise and Vibration Manual*. Only the interior portions of the park are considered noise sensitive under the FTA criteria and these are located over 350 feet from any project alternative route. These areas were analyzed for noise impacts using existing noise measurements and predicted light rail project noise consistent with FTA criteria. Project noise levels are predicted to be below existing noise levels and well below the FTA noise impact criteria.

Preferred 112th SE Modified Alternative (B2M) would result in the highest permanent property impact to the 320-acre Mercer Slough Nature Park when compared with the other Segment B alternatives; it would not affect the other two parks in Segment B.

When connecting to *Preferred Alternative C11A,* 2.9 acres would be permanently impacted (1.5 acres at-grade and retained cut and 1.4 acres elevated) and 3.0 acres (1.6 acres at-grade and retained cut and 1.4 acres elevated) when connecting to *Preferred Alternative C9T* (Table 4.17-2). Exhibit 4.17-2 depicts the impacted park area. This alternative would acquire an approximately 30- to 50-foot section of the park's western boundary for a distance of approximately 3,200 feet and would remove shrubs and trees. The acquisition area would be less than 1 percent of the total park area.

TABLE 4.17-2
Segment B Parks and Open Spaces Permanent Impacts

Alternative		Mercer Slough Nature Park (acres)	Bellevue Way Greenbelt (acres)
Preferred 112th SE Modified Alternative (B2M)	To *Preferred Alternative C11A*	2.9	None
	To *Preferred Alternative C9T*	3.0	
Bellevue Way Alternative (B1)		0.5	0.4 (full acquisition)
112th SE At-Grade Alternative (B2A)		1.7	0.1
112th SE Elevated Alternative (B2E)		0.7	None
112th SE Bypass Alternative (B3)		1.7	0.1
B3 - 114th Extension Design Option		1.7	0.1
BNSF Alternative (B7)		0.9	None

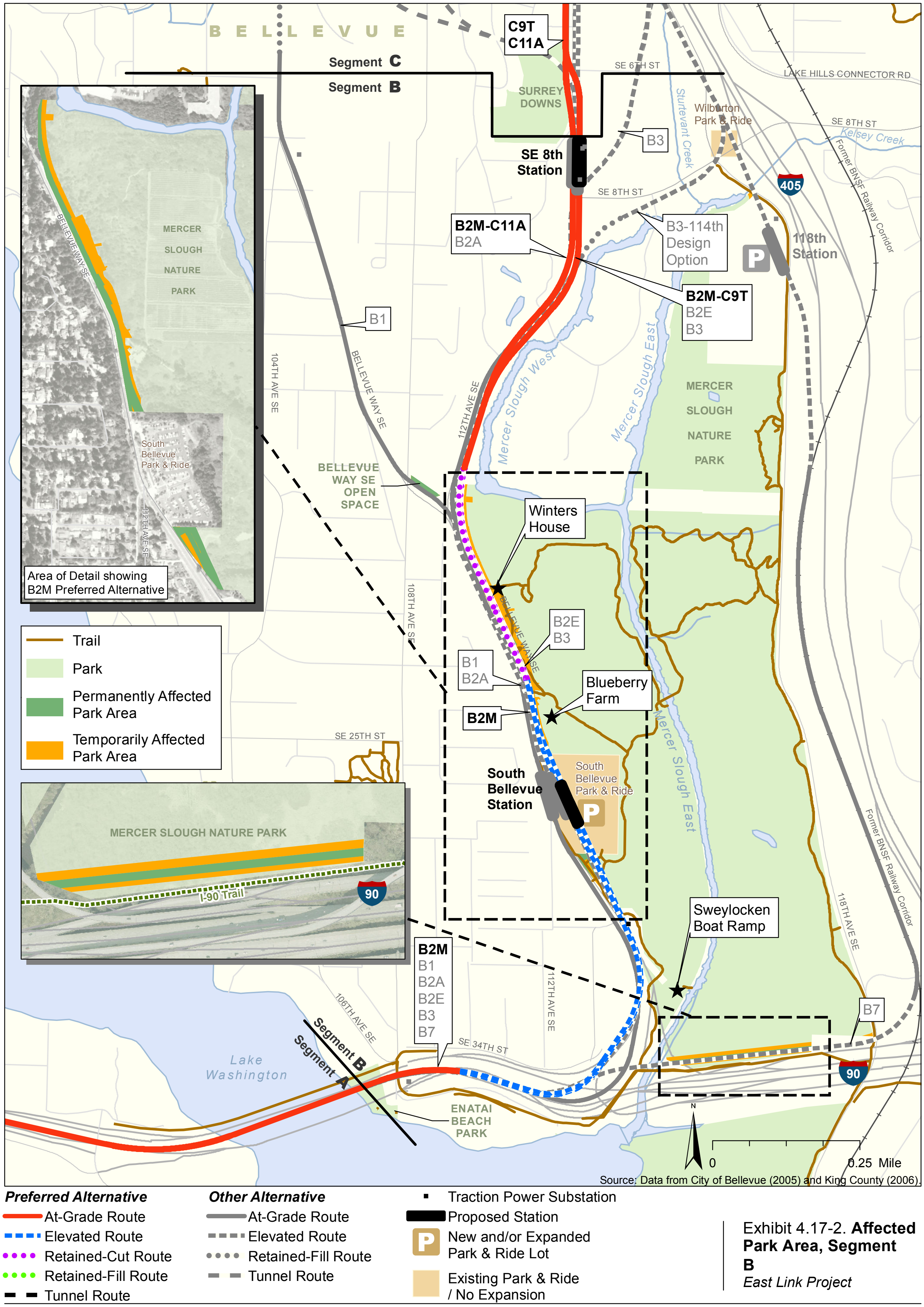
The area affected includes trailheads and access associated with a boat launch ramp, the blueberry farm, and the National Registry of Historic Places (NRHP)-listed Winters House. Park users in this area include walkers and joggers along the Periphery Loop Trail sidewalk and those accessing the Winters House and Mercer Slough Blueberry Farm and the park's interior trails. A 0.2-mile section of the Heritage Loop Trail parallels Bellevue Way SE below the roadway level. The impacted area is not a key location for wildlife viewing due to the disturbance of the adjacent roadway and use of the area for the Winters House, blueberry farm buildings, parking, and access.

Preferred Alternative B2M would relocate and consolidate some vehicle and pedestrian access points on the west side of the park. Additionally, the existing blueberry farm vehicle and pedestrian access would be relocated to the north to a joint access with the Winters House. A new access road just to the east of and parallel to the alternative would connect the blueberry farm and the Winters House parking areas, with the existing Heritage Loop trail between the Winters House and farm relocated to the east. Two existing pedestrian connections from Bellevue Way SE to the park would be removed: one at the existing blueberry farm driveway and one south of the Winters House parking lot. The pedestrian access north of the Winters House would be relocated slightly south. The light rail station at the South Bellevue Park-and-Ride would provide enhanced accessibility to the Mercer Slough Nature Park.

At the south end of the park, where the alternative is elevated, the area below the elevated section, (approximately 1.4 acres), could still be available for recreational purposes in those areas where there is sufficient clearance. The elevated guideway would require an easement or right of use as opposed to acquisition. The easement would allow the project on the property and give rights for Sound Transit to access the elevated structure, as needed, while allowing the continued use of the land as a park.

Although the number of pedestrian access points would be reduced by two, the park and its components would remain accessible from various points along Bellevue Way SE for both vehicles and pedestrians. In addition, consolidating the access points could be considered a benefit to the park by removing one vehicular driveway crossing the Periphery Loop Trail.

Access to the Sweylocken Boat Ramp would become right-in/right-out only and the boat ramp would no longer be accessible from southbound Bellevue Way; however, there is a design option that would maintain the current access allowing left-hand turn movements to the boat launch.


BELLEVUE
Segment C
Segment B
C9T
C11A
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
B3
405
SE 8th Station
SE 8TH ST
B2M-C11A
B2A
B3-114th Design Option
118th Station
Former BNSF Railway Corridor
B2M-C9T
B2E
B3
B1
104TH AVE SE
BELLEVUE WAY SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
BELLEVUE WAY SE OPEN SPACE
Winters House
108TH AVE SE
B2E
B3
B1
B2A
Blueberry Farm
B2M
SE 25TH ST
South Bellevue Station
South Bellevue Park & Ride
Mercer Slough East
Sweylocken Boat Ramp
118TH AVE SE
Former BNSF Railway Corridor
B2M
B1
B2A
B2E
B3
B7
B7
106TH AVE SE
112TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake Washington
ENATAI BEACH PARK
90
N
0
0.25 Mile
MERCER SLOUGH NATURE PARK
BELLEVUE WAY SE
South Bellevue Park & Ride
112TH AVE SE
Area of Detail showing B2M Preferred Alternative
Trail
Park
Permanently Affected Park Area
Temporarily Affected Park Area
MERCER SLOUGH NATURE PARK
I-90 Trail
90
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park & Ride Lot
Existing Park & Ride / No Expansion

Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit 4.17-2. **Affected Park Area, Segment B**
East Link Project

Without the design option, southbound users would need to travel via SE 8th Street, I-405, and I-90 to access the launch. The I-90 Trail would not be affected.

As detailed in the Section 4.5, Visual and Aesthetic Resources analysis, *Preferred Alternative B2M* would result in visual change but would not degrade the visual quality of the park. The guideway, catenaries, and retaining walls would not be seen in most parts of the Mercer Slough Nature Park due the alternative's low profile. Given the presence of trees and large shrubs throughout the park, removing vegetation along the alternative would not be noticed in most areas from the park. Changes in views from the southern end of the water trail would be consistent with surrounding freeway ramps and structures. The visual change associated with tree removal would be most noticed from the portion of the water trail passing through Mercer Slough West adjacent to the Bellefield Office Park. However, Bellefield Office Park buildings and parking lot and the adjacent transportation arterial currently affect the area's visual quality in this area.

Preferred Alternative B2M would not substantially affect the park's use, features, activities, and attributes nor diminish the park's value. The SE 8th Station for *Preferred Alternative B2M* when connecting to *Preferred Alternative C9T* would also provide enhanced access to the Surrey Downs Park. Portions of Mercer Slough Nature Park were acquired with federal LWCF and Washington State RCO funds. Appendix D, Section 4(f)/Section 6(f) Evaluation, analyzes Section 6(f) and RCO conversion and acreage impact.

The park impacts for all Segment B alternatives are identified in Table 4.17-2 and discussed in more detail below. Similar to *Preferred Alternative B2M*, Bellevue Way (B1), 112th SE At-Grade (B2A), 112th SE Elevated (B2E), 112th SE Bypass (B3), and B3 - 114th Extension Design Option Alternatives would provide enhanced accessibility to the Mercer Slough Nature Park. They also would acquire long, narrow and intermittent portions of this park's western boundary—thereby removing some shrubs and trees—although less area would be acquired compared to *Preferred Alternative B2M*. Exhibit 4.17-2 shows the impacted areas of these parks. Alternatives B2A, B2E, B3, and B3 - 114th Extension Design Option would relocate a portion of the Heritage Farm Trail just east of its current location, between the South Bellevue Park-and-Ride and the Winters House. Alternative B2A would permanently impact 1.7 acres within Mercer Slough Nature Park (0.4 acres at-grade and 1.3 acres elevated), Alternative B2E would permanently impact 0.7 acre (all of it elevated), and Alternative B3 and B3 -114th Extension Design Option would impact 1.7 acre (0.4 acres at-grade and 1.3 acres elevated).

Access to the Sweylocken Boat Ramp from SE 30th Street would be improved under Alternative B1 because a signal would be installed at this intersection where none exists today. Alternatives B2A, B2E, B3, and B3 – 114th Extension Design Option would be elevated at this location, and access to the boat ramp would be right-in/right-out only as with *Preferred Alternative B2M.* The design option to maintain the current access could also be implemented with these alternatives. The I-90 Trail would not be impacted by these alternatives. The elevated structure with all alternatives would create some additional shading. As with the *Preferred Alternative B2M*, the areas below the elevated section, ranging from a low of approximately 0.7 acre for Alternative B2E to a high of approximately 1.4 acres for Alternative B2A, could still be available for recreational purposes. Removing vegetation along Bellevue Way SE and/or placing piers for the elevated portions of the alternatives along the west side of Mercer Slough Nature Park would be seen and noticed by some park users but would not interfere with the use of the facility.

Beyond Mercer Slough, Alternative B1 would permanently impact 0.4 acre, all of it at-grade, and would also completely acquire the Bellevue Way Greenbelt, while Alternatives B2A, B3 and B3 – 114th Extension Design Option would only partially acquire this area (0.1 acre at-grade) to accommodate the reconfigured Bellevue Way SE/112th Avenue NE intersection. Similar to *Preferred Alternative B2M* when connecting to *Preferred Alternative C9T*, the SE 8th Station for Alternatives B2A and B2E would provide enhanced access to Surrey Downs Park.

The elevated light rail structure for Alternative B7 would be located along the south side of Mercer Slough Nature Park north of I-90 and the I-90 Trail (see Exhibit 4.17-2). An easement would be needed to accommodate the elevated light rail structure. The area under the elevated structure would be revegetated and returned to existing conditions. The I-90 Trail would not be impacted. As described in Section 4.5, Visual and Aesthetic Resources, the view from the park and trail would not be substantially affected by the new structure. Existing vegetation greatly reduces the amount of Mercer Slough Nature Park that can be seen from most parts of the I-90 trail and blocks views to the north. The elevated structure would be seen from a few more open parts of the trail but would be screened by adjacent vegetation along other parts of the trail. The elevated structure would also create shading in the park. The portion of the

Alternative B7 located within the former BNSF Railway corridor has been designed to accommodate a future trail, to be developed by others. Alternative B7's 118th Station would provide new access to the east side of Mercer Slough Nature Park and the Mercer Slough Environmental Education Center.

Segment C

Three of the eight existing parks and open space facilities identified in Segment C would be permanently impacted by the alternatives. The locations of impacted parks are shown in Exhibit 4.17-3 and listed in Table 4.17-3; enlarged illustrations of the park impact areas follow.

TABLE 4.17-3
Segment C Parks and Open Spaces Permanent Impacts

Impact Area	Surrey Downs[a] (acres)	Pocket Parks (acres)	McCormick Park	
			Impact Area (acres)	New Parkland[b]
Preferred Alternative C11A	0.5	None	None	None
Preferred Alternative C9T[c]	0.5	0.1	None	None
Alternative C2T	Less than 0.1	None	None	None
Alternative C3T	Less than 0.1	None	0.9	1.6 (0.7)
Alternative C4A	0.5	0.1	0.8	1.1 (0.2)
Alternative C7E	0.4	None	None	None
Alternative C8E	None	0.1	0.2	0.4 (0.1)
Alternative C9A	None	Less than 0.1	None	None

[a] Only for connector from *Preferred Alternative B2M* for *Preferred Alternatives C11A* and *C9T* and from Alternative B2A for Alternatives C2T, C3T, C4A, and C7E.

[b] Provided in acres (net gain).

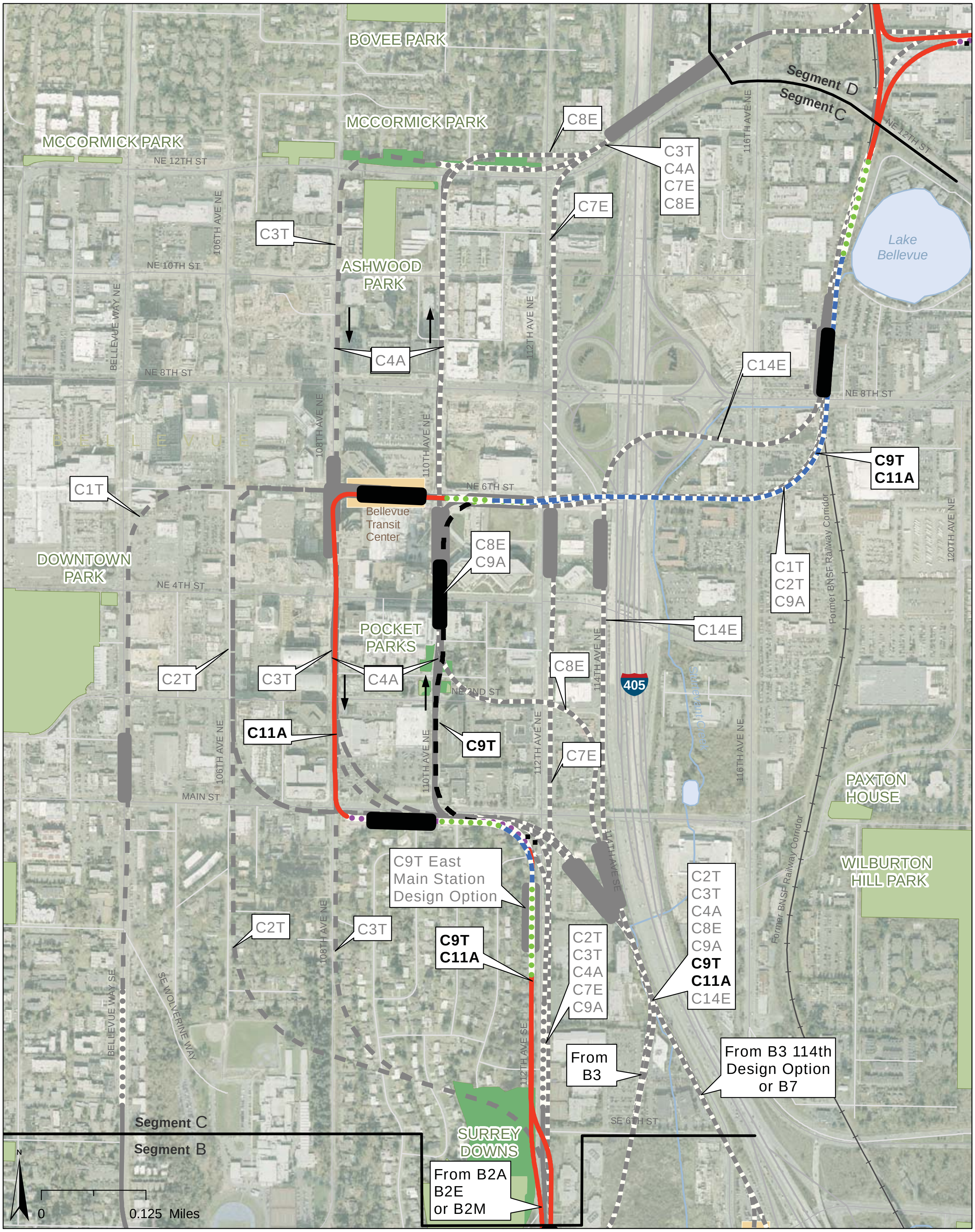
[c] C9T – East Main Station Design Option when connecting from *Preferred Alternative B2M* would have no change in impacts from those of *Preferred Alternative C9T* or *B2M*.

Preferred Alternative C11A with a connection from *Preferred Alternative B2M* would impact 0.5 acre of Surrey Downs Park due to the guideway's location along the eastern boundary of the park. Connections to *Preferred Alternative C11A* from Alternative B3, B3 - 114th Extension Design Option, or B7 would not affect Surrey Downs Park. The area of the park that would be affected by the project is characterized by a steep slope and trees along 112th Avenue SE, vehicle access from 112th Avenue SE at the southern and northern ends of the park, a parking lot for the park and King County District Courthouse building, a neighborhood pedestrian access point at the southeast corner of the park at 111th Avenue SE, and a pedestrian access point from 112th Avenue SE at the northeast corner of the park.

Preferred Alternative C11A would acquire approximately 0.5 acre along the eastern edge of Surrey Downs Park along 112th Avenue SE for the light rail guideway (Exhibit 4.17-4); no active recreation facilities would be affected. The at-grade light rail guideway would encroach along the park's eastern edge, displacing the landscaping strip and large trees. In addition, the project would displace some of the parking area that is used for the park and the King County District Courthouse. The existing vehicle access at the southern end of the park changes to right-in/ right-out. The pedestrian connections on the east side of the park would not be affected on the south side. The vehicle access point at the north end of the park would be closed. Design improvements to the south driveway would minimize impacts associated with removing the north driveway. U-turn movements would be provided at nearby intersections, at SE 6th or Main Street and SE 8th Streets, to minimize out of the way travel for vehicles that access the park north along 112th Avenue SE. Removing vegetation and large trees would be a visual change, but the vegetation would be replaced and eventually mature without lowering the visual quality of the area. The light rail guideway would be consistent with the transportation nature of the 112th Avenue SE corridor.

Preferred Alternative C11A is not consistent with the *Surrey Downs Park Master Plan* adopted by the Bellevue City Council in March 2009. The light rail guideway would encroach into the planned garden terraces and path bordering 112th Avenue SE and would be adjacent to the area planned for the community facility. The alternative would require relocating or eliminating the proposed pedestrian access points from 112th Avenue SE at the park's northeast corner. As part of the project, properties located to the west of 112th Ave SE between Main Street and Surrey Downs Park would be acquired. Once the project is built and operational, a substantial amount of the acquired area will be available and could be developed into an open space linear park. This new linear park would mitigate the impacted area in Surrey Downs Park, which is primarily passive open space.

Preferred Alternative C11A and the Hospital Station would be located in the former BNSF Railway corridor right-of-way. The station and alignment are designed to incorporate a planned trail or future freight use, which would be developed by others.


BOVEE PARK
MCCORMICK PARK
MCCORMICK PARK
NE 12TH ST
Segment D
Segment C
NE 12TH ST
C8E
C3T
C4A
C7E
C8E
C7E
C3T
106TH AVE NE
NE 10TH ST
ASHWOOD PARK
Lake Bellevue
BELLEVUE WAY NE
NE 8TH ST
C4A
112TH AVE NE
C14E
116TH AVE NE
NE 8TH ST
108TH AVE NE
110TH AVE NE
C9T
C11A
C1T
NE 6TH ST
Bellevue Transit Center
C8E
C9A
DOWNTOWN PARK
NE 4TH ST
C1T
C2T
C9A
Former BNSF Railway Corridor
120TH AVE NE
C14E
POCKET PARKS
C2T
C3T
C4A
C8E
114TH AVE NE
405
NE 2ND ST
C11A
C9T
106TH AVE NE
110TH AVE NE
112TH AVE NE
C7E
116TH AVE NE
PAXTON HOUSE
MAIN ST
114TH AVE SE
C9T East Main Station Design Option
C2T
C3T
C4A
C8E
C9A
C9T
C11A
C14E
WILBURTON HILL PARK
Former BNSF Railway Corridor
C2T
C3T
108TH AVE NE
C9T
C11A
C2T
C3T
C4A
C7E
C9A
BELLEVUE WAY SE
SE WOLVERINE WAY
112TH AVE SE
From B3
From B3 114th Design Option or B7
SE 6TH ST
Segment C
Segment B
SURREY DOWNS
From B2A B2E or B2M
N
0
0.125 Miles

Preferred Alternative **C9T**
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives C14E
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

■ Traction Power Substation
🟩 Affected Park Area Within Proposed Right-of-Way
🟩 Other Park
▬ Proposed Station
City Limit

Source: City of Bellevue (2005) and King County (2009).

Exhibit 4.17-3
Segment C
Affected Parks
East Link Project

With the connection from *Preferred Alternative B2M, Preferred Alternative C9T* would permanently acquire approximately 0.5 acre of Surrey Downs Park along its northeast boundary along 112th Avenue SE for the at-grade light rail guideway and to realign SE 4th Street to create a four-way intersection with SE 6th Street and 112th Avenue SE and new park vehicle entrance (see Exhibit 4.17-5). The affected areas would be similar to the areas affected by *Preferred Alternative C11A* but would also include removing a portion of the King County District Courthouse building (if not already removed) and a pedestrian access point from 112th Avenue SE at the northeast corner of the park. As part of the project, properties located to the west of 112th Avenue SE between Main Street and Surrey Downs Park would be acquired. Once the project is built and operational, a substantial amount of the acquired area will be available and could be developed into an open space linear park. This new linear park would mitigate the impacted area in Surrey Downs Park, which is primarily passive open space.

Preferred Alternative C9T would not impact the park south of SE 6th Street because the light rail guideway remains on the east side of 112th Avenue SE in this location. No active recreation facilities would be affected. Realigning SE 4th Street would permanently use park property for the roadway and separate a small section currently occupied by the King County District Courthouse and parking from the remainder of the park. The curved design of the realigned roadway would reduce cut-through traffic and maintain the slow vehicle movements through the park. A second option would provide a new connection into the Surrey Downs neighborhood at SE 9th Street from the south park entrance. Access to the neighborhood from the south park entrance would permanently close the north entrance, thereby reducing park impacts, but it would result in changing circulation patterns in the neighborhood.

Preferred Alternative C9T is not consistent with the *Surrey Downs Park Master Plan* adopted by the Bellevue City Council in March 2009. The project would result in similar impacts as *Preferred Alternative C11A* at the park's northeastern side, including the light rail encroaching into the planned garden terraces and path bordering 112th Avenue SE. In addition, realigning SE 4th Street would further encroach into a portion of the area planned for the community facility. This alternative would relocate or eliminate one of the two proposed pedestrian access points, with the access point at SE 6th Street combined with the realigned SE 4th Street access to the park.

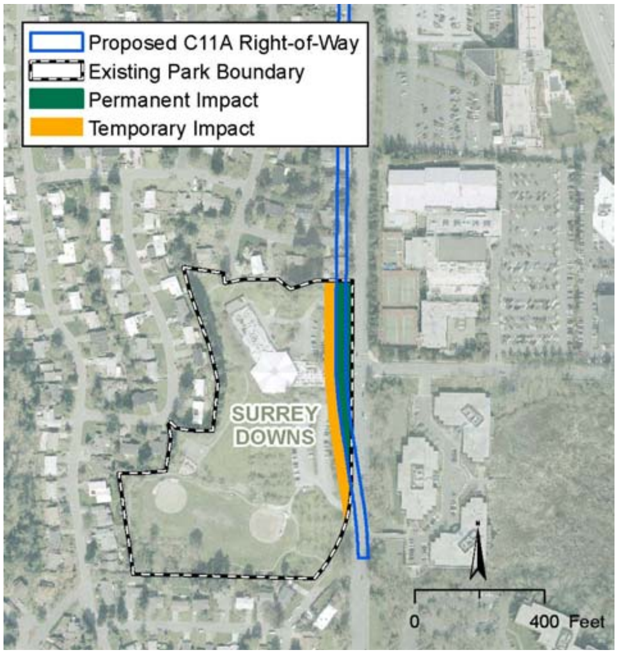


EXHIBIT 4.17-4
Surrey Downs Park Impacts for *Preferred Alternative C11A*

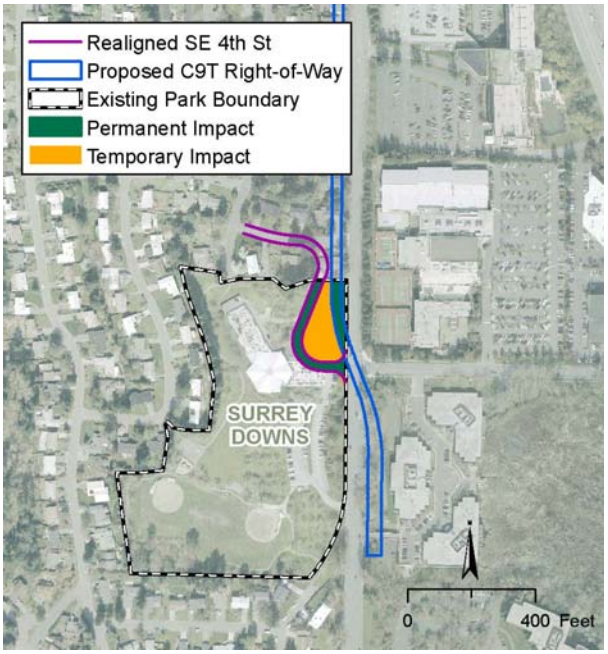


EXHIBIT4.17-5
Surrey Downs Park Impacts for *Preferred Alternative C9T*

Preferred Alternative C9T would impact the NE 2nd Street Pocket Park located at NE 2nd Street and 110th Avenue NE during project operation (Exhibit 4.17-6). The northwest quadrant of the park, approximately 0.1 acre, would be incorporated into a station entrance and developed as an outdoor public plaza. A tunnel easement would be acquired under the park's northeast and southeast quadrants, and the area above the tunnel would be returned to park use after construction. Additionally, a portion of the area used for staging adjacent to the northeast quadrant could be used to replace parkland. Similar to *Preferred Alternative C11A, Preferred Alternative C9T* would accommodate a trail in the former BNSF Railway corridor as part of the Hospital Station, which would be developed by others.

106th NE Tunnel (C2T) and 110th NE Tunnel (C3T) Alternatives would have similar impacts on parks, (0.1 acre of tunnel) except Alternative C3T would affect one more park than Alternative C2T; Alternative C3T would also impact McCormick Park (0.1 acre elevated, 0.5 acre of retained cut, and 0.4 acre of tunnel). There would be no adverse impacts from connections from Segment B to Alternative C2T, except for the connection from Alternative B2A, which would tunnel under Surrey Downs Park, requiring a subsurface easement. However, no portion of the project or tunnel would be visible on the park surface after construction. This connector would require roadway widening that would affect less than 0.1 acre of the eastern edge of the park on the landscape strip between 112th Avenue SE and the park's existing parking lot, as illustrated in Exhibit 4.17-7. This would not affect active recreational areas of the park.

With Alternatives C2T and C3T, the Alternative B2A connection would have a net benefit to Surrey Downs Park by removing the King County District Courthouse—if not already removed at the time of East Link construction—and would help facilitate implementing the City of Bellevue's *Surrey Downs Master Plan* to redevelop the park facility. However, depending on the park development schedule, construction staging at this location might delay implementing the park plan. Sound Transit would coordinate with the City of Bellevue on revising the master plan if this alternative were to be selected. Alternative C2T would accommodate the trail in the former BNSF Railway as part of the Hospital Station, to be developed by others. Under Alternative C3T (108th NE Tunnel), the eastern portion of McCormick Park would include the tunnel portal and the rising guideway transitioning to an elevated structure (Exhibit 4.17-8). This transition would require a retaining wall roughly 550 feet long to support the light rail structure as it transitions from a tunnel to aboveground profile. This structure would alter access from NE 12th Street into the park. In addition, the structure would result in different user experience than exists today. The permanent structure would remove 0.9 acre from park use and restrict access between portions of the park.

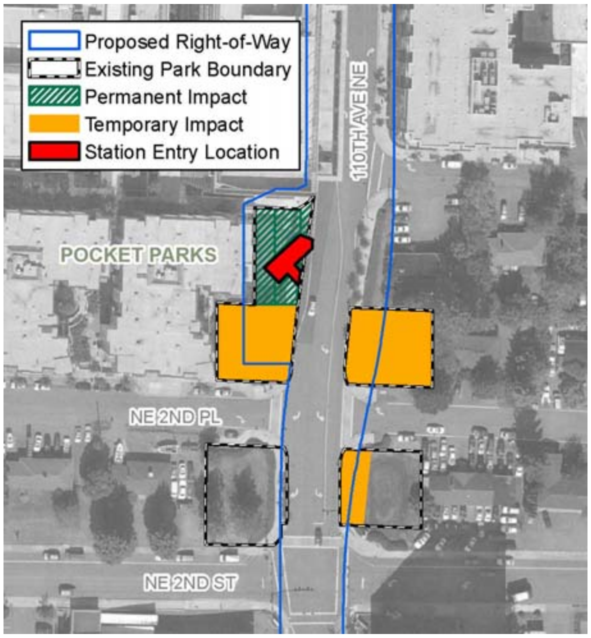

Proposed Right-of-Way
Existing Park Boundary
Permanent Impact
Temporary Impact
Station Entry Location
110TH AVE NE
POCKET PARKS
NE 2ND PL
NE 2ND ST

EXHIBIT 4.17-6
Pocket Park Impact Area for *Preferred Alternative C9T*

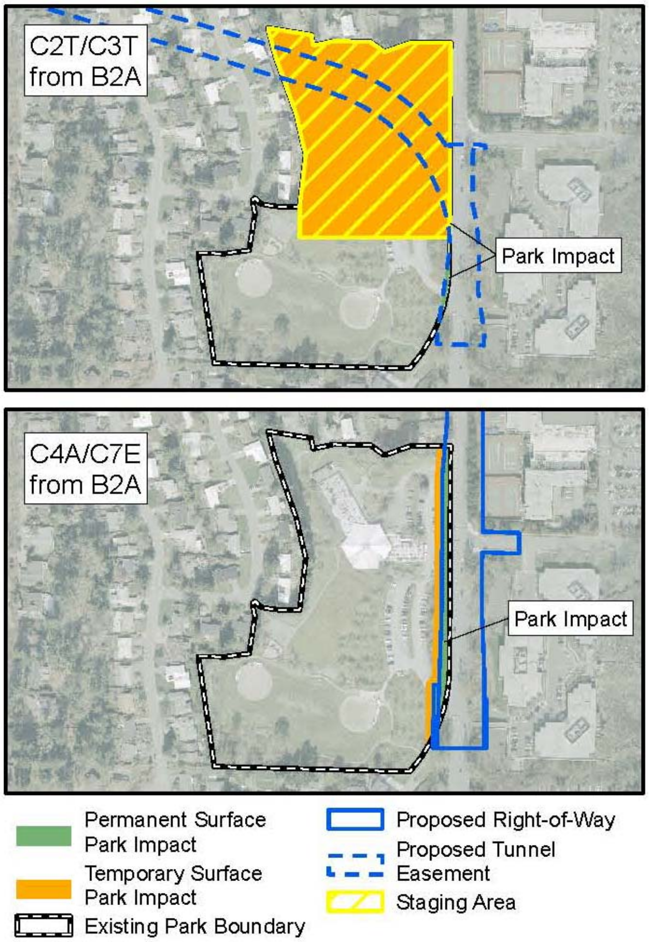

C2T/C3T from B2A
Park Impact
C4A/C7E from B2A
Park Impact
Permanent Surface Park Impact
Temporary Surface Park Impact
Existing Park Boundary
Proposed Right-of-Way
Proposed Tunnel Easement
Staging Area

EXHIBIT 4.17-7
Alternatives C2T and C3T and Alternatives C4A and C7E Proposed Right-of-Way and Staging Areas in Surrey Downs Park

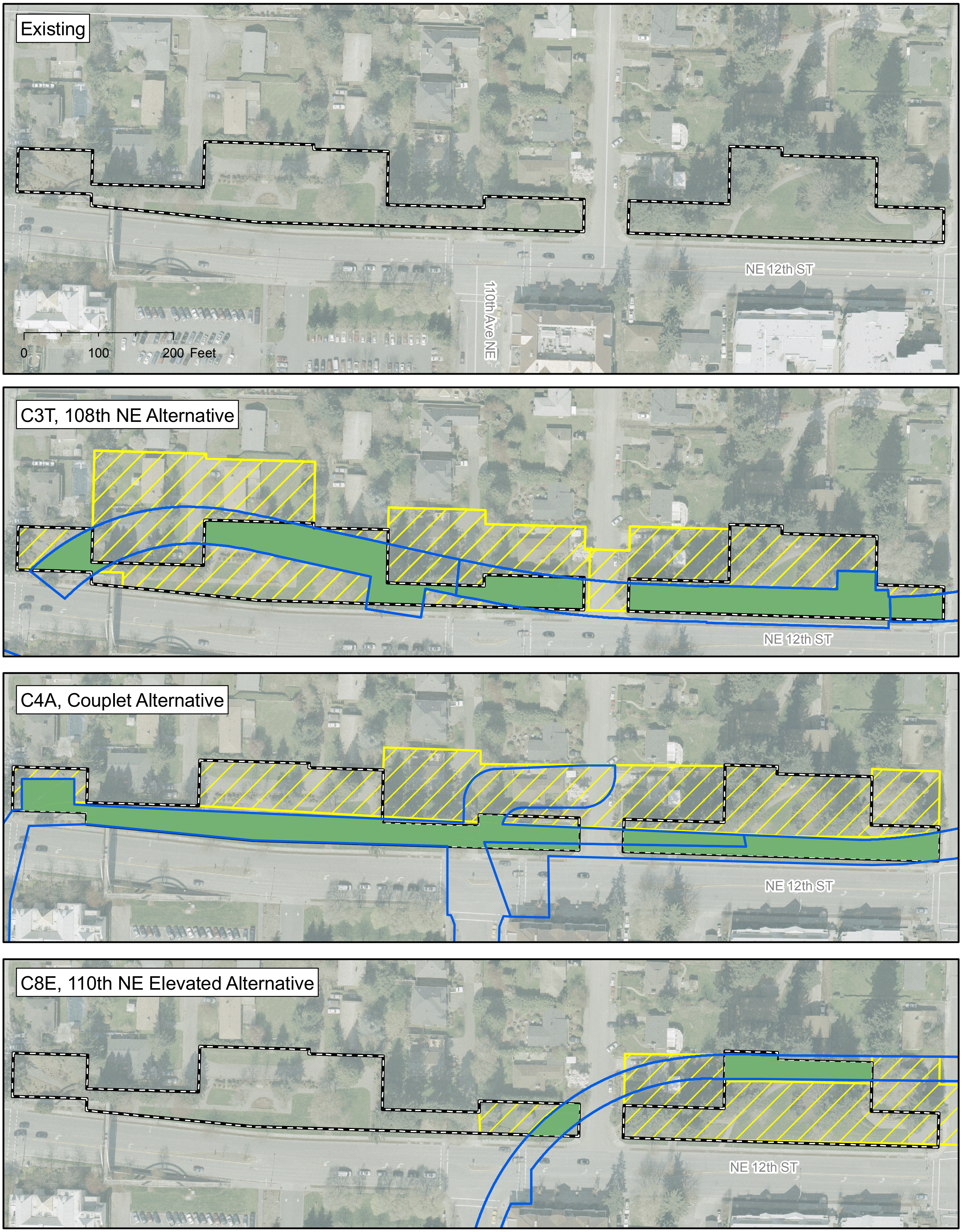

Existing
0
100
200 Feet
NE 12th ST
110th Ave NE
C3T, 108th NE Alternative
NE 12th ST
C4A, Couplet Alternative
NE 12th ST
C8E, 110th NE Elevated Alternative
NE 12th ST
Proposed Right-of-Way
Affected Park Area Within Proposed Right-of-Way
Existing Park Boundary
Staging Area / Future Park Boundary

Exhibit 4.17-8 **McCormick Park - Proposed Right-of-Way and Staging Areas Segment C**
East Link Project

The tunnel would extend west of the portal under the park, which would require a subsurface easement but could be used as a park on the surface. When the facility is constructed, the area used for construction staging (Exhibit 4.17-8) and the area above the tunnel from roughly 108th to 110th Avenue NE would be used to recreate and expand the parkland, resulting in an overall increase of the park size by 0.7 acre. This alternative would have the greatest parkland net gain (see Section 4.17.3.3, Impacts During Construction, for more details). The new park vegetation would take several years to mature, and until the vegetation reestablishes, a temporary change in visual quality for park users would result, and the park's ability to function as a buffer from adjacent uses would be temporarily reduced.

For Alternative C4A, only the Alternative B2A connection would impact Surrey Downs Park. Alternative C4A would impact 0.5 acre of the park, all of it elevated. Similar to *Preferred Alternative C11A,* Alternative B2A connection to Alternative C4A would remove about 0.5 acre of Surrey Downs Park in the landscape strip between 112th Avenue SE and the park's existing parking lot (illustrated in Exhibit 4.17-7). This would not affect the park's active recreational areas. Sound Transit would coordinate with the City of Bellevue revising the master plan for Surrey Downs Park if Alternatives B2A and C4A were to be constructed.

Alternative C4A would require minor property acquisition of 0.1 acre in the NE 2nd Pocket Parks east and west of 110th Avenue NE to widen the road to accommodate the at-grade light rail route (see Exhibit 4.17-9). Because the pocket parks contains no recreational facilities and serves principally as open space, the park would likely continue to operate as it does currently.

At McCormick Park, the guideway is at-grade (0.6 acre of impact) between 108th and 110th Avenues NE and then transitions to an elevated structure (0.2 acre of impact) over 112th Avenue NE.

This transition would require a retaining wall to support the light rail structure as it rises from an at-grade to elevated profile. This structure would alter access from NE 12th Street into the park. Additionally, the structure would result in different user experience than exists today. Alternative C4A would remove 0.5 acre from park use and restrict access between portions of the park. Approximately 0.3 acre would be located beneath the elevated guideway, but there would not be a surface impact, and areas beneath the elevated guideway could still be available for recreational purposes.

When the facility is constructed, the area used for construction staging (Exhibit 4.17-8) could be used to recreate and expand the parkland, resulting in an overall increase of the park size by 0.2 acre. See Section 4.17.3.3, Impacts during Construction, for more details. The new park vegetation would take several years to mature, and until the vegetation is reestablished, a temporary change in visual quality for park users would result, and the park's ability to function as a buffer from adjacent uses would be temporarily reduced.

Impacts to Surrey Downs Park for Alternative C7E would be the same as for Alternative C4A, and only the Alternative B2A connector would have park impacts because it would require roadway widening, which would remove about 0.4 acre of Surrey Downs Park in the landscape strip between 112th Avenue SE and the park's existing parking lot, as illustrated in Exhibit 4.17-9.

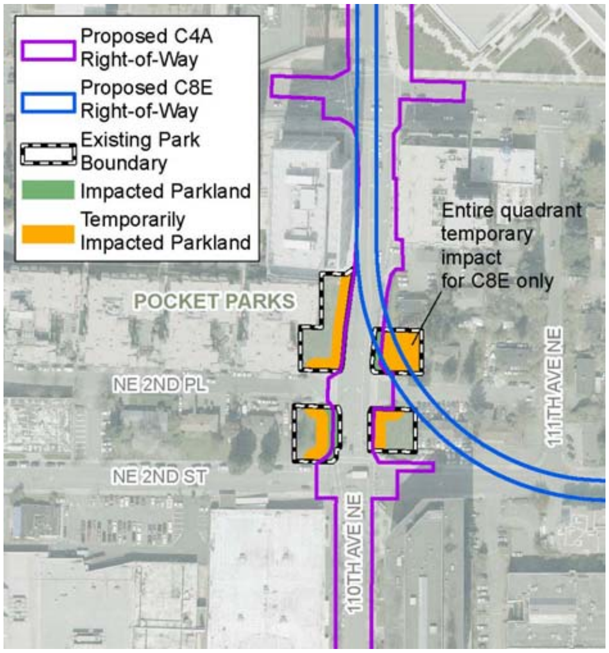

Proposed C4A Right-of-Way
Proposed C8E Right-of-Way
Existing Park Boundary
Impacted Parkland
Temporarily Impacted Parkland
POCKET PARKS
Entire quadrant temporary impact for C8E only
NE 2ND PL
NE 2ND ST
110TH AVE NE
111TH AVE NE

Exhibit 4.17-9
Alternative C4A and C8E Pocket Park Impact Area

The 0.4-acre impact would be elevated; this would not affect active recreational areas of the park. Sound Transit would coordinate with the City of Bellevue on developing the master plan for Surrey Downs Park if this alternative is selected. Although the elevated light rail structure would be seen from the eastern corner of McCormick Park, no impacts on the park or its users are expected.

Alternative C8E would pass over 0.1 acre of the pocket park at the northeast corner of 110th Avenue NE and NE 2nd Place, resulting in shading of the pocket park, a visual intrusion, and a new easement. Because this park contains no recreational facilities, however, and serves principally as open space, it is expected that the park could continue to operate as it does currently (see Exhibit 4.17-9).

The elevated light rail structure of Alternative C8E would be seen from the Library Plaza, but because it would be located in the median of 110th Avenue NE, no direct impacts on the plaza would occur. In McCormick Park, the elevated light rail structure crosses NE 12th Street over the northern edge of the park between 111th and 112th Avenues NE, covering 0.2 acre. Because the light rail structure would be elevated approximately 30 feet above the park in this area, the structure would become a dominant and noticeable feature, which would affect the visual environment for some park users and create shade. However, park users could still move freely to and from other portions of the park under the light rail structure, so it would not impact access as the Alternatives C3T and C4A would.

As with Alternatives C3T and C4A, when construction is complete for Alternative C8E, the area used for construction staging in McCormick Park (see Exhibit 4.17-8) would be used to create new parkland, and the park would, thus, slightly increase in size. Similar to Alternatives C3T and C4A, the new park vegetation would take several years to mature, and until the vegetation is reestablished, a temporary change in visual quality for park users would occur as well as a temporary reduction in the park's ability to function as a buffer from adjacent uses.

Similar to *Preferred Alternatives C11A* and *C9T* and Alternatives C2T, C3T, and C4A, Alternative C9A might help facilitate Bellevue's goal to develop an open space area along Main Street to buffer residential uses to the south. Alternative C9A would permanently acquire less than 0.1 acre of the western edge of the Pocket Park quadrants on the east side of 110th Avenue NE (Exhibit 4.17-10). Due to the area's existing transportation character, no visual impacts would be anticipated. Alternative C9A would not impact Surrey Downs Park functions and uses, but the elevated structure would impact less than 0.1 acre of McCormick Park. Similar to *Preferred Alternative C11A*, Alternative C9A would accommodate the trail in the former BNSF Railway as part of the Hospital Station, to be developed by others. Although Alternatives C1T and C14E would have no impacts on existing parks, they would accommodate the trail in the former BNSF Railway as part of the Hospital Station, to be developed by others.

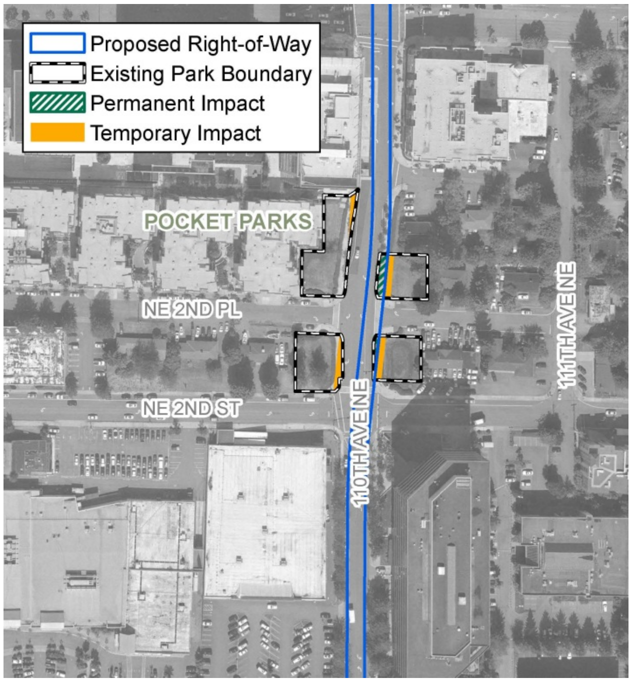


EXHIBIT4.17-10
Alternative C9A Pocket Park Impact Area

Segment D

A proposed storage track would remain inside the former BNSF Railway corridor north of NE 12th Street overcrossing if the interim station were to be the Hospital Station in Segment C or another station in Segment D. The proposed design is compatible with a future trail, which would be developed by others.

Preferred Alternative D2A would not impact any existing park or open space resources.

Highland Park and Community Center is located near the NE 20th Alternative (D3), but no direct or proximity impacts are anticipated for this resource.

Segment E

The Segment E alternatives would impact six park, open space, and trail facilities. The impacts are listed in Table 4.17-4 and shown in Exhibit 4.17-11, and they are discussed below by alternative.

Preferred Marymoor Alternative (E2) would impact 4 of the 15 existing parks and recreational facilities identified in Segment E (three trails and Marymoor Park). *Preferred Alternative E2* would cross under the Bridle Crest Trail at NE 60th Street. The Bridle Crest Trail would not be affected because the alternatives would be located under the NE 60th Street overpass, where the trail passes. Although equestrians are known to use this trail, given the existing noise levels and presence of SR 520, no impacts would be expected during operation.

TABLE 4.17-4
Segment E Parks and Open Spaces Permanent Impacts

Impact Area	**Park Name**						
	Town Center Open Space (acres)	**Luke McRedmond Landing (acres)** [a]	**Marymoor Park (acres)**	**Sammamish River Trail (acres)**[a]	**East Lake Sammamish Trail**	**Bear Creek Trail (acres)**[a]	**The Edge Skate Park (acres)**
Preferred Marymoor Alternative (E2)	None	None	2.0	None[b]	Trail section relocation	0.1	None
E2 - Redmond Transit Center Design Option	None	None	2.0	None[b]	Trail section relocation	0.1	Less than 0.1
Redmond Way Alternative (E1)	None	0.1	None	0.1	Trail section relocation	0.1	None
Leary Way Alternative (E4)	0.7	None	None	0.1	Trail section relocation	0.1	None

[a] Acres impacted are associated with shading due to the elevated structure, which would also require a permanent aerial easement.

[b] Impacts to this trail for *Preferred Alternative E2* and E2 – Redmond Transit Center Design Option are counted under impacts to Marymoor Park.

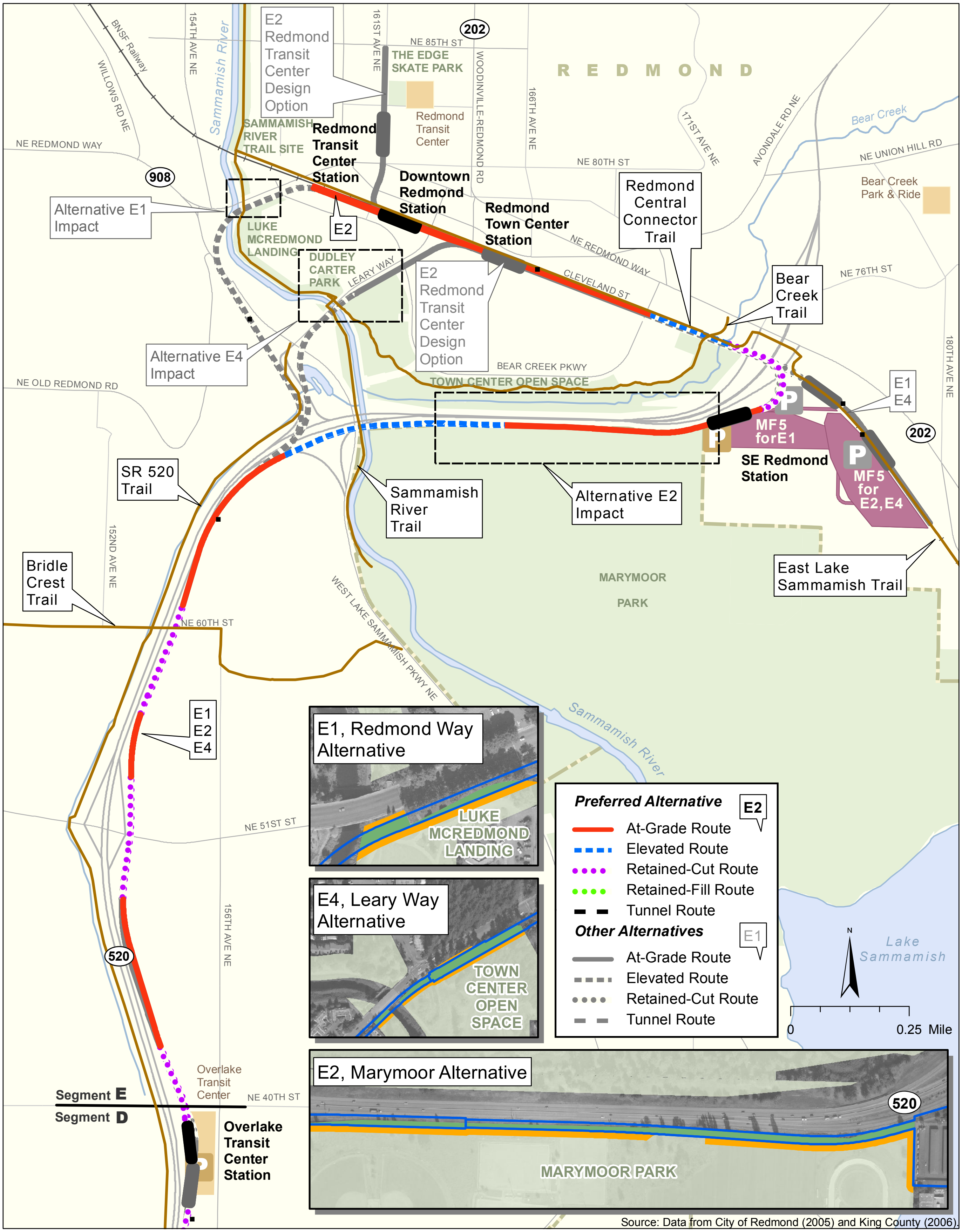
The SE Redmond Station offers closer access to Marymoor Park recreationists with *Preferred Alternative E2* than it does with Alternatives E1 and E4, although access to the park could be improved under all alternatives. *Preferred Alternative E2* would acquire approximately 2.0 acres of park property along the northern edge of the 640-acre Marymoor Park (0.4 acre elevated and 1.6 acres at-grade), south of SR 520, which would represent less than 1 percent of the park area (Exhibit 4.17-11). No recreational park facilities would be directly affected by East Link operations; however, equestrian riders have been known to ride along the park's northern property boundary, and an unofficial equestrian route exists. Existing park uses adjacent to the route include a multipurpose event park, informal recreational uses, and the velodrome. This route might need to be relocated if there is not enough distance between the light rail and the soccer and ball fields to accommodate these users. Given the existing proximity to SR 520 and vegetation in this area, users would not likely experience additional proximity impacts from the project.

Certain areas of Marymoor Park along SR 520 and the central section would not be considered noise-sensitive under FTA criteria because the primary uses in these areas are for active uses. This area is also near SR 520 to the north and adjacent to a commercial and industrial area to the east. Only the southern section of the Marymoor Park, near Lake Sammamish, is considered noise-sensitive where quiet is an essential element of the park. Project alternatives are approximately 2,500 to 3,000 feet from these uses. Project noise levels are predicted to be below existing noise levels and below the FTA noise impact criteria. Even though *Preferred Alternative E2* travels along the areas of the park that are not noise-sensitive, Sound Transit, in consultation with King County, will evaluate noise impacts, consistent with FTA noise analysis methods and criteria, to park uses in place in the future when funding is secured and the design advances.

Preferred Alternative E2 would cross the Sammamish River Trail in an area where the trail is located within Marymoor Park. This would result in some shading from the elevated structure. One or more columns would likely be placed near the trail. This trail currently passes underneath three other overpasses in this area, including SR 520, located 80 feet away.

Preferred Alternative E2 would potentially realign and relocate a portion of the East Lake Sammamish Trail, to be developed by others, within its existing corridor. Also, one or more columns likely would be placed near the trail. Project operation would not impact access to the trail and its connection to the Bear Creek Trail, although the elevated portion of the structure would result in some shading (0.1 acre). The corridor has an urban and transportation character; it is in a former railroad corridor and contains an existing SR 520 overpass. Therefore, the visual change of the East Link Project would not substantially impair views from the trail.

In order for the light rail guideway to cross over Bear Creek Trail, the trail would be lowered by 20 feet in a retained cut. This would place the trail in a short retained cut pathway for approximately 30 feet, but this impact would not impair the trail's continued use.


R E D M O N D
E2 Redmond Transit Center Design Option
NE 85TH ST
161ST AVE NE
202
THE EDGE SKATE PARK
Redmond Transit Center
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE 80TH ST
BNSF Railway
154TH AVE NE
Sammamish River
WILLOWS RD NE
NE REDMOND WAY
908
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Downtown Redmond Station
Redmond Town Center Station
Redmond Central Connector Trail
Alternative E1 Impact
E2
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
LEARY WAY
NE REDMOND WAY
CLEVELAND ST
E2 Redmond Transit Center Design Option
Bear Creek Trail
NE 76TH ST
Alternative E4 Impact
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
180TH AVE NE
E1 E4
202
MF5 for E1
SE Redmond Station
MF5 for E2, E4
SR 520 Trail
Sammamish River Trail
Alternative E2 Impact
East Lake Sammamish Trail
MARYMOOR PARK
152ND AVE NE
Bridle Crest Trail
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
E1 E2 E4
E1, Redmond Way Alternative
LUKE MCREDMOND LANDING
NE 51ST ST
E4, Leary Way Alternative
TOWN CENTER OPEN SPACE
156TH AVE NE
520
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
N
Lake Sammamish
0
0.25 Mile
Overlake Transit Center
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
E2, Marymoor Alternative
520
MARYMOOR PARK

Source: Data from City of Redmond (2005) and King County (2006).

🟩 Affected Park Area Within Proposed Right-of-Way

🟧 Impacted Park Area Within Proposed Right-of-Way

▭ Proposed Right-of-Way

▪ Traction Power Substation

— Trail

▬ Proposed Station

▬ Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Exhibit 4.17-11 **Affected Park Area Within Proposed Right-of-Way**
Segment E
East Link Project

Lowering the trail would maintain the shallow gradient, width, and height clearance to accommodate all trail users. A column could be placed near the trail, but it would not impair the trail's use. The trail would be fully restored following construction. In addition to the impacts from *Preferred Alternative E2*, the E2 - Redmond Transit Center Design Option would impact a portion of The Edge Skate Park, located along 161st Avenue NE at NE 83rd Street. The design option would require a small portion, less than 0.1 acre (at-grade) of the western portion of the park that contains the sidewalk and narrow lawn area, but would not affect any recreational facilities.

The City of Redmond has plans to locate a stormwater pipe, trail, and linear park within the former BNSF Railway corridor in downtown Redmond, while also accommodating regional utilities and infrastructure, including Sound Transit's light rail project. Space constraints in this corridor could require relocating any of these uses. If the Central Connector trail/park is impacted by any of the Segment E alternatives, then the trail would be relocated, affected park amenities replaced, and vegetation restored as agreed to with the City.

The other Segment E alternatives would affect 4 of the 15 Segment E existing parks and recreational areas. All Segment E alternatives would cross under the Bridle Crest Trail at NE 60th Street, but no impacts would be likely during operation as described for *Preferred Alternative E2.* The Redmond Way Alternative (E1) would result in direct impacts along the south side of Redmond Way, shifting the elevated light rail structure into Luke McRedmond Landing. This would involve removing mature trees lining Redmond Way, and 0.1 acre of the park would be under the elevated structure. However, no recreational park facilities would be impacted. Because the light rail structure would be elevated approximately 30 feet above the park in this area, the structure would become a dominant and noticeable feature in the park, which would affect the visual experience for some park users, but the visual character of the park itself and transportation facilities adjacent to the park would not change.

The elevated route would span two segments of the Sammamish River Trail, resulting in minor shading of this trail (0.1 acre). This trail already passes underneath three other overpasses in this area, including the SE Redmond Way overpass 30 feet away. It is also likely that one or more columns would be placed near the trail (on either the west or east side of the river).

Alternative E1 would also cross the Bear Creek Trail, resulting in some shading on the trail (0.1 acre). Because the light rail structure would be elevated approximately 35 feet above the trail in this area, the structure would affect the visual environment for some trail users. It is also likely that one or more columns would be placed near the Bear Creek Trail. Alternative E1 would require minor realignment of the existing East Lake Sammamish Trail in the area along the former BNSF Railway corridor. Overall, access among the various trails in the area would not be impacted by project operation. No impacts on Marymoor Park or the Town Center Open Space would occur under Alternative E1. This alternative would provide enhanced access to Marymoor Park via the Downtown and SE Redmond Stations.

Leary Way Alternative (E4) would require right-of-way along the eastern side of Leary Way NE in the Town Center Open Space. This would impact 0.7 acre (0.1 elevated and 0.6 at-grade) and remove some mature trees along the edge of this open space. Trees would remain farther south into the open space, somewhat screening the light rail from users further south. Impacts on Bear Creek Trail and East Lake Sammamish Trail would be similar to those under the Redmond Way Alternative (E1), although Alternative E4 would cross over the Bear Creek Trail at half the height of Alternative E1, or approximately 18 feet. No impacts on Luke McRedmond Landing or Marymoor Park would occur under this alternative. Dudley Carter Park, to the north of Leary Way, would not be adversely affected by project alternatives (i.e., there would be no direct acquisition or proximity impacts).

Maintenance Facilities

The NE 116th Maintenance Facility (MF1) and the BNSF Maintenance Facility (MF2) would be located adjacent to the former BNSF Railway corridor, and should the maintenance facility be located in either location the proposed design is compatible with a future bike and pedestrian trail in this area.

The SE Redmond Maintenance Facility (MF5) would be located adjacent to the East Lake Sammamish Trail. However, because the trail currently exists adjacent to large-scale light industrial development, no impacts are anticipated.

4.17.3.3 Impacts during Construction

Where alternatives are located adjacent to or on park property, park users might experience proximity effects including increased noise, dust, and temporary use and access restrictions. Proposed parks and trails are not addressed in this section because there would be no construction impacts to undeveloped resources. These effects are considered temporary, except for

Section 6(f) parks (parks developed using LWCF Funds). Section 6(f) park lands are considered to be directly impacted if construction prohibits normal park use for more than 180 consecutive days. This pertains only to one portion of the Mercer Slough Nature Park (see Appendix D, Section 4(f)/6(f) Evaluation). Chapter 2 discusses types of activities associated with construction staging.

Segment A, *Preferred Interstate 90 Alternative (A1)*

Benvenuto Viewpoint in Seattle and Park on the Lid, and possibly the Outdoor Sculpture Gallery, on Mercer Island would experience increased noise, dust, and temporary closures and detours around the parks as construction of the station entrances is completed. Construction would not inhibit normal use of the parks from other points of access. If the pedestrian bridge option is built, then a portion of the Outdoor Sculpture Gallery would likely be closed and detours around the park would be provided during construction.

Segment B

Segment B alternatives would have construction impacts on two parks, Mercer Slough and Bellevue Way Greenbelt (Table 4.17-5).

TABLE 4.17-5
Segment B Required Parks Construction Area

Alternative	Mercer Slough Nature Park (acres)	Bellevue Way Greenbelt (acres)
Preferred Alternative B2M[a]	3.6	None
Bellevue Way Alternative (B1)	2.6	Less than 0.1
112th SE At-Grade Alternative (B2A)	2.5	0.1
112th SE Elevated Alternative (B2E)	1.8	None
112th SE Bypass Alternative (B3)	2.5	0.1
114th Extension Design Option (B3)	2.6	0.2
BNSF Alternative (B7)	1.7	None

[a] Only for connector to *Preferred Alternative C11A* only.

Construction activities associated with *Preferred Alternative B2M* would encroach into Mercer Slough Nature Park, requiring an additional 3.6 acres beyond operation right-of-way acquisition (Exhibit 4.17-2) for a temporary construction easement and staging area. *Preferred Alternative B2M* would result in more temporary park acquisition for construction than the other Segment B alternatives. After construction, these areas would be restored with appropriate landscaping. Light rail construction in the western edge of Mercer Slough Nature Park would result in increased noise, dust, and temporary access restrictions to western areas of the park, but would not inhibit normal use of most of the park's resources.

The Periphery Loop Trail sidewalk on the eastern side of Bellevue Way SE would be maintained and/or relocated as necessary for safety purposes. Options may include: providing protected sidewalk on the eastern side of Bellevue Way SE or constructing a new sidewalk on the western side of Bellevue Way SE. Access to Sweylocken Boat Ramp, the I-90 Trail, or other Mercer Slough Nature Park Trails would generally be maintained during construction, but there would be no access to the trails north of the South Bellevue Park-and-Ride. Access would be maintained during construction to the trails located south of the park-and-ride through detours.

Construction along 112th Avenue SE could result in increased noise and dust near the water trail but would not likely inhibit normal trail use because this is a short section of trail that is currently between an office park and 112th Avenue SE roadway. Also, the Winters House would be closed so the Eastside Heritage Center would be relocated during construction.

Construction activities would require closing the Winters House and adjacent parking and also temporarily relocate of the retail component of the blueberry farm, which would be relocated to enable the business to continue operation during construction. Farming operations to the blueberry farm would be maintained during construction, but there would be no public access. Closing parking at the Winters House and closing the South Bellevue Park-and-Ride would reduce available parking in the western side of the park. Temporary parking for park users would be provided as agreed to by the City. Constructing *Preferred Alternative B2M* would not substantially affect park use or diminish its value due to the project's location along the park's boundary with Bellevue Way SE. Construction would not inhibit normal park access and use on the park's east side. There would be no direct construction impact on the Bellevue Way Greenbelt.

For Alternatives B2A, B2E, B3, and B3 - 114th Extension Design Option, reconstructing Bellevue Way SE and the sidewalk adjacent to Mercer Slough Nature Park would result in increased noise, dust, and temporary access restrictions to western areas of the park, although detours would be provided to maintain access to trails in this area (Exhibit 4.17-2). Construction would not be expected to inhibit normal use of the park from other points of access. The blueberry farm would experience construction-related impacts. A portion of the entrance to the Mercer Slough Blueberry Farm would need to be reconstructed to accommodate either the light rail structure or the shifted roadway closer to the farm.

Portions of the Mercer Slough Nature Park could be acquired as a temporary construction easement for use as a staging area for construction at a width that encroaches roughly 50 feet into the park, except for the location at the Winters House, where the proposed right-of-way would be widened to the west, holding the existing east right-of-way in its current location. In addition, Alternatives B2A, B3, and B3 - 114th Extension Design Option would encroach 0.1 to 0.2 acre into the Bellevue Way Greenbelt during construction. Construction of Alternative B1 would encroach less than 0.1 acre into the Bellevue Way Greenbelt.

To construct Alternative B7, a construction corridor up to 85 feet wide and along the north side of I-90 would be cleared and a temporary construction trestle may be built under the elevated guideway in the park. Section 2.4 of Chapter 2 discusses potential construction easements. Although the park is close to an existing noise generator (I-90), temporary noise from East Link construction would be greater than noise typically experienced in this area. In addition, this portion of the park, the I-90 trail, as well as the canal on the west side of the park near the I-90 off-ramps, would likely be intermittently closed to public access during construction for safety considerations. Once construction is completed, the area along the light rail elevated guideway would be revegetated and returned to parklands and the trail would remain unaltered. Wetland vegetation in the guideway construction area is expected to return to its current growth pattern within 10 years.

Segment C

Preferred Alternative C11A would temporarily acquire 0.6 acre of Surrey Downs Park for a construction easement (Table 4.17-6). Constructing the guideway would close the north access point to the park located along 112th Avenue SE and would also require right-in/right-out turn movements. Vehicle and pedestrian access to the park from 112th Avenue SE would be maintained during construction at the southern access point. Any construction impacts, such as noise, dust, visual change, and reduced parking, would be noticed by park users but would not inhibit normal park use as active park use areas are not along 112th Avenue SE.

TABLE 4.17-6
Segment C Required Parks Construction Area

Alternative	Surrey Downs Park (acres)	Pocket Parks (acres)	McCormick Park (acres)
Preferred 108th NE At-Grade Alternative (C11A)	0.6	None	None
Preferred 110th NE Tunnel Alternative (C9T)	0.5	0.3	None
106th NE Tunnel Alternative (C2T)	5.7[a]	None	None
108th Ave Tunnel Alternative (C3T)	5.7[a]	None	1.8
Couplet Alternative (C4A)	0.4[a]	0.3	1.3
112th NE Elevated Alternative (C7E)	0.4[a]	None	None
110th NE Elevated Alternative (C8E)	None	0.1	0.8
110th Ave NE At-Grade Alternative (C9A)	Less than 0.1	0.1	None

[a] Only for connector from *Preferred Alternative B2M* to *Preferred Alternatives C11A* or *C9T* and from Alternative B2A to Alternatives C2T, C3T, C4A, and C7E.

Preferred Alternative C9T would require a 0.5-acre temporary construction easement in Surrey Downs Park. During construction park users would not be able to access the northeast corner of the park and the north access point would be closed, resulting in similar impacts as those described under *Preferred Alternative C11A*. Vehicle and pedestrian access to the park from 112th Avenue SE would be maintained during construction.

Construction impacts such as noise, dust, visual change, and reduced parking would be noticed by park users but would not inhibit normal use of the park. The active use areas of the park are located in the southern portion of the park away from construction activities.

Construction activities associated with the cut-and-cover tunnel for *Preferred Alternative C9T* would acquire a sliver of the southeast quadrant of the NE 2nd Pocket Parks for a construction easement and close the northeast quadrants, approximately 0.3 acre (Exhibit 4.17-6). Once construction is completed, this park area in the southeast and northeast quadrants would be restored. Access would be maintained to the other quadrants as much as possible. Since these parks are only operating as open space, it would not affect park users, but people passing by would experience construction noise, dust, and visual change.

Table 4.17-6 lists the area required for construction staging in parks in Segment C. The northern half of

Surrey Downs Park where the King County District Courthouse is located would be used as staging to construct the tunnel portals for Alternative C2T or C3T if connecting from Alternative B2A in Segment B. The southern half of the park containing the existing park facilities would remain open during construction, although park users would experience proximity impacts from adjacent construction, including noise and dust. Vehicle access would likely be limited to only one of the two current entrances. Pedestrian access to adjoining neighborhoods would be maintained at two of the three current locations. Parking would also be limited because half of the parking is located at the north end of the site, although much of that parking serves the King County District Courthouse. Removing the courthouse would benefit the park (as described in Section 4.17.3.2, Impacts during Operation). Depending on when Bellevue begins implementing the *Surrey Downs Park Master Plan*, construction staging at this location could delay construction of some master plan features.

Alternatives C4A and C8E would impact the City of Bellevue NE 2nd Pocket Park during project construction for a temporary construction easement and staging. Once construction is completed, this park area would be restored. During construction, the northeast park quadrant would be closed for Alternative C8E, but access would be maintained to the other quadrants. Construction activities associated with the cut-and-cover tunnel and Bellevue Transit Center Station entrance for *Preferred Alternative C9T* would use both park quadrants on the east side of 110th Avenue NE and the northwest quadrant, for a total construction easement of approximately 0.3 acre. The northwest and northeast quadrant would be closed during construction with the northeast quadrant being used as part of a larger staging area. Park users would experience noise, dust, and visual change. After construction, the northwest quadrant of the pocket park would be more accessible to the public through the station entrance plaza.

Under Alternatives C3T and C4A, McCormick Park would be closed during construction from 108th to 112th Avenue NE. Under Alternative C8E, the park would be closed during construction from roughly 110th to 112th Avenue NE. Under each of these alternatives, pedestrians would be directed to the open portions of the park during construction. These areas would be restored following construction, and adjacent parcels acquired for construction staging would be used to create new parkland once the project is constructed, resulting in a net gain in parkland.

Alternative C9A would acquire less than 0.1 acre of the pocket park as a temporary construction easement along the east and west sides of 110th Avenue NE. Access would be maintained to the other areas of the park, and park users would experience construction noise, dust, and visual change.

Segment D

No impacts on parks or open space would occur during construction.

Segment E

To construct *Preferred Alternative E2* south of SR 520, a temporary access road would likely be built in the northern portion of Marymoor Park. The total encroachment into the park (beyond what is described in the operational impacts section) would add approximately 15 to 50 feet for the length of the park along SR 520, measuring approximately 3 acres (Table 4.17-7). Although the park is close to an existing noise generator (SR 520), temporary noise from construction could be greater than noise typically experienced in this area. Park users in Luke McRedmond Landing and the Town Center Open Space could experience increased noise and dust during construction of *Preferred Alternative E2*. At Luke McRedmond Landing, some parking spaces could be temporarily removed to accommodate construction.

TABLE 4.17-7
Segment E Required Parks Construction Area

Alternative	Marymoor Park (acres)	Luke McRedmond Park (acres)	Town Center Open Space (acres)	The Edge Skate Park (acres)	Sammamish River Trail Site
Preferred Alternative E2	3	none	Less than 0.1	none	none[a]
E2 – Redmond Transit Center Design Option	3	none	0.3	0.2	none[a]
Redmond Way Alternative (E1)	none	0.1	none	none	0.1
Leary Way Alternative (E4)	none	none	0.4	None	Less than 0.1

[a] Impacts to this trail for Preferred Alternative E2, and E2-Transit Center Design Option are counted under Marymoor Park

The East Lake Sammamish Trail would be realigned and reconstructed where it exists in the same corridor as the *Preferred Alternative E2* west of SR 520, requiring closures and detours. Temporary trail closures, detours, or protective barriers would be also implemented to maintain trail usage when construction would occur over the Sammamish River Trail and the Bear Creek Trail and under the Bridle Crest Trail.

Other Segment E Alternatives
Table 4.17-7 lists the area required for construction staging in parks in Segment E. E2- Redmond Transit Center Design Option would have the same impacts to Marymoor Park and Segment E trails as *Preferred Alternative E2*. In addition, users of The Edge Skate Park could experience proximity impacts because the alternative would be constructed directly adjacent to this facility.

For Alternatives E1 and E4, the East Lake Sammamish Trail would also require minor realignment east of SR 520 in the former BNSF Railway right-of-way. Similar to *Preferred Alternative E2*, Alternatives E1 and E4 would require temporary trail closures, detours, or protective barriers to maintain trail usage of Bridle Crest Trail, Sammamish River Trail, Bear Creek Trail, and East Lake Sammamish Trail during construction.

Maintenance Facilities

Because the East Lake Sammamish Trail would be reconstructed under Alternatives E1 and E4, no additional impacts are expected during construction of the maintenance facilities.

4.17.4 Potential Mitigation Measures

Sound Transit would restore disturbed park and open space to pre-project conditions after construction in cooperation with the resource owner. This would include landscaping, paths, and any built features of the park and trail resources. Other measures to mitigate affected parks and open space include providing replacement lands, financial compensation, or park enhancement, where appropriate. During construction, pedestrian access to parks and trails would be routed to the remaining open portions of the facilities. Dust from construction would be mitigated using dust control measures described in Section 4.6, Air Quality. Visual and noise impacts would be mitigated using measures described in Section 4.5, Visual and Aesthetic Resources, and Section 4.7, Noise and Vibration.

As part of the Section 4(f) process, Sound Transit has consulted with the Cities of Seattle, Mercer Island, Bellevue, and Redmond and with King County about potential impacts on parks under their jurisdiction and possible mitigation measures. With the exception of the City of Bellevue, the agencies with jurisdiction over parklands have concurred regarding the scope of potential project impacts and associated mitigation measures. The cities of Seattle, Mercer Island, Redmond, and King County have provided 4(f) letters of concurrency, which are included in Appendix D. Table 4.17-8 includes the mitigation measures that are consistent with the letters of 4(f) concurrency for each affected recreational resource and also includes proposed mitigation for City of Bellevue park impacts. Not all mitigation measures would be necessary or implemented where multiple mitigation options are described in the Table 4.17-8.

Sound Transit has also consulted with the Washington RCO and the National Park Service regarding potential LWCF Section 6(f) and RCO funded property conversion. Appendix D discusses converting these properties and requirements regarding replacement properties.

TABLE 4.17-8
Potential Mitigation for Identified Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
Segment A, Interstate 90			
Benvenuto Viewpoint	WSDOT, City of Seattle	**Permanent:** ▪ Design station entrance to be compatible with the City's park design. **Temporary:** ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative A1*
Park on the Lid	WSDOT	**Permanent:** ▪ Station entrance designed to be compatible with the surrounding design of the park. **Temporary:** ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative A1*

TABLE 4.17-8 CONTINUED
Potential Mitigation for Identified Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
Outdoor Sculpture Gallery	WSDOT, Mercer Island	**Permanent:** ▪ Design station entrance to be compatible with the surrounding the park. **Temporary:** ▪ Restore temporarily disturbed area to existing conditions.	A1 - Mercer Pedestrian Bridge Design Option
Segment B, South Bellevue			
Mercer Slough Nature Park	City of Bellevue	**Permanent:** ▪ Acquire replacement land pursuant to Washington State Recreation and Conservation Office (RCO) and Section 6(f) requirements that would be consistent with the natural character of the park. ▪ Have an option to preserve existing vehicle access to Sweylocken boat ramp. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Provide temporary parking for users off Bellevue Way and south of the park-and-ride or as agreed to with the City. ▪ Relocate blueberry farm retail use during construction. ▪ Maintain blueberry farm operations. ▪ Relocate Eastside Heritage Center during construction. ▪ Maintain access or provide detours for trails, and maintain access to Sweylocken boat ramp.	*Preferred Alternative B2M*
		Permanent: ▪ Acquire replacement land pursuant to RCO and Section 6(f) requirements or provide financial compensation as agreed with the City. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Maintain access or provide detours for trails, and maintain access to Winters House, blueberry farm, and boat launch where affected as agreed to with City. ▪ Provide new signal for full access to boat launch (Alternative B1 only).	All Segment B alternatives, except *Preferred Alternative B2M*
Bellevue Way Greenbelt	City of Bellevue	**Permanent:** ▪ Provide financial compensation or replacement land as agreed with City.	Alternatives B1, B2A, B3, and B3 - 114th Extension Design Option
Segment C, Downtown Bellevue			
Surrey Downs Park	City of Bellevue	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE and provide landscaping. ▪ Design treatments of the retaining wall and fence along 112th Avenue SE in consultation with the City. ▪ Design and construct a U-turn on 112th Avenue SE at SE 8th Street. Prepare conceptual layout for two northbound-to-southbound U-turn options – one at SE 6th Street and one at Main Street – to accommodate those coming from the south who would want to turn left into the park; the City and Sound Transit would pick one that Sound Transit would design and construct. ▪ Coordinate with City of Bellevue and community to revise the Surrey Downs Master Plan to address the impacted area. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed with City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the Surrey Downs Master Park Plan. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow before closing north driveway.	*Preferred Alternative C11A* from *Preferred Alternative B2M*

TABLE 4.17-8 CONTINUED
Potential Mitigation for Identified Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
Surrey Downs Park continued	City of Bellevue continued	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE, and provide landscaping. ▪ Design treatments of the retaining wall and fence along realigned SE 4th Street in consultation with the City. ▪ Coordinate with City of Bellevue and community to revise the Surrey Downs Master Plan to address the impacted area. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the *Surrey Downs Master Park Plan*. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*Preferred Alternative C9T* connecting to *Preferred Alternative B2M*
		Permanent: ▪ Provide financial compensation or replacement land as agreed with the City. **Temporary (Alternative C2T and C3T from Alternative B2A):** ▪ Provide financial compensation for the use of land as agreed with the City. ▪ Restore landscape after construction to existing conditions or as agreed to with the City; maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public access and parking for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. **Temporary (Alternative C4A, C7E, and C9A from Alternative B2A only):** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore temporarily disturbed park area to existing conditions.	Alternatives C3T, C2T, C4A, and C7E connecting from Alternative B2A
NE 2nd Pocket Parks	City of Bellevue	**Permanent:** ▪ One, or a combination of the following, as agreed to with the City: — Provide financial compensation as agreed to with the City. — Provide replacement land with an equivalent portion of the project's staging area located on the northeast quadrant of the park. — Enhance entire northwest quadrant of the park as a public plaza in conjunction with the station entrance. **Temporary** ▪ Provide financial compensation for the temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	*Preferred Alternative C9T* connecting to *Preferred Alternative B2M* and Alternatives B2A, B2E, and B7
		Permanent (Alternatives C4A and C9A from Alternatives B2A, B2E, and B3 only): ▪ Provide financial compensation or replacement land as agreed to with the City. **Permanent (Alternative C8E from Alternatives B3 and B7 only):** ▪ Provide financial compensation or replacement land as agreed to with the City. ▪ Add visual and aesthetic design measures, as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	Alternatives C4A and C9A from B2A, B2E, B3, B7; Alternative C8E from B3 and B7

TABLE 4.17-8 CONTINUED
Potential Mitigation for Identified Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
McCormick Park	City of Bellevue	**Permanent:** ▪ One or more of the following measures would be implemented: — Acquire replacement land for permanent use impacts. Results in net increase in park land for some alternatives. — Provide financial compensation for use during construction. **Temporary:** ▪ Restore disturbed area after construction.	Alternatives C3T and C4A from Alternatives B2A, B2E, B3, and B7; Alternative C8E from Alternatives B3 and B7
Segment D, Bel/Red-Overlake			
No parks affected			
Segment E, Downtown Redmond			
Marymoor Park	King County	**Permanent:** ▪ Acquire replacement recreation land equal in value and function to offset the light rail use within the park property. ▪ Evaluate noise impacts to park uses in place, when Segment E is funded, consistent with FTA noise analysis methods and criteria when design is advanced. **Temporary:** ▪ Mitigate temporarily disturbed park lands pursuant to RCO regulations. ▪ Provide financial compensation for temporary use of land outside the light rail right-of-way for construction; restore parkland following construction.	*Preferred Alternative E2* and E2 - Redmond Transit Center Design Option
Town Center Open Space	City of Redmond	**Permanent:** ▪ One or more of the following measures would be implemented: — Acquire replacement land for permanent use impacts. — Provide financial compensation. **Temporary:** ▪ Restore disturbed park area.	Alternative E4
		Temporary: ▪ Restore disturbed park area.	*Preferred Alternative E2* and E2 - Redmond Transit Center Design Option
Luke McRedmond Landing	City of Redmond	**Permanent:** ▪ One or more of the following measures would be implemented: — Provide financial compensation for permanent aerial easement or improvements to the park as agreed to with the City. — Replace trees removed per City tree ordinance. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed to with the City. ▪ Maintain access to the park during construction. ▪ Restore temporarily disturbed area to existing conditions.	Alternative E1
Bear Creek Trail	City of Redmond	**Permanent:** ▪ Reroute trail during construction, restore disturbed trail area after construction, and replace trees. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option

TABLE 4.17-8 CONTINUED
Potential Mitigation for Identified Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
		Permanent: ▪ Provide financial compensation for permanent aerial easement or improvements to the trail as agreed to with the City of Redmond. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	Alternatives E1, and E4
Redmond Central Connector Trail/Park Corridor	City of Redmond	**Permanent:** ▪ Possibly permanent reroute of trail, and replace affected park amenities and associated vegetation as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction as agreed to with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option, E1, and E4
Sammamish River Trail	King County	**Permanent:** ▪ Acquire replacement recreation land equal in value to offset the light rail within the trail right of way per RCO requirements. ▪ Locate guideway columns outside trail clear zone as practical. **Temporary:** ▪ Provide financial compensation for temporary use of land outside of the light rail right-of-way for construction. ▪ Reroute and restore trail to King County standards and specifications during and after construction.	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option, E1, and E4
East Lake Sammamish Trail	King County	**Permanent:** ▪ Provide financial compensation for the light rail use of the trail right of way. **Temporary:** ▪ Provide financial compensation for temporary use of land outside of the light rail right-of-way during construction. ▪ Reroute and restore trail to King County standards and specifications during and after construction.	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option, E1 and E4
Edge Skate Park	City of Redmond	**Permanent:** ▪ Provide financial compensation for the light rail use of park as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed to with the City. ▪ Maintain access to the park during construction. ▪ Restore temporarily disturbed area to existing conditions.	E2 - Redmond Transit Center Design Option

Chapter 5

Cumulative Impacts

5.1 Introduction

As defined in 40 Code of Federal Regulations (CFR) 1508.7, cumulative impacts on the environment result "from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." The public and government agencies need to understand cumulative impacts to evaluate a proposed action and its alternatives in a broad perspective, including how the project might interact with impacts that persist from past actions, with present-day activities, and with other projects that are planned but have not been built yet. A cumulative impact assessment can reveal unintended consequences that might not be apparent when the project is evaluated in isolation instead of in a broader context.

The need to analyze cumulative impacts has influenced all components of the East Link Project environmental review process, including scoping, describing the affected environment, developing the alternatives, and evaluating environmental impacts. The cumulative impact assessment follows the National Environmental Policy Act (NEPA) (40 CFR 1500-12508), the approach recommended by the President's Council on Environmental Quality (CEQ) in *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ, 1997), and the following additional guidance documents:

- *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* (EPA, 1999)
- *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process* (Federal Highway Administration, 2003)
- *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ, 2005)
- Executive Order 13274 Indirect and Cumulative Effects Work Group Draft Baseline Report (ICF Consulting, 2005)
- Indirect and Cumulative Impact Analysis (National Cooperative Highway Research Program, 2006)

During the East Link scoping process and Draft Environmental Impact Statement (EIS) preparation, Sound Transit gathered information from other agencies and the public to identify impacts of past and present developments and reasonably foreseeable future actions that could interact with the East Link Project alternatives. Examples of these information sources include the following:

- King County and the Cities of Seattle, Mercer Island, Bellevue, and Redmond provided land use plans, transportation plans, neighborhood plans, and lists of known, major land use proposals.
- The Washington State Department of Transportation (WSDOT) and King County Metro Transit provided information on planned transportation projects and developments.
- The Puget Sound Regional Council (PSRC) provided population and employment growth projections, travel forecasts, and land use projections.
- Other organizations and the public provided information on planned private projects, community values, and concerns.

This information was used to identify past and ongoing development trends, prepare growth projections, characterize reasonably foreseeable future actions, and identify and evaluate expected cumulative impacts to which the East Link Project could contribute.

5.2 Geographic and Temporal Boundaries of Cumulative Analysis

Consistent with regulatory guidance for a cumulative impact analysis, the development actions that were considered include those that are past, present, and reasonably foreseeable. For the purpose of this analysis, development actions were assigned to those three categories as follows:

- Past actions include nonnative settlements dating back to the 1800s and continuing trends in development patterns up to the present.

- Present actions are those projects by local, state or federal agencies just completed or under construction.
- Reasonably foreseeable future actions are those that have obtained local, state, or federal government approval and thus could be under construction at any time between the present through 2030 (the East Link Project's design year).

The study area for cumulative analysis is generally a combination of the study areas defined in Chapter 3 for transportation facilities and in Chapter 4 for the various environmental resources. The exceptions are ecosystem-related resources, where broader study areas are necessary to capture how the impacts from reasonably foreseeable future projects may interact to affect the function of larger ecosystems. Wildlife corridors are considered for avian species and other migratory animals or animals with large foraging areas. Fish habitats are considered at the watershed level for impacts on stream quality.

The Puget Sound region study area applies to resources such as transportation, air quality (including greenhouse gases [GHG]), energy, and, to some degree, economics on the regional level. Greenhouse gases are studied at the regional level, while it is acknowledged that their impacts are felt on the global level. Social resources that may experience a range of cumulative impacts from new infrastructure projects (such as land use, local economic business, social impacts and neighborhoods, public services, visual resources, and parklands) were generally analyzed within one-half mile to one mile of the project alternatives. For built environmental resources (such as property, hazardous materials, geology, electromagnetic fields, utilities, historic and archaeological resources, and noise and vibration), the study area is approximately one-quarter mile or less around project alternatives.

5.3 Past and Present Actions

Impacts from past actions have shaped the project vicinity since the mid-19th century, and they continue to shape how the Seattle and Eastside areas are changing in response to activities and trends. Starting with the first nonnative settlements along the Duwamish River in the 1850s, development of the Seattle area was driven by timber harvesting, commercial fishing, shipbuilding, merchant shipping, railroads, aircraft manufacturing, and other heavy industry, as well as by development and expansion of the state and federal highway systems and by residential communities with their supporting infrastructure. This development transformed the project vicinity from tidelands and forested wilderness to a densely populated, urban environment. As Seattle became increasingly urban, dispersed suburban-population growth spread to surrounding areas. Such growth was notable in the decades after World War II, and it rapidly accelerated from the 1980s to the present.

On the Eastside, homesteaders began to settle near Bellevue and Redmond in the 1890s. The Eastside remained rural for most of the first half of the 1900s, until roughly 1940 when the Lake Washington Floating Bridge (now I-90)—the first bridge over Lake Washington connecting Seattle and the Eastside—opened to traffic, leading to the creation of many auto-oriented suburban neighborhoods. During the 20 years after the bridge opened, the Eastside became the fastest growing part of the metropolitan area. Increasing traffic and delays on the Lake Washington Floating Bridge led to the completion of an additional crossing of Lake Washington, via the Evergreen Point Bridge (SR 520), in 1963. The rapid and continuing population growth and economic expansion that has persisted since then in the Bellevue-Redmond area has accelerated urban development. The development associated with this growth trend has created persistent cumulative impacts such as diminished air and water quality, ambient noise, and visual impacts, as well as loss, deterioration, and fragmentation of fish and wildlife habitats, including wetlands.

Recognizing that the pressure of increasing population growth would continue and intensify, in 1990 PSRC adopted *VISION 2020*, a long-range plan for the four-county central Puget Sound region, and updated the plan in 1995 (PSRC, 1995). The plan established an integrated, long-range growth management, economic, and transportation strategy based on a vision of high-density, urbanized centers linked by a high-quality multimodal transportation system. PSRC's *Destination 2030*, the transportation element of *VISION 2020*, provides a long-range plan for transportation in the central Puget Sound region through 2030, including light rail (PSRC, 2001). In 2008, PSRC recommitted the *VISION 2020* plan in the *VISION 2040* update, which was adopted in 2010. PSRC adopted its *Transportation 2040* plan in May 2010; this plan is the "action plan for transportation in the central Puget Sound region for the next 30 years." The East Link Project complies with goals and policies identified in PSRC's *VISION 2040* by providing a regional transit system that serves a growing transportation need for planned density of residential and employment uses within designated urban areas. *Vision 2040* focuses growth on regional growth centers, which are areas of higher densities of population and employment served by multimodal transportation. These centers also provide opportunities for arts, civic activity, commerce, and recreation. In the East Link Project study area, Downtown Bellevue, the Overlake neighborhood of Bellevue and Redmond, and Downtown Redmond are identified in *VISION 2040* as regional growth centers (PSRC, 2009).

5.4 Reasonably Foreseeable Future Actions

In this Final EIS, reasonably foreseeable future actions are future projects that will produce environmental impacts that could add to or interact with the East Link Project alternatives and other past and present actions to produce cumulative impacts. Reasonably foreseeable future actions are not speculative and are considered regardless of the agency, organization, or person serving as their proponent (CEQ, 1997). They must be likely to occur in the reasonably foreseeable future by virtue of being funded, approved, or under consideration for regulatory permitting; the subject of an environmental review process under NEPA or State Environmental Policy Act (SEPA); or part of an officially adopted planning document or publicly available development plan.

The following subsections provide a summary of the reasonably foreseeable future actions in the study area that could add to or interact with environmental impacts from the East Link Project alternatives and other past and present actions to produce cumulative impacts. Appendix F5 lists the projects considered in this analysis along with associated impacts declared during their environmental review process. The approximate locations of the regional transportation actions are shown in Exhibit 5-1. Specific public and private developments that were being planned or constructed at the time of EIS preparation are shown in Exhibits 5-2 and 5-3 and are described, along with known/recorded impacts, in Appendix F5.

5.5 Cumulative Impact Assessment

Adverse and/or beneficial cumulative impacts could occur over the longer term during project operation, when impacts of the East Link Project would add to or interact with long-term impacts of other past actions, present actions, and reasonably foreseeable future actions. Adverse cumulative impacts could occur over the short term during construction, when activities necessary to build the East Link Project would accumulate with impacts from other projects under construction at the same time. The following sections discuss expected cumulative impacts of project operation and construction on individual elements of the environment. The direct and indirect impacts of the project alternatives that could contribute to future cumulative impacts are discussed in Chapters 3 and 4.

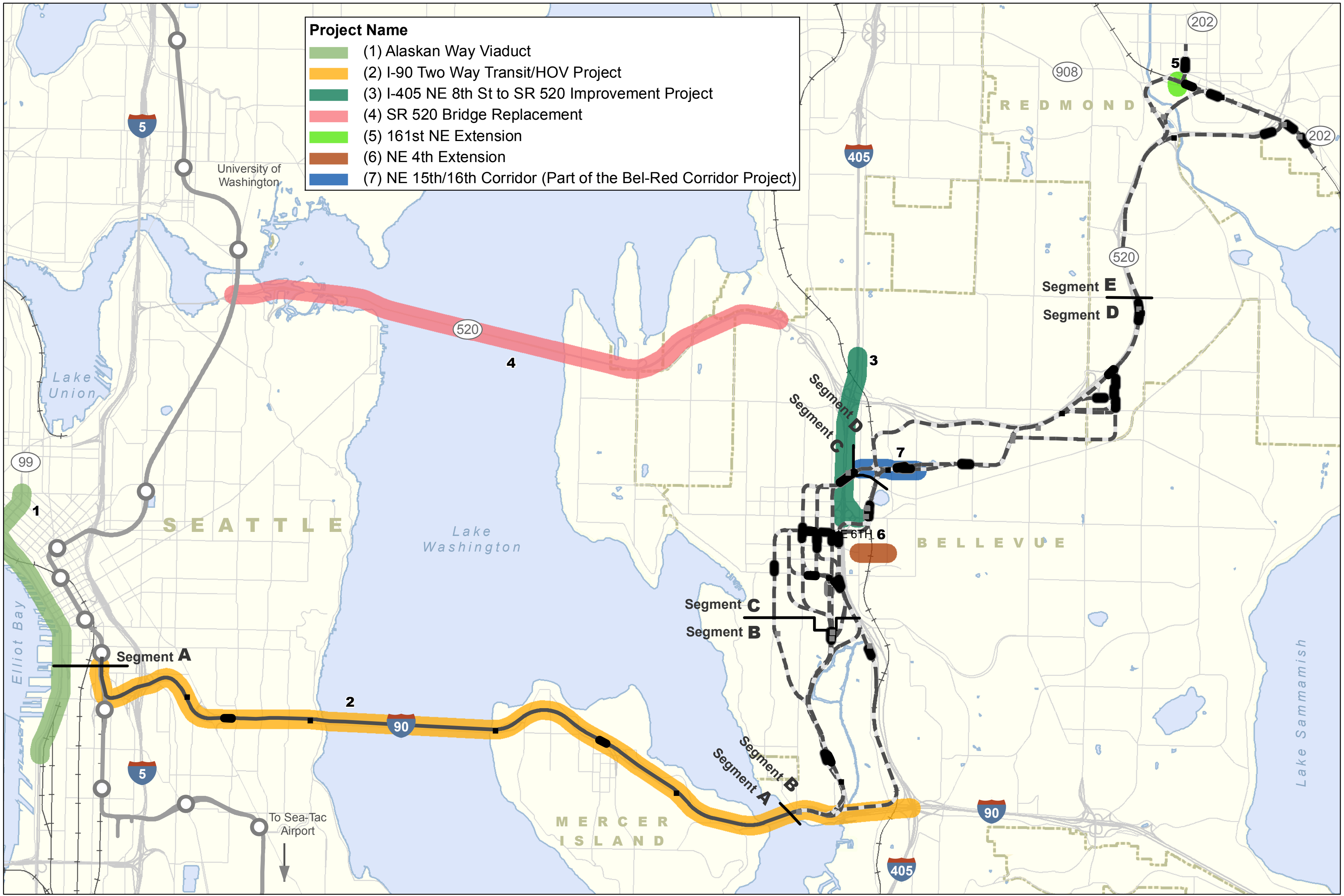
Operation of the East Link Project would shift some vehicle trips to rail transit, thereby reducing cumulative impacts on traffic and bus transit movement, air quality, noise levels, water quality, and energy consumption compared to future conditions projected under the No Build Alternative. Therefore, East Link's key contribution would be to reduce the adverse cumulative impacts on these resources to levels below what they would be without the project.

Because analyses of transportation (Chapter 3), air quality (Section 4.6), energy (Section 4.10), and economics (Section 4.3) cannot be isolated from influences outside the East Link Project, they inherently include the impacts of other projects or processes. As such, these four analyses of East Link alternatives already incorporate impacts from other reasonably foreseeable future actions. Therefore, these elements of the environment are only discussed briefly below.

5.5.1 Transportation

The analysis of future traffic and transit impacts in Chapter 3 is a cumulative analysis based on the results of traffic modeling and ridership modeling that incorporate past, funded, and approved future actions, as well as projected growth that would result from development in the region.

Prior to construction of the project and under the No Build Alternative, I-90 is expected to operate with three general-purpose lanes and one high-occupancy vehicle (HOV) lane in each direction, and the reversible center roadway for use by HOVs and Mercer Island residents. For better traffic management, WSDOT is considering managing this roadway differently in the future, including tolling all lanes or adding tolls for single-occupant vehicle users of HOV lanes, known as high-occupancy toll (HOT) lanes. Tolling of SR 520 was assumed in all East Link transportation modeling, and tolling may also occur on other regional freeways, including I-90, I-5, and I-405, which could alter user behavior patterns further.


Project Name
🟩 (1) Alaskan Way Viaduct
🟧 (2) I-90 Two Way Transit/HOV Project
🟩 (3) I-405 NE 8th St to SR 520 Improvement Project
🟥 (4) SR 520 Bridge Replacement
🟩 (5) 161st NE Extension
🟫 (6) NE 4th Extension
🟦 (7) NE 15th/16th Corridor (Part of the Bel-Red Corridor Project)
University of Washington
Lake Union
SEATTLE
Lake Washington
Elliot Bay
MERCER ISLAND
BELLEVUE
REDMOND
Lake Sammamish
To Sea-Tac Airport
Segment A
Segment B
Segment C
Segment D
Segment E
NE 6TH
1
2
3
4
5
6
7
5
90
405
520
99
202
908

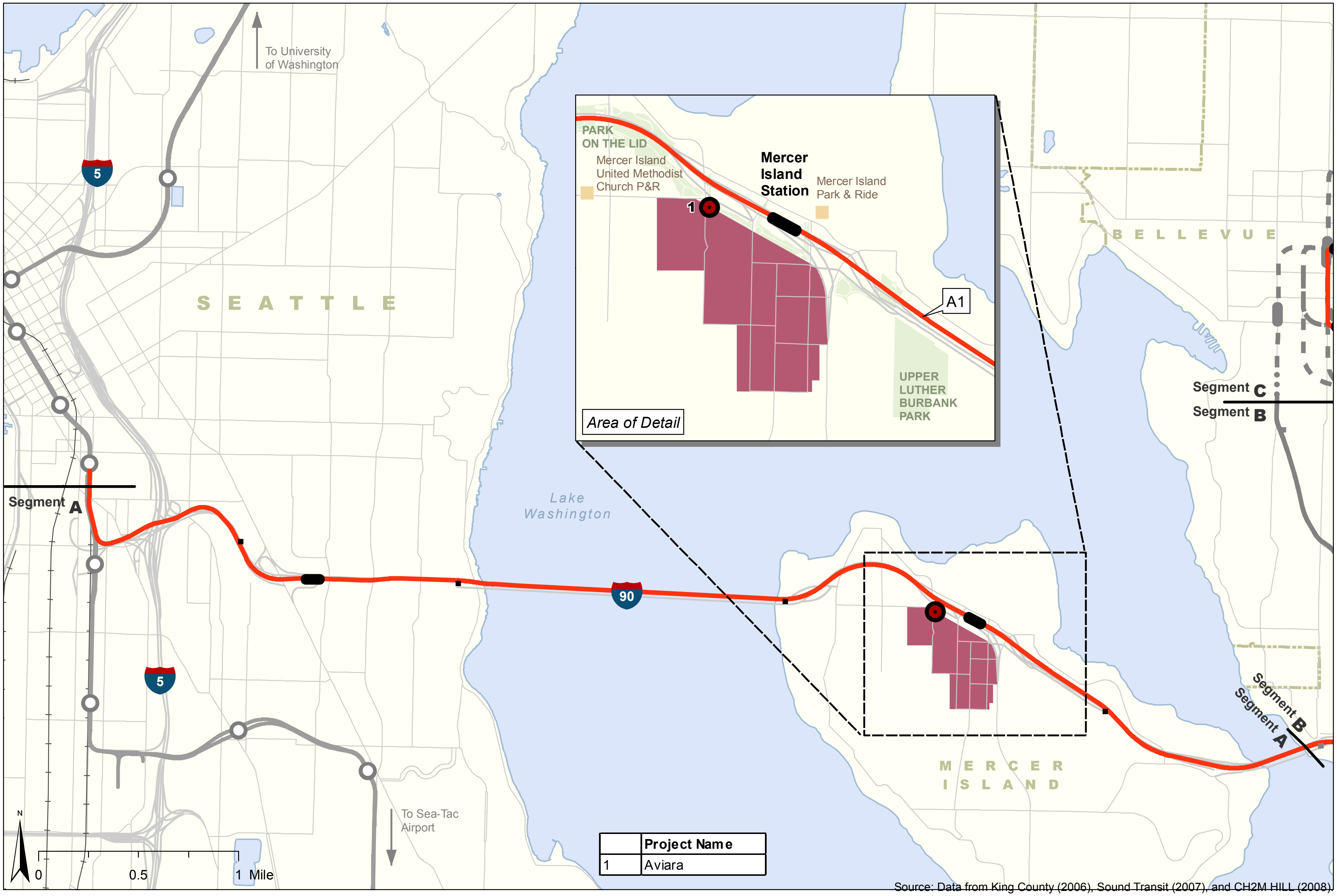
Source: Data from King County (2006), Sound Transit (2007), and CH2M Hill (2008).

▪ Traction Power Substation
⬬ Proposed Station
━ Preferred Alternative Route
╍ East Link Alternative Route
─○─ Central Link Alignment and Station

N

0 1 Mile

Exhibit 5-1 **Foreseeable Future Transportation Projects Segments A,B,C,D, and E**
East Link Project


To University of Washington
SEATTLE
Lake Washington
BELLEVUE
MERCER ISLAND
To Sea-Tac Airport
5
90
Segment A
Segment B
Segment C
PARK ON THE LID
Mercer Island United Methodist Church P&R
Mercer Island Station
Mercer Island Park & Ride
1
A1
UPPER LUTHER BURBANK PARK
Area of Detail
N
0
0.5
1 Mile

	Project Name
1	Aviara

Source: Data from King County (2006), Sound Transit (2007), and CH2M HILL (2008).

- ● R-Planning Phase
- 🟥 Town Center District Plan
- ▪ Traction Power Substation
- ⬬ Proposed Station
- ○ Central Link Alignment and Station

Preferred Alternative

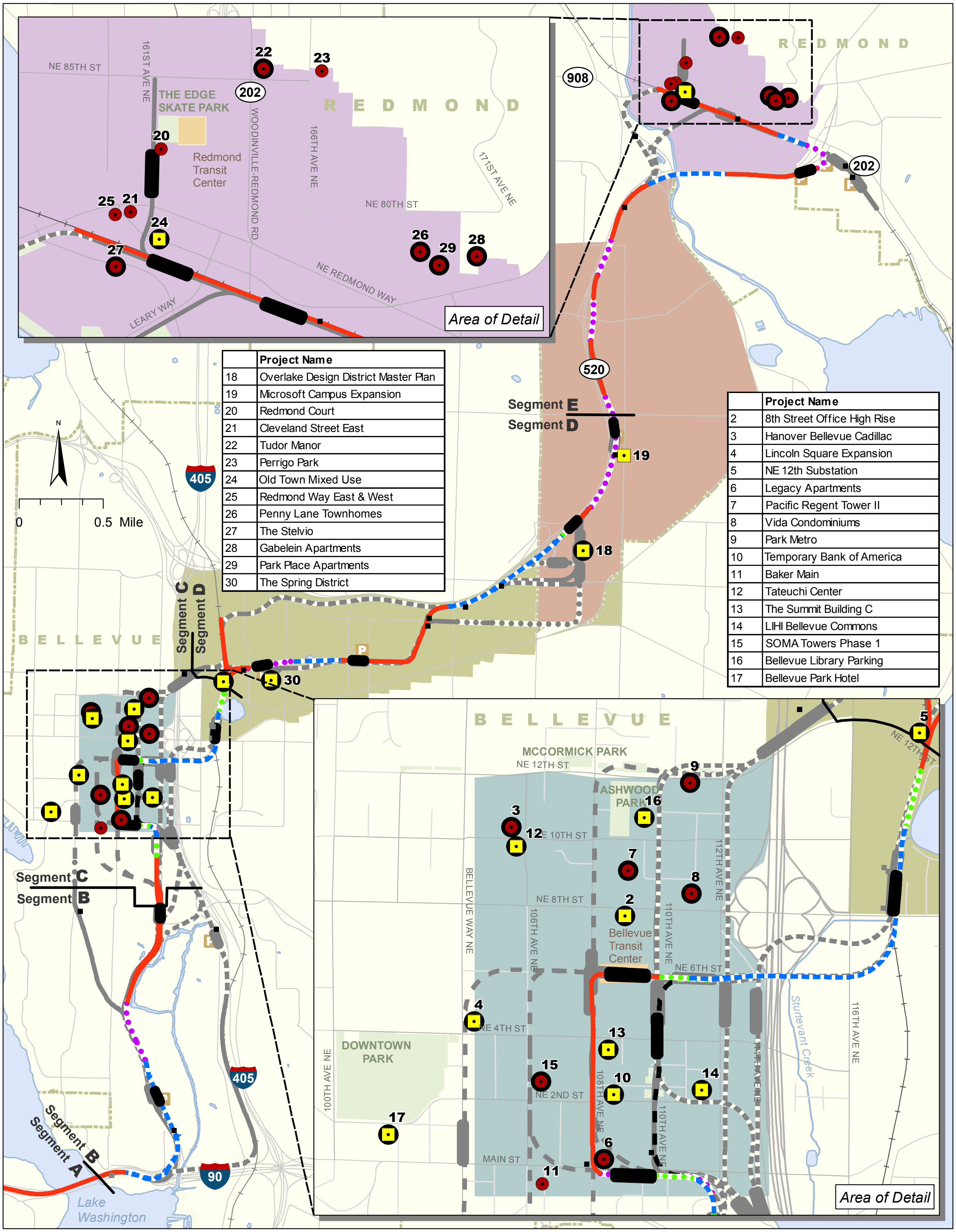
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

Exhibit 5-2 **Foreseeable Future Land Use Development Projects Segment A**

East Link Project


NE 85TH ST
161ST AVE NE
THE EDGE SKATE PARK
202
WOODINVILLE-REDMOND RD
166TH AVE NE
R E D M O N D
Redmond Transit Center
171ST AVE NE
NE 80TH ST
NE REDMOND WAY
LEARY WAY
20
21
22
23
24
25
26
27
28
29
Area of Detail
908
R E D M O N D
202
520
Segment E
Segment D
19
18
405
0
0.5 Mile
N
Segment C
Segment D
B E L L E V U E
30
Segment C
Segment B
405
Segment B
Segment A
90
Lake Washington
B E L L E V U E
MCCORMICK PARK
NE 12TH ST
ASHWOOD PARK
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
NE 12TH ST
BELLEVUE WAY NE
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
100TH AVE NE
Bellevue Transit Center
DOWNTOWN PARK
Sturtevant Creek
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Area of Detail

	Project Name
18	Overlake Design District Master Plan
19	Microsoft Campus Expansion
20	Redmond Court
21	Cleveland Street East
22	Tudor Manor
23	Perrigo Park
24	Old Town Mixed Use
25	Redmond Way East & West
26	Penny Lane Townhomes
27	The Stelvio
28	Gabelein Apartments
29	Park Place Apartments
30	The Spring District

	Project Name
2	8th Street Office High Rise
3	Hanover Bellevue Cadillac
4	Lincoln Square Expansion
5	NE 12th Substation
6	Legacy Apartments
7	Pacific Regent Tower II
8	Vida Condominiums
9	Park Metro
10	Temporary Bank of America
11	Baker Main
12	Tateuchi Center
13	The Summit Building C
14	LIHI Bellevue Commons
15	SOMA Towers Phase 1
16	Bellevue Library Parking
17	Bellevue Park Hotel

- Commercial Project
- Residential Project
- C-Planning Phase
- R-Planning Phase
- Proposed Station
- Traction Power Substation
- Redmond Downtown Neighborhood Plan
- Overlake Neighborhood Plan
- Bel-Red Corridor Project
- Downtown Implementation and Subarea Plan

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

Source: Data from King County (2006) and CH2M HILL (2008).

Exhibit 5-3 **Foreseeable Future Land Use Development Projects Segments B,C,D, and E**
East Link Project

As the East Link Project becomes operational, its contribution to cumulative impacts on transportation would be beneficial in at least two ways. First, East Link would contribute travel efficiencies in addition to those provided by the other reasonably foreseeable future transportation improvement projects listed in Appendix F5. The East Link Project would increase the number of person trips able to cross I-90 during peak periods compared to the No Build Alternative.

Both the No Build Alternative and the East Link Project assume tolling is implemented on SR 520 prior to 2020. This is consistent with the Supplemental Draft EIS for the SR 520 Bridge Replacement and HOV Project, which is the latest official document addressing the issue at this time. WSDOT is implementing a toll on SR 520 in 2011, before the bridge is replaced, as part of the Lake Washington Urban Partnership.

The Urban Partnership is a cooperative agreement between the federal government, WSDOT, King County, and PSRC to reduce congestion across Lake Washington. The Urban Partnership proposes to employ innovative traffic-management tools for improving traffic flow along SR 520 and I-90 between Seattle and the Eastside. One of these tools would be a new variable tolling system that could improve traffic flow in the SR 520 corridor and provide a portion of the funding needed to replace the aging SR 520 Lake Washington floating bridge.

Tolling on I-90 was not included in the traffic analysis for this Final EIS because no specific plans have been made or studies published. In 2008, the state legislature created the Tolling Implementation Committee to evaluate tolling for financing the SR 520 Bridge Replacement and HOV Project, engage citizens and regional leadership in the evaluation, enhance understanding of tolling alternatives, and report to the governor and state legislature in January 2009. Several of the scenarios considered tolling on I-90. If the State decides to implement tolling on I-90, it could choose to toll either all lanes of I-90 or convert the planned HOV lanes to HOT lanes. With tolling, the distribution of vehicles over all lanes may become more balanced, thus allowing higher travel speeds in all lanes and reducing congestion. Even with tolling, however, I-90 would be congested in the future, and overall person throughput would be equivalent to the No Build Alternative that is studied as part of the East Link Project analysis.

The project would also increase the person capacity of the corridor and would result in lower vehicle miles and fewer vehicle hours traveled within the corridor compared to the No Build Alternative. However, East Link, in conjunction with other reasonably foreseeable future actions, could increase congestion on some local streets, particularly in the vicinity of transit centers and park-and-ride lots. As discussed in Chapter 3, all but a few of these points of congestion can be mitigated.

During the 2- to 5-year period of civil construction, the East Link Project may add to and interact with construction impacts from other transportation projects being built at the same time (see Exhibit 5-1). Construction in or near roadways typically requires temporary lane closures, detours, and traffic delays. Interactions among two or more concurrent construction projects can intensify these impacts. However, most reasonably foreseeable future actions that can be reliably identified at present would be completed or near completion before East Link construction would begin.

The SR 520 Bridge Replacement and HOV Project will likely begin construction in 2012, and its construction period could overlap with East Link Project construction on I-90. Construction on SR 520 as well as the I-90 Two-Way Transit and HOV Operation affecting both Lake Washington corridors could cause cumulative traffic impacts on travel across the lake even without East Link Project construction. East Link construction would not affect traffic flow on I-90 outside of the center roadway. WSDOT and Sound Transit have been coordinating and would continue to coordinate on the construction schedules for the two cross-lake projects to avoid major construction work on both corridors at the same time.

This cumulative impact could slow or delay northbound and southbound traffic on I-405 during construction of a Segment C crossing of I-405, especially since it involves the I-405/SR 520 interchange about 2 miles east of the lake crossing.

Other local developments and public infrastructure projects could contribute to cumulative traffic delays on local arterial streets over the construction period. The City of Bellevue's NE 15th Street extension in the Bel-Red area might be constructed during a similar time period as the East Link Project; however, the East Link Project would more likely be constructed ahead of this roadway project. The disturbance on local traffic from the East Link Project could be minimal in the localized Spring District area, where the NE 15th Street project is located, because major portions of these lands are not fully used but are planned to transition to new, more dense land uses. However, construction of the NE 15th Street extension, the East Link Project, and possibly the Spring District development could occur under similar timeframes and cause a cumulative impact on traffic circulation outside the project vicinity based on the number of construction trucks on congested roadways leading to and from the construction site from the SR 520 and I-405 off ramps.

Outside of construction, the East Link Project in conjunction with other transportation projects would result in net benefit for improving accessibility and improved circulation. Following the selection, design, and scheduling of the East Link Project alternative, Sound Transit would coordinate construction activities with proponents of other future projects and with appropriate federal and state agencies and regional and local jurisdictions where other projects in the vicinity of East Link would be built at the same time. This coordination would avoid or minimize construction-related cumulative impacts on transportation.

5.5.2 Acquisitions, Displacements, and Relocations

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, contains requirements applied to projects involving federal funding or approval and therefore was assumed to be part of the project description, along with the State of Washington's relocation and property acquisition regulations (Washington Administrative Code [WAC] 468-100). Acquisitions related to private redevelopment projects in the project vicinity were not included in this evaluation because they involve willing buyers and sellers. Although environmental documents are not currently available for all reasonably foreseeable future actions shown in Exhibits 5-1 to 5-3, the Eastside could experience cumulative impacts from property acquisitions for major transportation projects, including the following:

- I-405 NE 8th Street to SR 520 Improvement Project would displace up to 61 businesses, 1 human service agency, and 3 residences.
- Transportation improvements related to the *Bel-Red Corridor Subarea Plan* (City of Bellevue, 2007), including extensions of NE 10th Street and NE 15th Street, and in Redmond the Bear Creek Extension, would collectively displace up to 39 buildings (a mixture of commercial buildings and residences). Bellevue's implementation of the NE 15th Street extension in the plan could result in modifications to the East Link alternatives in Segment D, which could affect the number of displacements.

Many of the areas where the East Link Project and other reasonably foreseeable future actions would be located are redeveloping to higher densities to accommodate the growing population and would provide increased housing and employment opportunities. Some of the planned development projects have slowed or halted recently due to a downturn in the economy; however, this slowed momentum might change in the period when East Link would be built. Both the Bellevue and Redmond comprehensive plans (City of Bellevue, 2008; City of Redmond, 2007) include policies that encourage mixed-use and higher-density redevelopment of the Bel-Red Corridor and the Overlake neighborhood. These redevelopments are expected to provide relocation opportunities within Redmond and Bellevue. Sound Transit's study of currently available properties to which displaced residents and businesses could relocate indicates that there are numerous comparable properties available within Redmond and Bellevue. Because there are expected to be more residential and employment opportunities created by projects in these areas than are lost, an adverse cumulative impact due to property acquisition is not expected.

5.5.3 Land Use

Changes in transportation systems can influence changes in nearby land uses, either directly through acquisition or indirectly by providing new or improved access. The East Link Project, as well as other planned transportation and development projects, would be consistent with applicable land use plans and policies. These projects would provide mobility options and would help achieve higher land use densities, thereby reducing the area of land development in ways that are consistent with regional and local plans and policies. Although density would increase without light rail, light rail would support more dense urban centers than would occur without light rail, particularly near stations in redevelopment areas.

The East Link Project would help achieve the goals of specific adopted plans, such as the *Bellevue Downtown Implementation and Subarea Plan, Bel-Red Corridor Project* (City of Bellevue, 2009), the *Overlake Neighborhood Plan Update* (City of Redmond, 2007), and the *Redmond Downtown Neighborhood Plan* (City of Redmond, 2006a), which encourage high-density, transit-oriented development. Land use changes would be greatest near rail stations due to increased transit accessibility and pedestrian activity, which are generally attractive to businesses and residents.

The East Link Project would require the acquisition of property and the conversion of existing land uses to public transportation right-of-way, which would reduce the amount of available land for development. The East Link Project, in conjunction with other planned projects in the project vicinity, would cumulatively contribute to this type of land use conversion. However, the land to be acquired by these projects constitutes a small fraction of the total residential, commercial, and public land in the project vicinity. In addition, these transportation projects would support high-density, mixed-use redevelopment, which would be a beneficial cumulative impact. Property acquired for construction staging areas and unused remnants of acquired parcels are expected to be available for redevelopment consistent with approved zoning following construction.

Although construction of the East Link Project and other planned projects would result in temporary impacts on existing land uses as a result of construction activities, such as earth-moving activities and truck traffic, these temporary impacts would not change the existing or future land use of the area.

5.5.4 Economics

The East Link Project would result in business displacements through acquisitions of commercial properties. Less than 1 percent of the study area's employment would be affected by business relocations. In addition, the areas that would be affected are primarily areas targeted for redevelopment. Other planned projects would also displace businesses and jobs within the project vicinity. It is likely that most of the displaced businesses could relocate in Bellevue and Redmond. Furthermore, planned private development projects would add jobs to the local economy, and denser, more diverse development could increase property and sales tax revenue for local jurisdictions. Therefore, East Link and other reasonably foreseeable future actions in the project vicinity have the potential to stimulate economic growth and provide a beneficial cumulative impact.

Additionally, under the No Build Alternative, travel times on the I-90 floating bridge are expected to increase by 2030. The East Link Project is expected to result in a net decrease in travel times on the bridge (by 2030, travel times are expected to improve or stay the same as current travel times for most directions at most times of the day), thus benefiting freight movement. In addition, the East Link Project together with other planned transportation projects would generally result in lower vehicle miles and fewer vehicle hours traveled on most arterial streets within the corridor. These improvements are expected to be beneficial for freight mobility, with associated benefits for the local and regional economy.

Construction activity is commonly an economic indicator, in that more construction is consistent with a stronger economy. Construction of infrastructure and development brings jobs and money to the local economy. Temporary adverse impacts of construction on adjacent businesses would occur, including potential increases in noise and dust, traffic congestion, visual intrusion, and difficulty in accessing properties. Access restrictions would be expected for some businesses in Segment C during the construction of cut-and-cover tunnels and stations and potentially in Segment D for retained-cut construction. Adverse construction-related cumulative impacts would be greatest where multiple projects would be under construction in the same areas, primarily in the Downtown Bellevue, Bel-Red, and Overlake growth centers.

The Bellevue Downtown Implementation Plan, Bel-Red Subarea Plan, and Overlake Village Neighborhood Plan allow continued execution of new private development projects. Although these projects will mostly occur on private property, construction might affect adjacent parcels and roadways and result in changes in access or local traffic circulation. Visitors might choose to avoid areas of intense construction, thus adversely affecting area businesses and contributing to a temporary cumulative impact, but following construction a more permanent beneficial impact would occur. Sound Transit has proposed to work closely with affected businesses during construction to maintain necessary access and facilitate positive communication for continued business activities through construction.

5.5.5 Social Impacts, Community Facilities, and Neighborhoods

In general, neighborhoods served by light rail would benefit both from increased transit access and from potential development within station areas. The East Link Project, in conjunction with other projects related to transit-oriented development, would result in primarily beneficial cumulative impacts on neighborhoods. Neighborhoods (particularly those portions near stations) may benefit from increased vitality in terms of improved access, residential infill, growth in employment base, and greater patronage of local businesses. In many neighborhoods, including Rainier Valley, South Bellevue, Downtown Bellevue, and Downtown Redmond, East Link and other transportation improvement projects would collectively enhance access options and reduce travel time for regional destinations.

Construction of the East Link Project and other planned projects could result in temporary adverse cumulative impacts on neighborhoods and social facilities. Cumulative impacts could include temporary increases in traffic through the neighborhoods, changes in traffic patterns, and construction noise and dust. Construction activities can hinder access to and from neighborhoods due to increased congestion, detours, and lane or road closures. These impacts would be greatest if several projects nearby were constructed at the same time, such as in the Bel-Red area where the Cities of Bellevue and Redmond have adopted land use plan changes and private development might occur at the same time as the East Link Project construction. The pedestrian/bicycle bridges at Overlake Village and Transit Center stations would collectively increase accessibility to surrounding neighborhoods with the light rail stations.

In Segment C, there is a foreseeable housing project that would be adjacent to the *110th NE Elevated Alternative (C8E)*, but is not anticipated to result in any negative impacts. The Low Income Housing Institute is planning to construct a low-income housing development in Downtown Bellevue. The guideway for C8E would be adjacent to the building, but would not require any property acquisitions that affect the development. No other Segment C alternatives would affect this development.

The East Link Project's contribution to cumulative impacts would be less likely in Segments A, B, and E. In Segments A and B, there are no anticipated foreseeable future projects occurring at the same time as East Link. In Segment E, East Link would not be constructed as part of the Sound Transit 2 Plan (ST2).

5.5.6 Visual and Aesthetic Resources

The East Link Project and other reasonably foreseeable future projects would be consistent with applicable plans and policies related to the visual environment. The cumulative change would be a more densely developed urban environment in all areas except Segment B.

Where land use policies permit, the visual change resulting from reasonably foreseeable future actions together with the East Link Project stations would likely include changes in development density and more pedestrian-oriented activity than with existing or no-build conditions. At the stations, primarily in Overlake and the Bel-Red corridor, East Link facilities would be more compatible visually than the existing light industrial land uses because future developments are intended to be transit-oriented, including higher density.

With few exceptions, the East Link Project would be visually compatible with the large arterials and freeways that it parallels. Improvements to several of these roadways are included as foreseeable future actions, such as the I-405 NE 8th Street to SR 520 Improvement, SR 520 East Lake Sammamish to SR 202, NE 10th Street Extension, and I-90 Two-Way Transit and HOV Operations Projects. Although these projects include visual enhancements, they would incrementally enlarge the area of transportation-dedicated land, especially when positioned adjacent to one another. This cumulative impact would decrease the visual quality along these transportation corridors. This decrease in visual quality would occur along some alternative routes in Segments B, C, and E.

In addition to becoming a part of the viewed environment, these infrastructure projects would provide new viewing opportunities for travelers. Depending on the combination of alternatives that would be chosen, the East Link Project would provide new and unique views of the adjacent landscape of the areas it would traverse. It would also help encourage denser development, which could help reduce regional impacts on the visual environment associated with low-density development (e.g., loss of open space, reduction in vegetated areas, or expansion of paved areas).

The East Link Project could contribute to cumulative impacts on the visual environment related to proximity impacts during construction if other planned projects are being constructed at the same time. Construction-related activities would increase the overall impacts on the surrounding visual environment.

5.5.7 Air Quality and Greenhouse Gases

The impact analysis for air quality in Section 4.6 was necessarily a cumulative analysis because it was based on the Puget Sound regional traffic forecasts, which include reasonably foreseeable transportation projects and projected regional emissions. The air quality analysis concludes that the East Link Project would reduce the cumulative release of car exhaust emissions to below future levels expected under the No Build Alternative, thereby providing a net benefit to local and regional air quality compared to the No Build Alternative.

One important component of air quality analysis is a project's contribution to the greenhouse gas (GHG) effect. GHGs contribute to climate change or global warming, which is an increase in the overall average temperature in the atmosphere. Global warming is a regional and ultimately a worldwide concern. Effects of the global warming trend are linked to more severe weather conditions, such as warmer temperatures and increases in flooding and tornados. Global warming might lead to a rise in sea levels and can change sensitive ecosystems. People may feel the effects of global warming as increasing smog conditions, stronger sun exposures, and economic impacts caused by changes in growing seasons (Washington State Department of Ecology [Ecology] and University of Washington Climate Impacts Group, 2008; King County, 2007).

Petroleum fuels are considered one of the largest contributors of GHG emissions. Any process that burns fossil fuel releases carbon dioxide (CO_2), the primary GHG, into the air. Two of the largest contributors to GHG emissions are transportation and energy production, although residences, offices, and industries contribute as well. Generally, improving fuel efficiency, reducing the burning of fossil fuels, conserving energy, and using clean energy instead of combustible sources are methods of improving GHG effects.

The East Link Project is part of the ST2. In addition to East Link, this plan would extend light rail north and south of the Initial Link Segment and make several other transit improvements throughout the central Puget Sound region. East Link, alone and as part of ST2, in conjunction with other reasonably foreseeable future land use development and transportation projects, would result in reduced automotive vehicle miles traveled for the Puget Sound region and, therefore, less petroleum consumed in the region.

Sound Transit has conducted a cumulative analysis on how the operation of ST2 would affect GHG emissions throughout the region compared to the No Build Alternative. ST2 is predicted to reduce overall regional CO_2 equivalent (CO_2e) by approximately 28,835 metric tons annually using current electric power fuel mix assumptions. Under the possible scenario of using noncarbon energy sources, the reduction could be as much as 178,334 metric tons—the equivalent of 414,731 barrels of oil a year, 931 railcars of coal a year, or preserving 1,244 acres of forest from deforestation (Sound Transit, 2008).

The reduction of vehicle miles traveled due to transit, in combination with increased densities in land use, is demonstrated through other cities' experiences. A recent publication by the Transit Cooperative Research Program, *Effects of TOD on Housing, Parking and Travel, Report 128* (2008) shows that throughout the nation, transit-oriented development is reducing automobile trips approximately 30 to 60 percent from typical suburban-style development patterns where uses are low density and separated from each other. Important variables in the study were housing density and distance to central business districts (the equivalent of "Urban Centers" for East Link). Generally, the higher the density and the closer (under 12 miles) to the central business district, the fewer automobile trips and more transit or nonmotorized trips were taken, leading to a cumulative benefit of reducing GHG emissions.

Improving automotive speeds up to 45 miles per hour reduces the GHG emissions compared to automobiles that are idling or moving at slow speeds due to traffic congestion (Urban Land Institute, 2008). East Link and other transportation improvement projects in the study area would cumulatively improve travel speeds for automotive travel as compared to the No Build Alternative in 2030.

While all of the ST2 projects would expend energy to build and develop, the long-term operation of these projects would be an improvement over low-density growth patterns that use more land area, thus requiring longer vehicle trips and more energy consumption.

Secondary impacts of the East Link Project, together with many of the reasonably foreseeable higher-density development projects identified for this EIS analysis, would result in a net benefit in GHG emissions over the No Build Alternative. Cumulatively, the East Link Project may result in greater unquantifiable benefits of reducing GHG emissions in the long term. Light rail projects, under the right conditions, can result in higher concentrations of employment and housing developments than if the project did not exist, especially near stations (see land use discussion, Section 5.5.3). Denser developments generally have lower per unit energy consumptions and, depending on the availability of services nearby, can result in fewer vehicle trips, which in turn results in lower GHG emissions over the equivalent lower-density employment and housing developments.

In addition, regional, state, and federal governments are adopting new regulations that will require reductions in GHG emissions, including the following:

- In February 2007, Washington Governor Christine Gregoire issued Executive Order 07-02 requiring the Department of Ecology and the Department of Community, Trade and Economic Development to find ways to reduce GHG emissions and adapt to the future that climate change might create. As a follow-up, Ecology adopted Chapter 173-441 WAC, Reporting of Emissions of Greenhouse Gases, on December 1, 2010, to require that certain large facilities and transportation fuel suppliers track their GHG emissions for reporting to the Washington Department of Ecology beginning in January 2012.

- On May 3, 2007, the Washington legislature passed Senate Bill 6001, which, among other things, adopted Governor Gregoire's climate change goals into state law. The law aims to reduce GHG emissions in the state to 1990 levels by 2020, then further reduce emissions to 50 percent below 1990 levels by 2030, and reduce GHG emissions even further by 2050.
- On December 19, 2007, President George W. Bush signed into law the Clean Energy Act of 2007, which requires in part that automakers boost fleet-wide gas mileage to 35 miles per gallon (mpg) by 2020. The current corporate average fuel economy (CAFE) standard for cars, set in 1984, requires manufacturers to achieve an average of 27.5 miles per gallon, while a second CAFE standard requires an average of 22.2 mpg for light trucks such as minivans, sport utility vehicles, and pickups.

Cumulatively, these improvements may change the trends of global warming.

The cumulative GHG savings with project operation cannot be realized without expended energy during construction. East Link, together with reasonably foreseeable future projects, would increase GHG emissions during project construction.

5.5.8 Noise and Vibration

The Federal Transportation Administration's (FTA's) accepted methodology for noise and vibration analysis reflects both cumulative ambient noise conditions and project-specific noise and vibration impacts. Light rail noise, although less than noise from a typical diesel bus, may be distinguishable from other transportation noise because it moves through the area in periodic intervals and would include warning bells in some locations. In addition, the project might realign some roadways, resulting in traffic noise impacts. Noise impacts from light rail and/or traffic would occur in all segments before mitigation, and vibration impacts would occur in Segments B, C, and E. Sound Transit has a policy to mitigate associated noise and vibration impacts as reasonable. All East Link noise and most vibration impacts could be mitigated depending on the alternatives chosen. However, there could be residual vibration impacts in Segments C and E.

The BNSF Alternative (B7) noise analysis incorporated recent WSDOT widening of I-405 and its impacts. Sound walls are in place that minimize these noise impacts on adjacent receptors. Future I-405 widening projects that could cause potential cumulative impacts by increasing highway traffic volumes and its associated noise and/or moving travel lanes closer to sensitive receivers are assumed and discussed in Appendix A of Appendix H1 and were included in the transportation forecasts.

Future developments in Segment D could include construction of a new NE 15th Street roadway extension. This future roadway corridor does not currently contain nearby sensitive noise receptors. The Lake Bellevue Condominiums are too far away to be affected by the NE 15th Street extension. The only identified noise impact in Segment D would occur along the SR 520 Alternative (D5). The NE 15th Street extension would not affect the same area.

No other reasonably foreseeable future actions are expected to cause vibration impacts during project operation, so the few vibration impacts from the East Link Project would not cause a cumulative impact. Although Sound Transit is committed to mitigating project noise impacts, light rail would still create a new noise source and therefore would contribute to cumulative noise in the project corridor. In addition, the indirect impact of East Link attracting more development around rail stations may result in more intense urban activities in some station areas, therefore adding cumulative noise to the surroundings.

During construction, the East Link Project would contribute noise and vibration impacts along with other nearby transportation and private development construction projects, and cumulative impacts would be anticipated. This is particularly true for the tunnel alternatives in Segment C, where construction of high-rise buildings is proposed near East Link alternatives, but many projects currently planned might be completed before East Link construction. Where necessary, Sound Transit would monitor noise and vibration during construction to minimize related disturbances on residential and other sensitive areas and work with other adjacent projects to limit nighttime noise and vibration impacts.

5.5.9 Ecosystem Resources

As discussed in Section 5.3, the study area and surrounding vicinity have greatly changed over time due to past actions and development. There are only a few high-value fish and wildlife habitats remaining within the study area: Lake Washington, Mercer Slough Nature Park, Marymoor Park, the Sammamish River, Bear Creek, and several small streams and tributaries. These areas provide habitat for fish and wildlife, including federally listed threatened and endangered fish species and several federal and state species of concern, particularly birds. Reasonably foreseeable future actions that would affect these habitats incrementally contribute to the loss and/or degradation of these high-value habitats and adverse impacts on associated wildlife.

Several planned transportation projects, such as the SR 520 Bridge Replacement and HOV Project, the I-405 Bellevue Nickel Project, Bellevue's Downtown Implementation Plan, and SR 520 West Lake Sammamish to SR 202 Project, could contribute to cumulative impacts on high-value uplands and wetlands in the study area in conjunction with the East Link Project alternatives. Adverse impacts would include removing large trees, filling or altering wetland habitat, and increased impervious surfaces in the project vicinity. These changes, along with additional urban development, continue to reduce remaining available high-quality nesting and foraging areas for present wildlife species. These projects also have the potential to contribute to cumulative impacts on aquatic resources, including disturbance to stream channels, removal of riparian habitat, and increases in pollution-generating impervious surfaces.

Positive impacts include efforts to enhance the Bear Creek and Kelsey Creek watersheds that cross through and extend beyond the East Link Project vicinity. The Cities of Redmond and Bellevue have adopted plans to enhance stream habitat. The City of Bellevue has adopted the Bel-Red Plan, which has an element devoted to "The Great Streams Strategy." This strategy involves stream enhancements that include removing culverts where possible, removing impassable fish barriers, planting riparian vegetation along stream banks, and generally improving stream quality. These efforts are focused on Goff Creek and the West Tributary of Kelsey Creek, both of which are located in Segment D and cross Mercer Slough Nature Park in Segment B. Also, the City of Redmond has a stream enhancement project north of SR 520 on Bear Creek in Segment E.

In addition to these projects, other state-permitted and locally permitted projects incrementally provide net benefit to stream suitability for fish. When a project affects a stream, the Washington State Department of Fish and Wildlife and the Washington Hydraulic Code requires that impacts on fish and fish habitat be minimized and mitigated. The code also requires that new and replaced culverts be designed and installed so as not to impede fish passage.

The East Link Project and other reasonably foreseeable future actions would be required to mitigate impacts on streams, wetlands, and high-value habitats in accordance with federal, state, and local regulations. Mitigation may include restoration or enhancement of degraded streams and wetlands and their associated buffers, thus providing water quality treatment for impervious surfaces that currently receive no treatment, removal of fish passage barriers, and planting disturbed areas with native vegetation. These mitigation measures benefit fish and wildlife habitat when compared to existing conditions and improve conditions for federally listed threatened or endangered species, if present. Also, with regard to wetland impacts, Sound Transit has committed to achieving no net loss of wetland function and area on a projectwide basis and, therefore, would not have a lasting cumulative impact on wetlands.

Construction associated with the East Link Project and other foreseeable future transportation and development projects would temporarily contribute to habitat loss resulting from vegetation removal for construction staging areas and access. Stream water quality could be affected by erosion and sedimentation from cleared areas and earth-moving activities. Each project would be required to comply with water quality protection regulations during construction. After construction, cleared areas would be revegetated.

5.5.10 Water Resources

The East Link Project and many of the foreseeable projects would add new impervious surface. Although many of the actions would be on currently developed sites or would be changes within existing paved rights-of-way, there would still be a net increase in total impervious surface and therefore an increase in stormwater runoff within the study area above existing conditions.

Light rail vehicles have been determined by Ecology to be clean, or noncontributors of contaminants into stormwater runoff. New impervious surfaces added by the East Link Project and other reasonably foreseeable future actions would include appropriate stormwater control and quality treatment in accordance with Ecology regulations. This mitigation would improve the treatment of some existing stormwater drainages and thus provide an overall cumulative benefit for water quality.

The cumulative impacts of other reasonably foreseeable future actions may increase the number of vehicles operating on impervious surfaces, resulting in the release of petroleum-related contaminants into stormwater runoff. East Link would reduce peak traffic loads from those projected under the No Build Alternative, thereby reducing some of the cumulative contaminant runoff from impervious surfaces. In summary, East Link would provide a direct beneficial cumulative impact related to impervious surfaces.

The East Link Project could contribute to cumulative turbidity and sedimentation in receiving streams during construction, if any of the other nearby planned projects were being constructed at the same time. However, as part of a stormwater pollution prevention plan (SWPPP), Sound Transit is required to prepare and implement a Temporary Erosion and Sediment Control Plan and a water quality monitoring plan to minimize these impacts.

5.5.11 Energy

Reasonably foreseeable future actions would increase energy demand in the project vicinity. In terms of energy used for transportation, the operation of the East Link Project would decrease total energy consumption when compared to the No Build Alternative because the total vehicle miles traveled would decrease and the energy needed to power the East Link Project would be less than the vehicles it is replacing.

The East Link Project would also require energy to run the proposed maintenance facility. However, this facility is proposed to be built on redeveloped properties; therefore, it is unlikely that the change in use would draw more energy than currently used at these sites.

There would be a cumulative demand on energy during construction. However, both Puget Sound Energy and Seattle City Light growth projections resemble PSRC's long-term demand projections, and these utilities have planned energy resources accordingly; therefore, this planned growth is not expected to have an impact on energy resources (Puget Sound Energy, 2010; Seattle City Light, 2010). As with most construction projects, the energy used would be lost. But unlike other projects, the cumulative transportation energy savings would compensate for the construction energy use over time.

5.5.12 Geology and Soils

Existing urban development has already substantially altered geologic surface conditions throughout the East Link Project vicinity. Continued development associated with the reasonably foreseeable future actions would increase the amount of infrastructure placed in localized geologically sensitive areas such as steep slopes or seismic hazard areas. However, all projects must be constructed in accordance with state and local laws that require design and construction to meet seismic standards; therefore, a cumulative impact is not expected in operation or construction of reasonably foreseeable projects.

5.5.13 Hazardous Materials

Lubricants, cleaning solvents, and other chemicals would be used at the proposed maintenance facility; however, hazardous wastes generated at the facility would be managed according to applicable regulatory requirements, which minimize the risk of exposure, and the likelihood of impacts (i.e., releases) from operation and maintenance activities would be low. Otherwise, East Link would not result in risks of spilling hazardous materials during project operation.

During construction, the project and all reasonably foreseeable future actions have the potential for an accidental release of hazardous substances. Sound Transit and other project proponents would implement measures to minimize this potential during construction and would document these measures in a Spill Prevention, Control, and Countermeasures plan; a comprehensive hazardous substances management plan; and an SWPPP. With implementation of these measures, the risk of cumulative hazardous materials impacts would be low.

Construction of any project could also encounter or disturb previously unknown contamination that has not been controlled or cleaned up. Disturbing contaminated soil and/or groundwater has the potential to release contaminants into the environment where they could pose additional risk to human health and the environment. East Link, along with other reasonably foreseeable future actions in the project vicinity, is likely to result in improved environmental quality by uncovering and removing existing soil and water contaminants. All project development would require the remediation of any contaminated sites encountered in compliance with state and federal environmental regulations. Therefore, the East Link Project would be a beneficial cumulative impact in the study area compared to existing conditions and the No Build Alternative.

5.5.14 Electromagnetic Fields

East Link would not result in electromagnetic interference (EMI) that causes sensitive electronic equipment to malfunction. In addition, Sound Transit did not identify any areas where EMI would combine with past, present, or future actions to result in human health effects. Therefore no EMI cumulative impacts would result from East Link.

Anywhere there are electrical currents, it is possible that stray currents could affect metal, water, or buried pipe or cable. Impacts such as corrosion of metal pipes could occur from the East Link Project and from any number of other current-generating sources. Sound Transit would use insulation to limit stray currents from the East Link Project and their potential impacts on nearby utilities.

5.5.15 Public Services

As the regional population has increased, so has the demand for public services. Demand for these services will continue to increase with the expected growth in regional population. The East Link Project would not itself add growth but would facilitate planned growth. Existing services and those intended to serve this planned growth would be available for users of a Sound Transit facility, including police and emergency service personnel. In addition, Sound Transit would provide security services dedicated to surveillance throughout the light rail system to minimize crime incidents.

East Link would be built in a dedicated right-of-way where collisions with other vehicles could not occur except in the few alternatives where conflicts with traffic at signalized intersections, gated crossings, or egresses and ingresses would be possible. If those alternatives were selected, Sound Transit would coordinate with local emergency service personnel on how to respond to accidents with other vehicles.

The East Link Project, together with other reasonably foreseeable future actions, would alter roadway infrastructure, which would both improve and alter emergency service travel routes. Specifically, the conversion of the I-90 center roadway to East Link right-of-way would limit emergency services to the outer lanes, including the available HOV lanes. However, as discussed in Chapter 3, Transportation Environment and Consequences, congestion periods would be less with the project than without, and emergency response times would be similar to or better than would be expected under the No Build Alternative.

As noted in the project description in Chapter 2, Sound Transit would coordinate with public service agencies regarding construction of the East Link Project and other proposed developments being built at the same time, thereby minimizing cumulative construction-related impacts on emergency response services.

5.5.16 Utilities

The East Link Project and other reasonably foreseeable future actions would increase the demand for electrical power. While a portion of the power needed for East Link would come from Seattle City Light, the East Link alternatives are primarily located in the Puget Sound Energy service area and most of the power needs would be sought through Puget Sound Energy. East Link would represent less than one-third of one percent (0.3 percent) of Seattle City Light and Puget Sound Energy’s yearly production in 2009, and system upgrades are planned to allow these utilities to meet the total projected demand in 2030. Development of additional generating capacity beyond what is currently planned by these providers is not expected in order to accommodate East Link and other reasonably foreseeable future actions (Puget Sound Energy, 2010; Seattle City Light, 2010).

Utility infrastructure in the project limits, such as electric, water, sewer, gas, petroleum, or communications service lines, that would conflict with any of the project alternatives would be relocated before or during project construction. Other reasonably foreseeable future actions in the project vicinity would also be responsible for providing similar relocations where utility conflicts occur.

Cumulative construction-related impacts could occur when projects that are constructed before East Link, such as the I-405 Bellevue Nickel Project and the Redmond Central Connector Project, relocate utilities in areas that create new conflicts for the East Link alternatives. These situations would be minimized through advance construction coordination with utility providers. In many cases, relocation of utilities would provide utility providers a cost-effective opportunity to upgrade infrastructure, thereby reducing maintenance costs and resulting in a beneficial cumulative impact.

5.5.17 Historic and Archaeological Resources

Reasonably foreseeable future actions in the project vicinity would have no direct impacts on specific historic or archaeological resources in the East Link Project study area. However, cumulatively, the past, present, and future projects affect historic properties and archaeological resources. Incrementally, new infrastructure and development patterns change the historic setting of specific resources as a result of past and ongoing urbanization, particularly in Bellevue and Redmond.

East Link could affect the Winters House and the potential Surrey Downs historic district in Bellevue and the Justice William White House in Redmond. The settings surrounding these structures have already been altered by the development, increasing traffic conditions, and changes of uses surrounding them. Incrementally, East Link is part of the changing fabric of urbanization. In this regard, there is an incremental cumulative impact on historic resources. No direct or indirect impacts on archaeological resources are expected; therefore, no cumulative impact is expected.

5.5.18 Parkland and Open Space

The East Link Project would not result in a net loss of parkland and open space after mitigation. The only identified reasonably foreseeable future actions that might alter or affect park resources within the East Link Project vicinity are the Surrey Downs Park Master Plan in Segment B and the Redmond Central Connector Project in Segment E. The City of Bellevue has plans to redesign the park to better serve the community by enhancing Surrey Downs Park and potentially add new park facilities. The City of Redmond is working with King County to develop the regional trail within the former BNSF Railway corridor. Redmond is also planning subsurface utilities as well as the potential for future rail in the same corridor. The planning would result in a cumulative benefit for trail development.

In combination with the other foreseeable projects, the East Link Project could potentially cause cumulative impacts on parklands if construction periods overlap. In Segment B, the East Link Project could have temporary construction impacts on the Surrey Downs Park Master Plan if construction of the project occurs before or during construction of light rail.

In Segment E, the Redmond Central Connector Project is anticipated to be completed prior to construction of the East Link Project. However, construction activities associated with light rail would have temporary construction impacts such as increased noise, dust, and access limitations for users of the trail. Due to inconsistencies between the City of Redmond’s Central Connector Master Plan and the East Link route through Downtown Redmond, implementation of East Link in the future could result in relocation of the trail and/or replacement of affected trail amenities.

5.5.19 Potential Mitigation Measures for Cumulative Impacts

Operational cumulative transportation, visual, noise, ecosystem, and water resource impacts could occur. Avoidance, minimization, and mitigation measures for East Link Project operation impacts on these and all resources are discussed in Chapters 3 and 4. However, most cumulative impacts would occur during construction rather than project operation, so that in most cases mitigation would remain the responsibility of each project proponent in order to meet regulatory requirements during construction for direct impacts on resources such as ecosystems, water resources, hazardous materials, and historic and archaeological resources.

The reasonably foreseeable future projects that would be under construction at the same time as East Link would coordinate, as necessary, to minimize the potential cumulative impacts of overlapping construction periods within the same area. Such coordination would reduce cumulative construction impacts related to transportation, reduced access, and increased dust and noise affecting businesses and residences, visual resources, reduced emergency service response times, and park uses.

Chapter 6

Alternatives Evaluation

This chapter evaluates how East Link would meet the project Purpose and Need, and analyzes the benefits, environmental impacts, and cost-effectiveness of the project as well as each segment alternative.

The Purpose and Need for the East Link Project, as discussed in Chapter 1, is to expand the Sound Transit Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond via Interstate 90 (I-90) in order to provide a reliable and efficient alternative for moving people to the Eastside of Lake Washington and throughout the region. To meet this Purpose and Need, the East Link Project would be a composite of one alternative from each of the five geographic segments connecting Seattle with Mercer Island, Bellevue, Overlake, and Redmond.

In addition, the East Link Project is one of several proposed light rail expansions to Central Link, the north-south light rail project in Seattle, Tukwila, and SeaTac. Collectively, the system would have benefits greater than the individual projects. Several of these benefits are also described in this section.

6.1 Performance in Meeting Project Goals and Objectives

The goals and objectives for the East Link Project are described in Chapter 1 and form the basis for the evaluation of alternatives presented in this chapter. These goals and objectives include the following:

1. Transportation goal: Improve transit mobility in the East Link corridor
    a. Improve the quality of transit service
    b. Increase transit accessibility
    c. Maximize East Link ridership
2. Environmental goal: Preserve environmental quality in the corridor
    a. Minimize potential adverse operating impacts on the natural and built environments
    b. Minimize potential adverse construction impacts on the natural and built environments
3. Land use goal: Support regional and local land use goals and objectives
    a. Support adopted land use and transportation plans
4. Implementation goal: Minimize risk in the corridor
    a. Enhance stakeholder and community support
    b. Design system to reduce construction risk
5. Financial Goal: Provide a financially feasible solution
    a. Build a system within project budget
    b. Build a system that can be operated and maintained within available revenue
    c. Build a system that is cost-effective

This chapter evaluates the entire project and the individual alternatives related to each goal. The project's performance in meeting some project goals and objectives would be similar for all build alternatives. For example, any build alternative would enhance transit accessibility and provide transit quality in terms of comfort and reliability of service. The data used to assess how the East Link Project and the segment alternatives meet these goals are taken from earlier chapters of this Final Environmental Impact Statement (EIS), namely Chapter 2 for project cost information, Chapter 3 for transportation-related topics, and Chapter 4 for environmental and land use goals. The risk assessment discussed in this chapter is based on both cost and construction risks. The data are used in the following subsections to compare the various alternatives.

6.1.1 Transportation Goal: Improving Mobility

The East Link Project would improve mobility into and out of many of the urban centers with the highest populations and highest levels of employment in the Puget Sound region (Seattle, Bellevue, Overlake, and Redmond). East Link would provide easy access throughout the project area and other key regional urban centers through seamless extension of Central Link, which began operation in July 2009 in the greater Seattle area. This subsection describes how the project would accomplish the following:

- Improve the quality of transit service
- Increase transit accessibility
- Maximize East Link ridership

Table 6-1 summarizes the transportation characteristics of the project alternatives.

TABLE 6-1
Summary of East Link Alternatives

Segment	Alternative	No. of Stations	Segment Daily Boardings (2030)[a]	East Link Daily Ridership Totals (2030)[a]	Segment Travel Time (minutes)
A, Interstate 90	*Preferred I-90 Alternative (A1)*	2	5,000	49,500	11
B, South Bellevue	*Preferred 112th SE Modified Alternative (B2M)*	1 to 2	5,000	49,000	5
	Bellevue Way Alternative (B1)	1	4,500	52,500	5
	112th SE At-Grade Alternative (B2A)	2	5,000	49,000	5
	112th SE Elevated Alternative (B2E)	2	5,000	50,000	5
	112th SE Bypass Alternative (B3)[b]	1	4,500	49,500	5
	BNSF Alternative (B7)	1	1,500	48,000	5
C, Downtown Bellevue	*Preferred 108th NE At-Grade Alternative (C11A)*	3	8,000	49,000	10
	Preferred 110th NE Tunnel Alternative (C9T)	2 to 3	8,000	51,000	6
	Bellevue Way Tunnel Alternative (C1T)	3	9,000	52,500	5
	106th NE Tunnel Alternative (C2T)	2 to 3	8,500	52,000	5
	108th NE Tunnel Alternative (C3T)	2 to 3	9,000	52,500	4
	At-Grade Couplet Alternative (C4A)	2 to 3	8,000	49,500	11
	112th NE Elevated Alternative (C7E)	2 to 3	7,000	50,500	4
	110th NE Elevated Alternative (C8E)	2 to 3	8,000	51,500	4
	110th NE At-Grade Alternative (C9A)	2 to 3	7,500	48,500	9
	114th NE Elevated Alternative (C14E)	2	5,500	48,500	4
D, Bel-Red/ Overlake	*Preferred NE 16th At-Grade Alternative (D2A)*[c]	3 to 4	7,000 (7,000)	51,000 (49,500)	8 (10)
	NE 16th Elevated Alternative (D2E)	3 to 4	7,000	50,000	9
	NE 20th Alternative (D3)	3 to 4	6,500	49,000	10
	SR 520 Alternative (D5)	2	6,000	49,500	7
E, Downtown Redmond	*Preferred Marymoor Alternative (E2)*[d]	2 (3)	3,500 (4,000)	49,500 (50,000)	6
	Redmond Way Alternative (E1)	2	3,500	49,500	6
	Leary Way Alternative (E4)	2	3,500	50,000	6

[a] Ridership reported for each alternative is based on the representative East Link route (a combination of Alternatives *A1*, B3, C4A, *D2A*, and *E2)*. See Chapter 3, Transportation Environment and Consequences, for additional ridership information including the ridership exclusively prepared for the *Preferred Alternative* in each segment.

[b] Daily boardings, ridership, and travel time are the same with B3 – 114th Extension Design Option.

[c] Daily boardings, ridership, and travel time in parenthesis are for the D2A – NE 24th Design Option. The daily boarding, ridership, and travel time for the D2A – 120th Station Design Option would be similar to *Preferred Alternative D2A*.

[d] Daily boardings, ridership, and travel time in parenthesis are for the E2 - Redmond Transit Center Design Option.

6.1.1.1 Transit Quality

The East Link Project would provide a comfortable, high-capacity transit (HCT) service that would increase reliability of the regional transit system and result in substantial time savings for all travel modes. Current bus service reliability is poor and is projected to remain poor into the future in spite of infrastructure investments to improve high occupancy vehicle travel. This is because congestion on the arterial and highway systems will continue to influence transit service dependability. The East Link Project would improve transit quality in the region by providing frequent and reliable HCT service 20 hours each day in the Seattle, Mercer Island, and Bellevue to Redmond corridors (18 hours on Sundays). East Link passengers would benefit from a comfortable ride; high-person capacity;

efficient loading of multiple-car trains resulting in short in-station loading time; and dependable, on-time departures and arrival.

The project would use dedicated right-of-way, thus allowing East Link to operate reliably, independent of congested roadway conditions. The project is planned to operate during the peak periods with a train-arrival frequency (i.e., headway) of every 7 minutes by 2030. The project is designed to operate up to four-car trains. Ultimately, the project could carry 600 persons per four-car train comfortably and 800 persons during crowded conditions with 4-minute headways; this would more than double the person-carrying capacity of I-90 because East Link could carry 18,000 to 24,000 people (9,000 to 12,000 per direction) during the peak period. This is the equivalent of about 7 to 10 freeway lanes of traffic (assuming that automobiles in the Puget Sound region average 1.17 persons per vehicle during commute hours, or about 2,300 persons per hour per freeway lane).

This capacity would provide a robust “backbone” of service feeding a network of bus distribution and feeder routes. As a dedicated right-of-way system, East Link would provide reliable, frequent service through highly congested roadways to feed multiple bus lines, thereby collectively reaching a broad range of destinations in a timelier manner than the No Build Alternative. The East Link Project analysis estimates that light rail travel between Seattle and Downtown Bellevue would take less than 20 minutes, and between Seattle and Downtown Redmond, between 29 to 39 minutes, regardless of time of day or level of traffic congestion. This would be a savings of up to 25 minutes compared to an automobile currently traveling between these locations in the afternoon peak period. It can currently take up to 45 minutes to travel between Seattle and Bellevue (via I-90) and up to 55 minutes to travel between Seattle and Redmond (via SR 520) (Washington State Department of Transportation [WSDOT], 2011). These times are expected to continue to worsen, and therefore light rail would provide an even greater travel-time savings. Without the East Link Project, it is expected that bus reliability in the future would continue operating at a failing level. East Link Project reliability would provide the highest transit service level.

The Sound Transit Ridership Model was used to calculate the travel-time savings with transit trips in the afternoon (PM) travel period. Average transit travel time is the time it takes riders to travel from door to door (i.e., from the front door of their home to the front door of their work) by a composite of modes (i.e., auto, bus, bicycle, pedestrian, and light rail). Compared to the No Build Alternative, the average door-to-door peak-period transit travel time using light rail would be between 4 and 16 minutes faster to a given East Link destination. The results of the transit travel-time savings analysis for people who reside in the East Link study area are summarized in Table 6-2, which provides a range of minute savings by station.

6.1.1.2 Transit Accessibility

The East Link Project would enhance accessibility and integration of transportation modes by creating between 10 and 13 stations with connections to local bus systems and park-and-ride options. While the population in the project vicinity has increased substantially since the 2000 U.S. Census, 2000 Census data show that the project would enhance access for more than 5,000 low-income and more than 9,000 minority residents who live within one-half mile of proposed stations. The low-floor cars that would be used for East Link provide convenient loading for patrons with disabilities. Additionally, the East Link Project would extend transit connections for riders to and from Central Link destinations. Central Link connects Downtown Seattle to the Seattle-Tacoma International Airport, with extensions to the University of Washington by 2016, north to Northgate by 2020-2021, and south to South 200th between 2015 and 2020, depending on funding.

TABLE 6-2
Average 2030 Door-to-Door Peak-Period Transit Travel Time Savings with East Link Compared to No Build Alternative

Segment	Station	Average Minutes Saved
A, Interstate 90	Rainier	7
	Mercer Island	9
B, South Bellevue	South Bellevue	7
	118th	12
	SE 8th	11
C, Downtown Bellevue	East Main	12
	108th	10
	Old Bellevue	9
	Bellevue Transit Center	8
	Hospital	9
	Ashwood/Hospital	8
D, Bel-Red/ Overlake	120th	8
	130th	6
	Overlake Village	7
	Overlake Transit Center	4
E, Downtown Redmond	SE Redmond	16
	Downtown Redmond	13
	Redmond Town Center	14
	Redmond Transit Center	10

The East Link Operation Plan includes direct service north to the University of Washington and Northgate without requiring a change of trains.

6.1.1.3 Ridership

Ridership projections vary among the segment alternatives. As a project providing service from Seattle to Redmond, East Link is projected to contribute between 48,000 and 52,500 rider trips per day to the Sound Transit light rail system by 2030. Chapter 3, Transportation Environment and Consequences, describes ridership differences among the alternatives. The following subsections summarize the relative variations in ridership among the alternatives.

Segment A

There are between 5,000 daily boardings forecast for *Preferred Interstate 90 Alternative (A1)*. These boardings would be for Rainier and Mercer Island Stations only. The International District/Chinatown Station boardings are not included.

Segment B

Preferred 112th SE Modified Alternative (B2M) would attract 49,000 riders. Other Segment B alternatives would attract a similar number of daily segment and overall project ridership (4,500 to 5,000 segment and 49,000 to 52,500 overall), except for the BNSF Alternative (B7), which would attract a substantially lower number of segment boardings (1,500) and 48,000 overall riders per day.

Segment C

There would be a wider spread of influence on daily boardings among alternatives within Segment C than the alternatives in Segment B. *Preferred 108th NE At-Grade Alternative (C11A)* would be similar to *Preferred 110th NE Tunnel Alternative (C9T)* in that they would both provide a segment ridership of 8,000. Overall projectwide ridership with *Preferred Alternative C9T* would be 51,000 versus 49,000 with *Preferred Alternative C11A*. The Bellevue Way (C1T) and 108th NE Tunnel (C3T) Alternatives have the potential to attract the highest daily boardings (ranging up to 9,000) within Segment C; these alternatives also produce the highest daily ridership for Segment C alternatives with 52,500. The 110th NE At-Grade Alternative (C9A) would have the lowest overall ridership along with the 114th NE Elevated Alternative (C14E) with 48,500. Alternative C14E is projected to attract the least number of segment boardings (5,500).

Segment D

Segment D alternatives would attract similar ridership (approximately 6,000 to 7,000 segment boardings), including the SR 520 Alternative (D5), which has two fewer station stops. This shows that the Overlake Transit Center Station has a large ridership potential even without the other proposed stations at 120thand 130th Avenues. The ridership model demonstrates that Alternative D5, with a faster travel time than other Segment D alternatives, would result in higher boardings at nearby stations in adjacent segments, and therefore would have a similar influence in overall projectwide ridership as the other Segment D alternatives but would not serve City of Bellevue’s planned high-density, transit-oriented land uses in the Bel-Red area.

*Preferred NE 16th At-Grade Alternative (*D2A) would provide the highest overall ridership (7,000 segment and 51,000 overall projectwide riders). However, D2A – NE 24th Design Option would have segment ridership of 7,000 segment riders and 49,500 overall projectwide riders. Alternative D3 would have the lowest number of projectwide riders, with 6,500 segment riders and 49,000 overall projectwide riders.

Both Bellevue and Redmond have adopted land use plans (in Bellevue for the Bel-Red area and Redmond for the Overlake Village area). These land use plans are assumed in the ridership model projections for Segment D. The projected land uses would consist of high-density residential and commercial mixed land uses concentrated around the proposed station locations (i.e., Ashwood/Hospital, 120th, 130th, and Overlake Village stations). The transportation model includes the proposed change in land uses.

Segment E

The ridership projections for Segment E do not reveal a strong difference in daily boardings among the alternatives. E2 - Redmond Transit Center Design Option, which would extend to the Redmond Transit Center, would provide one more station than the other alternatives and, therefore, more access but with only a slightly higher segment boardings (4,000) and similar overall projectwide ridership (50,000) as Leary Way Alternative (E4). *Preferred Marymoor Alternative (E2)* and Redmond Way Alternative (E1) provide 3,500 segment boardings and 49,500 overall projectwide riders.

6.1.2 Environmental Goal: Preserve Environmental Quality

The environmental goal is to preserve environmental quality in the project corridor. This goal would be met in the following ways:

- Minimize potential adverse operating impacts on the natural and built environments.

- Minimize potential adverse construction impacts on the natural and built environments.

6.1.2.1 Range of Impacts

All project alternatives would incorporate impact avoidance and minimization measures. Because of the highly urbanized nature of the project vicinity, most impacts would relate to the built environment. Impacts generally would concern transportation, property acquisition, visual and parks resources, and noise and vibration. Fewer impacts would affect natural resources, as demonstrated by the range of impacts summarized in Table 6-3. Most of the adverse impacts could be mitigated.

The East Link Project would also offer environmental improvements over the No Build Alternative. The project would result in net benefit to aquatic habitats and would remove contaminated soil along the project route. The construction process would bring economic benefit to the area by adding jobs and money spent in the region. After construction, the area surrounding several of the stations would be likely to attract transit-oriented development where additional capacity in land-use density is permitted. East Link would benefit the region by decreasing vehicle miles traveled (VMT) and vehicle hours traveled (VHT) by 0.2 percent, which would result in lower energy usage and would help reduce the overall volume of carbon dioxide emission into the region and, therefore, reduce greenhouse gas effects. Thus, the East Link Project is expected to preserve overall environmental quality.

Where applicable, Table 6-3 gives the range of the lowest and highest impacts for each impact category before mitigation measures are applied. As shown, many projectwide impacts before mitigation concern property acquisition, which is also reflected in relocating businesses and employees, removing parklands, and losing some wetlands. Operating East Link may also degrade some traffic intersections. After mitigation, only a few resources would be adversely affected by the project. Depending on the combination of alternatives, there may be some residual vibration impacts, visual quality reductions, and potentially permanent changes to McCormick Park.

Constructing the East Link Project would be about a 2- to 5-year process on a given portion of the route. During construction, traffic may be adversely affected, which can affect adjacent businesses. Construction could also result in dust, noise, and vibration, as well as lower visual quality around the construction site. There may be temporary impacts on wetlands and other habitats. Sound Transit is committed to replacing park lands, but during construction, park use would be limited in some construction areas. Construction of any of the alternatives could also result in increased employment and spending in the project vicinity during construction.

6.1.2.2 Environmental Impacts by Alternative

Table 6-4 summarizes the environmental impacts for each segment, focusing on the issues that differentiate alternatives within each segment. The categories may differ between segments because of the types of impacts occurring in each segment. A comparative description among alternatives within each segment follows for notable environmental impacts.

Segment A

Because *Preferred Alternative A1* is mostly located within the existing I-90 freeway, there would be few environmental impacts, which are summarized in Table 6-4. The primary impacts would be transportation-related. In comparison to the No Build Alternative (even with the implementation of the I-90 Two-Way High-Occupancy Vehicle [HOV] Transit and Operations Project), light rail would increase the total numbers of persons crossing I-90 during peak traffic hours. If the D2 Roadway (transit/ HOV access ramp from Seattle to I-90 center roadway) does not permit joint use of light rail and bus transit usage, then bus transit trips may lengthen by as much as 4 minutes. The project would result in increased congestion at up to three Mercer Island freeway ramps and worsen the operations at up to four arterial intersections, although these can be mitigated. Other environmental impacts include groundborne noise impacts on residential properties above the Mt. Baker Tunnel and the removal of landscaping where Sound Transit station entrances would be placed along Benvenuto Park in Seattle and in the Park-on-the-Lid in Mercer Island; both impacts would be mitigated.

Segment B

Table 6-4 summarizes Segment B impacts. All Segment B alternatives would cause impacts on the Mercer Slough Nature Park, but only the *Preferred Alternative B2M* would potentially impact the Winters House and temporarily close activities held at the Winters House and blueberry farm during construction. Alternative B7 would create a new crossing over the Mercer Slough Nature Park. *Preferred Alternative B2M* would require the most property acquisition in this park, specifically along its western edge. All Segment B Alternatives would result in long-term impacts on wetlands, although Alternative B7 would affect 1.9 acres and all other alternatives would affect substantially less than an acre. All impacts on Mercer Slough Nature Park and wetlands can be mitigated.

TABLE 6-3
Projectwide Range of Impacts by Impact Category

Impact Category		Low Potential Impact Range[a]	High Potential Impact Range[a]
Transportation	Number of intersections improved	2	6
	Number of intersections worsened (after mitigation)	9 (0)	20 (0)
	Number of parking spaces removed	288	1,439
Acquisitions, Relocations, and Displacements	Full property acquisitions	14	78
	Partial property acquisitions	84	236
	Total acres to be acquired	45.1	129.3
	Businesses displaced	54	156
	Residences displaced	2	229
Land Use	Consistent with relevant policies	Consistent	Not as consistent
	Potential to facilitate transit-oriented development	Low to moderate	Moderate to high
Economics	Employment displacements (estimated number of employees)	760	2,860
	Initial property tax impact (range of $ that would be removed from affected city property tax revenue)	$44,000	$252,000
Visual	Number of incidences where project may result in a decrease in visual quality	0	3
Air Quality and Greenhouse Gases	Savings in tons of carbon monoxide per year compared to the No Build Alternative (tons carbon monoxide/year)	1	3
	Hot spot analysis exceedances	0	0
	Greenhouse gas emissions annual decrease (carbon dioxide equivalent in metric tons)	18,980	25,915
	Greenhouse gas emissions during construction (carbon dioxide equivalent in metric tons)	94,893	173,197
Noise/Vibration	Traffic noise impacts (after mitigation)	0(0)	154 (0)
	Transit noise impacts (after mitigation)	203 (0)	943 (0)
	Vibration (after mitigation)	3(0)	11(3)
	Ground-borne noise (after mitigation)	25(0)	36 (0)
Ecosystems	Long-term impact on wetlands (acres)	0.3	2.6
	Impact on high-value (priority) habitat (acres)	1.7	6.0
	Impact on threatened/ endangered species	0	0
	Fish passage/habitat	No impact	Minor adverse impact
Water	Increase in impervious surface (acres)	16.2	34.9
	Floodplain impact	None	Minor
Energy	Savings in million British thermal units (MBtu)/year	907	1,217
Geology	Risk of causing a geologic hazard	Low risk	Medium risk
Hazardous Materials	Potential impacts on high-risk sites (number of sites)	8	19
Electromagnetic Field	Electromagnetic field interference	0	0
Utilities	Relocation	Low to high	Low to high
Historic Resources	Length of archaeological sensitive areas (miles of corridor)	4.5	13
	Potential to affect historical resources (number)	0	3
Parklands Impacts	Permanent	1.3	6.5
	Temporary	2.0	13.6
Construction Impacts	Noise, transportation delays and detours, economic impacts on businesses	Medium	High

Preferred Alternative B2M, Alternative B2E, and B3 -114th Extension Design Option would result in only one residential displacement. Alternative B1 would result in the highest number of residential displacements, whereas Alternative B3 -114th Design Option would displace the highest number of employees. All Segment B alternatives (except *Preferred Alternative B2M*) traveling along Bellevue Way SE would lower the visual quality of the area due to long-term changes to the west hillside.

Alternatives B1, B2A, and B3 would affect traffic operations at the 112th Avenue SE and Bellevue Way SE intersection, but the impacts can be mitigated. Likewise, Alternative B7 would affect traffic operations at two intersections along 118th Avenue SE and Coal Creek Parkway, but both of these intersections can be mitigated. All noise and vibration impacts can be mitigated in Segment B.

All Segment B alternatives would likely involve the use of a temporary construction easement in the Mercer Slough Nature Park. Except for Alternative B7, these would be limited to the western park border, which may require trail and other access detours during construction. Except for *Preferred Alternative B2M,* construction of the at-grade alternatives (B1, B2A, and B3) would require widening Bellevue Way SE. Constructing elevated profiles may result in closing or narrowing travel lanes and the use of temporary easements. For Alternative B7, a raised platform could be built across the Mercer Slough to reach the construction site within the marshy areas.

Elevated portions of the guideway may require pile driving, and, therefore, would result in noise impacts during daytime construction hours. This may have temporary adverse effects on wildlife in the vicinity.

Segment C

A summary of Segment C impacts is provided in Table 6-4. Elevated alternatives east of the Downtown Bellevue business and commercial core (Alternatives C7E and C14E) would result in the fewest transportation impacts during operation but do not provide as direct access to the downtown core as other Segment C alternatives. *Preferred 110th NE At-Grade Alternative (C11A),* Couplet Alternative (C4A), and 108th NE At-Grade Alternative (C9A) would permanently remove up to two travel lanes on either 108th or 110th Avenues NE (although travel lanes on both streets would be removed with Alternative C4A).

While these at-grade alternatives would affect some north-south vehicle operations, overall downtown intersection operations are expected to experience minimal change compared to the 2020 and 2030 No Build Alternative. Operational traffic management strategies would be proposed at impacted intersections in lieu of roadway capacity improvements. Noise and vibration impacts of tunnels can be substantially mitigated, except for few instances of residual vibration impacts. All Segment C alternatives would result in noise impacts from light rail, whereas only Alternative C1T would result in noise impacts from increased traffic due to shift in Bellevue Way SE, all of which can be mitigated.

Many of the Segment C impacts would be caused during construction by lane closures, dislocating buses from the Bellevue Transit Center, utility relocation, noise, vibration, dust, truck traffic, and associated impacts on businesses. Tunnel construction would require longer construction periods than elevated and at-grade portions. Cut-and-cover construction might have greater impacts on nearby businesses resulting from reduced access and extended construction disturbances.

Preferred108th NE Tunnel Alternative (C9T) and the Bellevue Way (C1T) and 108th NE Tunnel (C2T) Alternatives would interface with hazardous material sites and have a high degree of utilities relocation. Alternative C1T would have the highest number of potential residential relocations of alternatives in Segment C and is the only corridor that has a relatively high risk of soil settlement that may be avoided through engineering and construction methods. Because of primarily bored tunnel construction, the 108th NE Tunnel Alternative (C3T) would result in less conflict with utilities and less disruption of traffic and businesses than *Preferred Alternative C9T* and Alternatives C1T and C2T.

These tunnel alternatives would involve large portions of cut-and-cover construction in high rise areas to avoid conflicts with the underground structural supports of the adjacent building foundations and underground parking structures. Like the cut-and-cover alternatives, *Preferred Alternative C11A* and Alternatives C4A and C9A would require relocation of utilities directly under and parallel to the route. Elevated alternatives—112th NE (C7E), 110th NE (C8E), and 114th NE (C14E)—would generally result in the fewest residential displacements and utilities impacts.

Alternatives C1T, and C14E would not impact any parks, whereas Alternatives C3T, C4A, and C8E would occupy a large portion of McCormick Park during construction. This park would be replaced to preconstruction size or larger, and the light rail would be located between the park and NE 12th Street, which

TABLE 6-4
Summary of Differentiating Environmental Impacts for East Link Build Alternatives

<table>
<tr><th colspan="11">Segment A</th></tr>
<tr><th colspan="3">Differentiating Environmental Impacts</th><th colspan="8"><i>A1</i></th></tr>
<tr><td colspan="3">Transportation impacts</td><td colspan="8">Improved person throughput and capacity. Similar or improved vehicle and truck travel time. Depending on the design option selected, up to seven traffic intersection impacts that can be mitigated and slightly increased bus travel times with light-rail-only operational option on the D2 Roadway.</td></tr>
<tr><td rowspan="4">I-90 Total person throughput across Lake Washington</td><td rowspan="2">AM</td><td>Increase over No Build[a]</td><td colspan="8">5,050</td></tr>
<tr><td>Increase over No Build[b]</td><td colspan="8">3,450</td></tr>
<tr><td rowspan="2">PM</td><td>Increase over No Build[a]</td><td colspan="8">5,550</td></tr>
<tr><td>Increase over No Build[b]</td><td colspan="8">1,850</td></tr>
<tr><td colspan="3">Public services</td><td colspan="8">Might increase emergency service response times</td></tr>
<tr><td colspan="3">Permanent impacts on park: acres before mitigation</td><td colspan="8">0.2 to 0.5 acre</td></tr>
<tr><td colspan="3">No. of buildings with groundborne noise impacts (after mitigation)</td><td colspan="8">25 (0)</td></tr>
<tr><td colspan="3">Other construction impacts</td><td colspan="8">I-90 access changes</td></tr>
<tr><th colspan="11">Segment B</th></tr>
<tr><th colspan="3">Differentiating Environmental Impacts</th><th><i>B2M</i> to <i>C11A</i></th><th><i>B2M</i> to <i>C9T</i></th><th>B1</th><th>B2A</th><th>B2E</th><th>B3</th><th>B3 – 114th Design Option</th><th>B7</th></tr>
<tr><td colspan="3">Residential displacements: no. of housing units</td><td>1</td><td>1</td><td>12</td><td>4</td><td>1</td><td>4</td><td>4</td><td>0</td></tr>
<tr><td colspan="3">Business displacements (no. of employees)</td><td>0 (0)</td><td>0 (0)</td><td>2 (10)</td><td>0 (0)</td><td>0 (0)</td><td>0 (0)</td><td>14 (170)</td><td>6 (160)</td></tr>
<tr><td colspan="3">Wetland Impact in acres: permanent/temporary</td><td>0.1/0.5</td><td>0.1/0.5</td><td>0.2/0.9</td><td>0.2/0.7</td><td>0.2/0.6</td><td>0.7/1.2</td><td>0.2/0.6</td><td>1.9/2.9</td></tr>
<tr><td colspan="3">High-value habitat loss in acres</td><td>0.6</td><td>0.7</td><td>1.7</td><td>0.7</td><td>0.4</td><td>0.7</td><td>0.7</td><td>3.0</td></tr>
<tr><td colspan="3">Decrease in visual quality?</td><td>No</td><td>No</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td><td>No</td></tr>
<tr><td colspan="2" rowspan="2">Noise-impacted receptors: no. of living units (no. after mitigation)</td><td>Traffic-related</td><td>0</td><td>0</td><td>136 (0)</td><td>17 (0)</td><td>0</td><td>17 (0)</td><td>17 (0)</td><td>0</td></tr>
<tr><td>Light rail-related</td><td>79 (0)</td><td>66 (0)</td><td>132 (0)</td><td>78(0)</td><td>106 (0)</td><td>83 (0)</td><td>77 (0)</td><td>176 (0)</td></tr>
<tr><td colspan="3">Vibration-impacted buildings (no. after mitigation)</td><td>0</td><td>0 to 1 (0)</td><td>1(0)</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="3">Groundborne noise (after mitigation)</td><td>1(0)</td><td>1(0)</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="2" rowspan="2">Park impacts: area in acres before mitigation)</td><td>Permanent</td><td>2.9</td><td>3.0</td><td>0.9</td><td>1.8</td><td>0.7</td><td>1.8</td><td>1.8</td><td>0.9</td></tr>
<tr><td>Temporary</td><td>3.6</td><td>3.5</td><td>2.6</td><td>2.6</td><td>1.8</td><td>2.6</td><td>2.9</td><td>1.7</td></tr>
<tr><td colspan="3">Intersections not meeting local standard and operating worse than No Build Alternative (No. after mitigation)</td><td>0 (0)</td><td>0 (0)</td><td>2(0)</td><td>1 (0)</td><td>1 (0)</td><td>1 (0)</td><td>1(0)</td><td>3 (0)</td></tr>
<tr><td colspan="3">Historic property impact</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
</table>

TABLE 6-4 CONTINUED
Summary of Differentiating Environmental Impacts for East Link Build Alternatives

Segment C											
Differentiating Environmental Impacts		***C11A***	***C9T*** [c]	**C1T**	**C2T**	**C3T**	**C4A**	**C7E**	**C8E**	**C9A**	**C14E**
Residential displacements: no. of housing units		0 to 46	0 to 46	91	0-12	7-19	8	0	2	0 to 1	0
Business displacements (no. of employees)		39 to 40 (330 to 380)	17 to 18 (160 to 370)	21 (250)	13 to 20 (170 to 240)	15 to 22 (180 to 270)	36 to 37 (490 to 550)	29 to 30 (670 to 730)	33 (750)	17 to 18 (170 to 230)	24 (390)
Decrease in visual quality?		No	No	No	No	Yes	Yes	No	Yes	No to Yes	No
Hazardous material sites		2	2	7	3	2	2	0	0	2	1
Light rail noise-impacted receptors: no. of living units (no. after mitigation)		184 to 204 (0)	119 to 140 (0)	100 (0)	100 to 179 (0)	26 to 105 (0)	439 to 450 (0)	208 to 282 (0)	425 (0)	199 to 241 (0)	148 (0)
Traffic noise-impacted receptors: no. of living units (no. after mitigation)		0	0	18 (0)	0	0	0	0	0	0	0
Vibration-impacted receptors: no. of buildings (after mitigation)		6 (1)	3 to 8 (1)	2 (0)	0	0	7 (2)	0	6 (2)	6 (3)	3 (1)
Groundborne noise-impacted receptors: no. of buildings (no. after mitigation)		0	1(0)	1 (0)	0 to 1 (0)	1 to 12 (0)	0	0	0	0	0
Park impacts: area in acres before mitigation	Permanent	0 to 0.5	0.1 to 0.6	0	0 to less than 0.1	0.9	0.9 to 1.4	0 to 0.4	0.2	Less than 0.1	0
	Temporary	0 to 0.6	0.2 to 0.7	0	0 to 5.7	1.8 to 7.5	1.6 to 2.0	0 to 0.4	0.9	0.2	0
Utility relocation		High	High	High	High	Medium	High	Low	Low	High	Low
Intersections not meeting local standard and operating worse than no build alternative (no. after mitigation)		3 (0)	1 (0)	2 (0)	1 (0)	2 (0)	3 (0)	1 (0)	4 (0)	3 (0)	0 (0)

Segment D						
Differentiating Environmental Impacts	***D2A***	**D2A – 120th Station Design Option**	**D2A – NE 24th Design Option**	**D2E**	**D3**	**D5**
Business displacements (no. of employees)	34 (550)	34 (550)	69 (1,060)	42 (920)	74 (1,590)	79 (480)
Permanent wetland impact in acres	0.5	0.5	0.5	02. to 0.3	0.2	0.2 to 0.3
High-value habitat loss in acres	0.9	0.9	0.8	0.5	Less than 0.1 to 0.1	1.3 to 1.4
Hazardous material sites	2	2	3	3	4	3
Noise-impacted receptors: no. of living units (after mitigation)	0	0	0	1 to 2(0)	0 to 1(0)	10 to 11(0)
Stream crossings	2	2	2	2	3	1
Intersections not meeting local standard and operating worse than no build alternative (no. after mitigation)	1 (0)	2 (0)	1 (0)	2 (0)	1 (0)	1 (0)

TABLE 6-4 CONTINUED
Summary of Differentiating Environmental Impacts for East Link Build Alternatives

Segment E					
Differentiating Environmental Impacts		**E2**	**E2 - Redmond Transit Station Design Option**	**E1**	**E4**
Residential displacements – no. of housing units		2	126	2	2
Business displacements (no. of employees)		8 (290)	23 (350)	7 (210)	7 (120)
Decrease in visual quality?		No	No	Yes	Yes
High-value loss in acres		1.1	1.2	2.1	1.2
Stream crossings		2	2	2	2
Noise-impacted receptors – no. of living units (no. after mitigation)		181 (0)	181 (0)	317 (0)	98 (0)
Vibration-impacted receptors – no. of buildings (no. after mitigation)		3 (1)	3 (1)	3 (1)	3 (0)
Historic property impact		0	0	0	1
Park impacts (area in acres before mitigation)	Permanent	2.0	2.0	0.2	0.7
	Temporary	3.0	3.5	0.3	0.5
Intersections not meeting local standard and operating worse than no build alternative (no. after mitigation)		4(0)	5(0)	3(0)	3 (0)

Maintenance Facilities				
Differentiating Environmental Impacts	**MF1**	**MF2**	**MF3**	**MF5**
Business displacements (no. of employees)	77 to 82 (630to 890)	5 to 6 (450 to 850)	56 to 60 (840 to 890)	16 to 38 (310 to 410)
Acres converted to transportation use	20.1 to 24.1	23.1 to 23.8	19.7 to 25.6	17.7 to 20.4
Permanent wetland impact in acres	0 to 0.1	0.1	Less than 0.1	0
High-value loss in acres	0 to 0.1	0.1 to 0.2	0	0
Stream crossings	0	0	1	0
Change in impervious surface in acres	+2.5 to +3.7	–0.4 to –3.7	–1.0 to –1.7	+1.8 to +2.3
Construction risk	Low	Low	Low	Low

[a] Without HOV lanes in the outer roadways between Mercer Island and Rainier Avenue South (Stages 1 and 2 only of the I-90 Two-Way Transit and HOV Operations Project).
[b] With HOV lanes in the outer roadways (HOV lanes Stages 1 – 3 completed of the I-90 Two-Way Transit and HOV Operations Project)
[c] The C9T - East Main Station Design Option when connecting with *Preferred Alternative B2M* would not change any of the ranges presented for *Preferred Alternative C9T*.

would reduce the visual quality of the park for adjacent residents and park users. Also, both P*referred Alternatives C11A* and *C9T* connecting from *Preferred Alternative B2M* would permanently affect Surrey Downs Park, including changes in access. However, after construction, remaining land outside the light rail track along 112th Avenue NE would be available as landscaped extensions of Surrey Downs Park. Also, Alternatives C3T, C2T, C4A, C7E, and C9A when connecting from B2A would affect some portion of Surrey Downs Park. Alternatives C2T and C3T would not result in operational impacts on Surrey Downs Park. Alternatives C4A, C7E, and C8E would result in acquiring 0.5 acre or less of the street side landscaping and no recreational activity areas. *Preferred Alternative C9T,* Alternative C9A, and Alternative C4A would affect the NE 2nd Pocket Parks. All park impacts except long-term visual impacts on McCormick Park could be mitigated. The park impacts would occur primarily during construction.

Most of the staging areas would be available for redevelopment consistent with applicable zoning following construction. Construction of tunnels may require some periods of night work and have a longer construction duration and number of truck trips than surface alternatives. The construction of Alternatives C4A, C7E, and C8E would involve the fewer number of truck trips over tunnel alternatives and *Preferred Alternatives C11A* and *C9T.* The staging areas for *Preferred Alternative C11A* and Alternatives C2T, C3T, and C4A would be adjacent to contributing properties to the potential Surrey Downs historic district, whereas *Preferred Alternative C9T* and Alternative C9A staging areas are further away, thus buffering the potential Surrey Downs historic district from possible impacts during construction.

With the exception of Alternative C1T, there would be a range of impacts in Segment C alternatives from the variation in connections from Segment B. Different connectors would result in different areas needed as construction staging areas. Because of the high-density urban environment in Downtown Bellevue, staging areas that would be needed during construction have been identified. Variations in property acquisition, numbers of displaced employees, and temporary impacts on Sturtevant Creek would be due to the connections from Segment B. Connections from the 112th Avenue SE alternatives (P*referred Alternative B2M* and Alternatives B2E and B2A) would result in higher residential impacts except when Alternative B2A connects with tunnel alternatives (Alternatives C2T and C3T) or Alternatives C7 or C9A, which would result in no residential displacements. The connector between Alternative B2A and the Alternatives C2T or C3T tunnels would occupy the north part of Surrey Downs Park, including the King County District Courthouse, which is planned to be relocated in the development of Surrey Downs Park, whereas connections from Alternative B2A for other Segment C Alternatives would only affect the streetside landscaping. Construction impacts on Surrey Downs Park would also result from the *Preferred Alternative B2M* connection to *Preferred Alternatives C11A* or *C9T*, thus affecting landscaping and portions of the District Courthouse parking, but *Preferred Alternative C9T* would also affect a portion of the Courthouse building. After construction, the entire park would be restored and usable. The *Preferred Alternatives C11A* and *C9T* would acquire 46 residential units west of 112th Avenue SE if connecting to *Preferred Alternative B2M* (no difference with the East Main Station Design Option), and no residences if connecting to Alternatives B3 or B7. Connections from Alternatives B3 and B7 would result in ecosystem impacts and more employee displacement than other connectors.

Segment D

The Segment D alternatives would not vary greatly in their impacts, as shown in Table 6-4. The primary difference would be that the SR 520 Alternative (D5) could have up to two fewer stations in the Bel-Red subarea, which may influence redevelopment in this area and would provide fewer points of access to East Link. Because of this difference, Alternative D5 would require the fewest property displacements, lowest employee displacements, and least utility relocations. In contrast, Alternative D5 would result in the highest loss of high-value habitat and the highest number of business displacements. *Preferred NE 16th At-Grade Alternative (D2A)* would have lowest impacts on businesses, highest potential wetlands impacts (less than 1 acre), and second-highest impacts on high value habitat.

All alternatives except Alternative D5 would have station locations that would support transit-oriented development for both the Bel-Red subarea in Bellevue and the Overlake Village subarea in Redmond consistent with local land use plans. The NE 20th Alternative (D3) would involve building a retained cut in the median of NE 20th Street. This alternative could result in the highest employee displacement and would likely have the highest impact on access to adjacent businesses. Alternatives D3 and D5 could result in minor adverse impacts on fish-bearing streams, but this impact can be mitigated to a net benefit. Alternative D5 would result in the greatest noise impact during operation, which can be mitigated. All intersections affected by the Segment D alternatives would be mitigated.

Construction impacts from the Segment D alternatives would involve traffic detour routes, truck trips, and possible pile-driving noise for elevated and retained-cut portions of the alternatives. Alternative D3 would result in a high number of truck trips and would potentially affect the largest number of businesses due to retained-cut construction along a major commercial corridor, NE 20th Avenue. *Preferred Alternative D2A* and Alternative D5 would have slightly fewer construction impacts than Alternatives D3 and D2E. The nonpreferred D2A design options would have similar to greater construction impacts than Alternatives D3, D5, and D2E.

The preferred storage tracks in the former BNSF Railway corridor north of the NE 12th Street Crossing in Segment D would have minimal environmental impacts—only partial property impacts and minor wetland impacts.

Segment E

The main environmental impact differences among alternatives in Segment E would involve park, historic resources, and visual impacts, as shown in Table 6-4. *Preferred Alternative Marymoor Alternative (E2)* and Redmond Way Alternative (E1) would have similar and lower environmental impacts than the Leary Way Alternative (E4) and Alternative E2 - Redmond Transit Center Station Design Option. Alternative E1 would have higher noise impacts, which all would be mitigated. *Preferred Alternative E2* and the Alternative E2 - Redmond Transit Center Design Option would have the greatest park impacts because of their route along Marymoor Park. The E2 - Redmond Transit Center Design Option would require the most residential displacements, which would not occur under P*referred Alternative E2* that terminates at the Redmond Downtown Station. Alternative E4 would result in minor impacts on park property, but it would change the visual quality along the Leary Way gateway to the Redmond City Center and require relocation of the Justice William White House, an eligible resource for the National Register of Historic Places. Transportation impacts would be generally similar among the Segment E alternatives, although *Preferred Alternative E2* and the E2 - Redmond Transit Center Design Option would have worse operations at a few additional intersections, although these would be mitigated.

Construction for the Segment E alternatives would require the temporary detour of the Sammamish River Trail, Bear Creek Trail, and the East Lake Sammamish Trail and possible pile driving along SR 520 and Lake Sammamish Parkway. E2 - Redmond Transit Center Design Option would also require the full closure of 161st Avenue NE during construction.

Maintenance Facilities

A summary of maintenance facility impacts is provided in Table 6-4. All the proposed maintenance facility alternatives are located in predominantly commercial/industrial areas that are compatible land use. The 116th Maintenance Facility (MF1) and the SR 520 Maintenance Facility (MF3) would displace substantially more businesses (up to 82 and 60, respectively) than the other potential maintenance facility locations. MF1 and MF3 would also have the most potential employee displacements—up to 890 employees each. The SE Redmond Maintenance Facility (MF5) would have the fewest employee displacements— 410 or fewer people. The fewest business displacements would occur under the BNSF Maintenance Facility (MF2), which would only displace five to six businesses, depending on the alternative connection. MF1, MF2, and MF3 would require wetlands or wetland buffers to be filled. In addition, MF3 would result in an increase of 42 linear feet of open stream channel by replacing two culverts with shorter ones on Goff Creek or culverts can be avoided by realigning the stream.

6.1.3 Land Use Goal: Support Regional and Local Land Use Goals and Objectives

6.1.3.1 Projectwide Support of Land Use Goals and Objectives

The East Link Project would support regional and local land use goals and objectives. East Link is a critical element in the region’s long-term plan to manage growth. It would support the continued planned development of urban centers along the East Link corridor, including Downtown Bellevue and Overlake. As the Metropolitan Planning Organization (MPO) and Regional Transportation Planning Organization (RTPO) for the region, The Puget Sound Regional Council (PSRC) has adopted growth management plans to direct much of the expected growth in population and employment into the urban centers in the Puget Sound region, in large part to help reduce low-density development from expanding the urban edge and the related impacts of growth on the environment. This growth management plan needs transportation options that support such targeted growth.

East Link is consistent with the PSRC growth management strategy, *VISION 2040* (PSRC, 2008), which promotes the development of a coordinated transportation system that is integrated with and builds upon local, countywide, regional, and state planning efforts. *VISION 2040's* focus is to contain growth, concentrate new employment into urban centers, and link urban centers with a high-quality multimodal transportation system.

The *VISION 2040* growth strategy is also designed to foster a greater mix of land uses and a more complete and efficient network of streets and other public rights-of-way, and to support an urban environment that is more amenable to walking, bicycling, and using transit. As the Regional Transit Authority (under Chapter 81.104 and 81.112 the Revised Code of Washington [RCW]), Sound Transit is responsible for regional HCT system planning in the context of *Transportation 2040*.

Sound Transit's Regional Transit Long-Range Plan, adopted in 2005, represents Sound Transit's goals, policies, and strategies for the long-term development of an HCT system within the central Puget Sound region. This long-range plan is the basis for Sound Transit 2: a Mass Transit Guide, the Regional Transit System Plan for Central Puget Sound (ST2). ST2 is also known as the Mass Transit Expansion proposal. The East Link Rail Transit Project is included in ST2, which was approved by the voters in November 2008.

The East Link Project would support jurisdictional efforts to implement regional policies related to HCT to fulfill plans and policies in those jurisdictions, especially those related to transit-oriented development. The success of such development depends to a considerable degree on supportive policies designed to make areas around transit stations more attractive for development than other areas.

East Link would promote this development by connecting four of the urban growth centers identified in *VISION 2040*, including Seattle, Bellevue, Overlake, and Redmond. East Link would provide direct transit access between these centers and other regional and local destinations. East Link would allow jurisdictions to better implement transit and pedestrian-oriented land use patterns where current zoning allows. Many of the local jurisdictions have also identified new opportunities for mixed-use development in addition to those that are classified as urban centers by the *VISION 2040* plan, such as Mercer Island's City Town Center, the City of Bellevue's Bel-Red area, and Redmond's Overlake Village.

Transportation 2040 is the transportation element of *VISION 2040* and the long-range plan for transportation in the central Puget Sound region through the year 2040 (PSRC, 2010). *Transportation 2040* aims to improve mobility, protect and enhance the environment, and identify sustainable funding. It supports a balanced, multimodal transportation system that provides options for users; the plan identifies both state and local roadway projects, transit and ferry projects, as well as bicycle and pedestrian projects. The East Link Project is one of the key components in *Transportation 2040* to develop a regional HCT system linking urban centers.

Issaquah, Kirkland, Renton, Bothell, and Woodinville are planned to be served by future HCT phases according to the Sound Transit Long-Range Plan. All alternatives of the East Link Project allow for future expansion to the east.

6.1.3.2 Segment-Specific Support of Land Use Goals and Objectives

Segment A

Segment A of the East Link Project would specifically meet the City of Seattle's goals to promote urban villages, link urban centers, and facilitate access to employment centers for Central Area residents with expanded access to the Eastside via the International District/Chinatown Station and new access via the Rainier Station. The City of Mercer Island also has goals to promote mixed-use development at regional transit facilities and to provide adequate transit opportunities, especially serving its city center of mixed-use development adjacent to the planned Mercer Island Station. The Rainier Station and Mercer Island Station would promote localized, mixed-use urban village development.

Segment B

In order to connect Seattle and Bellevue urban centers, light rail must travel through South Bellevue to and from the I-90 Lake Washington crossing. This area is primarily residential and low-density, and it has not been designated for higher-density development by the City of Bellevue. All the Segment B alternatives would serve either an expanded South Bellevue Park-and-Ride Lot or a new park-and-ride lot near 118th Avenue SE and SE 8th Street. *Preferred Alternative B2M to C9T* and Alternatives B2A and B2E would include another station at 112th Avenue SE and SE 8th Street, unless the East Main Station Design Option was selected for *C9T*. East Link would increase park-and-ride capacity and travel options for residents in South Bellevue neighborhoods and new transit access for employees in business parks located east of 112th Avenue SE, consistent with City of Bellevue transportation goals.

Segment C

Segment C is located within Downtown Bellevue, which has been designated an urban center by PSRC and is the focus of Bellevue's efforts to increase residential and employment density. The *City of Bellevue Downtown Implementation Plan* also identifies HCT as an important element of the downtown transportation plan (City of Bellevue, 2003). The City of Bellevue has adopted a goal of a non-single-occupant-vehicle commute of 40 percent as part of its Growth Efficiency Transportation Center Policy. Segment C alternatives feature up to three stations serving Downtown Bellevue. The Segment C alternatives would all access the Bellevue Transit Center and Overlake/Group Health Hospital Medical Center. For Alternatives C7E and C14E, the Bellevue Transit Center Station would be located on an elevated platform approximately 800 and 1,300 feet away, respectively, from the transit center. These alternatives include a level pedestrian bridge to connect riders to the transit center.

To serve the southern portion of Downtown Bellevue, *Preferred Alternative C11A* would provide a station at 108th Avenue NE and Main Street if connecting from *Preferred Alternative B2M* or the station at East Main if connecting from via Alternatives B3 or B7. Alternative C1T would provide an additional station at Main Street in Old Town Bellevue, an established residential and retail district that has ongoing projects to increase density. *Preferred Alternative C9T*, and those alternatives (except *C11A*) that connect to Segment B via Alternatives B3 or B7 would have an additional station at 112th Avenue SE and Main Street. And if connecting from *B2M, C9T* also includes the East Main Station Design Option, where ridership would be similar to the B3 and B7 East Main Station ridership.

Segment D

Segment D is located within the Bel-Red/Overlake sub-areas, which are planned for substantial redevelopment in coming years. The *Bel-Red Subarea Plan* (City of Bellevue, 2007) promotes transitioning this corridor from primarily light industrial land uses to denser mixed-use land uses, with retail, office, residential, and open space developed around transportation nodes, which are planned at the proposed 120th and 130th stations. One of the stations may be deferred, but both are planned to be constructed. An additional 4.5 million square feet of commercial and office space and an additional 5,000 residential units are forecast for the area by 2020. *Preferred Alternative D2A* and Alternatives D2E and D3 would best facilitate this plan through the placement of stations at approximately 120th Avenue NE and/or 130th Avenue NE. If only one of the stations were built for *Preferred Alternative D2A*, Alternative D2E, or Alternative D3, the station development might influence the timing and specific location of planned transit-oriented development within the corridor. However, these alternatives would still be more consistent with land use goals for transit-oriented development and planned density when compared to Alternative D5, which would bypass these first two station sites and thereby limit the ability of the East Link Project to facilitate transit-oriented development and increased density in this corridor.

The far eastern portion of Segment D is referred to as Overlake Village neighborhood, which is a subarea in the Overlake neighborhood and is also identified by PSRC as a growth center. Redmond's Overlake neighborhood has been designated as an urban center. Redmond's *Overlake Neighborhood Plan* supports transit-oriented development in the area around 152nd Street and NE 24th streets through its land use and transportation goals and policies. This is the Overlake Village neighborhood, which is planned to accommodate an additional 5,800 residential units by 2030. The entire Overlake neighborhood is planned to accommodate an additional 4.5 million square feet of commercial development by 2030. The Overlake Village stations with *Preferred Alternative D2A* and Alternatives D2E and D3 would best meet Redmond transit-oriented development planning objectives.

Preferred Alternative D2A and Alternative D5 would provide a station in the Overlake Village area adjacent to SR 520, adjacent to the planned high-density, mixed-use center. All alternatives would serve the Overlake Transit Center.

Segment E

The Segment E alternatives would serve the Downtown Redmond urban center and SE Redmond, two areas the City of Redmond seeks to connect using rapid transit to support continued mixed-use redevelopment goals. The land uses in Downtown Redmond are generally mixed with multifamily residential, commercial retail shopping, and mid-rise office complexes. Redevelopment is occurring within the northwest portion of Downtown Redmond around the Redmond City Hall and the Redmond Transit Center. Southeast of Downtown Redmond, the land uses change considerably. South of the SR 202 and SR 520 interchange, land uses include light industrial/manufacturing.

All Segment E alternatives would equally serve Downtown Redmond, thus equally meeting the plan and policy goals to support redevelopment; however, if extended beyond Redmond Town Center, E2 – Redmond Transit Center Design Option would provide closer access to the Redmond Transit Center, which is across NE 83rd Street from the site of a relocated park-and-ride lot in conjunction with transit-oriented development. *Preferred Alternative E2* includes the Downtown Redmond Station, which is equidistant to the transit center, Redmond City Hall, and Redmond City Center shopping area.

Maintenance Facilities

As stated above under Segments D and E, the existing land uses around all the proposed maintenance facilities are generally light industrial or commercial, which are compatible with maintenance facility operations. The Bel-Red area is no longer zoned for industrial uses; however, the subarea plan identifies the area as a potential location of a maintenance facility and that Bellevue would work with Sound Transit on siting the maintenance facility if one was required for East Link. The least compatible maintenance facility with adjacent uses is MF1, which borders office and medical facilities to the south and west but otherwise is surrounded by light industrial uses and the former BNSF Railway corridor. MF1 would be cut into the hillside and therefore would be nearly 30 feet lower than the hospital site to the south and other sites to the west. Children's Hospital Bellevue Clinic and Surgery Center is newly built on the top of this ridge.

6.1.4 Implementation Goal: Minimize Risks

Sound Transit has a goal to minimize risks in the East Link corridor by enhancing stakeholder and community support and through recognizing and managing construction risks.

6.1.4.1 Enhance Stakeholder and Community Support

The objective of the community support goal is to involve the community in the project development and design process. The development of the East Link project has continued Sound Transit's commitment to involving the community at every step of the project. As described in Appendix B, Public Involvement and Agency Correspondence, the outreach effort in the East Link area began with the original project planning, design, environmental scoping, and development. In September 2006, the environmental scoping began for the East Link Draft EIS. Outreach activities have included hosting public open houses and workshops, offering information at local public meetings, making door-to-door visits, and ongoing agency coordination. In addition, Sound Transit's outreach staff has attended community events, posted regular project updates on the Sound Transit website, and mailed fact sheets and project announcements throughout the project corridor.

The Sound Transit Board identified the alternatives to be evaluated in the Draft EIS at its December 14, 2006, meeting. The Draft EIS alternatives were the result of several workshops with community members and key stakeholders. The Draft EIS public review period was a total of 75 days, which resulted in four public hearings, and more than 700 submitted comment letters, which have all been reviewed and responded to in this Final EIS (see Chapter 7 and Appendix J). In response to comments received during the Draft EIS, Sound Transit engaged the City of Bellevue and Redmond in additional exploration of alternatives development.

In December 2009 through January 2010, Sound Transit and City of Bellevue collaborated in producing the *Downtown Bellevue Concept Design Report* that evaluated six alternatives in detail. Following the downtown study, the *Hospital Station and the 112th Avenue Light Rail Options* were explored with extensive public involvement from the community and interested stakeholders. This process looked at four locations for the Hospital Station relative to NE 8th Street and at optional access points to the hospital district. Along 112th Avenue SE, Sound Transit held a series of four public workshops that examined at-grade and retained-cut profiles traveling in the center and on the east and west sides of 112th Avenue SE. Based on input from the community, the Sound Transit Board identified the *Preferred Alternative* for a west side-running alignment along 112th Avenue SE north of SE 6th Street. All new alternatives and modifications to existing alternatives were studied and released for public review in the Supplemental Draft EIS in November 2010. The public comment period closed 45 days later, on January 10, 2011. All comments received during this period are also addressed in this Final EIS, summarized in Chapter 7 and presented as individual responses in Appendix I.

Throughout the process, Sound Transit has made it a priority to engage diverse populations early in the planning and development process by providing outreach information packets and making them available in multiple formats. Before scoping, Sound Transit identified minority and low-income populations based on U.S. Census data. Sound Transit literature has included a language block (i.e., text box on the literature) translated into Russian, Chinese, Spanish, Vietnamese, Farsi, and Tagalog regarding contacting and speaking with Sound Transit staff in those languages about the East Link Project. Also, Sound Transit identified and conducted targeted outreach to organizations that serve minority, non-English-speaking, and low-income populations within the East Link Project vicinity. These organizations were sent notification postcard and received follow-up phone calls to find out whether the organizations needed additional information about the East Link Project, and they were reminded how they could submit public comments. Organizations were also asked if they would like project staff to sit down with members of their organization to review the environmental information.

The East Link Project has received considerable controversy from the communities in proximity to, and stakeholders with interests in, Segments B and C. None of the alternative in these segments have achieved consensus. East Link Project development has continued Sound Transit's commitment to involving the community at every step of the project.

6.1.4.2 Reduce Construction Risks

Sound Transit has evaluated possible construction risk issues for each alternative. At this early design stage, the construction risk analysis found that risks are generally highest with tunnel construction, retained cuts, or at-grade construction in dense environments. However, Sound Transit, with research from WSDOT experience on I-90, also found that crossing Mercer Slough Nature Park raises risk concerns as well. Table 6-5 summarizes the results of the analysis by alternative and identifies which alternatives are higher or lower than other alternative risks and a discussion of the higher risk construction methods are described below.

TABLE 6-5
Level of Construction Risk by Alternative[a]

Segment	Alternative	Risk
A, Interstate 90	*Preferred Interstate 90 Alternative (A1)*	Lower
B, South Bellevue	*Preferred 112th SE Modified Alternative (B2M)*	Moderate
	Bellevue Way Alternative (B1)	Lower
	112th SE At-Grade Alternative (B2A)	Lower
	112th SE Elevated Alternative (B2E)	Lower
	112th SE Bypass Alternative (B3)	Lower
	BNSF Alternative (B7)	Moderate
C, Downtown Bellevue	*Preferred 108th NE At-Grade Alternative (C11A)*	Moderate
	Preferred 110th NE Tunnel Alternative (C9T)	Higher
	Bellevue Way Tunnel Alternative (C1T)	Higher
	106th NE Tunnel Alternative (C2T)	Higher
	108th NE Tunnel Alternative (C3T)	Higher
	At-Grade Couplet Alternative (C4A)	Moderate
	112th NE Elevated Alternative (C7E)	Lower
	110th NE Elevated Alternative (C8E)	Lower
	110th NE At-Grade Alternative (C9A)	Moderate
	114th NE Elevated Alternative (C14E)	Lower
D, Bel-Red/Overlake	*Preferred NE 16th At-Grade Alternative (D2A)*	Lower
	NE 16th Elevated Alternative (D2E)	Lower
	NE 20th Alternative (D3)	Moderate
	SR 520 Alternative (D5)	Lower
E, Downtown Redmond	*Preferred Marymoor Alternative (E2)*	Lower
	Redmond Way (E1)	Lower
	Leary Way (E4)	Lower
Maintenance Facilities	116th Maintenance Facility (MF1)	Lower
	BNSF Maintenance Facility (MF2)	Lower
	SR 520 Maintenance Facility (MF3)	Lower
	SE Redmond Maintenance Facility (MF5)	Lower

[a] The risk was assessed for the whole alternative, and therefore design options are assumed to have the same associated risk.

Tunnel Construction

Sound Transit concluded that the greatest construction risk would be associated with the Segment C tunnel alternatives (*Preferred Alternative C9T* as well as Alternatives C1T, C2T, and C3T). *Preferred Alternative C9T* and Alternatives C1T and C2T are primarily cut-and-cover tunnel excavation.

Most of Alternative C3T is bored and portions of C2T are proposed to be bored, but cut-and-cover is necessary to avoid impacting soil nails, which are large underground braces holding adjacent property foundations. Generally, more tunnel construction results in increased risk reflected in costs and safety issues. Tunnel construction would generate a large amount of excavated material that would need to be moved to a staging area and ultimately to a disposal site.

Limitations on haul truck movements and location of actual disposal sites would have cost impacts on the construction. However, there are some differences in risk, depending on whether the tunnel is created by boring, using a cut-and-cover method, or by sequential excavation mining construction methods.

Bored Tunnels (portions of Alternative C2T and most of Alternative C3T) would pass through glacial till in Downtown Bellevue and may encounter boulders and building tie-backs. Bored tunnels have a high degree of risk as a result of the uncertainty associated with below-grade soils.

Cut-and-Cover Tunnels (*Preferred Alternative C9T* and Alternatives C1T and C2T) would require larger amounts of soil excavation and replacement than the bored tunnels. Because construction access is from the surface, cut-and-cover may involve permanent relocation of existing utilities in otherwise dense utility corridors. Sometimes utilities can be held in place, but maneuvering around utilities is a risk. Also, cut-and-cover tunnel construction results in considerable traffic management issues caused by lane closures, detours, and signal modification. Therefore *Preferred Alternative C9T,* Alternative C1T, and Alternative C2T would have a higher risk than Alternative C3T, which is best suited for the bored tunnel method. However, among these cut-and-cover tunnels, *Preferred Alternative C9T* is the shortest, thus limiting the length of risk areas under construction. In addition, all tunnel alternatives would include cut-and-cover station construction; Alternative C1T would have two cut-and-cover stations, whereas Alternatives C2T and C3T have only one, the Bellevue Transit Center Station.

Sequential Excavation Mining is the most risky form of tunnel construction. The process is slower and more expensive and may involve higher safety risks over other tunnel construction methods. This method is only employed when neither bored nor cut-and-cover methods are practical. This method would only occur under the Bellevue Arts Museum for Alternative C1T.

Retained-Cut Construction

Like cut-and-cover, a retained-cut construction requires large amounts of soil excavation and utility relocation. Retained-cut construction would occur in portions of Alternative C1T and *Preferred Alternatives B2M* and *C11A* (albeit minor distance and depth), D2A - 120th Station Design Option and Overlake Transit Center Station, portions of Alternatives D3 and D5, and in all Segment E alternatives adjacent to SR 520. The risk occurs most strongly in urban corridors (Alternatives C1T and D3), where there is limited area to relocate utilities and high conflicts with traffic during construction.

At-Grade in Dense Urban Environment

Constructing at-grade alternatives in dense, urban environments can result in moderate risks. A constrained right-of-way makes construction more difficult and more costly. For long-term reliability in service, all utilities parallel to and located underneath an at-grade route would need to be relocated and crossings would need to be encased such that utility access can be obtained without affecting light rail operations. This would increase the risk on the construction of *Preferred Alternative C11A* and Alternatives C4A and C9A and would present a risk due to the number of potential utility conflicts located along 108th Avenue NE and 110th Avenue NE. The design of these alternatives would account for utility relocation, and accurate utility surveying and pothole data would be paramount in reducing risk.

Mercer Slough Crossing Construction

WSDOT has found soft clays and peat soils at the center of the Mercer Slough Nature Park that, in addition to being soft and settlement prone, move horizontally as the level of Lake Washington changes, resulting in large soil loading to the existing I-90 structures that cross the slough. The slough crossing for Alternative B7 would have to be designed and constructed to accommodate these soil conditions resulting in higher risk than for other elevated profiles and an overall moderate risk for Alternative B7.

6.1.5 Financial Goal: Achieve Financial Feasibility

Sound Transit is committed to implementing a light rail system that not only meets regional transportation needs but also meets the following financial goals:

- Build a system within project budget.
- Build a system that can be operated and maintained within available revenue.
- Build a system that is cost-effective.

6.1.5.1 Building the Project within Budget

The ST2 approved by voters in November 2008 would fund the construction portion of the East Link Project from Seattle to the Overlake Transit Center Station. ST2 provides funding for an at-grade or elevated alternative through Downtown Bellevue. If the Sound Transit Board selects a tunnel alternative in this segment, additional funding sources would be required. Environmental review and preliminary engineering are funded by ST2 for the segment from Overlake Transit Center Station to Downtown Redmond. However, the overall project cost would vary depending on which alternatives are selected and which stations and other elements are included in the project.

The cost of the East Link Project from Seattle to the Overlake Transit Center is estimated to range between $2.0 and $3.7 billion. If the project were only built to the Hospital Station (east end of Segment C), the high-cost project would be just under $3 billion, whereas the low-cost project would be just under $2 billion. Many factors weigh into the difference in cost beyond just the length of the project, such as number of stations, profile of the route, and varying costs for property acquisition. The high project cost estimate includes a tunnel alternative in Segment C, Downtown Bellevue, and the low-cost includes an elevated alternative in Downtown Bellevue. The overall project cost range to complete the East Link Project to its terminus in Downtown Redmond is currently estimated to fall between $2.4 and $4.5 billion. Table 6-6 summarizes the estimated cost for each alternative by segment. The range in costs is due to design options or variations in the connectors between segments as well as cost estimates with and without project reserve.

There is only a slightly higher cost consideration for *Preferred Alternative A1* for the potential accommodation of joint bus and light rail use of the D2 Roadway. In Segment B, however, the range of costs varies by the length of elevated or retained-cut profile versus at-grade and the amount of property acquisition required for each alternative. The cost of Segment B alternatives range from approximately $370 million to $590 million with and without project reserve. *Preferred Alternative B2M* includes the cost of preserving both HOV access ramps from I-90 to Bellevue Way SE as required by WSDOT. While Alternative B1 remains the lowest cost overall, Alternative B2A is the second lowest with a range of $430 to $505 million and *Preferred Alternative B2M* is third least costly.

Preferred Alternative B2M would result in lower costs in Segment C with *Preferred Alternatives C11A* or *C9T* than with Alternatives B3 or B7 because the route continuing north along 112th Avenue SE into downtown has less elevated structure than with Alternatives B3 and B7. While the East Main Station Design Option would add cost to *C9T*, it would be offset from the removal of a station on B2M at SE 8th Street. In contrast, Alternative B1 combined with Alternative C1T results in the highest cost combination. The tunnel alternatives in Segment C are the most costly, and the at-grade or elevated profiles result in lower, but comparable, costs.

Preferred Alternative C11A and Alternative C4A are comparable with the elevated alternatives because of higher utility relocations and more property acquisition. Alternative D5 is the least costly among Segment D alternatives because it has fewer stations and fewer large-business displacements. Of the remaining Segment D alternatives, *Preferred Alternative D2A* is the least costly, but the D2A - NE 24th Design Option makes this alternative similar in cost to Alternatives D2E and D3.

TABLE 6-6
Estimated Cost by Alternative

Alternative	Estimated Cost (millions, 2007$)
Segment A, Interstate 90	
A1, I-90 Alternative	$635 to $750
Segment B, South Bellevue	
Preferred 112th SE Modified Alternative (*B2M)* to *C11A*	$470 to $540
Preferred 112th SE Modified Alternative (B2M) to *C9T*	$480 to $550
Bellevue Way Alternative (B1)	$355 to $405
112th SE At-Grade Alternative (B2A)	$390 to $450
112th SE Elevated Alternative (B2E)	$445 to $510
112th SE Bypass Alternative (B3)	$430 to $490
B3 – 114th Extension Design Option	$500 to $575
BNSF Alternative (B7)	$515 to $590
Segment C, Downtown Bellevue	
Preferred 108th NE At-Grade Alternative (C11A)	$555 to $690
Preferred 110th NE Tunnel Alternative (C9T)[a]	$790 to $1,025
Bellevue Way Tunnel Alternative (C1T)	$1,405 to $1,615
106th NE Tunnel Alternative (C2T)	$1,115 to $1,365
108th NE Tunnel Alternative (C3T)	$975 to $1,260
At-Grade Couplet Alternative (C4A)	$535 to $705
112th NE Elevated Alternative (C7E)	$435 to $600
110th NE Elevated Alternative (C8E)	$615 to $705
110th NE At-Grade Alternative (C9A)	$465 to $645
114th NE Elevated Alternative (C14E)	$495 to $575
Segment D, Bel-Red/Overlake	
Preferred NE 16th At-Grade Alternative (D2A)[b]	$670 to $765
D2A – NE 24th Design Option	$710 to $820
NE 16th Elevated Alternative (D2E)	$695 to $840
NE 20th Alternative (D3)	$735 to $875
SR 520 Alternative (D5)	$470 to $580
Segment E, Downtown Redmond	
Preferred Marymoor Alternative (E2)	$555 to $635
E2 – Redmond Transit Center Design Option	$690 to $795
Redmond Way (E1)	$595 to $685
Leary Way (E4)	$505 to $580
Maintenance Facilities	
116th Maintenance Facility (MF1)	$430 to $465
BNSF Maintenance Facility (MF2)	$310 to $315
SR 520 Maintenance Facility (MF3)	$365 to $385
SE Redmond Maintenance Facility (MF5)	$240 to $280

Otherwise, as in Segment B, the Segment D alternative costs vary by the profile and the right-of-way costs, with Alternative D3 being the highest cost because it has both elevated and retained-cut profiles. Finally, in Segment E, the *Preferred Alternative E2* is the second least expensive when not including the E2 - Redmond Transit Center Design Option. The shortest alternative, Alternative E4, is the least costly.

6.1.5.2 Build a System That Can Be Operated and Maintained Within Available Revenue

Annual operating costs for the East Link Project would vary by profile type and number of stations. The ST2 funds operation of the portion of the East Link Project from Seattle to Overlake Transit Center Station. The major determinants of operating costs for the project are service levels, running time, and trackway profile. The more frequent the service and the longer the line, the more vehicles it takes to maintain equivalent headways. Shorter alternatives with fewer stations have lower operating costs. In terms of line and station maintenance, at-grade is the lowest cost, elevated the next highest, and tunnel is the highest cost. The primary difference in cost lies in whether the project includes a tunnel through Downtown Bellevue. Operations for tunnels are more costly to maintain because of additional infrastructure components, such as stairwells, escalators, elevators, vent shafts, and station walls. In addition, tunnel stations require unique security and lighting considerations.

6.1.5.3 Cost-Effectiveness of Project and Alternatives

Cost-effectiveness was measured consistent with FTA methods as the project's annualized cost divided by the projected number of riders that the project would attract each year, for a cost-per-rider estimate. Annualized costs are the project's construction costs averaged over the years of operation. Costs are presented and discussed in detail in Chapter 2, Alternatives Considered, of this Final EIS. These cost-effectiveness estimates offer decision-makers a point of comparison among the alternatives.

Within the estimated cost range for the East Link Project, from the low-cost ($2,435 million without project reserve and $2,940 million with project reserve) that combines *Preferred Alternative A1*, Alternative B2A, Alternative C7E, Alternative D5, and Alternative E4, to high-cost ($3,835 million without project reserve and $4,435 million with project reserve) for the combination of *Preferred Alternative A1*, Alternative B1, Alternative C1T, Alternative D3, and *Preferred Alternative E2* with the E2 - Redmond Transit Center Design Option, there is a range in cost-effectiveness, depending on which segment alternatives are combined (Exhibit 6-1). The low-cost project would be the most cost-effective. The high-cost project would be the least cost-effective but would offer roughly 7 percent greater ridership than the low-cost project. The *Preferred Alternatives* (at-grade or tunnel) in Downtown Bellevue are $7.50 and $7.95 annualized cost per rider, respectively. While the project with the tunnel is more costly, the time savings results in higher ridership and therefore similar overall cost-effectiveness.

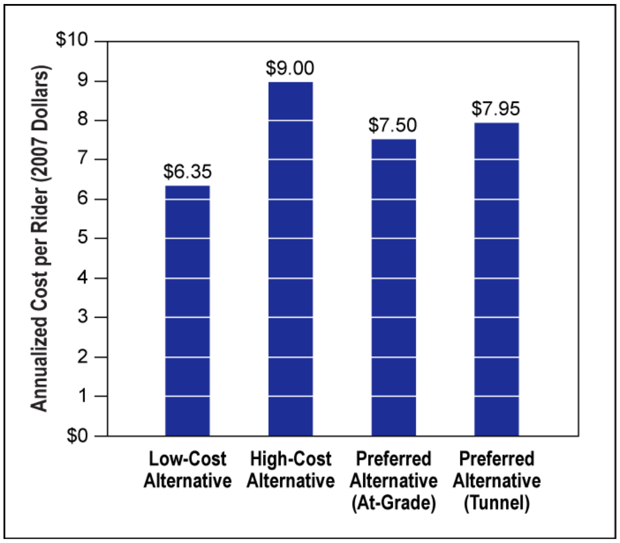


EXHIBIT 6-1
Cost-Effectiveness of Low-Cost and High-Cost Projects

The total project cost-effectiveness would be affected by the cost-effectiveness of each segment; therefore, cost-effectiveness (cost per rider) was calculated for each alternative. However, because this cost per rider does not include the effect of travel time on riders not originating in or destined for stations within a segment, it understates the benefit that faster alternatives offer to through-riders. For this reason, the project appears to be more cost-effective than the individual alternatives. Exhibit 6-2 shows the range of cost-effectiveness for each alternative. In general, comparisons should only be drawn between alternatives within the same segment. Also each alternative contains a range in the cost-effectiveness calculation (in Exhibit 6-2, dark blue shows low range and green shows high range) due in part to the variation in cost and ridership dependent upon the connections from the alternatives in the adjacent segments or various design options within the alternative. For some alternatives, the range is so small that the rounding to the nearest five cents per rider removes the appearance of a range.

Segment A

The only alternative within Segment A, *Preferred Alternative A1,* has two options on the D2 Roadway— light rail only or joint operation with bus traffic. The cost-effectiveness is estimated to be $12.20 per rider for light rail only and $12.60 with joint operations. The additional cost of the D2 Roadway joint operation design option would slightly reduce the cost-effectiveness of *Preferred Alternative A1*. There would be no additional light rail riders due to this design option; however, it would offer some bus travel-time savings.

Segment B

In Segment B, *Preferred Alternat*ive *B2M* is in the median range of cost-effectiveness, at $8.80 per rider for *Preferred Alternative B2M* to *C11A* and $8.20 per rider for *Preferred Alternative B2M* to *C9T*. Alternative B7 is the least cost-effective; at $30.35 per rider, Alternative B7 is about four times higher than the other alternatives in this segment. This is primarily a result of the lower segment ridership as compared to the other alternatives. Alternative B7 would have roughly one-quarter of the segment riders than the other alternatives within Segment B, which are reasonably comparable to one another in cost-effectiveness. While Alternative B1 appears to be to most cost-effective at $7.00 per rider, its combination with Alternative C1T does not support this conclusion. Therefore Alternative B2A remains the most cost-effective at $7.30 per rider.

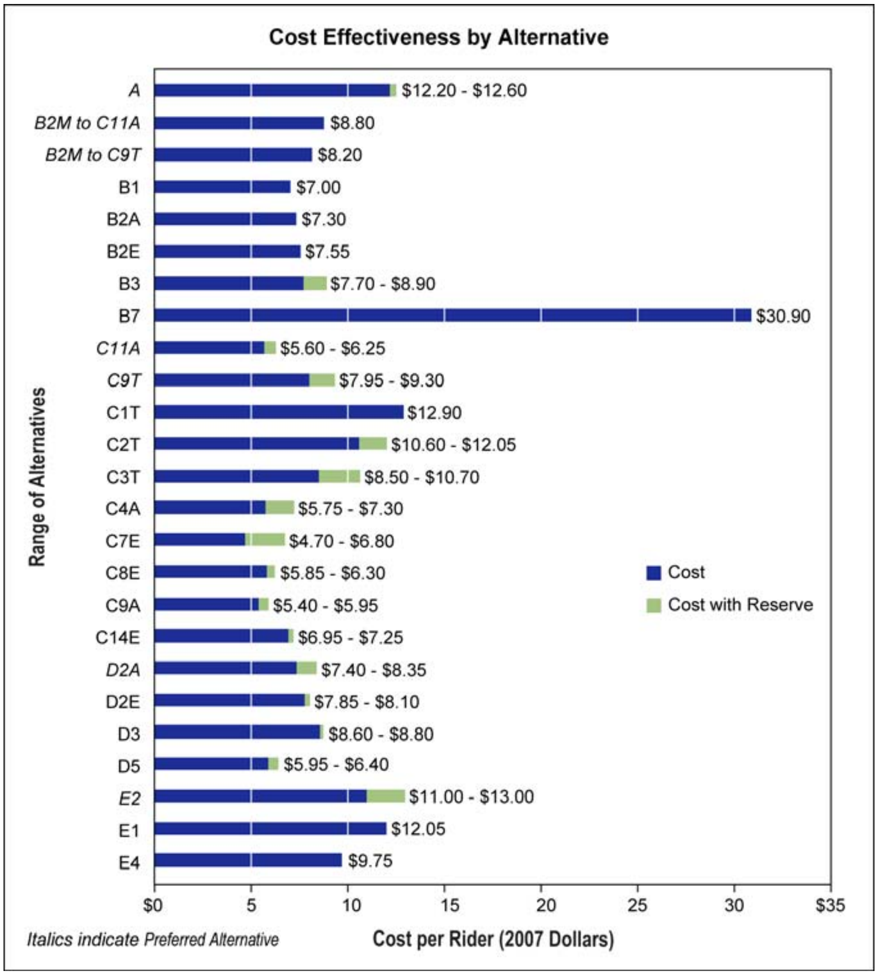


EXHIBIT 6-2
Cost-Effectiveness by Alternative

Segment C

In Segment C, P*referred Alternative C11A* and Alternatives C4A, C7E, and C9A are the most cost-effective alternatives because they are relatively low cost with high ridership. Alternatives C8E and C14E fall in the middle of cost-effectiveness. The at-grade and elevated alternatives are almost one-half the cost of the highest-cost alternative—Alternative C1T. Tunnel alternatives generally have higher costs per rider than at-grade or elevated alternatives. Tunnels are inherently costlier, and therefore, unless they provide substantially higher ridership, they would have a high cost per rider. *Preferred Alternative C9T* is the most cost-effective tunnel alternative when combined with a connection from 112th Avenue SE (*B2M*, B2A, or B2E). The bored tunnel connection from Alternative B2A (via Surrey Downs Park) for Alternatives C2T and C3T adds cost and is therefore less cost-effective than the B2E connection. However, connecting from Alternative B7 is still the least cost-effective connection for these alternatives, as represented in Exhibit 6-2. For Alternatives C4A and C7E, the connection from Alternative B2E provides the best cost-effectiveness per rider, as shown by the top of the blue bar, and Alternative B2A proves to be the least cost-effective for these alternatives.

Segment D

The Segment D alternatives have similar cost-effectiveness because each has similar ridership and costs, except for Alternative D5, which is the most cost-effective. *Preferred Alternative D2A* and Alternative D2E are the next most cost-effective. The D2A - 120th and NE 24th Design Options result in nearly $1 more per rider over *Preferred Alternative D2A*. However, even with the design option, it remains more cost-effective than Alternative D3.

Only a slight difference is attributed to the connection from Segment C alternatives, either passing via NE

12th Street or from the former BNSF Railway corridor. The NE 12th Street connection is more cost-effective for all Segment D alternatives (as illustrated by the top of the blue bar), except for Alternative D5, where the connection via the former BNSF railway is the most cost-effective. The cost-effectiveness as illustrated in Exhibit 6-2 does reflect the potential for increased ridership in Segment D attributed to the Bel-Red corridor by the Cities of Bellevue and Redmond land use plans.

Segment E

Ridership in this segment would be similar for all alternatives, so cost-effectiveness is directly correlated to cost. Alternative E4 is the most cost-effective, with *Preferred Alternative E2* second (as shown in Exhibit 6-2), mostly because Alternative E4 has slightly higher ridership over *Preferred Alternative E2*. However, the E2 - Redmond Transit Center Station Design Option with *Preferred Alternative E2* is the least cost-effective because it is the highest-cost alternative with an extra station and high property acquisition costs.

6.2 Comparison of Benefits and Environmental Impacts

The East Link Project as a whole would improve transit quality in the region by providing frequent and reliable HCT service 20 hours each day in the Seattle, Mercer Island, and Bellevue to Redmond corridors. East Link passengers would receive a comfortable ride; high-person capacity; efficient loading of multiple-car trains resulting in short in-station loading time; and dependable, on-time departures and arrival. This increase in reliability between major transit centers would enhance the network of bus distribution and feeder routes, thereby enhancing the ability of transit riders to reach a broader range of destinations in less time than they can now. The East Link Project would be made up of a selection of one alternative from each segment. This section describes the trade-offs among the benefits, impacts, and cost-effectiveness of the alternatives.

Segment A does not have multiple build alternatives, but the design option of shared use of the D2 Roadway has higher cost trade-offs against somewhat worse bus transit performance if shared use is not accommodated.

In Segment B, the 112th SE alternatives (*Preferred Alternative B2M* and Alternatives B2A and B2E) offer the highest ridership levels and cost-effectiveness with relatively low environmental impacts and construction risk. Construction may result in potential impacts on the Winters House under *Preferred Alternative B2M*; however, mitigation measures would protect and preserve the house. All Segment B alternatives would affect Mercer Slough Nature Park. The Bellevue Way Alternative (B1) would have the most residential property acquisitions, whereas the BNSF Alternative (B7) is the longest alternative, and would result in the highest level of wetland impacts and most expensive. All Segment B alternatives would result in traffic and noise impact, as well as a loss in some high-value habitat. However, these impacts can be mitigated. All Segment B alternatives that follow Bellevue Way SE, except *Preferred Alternative B2M,* would result in visual impacts from the removal of mature vegetation and retaining wall on the west side of the roadway. Except for B7, which is substantially worse, cost-effectiveness is generally similar among these alternatives.

In Segment C, the tunnel alternatives would generally provide the highest ridership but also have a higher construction risk and worse cost-effectiveness than the at-grade and elevated alternatives. Because they are underground, tunnel alternatives avoid interactions with traffic and decrease noise that the at-grade and elevated alternatives might have during operation. However, tunnel alternatives would have considerably longer construction periods and extensive soil excavation and removal. At-grade alternatives also attract high ridership, but the travel time may be compromised unless signal priority can help facilitate traffic movements through Downtown Bellevue. Alternatives C4A, C3T, C8E would result in a long-term visual effect on McCormick Park, and if connected with B2A, Alternative C9A would result in visual impact on 112th Avenue SE. All alternatives in Segment C, except C7E or C14E, would affect parks. Both *Preferred Alternatives C11A* and *C9T*, as well as other at-grade and cut-and-cover tunnel alternatives would have a high degree of utility relocation within constrained right-of-way, but the cut-and-cover tunnel alternatives would require a construction period at least one year longer, with associated transportation impacts. While P*referred Alternative C11A* and Alternative C9A are the most cost-effective, *Preferred Alternative C9T* would avoid interacting with automobile circulation in Downtown Bellevue. Connecting from *Preferred Alternative B2M* would require relocating several residences but remain less costly than connections from Alternatives B3 or B7 that would result in higher ecosystem impacts.

The primary impacts of the Segment D alternatives would be on businesses and land uses. Although all Segment D alternatives would cross several streams, impacts on habitat would be minimal and in some cases beneficial with mitigation. Alternative D3 would displace the most businesses and employees and have the greatest estimated cost. It would also have slightly lower ridership than the NE 16th alternatives (*Preferred Alternative D2A* and Alternative D2E). Alternative D5 has the lowest estimated cost but because of its location adjacent to SR 520, it would have the fewest stations and the least influence on transit-oriented development opportunities in the Bel-Red Subarea. The *Preferred Storage Track connection from D2A* would not result in any relocations nor would it contribute notable environmental impacts.

The Segment E alternatives would not substantially differ in ridership. *Preferred Alternative E2* is the second most cost-effective, after the shortest alternative (Alternative E4). Alternative E4 would result in visual impacts on the entry to Redmond Town Center, and the residents over Sammamish Way Boulevard would experience a change in their viewshed from the only alternative that would require relocation of a historic structure. The E2- Redmond Transit Center Design Option would provide an additional station when extended to the Redmond Transit Center, it would also have the greatest impact in many categories: the highest estimated capital cost, the most business and employee displacements, and the highest impact on parks. Alternative E1 would have the highest habitat impacts but the lowest impact on parks.

MF5 would be the maintenance facility most compatible with adjacent land uses because it is located in an area planned to remain industrial in the future. Near the areas of MF1, MF2, MF3, the land uses will eventually shift away from industrial uses to more mixed residential and commercial uses. MF1 and MF3 would also be more expensive to construct and would displace substantially more businesses than the other potential maintenance facility locations. In addition, MF1 would be located adjacent to medical offices and the new Children's Hospital Bellevue Clinic and Surgery Center, which are more sensitive to noise and vibration than industrial uses. The greater cost for MF1 and MF2 would be related to greater amounts of excavation and grading required to make these sites level. MF1 and MF3 would have the most potential employee displacements, with over 900, while MF5 would be the least costly maintenance facility and could have the fewest employee displacements, with as few as 320. The fewest business displacements would occur under MF2, which would displace three to six businesses, depending on which alternative it connects from.

6.3 Areas of Controversy and Issues to be Resolved

Sound Transit would continue to coordinate with appropriate federal, state, and local agencies and jurisdictions to resolve issues as the project advances. East Link project areas of controversy and issues that remain to be resolved include the following:

- Choosing between the alternatives that follow the former BNSF Railway corridor and alternatives along Bellevue Way SE. The City of Bellevue has indicated a preference for a modified version of Alternative B7 and C9T, referred to as the B7R (described in Chapter 2), and the Sound Transit Board's *Preferred Alternative B2M* follows Bellevue Way SE and 112th Avenue SE.
- In Segment C the City of Bellevue and Sound Transit are coordinating to find funding to build the higher-cost *Preferred Tunnel Alternative* (*Preferred Alternative C9T*) instead of the lower cost at-grade *Preferred Alternative* (*Preferred Alternative C11A*).
- Since publication of the 2008 Draft EIS, a lawsuit was filed challenging the State of Washington's constitutional authority to approve transition of the I-90 floating bridge center roadway to light rail transit use. In April 2011 the Washington State Supreme Court denied the petitioner's request to prohibit the State from authorizing this transition. Following the Supreme Court's decision, the petitioner filed a similar challenge in Kittitas County Superior Court.
- The alignment of *Preferred Alternative E2* in Downtown Redmond as shown in Appendix G1 (Conceptual Design Drawings) and the City of Redmond's *Central Connector Master Plan* adopted in June 2011 are not entirely consistent primarily because of city plans for utility upgrades and the regional trail extension in the former BNSF Railway corridor and NE 76th Street rights-of-way. Sound Transit has obtained real property and easements for the right to operate light rail in the former BNSF Railway corridor from the Port of Seattle and the City of Redmond, which guarantees Sound Transit access to the Downtown Redmond segment of the corridor for light rail. When funding is available to advance Segment E, Sound Transit will coordinate with the City of Redmond to resolve design issues in this corridor. Solutions may include acquisition of additional property, relocation of utilities, modifications to NE 76th Street, and/or modifying the light rail alignment in Downtown Redmond.

Chapter 7

Public and Agency Comment Summary

7.1 Introduction

This chapter summarizes comments received on the East Link Project Draft Environmental Impact Statement (Draft EIS) and the Supplemental Draft EIS (SDEIS). It is intended to serve as a summary only; it is not intended to address every comment received during the Draft EIS and SDEIS comment periods. All comments received and responses to those comments are included in Appendix J of this Final EIS.

The U.S. Department of Transportation (USDOT) Federal Transit Administration (FTA), the Central Puget Sound Regional Transit Authority (Sound Transit), and Washington State Department of Transportation (WSDOT) published the East Link Project Draft EIS on December 12, 2008. The 75-day extended comment period ended on February 25, 2009. The general public, business groups, organizations, and agencies submitted comments by mail, e-mail, and on comment forms provided by Sound Transit. Oral statements were also recorded during the following five public hearings and open houses:

- Wednesday, January 21, 2009, Old Redmond Schoolhouse Community Center, Redmond
- Thursday, January 22, 2009, Thurgood Marshall Elementary School, Seattle
- Tuesday, January 27, 2009, Community Center at Mercer View, Mercer Island
- Wednesday, January 28, 2009, Bellevue High School, Bellevue
- Thursday, January 29, 2009, Bellevue City Hall, Bellevue

Following this process, the FTA, Sound Transit, and WSDOT published the SDEIS and opened a public comment period for this document between November 12, 2010, and January 10, 2011. Oral statements were recorded on Tuesday, November 30, 2010, at Bellevue City Hall in Bellevue.

This summary provides an overview of the comments received by segment, by public agencies, and by organizations. Table 7-1, located at the end of this chapter, provides a review of common comments and responses.

7.2 Overview of Comments Received

7.2.1 Draft EIS Overview

Sound Transit received 765 comment submittals or individual statements on the Draft EIS during the comment period. The comments covered a wide range of issues and represented viewpoints from residents, property owners, organizations, business groups, businesses, and government agencies. Most comments generally supported East Link but expressed preferences or opposition to specific alternatives. Of the 765 submittals, approximately 170 generally supported or opposed the project and did not advocate or oppose a particular alternative. Most comments came from individuals living, working, or with property interests in the project study area. Most commenters referenced one or more segments of the project area and stated a preference or objection to one or more alternative. Over half of the comments submitted were regarding Segment B (South Bellevue).

Overwhelmingly, transportation issues were the top concern, related to congestion, parking, access limitations, transit ridership, or pedestrian and bicycle issues. Other common issues of concern included noise and vibration, property acquisition and property values, visual effects, land use, neighborhoods, parks, ecosystems, construction, and project financing and cost. Specific suggestions for new alternatives or modifications to the proposed alternatives in the Draft EIS were made in approximately 110 submittals. Approximately 75 submittals included comments that suggested fundamental changes to the East Link Project. Examples of these comments included using different technologies for high-capacity transit (HCT), developing a bus rapid transit system instead of light rail, and providing HCT to the Eastside along different corridors, such as State Route (SR) 520.

The following lists how many comment submittals referenced each segment, summarizes the general comments received from individuals on the segment, describes which segment alternatives received the largest number of supportive comments, and highlights which segment alternatives received the most endorsements from organizations and agencies.

7.2.1.1 Segment A, I-90

Approximately 60 submittals were received, and most of the comments concerned the transportation operations of I-90. Because the East Link Project would convert the center roadway from vehicle operations to an exclusive rail corridor, several comments expressed concern that losing the center roadway would potentially create additional congestion and freight impacts. Even with the additional high-occupancy vehicle (HOV) lanes to be built as part of the I-90 Two-Way Transit and HOV Project, comments listed concerns about how the new HOV lanes will meet traffic flow performance measures. Additionally, several comments questioned how Mercer Island residents would safely weave into and out of the I-90 lanes. Most comments regarding the D2 Roadway supported joint use of bus and light rail on this roadway between Seattle and the Rainier Station.

Concerns about both stations in Segment A focused on adequate parking and spillover on-street parking in adjacent neighborhoods. Several mentioned issues about possible congestion on residential streets and potential pedestrian impacts surrounding stations. Mercer Island preferred the station design with entrances on 77th and 80th rather than with the pedestrian bridge, with the understanding that Sound Transit will work with the City to address park-and-ride capacity. Most comments supported an elevated light rail profile that retains the South-to-West on-ramp, but commenters generally saw less need for the East-to-North off-ramp.

Some comments also suggested analyzing a trans-lake alternative that did not use I-90. Some suggested that commuters would be accommodated in the SR 520 Bridge Replacement and HOV Project.

7.2.1.2 Segment B, South Bellevue

Of the over 400 comment submittals received regarding Segment B, most discussed the BNSF Alternative (B7), with almost 250 supporting this alternative and at least 70 opposing it. Some commenters sent multiple comment submittals. Over 200 commenters referenced transportation concerns in Segment B, more than any other segment. Comments on Segment B generally fell into two categories: those supporting and those opposing the use of the former BNSF Railway corridor.

Those supporting use of the former BNSF Railway corridor also fell into two general categories. The first type of support was oriented toward the ability to extend light rail to the east and south in the future—specifically to Eastgate, Issaquah, and Factoria, which many believe would be easier from this right-of-way. These supporters also felt that use of existing right-of-way would be a better use of money and that crossing Mercer Slough now as part of East Link would ultimately save money, rather than crossing it in the future to expand the light rail system to the east and/or south. Nearby access to I-405 was also cited in many submittals.

The second type of support for use of the former BNSF Railway corridor was based on opposition to running light rail along Bellevue Way SE and/or 112th Avenue SE. Opposition to using these roads generally focused on potential residential and business displacements, noise impacts, visual impacts, increased traffic, and impacts on neighborhood cohesion. Additional concerns include the potential for increased crime, impacts on property values, and impacts on parks. These concerns were related to both construction and operation of the project.

Commenters expressed concern about whether or not construction mitigation proposed with any of the alternatives along Bellevue Way SE was adequate. Another concern was future land use opportunities in this area, as some people believe that all available right-of-way should be preserved for future road widening and others are concerned that upzoning would occur, resulting in increased density around stations. A number of the supportive comments asserted that Alternative B7 is more consistent with the Bellevue Comprehensive Plan, the South Bellevue Subarea Plan, Bellevue Light Rail Best Practices, and the Bellevue Chamber of Commerce. Many commenters opposed to the Bellevue Way SE alternatives also questioned the ridership forecast for Alternative B7 and felt that ridership for this alternative was underestimated. In addition, at least 50 submittals expressed support for a proposal developed by the "Vision Line Coalition," which includes Alternative B7.

Comments that opposed using the former BNSF Railway corridor for Alternative B7 focused on the proximity of residences to this right-of-way, which they believed would result in potential noise impacts, potential impacts on property values, and traffic impacts on 118th Avenue SE. They also referred to the projected low ridership and, therefore, low cost-effectiveness of this alternative. Several comments acknowledged that transit access is not convenient in this area and that there are limited opportunities for people to walk to a station. Some commenters felt that locating the 118th Station's near I-405 would actually promote driving rather than walking to the park-and-ride. Many residents along this corridor expressed concern about changes in this area related to the current expansion of I-405, leaving a more limited area for light rail to occupy, and that use of the former BNSF Railway corridor for light rail might preclude other future uses, such as a trail or commuter rail. Other comments opposed Alternative B7 due to potential impacts on wetlands and habitat in Mercer Slough Nature Park and on the Mercer Slough Environmental Education Center.

Both supporters and opponents of Alternative B7 were concerned about construction in Mercer Slough related to geological hazards, including construction of the South Bellevue Station and park-and-ride lot expansion (supporters) and construction across the slough (opponents).

Over 80 comment submittals specifically opposed the Bellevue Way Alternative (B1), due to the potential high number of relocations, neighborhood impacts, impacts on businesses, and limited connections in Segment C. Over 30 submittals supported this alternative, however, because of its service to denser residential and business areas. At least 40 submittals supported the 112th SE Alternatives (B2A, B2E, and B3) because of lower cost, better access to downtown, use of the South Bellevue Park-and-Ride, and the grade-separation of elevated sections to benefit traffic operations and increase safety. Several commenters suggested moving the 112th SE Bypass Alternative (B3) off of Bellevue Way SE and 112th Avenue SE corridors and placing it on the eastern edge of Bellevue Way's right-of-way to minimize potential roadway impacts. Most comments supported an elevated light rail profile that retains the South-to-West on-ramp, but commenters generally saw less need for the East-to-North off-ramp.

In addition to individuals, the following agencies or organizations voiced preferences about the following alternatives:

- At the time, Alternative B3 was supported by the City of Bellevue (if modified), Sierra Club, and Bellevue Downtown Association (if modified). Proposed modifications to this alternative focused on moving the light rail to the east side of Bellevue Way SE and 112th Ave SE. Several organizations expressed support for any Bellevue Way SE alternative, including the Town of Beaux Arts Village, Puget Sound Energy, Puget Sound Regional Council, State Department of Ecology, and condominiums along 118th Ave SE (Brookshire and Mercer Park).
- Alternative B7 was supported by Surrey Downs and Bellecrest neighborhood associations, Bellevue Chamber of Commerce, Bellevue Downtown Association, Eastside Transportation Association, Condominiums along 112th (Bellefield Residential Park and Carriage Place), and Vision Line Coalition.

7.2.1.3 Segment C, Downtown Bellevue

Approximately 250 comment submittals discussed Segment C. They generally focused on the type of profile: tunnel, at-grade, or elevated. The general preference was for a grade-separated alternative through downtown. More comments supported tunnels than opposed them, while more opposed at-grade and elevated profiles than supported them. Opposition to tunnels primarily focused on higher costs and risk, while support focused on higher ridership, a perception of less disruption during construction, and long-term compatibility with an urban environment. Traffic flow in Downtown Bellevue was referenced by over 80 commenters, mostly as support for why tunnel alternatives are necessary in this segment. Second most important among commenters was the view that tunnel alternatives would produce higher ridership, which would support long-term growth plans with less disruption to traffic.

Of the tunnels, the 106th NE Tunnel Alternative (C2T) received the greatest support (over 50 comment submittals); comments indicated that Alternative C2T would offer better access to the Wilburton Subarea on the east side of I-405 and avoid impacts north of downtown on businesses and neighborhoods. Other comments opposed Alternative C2T because of the extensive cut-and-cover construction in downtown and impacts on NE 6th and the Meydenbauer Convention Center. The 108th NE Tunnel Alternative (C3T) was favored by many because of the high ridership, fastest service through downtown, less construction disturbance, and the additional station it provides, which would serve the north downtown area.

The location of the Hospital Station (Alternatives C1T and C2T) was generally preferred over the Ashwood/Hospital Station, including by Overlake Hospital, Group Health, and Children's Hospital, although they indicated either station could work well for them. However, the Bellevue Way Tunnel Alternative (C1T) was unpopular because of the number of relocations and the construction disruption associated with a cut-and-cover tunnel. Potential park impacts from tunnel portals in Surrey Downs Park associated with Alternatives C2T and C3T and in McCormick Park associated with Alternative C3T were also identified as concerns in many comments.

Comments regarding the at-grade Couplet Alternative (C4A) generally opposed it because of longer travel time; impacts on business, surface traffic, property access, and pedestrian and vehicle safety; and the ability of this alternative to accommodate long-term traffic operations. Supporters for Alternative C4A liked the accessibility and lower cost of this alternative compared to tunnels and felt that it would not have the impacts of elevated alternatives. While most comments received on the 112th NE Elevated (C7E) and 110th NE Elevated Alternatives (C8E) were opposed to them because of visual, noise, and community impacts, others supported the elevated alternatives because of lower cost and faster travel times.

Several submittals expressed opposition to alternatives that use the Ashwood/Hospital Station (C3T, C4A, C7E, and C8E) because of the high number of business displacements (primarily medical offices) that would occur for construction staging. Several commenters felt the Old Bellevue and East Main Stations were unnecessary, while some supported these locations because of potential for future growth in these areas. In addition, at least 50 submittals for the Vision Line Coalition supported Alternative C2T.

In addition to individuals, the following agencies or organizations voiced preferences about the following alternatives:

- Alternative C2T was supported by City of Bellevue, Bellevue Chamber of Commerce, Eastside Transportation Association, Puget Sound Energy, Vision Line Coalition, and City of Snohomish.
- Alternative C3T was supported by the Bellevue Downtown Association.
- Alternative C4A was supported by Microsoft and Sierra Club.
- Both the City of Redmond and Redmond Chamber of Commerce supported affordable options, whether the alternative was at-grade or elevated. Meydenbauer Convention Center opposed Alternatives C1T and C2T.

7.2.1.4 Segment D, Bel-Red/Overlake

Approximately 90 parties commented on Segment D. Most comments related to specific alternatives in Segment D. Primary concerns raised in the comments were related to transportation and the built environment. Transportation comments included concerns regarding congestion, parking, and traffic impacts during construction; ridership; and reduced access to business properties. Other major built environment comments included concerns related to property acquisition, consistency with future land uses, noise and vibration impacts on medical equipment operation, visual impacts, and property value impacts. Comments regarding the natural environment included concerns about creeks and loss of trees. Project costs and economic impacts for specific alternatives were also mentioned frequently.

The NE 16th At-Grade Alternative (D2A) received the greatest support (over 35 comment submittals). Supporters of Alternative D2A noted that it would support redevelopment of the Bel-Red area consistent with the City of Bellevue’s land use vision. Transportation operations were commonly referenced in support of Alternative D2A because this alternative would have the highest ridership, align with Bellevue and Redmond long-range planning goals and objectives, and avoid congested streets. The few commenters expressing opposition to Alternative D2A cited increased property impacts and the cost of this alternative. Over 20 comment submittals supported the NE 16th Alternative (D2E) because of fewer impacts on specific properties, service to greater numbers of people and businesses, similar benefits to transportation operations mentioned for Alternative D2A, and the elevation over creeks. Concerns expressed regarding Alternative D2E included its higher cost relative to Alternative D2A and its visual and property value impacts.

More comment submittals (over 20) opposed the NE 20th Alternative (D3) than supported it. Many of these commenters represented medical offices and facilities, and they noted noise and vibration impacts on medical equipment and patients. Other businesses also expressed concern regarding Alternative D3 property impacts and loss of trees and buffer area. Comments regarding the SR 520 Alternative (D5) cited its inconsistency with the land use plans for the area and lack of ridership. Others noted that this alternative would provide greater opportunity to attract riders from other Eastside communities and result in fewer impacts on existing businesses. Of the approximately 20 submittals expressing a preference for this alternative, approximately half supported and half opposed it.

Several commenters felt that light rail ridership estimates in Segment D should be updated to include the growth numbers included in the newly adopted Bel-Red Corridor and Overlake Neighborhood land use plans. There were a number of comments concerned about the current overcapacity of the existing Overlake Transit Center park-and-ride lot and the perception that no additional parking spaces would be provided through the East Link Project. Additionally, concerns were expressed about the perceived traffic congestion around the vicinity of the Overlake Transit Center that would occur during light rail construction and operation.

In addition to individuals, the following agencies or organizations voiced preferences about the following alternatives:

- Alternative D2A was supported by the City of Bellevue, Bellevue Chamber of Commerce (if modified), Bellevue Downtown Association (if modified), City of Redmond, Transportation Choices Coalition, Vision Line Coalition (if modified), Puget Sound Energy, and Sierra Club.
- The City of Redmond supported Alternative D2A and Alternative D2E and also requests continued evaluation of the portion of Alternative D5 in the Overlake area.

7.2.1.5 Segment E, Downtown Redmond

Approximately 90 parties submitted comments related to Segment E. Most comments referred to specific alternatives and most pertained to built environment impacts from the alternatives, primarily visual impacts and noise impacts on residences. Comments regarding natural environment impacts were also common and included issues related to the Sammamish River, vegetative buffers, and the removal of trees.

More commenters (over 20) expressed objection to the Redmond Way Alternative (E1) than supported it (less than 10), citing traffic congestion along West Lake Sammamish Parkway and potential impacts on residences such as property value decreases, property acquisitions, noise impacts, and visual impacts. Natural environment concerns were also noted for this alternative. Those in support of Alternative E1 noted that it would best serve people coming from the east of Downtown Redmond and would have fewer ecosystem impacts than other Segment E alternatives.

Marymoor Alternative (E2) received the most support, approximately 35 submittals, with commenters noting relatively fewer impacts on residents, including less visual and noise impacts, fewer acquisitions, and reduced traffic. Several commenters preferred this alternative because it would follow an existing transit corridor, offer better accessibility, and include stops at Redmond Town Center and Redmond Transit Center. The few commenters opposed to this alternative expressed concern regarding traffic congestion and parking impacts.

Comments regarding the Leary Way Alternative (E4) noted concerns based on property acquisition, property value decreases, and roadway access. Specific property impacts mentioned include displacement of the Justice William White House, a historic resource; impacts on Redmond Town Center; and removal of the Residence Inn. Visual impacts were also noted, including impacts on the mature trees along the gateway to the city on Leary Way.

Over half of the commenters who discussed Segment E listed transportation issues. Many comments indicated concern about the Redmond Town Center vicinity parking, traffic, and access impacts with East Link. Similar concerns were expressed about current traffic congestion issues within this area, which commenters noted would only get worse with East Link. Their feeling was that station locations could encourage more drivers to come into Redmond, which could exacerbate traffic and parking problems. Similar comments expressed the importance of park-and-ride lot locations and their capacity because these facilities can directly affect traffic management and pedestrian access.

In addition to individuals, the following agencies or organizations voiced preferences about the following alternatives:

- Alternative E2 was supported by City of Redmond, Greater Redmond Chamber of Commerce, Microsoft, Transportation Choices Coalition, Puget Sound Regional Council, Puget Sound Energy, City of Snohomish, Redmond residents, and Marymoor Heights Condominium.

7.2.1.6 Maintenance Facilities

Approximately 12 comments mentioned the maintenance facility alternatives. Comments cited the inconsistency of the 116th, BNSF, and SR 520 maintenance facilities (MF1, MF2, and MF3) with Bellevue land use plans in the Bel-Red area. Some property owners were concerned about impacts on their property from MF1, MF2, MF3, and SE Redmond Maintenance Facility (MF5). Other commenters noted the property acquisition impacts that MF3 would have. One comment regarding MF5 noted the cost savings of this alternative and another noted the consistency of this alternative with land use plans. One commenter questioned the potential for hazardous materials spills at maintenance facilities.

7.2.1.7 Suggestions for Modified and New Project Alternatives

Approximately 75 submittals included comments that did not refer to the East Link Project as defined in the Draft EIS. Some of these comments questioned the project as light rail, instead suggesting that bus rapid transit (BRT) would provide high-capacity transit between the Eastside and Seattle in a less costly manner with fewer impacts. Others stated that the SR 520 corridor would better provide this connection for light rail. Comments expressing a preference for light rail connections to Factoria and Eastgate were also submitted. Other commenters stated that the project did not serve other Eastside communities such as Kirkland and Renton. A couple of commenters questioned the connection of the Eastside to Downtown Seattle rather than directly to the airport or other Eastside communities. Several commenters suggested the use of the LEVX technology, described as a "Zero Energy Permanent Magnet Suspension System and highly efficient Hybrid Non-Contact Linear Drive" for HCT to the Eastside.

Approximately 70 commenters submitted suggestions for modifications to existing alternatives. These modifications were suggested mainly to reduce property acquisitions, neighborhood impacts, business impacts, traffic congestion, or travel time, or to serve specific areas. The following discussion does not include all of the suggestions, but those received more frequently are described.

The City of Bellevue recommended and the Bellevue Downtown Association supported a modified Alternative B3 that would follow the east side of Bellevue Way and 112th Avenue SE, turn east before SE 8th Street, at-grade as much as possible, and then turn east to 114th Avenue SE (becoming elevated) and north to the East Main Station. This alternative, as suggested for study by the City and the Bellevue Downtown Association, would include various mitigations to address the function of Bellevue Way, maintain and improve HOV access from Bellevue Way SE to westbound I-90, and maintain access for Enatai residents. Numerous commenters expressed support for the Alternative B3 modification.

One of the more frequently suggested modifications was termed the Alternative B7/C8E hybrid route, which would follow the Alternative B7 route and then run along 118th Avenue SE to a station near Greenbaum Furniture, and continue north along 114th Avenue SE to Main Street with no additional stations. Continuing past Main Street on 114th Avenue NE, it would enter downtown via a tunnel at NE 2nd Street rather than the elevated proposal. One alternative termed "C8T" was described similarly to the modified Alternative C8E and was also frequently suggested. Several commenters suggested using the former BNSF Railway corridor for longer segments, some all the way through Segment C.

Several commenters suggested modifying Alternative D2A to cross under 120th Avenue NE and 124th Avenue NE with a retained-cut profile and moving this route to the south to reduce property impacts.

7.2.2 SDEIS Overview

Sound Transit received 822 comments on the East Link Project SDEIS during the 60-day public comment period. Comments were received from private individuals, homeowner associations, community organizations, business groups, businesses, and government agencies. Of these 822 comments, 749 were from private individuals, whose comments are summarized here by segment. Comments from government agencies, businesses, residential organizations, and community interest groups are summarized following this general comment summary. The individuals' comments were primarily focused on Segments B and C, and most limited their comments to a specific alternative and were from individuals living, working, or with property interests in the project study area; comments were also received from those citizens with a general interest in the project. Most comments were generally supportive of East Link but expressed preferences for or issues about specific alternatives. A large number of submittals simply expressed support for the project and requested it not be delayed; others requested a delay for more information development on a revised Alternative B7.

The following summary lists how many comments referenced each segment, describes which segment alternatives received the largest number of supportive comments, highlights which segment alternatives received the most endorsements from organizations and agencies, and describes environmental issues raised in the comments. The most frequently mentioned environmental concerns centered on noise impacts on residences, removal of park lands (either Mercer Slough Nature Park or Surrey Downs Park), impacts on traffic along Bellevue Way and Downtown Bellevue, and how these impacts might affect adjacent neighborhoods, such as Enatai, Surrey Downs, or the condominiums adjacent to 118th Avenue SE.

7.2.2.1 Segment A, I-90

Most comments concerned the D2 Roadway's continued joint use with bus and light rail transit, the loss of the center roadway for HOV vehicles and Mercer Island use, and the potential traffic impacts this might have.

7.2.2.2 Segment B, South Bellevue

Most individuals commenting on this segment focused on either support for or opposition to *Preferred Alternative B2M* or Alternative B7. A total of 270 letters supported and 90 opposed *Preferred Alternative B2M.*

An additional 4 letters supported any alternative on Bellevue Way SE and 119 additional letters opposed any alternative on Bellevue Way SE. A total of 165 letters supported Alternative B7, while 155 letters stated their opposition to B7. Those who support *Preferred Alternative B2M* generally remarked that it has better access, is more cost-effective, and is more centrally located than Alternative B7. Those that stated preference for Alternative B7 expressed that *Preferred Alternative B2M* would have greater neighborhood impacts, including visual, traffic, noise, and residential relocations, as well as impacts on Mercer Slough and the Winters House. These commenters also remarked that Alternative B7 could be modified to be lower cost, could use the former BNSF Railway corridor, would better allow for future extensions east and south, and would have less neighborhood and ecosystem impacts. Those who stated their opposition to Alternative B7 asserted it would have greater ecosystem and noise impacts, lower ridership, a higher cost, and would be less accessible. Regardless of which alternative they preferred, many commenters expressed concern about impacts on Mercer Slough.

A number of commenters referenced the Alternative B7 study underway by the City of Bellevue, and requested that Sound Transit wait for the release of this report to issue the Final EIS or expressed support for the City's modified Alternative B7, known as B7-Revised or B7-R. A number of individual commenters referenced the study completed by the Building a Better Bellevue organization; this study includes suggestions to lower the cost of Alternative B7. In addition to individuals, specific organizations that also expressed preferences for *B2M* or B7 alternatives are listed below:

- *Preferred Alternative B2M* is supported by entities such as the Muckleshoot Indian Tribe Fisheries Division, Bellevue Club, and Transportation Choices Coalition. A large percentage of the comments supporting *Preferred Alternative B2M* were from individual commenters.
- *Preferred Alternative B2M* and all Bellevue Way and 112th Avenue SE running alternatives are not supported by entities such as Miles Construction NW and Building a Better Bellevue. *Preferred Alternative B2M* is also not supported by entities such as the City of Bellevue City Council, the Vision Line Coalition, and the Surrey Downs Historical Society.
- Alternative B7 is supported by entities such as the Bellevue City Council and the Washington Trust for Historic Preservation for its reduced impacts on the Winters House. A large percentage of the comments supporting Alternative B7 were from individual commenters, many whom live in the Enatai or Surrey Downs neighborhoods.
- Alternative B7 is not supported by entities such as the Transportation Choices Coalition, Meydenbauer Center, YMCA, and Low Income Housing Institute.
- Several community organizations, such as the Surrey Downs Historical Society, Building a Better Bellevue, and the Vision Line Coalition, support a modified Alternative B7. The City of Bellevue City Council also supports Alternative B7 with modifications as summarized in the Public Agency Comments section below.

7.2.2.3 Segment C, Downtown Bellevue

A total of 62 letters supported *Preferred 108th NE At-Grade Alternative (C11A)* and 25 opposed it, while 220 letters supported *Preferred 110th NE Tunnel Alternative (C9T)* and 15 opposed it. Three letters mentioned 110th NE At-Grade Alternative (C9A), all opposing it, and eight letters were received about 114th NE Elevated Alternative (C14E), two supporting and six opposing it. A large number of commenters expressed general support for providing access to downtown and putting stations "where people work and live." Many commenters specifically stated they opposed alternatives that traveled on the edge of Downtown Bellevue.

Many comments were received from residents of the Belle Arts Condominiums, which stated a strong preference for a tunnel alternative rather than a surface street option. Residents were concerned that a surface street option would greatly increase the amount of noise impacts in the area due to train noise and the loss of sidewalk space in front of residences. They expressed that this loss would bring traffic and pedestrian noise closer to the buildings along the route. They were also concerned about safety, which they felt would deteriorate due to the increase in riders at the bus stop located at 108th Avenue NE and Main Street. The Belle Arts community was also concerned with noise associated with an increase in people waiting at the nearby bus stop.

Some individuals listed their concerns over alternatives that travel up 112th Avenue SE because of impacts on Surrey Downs Park and the neighborhood that would be affected by removal of a row of condominiums along 112th Avenue SE for connections to *Preferred Alternatives C11A* or *C9T.*

Most comments expressed preference for a tunnel in order to not restrict future development aboveground and to minimize traffic impacts. Many comments were received that requested Sound Transit continue working with the City of Bellevue on funding for the tunnel. In addition to individuals, following are specific organizations that also listed preferences for *Preferred Alternative C11A* versus *C9T*:

- *Preferred Alternative C11A* is supported by entities such as the Muckleshoot Indian Fisheries Division, the Bellevue Branch of the King County Library, Meydenbauer Center, the YMCA, and the Low Income Housing Institute. The majority of the comments received supporting this alternative were from individual commenters.
- *Preferred Alternatives C11A* and *C9T,* as they are currently designed, are not supported by entities such as the Bellevue City Council and Washington Trust for Historic Preservation. However, the Bellevue City Council does support *C9T* with a portal on 2nd Street rather than on Main Street. *Preferred Alternative C9T* is supported by entities such as the Bellevue Branch of the King County Library, Meydenbauer Center, the Transportation Choices Coalition, King County Department of Transportation, the Red Lion Hotel, the Bellevue Downtown Association, the YMCA, and the Low Income Housing Institute.
- Alternative C9A is not supported by entities such as the City of Bellevue City Council.
- Alternative C14E is not supported by entities such as Transportation Choices Coalition.

7.2.2.4 Segment D, Bel-Red/Overlake

Nine out of ten of the submittals received for Segment D supported *Preferred Alternative D2A,* with most commenters approving of this alternative's new design along SR 520 and Overlake Village Station location. Most commenters, including the Transportation Choices Coalition, were supportive of *Preferred Alternative D2A* and stated that it would best serve the Bel-Red Corridor and Overlake areas of Redmond and provide the best ridership access. A small percentage of commenters were concerned about impacts on residences and businesses along the *Preferred Alternative D2A* and Alternative D2E guideways, but no letters specifically voiced opposition to any Segment D alternatives. However, the SDEIS did not address other Segment D alternatives. Two individuals submitted comments in support of Alternative D5. In addition to individuals, listed below are specific organizations and businesses that voiced support for *Preferred Alternative D2A*:

- *Preferred Alternative D2A* is supported by entities such as Puget Sound Energy, Microsoft Corporation, the Muckleshoot Indian Tribe Fisheries Division, the Transportation Choices Coalition, and the Greater Redmond Chamber of Commerce. A small number of comments received were from individual commenters, who also supported *Preferred Alternative D2A*.

7.2.2.5 Segment E, Downtown Redmond

One individual submitted comments in opposition to the Downtown Redmond Station and *Preferred Alternative E2* due to concerns over costs and noise and safety impacts at their residence. The only other comments received regarding *Preferred Alternative E2* were from the City of Redmond and the Greater Redmond Chamber of Commerce. These comments are discussed in the Public Agency Comments section below.

- *Preferred Alternative E2* is supported by the City of Redmond.

7.3 Comments Received from Public Agencies

7.3.1 Project Area Jurisdictions

7.3.1.1 Seattle

The City of Seattle did not submit comments on the Draft or SDEIS.

7.3.1.2 Mercer Island

Draft EIS Comments

In the comments received on the Draft EIS, the City of Mercer Island supported the additional mobility that this project would bring the island and the region. The City also maintained that based on the agreements of the 1976 Memorandum of Agreement and the subsequent amendments, they anticipate that Mercer Island will maintain use of the HOV lanes until such time that these access points exceed operational standards. The City did not support the pedestrian overcrossing to the Mercer Island Station, with the understanding that Sound Transit would work with the City to address park-and-ride capacity. The City favored modifying the I-90 Two-Way Transit and HOV Operations Project to provide an eastbound HOV off-ramp at Island Crest Way instead of at 77th Avenue. The City was concerned that existing park-and-ride lots will not be adequate for future ridership demands that would be required to maintain Mercer Island use of the light rail facility. The City looked forward to working with Sound Transit to ensure that pedestrians would be well served, that design guidelines would be upheld, and that construction impacts would be addressed. They were also interested in working with Sound Transit on mitigation for parking impacts.

SDEIS Comments

In the comments received on the SDEIS, the City of Mercer Island stated they were pleased that the I-90 facility within Mercer Island has been recognized for its eligibility for the National Register of Historic Places. Mercer Island is interested in preserving the historical use of the HOV lanes for Mercer Island single-occupancy vehicles in accordance with the 1976 Memorandum of Agreement. They also commended Sound Transit and WSDOT for the continued partnership in resolving issues during this planning process.

7.3.1.3 Bellevue

Draft EIS Comments

The City of Bellevue submitted a letter in response to the Draft EIS summarizing the City Council *Preferred Alternatives*, which included, at that time, a modified Alternative B3 in Segment B, Alternative C2T in Segment C, and *Preferred Alternative D2A* in Segment D. Major themes in their discussion of preferred alternatives include markets served, surface transportation impacts, the ridership analysis, noise impacts, business and residential displacements, and ecosystem impacts. This submittal also included a staff summary letter that summarizes the themes reflected in the City's detailed comments on the Draft EIS. The City staff comments discussed differences in transportation modeling results from their own analyses, additional transportation analysis needed, and other analyses they felt were incomplete or lacking sufficient detail, including neighborhoods, visual quality, parks, critical areas, and construction impacts. The City staff also requested more detailed information about mitigation and the permitting process.

The Bellevue City Council's *Preferred Alternative* was Alternative B3 for South Bellevue, modified to run on the east side of 112th Avenue SE and to turn east before SE 8th Street. The City believed this alternative would be most consistent with local policy objectives and would best meet the City's needs. The Council also felt this modified alternative would help maintain traffic capacity on Bellevue Way SE, minimize impediments to driveways, maintain and optimize regional connections at the South Bellevue Station and have convenient pedestrian and bicycle access to nearby neighborhoods and the I-90 multi-use trail. The City expressed concern about permanent traffic impacts on Bellevue Way SE and suggested mitigation strategies, including grade-separated station access and an additional HOV lane on Bellevue Way. The City commented that they would like to ensure the westbound HOV on-ramp from Bellevue Way SE is preserved. The displacement of transit service with a temporary closure of the South Bellevue Park-and-Ride Lot during construction was a concern.

The City Council felt that Alternative B7 could provide additional long-term regional transit benefits along the I-405 corridor, but ultimately concluded that Alternative B7 presented substantial adverse impacts with limited opportunities for mitigation. However, the Council felt this alternative should receive additional analysis in the Final EIS. The City also recognized that Alternative B7 would create out-of-direction travel for patrons east and south of I-90 and require transit service modifications that would lengthen a rider's travel time and deter users of the regional system. The City Council unanimously rejected Alternatives B1 and B2E because of high levels of potential construction and property impacts. The Council did not support Alternative B2A due to the location of the SE 8th Station and the widening of 112th Avenue SE that would be required. For all Segment B alternatives, the Council opposed the loss of westbound HOV on-ramps at I-90 and would like these ramps preserved.

The Bellevue City Council preferred Alternative C2T in Segment C because it would maximize the regional system, minimize the potential for Downtown Bellevue to be a chokepoint for the system, and allow for future growth and land use opportunities east of I-405. The Council was concerned about the cut-and-cover construction for Alternative C2T and how best to minimize this potential impact as well as the reduction in roadway lanes on NE 6th Street. The City Council rejected Alternative C1T because of high cost, risk, and residential and business displacements. However, the Council did like the location of the Old Bellevue Station associated with Alternative C1T, and proposed that Sound Transit analyze a station at Main Street and 106th Avenue NE with Alternative C2T, in lieu of the East Main Station. Alternative C3T was not preferred by the Council because of the Ashwood/Hospital Station location, the high number of potential business displacements, and potential impacts on McCormick Park.

The Council unanimously rejected Alternative C4A because they feel it would limit capacity in already strained right-of-way and lacks community support. The City believes Bellevue's "superblock" configuration with few streets and narrow 60-foot street right-of-way constrain the ability to add capacity for light rail or vehicular traffic in the future.

Both elevated alternatives were rejected, partially due to visual and potential pedestrian impacts and access conflicts. In addition, the City felt that Alternative C7E would have poor service to most of Downtown Bellevue, and the Alternative C8E columns placed in the medians would cause traffic conflicts.

Within Segment D, the City preferred Alternative D2A because it would advance their long-range goals, whereas Alternative D5 is the least consistent with their long-range planning. The Council was not as supportive of Alternative D2E, even though it follows the same route as Alternative D2A, because it is entirely elevated. They felt an elevated alternative could have potential visual impacts on planned development in the Bel-Red area, and it would have greater cost than Alternative D2A without increasing ridership. The City's transportation concern with Alternative D3 focused on access limitations for commercial properties along NE 20th Street and the potential economic impacts on businesses along this corridor. Finally, the City supported East Link reaching Overlake Transit Center and providing interim transit service from Downtown Redmond to mitigate any potential interim terminus parking and traffic impacts.

The City staff expressed concerns about the land use and growth forecasts as they relate to transportation demand modeling, consistency with Puget Sound Regional Council *Destination 2030*, the Bel-Red Subarea plan, and the Downtown Implementation Plan update. The City requested that additional information be provided in the Final EIS transportation analysis for street operations, access modifications, increased study area, and mitigation. The City staff also expressed concerns about the at-grade downtown operations analysis, including constraints on intersection signal phasing, driveway closures, intersection blockages, and limitations on future roadway system expansion. The City staff felt that an at-grade alternative in Downtown Bellevue may limit its ability to meet long-term vehicle forecast demands for the downtown area because the study area does not include east of I-405.

The City viewed maintenance base MF5 in Downtown Redmond as the most desirable location. The other three maintenance bases evaluated in Segment D are not consistent with the land uses envisioned for the Bel-Red corridor. Furthermore, MF3 would require piping a stream, which is inconsistent with current City of Bellevue policies.

SDEIS Comments

The City of Bellevue submitted two letters in response to the SDEIS, one from the Bellevue City Council and the other from the City of Bellevue Staff. The City Council letter focused on their preferences for alternatives in Bellevue and requested additional information on these alternatives, whereas the City staff provided input on issues with the SDEIS document and the analyses. The Bellevue City Council opposes both *Preferred Alternative C11A* and Alternative C9A and requests that Sound Transit consider their forthcoming study of a revised Alternative B7, "B7-R," before the East Link Final EIS is released. This alternative would include a station at I-90 and Bellevue Way SE, and it would shift the tunnel portal of *Preferred Alternative C9T* to NE 2nd Street. This alternative was not evaluated in either the Draft EIS or SDEIS.

The City Council expressed that the SDEIS does not fully address construction impacts; phasing of construction; and mitigation for related impacts on roadways, historic, parks, wetlands, and other sensitive areas. Another concern of the City Council is the noise impacts during operation and construction of East Link. They request further analysis but acknowledge that Sound Transit will be conducting a best practices study in this area. Finally, by reference, they submitted eight reports conducted and prepared by the City of Bellevue. These reports include peer reviews of the Draft EIS, noise and ecosystems analyses, as well as Bellevue Light Rail Best Practices, Downtown Bellevue VISSIM Analysis, and the South Bellevue Station Alternative Location Analysis.

The City of Bellevue staff provided a detailed list of areas where they would either like additional analysis or suggested changes in the analysis. As an introduction, the City is requesting that the Downtown Bellevue Light Rail VISSIM Analysis be included in the Final EIS transportation analysis, and stated they felt that the slight changes in ridership do not fully reflect the anticipated changes in Bel-Red land use plans; the South Bellevue Park-and-Ride Lot Transportation Analysis warrants additional mitigation detail; and the noise impacts warrant further research of mitigation measures. Additionally, they are concerned that the noise impacts should address park impacts and that the noise analysis methodology may understate the project noise impacts. The City of Bellevue also expressed a desire for a numeric visual assessment rating evaluation and additional visual simulations to capture park impacts and change in the former BNSF Railway corridor.

Overall, the City of Bellevue expressed a desire for more detailed mitigation planning on visual impacts, parks, wetlands, and other sensitive areas, especially for construction phases. They are concerned about construction impacts on neighborhoods and businesses, the relocation of the Bellevue Transit Center, duration and number of lane closures, and the potential damage to the Winters House. They have requested additional information on mitigation, more cross sections in the design drawings, additional analysis of land use goals, and more detail about which parcels are partial versus full property acquisitions. Like the City Council, they too include through reference the multiple reports and peer reviews of the East Link Project developed by the City.

7.3.1.4 Redmond

Draft EIS Comments

The City of Redmond provided general comments as well as indicated the City's *Preferred Alternative*. The City emphasized the importance of managing costs and risks so that East Link can be extended to Downtown Redmond. Alternatives D2A, D2E, and D5 were identified as the alternatives the City would like Sound Transit to continue to evaluate in Segment D for the Overlake neighborhood. For Segment E, the City supported Alternative E2.

The City requested that the Overlake Transit Center be identified as an interim terminus facility, not the ultimate terminus of East Link. To address concerns raised over traffic conditions surrounding the Overlake Transit Center and as partial mitigation for potential construction impacts of an interim terminus at Overlake Transit Center, the City of Redmond recommended increasing the number of parking spaces at the park-and-ride to serve nearby residents, but wants the park-and-ride to be sized appropriately so as not to act as a magnet for regional parking demand.

Additionally, with Overlake Transit Center as an interim terminus, the City of Redmond preferred that the 1,400-space parking structure near the SR 520/202 interchange provide a transit connection with the Overlake Transit Center for Redmond and other users to the east.

The City Council saw advantages with Alternatives D2A and D2E in Redmond's Overlake area because these alternatives are consistent with adopted visions and policies and with planned development in the area. These alternatives would have fewer potential impacts on businesses and utilities, and the aerial alignment over 148th would cost less than tunneling under with Alternative D5. The City expressed concern with these two alternatives because of the potential impacts they would have on traffic operations along NE 24th Street. They also expressed concern with the potential urban design and aesthetics of the aerial structures.

The City saw the potential for few traffic impacts as the main advantage with Alternative D5. Concerns about Alternative D5 included the potential impacts it would have on properties and businesses and potential conflicts with planned SR 520 improvements and a proposed stormwater management facility. They were also concerned with Alternative D5's lower ridership and with the station's potential urban design. Finally, the City noted the costs for tunneling under 148th Avenue NE as a concern. The City requested that the portion of the Alternative D5 route and station north of the Overlake Safeway continue to be considered as an alternative to running along NE 24th Street.

The City of Redmond supported Alternative E2 in Segment E because it would be mostly located in existing rights-of-way, has strong citizen support, and maximizes ridership while minimizing potential cost and impacts. While the City recognized the potential cost, traffic, and property impacts associated with extending Alternative E2 to the Redmond Transit Center, they felt there would also be potential opportunities to mitigate these impacts, such as pedestrian and local transit service connections, that should be investigated before selecting the Redmond Town Center as the terminus.

SDEIS Comments

The City of Redmond supported *Preferred Alternative E2*; however, they noted several changes have occurred since the initial design of this alternative. Namely, Redmond has purchased portions of the former BNSF Railway corridor and adopted the *Redmond Central Connector Master Plan Infrastructure Alignment Plan* on October 19, 2010. This plan includes adding a large stormwater trunk line inside the former BNSF Railway corridor, which constrains available right-of-way to construct the light rail. They requested that Sound Transit reposition the light rail alignment in a larger corridor that includes the former BNSF Railway corridor and the adjacent NE 76th Street right-of-way.

They also requested that Sound Transit locate support facilities and tail tracks in southeast Redmond rather than in downtown, explore water-related issues in the area of SR 520 and Bear Creek Trail, consider future planned access points and trail connections, and consider a multimodal bridge across SR 520 at the Overlake Transit Center. Due to the new connection for Bear Creek Parkway, Redmond is requesting additional transportation analyses at future intersections. The City expressed concern regarding the construction impacts and potential mitigation strategies at Overlake Transit Center, and expressed concerns about noise-related impacts that may not be fully addressed in the Downtown Redmond and Overlake areas. The City also questioned some of the transportation and visual analyses along *Preferred Alternative D2A*.

7.3.1.5 King County

King County Metro Transit

Draft EIS Comments

King County Metro Transit submitted a comment letter on the Draft EIS that focuses on four main issues in the I-90 corridor: use of the D2 Roadway, potential I-90 bus impacts, Mercer Island access and egress for buses, and cross-lake tolling assumptions.

The County commented that if the D2 Roadway is not available as joint use for buses, the increase in bus travel times for routes on the Eastside and routes on 4th Avenue would be unacceptable for transit users. The County believes that the Final EIS analysis should offer alternatives if joint operation is not feasible, such as alternate bus priority pathways or non-D2 Roadway routes for East Link.

King County expressed concern about potential impacts that light rail could have on bus transit service in the I-90 corridor east of I-405 because of East Link's use of the center roadway and D2 Roadway. The County believes the Final EIS analysis should include changes to bus and rail networks and facilities needed to mitigate these potential impacts.

The current interchange design at 77th Avenue SE does not provide direct westbound access to the I-90 HOV lane. King County is concerned that WSDOT might not be able to construct the proposed eastbound direct HOV off-ramp at 77th Avenue. They expressed concern that bus access to enter/exit Mercer Island is limited, and Metro may not be able to provide stops on Mercer Island for I-90 service. During light rail operation this may not be a need with light rail and Sound Transit Route 554 service.

King County Metro Transit also commented about its concern that the Island Crest Way westbound on-ramp could degrade HOV lane performance if single-occupant vehicles are allowed to use the lane, even if they were allowed to use the lane through a HOT lane concept.

The County also expressed concern that the Draft EIS analyzed neither the impacts of tolling on SR 520 in the nearer term (i.e., 2020) nor those of possible tolling on I-90. Because tolling could have a potentially substantial impact on traffic flow, transit ridership, and the speed and reliability of bus travel, King County requested more analysis of tolling be provided in the Final EIS.

SDEIS Comments

In their comments on the SDEIS, King County Metro Transit supported *Preferred Alternatives B2M* to *C9T*. They appreciate that the D2 Roadway would have continued joint use with bus and light rail transit under *Preferred Alternative A1*. Their comments included concerns about how construction might disrupt existing transit facilities and services, especially at transit centers in the study area (South Bellevue Park-and-Ride Lot, Bellevue Transit Center, and Overlake Transit Center), and suggested holding a multijurisdictional meeting to resolve construction coordination issues. Metro would like to reach agreement on construction mitigation prior to the Record of Decision.

King County Department of Natural Resources and Parks, Wastewater Treatment Division, Draft EIS Comments

Draft EIS comments submitted by the Wastewater Treatment Division requested that a reference be included in the Final EIS to a King County Code regarding industrial waste and a King County Public Rule regarding construction dewatering discharge to the sanitary sewer. They described the requirements and approvals to obtain wastewater management and sanitary sewer discharges during construction and operation of East Link. The King County Wastewater Treatment Division did not submit comments on the SDEIS.

King County Library System, SDEIS Comments

The King County Library in Bellevue submitted a comment letter on the SDEIS supporting the *Preferred Alternative B2M* to either *C11A* or *C9T* and supported completing the project as soon as possible.

7.3.1.6 Federal Agencies and Tribes

U.S. Environmental Protection Agency

Draft EIS Comments

The U.S. Environmental Protection Agency (EPA) stated that the Draft EIS was an exemplary environmental review of the East Link Project that communicated benefits of the project over the No Build Alternative and provided quality mitigation measures, such as low-impact development measures for stormwater and an understanding of mitigating residual ecosystem impacts. The EPA offered additional input on aquatic and air quality mitigation measures during construction.

SDEIS Comments

The EPA had no substantial environmental concerns regarding the alternatives analyzed in the SDEIS. In recognition of the differences in support for *Preferred Alternative B2M* in Segment B, EPA suggested explaining why ridership varies so greatly for

Alternative B7, explaining how land uses would be supported by the different alternatives, describing the values and functions of the wetlands potentially impacted, and describing whether the former BNSF Railway corridor can support the operation and also the construction logistics of light rail, freight, and a trail. EPA requested additional information in the Final EIS on the feasibility and engineering solution to the unplanned movement of peat and clay in Segment B, and if Alternative B7 is selected, would like the reasons clearly stated for selecting an alternative with higher impacts on wetlands.

Federal Highway Administration, Draft EIS Comments

The Federal Highway Administration's (FHWA's) concerns on the Draft EIS focused on the feasibility of light rail on the floating bridge and associated air space and lease agreements necessary for temporary and permanent use of I-90 and I-405. FHWA also expressed concern for operational and construction safety measures. FHWA requested additional information on the feasibility of an expansion joint to accommodate light rail, highway operations, and potential safety impacts from the project; safety impacts from construction on I-90; impacts from changes to HOV facilities; and use of the HOV lanes by Mercer Island single-occupant vehicles. They outlined the areas where Sound Transit would be required to receive FHWA approval before progressing, namely, HOV commitments to Mercer Island, feasibility of expansion joints, allowance for pedestrian crossings and stations located over interstates, and locating the substations on FHWA facilities or land owned by FHWA. FHWA did not submit comments on the SDEIS.

Advisory Council on Historic Preservation

In response to the Draft EIS, the Advisory Council on Historic Preservation (ACHP) advised that Sound Transit continue to work with the State Historic Preservation Office to complete the Section 106 consultation. ACHP did not submit comments on the SDEIS.

Muckleshoot Indian Tribe

Draft EIS Comments

The Draft EIS comments from the Fisheries Division of the Muckleshoot Indian Tribe supported alternatives that would have the fewest potential impacts on water resources, including streams and wetlands in the project vicinity. The Muckleshoot Tribe stated its preference for Alternative B1 due to fewer impacts on streams, wetlands, and buffers; Alternatives C1T and C3T east to the Ashwood/Hospital Station or Alternative C8E ; Alternative D2E because it is elevated for most stream crossings; and Alternatives E1 or E4 due to fewer ecosystem impacts. The Muckleshoot Tribe commented that MF1 would cause the least ecosystem impacts and expressed opposition to MF3 based on the relocation of Goff Creek. They requested more assessment of existing stream habitat value, loss of habitat, and the potential impacts of artificial light spilling onto waterways. They also clarified the Tribe's fishing treaty rights in the project area.

SDEIS Comments

The Muckleshoot Indian Tribe supported *Preferred Alternatives B2M, C11A,* and *D2A* (including the D2A - 120th and NE 24th Design Options) analyzed in the SDEIS because they found that these alternatives would have the least impact on streams and wetlands. However, they expressed concerns about information not present in the SDEIS regarding streams and the potential project impacts on fisheries, such as the impacts of lighting on water crossings, construction at stream crossings, lengthening culverts, and maintenance activities that can affect fish habitat and result in barriers for fish passage. They felt that more information is needed on the Sammamish River, Bear Creek, the Unnamed Tributary of Kelsey Creek, and Sturtevant Creek (east of I-405) to properly determine impacts on these streams. They also provided corrections regarding the timing of their fishing season. Additionally, the letter requested that stormwater impacts be offset with improvements to the streams and cautions that impacts on salmonid resources may disproportionately affect the Muckleshoot Indian Tribe.

7.3.1.7 State Agencies

Washington State Department of Ecology, Draft EIS Comments

The Washington State Department of Ecology (Ecology) submitted Draft EIS comments organized by the various programs they manage. For the Water Quality Program, Ecology listed requirements for stormwater runoff and a National Pollutant Discharge Elimination System (NPDES) permit. For the Hazardous Waste and Toxics Reduction Program, Ecology defined hazardous waste requirements; and for the Shoreline and Environmental Assistance Program, they reviewed suggestions for Section 401 water quality certification and suggested changes to water quality references in the Ecosystem Technical Report (Appendix H3). Clarifications on wetland impacts and wetland mitigation measures in both the Draft EIS as well as the Ecosystem Technical Report were suggested. Specific concerns were consistency with shoreline master plan updates (which are still under development); disposal of stockpiled construction material; and emphasis on avoiding alternatives that affect wetlands, the Sammamish River, and Bear Creek. Ecology did not submit comments on the SDEIS.

State Department of Archaeology and Historic Preservation, Draft EIS Comments

The Washington State Department of Archaeology and Historic Preservation (DAHP) submitted a letter in response to the Draft EIS that concurred with Sound Transit's submittal of 45 properties as eligible for listing in the National Register of Historic Places (NRHP), as well as the 332 non-eligible properties. DAHP felt further archaeological investigation would be warranted for the *Preferred Alternative(s)*. DAHP encourages discussion of effects on the NRHP-listed I-90 Bridge, the Endresen Residence, and the Romaine Electric Building and requested more information on the project regarding the INS Building in Seattle.

DAHP stated that they have concerns about project changes that might affect the Winters House and believed that, depending on the alternative chosen and how it is implemented, there could be adverse effects on the Pilgrim Lutheran Church, the potential Surrey Downs historic district, and the former Bellevue Fire Station, all of which are resources within the City of Bellevue. DAHP indicated that Alternative E4 would result in adverse effects on the Justice William White House in Redmond. DAHP did not submit comments on the SDEIS.

7.3.1.8 Regional Public Agencies

Puget Sound Regional Council

Draft EIS Comments

The Puget Sound Regional Council (PSRC) noted in response to the Draft EIS that the proposed East Link Project connects three of the region's cities that contain designated Regional Growth Centers, which are the backbone of the transportation network, and that linking these centers with a highly efficient transportation system is a key objective of its regional plans. PSRC would like the Final EIS to improve the characterization of *Vision 2040*, Sound Transit 2 (ST2), and the expandability of light rail in the future. PSRC would like Sound Transit to emphasize the implications of East Link on land use and the need to serve regional transit centers and assess the maintenance facilities for least energy and labor costs. PSRC opposed Alternatives B7 and D5 because these alternatives do not directly serve planned population areas. They fully supported Alternative E2.

SDEIS Comments

PSRC expressed in their comments on the SDEIS that the current *Preferred Alternatives* analyzed in the SDEIS addressed previous impact concerns they had expressed in comments on Draft EIS. PSRC felt that the alternatives that use the Hospital Station within the former BNSF Railway corridor offer good connectivity for future extensions northward. PSRC emphasized that direct connectivity with regional transit centers are important for encouraging strong ridership and realizing maximum benefit from existing investments in these facilities. PSRC recognized that if the Downtown Redmond Station is the selected terminus, then the transit center might need to be relocated closer to the light rail station. Similarly, PSRC encouraged prioritization of strong pedestrian and bicycle access to each station and specifically mentioned improving pedestrian access across NE 8th Street for the Hospital Station.

Puget Sound Clean Air Agency, Draft EIS Comments

Puget Sound Clean Air Agency (PSCAA) supported the East Link Project Draft EIS for its contribution to increasing choices in mobility. PSCAA wanted to make sure that Executive Order 07-02 Washington Climate Change Challenge is addressed through the assessment of greenhouse gas emissions and that the Final EIS assesses the worst-case air quality scenario. The PSCAA letter included a number of preferred mitigation measures to reduce air quality impacts from construction. PSCAA did not submit comments on the SDEIS.

7.3.1.9 Other Public Agencies

Draft EIS Comments

Three jurisdictions that are not within the study area of the East Link Project corridor submitted comments on the Draft EIS to Sound Transit voicing strong support for the East Link Project. Project-specific comments focused on accommodating station locations that could serve commuters to and from their communities.

The City of Snohomish would feel most served by having stations on the former BNSF Railway corridor where a potential future Eastside Corridor rail service could interconnect with East Link. The stations that seemed most valuable to the City of Snohomish were Redmond Town Center, SE Redmond, and the Hospital Stations. The City of Snohomish also asked Sound Transit to consider increased bus service at the end of the line and building the project between Redmond and Bellevue first.

The City of Issaquah asked that Sound Transit consider the implications of future connections to Issaquah in the development of this environmental review—such as assessing necessary accommodations at the South Bellevue Park-and-Ride and the Mercer Island Station for additional light rail service to include extensions to Issaquah. The City of Issaquah would prefer to have future service be direct to both the Bellevue Transit Center Station and Downtown Seattle.

The Town of Beaux Arts Village supported alternatives that offer a station at the South Bellevue Park-and-Ride because that would provide them with enhanced mobility and access. The Town of Beaux Arts Village was concerned about potential traffic impacts if the westbound HOV on-ramp were removed, but felt that loss of the eastbound HOV off-ramp would not be a significant impact.

The Port of Seattle offered input on two issues regarding the East Link Project: the use of the Eastside Rail Corridor (i.e., former BNSF Railway corridor) and the potential impacts of the project on freight and truck operations in the conversion of the I-90 center roadway to light rail. They would like to make sure that the trail, light rail, and the potential commuter rail could be accommodated in the Eastside Rail Corridor. They also felt that the additional discussions of freight movement and the possibility of mitigating increased travel time for freight movement are necessary.

SDEIS Comments
The Port of Seattle's comments provided an update on the ownership of the former BNSF Railway corridor and their intentions of use within this corridor. In December 2009, the Port acquired the former BNSF Railway right-of-way in King and Snohomish Counties. Following this action, the City of Redmond purchased the Redmond spur portion and Puget Sound Energy acquired an easement in this spur. This action included a signed Memorandum of Understanding between several parties (Port of Seattle, Sound Transit, King County, the City of Redmond, the Cascade Water Alliance, and Puget Sound Energy) that this corridor will be available for public transportation uses, such as HCT or bus transportation. Port of Seattle acknowledged that changes in East Link Project designs would affect the former BNSF Railway corridor, such as the Downtown Redmond Station and the storage track.

7.4 Comments Received from Organizations

Comments on the East Link Draft and SDEIS from organizations have been grouped into those representing businesses, residential, or interest groups.

7.4.1 Businesses and Business Groups

7.4.1.1 Business Groups

- Bellevue Downtown Association
- Bellevue Chamber of Commerce
- Greater Redmond Chamber of Commerce

7.4.1.2 Individual Businesses

- adrugstore.com
- Advanced Family Medicine, PLLC, ND
- Autologic
- Barrier Properties LLC
- Beacon Capital Partners
- Bellevue Arts Museum
- Bellevue Club
- Bellevue Lincoln Plaza, LLC
- Bellevue-Redmond Physical Therapy Center
- Bloch Management LLC
- Campbell Media Research
- Carl Warren & Company
- Castle Harbor
- Charles Schwab
- Clark Nuber
- Coca Cola Bottling Company
- Colliers International
- Commons Medical Building
- Dahlgren Family Properties
- Docomomo WEWA
- Eastside Oral Surgery Associates
- Eastside Tool and Rental
- Envelopes Unlimited
- Express Construction
- Fitch & Ludwick
- Freiheit & Ho Architects
- GNP Rly
- Greenbaum Home Furnishings
- Gruman Nicoll
- Hal Woosley Properties
- IBG Enterprises
- Jack & Jill Daycare & Pre-School
- Kemper Development Company
- Legacy Companies
- Main Street Dental
- Meydenbauer Center
- Microsoft Corporation
- Miles Construction NW
- Morris Piha Real Estate Services
- Nickols Realty
- Nine Lake Bellevue Owners
- North Creek Law Firm
- Overlake/Group Health/Seattle Children's Hospital
- Overlake Internal Medicine Associates
- Pine Forest Properties

- PRiNTA Systems
- Proliance Sport Therapy and Rehabilitation
- Property Development Corporation
- PS Business Parks
- Qualstar Credit Union
- RBJK Ventures LLC
- Red Lion Associates, Property Oversight
- Red Lion Hotels Corp.
- Redmond Medical Center
- Robertson & Assoc Commercial Real Estate LCC
- Rosen Properties
- Run Investment
- Schnitzer West
- Sears Holdings Corp
- Sign Pros
- Sunset Glass Co.
- The Evans Company
- The Pumphouse Bar and Grill
- TRF
- Universal Mechanical Service Co.
- Wright Runstad & Company

7.4.1.3 Draft EIS Business Group Summary

Business groups that submitted comments during the Draft EIS varied from individual businesses with concerns about potential impacts on their property to business-sponsored organizations, such as the chambers of commerce from Bellevue and Redmond. Still others who submitted comments are developers desiring to preserve or enhance the vitality of their property or properties.

The Bellevue Downtown Association recommended that Alternatives B3 (if modified), B7, and C3T, and D2A (if modified) be brought forward for further review in the Final EIS, stating that these alternatives are the most consistent with Downtown Bellevue's long-term economic, transportation, and land use goals and balance fewer negative impacts with stronger system ridership. For Segment B, they expressed a preference for Alternative B3 (modified to be east side running) over Alternative B7 but stated that both B3 and B7 should move forward for additional study in the Final EIS. They supported Alternative C3T because it would have the fewest surface mobility impacts during both construction and operation; it is the shortest, fastest and most cost-effective tunnel option and promotes the most ridership; and it avoids the potential impacts associated with cut-and-cover construction and reconstruction of the Bellevue Transit Center.

The Bellevue Chamber of Commerce stated its support for the Vision Line (B7, C2T, and D2A) because of fewer potential impacts on neighborhoods; less traffic impact and business disruption from construction; less property acquisition; fewer park impacts; and its function as a safe, reliable train service to convenient stations. The Chamber urged rejection of Alternative D5 based on the need to preserve SR 520 right-of-way capacity for the Bel-Red corridor and Overlake neighborhood.

The Greater Redmond Chamber of Commerce supported an East Link corridor that is the most affordable, stating that cities that choose any other alternative other than a surface rail line should bear the responsibility of required funding beyond the affordable surface option costs. They also supported Alternative D3 with modifications and fully support Alternative E2. The Chamber was also concerned that efforts be made to relocate impacted businesses in Redmond.

The Meydenbauer Center, Bellevue's convention center, expressed serious concerns with Alternatives C1T and C2T. It was concerned about potential negative construction impacts on NE 6th Street that could affect the operations of the center; long-term traffic impacts due to reduction of lane capacity and access restrictions on NE 6th Street, which is also a primary transit bus access road; and aesthetic quality of the tunnel portal.

Overlake/Group Health/Seattle Children's Hospital stated either the Ashwood/Hospital Station or the Hospital Station could serve their needs. They requested the relocation of the Hospital Station to the north closer to the hospital employee garage, thus allowing for a safer pedestrian crossing of 116th Ave NE at NE 10th Street to maintain traffic flow. The hospitals were concerned about potential emergency vehicle access and traffic impacts with the Ashwood/Hospital Station and the at-grade crossing at 116th Avenue NE. Due to pedestrian safety concerns, the hospitals requested this station alternative include an elevated pedestrian crossing of NE 12th Street.

The Red Lion Hotel objected to Alternative C8E and staging for tunnel alternatives that connect from Alternatives B3 and B7. Additionally, the Bellevue Club wrote several letters and collected over 985 member signatures opposing alternatives traveling up 112th Avenue SE, such as Alternatives B2A and B2E, which connect to above-grade Segment C alternatives, or Alternative B3 that would reduce their parking.

Many, if not most, of the businesses whose property would need to be acquired by one or more alternative expressed concern about these acquisitions. They urged Sound Transit to choose an alternative that spared their property or business due to the hardship that would result from sale and/or relocation. Concerns about potential property impacts were expressed most frequently about the business property impacts in Segment D or the connections to Segment D from Segment C at the NE 12th Street crossing of I-405. This crossing concerned several hospital, medical, and office businesses. While the Redmond Chamber of Commerce favored Alternative D3 because it would result in fewer business impacts, several individual businesses along the NE 20th arterial felt more impacts would result from D3 than would result from Alternative D2A.

Costs and financing issues were raised in the consideration of alternative preferences, or as reasons to build some alternatives over others. Alternative B7 was perceived as the lowest-cost alternative, while others, including different business groups, mentioned that it is the least cost-effective. While tunnels are the most costly, it was also mentioned that tunnels have long life spans and could preserve vitality in Downtown Bellevue.

Economic loss was a frequent concern among business groups listing the economic hardship of lost parking as well as the burden of construction on businesses. Some mentioned concern about the economic impacts of the potential visual impacts on an elevated guideway. Almost equally important among business groups was the possible traffic impacts of the project. Common themes for transportation concerns included potential loss of access, congestion during construction, reduction of roadway capacity, loss of HOV mobility, and overall increase in congestion. Of secondary concern, business commenters listed potential visual impacts of the elevated profile in Segments C and D, and whether or not alternatives met the adopted land use and growth plans in Segments C, D, and E. They also listed concerns about potential noise and vibration impacts on medical diagnostic equipment with Alternative D3.

7.4.1.4 SDEIS Business Group Summary

The Bellevue Downtown Association expressed preference for *Preferred Alternative C9T* because of its speed, safety, reliability, access, proximity to the downtown core, compatibility with downtown land uses, and the ability to keep the Bellevue Transit Center open during construction. The Bellevue Downtown Association requested that the VISSIM Analysis conducted jointly by Sound Transit and the City of Bellevue and graphics of walking distance and visualizations developed during the downtown alternatives study be included in the Final EIS, along with analysis of an entrance to the Bellevue Transit Center Station that is directly adjacent to or within the Bellevue Transit Center. The Bellevue Downtown Association also requested the consideration of including additional video or noise simulations. The Bellevue Downtown Association would like to be involved with Sound Transit and the City of Bellevue regarding mitigation planning, and requests that this planning begin as soon as possible to address long-term noise, access, and other environmental impacts during construction.

The Greater Redmond Chamber of Commerce expressed continued support for the project and specifically *Preferred Alternative D2A*.

Most individual businesses supported the project but had specific concerns regarding impacts on their specific location, primarily related to construction access, noise, and vibration, as well as operational traffic, access, and noise. In Segment C, Beacon Capital Partners expressed concern regarding access to office towers they own. Nickols Realty submitted comments on behalf of commercial tenants at several properties they manage within Segment D, and expressed concerns about future land uses, noise, vibration, access, and traffic impacts. Rosen Properties, which also manages a commercial property in Segment D, had similar concerns as Nickols Realty regarding parking, business displacements, and changes in transportation capacity on local roadways. Property Development Centers, which owns the Safeway Beverage Plant on 124th Avenue NE, expressed concern regarding impacts on their facility from the 120th Station (both retained cut and at-grade) and access to their property.

Two business owners adjacent to the Hospital Station, the Pumphouse Bar and Grill and RBJK Ventures, were concerned with impacts on parking and maintaining access to their businesses during construction and operation. The Pumphouse Bar and Grill was also concerned with noise and vibration impacts, and RBJK Ventures requested more detailed information about displacements.

Some businesses suggested changes to the *Preferred Alternatives*, such as *Preferred Alternative B2M* crossing 112th Avenue SE at SE 15th Street instead of SE 6th Street, as suggested by the Bellevue Club, and placing a station on the west side of 112th Avenue SE near Main Street, suggested by the Red Lion Hotel. Both businesses supported *Preferred Alternative B2M*. Bellevue Lincoln Plaza supported Alternative B7 and expressed concerns regarding noise, traffic, soil conditions, and topography related to *Preferred Alterative B2M*.

Kemper Development Company submitted comments regarding traffic in Segments A and B, land use, access, general operations, and the project Purpose and Need. The Meydenbauer Center expressed support for *Preferred Alternatives B2M, C11A*, or *C9T,* with a preference for *Preferred Alternative C9T,* and expressed concerns about Alternative B7.

Microsoft and Wright Runstad & Company supported the changes to *Preferred Alternative D2A* but also had concerns about utility conflicts on their properties. Puget Sound Energy identified utility conflicts for the alternatives analyzed in the SDEIS. Wright Runstad & Company also suggested deferring the 130th Station and requested the project be constructed at least to the 120th Station, and to keep the project on schedule. Two businesses, Evans Industrial Park and Pine Forest Properties, requested that *Preferred Alternative D2A* be designed to minimize impacts on their properties. Some businesses, including Wright Runstad & Company and Kemper Development Company, believe the ridership estimates in Segment D should be higher based on the planned changes in land use in that area.

Two businesses, Eastside Oral Surgery Associates and Miles Construction NW, supported Alternative B7 and opposed the Bellevue Way SE and 112th Avenue SE alternatives, while Express Construction opposed the entire project.

7.4.2 Residential Groups

- Carriage Place Condominiums Home Owners Association
- Bellecrest Neighborhood Association
- Marymoor Heights Condo
- Bellefield Residential Park
- Brookshire Homeowner's Association
- Mercer Park Condominium Home Owners Association
- Surrey Downs Community Club
- Holly Tree Lane Home Owners Association
- Belle Arts Board of Directors

7.4.2.1 Draft EIS Residential Group Summary

There were three predominant segments where residential groups organized to voice their opinions collectively on the Draft EIS: Segments B, C, and E. In Segment B, the residential groups were divided among those who opposed alternatives that used Bellevue Way SE and 112th Avenue SE, thus preferring Alternative B7, and those who opposed B7. The listed concerns for both groups included a potential change in their quality of life, including property acquisition and/or loss of property value, noise, vibration, safety at stations located near neighborhoods, and visual intrusion. Both groups felt that traffic would worsen on the main arterials serving their neighborhood: Bellevue Way SE for residents in Enatai and Surrey Downs and 118th Avenue SE for residents living adjacent to the Alternative B7 corridor. Those living along the Alternative B7 corridor also expressed concern for potential recreation impacts and additional impacts on wetlands from the B7 crossing of Mercer Slough. Similarly, the residents along Bellevue Way SE felt that the blueberry farm, and valuable portions of Mercer Slough and the greenbelt west of Bellevue Way SE would be compromised by the East Link Project.

In Segment C, many residents supported the project and the increase of mobility options. They specifically did not want Alternative C8E, however, which would pass in an elevated profile in front of many condominium complexes north of NE 8th Street, because they feel it would create potential noise and visual impacts.

Finally, in Segment E, comments from residents centered on Alternative E1. Several residents objected to this alternative traversing a hillside south of West Lake Sammamish Parkway, traveling below the grade of, but within view of, multiple condominium complexes. The opposition focused on the potential noise and visual impacts of this alternative. When listing their preference, Alternative E2 was widely listed.

7.4.2.2 SDEIS Residential Group Summary

There were two predominant segments where residential groups collectively organized to voice their opinions on the Supplemental Draft EIS: Segments B and C. In Segment B, the residential groups were divided among those who opposed alternatives that used Bellevue Way SE and 112th Avenue, thus preferring Alternative B7, and those who opposed Alternative B7 and supported *Preferred Alternative B2M*. The listed concerns for both groups included a potential change in their quality of life, including property acquisition and/or loss of property value, noise, vibration, safety at stations located near neighborhoods, and visual intrusion. Both groups felt that traffic would worsen on the main arterials serving their neighborhood: Bellevue Way SE for residents in Enatai and Surrey Downs and 118th Avenue SE for residents living adjacent to the Alternative B7 route. Those living along the Alternative B7 (Mercer Park and Brookshire) route also expressed concern for potential visual impacts from the Alternative B7 crossing of Mercer Slough. Similarly, the residents near Bellevue Way SE (Holly Tree Lane Homeowners Association) felt that the blueberry farm, valuable portions of Mercer Slough, and the greenbelt west of Bellevue Way SE would be compromised by the East Link Project.

In Segment C, residents of the Belle Arts Condominiums supported a tunnel profile, which they felt would minimize traffic, noise, and visual impacts in Downtown Bellevue. If *Preferred Alternative C11A* were to be chosen, they requested that the bus stop in front of their building be relocated because of the potential increase in bus traffic and noise from the reduced sidewalk width in front of their building.

7.4.3 Interest Groups

- Bellevue Community College
- Bellevue YMCA
- Building a Better Bellevue
- Cascadia Discovery Institute
- Coalition for Effective Transportation Alternatives
- Eastside Heritage Center
- Eastside Transportation Association
- Full Gospel Christian Center
- Friends of Marymoor Park
- Highland Covenant Church
- Low Income Housing Institute
- Sierra Club, Cascade Chapter
- Surrey Downs Historical Society
- Transportation Choices Coalition
- TruthInTaxation/I-90 Users Coalition
- Vision Line Coalition
- Washington Trust for Historic Preservation

7.4.3.1 Draft EIS Interest Group Summary

Eleven community organizations or interest groups submitted comments on the Draft EIS. The Vision Line Coalition is a group formed in response to the East Link Project and endorsed by 17 commercial property owners, businesses, and residents of the Cities of Bellevue and Redmond. The Coalition for Effective Transportation Alternatives (CETA) and the Eastside Transportation Association (ETA) did not support adding light rail to the Eastside, maintaining that bus rapid transit would be a more viable alternative. However, ETA did offer its preference for alternatives in Segments B and C discussed below. These organizations also questioned the technical feasibility of light rail on the floating bridge. ETA also expressed concern and the need for more information regarding potential impacts on freight movement. The I-90 Users Coalition expressed opposition to the project based on concerns regarding freight movement, subarea equity, and technical issues of retrofitting the I-90 floating bridge.

Other interest groups offered their support while expressing concerns about project-specific design considerations and additional analysis being conducted. Transportation Choices Coalition suggested conducting an analysis of joint use of the I-90 center roadway by buses and light rail. In Segment B, the Vision Line Coalition endorsed Alternative B7 and requested further study of a modified Alternative B3, as proposed by the City of Bellevue. They echoed concerns of the residential interest groups, including potential light rail impacts on traffic operations, pedestrians and traffic circulation, safety, property acquisition, and noise (on residents and wildlife), and minimizing wetland impacts. ETA expressed its preference for Alternative B7 due to less congestion, fewer neighborhood impacts, and reduced property acquisition and maintenance of future roadway capacity. Transportation Choices Coalition voiced its support for Alternative B1 for its service to dense development areas and areas in Old Bellevue anticipated for future growth.

Eastside Heritage Center, the historical organization on the Eastside and the tenant of the Winters House, does not support the removal or degradation of the Winters House, a nationally registered historic property. They asked that if the preferred route is along the east side of Bellevue Way SE, that they be consulted in the preservation and mitigation that would be required. Regarding traffic concerns in Segment B, one suggestion is to widen Bellevue Way SE before implementation of the East Link Project as mitigation to the potential traffic impacts of the project. The Cascadia Discovery Institute questioned possible freight impacts on the former BNSF Railway corridor, questioned future use impacts from stations near the hospitals, and would like to make sure that the project does not preclude the potential for a trail and the Eastside Corridor Commuter Rail project within the former BNSF Railway corridor.

Interest groups that commented on Segment C, such as Transportation Choices Coalition, the Vision Line Coalition, and the Eastside Transportation Association, expressed strong preference for the tunnel alternatives, the latter two particularly supporting Alternative C2T. Elevated alternatives were strongly rejected for their potential visual intrusion and noise impacts, except by the Sierra Club, which supported Alternative C8E. The Sierra Club also supported Alternative C4A because it would increase pedestrian accessibility. Conversely, several comments listed pedestrian safety as the reason they resisted an at-grade alternative. The Vision Line Coalition suggested additional review of the impacts of removing traffic lanes in Downtown Bellevue, the potential economic impacts of reduced on-street parking and elevated guideways on rental markets, and re-evaluation of the visual assessment for all above-grade alternatives. The Vision Line Coalition listed potential impacts on McCormick Park and relocation of medical facilities as reasons for not favoring alternatives that cross at NE 12th Street. In addition, they expressed opposition to an at-grade crossing at 116th Avenue NE, where circulation would be affected and hospital access impeded.

Comments in Segment D varied, but no interest group supported either Alternative D3 or D5. Many mentioned that Alternative D5 does not support the newly adopted Bel-Red Subarea Plan, nor does it reserve potential for future SR 520 expansion. Several expressed concern that Alternative D3 would travel along NE 20th, a heavily traveled arterial. There was generally strong support for Alternative D2A from Transportation Choices Coalition, the Sierra Club, and the Vision Line Coalition (if modified) because it would best support transit-oriented development plans. Also, some doubted that the ridership appropriately considered the future growth plans for this area of Bellevue and Redmond. Both the Full Gospel Christian Center and the Highland Covenant Church expressed opposition to Alternative D3 based on potential impacts on their facilities. Finally, the Cascadia Organization suggested building the project from east to west.

The Friends of Marymoor Park expressed support for Alternative E2, which would travel along SR 520 on Marymoor Park. They expressed concern about how proposed maintenance facility locations in Segment E may potentially impact park access. Transportation Choices Coalition also expressed support for Alternative E2 as a cost-effective alternative. The Sierra Club expressed support for Alternative E4 because it would be more direct. They also felt that either dispersing park-and-ride lots or reducing the parking lot size may influence more transit connections.

7.4.3.2 SDEIS Interest Group Summary

Comments on the SDEIS were received from 10 community organizations or interest groups. CETA did not support adding light rail to the Eastside, maintaining that bus rapid transit would be a more viable alternative. The Transportation Choices Coalition strongly advocated light rail and urged Sound Transit to avoid delays in proceeding with the project. The Coalition also supported *Preferred Alternative B2M* rather than Alternative B7, citing the need for locating light rail and transit stations in locations that would serve the highest population areas, have lower environmental impacts than Alternative B7, and lower overall cost. Other supporters of the *Preferred Alternatives* include the Bellevue YMCA and the Low Income Housing Institute.

The Vision Line Coalition commented that they feel there would be significant adverse environmental impacts that cannot be mitigated with the “B2 options” (alternatives that travel on Bellevue Way SE and 112th Avenue SE) and that the analysis of Alternative B7 is flawed. Of greatest concern with the “B2 options” are impacts on wetlands, the Winters House, noise, light and glare, traffic, and local businesses and neighborhoods. They expressed support for a tunnel in Downtown Bellevue and also feel that the potential for future expansion eastward should be discussed in the Final EIS. They also voiced support for the Building a Better Bellevue analysis, discussed below.

The Building a Better Bellevue organization, formed in response to the East Link Project, submitted a study they prepared detailing concerns they have regarding the cost estimate for Alternative B7 and suggestions for lowering the cost. This organization also recommends a formal investigation be conducted into how the Alternative B7 cost-estimate was developed because they believe it was developed in a way to inflate the costs. Lastly, they also submitted a number of questions regarding the analysis of *Preferred Alternative B2M* and questioned the need for rail banking in the former BNSF Railway corridor.

Eastside Heritage Center expressed their concerns about how the *Preferred Alternative B2M* could affect Winters House and about being relocated during light rail construction. They were concerned about loss of access to the site, increased noise and visual impacts due to construction and operation, and loss of historical character. The Center asked that if they are required to relocate during construction, that similar access and facilities be made available for their use during this time. The Washington Trust for Historic Preservation also commented on similar potential impacts on the Winters House and on the potential Surrey Downs historic district. They felt that removal of homes adjacent to those contributing to the district could result in adverse effects on the district. The Surrey Downs Historical Society believes that *Preferred Alternative B2M* and connections to Segment C along Main Street would adversely affect both the Winters House and the potential Surrey Downs historic district. They were concerned with noise, construction, and vibration impacts on both historic resources and feel that construction and operation of *Preferred*

Alternative B2M and the alternatives along Main Street would change the character and context, and diminish the value of the Surrey Downs neighborhood. They recommended selection of Alternative B7 to avoid impacts on historic resources in accordance with Section 106 of the National Historic Preservation Act and of the Section 4(f) of the Department of Transportation Act. The Surrey Downs Historical Society believes that Alternative B7 has not been sufficiently studied and requests that Sound Transit wait for the study being prepared by the City of Bellevue before an alternative is selected.

Representatives for Bellevue College (formerly Bellevue Community College) submitted multiple comments requesting transit service be provided between the college and the South Bellevue Station, and noted the large number of students and employees that commute from Seattle who would be able to use the proposed project.

7.5 Response to Common Comments

Appendix J of the Final EIS includes responses to each comment received during both the Draft EIS (Section J.1) and the SDEIS (Section J.2). Both of these sections are organized much like this summary, in order of agency, organization, residents, interest groups, and individuals. In order to provide some specific responses to common comments received, Table 7-1 is organized by the chapter and resources order as found in this Final EIS. These responses are also referenced in the individual responses to comments using the identifying code found in the left column of the table. Commenters also suggested additional alternatives to be studied.

TABLE 7-1
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
1. Purpose and Need		
CC1a	Why is bus rapid transit (BRT) or increased bus service not included as an alternative?	BRT, as an alternative for East Link, was eliminated during the Sound Transit Long-Range Planning and ST2 process. (Please see Section 1.3 in Chapter 1, Purpose and Need for East Link Project.) As stated in Chapter 1, the purpose of the East Link Project is to expand the Sound Transit Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond via Interstate 90 and to provide a reliable and efficient alternative for moving people throughout the region. Light rail provides the highest level of ridership and the shortest travel times of all technologies evaluated in the corridor.
CC1b	Why do alternatives not include service to other Eastside communities such as Eastgate, Factoria, Issaquah, North Bend, Snoqualmie, Renton, Kirkland, Woodinville, and Bothell?	East Link is part of ST2, the next phase of mass transit improvements in the Puget Sound Region approved by the voters in 2008. Light rail extensions to these other locations were not included in the ST2 program. As stated in the project Purpose and Need statement, the purpose of the project is to connect Seattle to Mercer Island, Bellevue, and Redmond because this corridor has the highest ridership potential. Sound Transit's Long-Range Plan envisions potential rail extensions to Issaquah but does not envision high-capacity transit extension east beyond Redmond or Issaquah. Future extensions as part of Sound Transit's Long-Range Plan will address adding high-capacity transit service to Factoria, Eastgate, Issaquah, Kirkland, Renton, Bothell, and Woodinville. North Bend and Snoqualmie are outside Sound Transit's service area.
2. Alternatives Considered		
CC2a	Please use federal stimulus money to facilitate faster project implementation.	The 2008 stimulus package, also known as the American Recovery and Reinvestment Act, is designed to quickly inject money into the economy by using pre-existing programs, criteria, and funding methods. It is focused on job creation through funding of "shovel ready" or "ready-to-go" infrastructure projects. East Link project is in the planning stage and does not currently qualify for federal stimulus money.
CC2b	More detail for mitigation measures is needed, and mitigation should be included in cost estimates.	The EIS describes mitigation measures consistent with the current level of project design and the requirements of the environmental review process. Mitigation measures will be refined through final design and as the project goes through the permitting process. As stated in Section 2.5 of Chapter 2, Project Alternatives, the Record of Decision for East Link issued after the Final EIS would include a list of committed mitigation measures for the project to be built. Costs to implement mitigation measures were included as part of the cost estimates prepared for the EIS as described in Section 2.6.2. See also Response to Common Comment CCG3.

TABLE 7-1 CONTINUED
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC2c	Cost comparisons should include the costs to the community.	The cost estimates consist of project construction costs, including property acquisition, light rail facilities, and anticipated mitigation for project impacts, as well as costs for design, permitting, and project management. Section 2.6 in Chapter 2, Alternatives Considered, provides additional information about cost methodology. Benefits and impacts to the community, such as increases to property values, travel time savings, environmental benefits of reduced pollution, inconvenience due to construction, visual, or other impacts, are discussed in the EIS but not included in the costs of the project.
CC2d	Why does the project not include an alternative across the State Route 520 floating bridge?	High-capacity transit (HCT) on SR 520 was considered during the Sound Transit Long-Range Planning and ST2 process, and the Sound Transit Board determined that I-90 is the preferred corridor for HCT across Lake Washington. The WSDOT and Sound Transit Trans-Lake Washington Study (1998-2002) analyzed options for HCT across Lake Washington and reaffirmed that I-90 was the preferred cross-lake corridor for HCT between Seattle and the Eastside for several reasons: directing Eastside riders to the UW would overcrowd the already heavily travelled corridor to Downtown Seattle; connecting to Downtown Bellevue and east to Overlake would require a circuitous route; construction would be difficult and expensive in order to connect with the University of Washington Station, which is 100 feet below grade. An alternative rail line into Downtown Seattle would be needed or riders would be required to take a forced transfer, thus decreasing travel efficiency.
CC2e	Select an alternative that does not preclude future light rail expansion.	All alternatives provide opportunities for future light rail expansion consistent with the Sound Transit Long-Range Plan. The Bellevue Way SE and the former BNSF Railway corridor project alternatives in Segment B have been designed to allow for future extensions to Issaquah with a wye junction. Kirkland and Renton are planned to be served by a potential light rail extension according to the Sound Transit Long-Range Plan. The Long-Range Plan does not envision light rail extension beyond Downtown Redmond.
CC2f	Will selection of Alternative B7 preclude use of the former BNSF Railway corridor for commuter rail?	Alternative B7 would not preclude use of the corridor for commuter rail. Alternative B7 has been designed to accommodate a planned trail by King County (or a reactivated freight/commuter rail service) in most places. Some of the areas are narrow and would require small right-of-way acquisitions. Please refer to Appendix G1, which illustrates the location of light rail with the corridor for trail/utilities/rail uses, along with a representative cross section.

TABLE 7-1 CONTINUED
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC2g	The following B7 Route elements presented in Sound Transit's DEIS and SDEIS reports raise significant questions as to their necessity and/or sufficiency of analysis: 1. A Redundant and Costly New Bike and Walking Trail 2. A Wide Project Footprint With Questionable Rail Line Placement 3. An Excessively Large Park and Ride Facility Placed Near Sensitive Areas, Requiring the Taking of Expensive Private Property 4. Bridge Structure Across the Slough Constructed Using Costly Methods 5. Failure to Utilize Unused Roadside Right of Way Along the West Side of I-405, Requiring the Taking of Expensive Commercial Property 6. Environmental Risks Overstated	1. If Sound Transit uses the former BNSF Railway corridor for light rail, it must accommodate a trail and the possible return of freight. The Alternative B7 design accommodates a bicycle/pedestrian trail because of contractual responsibilities to the Port of Seattle (the corridor owner) and King County (the trail sponsor and trail easement owner). There are also limitations on the use of "railbanked" freight rail corridors. 2. The Woodinville Subdivision (part of the former BNSF Railway corridor used in the B7 alignment) is railbanked in accordance with the National Trails System Act of 1983 (NTSA) (16 U.S.C. 1247 (d)). Sound Transit's design of the Alternative B7 alignment will accommodate a freight track. The space necessary to accommodate a freight track is also enough to accommodate a multi-use trail. The B7 corridor footprint in the Sound Transit early design options (about 5 percent engineering) is largely dictated by the need to protect the railbanked status of the corridor. 3. The 118th Station is located at the proposed site because there was not adequate room at the existing Wilburton Park-and-Ride Lot for a station and the route would travel through these commercial properties and displace some of these businesses without the station. The station location would allow the station and parking garage to be constructed in an already developed area that would avoid impacts on sensitive areas. 4. The Final EIS describes that construction of the elevated light rail could take place from a temporary work trestle, which is a conventional method of construction for sites over water, over structurally weak soils, or in environmentally sensitive areas. Generally, a work trestle consists of short spans of steel and/or timber stringers and deck, supported by timber or steel piling. The trestle is used to support cranes or excavation equipment, and provide a haul route for construction materials and spoils while protecting the terrain below. The proposed construction method is a reasonable assumption at this stage of design. While the cost of the temporary work trestle is significant, any alternative method would also have cost associated with building in poor soils and over water. 5. Sound Transit's Alternative B7 alignment accommodates WSDOT's I-405 Master Plan for expanding I-405. Those plans call for highway expansion primarily to the west of the existing I-405, not to the east as stated in the Build a Better Bellevue report. 6. Peer reviews of Sound Transit work commissioned by the City of Bellevue found that environmental impacts are not overstated for Alternative B7. The peer reviews found: "Sound Transit's East Link Draft EIS fairly compares the B7 alignment with other Segment B alternatives. The technical approach and methodologies used to evaluate the environmental impacts of B7 are generally consistent with professional standards in the various disciplines" (David Evans Assoc, 2010).
3. Transportation		
CC3a	The no-build analysis should include the I-405 Bus Rapid Transit (BRT) plans.	WSDOT has published a programmatic Final EIS for the I-405 Master Plan. Within this document WSDOT identified bus rapid transit (BRT) as a component to the I-405 Master Plan, but has not conducted a specific environmental assessment of implementing an I-405 BRT system. As such, the implementation schedule and funding for this BRT system is not known at this time and the East Link EIS has not assumed BRT on I-405 as part of the No Build analysis. This complies with environmental regulations that only likely foreseeable planned and programmed projects are assumed in the no build condition.
CC3b	Will communities near stations experience hide-and-ride parking due to the lack of park and ride facilities or overcapacity park and ride facilities?	The potential for hide-and-ride parking at light rail stations and park-and-rides is expected to be low, as described in Section 3.6.3 of Chapter 3, Transportation Environment and Consequences. There is limited available on-street parking surrounding most of the proposed stations, and parking surrounding the proposed stations is often restricted by the local jurisdictions. It is expected that people not able to park at a park-and-ride station will either use another station that has available parking or over time, change their mode of travel to reach the station. Sound Transit would work with the local jurisdictions to limit on-street parking, if appropriate, and reduce the potential for hide-and-ride occurrences.

TABLE 7-1 CONTINUED
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC3c	Will the East Link Project create more roadway congestion, especially near stations, and is more traffic mitigation needed to reduce this congestion?	The East Link project would reduce vehicle miles travelled (VMT) and vehicles hours travelled (VHT) in the region as described in Section 3.3.3 of Chapter 3 because greater than 10,000 new transit riders would use the light rail system every day with the project. The traffic operation analysis is described in Section 3.6.3 of the Final EIS. In general, the analysis predicted that, for light rail along at-grade profiles or elevated within the roadway right-of-way, intersections would generally operate at a level of service (LOS) similar to that of the No Build Alternative, although a few intersections in the study area may degrade depending on the alternative and intersection movements. This is partly because a similar roadway capacity is provided in most cases with East Link, but also because light rail trains are generally able to safely travel through intersections without substantial signal timing adjustments. For alternatives with either elevated or tunneled sections, intersections in general are expected to operate similar to the No Build because these profiles are generally outside the roadway right-of-way. Intersections near potential stations are expected to operate in most cases at an LOS similar to No Build, although intersections immediately adjacent to stations with park-and-ride facilities may operate worse than No Build. Where impacts are identified, which consists of intersections that degrade below the LOS standards of the jurisdiction due to East Link, improvements to mitigate the impact are proposed and described in Section 3.6.5 of the Final EIS.
CC3d	Bellevue Way is already congested and the South Bellevue Station will increase that congestion.	Traffic operations along Bellevue Way SE are discussed in Section 3.6 of Chapter 3, Transportation Environment and Consequences, which has been updated for the Final EIS. Two roadway modification options are proposed to improve the station and neighborhood access along Bellevue Way SE near the South Bellevue Station. The first option would install traffic signals along Bellevue Way SE at the south driveway to the South Bellevue Station and at SE 30th Street and convert the center two-way left-turn lane from the South Bellevue Station to I-90 into a southbound HOV lane. Some turn restrictions are included with this option and are described in Section 3.6.3 in the Final EIS. The second option would install a traffic signal at Bellevue Way SE and the south driveway to the South Bellevue Station. With this signal, northbound U-turn movements would be allowed at this intersection. No changes to property access and circulation along Bellevue Way SE would occur south of the south driveway in this option. With either of these two options, traffic congestion along Bellevue Way SE would be similar between the No Build and build alternatives that include a South Bellevue Station.
CC3e	118th Avenue SE will be too congested with the 118th Station.	Additional intersections along 118th Avenue SE have been included in the Final EIS traffic operations analysis to document associated impacts. This information is provided in Section 3.6 of the Final EIS. With the 118th Station (Alternative B7), two intersections along 118th Avenue SE and Coal Creek Parkway would be affected, but both of these intersections can be mitigated.
CC3f	The ridership estimates for Alternative B7 seem low.	Appendix A (Attachment 3) of Appendix H1, Transportation Technical Report, provides a general overview of how the Sound Transit Ridership model produces ridership forecasts. Among the many factors that the model takes into account to produce transit ridership are the adopted Puget Sound Regional Council (PSRC) land uses, population density, parking costs, transit fares, household income, and highway travel time for various modes. Also included are observed transit travel patterns such as passenger origin and destination, and transit service characteristics such as bus access, frequency, and hours of service. As input into the model, Sound Transit and King County Metro service planners developed an integrated rail/bus services plan for 2020 and 2030. The work identified the appropriate and likely bus service for Alternative B7 and specifically at the 118th Station. The service planners determined that bus service for the areas east (along I-90) and south use I-90 to enter Seattle and are not likely to be rerouted north to the 118th Station because of the out-of-direction travel and impacts on the bus reliability that would be created by traveling north along I-405 and having to turn back and continue their route. Similarly, the model predicts that people driving from the communities to the east and south of South Bellevue and heading into Seattle are not as likely to use the 118th Station and instead would shift travel patterns to the surrounding stations such as the Mercer Island Station in Segment A, which is a direct connection along their route and anticipated to have higher daily boardings if Alternative B7 is selected. Results from the ridership model estimate that Alternative B7 is expected to have projectwide ridership lower than other Segment B alternatives. By 2030, projectwide ridership would range from a daily low of 46,000 with Alternative C14E connected to B7 to a daily high of 52,500 for Alternative B1 connecting to C1 or C3T. Daily ridership differences can be considered substantial if the forecast variation among alternatives for projectwide East Link ridership exceeds about 2,000 daily boardings.

TABLE 7-1 CONTINUED
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC3h	The ridership estimates and traffic impact analysis should include the land uses adopted in the City of Bellevue's Bel-Red Subarea Plan and the City of Redmond's Overlake Master Plan.	The Puget Sound Regional Council travel demand and Sound Transit ridership models used in the East Link Project Draft EIS to forecast the future travel and ridership information did not reflect the City of Bellevue's Bel-Red Subarea Plan and the City of Redmond's Overlake Master Plan because they were not adopted prior to publication. With the recent adoption of these plans, the ridership and traffic impact analysis in this Final EIS has been updated to reflect these plans and associated adopted transportation projects. Refer to Appendix A of Appendix H1, Transportation Technical Report, for the list of transportation projects included in the No Build Alternative from these two adopted plans.
CC3i	What are the impacts of construction on traffic?	An updated and more refined assessment of the construction period is discussed in Section 3.6 of Chapter 3, Transportation Environment and Consequences. The methodology for this construction analysis is located in Appendix A in Appendix H1, Transportation Technical Report. As part of this assessment, the number of construction vehicles and potential haul routes are provided based on the level of information known at this time. In addition, potential roadway lane closures and their impacts on traffic operations, parking impacts, transit service disruptions, neighborhood cut-through traffic, and detour route opportunities are also described in this Final EIS by alternative. In general, most alternatives limit construction impacts to one side of the road because the project is outside the roadway right-of-way. When alternatives are within the roadway right-of-way or require cut-and-cover tunneling activities, traffic impacts are expected to be more noticeable. There would be intermittent road or lane closures and detour routes would be needed. Business and property accesses would be maintained to the extent possible either in their current locations or through nearby accesses.
CC3j	How will at-grade alternatives affect access (driveway closures, loss of turn movements, safety, increased congestion) to adjacent properties, such as along Alternative C4?	To provide quality service, at-grade train operations require a safe environment for vehicles and pedestrians to cross the light rail tracks. Therefore, when the light rail track is located within a roadway, driveway access will be modified to only allow turns at protected locations (where a traffic signal or gate or another appropriate type of signal can be provided) across the light rail tracks. This will change some full access driveways to only allow right-in, right-out movements. U-turns are proposed at the nearest practical signalized intersection to continue providing convenient access to and from these properties. Where a driveway is closed, alternative access will be provided, if not already available, to the property. This information is provided in the conceptual drawings provided in Appendix G1. In each case, change in trip patterns and vehicle circulation has been accounted for in the transportation analysis. Appendix E in Appendix H1, Transportation Technical Report, provides a summary of the relevant national studies conducted on light rail safety for various track alignments. The traffic operations under the various at-grade alternatives are described in Section 3.6.3 in Chapter 3, Transportation Environment and Consequences. In general, at-grade alternatives in Downtown Bellevue are not expected to substantially affect the overall downtown street operations, but there would be impacts on intersections along and nearby the alternative. Where impacts are identified, roadway improvements are proposed as mitigation. Where roadway improvements are not feasible, operational traffic management would be proposed at these locations in lieu of roadway capacity improvements. To further support these conclusions, a review of the potential at-grade light rail operations in Downtown Bellevue was conducted by a panel of traffic engineering and transit operations professionals from Portland, Denver, and San Diego. Based on their extensive experience in all three cities, the panel concluded that the at-grade surface alternatives included in the Final EIS would have impacts on traffic operations that are similar to the impacts of other surface light rail systems in the comparable environments of Downtown Portland, Downtown Denver, and Downtown San Diego. The panel noted that most of the changes in forecast future traffic operating conditions in Downtown Bellevue are the result of traffic volume growth and not the introduction of surface light rail. Section 3.7 in Chapter 3 of the Final EIS and Section 7 in Appendix H1 describe the pedestrian circulation and safety with the East Link Project. Potential pedestrian treatments that have been incorporated into other at-grade light rail systems across the U.S. include additional signage, crosswalks and lighting, unique pedestrian signals and gates, sidewalk railings, painted crosswalks, audible alerts, and uniquely textured pavement. These types of treatments are potential design features that could be included, if appropriate, as elements in the design of the selected alternative.

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East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC3k	How will bus service be changed with the East Link project?	As described in Section 3.4 of Chapter 3,Transportation Environment and Consequences and detailed in Section 4.3 of Appendix H1, Transportation Technical Report, as part of the East Link Project, King County Metro and Sound Transit service planners developed a projected rail/bus service for the project. A discussion is included in Chapter 3. Metro and Sound Transit routes would be refined to develop an integrated transit network with transit hubs at many East Link stations. Some routes would be eliminated where bus service duplicates light rail service and other routes would be modified to end and begin at light rail stations.
CC3l	What are the impacts of the East Link project to bus travel on I-90?	Funding to complete the I-90 Two-Way Transit and HOV project is included in the ST2 package approved by voters in November 2008. This project will complete the I-90 HOV lanes to Seattle on both westbound and eastbound directions prior to the East Link construction on I-90. As discussed in Section 3.5.3 of Chapter 3, Transportation Environment and Consequences, with the addition of these outer roadway HOV lanes and joint rail-bus use of the D2 Roadway, the East Link Project shows up to a 3 minute improvement in the reverse-peak direction and up to a 3 minute impact in the peak direction on bus transit travel time across I-90 compared with the No Build Alternative. If use of the D2 Roadway is not designated as joint use for bus and light rail, bus travel times across I-90 would increase by up to 4 minutes in year 2030 during the PM peak hour as buses are rerouted to other roadways to access Downtown Seattle. Potential mitigation for bus service without joint use in the D2 Roadway is described in Section 3.4.5 of Chapter 3 and would be further examined during the design phase of this project, including transit signal priority on 4th Avenue.
CC3m	How will East Link construction impact transit service and transit facilities such as park and rides?	Existing transit service routes would continue with revisions to serve transit stations and potentially relocated park-and-ride parking. For more information, construction impacts and mitigation of impacts to transit service and park-and-rides is discussed in Sections 3.4.4 and 3.4.5 of Chapter 3, Transportation Environment and Consequences. Additional coordination with King County Metro and Sound Transit Regional Express service will occur as detailed construction plans regarding transit service are developed during the final design and permitting phase of the East Link project.
CC3n	Can the I-90 floating bridge structure support the light rail?	*Preferred Alternative A1* has several design considerations regarding the compatibility of light rail with the I-90 floating bridge, Alternatives Considered. The Washington State Legislature Joint Transportation Committee commissioned an independent review team (IRT) to evaluate the bridge design with light rail. The IRT concluded that all issues identified as potentially affecting feasibility can be addressed. See Section 2.3.2 of Chapter 2 for further information.
CC3o	What is the traffic and freight impact of use of the I-90 center lanes for light rail?	The East Link Project would require dedication of the I-90 center roadway for high-capacity transit, as stipulated in the 1976 Memorandum Agreement (as amended in 2004) by Seattle, Mercer Island, Bellevue, King County Metro, WSDOT, and Sound Transit. HOV lanes are being built on the outer roadways in a three-stage project known as the I-90 Two-Way Transit and HOV Project, allowing HOVs to travel in both directions any time of the day. The entire I-90 Two-Way Transit and HOV Project would need to be constructed prior to the East Link Project so that HOV traffic can be moved from the center roadway to the outer roadways. When compared to the No Build Alternative, travel times across I-90 for vehicles and trucks would improve or remain similar with East Link as the transit mode share (or percentage of people using transit) would increase on I-90 with light rail. Although congestion would still occur on I-90 with the East Link Project, it would be shorter in duration and affect a smaller area as people shift to use light rail. Light rail would not only provide an increase in transit use but also allow more people to cross Lake Washington on I-90. Compared with the No Build Alternative, East Link would increase the number of people able to travel across I-90 without adding lanes. I-90 travel time and throughput information is provided in greater detail in Section 3.5.3 of Chapter 3, Transportation Environment and Consequences. The East Link Project has the capacity to comfortably carry 600 persons per 4-car train and 800 persons with crowded conditions. Therefore, with the project, the center roadway would have a peak-hour capacity of up to 18,000 to 24,000 people per hour, equivalent to between 6 to 10 freeway lanes of traffic.

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East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC3p	What is the traffic and bus service impact of removing the HOV direct access ramps between I-90 and Bellevue Way?	Segment B alternatives would exit I-90 either at-grade on existing HOV ramps to/from Bellevue Way or elevated over the westbound I-90 lanes. Alternative B1 would require removal of the eastbound HOV off-ramp and the westbound HOV on-ramp. The remaining Segment B alternatives would have an elevated connection across westbound I-90, allowing the preservation of HOV direct access to westbound I-90, but would have the option to either close or keep open the eastbound HOV off-ramp from I-90 to Bellevue Way SE. Keeping the ramp open would require reconstructing the ramp and making other interchange modifications. WSDOT has indicated it will require both ramps to remain for HOV use. With the option to remove the eastbound direct-access HOV off-ramp to Bellevue Way, Alternatives B2A, B2E, B3, and B7 would not affect HOV travel times to Bellevue Way because of the low level of congestion between Mercer Island and the Bellevue Way interchange. Alternative B1 would remove the westbound direct-access HOV on-ramp from Bellevue Way SE, which would increase travel times for westbound HOV users by 10 to 12 minutes. With any of these Bellevue Way HOV direct-access options, the general purpose traffic on I-90 would not be affected. The potential closure of the HOV direct-access ramps would not affect bus service because buses currently using these ramps are planned to be eliminated with the project, except for with Alternative B7. With this alternative, one transit route would be rerouted to the general-purpose ramp if the eastbound HOV direct-access off-ramp is closed.
CC3q	Alternatives along Bellevue Way will increase traffic on 108th Avenue SE and create an unsafe walk route for Enatai Elementary.	There is not an expectation of a substantial increase in traffic on 108th Avenue SE along the walk route for Enatai Elementary with the project. Please see Section 3.6 for the traffic analysis and neighborhood impacts in Segment B.
CC3r	How will tolling on SR 520 affect traffic on I-90 with the project?	Tolling on SR 520 is assumed to occur in all future year conditions and has been incorporated into the Transportation analysis. Please see Section 3.5 in Chapter 3 for information on SR 520 and I-90 conditions.
Chapter 4 – Affected Environment and Environmental Consequences		
4.1 Acquisitions, Displacements, and Relocations		
CC4.1a	Under one or more alternatives, I will be displaced from my home or business. How will residents and businesses be relocated?	As described in Section 4.1, Acquisitions, Displacements, and Relocations, Sound Transit would comply with appropriate provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act and the State of Washington's relocation and property acquisition regulations. Property owners whose entire or partial property would be acquired by Sound Transit would receive just compensation for their land and improvements. Just compensation is an amount paid to a property owner for property acquired for public purposes that is not less than the fair market value of the property acquired including damages or benefits to the remaining property. Compensation would include any measurable loss in value to the remaining property as a result of a partial acquisition. Permanent parking lost from partial acquisition would be mitigated through compensation to the property owner or provision of replacement parking. Sound Transit's relocation assistance and advisory services would include, but not be limited to, measures, facilities, or services that may be necessary or appropriate to determine the relocation needs and preferences of each household, business, and nonprofit organization to be displaced. Sound Transit would provide current information on the availability, purchase prices, and rental costs of comparable replacement dwellings. Other benefits and compensation may include payment of residential moving expenses and replacement housing payments, nonresidential moving expenses, and reestablishment expenses. Sound Transit's Business and Residential Acquisition and Relocation handbooks outline compensation and acquisition procedures in detail. Sound Transit is committed to working closely and proactively with residents and businesses to help them plan ahead for relocation, find new homes or sites, and solve problems as they may occur. While relocation assistance would mitigate the displacement, relocation could still represent an inconvenience or hardship to some property owners. Sound Transit has adjusted alternatives during conceptual design to avoid or minimize impacts, including property acquisitions, to the extent possible. This alternative refinement process will continue throughout final design.

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East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC4.1b	Displacement of the Commons Medical Building would be a hardship to a large number of businesses and the patients they serve.	In accordance with a Sound Transit Board motion, the Final EIS includes a revised design for Alternatives C3T and C4A that shifts the Ashwood/Hospital Station to the east and avoids the need to use this property as staging. However, Alternatives C7E and C8E would affect this property.
4.2 Land Use		
CC4.2a	How will the proposed transit oriented development legislation, House Bill 1490, affect land use around light rail stations?	The legislation for transit-oriented development (House Bill 1490) did not advance. The bill was opposed by the City of Seattle and other cities based on their interest in preserving local control in zoning and development. The Cities of Seattle, Mercer Island, Bellevue, and Redmond control zoning and development within their jurisdictions. Refer to Section 4.2, Land Use, for information on transit-oriented development associated with East Link alternatives.
CC4.2b	The City of Bellevue should uphold its 1981 commitment to protect the residential neighborhoods from downtown development.	The City of Bellevue controls zoning and development. The project would not result in any changes to how the land is zoned or uses allowed. The East Link alternatives within Downtown Bellevue are located along existing arterials, which would minimize impacts on residential neighborhoods. The project would continue to support that growth be focused in Downtown Bellevue and encourage the use of public transportation as well acts as a catalyst for growth in those areas, including the Bel-Red Subarea where higher densities are encouraged and the land uses have recently been rezoned to support a mix of uses. Refer to Section 4.2, Land Use, for information on existing zoning and how land uses would be affected as a result of the project.
CC4.2c	The Draft EIS does not address all of the relevant goals and polices from the Bellevue Comprehensive Plan.	The plans and policies identified in the comments have been reviewed, and Section 4.2, Land Use, and Appendix F4.2, Land Use Plans, Goals, and Policies, have been updated and expanded as appropriate based upon the relevance of the goals and policies to the project. The discussion in Appendix F4.2 has also been updated to identify the consistency of certain alternatives with the goals and policies. Some of the identified policies are not relevant to the East Link Project and therefore have not been included. East Link is generally consistent with the City's policies and goals.
CC4.2d	Information from the City of Bellevue's Light Rail Best Practices Report should be included in the EIS, and the project should be consistent with the recommendations in the report.	Section 4.2, Land Use, in Chapter 4, and Appendix F4.2, Land Use Plans, Goals, and Policies, have been updated to include information on the Light Rail Best Practices Report. The cross-referenced goals and policies from the City of Bellevue Comprehensive Plan have been reviewed and those applicable have added to Appendix F4.2. Measures include the use of context-sensitive design, use of public art, and public involvement.
4.3 Economics		
CC4.3a	Will the East Link project lower property values due to a nearby station or light rail corridor that generates noise, vibration, and visual impacts.	Section 4.3, Economics, discusses potential positive and negative economic impacts, including property value impacts, of the proposed project. Studies indicate that residential and commercial property values near light rail transit stations typically increase and are valued higher than similar properties not in the vicinity of transit stations. This impact is likely to occur in all segments of East Link, but the benefits may be most realized in Segment D, where both Bellevue and Redmond have adopted supportive plans for transit-oriented development. Studies have also found that property value impacts from light-rail transit can be negative, particularly along a light rail route not in the vicinity of a station. These negative impacts to property values are most likely to occur when the light rail project results in noise or visual impacts noticeably greater than what currently exists and are more often associated with elevated, and to a lesser degree, at-grade alternatives. Sections 4.5, Visual and Aesthetic Resources, and Section 4.7, Noise and Vibration, suggest that there is relatively little potential for these impacts to be of a sufficient magnitude after mitigation to result in negative property value impacts.

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East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC4.3b	Project construction and operation will create too many impacts to businesses.	Project construction requires the acquisition and relocation of a number of businesses. Section 4.3, Economics, provides information on the property acquisition impacts on businesses. Relocation assistance would be provided to businesses as appropriate. It is anticipated that many of the jobs at these businesses would be relocated and not lost. Industrial-related businesses that need to relocate and are located in Segment D, within Bellevue, would be impacted because of the changing land use and zoning in the area that would no longer support industrial-related use. These businesses might need to relocate outside of Bellevue. Refer to Section 4.2, Land Use, for additional information on the changing land use and zoning in Bellevue. The project would displace some off-street parking and reduce the ability to make some left-hand turns in some locations as described in Section 4.3.3. This could result in impacts on adjacent businesses; however, the extent is expected to be minimal and in some situations would be offset by the improved visibility of businesses for transit riders. Operation may also result in positive business impacts related to transit-oriented development in those areas where growth and higher densities are encouraged, including Downtown Bellevue and the Bel-Red corridor. Light rail can act as a catalyst for transit-oriented development. Sections 4.3.3 and Section 4.2.3 provide additional information on the positive benefits for businesses. During construction, business impacts could include noise, vibration, dust, loss of parking, and traffic congestion in the areas of construction activities. Depending on the location of the construction activities and nature of the activities, the impacts on businesses would vary. Business-related impacts are more likely to occur near surface construction activities. Businesses that tend to rely on drive-by traffic to attract customers would experience the greatest impacts. Section 4.3.3 provides information on the economic impacts associated with construction in each project segment. As described in Section 4.3.4, a number of mitigation measures have been identified that would minimize the impacts on businesses during construction, including a 24-hour construction telephone hotline, signage, business cleaning services on a case-by-case basis, promotion and marketing measures to help affected businesses, maintaining access as much as possible, and providing a community ombudsman. In addition, other sections of the Final EIS identify mitigation measures related to noise (Section 4.7), dust (Section 4.6), acquisitions (Section 4.1), and traffic (Chapter 3).
4.4 Social Impacts, Community Facilities, and Neighborhoods		
CC4.4a	The project results in impacts on the neighborhoods in Bellevue.	None of the alternatives would result in significant impacts on neighborhood quality, social interaction, community resources, or safety and security, as identified in Section 4.4, Social Impacts, Community Facilities, and Neighborhoods. The project does not bisect any neighborhoods as it travels along or adjacent to existing transportation corridors. While some residences would have visual impacts resulting from vegetation removal or the presence of the light rail structures, and/or changes in access, especially those alternatives which are at-grade, these impacts would only affect residences adjacent to the project elements and not affect the overall neighborhood quality or social interaction. The project would require property acquisitions on the border of some neighborhoods, but these acquisitions would not affect the overall neighborhood cohesiveness. After mitigation, impacts on the neighborhoods are expected to be minimal. Refer to Section 4.4 for complete information on what impact the project would have on the neighborhoods. During construction, neighborhoods could experience impacts related to noise, dust, and traffic congestion. Depending on the location of construction activities, impacts on the neighborhoods would vary, as would the amount of time. Measures would be implemented to address the impacts and are identified and referenced in Section 4.4. Refer to Section 2.4 in Chapter 2, Alternatives Considered, for information on construction approach for the alternatives.
CC4.4b	Alternative B7 would be located very close to residents, and the proximity of the proposed light rail to these residences is closer than that identified in the Draft EIS due to the recent I-405 project, which will increase noise impacts.	Alternative B7 would be located in an exclusive right-of-way in portions of the former BNSF Railway corridor. The Final EIS analysis reflects changes to the former BNSF right-of-way and adjustments made during the construction of the I-405 widening project. The design change is a result of a new sound wall constructed as part of the WSDOT I-405 project. The existing sound wall would be extended to the north and south to mitigate for noise impacts associated with the East Link Project.

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East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC4.4c	Alternatives B2A, B2E, and B3 will impact the Bellevue Club.	After construction has been completed, the function of the Bellevue Club would not be compromised from these alternatives, as discussed in Section 4.4, Social Impacts, Community Facilities, and Neighborhoods. The analysis in Sections 4.5, Visual and Aesthetic Resources, and 4.7, Noise and Vibration, respectively, indicate that the 112th Avenue corridor's visual quality would not be adversely lowered and noise and vibration impacts could be successfully mitigated. The elevated alternatives would prevent automobile conflicts with the train movements in and around the club vicinity and would also minimize the amount of right-of-way required to operate the project. Access to the club would be maintained, and all activities at the club are expected to continue during construction, although there may be some short-term inconveniences. During construction there would be temporary impacts related to noise, dust, and traffic congestion, as described in Section 4.4. For additional information on the construction approach, refer to Section 2.4 in Chapter 2, Alternatives Considered. Construction of Alternative B3 would require the loss of some parking stalls in the back of the parking lot for the elevated structure support piers. Sound Transit would provide fair and just compensation for any use of property.
4.5 Visual and Aesthetic Resources		
CC4.5a	The elevated structures will cause greater visual impacts.	Sections 4.5, Visual and Aesthetic Resources, identifies elevated structures as some of the most visible project components. Elevated light rail structures associated with some of the alternatives would be seen to varying degrees and existing views would change from some nearby residences. To minimize visual impacts, elevated structures are used only where necessary for grade-separation and are designed with the lowest height practical, or as allowed by required vertical clearances. The development of the project includes aesthetic treatments that are outlined in Section 4.5. Specific potential mitigation measures for visual impacts are outlined in Section 4.5.4.
CC4.5b	More detail for landscaping mitigation such as planting size is needed.	Potential mitigation measures for visual impacts are discussed in Section 4.5.4 of Section 4.5, Visual and Aesthetic Resources. In addition, Section 4.5.3 lists impact minimization efforts (such as planting appropriate vegetation within and adjoining the project right-of-way to mitigate for existing street trees and other visually important vegetation removed for the project and/or to provide screening for sensitive visual environments and/or sensitive viewers) that would be part of the project. The specific details of replacement landscaping will be developed during final design and permitting process.
CC4.5c	The visual quality analysis of existing conditions and potential impacts analyses are not consistent with my evaluation of the existing conditions and project impacts, and additional detail is needed.	The methodology as described in Appendix F4.5, Visual Consistency and Key Observation Point Analyses, is used in varying degrees throughout the transportation profession in order to assess project impacts. While there are many interpretations of how to define visual quality, this process tries to offer objective criteria that can be applied universally. This process, based on the Federal Highway Administration (FHWA) Visual Impact Assessment for Highway Projects, has been employed for the past 30 years. Consistent with the FHWA manual, visual quality was categorized for portions of segments that exemplify common landscape categories and not on a property-by-property basis. The methodology evaluated how the project would change existing conditions in terms of vividness, intactness, and unity. Please see Appendix 4.5 for more detail. The methodology used is appropriate for a project of this scope and for identifying differences in visual impacts between a large number of alternatives. Each component of the visual assessment (vividness, intactness, and unity) was assessed as high, medium, or low and then averaged for the overall visual quality rating.

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East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
4.7 Noise and Vibration		
CC4.7a	What are the noise impacts during construction and operation of East Link light rail?	The noise impacts of the project are described in Section 4.7, Noise and Vibration, and Appendix H2, Noise and Vibration Technical Report. Sound Transit has calibrated noise impacts with actual noise as measured from the Central Link light rail, train operation noise measurements, identification of track crossovers, and at-grade crossings where bells would ring. The methodology for impact analysis is from the Transit Noise and Vibration Impact Assessment Manual (Federal Transit Administration [FTA], revised May 2006). These criteria are used for all federally funded high-capacity transit projects. Sound Transit has many options of providing mitigation, and all noise impacts can be mitigated to within the FTA noise criteria during the operations of the light rail system. The Final EIS noise and analysis includes the most current measured data. Construction noise would be required to meet the noise regulations of local jurisdictions. As described in Section 4.7, Sound Transit would, as practical, limit construction activities that produce the highest noise levels to daytime hours, or when disturbance to sensitive receptors would be minimized. This section also includes a list of potential noise control measures that would be used either individually or in combination to meet the noise limits. If any nighttime construction was planned, Sound Transit would be required to obtain a noise variance from the City. As stated in Section 2.5 of Chapter 2, Project Alternatives, Sound Transit is committed to satisfying all applicable environmental regulations and to responsibly and reasonably mitigate significant adverse environmental project impacts consistent with Sound Transit policies and applicable regulations. Mitigation measures will be refined through final design and permitting.
CC4.7b	The SDEIS states that "even with the recommended noise mitigation measures, there is potential for residual exterior noise impacts"… How will these exterior noise impacts be mitigated?	As described in Section 4.7.4 of the Final EIS, Sound Transit would provide mitigation for operational noise impacts above the Federal Transit Administration (FTA) criteria consistent with the agency's Noise Mitigation Policy (ST Board Motion 2004-08). This policy establishes a preference for source control (e.g., special trackwork; rail lubricators) or path barrier (such as sound walls between the guideway and the receiver property) methods to mitigate light rail noise. When these methods are infeasible or not effective at reducing noise levels below FTA impact criteria, then residential sound insulation would be evaluated and implemented at impacted properties where the existing building does not already achieve a sufficient exterior to interior reduction of noise levels. In these cases, some exterior uses might experience noise levels above the FTA impact criteria. Sound Transit does not consider these to be a significant adverse impact warranting further mitigation for the following reasons: 1. Consistent with FTA methods and criteria, residential properties are considered "noise-sensitive" primarily because people sleep there and "nighttime sensitivity to noise is assumed to be of utmost importance" (FTA, 2006). Accordingly, FTA methods artificially increase measured existing noise and predicted project noise levels by 10 dBA (a doubling of the noise level) between 10:00 p.m. and 7:00 a.m. While noise measurements and impacts are predicted for outside noise levels at residential properties, FTA methods clearly emphasize noise sensitivity for residential properties at night because project noise could affect people's ability to sleep. 2. During the day and peak traffic periods, light rail noise levels are very similar to (in some cases less than) common noise levels in an urban setting like Downtown Bellevue or along transportation corridors (like I-90, Bellevue Way, 112th Avenue, I-405) where the predominant noise is from existing traffic (buses, trucks, and heavy traffic volumes). During these times of the day, when outdoor uses are most frequent, noise from the light rail would typically be less noticeable because of the higher ambient noise levels from traffic and other urban sources.
4.8 Ecosystem Resources		
CC4.8a	Does Sound Transit have a policy about tree protection?	Section 4.8, Ecosystem Resources, describes impacts on natural resources, including high-value habitats with trees such as riparian forest, urban mostly vegetated forest (coniferous forest, deciduous forest, mixed coniferous/deciduous forest), and urban mostly vegetated areas. High-value habitats regulated by local agencies that would be affected by the project would be mitigated with habitat replacement or enhancement. While Sound Transit would protect mature/established trees to the extent practical, trees and vegetation would need to be cleared for the project to be built and trees might interfere with the overhead catenary power system. Therefore, a clearance zone of 20 feet from the outside tracks is maintained adjacent to the light rail system. Mitigation measures would include restoration of the disturbed area with the appropriate landscaping.

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Common Comment No.	Common Theme	Common Response
CC4.8b	Segment B alternatives and the South Bellevue Station impact the Mercer Slough wetlands.	All Segment B alternatives would have varying degrees of operational and construction impacts on the Mercer Slough wetlands and/or wetland buffers, as discussed in Section 4.8, Ecosystem Resources. While *Preferred Alternative B2M* would affect the greatest amount of wetland buffers, Alternative B7 would result in the greatest loss of wetland and high-value habitat acreage and the least loss of wetland buffer acreage for construction and operation. The other Segment B alternatives would result in a smaller loss of wetland and high-value habitat acreage compared to both *B2M* and B7 and a smaller loss of wetland buffer acreage during construction and operation compared to *B2M*. Section 4.8 describes potential mitigation measures for these impacts.
4.11 Geology and Soils		
CC4.11a	The soils in Mercer Slough are not suitable for construction of the light rail station and parking garage structure.	Since the Draft EIS and SDEIS were issued, Sound Transit has conducted approximately 10 explorations involving drilling, sampling, and testing of subsurface soils at the South Bellevue Park-and-Ride Lot. Results of these explorations revealed that overall conditions within the park-and-ride comprise competent sands and gravel, which are suitable for construction. These explorations identified a limited area along the northeastern side of the park-and -ride that includes a localized pocket of up to 25 feet of softer soil deposits within the footprint of the proposed parking garage. These softer deposits include peat and clays, which in general would not be suitable for construction of the parking garage. Therefore, methods have been identified to address these conditions. The proposed approach involves of the use of drilled shaft foundations to support the garage and possibly the use of ground improvement in localized areas elsewhere. The areas of poor soils are relatively limited, and therefore, the approach being suggested is feasible.
CC4.11b	Alternative E1 will impact the steep slopes along the west side of West Lake Sammamish Parkway.	Geologic risks and impacts of erosion and slope failure are discussed in Section 4.11, Geology and Soils, which identifies the steep slopes along the west side of West Lake Sammamish Parkway. The EIS lists best management practices (BMPs) to help minimize erosion hazards including: • Maintaining vegetative growth and providing adequate surface water runoff systems • Constructing silt fences downslope of all exposed soil and using plastic covers over exposed earth • Using temporary erosion control blankets and mulching to minimize erosion prior to vegetation establishment • Limiting amounts of exposed earth during construction in wet winter months During final design, detailed slope stability evaluations would be conducted, and where appropriate, methods of stabilization developed. Methods that could help minimize landslide hazards include, but are not limited to, the following: • Use of retaining structures that are designed for the loads from moving soils • Use of mechanical slope reinforcement such as ground anchors and micro-pile system • Construction specifications and quality assurance programs that prohibit over-steepened slopes • Groundwater and surface water control In addition, a detailed study during final design would confirm the degree of geologic risk such as might occur from erosion and slope failure. At sites where geologic conditions are not suitable, appropriate engineering design studies, construction measures, and BMPs would be used to avoid and minimize potential impacts.

TABLE 7-1 CONTINUED
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Common Comment No.	Common Theme	Common Response
4.14 Public Services		
CC4.14a	Light rail will bring crime into the neighborhood.	As described in Section 4.14, Public Services, incidences of crime are most likely to occur at the stations and park-and-rides; however, crime is not expected to increase as a result of operation of the stations. Several studies have concluded that crime around stations mirrors crime rates in the surrounding neighborhoods. Most areas in the project corridor have low crime rates (see Section 4.14 for information on crime rates). Sound Transit would implement a number of measures to deter crime in the station areas. Measures to minimize crime would include the use of equipment (e.g., closed-circuit TV [CCTV], sealed fare boxes, and automatically sealed exits), the use of anti-crime programs such as anti-graffiti programs, and the use of security personnel. 2010 crime statistics show that the crime rate per number of riders at transit facilities and on light rail and commuter rail trains is substantially lower compared to overall per capita crime rates in Seattle, Tukwila, and SeaTac.
4.16 Historic and Archaeological Resources		
CC4.16a	The Bellevue Way SE alternatives impact the Winters House, a historic resource.	FTA, in consultation with SHPO, has made a determination of adverse effect for the project under Section 106. This determination results from the project's potential impact on the Winters House. Where potential long-term or permanent operation impacts could occur to the Winters House from *Preferred Alternative B2M*, project design mitigates and resolves the potential impact. Operation of *Preferred Alternative B2M* within proximity to the Winters House would include standard vibration mitigation measures and floating slab, if necessary, to eliminate groundborne noise impacts. None of the project alternatives would result in visual impacts that could diminish the integrity of the characteristics that qualify the Winters House for National Register of Historic Places inclusion or eligibility. In addition to incorporating conditions into the project to avoid potential impacts, *Preferred Alternative B2M* would also provide a benefit to the historic resource by restoring the front yard consistent with the historic landscape and add interpretive signage. The construction impacts of the nonpreferred Segment B alternatives would not remove or diminish the character-defining features of the property. *Preferred Alternative B2M* has the potential to impact the Winters House during construction. Implementation of mitigation measures would resolve these potential impacts. A Memorandum of Agreement to refine the mitigation measures for the Winters House is included in Appendix I.
CC4.16b	Segment C alternatives impact the potential Surrey Downs Historic District.	FTA, in consultation with SHPO, has made a determination of adverse effect for the project under Section 106. This determination results from the project's potential impact on the potential Surrey Downs Historic District. None of the Segment C alternatives were found to have impacts on the potential Surrey Downs historic district during project operations. However, *Preferred Alternative C11A* and Alternatives C4A, C2T, and C3T would have potential construction impacts to the potential Surrey Downs historic district. These potential impacts would be resolved with construction minimization measures. Construction of these alternatives would introduce visual, audible, and atmospheric elements that would temporarily change the setting of the eligible historic district. However, the alternatives would not alter or remove contributing resources to the district and it would retain its architectural cohesiveness. Please refer to Section 4.16 of the Final EIS for a discussion of potential impacts and mitigation for the potential historic district. A Memorandum of Agreement to refine the mitigation measures for this resource is included in Appendix I.
4.17 Parks and Open Space		
CC4.17a	Segment B alternatives impact Mercer Slough Nature Park.	All Segment B alternatives would affect the Mercer Slough Nature Park to varying degrees. Consistent among all Segment B alternatives, however, is that they run on the edge of the park along existing highways and major arterials to minimize impacts. Alternative B1 would have the least permanent impact, and Alternative B2E would have the least construction impact. Park impacts are discussed in Section 4.17, Parkland and Open Space. Impacts on Mercer Slough Nature Park would be mitigated for all Segment B alternatives through acquisition of replacement land for permanent impacts, financial compensation, and restoration and potential enhancement of disturbed park area.

TABLE 7-1 CONTINUED
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
CC4.17b	Proposed alternatives in Segment C impact Surrey Downs Park and could delay implementation of the Surrey Downs Park Master Plan.	As described in Section 4.17, Parkland and Open Space, the permanent impact area to the park would range from 0 acre to 0.5 acre, depending on the project alternative and the connection to Segment B. Permanent impacts on the park would be limited to the eastern edge along 112th Avenue SE for *Preferred Alternative C11A* and Alternatives C2T, C3T, C4A, and C7E. *Preferred Alternative C9T* includes realignment of SE 4th in the northeast section of the park. All park impacts would be mitigated. Alternatives C2T and C3T connecting to Alternative B2A would require closure of the northern section of the park currently occupied by the King County District Court, thus resulting in temporary impacts. The area currently used as park would remain open during this period. Other project alternatives, including *Preferred Alternatives C11A* and *C9T*, would not close the park during construction, and only a small section along 112th Avenue SE would be directly affected. The remainder of the park would continue to function. *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* or Alternatives B2A or B2E would provide a station south of the park along 112th Avenue SE, thereby improving access to the park. Sound Transit would restore the park to pre-project conditions after construction. Most of the recreational areas of the park would be available for use during construction. If construction of the park Master Plan has not begun prior to East Link construction, Sound Transit would restore the park to pre-project conditions or make it consistent with the Master Plan, as appropriate. If the Master Plan has not been implemented prior to East Link construction, the project would facilitate park development by relocating the King County District Court. Unless park development and the East Link project construction timing coincide, the East Link project would not delay park development.
CC4.17c	Proposed alternatives destroy existing parks.	None of the proposed project alternatives would destroy existing parks. As discussed in Section 4.17, Parkland and Open Space, all Segment B alternatives, most Segment C alternatives, and all Segment E alternatives would have impacts on existing parks. However, all of these impacts would be mitigated through replacement of permanently affected parkland, financial compensation financial compensation to the jurisdiction for use of parkland during construction, and restoration of disturbed area after construction, as described in Section 4.17. In addition, some of the proposed alternatives would facilitate development of future planned parks in the City of Bellevue's Parks and Open Space System Plan (open space buffer area on the south side of Main Street, development of Pocket Park, and Surrey Downs Park), or result in increased park area in McCormick Park after construction.
CC4.17d	Various alternatives impact McCormick Park, an important buffer area between the neighborhood and downtown Bellevue, during construction and operation.	As stated in Section 4.17, Parkland and Open Space, McCormick Park is a neighborhood park that provides a buffer between the single-family residences to the north and high-density residential and commercial uses to the south. Alternatives C3T, C4A, and C8E would temporarily close portions of the park during construction for 4 to 5 years, but pedestrians would be directed to the open portions of the park during construction. While some project alternatives would temporarily change the visual quality and temporarily reduce the park's function as a buffer from adjacent uses, the park's function as a buffer would ultimately be restored. In addition, the project would result in an overall increase in park acreage after construction with the use of the construction staging area for park expansion. With these measures, light rail operating adjacent to the park would not reduce the viability of the area for park uses, especially considering its primary function as a buffer, because the existing park is currently adjacent to NE 12th Street, a 4-lane principal arterial with average daily traffic over 20,000 vehicles.
6. Alternatives Evaluation		
CC6.a	The project generates a small number of new transit riders, which would result in a higher cost per rider if only new riders were considered.	The East Link Project would attract new transit riders and benefit existing transit riders from the improved frequency, reliability, and travel time savings created by the project. In addition, as stated in Chapter 3, Transportation Environment and Consequences, by 2030 with the East Link Project, close to 10,000 more people would use transit than drive if bus service only is provided to the Eastside communities. A cost-effectiveness measure was chosen that could be used to compare route alternatives at the conceptual engineering stage of project development. Cost per rider was chosen as an effective way to compare route alternatives because it responds to both cost and project ridership. The benefits and use of the East Link project would extend over many decades, and annualizing the cost and ridership of the project reflects the project's long-term usefulness. Cost-effectiveness is discussed further in Chapter 6 of the Final EIS.

TABLE 7-1 CONTINUED
East Link Draft EIS – Responses to Common Comments

Common Comment No.	Common Theme	Common Response
General		
CCG1	Need more construction impact detail	Sound Transit has included an overview of potential construction impacts for each light rail profile type: At-grade, elevated, tunnel, and retained cut, in Section 2.4 of Chapter 2, Alternatives Considered. Construction impacts for each element of the environment and alternative are discussed in the corresponding sections of the EIS. As stated in Chapter 2, a detailed construction plan will be developed during final design. Sound Transit is committed to satisfying all applicable federal, state, and local environmental regulations and to responsibly and reasonably mitigate significant adverse environmental project impacts consistent with Sound Transit policies and applicable regulations. The Record of Decision for East Link issued after the Final EIS would include a list of committed mitigation measures for the project to be built. In addition, more detailed mitigation measures that address construction impacts would be refined through final design and the permitting process with the local jurisdiction. See also Response to Common Comment CCG3.
CCG2	Delay release of the Final EIS until Bellevue publishes their study of Alternative B7R	Bellevue's B7R study, which studies modifications to Alternative B7 and *Preferred Alternative C9T*, is briefly described in Chapter 2 of the Final EIS, and a summary of the study and comparison to the impacts of East Link Alternatives B7 and *C9T* is provided below in Section 7.6 of this chapter. Appendix K includes the full study.
CCG3	The EIS does not provide enough detail on the project design, impacts thereof, or especially mitigation of impacts.	The State Environmental Policy Act (SEPA) stipulates that the purpose of an EIS is to provide the public and decision makers with information about a proposal "at the earliest possible point in the planning and decision-making process, when the principal features of a proposal and its environmental impacts can be reasonably identified" (WAC 197-11-055(2)). Further, SEPA acknowledges that "the EIS need not analyze mitigation measures in detail unless they involve substantial changes to the proposal causing significant adverse impacts…"(WAC 197-11-440(6)(c)(iv). As stated in several places in the Final EIS, when a decision has been made to select the project to be built, the project would undergo additional engineering and design; mitigation measures would be refined during the final design, and the permitting process would be coordinated with local permitting authorities. The National Environmental Policy Act (NEPA) also states that "Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts" and that the Federal agency "commences its NEPA process at that earliest possible time" (40 CFR 1501.2). It is standard practice to complete the NEPA process at approximately 10 to 15 percent level of design.

7.6 Review of City of Bellevue B7R Study

The City of Bellevue developed and studied modified designs for the BNSF Alternative (B7) connecting to the *Preferred 110th NE Tunnel Alternative (C9T*), referred to as B7-Revised (B7R). During the comment period for the SDEIS, the Bellevue City Council and several other members of the public requested that Sound Transit wait for their analysis of B7R to be developed prior to decision making by the Sound Transit Board (see comment letter ELS543 and Common Comment number CCG2). In response to the City's request, Sound Transit worked cooperatively with city staff and their design consultant throughout the winter and spring of 2011 as the city worked on the B7R design and environmental screening analysis.

This section of the Final EIS provides a comparison of impacts for the City of Bellevue's proposed B7R option with the BNSF Alternative (B7) connecting to *Preferred 110th NE Tunnel Alternative (C9T)* (referred to in this section as B7/C9T). Generally, the B7R follows a similar alignment as the B7/C9T (see Exhibit 7-1). Key differences between the B7R and the B7/C9T include the following:

- B7R has a light rail station (A2) located adjacent to and north of I-90 over the I-90/Bellevue Way SE interchange, with a pedestrian walkway to a new parking garage and bus transfer center on the west side of Bellevue Way SE (see Exhibit 7-2). Roadway access to the parking garage would be from Bellevue Way SE and 113th Avenue SE and require a new overpass over Bellevue Way SE.
- B7R does not have a 118th Station and does not serve the existing South Bellevue Park-and-Ride, which is assumed to be closed.

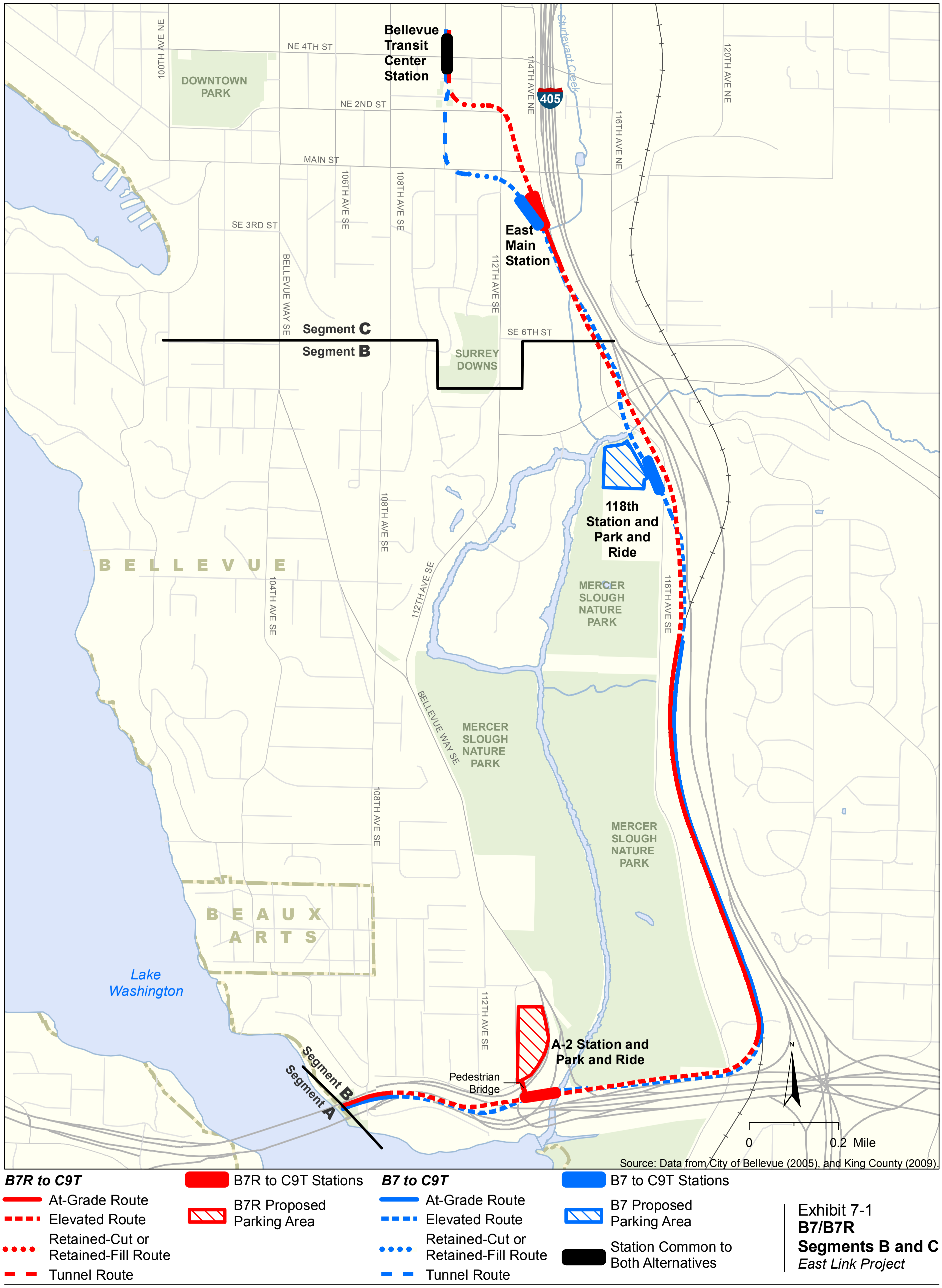
Bellevue Transit Center Station
NE 4TH ST
NE 2ND ST
MAIN ST
100TH AVE NE
DOWNTOWN PARK
114TH AVE NE
Sturtevant Creek
405
116TH AVE NE
120TH AVE NE
106TH AVE SE
108TH AVE SE
SE 3RD ST
East Main Station
112TH AVE SE
BELLEVUE WAY SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
118th Station and Park and Ride
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE
104TH AVE SE
112TH AVE SE
116TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
108TH AVE SE
MERCER SLOUGH NATURE PARK
BEAUX ARTS
Lake Washington
112TH AVE SE
A-2 Station and Park and Ride
Pedestrian Bridge
Segment B
Segment A
N
0
0.2 Mile
Source: Data from City of Bellevue (2005), and King County (2009).
B7R to C9T
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
B7R to C9T Stations
B7R Proposed Parking Area
B7 to C9T
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
B7 to C9T Stations
B7 Proposed Parking Area
Station Common to Both Alternatives

Exhibit 7-1
B7/B7R
Segments B and C
East Link Project

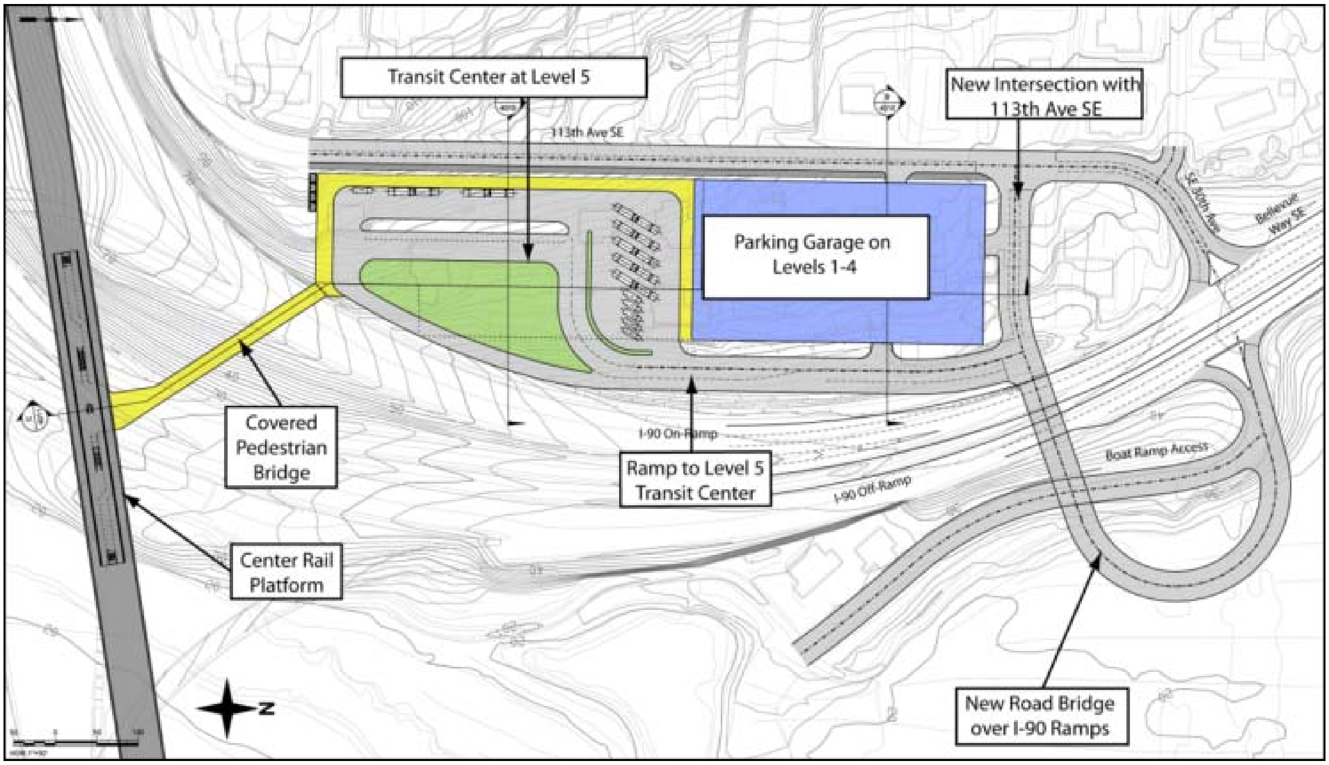
Transit Center at Level 5
New Intersection with 113th Ave SE
113th Ave SE
SE 30th Ave
Bellevue Way SE
Parking Garage on Levels 1-4
Covered Pedestrian Bridge
I-90 On-Ramp
Ramp to Level 5 Transit Center
Boat Ramp Access
I-90 Off-Ramp
Center Rail Platform
New Road Bridge over I-90 Ramps
N

EXHIBIT 7-2
A2 Station and Parking

- B7R includes two options for accommodating the former BNSF Railway corridor's "railbanked" status. One option assumes joint, or shared use of tracks by light rail and freight or commuter rail trains, which is inconsistent with Sound Transit's design criteria. The second option accommodates space for future freight rail operations with an interim trail use, more consistent with Sound Transit's current design in the corridor.
- B7R is designed to connect to a revised Alternative C9T which would cross under Main Street, begin the tunnel portal north of Main Street and turn west at NE 2nd Street instead of Main Street, where *Preferred Alternative C9T* enters a tunnel portal.
- B7R would be on a retained fill 4 to 6 feet high on the east side of Sturtevant Creek near the Hilton Hotel, requiring relocation of the creek and reducing the stream buffer width by approximately one-third. B7R would cross the creek with a low-profile bridge.

Costs were not developed with the same assumptions as Sound Transit's cost analysis and therefore are not directly comparable. However the City of Bellevue's estimates declare a difference of approximately $10 to $14 million more than the East Link B7 and *C9T* alternative combination; approximately $150 million more than the *Preferred Alternative B2M* and *C9T* combination; and approximately $400 million more than the *Preferred Alternative B2M* and *C11A* combination.

The information in the following comparison originates from the City's Interim Analysis Report (found in Appendix K of this Final EIS) and the supporting technical memorandum as developed for the City of Bellevue and found on the City of Bellevue's Web site at http://www.ci.bellevue.wa.us/b7-revised-light-rail-route.htm. Where effects differed between the Interim Analysis Report and the technical memorandum, this comparison defers to the technical memorandum.

Not all elements of the environment were directly analyzed by the City and methodologies applied by the City's study for some elements of the environment are not entirely consistent with the methodologies used for the Final EIS analysis. The environmental study prepared by the City is not intended to be an EIS level analysis to compare against the B7 and C9T alternatives in the Final EIS. In general, many of the B7R analyses depended on information available in the Draft EIS or Supplemental Draft EIS and in other cases, impacts were discussed qualitatively. For these reasons, the data are not equivalent to the data found elsewhere in this Final EIS.

This section also describes differences in analysis methodologies where applicable. The following environmental categories analyzed in this Final EIS were not evaluated in the B7R study and they are not discussed here: Land Use, Air Quality and Greenhouse Gases, Energy Impacts, Geology and Soils, Hazardous Materials, Electromagnetic Fields, Public Services, Utilities, Historic and Archaeological Resources, and Cumulative Impact Analysis. For categories that were analyzed quantitatively, Table 7-2 presents the comparison between B7R and B7/C9T. The City's design modifications and study thereof terminate at the Bellevue Transit Center Station in the middle of Segment C. In order to offer a relative comparison, the data for impacts associated with the area between the Bellevue Transit Center and the Segment D boundary are assumed to be the same as the *Preferred Alternative C9T*.

7.6.1 Transportation

Technical memoranda were completed for B7R light rail ridership and traffic impacts near South Bellevue Way and I-90 only. The transit ridership forecasts prepared for B7R are consistent with the methods used to prepare ridership forecasts for alternatives described in the EIS. The B7R study utilized Sound Transit's ridership model using the same transit network model coding, assumptions, and inputs as done for the Final EIS. Results indicate that the A2 Station in Segment B would generate greater ridership compared to the 118th Station. B7R ridership would slightly decrease at other stations in Segments A and C, and ridership would remain constant in Segments D and E. Projectwide daily ridership would increase to 50,500 with B7R, compared to 49,000 with B7/C9T. While the traffic analysis was generally conducted using reasonable assumptions, and in accordance with professional practice, it does not provide a point of direct comparison between the B7R and EIS alternatives. The methods and assumptions used for Sound Transit's East Link Final EIS travel demand modeling and traffic operations analysis were developed based on input from state and local agency staff and the applicable long-range plans. While a partial discussion of the transportation methods and assumptions is included in the B7R study, the detailed information necessary to determine if the approach was consistent with this East Link Final EIS is not fully evident.

TABLE 7-2
Summary Comparison of B7R and B7/C9T

Resource		**City of Bellevue's B7R Option**			**B7/C9T Alternatives**
		From Segment A to Bellevue Transit Center Station[a]	**C9T from Bellevue Transit Center Station to Segment D**[b]	**B7R Total**	
Ridership[c]	Segments B and C	12,500		**12,500**	**10,500**
	Projectwide	50,500		**50,500**	**49,000**
Noise Impacts[e]		239	100	**339**	**316**
Acquisitions	Full	25	3	**28**	**20**
	Partial	10	13	**23**	**30**
Residential displacements		12	0	**12**	**0**
Business displacements (no. of employees)		9 (215)	10 (100)	**19 (315)**	**24 (370)**
Wetland (acres permanent)		2.1	0	**2.1**	**1.9**
Wetland buffers (acres permanent)		1.0	0	**1.0**	**0.5**
Parks (acres permanent and temporary)[e]		2.3[d]	0.4	**2.7**[d]	**3.0**

[a] Source: City of Bellevue B7R Interim Analysis Report (2011).
[b] Source: Applying East Link Project impacts for C9T north of Bellevue Transit Center in order to compare against impacts from East Link Project B7 and C9T combination.
[c] Ridership is calculated for segment combinations and is not available for areas less than the segment level.
[d] Includes 2.3 acres included in B7R analysis and 0.4 acre of impact to NE 2nd Pocket Park from Bellevue Transit Center Station entrance. Impacts to pocket park might be greater but are not identified in B7R analysis.
[e] Where effects differed between the Interim Analysis Report and the technical memorandum, this comparison defers to the technical memorandum.

These methods and assumptions could have substantial influence on any conclusions from the transportation modeling and operational analysis.

An example of how different approaches can influence the analysis is evident in the preparation of the travel demand forecasts. For this Final EIS, forecasts were primarily developed using the Puget Sound Regional Council's regional travel demand model, while forecasts for the City of Bellevue's B7R study relied on the Bellevue-Kirkland-Redmond (BKR) model. While these two models have some similar characteristics, they are not expected to produce similar forecasts. A comparison of the future traffic volumes used in the two analyses suggests up to a 20 percent difference in roadway traffic volumes along the Bellevue Way SE and 112th Avenue SE portion of the study area.

According to the B7R study, the intersection of SE 30th St and Bellevue Way SE would not meet WSDOT intersection LOS standards and would operate worse with B7R than under the No-Build condition, therefore requiring mitigation. With mitigation, B7R would result in improved traffic operations along Bellevue Way SE compared with B7, which does not affect or change this roadway. The other two intersections studied under the B7R alternative would meet the City of Bellevue's LOS standards. At the Bellevue Way SE/South Bellevue Park-and-Ride/112th Avenue SE intersection, this intersection would operate acceptably in either the B7 or B7R conditions, but it would have quite different characteristics because with Alternative B7 the South Bellevue Park-and-Ride would remain open at its current location, while under B7R the park-and-ride is relocated to the A2 Station site. Intersections where impacts occur with Alternatives B7 and C9T, including near the East Main and Bellevue Transit Center Stations, were not studied for B7R and therefore it is unknown how they would operate under the B7R alternative.

7.6.2 Environmental Consequences

7.6.2.1 Acquisitions, Displacements and Relocations

The proposed B7R would have 12 residential relocations in order to build the garage, transit center and access for the A2 Station (Exhibit 7-2). These would not occur with B7/C9T. B7R would have one more property acquisition (51) than B7/C9T (50), with more full acquisitions (28) than B7/C9T (20 total). The additional full acquisitions are primarily associated with the garage and transit center serving the A2 Station. The site identified by the Low Income Housing Institute (LIHI) for a low-income housing complex on NE 2nd Street would be acquired for the tunnel construction. Alternative B7/C9T would displace five more businesses than B7R due to acquisitions for the 118th Station.

7.6.2.2 Economics

B7/C9T would displace more employees (370) than B7R (315). It is unknown how the City of Bellevue study calculated employee displacements, so it is unknown if this methodology is consistent with that used by Sound Transit.

7.6.2.3 Social Impacts, Community Facilities, and Neighborhoods

Although not discussed in great detail, nor using the Final EIS methodology, the Early Environmental Technical Memorandum (published in May 2011) claims that the B7R garage, transit center and access for the A2 Station would substantially change the character of the Enatai neighborhood because it would add intense activity, change neighborhood views and alter traffic patterns. B7/C9T would not result in these impacts. The study also states that extensive mitigation would be necessary to reduce impacts on the Enatai neighborhood from the B7R, although these mitigation measures are not outlined. Potential acquisition of the LIHI housing complex could result in an environmental justice impact. In other areas, the impacts of B7R would be similar to B7/C9T.

7.6.2.4 Visual and Aesthetic Resources

While the B7R study does not evaluate visual impacts using the Final EIS methodology, or at the same level of detail as this EIS, the study does identify a potentially significant visual impact caused by the parking garage for the A2 Station. The upper level of the parking garage would be visible from the neighborhood and lit at night, potentially resulting in some light spillover for residences west of 113th Avenue SE. The east side of the garage would be up to 40 feet above Bellevue Way SE and, along with the access ramp over Bellevue Way SE, would change views from Bellevue Way SE and areas east, including Mercer Slough Nature Park. Based on the B7R analysis, it appears that B7R would have adverse visual effects. B7/C9T would not result in visual impacts.

7.6.2.5 Noise and Vibration

For the portion up to the Bellevue Transit Center Station the City of Bellevue identified more moderate impacts (193) for B7R as compared to B7/C9T (148), but less severe impacts (46) than compared to B7/C9T (68). Overall, including the entire route to Segment D, B7R would have slightly more total impacts (339) than B7/C9T (316). However, B7R identifies some impacts in locations that are unlikely to occur based on the Final EIS analysis, such as the south side of I-90 and on

112th Avenue SE. While many of the impacts along the proposed B7R route would be similar to B7 /C9T as described in this Final EIS, noise impacts around the garage at the A2 Station would result in additional impacts. The B7R study indicates that the impacts from the station would be from cars and buses, not light rail, although it also states a traffic noise analysis was not completed, so it is unclear whether these impacts are counted or not. An analysis of traffic noise impacts would be needed to more accurately compare these alternatives.

7.6.2.6 Ecosystem Resources

The difference in ecosystem impacts between B7R and B7/C9T cannot be directly compared because the B7R study analysis does not include the same impact measures or the same level of detail as the analysis completed in this Final EIS. The study does state that B7R would impact a total of 2.1 acres of wetlands, compared with 1.9 with B7/C9T, and 1.0 acre of wetland buffer, compared with 0.5 acre with B7/C9T. This increase would be due to the access ramp to the A2 Station parking garage, which would affect 0.3 acre of Mercer Slough Category 1 wetland and 0.2 acre of wetland buffer that would not be impacted by B7/C9T. Construction of the additional support columns needed for the A2 Station would disturb a greater area of soil and vegetation in the Mercer Slough wetland buffer and would have greater potential to disturb the I-90 Seismic Retrofit Wetland Mitigation Site than B7/C9T. A longer construction period and greater ground disturbance for the A2 Station would increase potential for pollutant runoff to enter the slough compared with B7/C9T.

B7R would bridge and realign a portion of Sturtevant Creek near the Hilton Hotel. This reach of the stream has good quality habitat downstream of the existing culvert under I-405. B7R would also result in a reduction of approximately one-third of the stream buffer compared with existing conditions or the B7/C9T. The *Preferred Alternative C9T* connecting from B7 would also affect the stream buffer in this location. However, the guideway for C9T would be elevated, most of the stream buffer would be preserved, and it would not be necessary to realign the creek. The B7R study states that impacts on Sturtevant Creek would be greater than B7, but no discussion of specific impacts on Chinook salmon, sockeye salmon, or cutthroat trout habitat is provided. After this portion of the stream is relocated, B7R would result in a wider stream buffer in this location than B7. It would be more difficult to obtain permits for B7R than for B7/C9T because B7R would require permanent relocation of a portion of Sturtevant Creek with good quality aquatic habitat and construction of a low-profile bridge over the creek. Although the bridge is intended to avoid extending the I-405 culvert, the bridge profile would be less than 10 feet from the stream surface. The evaluation of costs and the ability to mitigate impacts from B7R are uncertain.

7.6.2.7 Water Resources

The B7R study has a qualitative discussion of pollutant-generating impervious surface (PGIS). The study reports that B7R would have a greater increase in PGIS than B7/C9T because the A2 Station parking garage and transit center would result in 4.1 acres of PGIS compared with 2.9 with the 118th Station. The B7R study states that a pollutant loading analysis would be required to determine if impacts on water quality in Mercer Slough would still occur after basic treatment of stormwater. Changes in non-PGIS are estimated in the B7R study to be similar to B7/C9T for the B7R corridor beyond the A2 Station.

7.6.2.8 Parkland and Open Space

The B7R study identifies 2.3 acres of impact on Mercer Slough Nature Park from B7R, compared with 2.6 acres with B7. The B7R study does not discuss impacts on the NE 2nd Street Pocket Parks. The proposed realignment for B7R clearly affects this park and therefore the associated impacts of the *Preferred Alternative C9T* (0.4 acre) are included in Table 7-2 for both B7R and for B7/C9T.

Appendix A1

References

Appendix A1

References

Chapter 1. Purpose and Need for East Link Project

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Appendix A2

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Appendix A2

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Appendix A3

List of Recipients

Appendix A3

List of Recipients

All commenters on the Draft EIS and the Supplemental Draft EIS have been added to the list of recipients for this Final EIS. Their names and affiliation, if provided, are listed in Appendix J.

A3.1 Federal Agencies

- Advisory Council on Historic Preservation
- Federal Aviation Administration
- Federal Emergency Management Agency
- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- Federal Railroad Administration Region 8
- Transportation Security Administration US Homeland Security
- National Oceanic and Atmospheric Administration
- National Park Service
- U.S. Army Corps of Engineers
- U.S. Bureau of Indian Affairs
- U.S. Coast Guard
- U.S. Department of Commerce
- U.S. Department of Fish and Wildlife
- U.S. Department of the Interior/National Park Service
- U.S. Environmental Protection Agency (Region 10)

A3.2 Tribes

- Muckleshoot Tribe
- Snoqualmie Tribe
- Suquamish Tribe
- Tulalip Tribes
- Yakama Nation
- Duwamish Tribe

A3.3 State Agencies

- Washington State Department of Community Trade and Economic Development
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- Washington State Department of Health
- Washington State Department of Natural Resources Interagency Committee for Outdoor Recreation
- Washington State Department of Social and Health Services
- Washington State Recreation and Conservation Office
- Washington State Department of Archaeology and Historic Preservation
- Washington State Office of the Attorney General
- Washington State Parks and Recreation Commission
- Washington State Patrol
- Washington State Office of Governor
- Washington State House of Representatives
- Washington State Joint Transportation Committee
- Washington State Senate
- Washington State Utilities and Transportation Commission

A3.4 Regional Agencies

- Port of Seattle
- Puget Sound Clean Air Agency
- Puget Sound Regional Council

A3.5 County Agencies

- King County
- Pierce County
- Snohomish County

A3.6 Transit Agencies

- Community Transit
- Everett Transit
- King County Metro Transit
- Pierce Transit

A3.7 Cities

- City of Bellevue
- City of Clyde Hill
- City of Issaquah
- City of Kirkland
- City of Medina
- City of Mercer Island
- City of Redmond
- City of Seattle
- Town of Beaux Arts Village

A3.8 Libraries

- Bellevue College Library
- King County Library System

  - Bellevue Regional Library
  - Mercer Island Public Library
  - Redmond Regional Library
- Library Municipal Research and Services of Washington
- Seattle Public Library History Department
- Seattle Public Library Branches
  - International District /Chinatown Branch Library
  - Douglas Truth Branch Library
- University of Washington Libraries
- Washington State Department of Transportation Library
- Washington State Library
- Washington Talking Book and Braille Library

A3.9 Schools and Community Centers

- Bellevue School District
- Mercer Island School District
- Lake Washington School District No. 414
- City of Bellevue Community Centers
- City of Mercer Island Community Center
- City of Redmond Community Centers
- City of Seattle Community Centers
  - International District/Chinatown Community Center
  - Garfield Community Center
  - Yesler Community Center
- City of Seattle Neighborhood Service Centers
  - Downtown Service Center
  - Central Service Center
  - Southeast Service Center
- Seattle Public Schools

A3.10 Utilities

- 360 Networks
- Abovenet
- Allstream Communications
- Comcast
- Frontier Communications NW
- King County Wastewater
- Integra Communications
- Level 3 Communications
- Microsoft
- Olympic Pipeline
- Puget Sound Energy
- Qwest
- Seattle City Light
- Seattle Public Utilities
- TW Telecom
- Verizon Business / MCI

A3.11 Business and Community Organizations

- Ames Lake Community Club
- Asian Counseling and Referral Services
- Bellecrest Neighborhood Association
- Bellevue Chamber of Commerce
- Bellevue Downtown Association
- Bellevue Marts Museum
- Bellevue Network on Aging
- Burlington Northern Santa Fe
- Chinese Information Service Center
- Coalition for Effective Transportation Alternatives
- Concord Hill Homeowners
- Crossroads Community Center
- Downtown Seattle Association
- East Lake Sammamish Community Association
- Eastside Transportation Association
- enterpriseSeattle
- Friends of Marymoor
- Grass Lawn Neighborhood Association
- Greater Redmond Chamber of Commerce
- Greater Redmond Transportation Mgmt. Assn.
- Greater Seattle Chamber of Commerce
- Issaquah Chamber of Commerce
- Jackson Place Community Council
- Judkins Park Community Council
- Kimberlee Park Homeowners
- King County Housing Authority
- Kirkland Chamber of Commerce
- Lake Heights Community Club
- Master Builders Association
- Mercer Island Chamber of Commerce
- Minority Executive Director's Coalition
- Mount Baker Community Club
- Newport Hills Community Club
- Puget Sound Partnership
- Sierra Club, Cascade Chapter
- Somerset Community Association
- Southeast District Council
- Squire Park Community Council
- Suburban Cities Association
- Surrey Downs Community Club
- Transportation Choices Coalition
- Washington Environmental Council
- West Bellevue Community Club
- Wilburton Community Association
- Woodridge Community Association

Appendix A4

Acronyms and Glossary

Appendix A4

Acronyms and Glossary

General Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AM	morning
ANSI	American National Standards Institute
APE	Area of Potential Effect
AQMA	Air Quality Maintenance Area
ASC	Ambulatory Surgery Center
AST	above-ground storage tank
ASTM	American Society for Testing and Materials
AWSC	all-way stop-controlled
AWD	average weekday
AWT	average wait time

BIA	Bureau of Indian Affairs
BMP	best management practice
Btu	British thermal unit

CAA	Clean Air Act
CAFÉ	corporate average fuel economy
CCTV	closed-circuit television
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
CNG	compressed natural gas
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPP	Countywide Planning Policy
CPR	cardiopulmonary resuscitation
CPTED	Crime Prevention Through Environmental Design
CT	Community Transit
CTED	Washington State Department of Community, Trade, and Economic Development
CWA	Clean Water Act

DAHP	Washington Department of Archaeology and Historic Preservation
dB	decibel
dBA	A-weighted decibel
DC	direct current
DOE	U.S. Department of Energy
DPM	diesel particulate matter
Draft EIS	Draft Environmental Impact Statement
DRO	diesel-range organics
DSHS	Department of Social and Health Services

EIA	Energy Information Administration
Ecology	Washington State Department of Ecology
Ecology Manual	*Stormwater Management Manual for Western Washington* (Washington State Department of Ecology, 2005)
EIS	Environmental Impact Statement
EMF	electromagnetic field
EMI	electromagnetic interference
EO	Executive Order
EPA	United States Environmental Protection Agency
ERIC	Eastside Refugee and Immigrant Coalition
ESA	Endangered Species Act

FAA	Federal Aviation Administration
FAQ	frequently asked question
FAZ	Forecast Analysis Zone
Final EIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FLSC	Fire/Life Safety Committee
FIRES	finance, insurance, real estate, and services
FR	*Federal Register*
ft	feet
FTA	Federal Transit Administration

g/gal	gallons of gasoline

GHG	greenhouse gas
GIS	geographic information system
GMA	Growth Management Act
GWP	global warming potential
HAC	high-accident corridor
HAL	high-accident location
HCT	high-capacity transit
HFC	hydrofluorocarbon
HGM	hydrogeomorphic classification
Horizon	Horizon Systems Corporation
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HPA	Hydraulic Project Approval
HVAC	heating ventilation and air conditioning
Hz	Hertz
HUD	Department of Housing and Urban Development
I-90	Interstate 90
I-405	Interstate 405
IPCC	Intergovernmental Panel on Climate Change
JRPC	Joint Regional Policy Committee
KCM	King County Metro
KOP	key observation point
kV	kilovolt
lb	pound
lb/day	pounds per day
Ldn	24-hour, time-averaged, A-weighted sound level (day-night)
Leq	equivalent continuous sound level
LID	low-impact development
Lm	maximum noise level
Lmax	maximum noise level
LOS	Level of Service
LWCF	Land and Water Conservation Fund
MA	Memorandum Agreement
MBTA	Migratory Bird Treaty Act
METRO	King County Metro
mpg	miles per gallon
MPO	Metropolitan Planning Organization
MOA	Memorandum of Agreement
mph	miles per hour
MRI	magnetic resonance imaging
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSAT	mobile source air toxic
MTCA	Model Toxics Control Act
MTP	Metropolitan Transportation Plan
MVM	million vehicle miles
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NIOSHA	National Institute for Occupations Safety and Health
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOI	Notice of Intent
NO_2	nitrogen dioxide
N_2O	nitrous oxide
No_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
O_3	ozone
OCS	overhead catenary system
OHWM	ordinary high water mark
ORO	oil-range organics
PCB	polychlorinated biphenyl
PCE	perchloroethylene (tetrachloroethene)
PFC	perfluorocarbon
PGIS	pollutant-generating impervious surface
PHS	Priority Habitat and Species
PM	afternoon, particulate matter
$PM_{2.5}$	particulate matter 2.5 microns or less in size
PM_{10}	particulate matter 10 microns or less in size
ppm	parts per million
PPV	peak particle velocity
PSCAA	Puget Sound Clean Air Agency
PSCOG	Puget Sound Council of Governments
PSRC	Puget Sound Regional Council

RCO	Washington State Recreation and Conservation Office
RCW	Revised Code of Washington
RFFA	reasonably foreseeable future action
RHL	Redmond Historic Landmark
rms	root mean square
ROD	Record of Decision
ROG	reactive organic gases
RTA	Regional Transit Authority
RTIP	regional transportation improvement program
RTP	regional transportation plan
RTPO	Regional Transportation Planning Organization
SAFETEA-LU	Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users
SCAQMD	South Coast Air Quality Management District
SEM	sequential excavation mining
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SL	Seattle Landmark
SMC	Seattle Municipal Code
SMP	Shoreline Master Program
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
Sound Transit	Central Puget Sound Regional Transit Authority
sq ft	square feet
SR	state route
SSMP	safety and security management plan
ST2	Sound Transit 2
SWPPP	stormwater pollution prevention plan
TCP	traditional cultural property
TCRP	Transit Cooperative Research Program
TCQSM	Transit Capacity and Quality of Service Manual
TESCP	temporary erosion and sediment control plan
TIP	Transportation Improvement Plan
TMDL	total daily maximum load
TNM	traffic noise model
TPH	total petroleum hydrocarbon
TPSS	traction power substation
TRB	Transportation Research Board
TSM	transportation systems management
TSP	total suspended particulates
TWSC	two-way stop-controlled
$\mu g/m^3$	micrograms per cubic meter
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USDOE	United States Department of Energy
USDOT	United States Department of Transportation
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
v/c	volume to capacity ratio
VdB	vibration decibel
VHT	vehicle hours traveled
VMT	vehicle miles traveled
VOC	volatile organic compound
WAC	Washington Administrative Code
WASIST	Washington State Intersection Screening Tool
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WHR	Washington Heritage Register
WPZ	wellhead protection zone
WSDOT	Washington State Department of Transportation
WTCU	wholesale trade, transportation services, communication, and utilities sector

Glossary of Terms

Access Time. The time required to walk, bicycle, or drive from the origin of the trip (for example, from home) to a (boarding) transit stop, plus the waiting time based on the frequency of transit service, and/or the transfer time and the walking or driving time from the transit (de-boarding) stop to the destination. For auto trips, it is the time required to walk to and from parking places, and delays within parking facilities, if any.

Accessibility. The ease by which an individual can reach desired activities in any location by use of the transportation system.

Air Pollutant (also, Air Contaminant). Smoke, dust, fumes, or odors in the ambient air that have the potential for harmful effects.

Air Quality Maintenance Area (AQMA). An area having the potential to violate a federal or state ambient air quality standard, based on expected growth and development in the area.

Alignment. Horizontal geometric elements, which define the location of the light rail track or roadway.

Alluvium. An unconsolidated, terrestrial sediment composed of sorted or unsorted sand, gravel, and clay that have been deposited by water.

Alternative R-8A. The preferred alternative outcome of a 1998 study initiated by Sound Transit to study two-way transit and high-occupancy vehicle (HOV) lanes on I-90. The preferred alternative (R-8A) called for the construction of HOV lanes on the outside roadways and the dedication of the center roadway for future high-capacity transit operations.

Annualized Capital Cost. A one-time capital cost converted into an annual value that incorporates both the depreciation on the capital item and the foregone interest on the money invested in the project.

Archaeological Sensitivity Zone. An area where the potential for finding an archaeological resource is high.

Area Source. A general classification of the origin of an air pollutant (e.g., park-and-ride lots are area sources of carbon monoxide emissions).

Arterial. A major thoroughfare used mainly for through traffic rather than access to adjacent property. Arterials generally have greater traffic-carrying capacity than collector or local streets and are designed for continuously moving traffic.

Artifact. Any portable object used and/or modified by civilization (particularly during prehistoric times).

At-Grade. Term used to express that a feature, such as a rail track or crosswalk, and a roadway meet at the same elevation.

At-Grade Crossing. Any intersection of two or more flows of traffic at the same elevation (possibly involving more than one mode of transportation), such as road crossings by light rail.

Atmospheric Stability. A measure of the capacity of the ambient air to disperse air pollutants.

Attainment Area. An Attainment Area is an area considered to have air quality as good as or better than the national ambient air quality standards for specific pollutants as defined in the Clean Air Act.

Average Annual Megawatt. The average hourly demand for or supply of electricity measured in megawatts over a year.

Average Daily Traffic (ADT). The total volume of traffic during a given time period divided by the number of days in that time period, representative of average traffic in a one-day time period.

Average Time (also, Exposure Time). The duration of exposure to a given concentration of an air contaminant, specified in ambient air quality standards (e.g., the two national standards of 9 parts per million and 35 parts per million specify averaging times of 8 hours and 1 hour).

Average Wait Time (AWT). Average time spent by passengers at a station or bus stop waiting for transit service.

Average Weekday (AWD). A measurement of average conditions during one weekday, i.e., Monday through Friday.

A-Weighted Sound Level (dBA). To approximate the way humans interpret sound, a filter circuit with frequency characteristics similar to the human hearing system is built into sound measurement equipment. Measurements with this filter enacted are referred to as A-weighted sound levels, expressed in dBA. (See Decibel.)

Background Concentration. The pollutant level that would exist at a site in the absence of air pollution sources in the neighborhood of the site (different from Modeled Concentration).

Baseline Energy Consumption. Energy consumption, usually for a no-build alternative, that is used as a reference against which energy consumption for a build alternative is compared.

Boarding. Term describing the arrival of passengers onto a bus or transit vehicle.

Boarding Trips. A trip on a transit line or group of lines where each boarding of a transit vehicle is considered the start of a new trip. Number of trips boarding (entering) transit vehicles, regardless of whether the trip involves a transfer from another transit vehicle. A fare may or may not be collected for each boarding trip, depending on whether a transfer is used.

British Thermal Unit (Btu). An energy unit equal to the quantity of heat required to raise the temperature of 1 pound of water 1 degree Fahrenheit. One therm equals 1,000,000 Btu.

Capacity, Person. The maximum number of persons that can be carried past a given location during a given time period under specified operating conditions without unreasonable delay, hazard, or restriction. Usually measured in terms of persons per hour.

Capacity, Roadway. The maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway and traffic conditions.

Capacity, Vehicle. The maximum number of vehicles that can be accommodated in a given time by a transit or highway facility.

Capital Costs. Nonrecurring costs required to construct transit systems, including costs of right-of-way, facilities, rolling stock, power distribution and the associated administrative and design costs, and financing charges during construction.

Carbon Monoxide (CO). A colorless, odorless, tasteless gas, and one of the criteria air pollutants released from automobile exhaust.

Carpool. A group of passengers and drivers organized to use one automobile on a regular basis, riding together, for the same trip purpose (generally the work trip).

Cathodic Protection. Cathodic protection is an effective method of preventing stress-corrosion cracking. It is a technique used to control the corrosion of a metal surface by making that surface the cathode or terminal that transports the current.

Census Tract. A Census tract is a small subdivision of an urban area used by the U.S. Census Bureau to identify population and housing statistics. Census blocks are subdivisions of census tracts and are the smallest unit of census geography for which the Census Bureau collects data. The boundaries of census blocks are generally streets or other notable physical features and often correspond to a city block. A census block group is a combination of census blocks, typically encompassing two to four city blocks. The Census collects some information at the block level, some at the block group level, and some at the tract level.

Channelization. The use of traffic markings or islands to direct traffic into certain paths. For example, a "channelized" intersection directs portions of traffic into a left turn lane through the use of roadway islands or striping that separates the turn lane from traffic going straight.

Circulation. The free movement or passage of a vehicle, pedestrian, bicycle, or other transportation mode through a given area.

Concentration (also, level). A measure of the air pollutant in the ambient air, having the units of mass per volume.

Conformity. A process that ensures federal funding and approval goes to transportation activities consistent with federal air quality goals. The Federal Highway Administration and the Federal Transit Administration jointly determine that specific regions meet air quality standards.

Construction Energy. In transportation analysis, the energy used to build stations, terminals, roadbeds, trackbeds, tunnels, vehicles, and other equipment and facilities. Construction energy includes the energy content of materials and the energy used to haul and place them.

Construction Staging Area. During construction, a site temporarily used for materials or equipment storage, assembly, or other temporary, construction-related activities.

Corridor. A general path from one point to another; the East Link study corridor begins in Seattle and travels to Redmond.

Couplet. A place where a two-way street changes temporarily into a one-way paired set of streets.

Criteria Air Pollutants. Those air pollutants that have been recognized by the U.S. EPA as potentially harmful and for which standards have been set to protect the public health and welfare. The criteria air pollutants are carbon monoxide, sulfur dioxide, particulates, nitrogen dioxide, ozone, hydrocarbons and lead.

D2 Roadway. In Seattle, an HOV ramp onto I-90 between Downtown Seattle and Rainier Avenue.

Day Night Sound Level (Ldn). Ldn, also abbreviated DNL, is a 24-hour equivalent continuous sound level (Leq), but with a 10-dB penalty assessed to noise events occurring at night. Nighttime is defined as 10 p.m. to 7 a.m. This strongly weights Ldn toward nighttime noise because most people are more easily annoyed by noise during the nighttime hours when background noise is lower and most people are sleeping.

Decibel. The unit used to measure the loudness of noise.

Displacement. A property acquisition that would require removing an existing use.

Disturbed Habitat. A habitat in which naturally occurring ecological processes and species interactions have been significantly disrupted by the direct or indirect results of human presence and activity.

Drop-Off Zone. A station that provides temporary loading and unloading facilities for autos and/or buses. The station may be combined with feeder bus stations.

Ecologically Sensitive Area. An area, valued locally for its rare or sensitive habitat, existing in a relatively undisturbed, natural state and supporting indigenous species.

Elasticity. In economic analysis, the sensitivity of the demand or supply of a commodity to changes in another variable (e.g., the price elasticity of gasoline is the ratio of the percent change in consumption to percent change in price).

Elevated Guideway. A guideway that is positioned above the normal activity level (e.g., elevated structure for light rail to cross over a street).

Emission. Particulate, gaseous, noise, or electromagnetic byproducts of the transit system or vehicle.

Emission Control. Method by which emissions are governed in an effort to minimize the pollutants and/or noise emitted.

Emission Inventory. A listing by emission source of the amounts of air pollutants released into the atmosphere (generally, in tons or kilograms per day).

Emission Source. The origin of an air pollutant (e.g., automobiles and trucks are sources of carbon monoxide, hydrocarbons, and nitrogen oxides).

Emission Standards. A limitation on the release of an air contaminant into the ambient air (e.g., the federal government limits carbon monoxide, hydrocarbon, and oxides of nitrogen (NOx) emissions per mile of travel in new automobiles).

Endangered Species. According to the Federal Endangered Species Act of 1973, an endangered species is any species in danger of extinction throughout all or a significant portion of its range, other than an insect determined by the Secretary of the Interior to constitute a pest whose protection under the provisions of this act would present an overwhelming and overriding risk to man.

Energy Factor. A number that when multiplied by the appropriate usage units (e.g., vehicle miles, tons, dollars), yields a measure of energy consumption (e.g., 0.5 gallon per vehicle mile x 10 miles = 5.0 gallons consumed for propulsion).

Energy System. The network of major and minor routes, vehicles, facilities, and other energy-consuming entities that are considered in energy analysis.

Equity. The incidence of fairness and the distribution of benefits, costs, and impacts among population subgroups except as defined for subareas per allocations set out in Sound Move.

Equivalent Level (Leq). Leq is a measure of sound energy over a period of time. It is referred to as the equivalent sound level because it is equivalent to the level of a steady sound which, over a referenced duration and location, has the same A-weighted sound energy as the fluctuating sound.

Express Service. Transit service where a very limited number of stops are made.

Facilities Energy (also, Station Energy). A portion of the operational energy that includes the energy to operate parking lots, administration buildings, and other facilities. It does not include propulsion or maintenance energy.

Facility. The means by which a transportation mode is provided. For example, a sidewalk is a facility for pedestrians as is a highway is a facility for vehicles.

Fare. The authorized amount (cash or token) paid or the valid transfer or pass, presented for a transit ride.

Fare Box. A device that accepts and, in some cases, registers coins and tokens used by passengers as payment for rides.

Fare Structure. The methodology of determining the fare that a passenger pays for service.

Feeder Bus Station. A station that provides lateral bus transportation service for riders to transfer to a light rail mode.

Feeder Service. Local transit service that feeds trunkline (usually faster and at higher capacity) transit service.

Fixed Route. Transit service provided on a repetitive, fixed-schedule basis along a specific route with transit vehicles stopping to pick and deliver passengers to specific locations.

Forest or Woodland Habitat. A habitat type generally dominated by Douglas fir, western red cedar, and western hemlock, frequently with a hardwood understory. The ground cover is generally lush. Birds and small mammals abound, and larger mammals are common in large stands.

Frequency, Vehicle. Time rate of vehicle arrivals at a station stop or along a transit line.

Full Acquisition. A type of property encroachment that would require the acquisition of the full parcel and displace the current use.

General-Purpose Lane. Term to describe a traffic lane on a highway that can be used by all types of vehicles including single occupant autos, carpools, trucks and motorcycles.

Grade Separated. Parallel or crossing lines of traffic that are vertically or horizontally physically separated from each other and do not share a common intersection.

Greenhouse Gases (GHG). Greenhouse gases include CO_2, methane (CH_4), O_3, water vapor, nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These gas emissions are collectively leading to the greenhouse effect, trapping the sun's solar rays and leading to an increase in Earth temperature.

Groundborne Noise. Noise that is transmitted through the ground, typically reported in decibels.

Groundborne Vibration. A small but rapidly fluctuating motion transmitted through the ground, typically reported as velocity or acceleration.

Guideway. Specifically designed way traversed by transit vehicles constrained to the way.

Habitat Function. Terrestrial plant communities, wetlands, and aquatic systems such as streams provide a variety of functions in the environment. For instance, depending on the condition and location of a wetland, wetland functions might include water quality improvement, groundwater recharge, nutrient and sediment filtering, and habitat for a variety of animals, as well as education and recreation opportunities for people—the habitat function is one of several functions potentially performed by wetlands. Similarly, terrestrial and aquatic systems each also may perform many functions. When they provide habitat for animals, they are said to be performing or providing a "habitat function."

Habitat Value. The value of plant community's function as determined by the habitat's ability to support the needs of biological species. High-value habitats are those that support or may support threatened, endangered, and/or sensitive species as determined by the federal, state, and local jurisdictions.

Headway. The headway between vehicles in public transit systems is the amount of time (usually in minutes) that elapses between two vehicles passing the same point traveling in the same direction on a given route.

High-Capacity Transit (HCT). A system of public transportation services within an urbanized region operating principally on exclusive rights-of-way, examples include light rail transit or express buses on exclusive bus ways and their supporting services.

High-Occupancy Vehicle (HOV). Any passenger vehicle that meets or exceeds a certain predetermined minimum number of passengers, for example, more than two or three people per automobile. Typically includes carpools with two or more people, vanpools, and buses.

Hours of Service. The number of hours during the day between the start and end of service on a transit route, also known as the service span.

Hydrocarbon (HC). Nonmethane hydrocarbon that contributes to the formation of photochemical oxidants (commonly known as smog), primarily ozone.

Impedance Value. A factor used to weight the time spent waiting for transit. Often computed as 2.1 times the in-vehicle time.

Indirect Energy. A term used to denote all energy inputs for the construction, operation, and maintenance of a system.

Indirect Source. An entity that does not directly emit pollutants but attracts emission sources such as automobiles and trucks. Shopping centers, stadiums, and highways are examples of indirect sources.

Induced Trips. Trips generated because of the construction of a new (transportation) facility. (Different from Shifted Trips).

Integration with Other Modes. Method by which a transit system interfaces with other modes of transportation.

Interchange. The system of interconnecting ramps between two or more intersecting roadways or guideways that are grade separated.

Interim Terminus. A station where the project would operate until the next portion of the project can be built. The terminus would typically include a station with tail tracks extending beyond the station for layover of trains.

Interslab Subduction Zone. Interslab subduction zone is the zone between the earth's crustal plates. This zone is the source of large earthquakes off the coast of Washington.

Joint Development. Opportunities for the development or redevelopment of adjacent parcels (in station areas) in a manner that would support both the transit investment and the community objectives through the use of both public and private funds.

Kilowatt (kW). A unit of electrical energy.

Kilowatt-hour (kWh). One kilowatt of energy used over one hour.

Key Observation Point (KOP). A view location used to describe existing visual conditions and to analyze

Lacustrine soils. A soil that has been formed in a lake bed.

Land Development Pattern. The use, types, and intensity of development. Land development patterns affect trip demand, average trip length, and therefore, energy consumption.

Landscaped Habitat. A habitat in urban areas having limited native species. Vegetation generally consists of mowed lawns and exotic trees and bushes.

Ldn. The day/night average noise level.

Leq. The equivalent steady-state sound level that, in a specified time period, would contain the same acoustic energy as the varying sound level during the same period; considers volume capacity, travel speeds and delay.

Leq(h). The hourly value of Leq.

Level of Service (LOS). A qualitative measure that represents the collective factors of travel under a particular volume condition. A measure of traffic congestion.

Light Rail Transit (also Light Rail). A mode of mass transportation comprising light rail vehicles, which travel on steel tracks and are powered by electricity from overhead wires. This mode is characterized by its ability to operate in both at-grade and/or grade-separated environments.

Line Source. A general classification of the origin of an air pollutant (e.g., highways and other roads are line sources of carbon monoxide emissions).

Link. Sound Transit's light rail system.

Load Factor. The average ratio of passengers to seats, during some specified period of operation of a public transit route.

Local Service. A type of transit operation involving frequent stops and consequent low speeds, the purpose of which is to deliver and pick up transit passengers as close to their destinations or origins as possible.

Locally Preferred Alternative (LPA). Following the publication of a Draft EIS, the Sound Transit Board identifies a *Preferred Alternative*, consisting of routes and station preferences. This is known as a "locally" *Preferred Alternative* because FTA has not yet selected a *Preferred Alternative*.

Maintenance Area. Maintenance areas are geographic areas with a history of nonattainment of National Ambient Air Quality Standards (NAAQS) but which now consistently meet NAAQS.

Maintenance Energy. A portion of operational energy that is applied to repair and maintenance of vehicles and buildings in the system. It does not include propulsion or facilities energy.

Median Track Alignment. In rail operations, a type of alignment where tracks are positioned in the median on the street, as opposed to being positioned on one side of the street.

Megawatt (MW). 1,000,000 watts.

Microgram per Cubic Meter (μg/m^3). A unit of concentration equal to one thousandth of a gram per cubic meter.

Minimum Operable Segment (MOS). A shorter segment of the project route that could be successfully operated on an interim or long-term basis if necessary, and could be extended at a later time.

Minimum Turn Radius. Generally assumed to be the minimum horizontal turn radius (tightest curve).

Minority Residents. Those persons who, in responding to the 1990 U.S. Census, indicated their race to be something other than "White" or reported entries that the Bureau of the Census categorized as something other than "White."

Mobility. The ease of continuous movement along the transportation system.

Mobility Limited. As defined for 1990 U.S. Census data, persons who had a health condition (physical and/or mental) that had lasted for 6 or more months and which made it difficult to go outside the home alone.

Mode. A particular form or method of travel, such as pedestrian, bicycle, automobile, bus, or light rail.

Mode Share. The percentage of travelers that travel either by SOV, HOV, or transit modes on a given roadway facility.

Mode Split. Forecast of proportion of total person-trips that would use each of the various modes of transportation that include transit and cars.

Model Toxics Control Act (MTCA). The Model Toxics Control Act Cleanup Regulation, WAC 173-340, implements the Model Toxics Control Act, RCW 70.105D, which addresses strict requirements for site discovery and reporting, site assessments, and site remediation. Most important, the regulation defines standard methods used to assess whether a site is contaminated or clean.

Modeled Concentration. An air pollutant level, excluding the background level, predicted by a model (see Background Concentration).

National Ambient Air Quality Standards (NAAQS). Federal limits on levels of atmospheric contamination necessary to protect the public from adverse effects on health (primary standards) and welfare (secondary standards).

National Historic Preservation Act of 1966 (NHRA). The act that established the National Register of Historic Places and State Historic Preservation program and set forth guidelines and regulations for environmental review of projects involving federal funding.

National Register of Historic Places (NRHP). The official list of the nation's cultural resources determined to be worthy of preservation; the register is maintained by the National Park Service.

Network. A system of real or hypothetical interconnecting links that forms the configuration of transit routes and stops which constitute the total system.

Nonattainment Area. An area designated by the EPA as presently violating the National Ambient Air Quality Standards, based on archival air quality data.

NO_X. Oxides of nitrogen (nitrogen oxide and nitrogen dioxide). The pollutants released during high-temperature combustion of fossil fuels such as diesel.

Off-Peak. Those periods of the day when demand for transit service is not at a maximum.

Open Field Habitat. A habitat characterized by various species of perennial and annual grasses, forbs, small and large birds, small mammals, and snakes. This habitat is especially important in providing nesting sites and food for various song and predatory birds.

Operating Costs. Recurring costs incurred in operating transit systems, including wages and salaries, maintenance of facilities and equipment, fuel, supplies, employee benefits, insurance, taxes, and other administrative costs. Amortization of facilities and equipment is not included.

Operating Revenue. The gross income from operation of the transit system including fares, charter income, concessions, advertising, etc. Does not include interest from securities, nonrecurring income from sale of capital assets, etc.

Operational Energy. The energy used for vehicle propulsion, facilities, and maintenance for a specified period, usually one year.

Originating Ride (or Trip). A one-way trip taken on a transit line or group of lines, where a transfer from one line to another is not considered to be the start of a new trip.

Overhead Catenary System (OCS). Electrical transmission poles and lines that supply power to the light rail system.

Ozone. A gas consisting of three oxygen atoms formed in reactions of nonmethane hydrocarbons and nitrogen oxides in the presence of sunlight. Ozone is one of the Criteria Air Pollutants.

Palustrine Wetland. Freshwater wetlands dominated by trees, shrubs, and emergent vegetation.

Park-and-Ride Lot. A lot that provides parking for patrons of a transit facility.

Parking Utilization. The number of parking spaces being utilized at a given location, it is calculated as the total number of parking spaces occupied divided by the total parking supply at a given location.

Partial Acquisition. A property that would be partially acquired in order to build and operate the light rail.

Pasquill Stability Class. A category of atmospheric stability ranging from Class A (extremely unstable conditions) to Class F (moderately stable conditions).

Passenger Load/Passenger Load LOS. The number of passengers on a transit unit (vehicle or train) at a specified point.

Passenger Mile. A measure of travel equivalent to one passenger traveling one mile.

Patronage. The number of person-trips carried by a transit system over a specified time period.

Peak Hour. The hour of the day in which the maximum demand for service is experienced, accommodating the largest number of automobile or transit patrons.

Peak Particle Velocity (PPV). Specifications for allowable levels of vibration from blasting, pile-driving, and other construction processes with the potential of causing building damage are almost always expressed in terms of peak particle velocity since this is thought to be well correlated with maximum stresses in buildings. Peak particle velocity is the instantaneous positive or negative peak in the vibration signal.

Peak Period. A time period or periods when travel activity is at its heaviest.

Pedestrian Level of Service (LOS). An overall measure of walking conditions on a route, path, or facility.

Person Demand. The number of persons that use a specific roadway or highway facility, thus creating a demand for usage of the facility; it is often compared to roadway capacity to determine the level of congestion.

Person Throughput. The amount of persons that can pass a point on a roadway or pass through an intersection over a specified period of time.

Person Trip. A trip from a point of origin to a destination made by a person by any travel mode. Within transit, transfers are not counted. That is, a person traveling from home to work on a bus with one transfer creates only one-person trip.

Photochemical Oxidants (Smog). Gaseous pollutants formed from reactions of non-methane hydrocarbons and nitrogen oxides (NOx) in the presence of sunlight (e.g., ozone).

Platform Hours. Elapsed time from when a transit bus or train pulls out of the garage into service to when it returns to the garage after completing its service.

Point Source. A general classification of the origin of an air or water pollutant, usually characterized as smokestacks or outfalls.

Pollutant-Generating Impervious Surface (PGIS). Impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those subject to vehicular use, industrial activities (as defined in the Ecology Manual), or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall.

Polychlorinated Biphenyl (PCB). Hazardous environmental pollutants upon which the federal government has placed additional controls regulating disposal.

Potentially Affected Area. This is defined differently by each technical discipline. It includes the area that could be affected by the alternatives.

Poverty-Level Household. As used for 2000 U.S. Census data, the average poverty threshold for a family of four persons was $17,603 in 2000. The defined family poverty level threshold varied by total number of family members, number of children under 18 years, and number of persons over age 65. For a detailed discussion of the poverty definition, see U.S. Bureau of the Census, *Current Population Reports, Series P-60, No. 171, Poverty in the United States: 1988 and 1989.*

Power. The time rate of energy use.

Preferred Alternative. Following publication of the Draft EIS, the Sound Transit Board identifies a *Preferred Alternative*, including route and station options. The Final EIS further evaluates the *Preferred Alternative* as well as other alternatives.

Propulsion Energy (also, Direct Energy). In transportation analysis, a portion of operational energy that includes fuels and electricity to propel vehicles and provide lighting, heating, and air conditioning within them.

Pulsing. The coordinated arrival and departure of buses on a number of different bus lines at a transit center to facilitate transferring of passengers among those bus lines. Usually, local feeder bus lines are scheduled to arrive at the transit center just ahead of the trunkline bus or train and then depart just after the trunkline bus or train.

Queue. A line of vehicles, bicycles, or persons waiting to be served by the system in which the flow rate from the front of the queue determines the average speed within the queue. Slowly moving vehicles or people joining the rear of the queue are usually considered part of the queue. The internal queue dynamics can involve starts and stops. A faster-moving line of vehicles is often referred to as a moving queue or a platoon.

Radial System. A network of transit lines that meet in the downtown area.

Region. The four-county Puget Sound Regional Council region, including King, Pierce, Snohomish, and Kitsap Counties.

Reliability. How often transit service is provided as promised; affects waiting time, consistency of passenger arrivals from day to day, total trip time, and loading levels.

Representative Alignment. The East Link general alignment that consists of *Preferred Alternative A1*, Alternative B3, Alternative C4A, *Preferred Alternative D2A*, and *Preferred Alternative E2*.

Right-of-Way. The corridor (horizontal and vertical space) owned by the transit agency for the transportation way.

Riparian Habitat. A habitat type associated with stream and lake margins and characterized by dense vegetation consisting primarily of willow, alder, and cottonwood species, supporting a wide variety of waterfowl, songbirds, amphibians, and small mammals.

Route. The course followed by a transit vehicle as a part of the transit system.

Route Miles. The length of a route measured in miles between its end points.

Runoff. The rainwater that directly leaves an area in surface drainage, as opposed to the amount that seeps out as groundwater.

Screenline. A screenline is an imaginary line across a section of freeways or arterials. Screenlines are often used in traffic analyses to determine how much volume is entering or exiting a particular area.

Section 10. Section 10 of the Rivers and Harbors Act of 1899 established authority to issue permits for obstructions or alterations of any navigable waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers.

Section 106. Section 106 of the National Historic Preservation Act of 1966 established a procedure to review the potential effects on cultural resources by projects receiving federal funds.

Section 4(f). Section 4(f) of the Department of Transportation Act restricts the United States Department of Transportation's approval of projects affecting the following properties: publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site.

Section 404. Section 404 of the Clean Water Act is a permit program administered by USACE under guidelines by EPA to protect the nation's waters from dredged and fill sources.

Section 6(f). Section 6(f) of the Land and Water Conservation Act of 1965 established restrictions on, and replacement requirements for, the use of land acquired with funds authorized under the Land and Water Conservation Fund Act.

Section 9. Section 9 of the Rivers and Harbors Act of 1899, established authority to issue permits for bridges and causeways across any navigable waters of the United States – Section 9 Permits are administered by the U.S. Coast Guard.

Segment. This refers to the five sections of the East Link Project, as defined in Chapter 2 of the Final EIS.

Sensitive Receptor (Auditory). A local area or site that supports activities easily disrupted by audio intrusions or distractions, such as a park, school, historic landmark, or residential neighborhood.

Sensitive View. A view that is identified by local jurisdictions as requiring protection.

Sensitivity Analysis. A "what-if" type of analysis to determine the sensitivity of the outcomes to changes in parameters; if a small change in a parameter results in relatively large changes in the outcomes, the outcomes are said to be sensitive to that parameter.

Service Frequency/Frequency. The number of transit units (vehicles or trains) on a given route or line, moving in the same direction, that pass a given point within a specified interval of time, usually 1 hour.

Side-Track Alignment. In rail operations, a type of alignment where the tracks are positioned on one side of the street, as opposed to being positioned in the median of the street.

Signal Phasing. A group of three traffic signal timed intervals (green, yellow, red) that are assigned to an independent traffic movement or combination of movements.

Signal Preemption. Traffic signal options that may modify normal traffic signal phasing for preferential treatment of transit vehicles.

Signal Progression. A series of traffic signals timed and coordinated to optimize the flow of selected traffic movements.

Smog. See Photochemical Oxidants.

Social Interaction. Intra-neighborhood communication and circulation using street, sidewalk, and bikeway connections between residential areas and community facilities, retail businesses, and employment centers. Also includes verbal interaction and telecommunications facilities.

Sounder. Sound Transit's commuter rail system, which travels from Everett to Lakewood, through Seattle.

Sound Transit 2 (ST2). A package of HCT investments in the regional transit system, adopted in May 2007, which included light rail as the mode choice for the East Corridor on I-90.

Staging Area. Section of land near a construction site designated for equipment and truck storage, maintenance, and warm up prior to engagement in construction activities.

State Implementation Plan (SIP). A plan required of each state by the Clean Air Act that describes how the state will attain and maintain the National Ambient Air Quality Standards.

Stormwater Detention. The temporary storage of stormwater runoff and subsequent release at a slower rate.

Stormwater Treatment. Stormwater ponds and underground vaults are used to remove sediments and dissolved metals from stormwater. They collect sediments on the bottom of the pond or vault, where maintenance workers can clean them out on a regular basis.

Straddle Bent. Light rail guideway support that extends across the width of the street.

Subarea. A unique portion of the Regional Transit Authority taxing district, one of five as defined in Sound Move (Snohomish County, North King County, East King County, South King County, and Pierce County).

Subduction Zone. An area where one crustal plate is descending below another. The Puget Sound area is close to a subduction zone, which is formed by the Juan de Fuca plate descending below the North American plate. This action can cause significant seismic activity.

Terminal. The terminating point of transportation routes with transfer facilities and, often, amenities for passenger convenience.

Terminus. A transit station located at the end of a transit (including light rail) line.

Threatened Species. According to the Federal Endangered Species Act of 1973, any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Through Route. Interconnected transit lines in the downtown area, or a transit center, that allow buses (or trains) entering downtown or the transit center on one line to pass through and exit on another line. This eliminates the need to turn transit vehicles around downtown or at the transit center and allows some passengers to continue without transferring.

Title 23, Code of Federal Regulations, Part 771 (23 CFR Part 771) (Revised 1987). Federal Highway Administration and Federal Transit Administration regulations governing the preparation of environmental impact statements and related documents.

Title 23, Code of Federal Regulations, Part 777 (23 CFR Part 777) (Revised 1980). Federal Highway Administration (FHWA) and FTA regulations providing policy and procedures for evaluation and mitigation for impacted, privately owned wetlands.

Total Maximum Daily Loads (TMDL). For 303(d)-listed water bodies, TMDLs are developed by Ecology for the pollutants that exceed water quality standards as a means for ultimately attaining the standards.

Total Suspended Particulates (TSP). Air pollutants that consist of solid particles (dust, lead, salts, etc.) suspended in the atmosphere. TSP is a criteria air pollutant.

Total Suspended Solids (TSS). Organic and inorganic particles that are entrained within and carried by water. The particles are typically sand, silt, and clay, but may include pebbles and larger rocks in fast-flowing water.

Total Travel Time. The total elapsed time between trip beginning and end, including travel, terminal, and waiting time.

Traction Power Substation. Electrical station that provides the power needed to drive the trains. The substations are housed in either standalone structures, or within transit stations, typically within or adjacent to the right-of-way. The substations would typically be built about one and a half miles apart.

Transfer Ratio. The number of boarding trips divided by originating trips.

Transfer Time. The elapsed trip time required to change between modes (e.g., bus to light rail) or to transfer between routes of the same mode (e.g., bus to bus).

Transfer. The portion of a trip between two connecting transit lines, both of which are used for completion of the trip.

Transit. A transportation system principally for moving people in an urban area and made available to the public usually through paying a fare.

Transit Center. A station with shelters where a large number of transit vehicles and passengers can be brought together with safety and convenience.

Transit-Oriented Development. The Transportation Research Board provides several definitions of transit-oriented development that emphasize high-quality walking environments, mixed land uses, and high-density developments linked to transit. Generally, transit agencies agree that what constitutes a transit-oriented development is a pattern of dense, diverse, pedestrian-friendly land uses, near transit nodes that, under the right conditions, translates into higher transit patronage.

Transit Service Reliability. Reliability is defined as the degree to which transit service can be counted on for consistent, on-time performance.

Transit Street Classification System. The City of Seattle's system for designating certain streets as being important for transit. This is part of the city's overall street classification system.

Transportation Corridor (also, Corridor). The group of travel movements (or travel flows) between two or more locations. A corridor might have components or subcorridors. A corridor includes all facilities, transit and highway, that might be used to accommodate the specified travel movement.

Transportation Systems Management (TSM). Incorporates relatively low-cost approaches to improving mobility without constructing major new transportation facilities. TSM generally emphasizes smaller physical improvements and operational changes such as intersection improvements, minor widenings, traffic engineering actions, operational changes such as queue jumps or queue bypass lanes for buses, expanded bus service, transit centers, and improved transit access.

Travel Time (in vehicle). The time required to travel between two points, not including terminal or waiting time.

Trip. The one-way movement of one person between his origin and his destination, including transfers and the walk to and from the means of transportation.

Trip Demand. The number and type (public or private origin and destination) of trips measured, calculated, or forecasted in a specified area having a given land development pattern. Trip demand also depends on prevailing economic, behavioral, and attitudinal conditions.

Trip Length. The number of miles per trip. This is usually an average number for a specified trip type, area and analysis year.

Turn Pocket. Term used to describe a traffic lane that separates turning vehicles from thru lanes. For example, a left-turn pocket is also commonly known as a left-turn lane.

Unity. In visual analysis, the visual coherence and compositional harmony of the landscape.

Use of Section 4(f) Land. According to regulations of the U.S. Department of Transportation, use of Section 4(f) land is defined as: (1) acquisition of title or easement to land, or (2) in unusual circumstances, serious indirect impacts, such as increase in noise, visual intrusion, or access obstruction.

Vehicle Hours Traveled (VHT). The total vehicle hours expended traveling on the roadway network in a specified area during a specified time period.

Vehicle Mile. An amount of travel equivalent to one vehicle traveling one mile.

Vehicle Miles Traveled (VMT). The total number of vehicle miles traveled within a specific geographic area over a given period of time.

Vehicle Occupancy. The number of persons per vehicle. Usually an average number for a specified trip type, area, and analysis year.

Vehicle Throughput. The number of vehicles, usually on a highway, that get through a screenline over a short time period such as an hour.

Vent (also Remote Vent). Vent structures provide emergency ventilation and access for tunnel sections, and are often located adjacent to station entrances. Vents that are not adjacent to the station are called "remote vents." Surface vent buildings enclose the vent and include an exhaust and intake in the roof, a fan room, and space for electrical and communications equipment.

Vibration Propagation. The transfer of vibration through soil or other media.

Vibration Propagation Test. A test that provides an estimate of vibration levels as a function of distance from a vibration source, in this case the light rail vehicle. Tests are done on the surface to evaluate propagation at-grade, or at the bottom of a bore hole for tunnel routes.

Vibration Velocity. Vibration velocity is the basic measure of ground-borne vibration. It is a measure of the rate at which particles in the ground are oscillating relative to the equilibrium point.

Vibration Velocity Level. It is generally accepted that, over the frequency range important for ground-borne vibration from transit systems, human response to vibration is best correlated to the root-mean square (rms) vibration velocity. In this report, rms vibration velocity is always expressed as decibels relative to 1 micro-inch per second.

Viewer Sensitivity: The extent of the viewer's concern for a particular view or viewshed. Viewer sensitivity to the viewed environment is classified as low, average, or high.

Visual Amenity. An object or element (such as buildings or vegetation) that enhances the visual character of a view or area.

Visual Character. Visual character is an impartial description of the landscape in terms of dominance, scale, diversity, and continuity. Visual character-defining environments and features include landforms, vegetation, land uses, transportation facilities, overhead utilities, open spaces, water bodies, designated viewpoints, and views to the visual environment.

Visual Encroachment. The imposition of an object, or objects, on a view such that the view is disrupted, obstructed, or otherwise modified from its original state.

Visual Quality. Visual quality is an assessment of the visual character and is categorized as low, medium, or high, as follows:

- **Low Visual Quality.** Areas that have low visual quality may have features that seem visually out of place, lack visual coherence, do not have compositional harmony, and contain eyesores.
- **Medium Visual Quality**. These areas can be generally pleasant appearing, but may lack distinctiveness, memorability, drama, and compositional harmony, or may simply be very common and ordinary landscapes.
- **High Visual Quality.** These areas may be memorable, distinctive, unique (in a positive way), intact natural or park-like areas or urban areas with strong and consistent architectural and urban design features.

Volume to Capacity (v/c) Ratio. The ratio of demand flow rate to capacity for a highway or arterial facility; a v/c ratio below 1.0 means that traffic volumes are below the capacity of the roadway, when identified as greater than 1.0, the traffic volume has theoretically exceeded the carrying capacity of the roadway.

Washington State Department of Ecology 303(d) List. The federal Clean Water Act (CWA), adopted in 1972, requires states to restore their waters to be "fishable and swimmable." The CWA established a process to identify and clean up polluted waters. Every 2 years, all states are required to prepare a list of water bodies that do not meet water quality standards. This list is called the 303(d) list because the process is described in Section 303(d) of the CWA.

Appendix B

Public Involvement and Agency Coordination

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The National Environmental Policy Act (NEPA), the Washington State Environmental Policy Act (SEPA), and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) emphasize the importance of agency cooperation early in the environmental review process. Sound Transit is committed to early agency involvement and cooperation, and it has worked with local public transportation agencies and local jurisdictions and state and federal agencies to create an open public involvement process with ample opportunities to inform and involve the public. Consistent with SAFETEA-LU, Sound Transit drafted a Coordination Plan and sent it to potentially interested agencies for review and comment during the environmental impact statement (EIS) public scoping period. The Coordination Plan is available for review on Sound Transit's project website (www.soundtransit.org/eastlink), or hard copies can be obtained at Sound Transit offices (see the Fact Sheet on page iii of this Final EIS for information). This appendix summarizes these plans and outlines the goals, objectives, and implementation of extensive public and agency outreach activities.

B.1 Outreach Goals and Objectives

Citizens and groups have had numerous opportunities to interact with, and receive a response from, Sound Transit on issues of interest or concern in the development and evaluation of the East Link Project. Sound Transit has established the following goals and objectives to guide the process:

- Inform the public of the project's purpose and need and identify the process and schedule for public participation.
- Inform the public of the project's EIS availability and identify the process and schedule for public participation.
- Involve the community, and actively seek out a variety of viewpoints, taking into consideration these viewpoints at all stages of planning, development, and engineering.
- Consider, answer, and account for public inquiries, suggestions, and ideas in the decision-making process.
- Provide opportunities for the public to influence major decisions before they are finalized.
- Publicize programs and activities through a variety of communication vehicles to accommodate the diverse communities within the project vicinity, meet environmental justice requirements and limited English proficiency needs, and make the proceedings and records available for public review.
- Provide the public with different opportunities for, and methods of, accessing project information throughout each project phase.
- Engage diverse populations early in the planning and development process by making materials available in multiple formats and holding meetings in accessible facilities.

This appendix summarizes agency coordination and public outreach activities performed throughout the environmental review process, up to the issuance of this Final EIS.

B.2 Agency Coordination

Consistent with the Coordination Plan, Sound Transit has been coordinating periodic interagency meetings and other activities to collect input from interested agencies. These meetings and activities were designed to obtain suggestions regarding the development of project alternatives and regarding resource analysis methodologies prior to beginning analyses and during other key project milestones, such as during the NEPA/SEPA scoping process. Three categories of interagency participation were established to facilitate agency cooperation and input for the East Link Project: co-lead, cooperating, and participating agencies. At the beginning of the environmental review process, prior to scoping, Sound Transit invited agencies to participate, where appropriate, in these categories, as described in the following subsections. Agency correspondence received to date is located in corresponding sections:

- Documentation of coordination with cooperating agencies on 4(f) park impacts is located in Appendix D: Section 4(f)/6(f) Evaluation of this Final EIS, including documentation that the I-90 bike trail is a transportation network, not a 4(f) resource.
- Correspondence between the Federal Transit Administration (FTA) and State Historic Preservation Office on the presence and eligibility of cultural resources for the National Register of Historic Preservation; and between Sound Transit and local jurisdictions on the eligibility of historic resources for local landmark status; and correspondence with local tribes on culturally sensitive resources are all located in the *Historical and Archaeological Resources Technical Report* (Appendix H4, bound separately from this Final EIS).
- Appendix J, *East Link Project Final Environmental Impact Statement Public and Agency Comments and Responses on the Supplemental Draft Environmental Impact Statement,* includes all agency, business, and individual comments received on both documents, as well as Sound Transit's responses to each.

B.2.1 Lead Agency

The FTA is the federal lead agency for NEPA purposes, supervising the preparation of the EIS by Sound Transit. Sound Transit is the nominal lead agency for SEPA purposes. The Washington State Department of Transportation (WSDOT) is a co-lead agency for SEPA because the project alternatives are within or adjacent to WSDOT facilities and rights-of-way. These agencies are responsible for making information available to the cooperating and participating agencies as early as practicable in the environmental review process (SAFETEA-LU Section 6002; Section 139(h)(2-3)).

B.2.2 Cooperating Agencies

Cooperating agencies are any other federal, state, and local public agencies with jurisdiction or special expertise with respect to any environmental issues that should be addressed throughout the NEPA process. Sound Transit invited such agencies to serve as cooperating agencies, which includes responsibility for developing information, preparing environmental analyses, and making available staff to support and enhance the lead agency's interdisciplinary capability. To date, the following agencies have accepted their status as cooperating agencies:

- Federal Highway Administration (FHWA)
- Cities of Seattle, Mercer Island, Bellevue, and Redmond
- King County
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)

B.2.3 Participating Agencies

Participating agencies, according to SAFETEA-LU Section 6002: Section 139(d), are the federal and nonfederal agencies that may have an interest in the project. The following agencies were invited to participate in the environmental review process:

- U.S. Department of the Interior (DOI)
- U.S. Department of the Interior, National Park Service (NPS)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA)
- Advisory Council on Historic Preservation (ACHP)
- Bureau of Indian Affairs (BIA)
- Federal Emergency Management Agency (FEMA)
- National Marine Fisheries Service (NMFS)
- Washington Department of Archaeology and Historic Preservation (DAHP)
- Washington Department of Natural Resources (WDNR)
- Washington Department of Fish and Wildlife (WDFW)
- Washington State Department of Ecology (Ecology)
- Puget Sound Clean Air Agency (PSCAA)
- Puget Sound Regional Council (PSRC)
- City of Clyde Hill
- City of Kirkland
- City of Issaquah
- Town of Beaux Arts
- City of Medina

Sound Transit staff contacted the Washington Department of Archaeology and Historic Preservation and the BIA to determine which tribes have interests in the project vicinity and should be included as affected agencies. The project vicinity does not include any tribal lands, but the tribes are expected to have interests regarding natural and cultural resources. Therefore, because of the government-to-government consultation responsibilities associated with tribes, FTA initiated consultation with these tribes and invited them to become participating agencies. The following tribes have been contacted via letter, telephone conversations, and as needed, in-person meetings:

- Muckleshoot Tribe
- Snoqualmie Tribe

- Suquamish Tribe
- Tulalip Tribe
- Yakama Tribe
- Duwamish Tribe (not federally recognized)

FTA, Sound Transit, and WSDOT continue to consult with the tribes regarding potential natural and cultural resource impacts of concern on the tribes throughout project development.

B.2.4 Resources by Agency

Federal, state, and local agencies have been helpful in providing data collection, resource identification, determination of regulatory compliance requirements, and/or development of resource methodology. Table B-1 lists the resource information Sound Transit gathered, in order by agency. Agencies also provided additional information and evaluation throughout the analysis process, which is ongoing through the completion of this Final EIS.

TABLE B-1
List of Resources Provided by Agency

Agency	Resources Provided
Federal	
U.S. Army Corps of Engineers	Wetlands, waters of the U.S.
Federal Highway Administration	Traffic; highway improvement plans; utilities
Federal Emergency Management Agency	Flooding
U.S. Department of Interior, Geology Survey	Geology and soils
U.S. Environmental Protection Agency	Hazardous materials
U.S. Fish and Wildlife Service	Threatened and endangered species, Essential Fish Habitat
U.S. Coast Guard	Navigation
National Marine Fisheries Service	Threatened and endangered species
Advisory Council on Historic Preservation	Historic and archaeological resources
State	
Recreation and Conservation Office	Parklands and land and water conservation-funded resources
Department of Fish and Wildlife	Threatened and endangered species, fish and wildlife, wetlands
Department of Ecology	Hazardous materials, geology and soils
Department of Natural Resources	Threatened and endangered species, geology and soils
Department of Archaeology and Historic Preservation	Archaeology and historic resources
Local/Regional Agencies	
King County, Cities of Seattle, Mercer Island, Bellevue, Redmond	Land use and economic activity; neighborhoods and population; transportation plans, traffic; archaeology and historic resources; wetlands, water quality, acquisitions, displacements and relocations; noise and vibration; visual and aesthetic resources; parklands; geology and soils; utilities
Puget Sound Clean Air Agency	Air quality
Puget Sound Regional Council	Regional travel; land use and economic activity; population and employment growth projections
Seattle City Light, Puget Sound Energy	Energy, utilities
Tribes (listed in Section B.2.3)	Cultural resources, fisheries

B.3 Outreach Activities and Tools

Agency and public outreach efforts for the East Link Project began in August 2006, with varied and broad-reaching outreach methods. Sound Transit has actively worked to reach agencies, as well as local and regional members of the public, by hosting public meetings and workshops, speaking at open forums, attending community events, and providing briefings and being available to discuss the project with business, neighborhood, and transportation interest groups.

Sound Transit is also targeting outreach efforts to minority and low- income groups by reaching out to associated service providers and community groups where possible. All of Sound Transit's notices and literature for the East Link Project have language blocks stating, "To speak with Sound Transit about the proposed Link light rail mass transit project in East King County, call 1-800-823-9230 during regular business hours," translated into seven languages (Russian, Chinese Mandarin, Spanish, Vietnamese, Korean, Hindi, and Japanese). These languages were selected based on 2000 U.S. Census data for the project corridor and updated in 2008 and 2010 based on community input. When the Sound Transit staff is contacted by a member of the public who has limited use of English, they have available an immediate phone translation service that provides over-the-phone interpretation in 150 languages, 24 hours a day and 7 days a week. Sound Transit also offers to translate East Link Project fact sheets and related information upon request, as well as provide articles for newsletters, websites, or other communication tools used by service providers and community groups. More information on outreach and impacts on minority and low-income persons is available in Appendix C, Environmental Justice. Table B-2 demonstrates the tools being used for each of the environmental review process milestones.

To make information about the East Link Project as widely available as possible, Sound Transit created and is continually updating a variety of communication tools and materials. These include the maintenance of a website, fact sheets, press releases, and email alerts. These materials and tools provide updated information on the East Link Project and let community members know where and how to provide feedback.

TABLE B-2
Outreach Tools Used for East Link Project

Season Year	Environmental Review Process Milestone	Briefings	Public Meetings	Public Hearing	Mailings	Fact Sheets/ Handouts	Community Events	Comment Database	Web Page	News Media
Summer 2006	Preliminary stakeholder meetings and community briefings	✓				✓	✓	✓		
Summer/ fall 2006	NEPA EIS scoping and comment on project Purpose and Need and alternatives	✓	✓		✓	✓	✓	✓	✓	✓
2007	Alternative development	✓	✓		✓	✓	✓	✓	✓	✓
2008	Draft EIS publication	✓	✓	✓	✓	✓	✓	✓	✓	✓
2010	SDEIS	✓	✓	✓	✓	✓	✓	✓	✓	✓
2011	Final EIS publication	✓			✓	✓	✓	✓	✓	✓
2011	Record of Decision	✓			✓	✓	✓	✓	✓	✓

B.3.1 Database

Sound Transit maintains a database listing people interested in receiving regular mailings on the agency's progress and interested in having opportunities for public input. The database is used when preparing mailings, in addition to the postal carrier routes or addresses within the vicinity of the proposed alternatives, and includes attendees at project open houses and public meetings, correspondents and commenters, and others who have requested information on the East Link Project.

The Sound Transit update list for the East Link Project contains approximately 6,500 email and/or physical addresses. Individuals can request updates through mail or email.

B.3.2 Briefings

Sound Transit actively sought to provide briefings to neighborhood associations, organizations, and businesses in the vicinity of the proposed alternatives by providing project information and answering questions. The primary purpose of these briefings was to allow the project staff to reach members of the public at their own neighborhood, civic, or business meetings. Briefings typically included presentations to civic, business, neighborhood and other interested groups. In some instances, project staff met one-on-one to brief individual stakeholders, provide information, and obtain input. A full list of community briefings that have been held since the environmental review process began can be found in Table B-4 at the end of this appendix. In addition, Sound Transit provided jurisdictional briefings to elected officials and staff in the Cities of Seattle, Bellevue, Mercer Island, and Redmond.

B.3.3 Public Meetings, Open Houses, and Workshops

Sound Transit held public open houses, workshops, and public meetings as the project progressed from scoping through the Supplemental Draft EIS (SDEIS) to share information, answer questions, and obtain input. In addition, Sound Transit has participated in open houses and public meetings organized by other local jurisdictions or projects. Typically, the format included time for the public to view project information and to speak with project team members about the project alternatives.

B.3.4 Public Hearings

A public hearing is required during a typical 45-day Draft EIS comment period. Sound Transit held an extended 75-day comment period with five public hearings. A public hearing was also held during the comment period for the SDEIS. Responses to comments from this and from the SDEIS comment period (held from November 12, 2010, to January 10, 2011) can be found in Appendix J of this Final EIS.

B.3.5 Fact Sheets and Brochures

Fact sheets and brochures for the East Link Project have been developed for distribution at public meetings and workshops, as well as for distribution at community events. The fact sheets and brochures describe the status of the East Link Project, the alternatives being studied for the environmental analysis, and whom community members can contact for more information or with comments.

B.3.6 Community Events

The Sound Transit project staff attends a variety of community events planned by other organizations in order to reach a broader group of community members who might not otherwise seek out information on the project. Sound Transit's presence at these community events has given people the opportunity to pick up information, sign up on the project mailing/email list, and talk with project staff members. Examples of the community events Sound Transit has attended include:

- Crossroads Farmers Market
- Bellevue Strawberry Festival
- Redmond Derby Days
- Mercer Island Summer Celebration
- Bellevue Live at Lunch
- Lake Hills Blueberry Festival
- Mostly Music in the Park
- Bellevue Festival of the Arts
- Redmond Greater Transportation Management Association EcoCommunity Fair

B.3.7 Project Website

Sound Transit developed a website (www.soundtransit.org/eastlink) that provides information on the East Link Project. Individuals can also sign up online for Sound Transit's free email subscription service to receive email updates on the East Link Project.

The East Link website includes an overview of the project, project maps and images, conceptual animations of the project alternatives, and links to frequently asked questions. The project website also contains a document library with links to a variety of project-related documents. These documents are arranged as:

- General project information materials

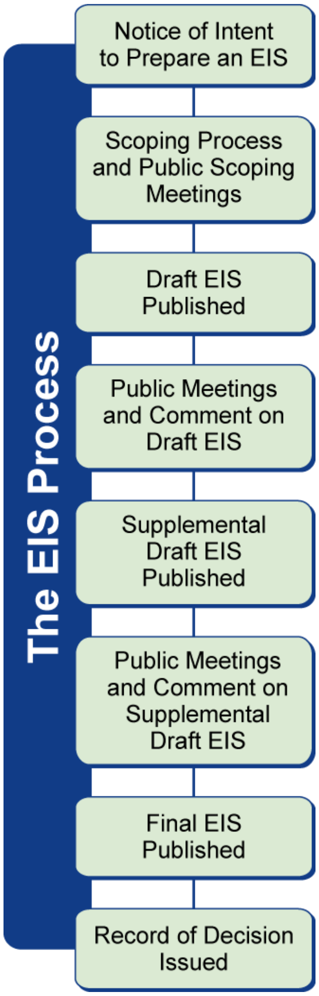
- Environmental and technical documents
- Public outreach documents
- Presentations to the Sound Transit Board and Board Actions

B.3.8 News Media

The project team has used local newspapers to inform, educate, and involve the public in the East Link Project. Area newspapers in Seattle, Mercer Island, Bellevue, and Redmond have received news releases. Additionally, Sound Transit has advertised public meetings in the local publications.

B.3.9 Affected Property Notification

Concurrent with publication of the Draft EIS in December 2008, Sound Transit mailed letters to 1,185 property owners, notifying them of the Draft EIS availability and the fact that their property could be potentially affected by the East Link alternatives. Sound Transit sent similar letters to 720 potentially affected property owners in November 2010 at the time the SDEIS was published. Concurrent with publication of this Final EIS, letters were sent to the property owners of properties identified in Appendix G2 that may need to be partially or fully acquired to construct the project.


The EIS Process
Notice of Intent to Prepare an EIS
Scoping Process and Public Scoping Meetings
Draft EIS Published
Public Meetings and Comment on Draft EIS
Supplemental Draft EIS Published
Public Meetings and Comment on Supplemental Draft EIS
Final EIS Published
Record of Decision Issued

B.4 Outreach Steps in EIS Process

Public input to the East Link Project is an essential element of the alternatives development, environmental analysis, documentation, and review process, as diagrammed above. As described in the preceding section, Sound Transit has used a variety of methods to reach out to the public, including briefings, open houses, workshops, and public meetings. The NEPA process encourages lead agencies to make diligent efforts to involve the public in preparing and implementing NEPA procedures that involve decisions that would affect the community. This includes providing public notice of public hearings, holding public meetings, and making environmental documents available. Sound Transit's outreach and coordination efforts for the preparation of the EIS are described in the following sections.

B.4.1 Agency Involvement

Sound Transit received early and continuous information and guidance from many agencies throughout the East Link Project environmental process. Consistent with the Coordination Plan (February 2007), Sound Transit has orchestrated periodic interagency meetings and coordination activities to collect input from interested agencies. Prior to beginning analyses and during other key project milestones, initial meetings and activities were designed to obtain suggestions regarding the development of project alternatives and about resource analysis methodologies.

B.4.2 Notice of Intent and Scoping

As required by SAFETEA-LU Section 6002: Section 139(e) and by the NEPA/SEPA regulations, Sound Transit initiated the NEPA process by publishing a Notice of Intent (NOI) in the *Federal Register* on August 22, 2006. A determination of significance was issued on the SEPA register on September 1, 2006. The NOI informed the public that Sound Transit would prepare an EIS for the proposed East Link Project and formally announced the beginning of the scoping process and solicited input on the preliminary Purpose and Need of the project. The NOI described the project and its termini, length, and the general location of the alternatives Sound Transit was considering; provided information on the issues and potential impacts; anticipated federal approvals required; and invited comments, questions, and suggestions on the scope of the EIS.

The purpose of scoping was to share information about the public process, environmental resources, and potential alternatives with the public and agencies within the East Link Project vicinity. During the scoping phase of the project, Sound Transit sought community input on which routes and stations to study, the environmental resources to be evaluated, and the project's preliminary Purpose and Need statement. The public and agencies were asked to identify areas of concern, opportunities, and stakeholder interests to be addressed in the EIS.

During the 30-day scoping comment period, Sound Transit hosted four public scoping meetings and one scoping meeting for agencies and tribes. This series of public scoping meetings took place in Seattle, Mercer Island, Bellevue, and Redmond. Both oral and written comments were accepted at these scoping meetings. In addition, the public submitted comments directly by mail and email. Table B-3 lists the scoping meeting dates and locations.

Sound Transit performed the following outreach and communication activities to inform the public and obtain input during the scoping process:

- Identified alternatives and environmental resources for evaluation.
- Prepared and distributed a scoping information report prior to the start of the 30-day scoping period to provide a general understanding of the project to affected agencies. This Environmental Scoping Information Report, distributed on September 1, 2006, described the preliminary Purpose and Need statement, project planning history, proposed project alternatives, and environmental resources to be evaluated in the EIS, and the project schedule and public involvement process. The report was available at the public open houses, at the agency scoping meeting, and on the Sound Transit website for the public's review and input.
- Sent postcards to more than 150,000 residents and businesses announcing the beginning of the scoping process, the public meetings, and the availability of the Environmental Scoping Information Report.
- Held four well-attended public scoping meetings (see dates in Table B-3) to present and receive comments to help refine proposed alternatives, environmental issues, and the environmental process.
- Held one agency scoping meeting to receive comments from interested and affected agencies.
- Contacted cooperating and participating agencies and invited them to an agency scoping meeting on September 12, 2006, at which Sound Transit sought agency involvement regarding project Purpose and Need, and the range of alternatives, impacts, and important issues to be considered.
- Met or corresponded with affected local, regional, state, and federal agencies; tribes; and other organizations about issues within their jurisdiction or concern.
- Reviewed approximately 300 written and oral comments made at the scoping meetings or received during the scoping period and, as appropriate, refined the proposed alternatives, issues, and public involvement program.
- Summarized the scoping comments in an East Link EIS Scoping Summary Report (October 2006). This report is readily available to the public on the project website at www.soundtransit.org/eastlink.

B.4.3 Development of Alternatives

Following the public scoping process, the Sound Transit Board identified the alternatives to be evaluated in the EIS at its December 14, 2006, meeting. In early 2007, Sound Transit hosted several community-focused workshops to engage community members in refining the route and station alternatives. Following the issuance of the Draft EIS, Sound Transit again worked with the Cities of Bellevue and Redmond and community members to refine existing alternatives and develop additional alternatives, which were then evaluated in an SDEIS.

TABLE B-3
East Link Project Scoping Meetings

Date	Location	Type of meeting
Tuesday, September 12, 2006	Bellevue City Hall, Bellevue, WA	Agency scoping meeting
Wednesday, September 13, 2006	Meydenbauer Center, Bellevue, WA	Public scoping open house
Thursday, September 14, 2006	Old Redmond Schoolhouse Community Center, Redmond, WA	Public scoping open house
Wednesday, September 20, 2006	Union Station, Seattle, WA	Public scoping open house
Thursday, September 21, 2006	Great Hall Community Center at Mercer View, Mercer Island, WA	Public scoping open house

Efforts included asking about important neighborhood features, known resources, and other elements for consideration. Workshop summaries and input received is posted on the project website at www.soundtransit.org/eastlink. The following provides more detail about the associated outreach efforts at the Draft and SDEIS phases.

B.4.4 Draft EIS

The East Link Project Draft EIS described, analyzed, and compared the potential environmental impacts of the alternatives and their implementation, and provided additional information on the methodologies and assumptions used for the analyses. Prior to the issuance of the Draft EIS to the public, cooperating agencies received a preliminary Draft EIS for review and comment. Sound Transit worked with FTA and WSDOT to address the cooperating agency comments on the preliminary draft. The Draft EIS was issued by FTA, Sound Transit, and WSDOT. In addition to the required distribution of the document to federal, state, and local agencies and parties of interest, it was also released to the public with a Notice of Availability (NOA) published in the *Federal Register* and notice in the SEPA register. The following approaches were also used to notify the public about the Final EIS availability and public process:

- Public notices placed in local newspapers
- Announcements of public hearings sent to carrier routes of addresses one-half mile from the proposed alternatives and individuals in the project database
- Email notification sent to project database
- Notice posted on the Sound Transit website and the project-specific website at www.soundtransit.org/eastlink.

In accordance with recent FTA policy, the Executive Summary and a compact disc (CD) of the complete Draft EIS was distributed to the list of recipients (Appendix A3), and a paper copy was available on request. The Draft EIS documents were available to the public as described on the Fact Sheet and at public meetings. An electronic copy of the Draft EIS was also posted on the Sound Transit website. The Draft EIS was circulated to interested parties and agencies for public comment. The public comment period began upon publication of the NOA for the Draft EIS in the *Federal Register*.

Public hearings were held throughout the project vicinity to formally present the Draft EIS findings, including alternatives development and associated environmental impacts, for public comment. The hearings consisted of an open house where project team members were on hand to answer questions and talk to the public, and a court reporter documented the formal hearing. Comments were accepted in writing, transcribed by a court reporter, or through email. The dates and location of these hearings were:

Wednesday, January 21, 2009
Old Redmond Schoolhouse Community Center, 16600 NE 80th Street, Redmond, WA

Thursday, January 22, 2009
Thurgood Marshall Elementary School, 2401 South Irving Street, Seattle, WA

Tuesday, January 27, 2009
Community Center at Mercer View, 8236 SE 24th Street, Mercer Island, WA

Wednesday, January 28, 2009
Bellevue High School, 10416 Wolverine Way, Bellevue, WA

Thursday, January 29, 2009
Bellevue City Hall, 450 110th Avenue NE, Bellevue, WA

B.4.5 Supplemental Draft EIS

In response to comments received during the Draft EIS, Sound Transit initiated several collaborative processes with Bellevue and Redmond City staff and community members. Three specific studies followed the publication of the Draft EIS: the *Downtown Bellevue Light Rail Alternatives Concept Design Report* (February 2010), the *112th Avenue Design Options Concept Design Report* (June 2010), and the *Evaluation of Hospital Station Options* (June 2010). In addition to these studies, Sound Transit coordinated with City of Redmond and community stakeholders about changes in Segments D and E, which are reflected in the Final EIS alternatives for those segments. The outcome of these studies was the publication of an SDEIS to offer the community an opportunity to comment on the new alternatives developed through the studies described below.

B.4.5.1 Downtown Bellevue Light Rail Alternatives Concept Design Report

After the 2008 Draft EIS was published, the City of Bellevue and Sound Transit undertook a coordinated process to identify an alternative that balanced the City’s desire to construct a grade-separated route through Downtown Bellevue and Sound Transit’s need to manage cost and construction risk. The process began with a workshop between the City and Sound Transit staffs to identify criteria and measures as well as a range of alternatives. This range of alternatives was shared with the Sound Transit Board of Directors and the Bellevue City Council before the staff began the evaluation process. At the conclusion of this process, the Sound Transit Board of Directors directed the staff to evaluate six alternatives.

In December 2009 and January 2010, staff members from Sound Transit and the City of Bellevue, supported by the consultant team, evaluated 6 alternatives based on 12 criteria grouped into 8 criteria categories. The criteria included cost estimates, ridership range, traffic operations, environmental impacts, construction risk, and consistency with Bellevue plans. Specific environmental evaluation included displacements, noise and vibration, park, ecosystem, and construction impacts. The evaluation of alternatives was summarized in the *Downtown Bellevue Light Rail Alternatives Concept Design Report*, which was published in February 2010. This report included conceptual illustrations of each alternative.

In February 2010, the Bellevue City Council and Sound Transit Board of Directors met to review the evaluation of alternatives and confirm their shared goals to maintain the project schedule and budget to and meet community needs. In addition to coordination among the city and agency staffs and officials, Sound Transit hosted an open house on February 18, 2010, with 168 attendees and briefed a variety of community groups, including the Bellevue Downtown Association, the Bellevue Chamber of Commerce, the Bellevue Hospital District (Overlake Hospital Medical Center, Children's Hospital, and Group Health Cooperative), the Meydenbauer Convention Center, Microsoft, the Bellevue Club, and the Redmond Chamber of Commerce.

Comments taken from the open house and community briefings were summarized in the *Downtown Bellevue Open House Summary* (February 2010). This report and its appendices are available to the public on the project website at www.soundtransit.org/eastlink.

Following review of the *Downtown Bellevue Light Rail Alternatives Concept Design Report*, coordination with the City of Bellevue, and consideration of public comments, the Sound Transit Board of Directors directed its staff to study four new downtown alternatives in the EIS process on April 22, 2010. These alternatives are included in the SDEIS and this Final EIS.

B.4.5.2 112th Avenue Design Options Concept Design Report

Sound Transit hosted a value engineering study for the East Link Project. The study recommendations included an at-grade alternative using 112th Avenue SE from the "Y" at Bellevue Way to Main Street in Downtown Bellevue. To identify the alternatives on 112th Avenue that best balanced cost, impacts, and benefits, Sound Transit initiated an alternatives evaluation process that resulted in the *112th Avenue Light Rail Options Concept Design Report*, which was published in June 2010.

The City of Bellevue and Sound Transit held a joint staff workshop that identified six alternatives comprising elevated, retained-cut, and at-grade options. The City of Bellevue and Sound Transit also agreed on nine evaluation criteria that focused on cost, transportation performance, displacements, noise impacts, parks impacts, and wetlands impacts. The primary concern facing the design effort was the impacts, perceived or actual, to the neighborhoods along 112th Avenue SE. To best integrate the community in the process, efforts were made to offer detailed information to community members to best communicate the alternatives and their impacts as well as avoidance and minimization efforts. The team prepared more than 100 conceptual illustrations that demonstrated how each light rail option might look in various locations along the options studied.

The City of Bellevue and Sound Transit conducted a coordinated public involvement process that included conducting 7 neighborhood briefings and 12 stakeholder interviews, canvassing 419 homes, and conducting 3 community workshops and an open house to share the results of the evaluation. The three workshops built upon one another—first presenting information and gathering community input on the six design options, then presenting the key findings of the *112th Avenue Light Rail Options Concept Design Report* using the criteria Sound Transit and City of Bellevue developed, and at the last workshop, providing an opportunity for the community to compare and analyze key features of the 112th Avenue design options. On July 14, 2010, Sound Transit and the City of Bellevue hosted an open house with 112 attendees to present the results of the 112th Avenue public involvement process, thereby offering another opportunity for the community to provide input on the tradeoffs of each option. The open house also covered the South Bellevue Station and the plans for the Winters House and Bellevue Way.

Comments taken from the community workshops, open house, and community briefings were summarized in the *112th Avenue Outreach Report* (July 2010). This report and its appendices are available to the public on the project website at www.soundtransit.org/eastlink.

The *112th Avenue Light Rail Options Conceptual Design Report* was reviewed by the Sound Transit Board of Directors on June 24, 2010, and by the Bellevue City

Council on July 6, 2010. On July 22, 2010, the Sound Transit Board of Directors directed its staff to study Option 2 (Westside Running to Main Street Tunnel) and Option 6 (Westside Running to At-Grade) in the EIS process.

B.4.5.3 Hospital Station Options

The 2008 Draft EIS included one option in Segment C for locating the Hospital Station within the former BNSF Railway corridor, just north of NE 8th Street. As part of the public involvement process, community comments, value analysis review workshops, and a collaborative evaluation by the Sound Transit and City of Bellevue staffs, three additional locations were identified for evaluation. All four options are located within the former BNSF Railway corridor, which is generally located between NE 8th and NE 12th Streets. The technical analysis considered a variety of factors in evaluating the different options, including cost, station characteristics, walk times, hospital access, environmental impacts, transit-oriented development potential, and construction risk and effects. On July 13, 2010, Sound Transit and the City of Bellevue hosted a public meeting to present the results of the technical evaluation and gather community input on the four design options for the East Link light rail Hospital Station. A total of 32 community members attended.

Based on technical findings and public input, the Sound Transit Board of Directors directed its staff to study Option A (the former BNSF Railway corridor north of NE 8th Street) in the EIS process on July 22, 2010. This is the same Hospital Station location studied in the 2008 Draft EIS, so new analysis of this location was not included in the SDEIS.

B.4.5.4 Issuance of the Supplemental Draft EIS

As with the Draft EIS, the SDEIS included a public hearing in an open house format, where project team members were on hand to answer questions and talk to the public, and court reporters documented the formal hearing. Comments were accepted in writing, transcribed by court reporters, or through email. The public hearing was held on:

Tuesday, November 30, 2010
Bellevue City Hall, 450 110th Avenue NE, Bellevue, Washington

B.4.6 Final EIS

Following a review of public comments on the Draft EIS, the Sound Transit Board identified the preferred alternative for the Final EIS, and it directed that alternatives with other design modifications be considered (May 2009). Following additional work and evaluation of those design modifications, the Sound Transit Board modified the Preferred Alternative in April and July 2010.

Comments on the SDEIS resulted in a number of suggested modifications to existing alternatives in order to avoid impacts to specific properties; in most cases these modifications have not been included in the Final EIS because they generally would result in greater impacts to different properties, including parks, and potentially would increase other impact categories, such as noise, visual, and traffic. The East Link Project Final EIS addresses each suggestion in the response to comments. The Preferred Alternative C9T East Main Station Design Option was added to the Final EIS based on a comment on the SDEIS.

The Preferred Alternative has undergone preliminary engineering (approximately 30 percent design work). This Final EIS analyzes the effects of the Preferred Alternative and all of the other alternatives and responds to comments on the Draft EIS and SDEIS. This Final EIS is issued by FTA, Sound Transit, and WSDOT, and released to the public with a NOA posted in the *Federal Register*, the SEPA register, and local newspapers, and on the Sound Transit website. Additional notification of the availability of this Final EIS is being sent to the project's distribution list of interested parties, agencies, Sound Transit's mailing lists, and addresses within the project vicinity.

Pursuant to FTA guidelines, the Final EIS has been distributed to the Recipient List including federal, state, local, or tribal governmental agencies identified as participating or cooperating agencies and any agency, business, organization, interest group, or member of the public that submitted comments on the Draft EIS and SDEIS. In addition, hard copies of the Final EIS are available for review at local libraries and Sound Transit's office. The documents are also available for viewing on Sound Transit's website. If a build alternative is chosen, then Sound Transit would continue to coordinate throughout final design and construction with affected agencies and local communities.

B.5 Public and Stakeholder Outreach Meetings

While preparing and issuing the Draft, Supplemental, and Final EISs, Sound Transit has hosted and/or participated in several public meetings, workshops, and numerous stakeholder meetings in support of the environmental process. Table B-4 lists the public and stakeholder outreach meetings held to date for the Sound Transit East Link Project.

TABLE B-4
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	Date
Overlake Hospital	1/8/2006
Redmond Chamber	6/20/2006
Kirkland Summerfest	7/14/2006
Bellevue Arts and Crafts Fair	7/28/2006
Avalon Bay Communities	8/4/2006
Hines Development	8/11/2006
Bellevue Downtown Association	8/26/2006
Puget Sound Energy	8/31/2006
Schnitzer NW	9/12/2006
East Link Scoping Meeting and ST2 Open House, Bellevue	9/13/2006
East Link Redmond Scoping Meeting	9/14/2006
Michael Johnson, Redmond Chamber and West Bellevue Neighbor	9/18/2006
Puget Sound Energy	9/19/2006
East Link Scoping Meeting and ST2 Open House, Seattle	9/20/2006
East Link Mercer Island Scoping Meeting	9/21/2006
Bellevue City Council	9/25/2006
Bellevue Planning Commission	9/27/2006
Redmond City Council	10/3/2006
Sterling Realty Organization	10/9/2006
Bellevue Chamber and Bellevue Downtown Association Transportation Committee	10/10/2006
Overlake and Group Health Hospitals	10/10/2006
Hopelink	10/13/2006
Newport Hills Community Club	10/17/2006
Redmond Chamber	10/19/2006
The Dwelling Company	10/19/2006
Microsoft	10/23/2006
Sound Transit and City of Redmond Coordination	11/6/2006
Surrey Downs Neighbors with Connie Marshall	11/7/2006
Bellevue City Council	11/13/2006
Surrey Downs and Bellecrest Boards	11/14/2006
Bellevue Chamber and Bellevue Downtown Association Transportation Committee	11/14/2006
City of Bellevue Bel-Red Steering Committee Meeting	11/14/2006
Woodridge Neighborhood Association	11/15/2006
City of Redmond Overlake Neighborhood Open House	11/15/2006
Enatai Neighborhood Association	11/21/2006

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	Date
Wright Runstad	11/29/2006
Surrey Downs Neighbor	12/1/2006
Eastside Transportation Partnership	12/8/2006
Surrey Downs Neighborhood Board: discussion of portals and I-405 right-of-way	12/11/2006
Muckleshoot Indian Tribe	12/13/2006
Special K	1/10/2007
King County Councilmember Lambert	1/12/2007
Issaquah Chamber	1/16/2007
Stu VanderHoek Properties	1/18/2007
Somerset Community Association	1/23/2007
Meydenbauer Center	1/24/2007
Microsoft	1/30/2007
City of Bellevue Bel-Red Steering Committee Meeting	2/1/2007
Redmond Town Center	2/5/2007
Stu VanderHoek Properties	2/6/2007
John Ewold	2/12/2007
Bellevue Chamber and Bellevue Downtown Association Transportation Committee	2/13/2007
Group Health	2/13/2007
Good Roads Association WSDOT and Sound Transit	2/14/2007
ST2/RTID Open House, Seattle	2/22/2007
Eastside Business Roundtable	2/22/2007
Lake Heights Community Club	2/27/2007
ST2/RTID Open House, Bellevue	2/28/2007
Roads and Transit Public Meeting	2/28/2007
City of Bellevue Bel-Red Steering Committee Meeting	3/1/2007
Issaquah Chamber	3/8/2007
Sterling Realty Organization	3/9/2007
City of Bellevue Bel-Red Open House	3/20/2007
West Bellevue Community Club	3/22/2007
Redmond Chamber	3/26/2007
East Link Route and Station Workshop, Bellevue	3/27/2007
City of Seattle SE District Transportation Planning Meeting	3/28/2007
East Link Route and Station Workshop, Seattle	3/28/2007
Vuecrest Community Association	3/29/2007

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	**Date**
City of Bellevue Bel-Red Steering Committee Meeting	3/29/2007
City of Redmond Overlake Neighborhood Plan Update	3/29/2007
Eastside YMCA	4/4/2007
East Link Route and Station Workshop, Mercer Island	4/5/2007
East Link Route and Station Workshop, Overlake	4/6/2007
East Link Route and Station Workshop, Redmond	4/10/2007
Bellevue City Council	4/16/2007
Robert Rosell and Bellevue Way Neighbors	4/17/2007
Mercer Island Lions Club	4/17/2007
Enatai Neighborhood Association Annual Meeting	4/18/2007
City of Bellevue Bel-Red Steering Committee Meeting	5/3/2007
City of Bellevue Bel-Red Steering Committee Meeting	5/10/2007
Mercer Island City Council	6/4/2007
Crossroads Farmers Market	6/10/2007
City of Bellevue, City of Redmond, and Sound Transit Steering Committee	6/13/2007
City of Bellevue Open House: Downtown Projects	6/14/2007
City of Bellevue Open House: Downtown Projects	6/14/2007
Bellevue Strawberry Festival	6/23-24/2007
Redmond Derby Days	7/7/2007
Downtown Bellevue Association	7/11/2007
Concerts at Marymoor	7/12/2007
Mercer Island Summer Celebration	7/14-15/2007
Bellevue Live at Lunch	7/19/2007
Blueberry Festival	7/21/2007
Mostly Music in the Park	7/22/2007
Wasatch Development	7/23/2007
Bellevue Festival of the Arts	7/27/2007
Bellevue Festival of the Arts	7/28-29/2007
Kemper Development	7/30/2007
Concerts at Marymoor	8/9-11/2007
Bellevue Live at Lunch	8/16/2007
Mostly Music in the Park	8/16/2007
Concerts at Marymoor	8/18/2007
Redmond Greater TMA EcoCommuting Fair	8/22/2007
Bellevue Live at Lunch	8/23/2007

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	**Date**
Crossroads Farmers Market	8/28/2007
City of Bellevue Open House: Best Practices	9/13/2007
West Bellevue Neighborhoods	9/27/2007
City of Bellevue Mini City Hall	7/7/2007
Renton Mayor Law Executive Forum	5/02/2007
Issaquah Chamber Transportation Oversight Committee	5/8/2008
City of Bellevue Open House	5/15/2008
Bellevue Council: Briefing on Preliminary EIS Findings	6/23/2008
Strawberry Festival, Crossroads Park, Bellevue	5/28-29/2008
Derby Days, City Hall, Redmond	7/12/2008
Summer Celebration, Mercerdale Park, Mercer Island	7/12-13/2008
TMA EcoCommunity Fair, Redmond	8/21/2008
ST2 Open House	6/5/2008
Strawberry Festival	6/28-29/2008
Microsoft Transportation Outreach	8/3/2008
Microsoft Commute Transportation Event	9/25/2008
Mt. Baker Community Club	10/6/2008
Microsoft Transportation Outreach	10/23/2008
Mercer Island City Council	12/01/2008
Surrey Downs East Link Committee, Bellevue	12/11/2008
Wallace Properties	1/06/2009
Surrey Downs Community Briefing, Bellevue	1/08/2009
Bellevue City Council: East Link Study Session	1/12/2009
Beaux Arts Town Council Briefing	1/13/2009
Redmond Chamber of Commerce	1/20/2009
Wright Runstad	1/20/2009
Redmond Draft EIS Public Hearing and Open House	1/21/2009
Meydenbauer Center Board of Directors	1/22/2009
Seattle Draft EIS Public Meeting and Open House	1/22/2009
Bellevue Council Study Session	1/26/2009
Eastside Transportation Association	1/27/2009
Mercer Island Draft EIS Public Hearing and Open House	1/27/2009
Bellevue High School Draft EIS Public Hearing and Open House	1/28/2009
Bellevue City Hall Draft EIS Public Hearing and Open House	1/29/2009
Bellevue Hospital District	1/29/2009

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	**Date**
City of Bellevue: Public Hearing on Draft EIS	2/02/2009
Mercer Island Council: Draft EIS Briefing	2/02/2009
Mt. Baker Community Club	2/02/2009
Eastside Transportation TAC	2/03/2009
Puget Sound Energy	2/10/2009
Bellevue Library Board	2/17/2009
Mercer Park Condominiums	2/17/2009
Microsoft	2/19/2009
Bellevue Athletic Club	2/19/2009
Brookeshire Condominiums, Bellevue	2/19/2009
Eleanor and John Griffin	2/19/2009
Cindy Greenbaum Lindner	2/23/2009
Puget Sound Regional Council Freight Group	3/01/2009
Meydenbauer Center	3/05/2009
Mercer Island Chamber of Commerce	3/05/2009
Bellevue Downtown Association	3/09/2009
Su Development	3/13/2009
Redmond Chamber of Commerce	3/18/2009
King County and Bellevue Library Board	4/21/2009
Bloch Properties	4/21/2009
Bellevue Downtown Association	4/29/2009
Bellevue Chamber of Commerce	5/04/2009
Microsoft	6/03/2009
Strawberry Festival, Crossroads Park, Bellevue	6/27-28/2009
Summer Celebration, Mercerdale Park, Mercer Island	7/11-12/2009
International District Festival, Seattle	7/11-12/2009
Redmond Derby Days	7/11/2009
Central Area Festival, Seattle	8/22/2009
Microsoft	9/18/2009
Boeing	9/21/2009
Bellevue Hilton	9/21/2009
Bellevue Stakeholder Briefing: C9T	9/24/2009
Bellevue Club	9/29/2009
South Bellevue Park-and-Ride Outreach	10/6/2009
Overlake Transit Center Outreach	10/6/2009

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	Date
Surrey Downs East Link Light Rail Committee	10/8/2009
Eastside Heritage Center Board	10/8/2009
Overlake Preliminary Engineering Workshop	10/12/2009
Bellevue City Council	10/12/2009
South Bellevue Preliminary Engineering Workshop	10/14/2009
Bel-Red Preliminary Engineering Workshop	10/15/2009
Bellevue Red Lion	10/27/2009
Bellevue YMCA Board of Directors	11/12/2009
TCC Friday Forum at Bellevue City Hall	11/13/2009
Redmond chamber of Commerce	11/17/2009
Douglas Ross, 136th Office Park	11/18/2009
Downtown Bellevue Public Workshop	11/18/2009
Sears Corporation	11/23/2009
Hope Link	11/24/2009
Meydenbauer Center	11/30/2009
Su Development	11/30/2009
Sterling Realty Organization	11/30/2009
Wallace Properties	12/1/2009
Bellevue Chamber of Commerce	12/1/2009
BOMA Suburban Cities Meeting	12/2/2009
Bellevue Downtown Association Light Rail Committee	12/4/2009
Overlake, Children’s, and Group Health Hospitals	12/4/2009
Russ Clark, Arthur Murray Dance Studio	12/4/2009
Eastside Easy Rider Collaborative	12/7/2009
Bellevue Chamber of Commerce Transportation Committee	12/8/2009
Microsoft	12/17/2009
Aiphone Company	12/17/2009
Lake Bellevue Village Condominiums	1/6/2010
Sunset Glass	1/7/2010
The Gardens Senior Living	1/27/2010
Russ Clark, Arthur Murray Dance Studio	2/1/2010
Safeway and Hartland	2/2/2010
Sound Transit and City of Bellevue Joint Workshop	2/11/2010
Bellevue Downtown Association Light Rail Committee	2/12/2010
Redmond Chamber of Commerce	2/16/2010

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	**Date**
Downtown Bellevue Public Open House	2/18/2010
Bellevue Red Lion	2/22/2010
Midlakes Condominiums	2/23/2010
Meydenbauer Center	2/25/2010
Overlake, Group Health, and Children’s Hospitals	3/1/2010
Mt. Baker Community Club, Seattle	3/1/2010
Kris Betty, KBA, Inc.	3/4/2010
Transportation Choices Coalition Forum	3/5/2010
Mercer Island Open House	3/8/2010
Eastside Heritage Center	3/11/2010
Hiawatha Artist Lofts, Seattle	3/11/2010
Seattle Area Social Service Organization Briefing	3/17/2010
Center Park Resident Council, Seattle	3/17/2010
Russ Clark, Arthur Murray Dance Studio	3/30/2010
Bellevue Network on Aging	4/1/2010
Bel-Red/Overlake Open House	4/1/2010
Eastside Transportation Partnership	4/9/2010
Bellevue Chamber of Commerce	4/12/2010
Aiphone Company	4/29/2010
Carriage Hills Condominiums, Bellevue	5/10/2010
Bellevue Chamber of Commerce Transportation Committee	5/11/2010
Wright Runstad Company	5/18/2010
Beacon Properties	5/20/2010
Bellevue Downtown Association	5/21/2009
112th Avenue Drop-in Station, Bellevue	5/27/2010
112th Avenue Drop-in Station, Bellevue	6/1/2010
112th Avenue Drop-in Station, Bellevue	6/2/2010
Nine Lake Bellevue	6/2/2010
Bellefield Residential Park, Bellevue	6/9/2010
Pine Forest Properties	6/10/2010
112th Avenue Community Workshop, Bellevue	6/15/2010
Low Income Housing Institute, Bellevue	6/23/2010
Strawberry Festival, Crossroads Park, Bellevue	6/26-27/2010
112th Avenue Community Workshop, Bellevue	6/29/2010
Overlake, Group Health, and Children’s Hospitals	6/30/2010

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	Date
Microsoft	7/2/2010
112th Avenue Community Workshop, Bellevue	7/7/2010
Summer Celebration, Mercerdale Park, Mercer Island	7/10-11/2010
Redmond Eco-Fair	7/10/2010
Bellevue Club, Carriage Hills, and Carriage Place	7/12/2010
Bellevue Chamber Transportation Committee	7/13/2010
Hospital Station Public Meeting, Bellevue	7/13/2010
South Bellevue 112th Avenue Open House	7/14/2010
Microsoft	7/16/2010
Lincoln Plaza Office Park	7/20/2010
Kaye-Smith, 700 112th LLC	7/26/2010
Children’s Hospital	7/28/2010
State Representative Judy Clibborn	8/4/2010
U.S. Senator Patty Murray staff	8/4/2010
State Representative Deb Eddy	8/5/2010
Meydenbauer Center	8/5/2010
State Representative Larry Springer	8/12/2010
U.S. Representative Dave Reichert staff	8/13/2010
Sven Goldmanis, resident	9/13/2010
Microsoft and City of Redmond	9/14/2010
McCullough Hill and Center Pointe	9/20/2010
City of Bellevue, Bill Pace (Blueberry Farm)	9/22/2010
Pine Forest Properties	9/23/2010
Wright Runstad	9/28/2010
PS Business Parks	10/7/2010
Wright Runstad	10/19/2010
Carriage Place and Carriage Hills Condominium HOA Presidents, Bellevue	10/20/2010
Sound Transit Budget/Service Implementation Plan Open House	10/20/2010
Carriage Place and Carriage Hills Condominium Meeting	10/28/2010
Seattle/King County Realtors Young Professionals Network	11/3/2010
Bellevue Red Lion	11/8/2010
Mobility and Infrastructure Open House, City of Bellevue	11/9/2010
McCullough Hill	11/15/2010
Wright Runstad	10/16/2010
Beacon Properties	11/17/2010

TABLE B-4 CONTINUED
Public and Stakeholder Outreach Meetings Held to Date

Event/Meeting	Date
Brown Bear Car Wash	11/18/2010
Wright Runstad	11/30/2010
Supplemental Draft EIS Public Hearing and Open House, Bellevue	11/30/2010
Morrison Counseling	12/6/2010
Supplemental Draft EIS Social Services Drop-in, Bellevue	12/9/2010
Belle Arts Condominiums, Bellevue	12/15/2010
Legacy Commercial, LLC	12/17/2010
Wendy Jones, resident	12/17/2010
Bellevue Club	1/11/2011
Wright Runstad	1/11/2011
Representative Dave Reichert staff	1/21/2011
Senator Patty Murray staff	1/31/2011
Microsoft	2/1/2011
Representative Jay Inslee staff	2/8/2011
Len's Automotive	2/9/2011
Meadows Homeowners Association	2/16/2011
Children’s Hospital	2/17/2011
Wright Runstad	2/25/2011
Microsoft	2/28/2011
Wendy Jones, resident	3/8/2011
Wright Runstad	3/8/2011
Bellevue College Sustainability Fair	3/9/2011
Betina Finley	3/16/2011
Microsoft Transportation Event	3/23/2011
Microsoft Transportation Event	3/25/2011
Wright Runstad	3/29/2011
Anthony Welcher, resident	4/5/2011
Wright Runstad	4/5/2011
Coinstar Transportation Event	4/20/2011

Appendix C

Environmental Justice

Appendix C

Environmental Justice

C.1 Introduction and Regulatory Framework

This appendix describes the opportunities provided to minority and low-income populations to actively participate in the East Link Project planning process and evaluates whether the project would result in any disproportionately high and adverse effects on individuals in these populations. The analysis was prepared in compliance with Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), dated February 11, 1994, and with the U.S. Department of Transportation (USDOT) Order to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order).

EO 12898, issued by President William Clinton in 1994, provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations." The executive order addresses the importance of public participation in the review process. USDOT issued the DOT Order, which establishes the procedures to use in order to comply with EO 12898 in order to avoid disproportionately high and adverse effects on minority and low-income populations. The DOT Order requires agencies to take two actions:

1. Explicitly consider human health and environmental effects related to transportation projects that may have disproportionately high and adverse effects on minority or low-income populations.
2. Implement procedures to provide "meaningful opportunities for public involvement" by members of minority or low-income populations during project planning and development (DOT Order § 5(b)(1)).

The DOT Order further provides that "In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancement measures that will be taken and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non-low-income areas" (DOT Order § 8(b)).

The following definitions are from the DOT Order for disproportionately high and adverse effects, minority persons, and low-income persons:

1. Disproportionately high and adverse effect on minority and low-income populations means an adverse effect that: is predominately borne by a minority population and/or a low-income population, or would be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and/or non-low-income population (DOT Order 5610.2, § Appendix 1(g)).
2. A minority is a person who meets the following criteria:
    - Black (a person having origins in any of the black racial groups of Africa)
    - Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race)
    - Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands)
    - American Indian or Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition) (DOT Order 5610.2, § Appendix 1(c))
3. A low-income person is identified as a person whose median household income is at or below the Department of Health and Human Services poverty guidelines (DOT Order 5610.2, § Appendix 1(b)).

C.2 Methodology and Approach

The environmental justice analysis for the East Link Project was completed following the guidance documented in Sound Transit's *Environmental Action*

Team Issue Paper No. 36 Implementing Environmental Justice Pursuant to Executive Order 12898 and the Department of Transportation Order to Address Environmental Justice in Minority Populations and Low-Income Populations (Sound Transit, 2001*).* The issue paper was written to provide specific guidance about environmental justice methodology for impact assessment and public outreach. The issue paper describes the three processes to be used when implementing an environmental justice analysis: public involvement processes, analyzing potential disproportionate high and adverse effects, and documentation.

The environmental justice analysis describes the demographics of the East Link Project study area using the most recent U.S. census data available at the time the analysis was initiated (2000); provides information on the efforts that Sound Transit has made to involve minority and low-income populations in the East Link Project; and assesses whether the East Link Project would result in disproportionately high and adverse effects on minority and low-income populations, taking into consideration mitigation and enhancement measures and project benefits, as appropriate. The analysis of potentially disproportionate high and adverse effects is based upon the information developed in this Final EIS and the accompanying technical appendices in Appendix F and the technical reports in Appendix H.

C.3 Study Area Demographics

The study area that was used for the environmental justice analysis is a 0.5-mile radius around the East Link Project alternatives. This radius was identified as the area most likely to receive the greatest impact, both positive and negative, as a result of the project. Sound Transit reviewed 2000 Census data to determine the demographic composition of minority and low-income populations located within the study area, then developed geographic information system (GIS) maps to illustrate the minority and income characteristics of the population in the study area. The study area includes census blocks or census block groups that are either located entirely or partially within the 0.5-mile radius. Minority populations were analyzed at the census block level, while income information was reviewed at the census block group level because income information is not available at the census block level. Exhibits C-1 and C-2 show minority percentages in the study area, and Exhibits C-3 and C-4 show percentages of the population below the poverty line.

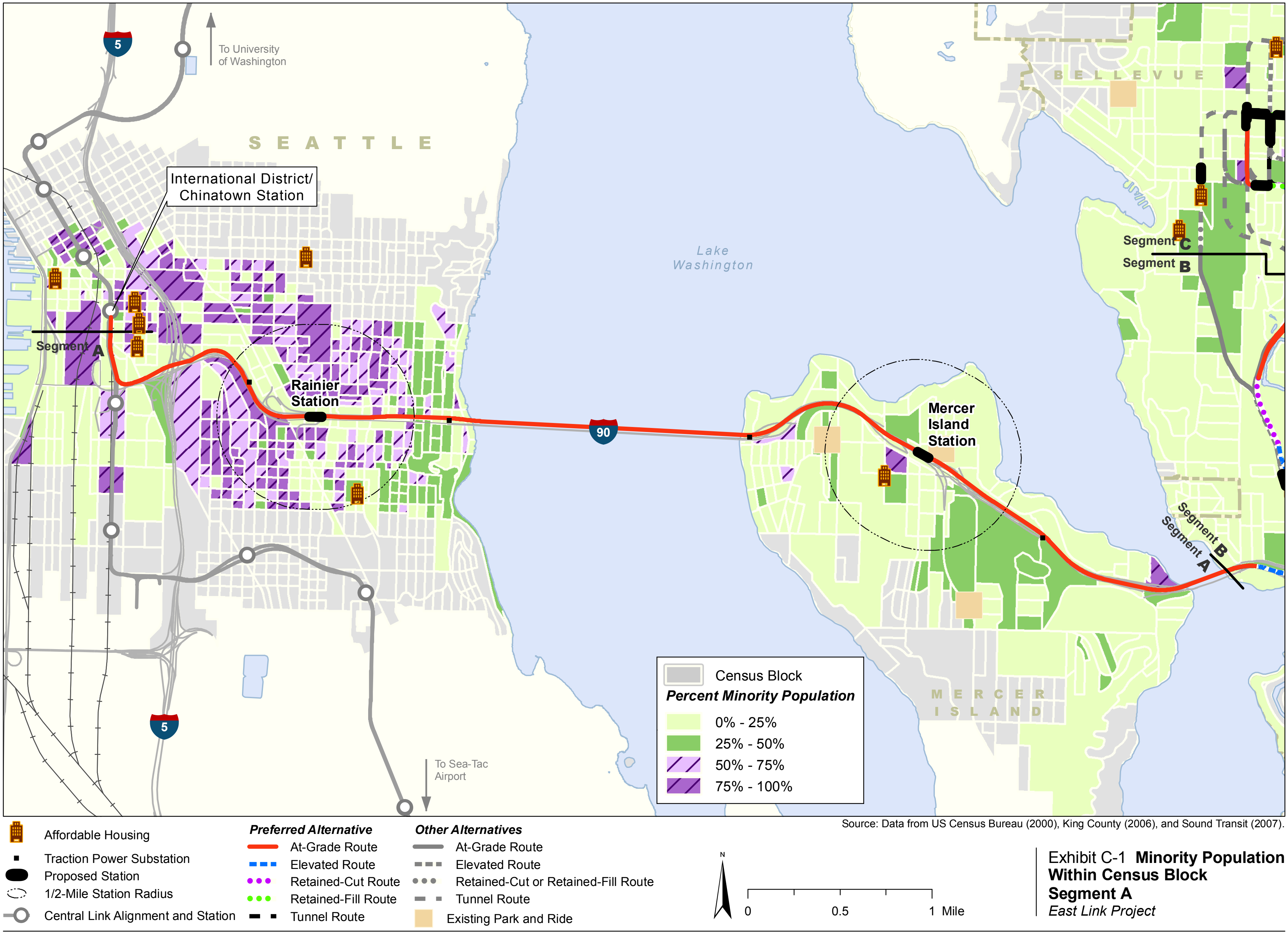
As shown in Exhibits C-1 and C-2, most of the census block groups and blocks in the study area have minority population concentrations in the 0 percent to 25 percent and 25 percent to 50 percent ranges. The higher concentrations of minority populations are located within Segment A in the City of Seattle, specifically in neighborhoods in the Chinatown/International District, Central Area, and North Rainier Valley. As shown in Exhibits C-3 and C-4, most of the low-income population concentrations within the Census Block Groups are in the 0 percent to 25 percent range. A higher concentration of low-income population is also located in the Chinatown/International District, Central Area, and North Rainier Valley neighborhoods of Seattle in Segment A, although these are largely in the 25 percent to 50 percent range. Additional information on the benefits of the project to these groups is discussed in Section C.6.

What are Census Tracts, Block Groups, and Blocks?

A census tract is a small subdivision of an urban area used by the U.S. Census Bureau to identify population and housing statistics. Census blocks are subdivisions of census tracts and are the smallest unit of census geography for which the Census Bureau collects data. The boundaries of census blocks are generally streets or other notable physical features and often correspond to a city block. A census block group is a combination of census blocks, typically encompassing two to four city blocks. The census collects some information at the block level, some at the block group level, and some at the tract level.

The 2000 Census data may no longer reflect current conditions in some areas within 0.5 mile of the East Link Project alternatives. For example, redevelopment within census block groups and census blocks in Downtown Bellevue and east of Downtown Redmond (Segments C and E) has resulted in areas where populations have been relocated and no residential populations exist. To supplement the Census data, Sound Transit collected and reviewed data for public elementary schools within attendance boundaries that cross the study area because such data are more current that Census data.

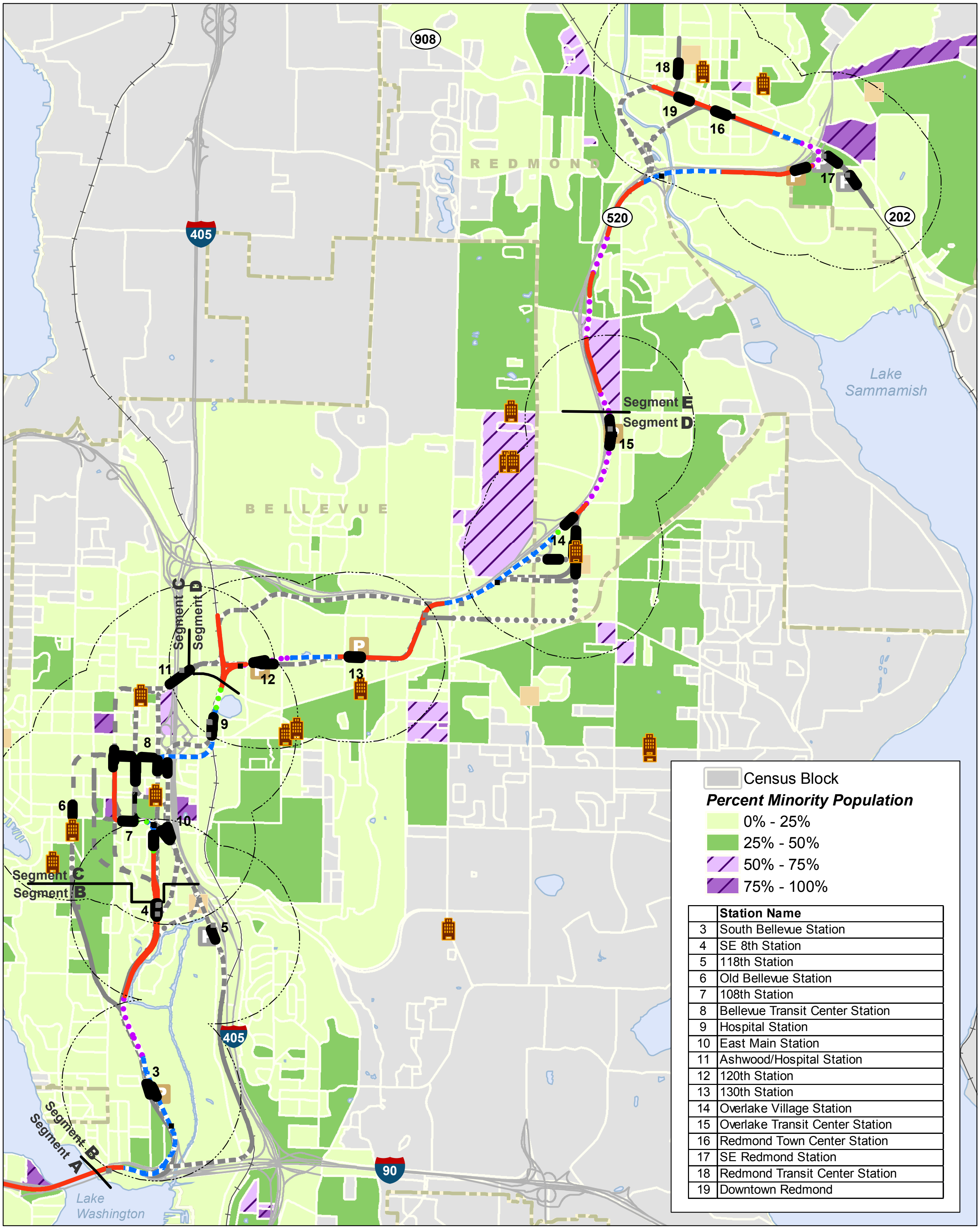
The analysis used elementary schools because their attendance boundaries tend to be more representative of the study area and are smaller than middle and high school boundaries. However, the attendance boundaries for these elementary schools do include areas that fall outside of the study area.


5
To University of Washington
S E A T T L E
International District/ Chinatown Station
Segment A
Rainier Station
Lake Washington
90
Mercer Island Station
B E L L E V U E
Segment C
Segment B
Segment B
Segment A
M E R C E R I S L A N D
5
To Sea-Tac Airport
Census Block
Percent Minority Population
0% - 25%
25% - 50%
50% - 75%
75% - 100%
Affordable Housing
Traction Power Substation
Proposed Station
1/2-Mile Station Radius
Central Link Alignment and Station
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Existing Park and Ride
N
0
0.5
1 Mile

Source: Data from US Census Bureau (2000), King County (2006), and Sound Transit (2007).

Exhibit C-1 **Minority Population Within Census Block Segment A**

East Link Project


908
REDMOND
405
520
202
Lake Sammamish
BELLEVUE
Segment E
Segment D
Segment C
Segment D
Segment C
Segment B
Segment B
Segment A
Lake Washington
90
18
19
16
17
15
14
13
12
11
9
8
6
7
10
4
5
3
Census Block
Percent Minority Population
0% - 25%
25% - 50%
50% - 75%
75% - 100%

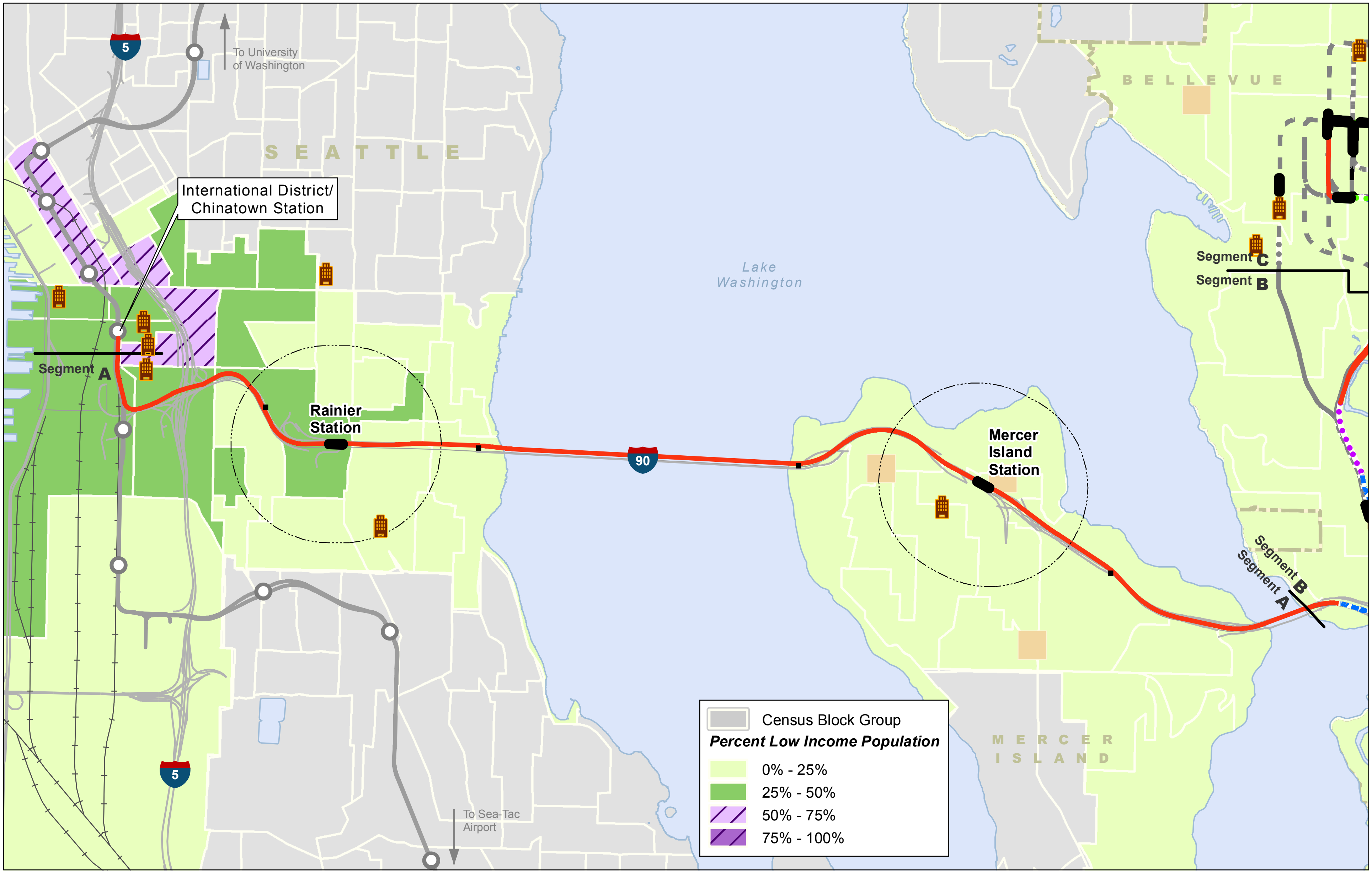
	Station Name
3	South Bellevue Station
4	SE 8th Station
5	118th Station
6	Old Bellevue Station
7	108th Station
8	Bellevue Transit Center Station
9	Hospital Station
10	East Main Station
11	Ashwood/Hospital Station
12	120th Station
13	130th Station
14	Overlake Village Station
15	Overlake Transit Center Station
16	Redmond Town Center Station
17	SE Redmond Station
18	Redmond Transit Center Station
19	Downtown Redmond

Source: Data from US Census Bureau (2000) and King County (2006).

Affordable Housing
Traction Power Substation
Proposed Station
1/2-Mile Station Radius
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
New and/or Expanded Park-and-Ride Lot
Existing Park and Ride
N
0
0.5 Mile

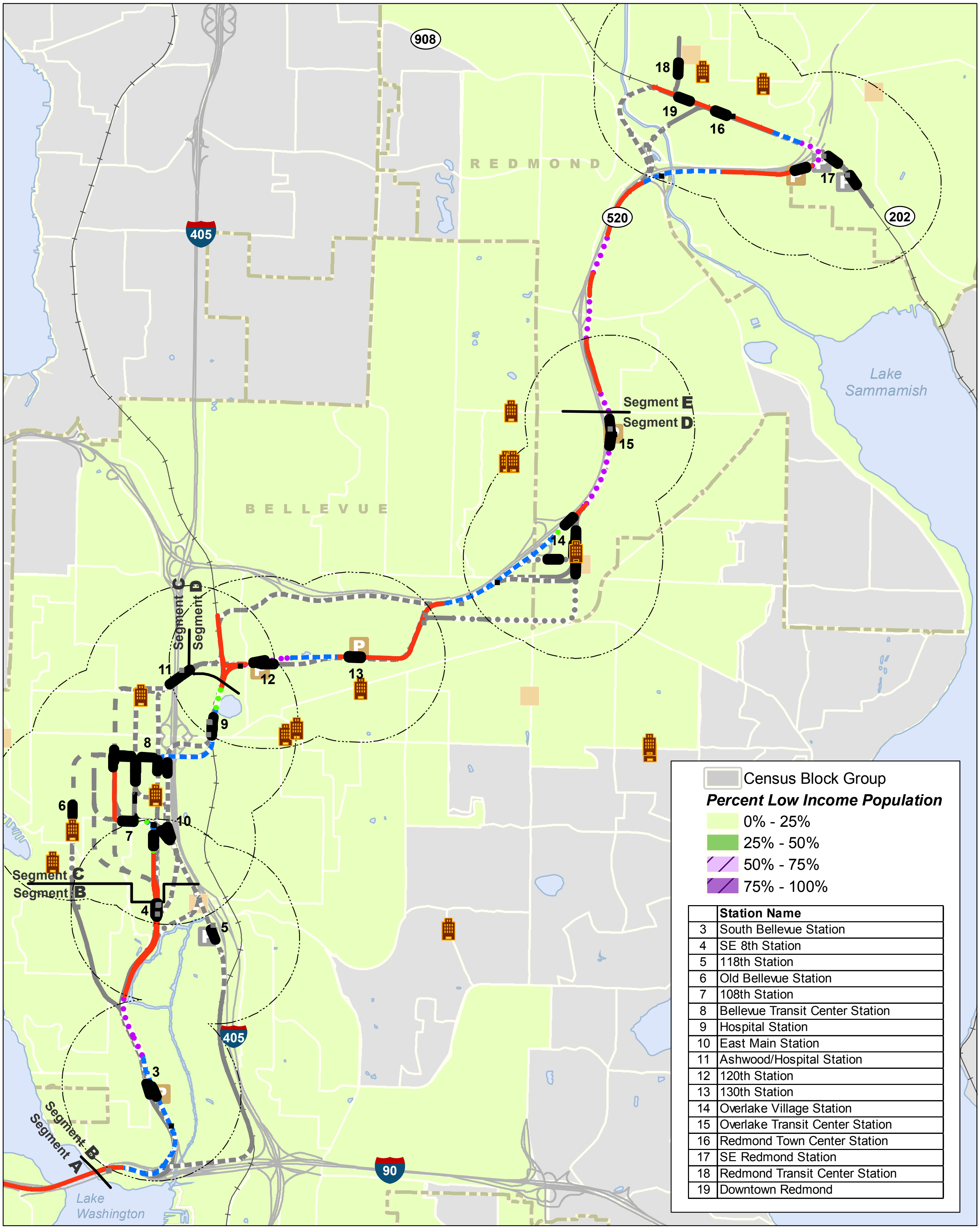
Exhibit C-2 **Minority Population Within Census Block Segments B,C,D, and E**

East Link Project


5
To University of Washington
SEATTLE
International District/ Chinatown Station
Segment A
Rainier Station
Lake Washington
90
Mercer Island Station
BELLEVUE
Segment C
Segment B
Segment B
Segment A
MERCER ISLAND
5
To Sea-Tac Airport
Census Block Group
Percent Low Income Population
0% - 25%
25% - 50%
50% - 75%
75% - 100%
Affordable Housing
Traction Power Substation
Proposed Station
1/2-Mile Station Radius
Central Link Alignment and Station
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Existing Park and Ride
N
0
0.5
1 Mile

Source: Data from US Census Bureau (2000), King County (2006), and Sound Transit (2007).

Exhibit C-3 **Low Income Population Within Census Block Group Segment A**
East Link Project


908
REDMOND
405
520
202
18
19
16
17
Lake Sammamish
Segment E
Segment D
15
BELLEVUE
14
Segment C
Segment D
11
12
13
9
8
6
7
10
Segment C
Segment B
4
5
405
3
Segment B
Segment A
90
Lake Washington
Census Block Group
Percent Low Income Population
0% - 25%
25% - 50%
50% - 75%
75% - 100%

	Station Name
3	South Bellevue Station
4	SE 8th Station
5	118th Station
6	Old Bellevue Station
7	108th Station
8	Bellevue Transit Center Station
9	Hospital Station
10	East Main Station
11	Ashwood/Hospital Station
12	120th Station
13	130th Station
14	Overlake Village Station
15	Overlake Transit Center Station
16	Redmond Town Center Station
17	SE Redmond Station
18	Redmond Transit Center Station
19	Downtown Redmond

Source: Data from US Census Bureau (2000) and King County (2006).

Affordable Housing
Traction Power Substation
Proposed Station
1/2-Mile Station Radius
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
P New and/or Expanded Park-and-Ride Lot
Existing Park and Ride
N
0
0.5 Mile

Exhibit C-4 **Low Income Population Within Census Block Group Segments B,C,D, and E**
East Link Project

Consequently, the minority and low-income population data in Table C-1 are representative of children who may live anywhere within the attendance boundaries and not necessarily within the study area. Although the school data do not provide for a direct comparison with the Census data, they are useful in giving a more recent general demographic characterization of the population of the study area because the U.S. Census data are more than 10 years old and despite the mismatch of the boundaries. In addition, student data for the Seattle Public Schools represents those students who attend the school and may not reside in the surrounding area due to the ability of parents to select which Seattle public school their children can attend. Data were collected from the U.S. Department of Education Common Core of Data for Seattle Public Schools, Mercer Island School District, Bellevue School District, and the Lake Washington School District and are based on the 2008-2009 school year. School data enrollment is characterized by race/ethnicity and as a result there may be differences in the demographic information as it relates to Census data, which includes separate tables for race and ethnicity. The low-income information collected is based on students who participate in a free-lunch program.

When the minority populations of the 2008-2009 school year data are compared to the 2000 Census data, most of the areas in the study area appear similar and there are no major differences except in the Seattle area. In the Seattle area, the school data for the four elementary schools in the study area (Beacon Hill, Leschi, Thurgood Marshall, and Gatzert) indicate that approximately 91 percent of the elementary students are considered minority, which may indicate the overall population would be similar, whereas the Census data indicate the minority population to be approximately 51 percent, a potential 40-percent increase since the 2000 Census. The low-income data are similar for all areas. Because the elementary school information is based only on the portion of the general population that attends public schools, the data may not truly reflect the actual population that resides in the East Link Project study area. Therefore, as stated earlier, the school data and the Census data do not allow for direct comparisons, only for potential indicators in changing demographics.

The Census data may not reflect the current conditions for the areas where the project would result in the relocation of residents. If the analysis of project effects, mitigation measures, and project benefits had indicated potential disproportionately high and adverse effects, additional demographic analysis in the areas discussed above would have been performed to determine with greater specificity the populations that would be affected. However, as described in Section C.5, no potential disproportionately high and adverse effects were identified

C.4 Outreach to Minority and Low-Income Populations

As part of East Link Project public outreach, Sound Transit has made it a priority to engage diverse minority and low-income populations early in the planning and development process by providing materials and making them available in multiple formats. Public participation is a key component of EO 12898 and the DOT Order. Sound Transit has developed numerous events and tools to successfully engage and communicate with the public, including scoping meetings, workshops, fact sheets/handouts, posters, display advertisements, stakeholder briefings, project information provided at community events and festivals, and a project website that is regularly updated throughout the project. General public involvement in the project is described in Appendix B, Public and Agency Involvement.

Before scoping, Sound Transit reviewed the minority and income characteristics of the population in the East Link Project vicinity to identify minority and low-income populations. Based on this information, public involvement has included, and will continue to include, outreach at key milestones specific to those groups using the public involvement tools developed by Sound Transit. Initially, based on 2000 Census data, Sound Transit literature included a language block (i.e., text box on the literature) translated into Russian, Chinese, Spanish, and Tagalog regarding contacting and speaking with Sound Transit staff in those languages about the East Link Project. Based on community input, in 2008 Vietnamese and Farsi were included in the language blocks, and in 2010 Tagalog and Farsi were removed and Korean, Hindi, and Japanese were included in the language blocks. Sound Transit has identified organizations that serve minority, non-English speaking, or low-income populations within the East Link Project vicinity and these organizations have been entered into the project mailing list.

TABLE C-1
Public Elementary School Demographics

School	Total Students	Totals for Whom Minority Data Were Provided	American Indian/Alaskan Native	Asian/Pacific Islander	Black	Hispanic	White	Free Lunch
Segment A, Interstate 90								
Beacon Hill Elementary	401	401	6	202	53	101	39	192
Leschi Elementary	274	274	4	11	215	23	21	173
Thurgood Marshall Elementary	268	268	1	42	151	56	18	198
Gatzert Elementary	309	309	6	70	129	74	30	243
West Mercer Elementary	659	641	3	125	8	13	492	13
Totals	1,911	1,893	20	450	556	267	600	819
Percent of Totals			1.0	23.8	29.4	14.1	31.7	43.3
Segment B, South Bellevue								
Enatai Elementary	459	410	0	89	12	32	277	42
Woodridge Elementary	488	434	0	152	16	28	238	85
Totals	947	844	0	241	28	60	515	127
Percent of Totals			0.0	28.6	3.3	7.1	61.0	13.4
Segment C, Downtown Bellevue								
Enatai Elementary	459	410	0	89	12	32	277	42
Woodridge Elementary	488	434	0	152	16	28	238	85
Clyde Hill Elementary	580	528	3	157	3	10	355	15
Totals	1,527	1,372	3	398	31	70	870	142
Percent of Totals			0.2	29.0	2.3	5.1	63.4	9.3
Segment D, Bel-Red/Overlake								
Stevenson Elementary	635	595	0	329	34	121	111	155
Ardmore Elementary	296	264	0	88	9	80	87	84
Totals	931	859	0	417	43	320	198	239
Percent of Totals			0.0	48.5	5.0	36.8	23.1	25.7
Segment E, Downtown Redmond								
Rush Elementary	393	379	2	97	10	34	236	24
Audubon Elementary	454	424	0	128	5	16	275	24
Redmond Elementary	423	388	2	87	22	62	215	104
Totals	1,270	1,191	4	312	37	112	726	152
Percent of Totals			0.3	26.2	3.1	9.4	61.0	12.0

Source: National Center for Education Statistics, 2010

These organizations were sent postcards associated with scoping, Draft EIS, and Supplemental Draft EIS (SDEIS) public meetings and hearings. Follow-up phone calls were made to find out whether the organizations needed any additional information about the East Link Project, and they were reminded how they could submit public comments. Organizations were also asked if they would like project staff to meet with members of their organization to review the scoping information. Staff have met with and briefed the management team of Hopelink, which serves the greater Eastside community.

Public involvement and outreach actions targeted at minority and low-income populations, as defined under the DOT Order, include the following efforts:

- Perform continued consultation with key community organizations for assistance in outreach to minority and low-income individuals.
- Provide agency and project-specific information to key community organizations that serve the minority and/or low-income populations prevalent in the areas to be served by or in the vicinity of the East Link Project.
- Present project information at meetings held at community venues in locations with minority and/or low-income populations likely to be served by the East Link Project and/or directly affected by construction activities.
- Provide publication-specific translated language blocks, in Russian, Chinese Mandarin, Spanish, Vietnamese, Korean, Hindi, and Japanese on outreach materials produced for the East Link Project.
- Offer interpretation services for all public meetings for deaf and non-English speaking community members.
- If Sound Transit is contacted by anyone who has limited use of English, Sound Transit staff can access an immediate over-the-phone interpretation service provided by Telelanguage, a full-service language interpretation and translation company that provides interpretation in 150 languages, 24 hours a day and 7 days a week

Additional project specific processes related to outreach are discussed as follows.

C.4.1 Scoping Meetings

Sound Transit began the Draft EIS process for East Link in 2006 with four public scoping meetings that were held at locations throughout the East Link Project vicinity, providing a variety of locations and dates to maximize opportunity for attendance. The scoping meetings were advertised by sending postcards to over 150,000 residents and businesses in the project vicinity, including the list of organizations that served minority and low-income households. In addition, display advertisements with the scoping meeting details were placed in local publications. Sound Transit received approximately 300 written and oral comments, which included expressions regarding preferences for a particular alternative or addressing a specific segment or some larger concern for the East Link Project as a whole.

In addition to the public scoping meetings, Sound Transit held an agency scoping meeting and invited tribes with interests in the East Link Project vicinity. Sound Transit identified the Muckleshoot Tribe, Snoqualmie Tribe, Suquamish Tribe, Tulalip Tribe, Yakama Tribe, and Duwamish Tribe as those tribes with interests in the project vicinity. The project vicinity does not include any tribal lands, but the tribes are expected to have interests regarding natural and cultural resources. Communications and coordination with the tribes regarding cultural resources are documented in the Historic and Archaeological Resources Technical Report (Appendix H4).

C.4.1.1 Targeted Outreach January 2007 through September 2008

In early 2007, Sound Transit held a series of five East Link Project route and station workshops at locations throughout the project vicinity in order to educate workshop participants about the project. The workshops also were intended to obtain design feedback and community knowledge to assist in the development of station concepts, right-of-way requirements, and routes, and to identify any neighborhood-specific issues. Sound Transit mailed workshop notification flyers to over 85,000 residential and business addresses that were within 0.5 mile of all alternatives based on postal carrier routes, as well as all of Mercer Island. These carrier routes include minority and low-income residents. Common themes at these workshops included preserving key community and environmental resources, minimizing changes in the character of neighborhoods, providing direct access to stations, and preventing noise and visual impacts of an elevated guideway.

Advertisements for the scoping meetings and workshops included postings in a number of ethnic publications, such as *Chinese Post*, *El Mundo*, *Russian World*, and *The Skanner*. Notice of the meetings was also posted at community centers, public libraries, and post offices in Seattle, Mercer Island, Bellevue, and Redmond.

In mid-2007, Sound Transit expanded the list of organizations that serve minority, non-English speaking, low-income, and senior populations in East King County and mailed each (approximately 50 organizations) an outreach letter and a packet of East Link Project information. These organizations included service organizations (i.e., Bellevue Family YMCA, Department of Social and Health Services [DSHS] King Eastside Community Services Office, Eastside Refugee and Immigrant Coalition [ERIC], Hopelink, and Senior Services), ethnic churches (i.e., Holy Cross Chinese Lutheran Church, Bellevue First Romanian, and Highland Covenant Church), and foreign language schools (i.e., Northwest Chinese School and Bel-Red Bilingual Academy). The information was sent to inform these organizations about the project as well as to learn about the populations they serve and obtain contact information of individuals who would like to be kept informed on the East Link Project. Offers were made in the letter to translate any of the project-related information into a different language to facilitate populations learning about the project. Sound Transit made follow-up telephone calls to each organization and asked if there were any questions or to inquire about meeting with the organization. Sound Transit conducted additional follow-up with these organizations, and additional meetings were held as the project continued. On September 7, 2007, Sound Transit staff met with Barb Tuininga, the coordinator the City of Bellevue Mini City Hall located in Crossroad Mall in northeast Bellevue to discuss Sound Transit's outreach to minority or low-income populations in east King County and to find out more information about the minority and low-income populations that use the Mini City Hall services.

In March 2008, a project update was mailed to over 85,000 businesses and residences located within 0.5 mile of the alternatives, including all of Mercer Island, and anyone who requested to be on the East Link mailing list. In addition, Sound Transit mailed the project update to the 50 community organizations previously identified. The project update provides information on the project status and next steps, as well as reminding the public that Sound Transit staff is available to meet with them to answer any questions they might have about the project. Throughout this period, Sound Transit has maintained an up-to-date East Link Project webpage with project-related information, frequently asked questions (FAQs), a document library, and staff contact information.

C.4.1.2 Targeted Outreach for the Draft EIS Release

The release of the Draft EIS included a public notice, request for comments, and public hearings and opportunities for comment. Additional targeted outreach to the 50 community groups and organizations serving low-income, minority, and senior populations in the project vicinity was also conducted around the release of the Draft EIS and the subsequent comment period. Sound Transit prepared a Draft EIS fact sheet and translated the Draft EIS fact sheet into Russian, Chinese, Spanish, Tagalog, Vietnamese, and Farsi, then distributed these to the community groups and made them available on the project website and at the public hearings. The fact sheet and translations were also distributed at public places such as Bellevue's Mini City Hall, community centers, and public libraries. Staff also translated the fact sheet into additional languages upon request. Each community group was sent a letter with a packet of information to accomplish the following:

- Notify them that the Draft EIS is available
- Tell them where to find the Draft EIS online or how to request a hard copy
- Define what the comment period is
- Explain how to comment on the Draft EIS
- Provide details on the public hearings

Staff followed up with a phone call to each group to answer questions, explain the comment period process, explain how they can provide comments, offer to provide a briefing to staff or clients, and ask whether they would like additional copies of the Draft EIS fact sheet or other materials in English or translated into the language they identify.

Sound Transit translated display advertisements announcing the release of the Draft EIS and comment period for publication in minority newspapers that serve the Eastside. The East Link Project website was also updated during this time with information on the Draft EIS process; a link to the electronic version of the Draft EIS document; the comment period, time, and location of public hearings; how to request an interpreter at the meeting; and how to submit a comment.

C.4.1.3 Targeted Outreach for the Supplemental Draft EIS Release

The release of the SDEIS in November 2010 included the following forms of outreach:

- Public notice in local newspapers and online publications

- Announcement of the public hearing and project update sent to the addresses or post office boxes of those who live within 0.5 mile of the proposed alternatives
- Email notice to those in the project database and project listserv
- Notice on the Sound Transit website and East Link Project website
- Public hearing

Before the SDEIS was published, Sound Transit reviewed and updated its list of community groups and organizations. The agency then conducted additional targeted outreach to 85 community groups and organizations serving low-income, minority, and senior populations in the project vicinity around the release of the SDEIS and the subsequent comment period. Sound Transit prepared a SDEIS fact sheet and translated it into Russian, Chinese Mandarin, Spanish, Vietnamese, Korean, Hindi, Japanese, and Braille and made it available to community groups and individuals. Sound Transit conducted similar activities as during the distribution of the 2008 Draft EIS, which included distributing the fact sheets, providing translations at public places, and distributing a letter and making telephone calls to each community group and organization offering a separate briefing and opportunities to speak directly to staff.

Sound Transit translated display advertisements announcing the release of the SDEIS and comment period for publication in minority newspapers that serve the Eastside. The East Link Project website was updated with information on the SDEIS process; a link to the electronic version of the SDEIS document; the comment period, time, and location of the public hearing; how to request an interpreter at the meeting; and how to submit a comment.

C.4.1.4 Targeted Outreach for the Final EIS Release

The release of the Final EIS included the following forms of outreach:

- Public notice in local and online newspapers
- Email notification to the project listserv
- Postcard to those in the project database
- Notice on the Sound Transit website and East Link Project website
- Announcement sent to addresses or post office boxes of those who live within 0.5 mile of the proposed alternatives, including community groups and organizations who serve them

The above outreach was carried out in an effort to ensure notification of the Final EIS and provide opportunities for community members and organizations to discuss the Final EIS with project staff. The Final EIS was circulated as required under the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) and includes the responses to comments made on the Draft EIS and the SDEIS.

Similar to outreach activities for the 2008 Draft EIS and the 2010 SDEIS, Sound Transit sent each identified community group and organization a letter and fact sheet on the Final EIS with information regarding its publication. Fact sheets were translated it into Russian, Chinese Mandarin, Spanish, Vietnamese, Korean, Hindi, Japanese, and Braille and were made available to community groups and individuals. Staff followed up with telephone calls to each group to answer questions, offer to provide a briefing to staff or clients, and ask whether they would like material translated into the language they identify. In addition to placing display advertisements in local newspapers and online publications, Sound Transit translated display advertisements announcing the release of the Final EIS in minority newspapers that serve the Eastside. The East Link Project website was updated with a link to the electronic version of the Final EIS document, how to contact staff for questions or request an interpreter, and next steps of the project.

C.5 Project Impacts and Mitigation

The DOT Order requires agencies to explicitly consider human health and environmental effects related to transportation projects that may have a disproportionately high and adverse effect on minority or low-income populations. Section 8.b of the DOT Order allows for mitigation and enhancement measures to be taken into consideration when determining project impacts. Table C-2 summarizes the impacts identified in the elements that have been analyzed for the EIS and that can be differentially distributed, as well as any mitigation that would reduce or eliminate the impacts. Overall, the East Link Project would result in impacts that would affect all populations to the same degree. Table C-2 also provides information for those elements where the project would result in beneficial impacts or the impacts would accrue to a different degree to minority and low-income populations. Most impacts associated with the East Link Project would be effectively mitigated, and the remaining impacts would be limited in scope and/or duration. Therefore, the East

Link Project would not result in any impacts that would be considered disproportionately high and adverse under EO 12898 and the DOT Order. Complete information on the project impacts is provided in Chapters 3 and 4 of this Final EIS. Mitigation measures are provided in Appendix I.

In addition, as described in Section C.6, the East Link Project would have several beneficial effects, particularly for minority and low-income populations. These benefits further support the conclusion that no disproportionately high and adverse effects would result.

C.6 Project Benefits

Under the DOT Order, the benefits of a proposed transportation project may be taken into account when determining whether any disproportionately high and adverse effects on minority and low-income populations would occur. Operating the East Link Project would provide a number of benefits, including improved access to transit; a safer, more reliable, and more efficient transportation system; improved mobility through the project vicinity; transit travel time savings; improved accessibility to employment; and extended transit service hours.

While all populations within the project's service area would realize these benefits to the same extent, they would accrue to a higher degree to minority and low-income populations as described in the following subsections. These transit benefits further support the conclusion that the East Link Project would not result in disproportionately high and adverse effects on minority and/or low-income populations.

TABLE C-2
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
Transportation	• Improved transit travel times, reliability, and convenience. • Approximately a 0.2 percent reduction in both vehicle miles traveled and vehicle hours traveled. • Impacts related to the loss of parking spaces and impacts on property access and circulation related to the loss of left-hand turn movements and turning restrictions of right in and right out. • Beneficial for all populations who use transit, including minority and low-income populations.	• Turn pockets would be provided to increase capacity and improve intersection level of service. • Sound Transit would work with business districts to develop impact minimization efforts during construction. • U-turn movements would be provided at intersections, where movement is allowed. • Sound Transit would work with the local agencies regarding stations that are located within the median of roadways to ensure that appropriate treatments are provided for safe and effective pedestrian access.
Acquisitions, Displacements, and Relocations	• Segment A would have no impacts, but the other segments would require full property acquisitions and displacement of existing uses. Depending on the alternative and/or design option selected, full acquisitions range from 1 to 20 in Segment B, 4 to 36 in Segment C, 2 to 18 in Segment D, 6 to 16 in Segment E, and 3 to 18 for the Maintenance Facility. • Residential relocations would occur within Segments B, C, and E, where the minority and low-income population concentrations are low.	• Residents and businesses displaced by the East Link Project would receive compensation and relocation assistance in accordance with the provisions of Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines. • Residents and businesses would be compensated for portions of property required for project – temporary or permanent use.
Land Use	• Acquisitions in all the segments represent only a small portion of the land available in the study area, and some property acquired could be sold and redeveloped after construction. Land acquired would convert from existing use to a transportation-related use. • All alternatives would be consistent with regional and local plans and polices.	• No mitigation is required or proposed.

TABLE C-2 CONTINUED
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
Economics	• Aside from Segment A, all segments would result in business and employee displacements; however it is expected that business displacements would be relocated, and, therefore, no long-term impacts on employees are anticipated. • Aside from Segment A, there would be temporary reduction in tax revenues due to property acquisitions and conversions of land; however, redevelopment is expected to offset the initial loss and the economic benefits from transit-oriented development could result in additional tax revenues and business and employment growth • Build alternatives could result in changes in access, circulation, and the loss of parking, which could result in economic impacts for some of the businesses in the project vicinity. • Based upon a review of the businesses that could be displaced, none were identified that provide any services that would be considered uniquely important to minority and/or low-income populations (e.g., ethnic grocery store or food bank). Businesses could be owned by minorities or employ minorities and/or low-income populations; however, it is expected that the businesses would be relocated and no jobs would be lost. Impacts would not accrue to a greater degree to minority or low-income populations.	• Businesses displaced by the East Link Project would receive compensation and relocation assistance in accordance with the provisions of Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines.
Social, Neighborhoods, Community	• East Link would provide a reliable mode of transportation and improved transit accessibility. • East Link would not result in adverse effects on any of the identified neighborhoods in the project vicinity. • Project would not create any barriers to interaction and could enhance cohesion as new meeting points for adjoining neighborhoods. Increased transit access and transit-oriented development could also improve cohesion. • The East Link Project would result in beneficial impacts for all populations.	• No mitigation is required or proposed.
Visual and Aesthetic Resources	• Segments A and D would have no impacts, and Segments B, C, and E would experience impacts on the existing visual quality for most of the alternatives. In general, these impacts would be the result of vegetation removal, construction of retaining walls, and the introduction of an elevated structure depending on the alternative. In Segment C, the portions of the tunnel alternatives underground would not change any visual quality categories and the elevated alternatives would block views. • There would be no differences in impacts on all populations.	• Where applicable, Sound Transit would provide replacement landscaping and consult with affected jurisdictions. • Where possible, Sound Transit would preserve existing vegetation.
Air Quality	• No new violations of federal air quality standards would occur, and a slight decrease in regional air emissions is anticipated. • The East Link Project would result in beneficial effects for all populations.	• No mitigation is required or proposed.
Noise and Vibration	• Noise impacts on living and sleeping quarters would be mitigated. • Most of the vibration impacts would be mitigated. Areas where vibration impacts could not be mitigated include a commercial location and up to two multifamily residences in Segment C (depending on the connection with Segment B) and a single-family residence in Segment E. None of these locations contain minority or low-income population where the impacts would accrue to a different degree. • There would be no differences in the noise and vibration impacts on all populations.	• Noise and vibration impacts would be mitigated by installing residential sound insulation, sound walls, special trackwork, or other measures.

TABLE C-2 CONTINUED
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
Ecosystems	• None of the alternatives in any of the project segments would result in any adverse effect on threatened or endangered species. • Segment A would not have any impacts. Segments B, C, D, and E would all have wetland impacts and/or the loss of high-value habitat. • There would be no negative impacts on fish passages or fish habitat after mitigation.	• Compensatory mitigation-to-impact ratios would be used for replacement of wetlands. • Improved habitat features would be provided to improve salmonid spawning and rearing functions.
Water Resources	• Overall, the East Link Project would increase the amount of existing impervious surface area by approximately 16 to 35 acres (including a maintenance facility), depending on the alternatives selected. • Alternatives would result in a reduction in groundwater recharge; however, because the project is linear, it is not expected to result in a substantial decline in groundwater level or other serious groundwater impacts.	• Stormwater would be managed according to applicable regulatory requirements. • No additional mitigation would be required or proposed.
Hazardous Materials	• Use of and generation of hazardous materials would occur at the maintenance facility. • No known potential hazardous material sites would be impacted by Segment A or the Maintenance Facility sites. • All Segment B, C, D, and E alternatives have the potential to encounter high-risk sites.	• Hazardous waste would be managed and contaminated sites cleaned up according to applicable regulatory requirements. • Engineering controls would be constructed to minimize and contain releases and spills.
Electromagnetic Fields	• Anticipated electromagnetic field intensities would not result in impacts that would negatively affect human health. Locations of human exposure within and adjacent to the light rail line are considerably below established exposure guidelines.	• No mitigation is required or proposed.
Public Services	• The alternatives are not expected to result in any negative impacts on overall crime rates in the surrounding neighborhoods. • There is the potential for minor increases in response times due to loss of some left-hand turns, and access for fire and emergency medical services at elevated sections of the track and stations would be more difficult than on the at-grade sections. These situations would not result in any adverse impacts on public services since these situations are few and infrequent.	• Sound Transit would implement a Security and Safety Management Plan and a Fire and Life Safety Committee to address safety and security issues throughout design, construction, and operation. • Measures to minimize crime would include the use of equipment (e.g., closed-circuit television, sealed fareboxes, and automatically sealed exits), the use of anti-crime programs such as anti-graffiti programs, and the use of security personnel.
Utilities	• No long-term impacts on natural gas, electricity, telephone, telecommunications, water, or wastewater are expected with any of the alternatives in any of the segments.	• No mitigation is required or proposed.
Historic and Archaeological	• The project would be located in proximity to historic properties in Segments A, B, C, D, and E. Potential impacts could occur at three historic resources depending on the alternatives selected: the Justice White House with Alternative E4; the potential Surrey Downs Historic District during construction of *Preferred Alternative C11A* or Alternatives C2T, C3T, or C4A; and the Winters House during the construction of *Preferred Alternative B2M*. • No archaeological sites were encountered during investigations.	• A draft Memorandum of Agreement to refine the mitigation measures for the Winters House, potential Surrey Downs Historic District, and Archaeological resources is included in Appendix I.
Parkland and Open Space	• Aside from Segment D, all segments would acquire parkland and open space. Segment A would require 0.4 to 0.6 acre from three parks, depending on whether the pedestrian bridge is selected. Segment B would require between 0.7 and 3.0 acres, depending on the alternative, on up to two parks, including the complete acquisition of the Bellevue Way greenbelt (deemed an insignificant park resource by City of Bellevue) under Alternative B1. Within Segment C, affected parkland would be between 0 and 1.4 acres, depending on the alternative, on up to three parks.	• Where necessary, Sound Transit would acquire replacement land pursuant to Washington State Recreation and Conservation Office and Section 6(f) requirements or provide financial compensation as agreed with the affected jurisdiction. • Other measures would include maintaining access where feasible.

TABLE C-2 CONTINUED
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
	With the Segment C alternatives that would affect McCormick Park during construction, there is the potential for a net gain of up to 1.6 acres of parkland after construction. Segment E would require between 0.2 and 2.0 acres of parklands from up to seven parks and trails, depending on the alternative.	
Construction (construction-related impacts are temporary and limited in duration)	• Aside from Segment A, there would be temporary lane closures, traffic detours, loss of parking, and increased truck traffic for all alternatives, which could negatively affect residents, businesses, and public service providers. • Temporary impacts on the quality of existing land uses due to construction-related activities, including increases in noise levels, dust, traffic congestion, and increased access difficulty. • Adverse impacts on businesses due to lack of access, circulation, and parking. • Increased access and response times for public service providers (fire and emergency medical, police, school buses including King County Metro buses, and solid waste and recycling vehicles). • Temporary visual quality impacts due to the removal of vegetation and demolition of structures. • Potential release of hazardous materials during demolition of buildings. • Relocation of utilities in during construction in Segments B through E. • Construction impacts on historic buildings, including include the temporary loss of access along with visual impacts, noise, vibration, and the dust and debris from construction activities. • For park users, increased noise, dust, and temporary access restrictions where alternatives are located adjacent to or on park property. • Construction easements and staging areas resulting in temporary impacts on parks within Segment B, C, and E, including the Mercer Slough Nature Park, Surrey Downs Park, McCormick Park, and Marymoor Park.	• Haul routes would be developed as approved by local jurisdictions to avoid residential neighborhoods to the extent possible. • Property access would be maintained as much as possible. • Detour signage would be provided where needed. • Sound Transit would work with business districts to develop impact minimization efforts during construction. • Sound Transit would coordinate and work with public service providers on developing any required detour routes and lane closures to minimize increases in travel and response times or interference with collecting solid waste and recyclables or transporting students. • Access and egress for fire and emergency medical would be maintained at all times, which would minimize impacts on response and travel times within all project segments. • Disturbed parks would be restored after construction. Other construction period mitigation measures would include maintaining access during construction and providing financial compensation for temporarily using land outside the light rail right-of-way for construction. • Noise and visual screening would be provided from adjacent land uses where appropriate. • Any temporary property use during construction would be compensated according to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Code of Federal Regulations Title 49, Part 24), and the State of Washington's relocation and property acquisition regulations (Revised Code of Washington 8.26). • Precautions would be taken that historic properties are protected from vibrations, excavations, dirt, dust, and damage from heavy equipment. • Best management practices would be implemented to control dust and stormwater runoff. • Sites where contamination might be present will be assessed, including surveying structures to determine whether they contain hazardous building materials. • A spill pollution control and countermeasure plan and a stormwater pollution prevention plan would be prepared to manage and prevent the release of pollution and hazardous substances to the environment.

FTA	Federal Transit Administration
SHPO	Washington State Historic Preservation Office

C.6.1 Improved Access to Transit

Improved access to transit would result for all those populations within the service area and in particular for those populations residing within 0.5 mile of the stations because of the proximity to the stations. In addition, the extended transit service hours (20 hours per day, Monday through Friday) would also improve access to transit for all populations within the service area due to the longer service period. The demographic makeup of potential ridership was estimated using the demographics of the areas within 0.5 mile of the stations for each of the project alternatives. One-half mile was used because studies have shown residents would walk this distance to access transit. These estimates are based on a GIS extraction of 2000 Census data for the census blocks and census block groups within each station area, and the population data for residents living within the station areas were then aggregated to create a demographic profile of the total population that would have improved access to transit benefit. Table C-3 lists the populations that would have improved access to transit within 0.5 mile of stations for each alternative within each segment.

Based on the information in Table C-3, the minority population concentration ranges from 14.4 to 50.7 percent and low-income population ranges from 4.7 to 13.7 percent for those populations that are within 0.5 mile of the stations within each segment. Segment A has the highest concentrations of minority and low-income populations that would be provided access, which is primarily around the Rainer Station. The Rainier Station, bus routes serving this station, and the East Link connection to the Central Link system would provide greater access for residents of the Rainier Valley and Central District.

TABLE C-3
Access to Light Rail Stations for Minority and Low-Income Populations

Project Alternative and Connection		**No. of Stations**	**2000 Census Block Population with Access**	**Minority Population with Access**	**2000 Census Block Group Population**	**2000 Low-Income Population with Access**
Segment A, Interstate 90						
Preferred Interstate 90 Alternative (A1)	-	2	12,114	6,145 (50.7%)	19,977	2,742 (13.7%)
Segment B, South Bellevue						
Preferred 112th SE Modified Alternative (B2M)	To *Preferred Alternative C11A*	1	2,747	406 (14.4%)	4,912	229 (4.7%)
	To *Preferred Alternative C9T*[b]	2	5,664	1,059 (18.7%)	12,070	661 (5.5%)
Bellevue Way Alternative (B1)	-	1	2,810	406 (14.4%)	4,912	229(4.7%)
112th SE At-Grade Alternative (B2A)[a]	-	2	5,417	1,020 (18.8%)	11,045	614 (5.6%)
112th SE Elevated Alternative (B2E)[a]	-	2	5,589	1,037 (18.6%)	10,963	541(4.9%)
112th SE Bypass Alternative (B3)	-	1	2,747	406 (14.8%)	4,912	229 (4.7%)
B3 - 114th Extension Design Option	-	1	2,747	406 (14.8%)	4,912	229 (4.7%)
BNSF Alternative (B7)	-	1	3,024	590 (19.5%)	5,422	243 (4.5%)
Segment C, Downtown Bellevue						
Preferred 108th NE At-Grade Alternative (C11A)	-	3	9,264	2,234 (24.1%)	15,218	1,184 (7.8%)
Preferred 110th NE Tunnel Alternative (C9T)	From Alternative B2A and B2E[a]	2	5,393	1,284 (23.8%)	11,794	855 (7.2%)
	From Alternative B3 and B7[a]	3	7,027	1,686 (24.0%)	14,412	963 (6.7%)
C9T - East Main Station Design Option [b]	From *Preferred Alternative B2M*	3	7,371	1,874 (25.4%)	16,353	1,211 (7.4%)
Bellevue Way Tunnel Alternative (C1T)	-	3	10,289	2,338 (22.7%)	16,890	1,188 (7.0%)

TABLE C-3 CONTINUED
Access to Light Rail Stations for Minority and Low-Income Populations

Project Alternative and Connection		No. of Stations	2000 Census Block Population with Access	Minority Population with Access	2000 Census Block Group Population	2000 Low-Income Population with Access
106th NE Tunnel Alternative (C2T)	From Alternative B2A and B2E[a]	2	7,095	1,686 (23.8%)	13,182	891 (6.8%)
	From Alternative B3 and B7[a]	3	9,003	2,122 (23.6%)	15,800	999 (6.3%)
108th NE Tunnel Alternative (C3T)	From Alternative B2A and B2E[a]	2	6,557	1,410 (21.5%)	12,025	781 (6.5%)
	From Alternative B3 and B7[a]	3	8,523	1,910 (22.4%)	14,643	889 (6.1%)
At-Grade Couplet Alternative (C4A)	From Alternative B2A and B2E[a]	3	6,755	1,446 (21.4%)	12,025	781 (6.5%)
	From Alternative B3 and B7[a]	3	8,721	1,946 (22.3%)	14,643	889 (6.1%)
112th NE Elevated Alternative (C7E)	From Alternative B2A and B2E[a]	2	5,242	1,222 (23.3%)	10,637	745 (7.0%)
	From Alternative B3 and B7[a]	3	6,352	1,463 (23.0%)	13,255	853 (6.4%)
110th NE Elevated Alternative (C8E)	From Alternative B2A and B2E[a]	2	4,526	942 (20.8%)	10,637	745 (7.0%)
	From Alternative B3 and B7[a]	3	6,492	1,442 (22.2%)	13,255	853 (6.4%)
110th NE At-Grade Alternative (C9A)	From Alternative B2A	2	5,024	1,256 (25.0%)	11,794	855 (7.2%)
	From Alternative B3 and B7[a]	3	6,900	1,683 (24.4%)	14,412	963 (6.7%)
114th NE Elevated Alternative (C14E)	-	2	5,659	1,415 (25.0%)	10,270	795 (7.7%)
Segment D, Bel-Red/Overlake						
Preferred NE 16th At-Grade Alternative (D2A) [c]	-	4	14,352	5,745 (40.0%)	25,011	1,902 (7.6%)
D2A - NE 24th Design Option	-	4	17,652	7,195 (40.8%)	32,553	2,606 (8.0%)
NE 16th Elevated Alternative (D2E)	-	3	12,158	5,131 (42.2%)	26,030	2,290 (8.8%)
SR 520 Alternative (D5)	-	1	8,243	3,522 (42.7%)	13,987	1,238 (8.9%)
Segment E, Downtown Redmond						
Preferred Marymoor Alternative (E2)	-	2	8,692	2,389 (27.5%)	19,352	1,592 (8.2%)
E2 - Redmond Transit Center Design Option	-	3	9,824	2,602 (26.5%)	20,344	1,670 (8.2%)
Redmond Way Alternative (E1)	-	2	8,637	2,421 (28.0%)	14,642	1,361 (9.3%)
Leary Way Alternative (E4)	-	2	8,647	2,430 (28.1%)	14,642	1,361 (9.3%)

[a] These alternatives contain the same population numbers and, therefore, were combined.

[b] An C9T - East Main Station Design Option has no SE 8th Station in Segment B with *Preferred Alternative C9T* connectors; therefore, the demographics are the same as *Preferred Alternative B2M* connecting to *Preferred Alternative C11A*.

[c] D2A - 120th Station Design Option would have the same impacts as those for *Preferred Alternative D2A*.

Source: U.S. Census, 2000.

In the other segments, the minority and low-income percentages of the population that would receive the benefit are similar; however, there are project alternatives that include a larger number of stations than other alternatives within a particular segment and, therefore, would have a larger population receiving the benefit of improved transit access. This is not well reflected among the Segment D alternatives, where the SR 520 Alternative (D5) has two fewer stations than the others, but the ridership is similar. The Bel-Red and Overlake area in Segment D is planned for high-density employment, and, therefore, access to job opportunities may not be as great with D5 for transit riders because of fewer stations.

It has been documented in a number of studies that minority and low-income populations tend to make greater use of transit service than other groups, indicating that the transit service improvements are generally more important to these populations than to other members of the population. Data from the American Public Transportation Association (APTA, 2008) indicates that in 2007 approximately 60 percent of all transit passengers were minority. In addition, data from the 2000 U.S. Census for King County (USDOT, 2004) indicate that 23 percent of all workers who take public transit to get to and from work are from households earning less than $30,000 per year. These same individuals comprise only about 12 percent of all workers in the county. In other words, the rate at which these individuals take public transit is almost twice their rate of occurrence in the county worker pool. With low-income populations taking public transit at a higher rate than their higher income counterparts, the transit operations benefits provided by the project would be key benefits to low-income populations.

C.6.2 Transit Travel Time Savings

Another benefit of the East Link Project would be a reduction in average transit travel times for East Link users. Average transit travel time is the time that it takes someone to travel from door to door (i.e., from the front door of their home to the front door of their work) by a composite of modes (i.e., auto, bus, bicycle, pedestrian, and light rail). The Sound Transit Ridership Model was used to calculate the travel time savings with transit trips in the afternoon (PM) travel period. Trips originate from throughout the region and are destined for each station cluster in the PM peak period. Because most trips in the PM peak period are made by individuals from the workplace to home, the outcome largely describes morning (AM) transit travel time savings also (only in the opposite direction) by those who reside in the station clusters. The results of the transit travel time savings analysis for those who reside in the East Link Project study area are summarized in Table C-4. As shown in Table C-4, the East Link Project would improve the average transit travel time between 7 and 24 percent over the No Build Alternative, depending on the station area cluster. In addition to these travel time savings, the extended transit service hours (20 hours per day, Monday through Friday) would be another substantial transit benefit, particularly to transit users who work outside the typical 8:00 a.m. to 5:00 p.m. work day and may be faced with limited bus schedules.

TABLE C-4
Transit Travel Time Savings Benefits of Select East Link Alternatives by 2030[a]

Station Area Cluster	No Build Alternative Average Travel Time (minutes)	Average Travel Time with East Link (minutes)	Average Travel Time Savings (minutes)	Travel Time Savings Relative to No Build Alternative (%)
Segment A, Interstate 90				
Rainer	52	45	7	14
Mercer Island	50	41	9	18
Segment B, South Bellevue				
South Bellevue	50	43	7	14
118th	60	48	12	20
SE 8th	58	47	11	19
Segment C, Downtown Bellevue				
East Main	64	52	12	19
Old Bellevue	60	51	9	15
Bellevue Transit Center	60	52	8	13
108th	62	52	10	16
Hospital	64	55	9	14
Ashwood/Hospital	60	52	8	13
Segment D, Bel-Red/Overlake				
120th	62	54	8	13
130th	64	58	6	9
Overlake Village	63	56	7	11
Overlake Transit Center	60	56	4	7

TABLE C-4 CONTINUED
Transit Travel Time Savings Benefits of Select East Link Alternatives by 2030[a]

Station Area Cluster	No Build Alternative Average Travel Time (minutes)	Average Travel Time with East Link (minutes)	Average Travel Time Savings (minutes)	Travel Time Savings Relative to No Build Alternative (%)
Segment E, Downtown Redmond				
SE Redmond	66	50	16	24
Redmond Town Center	70	56	14	20
Downtown Redmond	71	58	13	18
Redmond Transit Center	71	61	10	14

[a] Travel time is a composite of all modes of transportation (i.e., auto, bus, walking, bicycle, light rail) used to complete the trip from door to door.

As described in Section C.6.1, these benefits are particularly important to low-income populations as well as minority populations, who tend to make greater use of transit than other groups.

C.6.3 Improved Access to Employment

With the improvements in travel times, users of East Link would be able to travel longer distances in the same amount of time, which could provide new employment opportunities. This benefit is particularly important for the transit-dependent populations that cannot use the bus to access many areas in the project vicinity because of the extended travel times or bus routes that do not serve their destinations well.

Because the East Link Project is expected to improve travel times over the No Build Alternative, users of East Link would have the opportunity to look for employment in areas that were previously considered too time-consuming or difficult to reach. The East Link Project would also provide reliable connections to the large employment centers of Seattle and Bellevue.

C.7 Conclusion

As described above, the East Link Project would not result in any effects that would be considered high and adverse under EO 12898 and the DOT Order. For the most part, project impacts would be limited in scope and others would be mitigated through the implementation of effective mitigation measures. Because the project would not result in disproportionately high and adverse effects, further analysis of the minority and income characteristics of effected populations is not warranted.

The East Link Project would provide substantial benefits that would positively affect minority and low-income populations in the areas surrounding the light rail stations. These benefits include improved access to transit; a safer, more reliable, and more efficient transportation system; improved mobility through the project vicinity; transit travel time savings; improved accessibility to employment; and extended transit service hours. These offsetting benefits further support the conclusion that the East Link Project would not result in disproportionately high and adverse effects as defined in EO 12898 or the DOT Order.

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Appendix D

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Appendix D

Section 4(f)/6(f) Evaluation

D.1 Introduction

This appendix provides documentation necessary to support determinations required to comply with the provisions of United States Code (USC), Title 49, Section 303 (hereinafter referred to as "Section 4(f)") and the Land and Water Conservation Fund (LWCF) Act of 1965 (hereinafter referred to as "Section 6(f)"). Section 4(f) properties are publicly owned lands of a park, recreation area, or wildlife and waterfowl refuge or land of a historical site of national, state, or local significance as determined by the federal, state, regional, or local officials having jurisdiction over the resource. Section 6(f) properties are recreation resources funded by the LWCF Act. Land purchased with these funds cannot be converted to a nonrecreation use without coordination with the National Park Service (NPS) and mitigation that includes replacing the quality and quantity of land used. Converting any portion of these lands follow Code of Federal Regulations, Title 36, Section 59.3 of the Land and Water Conservation Fund Program. This appendix addresses impacts, mitigation and avoidance alternatives on Section 4(f) resources followed by similar discussion on Section 6(f) resources. Section 6(f) regulations and procedures are described in more detail beginning in Section D.6 of this appendix.

Only those Section 4(f) or Section 6(f) resources that are potentially impacted by East Link are addressed in this analysis. Information on publicly owned parklands, recreation lands, wildlife and waterfowl refuges, and historic sites is provided in Section 4.17, Parkland and Open Space; Section 3.16, Historic and Archaeological Resources; and Appendix H4, *East Link Project Historic and Archaeological Resources Technical Report*.

Code of Federal Regulations (CFR), Title 23, Part 774, which directs the use of Section 4(f) resources, as amended March 2008, states the following:

> "*The Administration may not approve the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge or site), unless a determination is made under paragraph (a) or (b) as follows:*
>
> *(a) The Administration determines that:*
>
> *(1) There is no feasible and prudent avoidance alternative to the use of land from the property; and*
>
> *(2) The action includes all possible planning to minimize harm to the property resulting from such use; or*
>
> *(b) The Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a de minimis impact on the property.*
>
> *(c) If the analysis concludes that there is no feasible and prudent avoidance alternative, then the Administration may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose.*"

The proposed East Link Project, which is evaluated in this Environmental Impact Statement (EIS), is a transportation project that might receive federal funding and/or discretionary approvals through the U.S. Department of Transportation (USDOT) (e.g., Federal Transit Administration [FTA]); therefore, documentation of compliance with Section 4(f) is required. In addition, this evaluation incorporates Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Publication L, 109-59. This act amended existing Section 4(f) legislation at 138 USC 23 and 303 USC 49 to simplify the processing and approval of projects that have only *de minimis* impacts on properties protected by Section 4(f). For the East Link Project, FTA is the lead federal agency for USDOT, which makes the final determination on *de minimis* for a particular resource.

A finding of *de minimis* may occur when all possible planning to minimize harm by reducing the impacts on the Section 4(f) property to *a de minimis* level such that the impact does not result in an adverse effect [23 CFR §774.2(b)]. When a finding of *de minimis* can be reached, an analysis of feasible and prudent avoidance alternatives is not required (23 CFR §774.17). The following criteria must be met to conclude a *de minimis* finding:

- For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* finding may be made only if the following apply [23 CFR § 774.5(b)]:

  - Public notice and an opportunity for public review and comment concerning the effects on the protected activities, features, or attributes of the property must be provided. This requirement can be satisfied in conjunction with other public involvement procedures, such as a comment period provided on a National Environmental Policy Act (NEPA) document.
  - The Administration shall inform the official(s) with jurisdiction of its intent to make a *de minimis* impact finding. Following an opportunity for public review and comment as described in paragraph (b)(2)(i) of this section, the official(s) with jurisdiction over the Section 4(f) resource must concur in writing that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

- For a historic site, a *de minimis* finding might be made only if, in accordance with the Section 106 process of the National Historic Preservation Act of 1966 (NHPA) and written concurrence from the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) and from the Advisory Council on Historic Preservation (ACHP), it is found that the transportation program or project will have no impact or no adverse impact on historic properties. FTA shall inform these officials of its intent to make a *de minimis* impact determination based on their concurrence in the finding of "no adverse effect" or "no historic properties affected."

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. In this Final EIS, Section 4.16 documents and Appendix H4, the *East Link Project Historic and Archaeological Resources Technical Report* documents these resources, project effects, and mitigation measures. According to 36 CFR 800 (Section 800.5(a)(1)), the criterion for an adverse effect triggering the Section 106 process is as follows:

> *"An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association."*

Pursuant to 36CFR 800.5(b), an agency may include impact minimization measures as a condition of the project to avoid an adverse effect:

> *"The agency official, in consultation with the SHPO/THPO, may propose a finding of no adverse effect when the undertaking's effects do not meet the criteria of paragraph (a)(1) of this section or the undertaking is modified or conditions are imposed, such as the subsequent review of plans for rehabilitation by the SHPO/THPO to ensure consistency with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines, to avoid adverse effects."*

The evaluation presented in this Section 4(f)/6(f) Evaluation accomplishes the following:

- Identifies Section 4(f) and Section 6(f) resources (Section 6(f) is discussed in Section D.7) along the East Link Project alternative routes, stations, and maintenance facilities
- Discusses how the project elements would affect the resources
- Lists impacted Section 4(f) resources that would qualify for a *de minimis* finding
- Determines whether there are feasible and prudent alternatives that avoid the use of Section 4(f) properties;
- Identifies potential measures that should be considered to minimize harm resulting from unavoidable adverse impacts on Section 4(f) properties; and
- Presents an overall least harm analysis.

The evaluation also documents Sound Transit's and FTA's consultation with public agencies that have jurisdiction over the Section 4(f) and 6(f) properties.

D.2 Proposed Action

The proposed action is to expand the Sound Transit Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond via Interstate 90 (I-90) to provide a reliable and efficient transportation mode for moving people throughout the region.

This Section 4(f)/6(f) Evaluation was prepared in conjunction with the East Link Project Final EIS. The Final EIS Chapter 1, Purpose and Need, and Chapter 2, Alternatives Considered, provide the complete description of the proposed action, and Chapter 2 also illustrates the alternatives considered in this report. Sections 4.16 and 4.17 of the Final EIS describe the historic properties and park and recreational resources in the study area, respectively. Finally, Exhibit D-1 in this Section 4(f)/6(f) Evaluation (see Section D.4.1) depicts the location of the Section 4(f)/6(f) facilities, and Appendix H4, *East Link Project Historic and Archaeological Technical Report,* of the Final EIS shows the location of resources eligible for the National Register of Historic Places (NRHP).

D.3 Definition of Section 4(f) "Use"

Per 23 CFR 774.11, Section 4(f) applies only to those portions of such lands which function for, or are designated in the plans of the administering agency as being for, significant park, recreation, or wildlife and waterfowl refuge purposes as determined by the official(s) with jurisdiction over the Section 4(f) resource. The Section 4(f) requirements apply to historic sites (both structures as well as archaeology sites) on or eligible for the National Register and those portions of the U.S. Interstate System formally identified by Federal Highway Administration (FHWA) for Section 4(f) protection based on national or exceptional historic significance. Impacts on Section 4(f) resources, or properties, occur when there is a "use" of the properties. Such impacts can consist of either a direct or a constructive use of the properties, as defined in the following subsections. The 4(f) resource must be publicly owned at the point at which "use" occurs. As defined in 23 CFR 774.17, the "use" of a protected Section 4(f) resource occurs when one or more of the following occur:

- Land is permanently incorporated into a transportation facility (e.g., "direct use")
- There is a temporary occupancy of land that is adverse in terms of the preservationist purposes (e.g., "temporary use")
- There is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (e.g., "constructive use")

D.3.1 Direct Use

A direct use of a Section 4(f) resource takes place when property is permanently incorporated into a proposed transportation facility (23 CFR 774.17). This might occur as a result of partial or full acquisition, permanent easements, or temporary easements that exceed regulatory limits noted in Section D.3.2.

D.3.2 Temporary Use

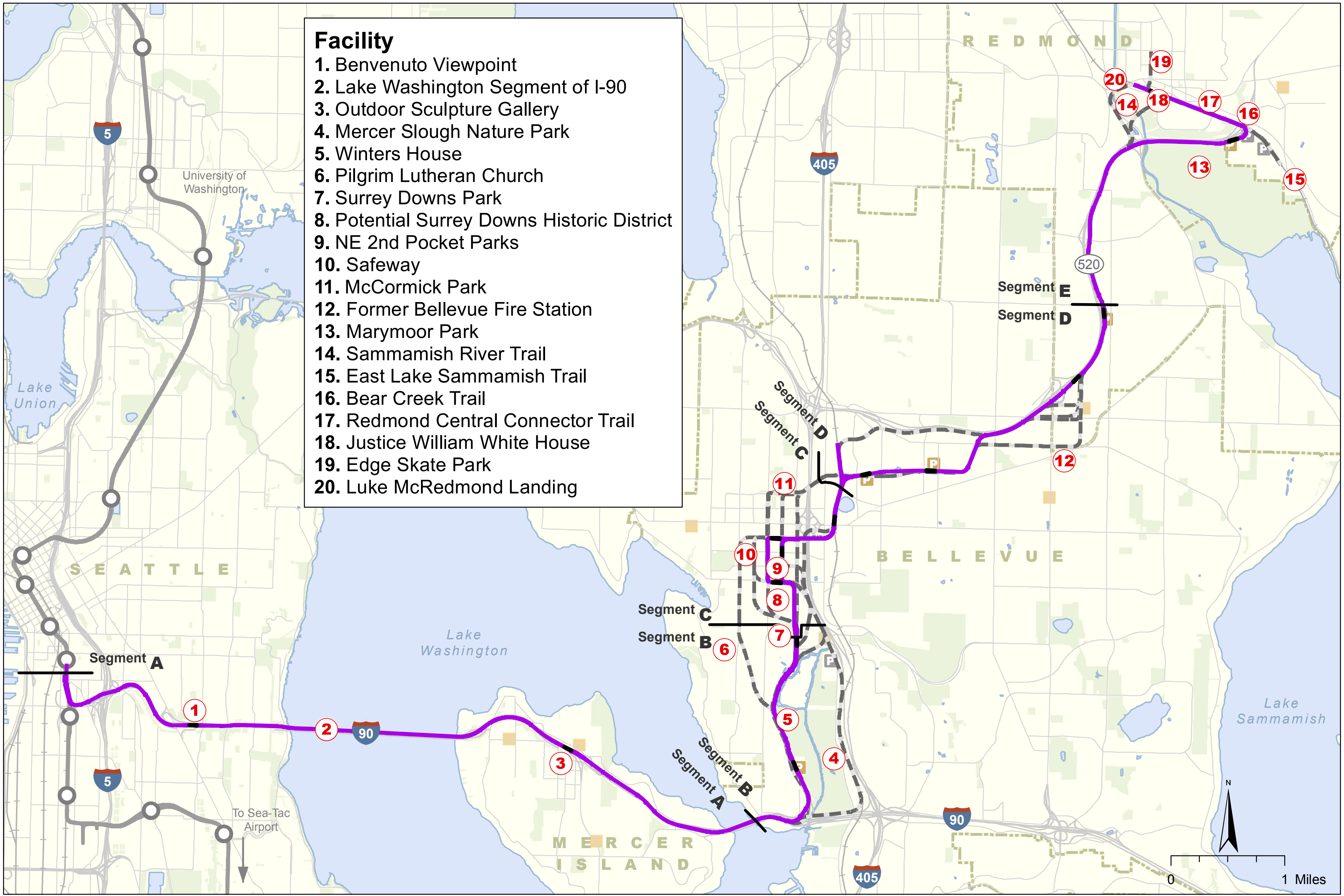
A temporary use of a Section 4(f) resource occurs when the property is temporarily occupied and that occupancy is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. Under the FTA/FHWA regulations (23 CFR 774.13[d]), a temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied:

- The occupancy must be of temporary duration (e.g., shorter than the period of construction) and must not involve a change in ownership of the property.
- The scope of work must be minor, with only minimal changes to the protected resource.
- There must be no permanent adverse physical impacts on the protected resource or temporary or permanent interference with activities or purpose of the resource.
- The property being used must be fully restored to a condition that is at least as good as existed prior to the proposed project.
- There must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

D.3.3 Constructive Use

A constructive use of a Section 4(f) resource occurs when a transportation project does not permanently incorporate land from the resource, but the project's proximity results in impacts (e.g., noise, vibration, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired (23 CFR 774.15). Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished. A "*constructive use*" test to determine whether the resources are substantially diminished as defined in 23 CFR 771.135(p)(6) and summarized as:

- Identifying the current activities, features, or attributes of the resource that might be sensitive to proximity impacts
- Analyzing whether the potential proximity impacts on the protected Section 4(f) resource per 23 CFR 771.135(p)(4) and (5): the noise level increase attributable to the project substantially interferes with the use and enjoyment of the noise-sensitive facility; the esthetic features or attributes of the resource are diminished (obstructs or eliminates primary views of the buildings), restrictions in access diminish the utility of the resource; or the vibration impact substantially diminishes the use of the resource
- Consulting with the appropriate officials having jurisdiction over the resource



Facility
1. Benvenuto Viewpoint
2. Lake Washington Segment of I-90
3. Outdoor Sculpture Gallery
4. Mercer Slough Nature Park
5. Winters House
6. Pilgrim Lutheran Church
7. Surrey Downs Park
8. Potential Surrey Downs Historic District
9. NE 2nd Pocket Parks
10. Safeway
11. McCormick Park
12. Former Bellevue Fire Station
13. Marymoor Park
14. Sammamish River Trail
15. East Lake Sammamish Trail
16. Bear Creek Trail
17. Redmond Central Connector Trail
18. Justice William White House
19. Edge Skate Park
20. Luke McRedmond Landing

R E D M O N D
B E L L E V U E
S E A T T L E
M E R C E R I S L A N D
Lake Union
Lake Washington
Lake Sammamish
University of Washington
To Sea-Tac Airport
5
5
90
90
405
405
405
520
Segment A
Segment A
Segment B
Segment B
Segment B
Segment C
Segment C
Segment C
Segment D
Segment D
Segment E
N
0
1 Miles

Source: Data from City of Seattle (2002) and King County (2006).

East Link Preferred Alternative	Proposed Station	Existing Park-and-Ride Lot
East Link Alternatives	City Limits	P New and/or Expanded Park-N-Ride Lot
Central Link Alignment and Station		

Exhibit D-1
Section 4(f) Facilities

East Link Project

D.4 Impacts on Section 4(f) Resources

D.4.1 Range of Potential Impacts

Section 4.17, Parkland and Open Space, and Appendix F4.17 of the Final EIS provides information on the parks within the East Link Project study area. No designated wildlife and waterfowl refuges exist in the study area. FTA, with concurrence from the SHPO in the Department of Archaeology and Historic Preservation (DAHP), found the following resources eligible for the NRHP in the study area: Pilgrim Lutheran Church, the Surrey Downs potential historic district, the Safeway Store, the Former Bellevue Fire Station, the Justice White House, and the Bill Brown Saloon. Additional resources include U.S. Immigration Station and Assay Office Building (INS Building), the Publix Hotel (contributor to the China Town Historic District), the Jose Rizal 12th Avenue South Bridge, the Will H. Thompson House, the Lake Washington Segment of I-90 (including the Mount Baker Ridge Tunnel and Eastern Portals), and the Winters House.

Table D-1 lists the park resources and properties on or eligible for the NRHP that would be potentially affected by project alternatives, either directly or as a result of proximity impacts and construction impacts and, thus, are afforded protection under Section 4(f) regulations. The range of potential impacts on Section 4(f) resources from the build alternatives follows:

- Acquisition of portions of specific Section 4(f) properties
- Long-term proximity impacts on some of these properties, none of which result in a "constructive use"
- Temporary construction impacts

Some of the properties discussed in Section 4.17 of the EIS are not discussed in this Section 4(f)/6(f) Evaluation because, pursuant to Section 4(f) regulations, they are not considered to be a significant resource as determined by the local jurisdiction (e.g., Bellevue Way SE Greenbelt), they are not publicly owned (e.g., Town Center Open Space), or their primary purpose has been identified to be other than Section 4(f) purposes (e.g., I-90 Trail, landscaped areas of Park on the Lid). Section 4.16 and 4.17 include exhibits illustrating the area of impacts for each historic and park resource, respectively. Table D-1 provides an overview of the potential impacts on each resource, mitigation proposed, and the preliminary 4(f) findings after mitigation, and Exhibit D-1 shows the location of the 4(f) properties. FTA and Sound Transit have consulted with officials who have jurisdiction over the resources and Section D.8, Record of Coordination, provides more detail. These officials have submitted letters reflecting their views regarding impacts to Section 4(f) resources in their respective jurisdictions (see Attachment D1 at the back of this Section 4(f)/6(f) Evaluation).

FTA in consultation with SHPO, has made a determination of Adverse Effect for the project under Section 106, resulting from potential impacts on the Winters House (*Preferred Alternative B2M*) and the potential Surrey Downs Historic District (*Preferred Alternative C11A*). In addition, the potential Surrey Downs Historic District would be impacted by Alternatives C4A, C2T, and C3T) and the Justice White House (Alternative E4).

Based on the analysis of park impacts presented, the determination of effect to historic resources, and coordination with officials having jurisdiction, FTA has made a determination of *de minimis* finding for the 4(f) resources in the study area for all other project alternatives and design options under the jurisdiction of the City of Seattle, City of Mercer Island, City of Redmond, and King County. Correspondence documenting the jurisdiction's concurrence is attached in the back of this Section 4(f)/6(f) Evaluation. A *de minimis* determination has not been made for park resources under the jurisdiction of the City of Bellevue. The following subsections describe the impacts of the alternatives by segment. This Section 4(f)/6(f) Evaluation does not provide any further discussion for resources that have no use from any of the East Link Project alternatives.

D.4.2 Potential Impacts of Project Alternatives

All East Link Project Alternatives in Segments A, B, C, and E, with the exception of Alternatives C7E and C14E, come in contact with Section 4(f) resources either during project construction and/or during operation. No park or recreational resources are located in Segment D, but there is one historic resource located along Alternative D3.

D.4.2.1 Segment A

There are three potential Section 4(f) uses within Segment A. The Lake Washington Highway Segment of I-90 has been determined eligible for the National Register since the 2008 Draft EIS was published and is discussed below. Benvenuto Viewpoint in Seattle is a 4(f) resource in Segment A along I-90. Last, if the pedestrian bridge option is included at the Mercer Island Station, then the Outdoor Sculpture Gallery would also be impacted.

TABLE D-1
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Parks				
Segment A				
Benvenuto Viewpoint (1.7 acres)	**Permanent:** Less than 0.1 acre acquired **Temporary:** Construction impacts[a]	**Permanent:** ▪ Design station entrance to be compatible with the City's park design. **Temporary:** ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative A1*	*de minimis*
Outdoor Sculpture Gallery (1.6 acre)	**Permanent:** 0.3 acre acquired with the pedestrian bridge only (option not included in the *Preferred Alternative*) **Temporary:** Construction impacts[a] Partial closure during construction	**Permanent:** ▪ Design station entrance to be compatible with the surrounding the park. **Temporary:** ▪ Restore temporarily disturbed area to existing conditions.	A1 - Mercer Pedestrian Bridge Design Option	*de minimis*
Segment B				
Mercer Slough Nature Park **(320 acres)**	**Permanent:** Up to 3.0 acre converted to light rail use (a portion of which is aerial easement) Vehicular access to Sweylocken boat ramp modified right-in/right-out Trails relocated Vehicular access to Winters House and blueberry farm combined **Temporary:** 3.6 acres disturbed Construction impacts[a] Parking at Winters House and blueberry farm closed Winters House and blueberry farm retail closed Trails and access points closed	**Permanent:** ▪ Acquire replacement land pursuant to Washington State Recreation and Conservation Office (RCO) and Section 6(f) requirements that would be consistent with the natural character of the park. ▪ Have an option to preserve existing vehicle access to Sweylocken boat ramp. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Provide temporary parking for users off Bellevue Way and south of the park-and-ride or as agreed to with the City. ▪ Relocate blueberry farm retail use during construction. ▪ Maintain blueberry farm operations. ▪ Relocate Eastside Heritage Center during construction. ▪ Maintain access or provide detours for trails, and maintain access to Sweylocken boat ramp.	*Preferred Alternative B2M*	Use
	Permanent: 0.5 to 1.7 acres converted (includes aerial easements) **Temporary:** 1.7 to 2.6 acres disturbed Construction impacts[a] Certain trail access points closed Access to boat launch revised (Alternative B1 only)	**Permanent:** ▪ Acquire replacement land pursuant to RCO and Section 6(f) requirements or provide financial compensation as agreed with the City. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Maintain access or provide detours for trails, and maintain access to Winters House, blueberry farm, and boat launch where affected as agreed to with the City. ▪ Provide new signal for full access to boat launch (Alternative B1 only).	All other Segment B Alternatives	Use

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Segment C				
Surrey Downs Park (11.4 acres)	**Permanent:** 0.5 acre acquired North access to park eliminated; south access changed to right-in/right-out only **Temporary:** 0.6 acre disturbed Access restricted Construction impacts [a]	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE and provide landscaping. ▪ Design treatments of the retaining wall and fence along 112th Avenue SE in consultation with the City. ▪ Design and construct a U-turn on 112th Avenue SE at SE 8th Street. Prepare conceptual layout for two northbound-to-southbound U-turn options – one at SE 6th Street and one at Main Street – to accommodate those coming from the south who would want to turn left into the park; the City and Sound Transit would pick one that Sound Transit would design and construct. ▪ Coordinate with the City of Bellevue and the community to revise the Surrey Downs Park Master Plan to address the impact area. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the Surrey Downs Master Park Plan. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*Preferred Alternative C11A* from *Preferred Alternative B2M*	Use
	Permanent: 0.5 acre acquired **Temporary:** 0.5 acre disturbed Construction impacts [a]	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE, and provide landscaping. ▪ Design treatments of the retaining wall and fence along realigned SE 4th Street in consultation with the City. ▪ Coordinate with the City of Bellevue and the community to revise the Surrey Downs Park Master Plan to address the impact area. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the *Surrey Downs Master Park Plan*. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*Preferred Alternative C9T* from *Preferred Alternative B2M*	Use

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Surrey Downs Park (11.4 acres) contd.	**Permanent:** Less than 0.1 to 0.5 acre acquired **Temporary:** 5.7 acres disturbed (Alternatives C2T and C3T from Alternative B2A only) Less than 0.1 to 0.4 acre disturbed (Alternatives C4A, C7E, and C9A from Alternative B2A only) Construction impacts [a]	**Permanent:** ▪ Provide financial compensation or replacement land as agreed with the City. **Temporary (Alternative C2T and C3T from Alternative B2A):** ▪ Provide financial compensation for the use of land as agreed with the City. ▪ Restore landscape after construction to existing conditions or as agreed to with the City; maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public access and parking for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. **Temporary (Alternative C4A, C7E, and C9A from Alternative B2A only):** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore temporarily disturbed park area to existing conditions.	Alternatives C2T, C3T, C4A, and C7E from Alternative B2A	Use
NE 2nd Pocket Parks (0.62 acre)	**Permanent:** 0.1 acre acquired **Temporary:** 0.3 acre disturbed, partially closed Construction impacts [a]	**Permanent:** • One, or a combination of the following, as agreed to with the City: — Provide financial compensation as agreed to with the City. — Provide replacement land with an equivalent portion of the project's staging area located on the northeast quadrant of the park. — Enhance entire northwest quadrant of the park as a public plaza in conjunction with the station entrance. **Temporary** ▪ Provide financial compensation for the temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	*Preferred Alternative C9T* from *Preferred Alternative B2M* and Alternatives B2A, B2E, and B7	Use
	Permanent: Less than 0.1 to 0.1 acre acquired **Temporary:** 0.1 to 0.3 acre disturbed, partial closure Construction impacts [a]	**Permanent (Alternatives C4A and C9A from Alternatives B2A, B2E, and B3 only):** ▪ Provide financial compensation or replacement land as agreed to with the City. **Permanent (Alternative C8E from Alternatives B3 and B7 only):** ▪ Provide financial compensation or replacement land as agreed to with the City. ▪ Add visual and aesthetic design measures, as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	Alternatives C4A and C9A from B2A, B2E, B3; B7 and Alternative C8E from B3 and B7	Use

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
McCormick Park (2.69 acres)	**Permanent:** 0.2 to 0.9 acre acquired, net gain of 0.1 to 0.7 acres **Temporary:** 0.8 to 1.8 acres disturbed Construction impacts [a]	**Permanent:** ▪ One or more of the following measures would be implemented: — Acquire replacement land for permanent use impacts. Results in net increase in park land for some alternatives. — Provide financial compensation for use during construction. **Temporary:** ▪ Restore disturbed area after construction.	Alternatives C3T and C4A from Alternatives B2A, B2E, B3, and B7; Alternative C8E from Alternatives B3 and B7	Use
Segment D				
No parks or trails affected				
Segment E				
Luke McRedmond Landing (2.1 acres)	**Permanent:** 0.1 acre aerial easement **Temporary:** 0.1 acre disturbed Construction impacts [a]	**Permanent:** ▪ One or more of the following measures would be implemented: — Provide financial compensation for permanent aerial easement or improvements to the park as agreed to with the City. — Replace trees removed per City tree ordinance. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed to with the City. ▪ Maintain access to the park during construction. ▪ Restore temporarily disturbed area to existing conditions.	Alternative E1	*De minimis*
Marymoor Park (640 acres)	**Permanent:** 2.0 acres **Temporary:** 3.0 acres disturbed Construction impacts[a]	**Permanent:** ▪ Acquire replacement recreation land equal in value and function to offset the light rail use within the park property. ▪ Evaluate noise impacts to park uses in place, when Segment E is funded, consistent with FTA noise analysis methods and criteria when design is advanced. **Temporary:** ▪ Mitigate temporarily disturbed park lands pursuant to RCO regulations. ▪ Provide financial compensation for temporary use of land outside the light rail right-of-way for construction; restore parkland following construction.	*Preferred Alternative E2* and E2 - Redmond Transit Center Design Option	*De minimis*
Sammamish River Trail (10.88 miles long)	**Permanent:** 0 to 0.1 acres aerial easement[b] Shading **Temporary:** 0 to 0.1 acres disturbed[b] Construction impacts [a]	**Permanent:** ▪ Acquire replacement recreation land equal in value to offset the light rail within the trail right of way per RCO requirements. ▪ Locate guideway columns outside trail clear zone as practical. **Temporary:** ▪ Provide financial compensation for temporary use of land outside of the light rail right-of-way for construction. ▪ Reroute and restore trail to King County standards and specifications during and after construction.	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option, E1, and E4	*De minimis*

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Bear Creek Trail **(1.4 miles long)**	**Permanent:** 0.1 acre aerial easement Trail section relocated Trail lowered into tunnel track or structure elevated over trail Shading **Temporary:** Construction impacts [a]	**Permanent:** ▪ Reroute trail during construction, restore disturbed trail area after construction, and replace trees. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative E2* and E2 - Redmond Transit Center Design Option	*De minimis*
	Permanent: 0.1 acre aerial easement Shading **Temporary:** Construction impacts [a]	**Permanent:** ▪ Provide financial compensation for permanent aerial easement or improvements to the trail as agreed to with the City of Redmond. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	Alternatives E1 and E4	*De minimis*
East Lake Sammamish Trail **(10.7 miles long)**	**Permanent:** Potential trail section relocated with Alternative E2 Trail section relocation with track to MF5 from Alternatives E1 and E4. **Temporary:** Construction impacts [a]	**Permanent:** ▪ Provide financial compensation for the light rail use of the trail right of way. **Temporary:** ▪ Provide financial compensation for temporary use of land outside of the light rail right-of-way during construction. ▪ Reroute and restore trail to King County standards and specifications during and after construction.	*Preferred Alternative E2* and Alternatives E2 -Redmond Transit Center Design Option, and E1, and E4	*De minimis*
The Edge Skate Park (1.4)	**Permanent:** Less than 0.1 acre acquired **Temporary:** 0.2 acre disturbed Construction impacts [a]	**Permanent:** ▪ Provide financial compensation for the light rail use of park as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed to with the City. ▪ Maintain access to the park during construction. ▪ Restore temporarily disturbed area to existing conditions.	E2 - Redmond Transit Center Design Option	*De minimis*
Redmond Central Connector Trail **(3.9 miles long)**	**Permanent:** Trail relocated **Temporary:** Construction impacts [a]	**Permanent:** ▪ Possibly permanent reroute of trail, and replace affected park amenities and associated vegetation as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction as agreed to with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative E2* and Alternatives E2 - Redmond Transit Center Design Option, E1, and E4	*De minimis*

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Historic Properties				
Segment A				
I-90 Lake Washington Highway Segment	**Permanent:** Use of center roadway **Temporary:** Construction impacts [a]	**Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied.	*Preferred Alternative A1*	*De minimis*
Segment B				
Winters House	**Permanent:** Use of property between the structure and Bellevue Way SE for lidded retained-cut structure; potential groundborne noise impact **Temporary:** Vibration and settlement impacts potential during construction Winters House activities closed Construction impacts [a]	**Permanent:** ▪ Standard methods of vibration reduction, such as resilient fasteners or ballast mats will be incorporated into the project or a floating slab would be incorporated as necessary to reduce the level of groundborne noise and eliminate the impact. ▪ Landscape the area of property between the front (west elevation) of the Winters House and Bellevue Way SE to more closely reflect the landscaping of the historic period, in consultation with the City. ▪ Provide new interpretive displays on or near the property. **Temporary:** ▪ Photographing/inventorying the building to establish existing conditions. ▪ Installing vibration and settlement monitoring devices and adjusting excavation methods based on monitoring results. ▪ Using specific vibration and settlement reducing construction methods, to be determined during final design and construction. ▪ Potentially building a construction barrier around Winters House to prevent damage and minimize dust. ▪ Applying dust control measures during construction to minimize dust (after construction, Sound Transit would clean the outside of the building and windows in a manner sensitive to the resource). ▪ Closing the Winters House during construction and temporarily relocating the tenant (Sound Transit will provide information to the public regarding how to access the Eastside Heritage Center during construction). ▪ If damage does occur, making the needed repairs consistent with the U.S. Secretary of the Interior's standards for treating historic properties.	*Preferred Alternative B2M*	Use

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Segment C				
Potential Surrey Downs Historic District	**Permanent:** Potential noise impacts **Temporary:** Construction impacts[a]	**Permanent:** ▪ Install a permanent sound barrier along the south side of the guideway along Main Street to prevent noise impacts on contributing properties in the potential Surrey Downs Historic District. ▪ Landscape along south side of the guideway and the 108th Station along Main Street to enhance the neighborhood boundary where non-contributing properties are removed. **Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied. ▪ Before construction begins, install a solid construction barrier along contributing properties south of Main Street. ▪ Where possible, preserve the evergreen trees along the south edge of the proposed station area, east of 108th Avenue SE.	*Preferred Alternative C11A*	No constructive use
	Temporary: Construction impacts[a]	**Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied. ▪ Before construction begins, install a solid construction barrier along contributing properties south of Main Street.	Alternatives C2T and C3T	No constructive use
	Permanent: Potential noise impacts **Temporary:** Construction impacts[a]	**Permanent:** ▪ Install a permanent sound barrier along the south side of the guideway along Main Street next to contributing properties. ▪ Landscape along the south side of the guideway along Main Street to enhance the neighborhood boundary where noncontributing properties are removed. **Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied. ▪ Before construction begins, install a solid construction barrier along contributing properties south of Main Street. ▪ Where possible, preserve the evergreen trees along the south edge of the proposed station area, east of 108th Avenue SE.	Alternative C4A	No constructive use
Pilgrim Lutheran Church	**Permanent:** Use of 0.03 acre of property; no impacts on the church **Temporary:** Construction impacts[a]	**Permanent:** ▪ Avoid stormwater vault maintenance during church services and special events to the extent possible. ▪ Minimize parking space obstruction during stormwater vault maintenance. **Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied. ▪ Avoid construction during church services and special events to the extent possible. ▪ Restore disturbed areas following construction.	Alternative B1	*De minimis*

TABLE D-1 CONTINUED
Impacts and Mitigation Measures for Section 4(f) Resources

Facility (size)	Impact	Mitigation	Associated Alternative	*De Minimis,* Use, or No Use
Safeway	**Permanent:** Alignment would travel underground on the property, approximately 170 feet from the building No impacts on the Safeway store **Temporary:** Construction impacts[a]	**Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied. ▪ Restore disturbed areas following construction.	Alternative C1T	*De minimis*
Segment D				
Former Bellevue Fire Station	**Permanent** Use of narrow section of parcel along Bel-Red Road for widening road for retained cut No impacts on the building **Temporary:** Construction impacts [a]	**Temporary:** ▪ Typical BMPs to minimize and avoid construction impact would be applied. ▪ Restore disturbed areas following construction.	Alternative D3	*De minimis*
Segment E				
Justice White House	**Permanent:** Building relocated	▪ Consult with SHPO to determine whether an appropriate location can be found to relocate this resource. If such a location can be determined, FTA and Sound Transit would consult with SHPO, the City of Redmond, and other interested parties to develop and to determine a suitable relocation site that preserves the Justice William White House's setting, feeling, and association with the railroad, thus maintaining its eligibility for the NRHP. The relocation would be managed by qualified architects and engineers in a manner to avoid damage to the building and preserve its eligibility for listing in the NRHP. Prior to relocating the building, Sound Transit would fully record the building in its original context through a Level II Historic American Building Survey/Historic American Engineering Record documentation. This would include photographs, measured drawings, and a written history component. If alternative E4 were selected, then the MOA would be altered to include mitigation for the Justice William White House.	Alternative E4	Use

[a] Construction impacts might include impacts such as removed landscape, dust, noise, and/or traffic detours. For historic properties, the setting might be temporarily changed.

[b] Impacts to this trail for Preferred Alternative E2, and E2-Transit Center Design Option are zero since the impacted acreage is counted under impacts to Marymoor Park.

The I-90 Trail is a pedestrian and bicycle path that parallels the freeway. FHWA has determined this is a transportation facility rather than a recreational resource and, therefore, would not be a Section 4(f) resource. Also, much of the I-90 Parks on the Lid are determined to be a part of the I-90 freeway and not Section 4(f) resources.

Interstate 90

The Lake Washington Highway Segment of I-90 from milepost 3.4 to 8.9, from the west end of the Martin Luther King, Jr. Way Lid to the east end of the East Channel Lake Washington Bridges, was determined eligible for the National Register by the Washington State Department of Transportation (WSDOT), on behalf of FHWA, under Criteria A and C and Criteria Consideration G. DAHP concurred with this determination in its letter dated November 23, 2009. This segment of I-90 is just over 5 miles long and includes the roadway, with character-defining features such as lids, bridges, tunnels, ramps, noise walls, overcrossings, and undercrossings (shown in Exhibits D-2 and D-3). Major character-defining features include the Mount Baker Ridge Tunnels; the Lacey V. Murrow and Homer M. Hadley floating bridges; the East Channel Lake Washington Bridges; the Martin Luther King Lid; the First Hill Lid; and the Luther Burbank Lid. The lids have pedestrian and bicycle paths, extensive landscaping, and park areas. During the planning of the Homer M. Hadley floating bridges, extensive community and agency planning process resulted in a Memorandum Agreement (MA) in 1976 that included planning for high-capacity transit in the center roadway.

Preferred Interstate Alternative (A1) would fulfill the MA. *Preferred Alternative A1* would use the I-90 center roadway for the light rail guideway and includes a station in the center of I-90 between Rainier and 23rd Avenues South, with entrances from 23rd and Rainier Avenues South, and a station with the existing park-and-ride garage on Mercer Island between 77th and 80th Avenues SE with station entrances on 77th and 80th Avenues SE. Both I-90 tunnels and the floating bridge would need to be modified to incorporate light rail, including changes to wall dividers, drainage, tunnel ventilation, and the addition of rails and the overhead catenary system. To equalize weight on the bridge from installing the steel rail, the concrete surface might be made thinner by removing the upper layers. To accommodate movement of the floating bridge in relation to the land abutment, a specialized rail expansion joint would be installed on the bridge. Converting the center roadway to light rail would require closing the westbound 77th Avenue SE off-ramp and modifying other ramps.

EXHIBIT D-2
Mount Baker Ridge Tunnel

EXHIBIT D-3
I-90 Lake Washington Highway Segment

Project operation would not affect the I-90 Lake Washington portion of Segment A or its character-defining features, including the portals of the Mount Baker Ridge Tunnels. This segment of I-90 is unique in including both highway and transit elements in its earliest planning stages, unlike most of the national interstate system. There would not be an impact from the East Link Project on the resource and its character-defining features because of its original design to accommodate high-capacity transit, including light rail, and because the design of the proposed light rail project protects and preserves character-defining features. All construction activities would be located within the center of I-90. No character-defining features would be altered or removed by project construction or operation, and construction would not affect the property in a manner that would impair future use of the resource as it was intended.

Benvenuto Viewpoint

The Preferred Alternative A1 would construct the Rainier Station within the center lanes of I-90, west of and below 23rd Avenue South. I-90 is an eight-lane freeway in this location. A pedestrian plaza consisting of ticket vending, escalators, elevator, and stairs to the station would be constructed on 23rd Avenue South in a landscaping strip connecting to Benvenuto Viewpoint. The pedestrian plaza would acquire and directly use less than 0.1 acre of a landscaping strip, or less than 5 percent of the total area of the 4(f) resource. The portion of Benvenuto Viewpoint used as a viewpoint would not experience a change in view. Although the Rainier Station and entrance could be seen from the viewpoint, the station would be consistent with the current transportation-oriented nature of the area, and the views to the west and south would be unaffected. Given the location of the route and station in the center lanes of I-90, no additional noise impacts are anticipated in the 4(f) resource. During construction, the landscaped strip of Benvenuto Viewpoint would likely be removed. A detour would be provided during construction allowing for continued access to the viewpoint. Last, there is no difference in nonpreferred Alternative A1 design options that would change the effects to the I-90 eligible structure.

Outdoor Sculpture Gallery

Preferred Alternative A1

No impact would occur on the Outdoor Sculpture Gallery from *Preferred Alternative A1*.

Alternative A1 Design Options

At the Mercer Island Station, a design option to connect the center platform station on I-90 to the Outdoor Sculpture Gallery via a pedestrian bridge over the eastbound lanes of I-90 is being considered but is not the preferred alternative. Approximately 0.3 acre of property acquisition would occur to accommodate this bridge and the pedestrian plaza, which would consist of ticket vending and information. This connection would allow a more direct connection into Mercer Island's downtown core. During the construction of this option, a portion of the Outdoor Sculpture Gallery would likely close. A detour would be provided during construction allowing for continued access to other portions of the gallery.

D.4.2.2 Segment B

Three 4(f) resources might be impacted by Segment B alternatives: Mercer Slough Nature Park, Winters House, and Pilgrim Lutheran Church. These impacts are discussed below. The City of Bellevue has determined that the Greenbelt Open Space at the intersection of Bellevue Way and 112th Avenue SE is not a significant park resource and, therefore, not a Section 4(f) resource.

Mercer Slough Nature Park

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M would follow the length of the western edge of Mercer Slough Nature Park, east of Bellevue Way SE. This area of the park includes wetland and upland habitat, the blueberry farm, fruit and vegetable produce sales, trailheads, a trailered boat launch ramp, the NRHP-listed Winters House, and parking for the blueberry farm and Winters House. Park users in this area include walkers and joggers along the Periphery Loop Trail sidewalk, those accessing the blueberry farm and Winters House, and those accessing the park's interior trails. A 0.2-mile section of the Heritage Loop Trail parallels Bellevue Way SE below the roadway level. Bellevue Way SE, a principal arterial connecting I-90 to Downtown Bellevue, is a prominent element along the edge of the park. The impacted area is not important for wildlife viewing due to disturbance from the adjacent roadway and the South Bellevue Park-and-Ride and active use of the area for the blueberry farm, Winters House, and trail access. *Preferred Alternative B2M* would permanently use 2.9 acres when connecting to *Preferred Alternative C11A* and 3.0 acres when connecting to *Preferred Alternative C9T*, which is less than 1 percent of the 320-acre 4(f) resource (Table D-2). At the south end of Mercer Slough Nature Park where the alternative is elevated, approximately 1.4 acres could still be used for recreational purposes in those areas where there is sufficient clearance.

TABLE D-2
Impacts on Mercer Slough Nature Park

Alternative		Operation Impact Area (acres)	Construction Impact Area (acres)
Preferred Alternative B2M	Connecting to *Preferred Alternative C11A*	2.9	3.6
	Connecting to *Preferred Alternative C9T*	3.0	
Alternative B1		0.5	2.6
Alternative B2A		1.7	2.5
Alternative B2E		0.7	1.8
Alternative B3		1.7	2.5
B3 - 114th Design Option		1.7	2.6
Alternative B7		0.9	1.7

This alternative would acquire an approximately 30- to 50-foot width of the Mercer Slough Nature Park's western boundary for approximately 3,200 feet, removing shrubs and trees. This alternative would relocate and consolidate some vehicle and pedestrian access points on the park's west side and the South Bellevue Station would improve park access. Exhibit D-4 depicts the impacted park area and trail and driveway relocations.

The existing blueberry farm driveway would be removed and combined with the Winters House driveway via a new access road to the north, and the section of the Heritage Loop Trail along Bellevue Way would be restored to the east. The project would remove two existing pedestrian connections from Bellevue Way SE to the park, one at the existing blueberry farm driveway and one south of the Winters House parking lot, which would be reconstructed. The pedestrian access north of the Winters House would be relocated slightly south. Although the number of access points would be reduced, the park and its components would remain accessible from various points along Bellevue Way for both vehicles and pedestrians.

In addition, consolidating the access points might be considered a benefit to the park by removing one vehicle crossing of the Periphery Loop Trail and consolidating active use since the City of Bellevue's goals and objectives are to enhance the wetland nature and passive uses of the park. Access to the Sweylocken boat ramp would become right-in/right-out only.

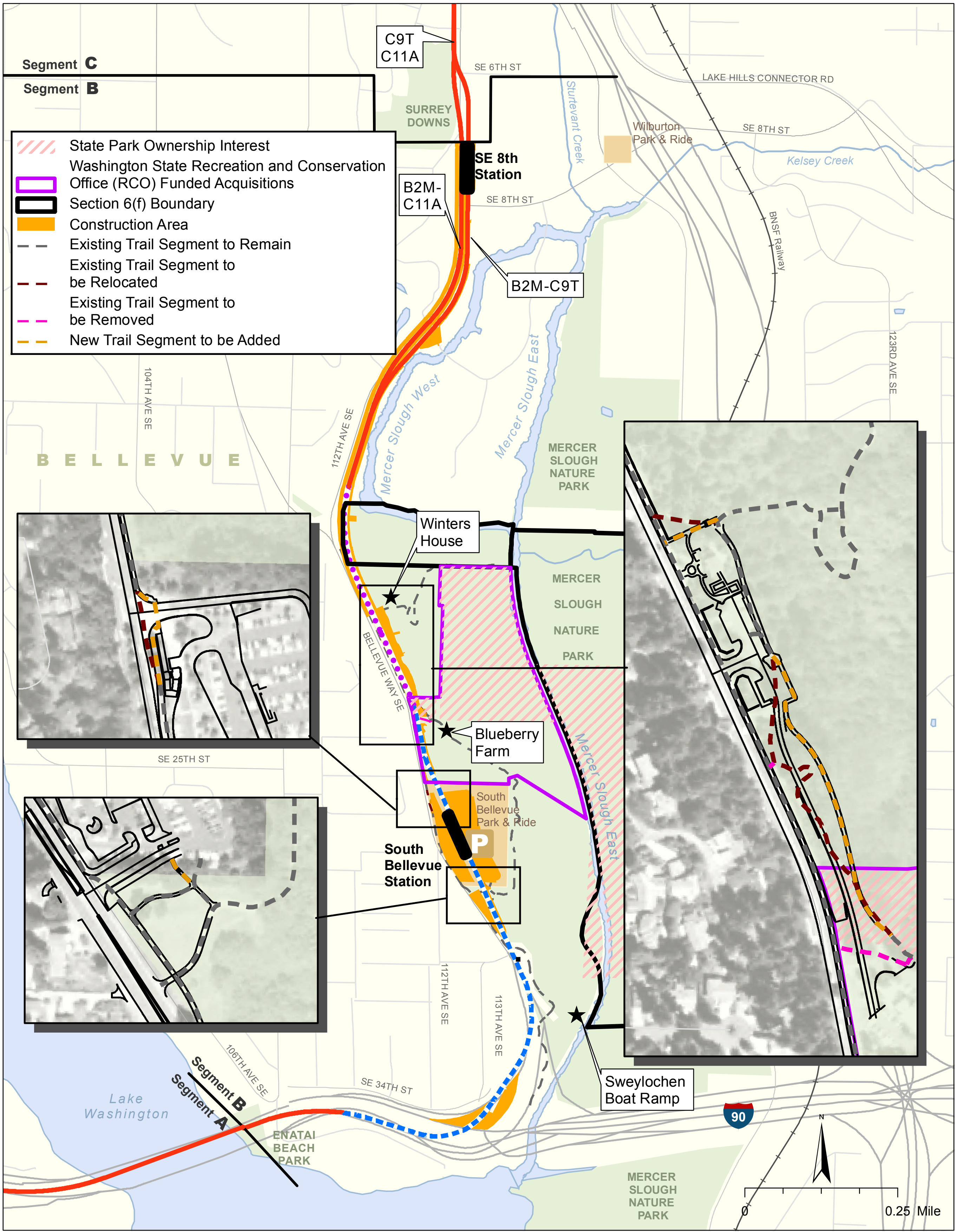
The boat ramp would no longer be accessible from southbound Bellevue Way; however, there is a design option that would maintain the current access allowing left-hand turn movements to the boat launch. Without the design option, users would need to travel to I-90 via SE 8th Street and I-405 to access to launch. The I-90 Trail, and other Mercer Slough Nature Park trails would not be affected.

As described Final EIS Section 4.7, Noise and Vibration, existing noise levels in Mercer Slough Nature Park are affected by the major arterial, Bellevue Way SE, and the two interstate highways (I-90 and I-405) that border the park. The active areas on the western edge of the park including the boat launch, blueberry farm, and Winters House, are not considered noise-sensitive, but the interior areas of the park meet the FTA criteria for noise-sensitive areas. Light rail noise levels from operation of *Preferred Alternatives C11A* or *C9T* connecting to *Preferred Alternative B2M* are predicted to be lower than the existing noise levels by 3 dBA Leq or more at active and noise-sensitive locations within the park. Also the project noise levels in the interior noise-sensitive areas of the park would be well under the FTA noise impact criteria.

The project would not be seen in most parts of the Mercer Slough Nature Park due to the project's low profile and existing vegetation. Given the presence of trees and large shrubs throughout much of the park, removing vegetation along the alignment would not be noticed in most areas. Removing trees in the construction right-of-way east of Bellevue Way SE and 112th Avenue SE and other street trees would be noticeable from the Periphery Loop Trail (which in this area is the sidewalk adjacent to Bellevue Way SE and 112th Avenue SE) and a portion of the water trail in Mercer Slough West. Operating *Preferred Alternative B2M* would not substantially affect park use; diminish the park's value; or impair the park's activities, features, and attributes.

Construction activities associated with *Preferred Alternative B2M* would encroach into Mercer Slough Nature Park and would require a temporary construction easement of approximately 3.6 acres when connecting with *Preferred Alternative C11A* or *Preferred Alternative C9T*. After construction, these areas would be restored with appropriate native vegetation. Utility relocation and light rail construction in the western edge of Mercer Slough Nature Park would result in increased noise, dust, and temporary access restrictions to western areas of the park.

During construction, the Periphery Loop Trail and sidewalk on the eastern side of Bellevue Way SE would likely close and require detours. Construction along 112th Avenue SE could result in increased noise and dust near the water trail but is not expected to inhibit normal trail use because this is a short section currently characterized by the existing roadway. Construction would close the Winters House temporarily and temporarily relocate the Eastside Heritage Center offices, their files, and services located within the Winters House. The City of Bellevue would not receive rental income from the Winters House during construction. Construction activities would close adjacent parking to the Winters House and the blueberry farm's retail component. The blueberry farm's retail would be relocated to allow the business to continue operation during construction. Farming operations would be maintained during construction, but there would be no public access. Closing parking at the Winters House and closing the South Bellevue Park-and-Ride would reduce available parking on the western side of the park, but other parking accommodations would be made available as well as signage to redirect users to accessible areas. Park users would need to use the existing parking at the boat


C9T
C11A
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
LAKE HILLS CONNECTOR RD
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
State Park Ownership Interest
Washington State Recreation and Conservation Office (RCO) Funded Acquisitions
Section 6(f) Boundary
Construction Area
Existing Trail Segment to Remain
Existing Trail Segment to be Relocated
Existing Trail Segment to be Removed
New Trail Segment to be Added
SE 8th Station
B2M-C11A
SE 8TH ST
B2M-C9T
BNSF Railway
123RD AVE SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
BELLEVUE
MERCER SLOUGH NATURE PARK
Winters House
MERCER SLOUGH NATURE PARK
BELLEVUE WAY SE
Blueberry Farm
Mercer Slough East
SE 25TH ST
South Bellevue Park & Ride
South Bellevue Station
112TH AVE SE
113TH AVE SE
Sweylochen Boat Ramp
106TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake Washington
ENATAI BEACH PARK
90
N
0
0.25 Mile
MERCER SLOUGH NATURE PARK

Source: Data from City of Bellevue (2005) and King County (2006).

At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Exhibit D-4
Mercer Slough Nature Park
Preferred Alternative B2M
East Link Project

launch and on the eastern side of the park or temporary parking which would be provided off Bellevue Way. There would be no access to the trails located north of the South Bellevue Park-and-Ride, but access would be maintained during construction to the trails located south through detours. Construction would not inhibit normal use and access points on the east side of the park. Constructing *Preferred Alternative B2M* would not substantially affect park use or diminish its value due to the project's location along the park's boundary with Bellevue Way SE.

Other Segment B Alternatives

All Segment B alternatives would affect the Mercer Slough Nature Park to varying degrees. Similar to *Preferred Alternative B2M*, Alternatives B1, B2A, B2E, B3, and B3 - 114th Design Option would provide enhanced accessibility to the Mercer Slough Nature Park by locating a station at the South Bellevue Park-and-Ride. They also would acquire long, narrow, and intermittent portions of this park's western boundary and thereby remove some shrubs and trees, although less area would be acquired compared with *Preferred Alternative B2M* (Exhibit D-5). Of these alternatives, Alternative B2A would require the most acquisition and Alternative B1 the least. The current at-grade Bellevue Way-to-I-90 connection for Alternative B1, however, would not be feasible with WSDOT's requirement to keep the high-occupancy vehicle (HOV) ramps open at that interchange. As a result, Alternative B1 would require an elevated connection over the ramps as in the other Segment B alternatives, and impacts to Mercer Slough Nature Park would increase similar to those alternatives.

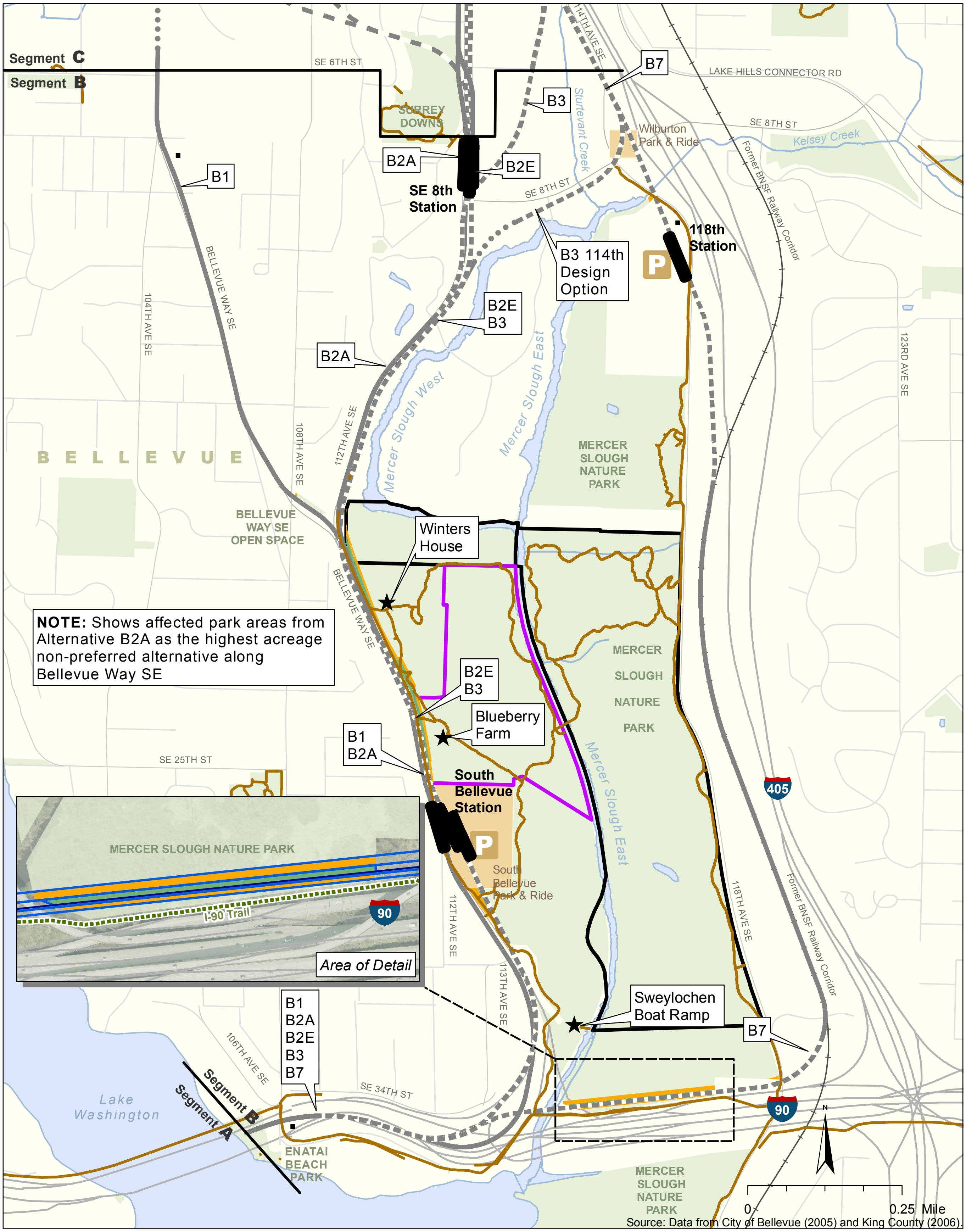
Alternatives B2A, B2E, B3, and B3 - 114th Design Option would relocate a portion of the Heritage Farm Trail just east of its current location, between the South Bellevue Park-and-Ride and the Winters House. Access to the Sweylocken boat ramp from 113th Avenue SE would be improved under Alternative B1 because a signal would be installed at this intersection where none exists today. Alternatives B2A, B2E, B3, and B3 - 114th Design Option would be elevated at this location, and access to the Sweylocken boat ramp would be right-in/right-out. The boat ramp would no longer be accessible from southbound Bellevue Way; however, there is a design option that would maintain the current access allowing left-hand turn movements to the boat launch as with *Preferred Alternative B2M*. The I-90 Trail and other Mercer Slough Nature Park trails would not be impacted. The elevated structure would create some additional shading. As with *Preferred Alternative B2M*, the areas below the elevated section could still be available for recreational purposes.

Vegetation removal along Bellevue Way SE and/or the placement of piers for the elevated portions of the alternatives along the west side of Mercer Slough Nature Park would be seen and noticed by some park users but would not interfere with the use of the facility. Similar to the *Preferred Alternative B2M*, the SE 8th Station for Alternatives B2A and B2E would provide enhanced access to the Surrey Downs Park.

Alternative B7 would also impact Mercer Slough Nature Park. The 118th Station on Alternative B7 would provide new access to the east side of Mercer Slough Nature Park and the Mercer Slough Environmental Education Center. The elevated light rail structure would also be located along the south side of Mercer Slough Nature Park north of I-90 and the I-90 Trail. An easement or right-of-use would be needed to accommodate the elevated light rail structure. The area under the elevated structure would be revegetated and returned to park use, allowing access under the guideway and use of the I-90 Trail as it currently exists. As described in Section 4.5, Visual and Aesthetic Resources, the view from the park and trail would not be substantially affected by the new structure. Existing vegetation greatly reduces the amount of Mercer Slough Nature Park that can be seen from most parts of the trail and blocks views to the north. The elevated structure would be seen from the more open parts of the trail but would be screened by adjacent vegetation along other parts of the trail. The elevated structure would also create additional shading in the park.

This portion of the park, the I-90 Trail, as well as the Mercer Slough on the west side of the park near the I-90 off-ramps, would likely be intermittently closed to public access during construction of B7 for safety considerations. Once construction is completed, the area along the light rail elevated guideway would be revegetated and returned to parklands and the trail would remain unaltered. Wetland and other vegetation temporarily displaced by light rail construction, is expected to return to its current growth pattern within about 10 years.

For all nonpreferred alternatives except Alternative B7, reconstructing Bellevue Way SE and sidewalk adjacent to Mercer Slough Nature Park would increase noise and dust and temporarily restrict access to western areas of the park, although detours would be provided to maintain access to trails in this area. Construction is not expected to inhibit normal park use from other points of access. The blueberry farm, located inside the Mercer Slough Nature Park, would experience construction-related impacts under Alternatives B2A, B2E, B3, and B3 – 114th Design Option.


Segment C
Segment B
SE 6TH ST
SURREY DOWNS
114TH AVE SE
B7
LAKE HILLS CONNECTOR RD
B3
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
B2A
B2E
SE 8th Station
B1
SE 8TH ST
Former BNSF Railway Corridor
118th Station
B3 114th Design Option
B2E B3
B2A
BELLEVUE WAY SE
104TH AVE SE
108TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
123RD AVE SE
BELLEVUE
BELLEVUE WAY SE OPEN SPACE
MERCER SLOUGH NATURE PARK
Winters House
BELLEVUE WAY SE
B2E B3
Blueberry Farm
B1 B2A
SE 25TH ST
South Bellevue Station
MERCER SLOUGH NATURE PARK
Mercer Slough East
405
MERCER SLOUGH NATURE PARK
I-90 Trail
90
Area of Detail
South Bellevue Park & Ride
112TH AVE SE
113TH AVE SE
118TH AVE SE
Former BNSF Railway Corridor
Sweylochen Boat Ramp
B7
B1 B2A B2E B3 B7
106TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake Washington
ENATAI BEACH PARK
90
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
🟩 Permanently Affected Park Area
🟧 Temporarily Affected Park Area
Washington State Recreation and Conservation Office (RCO) Funded Acquisitions
Section 6(f) Boundary
At-Grade Route
Elevated Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Trail
Proposed Station
New and/or Expanded Park-and-Ride Lot

NOTE: Shows affected park areas from Alternative B2A as the highest acreage non-preferred alternative along Bellevue Way SE

Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit D-5 **Affected Park Area Alternatives B1, B2A, B2E, B3, B3 114th Design Option, and B7 Segment B**

East Link Project

A portion of the entrance to the blueberry farm would need to be reconstructed to accommodate either the light rail structure or the shifted roadway closer to the farm.

Portions of the Mercer Slough Nature Park would be acquired as a temporary construction easement for use as a work area and access for construction. Table D-2 shows the approximate amount of construction area required under each alternative in Mercer Slough Nature Park. Although the park is close to existing noise generators (I-90 and Bellevue Way SE), temporary noise from East Link construction would be greater than is typical in this area.

Winters House

Preferred 112th SE Modified Alternative (B2M)

The Winters House, shown in Exhibit D-6, was listed in the NRHP in 1992 based on its Spanish Eclectic architecture and its association with developments in the bulb-growing and floriculture industry in King County and Washington State. Its period of significance spans from 1929 to 1941. Formerly a residence, the Eastside Heritage Center and the historical archive of the Eastside Heritage Center now occupy the building. The house also includes office space for Bellevue Parks staff, hosts community events and programs, and is a part of the Heritage Loop Trail. The NRHP registration form provides a boundary description that includes 50 feet of property around the house, including a portion of the property along Bellevue Way SE.

EXHIBIT D-6
Winters House, 2102 Bellevue Way SE (present)

The site of the house is bordered on the west by Bellevue Way SE, formerly a county road named Qualheim Road, which has been completely altered into a major arterial roadway that expanded toward the house and on the east by Mercer Slough. While the house's orientation to Bellevue Way at one time would have been a significant character-defining feature of the structure and its relationship to the surrounding landscape, the roadway's historic design—and, therefore, its relationship to the house –has lost its integrity. The undeveloped grounds' adjacent acreage is associated with the house. Although it is no longer cultivated and no intact outbuildings remain, the house does retain its setting and relationship to the surrounding undeveloped property that is now Mercer Slough Nature Park.

An analysis of the 50-foot designated boundary to determine whether any character-defining landscape features currently remain that convey the significance of the residence and its relationship to the landscape found no such features. Rather, the house's surrounding landscaping was found to have been altered substantially from the historic period of the residence (shown in Exhibit D-7). Except for some mature trees beyond the rear of the residence that once were part of the larger property, the current landscape features do not reflect the original landscape of the residence, nor do they convey the relationship of the landscape to the structure as it was first designed, matured, and allowed to evolve during the historic period of the property.

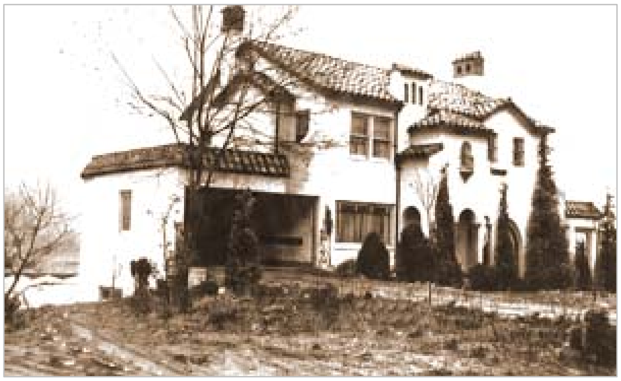


EXHIBIT D-7
Winters House, 2102 Bellevue Way SE (January 6, 1939)
(courtesy of Eastside Heritage Center)

Most plantings from the period of significance have been removed. Currently, the house consists of a landscaped lawn with a central concrete pathway featuring a center planting strip just opposite the entrance doors of the front elevation. The trees along the property's front and side elevations appear to be plantings from after the period of significance, including relatively new deciduous trees and decorative shrubs. The landscaping in no way reflects the original landscape, while the residence itself remains intact and fully conveys its significance and construction period and relationship to the surrounding undeveloped acreage once cultivated.

Exhibits D-8 and D-9 depict the bird's eye view and cross-section of the existing condition and for *Preferred Alternative B2M*. The guideway would be within a lidded retained cut within the 50-foot boundary for the property established by the NRHP nomination. The eastern edge of the lidded trench right-of-way for *Preferred Alternative B2M* is approximately 5 feet from the front entry and about 10 feet from the house proper. The perspective view and cross-section of *Preferred Alternative B2M* at the Winters House illustrate minimization approaches incorporated as conditions of the project to maintain historic integrity during light rail operation. These elements include placing the light rail in a 170-foot lidded retained cut in front of the structure, extending beyond the length of the 50-foot property boundary to the north and south of the house identified in the NRHP nomination, and installing landscaping that is sensitive to the historic period of the building and setting.

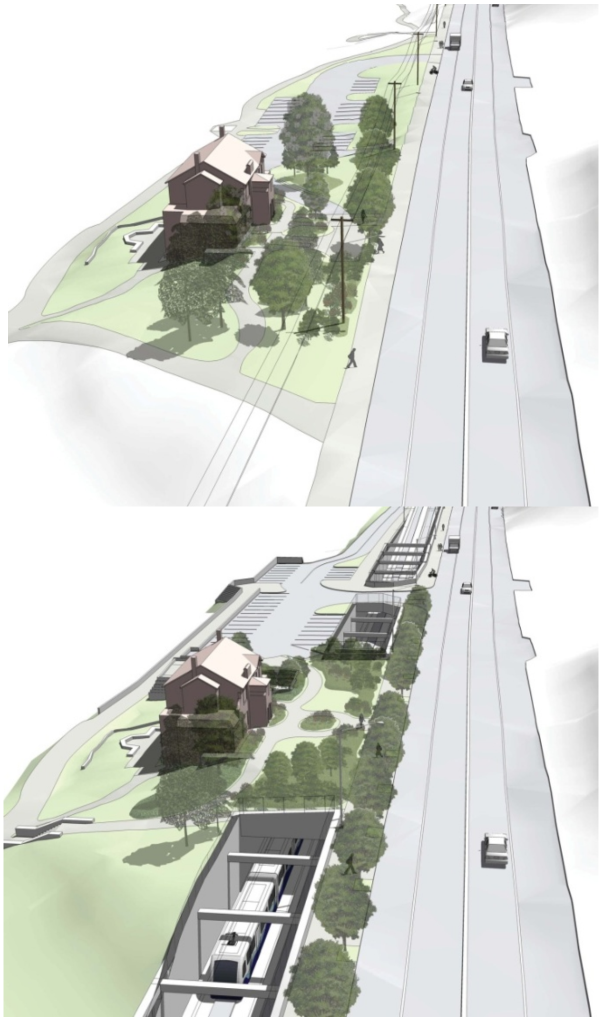


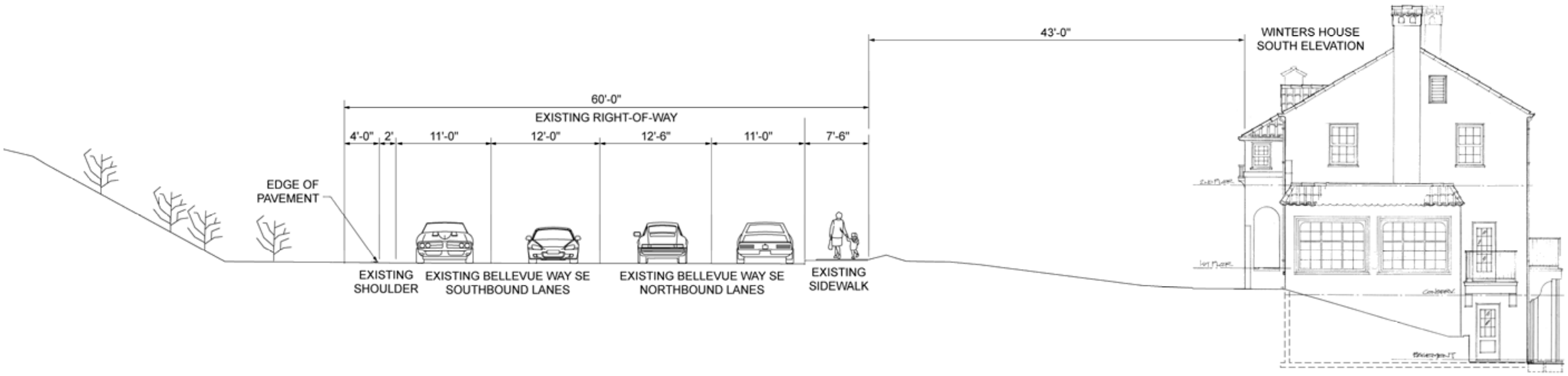
EXHIBIT D-8
Winters House Bird's Eye View: Existing Condition (top) and with *Preferred 112th SE Modified Alternative (B2M)* (bottom)

Bellevue Way SE would remain the same distance from the house. The project would shift the parking lot driveway approximately 90 feet north, with a lid over the light rail to allow vehicles to cross. The parking area would also be shifted slightly to the east. The relocated driveway and parking area would remain outside of the property's 50-foot boundary, and the number of spaces would remain the same. The parking area would also be raised in elevation, which would result in a visual change; however, the visual change in the parking area and associated ramps would not affect the setting of the historic resource because the existing parking lot was not present during the period of significance and does not contribute to the setting. In addition, replanted landscaping would further soften the appearance of the parking lot. Changes to the sidewalk would encroach 5 feet into the property and vehicular access to the garage of the house would not be maintained due to weight limitations on the lidded trench. Due to the proximity of the lidded retained cut and light rail guideway to the Winters House, the potential for settlement and vibration impacts during project operation and construction was analyzed and is described in Section 4.7.3 of the Final EIS.

During operation, a groundborne noise impact is projected at the Winters House. Standard methods of vibration reduction, such as using resilient fasteners or ballast mats, would be incorporated as conditions of the project and reduce the level of groundborne noise but might not eliminate the impact. Sound Transit will determine during final design whether a floating slab is necessary to address the groundborne noise impact. Vibration levels during operation are expected to be below the FTA impact criteria. In addition, the vibration levels are well below even the most stringent criteria for damage to structures.

The potential for damage from construction vibration and settlement due to the proximity of construction activity by the Winters House was evaluated. Given the period and type of the building, vibration and settlement minimization techniques, as described in Section D.5.2.1 below, have been incorporated as project conditions and will prevent damage or limit impacts to minor cosmetic damage, protecting the character-defining features of the former residence that convey its significance. Sound Transit would repair the building if damage were to occur. During construction, the Eastside Heritage Center offices would likely be relocated. In addition, the City of Bellevue would not receive rental income from the Winters House during construction. The Eastside Heritage Center and rental use would return to the building after construction. In addition, in consultation with the City, Sound Transit would replace the landscaping to more closely reflect

Existing


43'-0"
WINTERS HOUSE
SOUTH ELEVATION
60'-0"
EXISTING RIGHT-OF-WAY
4'-0"
2'
11'-0"
12'-0"
12'-6"
11'-0"
7'-6"
EDGE OF
PAVEMENT
EXISTING
SHOULDER
EXISTING BELLEVUE WAY SE
SOUTHBOUND LANES
EXISTING BELLEVUE WAY SE
NORTHBOUND LANES
EXISTING
SIDEWALK
2nd FLOOR
1st FLOOR
BASEMENT

Preferred Alternative B2M

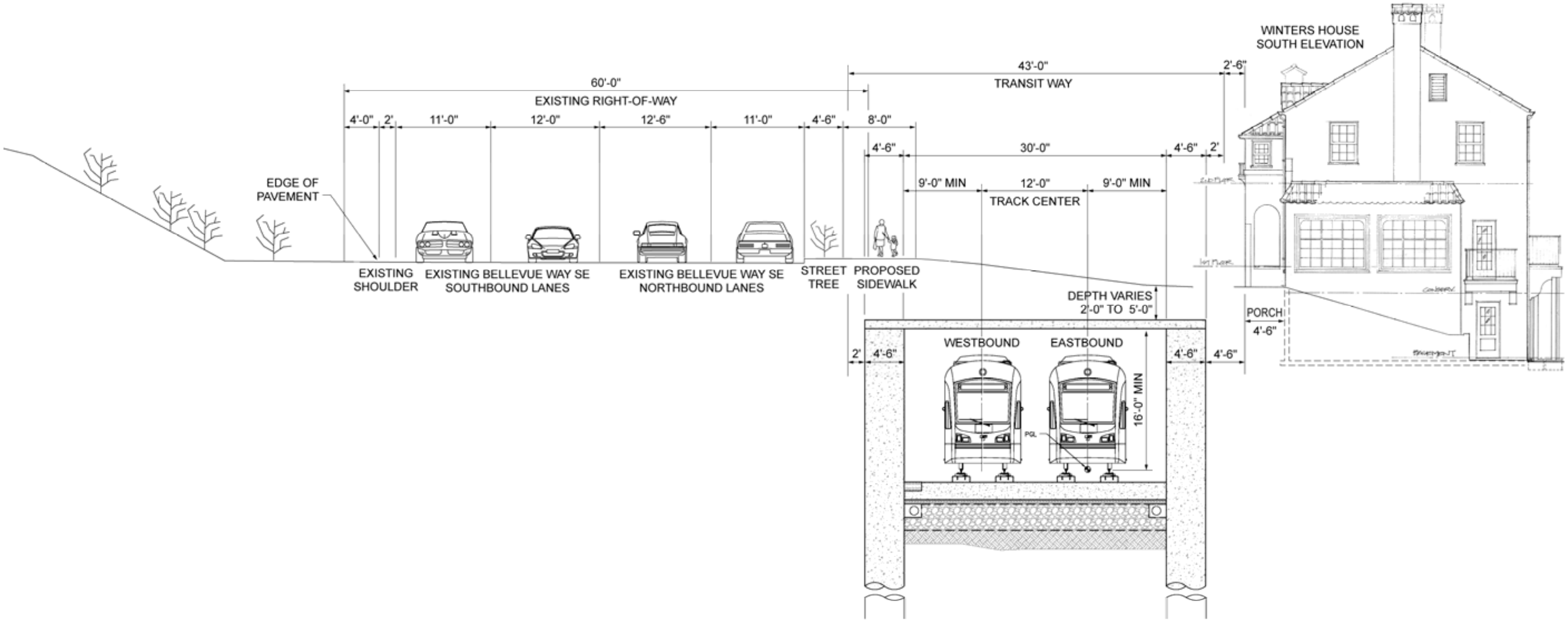

WINTERS HOUSE
SOUTH ELEVATION
43'-0"
TRANSIT WAY
2'-6"
60'-0"
EXISTING RIGHT-OF-WAY
4'-0"
2'
11'-0"
12'-0"
12'-6"
11'-0"
4'-6"
8'-0"
4'-6"
30'-0"
4'-6"
2'
9'-0" MIN
12'-0"
9'-0" MIN
TRACK CENTER
EDGE OF
PAVEMENT
EXISTING
SHOULDER
EXISTING BELLEVUE WAY SE
SOUTHBOUND LANES
EXISTING BELLEVUE WAY SE
NORTHBOUND LANES
STREET
TREE
PROPOSED
SIDEWALK
DEPTH VARIES
2'-0" TO 5'-0"
PORCH
4'-6"
WESTBOUND
EASTBOUND
2'
4'-6"
4'-6"
4'-6"
16'-0" MIN
PGL
2nd FLOOR
1st FLOOR
BASEMENT

EXHIBIT D-9
Cross-Section of Winters House, Existing Condition and with *Preferred 112th SE Modified Alternative (B2M)*

the landscaping of the historic period. New interpretive displays would also be installed on or near the property. As a result of these measures, the potential impacts to the Winters House are mitigated, while also benefitting the resource.

Other Segment B Alternatives

Alternatives B1, B2A, B3, and B3 - 114th Design Option would avoid impacts on the Winters House during project operation. While these alternatives encroach on the larger parcel on which the Winters House is located, no impact within the delineated historic boundary of the house would occur because these alternatives limit expansion of Bellevue Way to the existing right-of-way line at the Winters House. Alternatives B1 and B2A are located at-grade in the center of the roadway; and no visual, noise, or vibration impacts would result. Alternative B2E is elevated to the far side of Bellevue Way, away from the Winters House, also avoiding impacts on the property. Given its similar route and design to Alternative B2A, Alternative B3 and the B3 - 114th Design Option would also avoid impacts to the resource.

Pilgrim Lutheran Church

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M would not impact the Pilgrim Lutheran Church.

Other Segment B Alternatives

Alternative B1 is not anticipated to impact the Pilgrim Lutheran Church, which is located just west of Bellevue Way (Exhibit D-10). This church building is eligible for the NRHP as an example of Neo-Expressionist architectural style; its eligibility does not include the property boundary. During construction, South Bellevue Way would be realigned up to 10 feet into the property for a distance of roughly 250 feet. The location already experiences the visual and noise effects of heavy street traffic. During construction, an underground stormwater detention vault would be installed under a portion of the northeast corner of the property and over 100 feet away from the Church building. Access from SE 11th Street to the church would not be disrupted from either project construction or operation. Following construction, all parking would be returned, and the vault would not be visible other than one or two manholes. Continued operation and maintenance of this stormwater vault would not impact the Pilgrim Lutheran Church. Maintenance would consist of periodically parking a truck at the site and opening the manholes for cleaning and maintenance, and maintenance could be scheduled to avoid major events and regular church services.

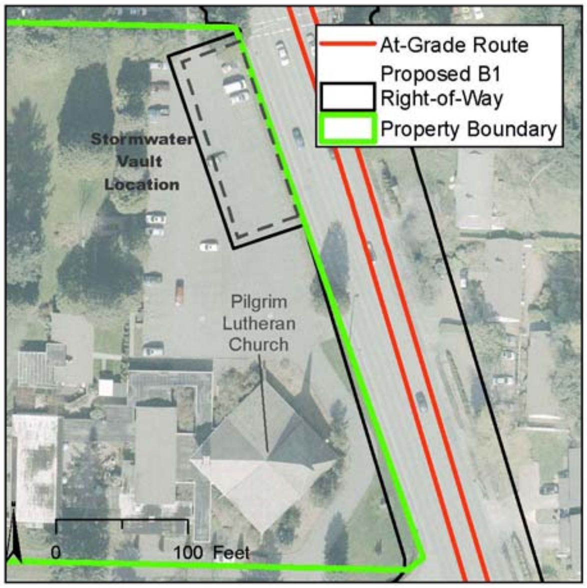


EXHIBIT D-10
Proximity of Alternative B1 to Pilgrim Lutheran Church

D.4.2.3 Segment C

Surrey Downs Park

Preferred 108th NE At-Grade Alternative (C11A)

Surrey Downs Park includes two athletic fields, a play structure, internal trails, open space, remnant stands of filbert or hazelnut trees, and the King County Courthouse and associated parking. Approximately 8.9 acres of the 11.4-acre site are currently used as park, with the remainder occupied by the King County Courthouse and parking. In March 2009, the City of Bellevue adopted a master plan for redeveloping the park, including the portion currently occupied by the King County District Courthouse. Proposed improvements include new baseball fields, open space, a community garden, parking, and a recreational building.

Preferred Alternative C11A could have potential impacts to Surrey Downs Park. Along 112th Avenue SE, *Preferred Alternative C11A* would acquire approximately 0.5 acre along the eastern edge of Surrey Downs Park for the light rail guideway (shown in Table D-3 and illustrated on Exhibit D-11). This area of the park is characterized by a steep slope and trees, a vehicle access at the southern and northern ends of the park, parking lots just west of the slope accessing the park facilities and the King County Courthouse building, a neighborhood pedestrian access point at the southeast corner of the park at 111th Avenue SE, and a pedestrian access from 112th Avenue SE at the park's northeast corner.

TABLE D-3
Segment C Alternatives Impact Area in Surrey Downs Park[a]

Alternative	Permanent (acres)	Temporary (acres)
Preferred Alternative C11A	0.5[a]	0.6[a]
Preferred Alternative C9T	0.5[a]	0.5[a]
Alternative C1T	None	None
Alternative C2T	Less than 0.1[a]	5.7[a]
Alternative C3T	Less than 0.1[a]	5.7[a]
Alternative C4A	0.5[a]	0.4[a]
Alternative C7E	0.4[a]	0.4[a]
Alternative C8E	None	None
Alternative C9A	None	Less than 0.1
Alternative C14E	None	None

[a] Only for connector from *Preferred Alternative B2M* for *Preferred Alternatives C11A* and *C9T* and from Alternative B2A for Alternatives C2T, C3T, C4A, and C7E..

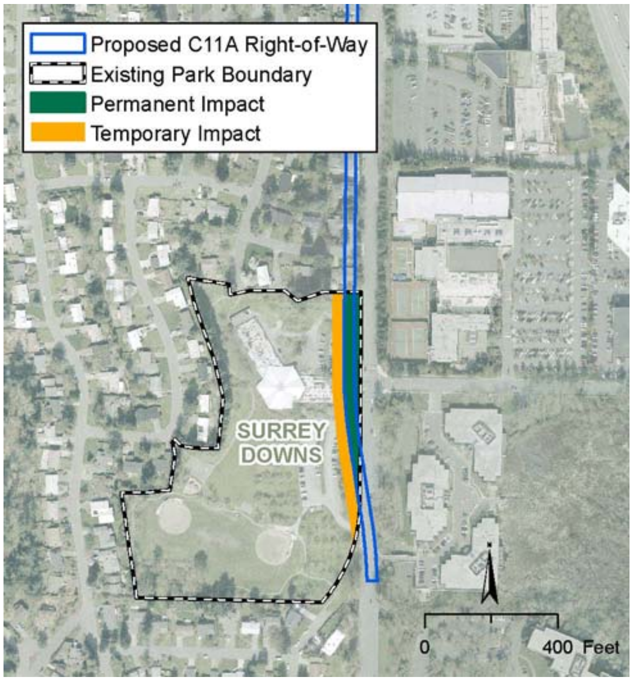


EXHIBIT D-11
Preferred 108th NE At-Grade Alternative (C11A)
Surrey Downs Park Impact Area

The at-grade light rail guideway would encroach along the eastern edge of park, displacing the landscaping strip, large trees, and some existing parking. As part of the project, properties located to the west of 112th Ave SE between Main Street and Surrey Downs Park would be acquired. Once the project is built and in operations, a substantial amount of the acquired area will be available and could be developed into an open space linear park. This new linear park would replace the impacted area in Surrey Downs Park, which is primarily passive open space. The project would not result in noise impacts to the park because, based on FTA criteria, the actual uses of this park are not noise sensitive. Refer to Section 4.7, Noise and Vibration, for complete information.
The vehicle access point at the north end of the park would be closed, consistent with the proposed master plan. The existing vehicle access at the southern end and the pedestrian connection to the neighborhood at the southeast corner at 111th Avenue SE would not be affected. Design improvements to the south driveway would minimize impacts associated with the removal of the north driveway. Vehicle access to the park would also be right-in and right-out along 112th Avenue SE. U-turn movements would be provided at nearby intersections to minimize out of the way travel for vehicles that access the park north along 112th Avenue SE. No active recreation facilities would be affected.

Removing vegetation and trees would result in a visual change, but the vegetation would be replaced and eventually mature. The light rail guideway would be consistent with the existing transportation nature of the 112th Avenue SE corridor. *Preferred Alternative C11A* would also temporarily acquire 0.6 acre for a temporary construction easement. Construction impacts such as noise, dust, visual change, and reduced parking would be noticed by park users but would not inhibit normal use of the park. There are no active park use areas along 112th Avenue SE. Vehicle and pedestrian access to the park from 112th Avenue SE would be maintained during construction. The activities, features, and attributes of the park would not be substantially diminished.

Preferred Alternative C11A would affect some elements of the current *Surrey Downs Park Master Plan* adopted by the Bellevue City Council in March 2009. The light rail guideway would encroach into the planned garden terraces and path bordering 112th Avenue SE. *Preferred Alternative C11A* would relocate or eliminate the proposed pedestrian access points from 112th Avenue SE at the park's northeast corner.

The project would minimize impacts during operation and construction by using the area of the park not currently used for active recreation along 112th Avenue SE, limiting permanent light rail use to approximately 4 percent of the park. Sound Transit would coordinate with the City of Bellevue to revise the *Surrey Downs Park Master Plan* before the park is developed to address the light rail and integrate the two facilities, as appropriate.

Preferred 110th NE Tunnel Alternative (C9T)

As illustrated on Exhibit D-12, *Preferred Alternative C9T* would permanently acquire approximately 0.5 acre of Surrey Downs Park (approximately 4 percent of the park) along its northeast boundary along 112th Avenue SE for the at-grade light rail guideway, and realign SE 4th Street to create a four-way intersection with SE 6th Street and 112th Avenue SE (see Table D-3). Similar to *Preferred Alternative C11A*, the north vehicle entrance to the park would be closed. This area of the park is characterized by a steep slope and trees along 112th Avenue SE, a vehicle entrance, and parking lots accessing the park facilities and the King County Courthouse building. As part of the project, properties located to the west of 112th Ave SE between Main Street and Surrey Downs Park would be acquired. Once the project is built and in operations, a substantial amount of the acquired area will be available and could be developed into an open space linear park. This new linear park would replace the impacted area in Surrey Downs Park, which is primarily passive open space.

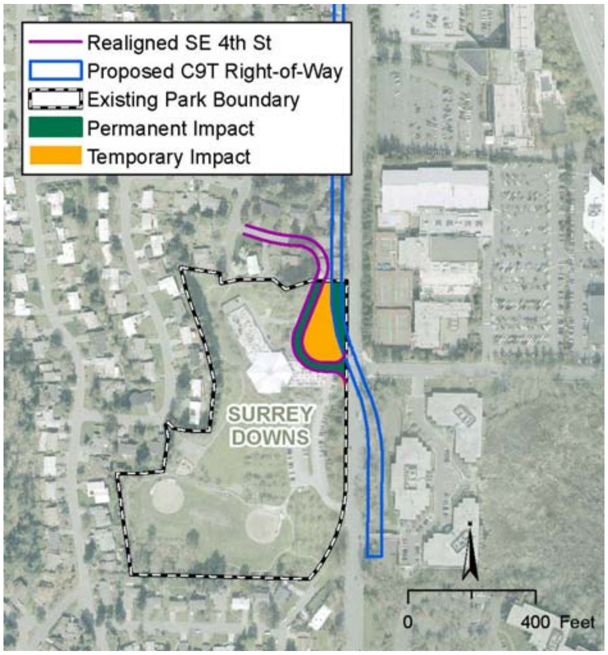


EXHIBIT D-12
Preferred 110th NE Tunnel Alternative (C9T)
Surrey Downs Park Impact Area

There would be no noise impacts, similar to *Preferred Alternative C11A*. Park impacts at the northeastern portions of the resource would be similar to those from *Preferred Alternative C11A*, but there would be no impacts on the park south of SE 6th Street where *Preferred Alternative C9T* would remain on the east side of 112th Avenue SE. *Preferred Alternative C9T* would realign SE 4th Street to replace the neighborhood access with a four-way intersection with SE 6th Street and 112th Avenue SE. The roadway would result in permanent use of park property for the roadway separating a half-acre area from the remainder of the park. The curved design of the realigned roadway would maintain slow vehicle movements through the park and would not access the parking areas for the park. A second option would provide a new connection into the Surrey Downs neighborhood at SE 9th Street from the south park entrance. Access to the neighborhood from the south park entrance would permanently close the north entrance reducing park impacts, but it would result in changing circulation patterns in the neighborhood. No active recreation facilities would be affected under either option.

This alternative would temporarily acquire 0.5 acre for a temporary construction easement. Construction impacts such as noise, dust, and visual change would be noticed by park users but would not inhibit normal park use because there are no active park use areas along 112th Avenue SE. Vehicle and pedestrian access to the park from 112th Avenue SE would be maintained during construction. The activities, features, and attributes of the park would not be substantially diminished.

Preferred Alternative C9T would affect elements of the *Surrey Downs Park Master Plan* and would result in impacts similar to *Preferred Alternative C11A* at the northeastern side of the park, including encroachment of light rail into the planned garden terraces and path bordering 112th Avenue SE. In addition, realigning SE 4th Street would further encroach into a portion of the area planned for the community facility. *Preferred Alternative C9T* would relocate or eliminate one of the two proposed pedestrian access points, with the access point at SE 6th Street combined with the realigned SE 4th Street access to the park.

Minimization measures are similar to those discussed for *Preferred Alternative C11A*, with the addition of landscaping along the realigned SE 4th Street adjacent to the park. Sound Transit will coordinate with the City of Bellevue to initiate revision of the *Surrey Downs Park Master Plan* before park development to address the light rail guideway, roadway, and needed parking and integrate the two facilities, as appropriate.

Other Segment C Alternatives

The other Segment C alternatives would also not result in noise impacts from light rail operations at Surrey Downs Park. A narrow strip of permanent acquisition would occur along the eastern edge of Surrey Downs Park when the Alternative C2T, C3T, C4A, and C7E connect to Alternative B2A, but this area would not conflict with the Surrey Downs Park Master Plan. These alternatives would require widening the right of way along 112th Avenue SE for the light rail project. The area needed for each alternative is shown in Table D-3 and depicted in Exhibit D-13.

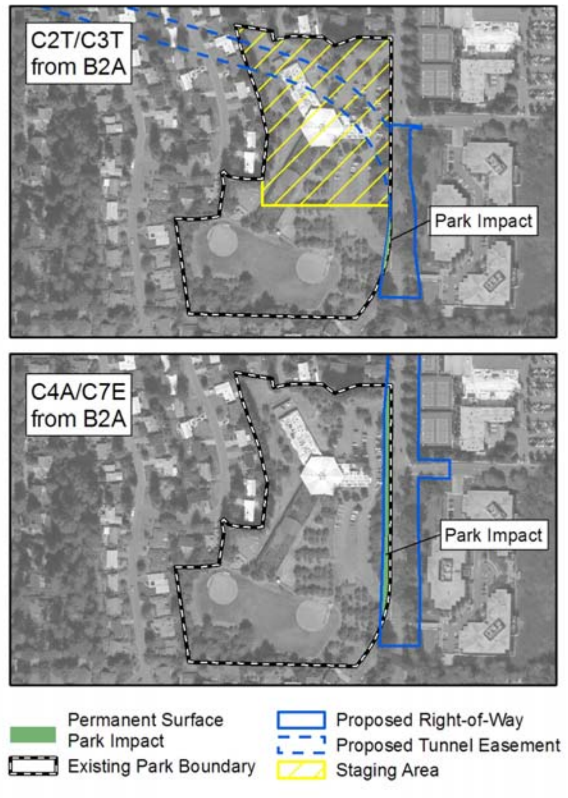


EXHIBIT D-13
Surrey Down Park Proposed Right-of-Way and Staging Areas in Segment C

The affected area constitutes about 0.5 to 4.4 percent of the 11.4-acre park, depending on the alternative. The direct use would reduce the landscaped strip of land that separates the existing parking area from the sidewalk along 112th Avenue SE. This use does not affect active recreational areas of the park and therefore would not result in adverse impacts on the activities, features, and attributes of the facility.

Constructing Alternative C2T or C3T that connect with the Alternative B2A would require closing the northern half of the park (the District Court House portion of the park), about 5.7 acres, for approximately 4 to 5 years to stage and construct the tunnel. This would be unique for Alternative C2T or C3T when connecting from Alternative B2A. This area of the park is not currently used as a park or recreational facility. The southern half of the park, containing ball fields and existing active park uses, would remain open and functional during construction. Parking and pedestrian access would be maintained during construction. A net benefit to the overall park facility from only Alternative C2T and C3T is expected to occur as a result of the removal of the District Court House by the East Link Project, if it is not already relocated before project construction begins. The removal might facilitate implementation of the Surrey Downs Park Master Plan. However, depending on park development schedule, the construction staging at this location might delay implementation of this park plan. Following construction, the tunnel would be underground and not visible within the park.

Although the southern half of the park would remain open during construction of Alternatives C2T and C3T, park users would experience impacts from adjacent construction. These impacts would include noise, dust, and some access restrictions because vehicle access would be limited to only one of the two current entrances. Pedestrian access to adjoining neighborhoods would be maintained at two of the three current locations. Parking would be limited because approximately half of the parking is located at the north end of the site, although much of that parking serves the District Court House.

NE 2nd Pocket Parks

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T would impact the NE 2nd Place Pocket Park during project operation and construction (as shown in Table D-4 and Exhibit D-14). The park comprises green space at the four quadrants of the intersection of 110th Avenue NE and NE 2nd Place, which serve as visual green space but do not include any facilities. The City of Bellevue, however, would like to develop these areas as a neighborhood park (City of Bellevue, 2010).

TABLE D-4
Segment C Alternatives Impact Area in NE 2nd Pocket Park

Alternative	Permanent (acres)	Temporary (acres)
Preferred Alternative C11A	None	None
Preferred Alternative C9T	0.1	0.3
Alternative C1T	None	None
Alternative C2T	None	None
Alternative C3T	None	None
Alternative C4A	0.1	0.3
Alternative C7E	None	None
Alternative C8E	0.1	0.1
Alternative C9A	Less than 0.1	0.1
Alternative C14E	None	None

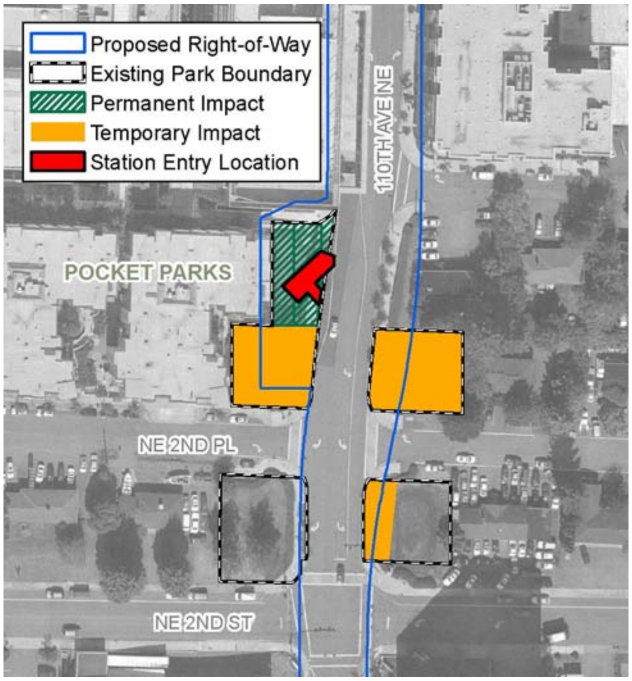


EXHIBIT D-14
Preferred 110th NE Tunnel Alternative (C9T) Pocket Park Impact Area

A portion of the northwest quadrant of the park, approximately 0.1 acre, would be incorporated into a station entrance and developed as an outdoor public plaza. A tunnel easement would be acquired under the northeast and southeast quadrants of the park, and the area above the tunnel would be returned to park use after construction. Although *Preferred Alternative C9T* would be in a tunnel the station entrance would be visible, but would not result in any permanent visual impacts.

Construction activities associated with the cut-and-cover tunnel for *Preferred Alternative C9T* would require the use of both park quadrants on the east side of 110th Avenue NE and the northwest quadrant, for a total construction easement of approximately 0.3 acre. The northwest and northeast quadrant would be closed during construction with the northeast quadrant being used as part of a larger staging area. Park users would experience noise, dust and visual change. After construction, the NE 2nd Place Pocket Park would be more accessible to the public through the station plaza.

Other Segment C Alternatives

The Couplet Alternative (C4A) would intrude into the southwest quadrant of the Pocket Park roughly 10 to 15 feet to accommodate the additional right-of-way required for the northbound light rail trackway (Exhibit D-15). This would acquire and use directly 0.1 acre or less than 10 percent of the total park area. Because this park contains no facilities and serves principally as open space, this park could continue to operate as it does currently.

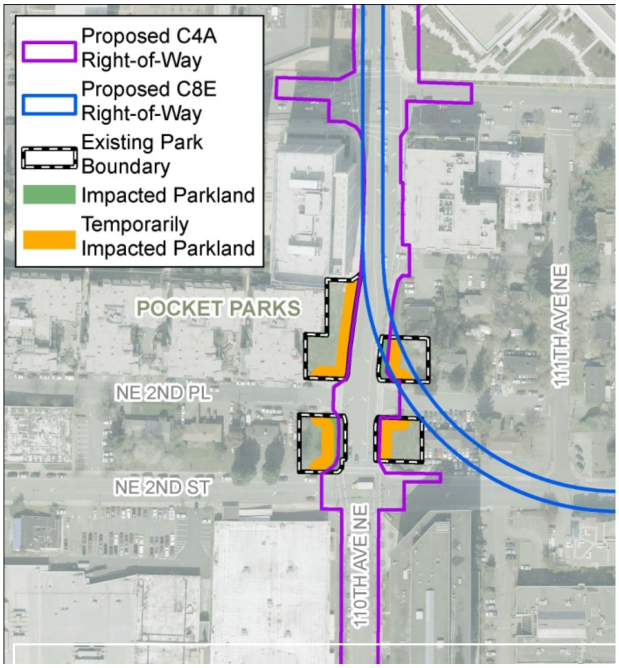


EXHIBIT D-15
Alternatives C4A and C8E Pocket Park Impact Area

Given its current use and proximity to roadway traffic and bus routes that use 110th Avenue NE, no noise or visual impacts are expected to occur. During construction, portions of all four quadrants would be affected, but remaining areas would still be available for use (Exhibit D-15). In addition, the 110th NE Elevated Alternative (C8E) would pass over 0.1 acre of the northeast quadrant of the Pocket Park (approximately 2,100 square feet), requiring a permanent easement and resulting in shading of the park and a visual intrusion (Exhibit D-15). The northeast quadrant of the park would be closed during construction because the area would be used for staging. However, because this park contains no recreational facilities and serves principally as open space, it is expected that this park could continue to operate as it does currently. Alternative C9A would permanently acquire less than 0.1 acre of the western edge of the Pocket Park quadrants on the east side of 110th Avenue NE (Exhibit D-16). During construction of Alternatives C4A, C8E, or C9A, park users might experience increased noise, dust, and temporary access restrictions in the pocket parks.

McCormick Park

Preferred 108th NE At-Grade (C11A)* and *Preferred 110th NE Tunnel (C9T) Alternatives

Preferred Alternative C11A and *Preferred Tunnel Alternative C9T* would not impact McCormick Park.

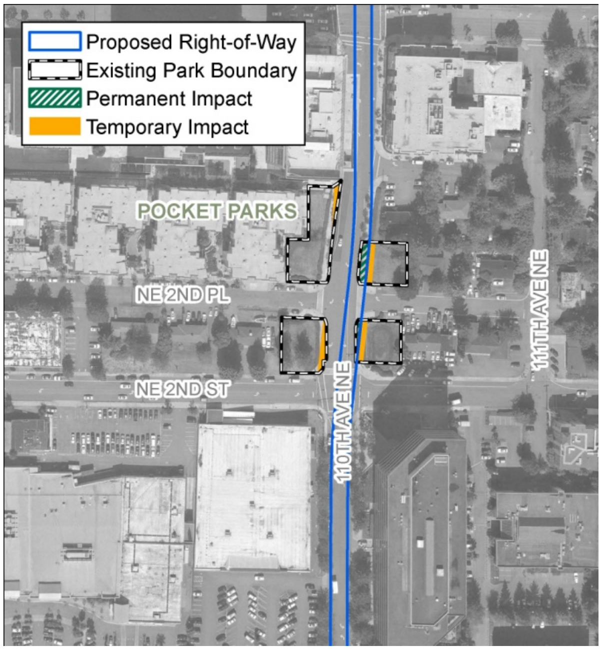


EXHIBIT D-16
Alternative C9A Pocket Park Impact Area

TABLE D-5
Impacts on McCormick Park

Alternative	Impact Area (acres)	Additional Area for Construction Staging (acres)[a]	New Parkland/ Net Gain (acres)
Preferred C11A	None	None	None
Preferred Tunnel C9T	None	None	None
Alternative C1T	None	None	None
Alternative C2T	None	None	None
Alternative C3T	0.9	1.8	1.6/0.7
Alternative C4A	0.8	1.3	1.1/0.2
Alternative C7E	None	None	None
Alternative C8E	0.2	0.8	0.4/0.1
Alternative C9A	None	None	None
Alternative C14E	None	None	None

[a] Includes park and nonpark areas.

Other Segment C Alternatives

Alternatives C3T, C4A, and C8E would acquire and directly use McCormick Park as shown in Exhibit D-17 and Table D-5. No noise impacts would occur from any alternative as the park is not noise sensitive.

Under the 108th NE Tunnel Alternative (C3T), the eastern portion of McCormick Park would include the portal and light rail structure along NE 12th Street. A retained fill or transition structure (gradual in height and approximately 550 feet long) would support the light rail track as it transitions from a tunnel to aboveground profile, impacting 0.6 acre of the park. This would result in a much different user experience than exists today as a result of additional structures in the park. Much of the construction would occupy and remove the existing mature evergreen trees along the north edge of the park. Once complete, the area used for construction staging as well as the area above the underground tunnel from roughly 108th Avenue NE to 110th Avenue NE would be used to recreate the parkland, resulting in an overall increase of the park size by about 1 acre.

With the Couplet Alternative (C4A), impacts would be similar to those described under Alternative C3T, although Alternative C4A would have a longer section of trackway in the park and a structure transitioning into an elevated profile over 112th Avenue NE. Approximately 0.5 acre of park would be impacted at the surface, and 0.3 acre would be under the elevated guideway.

Also similar to Alternative C3T, construction would occupy the park and remove the mature trees. The area used for construction staging would be used to recreate the parkland when construction is finished. The ultimate configuration of the park would increase in size by approximately 0.2 acre.

With the 110th NE Elevated Alternative (C8E), the elevated profile would cross NE 12th Street over the park and pass over 0.2 acre of the northern edge of the park between 111th Avenue NE and 112th Avenue NE. Because the light rail structure would be elevated approximately 30 feet above the park in this area, the structure would become a dominant and noticeable feature, which would affect the visual environment for some park users. However, no access would be impeded to and from other portions of the park. Only a portion of the park and some of the mature trees would be affected by construction. Like Alternatives C3T and C4A, once construction is complete, the area used for construction staging would be used to recreate the parkland and the park would slightly increase in size. Alternative C8E would result in the least impact of the three alternatives affecting McCormick Park.

Under each of these alternatives, the new park vegetation would take several years to mature, and, until the vegetation is reestablished, a temporary change in visual quality for park users would occur as well as a reduction in the ability of the park to function as a buffer from adjacent uses. The primary

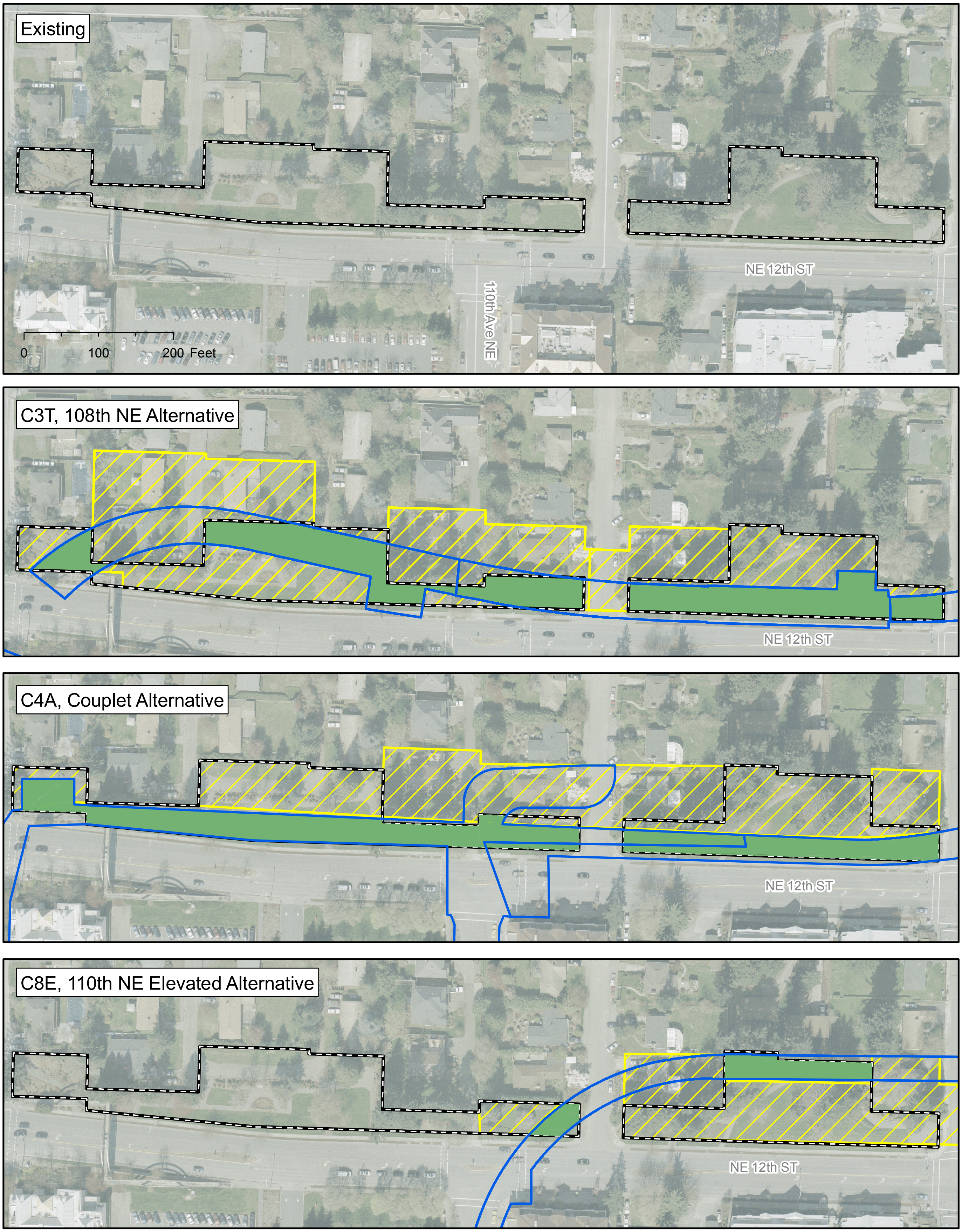

Existing
0
100
200 Feet
NE 12th ST
110th Ave NE
C3T, 108th NE Alternative
NE 12th ST
C4A, Couplet Alternative
NE 12th ST
C8E, 110th NE Elevated Alternative
NE 12th ST
Proposed Right-of-Way
Affected Park Area Within Proposed Right-of-Way
Existing Park Boundary
Staging Area / Future Park Boundary

Exhibit D-17 **McCormick Park - Proposed Right-of-Way and Staging Areas Segment C**
East Link Project

purpose of McCormick Park to serve as a buffer between the residences of the Northtowne Neighborhood to the north and high-density residential and commercial areas to the south would ultimately be restored. Constructing the alternatives would close McCormick Park from 108th to 112th Avenue NE with Alternatives C3T and C4A and from approximately 110th to 112th Avenue NE with Alternative C8E for approximately 4 to 5 years.

Potential Surrey Downs Historic District

There is no direct use of the potential Surrey Downs Historic District under any of the East Link Alternatives. However, in coordination with the State Historic Preservation Office, a concern for the possibility of proximity impacts on the potential historic district of the construction and staging areas, therefore the constructive use test is applied as described in Section D.3.3 and per 23 CFR 771.135.

A series of homes in Surrey Downs has the potential to be eligible for the NRHP as a historic district because they are part of a distinctive residential subdivision developed during the period 1952-1956; many of the houses represent a Pacific Northwest regional variant of the Modern architectural design style of post-World War II residential architecture; a number of the houses are based on the designs of a prominent Seattle architectural firm Mithun & Nesland (now Mithun Partners); and the neighborhood retains a high degree of design unity and cohesiveness. Although the owners have altered many of these houses—some substantially—since then, the neighborhood retains an unusual degree of design quality and cohesiveness.

While the potential district has not been fully delineated, there are 18 houses inventoried within the study area including one-story houses with carports and two-story houses with garages located beneath the living space. Properties that contribute to the potential historic district feature open plans, large areas of glass, and extensive use of wood. Hardwood floor and exposed beams characterize the house interiors, while the exteriors show wood siding, exposed rafters, and wooden roof supports. Skylights supplement the windows, which are plentiful and large, maximizing the amount of light admitted. All of these factors contribute to the unity of design and quality that distinguishes this portion of the subdivision.

Preferred 108th NE At-Grade Alternative (C11A)

When connecting from *B2M*, *C11A* would only remove noncontributing properties along 112th Avenue SE, Main Street, and one property along 111th Avenue SE (Exhibit D-18). Connections from B3 or B7 would not require the removal of homes along 112th Avenue SE.

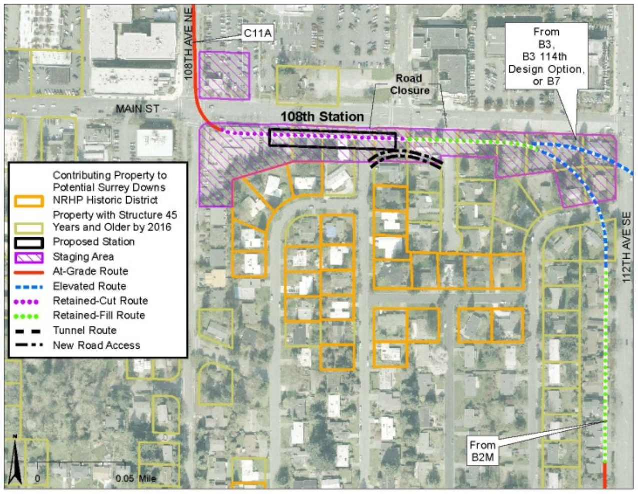


EXHIBIT D-18
Proximity of *Preferred Alternative C11A* to Potential Surrey Downs Historic District

At least one row of noncontributing properties would remain between the contributing properties and the project along 112th Avenue SE and most of Main Street. The project would be adjacent to three contributing homes at Main Street and 108th Avenue.

The potential historic district's setting would not be directly affected by the removal of noncontributing properties and the 108th Station and trackway along Main Street. Due to the orientation away from Main Street, the impact would not alter the sense of the potential historic district neighborhood.

Operating *Preferred Alternative C11A* could have potential moderate noise impacts on three contributing properties in the northwest portion of the potential district, located south of the proposed station; however, these noise impacts would be minimized and avoided with a sound barrier in the form of a berm or wall, included along the 112th Avenue SE and Main Street portions of the project. During final design, Sound Transit would assess whether or not the existing large coniferous trees located next to the contributing properties near the 108th Station could be preserved, which is Sound Transit's intention. Project components such as station design, landscaping, and a sound barrier would minimize project visual and noise effects, create a buffer from the project, and enhance the neighborhood boundary where noncontributing properties would be removed. Additionally, there would be no vibration after mitigation. Therefore there would not be substantial vibration or noise interference with the residential use of the properties under operation nor would any of the aesthetic features or attributes of the neighborhood be impaired.

Preferred Alternative C11A would close SE 4th Street access to 112th Avenue SE. However, SE 1st Place would remain open, maintaining access to 112th Avenue SE for the neighborhood north of Surrey Downs Park. Direct physical intrusion from the adjacent urban traffic would be substantially minimized under *C11A* because it would also close 110th Avenue SE and 110th Place access to Main Street; alternate access points to the neighborhood from Main Street via 108th Avenue SE would continue to provide access. Therefore the utility of the potential historic district is maintained for its residents.

Operation of *Preferred Alternative C11A* would not substantially diminish the attributes, features or qualities that are protected under Section 4(f) and therefore no constructive use would result from operation of *C11A*.

The construction effects of *Preferred Alternative C11A* would be temporary, and would not impact historic structures or substantially diminish the residential use during construction. The *C11A* construction impacts would be temporary, lasting about five years overall, with the most intense construction activities (demolition, clearing, and heavy construction) occurring during the first couple years. Construction activities could result in noise, visual, and dust impacts on nearby residences. Construction truck traffic would use the Main Street and 112th Avenue SE arterials without passing through the potential historic district. Typical construction for guideways and stations would occur on a 5- to 6-day work week schedule and would occur primarily between the hours of 7 a.m. and 10 p.m. In some locations (such as when street detours are involved and/or daytime construction periods need to be abbreviated to reduce impacts), additional shifts, all-week, or nighttime construction activities could be necessary.

Sound Transit would, as practical, limit construction activities that produce the highest noise levels to daytime hours, or when disturbance to sensitive receivers would be minimized. Contractors would be required to meet the criteria of the noise ordinance for the city and would seek the appropriate noise variance for operation of construction equipment that could exceed allowable noise limits during nighttime hours (between 10:00 p.m. and 7:00 a.m.), on Sundays or legal holidays. Sound Transit would control nighttime construction noise levels by applying noise level limits and noise control measures to meet these noise limits.

To minimize and avoid effects of construction on the potential Surrey Downs Historic District, construction of *Preferred 108th NE At-grade Alternative (C11A)* would include installation of a solid construction barrier to shield adjacent eligible houses from construction and preservation of the evergreen trees along the south edge of the station area, east of 108th Avenue SE. The residences would not experience noise that would substantially interfere with the residential uses.

During construction, the properties that would be removed for the project right-of-way along Main Street would also be used for staging areas. Staging is a relatively low intensity activity compared with construction. Construction staging areas are needed before, during, and for a short time after construction work occurs to store construction equipment, store construction materials, and to give contractors a temporary location to meet and work near the construction site. Staging areas may include contractor trailers (which would act as temporary offices and places for contractors to meet) and construction crew parking. In some circumstances, staging can provide additional buffer for adjacent properties during construction. The period of construction would be not lower the livability of the existing neighborhood.

The construction phase of *Preferred Alternative C11A* would not result in noise, visual, or access limitations that would substantially diminishing the attributes, features or qualities that are protected under Section 4(f) and therefore no constructive use would result on the potential Surrey Downs Historic District.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred 110th NE Tunnel Alternative (C9T) would not be adjacent to any contributing properties of the potential historic district. It would remove one row of noncontributing properties along 112th Avenue SE and one to two rows of noncontributing properties at the northeast corner of the neighborhood where 112th Avenue SE meets Main Street when connecting to *Preferred Alternative B2M* (Exhibit D-19). Fewer noncontributing properties would be removed along Main Street as compared with *C11A* because *C9T* enters a tunnel on the south side of Main Street and turns north to tunnel under 110th Avenue NE.

The *Preferred Alternative C9T* would not affect any contributing properties in the potential NRHP-eligible Surrey Downs historic district during construction. This alternative would be far enough away from contributing properties to avoid an adverse impact during construction. *Preferred Alternative C9T* would not result in noise, vibration, or visual impacts or access limitations that would substantially diminishing the attributes, features or qualities that are protected under Section 4(f) and therefore no constructive use would result on the potential Surrey Downs Historic District.

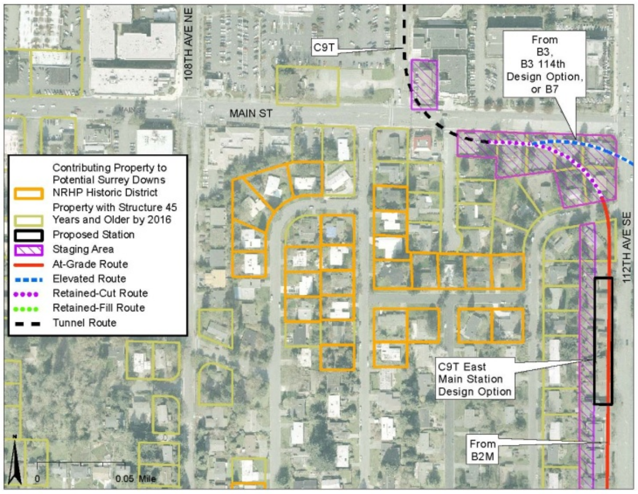

C9T
From
B3,
B3 114th
Design Option,
or B7
108TH AVE NE
MAIN ST
112TH AVE SE
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Staging Area
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
C9T East
Main Station
Design Option
From
B2M
0
0.05 Mile

EXHIBIT D-19
Proximity of *Preferred Alternative C9T* to Potential Surrey Downs Historic District

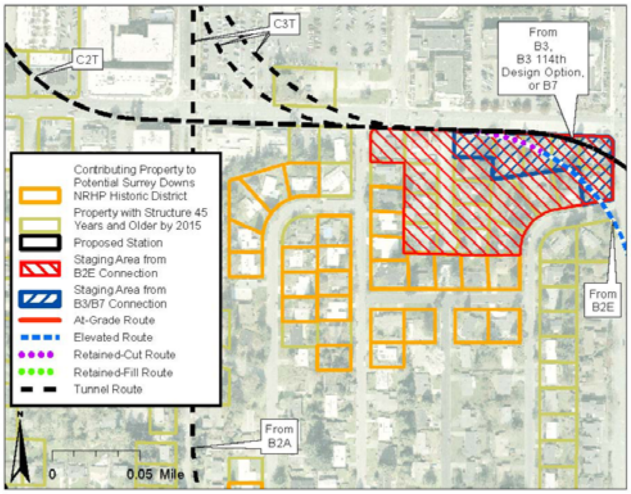

C2T
C3T
From
B3,
B3 114th
Design Option,
or B7
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2015
Proposed Station
Staging Area from B2E Connection
Staging Area from B3/B7 Connection
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
From
B2E
From
B2A
0
0.05 Mile

EXHIBIT D-20
Staging Area for Connections from Alternative B2E vs. Alternatives B3 and B7 for Alternatives C2T and C3T

Other Segment C Alternatives

Alternative C9A would be similar to *Preferred Alternative C9T* in that it would be far enough away from the potential Surrey Downs Historic District that it would not result in noise, vibration, or visual impacts, or access limitations that would substantially diminishing the attributes, features or qualities that are protected under Section 4(f). Therefore Alternative C9A would not result in a constructive use of the potential Surrey Downs Historic District. Likewise, Alternatives C2T and C3T with connections from Alternative B3 or B7, respectively, would not result in constructive use of the potential Surrey Downs Historic District because the construction areas are similar to *Preferred Alternative C9T* and Alternative C9A.

The connector from Alternative B2A to C2T and C3T would involve boring a tunnel beneath the potential Surrey Downs Historic District, which would avoid access and visual impacts. Noise and possible vibration could be noticeable to residents during construction but would not affect the contributing buildings. Although the geotechnical analysis shows that the soils in this area are generally resistant to settlement from ground disturbance, precautions during construction and a careful monitoring program would be incorporated into the construction plan.

The connector from Alternative B2E to C2T and C3T would use the northern area of the Surrey Downs subdivision for construction staging at the tunnel portal whereas if C3T connects from B3 or B7, the staging area would displace fewer homes and be further away from contributing residences (Exhibit D-20). The staging area activities for C3T from B3E would be the same as described for C11A and C9T, consisting of storing materials and parking. Construction would alter access at times during construction and would produce visual, noise, dust, and possible vibration impacts. Upon implementing the avoidance and minimization measures during construction, the impacts would be temporary and would not affect historic structures nor the livability of the neighborhood. The temporary or operational phases of these alternatives would not result in noise, esthetic, vibration impacts or access limitations that would substantially diminishing the attributes, features or qualities that are protected under Section 4(f) and therefore no constructive use would result on the potential Surrey Downs Historic District.

For connectors from Alternatives B2A and B2E to Alternative C4A (Exhibit D-21), construction staging areas would affect similar properties as *Preferred Alternative C11A*. Construction would alter access at times during construction and would produce visual, noise, dust, and possible vibration impacts. For connectors from Alternative B3 and B7 to Alternative C4A, construction staging would involve a smaller area but would still be adjacent to portions of the potential Surrey Downs Historic District. Constructing the connectors to Alternative C4A would be shorter in duration and require less nighttime construction than construction for tunnel alternative, such as Alternatives C2T and C3T and *Preferred Alternative C9T*.

There would be no effect on the potential Surrey Downs Historic District for connectors from Alternatives B3 and B7 to Alternative C7E, C8E, or C14E. Each alternative is located far enough away from the Surrey Downs subdivision to have no

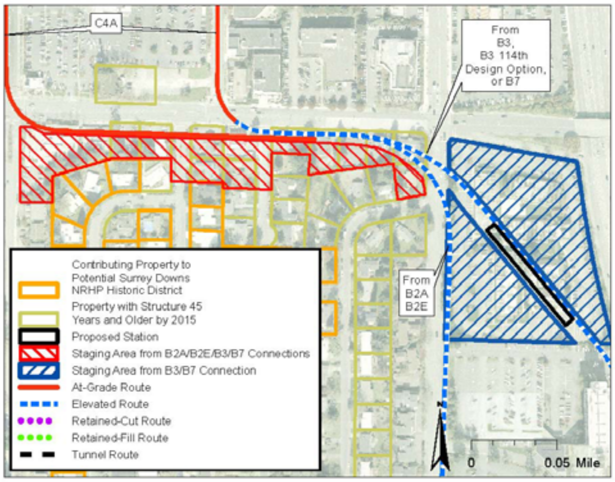

C4A
From B3, B3 114th Design Option, or B7
From B2A B2E
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2015
Proposed Station
Staging Area from B2A/B2E/B3/B7 Connections
Staging Area from B3/B7 Connection
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
0
0.05 Mile

EXHIBIT D-21
Staging Area for Connections from Alternative B2E vs. Alternatives B3 and B7 for Alternative C4A

impacts on the resources within it. For all alternatives that do border the potential Surrey Downs Historic District, Sound Transit would apply minimization and avoidance measures as previously described under *Preferred Alternative C11A*. After construction, the area would be landscaped offering a physical buffer separating the neighborhood and the downtown urban area. As with the preferred alternatives, none of the alternatives would result in substantially diminishing the attributes, features or qualities that are protected under Section 4(f) during operation or construction and no constructive use.

D.4.2.4 Segment D

Alternative D3 would use a narrow strip of the parcel on which the former Bellevue Fire Station sits (Exhibit D-22). The alternative would not result in visual, noise, vibration, or other impacts on the property. Widening of the road and introduction of the retained-cut light rail would not impact the setting, which is characterized by major roadways: Bel-Red Road, 148th Avenue NE, and NE 20th Street. Although the building's parcel is situated inside the Area of Potential Effect (APE), the building itself is outside the APE and not affected by the roadway widening during operation or construction.

D.4.2.5 Segment E

There are six parks, open spaces, and recreation areas potentially impacted by Segment E alternatives (Table D-6).

Marymoor Park

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would encroach about 30 feet into the northern boundary of the 640-acre Marymoor Park, acquiring and using approximately 2.0 acre of the total park area (Exhibit D-23).

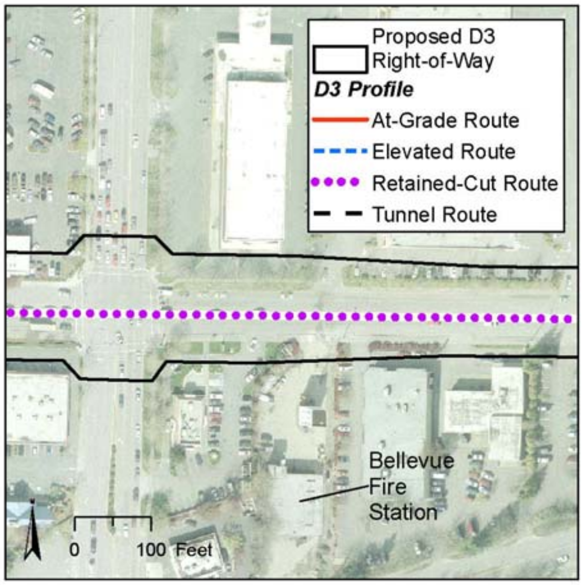

Proposed D3 Right-of-Way
D3 Profile
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
Bellevue Fire Station
0
100 Feet

EXHIBIT D-22
Alternative D3 Former Bellevue Fire Station Impact Area

The Marymoor Park contains soccer fields, baseball fields, a velodrome, tennis courts, a recreational event center and a climbing rock nearby SR 520 and the *Preferred Alternative E2* alignment. No recreation facilities would be directly impacted by light rail operations; however, equestrians ride along the park's northern property boundary—an unofficial equestrian route.

The equestrian route might be relocated if there is not enough distance between the guideway and sports fields to accommodate the users. Given the existing proximity to SR 520, users would not likely experience additional proximity impacts. The project would not result in noise impacts based on FTA criteria, because the actual uses of this park are not noise sensitive. Sound Transit would evaluate potential noise impacts in accordance with FTA noise method and criteria when Segment E is funded and design advances.

Construction would acquire a temporary easement of 3.0 acres along the northern park boundary to accommodate an access road and construction staging. This area consists of an approximately 15- to 50–foot width of property for the length of the park along SR 520. The temporary construction area would be sited to avoid impacts on those recreational activities closest to the alignment, specifically the soccer fields, event area and the velodrome and, thus, would not affect these recreational functions. However, this area is used as an unofficial equestrian route, which would have to be temporarily rerouted if there is not enough distance between the construction area and the soccer and ball fields to accommodate these users.

TABLE D-6
Permanent Impacts on Parks and Open Spaces in Segment E

	Park Name						
Impact Area: (acres)	**Town Center Open Space**	**Luke McRedmond Landing**	**Marymoor Park**	**Sammamish River Trail**	**East Lake Sammamish Trail**	**Bear Creek Trail**	**The Edge Skate Park**
Preferred Marymoor Alternative (E2)	None	None	2.0 acres	0 acre [a]	Shade, possible relocation of trail section	0.1 acre	None
E2 - Redmond Transit Center Design Option	None	None	2.0 acres	0 acre [a]	Shade, possible relocation of trail section	0.1 acre	Less than 0.1 acre
Redmond Way Alternative (E1)	None	0.1 acre	None	0.1 acre	Shade, relocation of trail section with MF 5 only	0.1 acre	None
Leary Way Alternative (E4)	0.7 acre	None	None	0.1 acre	Shade, relocation of trail section with MF 5 only	0.1 acre	None

[a] Impacts to this trail for Preferred Alternative E2, and E2-Transit Center Design Option are counted under Marymoor Park.

The project would not impair protected activities, features, or attributes of the park. E2 - Redmond Transit Center Design Option would have the same impacts as *Preferred Alternative E2*.

Luke McRedmond Landing

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 and the E2 - Redmond Transit Center Design Option would not impact Luke McRedmond Landing.

Other Segment E Alternatives

The elevated portion of Alternative E1 would intrude into the park's northwest boundary, thereby acquiring and directly using 0.1 acre, or roughly 5 percent of the total park area, which would be under the elevated structure. This would remove mature trees lining Redmond Way, but no park facilities would be impacted. Because the light rail structure would be elevated approximately 30 feet above the park adjacent to Redmond Way, the structure would become a dominant and noticeable feature, which would affect the visual experience of park users. Trees would be replaced per the City of Redmond tree ordinance. During construction, park users would experience impacts from adjacent construction, including noise, dust, and potential access restrictions as materials are hauled to and from the site, and some parking spaces would be temporarily removed. However, there would be no impacts on the recreational functions of the park and no noise impacts because the actual uses of the park are not noise sensitive based on FTA criteria.

Sammamish River Trail

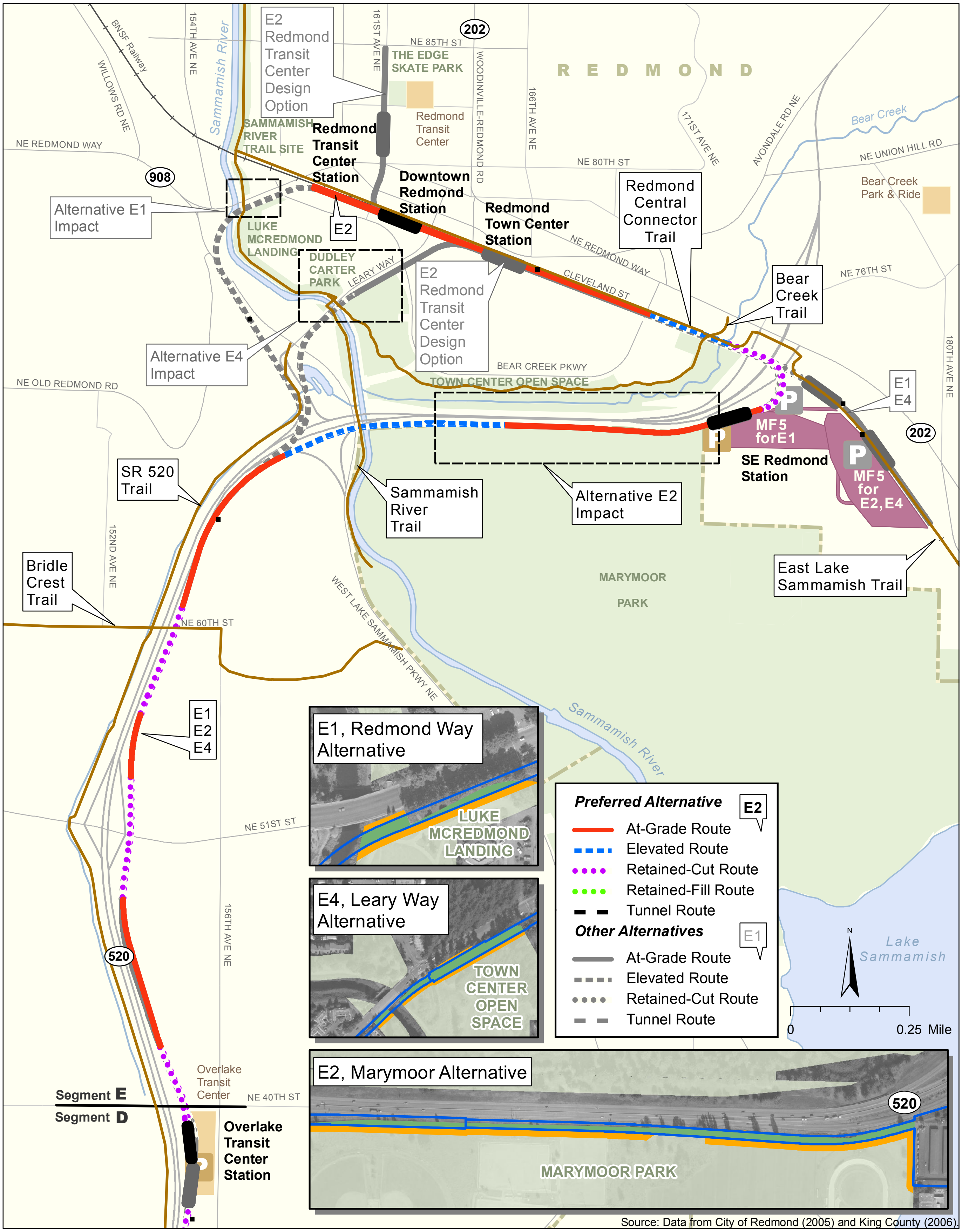
Preferred Marymoor Alternative (E2)

The *Preferred Alternative E2* would span the Sammamish River Trail south of SR 520, where it is part of Marymoor Park. This would result in an additional 20 feet (approximately) of trail shading. This impact would not result in a permanent physical impact on the continued use of the trail, which already passes underneath three other overpasses in this area, one of which, SR 520, would be located 80 feet away. A column could be placed near the trail; however, the columns would more likely be placed in WSDOT right-of-way. Construction would require temporary trail detours to maintain trail usage. During construction, park users would experience impacts from adjacent construction, including noise and dust, however since the trail section is perpendicular to this crossing, the construction would not inhibit trail use and the construction would be a short duration of less than the construction for the project alternative.

A detour would be provided to allow for the continuity of the trail, and the trail would be fully restored following construction. E2 - Redmond Transit Center Design Option would have the same impacts as *Preferred Alternative E2*.

Other Segment E Alternatives

All Segment E Alternatives would be similar impacts as the *Preferred Alternative E2*. No direct use of the trail would occur under any of the alternatives. Alternative E1 would span two segments of the trail that run north-south on either side of the Sammamish River south of Redmond Way SE. This would result in additional shading of the trail for roughly 10 to 20 feet. However, it is not anticipated that this impact would impair the continued use of the trail, which already passes underneath three other overpasses in this area, including the SE Redmond Way overpass 30 feet away.


E2 Redmond Transit Center Design Option
NE 85TH ST
202
THE EDGE SKATE PARK
R E D M O N D
Redmond Transit Center
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Downtown Redmond Station
Redmond Town Center Station
Redmond Central Connector Trail
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE REDMOND WAY
908
Alternative E1 Impact
E2
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
LEARY WAY
E2 Redmond Transit Center Design Option
NE REDMOND WAY
CLEVELAND ST
NE 80TH ST
NE 76TH ST
Bear Creek Trail
Alternative E4 Impact
NE OLD REDMOND RD
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
E1 E4
202
MF5 for E1
SE Redmond Station
MF5 for E2, E4
SR 520 Trail
Sammamish River Trail
Alternative E2 Impact
East Lake Sammamish Trail
MARYMOOR PARK
Bridle Crest Trail
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
E1 E2 E4
NE 51ST ST
520
Overlake Transit Center
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
BNSF Railway
WILLOWS RD NE
154TH AVE NE
Sammamish River
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
180TH AVE NE
152ND AVE NE
156TH AVE NE
Lake Sammamish
N
0
0.25 Mile
E1, Redmond Way Alternative
LUKE MCREDMOND LANDING
E4, Leary Way Alternative
TOWN CENTER OPEN SPACE
E2, Marymoor Alternative
520
MARYMOOR PARK
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route

Source: Data from City of Redmond (2005) and King County (2006).

🟩 Affected Park Area Within Proposed Right-of-Way

🟧 Impacted Park Area Within Proposed Right-of-Way

▭ Proposed Right-of-Way

■ Traction Power Substation

— Trail

▬ Proposed Station

▬ Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Exhibit D-23 **Affected Park Area Within Proposed Right-of-Way and Staging Areas**
Segment E
East Link Project

It is also likely that one or more columns would be placed in or in the vicinity of the trail (on either the west or east side of the river), given the turning radius and distance of the crossing of Alternative E1. This configuration might require the realignment of the trail such that no columns impede use of the trail.

Similar to Alternative E1, Alternative E4 would span two segments of the trail that run north-south on either side of the Sammamish River south of Leary Way. This would result in an additional 10 to 20 feet (approximately) of trail shading; however, it is not anticipated that this impact would impair the continued use of the trail, which already passes underneath three other overpasses in this area, including the Leary Way overpass directly adjacent to the proposed guideway. It is also likely that one or more columns would be placed in the vicinity of the trail (on either the west or east side of the river).

During construction, the trail under each of the alternatives would be detoured for public safety reasons and to allow for the continuity of the trail. During construction, park users would experience impacts from adjacent construction, including noise, dust. The trail would be fully restored following construction with no permanent adverse physical impacts on the trail. The occupancy would be shorter than the period of construction.

Bear Creek Trail

Preferred Marymoor Alternative (E2)

In order for the light rail guideway to cross over Bear Creek Trail, the trail would be lowered by 20 feet in a retained cut in its existing location. This would place the trail in a short tunnel for approximately 30 feet, but this impact would not impair the continued use of the trail. Lowering the trail would maintain the gradient, width, and height clearance to accommodate all trail users. A column could be placed near the trail, but it would not impair trail use. Construction would require temporary trail detours to maintain trail usage and to allow for trail continuity. During construction, park users would experience impacts from adjacent construction, including noise, dust. The trail would be fully restored following construction with no permanent adverse physical impacts on the trail. The occupancy would be shorter than the construction period and not change property ownership. E2 - Redmond Transit Center Design Option would have the same impacts as *Preferred Alternative E2*.

Other Segment E Alternatives

Alternatives E1 and E4 would cross the Bear Creek Trail and would result in approximately 20 feet of shading on the trail; however, it is not anticipated that this impact would impair the continued use of the trail. Because the light rail structure would be elevated approximately 20 to 35 feet above the trail in this area, depending on which alternative is constructed, the structure would become a dominant and noticeable feature that could affect the visual environment for some trail users.

During construction, the trail under each of the alternatives would be detoured for public safety reasons and to allow for the continuity of the trail. The trail would be fully restored following construction. Impacts would be the same as *Preferred Alternative E2,* but for different length of the trail. During construction, park users would experience impacts from adjacent construction, including noise, dust. Construction would require temporary trail detours to maintain trail usage and allow for the continuity of the trail. The occupancy would be shorter than the period of construction, not involve a change in ownership of the property. The work would be minor with full replacement of the trail and the environment following construction with no permanent adverse physical impacts on the trail. The trail would be fully restored following construction.

East Lake Sammamish Trail

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would potentially realign and relocate a portion of the East Lake Sammamish Trail within its existing corridor. Design of *Preferred Alternative E2* along the former BNSF Railway corridor assumes a future trail to be developed by others. The former BNSF Railway corridor is adequately wide enough to accommodate both facilities. Also, one or more columns could be placed near the trail. Project operation would not impact access to the trail and its connection to the Bear Creek Trail.

The corridor has an urban and transportation character; it is in a former railroad corridor and contains an existing SR 520 overpass. Therefore, the visual change of the East Link Project would not substantially impair views from the trail. During construction, park users would experience impacts from adjacent construction, including noise, dust. Construction would require temporary trail detours to maintain trail usage and allow for the continuity of the trail. The occupancy would be shorter than the period of construction, not involve a change in ownership of the property. The work would be minor with full replacement of the trail and the environment following construction with no permanent adverse physical impacts on the trail. The trail would be fully restored following construction. E2 - Redmond Transit Center Design Option would have the same impacts as *Preferred Alternative E2*.

Other Segment E Alternatives

Under Alternatives E1 and E4, the East Lake Sammamish Trail would likely be relocated and reconstructed in the area along the former BNSF Railway corridor for approximately 2,200 feet where the SE Redmond Station would be located. Design of Segment E alternatives along the former BNSF Railway corridor assumes a future trail to be developed by others. Impacts would be the same as *Preferred Alternative E2,* but for different length of the trail. During construction, park users would experience impacts from adjacent construction, including noise, dust. Construction would require temporary trail detours to maintain trail usage and allow for the continuity of the trail. The occupancy would be shorter than the period of construction, not involve a change in ownership of the property. The work would be minor with full replacement of the trail and the environment following construction with no permanent adverse physical impacts on the trail. The trail would be fully restored following construction.

Redmond Central Connector Trail

The City of Redmond has plans to develop the recently acquired Redmond section of the former BNSF Railway for a trail and linear park as well as accommodating local and regional utility needs. Together, these uses have the potential to reduce the amount of space available for light rail. Since a stormwater utility project and the first phase of the trail are scheduled to be constructed in 2011 and 2012, the City of Redmond would work with Sound Transit to accommodate the light rail project which may require a shift in its current conceptual alignment or possible rerouting of the trail, replacement of a affected trail amenities, and restoration of vegetation. This would affect all of the Segment E alternatives in the former BNSF railway.

The Edge Skate Park

Only E2 - Redmond Transit Center Design Option would impact a portion of the Edge Skate Park, located along 161st Avenue NE at NE 83rd Street. The design option would require a small portion, less than 0.1 acre of the western portion of the park, which contains the sidewalk and narrow lawn area, but would not affect any recreational facilities of the skate park.

Construction would require a temporary easement of 0.2 acres and construction activities could have proximity effects to Edge Skate Park users, because construction would occur directly adjacent to this facility. Construction along the side of the park would be shorter than the duration of construction and the minor area would be restored upon completing construction. However, construction noise and dust are not anticipated to impact the recreational functions of the skate park since these functions do not rely on quiet atmosphere. The occupancy would be shorter than the period of construction, not involve a change in ownership of the property. The work would be minor with full replacement of the landscaping area and the environment following construction with no permanent adverse physical impacts on the park.

Justice William White House

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 and the E2 - Redmond Transit Center Design Option would not have an impact on the Justice White House and would not incorporate property from the resource. Therefore, there would be no Section 4(f) use.

Other Segment E Alternatives

Alternative E1 would not have an impact on the Justice William White House and would not incorporate property from the resource. Therefore, these alternatives would have no use of this Section 4(f) resource.

Alternative E4 would require the relocation of the Justice William White House, which would cause an impact on the historic context and potentially damage the building. Sound Transit has consulted with the City of Redmond and DAHP about moving the building to a nearby location, which would preserve its setting, feeling, and association with the former BNSF Railway to the extent possible. Sound Transit would consult further with the City and DAHP to find appropriate sites for the house and repair any damage to the building or demolish the building if no sites are found.

D.5 Measures to Mitigate Harm on Section 4(f) Resources

D.5.1 Measures to Mitigate Harm on Park and Recreational Resources and *de minimis* Findings

The East Link Project has undergone a 5-year environmental review process, including extensive outreach efforts and numerous studies with the agencies with jurisdiction for Section 4(f) resources. Refer to Section D.9, Table D-11, for a summary of outreach efforts on Section 4(f) resources to date.

The Final EIS reflects 24 possible alternatives divided over 5 segments, each segment representing unique geographical areas beginning in Seattle and continuing east to connect with Mercer Island, Bellevue, Redmond, and lands in unincorporated King

County. Each alternative has been developed through extensive public and stakeholder input to avoid and minimize effects on resources. Methods of avoidance included adjustments to the horizontal alignment, vertical profile, and placement of facilities, such as traction power substations (TPSS) and maintenance facilities. Proposed mitigation measures were provided for public review and comment during the Draft EIS and the Supplemental Draft (SDEIS). Following the public review process, Sound Transit and FTA worked with each agency with jurisdiction to determine mitigation measures for impacts that could not be avoided and these are described in Table D-1 (found in Section D.4 of this document).

Sound Transit has incorporated measures of avoidance, minimization, and mitigation or enhancement as conditions of the project such that the uses of each park resource would not impact the activities, features, or attributes of the facilities. Based on these measures, FTA and Sound Transit have determined that there are Section 4(f) resources affected by East Link alternatives that qualify for a determination of *de minimis* and, therefore, would not require further Section 4(f) avoidance analysis (see Table D-1 for a summary of project "uses"). The officials with jurisdiction over the resource in the cities of Seattle, Mercer Island, and Redmond and King County, have concurred with FTA regarding impacts and mitigation for Section 4(f) park resources and *de minimis* determinations in their respective jurisdictions (see letters in Attachment D1).

Concurrence with park impacts and mitigation measures for a determination of *de minimis* finding was not reached with the City of Bellevue. As listed in Table D-11, Consultation Summary, Sound Transit has coordinated extensively with the City on the project design, impacts and mitigation regarding Section 4(f) resources throughout the EIS process. The City submitted a letter in October 2008 indicating preliminary concurrence on *de minimis* findings for the Draft EIS alternatives affecting Mercer Slough Park, Surrey Downs Park and the NE 2nd Pocket Parks. A similar letter was not submitted for those additional alternatives evaluated in the SDEIS, including the preferred alternatives in Segments B and C. Most recently, Sound Transit engaged with City of Bellevue parks, transportation and legal staff in several meetings during January 2011 in an effort to come to agreement on mitigation measures allowing a *de minimis* determination for Mercer Slough Park, Surrey Downs Park and the NE 2nd Pocket Parks for all project alternatives affecting these resources. Although there was agreement on some mitigation measures, concurrence was not reached on the mitigation measures necessary to relieve the resources from an impact on their activities, features, and attributes. City staff also indicated that it could not submit a letter concurring with a *de minimis* determination and that City Council approval would be necessary on whether or not to issue a *de minimis* determination for each project alternative. The City Council has not provided Sound Transit or FTA with a determination that impacts on 4(f) resources from any alternative would be *de minimis*. Based on this consultation, FTA and Sound Transit were unable to make a *de minimis* finding for the Section 4(f) resources within the City of Bellevue. Table D-1 describes potential mitigation measures to alleviate park effects in the City of Bellevue. FTA does not have sufficient information to justify making *de minimis* findings for alternatives in Segments B and C. Accordingly, it has not made *de minimis* findings in Segments B and C and will engage in a thorough least harm analysis.

D.5.2 Measures to Mitigate Harm for Historic Resources

For the historic resources, FTA and Sound Transit have engaged similar processes as with the park and recreational resources. FTA and Sound Transit followed the Section 106 process by engaging the SHPO and local jurisdictions, including the City of Bellevue regarding the Winters House and the City of Redmond regarding the Justice White House.

FTA has determined in consultation with SHPO that the East Link Light Rail project would have an adverse effect. The *Preferred Alternative* would result in potential impacts on the Winters House, the potential Surrey Downs historic district, and, if Alternative E 4 were selected, the Justice White House. Through consultation with local jurisdictions and interested parties, minimization and mitigation measures have been developed and incorporated into the project, which resolve the impacts. For the Winters House, the cumulative mitigation measures would result in an improvement to the resource. These mitigation measures are described in Table D-1 in section D.4 of this Section 4(f) analysis.

D.6 Section 4(f) Resource Avoidance Alternatives

The No Build Alternative would avoid uses of all Section 4(f) resources, but it is deemed not prudent per (3)(i) and (3)(ii) under the definition of "feasible and prudent alternative" in 23 CFR 774.17. The No Build Alternative is not prudent per (3)(i) in the 23 CFR 774.17 section because it neither addresses nor corrects the transportation purpose and need that prompted the proposed project.

Under the requirements of 23 USC Section 138, NEPA documents in which the project alternatives involve impacts on Section 4(f) resources must include an analysis of alternative locations for the proposed project that avoid Section 4(f) impacts through rerouting, design changes, or other methods. Such avoidance alternatives must be selected if they are determined to be "prudent and feasible" means of meeting the project objectives. The East Link Project is the combination of one alternative from each of the five segments: Segments A, B, C, D, and E. While the alternatives vary in their routes and associated impacts, they all generally reach the same destinations within a given segment. The alternatives within each segment can generally connect with each alternative from the adjacent segments, with the exception of the alternative connections between Segments B and C. The alternatives in these two segments do not all connect at a common location and some alternatives in Segment B connect with only one or a limited number of alternatives in Segment C.

Following the concurrence with *de minimis* findings on Section 4(f) resources from Cities of Seattle, Mercer Island, and Redmond and King County, no Section 4(f) resources require further Section 4(f) avoidance analysis in Segments A, D or E; however, there is a historic 4(f) resource in Segment E. Therefore, the Section 4(f) resources requiring analysis of avoidance alternatives under Section 4(f) are in Segments B, C, and E.

D.6.1 Segment B/C Avoidance Alternatives Analysis

While the East Link Project is divided into five Segments, Segments B and C present a unique analytical problem for purposes of determining whether there is an alternative that would avoid impacts on Section 4(f) resources. Segments B and C are interdependent, meaning that selecting a route or alignment through one of these two segments would determine the range of alternatives within the other segment. In order to ensure that this analysis considers all reasonable, feasible, and prudent alternatives, therefore, Segments B and C are treated together as a single segment for purposes of the analysis of avoidance alternatives (as well as for the following section of this report, which discusses which alternative causes the least overall harm). All of the combined Segment B-C alternatives have the same southern starting point at the end of Segment A and have common connection points with the Segment D alternatives.

Within Segment B, the potentially affected Section 4(f) resources are Mercer Slough Nature Park and the Winters House. The Section 4(f) resources in Segment C are Surrey Downs Park, NE 2nd Pocket Parks, and McCormick Park.

All combined Segment B-C alternatives analyzed in the EIS would use the Mercer Slough Nature Park. This park is the only resource that would be used by all alternatives; all other Section 4(f) resources in combined Segment B-C can be avoided by one or more alternatives. In order to constitute an avoidance alternative, therefore, an alternative must, at the least, avoid Mercer Slough Nature Park. If there are alternatives that would avoid impacts to Mercer Slough Nature Park, it is not necessary to conduct further analysis of impacts to other Section 4(f) resources since the Section 4(f) regulations require that an alternative that has *no* impacts to Section 4(f) resources be considered to be a feasible and prudent avoidance alternative. The remainder of this section consequently focuses on whether there are feasible and prudent alternatives that avoid impacts to Mercer Slough Nature Park.

D.6.1.1 BNSF Options

Avoidance alternatives were considered that connect to the BNSF Alternative (B7) on the east side of Mercer Slough Nature Park. Because of the size, north-south length and location of Mercer Slough Nature Park, it is not feasible and prudent to design an avoidance route that passes to the east of Mercer Slough Nature Park. The complexity of designing a route to the east of this resource faces the practical reality that the I-90 right-of-way through the park is too narrow in most places to accommodate an alignment on the north or south side of, and within, the existing right-of-way. Any alignment on the north side or on the south side of I-90 would require use of at least some property within Mercer Slough Nature Park. Aligning the route along the south side of I-90 to avoid Mercer Slough Nature Park would also require crossing I-90 twice, substantially increasing project costs and construction impacts to the highway. Moving the route within the I-90 travel lanes is also not feasible because the center reversible HOV lanes that have been designated for light rail use end west of the Bellevue Way interchange and general purpose freeway lanes would need to be displaced to reach the far side of the park. No other alterations to Alternative B7 would totally avoid impacts to Mercer Slough Nature Park. Therefore, any feasible and prudent avoidance alternatives would necessarily have to follow a route to the west of Mercer Slough Nature Park, either along or to the west of Bellevue Way. There are many possible permutations of a route through Segment B to the west of Bellevue Way.

D.6.1.2 Enatai Option

One set of possible avoidance options would travel west of Mercer Slough Nature Park through the Enatai neighborhood. Any alignment through this neighborhood would result in severe disruption to this suburban single-family neighborhood. There is not an existing transportation corridor through this neighborhood that could accommodate the light rail. Routing the light rail through this area would therefore cause significant community impacts as a result of a large number of residential relocations (estimated 70 to 100 single-family homes) and the bifurcation of the neighborhood. Even with mitigation, any avoidance alternative that would bisect this residential area would cause severe disruption to an established community.

D.6.1.3 Bellevue Way Options

All other avoidance alternatives would follow Bellevue Way SE. Each of these alternatives would be elevated in the I–90 center roadway and cross over westbound I–90 in order to preserve the I-90 and Bellevue Way HOV ramps as required by WSDOT. The route would remain elevated along the east side of Bellevue Way to the South Bellevue Station. The station would be located over the west edge of the park and ride adjacent to Bellevue Way SE to provide convenient access to the high volume of pedestrians from the park and ride or bus transfers. North of the station any avoidance alternative would either continue to be elevated on the west side of Bellevue Way (similar to Alternative B2E) or descend to an at-grade profile in the median of Bellevue Way (similar to the Alternative B2A or B3). The avoidance alternative would then turn east on 112th Avenue SE and continue north and avoid Mercer Slough Nature Park.

Similar to the other Segment B alternatives (except Alternative B7), the South Bellevue Station and Park-and-Ride in the avoidance alternatives would include a four-story parking structure with about two stories above the grade of Bellevue Way. However, for the avoidance alternatives the elevated light rail guideway would be located over Bellevue Way north and south of the station and high enough to provide clearance for traffic entering the park and ride or traveling on Bellevue Way. In addition, the station would likely require a mezzanine that would add height such that the station and guideway would be about 15 feet higher than for the other Segment B alternatives and about 20 feet higher than the top level of the parking structure.

There are two different design options for the avoidance alternatives north and south of the South Bellevue Station. The Road Widening Option would place the elevated guideway on piers in the northbound lane of Bellevue Way. This would require repositioning and reconstructing the entire roadway to the west, resulting in removing the majority of dense, mature vegetation and an additional 13 residential property acquisition more than others Segment B alternatives (16 in total) and the need for retaining walls taller than currently proposed for other Segment B alternatives. To avoid shifting Bellevue Way to the west and the associated impacts, the Straddle Bent Option would support the elevated guideway on approximately 23 straddle bents which would span entirely over the existing Bellevue Way right of way. The straddle bents would be positioned approximately every 100 to 120 feet for about 0.5 mile north of the I-90/Bellevue Way interchange; extending north of the South Bellevue Station. The straddle bents in combination with the elevated light rail guideway would create a “rib cage” like effect or viaduct over this section of the road. See Exhibit D-24 for a representative image of a straddle bent. Due to the position over Bellevue Way, this avoidance option would be at least 15 feet higher than the other Segment B alternatives.

Straddle bents consist of double column piers with a beam on top to straddle over the roadway (or other obstacle) to support the elevated light rail guideway in the air.

The avoidance alternatives that require an elevated route along (or to the west of) Bellevue Way would cause unique problems. These problems, outlined below, while perhaps individually minor, cumulatively cause unique problems and impacts of extraordinary magnitude.

- The Straddle Bent Option would restrict the ability to widen the south end of Bellevue Way in the future as it would place a column on either side of the road.
- The Road Widening Option would displace 13 additional residences (than other Segment B alternatives) on the west side of the road.

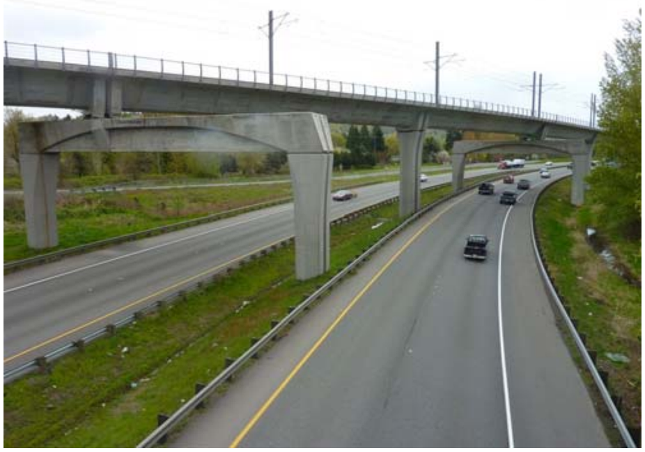


EXHIBIT D-24
Representative Straddle Bents Supporting a Light Rail Guideway

- Visual impacts from I-90 to the South Bellevue Station would be greater than any other Segment B alternatives under either option. The greater height of the station and guideway would make it a more visibly imposing structure and potentially block views of Mercer Slough Nature Park from residents along Bellevue Way, adding visual quality impacts. This alternative would be higher than all previous alternatives by 10 to 15 feet, which would make it more visible from park users. The other Segment B alternatives take advantage of the topography of the South Bellevue Park-and-Ride to lower the height of the station for on looking residents. For the Straddle Bent Option there would be substantially larger visual impacts from the numerous straddle bents across Bellevue Way, from I-90 to north of the station. The long row of straddle bents would create a viaduct over the road and more enclosed experience for travelers on Bellevue Way and be a visual obstruction for residents. Also, the added height would make the light rail infrastructure more visually prominent for park users. In combination, these changes would severely change the visual quality of Bellevue Way. Widening the road to the west for the Road Widening Option would remove most of the mature existing green belt vegetation and require taller retaining walls along west side of Bellevue Way than other Segment B alternatives. Mature vegetation would take several years to replace. The two avoidance options move the light rail closer to the residences west of Bellevue Way SE and would increase potential noise impacts, although mitigation with noise walls would likely address these impacts. However, the walls would increase the visual impact of these options.

- Construction would impede traffic circulation along Bellevue Way SE for longer periods of time than other Segment B alternatives. Shifting the roadway and/or constructing straddle bents over Bellevue Way and near the I-90 interchange would result in longer term traffic restrictions on the primary arterial to I-90 serving the communities of Enatai, Beaux Arts, and Bellevue.

- The costs for the southern portion of the avoidance alternatives would be higher than any other Segment B alternative. The higher costs would be attributed to acquiring and relocating at least 12 more residences than other Segment B alternatives, the straddle bent construction or the additional road widening further west resulting in higher retaining walls, and the higher elevated station. Together these project elements would increase the overall project costs for this portion of the alternative compared with the other Segment B alternatives.

- Finally, stakeholder input and coordination with City of Bellevue has emphasized the need for the alignment to be as far away as practical from residences along Bellevue Way. Per City of Bellevue letter dated February 25, 2008, the City expressed a desire to balance three key principles in South Bellevue: *"provides transit access by facilitating regional and local connections at the South Bellevue Park-and-Ride, protects neighborhoods by placing the line farther away from residences, and minimizes construction impacts by reducing the amount of street reconstruction required along these major transportation corridors."* Contrary to the City's desires, the avoidance alternative would result in longer construction impacts along Bellevue Way SE and place the guideway closer to residences along Bellevue Way SE

- Any avoidance alternative along or west of Bellevue Way would result in higher cost, materially greater construction impacts, residential impacts, noise, and visual effects compared to alternatives that would have relatively minor impacts on Mercer Slough Nature Park. The substantial additional impacts and cost associated with avoidance alternatives along, or to the west of, Bellevue Way must be considered in the context of the small impact to Mercer Slough Nature Park that would result from the Segment B alternatives. The Segment B alternatives with the least effect on Mercer Slough Nature Park would occupy less than an acre of this 320 acre park, which is less than 0.3 percent of the park area. In addition, the affected area is not significant in terms of its character and function relative to the overall natural focus of the park and the guiding objectives and purposes as set forth by the resource managers. The affected areas are near I-90, an 8-lane freeway, adjacent to Bellevue Way SE, a very busy and noisy four lane arterial, and adjacent to the existing South Bellevue Park and Ride that currently contains about 440 parking stalls and substantial bus service. For most Segment B Alternatives along Bellevue Way in the EIS, the affected park area consists largely of open grass, paved sidewalks and paths with some natural vegetation.

Considering how the term "prudent" is defined in applicable FTA regulations, this analysis reveals that there are no feasible and prudent avoidance alternatives to the minor impacts that the project would cause to Mercer Slough Nature Park. Because there is no prudent and feasible alternative to avoid the Mercer Slough Nature Park, then pursuant to 23 CFR 774.3[c]), a Least Harm analysis is required, found in Section D.7.

D.6.2 Segment E Avoidance Alternatives Analysis

Section 4(f) resources in Segment E are not influenced by the connection from Segment D. The prudent and feasible analysis will be confined to alternatives and avoidance alternatives within Segment E. Alternative E4 would be located on the Justice William White House property and would relocate the house. This would cause an impact to the historic context, potentially damage the building, and have a Section 4(f) use. Avoidance alternatives considered in this evaluation consist of relocating Alternative E4 light rail route northeast of the Justice William White House in a new route or selecting another project alternative currently under consideration.

D.6.2.1 Avoidance through New Routes

An avoidance alternative would be feasible by shifting Alternative E4 alignment to the north side of Leary Way before turning south into the former BNSF Railway. Using the same alignment from SR 520, the guideway would be elevated diagonally over the West Lake Sammamish Parkway and Leary Way intersection and crossing Sammamish River in bridge structure before lowering to an at-grade profile adjacent and parallel to Leary Way. To enter into the former BNSF Railway corridor, the guideway would diagonally cross at the Leary Way and NE 76th Street NE intersection, which would stop traffic in all directions. This crossing would require gates and bells. The noise would not affect the Justice White House, as the building is zoned and used as an office building, which is not noise sensitive according to FTA noise criteria.

Shifting the Alternative E4 alignment to the north would avoid the Justice William White House but would permanently affect another 4(f) resource, the Dudley Carter Park. This new alignment would result in the permanent acquisition of approximately 0.12 acre of this park. Also, an open space, which is publicly held by City of Redmond but not officially park lands, would be impacted for approximately 0.5 acres. This land was protected as a heron rookery but the city has recognized that the rookery is not longer occupied. There are no available replacement lands for the park and open space property acquisition in the nearby vicinity. A shift in Alternative E4 would also acquire a condominium building with approximately 15 housing units located just west of the Sammamish River, north of NE Leary Way. Finally, the revised alignment would pass through an undeveloped property on the northeast corner of Bear Creek Parkway and Leary Way, dividing the property and creating an undevelopable remnant. For these reasons listed, this alternative would not be prudent compared to the relocation of the Justice White House.

D.6.2.2 Avoidance by Selecting Another Project Alternative

Preferred Alternative E2, E2 – Redmond Transit Center Design Option, and Alternative E1 would avoid impacts on the Justice White House. They do, however, impact other Section 4(f) resources, but as described in Section D.5, FTA has determined, and the City has concurred, that following mitigation, they qualify for a finding of *de minimis,* meaning there is no remaining harm after mitigation and would not require further Section 4(f) avoidance analysis.

Preferred Alternative E2 is a prudent and feasible alternative because among the avoidance alternatives, it has similar if not lower environmental impacts, least cost, maintains high ridership, and is generally supported by the City of Redmond. The E2 - Redmond Transit Center Design Option would not be prudent because it has the highest business displacements and the highest cost of any avoidance alternative.

While Alternative E1 avoids impacts on the Justice White House, it would not be prudent because it has similar impacts as Alternative E4. With the addition of the highest impact on high-value habitat, it would result in lowering visual quality along West Sammamish Parkway NE and it would be a higher cost alternative.

D.7 Segment B/C Least Harm Analysis

D.7.1 Introduction to Least Harm Analysis

As discussed in Section D.6.1.3, as there is no prudent and feasible alternative to avoid the Mercer Slough Nature Park, pursuant to 23 CFR 774.3(c), a Least Harm analysis is provided here. As concluded in Section D.6, since alternatives from Segments B and C are not independent, and selecting an alternative in one of these segments would affect the range of alternatives in the other, these two segments cannot be reviewed separately, as other segments can. Therefore, Segments B and C are treated together and alternatives within these segments are combined for purposes of this least harm analysis. A project "alternative" as defined in his analysis may consist of an individual alternative within either Segment B or Segment C, or a combined Segment B and Segment C alternative such as *Preferred Alternatives C9T-B2M* and *C11A-B2M.*

D.7.2 Range of Segment B and C Alternatives

The range of feasible and prudent alternatives in Segments B and C consists of the complete set of possible combinations of the feasible and prudent Segment C alternatives with the set of feasible and prudent Segment B alternatives. There are a few alternatives that are not analyzed as combinations in the East Link Final EIS because their impacts are covered by other alternative combinations. However, all possible combinations are analyzed here with additional combinations, including those that are based upon the *Preferred Alternatives C11A* and *C9T* alternatives that connect with Alternatives B2A and B2E. This results in 35 B-C combination alternatives that must be considered, as illustrated in Exhibit D-25 and listed in Table D-7.

D.7.3 Outline of Analysis of Least Harm as Required by FTA Regulations

In Segments B and C, there is no prudent and feasible alternative that avoids any use of Section 4(f) resources. Therefore, pursuant to 23 CFR 774.3(c), the FTA may approve only the alternative that causes the "least overall harm" in light of the purposes of Section 4(f). The regulations require that determining which alternative causes the least overall harm be based upon an assessment and balancing of seven factors:

1. The ability of the alternative to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)
2. The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that quality each Section 4(f) property for protection
3. The relative significance of each Section 4(f) property
4. The views of the official(s) with jurisdiction over each Section 4(f) property
5. The degree to which each alternative meets the purpose and need for the project
6. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)
7. Substantial differences in costs among the alternatives

There are five resources that have a Section 4(f) use and must be considered in this least harm analysis: Mercer Slough Nature Park, Surrey Downs Park, NE 2nd Pocket Parks, McCormick Park, and the Winters House. All five resources are considered under each of the seven balancing factors below.

D.7.4 Factor 1: The Ability of the Alternative to Mitigate Adverse Impacts to Each Section 4(f) Property (including any measures that result in benefits to the property)

This factor requires an analysis of how the effects of each alternative can be mitigated for each of the five Section 4(f) resources. Table D-8 summarizes the impacts that would occur and mitigation measures that have been proposed as a result of consultation with the appropriate resource managers, including the City of Bellevue and Washington State DAHP; the proposed mitigation is further discussed below by resource. Almost all effects on Section 4(f) resources can be mitigated, and some alternatives would result in a net benefit to the resource after mitigation.

In addition to the ability to mitigate effects on Section 4(f) resources, several alternatives along Main Street in Downtown Bellevue could help facilitate the creation of a vegetated open green space that might support the City of Bellevue's park plan to create a buffer along Main Street for the Surrey Downs Neighborhood (City of Bellevue, 2010). This benefit would result from Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C11A*-B7, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C2T-B2E, C2T-B3, C2T-B7,

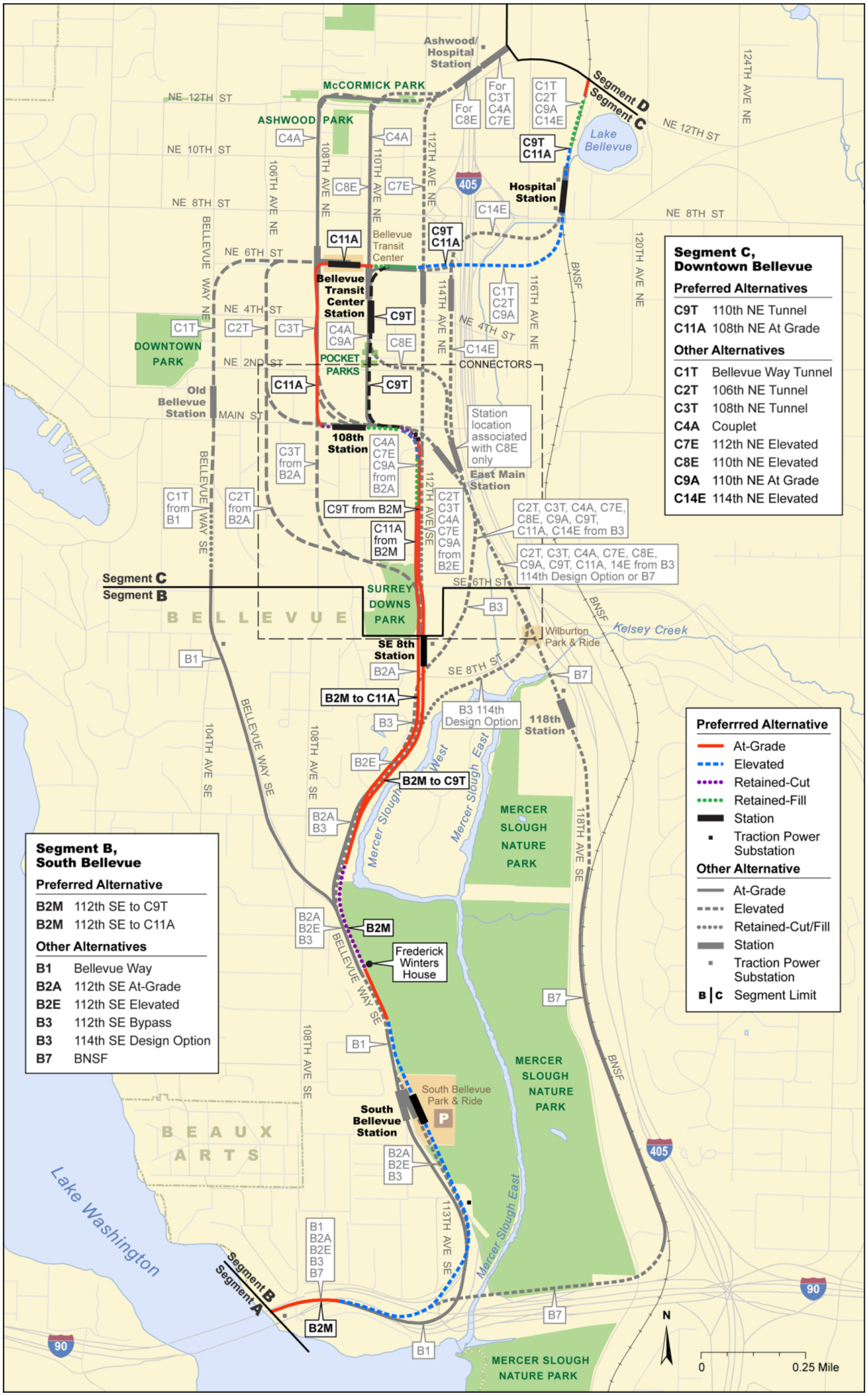

Segment C, Downtown Bellevue
Preferred Alternatives
C9T 110th NE Tunnel
C11A 108th NE At Grade
Other Alternatives
C1T Bellevue Way Tunnel
C2T 106th NE Tunnel
C3T 108th NE Tunnel
C4A Couplet
C7E 112th NE Elevated
C8E 110th NE Elevated
C9A 110th NE At Grade
C14E 114th NE Elevated
Segment B, South Bellevue
Preferred Alternative
B2M 112th SE to C9T
B2M 112th SE to C11A
Other Alternatives
B1 Bellevue Way
B2A 112th SE At-Grade
B2E 112th SE Elevated
B3 112th SE Bypass
B3 114th SE Design Option
B7 BNSF
Preferrred Alternative
At-Grade
Elevated
Retained-Cut
Retained-Fill
Station
Traction Power Substation
Other Alternative
At-Grade
Elevated
Retained-Cut/Fill
Station
Traction Power Substation
B|C Segment Limit
Ashwood/ Hospital Station
Hospital Station
Bellevue Transit Center Station
108th Station
East Main Station
SE 8th Station
118th Station
South Bellevue Station
Old Bellevue Station
Segment D
Segment C
Segment B
Segment A
McCORMICK PARK
ASHWOOD PARK
DOWNTOWN PARK
POCKET PARKS
SURREY DOWNS PARK
MERCER SLOUGH NATURE PARK
Lake Bellevue
Lake Washington
Kelsey Creek
Mercer Slough West
Mercer Slough East
BELLEVUE
BEAUX ARTS
Wilburton Park & Ride
South Bellevue Park & Ride
Frederick Winters House
Bellevue Transit Center
Station location associated with C8E only
CONNECTORS
C9T from B2M
C11A from B2M
B2M to C11A
B2M to C9T
B3 114th Design Option
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A, C14E from B3
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A, 14E from B3 114th Design Option or B7
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 6TH ST
SE 8TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
120TH AVE NE
124TH AVE NE
104TH AVE SE
108TH AVE SE
112TH AVE SE
113TH AVE SE
118TH AVE SE
BNSF
405
90
N
0
0.25 Mile

EXHIBIT D-25
Range of Segment B-C Alternatives

TABLE D-7
Range of Alternatives Evaluated under the Least Harm Analysis

No.	Segment C Alternatives	Connection with Segment B Alternatives	Nomenclature for the Least Harm Analysis
1	*108th NE At-Grade Alternative (C11A)*	*112th SE Modified Alternative (B2M)* to *C11A*	*C11A-B2M*
2		112th SE At-Grade Alternative (B2A)	*C11A*-B2A
3		112th SE Elevated Alternative (B2E)	*C11A*-B2E
4		112th SE Bypass Alternative (B3)	*C11A*-B3
5		BNSF Alternative (B7)	*C11A*-B7
6	*110th NE Tunnel Alternative (C9T)*	*112th SE Modified Alternative (B2M)* to *C9T*	*C9T-B2M*
7		112th SE At-Grade Alternative (B2A)	*C9T*-B2A
8		112th SE Elevated Alternative (B2E)	*C9T*-B2E
9		112th SE Bypass Alternative (B3)	*C9T*-B3
10		BNSF Alternative (B7)	*C9T*-B7
11	Bellevue Way Tunnel Alternative (C1T)	Bellevue Way Alternative (B1)	C1T-B1
12	112th SE At-Grade Alternative (C2T)	112th SE At-Grade Alternative (B2A)	C2T-B2A
13		112th SE Elevated Alternative (B2E)	C2T-B2E
14		112th SE Bypass Alternative (B3)	C2T-B3
15		BNSF Alternative (B7)	C2T-B7
16	108th NE Tunnel Alternative (C3T)	112th SE At-Grade Alternative (B2A)	C3T-B2A
17		112th SE Elevated Alternative (B2E)	C3T-B2E
18		112th SE Bypass Alternative (B3)	C3T-B3
19		BNSF Alternative (B7)	C3T-B7
20	Couplet Alternative (C4A)	112th SE At-Grade Alternative (B2A)	C4A-B2A
21		112th SE Elevated Alternative (B2E)	C4A-B2E
22		112th SE Bypass Alternative (B3)	C4A-B3
23		BNSF Alternative (B7)	C4A-B7
24	112th NE Elevated Alternative (C7E)	112th SE At-Grade Alternative (B2A)	C7E-B2A
25		112th SE Elevated Alternative (B2E)	C7E-B2E
26		112th SE Bypass Alternative (B3)	C7E-B3
27		BNSF Alternative (B7)	C7E-B7
28	110th NE Elevated Alternative (C8E)	112th SE Bypass Alternative (B3)	C8E-B3
29		BNSF Alternative (B7)	C8E-B7
30	110th NE At-Grade Alternative (C9A)	112th SE At-Grade Alternative (B2A)	C9A-B2A
31		112th SE Elevated Alternative (B2E)	C9A-B2E
32		112th SE Bypass Alternative (B3)	C9A-B3
33		BNSF Alternative (B7)	C9A-B7
34	114th NE Elevated Alternative (C14E)	112th SE Bypass Alternative (B3)	C14E-B3
35		BNSF Alternative (B7)	C14E-B7

C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7. The net impact or benefit for each alternative is discussed under Factor 2 and summarized in Table D-8.

D.7.4.1 Mercer Slough Nature Park

All Segment B and C alternatives would impact the Mercer Slough Nature Park. Permanent acquisition of park land varies, but all alternatives remove less than one percent of the park land area before mitigation. Those alternatives that are along Bellevue Way have common effects and mitigation measures. Only Alternatives *C11A-B2M* and *C9T-B2M* would temporarily close or redirect park uses along Bellevue Way to different points or different parking locations and consolidated trail heads. To the extent possible, activities at the Winters House would be relocated to mitigate the temporary closure of the Winters House during construction. Other alternatives along Bellevue Way (Alternatives *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C1-B1, C2T-B2A, C2T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C8E-B3, C9A-B2A, C9A-B2E, C9A-B3 and C14E-B3) would not result in these impacts.

Land used for the project along the park's west edge provides facilities for active park functions consisting of a retail outlet for the blueberry farm, Winters House (used for events and Eastside Heritage Center and City of Bellevue offices), Sweylocken boat ramp to access Mercer Slough, parking for these uses and for access points to some of the park trails. While located within the park, many of those facilities that would be most affected along the west side of Mercer Slough Nature Park are not core park functions, (such) as a quiet nature park. Any park functions that would have to be modified during construction (trails, park roadway, and parking) would be replaced following construction.

The active uses are not upholding the primary park objectives as discussed later in Factor 3. According to the *Mercer Slough Open Space Master Plan* (City of Bellevue, 1990) one of the top objectives is to "maintain and enhance extensive wetland wildlife habitat." Those alternatives (Alternatives *C11A-B2M*, C1T-B1, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C2T-B2A, C2T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C8E-B3, C9A-B2A, C9A-B2E, C9A-B3, and C14E-B3) along Bellevue Way would permanently remove areas on the west edge of the park, adjacent to Bellevue Way (a busy four-lane arterial lane) where the active uses are concentrated. These alternatives affect wetland buffer areas but only less than 0.5 acre of actual wetlands within Mercer Slough Nature Park.

Those alternatives that cross over the mouth of Mercer Slough north of, and adjacent to, the Mountains-to-Sound Trail and I-90 (Alternatives *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7) would permanently affect natural wetlands and several wetland mitigation sites. Temporary impacts caused by those alternatives that parallel I-90 (Alternatives *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7) would be minimized through construction techniques such as possibly building a trestle over the parks' key natural features (wetland and stream areas); using a gantry crane, or other measures. Further, vegetation would be replanted to fully mitigate construction impacts on natural areas. During construction and subsequent restoration and mitigation period, wetlands functions would be lost for wetlands affected by alternatives connecting with Alternative B7 as listed above.

Impacts caused by Alternatives *C11A-B2M*, C1T-B1, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C2T-B2A, C2T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C8E-B3, C9A-B2A, C9A-B2E, and C9A-B3 would be mitigated by acquiring replacement lands (up to 3 acres) with a natural wetland character.

These proposed replacement lands would support core park functions better than the existing active areas along the park's western edge and would generally be more consistent with the park objectives than the lands that would be displaced by the project. Because the amount of replacement land for these alternatives varies, the net improvement to the park would vary with the amount of replacement lands needed. Lands used from connections from those alternatives that include alternatives with Alternative B7 (Alternatives *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7 and C14E-B7) would be replaced with similar areas as the impacted land for no net change in type of use.

Alternatives *C11A-B2M* and *C9T-B2M* would result in consolidating access points and rebuilding facilities (trails, trail heads, access roads, and parking). Alternatives *C11A-B2M* and *C9T-B2M* would require consolidating two vehicle access points. Alternatives *C11A-B2M* and *C9T-B2M* would not adversely affect Bellevue's planned T-100 trail head at the 112th Avenue SE and Bellevue Way intersection, but they would require that two trailheads be consolidated at

TABLE D-8
Impacts and Mitigation by Section 4(f) Resource[a]

Facility	Impact	Mitigation	Associated Alternative
Parks			
Segment B			
Mercer Slough Nature Park	**Permanent:** Up to 3.0 acres converted to light rail use (a portion of which is aerial easement) Vehicular access to Sweylocken boat ramp modified right-in/right-out Trails relocated Vehicular access to Winters House and blueberry farm combined **Temporary:** 3.6 acres disturbed Construction impacts[a] Parking at Winters House and blueberry farm closed Winters House and blueberry farm retail closed Trails and access points closed	**Permanent:** ▪ Acquire replacement land pursuant to Washington State RCO and Section 6(f) requirements that would be consistent with the natural character of the park. ▪ Have an option to preserve existing vehicle access to Sweylocken boat ramp. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Provide temporary parking for users off Bellevue Way and south of the park-and-ride or as agreed to with the City. ▪ Relocate blueberry farm retail use during construction. ▪ Maintain blueberry farm operations. ▪ Relocate Eastside Heritage Center during construction. ▪ Maintain access or provide detours for trails, and maintain access to Sweylocken boat ramp.	*C11A-B2M* and *9T-B2M*
	Permanent: 0.5 to 1.7 acres converted (includes aerial easements) **Temporary:** 1.6 to 2.6 acres disturbed Construction impacts[b] Certain trail access points closed Access to boat launch revised (Alternative B1 only)	**Permanent:** ▪ Acquire replacement land pursuant to Washington State RCO and Section 6(f) requirements or provide financial compensation as agreed with the City. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Maintain access or provide detours for trails, and maintain access to Winters House, blueberry farm, and boat launch where affected as agreed to with the City. ▪ Provide new signal for full access to boat launch (Alternative B1 only).	All other Segment B and C alternatives
Segment C			
Surrey Downs Park	**Permanent:** 0.5 acre acquired North access to park eliminated; south access changed to right-in/right-out only **Temporary:** 0.6 acre disturbed Access restricted Construction impacts [b]	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE and provide landscaping. ▪ Design treatments of the retaining wall and fence along 112th Avenue SE in consultation with the City. ▪ Design and construct a U-turn on 112th Avenue SE at SE 8th Street. Prepare conceptual layout for two northbound-to-southbound U-turn options – one at SE 6th Street and one at Main Street – to accommodate those coming from the south who would want to turn left into the park; the City and Sound Transit would pick one that Sound Transit would design and construct. ▪ Coordinate with the City of Bellevue and community to revise the Surrey Downs Park Master Plan to address the impacted area. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the *Surrey Downs Master Park Plan*. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall) ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*C11A-B2M*

TABLE D-8 CONTINUED
Impacts and Mitigation by Section 4(f) Resource[a]

Facility	Impact	Mitigation	Associated Alternative
Surrey Downs Park contd.	**Permanent:** 0.5 acre acquired **Temporary:** 0.5 acre disturbed Construction impacts [b]	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE and provide landscaping. ▪ Design treatments of the retaining wall and fence along realigned SE 4th Street in consultation with the City. ▪ Coordinate with the City of Bellevue and community to revise the Surrey Downs Park Master Plan to address the impacted area. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the Surrey Downs Master Park Plan. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall) ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*C9T-B2M*
	Permanent: Less than 0.1 to 0.5 acre acquired **Temporary:** 5.7 acres disturbed (Alternatives C2T and C3T from Alternative B2A only) 0.1 to 0.4 acre disturbed (Alternatives C4A, C7E, and C9A from Alternative B2A only) Construction impacts [b]	**Permanent:** ▪ Provide financial compensation or replacement land as agreed with the City. **Temporary (Alternatives C2T and C3T from Alternative B2A):** ▪ Provide financial compensation for use of land as agreed with the City. ▪ Restore landscape after construction to existing conditions or as agreed to with the City. Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public access and parking for scheduled baseball/soccer fields (spring, late summer, and fall) ▪ Provide a barrier or fence adjacent to the main construction area. **Temporary (Alternatives C4A, C7E, and C9A from Alternative B2A only):** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore temporarily disturbed park area to existing conditions.	C4A-B2A, C3T-B2A, C2T-B2A, C7E-B2A, and C9A-B2A
NE 2nd Pocket Parks	**Permanent:** 0.1 acre acquired **Temporary:** 0.3 acre disturbed, partially closed Construction impacts [b]	**Permanent:** ▪ One, or a combination of, the following, as agreed to with the City: — Provide financial compensation as agreed to with the City. — Provide replacement land with an equivalent portion of the project's staging area located on the northeast quadrant of the park. — Enhance entire northwest quadrant of the park as a public plaza in conjunction with the station entrance. **Temporary** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	*C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7
	Permanent: Less than 0.1 acre acquired **Temporary:** 0.1 to 0.3 acre disturbed, partial closure Construction impacts [b]	**Permanent (Alternatives C4A and C9A from Alternatives B2A, B2E, and B3 only):** ▪ Provide financial compensation or replacement land as agreed to with the City. **Permanent (Alternative C8E from Alternatives B3 and B7 only):** ▪ Provide financial compensation or replacement land as agreed to with the City. ▪ Add visual and aesthetic design measures, as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, C8E-B7, C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7

TABLE D-8 CONTINUED
Impacts and Mitigation by Section 4(f) Resource[a]

Facility	Impact	Mitigation	Associated Alternative
McCormick Park	**Permanent:** 0.2 to 0.9 acre acquired, net gain of 0.1 to 0.7 acres for Alternatives C3T, C4A, and C8E **Temporary:** 0.8 to 1.8 acres disturbed Construction impacts [b]	**Permanent:** ▪ One or more of the following measures would be implemented: — Acquire replacement land for permanent use impacts (results in net increase in park land for some alternatives). — Provide financial compensation for use during construction. **Temporary:** ▪ Restore disturbed area after construction.	C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7
Historic Properties			
Segment B			
Winters House	**Permanent:** Use of property between the structure and Bellevue Way SE for lidded retained-cut structure; Potential groundborne noise impact **Temporary:** Potential for vibration and settlement impacts during construction Winters House activities closed Construction impacts [b]	**Permanent:** ▪ Incorporate standard methods of vibration reduction, such as resilient fasteners or ballast mats into the project. A floating slab would be incorporated as necessary to reduce the level of groundborne noise and eliminate the impact. ▪ Landscape the area of property between the front (west elevation) of the Winters House and Bellevue Way SE to more closely reflect the landscaping of the historic period, in consultation with the City. ▪ Provide new interpretive displays on or near the property. **Temporary:** ▪ Photograph and inventory the building to establish existing conditions. ▪ Install vibration and settlement monitoring devices and adjusting excavation methods based on monitoring results. ▪ Use specific vibration and settlement reducing construction methods (to be determined during final design and construction). ▪ Potentially build a construction barrier around Winters House to prevent damage and minimize dust. ▪ Apply dust control measures during construction to minimize dust (after construction, Sound Transit will clean the outside of the building and windows in a manner sensitive to the resource). ▪ Close the Winters House during construction and temporarily relocating the tenant (Sound Transit will provide information to the public regarding how to access the Eastside Heritage Center during construction). ▪ If damage does occur, make the needed repairs consistent with the U.S. Secretary of the Interior's standards for treating historic properties.	*C11A- B2M* and *C9T-B2M*

[a] The residual impacts after mitigation are discussed in Factor 2.

[b] Construction impacts might include impacts such as removed landscape, dust, noise, and/or traffic detours. For historic properties, the setting might be temporarily changed.

FTA	Federal Transit Administration
NRHP	National Register of Historic Places
RCO	Washington State Recreation and Conservation Office

other points along Bellevue Way. Additionally, north of the park and ride, the guideway for Alternatives *C11A-B2M* and *C9T-B2M* would be lower than other alternatives that travel along 112th Avenue SE, thus resulting in less visual change. None of the alternatives would displace active uses.

Collectively, the mitigation measures for all alternatives would fully mitigate the changes to the park, be consistent with core park functions and objectives, and all except *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7 alternatives would expand natural areas where replacement lands are needed. There is no unmitigated harm to park resources for any alternative that affect Mercer Slough Nature Park.

D.7.4.2 Surrey Downs Park

Neither the alternatives connecting from Alternatives B2E, B3, and B7 (Alternatives *C11A*-B2E, *C11A*-B3, *C11A*-B7, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C2T-B2E, -B3, C2T-B7, C3T-B2E, C3T-B3, C3T-B7, C4A-B2E, C4A-B3, C4A-B7, C7E-B2E, C7E-B3, C7E-B7, C8E-B3, C8E-B7, C9A-B3, C9A-B2E, C9A-B7, C14E-B3, C14E-B7) nor Alternative C1T-B1 would affect Surrey Downs Park.

Alternatives C2T-B2A and C3T-B2A would temporarily use the northern half of Surrey Downs

Park (where the King County District Courthouse is located) as a staging area to construct the tunnel portals. Following construction, removing the King County District Courthouse and replacing the site with landscaped park grounds would have a net benefit to Surrey Downs Park—if it is not already removed at the time of East Link construction—and would help facilitate implementing the City of Bellevue's *Surrey Downs Master Plan* (City of Bellevue, 2009) to redevelop the park facility. Disturbed lands would be restored to existing conditions or as agreed to with the City. However, depending on the park development schedule, construction staging at this location might delay implementing the newly funded master plan for Surrey Downs Park.

Alternatives *C11A*-B2A, *C9T*-B2A, C4A-B2A, C8E-B2A, and C9A-B2A would acquire small slivers of park property along the eastern edge of Surrey Downs Park for the adjustments to 112th Avenue SE right-of-way in order to preserve operations on this heavily traveled four-lane arterial. This impact would remove only landscaping and no recreational uses. Disturbed lands would be restored, and removed lands would be mitigated with financial compensation or replacement lands of similar function and value. Replacement lands that would mitigate for the impacts of Alternatives *C11A-B2M* and *C9T-B2M* would extend the park by continuing it along the west side of 112th Avenue SE from the park north to Main Street.

Alternative *C11A-B2M* would eliminate the north vehicle access, but the south vehicle access would be modified to right-in and right-out and U-turn capabilities along 112th Avenue SE would preserve park vehicle access needs. For Alternative *C9T-B2M*, vehicle access at the north end of the park would be closed and a new alignment for SE 4th Street would connect through a corner of the park from SE 6th Street. The access at SE 6th Street would be signalized to provide a safe access into Surrey Downs neighborhood. This option may require up to 0.5 acres of the park. A second option would provide a connection into the Surrey Downs neighborhood at SE 9th Street from the south park entrance. Access to the neighborhood from the south park entrance would permanently close the north entrance reducing park impact, but it would result in changing circulation patterns in the neighborhood. Since none of the alternatives negatively affect active recreational uses in this park, no mitigation is necessary for these park functions.

D.7.4.3 NE 2nd Pocket Parks

Portions of all quadrants of the NE 2nd Pocket Parks may be closed temporarily during construction for Alternatives C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, C8E-B7, C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7 and three might be closed for Alternatives *C9T-B2M*, *C9T*-B2A, *C9T*-B3, and *C9T*-B7. These impacts would be temporary, and financial compensation would be provided as compensation or for use of the park land as agreed to with the City.

Alternatives *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, and *C9T*-B7 would use one quadrant of the parks for a permanent entry into the Bellevue Transit Center tunnel station. The station entrance would be incorporated into the northwest quadrant of the park, measuring approximately 0.1 acre. This use would be consistent with the intended use of the parks. Additionally, a portion of the property planned to be used for staging adjacent to the northeast quadrant could be used to create new park area as a replacement. Alternatives C8E-B3 and C8E-B7 would result in a permanent elevated guideway over the parks, creating a visual intrusion. Beyond visual treatments to the columns, no mitigation is needed for this impact because these parks contain no recreational facilities and serve principally as neighborhood open space in an urbanized neighborhood; the parks would likely continue to operate as they do currently. Use of the parks by Alternatives *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7 would be mitigated with replacement park property or financial compensation and Alternatives C8E-B3 and C8E-B7 would be mitigated with visual and aesthetic design measures to integrate the guideway into the park.

Alternatives *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, C8E-B7, C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7 would cause no additional impact to the NE 2nd Pocket Parks. No other alternative would affect the pocket parks.

D.7.4.4 McCormick Park

Only Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7 would affect McCormick Park and result in a permanent visual impact or changes in access even after mitigation. Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, and C4A-B7 would result in a net increase in park acreage following construction and after disturbed landscaping and associated amenities are replaced. Alternatives C8E-B3 and C8E-B7 would not enlarge the park, but net useable acreage would remain unchanged. Large conifers, which act as a visual buffer and aesthetic amenity, would be affected by

Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7. Because the removed trees are mature, the impact of removing these trees will take many years to mitigate. These alternatives would result in the permanent presence of portions of at-grade, retained-fill and/or elevated light rail guideway within the park area. These profiles would limit access to portions of the park and would diminish the amount of uninterrupted greenery that serves as a buffer to the urban core.

D.7.4.5 Winters House

Measures to avoid potential construction impacts on the historic structure from Alternatives *C11A-B2M* and *C9T-B2M* are incorporated into the project construction methodology. Among these measures would be construction techniques such as ground improvement, underpinning the building, and shallow supporting walls; directions that contractors shall begin trench construction at the furthest distance from the house; conducting settlement and vibration monitoring; and anticipating and implementing corrective measures to avoid impacts on the structure. These measures would avoid damage to the structure's unique characteristics and features. If damage did occur Sound Transit would make repairs consistent with the U.S. Secretary of the Interior's standards for treating historic properties. In addition, the existing tenant and other uses of the building would be relocated during construction to avoid disturbing their activities. Potential groundborne noise impacts during operation of the light rail would be mitigated with special vibration reducing track-work incorporated into the project.

The Winters House today sits adjacent to a busy urban vehicular thoroughfare. Over time, landscaping that would preserve the context of the structure has gradually been lost or compromised with expansion of Bellevue Way and changes to the landscaping. The proposed mitigation for the Winters House would improve its visual and physical context. Following construction, and in consultation with the DAHP and the City of Bellevue more historically appropriate landscaping would be planted over the lidded retained-cut with a net benefit to the historic home. The Winters House today lacks sufficient or appropriate signage providing information about its history and historic significance. Sound Transit would also provide new interpretive signage at the house in coordination with City of Bellevue staff.

D.7.4.6 Conclusions: Factor 1

Most, but not all impacts to Section 4(f) resources could be effectively mitigated under most alternatives. The principal impact that could not be mitigated would be the visual impact of the guideway structure on McCormick Park as a result of Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A- B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7.

In addition to mitigation, there would be net benefits to Section 4(f) resources from several alternatives. Alternatives *C11A-B2M* and *C9T-B2M* would produce net benefits for the Winters House in the form of enhanced landscaping and new interpretive signage. Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C1-B1, C2T-B2E, C2T-B2A, C3T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C9A-B2A, C9A-B2E, C9A-B3, and C14E-B3 would produce a net benefit for the Mercer Slough Nature Park because replacement lands would be more consistent with the park's objectives than the areas affected.

D.7.5 Factor 2: The Relative Severity of the Remaining Harm, after Mitigation, to the Protected Activities, Attributes, or Features that Qualify Each Section 4(f) Property for Protection

The purpose of this factor is to assess the remaining effects on Section 4(f) resources after efforts to avoid, minimize, and mitigate project effects as described under Factor 1. The following discussion analyzes the severity of the remaining harm to each Section 4(f) resource. In the weighing that is required for least harm analysis, the severity of any remaining harm to Section 4(f) resources needs to be considered carefully. Where all impacts to a particular Section 4(f) resource can effectively be mitigated, the absence of remaining harm is especially important. Where there are impacts that cannot be mitigated, it is important to consider whether those impacts are significant within the context of the purpose, goals, plans, and other resource management objectives for the particular Section 4(f) resource. All impacts are not treated alike and are evaluated in this analysis within the context of each resource.

D.7.5.1 Mercer Slough Nature Park

All impacts on Mercer Slough Nature Park would be fully mitigated. Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C1-B1, C2T-B2, C2T-B2A, C3T-B2E, C2T-B3, C3T-B2A, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C9A-B2A, C9A-B2E, C9A-B3, and C14E-B3would produce a net benefit for this park because they would provide replacement land equivalent to land permanently occupied by the project (up to 3 acres) to the Mercer Slough Nature Park. The replacement lands would be natural areas, which are more consistent with the park core objectives and role than the active areas that would be affected by these alternatives. The impacts from all other alternatives would be fully mitigated, but there would be no net benefit to the park.

D.7.5.2 Surrey Downs Park

All impacts to this resource would be fully mitigated. As demonstrated under Factor 1, effects on Surrey Downs Park from Alternatives *C11A-B2M*, *C9T-B2M, C11A*-B2A, *C9T*-B2A, C2T-B2A, C3T-B2A, C4A-B2A, C7E-B2A, and C9A-B2A would be mitigated. Replacement lands for impacts caused by Alternatives *C11A-B2M* and *C9T-B2M* would extend the existing park along the west side of 112th Avenue SE from the park (approximately SE 6th Street) to Main Street. Depending on final input from City of Bellevue, changes in neighborhood access through the north end of the park for C9T-B2M could be redesigned through the south park entrance to reduce park land impacts while also maintaining overall access to the park from 112th Avenue SE. Alternatives C2T-B2A and C3T-B2A would have a net benefit to Surrey Downs Park if they removed the King County District Courthouse, which is presently sited within the park but does not contribute to the park's core objectives. Small slivers of property needed for Alternatives C4A-B2A, C7E-B2A, and C9A-B2A would be mitigated with financial compensation and landscaping. No other alternatives would directly affect Surrey Downs Park.

D.7.5.3 NE 2nd Pocket Parks

There would be no remaining harm after mitigation to the NE 2nd Pocket Parks. Because this resource serves principally as open space, a small reduction (less than 0.1 acre) in park area for several alternatives and visual effects from C8E-B3, C8E-B7 would not change the parks' use or function.

D.7.5.4 McCormick Park

Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7 would result in lasting visual impacts on McCormick Park even after mitigation. There would be a net benefit to the resource as a result of increase in park acreage from mitigation of Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, and C4A-B7. There would be no net benefit for this resource from Alternatives C8E-B3 and C8E-B7.

D.7.5.5 Winters House

All impacts to this resource from Alternatives *C11A-B2M* and *C9T-B2M* would be effectively mitigated through vibration reducing track-work, new landscaping that would be more consistent with the historic setting of the building, and interpretive signage which are described in more detail in Section 4.16, Historic and Archaeological Resources; and Appendix H4, the *Historic and Archaeological Resources Technical Report*. The landscaping and interpretive signage would also result in a net benefit, which would not be realized from the other alternatives. The potential for temporary construction impacts would be mitigated through construction methods and relocating the tenant during construction. All other alternatives avoid impacts to the Winters House.

D.7.5.6 Conclusions: Factor 2

After mitigation, Alternatives *C11A-B2M* and *C9T-B2M* would result in no remaining harm and have a net benefit to Mercer Slough Nature Park and the Winters House. Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C1-B1, C2T-B2E, C2T-B2A, C3T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C9A-B2A, C9A-B2E, C9A-B3, and C14E-B3 would result in no remaining harm and create a net benefit to Mercer Slough Nature Park through replacement lands that contribute to park objectives. A net benefit to Winters House would result from Alternatives *C11A-B2M* and *C9T-B2M.* There would be no remaining harm from *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7 alternatives, but also no benefits. After mitigation, there would be remaining impacts on McCormick Park from Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7.

D.7.6 Factor 3: The Relative Significance of Each Section 4(f) Property

This factor is intended to evaluate all of the affected Section 4(f) resources on a comparative basis. This factor does not address the impacts on each resource but rather is intended to help assess whether certain resources are of greater significance than others. This analysis is necessarily qualitative and requires an element of judgment since it requires comparing unlike resources and their relative and comparative value to the community.

It is useful for this analysis to understand that the City of Bellevue prides itself on being a city within a park. With a current population of approximately 110,000, parks and open space resources are a highly valued commodity for this community. Each recreational facility that would potentially be affected by the project has a unique function and value to this community. While the City of Bellevue has formally indicated each affected park is significant (and therefore eligible for protection under Section 4(f)), the relative significance of each resource is not identical. For example, Mercer Slough Nature Park has a broad regional significance, whereas Surrey Downs Park serves primarily as a community recreational function and McCormick Park and the NE 2nd Pocket Parks have a far more localized importance for just the adjacent neighborhoods. The Winters House is significant because it is the only historic resource listed on the NRHP within the City of Bellevue.

D.7.6.1 Mercer Slough Nature Park

The Mercer Slough Nature Park, located between Bellevue Way SE and 118th Avenue SE directly north of I-90, is a 320-acre community park characterized by wetland systems and upland habitat for most of the park and the Environmental Education Center on the park's east side. Mercer Slough Nature Park is surrounded by a highly urbanized environment, with large freeways and developed residential and business districts. With few missing pieces, Mercer Slough Nature Park is a large contiguous open space offering an accessible environment for passive recreation where visitors feel removed from the urban environment and observe wildlife. The size of this relatively natural environment provides a protected ecosystem from urban development. The 320-acre size and topography separates the park from adjacent lands uses and thick vegetation blocks views and offers a feeling of separation from the busy roadways and freeways that surround the park. The Mercer Slough Nature Park is a regional as well as a local resource; it defines the entrance and the context for South Bellevue.

As a regional resource, this park attracts a broad range of users from throughout the east side of the metropolitan area. Its size and ecological role makes the Mercer Slough Nature Park considerably more significant (both absolutely and relative to the other affected resources) than the other potentially affected resources within the project area.

The importance and future plans for the park are recorded in the Bellevue Parks Master Plan (City of Bellevue, 2010). Also, as stated in the *Mercer Slough Open Space Master Plan Environmental Impact Statement* (City of Bellevue, 1990), park objectives consist of the following:

- Maintain and enhance the extensive wetland wildlife habitat.
- Provide environmental education and awareness and maintain and diversify Bellevue's agricultural heritage.
- Participate in regional and national efforts to understand wetland ecosystems through research in restoration enhancement techniques.
- Provide passive recreational opportunities in harmony with natural system preservation.
- Maintain and protect important views and open space values.

It is important to note that these objectives focus on the park's ecological and passive recreation benefits and place relatively less emphasis on active recreation or more intensive uses. Consistent with its role, the park provides wetland habitat, environmental education and awareness, agricultural heritage maintenance, nature observation, and open space with pedestrian trails, a water trail, benches, and interpretive signs. Other activities do take place in the park, including events and meetings at the Winters House, the blueberry farm, agricultural U-pick farm and sales (including fruit and vegetable produce sales, parking for the Winters House, the blueberry farm and trails) the South Bellevue Transit Center park-and-ride, and the Sweylocken boat ramp. These functions, while important, are not as closely aligned with the principal goals and purposes of this resource and are, therefore, not as significant. Most of these active uses and ancillary facilities are located on the west side along Bellevue Way.

D.7.6.2 Surrey Downs Park

Surrey Downs Park contains active park uses such as ballfields, a play structure, internal trails, open space, the King County District Courthouse, and associated parking. Approximately 4.9 acres of the 11.4-acre site are currently used as park, with the remainder occupied by the King County District Courthouse. The courthouse is not consistent with the objectives of this resource and detracts from its significance and value.

In March 2009, the City of Bellevue adopted the *Surrey Downs Park Master Plan* for redeveloping the park. Proposed improvements include new baseball fields, open space, a community garden, parking, and a recreational building. A levy to approve funding to implement the master plan was approved by Bellevue voters in fall 2009.

This park is important as a neighborhood park and as a larger community baseball and soccer recreational resource. Per the City of Bellevue Parks Master Plan, the Surrey Downs Park's focus of its significance is on active, community-based recreation. Other uses are less important or detract from its value (e.g., the courthouse) as confirmed with the *Surrey Downs Park Master Plan*, which plans to remove the Courthouse.

D.7.6.3 NE 2nd Pocket Parks

The NE 2nd Pocket Parks are located at the four corners of the intersection of NE 2nd Place and 110th Avenue NE. These small, undeveloped areas function primarily as visual green space. There are limited facilities for public use of these parks. Bellevue proposes to expand and develop these parks under Bellevue's *Downtown Implementation Plan* (City of Bellevue, 2004) and the *Bellevue Parks & Open Space System Plan* (City of Bellevue, 2010); however, no property has been purchased or plans developed for this expansion. These parks have grass, with hedgerows that encircle the grass area preventing easy access. A few benches are positioned along the perimeter of the park quadrants, facing the sidewalks. As a result of this landscape pattern, this resource is often used as an informal off-leash pet area.

Notwithstanding the lack of facilities, small parklands in urbanized areas provide visual relief and an element of greenery and repose within the urban environment. While these parks are a Section 4(f) resource, their role is limited to serving a localized population, and they are not significant beyond the immediately adjacent community. Given Bellevue's decision not to develop or implement specific plans for enhancing these parks, it is reasonable to conclude that their relative significance is less than some of the other park resources in the project area to which Bellevue has made a substantial financial commitment.

D.7.6.4 McCormick Park

McCormick Park is located along the north side of NE 12th Street at the north end of the Segment C boundary. The park, which extends from 107th to 112th Avenue NE, is a neighborhood park with trails, art features, and picnic benches that provide a buffer between the established single-family residences to the north (Northtowne neighborhood) and high-density residential and commercial uses to the south in the downtown core. The topography undulates with berms and a meandering path. The vegetation is mature, including tall evergreens that separate the park and the residences to the north. The park does not provide any active recreational activities or facilities. Roads to the neighborhood and a pedestrian crossing separate some of the park segments. This park is used by nearby residents and workers in the area and persons walking or exercising their pets. While this park is a Section 4(f) resource, it is reasonable to conclude that its significance is limited to a local population and is not significant for the larger community.

D.7.6.5 Winters House

The Winters House is the only structure in the city of Bellevue registered on the NRHP. It has a role in the development and history of Bellevue and is recognized by the community as an important resource. The Eastside Heritage Center has made this its headquarters from which it operates a heritage research center, exhibit space, and archive and library. The Eastside Heritage Center uses the facility for meeting space, tours, and other events (such as weddings or other events). Because of the varied uses to which this center puts this resource, its significance extends beyond its historic attributes. In addition, its unique role as the only NRHP-listed resource in the city means that this resource is significant beyond the immediately adjacent community.

D.7.6.6 Conclusions: Factor 3

This factor provides insights about the relative significance of each Section 4(f) resource. Mercer Slough Nature Park and the Winters House clearly have the greatest significance of all the potentially affected Section 4(f) resources and the NE 2nd Pocket Parks, Surrey Downs Park, and McCormick Park have relatively less significance.

D.7.7 Factor 4: The Views of the Official(s) with Jurisdiction over Each Section 4(f) Property

The purpose of this factor is to help provide a basis for judging the relative importance of each Section 4(f) resource and the relative significance of potential impacts to these resources based on the jurisdiction's point of view. Only two entities have jurisdiction over the Section 4(f) resources that would be potentially affected by the project in Segments B and C: the City of Bellevue and DAHP. The following analysis explains positions that these agencies have taken with regard to the potentially affected resources providing insights on how to integrate the views of these jurisdictions into this Section 4(f) analysis.

D.7.7.1 City of Bellevue

Sound Transit and the City of Bellevue have been working closely to develop the project in a manner that both meets the East Link Project purpose and also respects the City of Bellevue planning goals. Since the City has been deeply involved in evaluating and selecting alternatives, the City's views on the preferred alternative for the East Link project are important because they reflect the City's own balance of competing (and often contradictory) needs and goals.

Bellevue Views on Alternatives

It is important for purposes of this analysis to review the history of the City's involvement in selecting alternatives for Segments B and C and the views that the City has expressed to Sound Transit. A series of letters and correspondence beginning with the release of the Draft EIS is a useful foundation for understanding the City's views on impacts to Section 4(f) resources within the City's jurisdiction.

Following the release of the Draft EIS, the City of Bellevue submitted its preference for an alternative that resembles alternative C2T-B3, including the 114th Design Option, (with modifications referred to as alternative B3S) in a letter dated February 25, 2008. Bellevue's letter stated the following:

> *"The City's preferred routing decisions are the result of careful study and significant public discussion….over three years in review, planning, outreach and deliberation. This B3S balances three key principles in South Bellevue: provides transit access by facilitating regional and local connections at the South Bellevue Park-and-Ride, protects neighborhoods by placing the line farther away from residences, and minimizes construction impacts by reducing the amount of street reconstruction required along these major transportation corridors. For land use, C2T allows Downtown Bellevue to continue to accommodate regional growth and helps realize local land use potential east of I-405 in Wilburton."*

This letter demonstrates the importance that the City places on ensuring that the project serves the South Bellevue Park-and-Ride market, tunneling through Downtown Bellevue, serving the Wilburton area east of I-405, and minimizing neighborhood and traffic impacts, and these continue to inform the City's preferences as they have evolved between 2009 and 2011. These views are important since the City is also the entity with jurisdiction over all potentially affected Section 4(f) park resources.

The City's February 2008 recommendation was based on the following City of Bellevue light rail policy principles:

- Connect "somewhere to somewhere" by conveniently serving the places where people live, work, and play
- Accommodate long-term, multimodal transportation system development
- Optimize ridership
- Consider construction impacts and risks
- Protect environmentally sensitive areas
- Advance the long-term land use vision by serving existing and planned concentrations of employment and population

Bellevue's suggested alternative for Segment B in South Bellevue requires shifting Alternative B3 from the center to the east side of Bellevue Way to reduce construction effects on the arterial and to increase separation from the Enatai neighborhood. The City's suggestion also included routing the alternative to the east at SE 8th Street in order to avoid widening the street to the north where the 112th Avenue SE right-of-way becomes more constrained.

It is important to note that the City letter acknowledges that the proposed alternative might increase impacts to Mercer Slough Nature Park (including wetland impacts) but stated that mitigation opportunities exist within Mercer Slough. The letter also stated, "The Winters House may need to be relocated in order to accommodate this alternative. Based on preliminary assessment, the Council believes this is feasible and the relocation costs could be offset by the cost savings of this modification." These statements indicate the City's concurrence that impacts to these two Section 4(f) resources can be appropriately mitigated and that, with such mitigation, impacts are acceptable.

In Downtown Bellevue (Segment C), the City has recognized that the ST2 Plan does not provide funding for the tunnel alternatives and has stated, "We are committed to being an active partner with Sound Transit to identify potential cost saving measures and additional funding resources to ensure the City's preferred alternatives can be implemented and the system is build to support the regional vision" (City of Bellevue Letter, 2008). The letter also states that another reason that the City prefers alternative C2T with its crossing of I-405 at NE 6th Street is because it avoids the permanent and adverse effects on McCormick Park that would occur with an alternative that exits downtown at NE 12th Street.

On May 12, 2009, the City sent another letter to Sound Transit stating its opposition to the surface Alternative C4A through downtown because of potential traffic impacts. The letter requested further engineering on a tunnel alternative, which also serves the Wilburton neighborhood, and reiterated the City's commitment to continue working with Sound Transit on tunnel funding.

Based upon the City's continued strong interest in a downtown tunnel alternative and a willingness to consider both cost-savings measures and additional funding, Sound Transit conducted a peer review of the tunnel options to seek the lowest-cost tunnel options. The peer review led to the development of *Preferred Alternative C9T*, which would be significantly less expensive than previous tunnel alternatives and also addresses the City's preference for service to the Wilburton neighborhood. Sound Transit also conducted a value analysis review of the entire East Link corridor, which recommended that a 112th Avenue NE alternative be used into Downtown Bellevue as a means to further reduce project costs.

On February 10, 2010, the City Council and Sound Transit Board held a joint workshop to review the tunnel alternative (*Preferred Alternative C9T)*, two new at-grade options through downtown (Alternative C9A and Preferred Alternative *C11A*), and an elevated option (Alternative C14E) proposed by the City. All of these new alternatives address the City goal of serving the Wilburton redevelopment area east of downtown. The workshop also reviewed the potential cost savings and changes in impacts associated with following 112th Avenue NE into Downtown Bellevue.

Following the workshop, the City issued a letter on March 24th, 2010, changing its preference from Alternative C2T to the newly created *Preferred Alternative C9T* and requesting that Sound Transit explore further design modifications. On April 19, 2010, the City Council took another step in support of *Preferred Alternative C9T* by authorizing the City Manager to execute a term sheet with Sound Transit for including the tunnel as a preferred alternative in the East Link Project Final EIS. The term sheet outlined a funding strategy for *Preferred Alternative C9T* in which the City would contribute up to $150 million in additional funding, Sound Transit would identify in $75 million in scope reductions, and Sound Transit would identify $95 million in additional funding (all in 2007 dollars).

While work progressed on developing and funding *Preferred Alternative C9T*, the City reexamined its preferred alternative in South Bellevue (Segment B). On January 26, 2010, the City sent a letter asking for evaluation of a modified Alternative B7 that would "…expand the South Bellevue Park-and-Ride lot to the south … then cross the Mercer Slough Nature Park, before heading north on the BNSF…" The U.S. Department of Interior subsequently expressed significant concern about this proposed alternative in correspondence with the City. On March 9, 2010, the City withdrew its January 26 request and stated that its new preferred alternative is the original Alternative B7.

After the term sheet on the tunnel alternative was executed, Sound Transit updated its preferred alternative to include the *Preferred Alternative C9T* alternative and also the 112th Avenue SE alternative rather than the Alternative B7, consistent with the term sheet commitment to identify scope reduction. On May 6, 2010, the City sent Sound Transit a letter reiterating the City's preference for Alternative *C9T*-B7 and committing to working with Sound Transit to achieve the principles outlined in the term sheet. This was a clear change in direction on the part of the City from previous discussions about facilitating a tunnel in Downtown Bellevue through saving costs in Segment B.

After Sound Transit had identified the 112th Avenue SE alternative as its preferred alternative, the City collaborated with Sound Transit on an extensive design and outreach process. Throughout this process, Sound Transit and City staff made it clear to the public that while 112th Avenue SE is not the City's preferred alternative, it might ultimately be selected by Sound Transit as the preferred alternative. In July 2010, the Sound Transit Board refined the preferred alternative on 112th Avenue SE (*Preferred Alternative B2M*) to incorporate a westside alternative recommended by residential and business owners along the portion of the 112th Avenue SE right-of-way that is most constrained.

On July 20, 2010, the City sent another letter to Sound Transit. This letter stated the City's opposition to *Preferred Alternative B2M*. The concerns raised include displacements, noise impacts, construction impacts, impacts to historic properties, and traffic impacts. The letter also raised concerns about the potential for negative impacts on the historic character and use of the Winters House.

The July 2010 letter restated the City's support for Alternative *C9T*-B7 but proposed a series of design modifications. The letter acknowledged that a principal objection to Alternative B7 is the lack of service to the South Bellevue Park-and-Ride. The City, therefore, requested review of an option developed by the City to relocate the park-and-ride south to the I-90/Bellevue Way interchange. Reports prepared by City consultants and attached to the July 2010 letter indicated that relocation of the park-and-ride would add costs to Alternative *C9T*-B7 alternative and would have greater impacts on the Enatai neighborhood than alternatives that retain the park-and-ride in its current location.

After Sound Transit declined further study of the City's proposed Alternative *C9T*-B7 design modifications based on cost, risk, and impacts, the City hired its own consultant to review some of its proposed modifications to the alternative that it now refers to as Alternative B7R. In its January 2011 comment letter on the Supplemental Draft EIS, the City stated that its goals are to "minimize negative impacts, reduce costs, and ensure high ridership as compared to [alternative] *B2M*." Initial analysis, however, indicates that the City's Alternative B7R is likely to have different but not fewer impacts, similar ridership, and significantly greater cost. As with Alternative *C9T*-B7, the City's Alternative B7R would impact both Mercer Slough Nature Park and the NE 2nd Pocket Parks.

Conclusions from City's Input

For purposes of the current analysis, several relevant conclusions can be drawn from the lengthy history of the City's involvement in evaluating alternatives through Segment B and C.

First, based on the October 21, 2008 letter, the only Section 4(f) resource that the City has found to be permanently and adversely affected is McCormick Park, which would be affected by most of the alternatives exiting Downtown Bellevue along NE 12th Street (Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7).

Second, the City clearly views Mercer Slough Nature Park as an important regional park resource. Nevertheless, the City appears to indicate that mitigation is appropriate for all of the potential impacts and that none of the potential impacts is so severe as to interfere with the fundamental goals and objectives for each Section 4(f) resource. The City has recommended four alternatives in South Bellevue (Segment B), all of which would adversely affect the park; one alternative passes along the west edge of the park adjacent to Bellevue Way (Alternative B3S), one passes along the south edge of the park by I-90 (Alternatives B7 [as well as their B7R proposal]), and one actually transects the middle of the park from the South Bellevue park-and-ride to the former BNSF Railway corridor. In February 2009, the City specifically asserted that mitigation opportunities are appropriate within Mercer Slough Nature Park for the impacts created by an alternative along the east side of Bellevue Way and adjacent to the park.

Third, the City presents a varied view about affecting the Winters House. While their February 2009 letter provides that avoiding the Winters House property is not essential so long as impacts to this resource are fully mitigated and the City even suggested moving the Winters House if necessary to mitigate impacts of the alternative it proposed, the City's July 20, 2010 letter raises concerns about impacts to the Winters House (and other impacts)

Fourth, the City's comments on Surrey Downs Park and the NE 2nd Pocket Parks have been limited to technical comments from staff regarding mitigation. While the 112th Avenue SE alternative that the City currently opposes would adversely affect Surrey Downs Park, the reasons cited by the Bellevue City Council for opposition to 112th Avenue SE have focused primarily on neighborhood noise, traffic, and construction impacts and not on impacts to these parks.

In summary, from the record of City correspondence and meetings with Sound Transit staff, there do not appear to be any impacts on Section 4(f) resources in either Segment B or Segment C that the City does not believe can be potentially mitigated. The City views that impacts on Section 4(f) resources from all Segment B and C alternatives can be potentially mitigated. While the City has expressed support for the role played by each potentially affected Section 4(f) resource, the City has also indicated that other considerations, independent of impacts on Section 4(f) resources, are at least as, and generally more important to the City than avoiding impacts to these resources. While the City has shown a recent preference for alternatives based upon Alternative B7, it is important to observe that the City's preference is based upon its own criteria and not based upon an assessment of impacts weighted towards resources protected under Section 4(f).

D.7.7.2 Department of Archaeological and Historic Preservation

Sound Transit and FTA have consulted with DAHP regarding the Winters House throughout the environmental review process, starting with initiating the Section 106 process in August 2006. The Winters House is listed on the NRHP, and DAHP believes it is appropriate to preserve its existing setting and maintain the current integrity and features that support its listing on the NRHP. FTA has determined, in consultation with DAHP, that the project has an Adverse Effect resulting from potential impacts on the Winters House (*Preferred Alternative B2M*), the potential Surrey Downs Historic District (*Preferred Alternative C11A* and Alternatives C4A, C2T, and C3T), and the Justice White House (Alternative E4). Accordingly, a Memorandum of Agreement (MOA) will be prepared stipulating the appropriate mitigation measures. The MOA would also describe benefits to the resource because of measures Sound Transit has committed to implement. This net benefit would not be realized by any other alternative, although the other alternatives would also have no impacts on historic resources. Because its jurisdiction is limited to historic resources, DAHP has not expressed any view on impacts to other non-historic Section 4(f) resources.

D.7.7.3 Conclusions: Factor 4

While the City's preferred alternative has changed several times over the last few years, it is evident that impacts to Section 4(f) resources (and avoiding such impacts) have not been a primary determinant in the City's position. Instead, the City has prioritized serving the South Bellevue Park-and-Ride market (either at the existing location or relocated south), tunneling through Downtown Bellevue, serving the Wilburton area east of Downtown Bellevue, and minimizing traffic and neighborhood impacts as the more important criterion in selecting alternatives than protecting Section 4(f) resources. The only Section 4(f) resource for which the City has found a permanent adverse effect is McCormick Park. Regarding the other Section 4(f) resources, the City has placed a priority on mitigating, rather than necessarily avoiding, impacts. The City effort to balance broader planning objectives and impact concerns with mitigation to Section 4(f) resources in this respect is similar to the objectives of this least harm analysis. In the past, the City has supported Alternatives *C9T*-B7 and C2T-B3 with modifications.

City of Bellevue has recommended a modified alignment for the BNSF Alternative (B7) that incorporates a station near the Bellevue Way SE and I-90 ramps rather than the 118th Station. Bellevue's proposed alignment then connects to *Preferred 110th NE Tunnel Alternative (C9T)* with a tunnel along NE 2nd Street (rather than along Main Street as the current C9T Alternative). These collective revisions to Alternative B7 and *Preferred Alternative C9T* are referred to as the B7R. The City has stated that this is its current proposal for the alignment through Segments B and C for East Link. The B7R variation has not been evaluated in this least harm analysis because there is not complete information on this variation. The alternatives consistent with the term sheet the City signed with Sound Transit are Alternatives *C9T-B2M*, *C9T*-B2A, and *C9T*-B2E. All of these alternatives affect Section 4(f) resources, but as explained in earlier sections of this analysis, the impacts to these resources can all be mitigated.

DAHP views the Winters House as an important resource for historic preservation. An MOA will be developed to describe measures to avoid potential impacts to the Winters House and benefits to this resource.

D.7.8 Factor 5: Degree to Which Each Alternative Meets the Project Purpose and Need

The overarching purpose and need of the East Link Project is to expand the Sound Transit Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond via I-90 and to provide a reliable and efficient alternative for moving people throughout the region. This purpose and need is supported by five Sound Transit goals and supporting objectives described in Chapter 1, Purpose and Need, of the Final EIS, as follows:

1. Transportation goal: Improve transit mobility in the East Link Corridor.
    a. Improve the quality of transit service.
    b. Increase transit accessibility.
    c. Maximize East Link ridership.
2. Environmental goal: Preserve environmental quality in the corridor.
    a. Minimize potential adverse operating impacts on the natural and built environment.
    b. Minimize potential adverse construction impacts on the natural and built environment.
3. Land use goal: Support regional and local land use goals and objectives.
    a. Support adopted land use and transportation plans.
4. Implementation goal: Minimize risk in the corridor.
    a. Enhance stakeholder and community support.
    b. Design system to reduce construction risk.
5. Financial goal: Provide a financially feasible solution.
    a. Build a system within project budget.
    b. Build a system that can be operated and maintained within available revenue.
    c. Build a system that is cost-effective.

Since these five goals are far more specific than the more general purpose and need statement, and since the Sound Transit goals are entirely consistent with, and amplify upon, the purpose and need, these Sound Transit goals are used in this analysis for a more refined analysis than would be possible if the analysis were to rely solely on the purpose and need statement. The analysis under this factor will specifically address Goals 1, 3, and 4. Sound Transit's Goal 2 is addressed under Factors 1, 2, and 6 in this analysis and Goal 5 is addressed under Factor 7 in this analysis.

D.7.8.1 Sound Transit's Transportation Goal

Sound Transit's transportation goal—to improve transit mobility in the East Link Corridor—is supported by all alternatives evaluated in the Final EIS. The alternatives vary, however, in the degree to which the transportation objectives are fulfilled. Each alternative would fulfill the objective of improving the quality of transit service and each would provide reliable transit service that would not be hindered by congestion through a dedicated right-of-way with stations that provide convenient connections between transit services. In contrast, while all alternatives would generally fulfill the objective of increasing transit accessibility by providing more efficient high capacity linkages, not all alternatives satisfy this objective equally.

Many of the Segment B and C alternatives have similar ridership since they generally connect the same destination with similar travel modes. There are, however, a few alternatives that are significantly less desirable because they carry fewer people and offer less accessibility. The level of accessibility generally corresponds to the ridership for each alternative and both objectives are discussed together. Exhibit D-26 provides a comparative review of ridership generated by each alternative within South Bellevue and Downtown Bellevue.

In South Bellevue, the less desirable alternatives from the transit accessibility and ridership perspective are those that include Alternative B7 (Alternatives *C9T*-B7, *C11A*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7). All of these alternatives require construction of an isolated station at 118th Avenue SE with poor walking, bus, and park-and-ride access. The walking access is poor because of the barriers created by I-405, SE 8th Street, and the Mercer Slough Nature Park. A station at this location would not offer many bus transfer opportunities because it is on a minor arterial with little existing bus service. Diverting routes from Bellevue Way to the station would increase delays for bus passengers and increase operating costs. The park-and-ride is also less convenient since commuters arriving from the east and south on I-90 and I-405 would have to drive further than if using the existing South Bellevue Park-and-Ride.

In Downtown Bellevue, the poorest accessibility and lowest ridership would occur with alternatives that include Alternative C14E (Alternatives C14E-B3 and C14E-B7). The single Downtown Bellevue Station associated with Alternative C14E is located directly adjacent to I-405, and this station is a substantial distance from most Downtown Bellevue destinations. Also, because of its location adjacent to I-405, this alternative is inconvenient for bus transfers because of the long distance from the Bellevue Transit Center. Similarly, the Bellevue Transit Station for Alternatives C7E-B2A, C7E-B2E, C7E-B3, and C7E-B7 is about 800 feet away from the Bellevue Transit Center bus terminal and the concentration of high density Downtown destinations.

Alternatives C1T-B1, C2T-B2A, C2T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C7E-B2E, C8E-B3, and C9A-B2E best meet the project ridership goals. The highest ridership in downtown Bellevue generally occurs with tunnel alternatives that combine grade-separated travel and accessible stations located near the center of downtown and near or directly below the Bellevue Transit Center. The downtown at-grade alternatives, would provide high visibility and direct access to the Bellevue Transit Center, but the slower travel times would result in slightly reduced trips between Seattle and Redmond.

Examining the combined boardings in Segment B-C, the average ridership generated is 12,000 boardings per day. Every alternative combination that includes Alternative B7 generates lower than average ridership (Alternatives *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7) due to the poor accessibility discussed above. Average or better ridership is achieved for all of the other alternatives that are at-grade or tunneled in downtown Bellevue and also serve the South Bellevue Park-and-Ride (Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M, C9T*-B2A, *C9T*-B2E, *C9T*-B3, C1T-B1, C2T-B2A, C2T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C9A-B2A, C9A-B2E, and C9A-B3). Two elevated alternatives in downtown Bellevue achieve higher ridership (Alternatives C7E-B2E, C8E-B3) while five have lower than average ridership (Alternatives C7E-B2A, C7E-B7, C8E-B7, C14E-B3, C14E-B7).

D.7.8.2 Sound Transit's Land Use Goal

The project's land use goal is to implement the project in a manner that supports regional and local land use and transportation plans. As stated in Chapter 1, the Puget Sound Regional Council's (PSRC's) VISION 2040, the regional land use plan, focuses growth in urbanized areas. VISION 2040 rededicates the region's commitment, as stated in VISION 2020, to enable residents to live near jobs and other urban activities, to help strengthen existing communities, and to promote bicycling, walking, and transit use. These focus areas are identified as "urban centers."

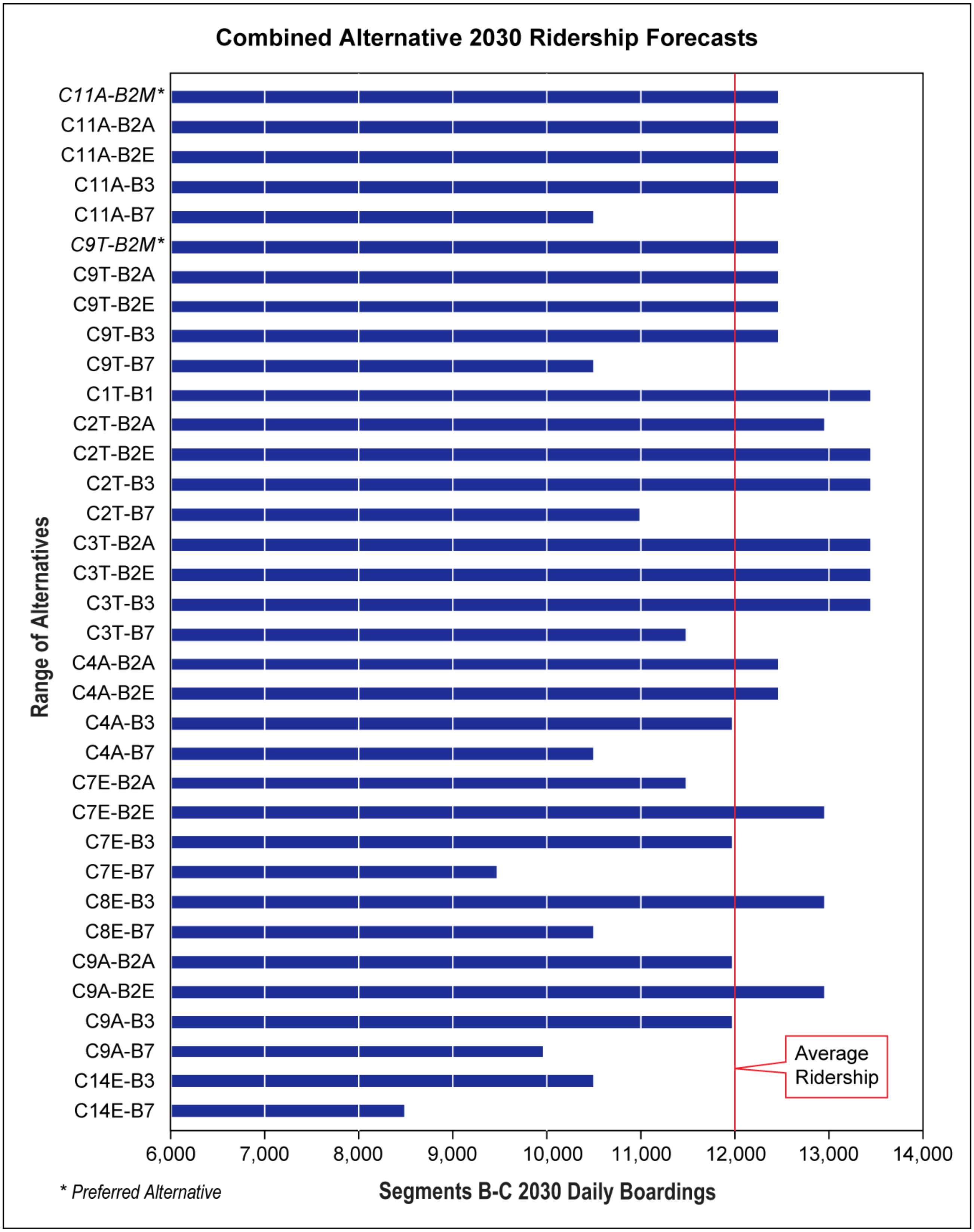


EXHIBIT D-26
Ridership by B-C Alternatives

In response to the state Growth Management Act, PSRC's metropolitan transportation plan, Destination 2030, established policies that prioritize new transportation services in areas that accept an increased share of growth. Because of limited funding, the Regional Transportation Improvement Program strategically focuses funding on developing regional growth centers and the corridors between them. The goal of this prioritization is to concentrate growth in existing urbanized areas and is considered the most efficient way to serve a greater share of the region's population. Out of this vision, the East Link Project was prioritized to provide direct linkages to the transit markets in the urban centers, most specifically the Bellevue Transit Center, the densest portion of downtown Bellevue.

Evaluating the alternatives against this background, the elevated alternatives on the edge of Downtown Bellevue (Alternatives C7E-B2A, C7E-B2E, C7E-B3, C7E-B7, C14E-B3, and C14E-B7), would be less supportive of the project's land use goals than other alternatives. Among those alternatives, Alternatives C14E-B3 and C14E-B7 would be the worst at fulfilling the project's land use goals. Alternative C14E is the most problematic from a land use perspective since it would provide only a single station in Downtown Bellevue, and this station is located on the eastern edge of downtown next to I-405. As a result, many commuters would find the station beyond a typical five to ten minute walking distance. This poor service could constrain the growth of Downtown Bellevue, which is a PSRC-designated Regional Growth Center. Alternatives that rely on Alternative C7E would provide a station one block closer to the Bellevue Transit Center, but still a longer walk to both bus transfers and downtown destinations than other alternatives. It would also provide a second downtown station with the Main Street Station, but its location would be on the very southeast edge of downtown.

The remaining alternatives (Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C11A*-B7, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C1-B1, C2T-B2A, C2T-B2E, C2T-B3, C2T-B7, C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B2A, C8E-B2E, C8E-B3, C8E-B7, C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7) are better at satisfying the project's land use goal. All of these alternatives provide a station directly adjacent to the Bellevue Transit Center, nearest the downtown core and most densely developed area of Downtown Bellevue.

D.7.8.3 Sound Transit's Implementation Goal

The project's implementation goal is to minimize risk in the corridor. Sound Transit developed plans to measure and address the two objectives under this goal by pursuing an ongoing community outreach and involvement plan to enhance stakeholder and community support and designing the East Link Project in a manner that reduces construction risk. The intent of the community support objective is to involve the community in the project development and design process such that the selected alternatives would reduce, or ideally avoid, controversy. The East Link Project has received considerable controversy from the communities in proximity to, and stakeholders with interests in, Segments B and C. None of the alternative combinations have achieved consensus. East Link Project development has continued Sound Transit's commitment to involving the community at every step of the project's 5-year process.

Through NEPA and the State Environmental Policy Act (SEPA) process, Sound Transit has received 1,586 comment letters, which have all been reviewed and responded to in the Final EIS. While the Draft EIS initially reviewed 19 combined alternatives for Segments B and C, as a result of comments and multiple workshops, the number of alternatives has grown to the 35 alternatives reviewed in this analysis. The additional alternatives have also been publicly vetted through an SDEIS. From the comment letters, public meetings, and stakeholder briefings, it is clear that many residents remain concerned about alternatives that are adjacent to their neighborhood. Beginning in September 2006, outreach activities have included hosting public open houses and workshops, offering information at local public meetings, making door-to-door visits, and conducting ongoing agency coordination. In addition, Sound Transit's outreach staff has attended community events, posted regular project updates on the Sound Transit website, and mailed fact sheets and project announcements throughout the project corridor.

To design the project in a manner that reduces construction risk, Sound Transit solicited the involvement of qualified experts to rate the comparative risk factors for the various alternatives. Risks factors include complexity, safety, stakeholder concerns and several other factors. These factors have been consolidated in the project cost estimates presented in Factor 7.

D.7.8.4 Conclusions: Factor 5

Factor 5 only addresses the degree to which the alternatives meet the transportation, land use and risk goals of the project's purpose and need because the environmental impact and cost goals of the purpose and need are reflected in other factors. The transportation goal is addressed through accessibility and ridership, whereas the land use goal assesses how well the project supports land use and transportation plans to serve population and employment centers. Risk has been managed equally for all alternatives, since extensive outreach has addressed and continues to address stakeholder concerns, and construction risk is considered in project cost estimates, which is evaluated in Factor 7. From a combined transportation and land use perspective, the alternatives that include a station directly adjacent to the Bellevue Transit Center and serve the South Bellevue Park-and-Ride, best serve the project purpose and need. Except when connecting from Alternative B7, these are the tunnel and at-grade alternatives as well as Alternative C8E-B3. Although the station is further from the Bellevue Transit Center Alternative C7E-B2E is also included due to its high ridership.

D.7.9 Factor 6: After Reasonable Mitigation, the Magnitude of Any Adverse Impacts to Resources Not Protected by Section 4(f)

D.7.9.1 Analysis of Factor 6

This factor emphasizes unavoidable environmental impacts to resources not protected by Section 4(f) after implementing mitigation measures. The context of this light rail project is that Sound Transit has designed alternatives that follow existing transportation corridors to the extent possible, through extensively developed urban centers with the objective of serving the highest-density transit markets. Given the intensity of adjacent uses, therefore, most of the project impacts can be fully mitigated. There are only relatively minor differences among the quantifiable impacts of the Segment B and C alternatives. The primary unavoidable impacts that cannot be completely mitigated are visual quality, minor vibration impacts, and construction impacts to businesses.

All alternatives along Bellevue Way, except Alternatives *C11A-B2M* and *C9T-B2M*, would lower the visual quality because of widening the Bellevue Way right-of-way to the west and removing mature vegetation. Additionally, Alternative C9A-B2A would lower the visual quality at 112th Avenue SE and Main Street as a result of the permanent straddle bents (the double-column piers that support a beam straddled over the roadway on which sits the guideway) as it turns onto Main Street. Alternatives C8E-B3 and C8E-B7 would result in visual impacts along 110th Avenue NE, to residents and pedestrians. Mitigation measures would reduce the visual impacts for each alternative.

A few vibration impacts might not be avoidable with standard mitigation measures. Alternatives C9A-B2A, C9A-B2E, C9A-B3, and C9A-B7 each would have three locations where project vibration is predicted to exceed FTA criteria. Alternatives C4E-B2A, C4E-B2E, C4E-B3, C4E-B7, C8E-B3, and C8E-B7 each would have two areas, and finally, Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C11A*-B7, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C14E-B3, and C14E-B7 each would have one site where there are potential vibration impacts above the FTA criteria. The affected properties in all instances are hotels and the ability to mitigate these impacts would be reviewed again in final design. During construction, businesses might be adversely affected in Downtown Bellevue along the alignment of all alternatives being considered. Mitigation can reduce the effects, but it would not alleviate disruptions caused by reduced accessibility, noise and visibility.

D.7.9.2 Conclusions: Factor 6

All project alternatives have some unavoidable impacts related to visual quality, minor vibration, and temporary construction on businesses. These impacts would be minimized with project mitigation, and these impacts are not major discriminators that would eliminate any one alternative from consideration.

D.7.10 Factor 7: Substantial Differences in Costs among the Alternatives

D.7.10.1 Analysis of Factor 7

The East Link Project includes the goal of providing a financially feasible solution to transit in the region. This includes the objective of building a system within a project budget that can be operated and maintained within available revenue. This goal is also intended to balance cost with performance as measured by cost effectiveness. Exhibit D-27 compares the cost for each alternative. This bar chart also defines what is fundable under the ST2 Plan revenues with and without the Sound Transit and City of Bellevue term sheet. The ST2 Plan, approved by the voters in November 2008, would fund the construction of the East Link Project. ST2 provides sufficient funding for an at-grade or elevated alternative through Downtown Bellevue (Segment C). However, if the Sound Transit Board selects the most expensive alternative in Segment B (Alternative B7), the only alternatives within the ST2 Plan budget assumptions would be the elevated alternatives on the edge of downtown Bellevue (Alternatives C7E and C14E).

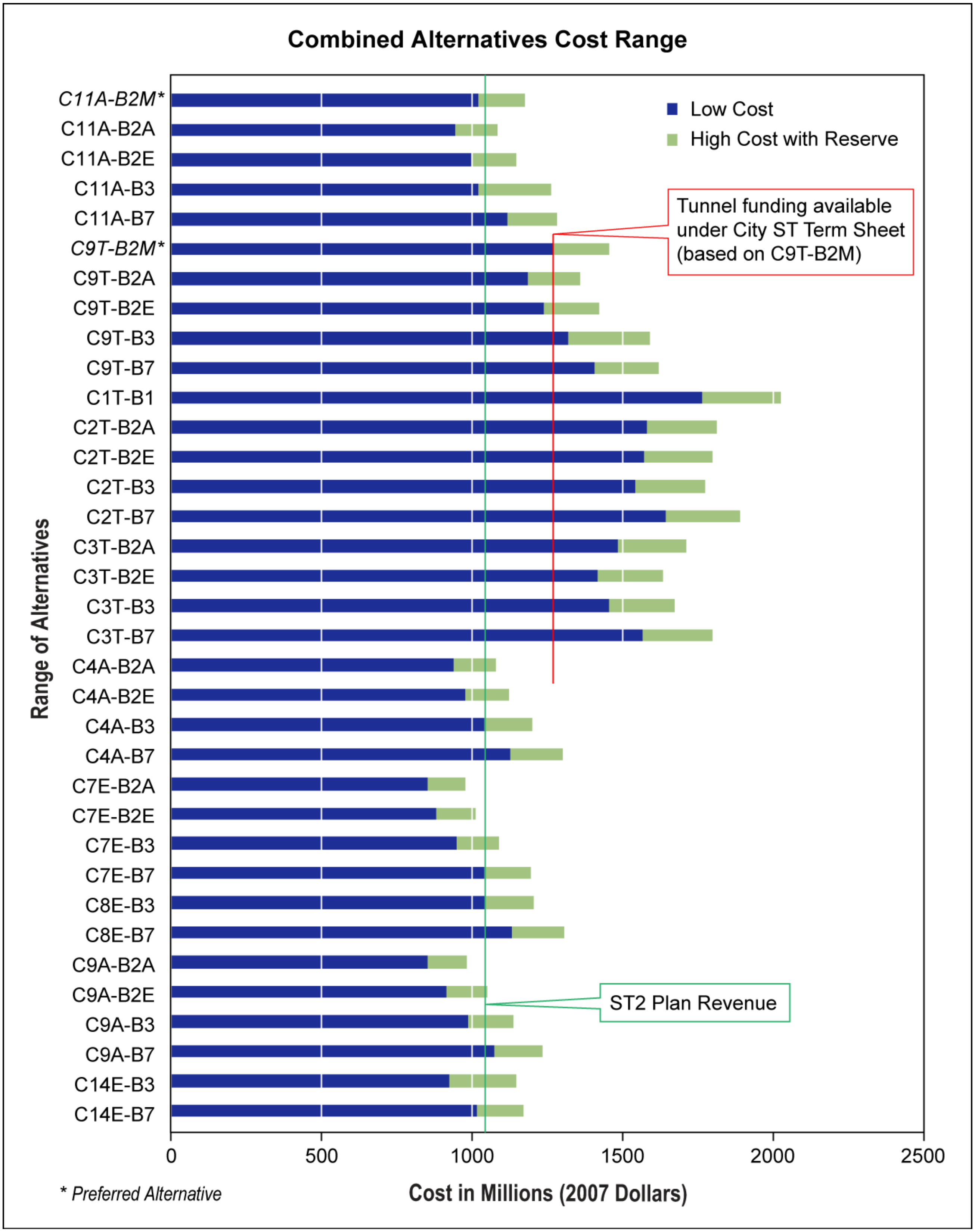


EXHIBIT D-27
Low and High Cost Comparison for Each Alternative

If the Sound Transit Board selects a tunnel alternative in this segment, additional funding sources would be required. The tunnel alternatives (Alternatives *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, *C9T*-B7, C1T-B1, C2T-B2A, C2T-B2E, C2T-B3, C2T-B7, C3T-B2A, C3T-B2E, C3T-B3, and C3T-B7) are not fundable through the existing ST2 funding program. These alternatives are generally estimated to cost an additional $300 to $800 million above the cost of alternatives that rely upon an at-grade or elevated alternative. Three of the tunnel alternatives could, however, be made affordable. *Preferred Alternative C9T*, combined with a 112th Avenue approach into downtown Bellevue (Alternatives *C9T-B2M*, *C9T*-B2A, and *C9T*-B2E), is the lowest cost of the tunnel alternatives and potentially affordable under the term sheet between the City of Bellevue and Sound Transit, if the city provides $150 million in additional funding and accepts the alternative into downtown along 112th Avenue SE.

Another metric that helps to understand the cost difference among alternatives is cost-effectiveness. Cost-effectiveness is measured as the project's annualized cost divided by the projected number of riders that would be attracted each year, for a cost-per-rider estimate. Annualized costs are the project's construction costs averaged over the years of operation. Exhibit D-28 compares the cost effectiveness of each alternative. A lower dollar ($) cost per rider is a more efficient system, carrying more riders for less overall cost.

A cost-effectiveness analysis shows that those alternatives that include Alternative B7 (Alternatives *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7), reduce the cost-effectiveness for the Segment C alternative they connect with in Downtown Bellevue. This is because the costs are higher and the ridership lower than with other Segment B alternatives (e.g., Alternative *C11A*-B7 has poor cost-effectiveness as compared with Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, and *C11A*-B3). Those alternatives that include a tunnel alternative in Downtown Bellevue generally have higher costs per rider than at-grade or elevated alternatives. Tunnels are inherently costlier, and therefore, unless they provide substantially higher ridership, they would have a high cost per rider (ranging between $8.70 to 11.90 per rider).

Preferred Alternative C9T is the lowest cost tunnel alternative when combined with the alternatives that travel along 112th Avenue SE with only slightly lower ridership than the other tunnel alternatives. Alternatives *C9T-B2M*, *C9T*-B2A, and *C9T*-B2E, therefore, are the most cost-effective of the tunnel alternatives. The elevated alternatives have a cost-effectiveness similar to the at-grade alternatives. Similarly, those alternatives with an alternative at-grade in Downtown Bellevue that connect with alternatives from 112th Avenue SE (Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, C4A-B2A, C4A-B2E, C9A-B2A, C9A-B2E, and C9A-B3) have similar to or slightly lower ridership than the tunnel alternatives but at a lower construction cost and, therefore, have a low cost per rider. The elevated alternatives generally have both lower ridership and lower cost and, therefore, similar cost-effectiveness to the at-grade alternatives.

D.7.10.2 Conclusions: Factor 7

Conclusions for Factor 7 rely primarily on differences in project cost, but conclusions are also generally supported with the cost-effectiveness metric. The alternatives that rely upon a tunnel alternative would have a higher cost than at-grade or elevated alternatives through Downtown Bellevue. Of the tunnel alternatives, only *Preferred Alternative C9T* combined with a 112th Avenue SE approach into Downtown Bellevue (Alternatives *C9T-B2M*, *C9T*-B2E, and *C9T*-B2A) would be potentially affordable under the Sound Transit financial criteria with the City of Bellevue term sheet. Alternative B7 through South Bellevue would reduce the cost-effectiveness (Alternatives *C11A*-B7, *C9T*-B7, C2T-B7, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7) for the alternatives that connect within Segment C.

D.7.11 Least Harm Analysis: Conclusions

As required by FTA regulations, this least harm analysis is required to balance and compare seven factors in evaluating which alternative, or alternatives, would have the least harm. As can be seen from the prior discussion, this evaluation and balancing is complex and qualitative in this instance because it requires comparing unlike criteria and weighing the relative importance of each factor and the relative strength or weakness of each *alternative* under each factor. It is, furthermore, important to note that the seven factors are not limited to evaluation of effects on Section 4(f) resources; FTA regulations specifically contemplate that this least harm analysis would balance protection of Section 4(f) resources against other considerations in project planning, including factors such as cost and impacts to nonprotected resources that have little relevance to the protection of Section 4(f) resources.

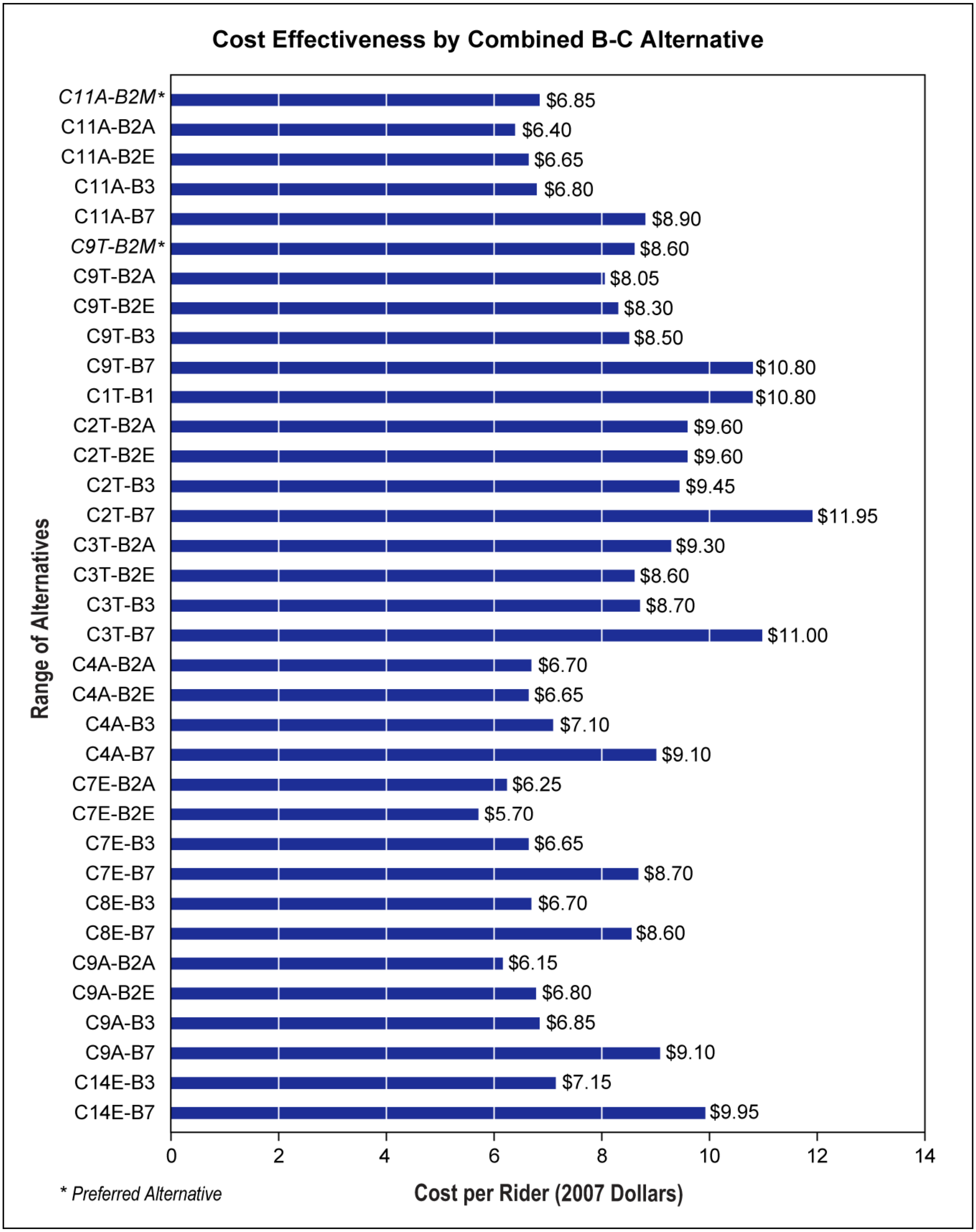


EXHIBIT D-28
Cost Effectiveness for Each Alternative

As a qualitative evaluation, the least harm analysis necessarily requires an element of judgment and evaluation. The previous discussion of each factor was designed to provide the technical and analytical bases for this evaluation. The following discussion summarizes the relative weighing of the 35 alternatives under each of the seven required factors.

D.7.11.1 Factors 1 and 2: The Ability of the Alternative to Mitigate Adverse Impacts to Each Section 4(f) Property (including any measures that result in benefits to the property) and The Relative Severity of the Remaining Harm, after Mitigation, to the Protected Activities, Attributes, or Features that Qualify Each Section 4(f) Property for Protection

With mitigation the following alternatives would result in net impacts on McCormick Park: Alternatives C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B2A, C4A-B2E, C4A-B3, C4A-B7, C8E-B3, and C8E-B7. The visual impact created as a result of the presence of the guideway structure cannot be fully mitigated for McCormick Park. However, there would be a potential for net benefit on Mercer Slough Nature Park from Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, *C9T*-B3, C2T-B2A, C2T-B2E, C2T-B3, C3T-B2A, C3T-B2E, C3T-B3, C4A-B2A, C4A-B2E, C4A-B3, C7E-B2A, C7E-B2E, C7E-B3, C9A-B2A, C9A-B2E, C9A-B3, and C14E-B3. The Winters House would be potentially impacted but with mitigation would have no net adverse impacts and, in fact, would receive net benefits from Alternatives *C11A-B2M* and *C9T-B2M*.

D.7.11.2 Factor 3: The Relative Significance of Each Section 4(f) Property

All parks have been determined to be significant by the City of Bellevue; therefore, it is difficult to solely use the judgment of the City of Bellevue (as the resource manager for all of the Section 4(f) resources) as the basis upon which to distinguish the relative significance of the affected Section 4(f) resources. Mercer Slough Nature Park is a major regional resource, in contrast to Surrey Downs Park and McCormick Park, which are community resources and the NE 2nd Pocket Parks, which are an even more local park resource. This suggests that Mercer Slough Nature Park, as a regional park, is relatively more significant than other park resources. With respect to the Winters House, it is the only historic resource in the City of Bellevue on the NRHP; that makes this resource significant in comparison with the other affected resources.

All alternatives affect Mercer Slough Nature Park, the most significant of the park resources. Some alternatives affect the other, less significant, parks. Only Alternatives *C11A-B2M* and *C9T-B2M* would potentially impact the Winter House, but these are also the only alternatives that offer a benefit to this resource. Other differences between alternatives are minor for this factor.

D.7.11.3 Factor 4: The Views of the Official(s) with Jurisdiction over Each Section 4(f) Property

The City of Bellevue's current preferred alternative is the proposed modifications to C9T-B7 referred to as B7R. In the past, the City has supported alternatives *C9T*-B7 and C2T-B3 with modifications. The alternatives consistent with the term sheet the City signed with Sound Transit are Alternatives *C9T-B2M*, *C9T*-B2A, and *C9T*-B2E. While the City's preferred alternative has changed several times over the last few years, it is clear from the City's extensive input and correspondence that impacts to Section 4(f) resources, while a consideration, have not been the primary determinant in the City's choice of preferred alternative. Instead, the City has prioritized other factors more highly, including the importance of serving the South Bellevue Park-and-Ride market (either at the existing location or relocated south), developing a tunnel alternative through Downtown Bellevue, serving the Wilburton area east of I-405, and minimizing traffic and neighborhood impacts, regardless of the selected alternative. The only Section 4(f) resource that the City has found that would be permanently adversely affected is McCormick Park. As to other Section 4(f) resources, the City has focused on ensuring adequate mitigation rather than necessarily on avoiding impacts. The City has evidently engaged in its own balancing of its broader planning objectives with impact concerns and mitigation to Section 4(f) resources. In this respect, the City's approach appears to be similar to the analytical approach used in this least harm analysis.

DAHP views the Winters House as an important resource for historic preservation. For those alternatives affecting the Winters House (Alternatives *C9T-B2M* and *C11A-B2M*), Sound Transit has incorporated protective measures during construction and mitigation measures that result in net benefits to the Winters House.

D.7.11.4 Factor 5: Degree to Which Each Alternative Meets the Project Purpose and Need

Factor 5 only addresses the degree to which the alternatives meet the transportation, land use and risk goals of the project's purpose and need because the environmental impact and cost goals of the purpose and need are reflected in other factors. The transportation goal is represented by ridership, whereas the land use goal assesses how well the project supports land use and transportation plans to serve population and employment centers. The analysis found that the risk goals did not inform the least harm analysis because construction risk is reflected in the cost estimates and enhancing community support does not differentiate alternatives. Those alternatives with higher ridership and that provide support for land use were generally found to have the least harm for this factor. From a ridership perspective, Alternatives connecting to B7 and to C14E perform poorly compared with the other alternatives. From a combined transportation and land use perspective, the alternatives that include a station directly adjacent to the Bellevue Transit Center and serve the South Bellevue Park-and-Ride best serve the project purpose and need. Except when combined with Alternative B7, these alternatives are the tunnel and at-grade alternatives in Segment C. Although the station is further from the Bellevue Transit Center for Alternative C7E-B2E, this alternative is also included due to its high ridership.

D.7.11.5 Factor 6: After Reasonable Mitigation, the Magnitude of Any Adverse Impacts to Resources Not Protected by Section 4(f)

All project alternatives have some unavoidable impacts related to visual quality, vibration impacts, or construction impacts on nearby businesses. These impacts would be minimized with project mitigation and are not major discriminators in the comparative alternatives evaluation.

D.7.11.6 Factor 7: Substantial Differences in Costs among the Alternatives

Alternatives that can be fully funded are considered to have least harm under Factor 7. Cost-effectiveness (annualized cost per rider) is discussed under Factor 7 to provide additional information about the cost of an alternative.

Most tunnel alternatives (Alternatives C1T-B1, *C9T*-B3, *C9T*-B7, C2T-B2A, C2T-B2E, C2T-B3, C2T-B7, C3T-B2A, C3T-B2E, C3T-B3, and C3T-B7) are not affordable under Sound Transit criteria. And Alternative B7 is only affordable in Alternative C14E-B7 or C7E-B7. *Preferred Alternative C9T* combined with a 112th Avenue SE alternative into Downtown Bellevue (Alternatives *C9T-B2M*, *C9T*-B2E, and *C9T*-B2A) is potentially affordable to Sound Transit pursuant to the terms of a tentative agreement between Sound Transit and the City of Bellevue. Alternatives *C11A*-B7, *C9T*-B3, *C9T*-B7, C1T-B1, C2T-B2A, C2T-B2E, C2T-B3, C2T-B7, C3T-B2A, C3T-B2E, C3T-B3, C3T-B7, C4A-B7, C7E-B7, C8E-B7, C9A-B7, and C14E-B7 have poor cost-effectiveness.

D.7.12 Conclusions

In making the least harm conclusion all seven factors have been considered and weighed, as required by Section 4(f) regulations. This weighing was complex for two reasons. First, there is not a universally accepted best practice for balancing and weighing the factors. Second, the factors are fundamentally unlike: there is no quantitative way, for example, to compare the views of officials with responsibility for 4(f) resources (Factor 4) with the magnitude of impacts on non-4(f) resources (Factor 6).

All seven factors were weighed. In the unique circumstance of the analysis for this project, however, several of the factors were relatively easier to weigh than others and therefore did not require subtle analysis. Almost all the alternatives were identical under Factors 4 and 6 and relatively similar under Factor 3. Therefore, these three factors do not substantially differentiate between the 35 alternatives and do not influence the result of this least harm analysis. It was also relatively simple to compare alternatives under Factor 7 since quantitative data is available on cost effectiveness and on difference in cost. The alternatives can effectively be ranked under Factor 7.

Factors 1 and 2 are largely qualitative and require more subtle and nuanced balancing. In the unique circumstance of this analysis, Factor 1 effectively divides the alternatives into two categories – those whose impacts can be mitigated and those that cannot. Impacts to all Section 4(f) resources can be effectively mitigated except for the impacts to McCormick Park. Therefore, any alternatives that would adversely affect McCormick Park would rank lower on Factor 1 and necessarily lower in the overall least harm analysis. Similarly, Factor 2 also divides the alternatives into those with remaining harm to McCormick Park and those that do not have remaining harm to any of the Section 4(f) resources. Those with remaining harm rank lower in the least harm analysis.

By definition, since all alternatives are considered to be feasible and prudent, they all satisfy the purpose and need for the project. In this case, then, Factor 5, calls for some judgment about the relative degree to which an alternative meets the purpose and need and the relative complexities that an alternative will present. Factor 5 only addresses the degree to which the alternatives meet the transportation, land use and risk goals of the project's purpose and need because the environmental impact and cost goals of the purpose and need are reflected in other factors. The transportation goal is represented by ridership, a quantitative measure, whereas the land use goal is a qualitative assessment of how well the project supports land use and transportation plans to serve population and employment centers. The analysis found that the risk goals did not inform the least harm analysis because construction risk is reflected in the cost estimates and enhancing community support does not differentiate alternatives. Those alternatives with higher ridership and that provide support for land use were found to have the least harm for this factor.

The conclusion from this qualitative and comparative analysis of the least harm Factors is that Alternatives *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, C9A-B2A, C9A-B2E, C9A-B3 and C7E-B2E are equally the alternatives with the least harm. Table D-9 summarizes the results of the analysis. Those alternatives that have the least harm for a particular factor are shaded in green and those alternatives with the least harm overall are shaded in yellow.

TABLE D-9
Summary of Least Harm Factors

Alternative	**Number of Section 4(f) Resources Potentially Affected**	**Section 4(f) Resource Affected**	**Factor 1: Ability to Mitigate**	**Factor 2: Severity of Remaining Harm on Section 4(f) Resources**	**Factor 3: Relative Significance of Section 4(f) Lands**	**Factor 4: Views of Officials[a]**	**Factor 5: Ability to Meet Purpose and Need[b]**	**Factor 6: Magnitude of Impacts on non-Section 4(f) Resources**	**Factor 7: Substantial Difference in Cost**
C11A-B2M	3	Mercer Slough Nature Park, Surrey Downs Park, Winters House	Impacts fully mitigable	Benefits to Winters House and Mercer Slough Nature Park in expanding natural areas	Mercer Slough Nature Park , Winters House most significant	Views of City of Bellevue and DAHP regarding 4(f) resources do not differentiate among the alternatives	Higher than average ridership, supports land use,	Environmental effects o not differentiate among the alternatives	Within ST2 Plan budget
C11A-B2A	2	Mercer Slough Nature Park, Surrey Downs Park	Impacts fully mitigable	Benefit Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use		Within ST2 Plan budget
C11A-B2E	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use support,		Within ST2 Plan budget
C11A-B3	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use		Within ST2 Plan budget
C11A-B7	1	Mercer Slough Nature Park	Impacts fully mitigable	None	Mercer Slough Nature Park most significant		Lower than average ridership, supports land use		Not within ST2 Plan budget
C9T-B2M	4	Mercer Slough Nature Park, Surrey Downs Park, NE 2nd Pocket Parks, Winters House	Impacts fully mitigable	Benefits to Winters House and Mercer Slough Nature Park in expanding natural areas	Mercer Slough Nature Park , Winters House most significant		Higher than average ridership, supports land use		Within ST2 Plan budget with funding under Bellevue term sheet

TABLE D-9 CONTINUED
Summary of Least Harm Factors

Alternative	Number of Section 4(f) Resources Potentially Affected	Section 4(f) Resource Affected	Factor 1: Ability to Mitigate	Factor 2: Severity of Remaining Harm on Section 4(f) Resources	Factor 3: Relative Significance of Section 4(f) Lands	Factor 4: Views of Officials[a]	Factor 5: Ability to Meet Purpose and Need[b]	Factor 6: Magnitude of Impacts on non-Section 4(f) Resources	Factor 7: Substantial Difference in Cost
C9T-B2A	3	Mercer Slough Nature Park, Surrey Downs Park, NE 2nd Pocket Parks	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant	Views of City of Bellevue and DAHP regarding 4(f) resources do not differentiate among the alternatives	Higher than average ridership, supports land use	Environmental effects do not differentiate among the alternatives	Within ST2 Plan budget with funding under Bellevue term sheet
C9T-B2E	2	Mercer Slough Nature Park, NE 2nd Pocket Parks	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use		Within ST2 Plan budget with funding under Bellevue term sheet
C9T-B3	2	Mercer Slough Nature Park, NE 2nd Pocket Parks	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use		Not within ST2 Plan budget
C9T-B7	2	Mercer Slough Nature Park, NE 2nd Pocket Parks	Impacts fully mitigable	None	Mercer Slough Nature Park most significant		Lower than average ridership, supports land use		Not within ST2 Plan budget
C1T-B1	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Not within ST2 Plan budget
C2T-B2A	2	Mercer Slough Nature Park, Surrey Downs Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Not within ST2 Plan budget

TABLE D-9 CONTINUED
Summary of Least Harm Factors

Alternative	Number of Section 4(f) Resources Potentially Affected	Section 4(f) Resource Affected	Factor 1: Ability to Mitigate	Factor 2: Severity of Remaining Harm on Section 4(f) Resources	Factor 3: Relative Significance of Section 4(f) Lands	Factor 4: Views of Officials[a]	Factor 5: Ability to Meet Purpose and Need[b]	Factor 6: Magnitude of Impacts on non-Section 4(f) Resources	Factor 7: Substantial Difference in Cost
C2T-B2E	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant	Views of City of Bellevue and DAHP regarding 4(f) resources do not differentiate among the alternatives	Much higher than average ridership, supports land use	Environmental effects do not differentiate among the alternatives	Not within ST2 Plan budget
C2T-B3	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Not within ST2 Plan budget
C2T-B7	1	Mercer Slough Nature Park	Impacts fully mitigable	None	Mercer Slough Nature Park most significant		Lower than average ridership, supports land use		Not within ST2 Plan budget
C3T-B2A	3	Mercer Slough Nature Park, Surrey Downs Park	Not McCormick Park	Visual impact in McCormick Park Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Not within ST2 Plan budget
C3T-B2E	2	Mercer Slough Nature Park, McCormick Park	Not McCormick Park	Visual impact in McCormick Park Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Not within ST2 Plan budget
C3T-B3	2	Mercer Slough Nature Park, McCormick Park	Not McCormick Park	Visual impact in McCormick Park Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Not within ST2 Plan budget

TABLE D-9 CONTINUED
Summary of Least Harm Factors

Alternative	Number of Section 4(f) Resources Potentially Affected	Section 4(f) Resource Affected	Factor 1: Ability to Mitigate	Factor 2: Severity of Remaining Harm on Section 4(f) Resources	Factor 3: Relative Significance of Section 4(f) Lands	Factor 4: Views of Officials[a]	Factor 5: Ability to Meet Purpose and Need[b]	Factor 6: Magnitude of Impacts on non-Section 4(f) Resources	Factor 7: Substantial Difference in Cost
C3T-B7	2	Mercer Slough Nature Park, McCormick Park	Not McCormick Park	Visual impact in McCormick Park	Mercer Slough Nature Park most significant	Views of City of Bellevue and DAHP regarding 4(f) resources do not differentiate among the alternatives	Lower than average ridership, supports land use		Not within ST2 Plan budget
C4A-B2A	4	Mercer Slough Nature Park, Surrey Downs Park, NE 2nd Pocket Parks, McCormick Park	Not McCormick Park	Visual impact in McCormick Park, Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use	Environmental effects do not differentiate among the alternatives	Within ST2 Plan budget
C4A-B2E	3	Mercer Slough Nature Park, NE 2nd Pocket Parks, McCormick Park	Not McCormick Park	Visual impact on McCormick Park, Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant		Higher than average ridership, supports land use		Within ST2 Plan budget
C4A-B3	3	Mercer Slough Nature Park, NE 2nd Pocket Parks, McCormick Park	Not McCormick Park	Visual impact on McCormick Park Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Average ridership, supports land use		Within ST2 Plan budget
C4A-B7	3	Mercer Slough Nature Park, NE 2nd Pocket Parks, McCormick Park	Not McCormick Park	Visual impact on McCormick Park	Mercer Slough Nature Park most significant		Lower than average ridership, supports land use		Not within ST2 Plan budget
C7E-B2A	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Lower than average ridership, poor support of land use		Within ST2 Plan budget

TABLE D-9 CONTINUED
Summary of Least Harm Factors

Alternative	Number of Section 4(f) Resources Potentially Affected	Section 4(f) Resource Affected	Factor 1: Ability to Mitigate	Factor 2: Severity of Remaining Harm on Section 4(f) Resources	Factor 3: Relative Significance of Section 4(f) Lands	Factor 4: Views of Officials[a]	Factor 5: Ability to Meet Purpose and Need[b]	Factor 6: Magnitude of Impacts on non-Section 4(f) Resources	Factor 7: Substantial Difference in Cost
C7E-B2E	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas.	Mercer Slough Nature Park most significant	Views of City of Bellevue and DAHP regarding 4(f) resources do not differentiate among the alternatives	Much higher than average ridership, poor support of land use		Within ST2 Plan budget
C7E-B3	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Average ridership, poor support of land use	Environmental effects do not differentiate among the alternatives	Within ST2 Plan budget
C7E-B7	1	Mercer Slough Nature Park	Impacts fully mitigable	None	Mercer Slough Nature Park most significant		Much lower than average ridership, poor support of land use		Within ST2 Plan budget
C8E-B3	3	Mercer Slough Nature Park, NE 2nd Pocket Parks, McCormick Park	Not McCormick Park	Visual impact on McCormick Park Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Within ST2 Plan budget
C8E-B7	3	Mercer Slough Nature Park, NE 2nd Pocket Parks, McCormick Park	Not McCormick Park	Visual impact on McCormick Park	Mercer Slough Nature Park most significant		Lower than average ridership, supports land use		Not within ST2 Plan budget
C9A-B2A	2	Mercer Slough Nature Park, Surrey Downs Park, NE 2nd Pocket Parks	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Average ridership, supports land use		Within ST2 Plan budget
C9A-B2E	2	Mercer Slough Nature Park, NE 2nd Pocket Parks	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Much higher than average ridership, supports land use		Within ST2 Plan budget

TABLE D-9 CONTINUED
Summary of Least Harm Factors

Alternative	Number of Section 4(f) Resources Potentially Affected	Section 4(f) Resource Affected	Factor 1: Ability to Mitigate	Factor 2: Severity of Remaining Harm on Section 4(f) Resources	Factor 3: Relative Significance of Section 4(f) Lands	Factor 4: Views of Officials[a]	Factor 5: Ability to Meet Purpose and Need[b]	Factor 6: Magnitude of Impacts on non-Section 4(f) Resources	Factor 7: Substantial Difference in Cost
C9A-B3	2	Mercer Slough Nature Park, NE 2nd Pocket Parks	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant	Views of City of Bellevue and DAHP regarding 4(f) resources do not differentiate among the alternatives	Average ridership, supports land use	Environmental effects do not differentiate among the alternatives	Within ST2 Plan budget
C9A-B7	2	Mercer Slough Nature Park, NE 2nd Pocket Parks	Impacts fully mitigable	None	Mercer Slough Nature Park most significant		Much Lower than average ridership , supports land use		Not within ST2 Plan budget
C14E-B3	1	Mercer Slough Nature Park	Impacts fully mitigable	Benefits Mercer Slough Nature Park objectives in expanding natural areas	Mercer Slough Nature Park most significant		Lower than average ridership, poor support of land use		Within ST2 Plan budget
C14E-B7	1	Mercer Slough Nature Park	Impacts fully mitigable	None	Mercer Slough Nature Park most significant		Much Lower than average ridership, poor support of land use		Within ST2 Plan budget

Notes: Alternatives that have the least harm for a particular factor are shaded in green, and alternatives with the least harm overall are shaded in yellow.

[a] Whether the City of Bellevue supports an alternative or not does not necessarily reflect their views of Section 4(f) significance.

[b] The transportation, land use and risk elements of the project's purpose and need are reflected in Factor 5, whereas the environmental element is addressed separately under Factors 1,2, and 6 and the cost element is addressed separately under Factor 7.

D.8 Section 6(f) and Washington State Recreation and Conservation Office Resources and Impacts

Section 6(f) lands are those that have been funded for acquisition or improvement through the LWCF grants. The conversion of any portion of these lands follows Title 36 CFR 59.3 of the Land and Water Conservation Fund Program, which instructs the following:

(1) All practical alternatives to the proposed conversion have been evaluated.

(2) The fair market value of the property to be converted has been established and the property proposed for substitution is of at least equal fair market value as established by an approved appraisal (prepared in accordance with uniform Federal appraisal standards) excluding the value of structures or facilities that will not serve a recreation purpose.

(3) The property proposed for replacement is of reasonably equivalent usefulness and location as that being converted. Dependent upon the situation and at the discretion of the Regional Director, the replacement property need not provide identical recreation experiences or be located at the same site, provided it is in a reasonably equivalent location.

The Washington State Recreation and Conservation Office (RCO) administers Section 6(f) of the LWCF Act. The RCO website (http://www.rco.wa.gov/) was accessed on February 13, 2007, and RCO staff was contacted in September and October 2009 to identify Section 6(f) resources in the East Link study area. Project staff also met with NPS and RCO staff on April 12, 2010. Mercer Slough Nature Park has benefited from LWCF monies, which contributed to acquiring multiple parcels to establish the park in 1974 and 1978. Exhibit D-5 shows the area, approximately 130 acres, purchased with these funds. In addition, RCO funds have been used to further acquire portions of the park. King County also received RCO funds for to develop portions of Marymoor Park, but no LWCF grants. Properties funded by RCO are subject to similar requirements for conversion as Section 6(f) without requiring approval from the NPS.

A conversion of recreational use must be approved by RCO and the NPS (for Section 6(f) property) according to the prerequisites listed above. A portion of both the Section 6(f) LWCF- and RCO-funded properties in Mercer Slough Nature Park is jointly owned by Washington State Parks. Table D-10 shows the acreage impacts to Section 6(f), RCO, and Washington State Parks property in Mercer Slough Nature Park for each Segment B alternative.

D.8.1 Section 6(f) Impacts

The LWCF Act requires that before Section 6(f) properties are converted, the agency proposing the conversion must ensure that "all practical alternatives" to converting Section 6(f) properties have been evaluated. As described above, the No Build Alternative would avoid uses of all Section 6(f) resources, however, it does not meet the purpose and need of the East Link Project.

TABLE D-10
Segment B Impacts on Section 6(f) LWCF and RCO Parks and Open Spaces in Mercer Slough Nature Park

	Alternative				
Impact (acres)	***Preferred Alternative C11A-B2M* (acres)**	***Preferred Alternative C9T-B2M* (acres)**	**Alternative C9T-B2A, C11A-B2A, or C9A-B2A (acres)**	**Alternative C9T-B2E, C11A-B2E, or C9A-B2E (acres)**	**Alternative C11A-B3 (high range is due to B3 - 114th Extension Design Option) (acres)**
Section 6(f) LWCF-Funded					
Impacted area (permanent/construction)	0.3/0.4	0.3/0.4	0.1/0.2	0/0	0.1/0.2 to 0.3
Section 6(f) total a	0.8	0.8	0.3	0/0	0.3 to 0.4
Washington RCO-Funded					
Impacted area (permanent/construction)	0.7/1.0	0.7/1.0	0.6/0.4	0.2/0.3	0.6/0.4
RCO total[a]	1.7	1.7	1.0	0.4	1.0

[a] Includes operational and construction impacts and might not equal the sum of operation and construction impacts shown due to rounding.
[b] Washington State Parks has ownership interest in portions of the Section 6(f) LWCF-funded property and RCO-funded property.

Portions of the park acquired and or developed through LWCF monies do not operate independent of the larger Mercer Slough Nature Park. Therefore, while the specific impact on Section 6(f) alternatives varies by alternative, all Segment B alternatives affect Mercer Slough Nature Park. The avoidance alternative analysis as conducted under the Section 4(f) analysis is applied to these lands as well. Please refer to Section D.6.2 of this document for an avoidance alternatives discussion, which leads to the Least Harm Analysis in Section D.7.

As discussed under the Section 4(f) analysis, the avoidance alternatives in Segment B cannot be separated from Segment C alternatives impacts. Section D.6.1 reviews the range of avoidance alternatives for Mercer Slough Nature Park. This analysis concluded that completely avoiding the park would not be prudent since new routes would result in more extensive impacts on the larger community and adjacent neighborhood relative to the minor impacts that can be fully mitigated to Mercer Slough Nature Park.

Since no prudent and feasible avoidance alternative exists to avoid Mercer Slough Nature Park, a least harm analysis was developed in Section D.7. The least harm analysis results in *C11A-B2M*, *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T-B2M*, *C9T*-B2A, *C9T*-B2E, C9A-B2A, C9A-B3, C9A-B2E and C7E-B2E Alternatives. The LWCF area that would be converted depends uniquely on which alternative is selected.

Impacts are analyzed in light of park objectives for which the LWCF were used. As stated in the *Mercer Slough Open Space Master Plan Environmental Impact Statement* (City of Bellevue, 1990), park objectives` consist of the following:

- Maintain and enhance the extensive wetland wildlife habitat.
- Provide environmental education and awareness and maintain and diversify Bellevue’s agricultural heritage.
- Participate in regional and national efforts to understand wetland ecosystems through research in restoration enhancement techniques.
- Provide passive recreational opportunities in harmony with natural system preservation.
- Maintain and protect important views and open space values.

The alternatives that affect the Section 6(f) resources have permanent impacts ranging from 0.0 to 0.3 acre and temporary impacts ranging from 0.0 to 0.4 acre. However, because the LWCF Act considers using the property for longer than 6 months, which is not considered a temporary use but a full conversion of use, the total impact includes permanent and temporary acquisition. Table D-10 shows the Section 6(f) impacts for the Least Harm alternatives. While only a small portion of the Section 6(f) property would be converted, indirect impacts on the unconverted area must be evaluated along with the direct impacts on the converted area.

The portion of the LWCF Section 6(f) area that would be converted due to direct acquisition is along the roadway intersection of Bellevue Way SE and 112th Avenue SE as illustrated in Exhibit D-4. This area has a steep grade and is difficult to access, with no trails, except for the Mercer Slough Nature Park Periphery Trail+. There is a planned trail in the Section 6(f) property that would remain possible with current East Link designs. The permanent acquisition area would not include wetlands, although a small area of wetland (less than 0.1 acre) would be within the temporary construction area. This wetland area would be considered part of the total conversion area because construction would last longer than 6 months.

The portion of Mercer Slough Nature Park acquired with LWCF serves many of the park objectives, with the exception of the objective regarding Bellevue’s agricultural heritage. Along the edge of the area that would be acquired, park users include walkers and joggers. Most of this use occurs on the east side of the Mercer Slough channel, but some use does occur on the west side of the park, although not within the Section 6(f) property affected by East Link alternatives. Wildlife viewing is an activity in the internal areas of the park. Also, as part of a large nature park that provides open space in an urban area, this Section 6(f) property protects views and open space values. Views from existing trails and planned trails proposed in the City of Bellevue’s *2009 Pedestrian and Bicycle Transportation Plan* (City of Bellevue, 2009) for the Section 6(f) property are largely sheltered due to topography and existing vegetation.

A series of photographs are provided in Attachment D2 that shows views of and from the Section 6(f) property towards the proposed East Link Project to determine whether any viewpoint from the Section 6(f) property would be affected. Attachment D2 also provides a key map of photograph locations. Due to topography and the height of vegetation, the only potential impact would be from planned trails, but this is inconclusive since access could not be achieved under current conditions. Also, funding is not currently available for the planned trail, and therefore, the effect might not occur. The LWCF Section 6(f) area is just south of and borders a portion of the water trail running west to east. Views from this trail toward the project might be possible to varying amounts depending on the alternative constructed, but it is adjacent to the Bellevue Office Park and, therefore, does not represent the Mercer Slough Nature Park objectives.

Much of the 6(f) property provides wetland wildlife habitat and opportunities for research in restoring and enhancing the habitat. Established trails, including the water trail, provide opportunities for education and passive recreation (access beyond trails requires escort by parks staff and is not considered a regular park use). Night use also occurs in the park as part of scheduled programming through City of Bellevue Parks or requires permission from the City.

D.8.1.1 Preferred Alternatives

Preferred Alternative (B2M) portion of the *C11A-B2M* and the *C9T-B2M Preferred Alternatives* would acquire 0.8 acre of Section 6(f) property located east of Bellevue Way and adjacent to the Bellevue Way SE and 112th Avenue NE intersection or less than 1 percent of the total Section 6(f) property. Of this acreage, 0.3 acre would be permanently acquired for the *C11A-B2M* and the *C9T-B2M Preferred Alternatives*, with the remainder used as a temporary construction easement to be restored after project construction. The *C11A-B2M* and the *C9T-B2M Preferred Alternatives* may result in relocating the planned trail's access to Bellevue Way SE in the northwest corner of the park.

People using the water trail along the northern boundary of the Section 6(f) property may have upward views of the catenaries and east face of the retaining wall until the vegetation matures. The vegetation would likely screen parts of the retaining wall and catenaries once mature. In addition, the wall and catenaries would not be out of character with the built elements of the parking and buildings in Bellefield Office Park located north of the Section 6(f) property.

Because the *C11A-B2M* and the *C9T-B2M Preferred Alternatives* would travel in retained cut in the northern half of Bellevue Way SE and portions of 112th Avenue SE, it is unlikely that the train would be seen from any portion of the Section 6(f) property. Similarly, light from the light rail trains is not expected to be visible from the Section 6(f) portions of the park at night due to the guideway's elevation and north-south orientation. The lights might be visible from the water trail where there is a visual opening toward the elevated portion of the alternative and the elevated I-90 ramps, but this view is already affected by vehicle traffic.

As described in Section 4.7, Noise and Vibration, existing noise levels in Mercer Slough Nature Park is bordered on two sides by two interstate highways, I-90 and I-405 and on a third by the major arterial South Bellevue Way, a park-and-ride, and a commercial office park, where "quiet" is not an essential element as outlined in FTA criteria for park noise analysis. The active park uses along the west perimeter include the boat launch, blueberry farm, and Winters House and are not considered noise sensitive. The central portions of Mercer Slough Nature Park contain uses that do meet the criteria as noise-sensitive – such as nature watching and protected trails.

Sound Transit conducted a noise impact analysis for park users in Mercer Slough Nature Park. The typical noise levels at the edge of the park are between 61 decibels (dBA) and 67 dBA, and the internal noise level measured from the middle of the park is 58 dBA. Therefore, for this analysis, the FTA Category 3 land use, which includes certain parks and recreational areas, was used to determine compliance with noise impact FTA criteria. Light rail noise levels from operation of the Preferred Alternatives C11A-B2M and C9T-B2M are predicted to be lower than the existing noise levels by 3 dBa Leq or more at active and noise sensitive locations within the park. Also the project noise levels are well under the FTA noise impact criteria.

Because there would be no substantial impacts that diminish the value or function of the Section 6(f) areas of the park not directly impacted, the conversion area would be limited to the directly converted area consisting of permanent and temporary acquisition.

D.8.1.2 Other Segment B-C Alternatives Affecting Section 6(f) Property

Alternatives *C11A*-B2A, *C11A*-B2E, *C11A*-B3, *C9T*-B2A, *C9T*-B2E, C9A-B2A, and C9A-B2E would all result in similar impacts on the Section 6(f) property as the *C11A-B2M* and the *C9T-B2M Preferred Alternatives* regarding visibility from Section 6(f) property, noise effects, and light. Most of these alternatives would acquire property (refer to Table D-10) as part of widening the intersection at Bellevue Way and 112th Avenue SE to accommodate the light rail guideway. The difference is that the light rail would be in the roadway, and the trees closest to the roadway would be removed, as opposed to leaving trees along the roadway and placing the guideway below the roadway grade in the park. Because the alternatives would not cause indirect impacts that would diminish the value or function of the Section 6(f) areas of the park, the conversion area would be limited to the lands permanently and temporarily affected. Mitigation for any of the least harm alternatives is limited to the property replacement. For Section 6(f) purposes, a replacement property acquired for mitigation must constitute a viable recreational unit. Therefore, if the replacement property is not adjacent to an existing recreational resource, it may need to be developed for recreational use.

D.8.2 Section 6(f) Conversion

Sound Transit has conducted a preliminary review of property adjacent to and having similar market value and function as the Section 6(f) lands. Sound Transit has determined that a number of properties exists that are of equivalent usefulness and location as the lands being converted. These potential properties meet the park objectives to maintain and enhance the extensive wetland wildlife habitat, are located adjacent to Mercer Slough Nature Park, and contain wetland areas.

The NPS prerequisites for conversion approval state that all necessary coordination with other federal agencies must be satisfactorily accomplished. In addition, in cases where the proposed conversion arises from another federal action, final review of the proposal will not occur until the NPS Regional Office is assured that all environmental review requirements related to the project action have been met. This process is under way, in conjunction with FTA through the Final EIS process.

Due to the timing of the project environmental evaluation and the need to demonstrate completion of all other environmental review requirements, Sound Transit will provide the additional environmental evaluation regarding potential replacement property for Section 6(f) conversion consistent with NPS NEPA requirements after the Final EIS is published. FTA can issue its NEPA determination and Record of Decision before the NPS determination. Once the Record of Decision confirms which alternative will be constructed, Sound Transit will coordinate with NPS to complete the 6(f) Section process. NPS evaluation will meet the remaining prerequisites for conversion approval, including establishing the fair market value of the property to be converted and the property proposed for substitution, which will be of at least equal fair market value as established by an approved appraisal. In addition, environmental evaluation of the conversion will analyze the impacts of converting the replacement property. Replacement property will be of similar function and recreation value. Sound Transit will coordinate with the City of Bellevue so that the proposed conversion and substitution are in accord with the State Comprehensive Outdoor Recreation Plan (SCORP).

D.8.3 RCO-Funded Property

Converting properties acquired with RCO funds follows a similar conversion analysis as the Section 6(f) lands, although the RCO oversees this process rather than the NPS. In addition, Washington State Parks has an ownership interest in a portion of the RCO property impacted by the project, requiring consultation with that agency.

D.8.3.1 *Preferred 112th SE Modified Alternative (B2M)*

The *C11A-B2M* and the *C9T-B2M Preferred Alternatives* would acquire 1.7 acres of RCO property along Bellevue Way SE north of the existing South Bellevue Park-and-Ride. Of this total acreage, 0.7 acre would be permanently acquired, with the remainder used as a temporary construction easement to be restored after project construction. While only a small portion of the RCO property would be converted, indirect impacts on the unconverted area must be evaluated in addition to the direct impacts on the converted area.

Buildings, parking, and access associated with the blueberry farm occupy a portion of the RCO area that would be converted due to direct acquisition along Bellevue Way SE. The Heritage Trail crosses the property, running northward parallel to Bellevue Way SE, to connect to the Winters House and to the southeast toward Mercer Slough East; the Mercer Slough Nature Park Periphery Trail, which consists of the sidewalk along Bellevue Way SE, also crosses the edge of the property. A small area of wetland at the south end of the property, just north of the park-and-ride, would be acquired for the project, and the remaining permanent and temporary impact area is wetland buffer.

The portion of the RCO-funded Mercer Slough Nature Park that would be acquired by the project serves the park objective regarding Bellevue’s agricultural heritage because this is the access to the blueberry farm. As described above in the Section 4(f) evaluation, this edge of the park is characterized by active use and access to the blueberry farm and the park’s interior trails. The blueberry farm’s driveway would be relocated and combined with the Winters House driveway. A small area of trail at the north end of the affected property would be relocated slightly to connect with the trail segment to the north that would also be relocated due to the light rail guideway (Exhibit D-4).

The Winters House and the retail activities of the blueberry farm would be closed during construction.

The Eastside Heritage Center would be relocated and the rental use of the Winters House would not occur during construction. Farming operations at the blueberry farm would be maintained during construction, but public access and u-pick would not be permitted. The blueberry farm retail activities would be relocated to enable the business to continue operating during construction. Relocating a small segment of the trail would not substantially affect access to the property or the park, and detours would be provided during construction for temporary closures. Finally, as discussed in Section D.7.1, light rail project operation and construction would not affect the uses in the park's interior because the project would have no noise impacts due to the current ambient noise levels from adjacent roadways and because the at-grade alignment would not have a visual impact.

Converting the RCO area that would be directly impacted by the light rail guideway would not result in indirect impacts on the remainder of the RCO property or the park; therefore, the conversion area would be only that area acquired for project operation and construction. Similar to the Section 6(f) conversion process described above, Sound Transit will provide additional environmental evaluation regarding potential replacement property for RCO conversion as required.

D.8.3.2 Other Segment B Alternatives

All Segment B alternatives, with the exception of Alternative B7, would acquire portions of the RCO-funded property in Mercer Slough Nature Park, but these alternatives would require less acreage than *Preferred Alternative B2M*. Of these alternatives, Alternatives B2A, B3, and B3 - 114th Design Option would acquire the most acreage at 0.9 acre, and Alternatives B1and B2E would acquire the least at 0.4 acre. Impacts would be similar to those discussed for *Preferred Alternative B2M*. However, Alternatives B2A, B2E, B3, and B3 – 114th Design Option are elevated for much of their length along Bellevue Way SE and would be more visible from the park.

D.8.3.3 Preferred Marymoor Alternative (E2)

Marymoor Park was developed with RCO funding (non-Land and Water Conservation Fund monies). *Preferred Alternative E2* would acquire approximately 2.0 acres for project operation and 3.0 acres for construction. Sound Transit would provide replacement land per requirements. The project would not impair RCO-protected park activities, features, or attributes. Similar to the Section 6(f) conversion process described above, FTA and Sound Transit will provide additional environmental evaluation regarding potential replacement property for RCO conversion.

Preferred Alternative E2 would require lowering the profile of the Bear Creek Trail up to 30 feet in length. This trail has received RCO funding. It has also received LWCF grants on segments of the trail which are not impacted by the project. Similarly, East Lake Sammamish Trail has received LWCF grants, but in segments not affected by *Preferred Alternative E2*.

D.8.3.4 Other Segment E Alternatives

The other Segment E alternatives would be elevated over Bear Creek Trail. For the East Lake Sammamish Trail, both alternatives would relocate a portion of the trail. Similar to Bear Creek Trail, this trail has received RCO funding. It has also received 6(f) funding for certain segments of the trail, which are not anticipated to be impacted by the project.

D.9 Record of Coordination

Sound Transit assessed existing conditions at each Section 4(f) property by visiting the sites, consulting with agencies or municipalities with jurisdiction over the 4(f) properties, and reviewing available planning documents and files maintained by relevant municipalities and agencies. Consultation efforts for Section 4(f), Section 6(f), and RCO resources are recorded in Table D-11. Sound Transit and FTA solicited written correspondence from the local officials with jurisdiction in terms of the significance of the resource, the nature and magnitude of the potential impact, and the acceptability of proposed mitigation (copies of these letters where the local agencies of jurisdiction concurred with *de minimis* are provided as Attachment D1). In addition, a series of meetings have been held with the officials with jurisdiction regarding the parks and trails affected by the East Link alternatives. Sound Transit also consulted with NPS and RCO regarding impacts to Section 6(f) and RCO property and acceptable procedures and criteria for converting Section 6(f) and RCO funded park land. Based on the analysis presented, and in cooperation with the local agencies with jurisdiction, FTA has made a determination of *de minimis* for the 4(f) resources under the jurisdiction of the Cities of Seattle, Mercer Island, and Redmond and King County. Sound Transit coordinated with the SHPO to identify properties listed or eligible for listing in the NRHP and consulted with the SHPO regarding potential adverse effects. Section 4.17 of the Final EIS and the *Final EIS Appendix H4 Historic and Archaeological Resources Technical Report* provide additional detail. Letters related to Section 106 referenced in Table D-11 below can be found in *Appendix H4*.

TABLE D-11
Section 4(f) and 6(f) Consultation Summary

Date	Form	Participants	General Topic(s)
August 24, 2006	Letter	FTA/Sound Transit to Tulalip, Duwamish, Muckleshoot, Yakama, Snoqualmie, and Suquamish Tribes; SHPO; ACHP	Opening consultation with tribes
November 8, 2006	Meeting at DAHP	DAHP, Sound Transit, FTA, WSDOT, HRA	Draft EIS cultural resource methods
November 13, 2006	Meeting at Snoqualmie Tribe	Snoqualmie Tribe, Sound Transit, FTA, WSDOT	Cultural resources and ecosystem resources studies, tribe's concerns
December 12, 2006	DAHP field trip	DAHP, Sound Transit, FTA, WSDOT	Archaeological sensitivity and potential studies along project alternatives
December 13, 2006	Meeting at Muckleshoot Tribe	Muckleshoot Tribe, Sound Transit, WSDOT, HRA	Cultural resources studies and tribe's concerns
December 20, 2006	Submittal of cultural resources methods statement to DAHP for review	Sound Transit and DAHP	Cultural resources methods statement sent to DAHP for review
January 2, 2007	Letter	From Matthew Sterner, DAHP, to James Irish, Sound Transit	Review comments on proposed cultural resources methods statement
January 25, 2007	Meeting	City of Bellevue Parks and Recreation and Transportation Department staff, Sound Transit	Review of project elements and potential impacts on park and recreational facilities
January 18, 2007	DAHP field trip	DAHP, Sound Transit, FTA, WSDOT	Historic resources along project alternatives
February 16, 2007	Meeting	King County Parks and Recreation Department, Sound Transit	Review of project elements and potential impacts on park and recreational facilities
March 1, 2007	Meeting	Mercer Island Parks and Recreation Department staff, Sound Transit	Review of project elements and potential impacts on park and recreational facilities
March 19, 2007	Meeting	City of Seattle Parks and Recreation staff, Sound Transit	Review of project elements and potential impacts on park and recreational facilities
April 17, 2007	Meeting at DAHP	DAHP, Sound Transit, FTA	Discussion of potential historic resources, project impacts, and treatment
June 28, 2007	Meeting	City of Bellevue Parks and Recreation Department staff, Sound Transit	Discussion of potential impacts on park and recreation facilities and possible mitigation associated with impacts
July 3, 2007	Letter	FTA to DAHP	Request for concurrence on area of potential effects (APE) for historic properties and archaeological APE
July 5, 2007	Meeting	City of Redmond Parks and Recreation Department staff, Sound Transit	Discussion of potential impacts on park and recreation facilities and possible mitigation associated with impacts
July 13, 2007	Letter	DAHP to FTA	Concurring in APE for historic properties
July 18, 2007	Letter	FTA to DAHP	Requesting concurrence in determinations of NRHP eligibility for historical resources
July 24, 2007	Meeting	King County Parks and Recreation Department staff, Sound Transit	Discussion of potential impacts on park and recreation facilities and possible mitigation associated with impacts
November 16, 2007	Letter	DAHP to FTA	Determination of historic properties in East Link APE eligible for NRHP
January 9, 2008	Letter	FTA to DAHP	Requesting concurrence on additional NRHP eligibility determinations

TABLE D-11 CONTINUED
Section 4(f) and 6(f) Consultation Summary

January 22, 2008	Letter	City of Mercer Island to Sound Transit	Concurrence received on determination of historic properties
February 20, 2008	Letter	DAHP to FTA	Concurrence on additional historic properties within the APE
May 27, 2008	Letter	City of Seattle	Determination that historic properties were eligible for City ordinance within the APE
April 17, 2008	Meeting	City of Bellevue	Review draft 4(f) preliminary findings of potential impacts on park and recreation facilities and possible mitigation
May 15, 2008	Meeting	City of Mercer Island,	Review draft 4(f) preliminary findings of potential impacts on park and recreation facilities and possible mitigation
May 16, 2008	Meeting	City of Redmond and King County	Review draft 4(f) preliminary findings of potential impacts on park and recreation facilities and possible mitigation
June 24, 2008	Meeting	King County,	Follow-up review draft 4(f) preliminary findings of potential impacts on park and recreation facilities and possible mitigation
July 10, 2008	Meeting	City of Bellevue,	Follow-up review draft 4(f) preliminary findings of potential impacts on park and recreation facilities and possible mitigation
June 13, 2008	Letter	City of Seattle,	Preliminary review of proposed mitigation and *de minimis* on 4(f) resources
June 13, 2008	Letter	City of Mercer Island	Preliminary review of proposed mitigation and *de minimis* on 4(f) resources
September 23, 2008	Letter	City of Redmond,	Preliminary review of proposed mitigation and *de minimis* on 4(f) resources
September 19, 2008	Letter	King County	Preliminary review of proposed mitigation and *de minimis* on 4(f) resources
October 9, 2008	Meeting	City of Bellevue	Review of permanent impacts to Surrey Downs Park and proposed park Master Plan
October 21, 2008	Letter	City of Bellevue	Preliminary review of proposed mitigation and *de minimis* on 4(f) resources.
June 1, 2009	Meeting with DAHP	DAHP, FTA, Sound Transit	Preliminary discussion of effect of moving or relocating Winters House and Justice William White House. Discussion of eligibility of other resources within corridor
July 16, 2009	Meeting	DAHP, FTA, City of Bellevue Parks and Recreation Department and Transportation Department staff, Sound Transit	Discussion of effects to Winters House with potential revised alternatives. Review of construction impacts to contributing structures in NRHP-eligible Surrey Downs district. Tour of side-running alignment in Central Link
October 8, 2009	Meeting	City of Bellevue City Manager, Parks and Recreation Department staff, and Transportation Department staff; Eastside Heritage Center; Sound Transit	Alternative B3S and associated impacts to the Winters House
October 27, 2009	Meeting	City of Bellevue Parks and Recreation and Transportation Department staff	Discussion of potential impacts on park and recreation facilities, *de minimis*, and possible mitigation associated with impacts

TABLE D-11 CONTINUED
Section 4(f) and 6(f) Consultation Summary

March 11, 2010	Meeting	City of Bellevue Parks and Recreation Department staff, Eastside Heritage Center, and Sound Transit	Impacts to Winters House
April 12, 2010	Meeting	NPS, Washington RCO, FTA, City of Bellevue, and Sound Transit	Conversion of Section 6(f) and RCO funded properties in Mercer Slough Nature Park, potential impacts, and environmental process for a conversion request
June 8, 2010	Letter	FTA to DAHP	Requesting concurrence in determinations of NRHP-eligibility for historical resources
July 22, 2010	Meeting	City of Bellevue Parks and Recreation Department staff, Eastside Heritage Center, and Sound Transit	Impacts to Winters House
September 2, 2010	Meeting	DAHP, FTA, Sound Transit, and City of Bellevue	Discussing potential determinations of no adverse effect for preferred alternative
January 11, 2011	Meeting	City of Bellevue Parks and Recreation, Transportation, and Legal staff	City of Bellevue staff kick-off meeting
January 18, 2011	Meeting	City of Bellevue staff	Review mitigation measures, focusing on Surrey Downs and NE 2nd Pocket Parks
January 27, 2011	Meeting	City of Bellevue staff	Review mitigation measures, focusing on Mercer Slough Nature Park
February 10, 2011	Meeting	King County Parks staff	Review mitigation measures, focusing on Marymoor Park
February 17, 2011	Meeting	City of Redmond staff	Review mitigation measures, focusing on recreational resources in Redmond
April 11, 2011	Meeting	King County staff	Review mitigation measures, focusing on Marymoor Park
April 1, 2011	Letter	King County comment letter	Preliminary review on proposed mitigation and *de minimis* on 4(f) resources
February 14, 2011	Letter	City of Seattle	Concurrency letter on proposed mitigation and *de minimis* on 4(f) resources
February 17, 2011	Letter	City of Mercer Island	Concurrency letter on proposed mitigation and *de minimis* on 4(f) resources
March 9, 2011	Letter	City of Redmond	Concurrency letter on proposed mitigation and *de minimis* on 4(f) resources
May 16, 2011	Letter	City of Redmond	Update to the concurrency letter on proposed mitigation and *de minimis* on 4(f) resources
May 23, 2011	Letter	City of Bellevue to FTA	Providing comments on potential historic impacts as a consulting party under Section 106
June 9, 2011	Letter	WSDOT to FTA	Concurring with determinations of Adverse Effect on Section 106 resources
April 21, 2011	Letter	FTA to DAHP	Requesting concurrence determinations of National Register eligibility for historic properties and determinations of effect
June 15, 2011	Letter	DAHP to FTA	Providing concurrence determinations of National Register eligibility for historic properties and determinations of effect

D.10 References

City of Bellevue. 2010. *Bellevue Parks & Open Space System Plan.* http://www.bellevuewa.gov/ park-plan.htm. City of Bellevue, Parks & Community Services. May 3.

City of Bellevue. 2009. *Surrey Down Master Plan*. City Council Presentation. http://www.ci.bellevue.wa.us/surrey_downs_master_plan.htm. City of Bellevue, Parks & Community Services. March 9.

City of Bellevue. 1990. *Mercer Slough Open Space Master Plan Environmental Impact Statement.*

City of Bellevue. 2004. *Downtown Implementation Plan.*

City of Bellevue. 2008 – 2010. February 25, 2008, May 12, 2009, January 26, February 10, March 9 and 24, May 6, July 20 of 2010 Letters to Sound Transit expressing preferences for East Link Alternatives.

City of Bellevue. 2010. Term Sheet April 19, 2010.

Sound Transit. 2008. ST2 Plan.

Attachment D1

Agency Correspondence

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
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February 14, 2011

Christopher Williams, Acting Superintendent
City of Seattle, Seattle Parks and Recreation
100 Dexter Avenue
Seattle, WA 98109

Dear Mr. Williams:

As part of the East Link Light Rail Project Final Environmental Impact Statement (EIS) documentation process, the Federal Transit Administration (FTA), as the lead federal agency, is finalizing the Section 4(f) evaluation of the potential impacts of the project on public parks and recreational facilities.

The Section 4(f) evaluation is a requirement of the U.S. Department of Transportation Act of 1966. Under the Act, FTA cannot approve a transportation project (such as East Link) that requires the use of any publicly owned land from a significant public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site, unless a determination is made that:

- There is no feasible and prudent alternative to using the property; and
- The project includes all possible planning to minimize harm to the property resulting from the use; or
- The use will have no more than a *de minimis* impact on the resource. A *de minimis* impact means a project will have no adverse effect to the activities, features, and attributes of the resource after consideration of any impact avoidance, minimization, and mitigation or enhancement measures.

If the federal lead agency determines that a transportation use of Section 4(f) property, results in a *de minimis* impact on that property, an evaluation of prudent and feasible avoidance alternatives is not required and the Section 4(f) process is complete.

Federal guidance encourages early coordination with officials with jurisdiction over the Section 4(f) resource to ascertain the position of the officials to obtain their views. The City signed a letter in June 2008 indicating its preliminary concurrence on a *de minimis* determination for city park facilities potentially affected by the project (East Link Draft EIS 2008). Federal regulations stipulate that "officials with jurisdiction over the Section 4(f) resource must concur in writing with a *de minimis* finding (23 CFR 774.5 (2)). The regulations also require that an opportunity for public review and comment concerning the effects of the project on the Section 4(f) resource be provided prior to such written concurrence. As per 23 CFR 774.5, the public comment requirement has been met with the distribution of the East Link Draft EIS (2008) and Supplemental Draft EIS (2010) for review and comment by the public, agencies, and groups.

With the comment period on these documents completed, and based on the city's 2008 letter, FTA intends to make a *de minimis* finding on the listed resources that are owned by the City of Seattle and we are requesting the city's final concurrence on this finding. Your letter of concurrence will be included in the Final EIS for East Link. Following the City's written concurrence, FTA will make a final Section 4(f) determination, which will also be included in the Final EIS.

The table below lists Benvenuto Viewpoint as a City of Seattle park facility that the East Link Light Rail Project would impact. Based on Sound Transit's review and your June letter, this park resource is considered significant for purposes of Section 4(f). Given the potential project impacts and the proposed potential mitigation, FTA believes that a *de minimis* finding can be made for Benvenuto Viewpoint. A *de minimis* determination means that after incorporation of mitigation measures, the East Link project will not adversely affect the activities, features, and attributes of the significant park facilities.

City of Seattle Park Facility and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Benvenuto Viewpoint	Significant	Permanent use of up to 0.06 acre (4%) for a station entrance at 23rd Ave S. This area is a landscaped strip that fronts 23rd Ave S	Station entrance designed to be compatible with the City's park design	*de minimis*

We ask that you provide your signature on this letter, or in its place your own letter, to confirm your concurrence on the significance of the Seattle park facility and final agreement with the Section 4(f) *de minimis* determination, and the potential mitigation.

As the project is further refined during final design, Sound Transit will coordinate with the City of Seattle's Department of Parks and Recreation to review and finalize the Rainier Station's entrance design and construction activities. To follow up on this letter, Elma Borbe, Sound Transit Environmental Planner will contact you to provide any information you may need and also to offer a meeting to review this letter.

If you have any questions, please call either John Witmer, Community Planner at (206) 220-7964 or Elma Borbe, Environmental Planner at (206) 398-5445.

Sincerely,

R. F. Krochalis
Federal Transit Administration

City of Seattle Signature for Concurrence

Cc: John Witmer, FTA
James Irish, Sound Transit
Elma Borbe, Sound Transit

JW
env'l log
Scan to
James Irish

CITY OF MERCER ISLAND, WASHINGTON
9611 SE 36th Street • Mercer Island, WA 98040-3732
(206) 275-7600• (206) 275-7663 fax
www.mercergov.org

February 17, 2011

R. F. Krichalis
Federal Transit Administration
915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002

Dear ~~Mr. Krichalis~~: Rick

Per your request I am returning your letter regarding East Link Light Rail Section 4(f) Determination with my Signature for Concurrence.

If you have any questions or would like me to provide any further assistance, please call me at (206) 275-7706.

Sincerely,

Tim Stewart, Director
Development Services Group

FEB 22 2011 AM 10:34

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

February 14, 2011

Timothy Steward, Planning Director
Mercer Island
9611 SE 36th Street
Mercer Island, WA 98040

Re: East Link Light Rail Section 4(f) Determination

Tim –
Dear Mr. ~~Steward~~:

As part of the East Link Light Rail Project Final Environmental Impact Statement (EIS) process, the Federal Transit Administration (FTA), as the lead federal agency, is finalizing the Section 4(f) evaluation of the potential impacts of the project on public parks and recreational facilities.

The Section 4(f) evaluation is a requirement of the U.S. Department of Transportation Act of 1966. Under the Act, FTA cannot approve a transportation project (such as East Link) that requires the use of any publicly-owned land from a significant public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site, unless a determination is made that:

- There is no feasible and prudent alternative to using the property; and
- The project includes all possible planning to minimize harm to the property resulting from the use; or
- The use will have no more than a *de minimis* impact on the resource. A *de minimis* impact means a project will have no adverse effect to the activities, features, and attributes of the resource after consideration of any impact avoidance, minimization, and mitigation or enhancement measures.

If the federal lead agency determines that a transportation use of Section 4(f) property, results in a *de minimis* impact on that property, an evaluation of prudent and feasible avoidance alternatives is not required and the Section 4(f) process is complete.

Federal guidance encourages early coordination with officials with jurisdiction over the Section 4(f) resource to ascertain the position of the officials to obtain their views. The City signed a letter in June 2008 indicating its preliminary concurrence on a *de minimis* determination for city park facilities potentially affected by the project (enclosed). Federal regulations stipulate that "officials with jurisdiction over the Section 4(f) resource must concur in writing with a *de minimis* finding

(23 CFR 774.5 (2)). The regulations also require that an opportunity for public review and comment concerning the effects of the project on the Section 4(f) resource be provided prior to such written concurrence. As per 23 CFR 774.5, the public comment requirement has been met with the distribution of the East Link Draft EIS (2008) and Supplemental Draft EIS (2010) for review and comment by the public, agencies, and groups.

With the comment period on these documents completed, and based on the city's 2008 letter, FTA intends to make a *de minimis* finding on the listed resources that are owned by the City of Mercer Island and we are requesting the city's final concurrence on this finding. Your letter of concurrence will be included in the Final EIS for East Link. Following the City's written concurrence, FTA will make a final Section 4(f) determination, which will also be included in the Final EIS.

The table below lists the Outdoor Sculpture Gallery as a City of Mercer Island park facility that the East Link Light Rail Project would only impact if Sound Transit included the optional pedestrian bridge over I-90 from Town Center to the Mercer Island Station. Based on Sound Transit's review and your June letter, this park resource is considered significant for purposes of Section 4(f). Given the potential project impacts and the proposed potential mitigation, FTA believes that a *de minimis* finding can be made for the Outdoor Sculpture Gallery. A *de minimis* determination means that after incorporation of mitigation measures, the East Link project will not adversely affect the activities, features, and attributes of the significant park facilities.

City of Mercer Island Park Facility and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Outdoor Sculpture Gallery	Significant	Permanent use of up to 0.2 acres that currently includes a pedestrian path and landscaping. This impact is associated with the pedestrian bridge option only.	Station entrance designed to be compatible with the surrounding design of the park	*de minimis*

We ask that you provide your signature on this letter, or in its place your own letter, to confirm your concurrence on the significance of the Mercer Island park facility and final agreement with the Section 4(f) *de minimis* determination, and the potential mitigation.

As the project is further refined during final design, Sound Transit will coordinate with the City of Mercer Island's Parks and Recreation Department to review and finalize the Mercer Island Station's entrance design and construction activities. To follow up on this letter, Elma Borbe, Sound Transit Environmental Planner will contact you to provide any information you may need and also to offer a meeting to review this letter.

If you have any questions, please call either John Witmer, Community Planner at (206) 220-7964 or Elma Borbe, Environmental Planner at (206) 398-5445.

Sincerely,

R. F. Krochalis
Federal Transit Administration

City of Mercer Island Signature for Concurrence

Cc: John Witmer, FTA
James Irish, Sound Transit
Elma Borbe, Sound Transit

JW
TU
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√Env log 220

City of Redmond
WASHINGTON

March 9, 2011

U.S. Department of Transportation
R.F. Krochalis
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, WA. 98174-1022

Re: East Link Light Rail Section 4(f) De Minimis Determination
Significance of Park Facility and Final Agreement

Dear Mr. Krochalis:

Please find enclosed the original of the Concurrence of Significance of the City of Redmond Park Facility and Final Agreement signed by Craig Larsen.

Please let me know if I may be of further assistance to you.

Sincerely,

Sharon Sato

Sharon Sato
Administrative Office Coordinator
Parks Administration and Planning
City of Redmond Parks and Recreation
425-556-2311

Enclosed: East Link Light Rail Section 4(f) De Minimis Determination signed original

MAR 10 2011 AM10:27

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

March 3, 2011

RECEIVED
MAR 07 2011
CITY OF REDMOND
PARKS PLANNING

Craig Larsen, Director
City of Redmond Parks and Recreation
P.O. Box 97010
Redmond, WA 98073

Re: East Link Light Rail Section 4(f) De Minimis Determination

Dear Mr. Larsen:

As part of the East Link Light Rail Project Final Environmental Impact Statement (EIS) documentation process, the Federal Transit Administration (FTA), as the lead federal agency, is finalizing the Section 4(f) evaluation of the potential impacts of the project on public parks and recreational facilities.

The Section 4(f) evaluation is a requirement of the U.S. Department of Transportation Act of 1966. Under the Act, FTA cannot approve a transportation project (such as East Link) that requires the use of any publicly owned land from a significant public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site, unless a determination is made that:

- There is no feasible and prudent alternative to using the property; and
- The project includes all possible planning to minimize harm to the property resulting from the use; or
- The use will have no more than a *de minimus* impact on the resource. A *de minimus* impact means a project will have no adverse effect to the activities, features, and attributes of the resource after consideration of any impact avoidance, minimization, and mitigation or enhancement measures.

If the federal lead agency determines that a transportation use of Section 4(f) property, results in a *de minimus* impact on that property, an evaluation of prudent and feasible avoidance alternatives is not required and the Section 4(f) process is complete.

Federal guidance encourages early coordination with officials with jurisdiction over the Section 4(f) resource to ascertain the position of the officials to obtain their views. The City signed a letter in September 2008 indicating its preliminary views on a proposed *de* *minimis* determination for certain city park facilities potentially affected by the project and is included the East Link 2008 Draft EIS. Federal regulations stipulate that "officials with jurisdiction" over the Section 4(f) resource must concur in writing with a *de minimus* finding (23 CFR 774.5 (2)). The regulations also require that an opportunity for public review and comment concerning the effects of the project on the Section 4(f) resource be provided prior to such written concurrence. As per 23 CFR 774.5, the public comment requirement has been met with the distribution of the East Link Draft EIS (2008) and Supplemental Draft EIS (2010) for review and comment by the public, agencies, and groups.

With the comment period on these documents completed, and based on the city's 2008 letter, FTA intends to make a *de minimis* finding on the listed resources that are owned by the City of Redmond and we are requesting the city's final concurrence on this finding. Your letter of concurrence will be included in the Final EIS for East Link. Following the City's written concurrence, FTA will make a final Section 4(f) determination, which will also be included in the Final EIS.

The table below lists Luke McRedmond Park, Bear Creek Trail, and the Redmond Central Connector as City of Redmond park facilities that the East Link Light Rail Project would affect. Alternative E1 would only affect Luke McRedmond Park and all Segment E alternatives would affect the Bear Creek Trail and the Redmond Central Connector. Given the potential project affects and the proposed potential mitigation, FTA believes that a *de minimis impact* finding can be made for Luke McRedmond, Bear Creek Trail and the Redmond Central Connector. A *de minimis* determination means that after incorporation of mitigation measures, the East Link project will not adversely affect the activities, features, and attributes of the significant park facilities.

City of Redmond Park Facility and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Luke McRedmond (E1)	Significant	Permanent use of up to 0.1 acre under elevated structure.	One or more of the following measures would be implemented: Financial compensation for permanent aerial easement, or improvements to the park as agreed to with the City. Replacement of trees removed per City tree ordinance.	*de minimus*
		Temporary use of land during construction	*Financial compensation for the lease of land during construction, as agreed to with the City.* *Maintain access to the park*	

City of Redmond Park Facility and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
			during construction. *Restore temporarily disturbed area to existing conditions.*	
Bear Creek Trail (***Preferred Alternative E2*** and alternatives E1, E4)	Significant	Permanent tunneling of trail for up to 30 feet (E2). Permanent shading from elevated structures (E1, E4)	The following measures would be implemented for the impacts described: Rerouting of trail, restoration of vegetation, and replacement of trees (E2); Financial compensation for permanent aerial easement, or improvements to the trail as agreed with the City (E1, E4).	*de minimus*
		Temporary loss of use of trail during construction	*Financial compensation for the lease of land during construction, as agreed with the City.* *Maintain access or provide detours for trail during construction.* *Restore temporarily disturbed area to existing conditions.*	
Redmond Central Connector (Trail/Park Corridor) (***Preferred Alternative E2***, and alternatives E1, E4)	Significant	Possible reduction of planned trail width, removal of planned park amenities and associated vegetation (E2, E1, E4)	The following measures would be implemented for the impacts described: Possible rerouting of trail, replacement of affected park amenities, and associated vegetation as agreed to with the City.	*de minimus*
		Temporary loss of use of planned trail and park facilities during construction	*Financial compensation for the lease of land during construction as agreed to with the City.* *Maintain access or provide detours for trail during construction.* *Restore temporarily disturbed area to existing conditions.*	

In addition, the impact to the Redmond Central Connector is assumed *de minimus*, because Sound Transit will be contributing toward the purchase of the Woodinville Subdivision (former BNSF Rail Corridor) to obtain real property and easements for the right to operate a light rail on the remainder of the corridor from the Port of Seattle and the City of Redmond to operate light rail. This contribution toward the purchase of the corridor, and subsequent easements, will guarantee Sound Transit access to the downtown Redmond segment of the former BNSF corridor without having to replace the land at the time of project implementation as part of 4(f) requirements.

We ask that you provide your signature on this letter, or in its place your own letter, to confirm your concurrence on the significance of the City of Redmond park facility and final agreement with the Section 4(f) *de minimus* determination, and the potential mitigation. We are requesting a response within 30-days of the date of this letter.

As the project is further refined during final design, Sound Transit will coordinate with the City of Redmond's Parks and Recreation Department to review and finalize the City of Redmond design and construction activities. To follow up on this letter, Elma Borbe, Sound Transit Environmental Planner will contact you to provide any information you may need and also to offer a meeting to review this letter. If you have any questions, please call either John Witmer, Community Planner at (206) 220-7964 or Elma Borbe, Environmental Planner at (206) 398-5445.

Sincerely,

R. F. Krochalis
Federal Transit Administration

City of Redmond Signature for Concurrence

Cc: John Witmer, FTA
James Irish, Sound Transit
Elma Borbe, Sound Transit

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

April 20, 2011

Kevin Brown, Division Director
Parks and Recreation Division
Department of Natural Resources and Parks
King Street Center, KSC-NR-0700
201 South Jackson Street
Seattle, WA 98104-3855

Dear Mr. Brown:

As part of the East Link Light Rail Project Final Environmental Impact Statement (EIS) documentation process, the Federal Transit Administration (FTA), as the lead federal agency, is finalizing the Section 4(f) evaluation of the potential impacts of the project on public parks and recreational facilities. On behalf of FTA, Sound Transit has been coordinating with King County to review and reach an agreement for a de minimis finding regarding potential impacts and mitigation measures to the Sammamish River Trail ("River Trail"), East Lake Sammamish Trail ("Lake Trail"), and Marymoor Park ("the Park") that are located along the alternatives in Segment E of the project. For each of these park resources, the results of this consultation and agreements are described in this letter.

BACKGROUND

The Section 4(f) evaluation is a requirement of the U.S. Department of Transportation Act of 1966. Under the Act, FTA cannot approve a transportation project (such as East Link) that requires the use of any publicly owned land from a significant public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site, unless a determination is made that:

- There is no feasible and prudent alternative to using the property; and
- The project includes all possible planning to minimize harm to the property resulting from the use; or
- The use will have no more than a *de minimis* impact on the resource. A *de minimis* impact means a project will have no adverse effect to the activities, features, and attributes of the resource after consideration of any impact avoidance, minimization, and mitigation or enhancement measures.

APR 27 2011 AM10:36

If the federal lead agency determines that a transportation use of Section 4(f) property, results in a *de minimis* impact on that property, an evaluation of prudent and feasible avoidance alternatives is not required and the Section 4(f) process is complete.

Federal guidance encourages early coordination with officials with jurisdiction over the Section 4(f) resource to ascertain the position of the officials to obtain their views. The County signed a letter in September 2008 indicating its preliminary concurrence on a *de minimis* determination for county park facilities potentially affected by the project. Federal regulations stipulate that officials with jurisdiction over the Section 4(f) resource must concur in writing with a *de minimis* finding (23 CFR 774.5 (2)). The regulations also require that an opportunity for public review and comment concerning the effects of the project on the Section 4(f) resource be provided prior to such written concurrence. As per 23 CFR 774.5, the public comment requirement has been met with the distribution of the East Link Draft EIS (2008) and Supplemental Draft EIS (2010) for review by the public, agencies, and groups.

The following table lists the King County park facilities that the East Link Light Rail Project would impact, the alternatives affecting the resource, the potential impacts, mitigation measures and Section 4(f) finding after mitigation. Additional information for each of the park facilities is also discussed below.

King County Park Facilities and Summary of Section 4(f) Use

Name of Resource and Alternatives	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Sammamish River Trail Alternatives E1, E2 and E4	Significant	Permanent shading of about 20 to 30 feet of trail	Acquire replacement recreation land equal in value to offset the light rail use within the trail right of way per RCO requirements	*de minimis*
		Possible impacts to trail use if guide way columns are located within trail right-of-way	Locate guideway columns outside trail clear zone as practical.	
		Possible temporary use of land outside of the	*Financial compensation for temporary use of land outside of the light rail right-of-way for*	

King County Park Facilities and Summary of Section 4(f) Use

Name of Resource and Alternatives	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
		light rail right-of-way for construction	*construction*	
		Possible detour of trail during construction	*Rerouting and restoration of trail to King County standards and specifications during and after construction.*	
East Lake Sammamish Trail	Significant	Permanent relocation of about 900 feet of trail	Financial compensation for the light rail use of the trail right-of-way	*de minimis*
Alternatives E1, E2 & E4		*Possible temporary use of land outside of the light rail right-of-way for construction*	*Financial compensation for temporary use of land outside of the light rail right-of-way for construction*	
		Detour of trail during construction	*Rerouting and restoration of trail to King County standards and specifications during and after construction.*	

Marymoor Park Alternative E2	Significant	Permanent use of about 2.0 acres	Acquire replacement recreation land equal in value and function to offset the light rail use within the Park property.	*de minimis*
		Temporary use of about 3.2 acres during construction	*Financial compensation for the temporary use of land outside the light rail right-of-way for construction.*	
		Temporary impacts to park use during construction	*Park land restoration following construction*	

Sammamish River Trail

There is no direct trail use by the project associated with the Sammamish River Trail and all Segment E alternatives would span the trail resulting in an additional 20 feet of trail shading. Through continued coordination with the County, two issues were raised regarding the project's potential impacts to the River Trail. The County requested that, to the extent practical, locating project columns should be avoided in the "clear zone" (up to 8 feet) on either side of the trail. However, if locating the project columns or improvements within the clear zone is unavoidable, the County requested that Sound Transit hold harmless and indemnify King County from any property damage or personal injury related to guide way columns. Sound Transit and County staff discussed this subject and agree that Sound Transit would locate the guideway columns outside of the trail clear zone to the extent practical. In addition, as part of a future property agreement between the agencies, issues regarding indemnification would be addressed, if needed.

East Lake Sammamish Trail

The East Lake Sammamish Trail would require realignment and relocation to accommodate the light rail project. There is adequate width within the former BNSF Railway corridor to accommodate both facilities. Access to the trail and connections to the Bear Creek Trail would not be impacted by the project.

Through continued coordination with the County, it was requested that Sound Transit acknowledge that East Lake Sammamish Trail is a "rail bank corridor." Rail banking, as defined by the National Trails System Act, 16 USC 1247(d) is a voluntary agreement between railroad company and a trail agency to use out of service rail corridors for trail purposes until such time as a bonafide railroad use requires the corridor again for rail service. Sound Transit and County staff discussed this subject and agree that as part of future work, the appropriate covenants would be put in place to comply with the federal rail banking regulations.

Marymoor Park

For Marymoor Park the light rail would require permanent and temporary use of the park on the northern edge and no recreation facilities would be directly affected by operation; however, an unofficial equestrian route would be affected. In addition, a wetland mitigation site is located along the north edge of the park. In 2010, a "deed restriction" document on the site was prepared by King County. At such time as the design of the East Link Project is advanced in the future, Sound Transit would coordinate with the appropriate agencies to address and mitigate impacts, in compliance with provisions established in the deed restriction.

Through continued coordination with Sound Transit, the County raised issues associated with potential light rail noise impacts on park uses. From west to east, the portion of the park closest to SR 520 currently includes the following facilities: three baseball diamonds, four tennis courts, two multisport fields, a reflexology path, three soccer fields, a wetland area, a cricket pitch, a recreation and event area, a bicycling velodrome, and a climbing rock. Sound Transit and County staff further discussed these issues and agree that when the light rail design is advanced during Preliminary Engineering, Sound Transit would, in coordination with the County, evaluate noise impacts to park uses in place at that time consistent with FTA noise analysis methods and criteria.

CONCLUSION

Given the potential project impacts, proposed mitigation, and continued consultation with King County, FTA believes that a *de minimis* finding can be made for the Sammamish River Trail, the East Link Sammamish Trail and Marymoor Park. A *de minimis* determination means that after incorporation of mitigation measures, the East Link project will not adversely affect the activities, features, and attributes of the significant park facilities.

FTA and Sound Transit acknowledge that this Section 4(f) concurrency letter is based on current environmental analysis and project information. Given that the design for Segment E is at the conceptual engineering phase (about 5 percent), Sound Transit will continue coordinating with King County when the project design is advanced during preliminary engineering and final design .

We ask that you provide your signature on this letter, or in its place your own letter, to confirm your concurrence on the significance of the King County park facilities and final agreement with the Section 4(f) *de minimis* determination, and the potential mitigation. Following the County's written concurrence, FTA will make a final Section 4(f) determination, which will also be included in the Final EIS.

If you have any questions, please call either John Witmer, FTA Community Planner at (206) 220-7964 or Elma Borbe, Sound Transit Environmental Planner at (206) 398-5445.

Sincerely,

Linda M. Gehrke

for R. F. Krochalis
Federal Transit Administration

King County Signature for Concurrence

Cc: John Witmer, FTA
James Irish, Sound Transit
Elma Borbe, Sound Transit
Sharon Claussen, King County
Robert Nunnenkamp, King County

U.S. Department
of Transportation
Federal Transit
Administration

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

May 16, 2011

Re: East Link Light Rail Project Section 4(f) Determination

Craig Larsen, Director
City of Redmond Parks and Recreation
15670 NE 85th Street
Redmond, WA 98052-3580

Dear Mr. Larsen:

Thank you for your letter dated March 9, 2011 with regards to concurring with the Federal Transit Administration's (FTA) intent to make a finding of *de minimis* pursuant to 23 CFR 774.5 (2) for Luke McRedmond Park, Bear Creek Trail, and the Redmond Central Connector that are located within the City of Redmond.

Please accept this letter as an addendum to the March 9 letter. Another Redmond park facility for which FTA intends to make a *de minimis* finding is for the Edge Skate Park. FTA requests the City's final concurrence on this finding. With your signature below, this addendum letter of concurrence will be included in the East Link Final Environmental Impact Statement (EIS). Following the City's written concurrence, FTA will make a final Section 4(f) determination, which will also be included in the Final EIS.

The table below lists Edge Skate park facility that the East Link Light Rail Project would impact. Alternative E2 Transit Center Design Option is the only alternative that would potentially impact this park. Given the potential project impacts and the proposed potential mitigation, FTA believes that a *de minimis* finding can be made for Edge Skate Park. A *de minimis* determination means that after incorporation of mitigation measures, the East Link project will not adversely affect the activities, features, and attributes of the significant park facilities.

MAY 27 2011

City of Redmond Park Facility and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Edge Skate Park (E2 Transit Center Design Option)	Significant	Permanent use of less than 0.1 acre.	Financial compensation as agreed with the City; or *Financial compensation for the use of land as agreed with the City during construction*	*de minimis*
		Temporary use of land during construction	*Restore temporarily disturbed area to existing conditions*	
		Temporary indirect impacts include noise and visual effects.	*Maintain access to skatepark.*	

We ask that you provide your signature on this letter or, in its place, your own letter to confirm your concurrence on the significance of the City of Redmond park facility, the final agreement with the Section 4(f) *de minimis* determination, and the potential mitigation. As the project is further refined during final design, Sound Transit will coordinate with the City of Redmond's Parks and Recreation Division to review and finalize the design and construction activities. If you have any questions, please call either John Witmer, Community Planner at (206) 220-7964 or Elma Borbe, Environmental Planner at (206) 398-5445.

Sincerely,

Kenneth A Feldman

for R. F. Krochalis
Regional Administrator

City of Redmond Signature for Concurrence

Cc: John Witmer, FTA
James Irish, Sound Transit
Elma Borbe, Sound Transit

King County

Parks and Recreation Division
Department of Natural Resources and Parks
King Street Center, KSC-NR-0700
201 South Jackson Street
Seattle, WA 98104-3855

206.296.8687 Fax 206.296.8686
TTY Relay: 711

April 1, 2011

Elma Borbe, Environmental Planner
East Link Light Rail
Sound Transit
402 S. Jackson Street
Seattle, WA 98104-2826

Dear Ms. Borbe:

As you know, the Federal Transit Administration (FTA) is the lead federal agency on the Final Environmental Impact Statement (EIS) for Sound Transit's East Link Light Rail Project ("the Project") and is finalizing the Section 4(f) evaluation of the project's potential impacts on public parks and recreational facilities, as required by the U.S. Department of Transportation Act of 1966.

The King County Parks and Recreation Division ("Division") owns and operates several park and recreation facilities along the proposed route of the East Link project, including the Sammamish River Trail ("River Trail"), East Lake Sammamish Trail ("Lake Trail"), and Marymoor Park ("the Park"). We understand that the FTA intends to make a *de minimis* finding regarding East Link's impacts on those park and recreation facilities. The FTA asked the Division to concur in that finding on behalf of King County. The Division understood Sound Transit to make this request as part of the coordination and consultation process required under Section 4(f) of the Department of Transportation Act of 1966 (as amended), and its implementing regulations, codified at Title 23 of the Code of Federal Regulations (CFR) Part 774 (together, "the Act").

We thank you for your prior correspondence and documentation regarding this matter. As anticipated in the Divisions' 2008 letter concurring in Sound Transit's preliminary *de minimis* conclusion, and consistent with 23 CFR 774.5(b)(2)(i)-(ii), King County has now separately evaluated whether to concur in Sound Transit's conclusion that the Project will have *de minimis* impacts on King County park resources. I regret that King County cannot completely concur in the FTA's determination at this point in time.

To be clear, **we conditionally concur in FTA's *de minimis* finding regarding East Link's impacts on the River Trail**, so long as the proposed mitigation is properly and fully implemented, and so long as Sound Transit avoids placing Project-related improvements in the "clear space" around the River Trail; or, alternatively, Sound Transit covenants to hold harmless and indemnify King County from any property damage or personal injury arising out of, caused by, or related to guideway columns permanently located in that "clear space." Also, **we conditionally concur in FTA's *de minimis* finding regarding East Link's impacts on the Lake Trail**, so long as Sound Transit provides replacement property for any Lake Trail corridor property occupied by the East Link Project, and so long as Sound Transit covenants to comply with all applicable "railbanking" requirements, including but not limited to those set forth in 16 U.S.C. §1247(d) and 49 C.F.R. §1152.29. However, at the present **time King County does not concur in FTA's *de minimis* finding regarding East Link's noise and vibration impacts to the Park**. As explained below, we believe that additional review and analysis is required to properly assess and mitigate these impacts.

BACKGROUND

Under Section 4(f) of the U.S. Department of Transportation Act of 1966, FTA cannot approve a transportation project (such as East Link) that requires the use of any publicly owned land from a significant public park, recreation area, or wildlife and waterfowl refuge, or any land from a significant historic site, unless a determination is made that (underlining, bolding added):

- There is no feasible and prudent alternative to using the property; and
- The project includes all possible planning to minimize harm to the property resulting from the use; or
- The use will have no more than a *de minimis* impact on the resource. A *de minimis* impact means a project will have **no adverse effect to the activities, features, and attributes of the resource after consideration of any impact avoidance, minimization, and mitigation or enhancement measures**.

If the federal lead agency determines that a transportation use of Section 4(f) property results in a *de minimis* impact on that property, an evaluation of prudent and feasible avoidance alternatives is not required and the Section 4(f) process is complete. However, federal regulations stipulate that "officials with jurisdiction over the Section 4(f) resource **must concur** in writing with a *de minimis* finding (23 CFR 774.5 (2)) (underlining, bolding added).

It is our understanding that the FTA analyzed the potential project impacts and the proposed potential mitigation described above, and concluded that a 4(f) *de minimis* finding could be made for the River Trail, the Lake Trail, and the Park. As recited above, a *de minimis* determination would mean that after incorporation of mitigation measures, the Project will not adversely affect the activities, features, and attributes of these significant park and recreation assets. For the reasons set forth below, King County conditionally concurs in FTA's *de minimis* findings regarding the River Trail and the Lake Trail; but King County rejects FTA's *de minimis* finding regarding the Project's noise and vibration impacts to the Marymoor Park.

DISCUSSION OF IMPACTS

The FTA identified the River Trail, the Lake Trail, and the Park as King County park facilities that would be impacted by the East Link Light Rail Project ("the Project"). We address each of them in turn.

SAMMAMISH RIVER TRAIL

In a draft letter sent earlier this year, the FTA summarized the Project's impacts to the River Trail as follows:

King County Park Facilities and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Sammamish River Trail/E1 & E2	Significant	Permanent shading of about 20 to 30 feet of trail Possible impacts to trail use if guide way columns are located within trail right-of-way	Acquire replacement recreation land equal in value to offset the light rail use within the trail right of way per RCO requirements	*de minimis*
		Possible detour of trail during construction	*Financial compensation for temporary use of land outside of the light rail right-of-way needed for construction* *Rerouting and restoration of trail and disturbed areas to King County standards and specifications during and after construction.*	

The FTA's letter also stated that "[t]here is no direct trail use by the [P]roject associated with the . . . River Trail and all Segment E alternatives would span the trail resulting in an additional 20 feet of trail shading."

We agree that the River Trail is a significant resource. We agree that the Project will result in additional shading of 20 to 30 feet of the Trail. And we agree that the Project's shading and temporary displacement/detour impacts on the River Trail can be mitigated by detouring the trail during construction, compensating King County for temporary use of County property, and restoring the River Trail and disturbed areas to County standards and specification after construction.

We appreciate that the FTA and Sound Transit recognize the need to compensate King County for Project use of the River Trail right of way, particularly for guide way supports that may be located there. And we agree that those impacts must be mitigated through the acquisition of replacement property. However, we think the FTA's letter overlooked some additional, critical impacts and potential mitigation regarding those guide way supports.

Nationally-recognized standards and guidelines govern the design of multipurpose trails like the River Trail. These standards and guidelines include, but are not limited to the Washington State Department of Transportation Manual M 22-01 Ch. 1515 ("WSDOT Manual"), and the Guide for Development of New Bicycle Facilities, published by the American Association of State Highway and Transportation Officials ("AASHTO Guide"). The AASHTO Guide is the standard for the construction and design of federally-funded bicycle routes, 23 C.F.R. 652.13(a) (2006). Under the AASHTO Guide, the WSDOT Manual, and other standards, a multipurpose trail like the River Trail should have a *clear zone* of 2 to 5 feet (and up to 8 feet) on either side of the paved trail surface. The purpose of this clear zone is to ensure that cyclists, rollerbladers, or runners do not accidentally clip or run into a trailside obstacle or obstruction, and to provide a modicum of runoff room if a trail user needs to make an emergency maneuver to avoid a collision, or to get out of the way.

Assuming that a "guide way support" is something like a concrete column or abutment, or a steel girder, these structures do not belong in the paved trail surface or the clear zone. To do so would be contrary to nationally-recognized guidelines, safety practices, and common sense. Therefore, **the FTA should impose an additional mitigation measure requiring that to the maximum extent practicable, Sound Transit should design the Project to avoid placing guide way supports in the clear zone on either side of the River Trail.**

If it proves impossible for Sound Transit to engineer the Project to avoid placing improvements in the River Trail clear zone, then the **FTA should impose an additional mitigation measure requiring Sound Transit to execute a covenant to hold harmless, indemnify, and defend King County from any and all claims or litigation regarding property damage, personal injury, or death that may be caused by, arise out of, or relate to Project improvements located in the clear zone.** King County hereby notifies the FTA and Sound Transit that King County will require Sound Transit to execute such a covenant in connection with any agreement to allow Project-related improvements in the River Trail right of way. King County will also require Sound Transit to sign or mark any Project improvements in the clear zone in order to visibly identify them as hazards.

Subject to these additional conditions and mitigation measures, as well as those previously identified by the FTA, and so long as the proposed mitigation is properly and fully implemented, King County conditionally concurs in FTA's *de minimis* finding regarding the Project's impacts on the River Trail.

EAST LAKE SAMMAMISH TRAIL

In its draft letter sent earlier this year, the FTA summarized the Project's impacts to the Lake Trail as follows:

King County Park Facilities and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
East Lake Sammamish Trail/E1, E2, & E4	Significant	Permanent relocation of about 900 feet of trail	Financial compensation for the light rail use of the trail right-of-way	*de minimis*
		Detour of trail during construction	*Financial compensation for temporary use of land outside of the light rail right-of-way needed for construction*	
			Rerouting and restoration of trail and disturbed areas to King County standards and specifications during and after construction.	

FTA's draft letter further stated that "The [Lake Trail] would require realignment and relocation, but there is adequate width within the former BNSF Railway corridor to accommodate both facilities and access to the trail and connections to the Bear Creek Trail would not be impacted by [P]roject operation . . . [T]his park resource is considered significant for purposes of Section 4(f)."

We agree that the Lake Trail is a significant resource. We agree that the Project will displace a segment of the Lake Trail. And we agree that the Project's temporary and permanent displacement of the Lake Trail can be mitigated by detouring the trail during construction, compensating King County for temporary and permanent use of County property, and relocating and restoring the Lake Trail and disturbed areas to County standards and specification after construction. We appreciate that the FTA and Sound Transit recognize the need to compensate King County for Project use of the Lake Trail right of way. However, we think the FTA's letter overlooked some additional, critical impacts and potential mitigation regarding Project impacts to the Lake Trail.

The Lake Trail occupies a former freight rail corridor that is "railbanked" or preserved for the future restoration of freight service under the National Trails System Act 16 U.S.C. 1247(d).[1] Such corridors may be used for trail purposes on an interim basis. However, trail use is subject always to the possibility that the corridor could be reclaimed for freight rail service. Federal regulations are quite specific that "interim trail use is . . . subject to possible future reconstruction and reactivation of the right-of-way for rail service." 49 C.F.R. §1152.29(a)(3).

King County is the "interim trail user" ("Trail User") responsible to maintain and protect the railbanked corridor in which the Lake Trail is located, 49 C.F.R. §1152.29(a). As the Trail User, King County is legally obligated to ensure that sufficient real property interest remains in a railbanked corridor to allow the restoration of freight rail service. See Central Kansas Railway, LLC -- Abandonment Exemption -- In Marion and McPherson Counties, KS, Docket No. AB-406 (Sub-docket No. 6X) (Service Date December 18, 1998) (1998 WL 884726) at *4. One example of a corridor use likely inconsistent with restoration of freight service would be a full-width disposition of all property interests that permanently "severs" the railbanked corridor from tracks that remain in use for interstate freight, and forever "strands" the railbanked corridor away from interstate commerce. See Burlington Northern Railroad Co. -- Abandonment Exemption -- In Klickitat County, WA, Docket No. AB-6 (Sub-No. 346X) (June 8, 2005) (2005 WL 1350596) (litigation challenging "railbanked" status of a corridor where railroad allegedly conveyed a full-width section of the corridor that would sever railbanked track from interstate commerce).

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[1] The FTA's draft 2011 letter acknowledged the Lake Trail's status as a railbanked corridor. It stated that:

> [r]ailbanking . . . is a voluntary agreement between a railroad company and a trail agency to use an out-of-service rail corridor as a trail until some railroad might need the corridor again for rail service. Because a railbanked corridor is not considered abandoned, it can be sold, leased or donated to a trail manager without reverting to adjacent landowners.

However, the FTA's draft letter failed to acknowledge that as the Interim Trail User, King County has affirmative duties under the Railbanking Legislation—duties that could be potentially jeopardized by the Project. The FTA's draft letter also failed to acknowledge the need to avoid "severing" the corridor or "stranding" any portion of it; or the need to preserve the corridor for potential restoration of freight service.

As the Trail User, King County cannot and will not authorize or allow any Project use of the Lake Trail corridor that would jeopardize the "railbanked" status of the corridor or permanently foreclose the potential to freight rail service in the future. However, King County believes that it may be possible to allow Project use of the Lake Trail corridor so long as such use is properly conditioned to preserve the corridor's "railbanked" status and protect the potential to restore freight service in the future. King County is willing to work with the FTA and Sound Transit to further refine the Project concept to meet these requirements. In exchange, and in connection with any grant of rights allowing Sound Transit to use the Lake Trail corridor for Project-related purposes, King County will require Sound Transit to execute the following covenants:

A. Sound Transit acknowledges that to protect the Lake Trail corridor as a rail transportation corridor, to preserve it for future reactivation of freight rail service, and to encourage energy efficient transportation uses, the Lake Trail corridor has been "rail banked" in accordance with 49 C.F.R. 1152.29 and Section 8(d) of the National Trails System Act (also known as the "Rails-to-Trails Act"), 16 U.S.C. 1247(d) (collectively, and as any of the foregoing may hereafter be amended or interpreted by binding judicial or administrative authority, the "Railbanking Legislation"). Sound Transit acknowledges that the Surface Transportation Board ("STB") approved King County as an Interim Trail User for the Lake Trail corridor for purposes of "railbanking" the corridor. Sound Transit acknowledges that under the Railbanking Legislation, King County, as the Interim Trail User, is subject to certain legal obligations related to the Property which are referred to herein as the "Railbanking Obligations".

B. Sound Transit covenants that it will comply with the Railbanking Obligations and that its use of the Lake Trail corridor will conform to the requirements of the Railbanking Legislation. Sound Transit covenants to cooperate with King County in good faith to fulfill the Railbanking Obligations in connection with Project use of the Lake Trail corridor.

C. Sound Transit covenants that if the STB receives a request for approval to use all or any portion of the Lake Trail corridor for reactivated freight rail service, including but not limited to such portion as Sound Transit may use in connection with the Project, then Sound Transit will cooperate with King County in order to cause the party making such request (including Sound Transit or King County): (i) to bear all costs to restore or improve the Lake Trail corridor for reactivated freight rail service; (ii) to bear all responsibility to take all steps necessary before the STB and any other regulatory agency, governmental or quasi-governmental body having jurisdiction over such work, to cause the relevant Notice of Interim Trail Use to be vacated, in whole or in part, as necessary; and (iii) to compensate King County and Sound Transit for the fair market value of any and all of their respective rights or interests in the Lake Trail corridor or improvements thereon (including, but not limited to, any Project-related improvements then located on or in the Lake Trail corridor)

> that may be destroyed, lost, compromised or otherwise reduced in value or function when the Lake Trail corridor or any portion of it is put to use for reactivated freight rail service.

Subject to these additional conditions and mitigation measures, as well as those previously identified by the FTA, and so long as the proposed mitigation is properly and fully implemented, King County conditionally concurs in FTA's *de minimis* finding regarding the Project's impacts on the Lake Trail.

MARYMOOR PARK

In its draft letter sent earlier this year, FTA summarized the Project's impacts to the Park as follows:

King County Park Facilities and Summary of Section 4(f) Use

Name of Resource	Significance Determination	Impact on Resource	Potential Mitigation	4(f) Findings after Mitigation
Marymoor Park/E2	Significant	Permanent use of about 2.0 acres	Acquire replacement recreation land equal in value and function to offset the light rail use within the Park property.	*de minimis*
		Temporary use of about 3.2 acres during construction	*Financial compensation for the temporary use of land outside the light rail right-of-way for construction.*	
			Park land restoration following construction	
		Temporary impacts to park use during construction		

FTA's draft letter also stated that

> Sound Transit will work with the appropriate agencies to address proposed changes to the Marymoor Park's wetland mitigation site. The Preferred Alternative E2 runs along the north end of a wetland mitigation site. This wetland was originally created to

> compensate for impacts on a natural wetland that occurred in the early 1990s during the widening of the SR 520. In 2000, as part of King County's project to develop the multi-use grass and soccer fields along the north end of the park, the wetland area was also impacted. In 2010, a "deed restriction document" for the site was prepared by King County.

The FTA's draft letter further stated that "the permanent and temporary use would occur on the northern edge [of the Park] and **no recreation facilities would be directly affected by operation**; however, an unofficial equestrian route would be affected." (Bracketed material, underlining, bolding added.)

In a separate 2011 memo prepared for Sound Transit by Michael Minor and Associates ("MMA"), MMA asserted that Sound Transit's light rail vehicles produce noise levels of 82 dBA L_{max} when traveling at 50 miles an hour (and measured 50 feet from the train). MMA asserted that this noise level was similar to that of heavy trucks and buses (84 to 86 dBA), and that when atmospheric dispersion is taken into account "[o]verall, maximum noise levels are not predicted to change with the installation of the . . . Project." MMA also concluded that at a predicted interval of 18 train trips per hour (peak hours), reduced to 8 train trips per hour (late evening and early morning), "vehicle traffic noise from SR 520 will continue to be the dominant noise source at the [P]ark." Finally, MMA concluded that the Project will not result in a measurable difference in the overall noise levels at the active areas of the Park, including the baseball fields, soccer fields, entertainment pad and velodrome.

For the reasons set forth below, **King County does not concur in the FTA's *de minimis* finding regarding the Project's impacts to Marymoor Park**. More specifically, King County rejects the FTA's assertion that Sound Transit's train operations will not affect the Park through noise and vibration. We believe that the FTA's analysis and MMA's memo suffer from certain critical shortcomings, and that those shortcomings gloss over potential noise and vibration impacts to the Park, as well as mitigation opportunities to address them.

ANALYTICAL FLAWS REGARDING NOISE AND VIBRATION IMPACTS TO THE PARK

We believe that there are at least two analytical flaws in the FTA's de minimis conclusion regarding noise and vibration impacts to the Park. First, the FTA and MMA did not properly consider the variety, pitch, and periodicity of noise impacts that may be generated by Sound Transit train operations; and second, the FTA did not properly consider the noise sensitivity of the Park. We address each of these in turn.

THE FTA DID NOT CONSIDER THE VARIETY, PITCH, AND PERIODICITY OF NOISE IMPACTS THAT MAY BE GENERATED BY SOUND TRANSIT OPERATIONS

The MMA memo does not distinguish between the various types of noise that Sound Transit light rail vehicles may generate. For example, a train may generate engine noise, air noise (the sound of the vehicle displacing air), brake noise, wheel noise (bearings and brakes), track noise (joints, curves, crossovers, etc.), and bell, horn, or other warning signal noise.

Some of these noises may be much louder than the 82 dBA L_{max} level identified by MMA. For example, based on its experience with Central Link, Sound Transit has specified that the maximum sound level for train wheels passing over the rail gaps in a standard track crossover is 90 dBA L_{max} (measured at 50 feet from train). The 90 dBA L_{max} is substantially louder than 82 dBA L_{max}: Since the decibel scale is logarthmic, an 8 dBA increase represents a doubling or near-doubling of loudness. The MMA memo does not discuss the location of crossover tracks, or whether these twice-as-loud track noises might affect Park users. Nor does the FTA or MMA propose any mitigation to address such noises, which might include special track to eliminate the wheel impacts responsible for the loud noises; or wheel skirts.

Intermittent noises such as wheel squeal on track curves can also be substantially louder and more disruptive than straight-line train operation. The MMA memo does not discuss the radius of any track curves near the Park, or whether any such curves might produce loud, intermittent wheel squeal that could affect Park users. Nor does the FTA or MMA propose any mitigation to address such noises, which might include designing the Project to include gentler curves; or, if a gentle curve is not feasible, automated track lubricators or a program of track grinding and wheel truing.

Similarly, some of these noises, such as bell, horn, or other warning signal noise, are specifically designed to stand out against background noise, and to capture people's attention—that is their function. The intermittent or unpredictable nature of these sounds, together with their tonal, high frequency character, mean that these noises are likely to be more irritating than a constant, broader-frequency sound, even if the overall sound level is the same. MMA's memo acknowledges that there will be a Sound Transit station just east of the Park, but does not discuss the noise impacts of slowing trains (wheel bearings, braking, crossovers) or warning signals (bells, horns, etc.) that necessarily accompany train arrivals and departures at a station.

Finally, we are also concerned that other the FTA/Sound Transit noise studies have averaged short-term noise sources (bells, etc.) over a 24-hour period. While this may be in keeping with the FTA methodology, it does not fully reveal the noise level the community experiences. Averaging the sound of a short-duration noise over a 24-hour period will tend to obscure the "impact" that each such event may have. Also, there is no evidence that the FTA or Sound Transit have attempted to evaluate sound reflected off of barriers (noise walls, retaining walls, jersey barriers, etc. We believe that the FTA's noise analysis regarding the Park should include reflected sound impacts. Likewise there should be a full discussion of construction-related impacts, which may not occur in perpetuity but could be substantial and significant during the period of construction.

FTA DID NOT PROPERLY CONSIDER THE NOISE SENSITIVITY OF THE PARK

The MMA memo states that EPA typically considers residential land use to be a more sensitive land use type than parks. However, the FTA has its own criteria for noise sensitivity. The FTA guidelines state that (bolding added):

> Parks are a special case. Whether a park is noise-sensitive depends on how it is used. Most parks used primarily for active recreation would not be considered noise-sensitive. However, some parks—even some in dense urban areas—are used for passive recreation like reading, conversation, meditation, etc. These places are valued as havens from the noise and rapid pace of everyday city life and they should be treated as noise-sensitive. **The noise sensitivity of parks should be determined on a case-by-case basis after carefully considering how each facility is used. The state or local agency with jurisdiction over the park should be consulted on questions about how the park is used and how much use it gets.**

Under the FTA's own criteria, there is ample evidence that additional consideration should be given to the noise sensitivity of the Park. Even if noise impacts are limited to that portion of the Park located closest to the SR-520 corridor, those impacts are or may be significant. From west to east, the portion of Marymoor Park closest to SR-522 consists of facilities dedicated to the following uses: three baseball diamonds; four tennis courts; two multisport fields; a reflexology path; three artificial turf soccer fields; a wetlands area; a cricket pitch; a recreation and event area; a velodrome; and a climbing rock.

Each of these facilities serves a noise-sensitive use that could be impacted by periodic loud noises from Sound Transit train operations. Tennis, cricket, and rockclimbing are classic examples of sports that require tremendous concentration and freedom from distractions in order to properly execute the skills needed to perform them: We are all familiar with television images of a tennis umpire scolding a noisy fan in the bleachers for merely *clapping* while a player is preparing to serve. Periodic horn blasts, unexpected brake squeal, or 90-decibel wheel impacts would be far more intrusive. Similarly, soccer and baseball referees must be able to reliably communicate with and control players over distances by voice and whistle alone—sounds that could be easily drowned out by the sounds of a train on a crossover. Track cycling is a high-speed, close-quarters competition where even a moment's inattention can lead to a severe crash with traumatic injuries. What will happen if a warning bell sounds unexpectedly as two sprinters are racing for the line, elbow-to-elbow with their wheels just centimeters apart at

35 mph? And what of the reflexology path user, attempting to improve circulation and reduce overall stress through the ancient, meditative practice of mindful breathing while walking barefoot over protruding stones? Habitat and wildlife viewing associated with the wetlands adjacent to the Event Pad may also be affected.

Finally, King County rents the Event Pad to a variety of users, including dog shows, camping groups, black-tie fundraising galas, and, of course, the Cirque du Soleil. Each of these are noise-sensitive uses in their own right; they cannot be conducted in an environment subject to periodic, exceptionally loud bangs, squeals, bells or whistles. Together, they produce substantial revenue to the County, all of which is plowed back in the park and recreation system. **If noise or vibration from Sound Transit's train system impacts the County's ability to rent the Event Pad, it could jeopardize the County's strategy to fund regional parks and recreation over the long term.** This strategy is mandatory for the Division. See King County Ordinance 14509 §1.A.1, -.6 (finding that the County must find new ways of generating revenue, and finding that it is appropriate for the Division to "develop . . . entrepreneurial ways of doing business").

NEED FOR FURTHER REVIEW AND MITIGATION REGARDING THE PARK

Many other activities and uses in the Park are noise sensitive in varying ways and degrees. To begin, the FTA must acknowledge that one of the primary functions of a park is to allow people to escape the hustle and bustle of their everyday urban existence for the peace and quiet of a park. How is it possible that Meydenbauer Center in Bellevue—a large, concrete-and-steel reinforced structure used for indoor purposes—is deemed a sensitive noise receptor structure, while the many open-air recreation facilities located in the northern tier of Marymoor Park are not?

As discussed earlier, it is not just a question of noise volume, or noise frequency, but also noise quality. For example, the noise from Highway 520 is more of a constant hum that can be relegated to background noise, while a train coming by intermittently is startling as each train passes by. Intermittent noise will have a far greater impact than the background noise of roads. Quiet or contemplative uses will be impacted as will conversation between walkers or picnickers. Similarly, scheduled Park uses such as weddings, parties, and concerts could also be affected.

A potential secondary noise issue or indirect effect of the Project is that loudspeaker systems for events held at the velodrome or sports fields may need to operate at higher volume due to train-related noise, which would thus further impacting other park users and the neighbors who are already sensitive to the existing volume levels.

CONCLUSION

Section §4(f) of the 1966 Highway Act requires that the FTA consider any impact avoidance, minimization, and mitigation or enhancement measures before making a finding of *de minimis* impacts. For all of the reasons discussed above, the Division declines to endorse a *de minimis* finding without more structured analysis of the noise and vibration impacts that Sound Transit's operations could have on the many uses of the Park along SR-522.

Sound can be mitigated at the source, along the path between source and receiver, or at the receiver. It is preferable to treat the noise at the source whenever possible. Without a full discussion of noise sources and possible mitigation methods to control East Link train noise at the source, the Division cannot completely concur in the FTA's *de minimis* finding determination at this point in time.

As a result, **we conditionally concur in FTA's *de minimis* finding regarding Project's impacts on the River Trail**, so long as the proposed mitigation is properly and fully implemented as described in this letter. Also, **we conditionally concur in the FTA's *de minimis* finding regarding East Link's impacts on the Lake Trail**, so long as the proposed mitigation is properly and fully implemented, and so long as Sound Transit covenants to comply with all applicable "railbanking" requirements, all as discussed in this letter. However, at the present time **King County does not concur in the FTA's *de minimis* finding regarding the Project's impacts to the Park**. We request that the FTA and Sound Transit perform the additional review, analysis, and mitigation planning discussed above.

Our review of the Project's potential impacts and mitigation measures is based on current analyses and the information about the Project. In the event that new or additional information becomes available as the Project is refined, King County will gladly reconsider its rejection of the FTA's *de minimis* conclusions regarding the Project's impacts on Marymoor Park. The Division looks forward to coordinating with Sound Transit to further review design and construction elements of the Project as it progresses.

Sincerely,

Kevin R Brown

Kevin Brown
Division Director

cc: James Irish, Sound Transit
Sharon Claussen, Project Manager, Parks and Recreation Division, Department of Natural Resources and Parks (DNRP)
Robert Nunnenkamp, Property Agent, Parks and Recreation Division, DNRP

Washington State Department of Transportation
Paula Hammond
Secretary of Transportation

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June 9, 2011

R.F. Krochalis
Federal Transit Administration, Region X
915 Second Avenue, Suite 3142
Seattle, WA 98174-1002

Subject: East Link Light Rail Project

Dear Mr. Krochalis,

Thank you for the opportunity to review and comment on your Determination of Adverse Effect on Section 106 resources for the East Link Light Rail Project and the invitation to participate as a consulting party under the Section 106 process for this project.

We have no comments on the Determination of Adverse Effect and we accept your invitation to participate as a consulting party.

You may continue to use me as a point of contact during the Section 106 process. If you have any questions, please call me at (206) 805-2892 or email me at paul.krueger@wsdot.wa.gov.

Sincerely,

Paul Krueger

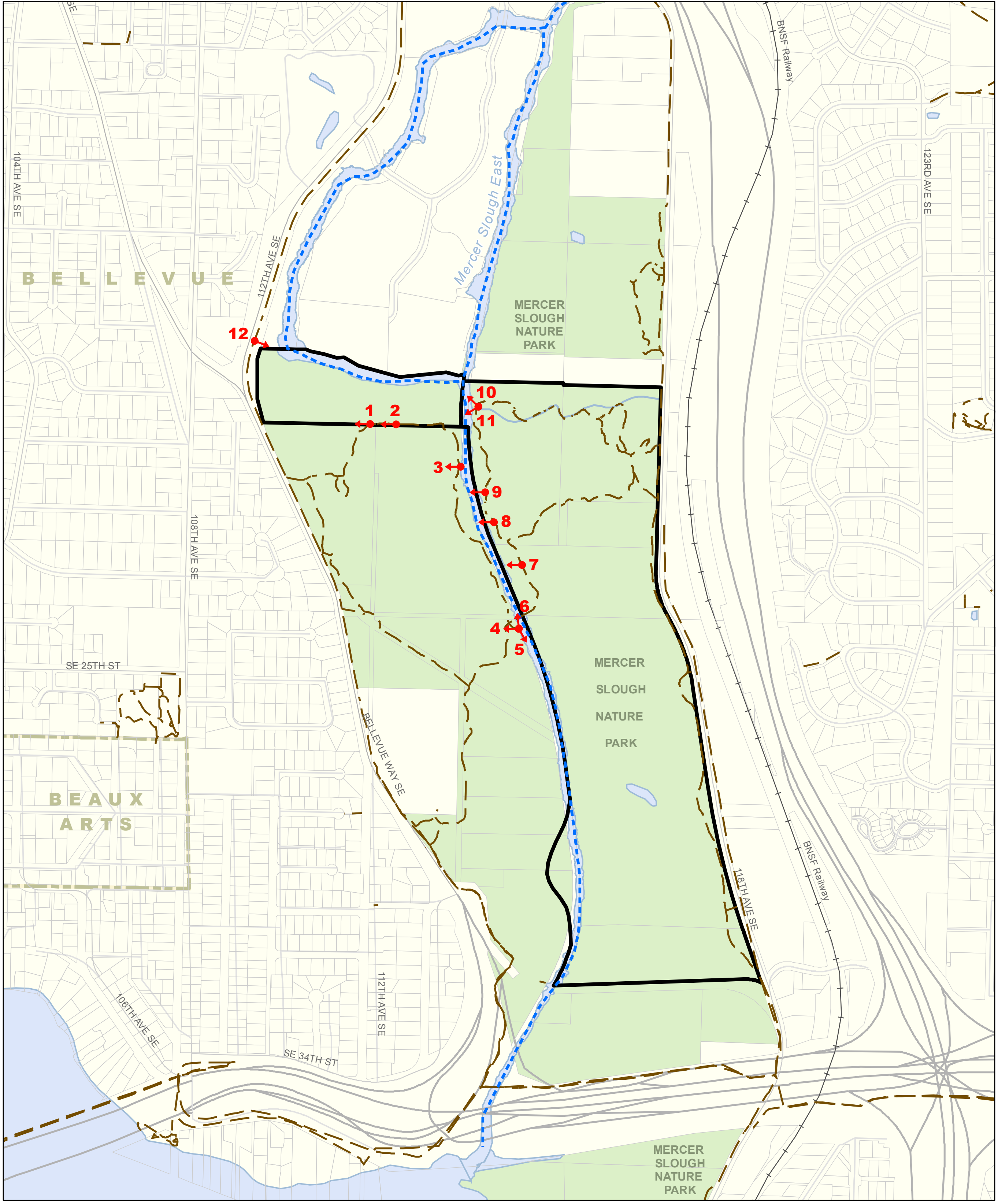
Paul Krueger
Project Environmental Manager

cc: James Irish, Sound Transit
Elma Borbe, Sound Transit
Scott Williams, WSDOT
Kevin Bartoy, WSDOT

JUN 9 2011 PM12:20

Attachment D2

Section 6(f) Photographs


BELLEVUE
BEAUX ARTS
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
Mercer Slough East
BNSF Railway
BNSF Railway
104TH AVE SE
108TH AVE SE
112TH AVE SE
123RD AVE SE
118TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
106TH AVE SE
SE 34TH ST
112TH AVE SE
1
2
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Source: Data from City of Bellevue (2005) and King County (2006).

- ←●2 Photo Location and Direction
- Recreational Water Trail
- Other Trail
- Section 6(f) Boundary
- 🟩 Park

N

0 0.25 Mile

Attachment 2.
Section 6(f) Area
Photo Locations
East Link Project

Photo 1

Photo 2

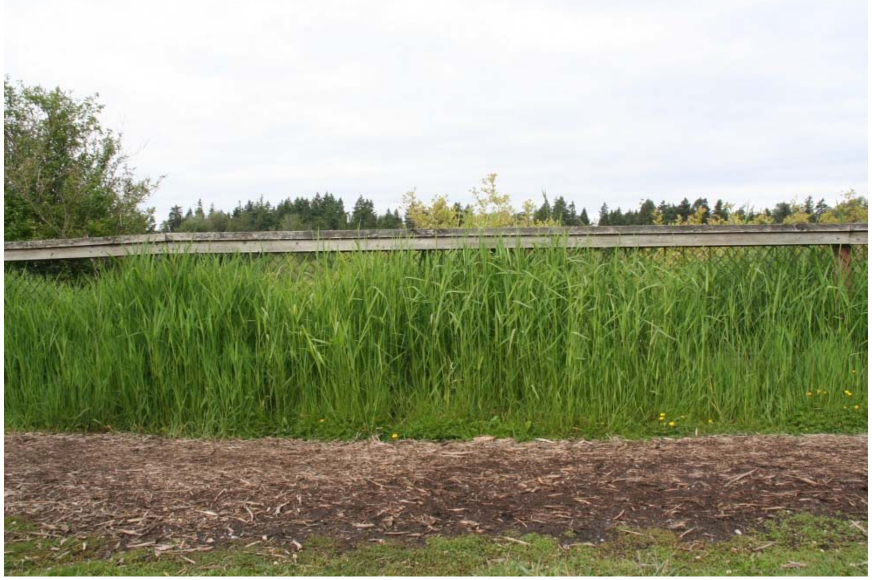

Photo 3. At ground level at water trail.

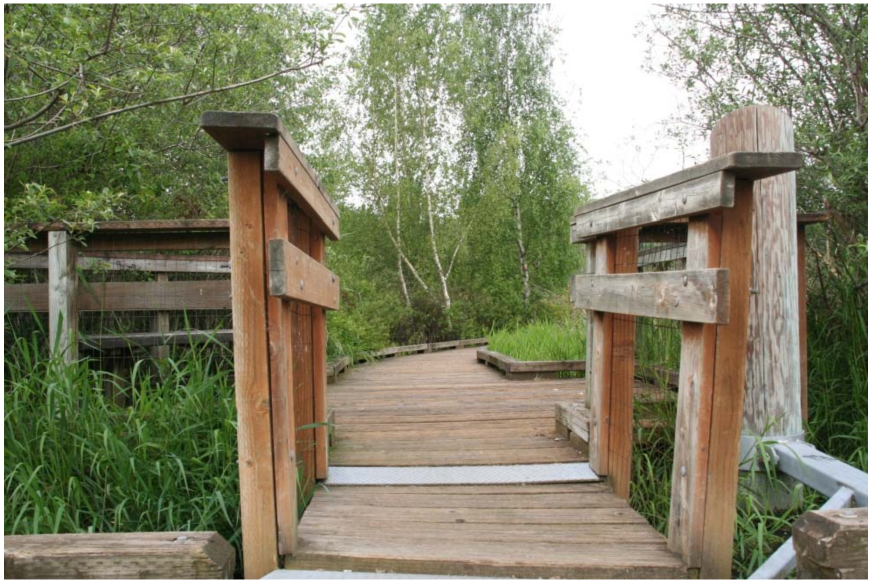

Photo 4. Sitting on dock to simulate view from canoe trail.

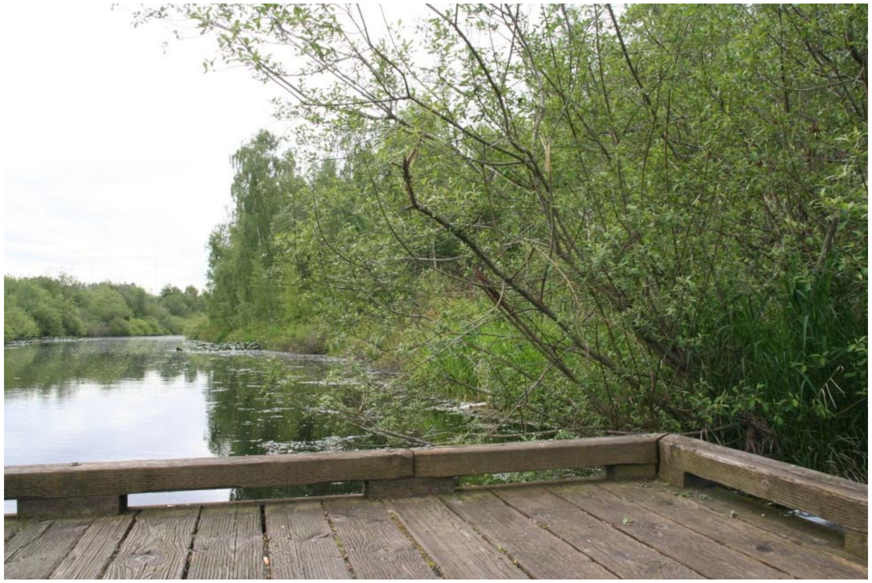

Photo 5. Sitting on dock to simulate view from canoe trail.

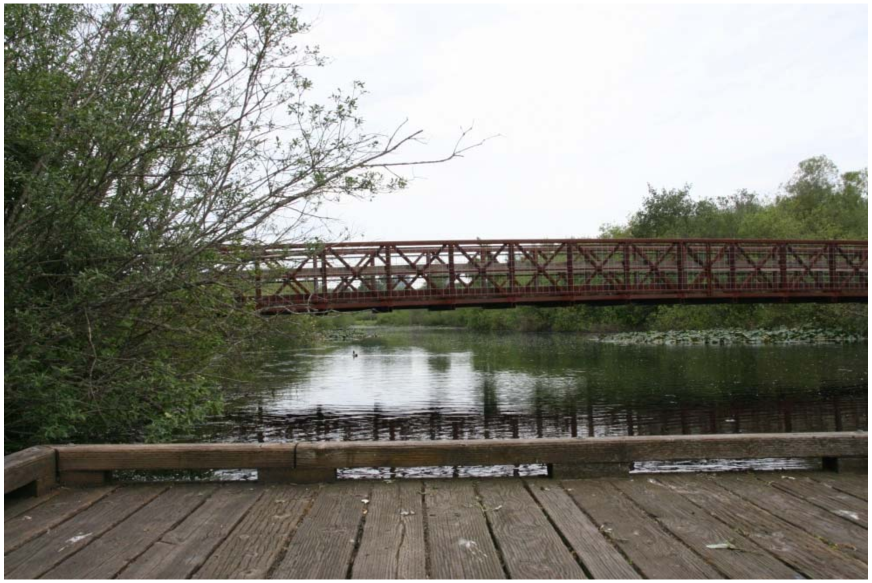

Photo 6. Sitting on dock to simulate view from canoe trail.

Photo 7

Photo 8

Photo 9

Photo 10. Standing on bench.

Photo 11. Sitting at water level.

Photo 12. Canoe trail near intersection of Bellevue Way SE and 112th Avenue SE.

Appendix E

Operating Plan Summary

Appendix E

Operating Plan Summary

This weekday operating plan was used for environmental impact analysis in the Final Environmental Impact Statement (Final EIS) for the East Link Project. By year 2020, East Link is proposed to be constructed from Seattle to an interim terminus, either the Hospital Station in Segment C or another station in Segment D. For year 2030, the service plan was analyzed to operate between Seattle and the Redmond terminus station.

The assumed weekday operating plan in 2020 has the following service patterns:

- Peak periods (6:00 a.m. to 8:30 a.m. and 3:00 p.m. to 6:30 p.m.): three-car trains every 8 minutes.
- Midday (8:30 a.m. to 3:00 p.m.) and early evening (6:30 p.m. to 10:00 p.m.): three-car trains every 12 minutes.
- Early morning (5:00 a.m. to 6:00 a.m.) and late evening (10:00 p.m. to 1:00 a.m.): three-car trains with 15-minute headway.

The assumed Saturday and Sunday operating plan in 2020 is three-car trains with 15-minute headway in the early morning and late evening, and three-car trains with 12-minute headway for the midday period (8:00 a.m. to 10:00 p.m.).

The assumed weekday operating plan in 2030 has the following service patterns:

- Peak periods (6:00 a.m. to 8:30 a.m. and 3:00 p.m. to 6:30 p.m.): three-car trains every 7 minutes.
- Midday (8:30 a.m. to 3:00 p.m.) and early evening (6:30 p.m. to 10:00 p.m.): three-car trains with 10-minute headway.
- Early morning (5:00 a.m. to 6:00 a.m.) and late evening (10:00 p.m. to 1:00 a.m.): three-car trains with 15-minute headway.

The assumed Saturday and Sunday operating plan in 2030 is three-car trains with 15-minute headway in the early morning and late evening, and three-car trains with 10-minute headway for the midday period (8:00 a.m. to 10:00 p.m.).

Table E-1 lists the days and hours when each service pattern would operate. Service would be more specifically tailored to the transition periods (for example, between early morning and peak hour).

TABLE E-1
Assumed East Link Operating Schedule

	From	To	Number of Hours	Service Type
Weekday	5:00 a.m.	6:00 a.m.	1.0	Early/late
	6:00 a.m.	8:30 a.m.	2.5	Peak
	8:30 a.m.	3:00 p.m.	6.5	Base
	3:00 p.m.	6:30 p.m.	3.5	Peak
	6:30 p.m.	10:00 p.m.	3.5	Base
	10:00 p.m.	1:00 a.m.	3.0	Early/late
Saturday	5:00 a.m.	8:00 a.m.	3.0	Early/late
	8:00 a.m.	10:00 p.m.	14.0	Base
	10:00 p.m.	1:00 a.m.	3.0	Early/late
Sunday	6:00 a.m.	8:00 a.m.	2.0	Early/late
	8:00 a.m.	10:00 p.m.	14.0	Base
	10:00 p.m.	12:00 a.m.	2.0	Early/late

Train lengths are based on projected ridership and the following loading standards: maximum vehicle load factors (riders per seat) of approximately one during the midday and early/late service periods and two during peak periods (74 seats per vehicle). Operating schedules and train lengths would be adjusted in response to actual ridership.

Appendix F4.2

Land Use Plans, Goals, and Policies

Appendix F4.2

Land Use Plans, Goals, and Policies

F4.2.1 Introduction

Sound Transit reviewed regional, state, local, and major institution master plans to identify goals and/or policies applicable to the East Link Project. The following sections summarize the applicable plans and discuss the proposed project's consistency with them. Table F4.2-1 at the end of the text provides information on specific goals and policies in the relevant plans, and the consistency of the East Link Project with each of them. The table lists each plan and presents the text of the applicable plan element and any subsections, identifies whether the East Link Project is consistent with the goal or policy, and discusses how the project is consistent. The text addresses specific goals and policies, and there are many policies not listed because they are not applicable and/or relevant to East Link (i.e., the policies address an area outside of the East Link Project study area). The East Link Project would also be required to comply with all permits and approvals from the applicable federal, state, and local agencies prior to construction. The route and station alternatives are substantially consistent with plans and polices in the study area. A maintenance facility could be located at one of these locations in Segment D (MF1, 116th; MF2, BNSF; and MF3, SR 520) or Segment E (MF5, SE Redmond). Under the Bel-Red Subarea Plan current zoning, a maintenance facility would not be permitted in the Bel-Red Corridor area, but the City of Bellevue would work with Sound Transit to determine the need for a maintenance facility and, if required, the siting of the facility. The MF5 is consistent with existing plans and policies for the proposed locations.

F4.2.2 Regional and State Land Use Plans

There are five regional and state planning documents that establish the framework for local land use and transportation plans and programs: the Washington State Growth Management Act (GMA), *VISION 2040/Transportation 2040*, Sound Transit's Regional Transit Long-Range Plan, and the King County Comprehensive Plan. The following subsections provide an overview of each.

F4.2.2.1 Growth Management Act

Plan Summary

The GMA (Revised Code of Washington [RCW] 36.70A), adopted in 1990 to mandate comprehensive planning, provides a comprehensive framework for managing growth and coordinating land use development with the construction of transportation facilities and other infrastructure. Local, county, and regional plans in Washington are required to be consistent with the policies of the GMA. The GMA includes 13 planning goals for managing urban growth, protecting agricultural lands, reducing sprawl, and encouraging multimodal transportation systems. The overall goals of the GMA encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner, and encourage efficient multimodal transportation systems that are based on regional priorities and are coordinated with county and city comprehensive plans.

Affected jurisdictions, including the Cities of Seattle, Mercer Island, Bellevue, and Redmond, keep pace with land development by making public road and transit improvements to help meet the expected transportation demand. The GMA requires local governments to develop and adopt growth management policies, plans, and regulations. Comprehensive plans require elements that address land use, housing, capital facilities, utilities, rural lands (counties only), and transportation. In addition, the transportation element is required to be consistent with the land use element. Coordination of land use and transportation is a key component of the GMA. Cities and counties are also mandated by the GMA to establish a process in their comprehensive plans to make the provision for siting essential public facilities, such as airports, state or regional transportation and transit facilities, solid waste handling facilities, mental health facilities, group homes, and secure community transition facilities.

Project Consistency

The East Link Project alternatives and stations are located within the Cities of Seattle, Mercer Island, Bellevue, and Redmond, and all have adopted comprehensive plans and regulations, which are generally, but not entirely, consistent with the provisions identified in the GMA. The East Link

Project would connect the four cities and their centers of employment and activity and would further the goals of the GMA. In addition, the East Link Project is considered an essential public facility and, as such, under GMA. When Sound Transit's routing decision is final, the Cities have a "duty to accommodate" the light rail project in their land use plans. The East Link Project is consistent with GMA in that it would encourage growth within the urban area, reduce sprawl, and provide a transportation alternative to the single-occupant vehicle (SOV).

F4.2.2.2 VISION 2040

Plan Summary

VISION 2040, adopted in 2008 by the Puget Sound Regional Council (PSRC), serves as the region's integrated long-range growth management strategy for the four-county area the Council serves (King County, Snohomish County, Pierce County, and Kitsap County). It builds from PSRC's *VISION 2020* plan and expands the focus on sustainability in the incorporation of a projected additional 1.7 million people in the Puget Sound region by 2040. It promotes the development of a coordinated transportation system that is integrated with and supported by the growth management strategy and builds upon and supports local, countywide, regional, and state planning efforts. Countywide planning policies in each of the counties supply the local framework and provide additional detail for county and city comprehensive plans. *VISION 2040* strategies and polices are located within six elements: Environment; Development Patterns; Housing; Economy; Transportation; and Public Services.

VISION 2040's focus is to contain growth, concentrate new employment into urban centers, and link the centers with a high-quality multimodal transportation system. This strategy is designed to foster a greater mix of land uses and a more complete and efficient network of streets and other public rights-of way, and to support an urban environment that is more amenable to walking, bicycling, and using transit. *VISION 2040* contains many goals and policies that are applicable to the East Link Project.

Project Consistency

Table F4.2-1 provides information on the goals and policies of *VISION 2040* and how the East Link Project is consistent with these.

F4.2.2.3 Transportation 2040

Plan Summary

Transportation 2040, adopted in May 2010, is the long-range plan for transportation in the central Puget Sound region through the year 2040 and is the transportation element of *VISION 2040*. The transportation-related plans of the cities, counties, transit agencies, and the region form the basis for the *Transportation 2040* plan. The plan looks at the needs of the Central Puget Sound Region and identifies what improvements in transportation are needed in order to meet the anticipated growth. *Transportation 2040* supports a balanced multimodal transportation system that provides options to users, and the plan identifies the specific projects that have been designed to result in improved roads, transit, ferry, aviation, and nonmotorized service.

Project Consistency

The East Link Project is identified in *Transportation 2040* and is a key component in the development of a regional high-capacity system linking urban centers. In addition, the East Link Project would allow for jurisdictions to better implement transit- and pedestrian-oriented land use patterns where current zoning allows for such development to occur.

F4.2.2.4 Sound Transit - Regional Transit Long-Range Plan

Plan Summary

Updated in 2005, Sound Transit's Regional Transit Long-Range Plan represents the goals, polices, and strategies for the long-term development of a high-capacity transit (HCT) system within the Central Puget Sound Region. As the Regional Transit Authority (under Chapters 81.104 and 81.112 RCW), Sound Transit is responsible for regional HCT system planning in the context of *Transportation 2040*. The Long-Range Plan serves as the basis for the next phase of HCT investments, known as The Regional Transit System Plan for Central Puget Sound (ST2). ST2 builds upon Sound Move, the initial implementation phase of the Long-Range Plan, and extends the regional transit network, especially in areas that are now encouraging increases in land use density in their comprehensive plans and development regulations. The East Link Light Rail Transit Project is included in ST2, also known as the Mass Transit Expansion proposal, which was approved by the voters in November 2008.

Project Consistency

East Link is a proposed regional HCT system project that is consistent with the Long-Range Plan.

F4.2.2.5 King County Comprehensive Plan

Plan Summary

The King County Comprehensive Plan was adopted October 2008, and was updated in October 2010. The

King County Countywide Planning Policies (CPPs) set the framework for county and city comprehensive plans. The CPPs address issues that transcend city boundaries, such as setting urban growth areas, accommodating housing and job demand, and addressing capital facilities that are regional in nature, as well as providing a framework to promote consistency among a multitude of city plans.

Goals include reducing urban sprawl, protecting rural areas, providing affordable housing throughout the county, and coordinating protection of environmentally sensitive areas. The CPPs call for urban centers to provide areas of concentrated employment and housing with direct service by high-capacity transit and with a wide range of land uses. In this context, the East Link Project is an important element of the region's growth strategy.

Project Consistency

Table F4.2-1 discusses the goals and policies of the King County CPPs and how the East Link Project is consistent with these.

F4.2.3 Local Land Use Plans and Shoreline Management Plans

F4.2.3.1 City of Seattle Comprehensive Plan

Plan Summary

Seattle's Comprehensive Plan: Towards a Sustainable Seattle, which was first adopted in 1994, had major updates in 2004, and is amended annually, was developed to communicate how Seattle will accommodate residential and employment growth over the next 20 years. The plan consists of 11 elements that each contain goals and policies for guiding growth in Seattle: Urban Village, Land Use, Transportation, Housing, Capital Facilities, Utilities, Economic Development, Neighborhood Planning, Human Development, Cultural Resource, and Environment. Sound Transit reviewed the elements to identify the applicable goals and policies. The only elements with applicable goals and policies were in the Transportation and Neighborhood elements.

Project Consistency

Table F4.2-1 discusses the goals and policies of Seattle's Comprehensive Plan and how the East Link Project is consistent with these.

F4.2.3.2 City of Seattle Neighborhood Planning Element

The East Link Project is located within existing Washington State Department of Transportation (WSDOT) I-90 right-of-way within Seattle and is adjacent to the neighborhoods of International District/Chinatown North Rainer Valley and the Central Area. These neighborhood boundaries are defined by the WSDOT I-90 right-of-way, so the *Preferred I-90 Alternative (A1)* is not formally located within any neighborhood. The project team reviewed the neighborhood plans for consistency; however, there are no goals or policies that relate to transit along or associated with I-90. The plans' primary focus is on the activity centers located toward the center of the neighborhoods and outside of the study area.

F4.2.3.3 Shoreline Master Programs

Jurisdictions are required by the Washington State Department of Ecology (Ecology) to amend their Shoreline Master Programs (SMPs) every 7 years. The goal of the update planning process is to make the SMP a more effective tool for defining and implementing a jurisdiction's vision for the shoreline. The state established a December 2009 deadline for jurisdictions in King County to adopt the updated SMPs; however, many jurisdictions have been given an extension in which to update their SMPs. The update process and policy outcomes must comply with new guidance established by Ecology under the Shoreline Management Act (Washington Administrative Code [WAC] 173-26; RCW 90.58).

Seattle Shoreline Master Program

Seattle amended Seattle Municipal Code 23.60 (Shoreline District) to adopt changes pertaining to light rail development in the Shoreline District in recent years. In addition, Seattle Municipal Code 23.42 (General Use Provisions) and 23.80 (Essential Public Facilities) were also updated. Updates to the SMP include the following:

- Light rail transit facilities are allowed in all shoreline environments.
- Light rail bridges and tunnels are considered water-dependent uses.
- Shoreline substantial development permits only pertain to the portions of a linear transportation system (i.e., light rail) within the shoreline area rather than the entire project.
- Intermittent and temporary construction uses for light rail construction may be allowed in the shoreline district.

Redmond Shoreline Master Program

The City of Redmond adopted a new Shoreline Master Program by Ordinance 2410 in August 2008. The new SMP is contained in Redmond Municipal Code

20D.150 (Shoreline Master Program) and includes many changes to accommodate the regional light rail system in the Shoreline District. Updates to the SMP include the following:

- A new definition of Regional Light Rail Transit System was added.
- Light rail transit facilities are allowed in all shoreline environments in which Sound Transit would potentially need to locate its regional light rail system.
- Regional light rail transit systems are allowed as in-water structures.
- Light rail bridges are a permitted use in all shoreline buffers.
- New and replacement protective structures for regional light rail facilities are allowed in shorelines.

The SMP identifies the placement of essential transportation facilities waterward of the ordinary high water mark where no feasible alternative exists and any fish impacts are mitigated.

King County Shoreline Master Program

King County adopted a new SMP by Ordinance 16985 in December 2010. The new SMP adds development regulations for shoreline zones into Title 21A of the King County Code. These new regulations include changes to accommodate light rail in the Shoreline District. Updates to the SMP include the following:

- A new definition of Regional Light Rail Transit System was added.
- Light rail transit facilities are allowed in all shoreline environments.
- Light rail transit support structures are allowed to exceed height restrictions.
- Alterations to critical areas are allowed for light rail transit.

Shoreline Master Programs for Mercer Island and Bellevue

The Cities of Mercer Island and Bellevue are currently updating their SMPs in conformance with the requirement of Ecology. When updated, the SMPs are likely to include updates related to light rail corridors within the shoreline jurisdiction, including text similar to that adopted by Seattle and Redmond. Sound Transit is actively working with each of the jurisdictions on their SMPs to ensure that shoreline policies and regulations pertaining to regional light rail transit are consistent between jurisdictions.

Project Consistency

When the code updates have been adopted, any alternatives within the shoreline environment would be consistent with the applicable jurisdiction’s SMP. The East Link Project would need to comply with permit requirements for any work within the shoreline environment.

F4.2.3.4 Comprehensive Plan of the City of Mercer Island

Plan Summary

The *Comprehensive Plan of the City of Mercer Island* was adopted in 1994 and last updated in 2004. The comprehensive plan is used to reinforce the long-term goal of maintaining a single-family community within a unique physical setting and focusing growth and revitalizing the Town Center. The comprehensive plan is divided into five elements: Land Use, Housing, Transportation, Utilities, and Capital Facilities.

Project Consistency

Table F4.2-1 discusses the goals and policies of the City of Mercer Island’s Comprehensive Plan and how the East Link Project is consistent with those.

The City Council of Mercer Island also adopted design principles for Mercer Island Town Center Light Rail in 2008. Twelve principles identify what should be included in the design of the station and the immediate area around the station. These principles address what design should incorporate regarding aesthetics, Crime Prevention through Environmental Design (CPTED), energy efficiency, and wayfinding.

F4.2.3.5 City of Bellevue Comprehensive Plan

Plan Summary

Originally adopted in 1993, the *City of Bellevue Comprehensive Plan* was updated in 2006. The plan is a broad statement of community goals and policies divided into 12 elements that direct the orderly and coordinated physical development of the city into the future. Elements with goals and policies related to the East Link Project include Land Use, Transportation, Capital Facilities, Urban Design, and Environmental.

Consistency

Table F4.2-1 discusses the goals and policies of the City of Bellevue’s Comprehensive Plan and how the East Link Project is consistent with those.

While East Link is generally consistent with the city's comprehensive plan and subarea plans, there are certain inconsistencies with local zoning. For example, in the City of Bellevue Land Use Code, “light rail transit facilities” are not defined and are not called out as a permissible use in any zone; "rail transportation" is allowed as a conditional use in all zones except the downtown zones, where it is expressly not allowed as either a permitted or conditional use; a maintenance facility may not be allowed in the Bel-Red Corridor. When Sound Transit has selected the East Link Project to be built, the City will need to either amend their comprehensive plan and subarea plans, or waive any inconsistencies to accommodate light rail as an essential public facility.

F4.2.3.6 City of Bellevue Subarea Plans

Plan Summary

Bellevue is divided into 14 subareas, each with its own subarea plan and with specific goals and policies developed with citizen participation to help maintain the unique characteristics and quality of life for the subarea residents. Subareas with boundaries that overlap or that the East Link Project alternatives would travel through include Southwest Bellevue, Richards Valley, Downtown, Wilburton/NE 8th, and Bel-Red/Northup.

The City of Bellevue adopted new policies, land use designations, and zoning through amendments to the City of Bellevue's Comprehensive Plan, the Bel-Red/Northup Subarea Plan, and made changes to the maps for the Crossroads Subarea Plan and the Wilburton/NE 8th Subarea Plan.

Project Consistency

Southwest Bellevue/Richards Valley/Wilburton/NE 8th Subarea Plan

Table F4.2-1 discusses the goals and policies of these primarily residential neighborhood areas and how the East Link Project is consistent with the applicable goals and policies.

Downtown Subarea Plan

The portions of the Downtown Subarea Plan that address the East Link Project include emphasis on mixed-use and pedestrian-oriented development patterns. The East Link Project is consistent with and will help realize the goals of the Downtown Subarea Plan.

Bel-Red Subarea Plan

City of Bellevue adopted the Bel-Red Subarea Plan in February 2009 and amended their comprehensive plan to incorporate these changes.

With the amendments in place, the Bel-Red Subarea would accommodate approximately 4.5 million square feet of commercial and office space and 5,000 residential units. A Washington State Environmental Policy Act environmental impact statement (EIS) was completed to evaluate the impacts of adopting new policies, land use designations, and zoning. The EIS identifies the City of Bellevue's preferred Bel-Red alternative route for light rail traveling through the middle of the corridor.

The East Link Project would allow Bellevue to develop and implement the desired densities and land uses within the Bel-Red area and would be consistent with the regional policies of encouraging growth in urban centers along multimodal transportation corridors. However, the SR 520 Alternative (D5), although consistent with many of the plans and policies, would not allow the opportunity to fully implement the adopted policies for the Bel-Red neighborhood regarding development at the nodes identified in the plan. In addition, depending on where the initial East Link terminus would be, a maintenance facility may be required in Bellevue. Under current zoning, a maintenance facility is considered a conditional use in the Bel-Red Corridor area. City of Bellevue included language per S- B-70 that the City would work with Sound Transit on the location of a maintenance facility if sited in this area.

F4.2.3.7 Eastside Transportation Program

Plan Summary

In addition to the subarea plans, Bellevue adopted the Eastside Transportation Program in order to address transportation issues on the east side of Lake Washington. Besides Bellevue, other participants include the Cities of Bothell, Issaquah, Kirkland, and Redmond; King County, WSDOT; the Puget Sound Council of Governments; King County Metro; and members of the private sector.

Project Consistency

Table F4.2-1 discusses the goals and policies of the Eastside Transportation Program and how the East Link Project is consistent with these.

F4.2.3.8 Bellevue Light Rail Best Practices

The City of Bellevue has developed light rail best practices for the implementation of light rail. The report, *Bellevue Light Rail Best Practices* (Bellevue 2008), was finalized in 2008, cross-references policies from the comprehensive plan that are identified in this appendix. The report was developed by the Light Rail Best Practices Committee, which was comprised of 10 members representing four City boards and commissions and the Bellevue City Council. The committee identified research issues, reviewed national practices for light rail and case studies, and took into consideration public input in the development of the report, but did not develop any conclusions about light rail routes or alternatives.

The report contains information on findings from the reviews and case studies; best practices, which includes the processes, methods, and activities; and five categories of recommended actions, which include Comprehensive Plan Policies, Codes and Standards, Other City Policies/Procedures, City Capital Investments, and Expectations of Sound Transit.

The committee identified five guiding principles that should serve during the development of the light rail project. They also identified nine topic areas to guide the implementation of light rail in Bellevue, including Community and Neighborhoods; Community Involvement; Connecting People to Light Rail; Land Use; Street Design and Operations; Elevated, At-Grade, and Tunnel; Property Values; Station Security; and Construction Impacts and Mitigation. The nine topics include information on the findings, best practices, and actions described above.

F4.2.3.9 Overlake Hospital Medical Center

Plan Summary

The 2005 Master Development Plan Amendment, prepared in January 2005, amends the 2000 Overlake Hospital Master Development Plan. In 2005, in order to allow the Overlake Hospital to expand to accommodate the changing needs of health care, the City of Bellevue amended the land use codes to allow for the required changes. The amendments provide for a greater density of development than was previously allowed.

Project Consistency

Stations located close to the Overlake Hospital Medical Center would provide nonauto-oriented access to the Overlake facility, the Group Health Medical Center, Seattle Children's Hospital in Bellevue, and the medical offices located nearby.

F4.2.3.10 City of Redmond Comprehensive Plan

Plan Summary

The *Redmond Comprehensive Plan*, originally adopted in 1995, was updated in 2004/2005. The plan sets out the policies to reflect community values and guide decisions about growth and change and is the policy portion of the Community Development Guide. It is a statement of the City of Redmond's goals for the future and how these goals will be achieved. The plan consists of 15 elements that support the vision of the city. Elements related to the East Link Project include Land Use, Transportation, and Neighborhoods.

Project Consistency

Table F4.2-1 discusses the goals and policies of Redmond's Comprehensive Plan and how the East Link Project is consistent with those.

F4.2.3.11 City of Redmond Neighborhood Planning Element

Plan Summary

In addition to Redmond's Comprehensive Plan, neighborhoods within Redmond have developed neighborhood plans with their own set of goals and policies. The East Link Project includes alternatives that would travel through, and have stations located within, the Overlake, Southeast Redmond, Grass Lawn, and Downtown Redmond neighborhoods. Redmond recently adopted changes related to the Overlake neighborhood to promote transit-oriented development supported by light rail.

Project Consistency

Table F4.2-1 discusses the goals and policies of Redmond's neighborhood plans and how the East Link Project is consistent with these.

TABLE F4.2-1
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
VISION 2040	
DEVELOPMENT PATTERNS	
Goal: The region will direct growth and development to a limited number of designated regional growth centers. **MPP-DP-5** Focus a significant share of population and employment growth in designated regional growth centers. **MPP-DP-6** Provide a regional framework for designating and evaluating regional growth centers. **MPP-DP-7** Give funding priority – both for transportation infrastructure and for economic development – to support designated regional growth centers consistent with the regional vision. Regional funds are prioritized to regional growth centers. County-level and local funding are also appropriate to prioritize to regional growth centers. **MPP-DP-35** Develop high-quality, compact urban communities throughout the region's urban growth area that impart a sense of place, preserve local character, provide for mixed uses and choices in housing types, and encourage walking, bicycling, and transit use.	The East Link Project would promote mixed-use (commercial, office, and residential) development to allow growth at greater density where existing land use policies and regulations allow, and provide connections to urban centers with a fast, efficient, and reliable transit system.
Goal: Subregional centers, such as those designated through countywide processes or identified locally, will also play important roles in accommodating planned growth according to the regional vision. These centers will promote pedestrian connections and support transit-oriented uses. **MPP-DP-14** Preserve and enhance existing neighborhoods and create vibrant, sustainable compact urban communities that provide diverse choices in housing types, a high degree of connectivity in the street network to accommodate walking, bicycling and transit use, and sufficient public spaces. **MPP-DP-17** Promote transit service to and from existing cities in rural areas.	The East Link Project would act as a catalyst for mixed-use development (commercial, office, and residential) in designated urban growth areas and would focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. The East Link Project would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities as well as regional destinations. Linking the urban centers with fast, reliable, and efficient transit increases the effectiveness of distribution bus transit to outer areas of the Puget Sound.
Goal: The region will permanently sustain the ecological functions, resource value, lifestyle, and character of rural lands for future generations by limiting the types and intensities of development in rural areas. **MPP-DP-21** Contribute to improved ecological functions and more appropriate use of rural lands by minimizing impacts through innovative and environmentally sensitive land use management and development practices. **MPP-DP-22** Do not allow urban net densities in rural and resource areas.	The East Link Project would promote mixed-use (commercial, office, and residential) development to allow growth at greater density where existing land use policies and regulations allow, and provide connections to urban centers with a fast, efficient, and reliable transit system, which prevent the need for growth in nonurban areas. Increasing density in these areas will lessen demand on rural areas and allow them to be preserved for these preferred values.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Goal: The region will use design to shape the physical environment in order to create more livable communities, better integrate land use and transportation systems, and improve efforts to restore the environment. **MPP-DP-35** Develop high-quality, compact urban communities throughout the region's urban growth area that impart a sense of place, preserve local character, provide for mixed uses and choices in housing types, and encourage walking, bicycling, and transit use. **MPP-DP-36** Provide a wide range of building and community types to serve the needs of a diverse population. **MPP-DP-40** Design transportation projects and other infrastructure to achieve community development objectives and improve communities. **MPP-DP-42** Recognize and work with linear systems that cross jurisdictional boundaries – including natural systems, continuous land use patterns, and transportation and infrastructure systems – in community planning, development, and design.	The East Link Project would provide a fast, efficient, and reliable transportation system that would provide an alternative to the SOVand would also provide linkages to other travel modes, including rail, buses, and walking. Efficiencies in transportation and more walkable communities are shown to improve people’s quality of life.
TRANSPORTATION	
Goal: As a high priority, the region will maintain, preserve, and operate its existing transportation system in a safe and usable state. (MPP-T-1 through MPP-T-8). **MPP-T-1** Maintain and operate transportation systems to provide safe, efficient, and reliable movement of people. **MPP-T-3** Reduce the need for new capital improvements through investments in operations, pricing programs, demand management strategies, and system management activities that improve the efficiency of the current system, goods, and services. **MPP-T-5** Foster a less polluting system that reduces the negative effects of transportation infrastructure and operation on the climate and natural environment. **MPP-T-6** Seek the development and implementation of transportation modes and technologies that are energy efficient and improve system performance.	The East Link Project would be a fast, efficient, and reliable transportation system that would provide an alternative to the SOV and would also provide linkages to other travel modes, including rail, buses, and walking. East Link would provide connections among urban centers, which would reduce the need to expand other transportation facilities. Overall, less infrastructure development would be needed with this higher-density development. The East Link Project would reduce air pollution and conserve energy. Many of the stations would be located in areas designated for increased density, and East Link would provide direct and frequent access to other centers in the project corridor, as well as providing connections to regional destinations.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Goal: The future transportation system will support the regional growth strategy by focusing on connecting centers with a highly efficient multimodal transportation network. (MPP-T-9 through 22) **MPP-T-9** Coordinate state, regional, and local planning efforts for transportation through the Puget Sound Regional Council to develop and operate a highly efficient, multimodal system that supports the regional growth strategy. **MPP-T-10** Promote coordination among transportation providers and local governments to ensure that joint- and mixed-use developments are designed in a way that improves overall mobility and accessibility to and within such development. **MPP-T-11** Prioritize investments in transportation facilities and services in the urban growth area that support compact, pedestrian- and transit-oriented densities and development. **MPP-T-12** Give regional funding priority to transportation improvements that serve regional growth centers and regional manufacturing and industrial centers. **MPP-T-13** Make transportation investments that improve economic and living conditions so that industries and skilled workers continue to be retained and attracted to the region. Context and Design **MPP-T-20** Design transportation facilities to fit within the context of the built or natural environments in which they are located. **MPP-T-21** Apply urban design principles in transportation programs and projects for regional growth centers and high capacity transit station areas. **MPP-T-22** Implement transportation programs and projects in ways that prevent or minimize negative impacts to low income, minority, and special needs populations.	The East Link Project would act as a catalyst for mixed-use development (commercial, office, and residential) in designated urban growth areas and would focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, allowing for efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. The East Link Project would be fast, efficient, and reliable transportation system that would provide an alternative to the SOV and would also provide linkages to other travel modes including rail, buses, and walking. East Link would provide connections among urban centers on the Eastside as well as those in adjacent communities served by the Central and North links.
Goal: The region will invest in transportation systems that offer greater options, mobility, and access in support of the regional growth strategy. **MPP-T-23** Emphasize transportation investments that provide and encourage alternatives to SOV travel and increase travel options, especially to and within centers and along corridors connecting centers. **MPP-T-24** Increase the proportion of trips made by transportation modes that are alternatives to driving alone. **MPP-T-25** Ensure mobility choices for people with special transportation needs, including persons with disabilities, the elderly, the young, and low-income populations. **MPP-T-26** Strategically expand capacity and increase efficiency of the transportation system to move goods, services, and people to and within the urban growth area. Focus on investments that produce the greatest net benefits to people and minimize the environmental impacts of transportation. **MPP-T-29** Promote the preservation of existing rights-of-way for future high-capacity transit.	The East Link Project would provide a transportation alternative to SOV for persons, including those with special needs. The East Link Project would efficiently move large numbers of people, increase the capacity of existing facilities, and promote more walkable and cohesive neighborhoods. East Link would provide connections to the other urban centers in the corridor, as well as regional destinations. After completion of the environmental review process, Sound Transit will be able to preserve right-of-way for future light rail service.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	**Discussion**
ENVIRONMENT	
Goal: The overall quality of the region's air will be better than it is today. **MPP-En-17** Maintain or do better than existing standards for carbon monoxide, ozone, and particulates. **MPP-En-18** Reduce levels for air toxics, fine particulates, and greenhouse gases. **MPP-En-19** Continue efforts to reduce pollutants from transportation activities, including through the use of cleaner fuels and vehicles and increasing alternatives to driving alone, as well as design and land use.	The East Link Project would further regional polices related to reducing dependence on SOVs and increasing nonmotorized travel modes, especially within urban centers. The East Link Project would reduce air pollution and conserve energy. Many of the stations would be located in areas designated for increased density, and East Link would provide direct and frequent access to other centers in the project corridor, as well as connections to regional destinations. Promoting transit and walkable communities would reduce vehicle miles and hours traveled and therefore would reduce air pollution.
Goal: The region will reduce its overall production of harmful elements that contribute to climate change. **MPP-En-20** Address the central Puget Sound region's contribution to climate change by, at a minimum, committing to comply with state initiatives and directives regarding climate change and the reduction of greenhouse gases. Jurisdictions and agencies should work to include an analysis of climate change impacts when conducting an environmental review process under the State Environmental Policy Act. **MPP-En-21** Reduce the rate of energy use per capita, both in building use and in transportation activities. **MPP-En-22** Pursue the development of energy management technology as part of meeting the region’s energy needs. **MPP-En-23** Reduce greenhouse gases by expanding the use of conservation and alternative energy sources and by reducing vehicle miles traveled by increasing alternatives to driving alone.	See the above goal. East Link would be powered by electricity. In the Puget Sound region and areas where East Link would be served, much of the power sources come from hydropower, a nonpolluting power source. The East Link Project would reduce greenhouse gases during operation by reducing vehicle miles and hours traveled. The East Link Project would further regional polices related to reducing dependence on SOVs and increasing nonmotorized travel modes, especially within urban centers
King County Countywide Planning Policies	
URBAN COMMUNITIES ELEMENT	
U-108: King County supports land use and zoning actions that promote public health by increasing opportunities for every resident to be more physically active. Land use and zoning actions include: concentrating growth into the urban area, promoting urban centers, allowing mixed-use developments, and adding pedestrian linkages.	The East Link Project would act as a catalyst for TOD where jurisdictions want it to occur within neighborhoods in Bellevue and Redmond, specifically the Bel-Red and Overlake Village neighborhoods.
U-109: King County supports the development of urban centers to meet the region's needs for housing, jobs, services, culture, and recreation, and to promote health. Strategies may include exploring opportunities for joint development or transit-oriented development, siting civic uses in mixed-use areas, and leveraging or utilizing existing county assets in urban centers.	The East Link Project would provide the opportunity for TOD within designated urban centers.
Environment	
E-305: King County should reduce automobile-related pollutant emissions through initiatives such as: a. Increased transit services, options, and alternatives; b. Ridesharing; and c. Innovative pricing programs to capture the true cost of driving.	The East Link Project would promote a reduction in automobile use by introducing a new transit alternative that could improve air quality and conserve energy.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Transportation	
T-106: King County and local cities should adopt transit-supportive road design standards, site access guidelines, and land use regulations to promote transit use, high-density development, mixed uses, and reduced parking in the Urban Growth Area. Site design should stress connectivity with adjacent neighborhoods and other land uses via transit, pedestrian and other nonmotorized facilities.	The East Link Project would provide the opportunity for TOD within designated urban centers. Jurisdictions in the East Link study area have identified areas for higher densities and a mix of uses.
T-302: King County should support local and regional growth management plans and policies. King County should work with other jurisdictions to focus new and existing services and facilities to support targeted land use concentrations identified in local comprehensive and regional plans and within the urban growth area of King County.	The East Link Project would encourage development to occur at greater densities in those areas identified in the local plans, all of which are located with the urban growth area of King County.
T-304: HCT facilities and services that are consistent with, and supportive of, the comprehensive plan should be supported and implemented.	The East Link Project is consistent and supportive of comprehensive plans for the cities in which the project would be located.
City of Seattle Comprehensive Plan	
LAND USE ELEMENT	
LU12: Promote a residential development pattern consistent with the urban village strategy, with increased availability of housing at densities that promote walking and transit use near employment concentrations, residential services, and amenities.	The Rainier Station location complements the multifamily residential development pattern by promoting walking and transit use.
TRANSPORTATION ELEMENT	
Increasing Transportation Choices	
TG8: Meet the current and future mobility needs of residents, businesses, and visitors with a balanced transportation system.	The East Link Project would provide an alternative to SOV travel and maintain mobility and provide fast, efficient, and reliable connections to urban centers. East Link also would encourage increased density and a mixture of land uses, which promotes transit and more walkable communities.
TG9: Provide programs and services to promote transit, bicycling, walking, and carpooling to help reduce car use and SOV trips.	Same as above.
Making Transit a Real Choice	
TG14: Increase transit ridership, and thereby reduce use of SOVs to reduce environmental degradation and the societal costs associated with their use.	The East Link Project would provide an alternative means of transportation over the SOV and would improve air quality and conserve energy.
T20: Work with transit providers to provide transit service that is fast, frequent, and reliable between urban centers and urban villages and that is accessible to most of the city's residences and businesses. Pursue strategies that make transit safe, secure, comfortable, and affordable.	The East Link Project would be designed to maximize safety, as well as provide fast and reliable transit access between urban centers and regional destinations.
T21: Support development of an integrated, regional HCT system that links urban centers within the city and the region.	The East Link Project would connect with the Central Link and North Link projects, providing links to urban centers and regional destinations.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Improving the Environment	
TG22: Reduce or mitigate air, water, and noise pollution from motor vehicles.	The East Link Project would reduce air, water, and noise pollution from motor vehicles by providing people with another mode of travel over SOVs.
Connecting to the Region	
TG24: Actively engage other agencies to assure that regional projects and programs affecting the city are consistent with City plans, policies, and priorities.	Sound Transit would coordinate and work with the City to make the East Link Project consistent.
T58: Coordinate with regional, state, and federal agencies, local governments, and transit providers when planning and operating transportation facilities and services in order to promote regional mobility for people and goods and the urban center approach to growth management.	Sound Transit would coordinate and work with the City to make the East Link Project consistent.
Neighborhood Planning	
CA-P14: Facilitate access to employment centers for Central Area residents who use public transit. Maintain efficiency of direct transit service to downtown, improve north-south transit service to regional job centers, and improve access to Eastside transit service.	East Link light rail would provide direct transit service to downtown and provide connections to regional job centers as well as improve access across Lake Washington to the Eastside cities.
City of Mercer Island Comprehensive Plan	
LAND USE ELEMENT	
1.1: A mixed-use core should be located adjacent to a regional transit facility and be of sufficient size and intensity to create a focus for Mercer Island.	The East Link Project includes a station adjacent to the mixed-use Town Center and provides connections to regional destinations.
1.2: To create opportunities for housing, multimodal transportation, and development consistent with the city's share of regional needs.	The East Link Project would provide a transportation mode that promotes increased density and allows Mercer Island to more effectively meet regional needs.
TRANSPORTATION ELEMENT	
4.1 The City of Mercer Island will continue to work with King County Metro during the update of its Six-Year Plan; the City will also work with Sound Transit and other transit providers during the creation and amendment of their long-range system plans to develop adequate transit services to meet the needs of the Island, including: • Maintain and encourage public transit service on the Island; • Provide convenient transit connections to regional activity centers, including the Seattle Central Business District, Bellevue, the University of Washington and other centers; • Convenient transit service for travel on Mercer Island; and • Potential new services including demand-responsive transit for the general public, subscription bus, custom bus services, or school buses on a space available basis.	The East Link Project would provide a fast, efficient, and reliable mode of transit connecting urban centers and providing connections to regional activity centers.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
8.1: The I-90 Memorandum of Agreement was amended in 2004. Any future modification to such access for Mercer Island traffic must comply with the terms and conditions of the MOA, as amended, and must properly mitigate the impacts of any reduction in Mercer Island traffic mobility and capacity, as set forth in Resolution 1337.	Policy 8.1 refers to the MA I-90 of 1976 (Amended in 2004), which directs the agencies (King County, City of Bellevue, City of Seattle, City of Mercer Island, Washington State Transportation Commission, and Sound Transit) to provide HCT in the center lanes of I-90 between Bellevue and Seattle as quickly as possible. East Link would provide a fast, efficient, and reliable mode of transit connecting these two urban centers.
8.3: The City of Mercer Island will work with King County Metro and Sound Transit to ensure adequate levels of transit service linking Mercer Island to the rest of the region.	Sound Transit has been communicating and working with the City of Mercer Island and will continue to do so throughout the process.
City of Bellevue Comprehensive Plan	
LAND USE ELEMENT	
Goal: To develop and maintain a land use pattern that: • Protects natural systems and helps realize the vision of a “City in a Park;” • Maintains and strengthens the vitality, quality, and character of Bellevue’s residential neighborhoods; • Supports the downtown urban center and a variety of other commercial areas serving the city and the larger region; • Supports and is supported by a variety of mobility options; • Is aesthetically pleasing; and • Makes efficient use of urban land.	One element of this goal requires that the vitality, quality, and character of Bellevue’s residential neighborhoods be maintained and strengthened; this element, however, cannot be read in isolation to the exclusion of supporting the downtown urban center, supporting a variety of mobility options, and achieving other elements of the goal. The East Link Project would promote mixed-use development in designated urban growth areas and focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods and protecting those areas where growth is not encouraged. East Link would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as regional destinations.
Growth Management	
LU-3: Accommodate growth targets of 10,117 additional households and 40,000 additional jobs for the 2001- 2022 period. These targets represent the city’s commitment to develop the zoning and infrastructure to accommodate this level of growth; they are not a commitment that the market will deliver these numbers.	The East Link Project would support more intensive development to accommodate the level of growth in areas where stations are located and where zoning allows for such development to occur.
Land Use Compatibility	
LU–9: Maintain compatible use and design with the surrounding built environment when considering new development or redevelopment within an already developed area.	The East Link Project would be located within or adjacent to existing transportation corridors and not bisect any neighborhoods. The East Link Project would act as a catalyst for growth in those areas where the city has targeted growth and would not change zoning and maintain compatibility with surrounding uses. Design of the stations would include context-sensitive design.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Other Citywide Policies	
LU-15: Encourage dedication of open space and preservation and restoration of trees and vegetation to perpetuate Bellevue's park-like setting and enhance the city's natural environment	The East Link Project would minimize the impacts and would mitigate for any impacts. Where trees and vegetation are removed, native plants and trees would be included as mitigation where applicable.
LU-16: Promote a variety of techniques to preserve open space and key natural features, such as sensitive site planning, conservation easements, and open space taxation.	The East Link Project would minimize the impacts and would mitigate for any impacts in sensitive areas or open spaces and in some areas would result in the removal or invasive species and restoration, including replanting with native plants.
Residential/ Neighborhood Areas	
LU-19: Maintain stability and improve the vitality of residential neighborhoods through adherence to, and enforcement of, the city's land use regulations	The East Link Project alternatives would travel along the boundaries of residential neighborhoods but would not bisect residential neighborhoods. Some project alternatives would acquire residential properties and/or have other potential operational or construction impacts along the edge of residential neighborhoods in Segments B and C. These impacts can be mitigated or minimized and would not result in adverse impacts on the overall quality or cohesion of these residential neighborhoods. Light rail stations near residential neighborhoods would provide a benefit to these areas in terms of improved access to transit.
LU-22: Protect residential areas from the impacts of nonresidential uses of a scale not appropriate to the neighborhood.	Same as above.
Other Commercial Areas	
LU-28: Support Downtown's development as an Urban Center, maintaining it as the financial, retail, and business hub of the Eastside.	The East Link Project would act as a catalyst for development where growth is targeted, including Downtown Bellevue. All Segment C alternatives include a station at or near the existing Bellevue Transit Center. Alternatives C7E and C14E include stations farther east and therefore may not be as consistent as the other alternatives.
TRANSPORTATION ELEMENT	
Goal: To maintain and enhance mobility for residents and businesses through the creation and maintenance of a balanced system of transportation alternatives that: • Provides a wide range of travel choices; • Supports the land use vision of the city; • Protects our neighborhoods from adverse transportation impacts; • Reflects the regional role of the city in transportation issues; and • Reduces the overall dependency on automobiles throughout the city.	The East Link Project would reduce dependency on the automobile by providing a fast, efficient, and reliable mode of transit with linkages to other modes, and also support development in those areas targeted for growth. East Link also supports the land use vision for Bellevue, including the downtown neighborhood. Alternative D5 does not include any stations in the Bel-Red Subarea and would not be as consistent with the goal of supporting the land use vision of the city.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Transportation and Land Use	
Goals: 1. To implement a fully multimodal transportation system that supports the land use vision of the Comprehensive Plan and the role of Downtown Bellevue as the Eastside urban center. 2. To reduce the use of SOVs by creating a land use pattern that allows for shorter vehicular trips and the use of alternative travel options.	Same as above.
TR-1: Integrate land use and transportation decisions to ensure that the transportation system supports the Comprehensive Plan Land Use vision.	Same as above.
TR-2: Work actively and cooperatively with other Eastside jurisdictions and regional and state agencies to plan, design, fund and construct regional transportation projects that carry out the city's transportation and land use goals.	Sound Transit has been working and will continue to work with the jurisdictions along the East Link Project corridor as well as regional and state agencies to address transportation and land use goals.
TR-3: Support the Urban Centers growth strategy of the Countywide Planning Policies by directing growth to Urban Centers and the areas with existing infrastructure capacity.	The East Link Project would act as a catalyst towards growth around the stations in the Urban Centers, where zoning is in place to accommodate this growth, including Downtown Bellevue. Alternatives C7E and C14E would be somewhat less consistent because the Bellevue Transit Center Station is located farther east away from the downtown core.
TR-4: Ensure that downtown Bellevue, the major urban center of the Eastside, includes the following: 1. Intensity/density of land uses sufficient to support HCT; 2. Mixed uses for both day and night activities; 3. Pedestrian emphasis; and 4. Alternatives to SOVs.	The East Link Project would provide an alternative to SOVs and support the increased density currently existing and that planned for construction. The increased density with the addition of light rail promotes a more walkable neighborhood. Alternatives C7E and C14E would be somewhat less consistent because the Bellevue Transit Center Station is located farther east away from the downtown core.
TR-8: Incorporate transit-supportive and pedestrian-friendly design features in new development through the development review process.	The East Link Project supports TOD in station areas that allow for increased density and would also increase the walkability of the surrounding area.
Mobility Management	
Goals: 1. To provide multiple travel options for transit users, pedestrians, bicyclists, and rideshare users, as well as the drivers of private vehicles. 2. To ensure that all members of the community, including those transportation disadvantaged, have viable travel options.	The East Link Project would provide a fast, efficient, and reliable mode of transit that would provide linkages to other transit options and would be designed to provide all members of the communities with access to the stations and trains.
TR-26: Address the special needs of citizens with various degrees of mobility in planning, designing, implementing and maintaining transportation improvements and other transportation facilities, and in delivering transportation services and programs.	Same as above.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-29: Develop the transportation system in a manner that supports the regional land use and transportation vision presented in *VISION 2020, Destination 2030*, and the Countywide Planning policies for King County.	The East Link Project would further the regional policies related to reducing dependence on SOVs and increasing nonmotorized travel modes, especially within urban centers, and related to increased density within urban centers. Alternative D5 would be less consistent with the recently adopted Bel-Red Subarea Plan because there would be no stations in the Bel-Red area.
TR-50: Work with transit providers to implement the Bellevue Transit Plan as an attractive travel option for local residents, employees, students, visitors, businesses and other users of regional facilities.	Sound Transit has been working and will continue to work with Bellevue on the East Link Project corridor to ensure East Link is an attractive travel option for residents.
TR-56: Develop partnerships with transit providers to implement projects providing neighborhood–to–transit links that improve pedestrian and bicycle access to transit services and facilities.	Same as above.
Regional Transit	
Goals: 1. To provide a regional transit service at levels that support the land use goals of the city. 2. To provide high-performance transit connections with the other urban centers in the region. 3. To develop programs to encourage ridership on regional transit.	The East Link Project would provide fast, reliable, and efficient transit service to the City of Bellevue and connections to the other urban centers in the corridor and other urban communities, as well as regional destinations. East Link also supports the land use goals by encouraging higher density and mixed-use development.
TR-59: Provide regional leadership for regional transit system planning efforts.	Sound Transit and the City of Bellevue have been coordinating through the East Link Project planning phase and will continue to coordinate through the entire project.
TR-62: Work to ensure that the regional transit system includes park-and- ride lots to serve activity centers in the region and on the Eastside to: 1. Intercept trips by single occupant vehicles closer to the trip origins; 2. Reduce traffic congestion; and 3. Reduce total vehicle miles traveled.	The East Link Project includes either the expansion of or addition of park-and-ride lots at some stations. Parking spaces would vary between the various lots, ranging from approximately 300 spaces to close to 1,400 spaces. Park-and-ride facilities needs are evaluated based on transit ridership models and are consistent with Sound Transit's Long-Range Plan to develop an HCT that supports the urban centers though which it passes.
TR-70: Promote transit use and achieve land use objectives through transit system planning that includes consideration of: 1. Land uses that support transit, including mixed-use and night-time activities; 2. Transit-oriented development opportunities with the private and public sectors; 3. A safe and accessible pedestrian environment, with restrictions on auto access; 4. Integrating multiple access modes, including buses, carpools and vanpools, bicycles, and pedestrians; 5. Urban design and community character that support and facilitate transit use; and 6. Protecting nearby neighborhoods from undesirable impacts.	The East Link Project supports mixed-use development in designated urban growth areas and helps focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. Light rail stations are designed to integrate access from other modes. Stations are designed to fit in neighborhood and facilitate transit use consistent with Light Rail Best Practices policies. East Link operational impacts on neighborhoods, as analyzed in the Final EIS, are mitigated. Alternative D5 would be less consistent with the policy because the alternative does not include any stations in the Bel-Red Subarea where Bellevue has targeted growth and higher densities.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-71: Improve transit connections between downtown Bellevue and other designated urban centers.	The East Link Project would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as regional destinations.
High-Capacity Transit	
TR-73: Work with Sound Transit to ensure that any HCT service to and within the Eastside serves Downtown Bellevue as the major hub of the Eastside.	The East Link Project would provide HCT service to Downtown Bellevue as well as other urban centers along the East Link Project corridor and adjacent centers associated with the Central Link and North Link projects.
TR-74: Work with Sound Transit to ensure that HCT services to Downtown Bellevue are provided at levels commensurate with Downtown Bellevue being the highest concentration of population and employment in King County outside of Seattle and its designation as an urban center as well as a Metropolitan Regional Growth Center. HCT services should include frequent service to downtown Seattle and other urban centers.	Same as above.
TR-75: Strengthen Bellevue's role as the Eastside urban center through provision of high levels of HCT service.	Same as above.
Light Rail Transit	
TR-75.1: Develop a light rail system in collaboration with the regional transit provider that advances the City's long-term transportation and land use objectives, minimizes environmental and neighborhood impacts, and balances regional system performance.	The East Link Project Final EIS analyzes impacts on the environment and neighborhoods and provides mitigation for significant impacts. The East Link Project contributes to a balanced regional transit system to key urban centers.
TR-75.2: Use the Light Rail Best Practices Report, including City expectations of Sound Transit, to guide City actions and advocacy in pursuit of the best community outcomes for developing and operating light rail transit in Bellevue.	East Link Project design would include input from the local jurisdictions. Sound Transit and the City of Bellevue have been coordinating through the East Link Project planning phase and will continue to coordinate through the entire project.
TR-75.3: Develop and maintain a strong working relationship with the regional transit provider to ensure a collaborative effort to implement light rail in Bellevue.	Sound Transit and the City of Bellevue have been coordinating through the East Link Project planning phase and will continue to coordinate through the entire project.
TR-75.4: Provide ample opportunity for meaningful public involvement by residents, neighborhood groups, business leaders, and other informal and formal stakeholders in a cooperative and coordinated community involvement program with the regional transit provider. Members of the community should have opportunities throughout any light rail planning and implementation process to help shape the ultimate configuration of any light rail system in Bellevue and throughout the Eastside.	Sound Transit has provided extensive opportunities for public involvement (see Appendix B) throughout the East Link Project planning phase and will continue public outreach through the entire project.
TR-75.5: Work with the regional transit provider to provide reliable, high-performance, attractive alternatives to SOV travel by providing service to the city's major employment centers and residential areas. A light rail system should add new travel capacity within its own right-of-way, rather than replace existing travel lane capacity, in order to maximize speed and reliability for light rail while minimizing impacts to other modes.	The East Link Project is a high-capacity transit alternative to the SOV and would provide fast, reliable, and efficient connections to the other regional urban centers in the corridor and other urban communities, as well as regional destinations. East Link also supports the land use goals for higher density and mixed-use development, and uses dedicated right-of-way to ensure reliability and maximize speeds when possible.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-75.6: Support plans by the regional transit provider to connect Bellevue, Seattle and Redmond activity centers, including downtown Bellevue and the developing center of Bel-Red, with service that optimizes convenience for riders. Light rail should connect "somewhere to somewhere."	The East Link Project would provide fast, reliable, and efficient connections to the regional urban centers in the corridor and other urban communities, as well as regional destinations. Alternative D5 would connect Bellevue, Seattle, and Redmond but would not fully serve the Bel-Red Subarea and therefore is less consistent with this policy.
TR-75.7: Advocate for light rail service that is consistent with local land use and transportation plans. Light rail planning should further the achievement of the City's land use and transportation vision.	East Link Project alternatives and station locations were chosen for proximity to existing and planned commercial, employment, and residential concentrations consistent with community plans. Alternative D5 does not include stations in the Bel-Red Subarea and therefore is less consistent with this policy
TR-75.8: Advocate for an alignment for downtown Bellevue that advances the adopted land use vision for an urban downtown by: 1. Optimizing ridership, system performance, and user convenience; 2. Locating stations in proximity (i.e. within a 10 minute walk) to existing and planned employment and residential concentrations in the downtown subarea; 3. Addressing aesthetic concerns and promoting superior urban design integration, within the established urban context; 4. Minimizing impacts on businesses and residents during construction; and 5. Minimizing overall impacts of a light rail system on the operation of the downtown street network.	Station locations were chosen for proximity to existing and planned commercial, employment, and residential concentrations consistent with community plans and optimum ridership potential. The Final EIS evaluates how East Link will perform with land use and transportation systems to minimize disruption and, where necessary, includes mitigation measures to further reduce impacts on adjacent properties during construction. Sound Transit would continue to work with the City and residents during planning and design of the East Link Project to ensure the design of the stations best reflects the character of the surrounding area. Alternatives C7E and C14E would be somewhat less consistent because the Bellevue Transit Center station is located farther east away from the downtown core.
TR-75.9: Advocate for an alignment south of downtown Bellevue that advances the adopted land use vision by: 1. Protecting the character and livability of existing neighborhoods, including adequate ingress and egress to the neighborhood; 2. Minimizing impacts to wetlands and other natural resources; 3. Providing local access to the system for Bellevue neighborhoods; and 4. Optimizing ridership and user convenience.	East Link would preserve adequate ingress and egresses to the neighborhoods. Sound Transit has enacted avoidance and minimization measures for wetlands and other natural resource areas; where impacts cannot be avoided, mitigation is proposed. Each station is designed to encourage pedestrian and nonmotorized accessibility.
TR-75.10: Advocate for an alignment in the Bel-Red corridor that is consistent with the Bel-Red Subarea Plan.	All Segment D Alternatives except Alternative D5 are consistent with the Bel-Red Subarea. Alternative D5 would not be as effective in the development of TODs at 120th and 130th areas of Bel-Red Corridor because there are no associated stations at those locations.
TR-75.11: Protect environmentally sensitive areas of local and regional significance in the siting and alignment of light rail facilities.	The Final EIS evaluates impacts on environmentally sensitive areas from operation and construction of the East Link Project. Sound Transit has enacted avoidance and minimization measures and will continue to do so throughout project development. Where impacts cannot be avoided, mitigation is proposed.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-75.12: Partner with the regional transit provider to design transit stations and facilities incorporating neighborhood objectives and context sensitive design to better integrate facilities into the community. This includes, but is not limited to the following: 1. Incorporating superior urban design, complementary building materials, and public art; and 2. Providing substantial landscaping at stations and along the alignment, including retained significant trees and transplanted trees that are, at a minimum, saplings.	Sound Transit has and would continue to work with the City and residents during planning and design of the East Link Project to ensure the design of the stations best reflects the character of the surrounding area, including landscaping and compatible building materials, and art elements. Numerous outreach opportunities have occurred, and Sound Transit will continue to provide outreach.
TR-75.13: Encourage the regional transit provider to work closely with affected neighborhoods (e.g. through neighborhood workshops, design charrettes, advisory committees) in the design of any light rail transit facility to ensure that the design of the facility incorporates neighborhood objectives and context sensitive design.	Same as above.
TR-75.14: Promote the use of context sensitive design and high quality materials to prevent and mitigate negative impacts and incorporate the light rail system appropriately into the streetscape.	Same as above.
TR-75.15: Formulate standards and guidelines that can be applied by the regional transit provider to create stations that are a valued place in the community by providing: 1. Access and linkages to the surrounding community; 2. A comfortable place to be, not just pass through; 3. A place that works for both large and small numbers of people; and 4. Design that encourages social interaction among people.	Same as above.
TR-75.16: Work with neighborhood groups, business owners, other stakeholders, and the regional transit provider to identify and fund additional improvements that can be constructed efficiently in conjunction with project construction.	Sound Transit would coordinate with the city on identified improvement projects in accordance with Sound Transit policy. A number of public involvement opportunities have occurred where the public were able to attend and provided their input on the project.
TR-75.17: Protect Bellevue's residential and commercial areas from the negative effects of light rail by promoting actions of the regional transit provider that minimize environmental, traffic and noise impacts.	The Final EIS outlines the avoidance, minimization, and mitigation measures for potential environmental, traffic, and noise impacts associated with the operation and construction of East Link.
TR-75.18: Protect residential neighborhoods adjacent to light rail facilities from spillover impacts, including parking and cut through traffic, resulting from system construction and/or operation, with techniques such as residential parking zone programs, parking patrols, and traffic calming measures. Monitor the outcomes of these efforts and make adjustments as needed to ensure continued effectiveness.	In neighborhoods where parking does not currently have restrictions, Sound Transit would work with the applicable jurisdictions to implement prevention strategies (i.e., time limits or neighborhood permit programs) where appropriate.
TR-75.19: Ensure that any future land use that occurs around station areas is consistent with the Comprehensive Plan land use vision for that area, recognizing that: 1. Some potential station areas (e.g. Bel-Red) could support more intense redevelopment that includes density increases that support transit; 2. Some potential station areas (e.g. Downtown) could sustain a more transit supportive design and orientation without changes to land use intensity; and 3. Land use changes would be precluded in existing single family designations and environmentally sensitive areas (e.g. south Bellevue, Mercer Slough).	Land use changes are regulated by jurisdictions and East Link Project alternatives and station locations were chosen for proximity to existing and planned commercial, employment, and residential concentrations consistent with community plans. Alternative D5 would be less consistent because there are no stations in the Bel-Red Subarea that could support more intense development.
TR-75.20: Maintain and enhance the safety of Bellevue's streets when incorporating light rail, through the use of street design features, materials, street signage and lane markings that provide clear, unambiguous direction to drivers, pedestrians, and bicyclists.	The East Link Project would be designed with integration into the pedestrian-friendly environment with context-sensitive design considerations. Drop-off designation areas are planned at proposed station locations and bicycle racks are planned where appropriate. Signage and wayfinding designs for each mode would be developed with input from affected jurisdictions.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-75.21: Maximize the efficient usage of the transportation network through utilization of transit signal priority (TSP) technology. Provide for efficient light rail operation and minimize delay, while maintaining capacity for nonrail vehicle movements.	Chapter 3 and the Transportation Technical Report (Appendix H1) of the Final EIS describe where transit signal priority technology would be integrated into the planning and design of East Link Project alternatives.
TR-75.22: Encourage quality design and construction in the light rail system, by: 1. Including durable materials in design and construction to ensure facilities retain appearance, functionality and community value; and 2. Incorporating art, public spaces, and other features as community assets.	East Link Project facilities would be designed with durable materials and consistent with community character. Sound Transit implements an art in public spaces program into their facility design. East Link Project design would incorporate input from affected jurisdictions.
TR-75.23: Coordinate with the regional transit provider to employ crime prevention principles in the design of light rail stations, and use available technologies to deter crime. Examples include: 1. Visibility of station platform from adjacent streets and parking; 2. Open and well-lighted pedestrian connections to parking and adjacent community; 3. Video surveillance on station platforms and trains; and 4. Establishing and enforcing a fare paid zone for station platforms.	Sound Transit implements CPTED design principles directed at reducing crime incidents at stations and park-and-ride lots. Other measures to minimize crime would include the use of equipment (i.e., closed-circuit TV, sealed fare boxes, and automatically sealed exits), the use of anti-crime programs such as anti-graffiti programs, and the use of security personnel.
TR-75.24: Develop agreements with the regional transit provider to ensure long-term safety and security, operation and maintenance of stations.	Sound Transit contracts security personnel, operation and maintenance of their systems.
TR-75.25: Develop and maintain a safe and convenient pedestrian network to light rail stations, through shared responsibility with the regional transit provider, that is intended to: 1. Provide short, direct routes within a ten-minute walk; 2. Incorporate principles of universal design, i.e. designing the pedestrian environment to be usable by all people, to the greatest extent possible, without adaptation; 3. Maximize safety for all pedestrians at street crossings; and 4. Give priority to pedestrian access and safety in station areas.	The Final EIS evaluates existing and future pedestrian and bicycle access to ensure that safe connections would be maintained or integrated into East Link Station design.
TR-75.26: Employ principles of universal design (i.e. designing the pedestrian environment to be usable by all people, to the greatest extent possible, without adaptation) in streets within station planning areas to accommodate the widest range of potential users, including people with mobility and visual impairments and other special needs.	Station designs consider all joining modes—pedestrian; passenger drop-off; transit transfers; bicycles; and, when possible and needed, park-and-ride facilities. Sound Transit complies with ADA design requirements.
TR-75.27: Provide reliable access to the system for Bellevue residents in cooperation with local and regional transit providers, by ensuring that adequate existing and new park and ride lot capacity, neighborhood bus connections and local and regional express bus services are available.	Park-and-ride facility needs are evaluated based on transit ridership models and are consistent with Sound Transits Long-Range Plan to develop an HCT that supports the urban centers through which it passes. Sound Transit would work closely with local bus service providers to integrate bus service and planning for adequate bus transfers at East Link Station locations.
TR-75.28: Facilitate intermodal transfers and increased access to transit stations through partnerships with public and private providers of transit and shuttle services. Encourage transit-to-transit, transit-to-pedestrian, transit-to-bicycle, and transit-to-pick-up/drop-off transfers, with an emphasis on safety for people transferring between the station platform and the various modes.	Stations have been located at existing transit centers, based on input from King County Metro and other transit agencies, to optimize other transit and nonmotorized travel opportunities.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-75.29: Develop and implement an integrated wayfinding system, incorporating principles of universal design (i.e. designing the pedestrian environment to be usable by all people, to the greatest extent possible, without adaptation) and multiple languages, in conjunction with the regional transit providers, to facilitate transit ridership by all users.	Sound Transit has a signage program to facilitate user-friendly understanding.
TR-75.30: Evaluate proposed new park and ride facilities and expansion of existing park and ride facilities to serve light rail transit, for their effectiveness to serve the community and the light rail system, and for their potential environmental and community impacts. New or expanded park and ride facilities should be consistent with the Comprehensive Plan vision for each specific location.	Park-and-ride facilities needs are evaluated based on transit ridership models and are consistent with Sound Transit's Long Range Plan to develop an HCT that supports the urban centers through which it passes. The Final EIS includes information on environmental and community impacts, including Transportation; Ecosystems Resources; Parkland and Open Space; and Social Impacts, Community Facilities, and Neighborhoods.
TR-75.31: Develop an interlocal agreement with the regional transit provider to develop, monitor, and adapt mitigation measures for the design and construction phases of projects, to ensure the continual effectiveness of the measures.	A mitigation monitoring plan would be developed to monitor implementation of mitigation measures.
TR-75.32: Collaborate with the regional transit provider to create a Construction Management Plan for all new major transit investments. The Construction Management Plan should include a Construction Phasing Plan that minimizes the corridor length disrupted at one time and minimizes the time period of disruption.	A construction management plan would be developed with opportunities for input from affected jurisdictions.
TR-75.33: Place a priority on the use of noise avoidance or absorption techniques over noise deflection for residential uses when developing mitigation measures with the regional transit provider. Monitor the outcomes of these efforts and pursue adjustments with the regional transit provider to ensure continued effectiveness.	Sound Transit's noise policy is committed to minimizing noise levels at the source. In addition, Sound Transit has committed to a maintenance program that includes periodic rail grinding or replacement, wheel truing or replacement, vehicle maintenance, and operator training, which help to maintain low noise levels along transit corridors.
TR-75.34: Develop and implement an early and ongoing program with the regional transit provider to provide assistance to residents and businesses affected by construction.	Sound Transit would develop and begin implementing a Construction Outreach Program prior to commencing construction.
TR-75.35: Minimize disruption and inconvenience of construction staging areas to adjacent land uses, in collaboration with the regional transit provider, through actions such as site selection, design and operational management plans. Construction staging areas should not be located in residential neighborhoods except where no practicable alternative exists.	Proposed staging areas have been sited to minimize disturbance as practicable.
TR-77: Consider pedestrians and bicycles along with other travel modes in all aspects of developing the transportation system.	The Final EIS evaluates existing and future pedestrian and bicycle access to integrate pedestrians, bicycles, and other transportation modes into the East Link Project. Proposed East Link stations include amenities and considerations of patrons needs, including weather protection, pedestrian comfort ,and safety designs. Signage and wayfinding designs would be developed in cooperation with input from affected jurisdictions.
State Highway Corridors	
TR-94: Support multimodal transportation solutions including general purpose lanes, HCT, HOV lanes, and transit and nonmotorized improvements that use the best available technologies.	The East Link Project provides HCT, a fast, reliable, and efficient mode of transportation that would provide linkages to other nonmotorized and transit options.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
TR-96: Support HCT facilities on I-90 and SR- 520, with service to Downtown Bellevue included as an integral part of each option.	The East Link Project provides service across I-90 and along the SR 520 corridor, linking Downtown Bellevue to Seattle and Redmond as well as other urban centers associated with the East Link, Central Link, and North Link projects.
Transportation, Environment, and Quality of Life	
Goal: To minimize the impacts of the transportation system on the city's environment and neighborhood quality of life.	The East Link Project would provide for an improved quality of life by providing a fast, efficient, reliable mode of transit, encouraging increased densities where allowed, and promoting more walkable and cohesive neighborhoods. The East Link Project includes mitigation and design measures that would minimize impacts on the city's environment and neighborhood quality of life.
TR-118: Mitigate air quality, noise, light/glare, and other adverse environmental impacts of proposed transportation projects on adjacent neighborhoods.	The East Link Project would include measures to avoid or mitigate adverse impacts during construction and operation.
ECONOMIC DEVELOPMENT ELEMENT	
ED-18: Encourage high quality design and urban amenities for public and private development, maintaining development standards to recognize that a quality built environment helps attract the talented workers who will sustain economic growth.	East Link Project facilities would be designed with durable materials and be consistent with community character. Sound Transit implements an art in public spaces program into their facility design. East Link Project design would incorporate input from affected jurisdictions.
ED-26: Where commercial areas are in decline, work with businesses and other stakeholders to identify corrective actions, which may include: 1. Planning for new uses and new urban forms, leading to proposals for changes to the Comprehensive Plan and zoning 2. Developing incentives and other strategies to promote re-investment 3. Targeting investments in public infrastructure that may help catalyze new private sector investment	The East Link Project supports mixed-use development in designated urban growth areas and helps focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, thereby allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. Light rail stations are designed to integrate access from other modes. Alternative D5 would be less consistent with the policy because this alternative does not include any stations in the Bel-Red Subarea, where Bellevue has targeted growth and higher densities.
CAPITAL FACILITIES ELEMENT	
CF-13: Define essential public facilities consistent with the GMA, as facilities that are difficult to site or expand and that provide services to the public, or are substantially funded by the government or are contracted for by the government or are provided by private entities subject to public service obligation.	Light rail is considered an essential public facility. Essential public facilities are typically difficult to site (e.g., airports, education facilities, transportation facilities, and others). Local comprehensive plans must accommodate the siting of essential public facilities.
CF-14: Require land use decisions on essential public facilities meeting the following criteria to be made consistent with the process and criteria set forth in Policy CF-16: 1. The facility meets the GMA definition of an essential public facility at RCW 36.70A.200(1) now and as amended; or 2. The facility is on the statewide list maintained by the Office of Financial Management (ref. RCW 36.70A.200(4)) or on the countywide list of essential public facilities; and 3. The facility is not otherwise regulated by the Bellevue land use code.	As described above, the East Link Project is an essential public facility and jurisdictions are required by the GMA to accommodate light rail in their land use plans.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
CF-15: Participate in efforts to create an inter-jurisdictional approach to the siting of countywide or statewide essential public facilities with neighboring jurisdictions as encouraged by Countywide Planning Policies FW-32 (establish a countywide process for siting essential public facilities) and S-1 (consideration of alternative siting strategies). Through participation in this process, seek agreements among jurisdictions to mitigate against the disproportionate financial burden which may fall on the jurisdiction which becomes the site of a facility of a state-wide regional or county-wide nature.	Sound Transit has coordinated with the jurisdictions where East Link would be located and will continue to coordinate. The East Link Project is identified in *Transportation 2040* developed by the Puget Sound Regional Council.
CF-16: Using this interim Siting Process to site the essential public facilities described in Policy CF-14 in Bellevue. Implement this process through appropriate procedures incorporated into the Land Use Code.	Sound Transit would coordinate with the City on the siting of the East Link Project alternatives.
CF-17: After a final siting decision has been made on an essential public facility according to the process described in Policy CF-16, pursue any amenities or incentives offered by the operating agency or by state law or other rule or regulation to jurisdictions within which such EPF are located.	Sound Transit has coordinated and will continue to coordinate with the City with regards to the East Link Project and has provided opportunities for the City to provide comments. Mitigation measures have been developed for the East Link Project that would be implemented, and Sound Transit would also comply with any permit requirements during construction.
CF-18: For EPF having public safety impacts that cannot be mitigated through the process described in Policy CF-16, the city should participate in any process available to provide comments and suggested conditions to mitigate those public safety impacts to the agency, special district or organization proposing the EPF. If no such process exists, the city should encourage consideration of such comments and conditions through coordination with the agency, special district or organization proposing the EPF. A mediation process may be the appropriate means of resolving any disagreement about the appropriateness of any mitigating condition requested by the city as a result of the public safety impacts of a proposal.	Sound Transit has coordinated and will continue to coordinate with the City with regards to the East Link Project and has provided opportunities for the City to provide comments.
ENVIRONMENTAL ELEMENT	
EN-3: Minimize, and where practicable, eliminate the release of substances into the air, water, and soil that may degrade the quality of these resources or contribute to global atmospheric changes	The East Link Project would improve air quality in the region by providing an alternate mode of transportation to the automobile and contributing to a mode shift from private automobiles to transit. The project would not result in new releases of substances to water or soil during operation, and best management practices (BMPs) would be used during construction to minimize any releases of substances to water or soil.
EN-7: Promote growth management strategies that protect air, water, land, and energy resources consistent with Bellevue's role in the regional plan to contain an Urban Center.	The East Link Project would strengthen Bellevue's role as an Urban Center by increasing access choices to downtown. The East Link Project would provide an alternative to SOVs.
EN-14: Implement monitoring and adaptive management plans for critical areas mitigation projects to ensure that the intended functions are maintained or enhanced over time.	The East Link Project would comply with applicable regulations. Design of the project would minimize the impacts and would provide mitigation where impacts occur. The East Link Project would result in impacts on critical areas, and all critical area impacts would be mitigated, including replanting with noninvasive species.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
EN-27: Implement the citywide use of low impact development techniques and green building practices that provide benefits to critical areas functions	The East Link Project would comply with applicable regulations. Design of the project would minimize the impacts and would provide mitigation where impacts occur. Sound Transit's Environmental Sustainability and Management System require that low-impact operational stormwater management techniques be investigated and considered during the design process for the project.
EN-37: Reduce runoff from streets, parking lots, and other impervious surfaces and improve surface water quality by using low-impact development techniques in new development and redevelopment.	The East Link Project includes stormwater detention and treatment to address impacts related to stormwater runoff and the designed systems. Sound Transit's Environmental Sustainability and Management System require that low-impact operational stormwater management techniques be investigated and considered during the design process for the project.
EN-49: Preserve existing vegetation or provide or enhance vegetation that is compatible with the natural character of Bellevue	The East Link Project would minimize the impacts and would mitigate for any impacts in sensitive areas or open spaces, and in some areas would result in the removal of invasive species and restoration, including replanting with native plants.
EN-59: Manage aquatic habitats, including shoreline and riparian (streamside) habitats, to preserve and enhance their natural functions of providing fish and wildlife habitat and protecting water quality.	The East Link Project would minimize the impacts and would mitigate for any impacts in sensitive areas or open spaces. In some areas the project would result in the removal of invasive species and restoration, including replanting with native plants.
EN-61: Give special attention to conservation or protection measures necessary to preserve or enhance anadromous salmonids, recognizing that requirements will vary depending on the aquatic resources involved, including differing stream classification, and that additional efforts may be identified in the regional salmon recovery planning process.	The East Link Project would comply with applicable environmental regulations to preserve and enhance the natural environment
EN-88: Ensure that excessive noise does not impair the permitted land use activities in residential, commercial, and industrial land use districts	The East Link Project would provide mitigation for noise impacts on residential and other noise-sensitive land uses.
EN-89; Protect residential neighborhoods from noise levels that interfere with sleep and repose through development standards and code enforcement	The East Link Project would provide mitigation for noise impacts on residential land uses.
EN-93: Evaluate the benefit of measures designed to mitigate arterial noise, particularly noise walls, along with impacts on the pedestrian environment and neighborhood character.	The noise analysis in the Final EIS identifies the use of sound wall or building insulation to mitigate noise impacts. The analysis provides information on noise levels before and after mitigation. The visual quality analysis in the Final EIS identifies any impacts associated with the sound walls and mitigation measures.
URBAN DESIGN ELEMENT	
UD-2: Support designs for the built environment that are visually stimulating and thoughtful and which convey excellence in architecture and workmanship, and durability in building materials.	East Link Project facilities would be designed with durable materials and in consideration of community character. Sound Transit implements an art in public spaces program into their station facility design.
UD-3: Encourage a variety of site and building designs which are compatible and consistent with surrounding development and that implement the policies of this Plan.	Same as above.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
UD-7: Encourage private and institutional developers to include artists on design teams and incorporate artwork into the public areas of their projects through the use of incentives.	Sound Transit implements an art in public spaces program into their station facility design. East Link Project design would incorporate input from affected jurisdictions.
UD-9: Use site design, landscaping, and appropriate lighting to reduce the visual impact of parking lots to public areas.	East Link Project facilities would be designed with durable materials and in consideration of community character. Sound Transit implements an art in public spaces program into their station facility design.
UD-30: Ensure public places give access to sunlight, a sense of security, seating, landscaping, accessibility, and connections to surrounding uses and activities.	The design of the station areas would include CPTED principles for safety and would include other features related to seating and landscaping and would all be ADA-accessible.
UD-31: Consider the edges of public places that abut residential property for special design treatment that creates a buffer effect, but does not interfere with security or visual access.	In areas adjacent to Downtown Bellevue where East Link alternatives would acquire land, the remaining area could be designed to create a buffer area between the residential areas.
UD-32: Ensure access to sunlight in public places by avoiding building shadows during periods of the year and times of the day when outdoor activity is most prevalent.	Only the elevated alternatives would create shadows; however, in the downtown area, the elevated structure would be smaller in scale than the adjacent buildings and would add to the already existing shadows.
UD-35: Support a variety of artwork and arts activities in public places, such as parks, public buildings, and plazas.	Sound Transit implements an art in public spaces program into their station facility design. East Link Project design would incorporate input from affected jurisdictions.
UD-47: Work closely and cooperatively with the regional transit provider in the planning and design of any transit facility to ensure that the design of the facilities reflects the general character of Bellevue and the surrounding neighborhoods.	Sound Transit would continue to work with the City and residents during planning and design of the East Link Project so the design of the stations considers the character of the surrounding area.
UD-49: Design and coordinate the proximity of bike racks, wheelchair access, pedestrian amenities and other modes of transportation with transit facilities.	Sound Transit would design the stations to take into consideration pedestrian and bicyclist amenities, and all of the stations would be designed and constructed to comply with the ADA.
UD-56: Ensure that perimeter areas of major commercial and public centers use appropriate planting, lighting, and signs to blend with surrounding development and to be compatible with surrounding residential neighborhoods.	Sound Transit implements an art in public spaces program into their facility design. East Link Project design would incorporate input from affected jurisdictions. The design of the station areas would include CPTED principles for safety as well as other features related to seating and landscaping, and all stations would all be ADA-accessible.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
City of Bellevue Comprehensive Plan Volume 2: Subarea Plans and Transportation Facility Plans	
SOUTHWEST BELLEVUE SUBAREA PLAN	
Land Use	
S-SW-1: Support the existing land use patterns and densities as shown on the Land Use Plan with the maintenance of capital facilities and services.	The East Link Project would not result in any changes to the existing land use patterns and densities in southwest Bellevue. The alternatives travel along or adjacent to existing transportation corridors and do not bisect neighborhoods. The City of Bellevue determines zoning, and areas in southwest Bellevue do not allow TOD.
S-SW-2: Protect single-family residential neighborhoods from the adverse impacts of multifamily and commercial development.	Same as above.
Environmental	
S-SW-13: Retain significant vegetation during the site plan approval and construction process	The East Link Project would comply with applicable regulations. Design of the project would minimize vegetation impacts as practical.
Transportation	
S-SW-19: Provide for the aesthetic development of Bellevue Way S.E. and 112th Avenue SE, including the provision of sidewalks and bicycle lanes on both sides of the street and landscaping along the entire street so as to provide the feeling of a continuous boulevard and a gateway for Bellevue.	The East Link Project would replace any sidewalks or bicycle lanes impacted by the project. The Final EIS identifies mitigation measures to address impacts on nonmotorized facilities.
RICHARDS VALLEY SUBAREA PLAN	
General Land Use	
S-RV-1: Ensure that development and site planning comply with the Sensitive Area Regulations	The East Link Project would comply with applicable Critical Area regulations. Design of the project would minimize impacts on critical areas and provide mitigation where impacts would occur.
S-RV-2: Encourage land uses and site development that minimize the appearance of intense development	The East Link Project alternatives are adjacent to or located within existing transportation corridors. Alternative B7, which is the only alternative within Richards Valley, would be located within the former BNSF Railway corridor and include a station in an area zoned Office and Light Industrial.
Natural Determinants	
S-RV-6: Retain the remaining wetlands within the 100-year floodplain along Richards Creek, Kelsey Creek, and Mercer Slough for drainage retention and natural resource park use.	The East Link Project would not result in any impacts on wetlands within the Mercer Slough 100-year floodplain. The alternatives are located outside of the 100-year floodplain.
S-RV-7: Protect and enhance the capability of Richards Creek, Kelsey Creek, and Mercer Slough and their tributaries to support fisheries along with other water-related wildlife.	The East Link Project would not result in any impacts that would negatively affect fisheries and other water-related wildlife.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
S-RV-8: Retain and enhance existing vegetation on steep slopes, within wetland areas, and along stream corridors to control erosion and landslide hazard potential and to protect the natural drainage system.	The East Link Project would minimize vegetation removal as practical. Vegetation would be enhanced where temporarily disturbed in these sensitive areas.
DOWNTOWN SUBAREA PLAN	
General	
S-DT-4: The highest intensity development shall be located in the core of Downtown, with diminishing intensities towards the edges of Downtown	The East Link Project would act as a catalyst for development where identified and would link Downtown Bellevue with other Urban Centers in the region. The City of Bellevue regulates zoning and the types of development that would be allowed.
S-DT-10: Require design review to ensure high quality, aesthetically pleasing Downtown development.	Sound Transit has coordinated with the City of Bellevue on the stations, and the East Link Project would be designed to integrate into the pedestrian-friendly environment with context-sensitive design considerations.
Economics	
S-DT-17: Promote economic development strategies that further Downtown Bellevue as an Urban Center, consistent with regional plans	The East Link Project would provide public transportation to Downtown Bellevue, consistent with regional plans; act as a catalyst for development where identified; and link Downtown Bellevue with other Urban Centers in the region.
S-DT-18: Strengthen Downtown's role as the Eastside's major business and commercial center and as an important revenue source for the City of Bellevue.	The East Link Project would increase the ability for employees, customers, and businesses to access Downtown Bellevue by providing fast and reliable service linking Downtown Bellevue to the surrounding region.
Urban Design	
S-DT-35: Create a pedestrian environment with a sense of activity, enclosure, and protection	The East Link Project would contribute to street activity as transit riders walk between stations and destinations. The project would allow for increased densities and a mix of uses that would encourage a pedestrian environment.
S-DT-40: Enhance the appearance of all types of streets and adjoining sidewalks with street trees, landscaping, water features, pedestrian-scaled lighting, street furniture, paving treatments, medians, or other softening treatments as appropriate.	The East Link Final EIS considers the aesthetic and visual impacts of the proposed alternatives, and recommends mitigation for impacts.
S-DT-45: Continue to encourage the NE 6th Street Pedestrian Corridor as a major unifying feature for Downtown Bellevue	The East Link Project would contribute to increased pedestrians in Downtown Bellevue, including along NE 6th Street with the addition of a station at the Bellevue Transit Center. Alternatives C7E and C14E would be less consistent because the stations are located farther east of the existing transit center and the NE 6th pedestrian corridor.
S-DT-81: Develop the NE 6th Pedestrian Corridor as a unifying feature for Downtown Bellevue by siting buildings and encouraging uses that add to pedestrian movement and activity	The East Link Project would contribute to increased pedestrians in downtown, including NE 6th Street with the addition of a station at the Bellevue Transit Center. Alternatives C7E and C14E would be less consistent because the stations are located farther east of the existing transit center and the NE 6th pedestrian corridor.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
Eastside Center District	
S-DT-85: Allow uses and development intensity that is supportive of transit and day/night activity.	The East Link Project would allow for the development intensity that is supportive of both transit and day/night activity.
S-DT-86: Discourage use of the eastern portion of this District for large-scale, stand-alone transit parking. Transit parking may be appropriate if combined with other uses.	The East Link Project does not include any park-and-ride facilities in the downtown area. There are new or expanded facilities included in the project and identified in the Final EIS.
Edges and Transitions	
S-DT-125: Use lineal green open space buffers directly downtown (north of NE 12th Street between 106th Place NE and 112th NE, and in the vicinity of the southeast corner of downtown) to provide transition from downtown to surrounding residential neighborhoods.	Some alternatives in Segment C would temporarily disrupt the open space between 106th Place NE and 112th Avenue NE (McCormick Park) during construction. During operation there would be no net loss in this open space. In addition, there are other opportunities to create new green open space buffers with a number of the alternatives south of Main Street.
Transportation and Circulation	
S-DT-130: Encourage transit service providers to improve transit connections between Downtown and the city's neighborhoods	East Link would provide a fast, reliable, and efficient mode of HCT linking Downtown Bellevue to the other urban centers in the corridor and other urban communities and destinations in the region.
S-DT-131: Work with transit providers to significantly expand transit service, including express bus transit, to Downtown Bellevue to accommodate anticipated increases in ridership.	East Link would provide a fast, reliable, and efficient mode of HCT linking Downtown Bellevue to the other urban centers in the corridor and other urban communities and destinations in the region. The project would include a station at the existing Bellevue Transit Center to link with bus transit, including express bus transit.
S-DT-132: Explore ways of providing the most effective transportation services and marketing programs for trips between major retail, office, and transit facilities Downtown, as well as activity areas on the edge of Downtown such as Overlake Hospital.	The East Link Project would provide links to the Overlake and Group Health medical centers on the edge of Downtown Bellevue.
S-DT-134: Support transit ridership to Downtown Bellevue by encouraging the regional transit providers to expand Park-and-Ride capacity outside of Bellevue	The East Link Project would expand the park-and-ride lot capacity outside of Downtown Bellevue.
S-DT-135: Provide space within or near Downtown for bus layovers and other transit facilities needed to support projected levels of transit service and ridership. Layover space and other facilities, whether developed within the right-of-way or off-street, must be located and developed in a manner that minimizes impacts on residential areas, provides an active pedestrian environment and is consistent with the district character direction in this Plan.	The design of the East Link stations in or near Downtown Bellevue would include the facilities needed to support project levels of service (i.e., platform length for loading/unloading) as well as the pedestrian environment, including ADA facilities, and would be designed to minimize impacts on residential areas.
S-DT-133: Encourage transit service providers to improve transit connections between Downtown Bellevue and other designated urban centers.	The East Link Project would improve the transit connections between Downtown Bellevue and other centers in the study area, along with providing improved access to urban centers in Seattle.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
S-DT-138: Work with Sound Transit and other regional partners to develop a HCT system that connects Downtown Bellevue to other key activity centers.	East Link, a Sound Transit project, would provide a fast, reliable, and efficient mode of HCT linking Downtown Bellevue to the other urban centers in the corridor and other urban communities and destinations in the region.
S-DT-148: Minimize Downtown SOV commute trips by coordinating with the Bellevue TMA and transit agencies to provide transit and rideshare incentives, subsidies, and promotional materials to Downtown employers and employees	The East Link Project would support the reduction of SOV commute trips by providing another transit option to Downtown Bellevue. East Link would provide a fast, reliable, and efficient mode of HCT linking Downtown Bellevue to the other urban centers in the corridor and other urban communities and destinations in the region. This would support Bellevue's Transportation Demand Management program.
BEL-RED SUBAREA PLAN	
Land Use	
Goal: To develop a land use pattern that is environmentally sustainable and economically vibrant, and that creates distinctive new commercial and residential neighborhoods for the Eastside.	All East Link Project alternatives except Alternative D5 include stations in the Bel-Red neighborhood that would support TOD in the area surrounding the stations
S-BR-6: Concentrate the majority of future Bel-Red growth into a series of mixed use, pedestrian-friendly and transit-oriented development nodes, with higher density and height therein, as enabled through a land use incentive system. Within each node, provide for tiered building heights, with maximums at the center.	All East Link alternatives except D5 include stations in the Bel-Red neighborhood that would support TOD in the area surrounding the stations.
S-BR-8: Encourage mixed use development, promoting opportunities to live, work, shop, and recreate within close proximity.	All East Link alternatives except D5 include stations in the Bel-Red neighborhood that would support TOD in the area surrounding the stations.
S-BR-9: Accommodate existing light industrial uses that were legally established as of the date of this Plan's adoption, by allowing for their continued operation, expansion including site expansion outside of nodes, and re-building if destroyed. Preclude new light industrial uses from being established, and discontinued light industrial uses from being re-established, with the exception that light industrial uses of limited size (less than 20,000 square feet) are appropriate outside transit nodes and stand-alone residential areas.	The construction and operation of a maintenance facility in the Bel-Red neighborhood would not be consistent with the policy. However, policy S-BR-70 does indicate that the City of Bellevue would work with Sound Transit to determine the need for a maintenance facility in the Bel-Red neighborhood.
Urban Design	
S-BR-H2: Incorporate natural drainage practices and other opportunities to enhance the natural environment into transportation projects where appropriate, effective and feasible.	Sound Transit's Environmental Sustainability and Management System requires that low-impact operational stormwater management techniques be investigated and considered during the design process for the project. East Link proposes to improve stream habitat in several areas were crossings may affect stream habitats.
Transportation	
S-BR-51: Support the Bel-Red Subarea Land Use Plan with a multimodal transportation system consistent with Figure S-BR.2 (map of system improvements), that provides enhanced, multimodal travel connections within the Bel-Red Subarea, and to other parts of the City and region.	All East Link alternatives except D5 include stations in the Bel-Red neighborhood that would act as a catalyst for TOD in the area surrounding the stations.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
S-BR-52: Incorporate natural drainage practices and other opportunities to enhance the natural environment into transportation projects where appropriate, effective and feasible.	The East Link Project includes stormwater detention and treatment to address impacts related to stormwater runoff and the designed systems. Sound Transit's Environmental Sustainability and Management System requires that low-impact operational stormwater management techniques be investigated and considered during the design process for the project.
S-BR-55: Extend and expand NE 16th Street as a multimodal corridor that includes vehicular, high capacity transit, and nonmotorized travel modes to serve east-west trip demand across the Bel-Red area, while incorporating significant urban open spaces, and environmentally sensitive design features.	All Segment D alternatives except D5 would be located in the NE 16th Street corridor.
S-BR-67: Work with King County Metro and other transit providers to serve emerging new land uses in the Bel-Red Subarea, and to connect to and support future light rail or alternative forms of high capacity transit, including: a. Enhance conventional transit service throughout the Bel-Red Subarea; b. Provide a level and type of service that, to the extent feasible, emulates high capacity transit in future light rail station areas, as an interim measure in advance of light rail operations; and c. Provide transit feeder service from other Bellevue neighborhoods into transit oriented development nodes at future light rail stations.	Sound Transit works closely with local bus service providers to integrate bus service into the project design. East Link Project alternatives and station locations were chosen for proximity to existing and planned commercial, employment, and residential concentrations consistent with community plans. Alternative D5 would be less consistent with the policy because it does not include stations in the Bel-Red Subarea.
S-BR-68: Work with Sound Transit to realize the City's preferred light rail route, alignment and station locations, as shown in Figure S-BR.2. Support the development of light rail stations in the vicinity of Overlake Hospital Medical Center, 122nd Avenue NE/NE 16th Street, and 130th Avenue NE/NE 16th Street.	All Segment D alternatives would serve these areas, but Alternative D5 would not directly serve the planned areas of 122nd Avenue NE, NE 16th Street, and 130th Avenue NE/NE 16th Street with stations. All of the Segment C alternatives include a station near the Overlake and Group Health medical centers.
S-BR-70: Work with Sound Transit to determine the need for a future light rail maintenance facility in Bel-Red, and if needed, to locate it where compatible with planned land uses and transportation facilities and services.	The preferred location for the maintenance facility would be decided by the Sound Transit Board with input from affected jurisdictions.
Interjurisdictional Coordination	
S-BR-I77: Coordinate with state and regional transportation and transit agencies (WSDOT, Sound Transit and King County Metro) on planning and providing transportation projects and services needed to implement this Subarea Plan.	Sound Transit has been working with and will continue to work with the jurisdictions along the East Link Project corridor as well as regional and state agencies.
Eastside Transportation Program	
Transit and Ridesharing Facilities and Services	
ETP-11: Improve intra-Eastside transit service with better connections between regional and Eastside activity centers. Transit service improvements should be linked to actions designed to increase transit demand and facilitate more cost-effective service delivery; for example, increased development density (residential and employment), parking management, and other transportation demand management strategies.	The East Link Project would promote mixed-use development in designated urban growth areas and focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. East Link would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as regional destinations.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
ETP-12: Orient the most intensive levels of transit service linking the Eastside to regional activity centers such as Downtown Bellevue, Downtown Seattle, and the University District.	The East Link Project would provide a fast, reliable, and efficient mode of HCT linking Downtown Bellevue to the other urban centers in the corridor and other urban communities and destinations in the region.
High-Capacity Transit	
ETP-20: Eastside jurisdictions should actively participate in regional efforts to develop the regional HCT system	Sound Transit has been and will continue to coordinate with the cities through the regional planning process. The specific route and station locations for the light rail project will be determined by the Sound Transit Board. Eastside jurisdictions have been active participants in developing the East Link Project.
ETP-21: Confirm Eastside corridors as high priorities for implementation of the regional HCT system. Key corridors for HCT service on the Eastside include I-90, I-405, SR 520 and SR 522.	The East Link Project would operate along I-90 and SR 520 corridors.
ETP-22: Specific routes of the HCT system within these corridors, and the location of stations and other facilities, should be determined through the regional HCT planning process.	Sound Transit has been and will continue to coordinate with the cities through the regional planning process. The specific route and station locations for the light rail project will be determined by the Sound Transit Board.
ETP-23: HCT does not refer to a specific technology or vehicle, but to HOV(s), operating on an exclusive right-of-way, guideway, or track, providing express service with infrequent stops. HCT is characterized by higher speeds than conventional transit, and greater reliability. The regional HCT system could include several different travel modes selected to meet the unique needs of the different travel corridors. Specific HCT technologies for Eastside corridors should be selected according to the type and density of present and planned development.	Light rail is an HCT technology that would operate within a dedicated right-of-way, providing efficient, reliable, and fast connections to urban centers in the project corridor, as well as other urban centers in the region.
ETP-24: The regional HCT system should be integrated with the rest of the transportation system service the Eastside.	Same as above.
ETP-25: Provisions for carpool and vanpool should be maintained when planning, constructing and operating the HCT system.	The East Link Project would be located within a dedicated right-of-way and would not affect existing carpool or vanpools. The reduction of SOVs from the local roadways would benefit carpools and vanpools.
ETP-26: The regional system should focus on providing express service between regional activity centers, with convenient and supporting connections to and between Eastside activity centers.	Light rail is an HCT technology that would operate within a dedicated right-of-way to provide efficient, reliable, and fast connections to urban centers in the project corridor, as well as other urban centers in the region.
ETP-27: Identify and preserve necessary right-of-way for Eastside HCT alignments as soon as possible.	Sound Transit would acquire the necessary right-of-way when the environmental process has been completed. The East Link Project is located within or adjacent to existing transportation corridors to minimize the amount of right-of-way required.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
ETP-28: The Eastside should prepare for the transition to an HCT system by the following: a. Focusing transit service on activity centers; b. Protecting right-of-way in potential HCT alignments and station locations; c. Implementing land use changes that will support an HCT system; and d. Proceeding as quickly as possible with planning, preliminary engineering and financial strategies designed to implement an HCT system	The East Link Project would support mixed-use development in designated urban growth areas and focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, thereby allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. East Link would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as regional destinations
Land Use Planning and Transportation	
ETP-29: Develop a regional land use plan that reflects a consolidated vision of the Eastside's future growth, and provides for better integration between land development and an efficient transportation system.	Sound Transit has considered areas for the East Link Project recommended for growth and worked to connect those areas with HCT.
ETP-30: Develop and implement regional land use policies to discourage low-density sprawl, concentrate growth in activity centers, and encourage denser development to enhance cost-effective provision of public transit services.	The East Link Project would be consistent with land use policies by supporting high-density development around a number of stations where plans and polices encourage increased density and a mixture of land uses.
ETP-31: Link specific transportation facilities and services to the type and density of present and planned land development on the Eastside.	Same as above.
ETP-32: Implement land use changes that will support a HCT system, such as high- density development around station locations.	Same as above.
ETP-33: Develop design guidelines for land development to enhance public transit service to new developments	The East Link Project would support increased densities and mix of uses in those areas that have been identified for this type of growth.
ETP-34: Protect the safety of residential streets and the livability of neighborhoods by minimizing the amount of through traffic on neighborhood streets and neighborhood collectors (nonarterials) in residential areas.	The East Link alternatives are located within or adjacent to existing transportation corridors and do not bisect neighborhoods. The Final EIS provides information on neighborhood impacts associated with the various alternatives. The East Link Project would include mitigation to protect neighborhood streets from cut-through traffic to protect the livability of neighborhoods.
Public Education and Community Involvement	
ETP-45: Implement an active outreach program by ETP participants to involve community organizations, employers, residents, developers, and businesses to help solve the area's transportation problems by implementing the ETP recommendations and working toward the longer-range solutions for the Eastside.	The East Link Project has included a number of local stakeholders to provide feedback on the project and alternatives. Additionally, a number of opportunities have been provided for the public and community organizations to provide their input on the project and the project alternatives.
ETP-46: Develop and implement a comprehensive public education and community involvement program aimed at more efficient utilization of the region's transportation system, and long-term changes in travel behavior that will minimize the need for road building programs.	Same as above.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
City of Redmond Comprehensive Plan	
LAND USE ELEMENT	
LU-43: Designate Redmond's downtown and the Overlake Center as urban centers under the Countywide Planning Policies and recognize these areas as such in all relevant local, regional policy, planning and programming forums. Through plans and implementation strategies, encourage and accommodate focused office, retail, and housing growth and a broad array of complementary land uses. Also, emphasize support for transit use, pedestrians, and bicycling.	The East Link Project is evaluating stations located within both Downtown Redmond and the Overlake Center. East Link would support an increased density of mixed land uses and would emphasize transit, walking, and bicycling.
TR-25: Use transit as a way to provide for access, circulation, and mobility needs in areas planned for higher-density mixed-use development and for favorable pedestrian environments.	The East Link Project would support mixed-use development in designated urban growth areas and focus the majority of growth in station areas where existing zoning and land use codes allow for greater densities. The increased density would allow for more efficient use of land, allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. East Link would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as regional destinations.
TR-29: Participate actively and continuously in the planning and development of an efficient, timely, and effective regional HCT system that is competitive with the SOV. Plan for the extension of HCT to the Eastside and to Overlake, Downtown Redmond, and SE Redmond as part of Sound Transit Phase 2, or any successor plan.	The East Link Project provides a fast, efficient, and reliable mode of transit as an alternative to SOVs, and would provide service to Overlake, Downtown Redmond, and SE Redmond as well as connections to other urban centers in the East Link corridor and the region. Sound Transit will continue to coordinate with the City of Redmond for future phases of East Link.
TR-30: Support HCT service and support facilities for Redmond that: • Provide service to Overlake, Downtown Redmond, and SE Redmond that is located to ensure efficient, timely, and effective service, within an HCT route located mainly in the SR 520 freeway corridor; • Locate HCT stations in Overlake, Downtown Redmond, and SE Redmond; • Locate the Downtown Redmond station site near the intersection of SR 202 and SR 520; and • Achieve higher bus transit service levels to and within Redmond's two urban centers, providing connections to the HCT stations.	The East Link Project provides a fast, efficient, and reliable mode of transit as an alternative to SOVs, and would provide service to Overlake, Downtown Redmond, and SE Redmond with stations located in those areas as well as connections to other urban centers in the East Link corridor and the region. Sound Transit will continue to coordinate with the City of Redmond for future phases of East Link.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
City of Redmond Neighborhood Planning Element	
OVERLAKE NEIGHBORHOOD PLAN UPDATE	
N-OV-28: Increase mobility within Overlake and provide for convenient transit, pedestrian, and bicycle routes to and from Overlake by: 1. Encouraging commuter traffic to use regional facilities such as SR 520; 2. Encouraging use of transit, car pools, bicycles, and other forms of transportation, that decrease congestion and parking demand; 3. Enhancing multimodal connections within the Overlake Neighborhood and between the neighborhood and nearby areas, including Downtown Redmond; and 4. Providing bicycle facilities, such as bicycle racks in new developments, bike lanes on key streets, and signage at key points.	The East Link Project provides a fast, efficient, and reliable mode of transit as an alternative to SOVs and would provide service to Overlake, Downtown Redmond, and SE Redmond as well as connections to other urban centers in the East Link Project corridor and the region.
N-OV-29: Strive to achieve, by 2030, a non-SOV (transit, bicycling, walking) mode split of 40% for peak-period trips in Overlake through such means as providing a pedestrian and transit supportive environment, developing supportive land uses, working with regional transit agencies to provide expanded transit options, including light rail and bus rapid transit, and implementing a parking management plan.	The East Link Project would provide a non-SOV form of transportation and would also provide opportunities for supportive land uses, and thereby would further the ability of achieving the mode split in the neighborhood.
N-OV-30: Establish Overlake as a Growth and Transportation Efficiency Center by 2010 to promote the use of alternative transportation modes in Overlake.	The East Link Project would help fulfill this goal by providing an alternative transportation mode in Overlake.
N-OV-36: Work closely with Sound Transit and other agencies to identify a preferred light rail route through Overlake Village, along such routes as 152nd Avenue NE, NE 24th Street, or others as identified through Sound Transit's East Link Light Rail planning process. Promote SR 520 as the preferred corridor leading from Overlake Village to the Employment Area and Downtown Redmond.	Sound Transit and the City of Redmond have been coordinating and working together through the East Link Project planning phase and will continue to coordinate through the entire project. SR 520 is the preferred corridor for East Link.
N-OV-37: Locate two light rail stations within the Overlake Neighborhood. Locate a light rail station in Overlake Village in the vicinity of 152nd Avenue NE and NE 24th Street. Create a dynamic and high-quality urban place through consideration of design, land use density and mix, community facilities, and public and private investments that emphasizes pedestrian activity and minimizes parking facilities. Locate a second light rail station in the Employment Area adjoining the existing Overlake Transit Center at NE 40th Street. Create a high-quality place that fits seamlessly with the character of the Employment Area, facilitates transfers between transportation modes, and encourages additional uses to be developed on the Overlake Transit Center site that are supportive of transit stations, such as housing and convenience retail or service uses.	Alternatives associated with the East Link Project include the stations located within the Overlake Neighborhood. East Link would support TOD by allowing a greater density and a mixture of land uses to occur in the station areas. The increased density would allow for more efficient use of land, allowing for an efficient provision of services and facilities as well as promoting walkable and cohesive neighborhoods. East Link would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as regional destinations.
N-OV-51: Encourage new transit-oriented development in order to take advantage of local and regional transit opportunities.	Same as above.
N-OV-59: Recognize the public benefit that can be derived from the site's proximity to the Overlake Village Transit Center, the planned bus rapid transit line, and the proposed Sound Transit light rail station by encouraging walkable, transit-supportive development through incentives tied to building height and allowable floor area.	Same as above.

TABLE F4.2-1 CONTINUED
East Link Project Consistency with Regional and Local Plans, Goals, and Policies

Policy Type and Goals	Discussion
N-OV-78: Encourage linkages between employment campuses and other parts of the neighborhood for walking, biking, transit use, and other non-SOV transportation modes through building and site design.	Same as above.
SOUTHEAST REDMOND	
N-SE-6: If funding under the regional Transportation Plan becomes available and the adopted plans provide for service to the subarea, accommodate a transit station and a maintenance facility for a regional rapid transit system that would make Redmond a primary location for transit operations. Designate a 10- to 15-acre parcel as a transit station with a park-and-ride facility, and establish NE Union Hill Road as the corridor to the maintenance facility.	The East Link Project has located a park-and-ride station within the SE Redmond neighborhood and it is also a potential area for a maintenance facility.
N-SE-7: Transit stations and terminals are desired in the subarea, subject to special development permit approval. Development of retail and services uses in combination with the transit station shall be permitted; provided, that commercial uses are designed and sited to be supportive of transit ridership. Examples of such uses include: day care facilities, newsstands and laundromats, coffee shops and pharmacies.	The East Link Project stations would support development around the stations.
N-SE-35: Interconnect a rapid transit system from regional employment and housing centers to the Redmond Central Business District/Southeast Redmond employment center.	The East Link Project would provide fast, reliable, and efficient connections to the other urban centers in the corridor and other urban communities, as well as to regional destinations.
DOWNTOWN REDMOND	
DT–11 Recognize the eastern portion of the downtown as Redmond's preferred location for a downtown multimodal HCT station that would serve and support the vision for the downtown. Work closely with Sound Transit and other agencies to promote this area as a location for an urban HCT station, and to promote SR-520 as the preferred HCT corridor serving the site. Undertake work in a timely manner to refine the preferred location and to prepare updates to policies and implementation measures. Locate the downtown station to be complementary to location of an additional station in SE Redmond that is designed to intercept vehicles from the Avondale and SR 202 corridors and to serve as the terminus for HCT service.	Sound Transit and the City of Redmond have been coordinating and working together through the East Link Project The EIS considers station and route alternatives consistent with this policy.

Notes:

ADA	Americans with Disabilities Act
CPTED	Crime Prevention through Environmental Design
EIS	environmental impact statements
ETP	Eastside Transportation Program
GMA	Washington State Growth Management Act
HCT	high-capacity transit
HOV	high-occupancy vehicle
RCW	Revised Code of Washington
SOV	single-occupant vehicle
SR	state route
TOD	transit-oriented development
TSP	transit signal priority
WSDOT	Washington State Department of Transportation

Appendix F4.3

Economics Existing Condition Data

TABLE F4.3-1
Regional Population Forecasts

County	2000	2030	2000 Percent of Region's Total	2030 Percent of Region's Total	Average Annual Growth Rate (percent)
King	1,737,034	2,234,775	53.0	49.2	0.8
Kitsap	231,969	334,233	7.1	7.4	1.2
Pierce	700,820	1,008,245	21.4	22.2	1.2
Snohomish	605,986	966,926	18.5	21.3	1.6
Region	3,275,809	4,544,179	100.0	100.0	1.1

Source: PSRC (2006).

TABLE F4.3-2
Regional Household By Type

County and Household Type	2000	2030	2000 Percent of Total	2030 Percent of Total	Average Annual Growth Rate (percent)
King	710,916	997,333	100.0	100.0	1.1
Single-Family	453,441	568,819	63.8	57.0	0.8
Multifamily	257,475	428,514	36.2	43.0	1.7
Kitsap	86,416	136,460	100.0	100.0	1.5
Single-Family	69,779	107,517	80.7	78.8	1.5
Multifamily	16,637	28,943	19.3	21.2	1.9
Pierce	260,800	409,184	100.0	100.0	1.5
Single-Family	198,540	307,243	76.1	75.1	1.5
Multifamily	62,260	101,941	23.9	24.9	1.7
Snohomish	224,834	391,650	100.0	100.0	1.9
Single-Family	166,898	271,470	74.2	69.3	1.6
Multifamily	57,936	120,180	25.8	30.7	2.5
Region	1,282,966	1,934,623	100.0	100.0	1.4
Single-Family	888,658	1,255,045	69.3	64.9	1.2
Multifamily	394,308	679,578	30.7	35.1	1.8

Source: PSRC (2006).

TABLE F4.3-3
Regional Employment Forecasts

County	2000	2030	2000 Percent of Total	2030 Percent of Total	Average Annual Growth Rate (percent)
King	1,196,043	1,664,780	68.0	66.7	1.1
Kitsap	84,632	115,649	4.8	4.6	1.0
Pierce	261,695	367,248	14.9	14.7	1.1
Snohomish	217,673	350,001	12.4	14.0	1.6
Region	1,760,043	2,497,678	100.0	100.0	1.2

Source: PSRC (2006).

TABLE F4.3-4
Regional Employment by Industry

County and Industry Sector	Total Employees		Percent of Total		Average Annual Growth Rate (percent)
	2000	2030	2000	2030	
King	1,196,043	1,664,780	100.0	100.0	1.1
Retail trade	209,969	278,761	17.6	16.7	0.9
Finance, insurance, real estate, and services	505,375	860,399	42.3	51.7	1.8
Manufacturing	147,868	112,435	12.4	6.8	-0.9
Wholesale trade, transportation services, communication, and utilities	172,682	211,856	14.4	12.7	0.7
Government and education	160,149	201,329	13.4	12.1	0.8
Kitsap	84,632	115,649	100.0	100.0	1.0
Retail trade	16,476	23,899	19.5	20.7	1.2
Finance, insurance, real estate, and services	24,313	36,763	28.7	31.8	1.4
Manufacturing	12,301	13,951	14.5	12.1	0.4
Wholesale trade, transportation services, communication, and utilities	3,237	6,334	3.8	5.5	2.3
Government and education	28305	34702	33.4	30.0	0.7
Pierce	261,695	367,248	100.0	100.0	1.1
Retail trade	50045	69338	19.1	18.9	1.1
Finance, insurance, real estate, and services	89,340	144,694	34.1	39.4	1.6
Manufacturing	23,992	27,414	9.2	7.5	0.4
Wholesale trade, transportation services, communication, and utilities	23,917	36,631	9.1	10.0	1.4
Government and education	74,401	89,171	28.4	24.3	0.6
Snohomish	217,673	350,001	100.0	100.0	1.6
Retail trade	44,085	71,599	20.3	20.5	1.6
Finance, insurance, real estate, and services	65,602	135,471	30.1	38.7	2.4
Manufacturing	55,907	56,581	25.7	16.2	0.0

TABLE F4.3-4 CONTINUED
Regional Employment by Industry

County and Industry Sector	Total Employees		Percent of Total		Average Annual Growth Rate (percent)
	2000	2030	2000	2030	
Wholesale trade, transportation services, communication, and utilities	15,204	30,484	7.0	8.7	2.3
Government and education	36,875	55,866	16.9	16.0	1.4
Region	1,760,043	2,497,678	100.0	100.0	1.2
Retail trade	320,575	443,597	18.2	17.8	1.1
Finance, insurance, real estate, and services	684,630	1,177,327	38.9	47.1	1.8
Manufacturing	240,068	210,381	13.6	8.4	-0.4
Wholesale trade, transportation services, communication, and utilities	215,040	285,305	12.2	11.4	0.9
Government and education	299,730	381,068	17.0	15.3	0.8

Source: PSRC (2006).

TABLE F4.3-5
Population, Household, and Employment Forecasts in Station Study Areas by Alternative

Alternative		Stations	Population [a]			Household Units [a]			Employment [a]		
			2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)	2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)	2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)
Segment A, Interstate 90											
Preferred Interstate 90 Alternative (A1)		Rainier, Mercer Island	12,560	17,390	0.8 (Seattle) 1.6 (Mercer Island)	4,920	6,660	0.8 (Seattle) 1.6 (Mercer Island)	5,890	7,350	1.6 (Seattle) 0.4 (Mercer Island)
Segment B, South Bellevue											
Preferred 112th SE Modified Alternative (B2M)	to *Preferred At-Grade Alternative C11A*	South Bellevue	1,380	1,660	0.6	580	700	0.6	250	340	1.0
	to *Preferred Tunnel Alternative C9T*	South Bellevue, SE 8th	2,060	2,440	0.6	860	1,010	0.6	7,760	9,880	0.8
Bellevue Way Alternative (B1)		South Bellevue	1,440	1,730	0.6	600	730	0.6	250	340	1.0
112th SE At-Grade Alternative (B2A)		South Bellevue, SE 8th	2,060	2,440	0.6	860	1,010	0.6	8,470	10,800	1.0
112th SE Elevated Alternative (B2E)		South Bellevue, SE 8th	2,060	2,440	0.6	860	1,010	0.6	7,930	10,190	1.0
112th SE Bypass Alternative (B3)		South Bellevue	1,380	1,658	0.6	560	700	0.6	250	340	1.0
B3 - 114th Extension Design Option		South Bellevue	1,380	1,660	0.6	580	700	0.6	200	260	0.9
BNSF Alternative (B7)		118th	1,390	1,700	0.7	520	640	0.6	7,040	9,080	0.9
Segment C, Downtown Bellevue											
Preferred 108th NE At-Grade Alternative (C11A)		Bellevue South, Bellevue North, Hospital	5,960	22,070	4.5	3,110	15,020	4.0	5,910	11,060	2.1
Preferred 110th NE Tunnel Alternative (C9T)[b]		East Main, Bellevue Transit Center, Hospital	5,860	22,310	4.6	2,220	12,220	4.4	5,010	9,350	2.1
Bellevue Way Tunnel Alternative (C1T)		Old Bellevue, Bellevue Transit Center, Hospital	9,830	40,210	4.8	3,440	13,820	4.7	3,140	5,600	1.9
106th NE Tunnel Alternative (C2T)		East Main, Bellevue Transit Center, Hospital	5,860	22,310	4.6	2,080	7,700	4.5	3,180	5,650	1.9
108th NE Tunnel Alternative (C3T)		East Main, Bellevue Transit Center, Ashwood/Hospital	5,010	21,150	4.9	1,810	7,330	4.8	2,980	5,370	2.0

TABLE F4.3-5 CONTINUED
Population, Household, and Employment Forecasts in Station Study Areas by Alternative

Alternative	Stations	Population [a]			Household Units [a]			Employment [a]		
		2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)	2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)	2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)
Couplet Alternative (C4)	East Main, Bellevue Transit Center, Ashwood/Hospital	5,450	24,890	5.2	1,960	8,600	5.1	2,980	5,360	2.0
112th NE Elevated Alternative (C7E)	East Main, Bellevue Transit Center, Ashwood/Hospital	4,690	19,130	4.8	1,690	6,630	4.7	2,670	4,650	1.9
110th NE Elevated Alternative (C8E)	East Main, Bellevue Transit Center, Ashwood/Hospital	4,790	19,250	4.7	1,730	6,680	4.6	2,900	5,210	2.0
110th Avenue NE At-Grade Alternative (C9A)	East Main, Bellevue Transit Center, Hospital	5,000	18,490	3.3	2,640	12,600	4.0	5,200	9,430	2.0
114th Avenue NE Elevated Alternative (C14E)	Bellevue Transit Center, Hospital	5,860	22,310	4.6	1,690	8,760	4.2	4,430	8,070	2.0
Segment D, Bel-Red/Overlake										
Preferred NE 16th At-Grade Alternative (D2A)	124th, 130th, Overlake Village, Overlake Transit Center	4,530	8,930	2.3	1,570	3,080	2.3	15,830	25,630	1.6
D2A - 120th Station Design Option	124th, 130th, Overlake Village, Overlake Transit Center	4,530	8,930	2.3	1,570	3,080	2.3	15,830	25,630	1.6
D2A - NE 24th Design Option	124th, 130th, Overlake Village, Overlake Transit Center	4,530	8,930	2.3	1,570	3,080	2.3	15,830	25,630	1.6
NE 16th Elevated Alternative (D2E)	124th, 130th, Overlake Village, Overlake Transit Center	4,530	8,930	2.3	1,570	3,080	2.3	15,230	22,370	1.3
NE 20th Alternative (D3)	124th, 130th, Overlake Village, Overlake Transit Center	4,530	8,940	2.3	1,570	3,080	2.3	18,150	26,080	1.2
SR 520 Alternative (D5)	Overlake Village, Overlake Transit Center	1,420	4,360	3.8	500	1,510	3.8	8,950	14,120	1.5
Segment E, Downtown Redmond										
Preferred Marymoor Alternative (E2)	SE Redmond, Downtown Redmond	3,720	6,130	1.7	1,690	3,130	2.1	4,900	9,450	2.2

TABLE F4.3-5 CONTINUED
Population, Household, and Employment Forecasts in Station Study Areas by Alternative

Alternative	Stations	Population [a]			Household Units [a]			Employment [a]		
		2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)	2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)	2000	2030	Average Annual Growth Rate 2000 to 2030 (percent)
E2 - Redmond Transit Center Design Option	SE Redmond, Redmond Town Center, Redmond Park and Ride	4,670	7,680	1.7	2,100	3,880	2.1	4,970	9,590	2.2
Redmond Way Alternative (E1)	Redmond Town Center, SE Redmond	2,800	5,620	2.3	960	1,920	2.3	6,710	11,950	1.9
Leary Way Alternative (E4)	Redmond Town Center, SE Redmond	2,370	4,730	2.3	810	1,620	2.3	6,820	12,660	2.1

[a] Estimates rounded to the nearest 10.

[b] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to impacts for either *Preferred Alternative C9T* or *B2M*.

Notes:

Some alternatives will have the same station names as other alternatives but with different population, household, and employment estimates. This is because stations in some alternatives have the same names but are in somewhat different locations.

This table was created using Puget Sound Regional Council traffic analysis zone data within a half-mile of the station. In the event that the half-mile study area of more than one station area overlaps with another in the same alternative, the data were collected as a single station area to avoid overcounting overlapping station areas.

Data were tabulated to fit the study area.

Source: King County Department of Assessments (2007); City of Seattle (2007); PSRC (2006).

TABLE F4.3-6
Comparison of I-90 Peak Travel Time Freight Growth and Regional Population Growth

Direction	Annual Growth Rate	
	2007 to 2020 (percent)	2007 to 2030 (percent)
I-90 Freight		
AM Peak		
Westbound	0.8	0.7
Eastbound	2.1	-0.3
Overall	1.5	0.3
PM Peak		
Westbound	1.9	0.4
Eastbound	-0.4	2.0
Overall	0.9	1.2
	2000 to 2030 Annual Growth Rate	
Average annual regional population growth	1.1	

Source: CH2M HILL (2007b).

Appendix F4.5

Visual Consistency and Key Observation Point Analyses

Appendix F4.5

Visual Consistency and Key Observation Point Analyses

F4.5.1 Visual Consistency with Comprehensive Plans

Sound Transit assessed the East Link Project's consistency with visual resource goals and policies of relevant local comprehensive plans and ordinances; Table F4.5-1 presents the results of the analysis. The subarea neighborhood plans listed in the table are part of the comprehensive plans of their respective cities. With the three exceptions discussed below, none of the general plans or subarea plans were found to contain specific goals and polices for aesthetic or visual resources of direct relevance to the East Link Project, but most contain guidance relative to maintaining and improving the appearance and/or character of the physical environment.

One possible exception would concern view corridor guidelines associated with the Downtown Core Design District guidelines, which were developed by the City of Bellevue in order to implement the *Downtown Subarea Comprehensive Plan* policies. The pedestrian access structure associated with the 112th NE Elevated Alternative (C7E) could intrude on views of some Cascade Mountains peaks from the east side of 110th Avenue NE, part of which has been designated as a major open space as discussed below in Table F4.5-1. The pedestrian access structure (particularly the "tent" structures) associated with the 114th NE Elevated Alternative (C14E) could also intrude on views of some Cascade Mountains peaks from part of 110th Avenue NE. The other possible exception with consistency would involve the elevated station and elevated profile of the 110th NE Elevated Alternative (C8E) as it passes over 110th Avenue NE. Alternative C8E would likely not meet the intent of the urban design element in the *Bellevue Comprehensive Plan* with respect to avoiding shadows and allowing access to sunlight in areas that receive heavy pedestrian use (as described below in Table F4.5-1, part of 110th Avenue NE has been designated as a major open space).

As design of the East Link Project progresses beyond the route selection phase, specific ordinances, regulations, and design guidelines will be reviewed to help guide final design and consistency with the development directives of the municipalities along the selected route. During the final design of the East Link Project, Sound Transit will coordinate with the various cities to, among other things, help meet relevant policies, guidelines, and requirements.

F4.5.2 Key Observation Point Analysis

This section provides site-specific descriptions of the visual impacts of the East Link Project and the alternatives on selected viewing locations. Because it is not possible to include all important viewing locations near a proposed project, representative locations—key observation points (KOPs)—were selected. KOPs are used to describe existing visual conditions and to analyze the impacts of a proposed action on visual resources.

Thirty-one KOP locations were selected for the East Link Project after the field reconnaissance of the project alternatives and meetings with the planning departments of the Cities of Bellevue and Redmond. In addition, important community features that were identified in public workshops were considered in determining KOP locations.

The impacts of the alternatives on the KOPs are described by segment in the following subsections in terms of potential changes in landscape character, visual quality categories, and impacts on sensitive viewers. Where applicable, impacts on the KOPs from shadows and light and glare are also noted in the descriptions.

The 31 KOP locations are shown on Map F4.5-1 that appears before Exhibits F4.5-1 to F4.5-31 at the end of this section. These exhibits illustrate the changes in existing views caused by the alternatives. Photographs show the existing views from the KOPs, followed by "project" simulations that depict what the alternative would look like when viewed from the KOP.

TABLE F4.5-1
Analysis of Project Consistency

Plan Goals and Policies	Consistency of East Link Project
City of Seattle Municipal Code	
Title 25 (Environmental Protection and Historic Preservation) of the City of Seattle Municipal Code (SMC) contains policies relevant to the project vicinity. Subsection P (Public View Protection) of SMC (Specific environmental policies) states that it is the City's policy to protect public views of significant natural and built features such as Mount Rainier, the downtown skyline, major bodies of water, and historic landmarks designated by the Landmarks Preservation Board. Attachment 1 of that section identifies view corridors from which public views are protected. Relevant to this project are the protected views from sections of 4th Avenue South, I-5, and I-90. Potential effects on views from these corridors must be identified during the State Environmental Policy Act (SEPA) review process.	The East Link Project would not block views of the downtown skyline, major bodies of water, and/or historic landmark from protected view corridors that include 4th Avenue South, I-5, and I-90. The project would, therefore, be consistent with the intent of Title 25 of SMC.
City of Seattle Neighborhood Plans	
The Rainier Station would be constructed in an area that falls between areas under the jurisdiction of the *North Rainier Neighborhood Plan* and the *Central Area Neighborhood Plan*. These plans do not have specific visual or aesthetic elements, but they identify the desire to maintain or improve the appearance of the two neighborhoods.	The East Link Project would add pedestrian-scale features associated with the station that would be seen from nearby (and elevated) areas, such as Judkins Park and Sam Smith Park. The station would help to slightly improve views from these areas and would be consistent with the desire to maintain or improve the appearance of the neighborhoods. Final design of this portion of the project will involve coordinating with the City of Seattle and following pertinent design guidelines and regulations.
Mercer Island Comprehensive Plan	
The *Mercer Island Comprehensive Plan* does not contain a specific visual or aesthetic element, nor does it contain aesthetic or visual resource goals that specifically apply to the East Link Project. It does, however, have goals for the Town Center Zone, which is immediately south of the I-90 corridor.	The East Link Project would be consistent with the *Mercer Island Comprehensive Plan*. Final design of the Mercer Island Station will involve coordinating with the City of Mercer Island and following pertinent design guidelines and regulations.
Bellevue Comprehensive Plan	
The *Bellevue Comprehensive Plan* does not contain a specific visual or aesthetic element, but it does include an urban design element that contains goals and policies that are relevant to visual or aesthetic issues potentially associated with the East Link Project. In particular, there is a reference within the urban design element that encourages new projects to be designed to avoid shadows and allow access to sunlight, particularly for areas that receive pedestrian use. The urban design element also encourages working closely and cooperatively with the regional transit provider in the planning and design of any transit facility to ensure that the design of the facilities reflect the general character of Bellevue and the surrounding neighborhoods. None of the subarea plans for the four Bellevue subareas through which East Link Project would pass contain specific visual or aesthetic elements. Two of the subarea plans, however, contain goals and/or policies that relate to visual or aesthetic issues relevant to the East Link Project (see below).	The elevated station and elevated profile of the 110th NE Elevated Alternative (C8E) as it passes over 110th Avenue NE would create shadows and block sunlight on sidewalks and nearby areas. The alternative would likely not meet the intent of the urban design element regarding shadows and sunlight in areas that receive pedestrian use. The portion of the elevated station and elevated profile of the 112th NE Elevated Alternative (C7E) located in Downtown Bellevue would also create shadows and block sunlight on sidewalks and nearby areas; however, this portion of 112th Avenue NE is not heavily used by pedestrians. During final design, Sound Transit will coordinate with the City of Bellevue and follow pertinent design guidelines and regulations from the *Bellevue Comprehensive Plan* and its elements identified by the City.

TABLE F4.5-1 CONTINUED
Analysis of Project Consistency

Plan Goals and Policies	Consistency of East Link Project
Southwest Bellevue Subarea Plan	
This *Southwest Bellevue Subarea Plan* has several transportation and urban design goals that can be considered to be related to visual or aesthetic issues, which can be grouped as follows: A. **Urban Design Goals.** Encourage design features such as landscaping, pedestrian amenities, and street furniture at intersections and in areas with excess right-of-way on Bellevue Way SE to establish and/or enhance residential character. B. **Transportation Goals.** Encourage aesthetic development of Bellevue Way SE as a gateway from I-90 to Main Street. Provide for sidewalks and bicycle lanes on both sides of the street and landscaping along the entire street to give the feeling of a continuous boulevard and a gateway for Bellevue for both Bellevue Way SE and 112th Avenue SE.	Project-related features, particularly those related to stations, would provide design features and pedestrian amenities that would contribute to an attractive neighborhood. By coordinating with the City of Bellevue during final design, Sound Transit will follow pertinent design guidelines and regulations identified by the City from this *Southwest Bellevue Subarea Plan*.
Bellevue Downtown Subarea Plan	
This *Bellevue Downtown Subarea Plan* contains various goals that encourage developing an aesthetically attractive downtown through various means that could be relevant to the East Link Project. Among them are differentiating downtown districts by using streetscape improvements, directional signage, and wayfinding features (which help people navigate through the Downtown).	By coordinating with the City of Bellevue during final design, Sound Transit will follow pertinent design guidelines and regulations identified by the City of Bellevue that are contained in this *Bellevue Downtown Subarea Plan*. Project-related features, particularly those related to stations, would provide design features and pedestrian amenities that would contribute an attractive pedestrian-oriented downtown.
Bellevue Downtown Core Design District	
The Downtown Core Design District includes the area bounded by 102nd Avenue NE on the west, NE 9th Street on the north, 112th Avenue NE on the east, and NE 3rd Street on the south. The purpose of the Downtown Core Design District is to implement the *Bellevue Downtown Subarea Comprehensive Plan* policies. Section 20.25A.100.E.6 of the guidelines concerns “View Preservation Corridors” and states that the purpose of the corridors is to “retain the opportunity for viewing Lake Washington, the Seattle skyline, the Olympic Mountains and the Cascade Mountains from the major public open spaces and the major pedestrian corridor.” Two of the three major public spaces (106th Avenue NE and 110th Avenue NE) in the district would have Segment C alternatives passing through them. These major open spaces are centered on the two avenues’ intersection with the major pedestrian corridor. The portion of the major pedestrian corridor that Segment C alternatives would cross is NE 6th Street. Therefore, views that are of relevance to Segment C alternatives are pedestrian views (street level) from the portions of 106th and 110th Avenues NE near their intersections with NE 6th Street and views from NE 6th Street (Including the Bellevue Transit Center). Of the views described in the guidelines, views of the Cascade Mountains are of relevance to Segment C alternatives.	Peaks of the Cascades Mountains might be seen by pedestrians in some parts of the general area near the intersection of 110th Avenue NE and NE 6th Street but not from some areas near the eastern portion of the intersection (see Appendix F4.5, Exhibit F4.5-14, Photo 14a). Hills to the east of downtown block most views of the main portion of the Cascade Mountains from street level and buildings block views to the southeast of Mount Rainier. The transition structures and elevated portions of the alignments associated with *Preferred 108th NE At-Grade Alternative (C11A)* and *Preferred 110th NE Tunnel Alternative (C9T)* that would be located in NE 6th Street would not block views of the Cascade Mountains from the 110th Avenue NE and NE 6th Street intersection area. The 112th NE Elevated Alternative (C7E) elevated pedestrian walkway might intrude on views of some Cascade Mountain peaks from limited areas around 110th Avenue NE and NE 6th Street but not from KOP 17 (see Appendix F4.5, Exhibit F4.5-17, Photo 17b). The tent structures associated with 114th NE Elevated (C14E) would block some street level views of parts of the Cascade Mountains the 110th Avenue NE and NE 6th Street intersection area (see Appendix F4.5, Exhibit F4.5-17, Photo 17c).
Bel-Red/Northup Subarea Plan	
In the *Bel-Red/Northup Subarea Plan*, there are several community design goals that stress using landscaping for transportation improvements along arterials to create a sense of identity and continuity and that require that new development plant and maintain street trees.	By coordinating with the City of Bellevue during final design, Sound Transit will follow pertinent design guidelines and regulations identified by the City of Bellevue that are contained in this subarea plan.

TABLE F4.5-1 CONTINUED
Analysis of Project Consistency

Plan Goals and Policies	Consistency of East Link Project
Redmond Comprehensive Plan	
The *Redmond Comprehensive Plan* does not contain specific visual or aesthetic elements; it does, however, have an element for Community Character and Historic Preservation that contains a subsection that addresses view corridors and other topics. Policies encourage identifying gateways into the city and unique neighborhood gateways, as well as direct that public view corridors, such as those that include the Sammamish River, be preserved and enhanced through design efforts. The *Redmond Comprehensive Plan* also includes neighborhood plans that contain guidance for issues related to visual quality (such as character and design) and other topics. In addition to the *Downtown Plan and Overlake Neighborhood Plan* discussed below, East Link Project segments would pass through parts of the Grass Lawn and Southeast Redmond neighborhoods.	By coordinating with the City of Redmond during final design, Sound Transit will follow pertinent policies, design guidelines, and regulations identified by the City that are contained in the *Redmond Comprehensive Plan* and neighborhood plans.
Redmond Downtown Plan	
The *Redmond Downtown Plan* consists of a number of different districts that together compose Downtown Redmond. The plan has an overarching Character and Design section that provides guidance relevant to issues related to character and appearance. Other districts within the downtown area also contain directives relevant to character and appearance.	By coordinating with the City of Redmond during final design, Sound Transit will follow pertinent policies, design guidelines, and regulations identified by the City of Redmond that are contained in the *Redmond Downtown Plan*.
Overlake Neighborhood Plan Update	
The *Overlake Master Plan and Implementation Strategy (Master Plan)*, as part of the *Overlake Neighborhood Plan Update* process, updates the *Redmond Comprehensive Plan* for the Overlake neighborhood. It does not contain specific visual or aesthetic resources components, but it does contain policies that address related topics such as neighborhood character. The master plan seeks to create a sense of place and a unique neighborhood character for the Overlake area and seeks to encourage improvement of the pedestrian environment.	By coordinating with the City of Redmond during final design, Sound Transit will follow pertinent design guidelines and regulations identified by the City of Redmond that are contained in this *Overlake Neighborhood Plan Update*. The East Link Project (particularly near stations) would provide design features and pedestrian amenities that would contribute an attractive pedestrian-oriented neighborhood.

F4.5.2.1 Segment A

The impacts of the *Preferred Interstate 90 Alternative (A1)* on views at KOPs 1 and 2—neither of which would be substantially affected by the East Link Project—are as follows:

- **KOP 1, looking west towards Seattle I-90 portal (Exhibit F4.5-1, Photos 1a and 1b)**. The light rail system would be seen in the center of the I-90 floating bridge. The low, linear, at-grade route would be compatible with the bridge in terms of form, line, and color, but it would not add to the bridge's apparent height when viewing it from Lake Washington or the shoreline. The light rail vehicles would be visually consistent with the transportation-oriented character of the bridge and would not change the existing medium visual quality category. Sensitive viewers (I-90 Trail users, boaters, and shoreline residents) would likely not be disturbed by the presence of East Link because it would cause little change to the appearance of the bridge. Other than the light rail vehicles, the most noticeable project components would be the overhead catenary system (OCS), but due to their rectilinear form, scale, and color, they would be similar in character to the bridge. Note that the photograph used for KOP 1 is elevated and displays more of the bridge and East Link route than would actually be seen by viewers from vehicles.
- **KOP 2, looking northeast from 80th Avenue SE on Mercer Island (Exhibit F4.5-2, Photos 2a and 2b)**. The trackway and Mercer Island Station would be clearly seen from this location but would be consistent with the existing transportation-oriented character of the I-90 retained cut and nearby elevated sidewalks. Project components such as the stations stairs, elevators, structures (shelters), and loading platforms would add human-scaled architectural

elements and human activity to what is now a vehicular dominated "freeway" and would improve visual intactness and unity. Sensitive viewers (recreationists using the parks-on-the-lid that span the retained cut) would likely find the presence of the elevators and station area to be visually neutral or somewhat of an improvement over freeway lanes. The East Link Project would not change the existing medium visual quality category.

F4.5.2.2 Segment B

Preferred 112th SE Modified Alternative (B2M)

KOPs 3, 5, 7, and 8 are located along this alternative, and following are the impacts to each:

- **KOP 3, 112th Avenue SE looking south at I-90 (Exhibit F4.5-3, Photos 3a and 3b)**. The top of the elevated guideway, the OCS, and passing trains would be seen from this location but would be consistent with the existing character of the view, which is dominated by the elevated I-90. The horizontal line and form of the guideway along with its color would be similar to that of the elevated I-90 structure. At night, lights from the light rail vehicles would be seen by sensitive viewers (i.e., residents) but would be seen less frequently than the lights of vehicles passing by on I-90. *Preferred Alternative B2M* would not change the view's existing medium visual quality category.
- **KOP 5, residence overlooking Bellevue Way SE (Exhibit F4.5-5, Photos 5a and 5b)**. Very little of *Preferred Alternative B2M* would be seen from the deck of this residence. Vegetation that currently screens some of the view to the east, including Bellevue Way SE, would continue to block most of the view of *Preferred Alternative B2M* except a possible view of the OCS. The high visual quality category of the view from this location would not be changed.
- **KOP 7, Bellevue Way SE looking northeast across the street from the front of the Winters House (Exhibit F4.5-7, Photos 7a and 7b)**. Existing mature vegetation in front of the house would be removed. Sound Transit would build a new landscaped entry on top of the portion of the lid in front of the building covering the retained cut. During the design development process, landscape plans for this area will be examined as part of the design review by the City of Bellevue. After the new entrance is established, the front of the Winters House would regain its high visual quality category.
- **KOP 8, the intersection of 112th Avenue SE and Bellevue Way SE looking north along 112th Avenue SE from Bellevue Way (Exhibit F4.5-8, Photos 8a and 8b).** The variation that is simulated is the one that would connect to *Preferred 110th NE Tunnel Alternative (C9T)*. As depicted in the simulation, the retained-cut profile of this alternative would not be readily seen from the intersection. Vegetation between the construction right-of-way and the intersection that would be retained would partially screen views of the alternative. The portion of the alternative that transitions from retained cut to at-grade north of the intersection can be seen in the simulation. The most noticeable change from this view north on 112th Avenue SE would be the removal of some large trees within the construction right-of-way. Sound Transit would replant the area between the intersection and the alignment to enhance the visual buffer of *Preferred Alternative B2M* components created by remaining vegetation. During the design development process, landscape plans for this area will be examined as part of the design review by the City of Bellevue. Removing vegetation would change the appearance of the intersection, but would not lower the area's high visual quality category to medium.

Preferred 112th SE Modified Alternative (B2M) Connecting to Preferred Alternative C11A

This portion of *Preferred Alternative B2M* route would pass KOP 9, and the impacts would be as follows:

- **KOP 9, looking northeast along 112th Avenue SE (Exhibit F4.5-9, Photos 9a and 9b).** *Preferred Alternative B2M* connecting to *Preferred 108th NE At-Grade Alternative (C11A)* would replace a series of landscaped medians with the at-grade guideway, widen the road, and remove some existing trees on both sides of 112th Avenue NE. Removing the landscaped medians would lower intactness along the route, but overall, the existing heavily landscaped boulevard-like character of this part of 112th Avenue SE would be retained, largely because of the continued existence of numerous nearby mature trees and adjacent landscaped areas. The area's high degree of vividness and unity would remain high and the existing high visual quality category would be retained.

Preferred 112th SE Modified Alternative (B2M) Connecting to Preferred Alternative C9T

This portion of the *Preferred Alternative B2M* route would pass KOP 9, and the following describe the potential visual impacts:

- **KOP 9, looking northeast along 112th Avenue SE (Exhibit F4.5-9, Photos 9a and 9c).** The portion of the *Preferred Alternative B2M* to *Preferred Alternative C9T* route would remove a series of landscaped medians and vegetation along the east side of the 112th Avenue SE but would not remove vegetation along the western side of the street. Removing the landscaped medians would lower intactness along the route, but overall, the existing boulevard-like character of the viewed landscape would be retained, largely because of the continued existence of numerous nearby mature trees and adjacent landscaped areas. The area's high degree of vividness and unity would remain high, and the existing high visual quality category would remain.

Bellevue Way Alternative (B1)

KOPs 3, 4, 5, 6, and 11 are located along the Bellevue Way Alternative (B1) route. KOP 19 would be the one KOP where the existing visual quality category would change. The impacts of Alternative B1 on these KOPs are as follows:

- **KOP 3, 112th Avenue SE looking south at I-90**. The at-grade trackway and light rail vehicles associated with this alternative would not be seen from this KOP.
- **KOP 4, looking at South Bellevue Park-and-Ride from 112th Avenue SE (Exhibit F4.5-4, Photos 4a and 4b)**. The at-grade South Bellevue Station associated with Alternative B1 as well as light rail vehicles and a parking structure would be seen from this location but would not change the "park-and-ride/arterial" character of the area near the existing South Bellevue Park-and-Ride Lot. The at-grade route, loading platforms, and structures (shelters) would add built architectural elements to the area and would be similar in form, line, and color to the existing bus stop area. Landscaping (which was not depicted in the simulation so that project components could be clearly seen) would be provided that would conform to City of Bellevue requirements and would help soften the appearance of the station area to allow it to better fit in with nearby areas. The west side of the new parking garage would be seen from this location and would add a new large-scale element to the viewed landscape. This alternative would not change the existing overall medium visual quality category of the park-and-ride lot and general area.
- **KOP 5, residence overlooking Bellevue Way SE (Exhibit F4.-5, Photos 5a and 5c)**. Alternative B1 would remove some of the trees on the slope below the deck of this residence that currently screens some of the view to the east, including Bellevue Way SE. Removing many of the trees would allow residents to see the OCS and tops of passing rail cars from some locations on the deck and would open up wider views of the blueberry fields and Mercer Slough Nature Park to the east. The portions of the project components that would be seen would not encroach on this view and seeing them would not greatly change the visual character of the viewed landscape or change the view enough to lower the view's high visual quality category to medium.
- **KOP 6, Bellevue Way SE near the Winters House looking south (Exhibit F4.5-6, Photos 6a and 6b).** Adding two lanes to the west side of Bellevue Way SE would remove trees along the bottom of the existing slope and construct a retaining wall that would reach heights of up to 28 feet. The changes would be noticeable and would replace the existing "soft" western edge of the avenue with a retaining wall that would give it a more developed character. The heavily vegetated hillside would still be a primary visual component of this view but would be less dominant than it currently is. Alternative B1 would reduce visual quality, but with retaining wall treatments (not depicted in the simulation), it would not lower visual quality enough to change the classification from high to medium. Potential mitigation measures would reduce the impacts of the retaining walls simulated in Exhibit F4.5-6b. The measures would include re-landscaping and reducing the impact of the walls using methods that could include retaining walls (or a series of smaller walls) with ornamental patterns or interesting textures. Sound Transit would re-landscape areas along the sections of Bellevue Way SE that would be removed to widen the street and construct the retaining walls. In addition, Sound Transit would coordinate with the City of Bellevue and the neighborhood during design of these alternatives. The presence of the wall would change the character of Bellevue Way SE, but would not change the character or visual quality of views towards the Winters House from the roadway.

- **KOP 11, Bellevue Way SE from SE 10th Street (Exhibit F4.5-11, Photos 11a and 11b).** Alternative B1 would widen Bellevue Way SE to the east, remove existing vegetation (and a structure), and add an at-grade guideway. The form, scale, and line of the at-grade guideway would be compatible with the road and nearby areas. Light rail vehicles would pass closely by this location and would provide new visual elements. The character of this arterial would become more intensely linked to transportation. Although some trees and vegetation would be removed, the areas adjacent to the route would remain pleasant and the alternative would not lower the area's medium visual quality category.

112th SE At-Grade Alternative (B2A)

Of the six KOPs (3, 4, 5, 6, 9 and 10) located along this alternative, the visual quality category of two (KOPs 5 and 6) would change. The 112th SE At-Grade Alternative (B2A) would have the following impacts on the six KOPs:

- **KOP 3, 112th Avenue SE looking south at I-90 (Exhibit F4.5-3, Photos 3a and 3b).** Impacts would be similar to those described for *Preferred Alternative B2M.*

- **KOP 4, looking at South Bellevue Park-and-Ride from 112th Avenue SE (Exhibit F4.5-4, Photos 4a and 4c)**. The guideway would still be elevated at this location and, along with the elevated station, would add large-scale horizontal elements to the view from this location. As explained under the Alternative B1 impact assessment for KOP 4, landscaping required by the City of Bellevue (which is not depicted in the simulation so that project components could be clearly seen) would help soften the appearance of the new facility. Although the new project components would be highly visible from this location, they would not be out of character with the existing transportation facility character of the park-and-ride lot. The elevated structures would be memorable and would not reduce intactness or unity enough to lower the overall visual quality category from medium to low.

- **KOP 5, residence overlooking Bellevue Way SE looking east (Exhibit F4.5-5, Photos 5a and 5d)**. Alternative B2A would have a greater impact than Alternative B1 because the project components of B2A would be more visible. At this location, the profile of the alternative would transition from elevated to at-grade, and the guideway would still be above grade at this location. Residents would see the OCS and passing light rail vehicles below them as well as the east side of Bellevue Way SE (which is currently screened by vegetation). Removal of the trees would also open up views to the east of blueberry fields and Mercer Slough Nature Park. The project components would somewhat change the visual character of the viewed landscape by adding views of transportation elements (the guideway and clearer views of Bellevue Way SE), which would lower vividness and unity ratings from high to medium and lower the existing high visual quality category to medium. It should be noted that the residence selected for this viewpoint is one of the closest hillside residences to Bellevue Way SE. Other residences located farther away from the alternative would have less direct views of the project components due to distance and the screening effect of vegetation.

- **KOP 6, Bellevue Way SE near the Winters House looking south (Exhibit F4.5-6, Photos 6a and 6c).** The portion of the retaining wall that would be seen from this location would somewhat change the character of Bellevue Way SE, but would not change the high visual quality category. It would not change the character or visual quality of views towards the Winters House from the roadway. Some of the potential mitigation measures discussed for Alternative B1 could be incorporated for this alternative.

- **KOP 9, looking northeast along 112th Avenue SE (Exhibit F4.5-9, Photos 9a and 9b).** Alternative B2A would replace a series of landscaped medians with the at-grade guideway, widen the road, and remove some existing trees. Removing the landscaped medians would lower intactness along the route, but overall, the existing boulevard-like character of the viewed landscape would be retained, largely because of the continued existence of numerous nearby mature trees and adjacent landscaped areas. The area's high degree of vividness and unity would remain high and the existing high visual quality category would remain.

- **KOP 10, 112th Avenue SE looking north near SE 8th Street (Exhibit F4.5-10, Photos 10a and 10b).** The view from this location would include the at-grade station as well as part of the retained cut that leads to the tunnel portal. Expanding 112th Avenue SE to the east and west would remove a number of existing trees and other adjacent roadside vegetation. The at-grade station and retained-cut structure would be pedestrian in scale and would increase the view's vividness.

Although existing trees would be removed and the part of the street near just north of the station (but south of Surrey Downs Park) widened, Alternative B2A would not lower the view's medium visual quality classification enough to reclassify it as low.

112th SE Elevated Alternative (B2E)

The visual quality category of KOPs 5 and 6 among the six KOPs located along the 112th SE Elevated Alternative (B2E) (KOPs 3, 4, 5, 6, 9 and 10) would change from high to medium under this alternative. The impacts of Alternative B2E would be as follows:

- **KOP 3, 112th Avenue SE looking south at I-90 (Exhibit F4.5-3, Photos 3a and 3b).** Impacts would be similar to those described for *Preferred Alternative B2M.*
- **KOP 4, looking at South Bellevue Park-and-Ride Lot from 112th Avenue SE (Exhibit F4.5-4, Photos 4a and 4c).** Impacts would be the same as described for Alternative B2A.
- **KOP 5, residence overlooking Bellevue Way SE (Exhibit F4.5-5, Photos 5a and 5e)**. The elevated structure, OCS, and passing light rail vehicles would be clearly seen. Seeing these project components would add a transportation element into the view of the blueberry fields, which would change the visual character of the viewed landscape. The project components would lower the existing high vividness and unity and lower the visual quality category to medium. It should be noted that the residence selected for this viewpoint is one of the hillside residences closest to Bellevue Way SE. At night, lights from the light rail vehicles would be seen from some residences. Other residences located farther from the alternative would have less direct views of the project components due to distance and vegetative screening.
- **KOP 6, Looking south along Bellevue Way SE near Winters House (Exhibit F4.5-6, Photos 6a and 6d).** Alternative B2E would add a large-scale elevated element to the view from this location; it would contrast in color, form, color, and texture with the vegetated hillside. Construction would remove existing trees and other vegetation along on the adjacent hillside. Alternative B2E would change the existing visual quality category from high to medium. Sound Transit would re-landscape areas under the sections of hillside that would be altered to construct the elevated structure. In addition, Sound Transit would coordinate with the City of Bellevue during alternative design. The presence of the elevated structure would change the character of Bellevue Way SE but would not change the character or visual quality of views towards the Winters House from the roadway.
- **KOP 9, looking northeast along 112th Avenue SE (Exhibit F4.5-9, Photos 9a and 9d)**. Alternative B2E would generally retain the existing boulevard-like character of 112th Avenue SE and would retain trees along the left side of the view that would be removed with Alternative B2A as a result of widening 112th Avenue SE. Alternative B2E would introduce a large-scale elevated transportation element into the viewed landscape. The elevated guideway would follow the curve of the road and be visually associated with it. The guideway would also contribute to visual vividness and unity of the area along the road in this view. The alternative would not change the existing high visual quality category of this view.
- **KOP 10, 112th Avenue SE looking north near SE 8th Street (Exhibit F4.5-10, Photos 10a and 10c).** The elevated station and structure would remove trees and vegetation along the east side of 112th Avenue SE and would block views of remaining trees and the nearby office building parking lot. The scale, form, line, and color of the elevated station and structure would greatly change the character of this portion of 112th Avenue SE and would lower visual quality of the area seen from this location. However, it would not lower visual quality enough to reclassify the area's medium visual quality category to low.

112th SE Bypass Alternative (B3)

The 112th SE Bypass Alternative (B3) passes through KOPs 3, 4, 5, 6, 9, and 10. Impacts to these KOPs for Alternative B3 would be as follows:

- **KOP 3, 112th Avenue SE looking south at I-90 (Exhibit F4.5-3, Photos 3a and 3b).** Impacts would be similar to those described for *Preferred Alternative B2M.*
- **KOP 4, looking at South Bellevue Park-and-Ride Lot from 112th Avenue SE (Exhibit F4.5-4, Photos 4a and 4c).** Impacts would be same as those described for Alternative B2A.
- **KOP 5, residence overlooking Bellevue Way SE (Exhibit F4.5-5, Photos 5a and 5d)**. Impacts would be same as those described for Alternative B2A.
- **KOP 6, Looking south along Bellevue Way SE near the Winters House (Exhibit F4.5-6, Photos 6a and 6c).** The retaining wall that would be

constructed into the hillside would not extend as far south along Bellevue Way SE as it would with Alternative B1. Alternative B3 would be very similar in appearance to Alternative B2A from this location and would not lower visual quality enough to change the category from high to medium.

- **KOP 9, looking northeast along 112th Avenue SE (Exhibit F4.5-9, Photos 9a and 9b)**. Impacts would be same as those described for Alternative B2A.
- **KOP 10, 112th Avenue SE looking north near SE 8th Street (Exhibit F4.5-10, Photos 10a and 10d).** North of the intersection of SE 8th Street and 112th Avenue SE, Alternative B3 leaves 112th Avenue SE and transitions from at-grade to an elevated structure, as depicted in the simulation. Its route passes through parking lots and undeveloped areas and near office buildings and would minimize the removal of large trees along 112th Avenue SE. The presence of the elevated profile would be consistent with the nearby structures, including I-405, and would change the medium visual quality category of the area through which it passes.

BNSF Alternative (B7)

The BNSF Alternative (B7) would have negligible impacts on the three KOPs (3, 12, and 13) located along its route. Alternative B7 would have the following impacts on these KOPs:

- **KOP 3, 112th Avenue SE looking south at I-90 (Exhibit F4.5-3, Photos 3a and 3b).** Impacts would be the same as described for Alternative B2A.
- **KOP 12, looking west along the I-90 (Mountains to Sound) Trail where it passes through the Mercer Slough Nature Park (Exhibit F4.5-12, Photos 12a and 12b).** The elevated structure would be noticeable to trail users from this location and would introduce a second large-scale structural element into the view. In terms of form, line, and color, the elevated profile would be similar to this section of I-90 but not as massive in terms of scale. Although not depicted in Photos 12a and 12b, much of the trail passes immediately next to trees and large shrubs. Other areas of the trail are more open, with areas of trees and large shrubs being as far as 100 feet away (to the north) from the trail. The vegetation greatly reduces the amount of Mercer Slough Nature Park that can be seen from most parts of the trail and blocks views to the north. The elevated structure depicted in the simulation in Photo 12b would be seen from the more open parts of the trail but would be screened by adjacent vegetation along other parts of the trail. The openings between the columns would allow views beyond the structure (although nearby vegetation would block most views north of the route). While the presence of the elevated structure would impact visual quality, the impact would not be great enough to lower the visual quality category from medium to low.
- **KOP 13, looking south along 118th Avenue SE (Exhibit F4.5-13, Photos 13a and 13b).** The elevated guideway passing over 118th Avenue SE and part of the 118th Station would be visible from this location. The presence of these project components, however, would be consistent with the character of this area, which is heavily influenced by I-405 (which is just to the left and out of view of Photos 13a and 13b). The design of the station and at-grade streetscape features, as well as the removal of several existing buildings, would improve vividness and unity. The presence of the elevated structure and station would slightly improve visual quality but not enough to change the visual quality category from low to medium.

F4.5.2.3 Segment C

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would pass near three KOPs (14, 15, and 18) but would not change the visual quality categories of any of the KOPs. *Preferred Alternative C11A* would have the following impacts on these KOPs:

- **KOP 14, looking north along 112th Avenue from its intersection with SE 6th Street towards Surrey Downs Park (Exhibit F4.5-14, Photos 14a and b).** *Preferred Alternative C11A* would be located to the west of 112th Avenue SE at the location depicted in the simulation. Vegetation adjacent to 112th Avenue SE within Surrey Downs Park would be removed and a retaining wall constructed into the slope next to the at-grade alignment. Although vegetation within the park would be removed, the viewed landscape from this location would still contain considerable vegetation and would retain a park-like character. The retaining wall could introduce a hard edge to the park, but it would be designed to reduce its impact by using methods that could include ornamental patterns or interesting textures. The design of this area and the retaining wall would be reviewed by the City of Bellevue. The medium visual quality category of this portion of 112th Avenue SE would not be changed.

- **KOP 15, looking west along Main Street from east of its intersection with 112th Avenue SE (Exhibit F4.5-15, Photos 15a and b).** *Preferred Alternative C11A* would introduce an elevated structure, traction-powered substation (TPSS) facility, and new landscaping along this part of Main Street. The light rail would change the area's character by replacing existing residential-scale buildings with the elevated structure. Although removing existing trees and residences along the south side of Main Street would lower the visual quality of this portion of Main Street, it would not change enough to lower the existing visual quality category of medium to low. Replaced landscaping in this area would serve as a buffer between Surrey Downs residences and the trackway as well as function as a transition area between the neighborhood and Downtown Bellevue.
- **KOP 18, looking west along NE 6th Street from 112th Avenue NE (Exhibit F4.5-18, Photos 18a and 18b).** From this KOP, the transition structure and elevated guideway would clearly be seen. Together these features would add a new, large-scale visual element to this area. The line and form of the structures would be somewhat similar to the line and form of the Meydenbauer Conference Center. The structures would add vivid and memorable elements to the view. The transition structure east of the tunnel portal would block some views to the south towards the Bellevue City Hall area from the sidewalk near the Meydenbauer Conference Center and its garage entrance. The alternative would not change the existing medium visual quality of the nearby area.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T would pass near two KOPs (15 and 18), where it would change the appearance of the existing setting but have negligible impacts. The visual impacts of *Preferred Alternative C9T* would be as follows:

- **KOP 15, looking west along Main Street from east of the 112th Avenue SE intersection (Exhibit F4.5-15, Photos 15a and 15c)**. *Preferred Alternative C9T* would change the appearance of this part of Main Street by replacing existing residential-scale buildings and established vegetation with a retained-cut and portal transition structure and adjacent landscaping. The landscaping would serve as a buffer between Surrey Downs residences and the trackway as well as function as a transition area between the neighborhood and Downtown Bellevue. In terms of line, scale, and form, the structure would not be out of character with this part of Main Street. *Preferred Alternative C9T* would somewhat diminish the visual quality of this area but not enough to change the visual quality category from medium to low.
- **KOP 18, looking along NE 6th Street from 112th Avenue NE (Exhibit F4.5-18, Photos 18a and 18c).** The transition structure and elevated guideway would be clearly seen from this location. The transition structure would be located farther east compared with *Preferred Alternative C9T,* and the elevated structure would be slightly lower as it passes over 112th Avenue SE. The alternative would not change the existing medium visual quality of the nearby area.

Bellevue Way Tunnel Alternative (C1T)

The Bellevue Way Tunnel Alternative (C1T) would pass by KOP 18 and would have negligible impacts:

- **KOP 18, looking west along NE 6th Street from 112th Avenue NE (Exhibit F4.5-18, Photos 18a and 18d).** Impacts would be the same as with *Preferred Alternative C9T*.

106th NE Tunnel Alternative (C2T)

The 106th NE Tunnel Alternative (C2T) would pass by two KOPs (15 and 18) and would have the following, negligible impacts:

- **KOP 15, looking west along Main Street from east of the 112th Avenue SE intersection (Exhibit F4.5-15, Photos 15a and 15d).** Alternative C2T would change the appearance of this part of Main Street by replacing existing residential-scale buildings and established vegetation with a retained-fill portal transition structure and adjacent landscaping. In terms of line, scale, and form, the structure would not be out of character with this part of Main Street. Although Alternative C2T would diminish the visual quality of the area, it would not diminish it enough to change the visual quality category from medium to low.
- **KOP 18, looking along NE 6th Street from 112th Avenue NE (Exhibit F4.5-18, Photos 18a and 18d).** Impacts would be the same as with *Preferred Alternative C9T*.

108th NE Tunnel Alternative (C3T)

The visual quality category of the two KOPs (15 and 21) located along the 108th NE Tunnel Alternative (C3T) would not change in the long term. Alternative C3T would have the following impacts on these KOPs:

- **KOP 15, looking west along Main Street from east of the 112th Avenue NE intersection (Exhibit F4.5-15, Photos 15a and 15d)**. Impacts would be the same as described for Alternative C2T.

- **KOP 21, looking east along NE 12th Street near intersection with 110th Avenue NE (Exhibit F4.5-21, Photos 21a and 21b)**. Alternative C3T would greatly change the existing appearance of McCormick Park as seen from this location by removing established trees and other landscape features and replacing them with a transition structure and elevated structure over I-405. The loss of the vegetation would reduce the vividness of these views and lower visual quality from high to medium. From this location, vegetation would eventually be seen behind the transition structure as part of a redesigned and replanted McCormick Park. Photo 21b depicts what a park might look like (there are no plans yet) shortly after the park is reestablished.

Couplet Alternative (C4A)

The visual quality of the three KOPs (15, 16, and 21) located along the Couplet Alternative (C4A) would not be lowered by this alternative. The impacts on these KOPs would be as follows:

- **KOP 15, looking west along Main Street from east of 112th Avenue NE intersection (Exhibit F4.5-15, Photos 15a and 15b)**. When viewed from this location, Alternative C4A would have an appearance similar to *Preferred Alternative C11A*.
- **KOP 16, looking south along 110th Avenue NE from north of Bellevue City Hall (Exhibit F4.5-16, Photos 16a and 16b)**. The at-grade route and station as seen from this location would be similar in scale and design with nearby streetscape elements and would fit in with the urban character and pedestrian orientation of the area around 110th Avenue NE. The high visual quality of the view from this location would not change, and many pedestrians (who have high viewer sensitivity) would likely find that the project components would add visual vividness and help further unify the streetscape.
- **KOP 21, looking east along NE 12th Street near intersection with 110th Avenue NE (Exhibit F4.5-21, Photos 21a and 21c)**. This alternative would greatly change the existing appearance of the part of McCormick Park east of 110th Avenue NE by removing established trees and other landscaping features and replacing them with guideway on a retained-fill structure in the transition to an elevated profile, as illustrated in Photo 21c. Removing the trees would reduce the vividness of this view and visual quality would be lowered from high to medium. From this location, vegetation would eventually be seen behind the transition structure as part of a redesigned and replanted McCormick Park. Photo 21c depicts what a park might look like (there are no plans yet) shortly after it is reestablished.

112th NE Elevated Alternative (C7E)

The 112th NE Elevated Alternative (C7E) would pass by two KOPs (17 and 20) and would have negligible impacts. The impacts of Alternative C7E on KOPs 17 and 20 would be as follows:

- **KOP 17, looking east along NE 6th Street from 110th Avenue NE (Exhibit F4.5-17, Photos 17a and 17b).** From this location, the elevated guideway along 112th Avenue NE and the elevated walkway connecting to Bellevue City Hall would clearly be seen. These structures would be consistent with the existing character of nearby areas and would add vivid and memorable elements to the view. From this location on 110th Avenue NE and NE 6th Street, the elevated walkway would not block views of Cascade Mountains peaks. Sensitive viewers (e.g., pedestrians) would probably not be affected by the structures, and some would likely enjoy the elevated views that would be available from the elevated walkway and station. Alternative C7E would be consistent with the medium visual quality of the viewed area.
- **KOP 20, looking southeast along 112th Avenue NE from an elevated view from the west side of 112th Avenue NE (Exhibit F4.5-20, Photos 20a and 20b).** From this location approximately one and half stories above the sidewalk, the elevated structure associated with Alternative C7E would be seen as would the nearby I-405 and various overpasses and other streets. The presence of the elevated structure and the OCS would be very noticeable to residents and customers in this building, particularly those on the second and third floors. At night, lights from the light rail vehicles would be seen by residents. The presence of the elevated structure and OCS, however, would not reduce the medium visual quality of this part of 112th Avenue NE to low.

110th NE Elevated Alternative (C8E)

The visual quality of three KOPs (16, 19, and 21) located along the 110th NE Elevated Alternative (C8E) route would be changed from high to medium. Alternative C8E would have the following impacts on these KOPs:

- **KOP 16, looking south along 110th Avenue NE north of Bellevue City Hall (Exhibit F4.5-16, Photos 16a and 16c)**. The elevated station and profile would be supported by straddlebents that extend across the width of the street. Although this part of Downtown Bellevue is surrounded by medium- and highrise buildings, the East Link Project's components would be out of scale when viewed from the street and nearby City Hall plaza. The station (and to a lesser degree the elevated profile) would create shadows at times along parts of the sidewalk and street below. Alternative C8E would lower visual quality from high to medium and would likely result in a negative reaction by many of the area's sensitive viewers (e.g., pedestrians).
- **KOP 19, looking northeast along 110th Avenue NE from south of NE 8th Street (Exhibit F4.5-19, Photos 19a and 19b).** From this sidewalk corner the elevated structure of Alternative C8E would be clearly seen. The structure would cross over NE 8th Street and in front of several mixed-use buildings with four stories of multifamily units. Although the this area's setting is very urban, the elevated structure would introduce a large-scale element near midrise residences. The elevated profile would add some shadowing to the street and sidewalks below at certain times of the day. Of more concern would be the presence of the elevated structure and moving trains (and lights at night) that would be seen from the windows and balconies of nearby residents. The high visual quality of this portion of 110th Avenue NE would be reduced to medium.
- **KOP 21, looking east along NE 12th Street near intersection with 110th Avenue NE (Exhibit F4.5-21, Photos 21a and 21d)**. As illustrated in Photo 21d, the presence of the straddlebents and the elevated profile associated with this alternative would introduce elements that would be out of scale with the existing view from this location. The impact of the view from this intersection would reduce the visual quality category from high to medium.

114th Avenue NE Elevated Alternative (C14E)

The 114th NE Elevated Alternative (C14E) would pass by KOP 17, and its visual impacts would be as follows:

- **KOP 17, looking east along NE 6th Street from 112th Avenue NE (Exhibit F4.5-17, Photos 17a and 17c).** This KOP would provide a view of Alternative C14E's elevated profile, elevated station, and pedestrian bridge that provide connection between 112th Avenue NE and the station as well as possible tent structures and a pedestrian bridge. These structures would be consistent with the existing character of nearby areas and would add vivid and memorable elements to the view. Views of the Cascade Mountains are not visible from this location (even on clear days), so blocking mountain views would not be an issue. Sensitive viewers (e.g., pedestrians) would probably not be affected by the structures, and some would likely enjoy elevated views from the pedestrian bridge. The tent structures might intrude on views between the Meydenbauer Conference Center and Bellevue City Hall. Alternative C14E would be consistent with the medium visual quality of the viewed area.

F4.5.2.4 Segment D

Preferred NE 16th At-Grade Alternative (D2A)

The *Preferred NE 16th At-Grade Alternative (D2A)* would pass by two KOPs (24 and 25) and have negligible impacts. The impacts of this alternative on KOPs 24 and 25 would be as follows:

- **KOP 24, looking southwest along 152nd Avenue SE at the Overlake Village Station (Exhibit F4.5-24, Photos 24a and 24b).** From this location the existing trees along the west side of 152nd Avenue NE that would be removed for the station and alignment as part of D2A – NE 24th Design Option can be clearly seen. The tree removal would be noticed and would be a negative impact, but the presence of other trees in the general area (behind the station area) and new trees that would be planted, would help temper their loss. The pedestrian scale of the at-grade station is consistent with area in which it would be located. The station, at-grade profile, and removal of the trees would somewhat lower the visual quality of this area, but not enough to lower the existing medium visual quality to low.
- **KOP 25, looking southeast over SR 520 towards Overlake Village Station (Exhibit F4.5-25, Photos 25a and 25b).** From this location from an office building parking lot next to the SR 520 Bicycle Trail and across the freeway from the station site, the station would be clearly seen. Trees and other vegetation along the edge of the existing business park as well as buildings would be removed. The station and alignment would be consistent with the transportation, scale, form, and character of SR 520. The presence of the station would slightly improve the visual quality of the area it would be

built in but not enough to raise it from low to medium.

NE 16th Elevated Alternative (D2E)

The NE 16th Elevated Alternative (D2E) would pass by one KOP (23) and would have negligible impacts. The impacts of these alternatives on KOP 23 would be as follows:

- **KOP 23, looking west along NE 24th Street from near intersection with 151st Avenue NE (Exhibit F4.5-23, Photos 23a and 23b).** The elevated portions of Alternative D2E would transition to at-grade along NE 24th Street and would be clearly seen from this location. Existing street trees and a building would be removed in order to construct the elevated and at-grade profiles along this section of NE 24th Street. Although the elevated structures would be noticeable from this location and would add another transportation element to the view, the removal of existing street trees would be the most noticeable part of the alternatives. After construction is complete and street trees replaced, the visual quality would be lower but not enough to reduce the visual quality category from medium to low.

F4.5.2.5 Segment E

Preferred Marymoor Alternative (E2)

The *Preferred Marymoor Alternative (E2)* would pass by one KOP (26) and would have negligible impacts. The impacts of this alternative on KOP 26 would be as follows:

- **KOP 26, looking northwest from Marymoor Park sports fields (Exhibit F4.5-26, Photos 26a and 26b).** The *Preferred Alternative E2* elevated structure would be visible from parts of Marymoor Park as it transitions to grade just north of the sports fields, but most of the route that passes by the park would be at-grade and parts of it would be screened by vegetation. It would be similar to SR 520 in terms of line, form, color, and scale. Sensitive viewers (e.g., recreationists) would not likely find the presence of the guideway and light rail vehicles adjacent to SR 520 visually disturbing. *Preferred Alternative E2* would not lower the existing high visual quality of this area.

Redmond Way Alternative (E1)

One (KOP 29) of the three KOPs (27, 28, and 29) located along the Redmond Way Alternative (E1) would be substantially affected. Alternative E1 would have the following impacts on these KOPs:

- **KOP 27, looking east from a multifamily complex overlooking West Lake Sammamish Drive (Exhibit F4.5-27, Photos 27a and 27b).** From this ground-level location, the elevated structure and light rail vehicles would be approximately at eye level. Many trees located on the slope between this complex and West Lake Sammamish Drive would be removed. The elevated structure would introduce a large-scale horizontal element to eastern views from this complex (although many views are blocked by existing vegetation that would be removed). At night, lights from the light rail vehicles would be seen. Visual quality would be temporarily reduced from medium to low. Within 5 to 10 years replanted vegetation could screen the view of the elevated structures from these residences if were trees were planted close enough to the residences. This would, over time, improve the low visual quality category to medium.
- **KOP 28, looking northwest along West Lake Sammamish Parkway NE (Exhibit F4.5-28, Photos 28a and 28b).** From this location, the elevated structure would generally parallel West Lake Sammamish Parkway NE along the bottom of a vegetated hillside above a small commercial strip development and below a condominium development. The structure would be noticeable from this location, but would not be greatly out of character with the existing arterial-road character of this part of West Lake Sammamish Parkway NE. The elevated structure would introduce a large-scale horizontal element high above the nearby street and would be seen from the condominium complex above. The existing visual quality of the section of West Lake Sammamish Parkway NE would be reduced from medium to low. When replanted trees would began to mature and somewhat screen the elevated structure, the visual quality category would increase to medium.
- **KOP 29, looking north along Sammamish River Trail near Luke McRedmond Landing Park at the NE Redmond Way overpass (Exhibit F4.5-29, Photos 29a and 29b)**. The elevated guideway would be apparent from this location as it descends in front of the NE Redmond Way bridge to connect at-grade with the raised former BNSF Railway bed (to the east of the simulation shown in Exhibit F4.5-29, Photo 29b). The elevated structure would add a large-scale element to this view, but due to the presence of the NE Redmond Way overpass, it would not be appear greatly out of place in terms of form, materials, and color. The removal of some trees could be noticed by some

park and trail users. The elevated structure would be compatible with existing visual character and would not lower the areas high visual quality category.

Leary Way Alternative (E4)

The Leary Way Alternative (E4) would pass by two KOPs (30 and 31) and change the existing visual quality category of KOP 30 from high to medium. Alternative E4 would have the following impacts on KOPs:

- **KOP 30, looking east from the north side of Leary Way NE towards the Leary Way NE bridge over the Sammamish River, the River Walk Condominiums, and the entry into Downtown Redmond (Exhibit F4.5-30, Photos 30a and 30b).** Constructing the elevated structure associated with Alternative E4 would remove existing street trees located along the south side of Leary Way NE and next to a condominium. Removing the trees and constructing the elevated structure would reduce the high visual quality of this area to medium.

- **KOP 31, looking east towards Downtown Redmond from Leary Way NE near the intersection with 159th Place (Exhibit F4.5-31, Photos 31a and 31b).** From this location, the end of the transition structure between the elevated and at-grade portions of the alternative can be seen. Construction would remove a row of maple trees along with some nearby Douglas fir trees and other vegetation. Potential mitigation measures (as viewed in this visual simulation) that would be coordinated with the City of Redmond include planting another row of deciduous street trees along the sidewalk to create a vegetative pattern that would be similar to the existing pattern and planting shrubs next to the transition structure to help reduce the contrast of the walls with the nearby vegetation. The project would somewhat change the visual character and quality, but would not change visual quality enough to lower the existing high category to medium.

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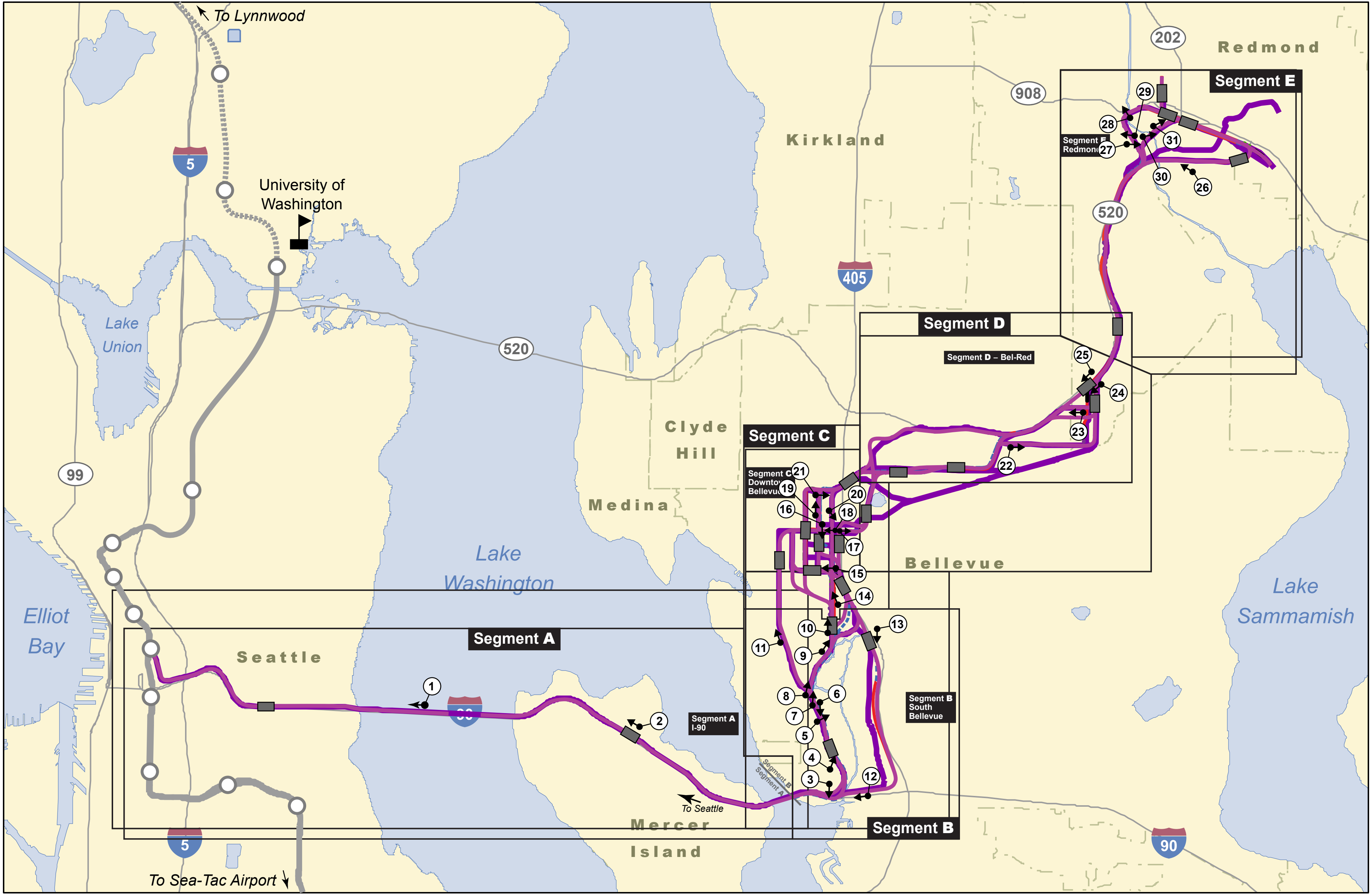
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Redmond
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Kirkland
Segment E Redmond
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University of Washington
520
405
Lake Union
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Segment D
Segment D – Bel-Red
Clyde Hill
Segment C
Segment C Downtown Bellevue
99
Medina
Lake Washington
Bellevue
Lake Sammamish
Elliot Bay
Segment A
Seattle
90
Segment A I-90
Segment B South Bellevue
To Seattle
Segment B
Segment A
Mercer Island
Segment B
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To Sea-Tac Airport
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Proposed Route

Proposed Station

Key Observation Point ①

Central Link Alignment and Station

Central Link Extension

N

SCALE

0 0.5 1 Mile

Map F4.5-1

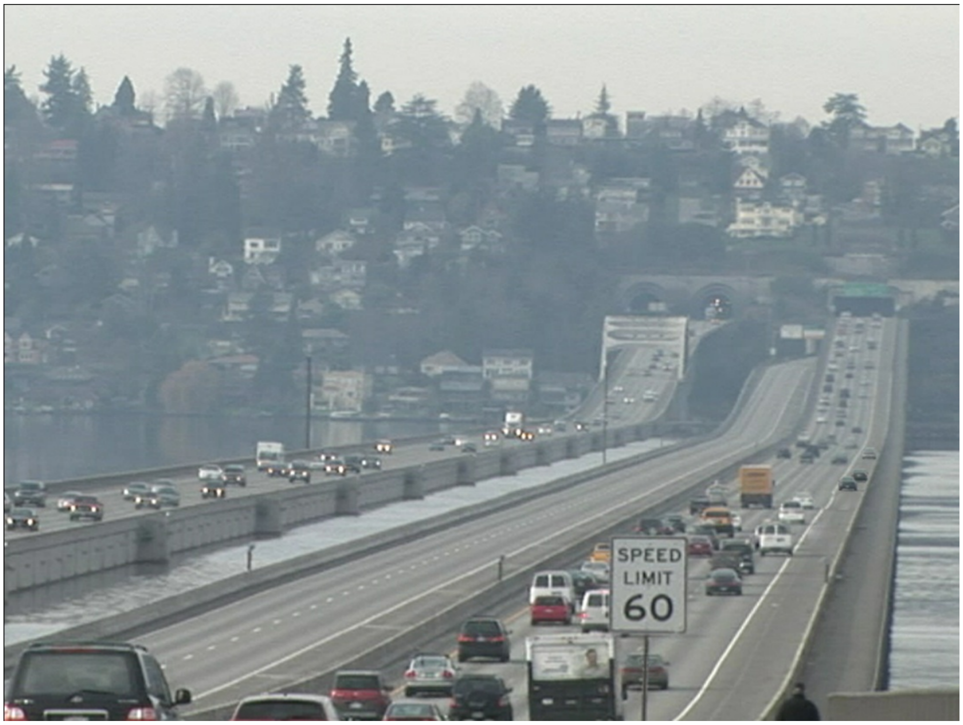
Key Map and View Direction

Location of Key Observation Points

East Link Project

EXHIBIT F4.5-1
Key Observation Point 1 (looking west towards Seattle I-90 portal)

1a. Existing Condition


SPEED
LIMIT
60

1b. Simulation of *Preferred Interstate 90 Alternative (A1)*

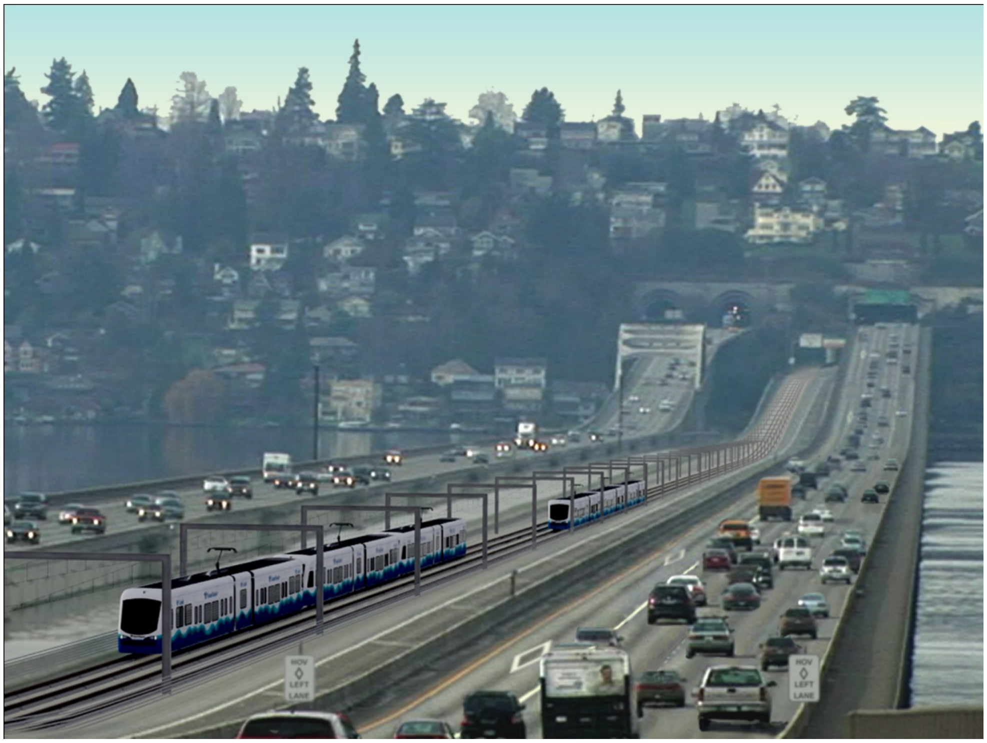
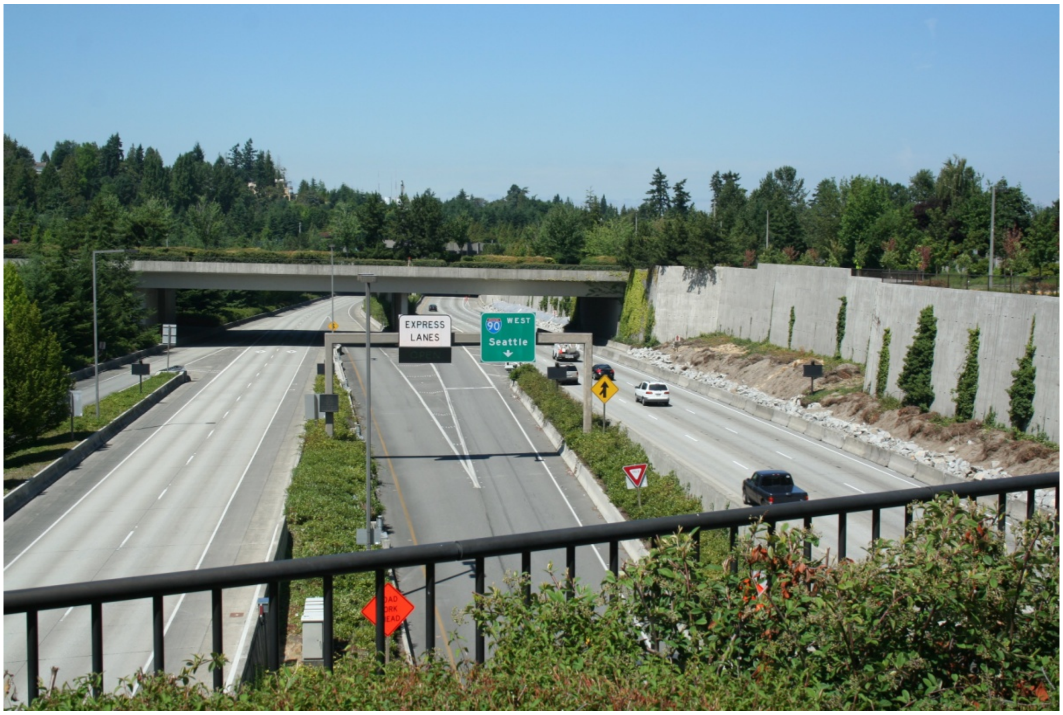

HOV
LEFT
LANE
HOV
LEFT
LANE

EXHIBIT F4.5-2

Key Observation Point 2 (looking northeast on I-90 from 80th Avenue SE on Mercer Island)

2a. Existing Condition


EXPRESS
LANES
90 WEST
Seattle

2b. Simulation of *Preferred Interstate 90 Alternative (A1)*

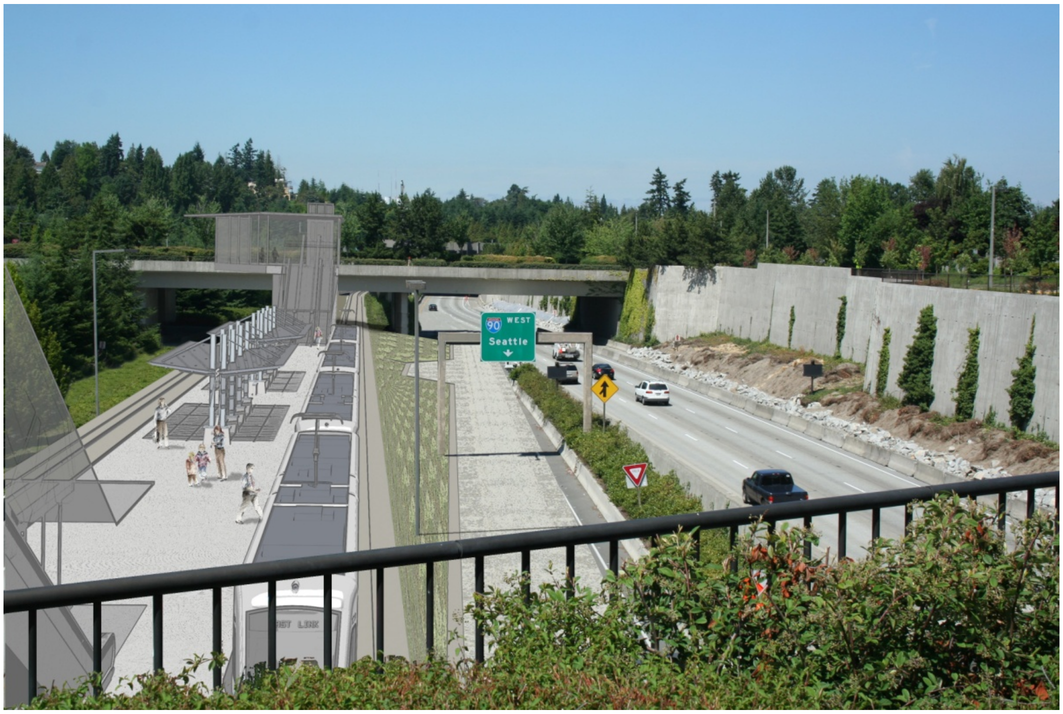
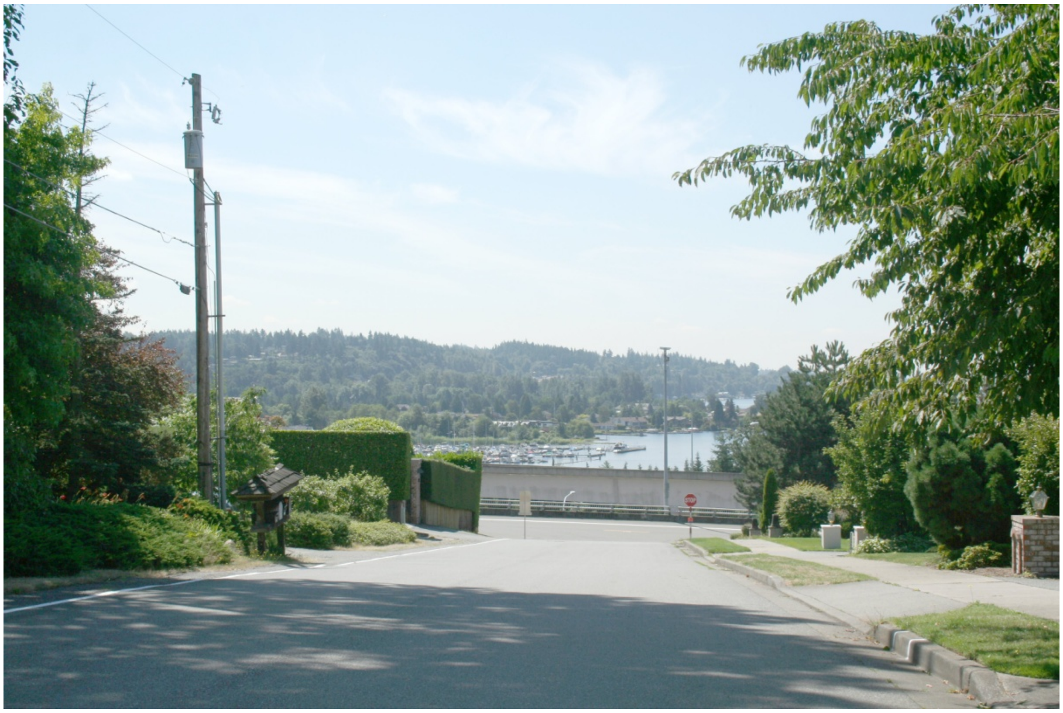

90 WEST
Seattle

EXHIBIT F4.5-3

Key Observation Point 3 (112th Avenue SE looking south at I-90)

3a. Existing Condition



3b. Simulation of *Preferred 112th SE Modified (B2M)*,112th SE At-Grade (B2A), 112th SE Elevated (B2E),112th SE Bypass (B3), and BNSF (B7) Alternatives

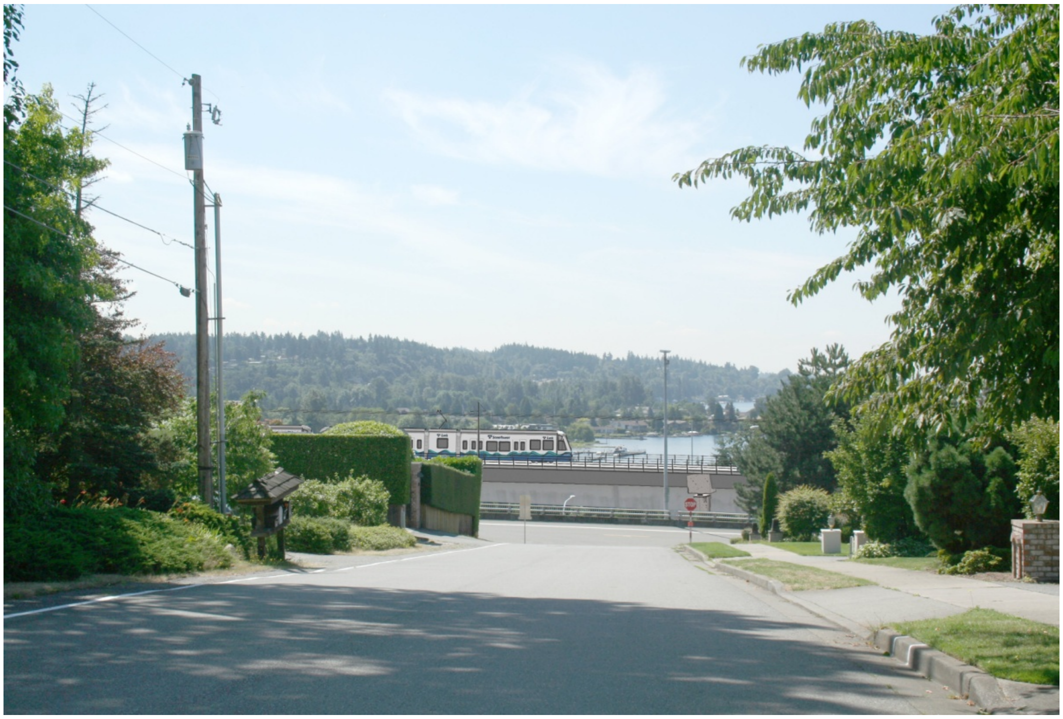
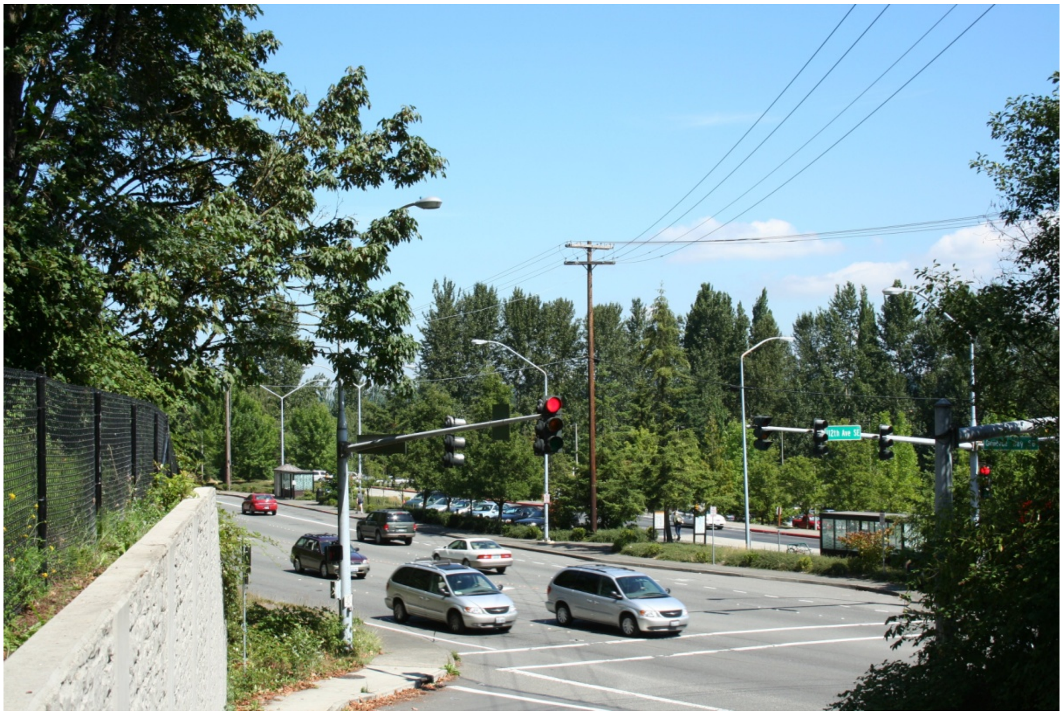
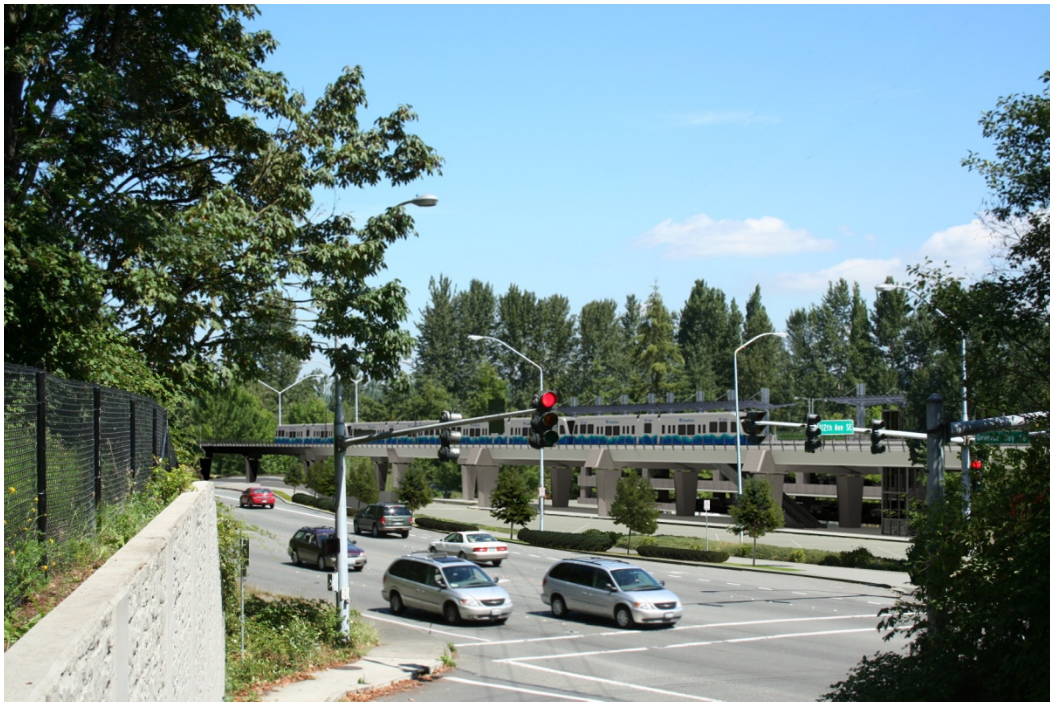


EXHIBIT F4.5-4
Key Observation Point 4 (looking at South Bellevue-Park-and-Ride from 112th Avenue SE)

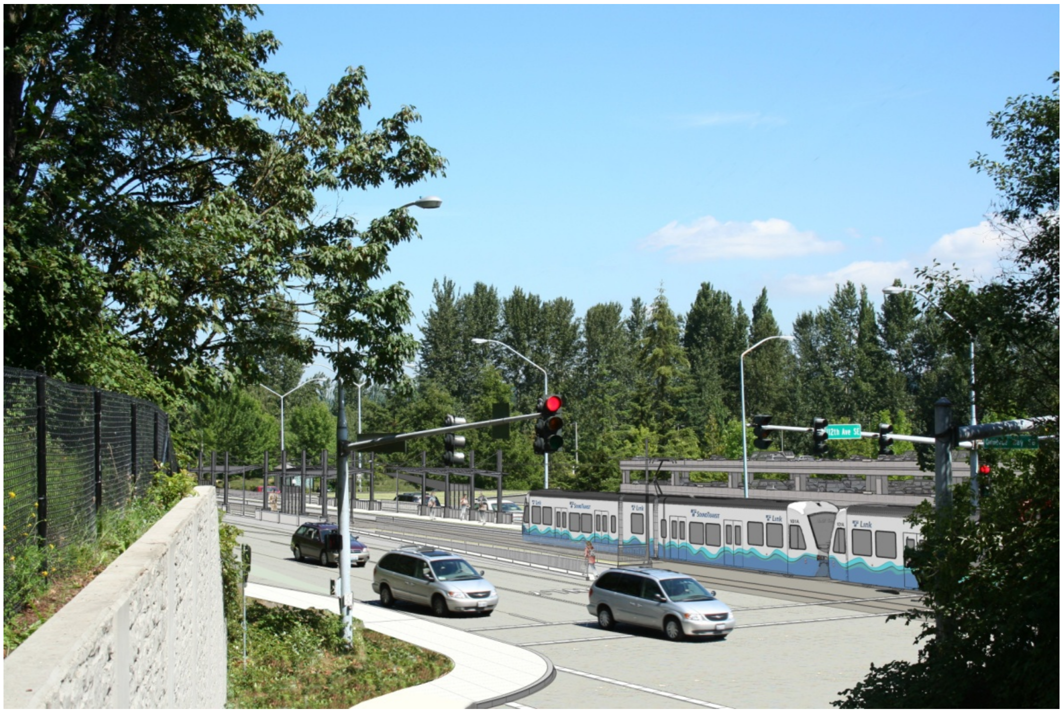
4a. Existing Condition



4b. Simulation of *Preferred 112th SE Modified Alternative (B2M)* and the South Bellevue Park-and-Ride



4c. Simulation of Bellevue Way Alternative (B1) and South Bellevue Station



4d. Simulation of 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) Alternatives

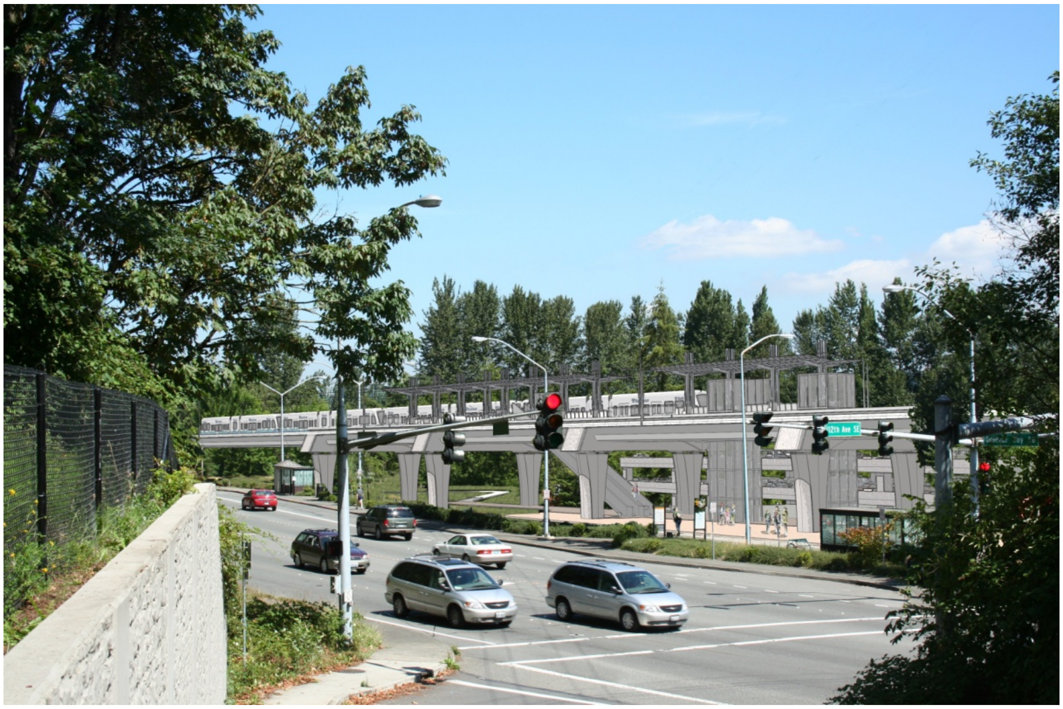
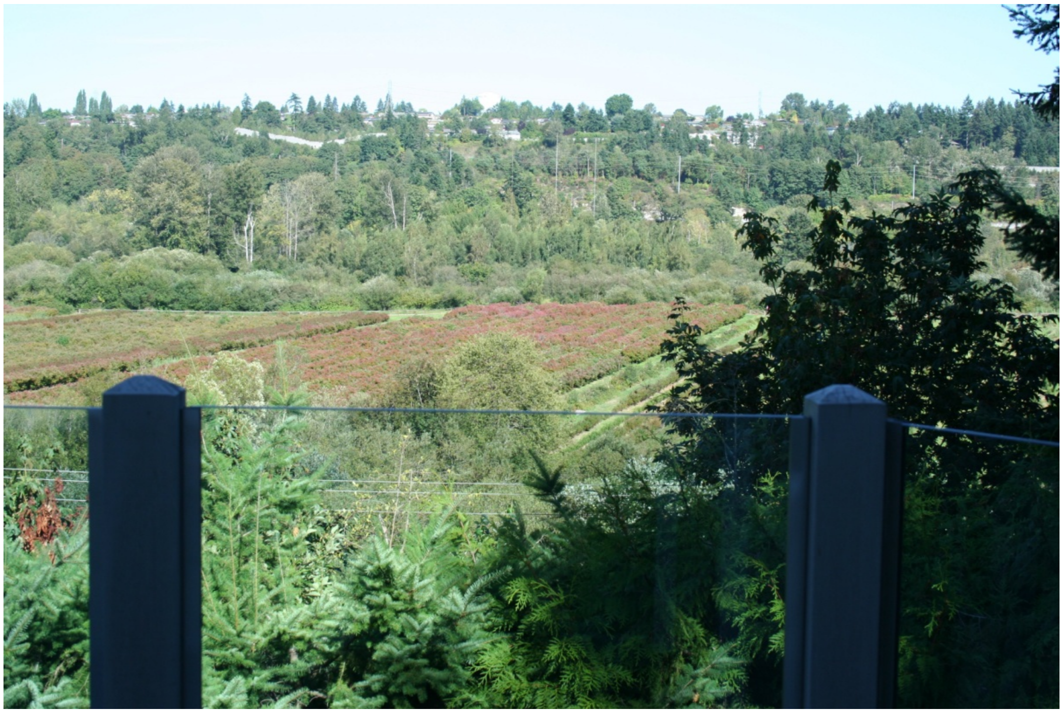
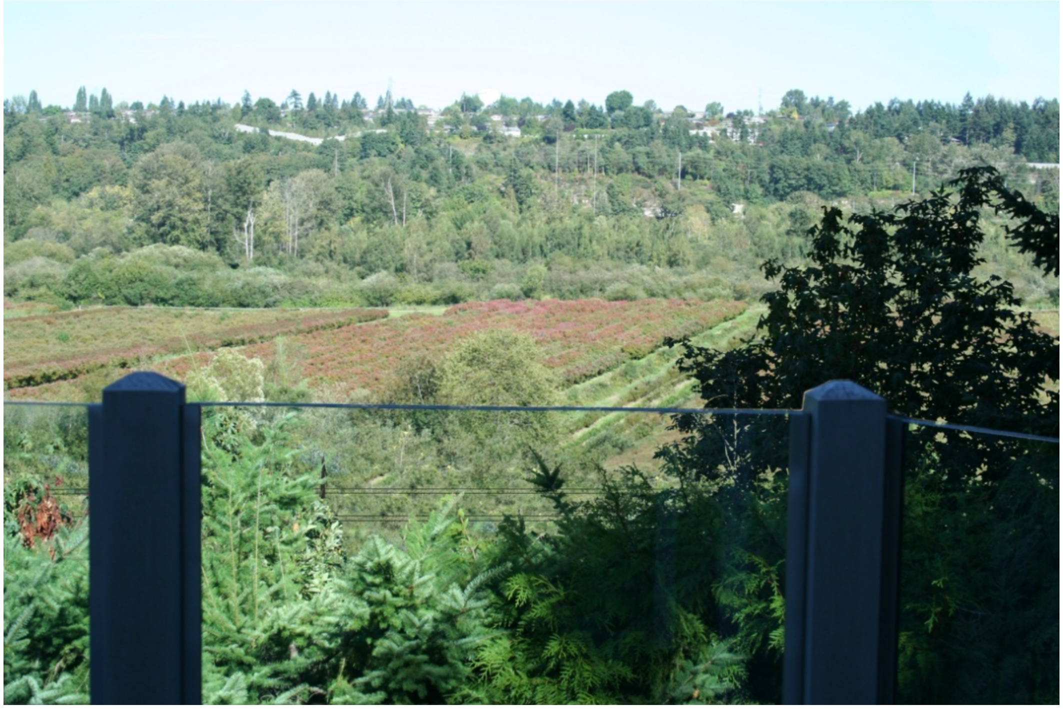


EXHIBIT F4.5-5
Key Observation Point 5 (residence overlooking Bellevue Way SE looking east)

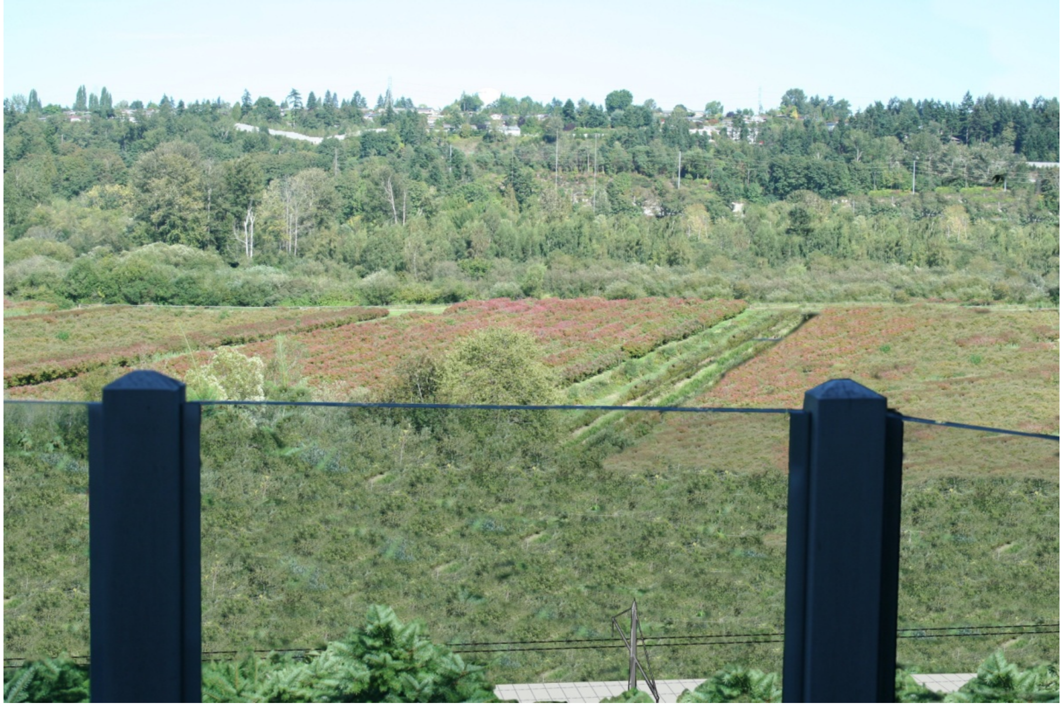
5a. Existing Condition



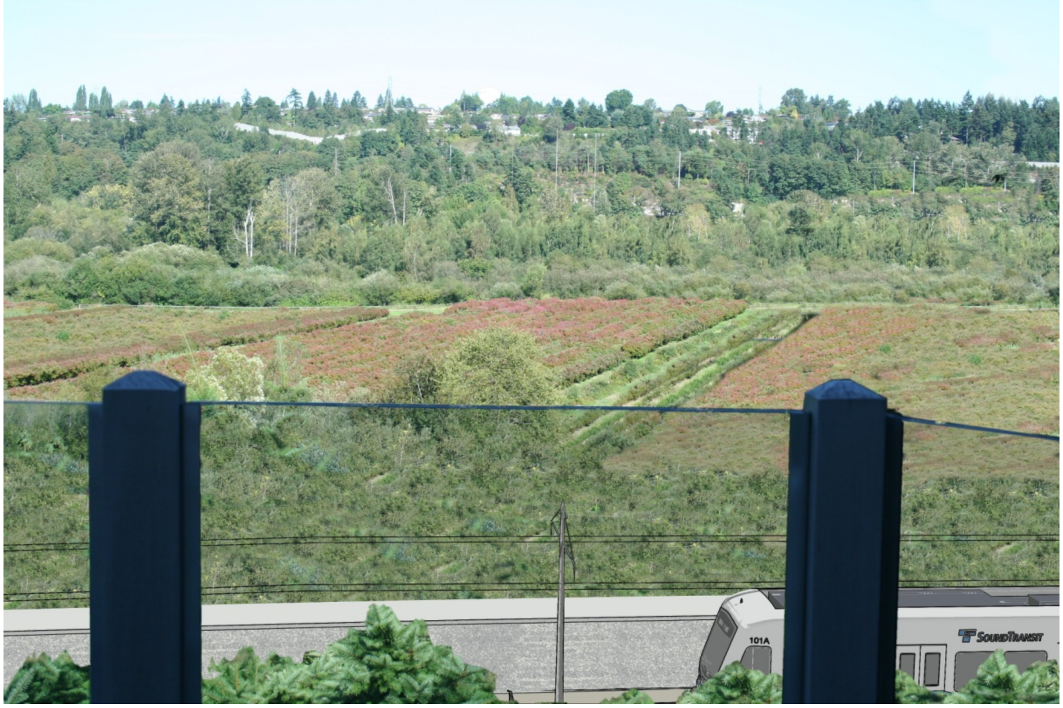
5b. Simulation of *Preferred 112th SE Modified Alternative (B2M)*



5c. Simulation of Bellevue Way Alternative (B1)



5d. Simulation of 112th SE At-Grade (B2A) and 112th SE Bypass (B3) Alternatives



5e. Simulation of 112th SE Elevated Alternative (B2E)

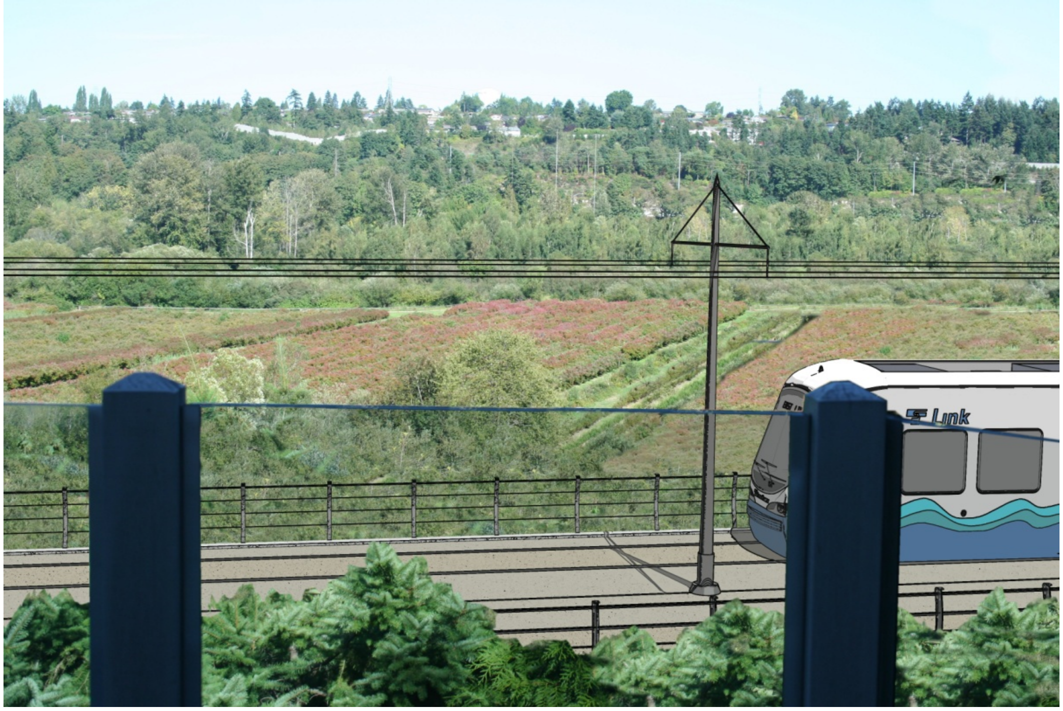
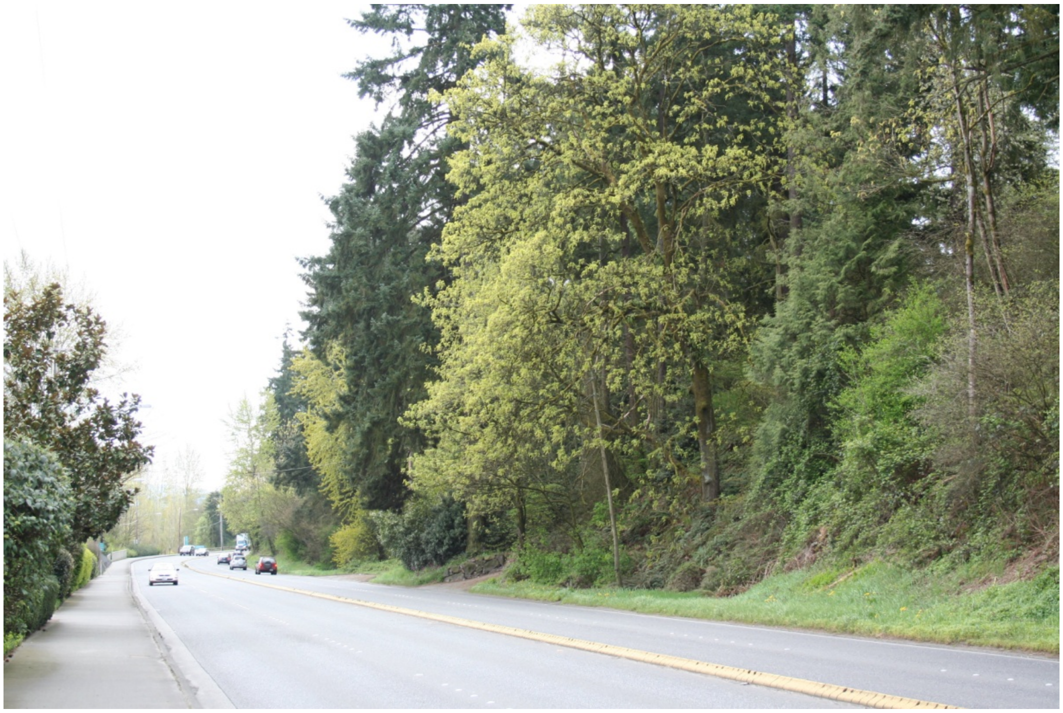
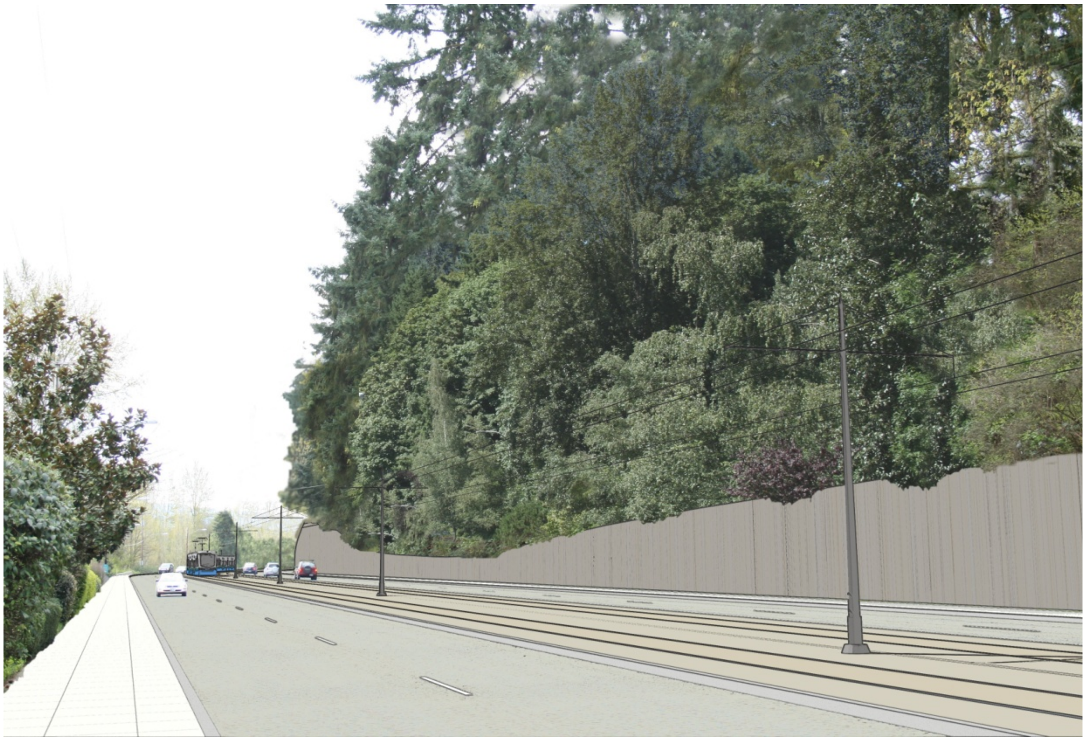


EXHIBIT F4.5-6
Key Observation Point 6 (looking south, from the east side of Bellevue Way, just north of Winters House)

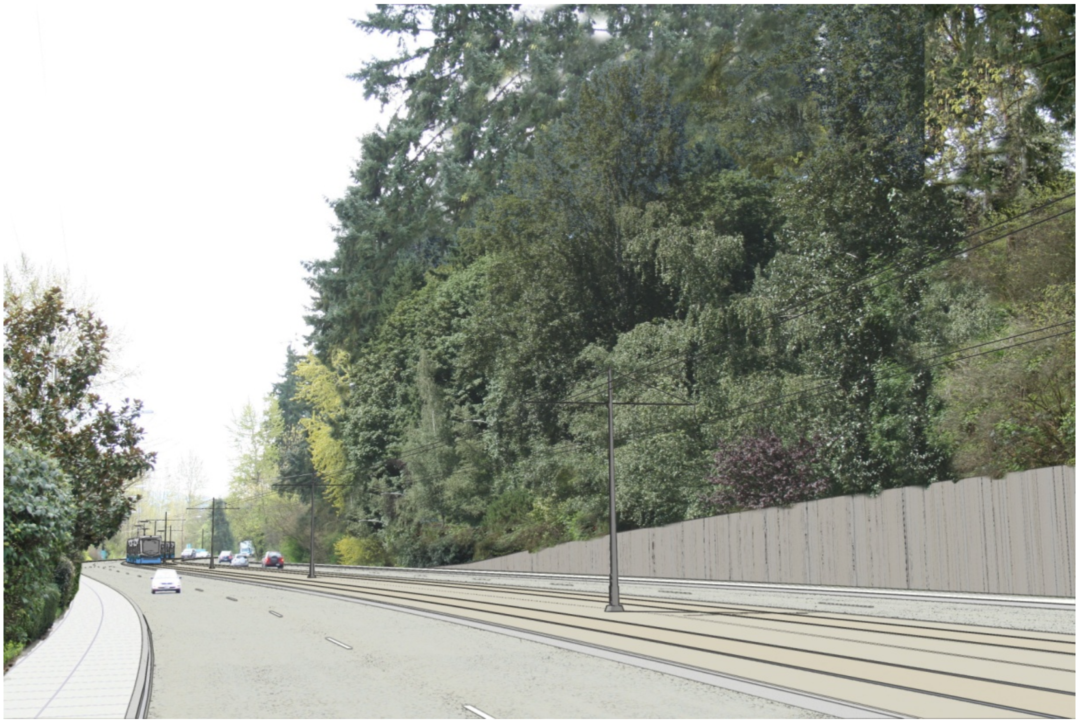
6a. Existing Condition



6b. Simulation of Bellevue Way Alternative (B1)



6c. Simulation of 112th SE At-Grade (B2A) and of 112th SE Bypass (B3) Alternatives



6d. Simulation of 112th SE Elevated Alternative (B2E)

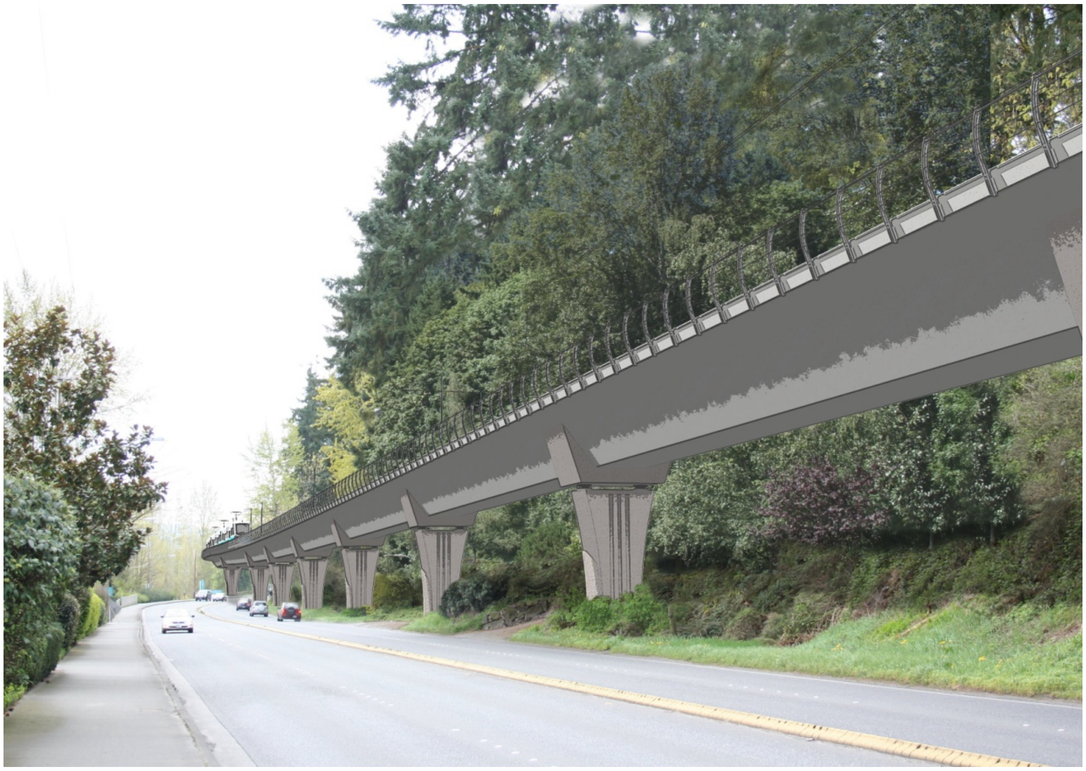
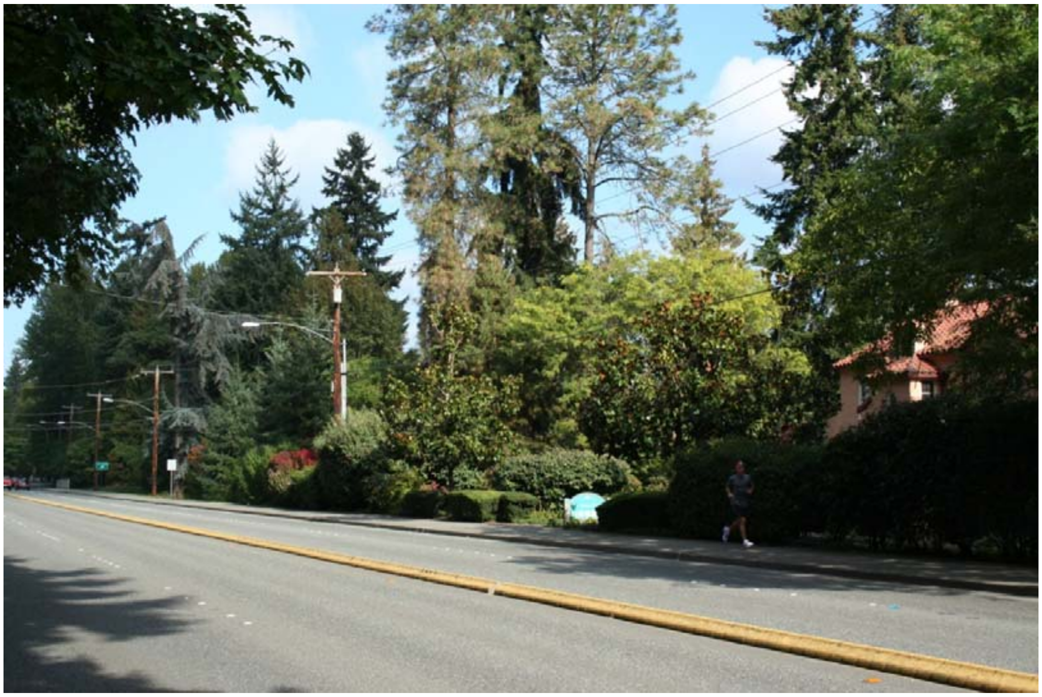
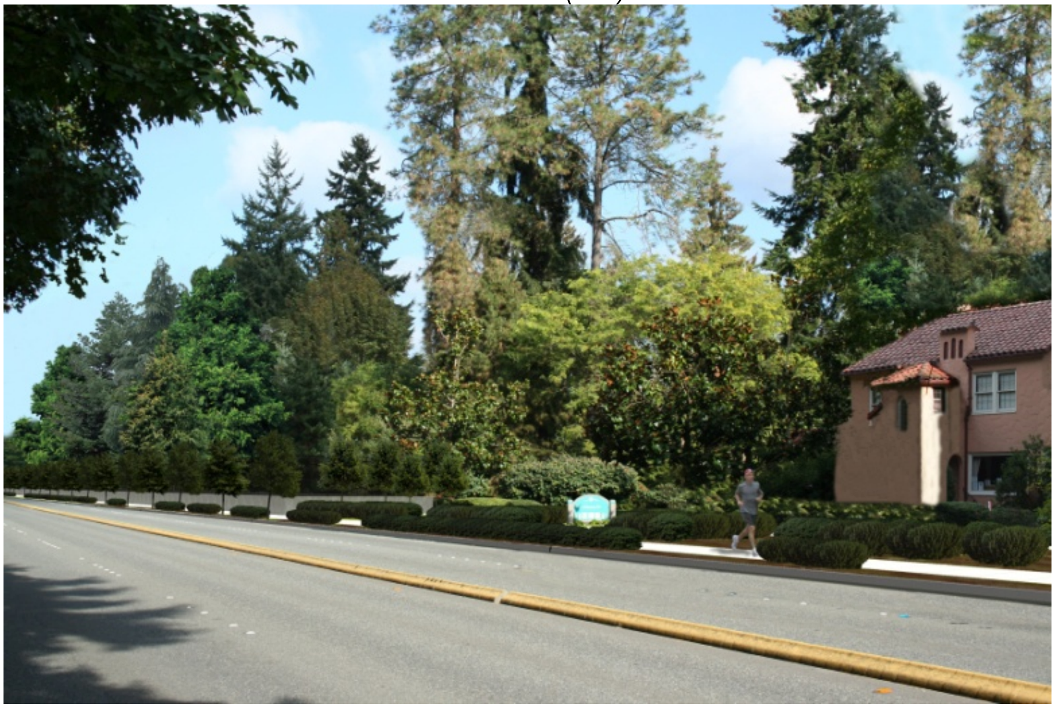


EXHIBIT F4.5-7
Key Observation Point 7 (looking northeast on Bellevue Way SE at Winters House)

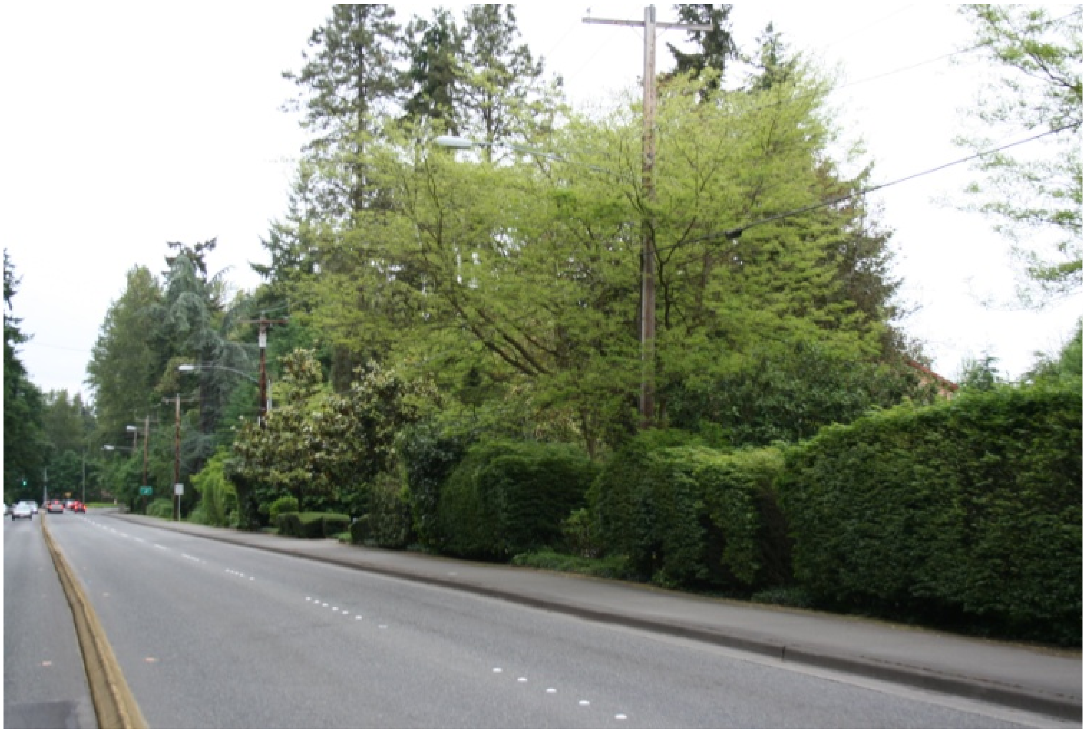
7a. Existing Condition, near Winters House



7b. Simulation of *Preferred 112th SE Modified Alternative (B2M)* near Winters House



7c. Existing Condition, south of Winters House



7d. Simulation of *Preferred 112th SE Modified Alternative (B2M)*, south of Winters House

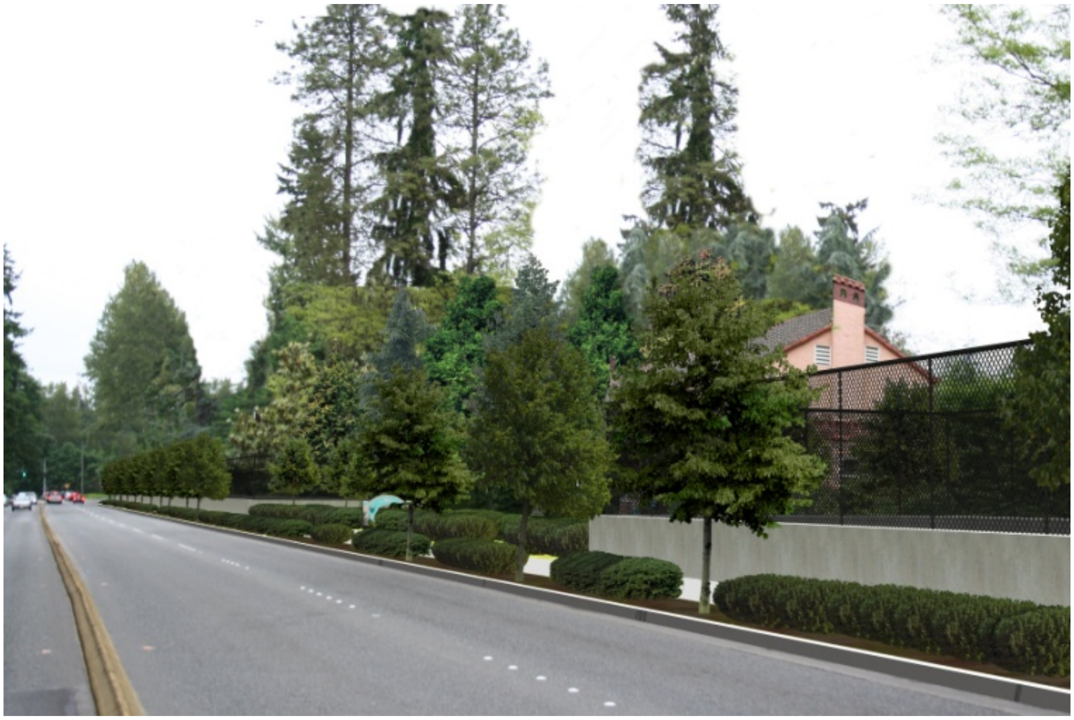
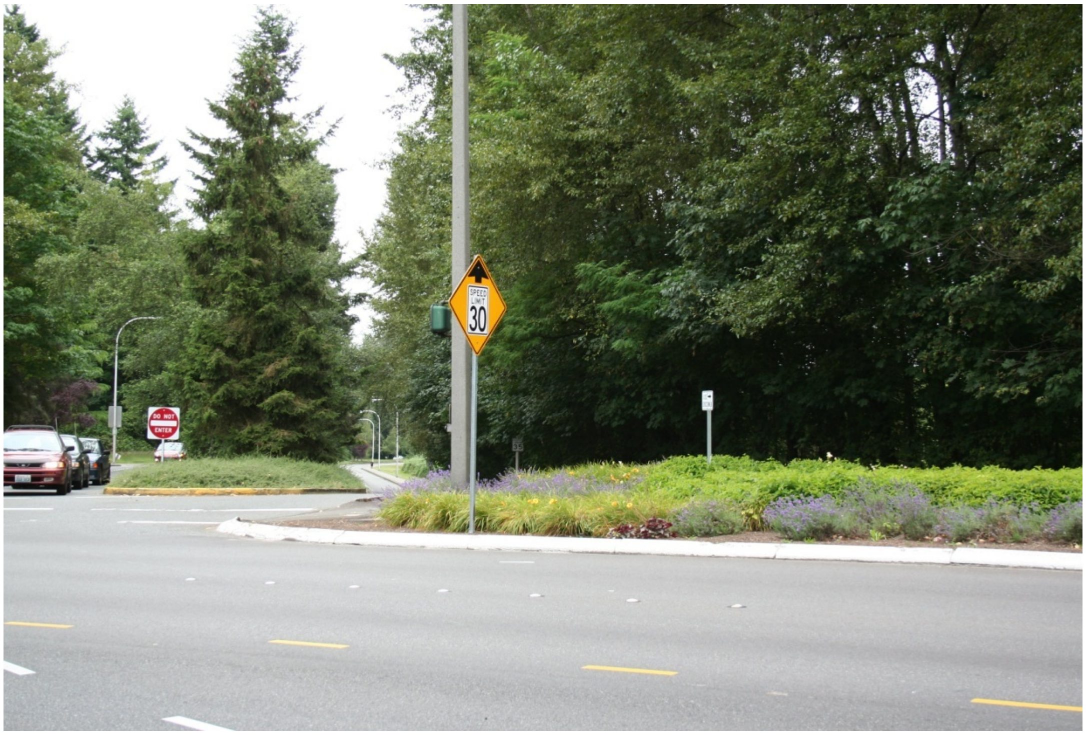


EXHIBIT F4.5-8
Key Observation Point 8 (intersection of Bellevue Way SE and 112th Avenue SE, looking north along 112th Avenue SE)

8a. Existing Condition


DO NOT ENTER
SPEED LIMIT 30

8b. Simulation of version of *Preferred 112th SE Modified Alternative (B2M)* connecting to *Preferred 110th NE Tunnel Alternative (C9T)*

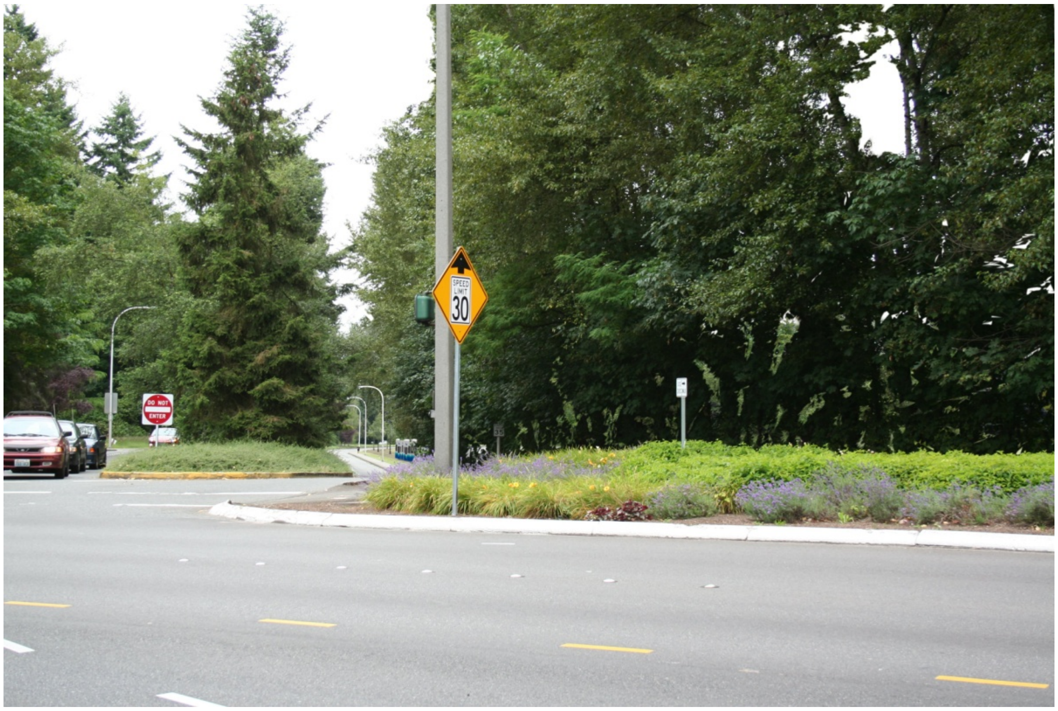
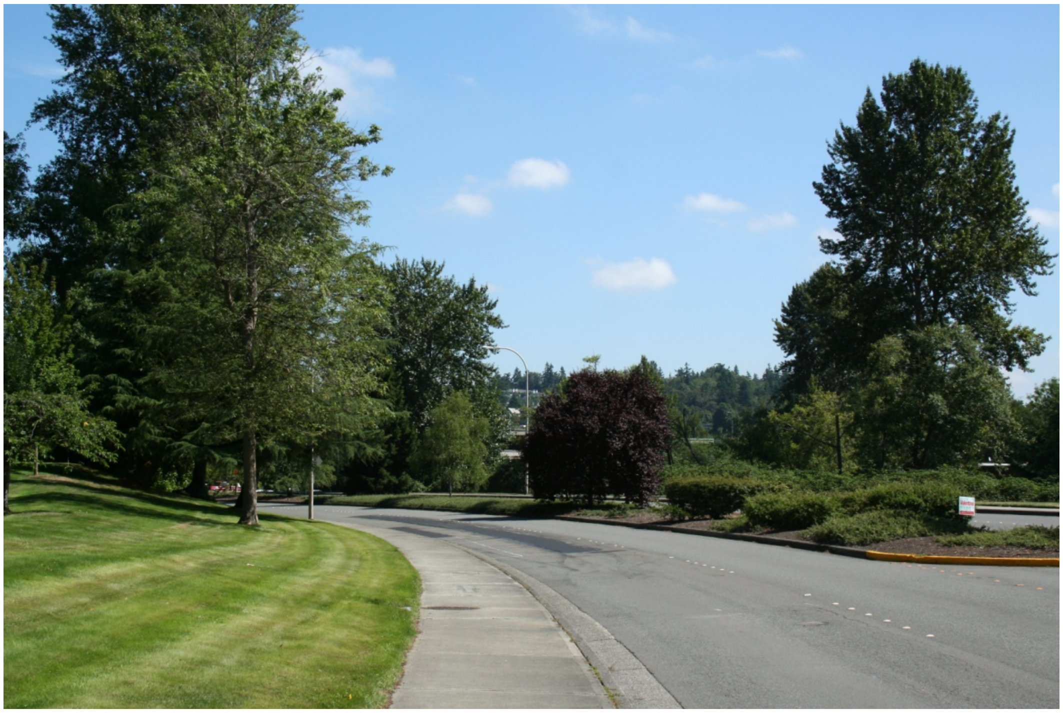
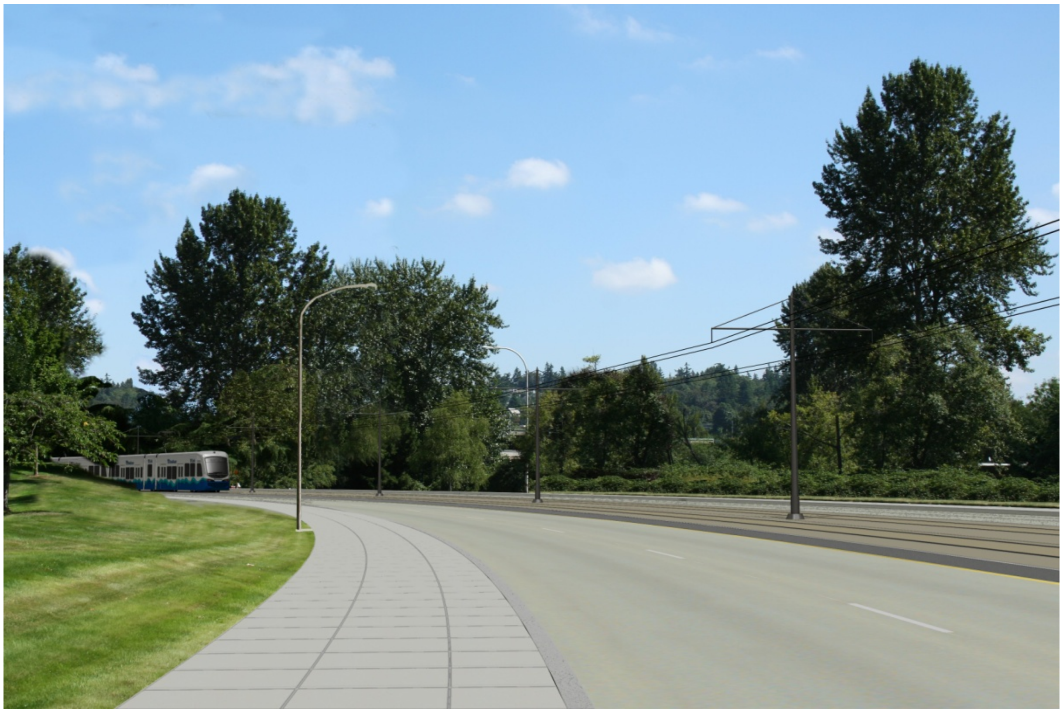

DO NOT ENTER
SPEED LIMIT 30

EXHIBIT F4.5-9
Key Observation Point 9 (looking northeast along 112th Avenue SE)

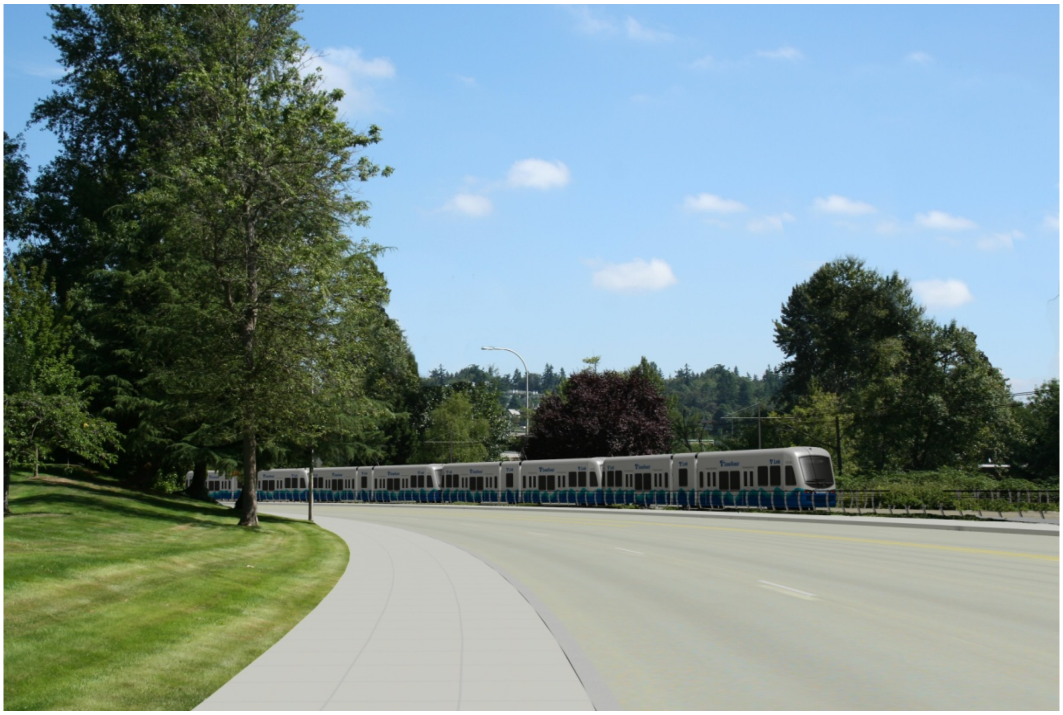
9a. Existing Condition



9b. Simulation of the version of *Preferred 112th SE Modified Alternative (B2M)* connecting to *Preferred 110th NE At-Grade Alternative (C11A);* the 112th SE At-Grade Alternative (B2A) and 112th SE Bypass Alternative (B3) would be similar in appearance from this KOP



9c. Simulation of the version of *Preferred 112th SE Modified Alternative (B2M)* connecting to *Preferred Tunnel Alternative (C9T)*



9d. Simulation of 112th SE Elevated Alternative (B2E)

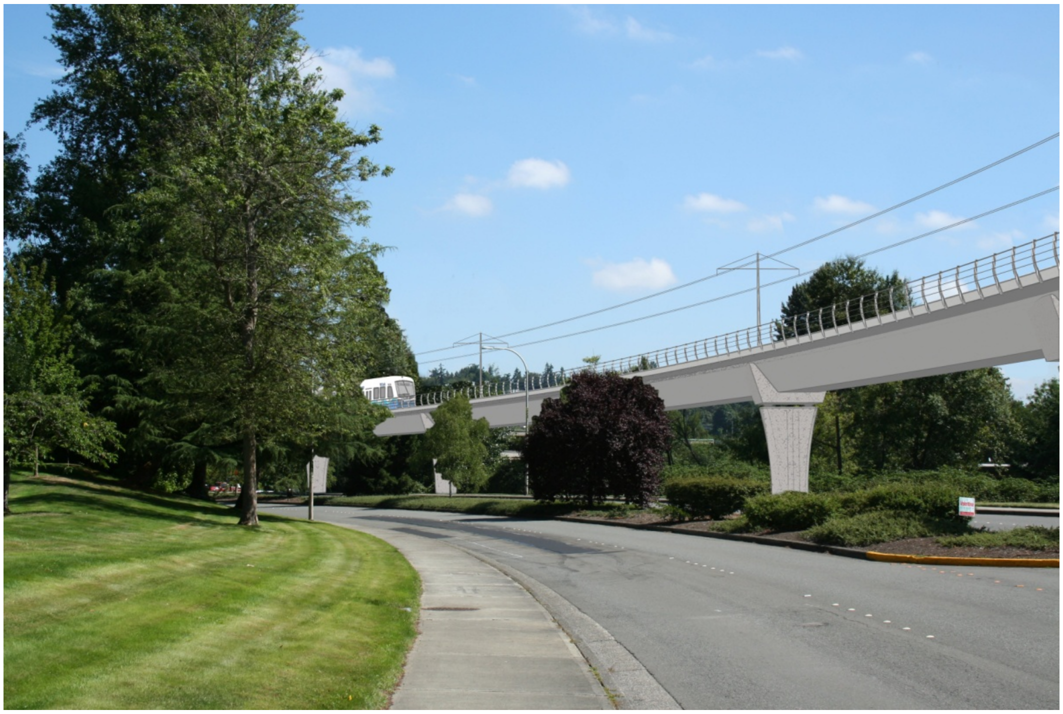
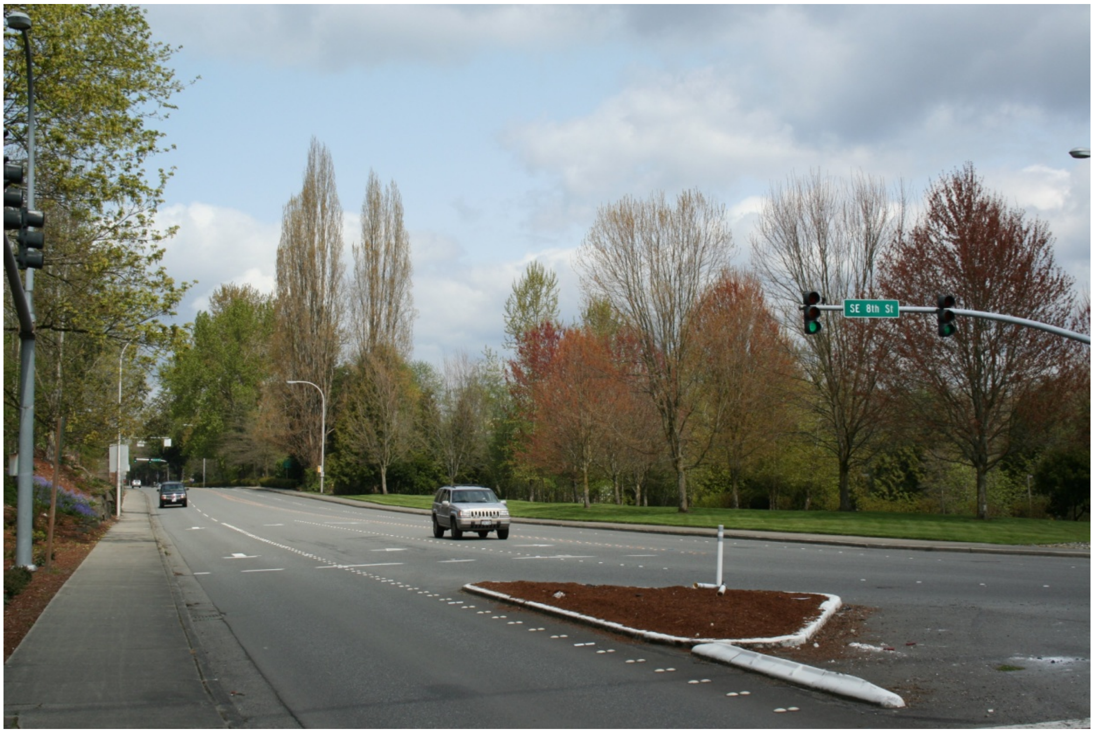


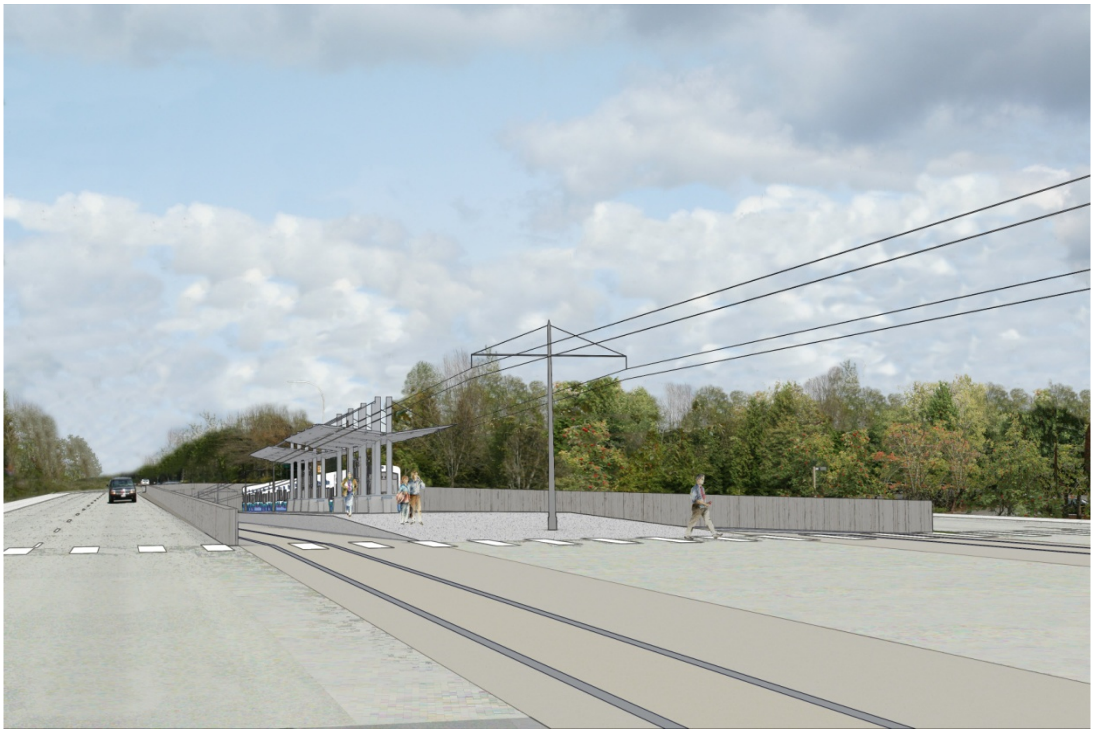
EXHIBIT F4.5-10

Key Observation Point 10 (looking north from the intersection of 112th Avenue SE and SE 8th Street)

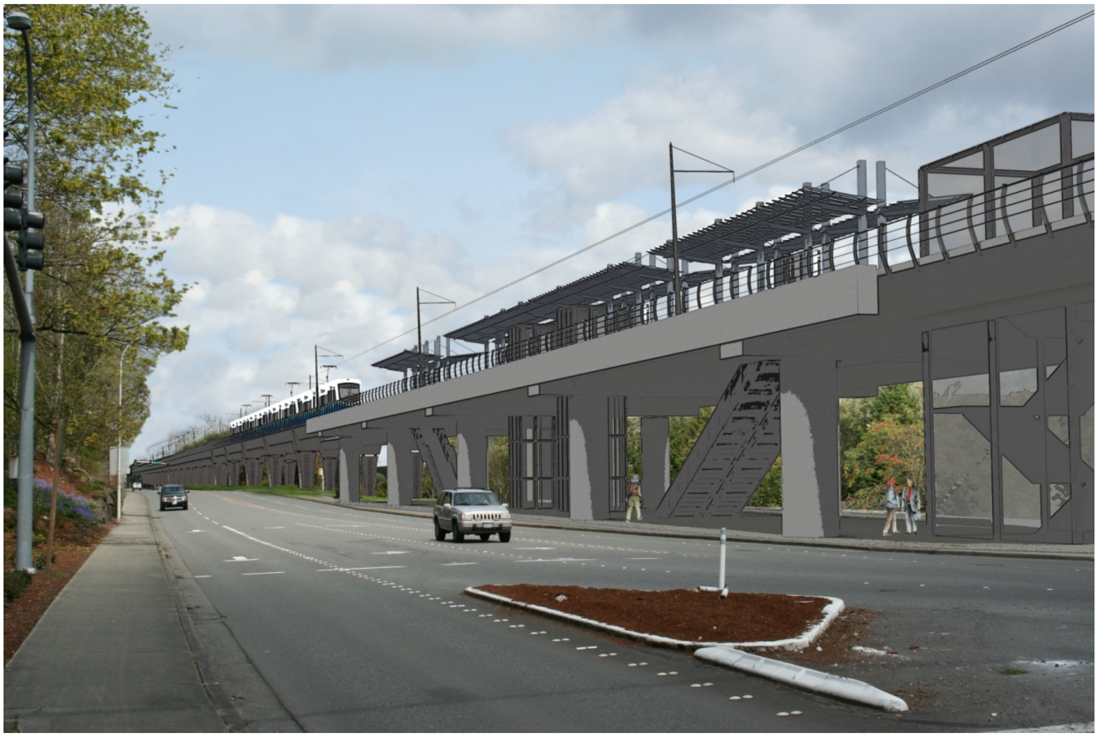
10a. Existing Condition



10b. Simulation of 112th SE At-Grade Alternative (B2A)



10c. Simulation of 112th SE Elevated Alternative (B2E)



10d. Simulation of 112th SE Bypass Alternative (B3)

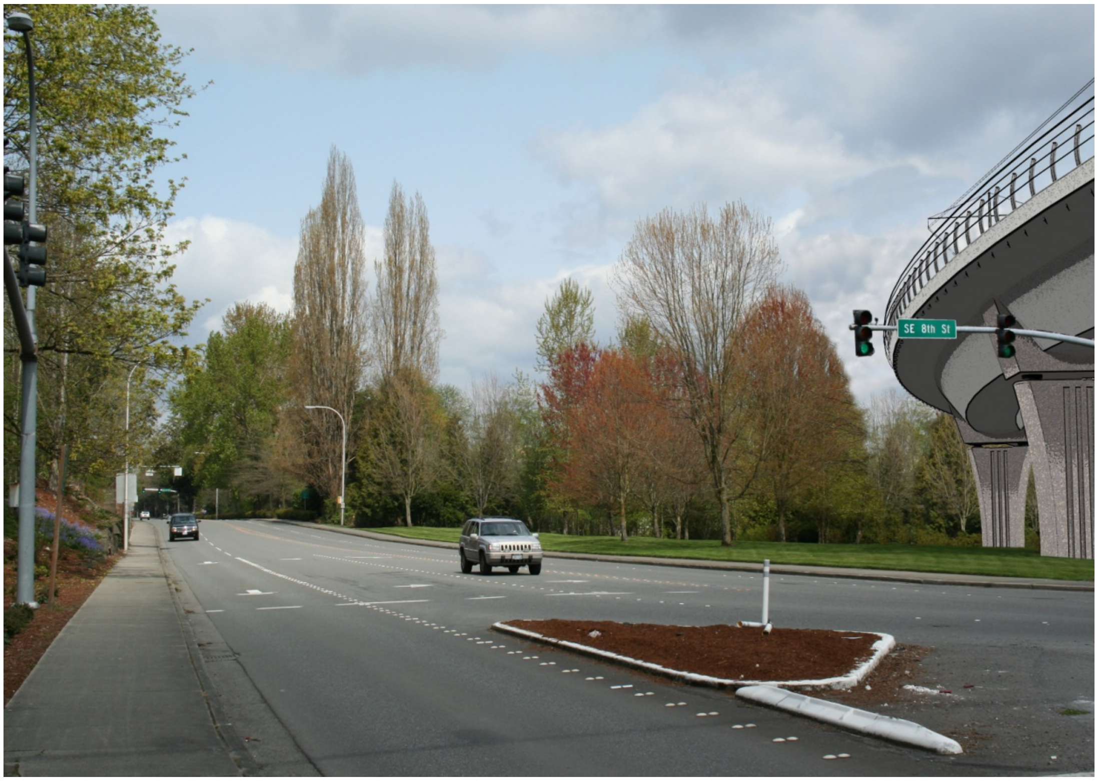
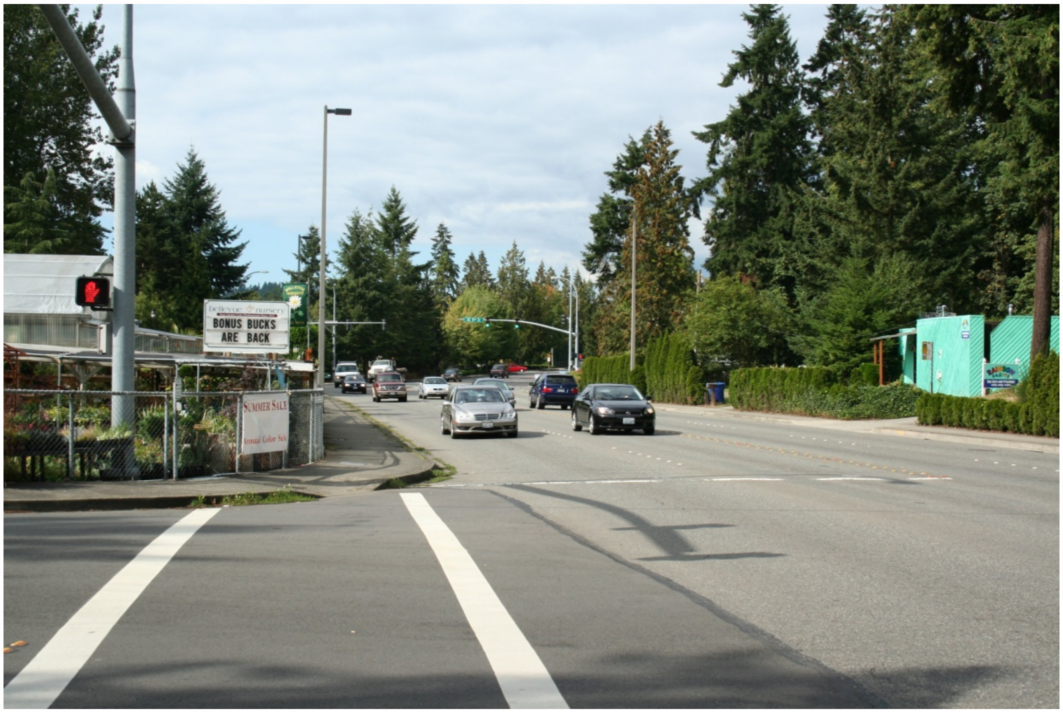


EXHIBIT F4.5-11

Key Observation Point 11 (looking north along Bellevue Way SE)

11a. Existing Condition


bellevue nursery
BONUS BUCKS
ARE BACK
SUMMER SALE
Annual Color Sale

11b. Simulation of Bellevue Way Alternative (B1)

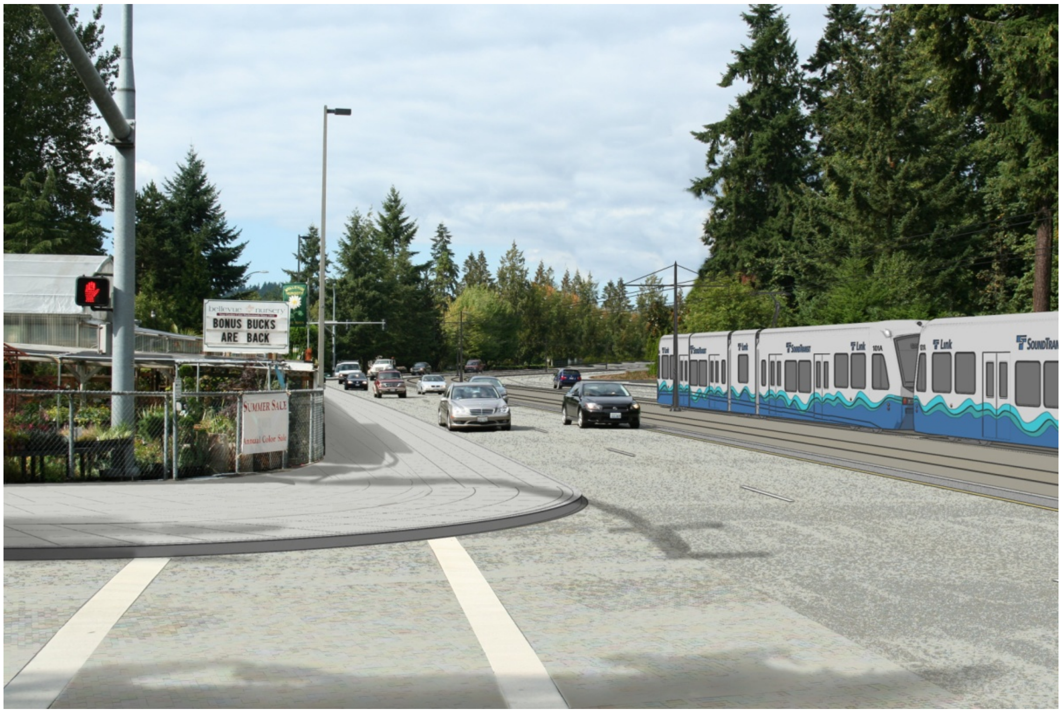
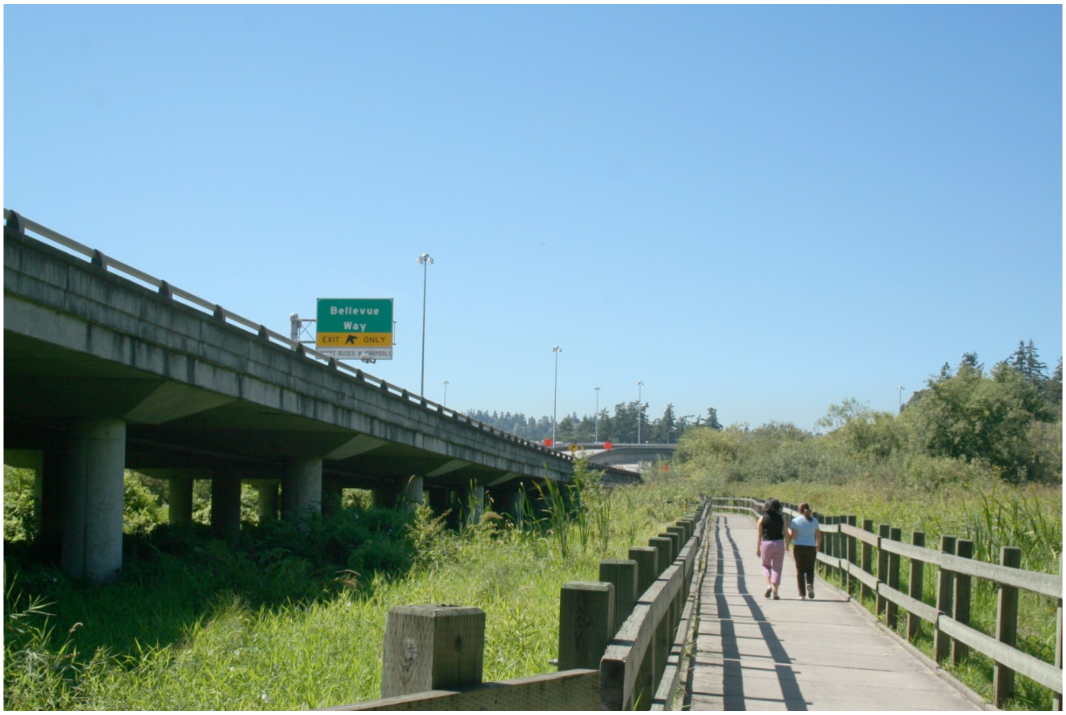

bellevue nursery
BONUS BUCKS
ARE BACK
SUMMER SALE
Annual Color Sale
Link
Sound Transit

EXHIBIT F4.5-12

Key Observation Point 12 (looking west along I-90 [Mountains-to-Sound] Trail where it passes through Mercer Slough Nature Park)

12a. Existing Condition


Bellevue Way
EXIT ONLY

12b. Simulation of BNSF Alternative (B7)

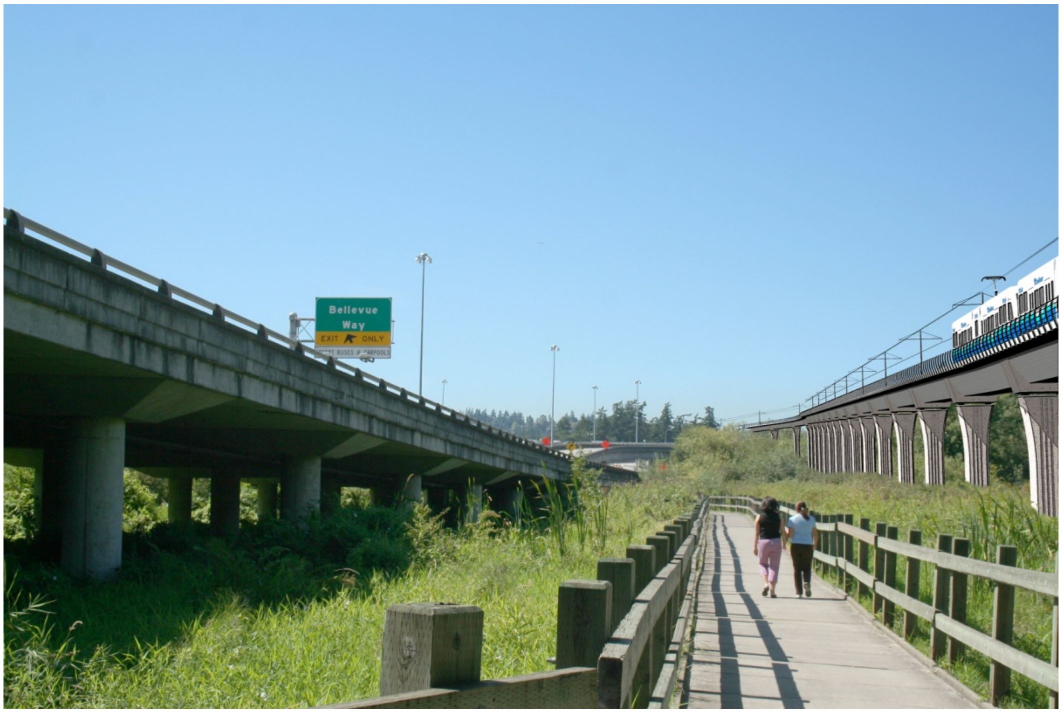
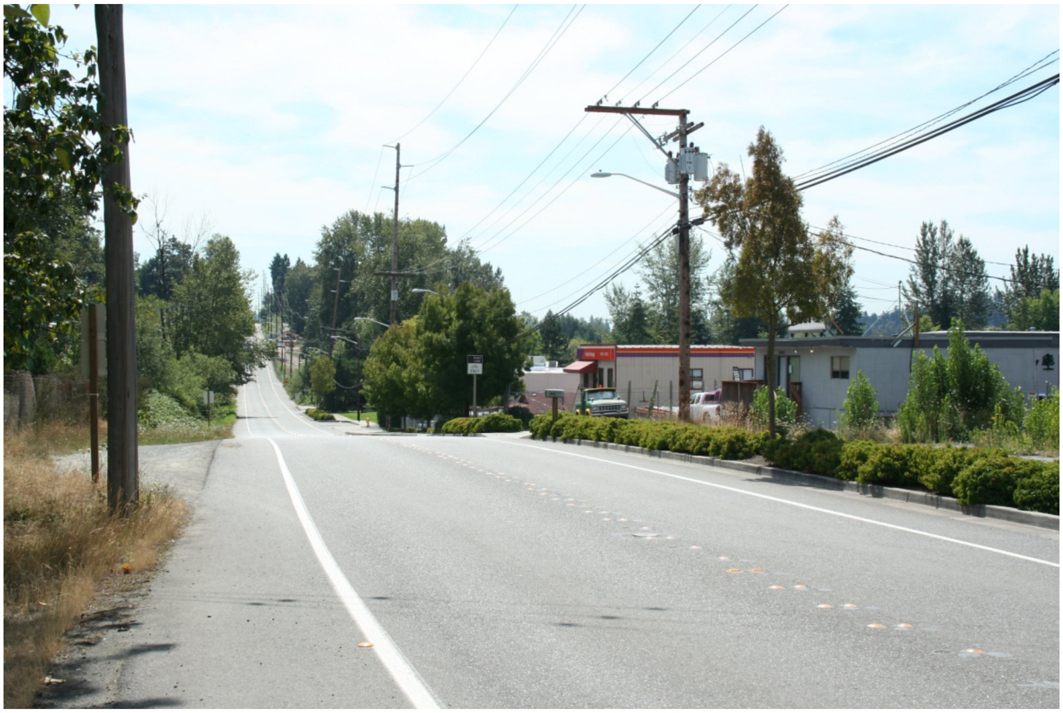

Bellevue Way
EXIT ONLY

EXHIBIT F4.5-13

Key Observation Point 13 (looking south along 118th Avenue SE)

13a. Existing Condition



13b. Simulation of BNSF Alternative (B7)

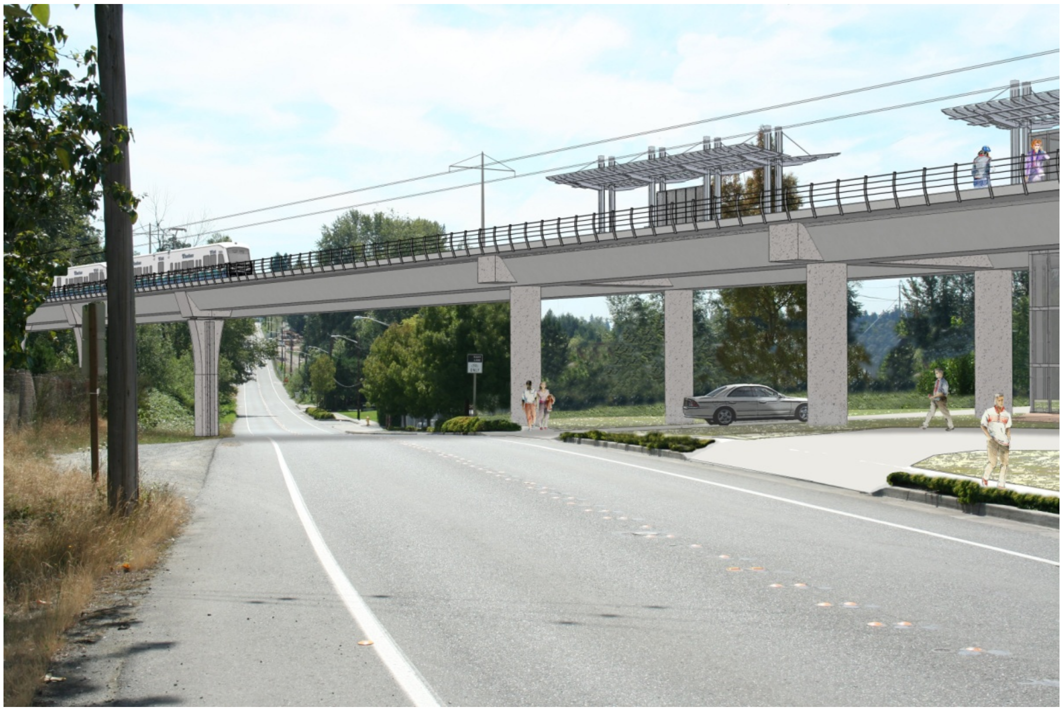
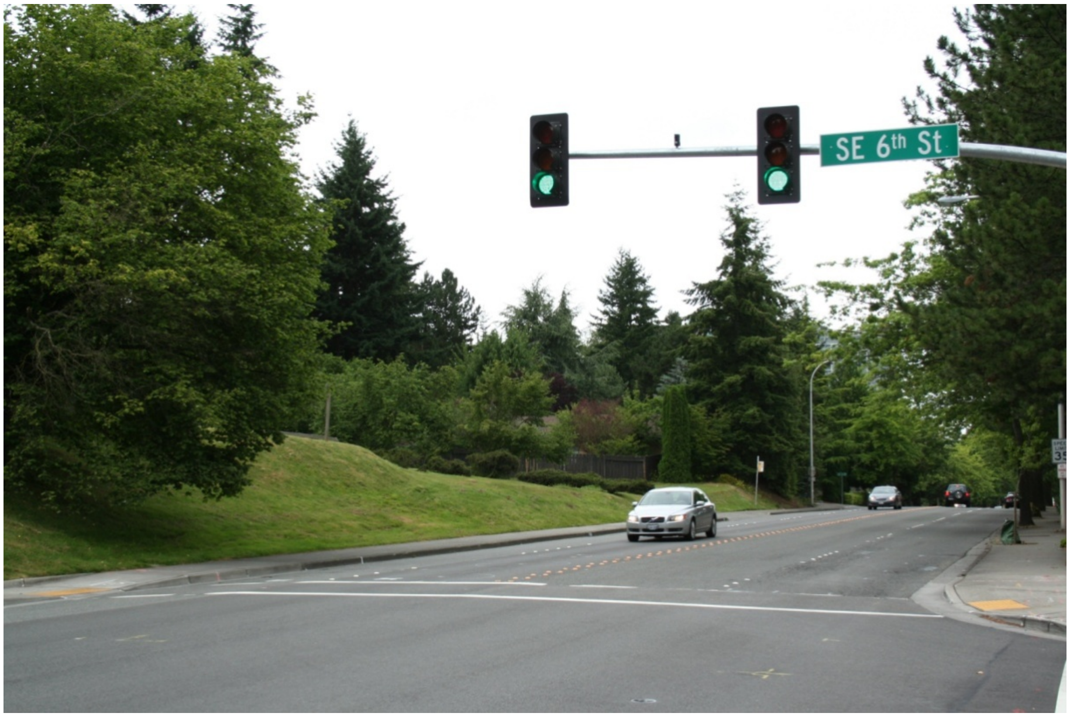


EXHIBIT F4.5-14
Key Observation Point 14 (looking north along 112th Avenue SE at SE 6th Street)

14a. Existing Condition



14b. Simulation of *Preferred 108th NE At-Grade Alternative (C11A); Preferred 110th NE Tunnel Alternative (C9T)* would appear very similar from this KOP

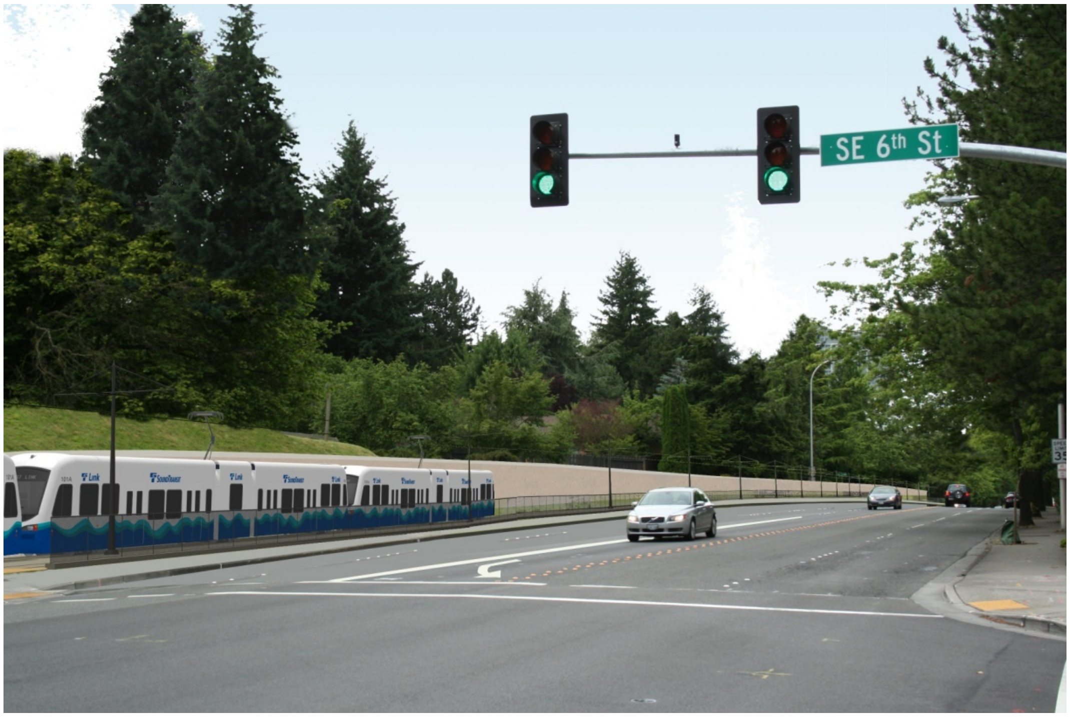
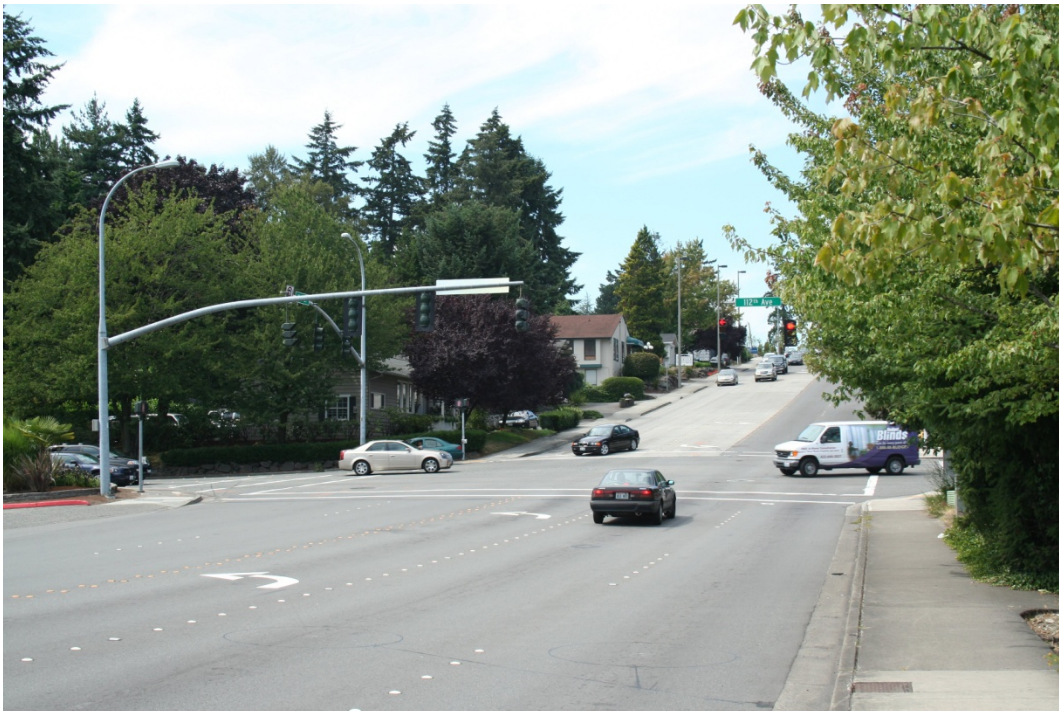


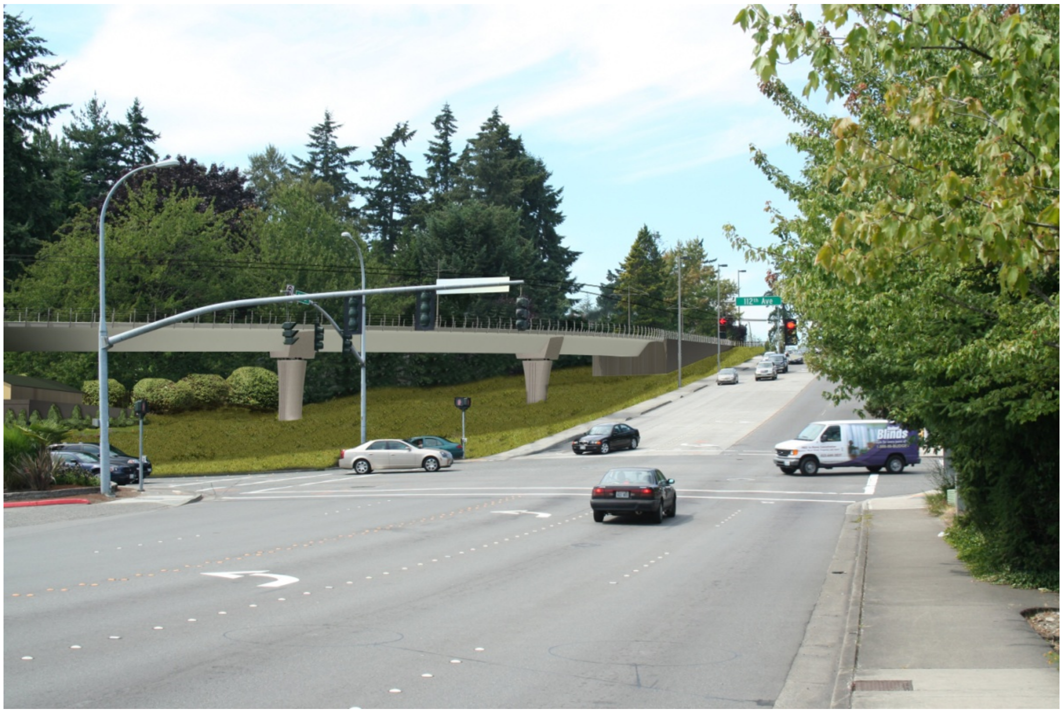
EXHIBIT F4.5-15

Key Observation Point 15 (looking west along Main Street from east of 112th Avenue SE intersection)

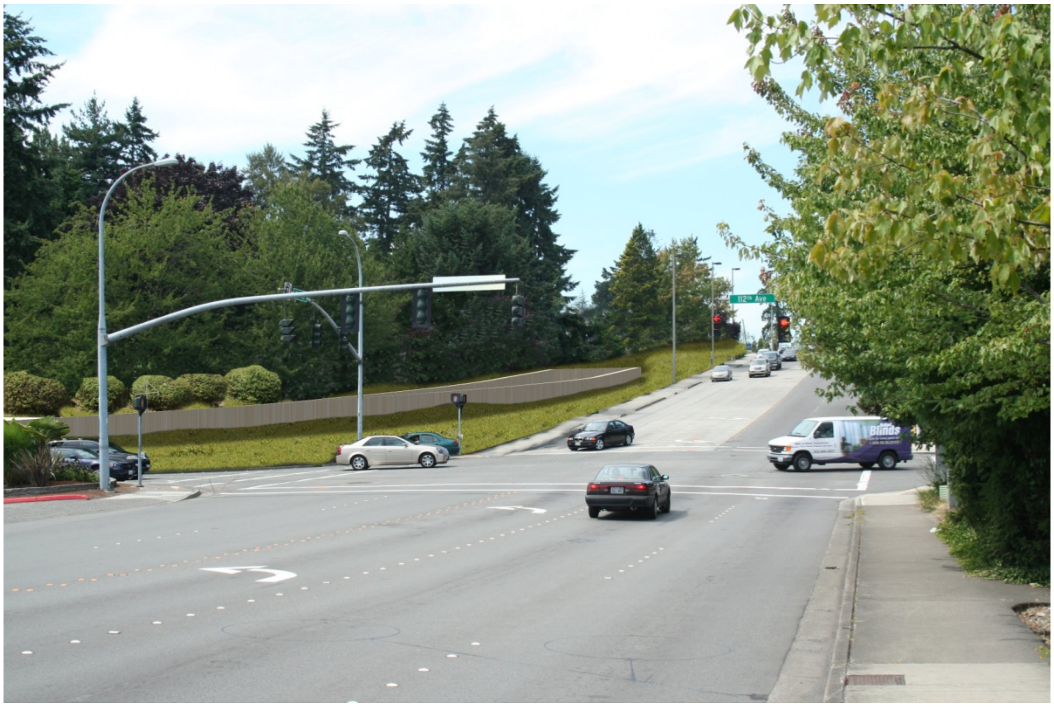
15a. Existing Condition



15b. Simulation of *Preferred 108th NE At-Grade Alternative (C11A);* Couplet Alternative (C4A) would be very similar



15c. Simulation of *Preferred 110th NE Tunnel Alternative (C9T)*



15d. Simulation of 106th NE (C2T) and 108th NE (C3T) Tunnel Alternatives

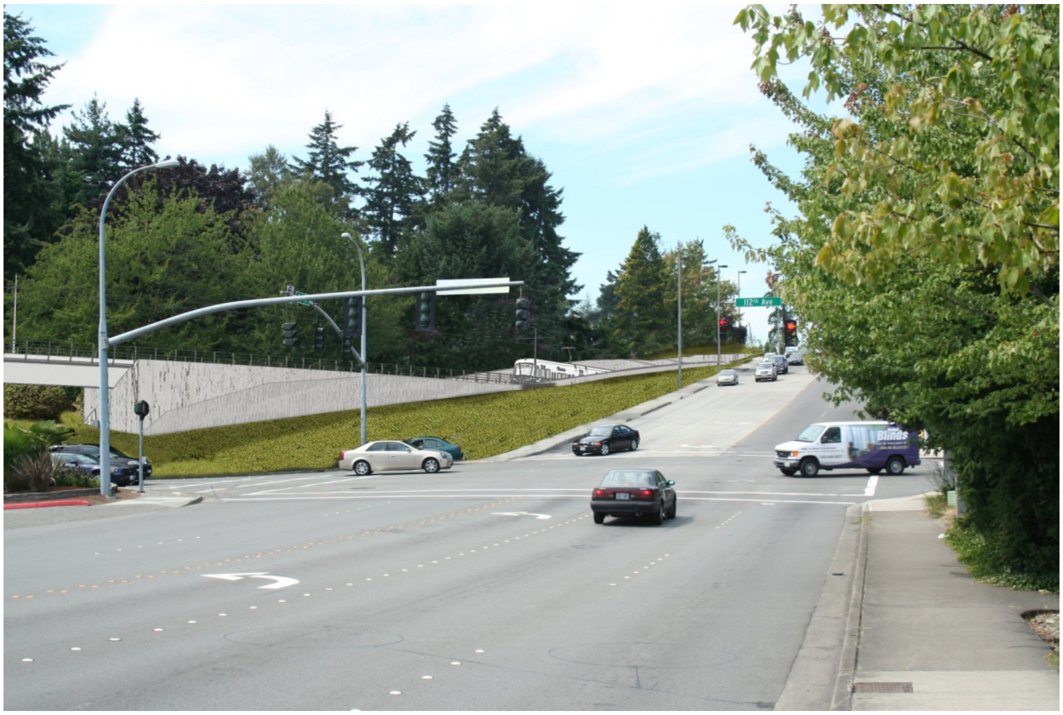
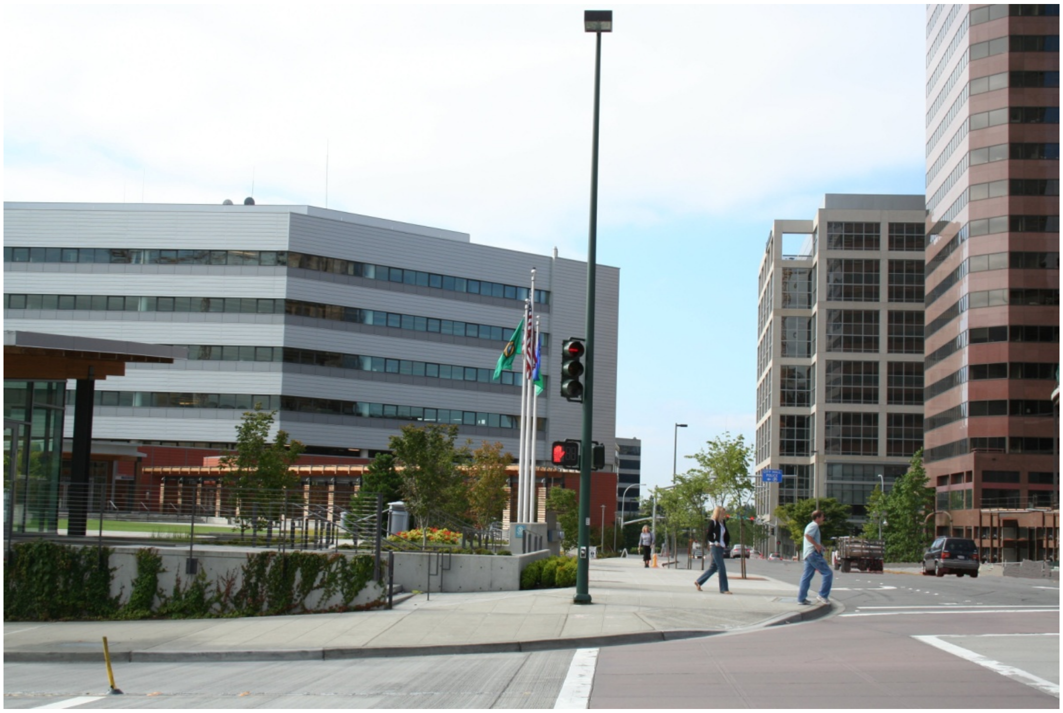


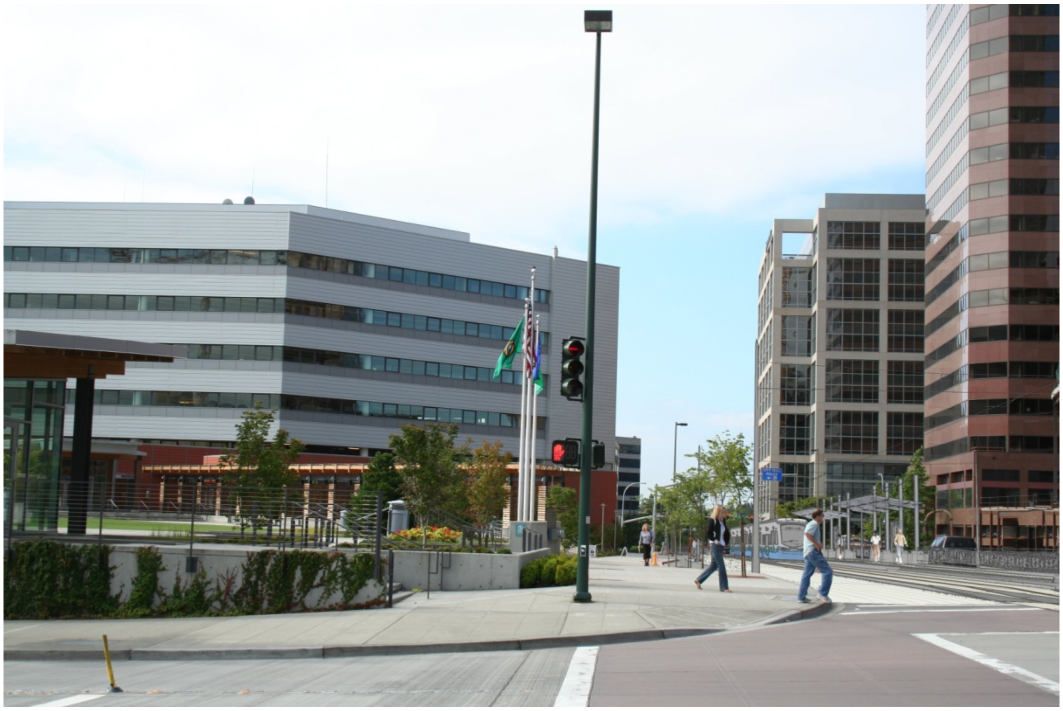
EXHIBIT F4.5-16

Key Observation Point 16 (looking south along 110th Avenue NE north of Bellevue City Hall)

16a. Existing Condition



16b. Simulation of Couplet Alternative (C4A)



16c. Simulation of 110th NE Elevated Alternative (C8E)

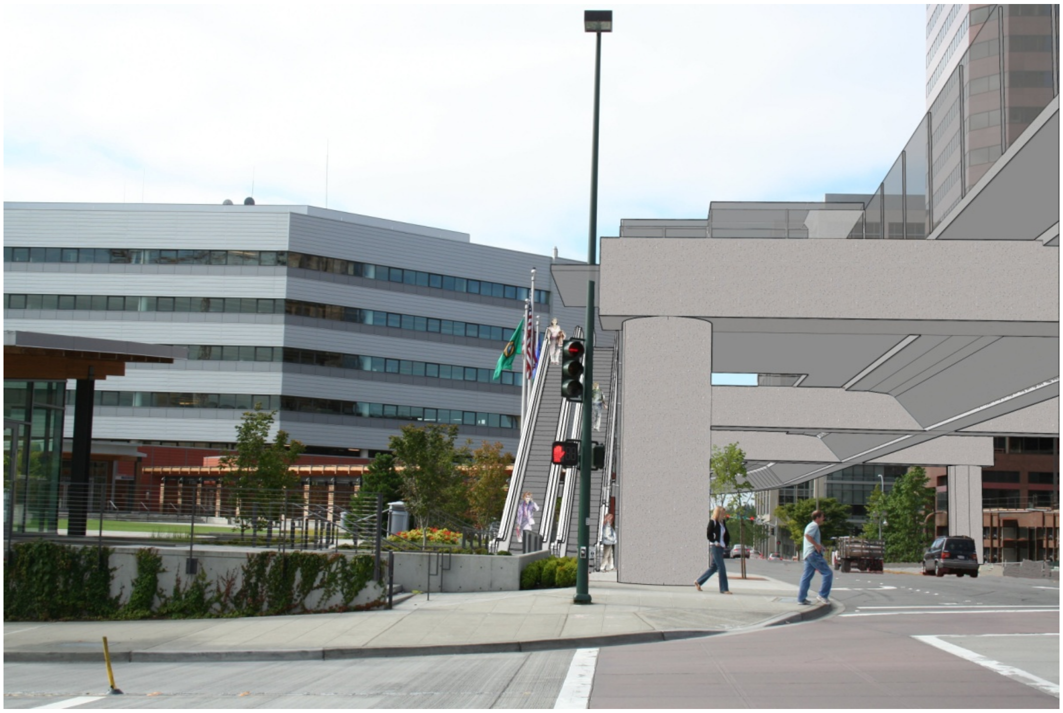
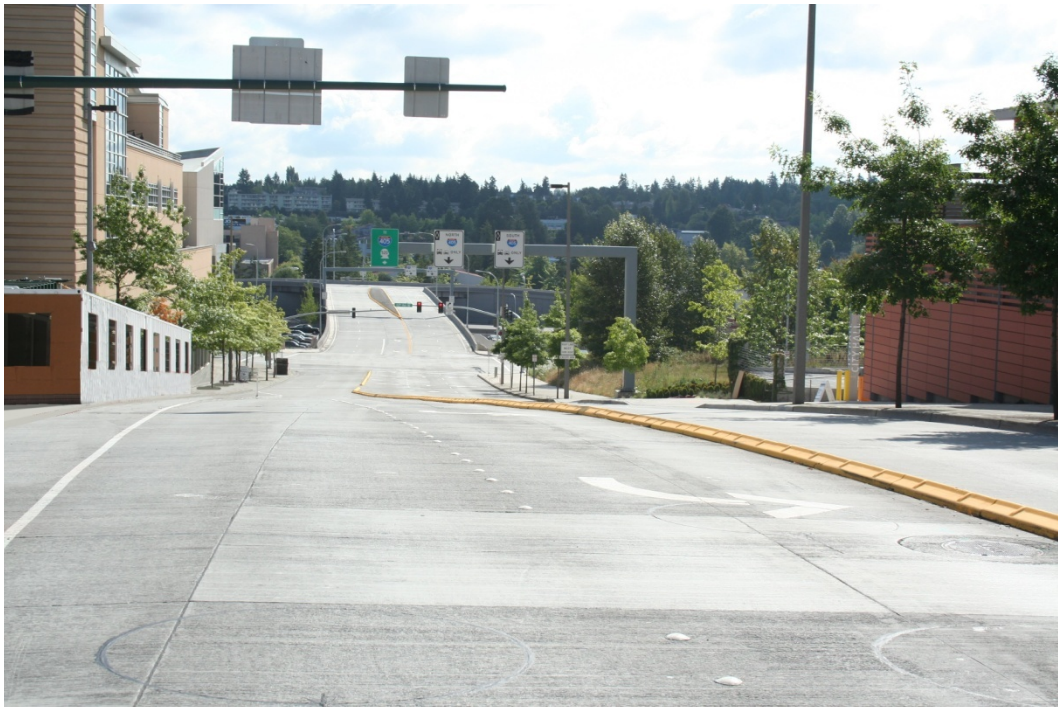
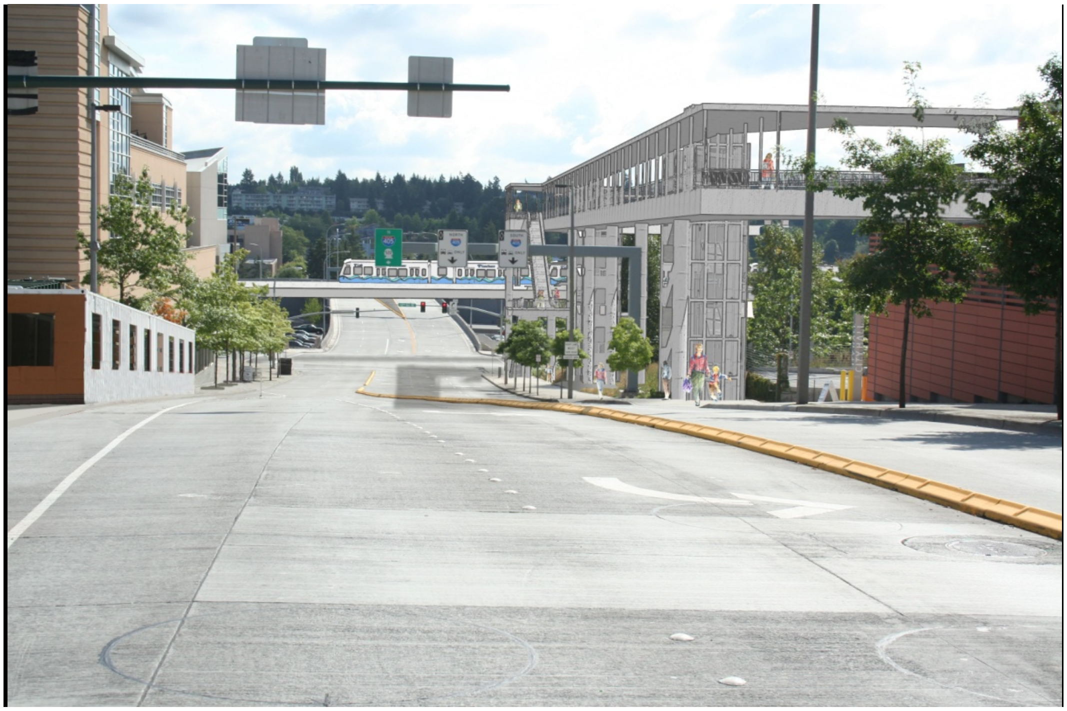


EXHIBIT F4.5-17
Key Observation Point 17 (looking east form north side of NE 6th Street)

17a. Existing Condition (looking east from north side of NE 6th Street)



17b. Simulation of 112th NE Elevated Alternative (C7E)



17c. Simulation of 114th NE Elevated Alternative (C14E) and Bellevue Transit Center Station

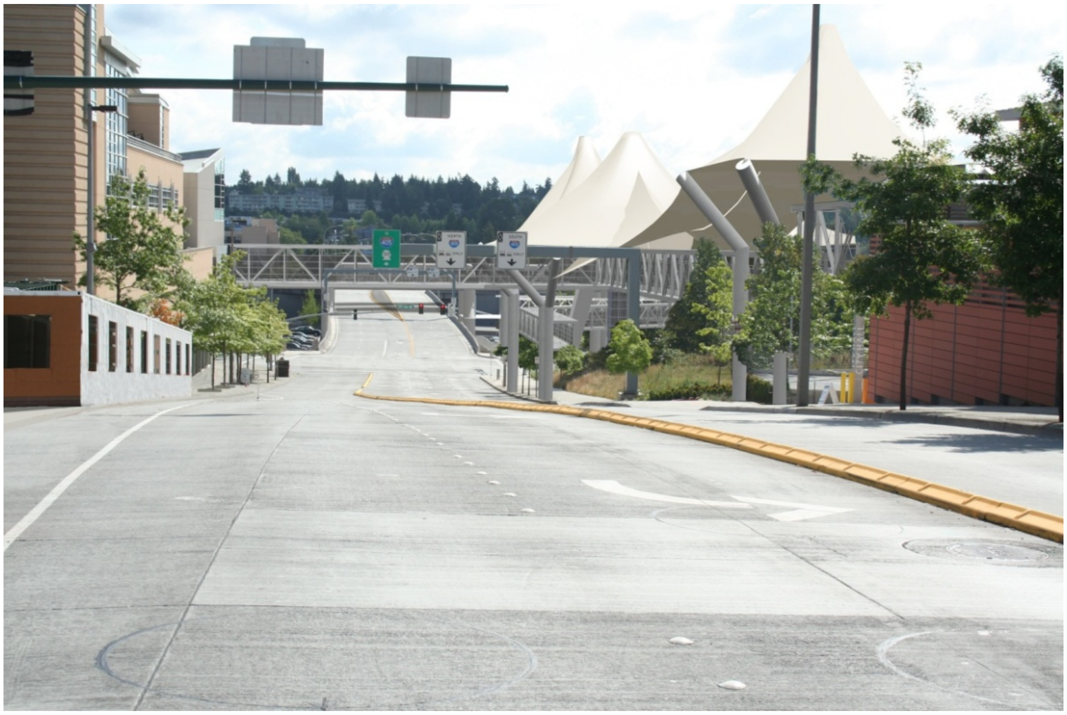
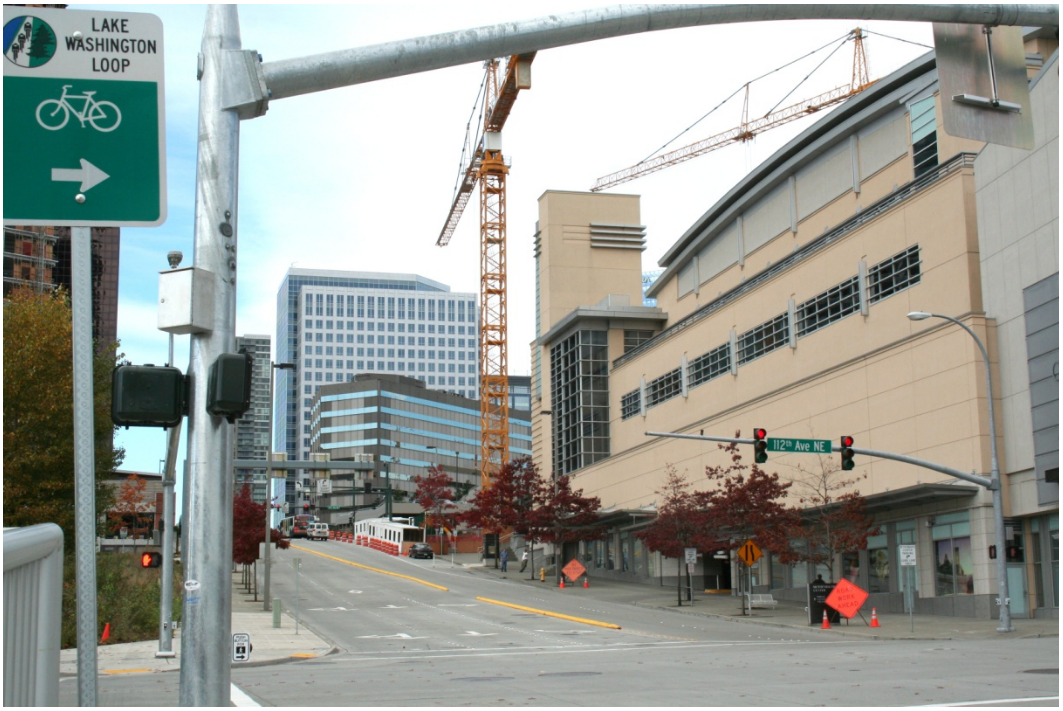


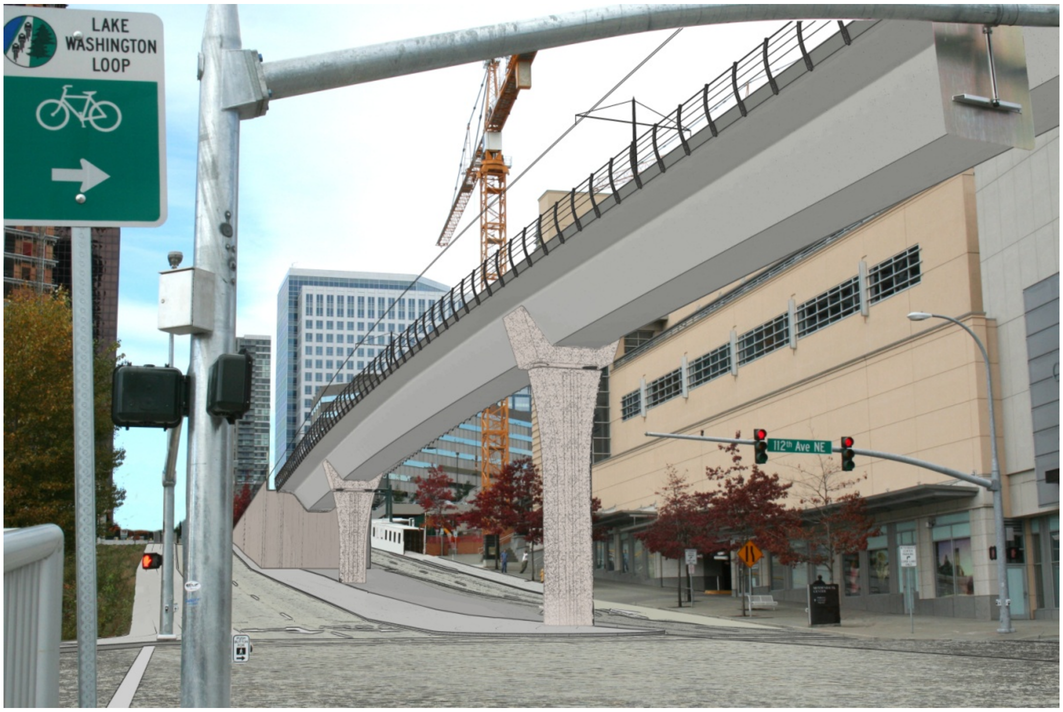
EXHIBIT F4.5-18

Key Observation Point 18 (looking along NE 6th Street from 112th Avenue NE)

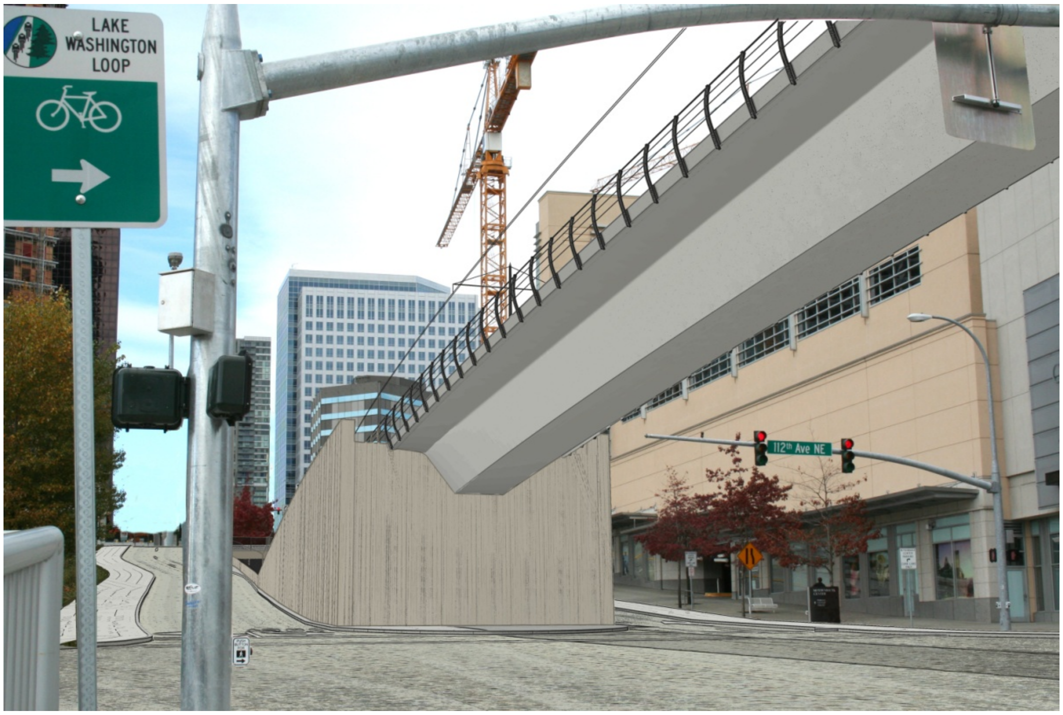
18a. Existing Condition (looking west from south side of NE 6th Street)


LAKE WASHINGTON LOOP
112th Ave NE

18b. Simulation of *Preferred 108th NE At-Grade Alternative (C11A)*


LAKE WASHINGTON LOOP
112th Ave NE

18c. Simulation of *Preferred 110th NE Tunnel Alternative (C9T)*


LAKE WASHINGTON LOOP
112th Ave NE

18d. Simulation of Bellevue Way Tunnel (C1T)/106th NE Tunnel (C2T) Alternatives

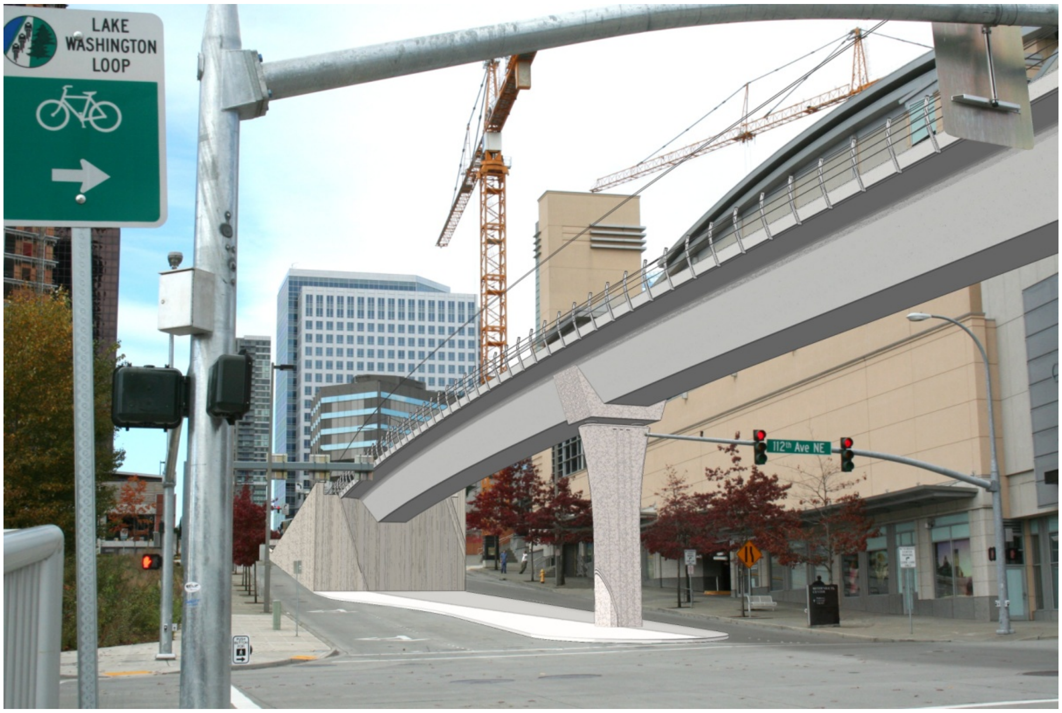
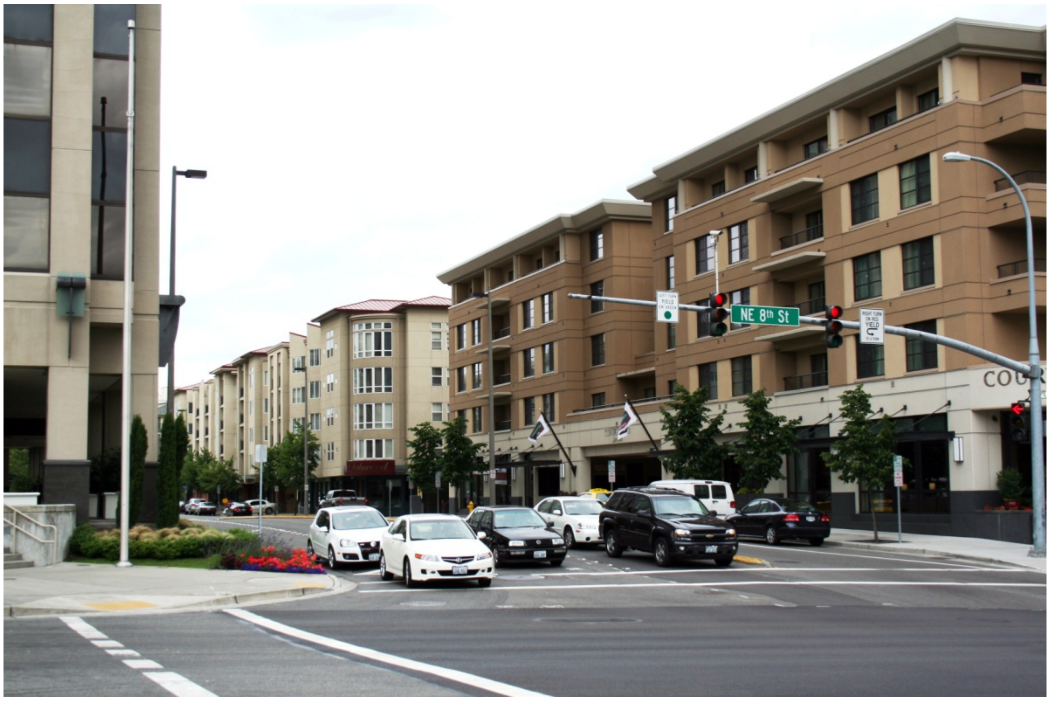

LAKE WASHINGTON LOOP
112th Ave NE

EXHIBIT F4.5-19
Key Observation Point 19 (Looking north along 110th Avenue NE)

19a. Existing Condition



19b. Simulation of 110th NE Elevated Alternative (C8E)

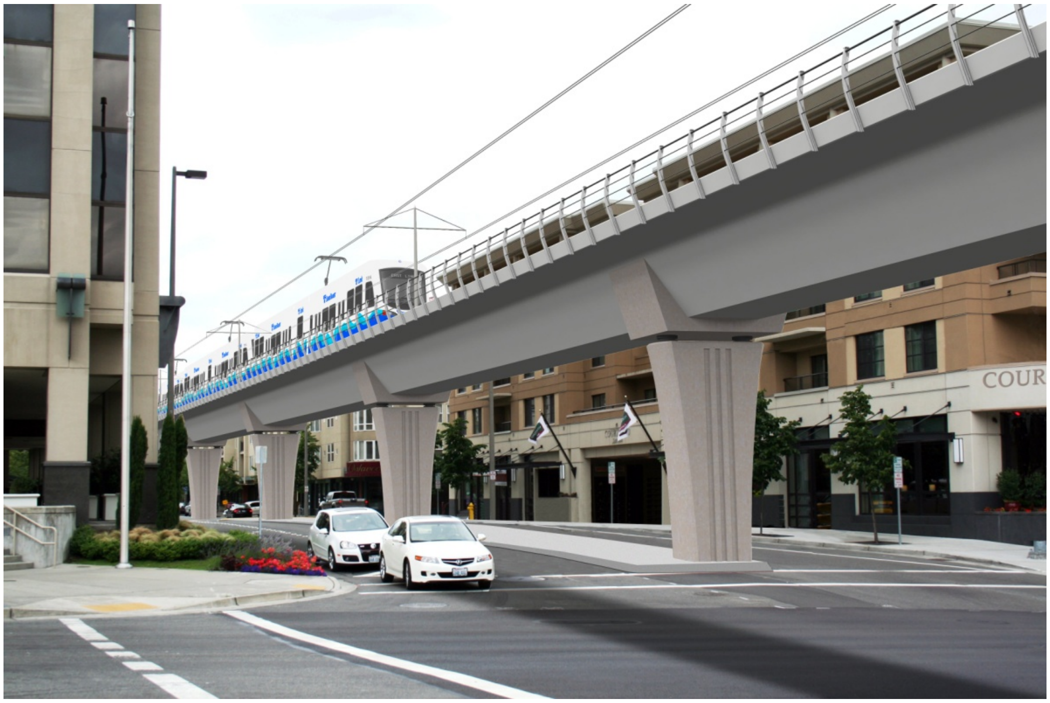
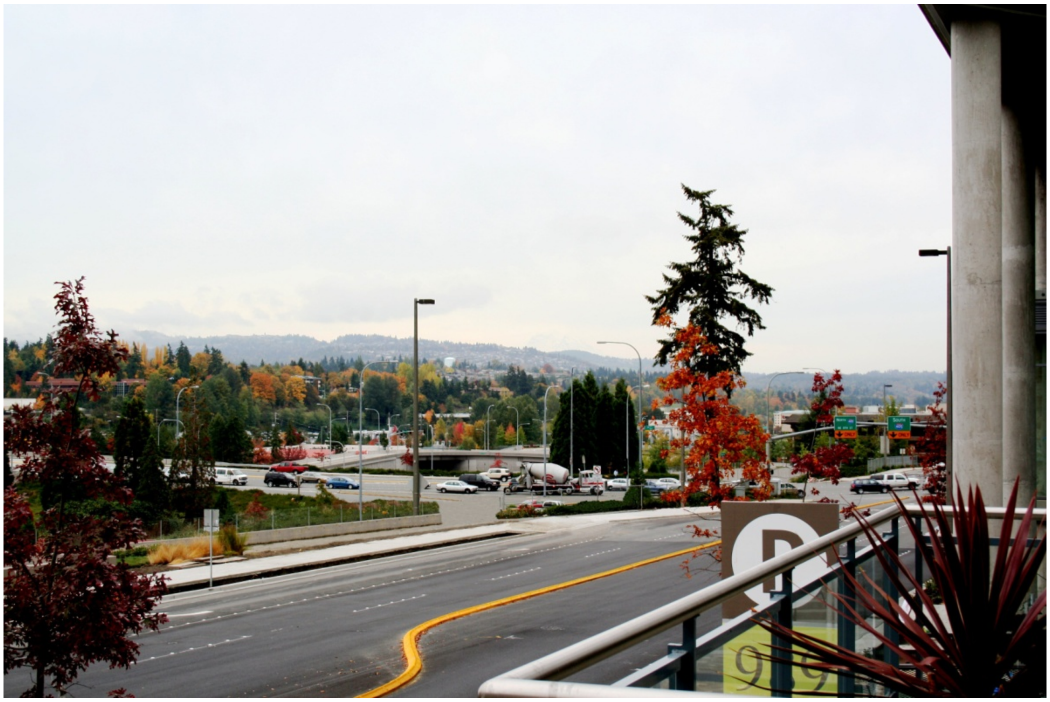


EXHIBIT F4.5-20

Key Observation Point 20 (Looking southeast along 112th Avenue towards NE 8th Street)

20a. Existing Condition



20b. Simulation of 112th NE Elevated Alternative (C7E)

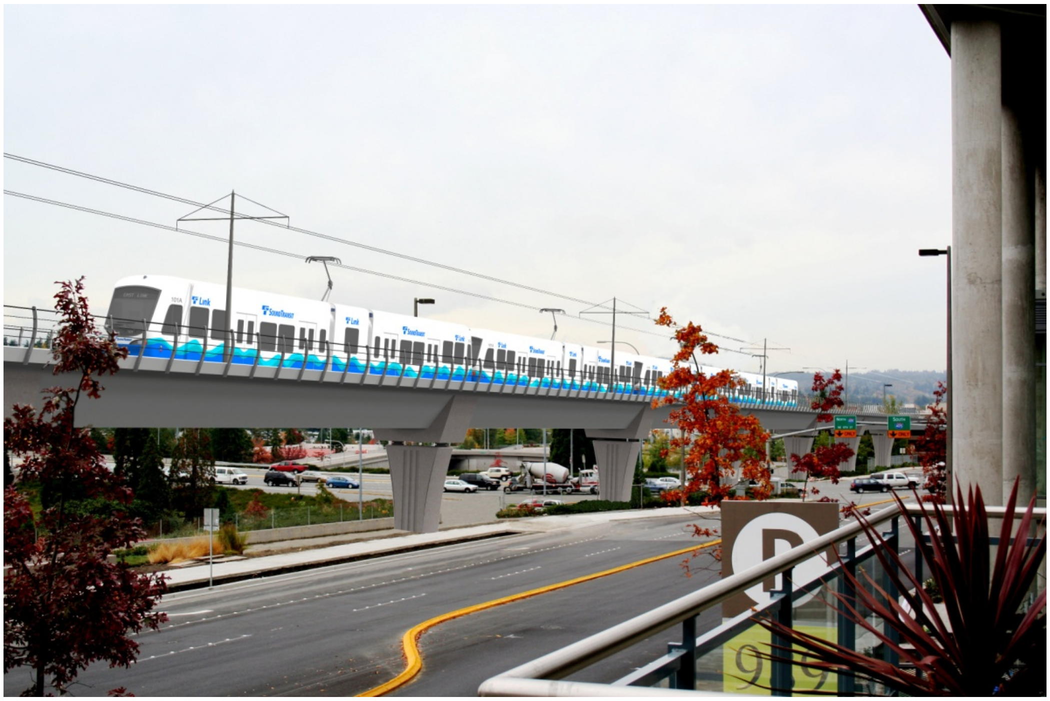
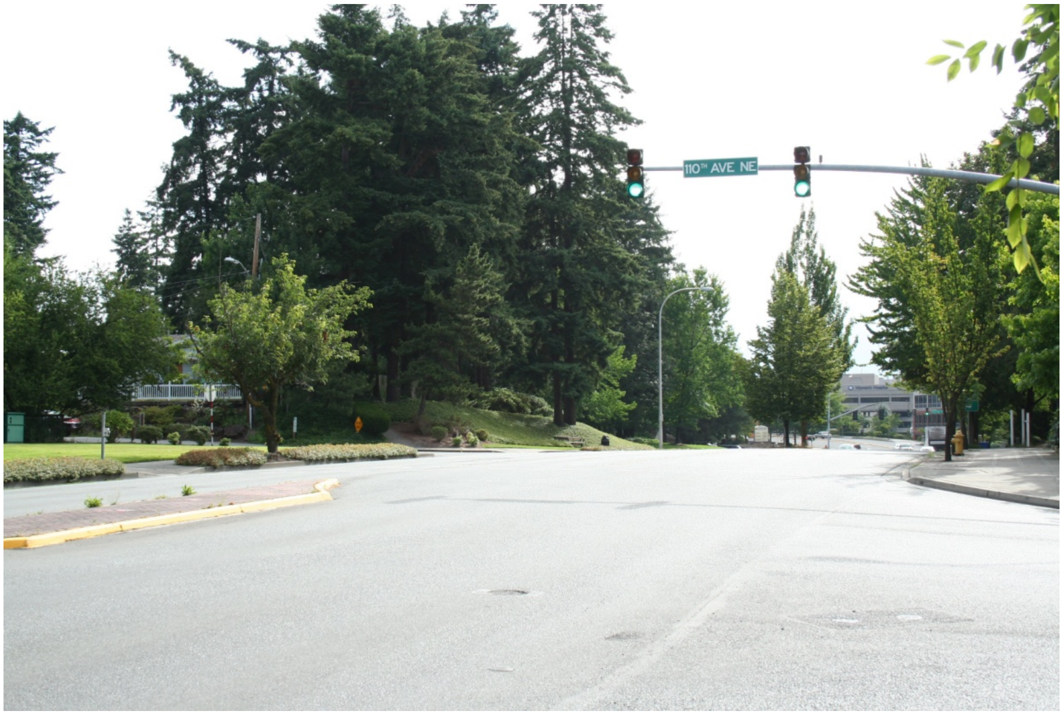


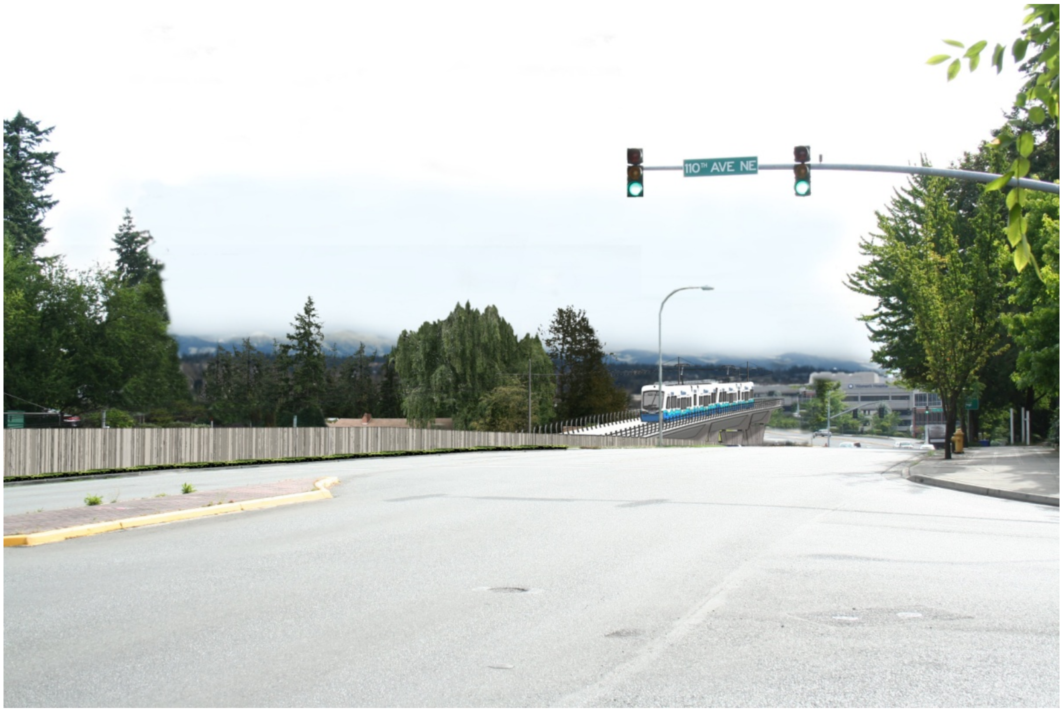
EXHIBIT F4.5-21

Key Observation Point 21 (looking east along NE 12th Street near intersection with 110th Avenue NE)

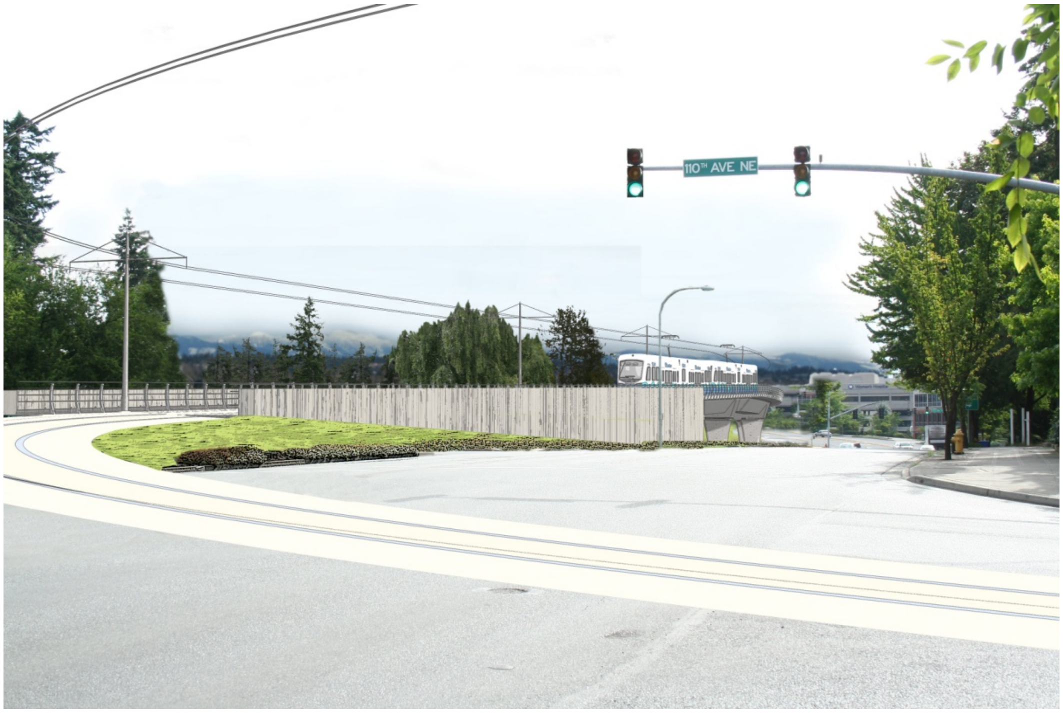
21a. Existing Condition



21b. Simulation of 108th NE Tunnel Alternative (C3T)



21c. Simulation of Couplet Alternative (C4A)


110TH AVE NE

21d. Simulation of 110th NE Elevated Alternative (C8E)

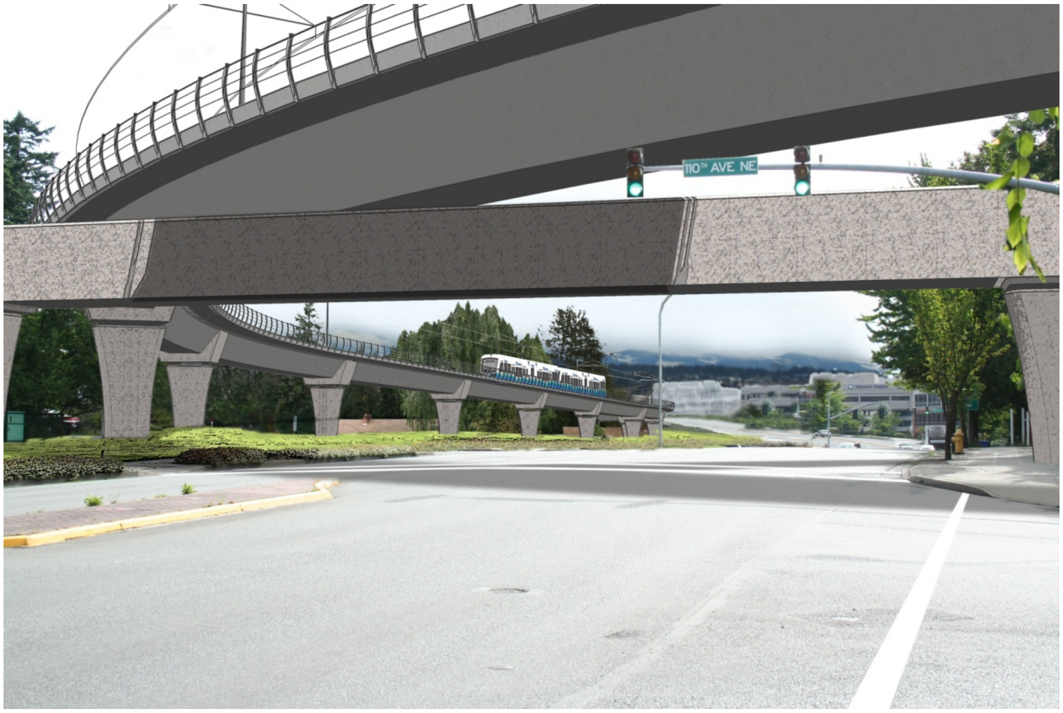
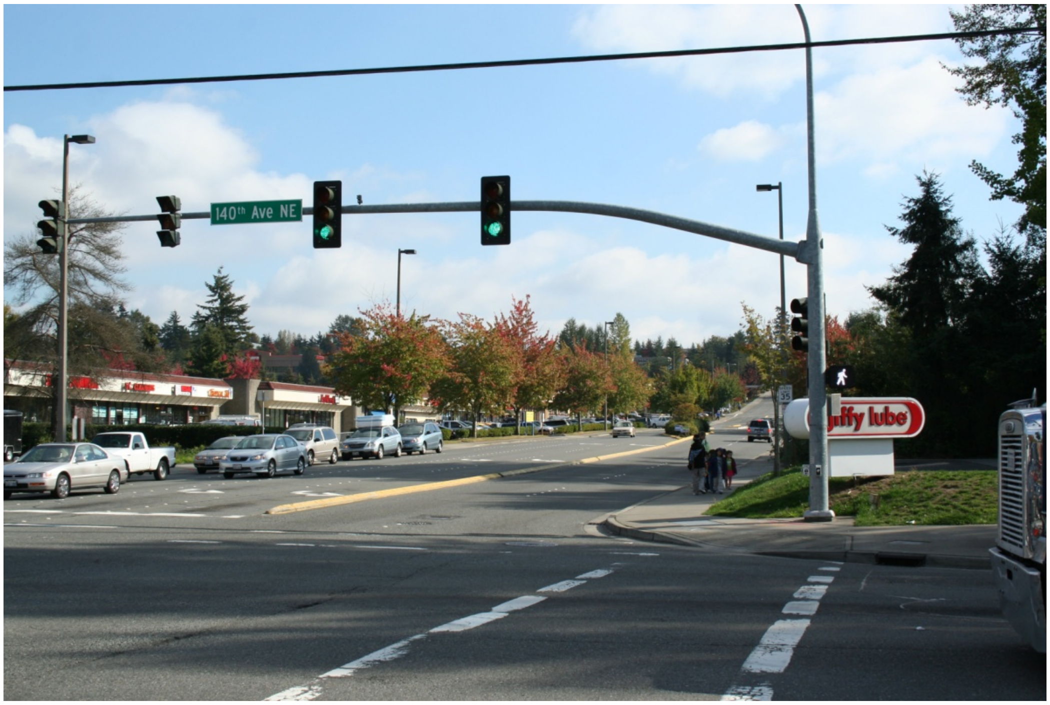

110TH AVE NE

EXHIBIT F4.5-22

Key Observation Point 22 (looking east along NE 20th Street)

22a. Existing Condition


140th Ave NE
Jiffy lube

22b. Simulation of NE 20th Street Alternative (D3)

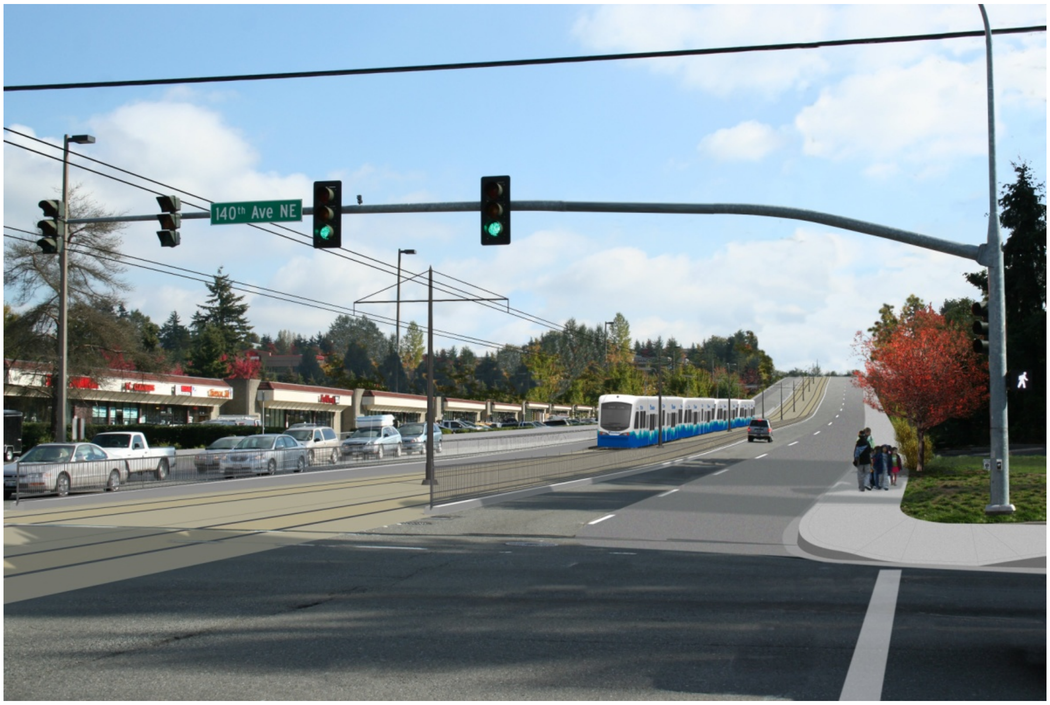
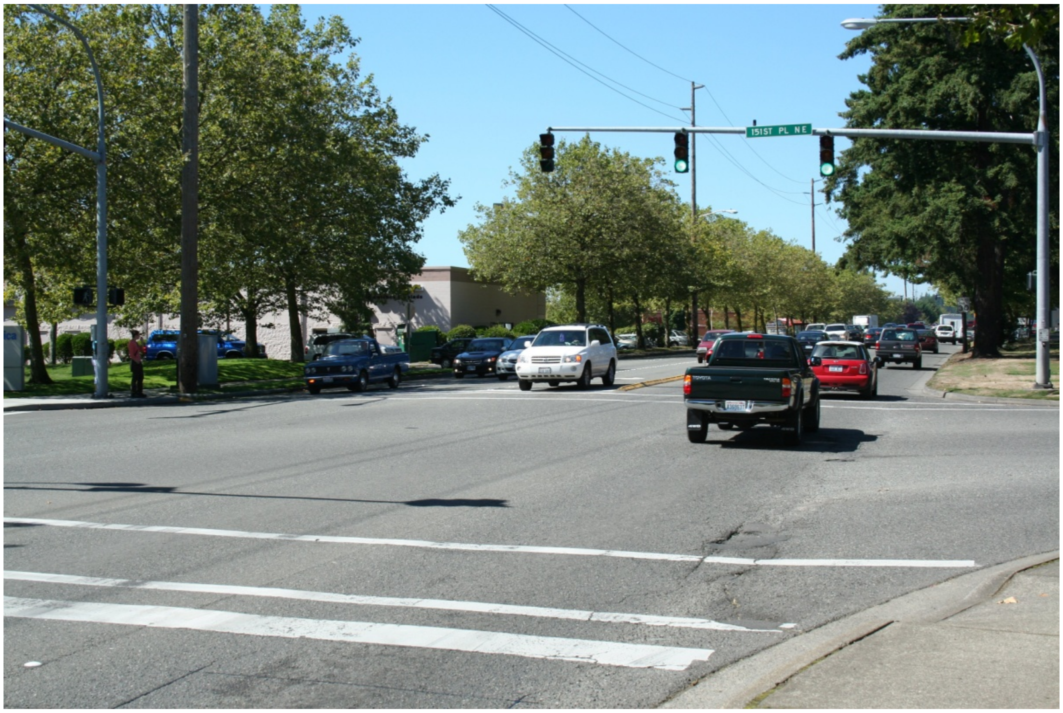

140th Ave NE

EXHIBIT F4.5-23

Key Observation Point 23 (looking west along NE 24th Street from near intersection with 151st Avenue NE)

23a. Existing Condition



23b. Simulation of NE 16th Elevated Alternative (D2E)

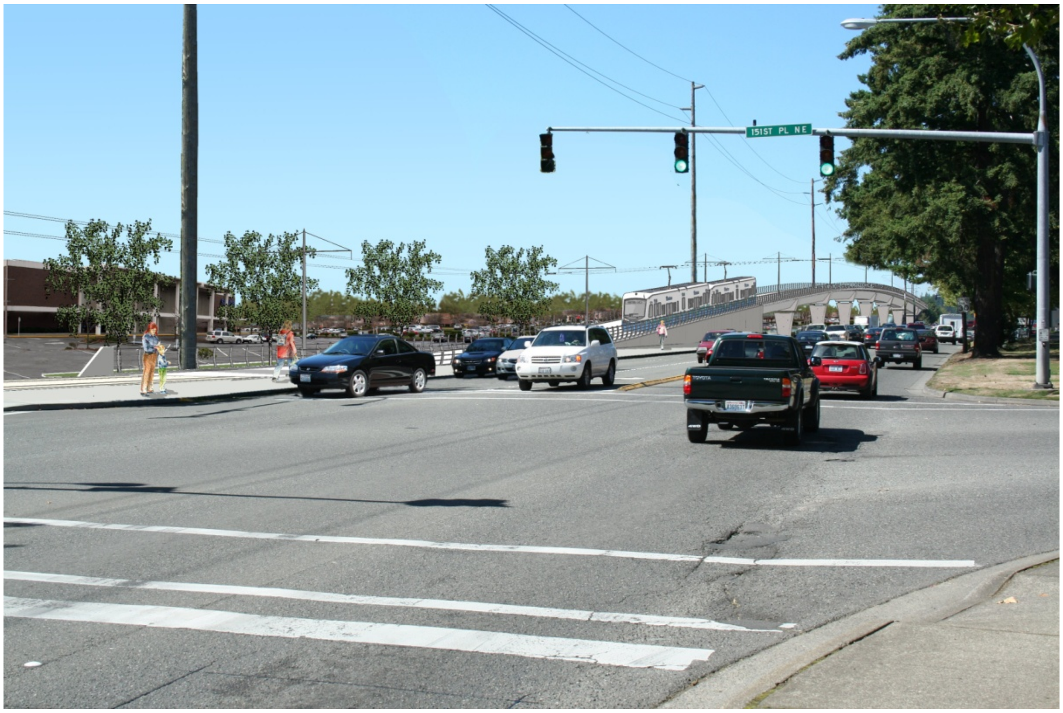
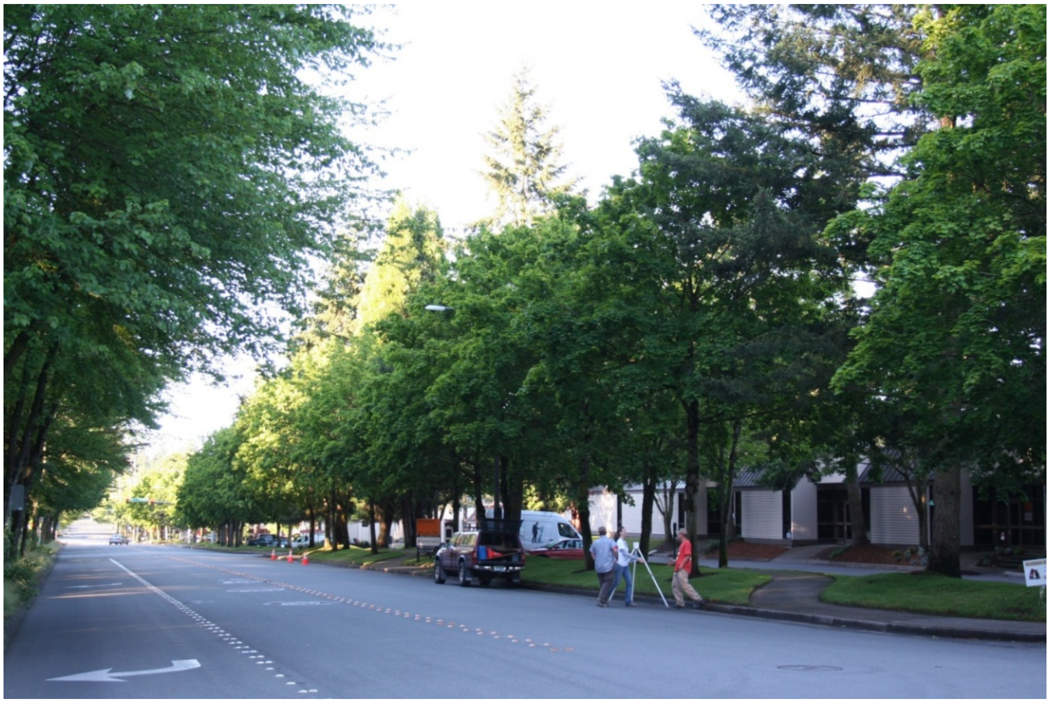


EXHIBIT F4.5-24
Key Observation Point 24 (looking south along 152nd Avenue SE)

24a. Existing Condition



24b. Simulation of *Preferred NE 16th At-Grade Alternative (D2A)* and the Overlake Village Station looking south along 152nd Ave SE with D2A - NE 24th Design Option

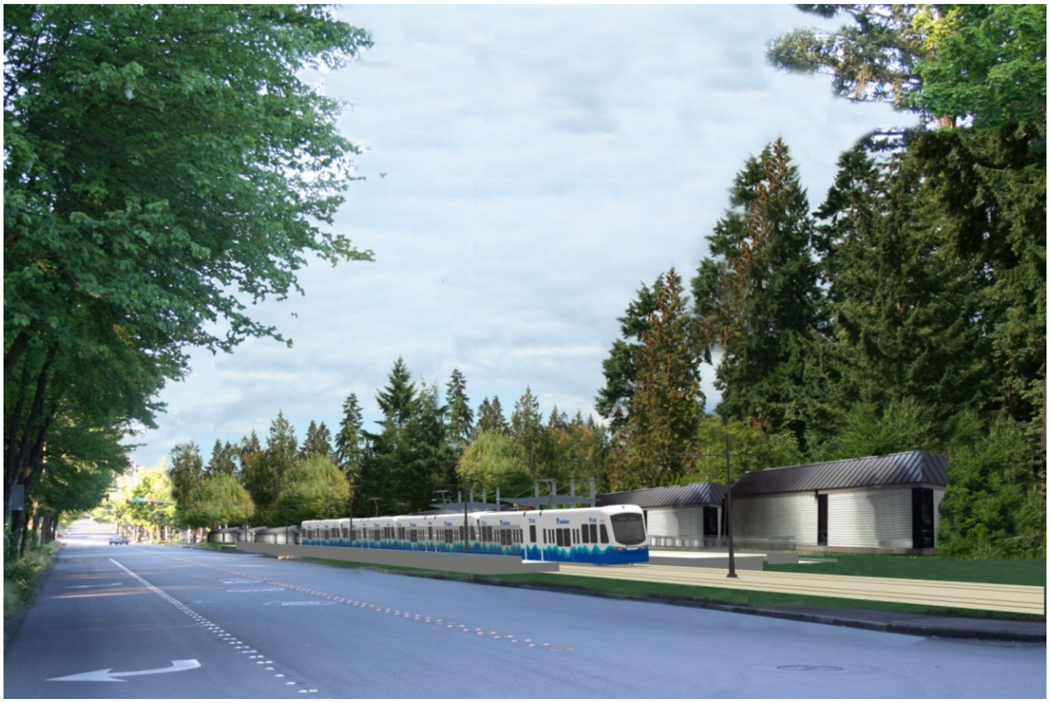
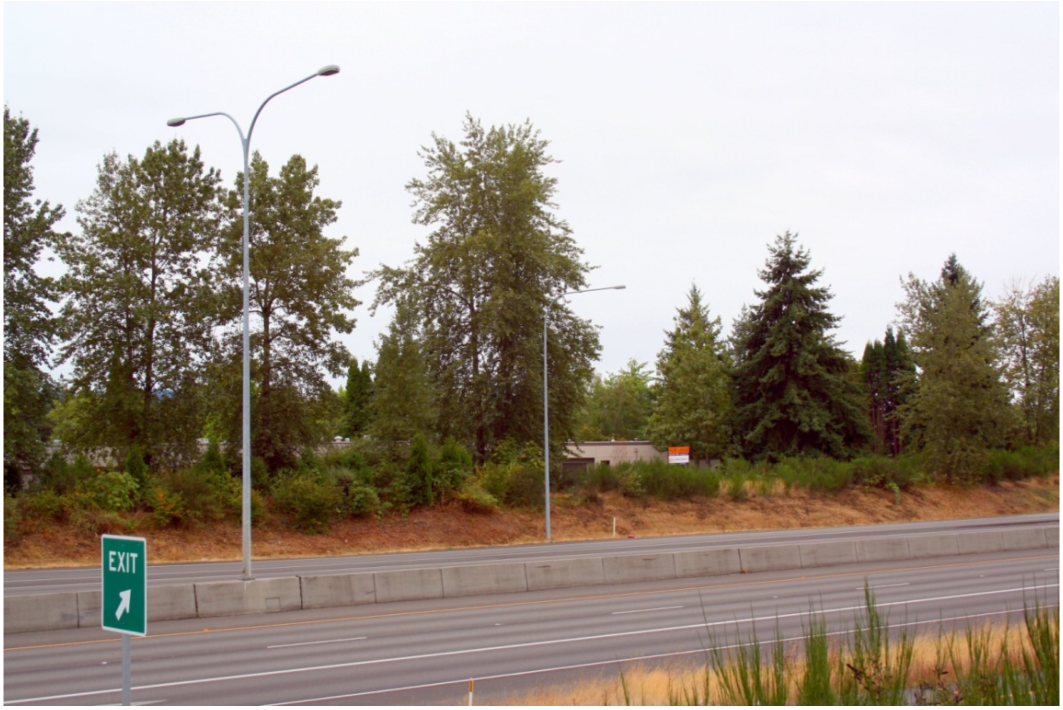


EXHIBIT F4.5-25

Key Observation Point 25 (south from the SR 520 Bike and Pedestrian Trail)

25a. Existing Condition



25b. Simulation *of Preferred NE 16th At-Grade Alternative (D2A)* and the Overlake Village Station

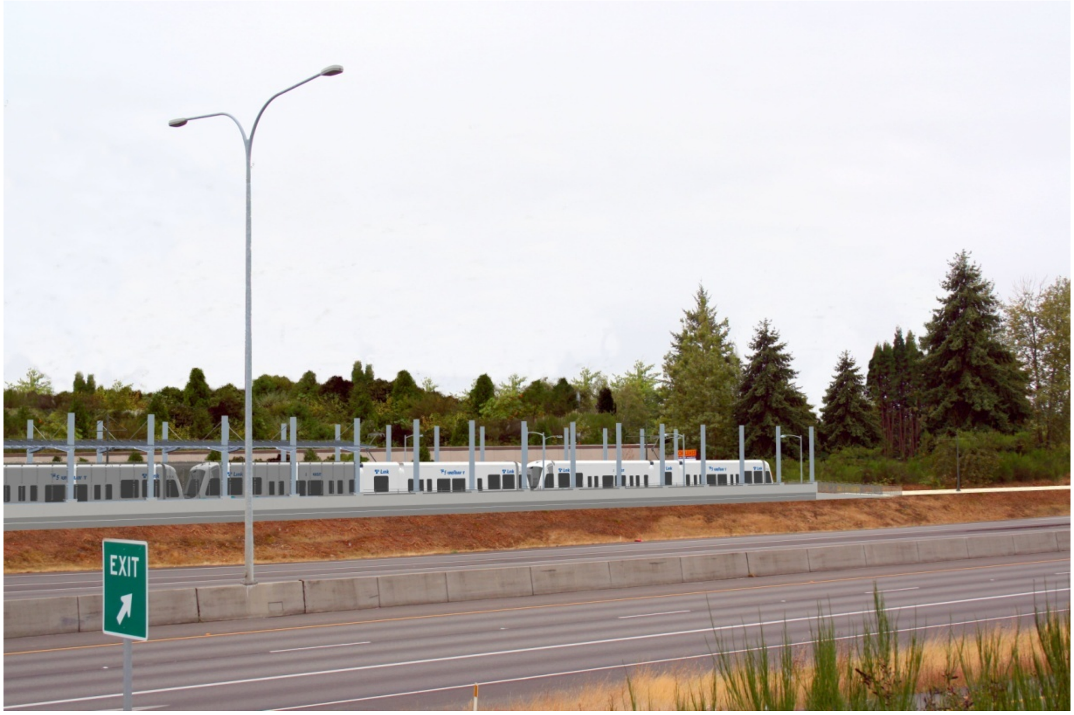
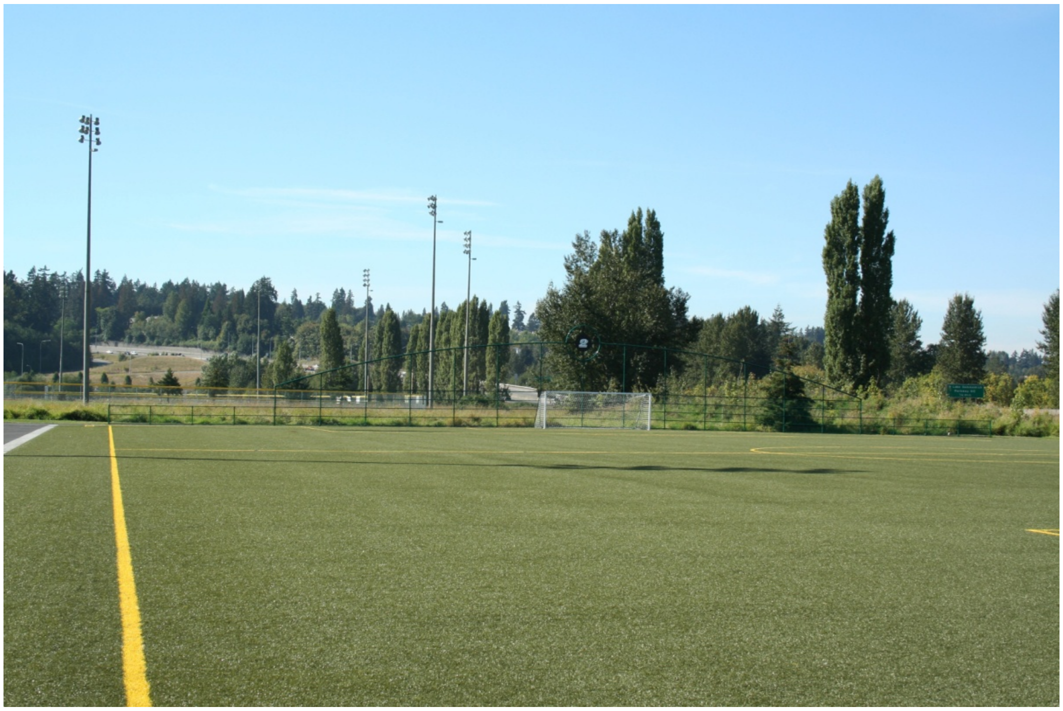


EXHIBIT F4.5-26
Key Observation Point 26 (looking northwest from Marymoor Park sports fields)

26a. Existing Condition



26b. Simulation of *Preferred Marymoor Alternative (E2)*

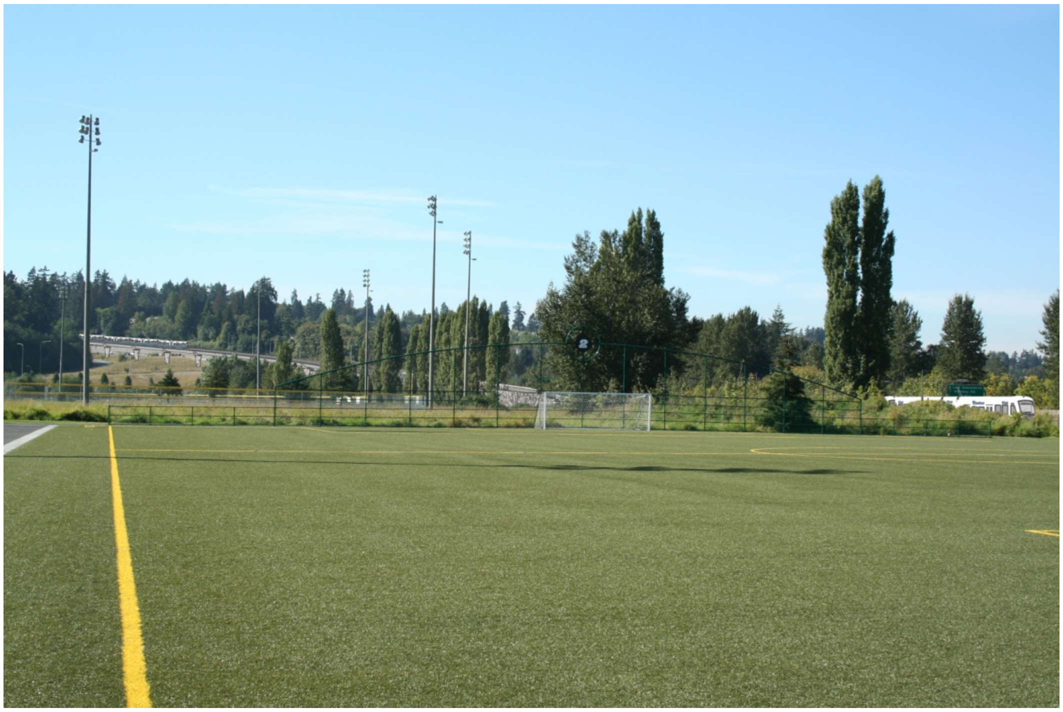
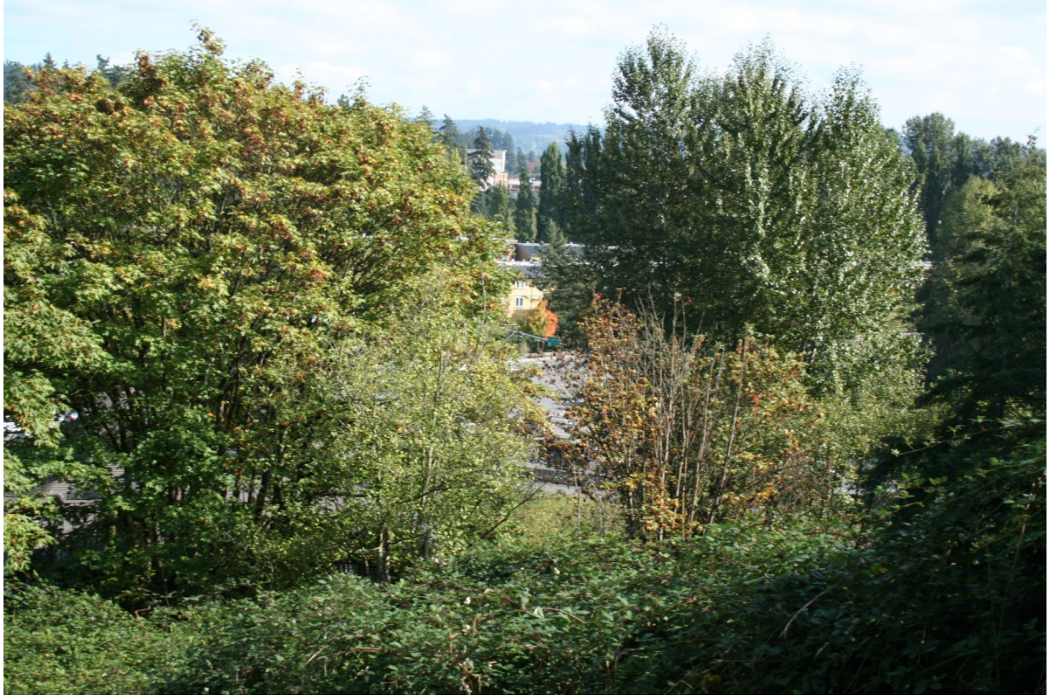


EXHIBIT F4.5-27

Key Observation Point 27 (view to east over West Summit Parking from Multifamily Residents Complex)

27a. Existing Condition



27b. Simulation of Redmond Way Alternative (E1)

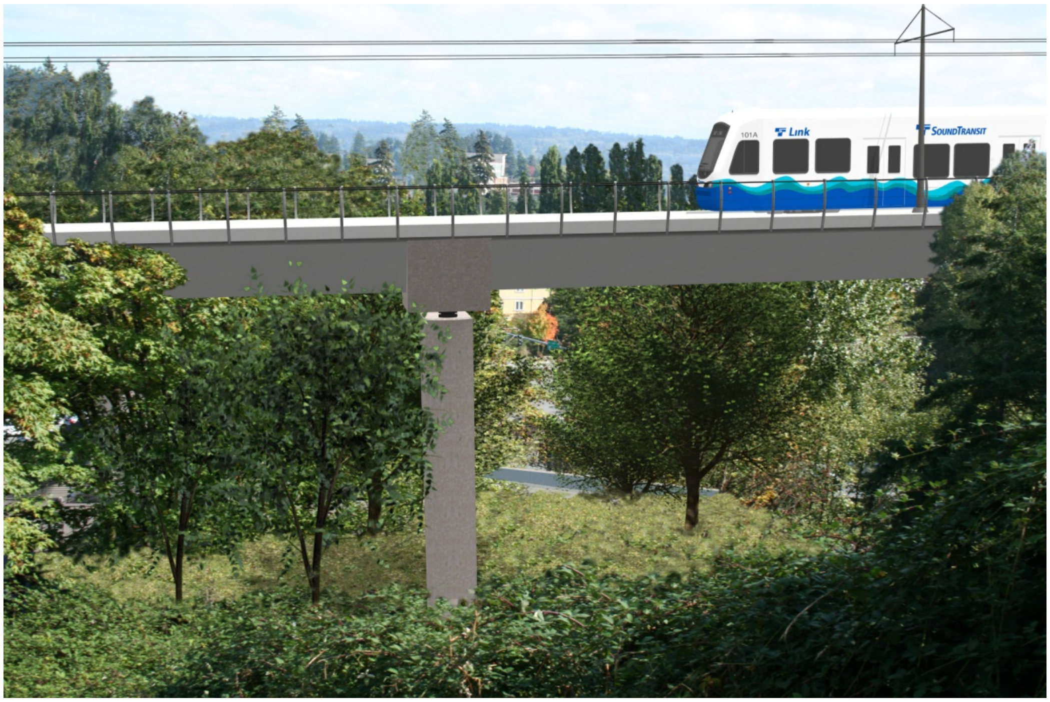
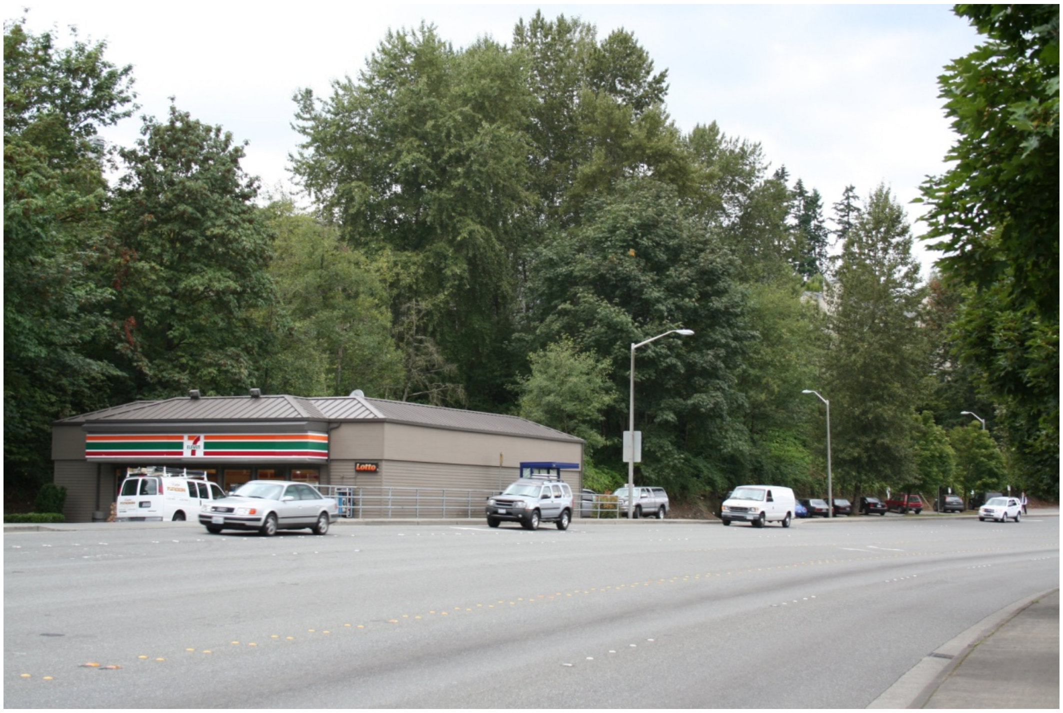


EXHIBIT F4.5-28

Key Observation Point 28 (looking northwest along West Lake Sammamish Drive)

28a. Existing Condition



28b. Simulation of Redmond Way Alternative (E1)

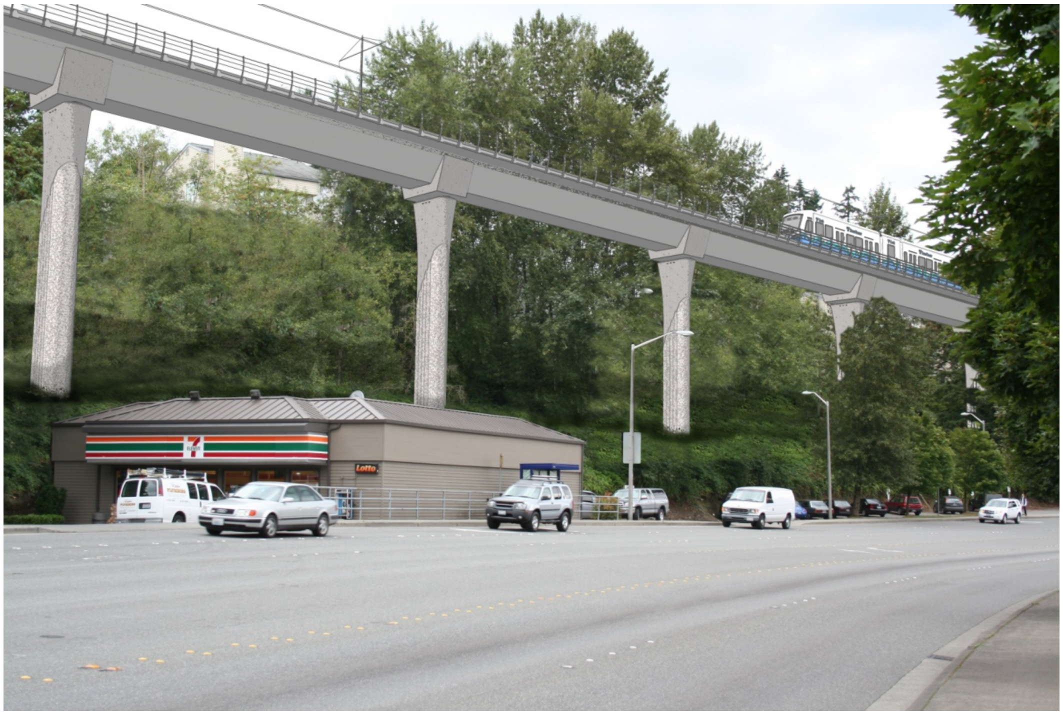
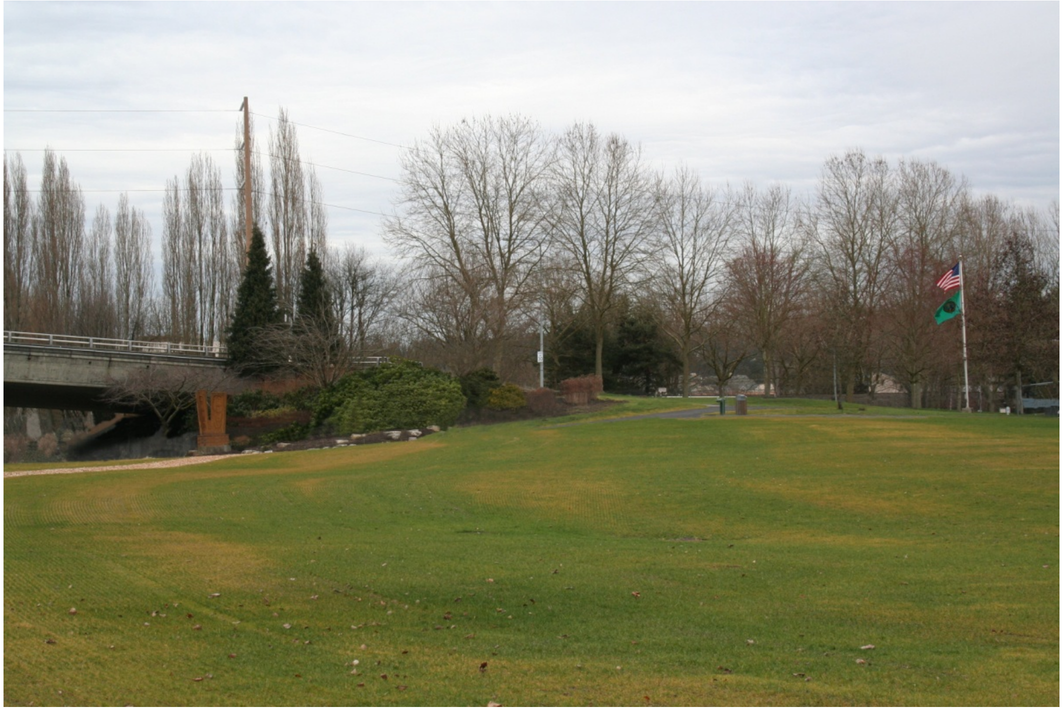


EXHIBIT F4.5-29

Key Observation Point 29 (looking north along Sammamish River Trail near Luke McRedmond Landing Park at the NE Redmond Way overpass)

29a. Existing Condition



29b. Simulation of Redmond Way Alternative (E1)

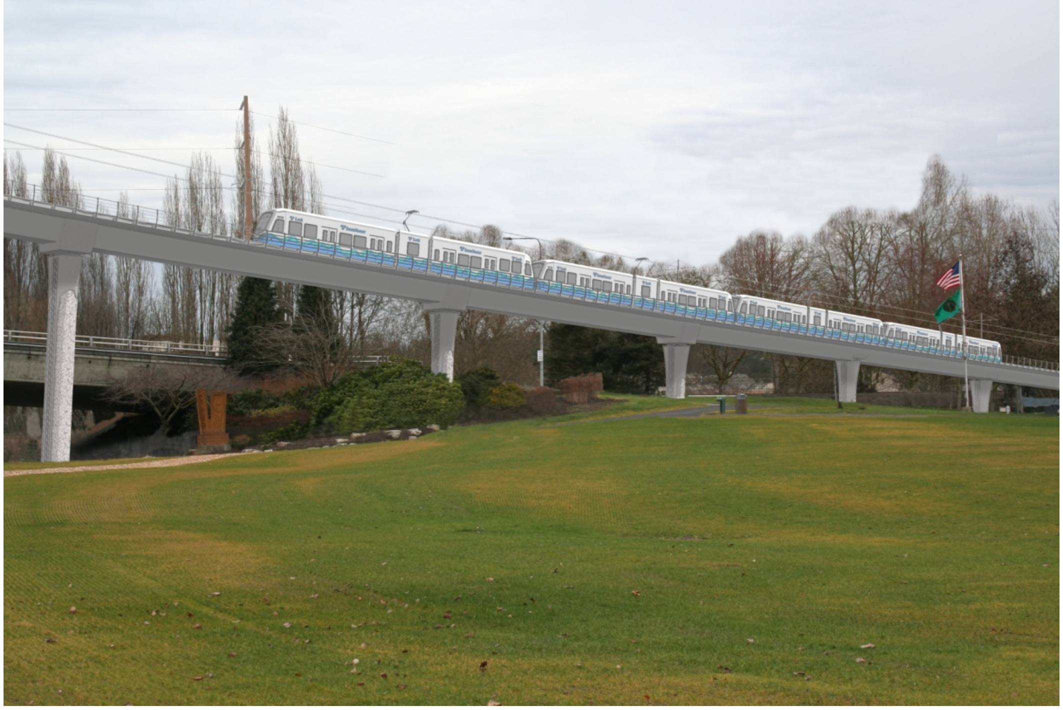
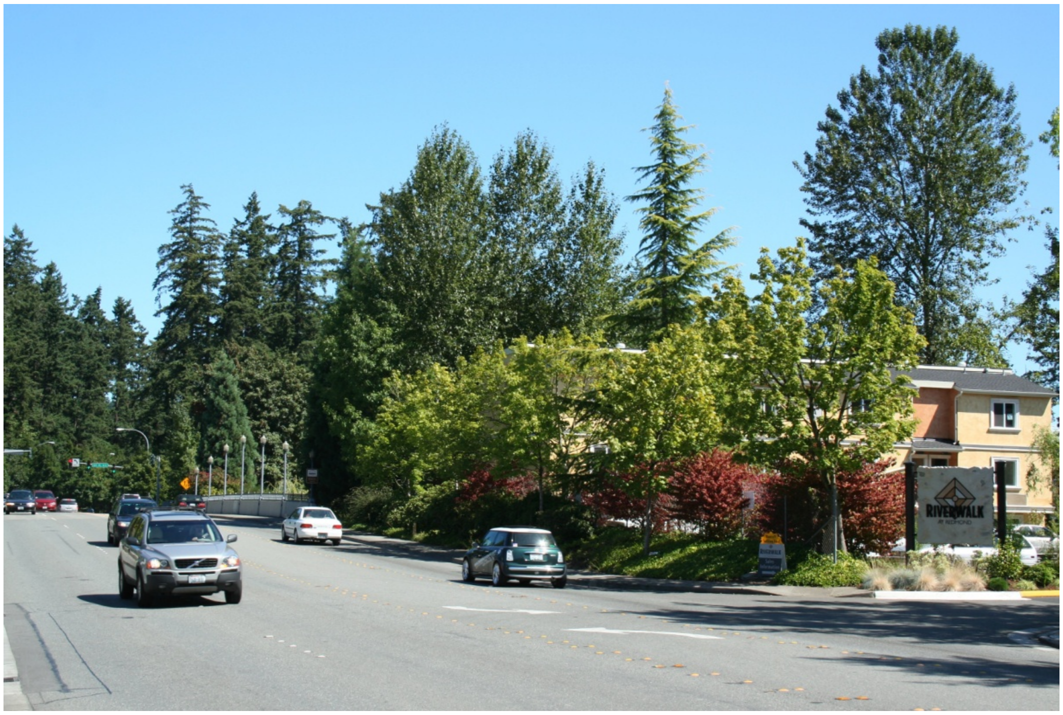


EXHIBIT F4.5-30
Key Observation Point 30 (looking east from the north side of Leary Way NE towards the Leary Way Bridge over the Sammamish River, the RiverWalk Condominiums, and the entry into Downtown Redmond)

30a. Existing Condition



30b. Simulation of Leary Way Alternative (E4)

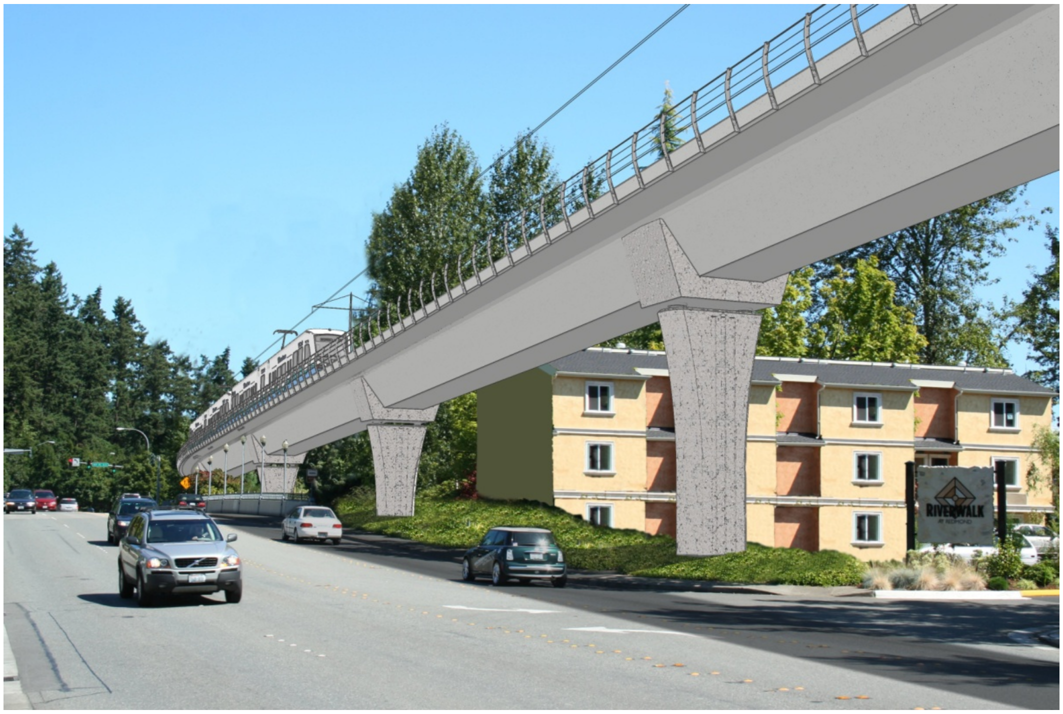
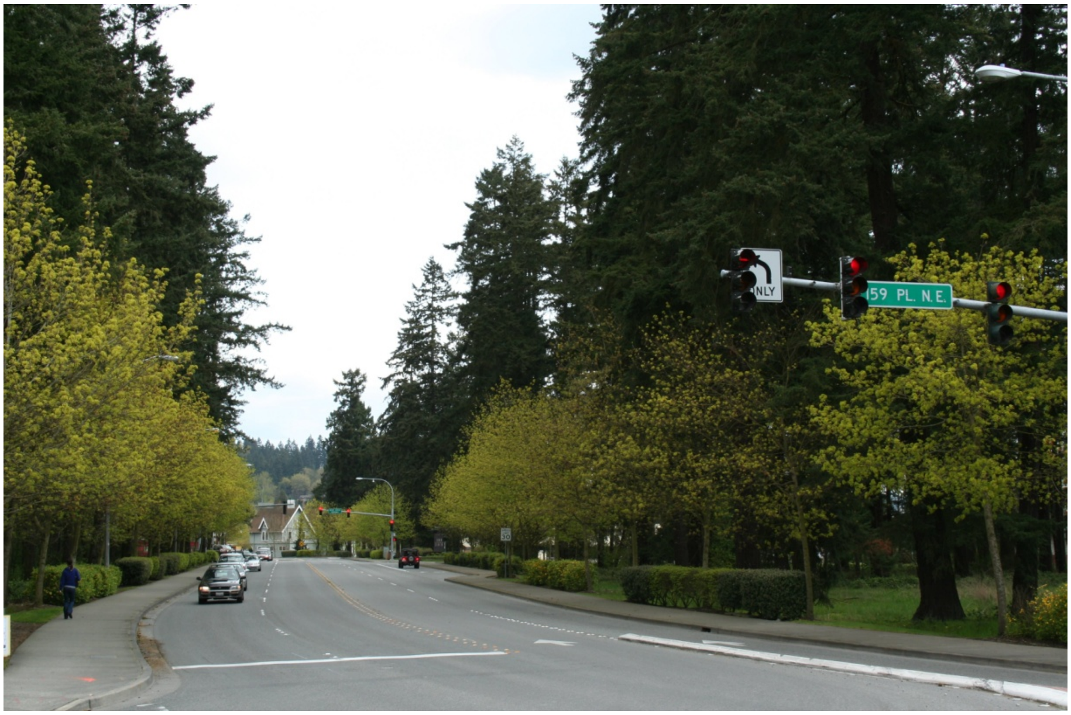


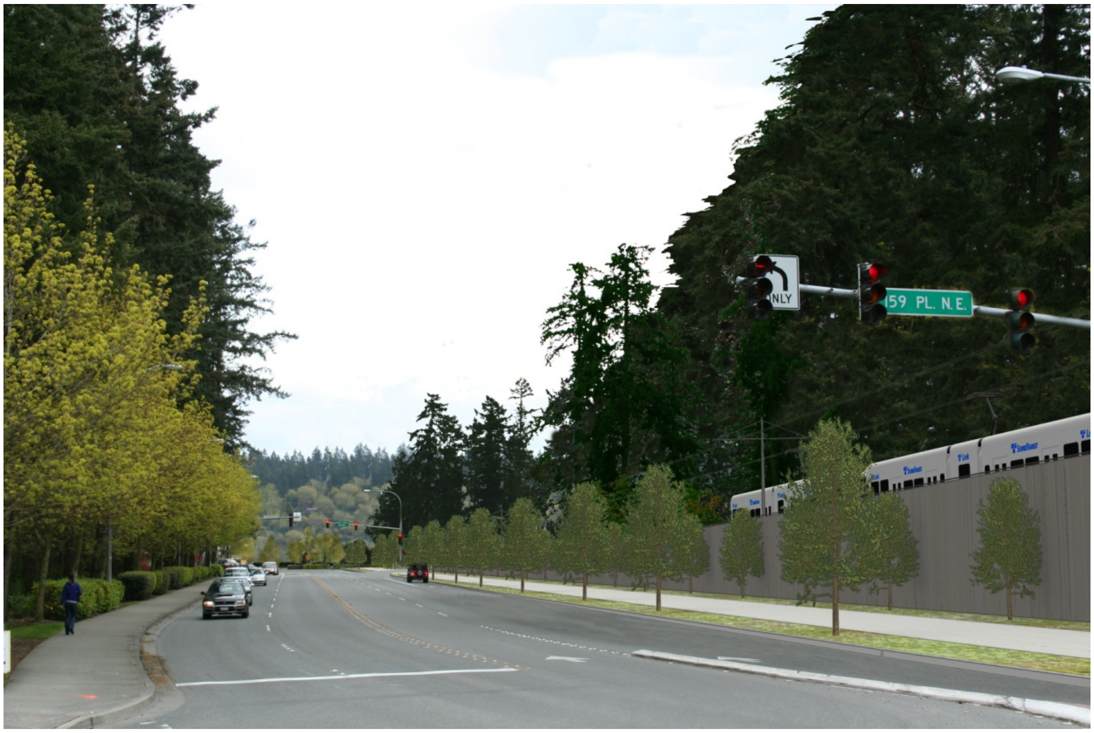
EXHIBIT F4.5-31

Key Observation Point 31 (Second view point looking north from the west side of Leary Way NE towards the entry into Downtown Redmond)

31a. Existing Condition



31b. Second Simulation of Leary Way Alternative (E4)



Attachment 1

FHWA Visual Impact Assessment Methodology Used for East Link

Attachment 1

FHWA Visual Impact Assessment Methodology Used for East Link

The purpose of the attachment to Appendix F4.5, Visual Consistency and Key Observation Point Analyses, is to demonstrate how the visual and aesthetic resource analysis was grounded in a formalized approach based upon the FHWA's Visual Impact Assessment methodology using the accepted assessment criteria and terminology for describing visual quality, as set forth in FHWA's *Visual Impact Assessment for Highway Projects* manual. Visual quality assessments examine the composition of the character-defining features for selected views and determine how a proposed project might impact the features of the view. These assessments ask the following questions:

- Is this particular view common or dramatic?
- Is this particular view a pleasing composition (with a mix of elements that seem to belong together) or not (with a mix of elements that either do not belong together or are eyesores and contrast with the other elements in the surroundings)?

Visual quality is determined in terms of three components: vividness, intactness, and unity. These three components are described below:

- **Vividness** is the degree of drama, memorability, or distinctiveness of the landscape components. Vividness is composed of four elements—*landform, vegetation, water features, and human-made elements*—that usually influence the degree of vividness.
- **Intactness** is a measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings. High intactness means that the landscape is free of eyesores and is not broken up by features that appear to be out of place. Intactness is composed of two primary elements—*development and encroachment*—that influence the degree of intactness.
- **Unity** is the degree of visual coherence and compositional harmony of the landscape when it is considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape.

The FHWA's Visual Impact Assessment methodology assigns numeric ratings to the three components that determine visual quality and then averages the ratings to establish an overall visual quality score. The concepts of vividness, intactness, and unity and rating them numerically may be somewhat esoteric for the general reader, and therefore they were not referred to in Section 4.5 of the Draft Environmental Impact Statement, but they were used to determine visual quality categories as illustrated Table 1 and Table 2 of this attachment. Instead of describing and rating vividness, intactness, and unity in Section 4.5, the overall visual quality categories for portions of the segments were described as high, medium and low. This approach was used to describe existing conditions and project impacts. Tables 1 and 2 illustrate how the visual quality categories for existing conditions and project impacts were determined.

Table 1, Existing Visual Quality Categories, describes the existing visual quality categories that were assigned to subareas of the segments illustrated in Exhibits 4.5-1 through 4.5-5. The vividness, intactness, and unity of each subarea were determined and the overall visual quality category established.

Table 2, Change in Visual Quality Categories, explains why and if project alternatives would change the existing visual quality enough to lower the category of the part of the alternative described. In many cases, an alternative would change an area's visual quality but not enough to lower the visual quality category. This assessment focused on impacts that would change the existing visual quality category of one of more categories (e.g., high to medium). If a segment alternative was determined to reduce the visual quality of any segment subarea, then the alternative was determined to adversely impact visual quality. Final EIS Section 4.5 discusses views from or of a project and viewer sensitivity and numbers of affected viewers. These items were not addressed in Table 1 and 2 that follow.

TABLE 1
Existing Visual Quality Categories

	Vividness	Intactness	Unity	Visual Quality Category
Segment A				
Seattle	*Medium* This area is an unmemorable mix of industrial areas, with many large-scale transportation elements and residential. There is low vividness along much of western part of subarea. Near west tunnel portal residential areas and parks, vividness is medium to high.	*Low* Predominance of industrial buildings and lots along with utilitarian-appearing transportation features (freeways) visually encroach on area. Not an intact viewed landscape.	*Low* There is no harmonious, coherent visual pattern to the viewed landscape.	**Low**
I-90 Floating Bridge	*Medium* The floating bridge is a visual distraction from the waters of Lake Washington and shoreline areas, but is a unique and memorable feature. The arch of the southern part of the bridge and the tunnel portals provide an “entry” statement to the bridge for westbound vehicles.	*Low* The bridge is a visual encroachment to views of Lake Washington from nearby shoreline areas and the waters of the lake.	*Medium* The bridge is a built visual element that connects Seattle with Mercer Island. Its presence does not add to the harmony of the view of Lake Washington and areas beyond in which the bridge can be seen.	**Medium**
Mercer Island	*High* This is a unique and distinctive urban landscape with much design thought given to it.	*Medium* The freeway running through the landscaped “valley” and tunnels might be considered encroachments that divide Mercer Island. Mitigation measures (treated walls and vegetation) have been effective in reducing negative impacts.	*Medium* The open-air portions have high unity, and the tunnel portions have low unity.	**Medium**
East Channel Bridge	*Medium* The bridge itself is not as memorable as the floating bridge. It does span a body of water, which makes it somewhat memorable.	*Low* The bridge is a large-scale visual encroachment to views from east channel and shoreline areas.	*Medium* The bridge is a strong visual element that visually connects Mercer Island with Bellevue and forms a visual element/landmark that boaters move under and past.	**Medium**
Segment B				
I-90 from Segment A to Bellevue Way SE off-ramp	*Medium* This area has memorable views to the south from nearby residences, common views to the north of subdivision, and memorable but negative views of I-90 structure from areas below it.	*Low* The freeway is a visual encroachment from areas above it and below it.	*Medium* The elevated I-90 structure that travels from east to west through this area does provide some visual unity, as do expansive views beyond it.	**Medium**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	**Intactness**	**Unity**	**Visual Quality Category**
Bellevue Way SE from I-90 (via off-ramp) to (and including) South Bellevue Park-and-Ride	*Medium* The area has a transportation infrastructure (I-90, ramps, park-and-ride lot, I-90 Trail)-influenced and natural-park character. The presence of Mercer Slough Nature Park is a memorable feature and, along with vegetated hillsides, is a positive visual element.	*Low* The elevated I-90 and on- and off-ramps form a transportation-structure-dominated setting that is visually strong and might be considered an encroachment.	*Medium* The transportation elements and Mercer Slough Nature Park create a unique landscape composed of transportation features in a somewhat natural setting (the park).	**Medium**
Bellevue Way SE from South Bellevue Park-and-Ride to 112th Avenue SE Intersection	*High* Mercer Slough Nature Park to east and heavily vegetated hillside to west are memorable and distinctive for most of Bellevue Way. The vegetation along this part of Bellevue Way SE is almost solid (except for the blueberry farm), which is not typical for urban areas.	*Medium* This attractive linear landscape is largely free of visual intrusion except for residential properties that can be seen on hillsides to the west.	*High* The seen elements (trees, park, blueberry farm, the historic Winters House) form a coherent, harmonious, and almost rural-appearing landscape that has disappeared from much of the Bellevue area.	**High**
Bellevue Way SE from 112th Avenue SE intersection to Segment C	*Medium* A mix of single- and multifamily residential homes with neighborhood small businesses and churches has a mature, well-maintained suburban-neighborhood character. This is a pleasant setting but not memorable.	*Medium* The scale and type of development is what would be expected in a mature, well-maintained suburban residential area with an arterial street going through it. The area has some developments (businesses and new condominiums) that do not contribute to the intactness of the area.	*High* The area generally has a moderately high degree of visual unity that is linked by Bellevue Way SE. The neighborhood has a generally harmonious visual pattern.	**Medium**
112th Avenue SE from Bellevue Way SE intersection to SE 8th Street	*High* The character of adjacent areas is a combination of park-like (along Mercer Slough West and Surry Downs Park), natural (Mercer Slough West), office park (the Bellefield office park), and residential (the Surrey Downs Neighborhood). A memorable setting.	*High* Intactness along most of this area is high and is characterized by the Mercer Slough West, mature trees, landscaped street edges, and well-maintained residences and an office park that Mercer West Slough West encircles.	*High* This area has a well-maintained, suburban arterial street character that is visually unified. It is flanked with sidewalks, numerous trees, and contains a landscaped median (up to SE 8th Street).	**High**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	**Intactness**	**Unity**	**Visual Quality Category**
112th Avenue SE from SE 8th Street to Segment C boundary	*Medium* Most of this part of 112th Avenue SE has the character of a well-maintained and landscaped suburban arterial street with many large street trees. The route passes Surrey Downs Park, the Bellevue Club, residential areas, and hospitality complexes with large parking lots between buildings and 112th Avenue SE. This section of 112th Avenue SE is a pleasant, but not memorable, area.	*High* The intactness of this area is relatively high despite the wide mix of uses. The well-maintained landscaping adjacent to most of 112th Avenue SE helps to visually tie the properties and street together.	*Medium to Low* The variety of land uses and scales (from several-stories hotels to single-story residences and Surrey Downs Park) and setbacks (some buildings are close to the street and others are set back behind large parking lots) create an area that has medium to low unity.	**Medium**
SE 8th Street from 112th Avenue SE to Segment C and area along Alternative B3	*Medium* Most of this part of route has the character of a well-maintained and landscaped suburban arterial street with many large street trees. Portion of Alternative B3 has an undeveloped character. The route passes office parks, residential, park settings. This is a pleasant, but not memorable, area.	*Medium* This area is relatively intact in terms of continuing the suburban office park and residential character of 112th Avenue SE.	*Medium* This area has an average degree of unity in terms of office-building site treatments and the adjacent undeveloped area.	**Medium**
Area between 112th Avenue SE and 114th Avenue SE (for B3 - 114th Extension Design Option).	*Medium to Low* This area passes through a mix of uses that includes an office building in a business park, parking lots, undeveloped area, and a hotel; it also follows I-405. There is a lack of visual coherence along this route.	*Low* The mix of uses and presence of I-405 (which intrudes on views) creates an area of low intactness.	*Medium to Low* The mix of uses and visual elements, such as I-405 along this route, somewhat detracts from visual unity.	**Medium**
Portion of I-90 passing through Mercer Slough Nature Park	*Moderate* The I-90 structure is a memorable physical feature in areas where it can be seen. It has changed the character of the area where it is located. The appearance of the Mercer Slough Nature Park north and south of I-90 and the waters of an arm of Lake Washington to the south are visually vivid.	*Low* This section of I-90 and its associated ramps have been built at varying elevations that range from almost at-grade to high-above-grade, and it is visually disjointed. As a result, the area is low in visual intactness. The I-90 structure's form, line, scale, and color contrast with the nearby landscape of Mercer Slough Nature Park.	*Moderate* The elevated portions of the freeway and on- and off-ramps are visible visual elements that, along with the wetlands associated with the Mercer Slough Nature Park on either side of I-90, provide a moderate degree of visual unity in the area.	**Medium**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	Intactness	Unity	Visual Quality Category
Former BNSF Railway corridor	*Medium* This portion of the route passes through a mixture of areas, many of which are heavily vegetated, thus limiting views. The route would be in the existing railroad corridor and would have some visual connection with the Mercer Slough Nature Park to the west.	*Medium* The freeway and park contrast, and along the former BNSF Railway corridor, the mix of uses are low- to mid-rise buildings, which create a linear area with medium intactness.	*Medium* The corridor has a somewhat isolated and unified appearance. Although the corridor is surrounded by vegetation, the views are connected to large infrastructure (I-90, I-405, and the former BNSF Railway corridor).	**Medium**
114th Avenue SE to Segment C boundary	*Low* This portion of the route would pass between I-405 and various different utilitarian land uses to the west of it. The area is not memorable and is visually dominated by I-405.	*Low* This section of the route has a mix of uses and visual elements. The presence of I-405 is an encroachment on the landscape.	*Low* The mix of visual elements (freeway, ramps, varying types of commercial land uses, etc.) seen along this section of the route detract from visual unity.	**Low**
Segment C				
Bellevue Way NW from Segment B to retained cut (SE 3rd Street)	*Medium* This area contains a mix of land uses, and well-maintained buildings and landscaping of similar suburban character create an area that is generally pleasant but not distinctive or memorable.	*Medium* Much of the area along this section of road is consistent in appearance, although the northernmost part is less intact. The area does not contain visually encroaching elements, although some churches and multifamily buildings are larger in scale than surroundings.	*Medium* The west side of the street has a residential character, with multifamily complexes and single-family residences. The eastern side contains large-scale developments (e.g., hotels, the Bellevue Club) that have large parking lots.	**Medium**
112th Avenue SE from Segment B to Main Street	*Medium* This area has the character of a well-maintained suburban arterial street flanked with sidewalks and trees that is pleasant but not vivid or memorable.	*Low* Areas along the east side of the avenue contain large-scale developments that have large parking lots associated with them.	*Medium* The area has an average degree of unity in terms of land uses with similar character along each side of the avenue (residential and park on the west and large-scale hotel on the east).	**Medium**
112th Avenue NE from Main Street to NE 8th Street (and its bridge over I-405 to Segment D)	*Low* The character of much of this area is dominated by large parking lots and the presence of I-405 and associated structures. It is not a memorable area.	*Low* I-405 structures encroach on the views within the area. Large parking lots are often landscaped, but buildings are set back from street, access to interchanges, and openings between buildings emphasize views of I-405.	*Low* The mix of land uses and transportation elements (I-405) and lack of unifying elements in this transitioning area produces an area that is low in visual unity.	**Low**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	**Intactness**	**Unity**	**Visual Quality Category**
112th Avenue NE from NE 8th Street to NE 12th Street (and its bridge over I-405 to Segment D)	*High and Medium* Since the Draft EIS was published, several projects have been developed along this section of 112th Avenue NE, and some of Bellevue's most distinctive buildings have been built. I-405 is still a dominant visual part of the southern portion of this part of 112th Avenue NE.	*Medium* Intactness is medium. The mixture of older and new buildings with , I-405, on- and off-ramps and bridges over I-405 result in a area that has medium intactness.	*Low to Medium* The mix of land uses and transportation elements (I-405) and lack of unifying elements in this transitioning area produces an area that is low to medium in visual unity.	**Medium**
114th Avenue NE from south of NE 2nd Street (along Alternative C14E) to over NE 6th Street and east over I-405 and NE 8th Street interchange to the former BNSF Railway corridor	*Low* This route parallels and crosses over I-405 and is located next to large parking areas that contribute to the low vividness of this part of 114th Avenue NE.	*Low* The intactness is low because most of the route is next to, or passing over, highway infrastructure.	*Low* A mix of transportation infrastructure shapes and types (freeway over pass right-of-way) produces an area that is low in visual unity.	**Low**
Main Street	*Medium* This section of Main Street passes by areas of single-family residences used for commercial purposes, office buildings and parking lots to the north with views to the east of I-405, and the Main Street overpass. This is not a memorable or vivid area.	*Medium and Low* There are no major encroachments (although I-405 visible to east). The juxtaposition of small homes on one side and tall offices on the other reduces the area to average to low intactness.	*Low* The mixed land uses and scales result in a landscape that is not unified.	**Medium**
108th and 110th Avenues NE between Main Street and NE 12th Street	*High* These portions of the two avenues pass through areas that have been developed or are under construction and would be completed in the near future. This area has an urban character that is vivid and memorable.	*High* City of Bellevue design directives have resulted in a streetscape along much of these streets that has a high degree of intactness, which would be even stronger as projects currently under construction are completed.	*High* The scale and building quality and the streetscape quality give most of these streets a high degree of visual unity.	**High**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	**Intactness**	**Unity**	**Visual Quality Category**
NE 6th Street from 112th Avenue NE to over I-405 and area to the east of I-405 to Segment D boundary	*Medium and Low* The section of NE 6th Street west of 112th Avenue NE is adjacent to the Meydenbauer Conference Center and the north end of Bellevue City Hall plaza. The section is somewhat distinctive and memorable and has a medium visual quality rating. The portion of the street east of 112th Avenue NE passes over I-405 and past areas such as automobile dealerships and low-rise commercial areas that are not vivid or memorable. It has low memorability.	*Medium and Low* The section of NE 6th Street west of 112th Avenue NE has medium intactness due to the quality of the Meydenbauer Conference Center and Bellevue City Hall plaza. East of 112th Avenue SE the mix of land uses and their generally utilitarian appearance create an area that is low in visual intactness. I-405 is a major visual encroachment.	*Low* The street has little visual unity.	**Medium and Low**
NE 12th Street from 108th Avenue NE to I-405	*High* McCormick Park and Ashwood Park are memorable green/open space elements in this part of Bellevue.	*High* Buildings, parks, street trees, and landscape design along this portion of the street have created an area high in visual intactness	*Medium* The mixture of land use and building type in this area (multifamily residential, single-family residential, library, office buildings, and parks) result in an area with medium visual unity.	**High**
114th Avenue SE/NE and Alternative C14E route over I-405 to the former BNSF Railway corridor	*Low* The street parallels along west side of I-405 “behind” (to the west) a mix of buildings surrounded by large parking lots. The route crosses over I-405 to connect to the former BNSF Railway corridor. The areas along this route have a lack of visual coherence and are dominated by I-405 and large parking lots.	*Low* I-405 and parking lots encroach on the views within the area.	*Low* The mixture of land uses and transportation elements (I-405) and lack of unifying elements in this area result in an area that is low in visual unity.	**Low**
Segment D				
All of Segment D except for area described below	*Low* Most of the alternatives in Segment D would primarily pass through areas that have either an industrial (distribution and manufacturing) or commercial (numerous automobile-dependant businesses with large parking areas) character. These areas are utilitarian in appearance and low in memorability or vividness.	*Low* The mix of land uses and their generally utilitarian appearance creates an area that is low in visual intactness. I-405 is a major visual encroachment along some of the alternatives.	*Low to Medium* Some of the alternatives are in areas that are at least partially unified in terms of having an industrial (or retail) character and others pass through areas that contain a mixture of land uses and have low visual unity.	**Low**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	Intactness	Unity	Visual Quality Category
152nd Avenue NE from NE 24th Street to SR 520	*Medium* Many buildings are closer to the street along this section of the avenue with smaller and less visually dominating parking lots. There is more mature and abundant landscaping and more street trees, and the overall character of the avenue is that of a somewhat well-maintained suburban commercial district and office park.	*Low* There is a mixture of land uses and scales along this section of the avenue that does not lend a visual consistency or intactness to this area.	Medium The streetscape, landscaping, and building relationship to the street create an area of medium visual unity.	**Medium**
Segment E				
SR 520 from Segment D to where project alternatives diverge from each other before passing by Marymoor Park	*Low* The landscape seen along this segment contains a variety of different types of land uses. It is dominated by the presence of SR 520 and is not memorable or vivid.	*Low* SR 520 is a disruptive presence that is looked up to from areas below it or looked down upon from areas above it.	*Medium* This area has medium visual unity because SR 520 is a consistent and strong visual presence along this portion of Segment D, which helps somewhat visually unify the areas it passes next to.	**Low**
West Lake Sammamish Parkway Northeast from SR 520 off-ramp to near the Sammamish River	*Medium* The viewed landscape is a mixture of vegetated hillside, multifamily buildings, a strip-mall shopping area, and arterial road with some views of the Sammamish River and park lands. The area has medium vividness.	*Medium* Intactness in this area is medium in that there are no major encroachments and some intactness from the nearby linear river, park, and vegetated hillside.	*Medium* The area along this section of parkway has some unity, but it is not exceptional.	**Medium**
NE Redmond Way over Sammamish River to the former BNSF Railway corridor	*High* The area along this stretch of road passes over the Sammamish River and valley and adjacent park lands. The view along the river and adjacent parklands is memorable and vivid.	*Medium* The area has an intact appearance due to the river, park lands, and vegetation. The bridge is a slight intrusion that slightly lowers intactness.	*High* The river, park lands, and heavy vegetation create a unified landscape.	**High**
Leary Way NE from SR 520 off-ramp to the former BNSF Railway corridor	*High* The area along this stretch of road passes over the Sammamish River and adjacent park lands as it enters the old part of Redmond and a tree-lined street. The scene is vivid and memorable.	*High* The area has an intact appearance due to the river, park lands, and vegetation. The bridge is designed as a built amenity that only slightly lowers intactness.	*High* The river, park lands, and heavy vegetation create a unified landscape.	**High**

TABLE 1 CONTINUED
Existing Visual Quality Categories

	Vividness	**Intactness**	**Unity**	**Visual Quality Category**
Former BNSF Railway corridor	*Medium* The area along much of the corridor passes behind buildings, and much of it has an industrial character that is low in vividness and memorability. The lands on which the tracks are located are generally not well maintained. The area near Redmond Town Center (away from the tracks) is somewhat memorable and vivid.	*Low* The area has a generally mixed appearance as a result of different land uses along the route, many of which have their backs or service loading areas oriented along the old railroad route. The area has a low degree of intactness.	*Low* There is a lack of visual unity along the route.	**Low**
Along SR 520 (east of where Alternatives E1 and E4 would leave the SR 520 corridor) to the former BNSF Railway corridor and along 161st Avenue NE	*High* Most of this section of SR 520 is located low on the landscape, passes next to Marymoor Park and the Sammamish River, and offers views of Mount Rainier. It is a vivid and memorable landscape.	*Medium* The viewed landscape is intact with the exception of SR 520. However, the low elevation of most of the freeway reduces its intrusion into the landscape considerably.	*High* The viewed landscape has a unified appearance due to park lands to the south and the heavily vegetated river corridor and retail developments to the north.	**High**

TABLE 2
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** *(Existing)***/ with Project**
Segment A				
1. Seattle	*(Medium)/***No change in rating** Project components would be located along existing freeway structure and would have little influence on vividness.	*(Low)/***No change in rating** The presence of the elevated station, the sight of people getting in and out of the light rail vehicles, and the moving light rail vehicles themselves might slightly increase visual interest and human scale compared to viewing freeway lanes and moving vehicles but not enough the change the low rating.	*(Low)/***No change in rating** The view of moving light rail vehicles would be consistent with the view (or visual pattern) of moving vehicles when viewed from many locations along this sub-segment.	*(Low)***/No change in category**
2. I-90 Floating Bridge	*(Medium)*/**No change in rating** The light rail vehicles and overhead catenary system (OCS) would be visible on the bridge to varying degrees depending upon viewing distance and location but would not change the medium degree of vividness.	*(Low)/***No change in rating** There would be little change to the established transportation-infrastructure-oriented character of the floating bridge.	*(Medium)***/No change in rating** The view of moving light rail vehicles would be consistent with the view (or visual pattern) of moving vehicles when viewed from many locations.	*(Medium)*/**No change in category**
3. Mercer Island	*(High)***/No change in rating** The Mercer Island Station and associated components would not change the uniqueness and memorability of this section of I-90.	*(Medium)***/No change in rating** The character of this portion of I-90 would be expanded from that of a vehicular-oriented freeway physically separated from the nearby areas to a mix of freeway and rapid transit with physical and more visual access to nearby area,	*(Medium)***/No change in rating** The Mercer Island Station and associated components would help physically and visually connect I-90 to the areas above it and would slightly improve visual unity.	*(Medium)***/No change in category**
4. East Channel Bridge	*(Medium)/***No change in rating** The light rail vehicles and OCS would be visible on the bridge to varying degrees depending upon viewing distance and location but would not change the medium degree of vividness.	*(Low)***/No change in rating** The presence of light rail vehicles and OCS would not add to the encroachment of the existing bridge and would cause little change to intactness.	*(Medium)***/No change in rating** The presence of light rail vehicles and OCS would not change the medium unity of the bridge.	*(Medium)***/No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/**with Project**	Intactness (*Existing)*/**with Project**	Unity (*Existing)*/**with Project**	Visual Quality Category (*Existing*)/ with Project
Segment B				
Preferred 112th SE Modified Alternative (B2M)				
5. From Segment A to (and including) South Bellevue Park-and-Ride	*(Medium)/***No change in rating** The elevated portion of the alternative that would depart the I-90 elevated structure would be located in front of the I-90-to-Bellevue-Way ramp when viewed from the hillsides to the northwest. The light rail vehicles and OCS would be visible but would not block views to the south and would not change the medium degree of vividness. The alternative would introduce another transportation-oriented structure into the landscape, but this would not be enough to change the medium vividness rating. The elevated to retained cut alignment and parking structure and associated landscaping would be designed to be pleasant in appearance and would not detract from the medium vividness of the area.	*(Low and Medium)/***No change in rating** The elevated and at-grade/retained cut parts of the route would somewhat visually detract from the areas they would pass through or by, but not enough to reduce the intactness ratings of these areas.	(*Medium*)/**No change in rating** The at-grade route could be considered to visually help unify the streets it would pass along. The presence of the retained cut walls, light rail vehicles, and OCS would add visual elements that would be noticed by viewers, they but would not be dominant. These features would not change the existing visual unity of this area enough to lower its rating from medium to low.	*(Medium)*/**No change in category**
6. Bellevue Way SE from South Bellevue Park-and-Ride to the 112th Avenue SE intersection	*(High)/***No change in rating** The west side of Bellevue Way SE would retain vegetation along it and would maintain a high degree of vividness. Despite the removal of vegetation and presence of light rail vehicles, the retained cut, and OCS along the east side of Bellevue Way SE. The east side of Bellevue Way SE would retain a high degree of vividness.	*(High)/***Medium** The removal of vegetation within Mercer Slough Nature Park and the presence of the light rail vehicles, retained cut, and the OCS along the east side of this portion of Bellevue Way SE next to the Mercer Slough Nature Park, blueberry farm and the Winters House would somewhat disrupt the rural-natural appearing landscape along this corridor and lower its intactness from high to medium.	*(High)/***No change in rating** Although the appearance of this section of Bellevue Way SE would change, its high degree of unity would remain. The edge of the Mercer Slough Nature Park would still define the eastern edge of this transportation corridor. With this alternative remaining vegetation in the park would still be seen along the east side of the alignment.	*(High)/***No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** (*Existing*)/ **with Project**
Preferred 112th SE Modified Alternative (B2M) to Preferred Alternative C11A				
7. 112th Avenue SE from Bellevue Way SE intersection to SE 8th Street	*(High)/*__Medium__ From approximately SE 15th Street, landscaped medians would be removed and the alternative would run down the center of 112th Avenue SE to SE 8th Street. Trees along 112th Avenue SE and along the edge of Mercer Slough Nature Park would be removed. Removing this vegetation would lower the vividness rating. More views towards the Mercer Slough West and Bellefield Office Park would be possible by removing vegetation east of 112th Avenue SE. The vividness of this area would be reduced to medium.	*(High)/*__No change in rating__ Although the landscaped median and other trees would be removed, the Mercer Slough Nature Park and landscaped areas along the west side of 112th Avenue SE would remain strong visual components and would allow the areas intactness to remain high.	*(High)/*__No change in rating__ This area would retain its well-maintained, suburban street character and high unity despite the removal of the landscaped median and other trees and presence of retained cut walls, light rail vehicles, and OCS.	*(High)/*__No change in category__
8. 112th Avenue SE from SE 8th Street to Segment C boundary	(*Medium*)/**No change in rating** Extending the alternative north down the center of 112th Avenue SE and the at-grade station and widening the street near the station the SE 8th Station would remove landscaped medians and adjacent vegetation. These medians do not have as many trees as the median south of SE 8th Street. The station would be pedestrian in scale and would increase the view's vividness. Removing vegetation would lower the area's memorability. Overall, vividness would not change.	*(Medium)/*__No change in rating__ Removing the landscaped medians and vegetation on adjacent to 112th Avenue SE and constructing the at-grade station would increase the amount of paved areas and reduce the area's intactness, but not enough to lower it from medium to low.	*(Medium to Low)/*__No change in rating__ There would be no change in the medium to low unity of this area with the presence of the alignment and station.	*(Medium)/*__No change in category__

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** *(Existing)***/ with Project**
Preferred 112th SE Modified Alternative (B2M) to Preferred Alternative C9T				
9. 112th Avenue SE from Bellevue Way SE intersection to SE 8th Street	*(High)/***No change in rating** Most of the landscaped medians and vegetation along the west side of 112th Avenue SE would remain. Removing trees and vegetation along the east side of 112th Avenue SE would be noticed as would the retained cut walls, light rail vehicles, and OCS. However, the overall views along this corridor would still include considerable nearby vegetation, and many areas would have a memorable and park-like appearance. Overall, the alternative would be less visible that others due to being in the retained cut.	*(High)/***Medium** This area would still contain much vegetation, and the Mercer Slough Nature Park would be an important visual element, but the presence of the retained cut walls, light rail vehicles, and OCS would lower the intactness of this area.	*(High)/***No change in rating** This area would retain its well-maintained, suburban arterial street characteristic and high unity despite the removal of the landscaped median and other trees and presence of retained cut walls, light rail vehicles, and OCS.	*(High)***/No change in category**
10. 112th Avenue SE from SE 8th Street to Segment C boundary	*(Medium)***/Low** The alignment along the east side of 112th Avenue SE and the at-grade station would remove a number of existing trees and other adjacent roadside vegetation. The part of the street near the station that would be widened would reduce vividness of the area from medium to low.	*(Medium)*/**No change in rating** The at-grade route, station, and widened street would introduce new at-grade visual elements. Because they would be street-level features, they would not encroach on views but would remove several street trees from the east side of the street. This would widen the overall intersection, thus lowering the intactness somewhat. This affects views toward the business park, but the widened roadway would not lower the intactness to low.	*(Medium and Low)* **No change in rating** There would be no change in the medium to low unity of this area with the presence of the alignment.	*(Medium)***/No change in category**
Bellevue Way Alternative (B1)				
11. From Segment A to (and including) South Bellevue Park-and-Ride	*(Medium)/***No change in rating** The impact of the elevated portion would be the same as *Preferred Alternative B2M*. The presence of the at-grade route would result in some street widening (and loss of some trees), but its presence and seeing the light rail vehicles and OCS would not change the pleasant, medium vividness of the areas that it would pass through.	*(Low and Medium)/***No change in rating** The impact of the elevated portion would be the same as *Preferred Alternative B2M*. The at-grade route would not visually encroach on the areas it would pass through enough to reduce intactness ratings along the portions of the route with medium intactness.	*(Medium and High)/***No change in rating** The impact of the elevated portion would be the same as *Preferred Alternative B2M*. The at-grade route could be considered to visually help unify the areas along its route.	*(Medium)***/No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** *(Existing)*/ **with Project**
12. Bellevue Way SE from South Bellevue Park-and-Ride to the 112th Avenue SE intersection	*(High)/***Medium** Placing the route partially into the west hillside, removing vegetation, installing retaining walls, and introducing light rail components would lower the undeveloped, almost rural landscape character of this section of Bellevue Way SE and reduce its vividness to medium.	*(Medium)*/**No change in rating** The at-grade route would not be considered an encroaching visual element in that it would not be out of scale, line, or form with the surroundings environment of an arterial road.	*(High)*/**Medium** The current unified appearance of this portion of Bellevue Way SE would be reduced from high to medium as a result of removing trees and locating this part of the route partially into the hillside.	*(High)*/**Medium**
13. Bellevue Way SE from 112th Avenue SE Intersection to Segment C	*(Medium)/***No change in rating** The at-grade alignment would be compatible with the character of the areas it would pass through and might slightly add to its vividness.	*(Medium)/***Medium** The at-grade route would not be considered an encroaching visual element in that it would not be out of scale, line, or form with the surroundings environment of an arterial road.	*(High)/***High** The at-grade alignment would contribute to this areas high degree of visual unity.	*(Medium)*/**No change in category**
112th SE At-Grade Alternative (B2A)				
14. From Segment A to (and including) South Bellevue Park-and-Ride	Impacts would be the same as those described for Alternative B1.	Impacts would be the same as those described for Alternative B1.	Impacts would be the same as those described for Alternative B1.	*(Medium)/***No change in category**
15. Bellevue Way SE from South Bellevue Park-and-Ride along 112th Avenue SE to the intersection with SE 8th Street	*(High)/***Medium** Impacts would be similar to Alternative B1, but there would be less impact from retaining walls. More of the light rail system components (OCS and light rail vehicles) would be seen from approximately 15 to 20 residences on the hillside to the west than would be seen with Alternative B1.	*(Medium)/***No change in rating** Although vegetation would be removed, the at-grade route would not be considered enough of an encroaching visual element to lower the intactness rating to low.	*(High)*/**Medium** Removing vegetation and building retaining walls would introduce elements that would reduce the current cohesive and harmonious visual pattern of the landscape along the west side part of the route. Visual unity along the route would decrease.	*(High)*/**Medium**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)***/with Project**	Intactness (*Existing)***/with Project**	Unity (*Existing)***/with Project**	Visual Quality Category (*Existing*)**/ with Project**
16. 112th Avenue SE from SE 8th Street intersection to Segment C boundary	*(Medium)***/Low** The at-grade station and part of the retained cut that leads to the tunnel portal would be seen in this area. The expansion of 112th Avenue SE to the east and west would remove several existing trees and other adjacent roadside vegetation. The station and cut-and-fill structure would be pedestrian in scale and would increase the view's vividness. Existing trees would be removed and the part of the street near the station widened, which would lower the memorability and reduce vividness to low.	*(Medium)/***No change in rating** The at-grade route, station, and retained-cut and widened street would introduce new at-grade visual elements. Because they would be street-level features, they would not encroach on the view but would remove several street trees from the east side of the street. This would widen the overall intersection, thus lowering the intactness somewhat. This affects views toward the business park, but the widened roadway does not lower the intactness to low.	*(Medium)***/No change in rating** Expanding 112th Avenue SE to the east and west would remove several existing trees and other adjacent roadside vegetation. The at-grade station and retained cut would appear to be the "end" of the route, as it transitions underground. Primary features of the visual environmental remain unified.	*(Medium)/***No change in category**
112th SE Elevated Alternative (B2E)				
17. From Segment A to (and including) Bellevue Park-and-Ride	*(Medium)*/**No change in rating** When viewed from the hillsides to the northwest, the elevated portion of the route that would depart the I-90 elevated structure would be located in front of the I-90 Bellevue Way ramp. It would introduce another transportation-oriented structure into the landscape but would not lower the rating. The light rail vehicles and OCS would be visible but would not block views to south and would not change medium degree of vividness.	*(Medium)/***No change in rating** Light rail vehicles and OCS would be seen near I-90 but would not be visible enough to be considered visual encroachments. As described under vividness, the elevated portion of the route would be visible in an area where intactness is already low largely due to elevated I-90 structures, and it would not be out of character with the I-90 structures.	*(Low)***/No change in rating** Light rail vehicles and OCS would be seen near I-90 but would not add to the low visual unity rating. The elevated portion of the route would be visible in an area where unity is already low due the number of types of features in this area.	*(Medium)***/No change in category**
18. Bellevue Way SE from South Bellevue Park-and-Ride along 112th Avenue SE to the intersection with SE 8th Street	*(High)***/Medium** The elevated structure, OCS, and light rail vehicles would intrude into eastern views from approximately 15 to 20 residences on hillsides to west of the route. The constructed project components would not block or seriously impinge on views, but they would contrast with the existing view in terms of line, form, and color and lower vividness from high to medium.	*(Medium)/***No change in rating** The elevated structure, OCS, and light rail vehicles would be seen from (and encroach on the view from) approximately 15 to 20 residences to the west but would not lower the existing medium intactness to low.	*(High)*/**Medium** The project elements discussed under vividness would also reduce the existing visual pattern of the view to the east seen from the approximately 15 to 20 residences on hillside to the west.	*(High)*/**Medium**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/**with Project**	Intactness (*Existing)*/**with Project**	Unity (*Existing)*/**with Project**	Visual Quality Category (*Existing*)/ **with Project**
19. 112th Avenue SE from SE 8th Street intersection to Segment C boundary	*(Medium)*/**Low** The elevated structure and station would add large-scale visual elements to this part of the route. The structure and particularly the station would contrast with the area's existing character. Existing trees would be removed. Together, with the large overhead station, the change would lower the memorability and reduce vividness to low.	*(Medium)*/**No change in rating** The elevated structure and station would introduce large-scale elements into the area and over 112th Avenue SE. They would encroach on the setting of the intersection and area along 112th Avenue SE, remove a number of trees, and cast shadows; this would lower the existing intactness. The structure is consistent with the office park that it adjoins and, therefore, would not cause the existing rating to be lowered to low.	*(Medium)*/**No change in rating** The presence and scale of the elevated structure and station along with the removed large landscaped area between the station and an office building east of it would reduce the unity rating, but not enough to change the rating to low.	*(Medium)*/**No change in category**
112th SE Bypass Alternative (B3)				
20. From Segment A to (and including) Bellevue Park-and-Ride	Impacts would be the same as those described for Alternative B1.	Impacts would be the same as those described for Alternative B1	Impacts would be the same as those described for Alternative B1	*(Medium)*/**No change in category**
21. Bellevue Way SE from South Bellevue Park-and-Ride along 112th Avenue SE to the intersection with SE 8th Street	Impacts would be the same as those described for this part of Alternative B2A.	Impacts would be the same as those described for this part of Alternative B2A.	Impacts would be the same as those described for this part of Alternative B2A.	*(High)*/**Medium**
22. North of intersection of 112th Avenue SE and SE 8th Street to Segment C boundary	*(Medium)*/**No change in rating** Elevated structure, OCS, and light rail vehicles would be seen crossing over 112th Avenue SE and SE 8th Street and passing between office buildings. It would be seen from SE 8th Street and I-405 as the route passes through an undeveloped area. The presence of the elevated structure would contrast with the undeveloped area it would pass over but would not be out of character with nearby raised I-405 and ramps; therefore, it would not impact medium vividness enough to lower rating to low.	*(Medium)*/**No change in rating** The existing mix of uses near the route results in its medium intactness. The elevated structure would slightly lower intactness but would not encroach enough on the existing views to reduce the intactness rating to low.	*(Low)*/**No change in rating** The elevated structure would add another visual element to the mixed visual patterns and elements in this area. It would not change the existing unity rating.	*(Medium)*/**No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/**with Project**	Intactness (*Existing)*/**with Project**	Unity (*Existing)*/**with Project**	Visual Quality Category (*Existing*)/ **with Project**
B3 – 114th Extension Design Option				
23. From 112th Avenue SE northeast to 114th Avenue SE	*(Medium to Low)/***No change in rating** Retained fill and elevated alignments would not change the vividness ratings of this segment and might increase it.	*(Low)*/**No change in rating** The elevated structure would not change the already low intactness of this area, particularly along I-405.	*(Medium to Low)*/**No change in rating** The retained fill and elevated alignments of this design option would be located in an area with medium to low coherence and would not lower the overall unity.	*(Medium)/***No change in category**
BNSF Alternative (B7)				
24. From Segment A boundary to Bellevue Way SE Ramp	*(Medium)/***No change in rating** The elevated structure would be viewed from the hillsides to the north. The alternative would introduce another transportation-oriented structure into the landscape, but this would not be enough to change the vividness rating.	*(Low)/***No change in rating** The elevated structure would not be considered an encroaching visual element in that it would not be similar in elevation, appearance, and scale with existing the elevated I-90 structure.	*(Medium)/***No change in rating** The unity would not change with the presence of another elevated structure (in addition to I-90) along this part of the route.	*(Medium)/***No change in category**
25. Alternative B7 route from Bellevue Way SE ramp along portion of I-90 passing through Mercer Slough Nature Park	*(Medium)/***No change in rating** The elevated structure would add another large-scale elevated visual element to this area. The visually dominating presence of the I-90 structure next to the I-90 Trail and I-90's associated ramps (which the trail passes underneath) make this area a visually unique area but blocks most views to the south. The elevated structure would be located north of the I-90 Trail and would allow views under it to areas within Mercer Slough Nature Park. The presence of the elevated structure would not decrease the area's medium vividness rating to low.	*(Low)/***No change in rating** The presence of the elevated structure would contribute to the low intactness established by the I-90 structure and associated ramps.	*(Medium)/***No change in rating** Along portions of the I-90 Trail where viewers would see the elevated structure (many portions would continue to be screened by nearby vegetation), the elevated structure would partially intrude on north views of vegetation in the Mercer Slough Nature Park, although there would be views under the structure and between its columns) but would change the medium visual unity enough to reduce it to low.	*(Medium)***/No change in category**
26. Former BNSF Railway corridor	*(Medium)/***No change in rating** The at-grade route would not change the medium vividness of this section of the largely visually contained (i.e., separated from many views by terrain and vegetation) corridor.	*(Medium)/***No change in rating** The at-grade route would not change the medium intactness of this section of the corridor.	*(Medium)/***No change in rating** The at-grade route would not change the medium unity of this section of the corridor.	*(Medium)/***No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** *(Existing)***/ with Project**
27. 114th Avenue SE to Segment C boundary	*(Low)*/**No change in rating** The elevated structure and station would add memorable and well-designed architectural visual features to this area but would not improve vividness enough to raise the category to medium.	*(Low)/***No change in rating** The elevated structure and station would somewhat encroach on some of the (limited) views from I-405 towards parts of Mercer Slough Nature Park.	*(Low)/***No change in rating** The elevated structure and station would add another visual feature to this area, which is low in visual unity. The presence of the elevated structure along the length of the route might provide additional visual unity.	*(Low)*/**No change in category**
Segment C				
Preferred 108th NE At-Grade Alternative (C11A)				
28. 112th Avenue SE from Segment B to Main Street	*(Medium)/***No change in rating** The medium vividness of this portion of 112th Avenue SE would not be greatly affected by the removed vegetation along the west side of 112th Avenue SE and Surrey Downs Park and the removed residences. The area would retain its character of a well-maintained suburban arterial street flanked with sidewalks and trees that is pleasant but not vivid or memorable.	*(Low)/***No change in rating** The low intactness rating is primarily due to land uses along the east side of 112th Avenue SE, so it would not be affected.	*(Medium)/***No change in rating** The areas medium degree of unity would not change with the presence of this alternative.	*(Medium)* **No change in category**
29. Main Street to NE 8th Street	*(Medium)/***No change in rating** Removing vegetation (and relandscaping) and residences and constructing the elevated and retained fill alignments along with the station would not lower the areas medium vividness enough to reclassify it as low.	*(Medium and Low)/***No change in rating** The presence of the elevated and retained fill structures and the station would not negatively affect the areas medium and low intactness rating, and potential landscaping and aesthetic treatments might improve it.	*(Medium)/***No change in rating** The presence of the alternative would add some visual unity to this area but not enough to change the medium rating. The design and aesthetic treatment for the portions of the alignment along Main Street would result in a landscaped buffer and transition area between the residential neighborhood south of Main Street and the commercial areas and the city center to the north and could increase unity.	*(Medium)* **No change in category**
30. NE 8th Street to NE 6th Street	*(High)/***No change in rating** At-grade route and station would fit in with the urban character of this area and would positively add to its high vividness rating.	*(High)/***No change in rating** At-grade route and station would complement the high intactness rating.	*(High)/***No change in rating** At-grade route would add to visual unity of these avenues.	*(High)/***No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/**with Project**	Intactness (*Existing)*/**with Project**	Unity (*Existing)*/**with Project**	Visual Quality Category *(Existing)*/ **with Project**
31. NE 6th Street from 112th Avenue NE to over I-405 and area to the east of I-405 to Segment D boundary.	*(High)/***No change in rating** The transition and elevated structures would introduce new contrasting forms, lines, and colors to the streetscape. These elements would be rather unique-appearing and vivid features that would not decrease the area's vividness.	*(Medium)/***No change in rating** Some sidewalk views between the Meydenbauer Conference Center and Bellevue City Hall would be blocked by the transition structure and elevated structure. The established visual character and visual connection between the two areas would somewhat change but not enough to lower intactness from medium to low.	*(Medium)/***Low** The existing visual pattern along this part of NE 6th street would change with the presence of the transition structure and elevated structure. Visual unity would be reduced to low.	*(Medium)***/No change in category**
Preferred 110th NE Tunnel Alternative (C9T)				
32. 112th Avenue SE from Segment B to Main Street	*(Medium)/***No change in rating** The medium vividness of this portion of 112th Avenue SE would not be greatly affected by the vegetation removal along the east side of 112th Avenue SE up to the location where it crosses at-grade over to the west side and up to the retained fill transition structure. The area would retain its character of a well-maintained, suburban arterial street flanked with sidewalks and trees that is pleasant but not vivid or memorable.	*(Low)/***No change in rating** The low intactness rating along 112th Avenue SE is primarily due to land uses along the east side of 112th Avenue SE, so it would not be affected by *Preferred Alternative C9T*.	*(Medium)/***No change in rating** The areas medium degree of unity would not change with the presence of this alternative.	*(Medium)* **No change in category**
33. Main Street to Tunnel Portal	*(Medium)/***No change in rating** Removing vegetation and residences between 112th and 110th Avenues SE and constructing the retained fill structure and tunnel portal would not change the areas medium vividness.	*(Medium and Low)/***No change in rating** The presence of the retained fill structure and tunnel portal would not negatively affect the areas intactness rating, and possible landscaping and aesthetic treatments might improve it.	*(Medium)/***No change in rating** The presence of the alternative would add some visual unity to this portion of Main Street, but not enough to change the medium rating. The design and aesthetic treatment for the portions of the alternative along Main Street would result in a landscaped buffer and transition area between the residential neighborhood south of Main Street and the commercial areas and the city center to the north and could increase unity.	*(Medium)* **No change in category**
34. Tunnel	None	None	None	None

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/**with Project**	Intactness (*Existing)*/**with Project**	Unity (*Existing)*/**with Project**	Visual Quality Category *(Existing)*/ **with Project**
35. NE 6th Street from 112th Avenue NE to over I-405 and area to the east of I-405 to Segment D boundary	Impacts would be the same as those described for *Preferred Alternative C11A*.	Impacts would be the same as those described for *Preferred Alternative C11A*.	Impacts would be the same as those described for *Preferred Alternative C11A*.	*(Medium)*/**No change in category**
C9T - East Main Station Design Option				
36. 112th Avenue SE from Segment B to Main Street	*(Medium)/***No change in rating** Impacts would be the same as those for *Preferred Alternative C9T;* the presence of the at-grade station would not change the rating.	*(Low)/***No change in rating** Impacts would be the same as those for *Preferred Alternative C9T*; the presence of the at-grade station would not change the rating.	*(Medium)/***No change in rating** Impacts would be the same as those for *Preferred Alternative C9T;* the presence of the at-grade station would not change the rating.	*(Medium)* **No change in category**
Bellevue Way Tunnel Alternative (C1T) (aboveground portions)				
37. Bellevue Way NW from Segment B to Main Street Tunnel portal	*(Medium)/***No change in rating** The open portion of the retained cut and the tunnel portal would be seen but would not decrease the area's medium rating for vividness.	*(Medium)/***No change in rating** Intactness would be lowered a bit with the presence of the retained cut but not enough to lower the rating to low.	*(Medium)/***No change in rating** The presence of the retained cut would add a new visual element that would have a neutral effect on unity.	*(Medium)/***No change in category**
38. NE 6th Street from Main Street Tunnel portal to 112th Avenue NE	*(High)/***No Change in rating** The tunnel portal, transition structure, and elevated structure would introduce new contrasting forms, lines, and colors to the streetscape. These elements would be rather unique-appearing and vivid features that would not decrease the area's vividness.	*(Medium)*/**No change in rating** Some views between the Meydenbauer Conference Center and Bellevue City Hall would be blocked by the transition structure and elevated structure. The established visual character and visual connection between the two areas would somewhat change but not enough to lower intactness from medium to low.	*(Medium)/***Low** The existing visual pattern along this part of NE 6th street would change with the presence of the transition structure and elevated structure. Visual unity would be reduced to low.	*(Medium)*/**No change in category**
39. NE 6th Street from 112th Avenue NE east to Segment D border	*(Low)/***No change in rating** This alternative would slightly add to the memorability or vividness of an area with an existing mix of uses that are not vivid or memorable, but it would not increase the rating.	*(Low)*/**No change in rating** This alternative would not negatively change utilitarian appearance or visual intactness of the area.	*(Low)/***No change in rating** This alternative would slightly improve low visual unity but not enough to change rating.	*(Low)*/**No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** *(Existing)*/ **with Project**
106th NE Tunnel Alternative (C2T) (aboveground portions)				
40. 112th Avenue SE from Segment B to Main Street Tunnel portal	*(Medium)/***No change in rating** The elevated structure and widened street would remove trees and vegetation and somewhat lower the pleasant appearance of parts of the street (and may make the nearby extensive areas of parking much more visible), it but would not change the medium visual quality rating to low.	*(Low)/***No change in rating** The elevated structure and widened street would not greatly change the low intactness along the east side of the avenue, which contains large-scale developments and large parking lots.	*(Medium)/***No change in rating** Removing adjacent vegetation would somewhat lower visual unity but not enough to reduce it to low.	*(Medium)*/**No change in category**
41. NE 6th Street from 112th Avenue NE east to Segment D border	Impacts would be the same as those described for Alternative C1T along NE 6th Street from 112th Avenue NE.	Impacts would be the same as those described for Alternative C1T along NE 6th Street from 112th Avenue NE.	Impacts would be the same as those described for Alternative C1T along NE 6th Street from 112th Avenue NE.	*(Low)*/**No change in category**
108th NE Tunnel Alternative (C3T) (aboveground portions)				
42. 112th Avenue SE from Segment B boundary to Main Street Tunnel portal	Impacts would be the same as those described for Alternative C2T.	Impacts would be the same as those described for Alternative C2T.	Impacts would be the same as those described for Alternative C2T.	*(Medium)*/**No change in category**
43. NE 12th Street from Main Street Tunnel portal to bridge over I-405 to Segment D	*(High)*/**Low initially, then over time Medium** The retained-cut and elevated structure starting at approximately 110th Avenue NE and going east would remove much of the park's trees and vegetation and would lower vividness initially to low. Within several years of reconstruction, the redesigned and planted park would reach medium vividness.	*(High)*/**Low initially, then over time Medium** The retained-cut and elevated structure would lower the intactness rating of this part of McCormick Park. Within several years of reconstruction, the redesigned and planted park would reach medium intactness.	*(Medium)/***Low initially, then over time Medium** Introducing the retained-cut and elevated structure while removing existing vegetation would decrease the areas unity. Within several years of reconstruction, the redesigned and planted park could help area reach medium unity.	*(High)*/**Low initially, then over time Medium**
At-Grade Couplet Alternative (C4A)				
44. 112th Avenue SE from Segment B to Main Street Tunnel portal	Impacts would be the same as those for Alternative C2T.	Impacts would be the same as those for Alternative C2T.	Impacts would be the same as those for Alternative C2T.	*(Medium)*/**No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)***/with Project**	**Intactness** (*Existing)***/with Project**	**Unity** (*Existing)***/with Project**	**Visual Quality Category** *(Existing)***/ with Project**
45. Main Street	*(Medium)/***No change in rating** The elevated and at-grade route would remove some buildings and trees but would not lower the medium vividness of this area.	*(Medium)/***No change in rating** The elevated structure and at-grade route would not greatly change the medium along this short portion of Main Street.	*(Low)/***No change in rating** The at-grade portion of the route could add visual unity to part of Main Street but not enough to change the low rating.	*(Medium)***/No change in category**
46. 108th and 110th Avenues NE between Main Street and NE 12th Street	*(High)/***No change in rating** At-grade route and station would fit in with the urban character of this area and would positively add to its high vividness rating.	*(High)/***No change in rating** At-grade route and station would complement high intactness rating.	*(High)/***No change in rating** At-grade route would add to visual unity of these avenues.	*(High)/***No change in category**
47. NE 12th Street from 108th Avenue NE to 112th Avenue NE	*(High and Average)***/Low initially, then over time Medium** The at-grade route would impact the portion of McCormick Park between 110th Avenue NE and the east end of the park by removing much of the park's trees and vegetation, which would lower vividness initially to low. Within several years of reconstruction, the redesigned and planted park would reach medium vividness.	*(High)***/Low initially, then over time Medium** The retained-cut and elevated structure would lower the intactness rating of this part of McCormick Park. Within several years of reconstruction, the redesigned and planted park would reach medium intactness.	*(Medium)/***Low initially, then over time Medium** Introducing the at-grade route would remove existing vegetation and decrease the areas unity. Within several years of reconstruction, the redesigned and planted park could help area reach medium unity.	*(High)***/Low initially, then over time Medium**
112th NE Elevated Alternative (C7E) from Alternatives B2A and B2E				
48. 112th Avenue SE from Segment B to Main Street	Impacts would be the same as those for Alternative C2T.	Impacts would be the same as those for Alternative C2T.	Impacts would be the same as those for Alternative C2T.	*(Medium)***/No change in category**
49. 112th Avenue NE from Main Street to NE 8th Street (and its bridge over I-405 to Segment D) subsegment	*(Low)/***No change in rating** The elevated structure and station would be visible along this portion of 112th Avenue NE and could increase the vividness of an area dominated by parcels with buildings surrounded by parking areas with views of I-405 between buildings and I-405 ramps. Shadows would be seen below the elevated structure and station.	*(Low)/***No change in rating** The elevated structure and station might be considered an encroaching element from some buildings but would not change intactness when viewed from ground level.	*Low/***No change in rating** The elevated structure could add some visual unity to this area that is low in visual unity.	*(Low)***/No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** (*Existing)*/ **with Project**
50. 112th Avenue NE from NE 8th Street to NE 12th Street (and its bridge over I-405 to Segment D) subsegment	*(Medium)/***No change in rating** The elevated structure would not diminish the area's medium vividness and might slightly add to its memorability. The structure would introduce a large-scale feature to the streetscape that would contrast in form and line with nearby buildings and create a shadow on the street and sidewalks below. The alternative would not lower vividness enough to lower the vividness rating to low.	*(Medium)/***No change in rating** The elevated structure might be considered an encroachment for viewers seeing it from nearby buildings, but it would not lower the intactness rating to low.	*(Medium)/***No change in rating** The elevated structure would not diminish and could slightly add to the visual unity of this portion of 112th Avenue NE.	*(Medium)*/**No change in category**
51. NE 12th Street from 112th Avenue SE over I-405 to Segment D	*(Medium and Low)*/**No change in rating** The elevated structure would not pass through McCormick Park. It would, however, be seen over I-405 but would not lower existing vividness ratings.	*(Low)*/**No change in rating** The elevated structure would not change existing visual character of the areas it would pass thorough and would not improve the low intactness.	*(Low)*/**No change in rating** The elevated structure would have little influence on unity of the area it would pass though.	*(Low)*/**No change in category**
112th NE Elevated Alternative (C7E) from Alternatives B3 andB7				
52. From Alternative B3 and Alternative B7	*(Low)*/**No change in rating** The elevated structure and East Main Station would be noticed along this section of 114th Avenue SE (as would the Alternative B3 route that approaches I-405) that closely parallels I-405. They would not detract further from the area's low vividness rating and may add a vivid element to the area.	*(Low)*/**No change in rating** The elevated structure and station would have little influence on the existing low intactness of these routes.	*(Low)/***No change in rating** The elevated structure and station could add visual unity to this area along its route but not enough to change the rating.	*(Low)*/**No change in category**
110th NE Elevated Alternative (C8E) from Alternatives B2A and B2E				
53. From Segment B along 114th Avenue SE to NE 2nd Street	*(Low)/***No change in rating** The elevated structure and station would be noticed along this section of 114th Avenue SE, which closely parallels I-405, but it would not detract further from the area's low vividness rating and may add a vivid element to the area.	*(Low)/***No change in rating** The elevated structure and station would have little influence on the existing low intactness of the portion of the route next to I-405 or the area near NE 2nd Street.	*(Low)/***No change in rating** The elevated structure and station could add visual unity to this area along its route but not enough to change the rating.	*(Low)* **No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/with Project	Intactness (*Existing)*/with Project	Unity (*Existing)*/with Project	Visual Quality Category *(Existing)*/ with Project
54. 110th Avenue NE	*(High)*/**Medium** The presence of the elevated structure, station, and straddlebents would introduce large-scale elements above the streetscape of this densely developed area's urban character. The station would be designed to be compatible with the character of the area near it. The station and elevated structure would be seen at eye-level from some nearby offices and from below from sidewalks. Shadows would be cast at certain times of the day on the street and sidewalks below (in addition to those cast by nearby buildings).	*(High)*/**Medium** The elevated structure and station may be considered visual encroachments by some viewers and appropriate urban features by others. The high intactness of much of 110th Avenue NE would be lowered to medium by the elevated structure and to a lesser degree by the elevated station.	*(High)*/**No change in rating** 110th Avenue NE has a generally unified, urban appearance that would not be lowered enough by the elevated structure or station to reduce the rating from high to medium.	*(High)*/**Medium**
55. NE 12th Street from 108th Avenue NE to 112th Avenue NE	*(High and Medium)*/**Low initially, then over time Medium** The elevated structure would start near 110th Avenue SE and would remove vegetation along the portion of McCormick Park between 110th and 112th Avenue NE, which would change the existing high vividness to low. Within several years of reconstruction, the redesigned and replanted park would reach medium vividness.	*(High)*/**Low initially, then over time Medium** Removing vegetation and constructing the elevated structure would initially lower intactness along McCormick Park to low until vegetation begins to fill in, which would increase intactness to medium.	*(Medium)*/**Low initially, then over time Medium** Removing vegetation and constructing the elevated structure would lower existing unity to low until vegetation begins to fill in, which would increase unity to medium.	*(High)*/**Low initially, then over time Medium**
56. NE 12th Street from 112th Avenue SE over I-405 to Segment D	*(Medium and Low)*/**No change in rating** The elevated structure would be seen over I-405 but would not lower existing vividness ratings.	*(Low)*/**No change in rating** The elevated structure would not change existing visual character of the areas it would pass through and would not improve the low intactness.	*(Low)*/**No change in rating** The elevated structure would have little influence on unity of the area it would pass though.	*(Low)*/**No change in category**
110th NE Elevated Alternative (C8E) from Alternatives B3 andB7				
57. From Alternative B3 and Alternative B7	Impacts would the same as Alternative C7E.	Impacts would the same as Alternative C7E.	Impacts would the same as Alternative C7E.	*(Low)*/**No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)***/with Project**	**Intactness** (*Existing)***/with Project**	**Unity** (*Existing)***/with Project**	**Visual Quality Category** *(Existing)***/ with Project**
110th NE At-Grade Alternative (C9A) from Alternative B2A				
58. From Segment B boundary to Main Street from Alternative B2A	*(Medium)/***Low** Removing landscaped medians along 112th Avenue SE south of SE 8th Street (in Segment B) and vegetation along the east side of 112th Avenue SE as well as constructing the retained-fill transition structure in the center of 112th Avenue SE would reduce the medium vividness of this area to low.	*(Low)/***No change in rating** Constructing the retained-fill transition structures in the center of 112th Avenue SE and four straddlebents along the east side of 112th Avenue SE to cross 112th Avenue SE at Main Street would have a negative effect on intactness.	*(Medium)/***Low to Medium** Removing landscaped medians along 112th Avenue SE south of SE 8th Street (in Segment B) and vegetation on the east side of 112th Avenue SE (which would also be widened to the east) would reduce the unity of this part of 112th Avenue SE to low to medium.	*(Medium)* **Low**
59. Main Street to 110th Avenue NE	*(Medium)/***No change in rating** The elevated and at-grade route would remove some buildings and trees but would not lower the medium vividness of this area.	*(Medium)/***No change in rating** The elevated structure and at-grade route would not greatly change the medium along this short portion of Main Street.	*(Low)/***No change in rating** The at-grade portion of the route could add visual unity to part of Main Street but not enough to change the low rating.	*(Medium)***/No change in category**
60. 110th Avenue NE to NE 6th Street	*(High)/***No change in rating** The at-grade route and station would fit in with the urban character of this area and would positively add to its high vividness rating.	*(High)/***No change in rating** The at-grade route and station would complement high intactness rating.	*(High)/***No change in rating** The at-grade route would add to visual unity of these avenues.	*(High)/***No change in category**
61. NE 6th Street from 112th Avenue NE to over I-405 and area to the east of I-405 to Segment D boundary	Impacts would be the same as those described for *Preferred Alternative C11A.*	Impacts would be the same as those described for *Preferred Alternative C11A.*	Impacts would be the same as those described for *Preferred Alternative C11A.*	*(Medium)***/No change in category**
110th NE At-Grade Alternative (C9A) from Alternatives B3, B3 - 114th Extension Design Option, and B7				
62. From Alternative B3, B3 - 114th Extension Design Option, and Alternative B7	Impacts would be the same as those described for Alternative C7E.	Impacts would be the same as those described for Alternative C7E.	Impacts would be the same as those described for Alternative C7E.	*(Low)***/No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** *(Existing)*/ **with Project**
Segment D				
Preferred NE 16th At-Grade Alternative (D2A)[a]				
63. All of *Preferred Alternative D2A* except for 152nd Avenue NE from NE 24th Street to SR 520	*(Low)*/**No change in rating** The elevated, at-grade, and retained-cut routes and their associated stations would not reduce the vividness or memorability of the areas through which they would pass. At-grade and retained-cut routes would be less noticeable than the elevated routes, but none of the three would change the generally low vividness ratings of these areas.	*(Low)/***No change in rating** The elevated, at-grade, and retained-cut routes and their associated stations would be similar in scale and character to the mix of land uses near which they would be sited and they would not change the low intactness found along much of Segment D.	*(Low to Medium)/***No change in rating** Some of the alternatives are in areas that are at least partially unified in terms of having an industrial or retail character, while others pass through areas that contain a mixture of land uses and have low visual unity. The alternatives would not change the ratings.	*(Low)*/**No change in category**
64. 152nd Avenue NE from NE 24th Street to SR 520	*(Medium)/***No change in rating** The at-grade alternative would not change the overall character of the avenue (which has a somewhat well-maintained suburban commercial district and office park character). The alternative would add new features to the area and would require the removal of some existing trees. The scale, line, and overall design of *Preferred Alternative D2A* would not lower the existing medium vividness.	*(Low)/***No change in rating** There is a mixture of land uses and scales along this section of the avenue that does not lend a visual consistency or intactness to this area. The alternative would not change the low rating for intactness.	*(Medium)*/**No change in rating** The streetscape, landscaping, and building relationship to the street create an area of medium visual unity, which would not be changed by the scale or line of the alternative.	*(Medium)*/**No change in category**
65. All of Preferred *Alternative D2A* except for 152nd Avenue NE from NE 24th Street to SR 520	*(Low)*/**No change in rating** The elevated, at-grade, and retained-cut route and their associated stations would not reduce vividness or memorability of the areas through which they would pass. At-grade and retained-cut routes would be less noticeable than the elevated routes, but none of the three would change the generally low vividness ratings of these areas.	*(Low)*/**No change in rating** The elevated, at-grade, and retained-cut route and their associated stations would be similar in scale and character to the mix of land uses near which they would be sited, and they would not change the low intactness found along much of Segment D.	*(Low to Medium)*/**No change in rating** Some of the alternatives are in areas that are at least partially unified in terms of having an industrial or retail character, while others pass through areas that contain a mixture of land uses and have low visual unity. The alternatives would not change the ratings.	*(Low)*/**No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/with Project	Intactness (*Existing)*/with Project	Unity (*Existing)*/with Project	Visual Quality Category *(Existing)*/ with Project
D2A - NE 24th Design Option				
66. NE 24th Street	*(Low)*/**No change in rating** The elevated and at-grade alignments would not change the low vividness of the adjacent area.	*(Low)*/**No change in rating** This design option would not improve the intactness rating along this portion of the route.	*(Low to Medium)*/**No change in rating** This design option would not improve unity along this portion of the route.	*(Low)*/**No change in category**
67. 152nd Avenue NE from NE 24th Street to SR 520	*(Medium)/***No change in rating** The at-grade alternative and at-grade station would not change the overall character of 152nd Avenue NE. Although some existing trees and buildings would be removed, the scale, line, and overall design of the design option would not lower the existing medium vividness.	*(Low)/***No change in rating** There is a mixture of land uses and scales along this section of the avenue that does not lend a visual consistency or intactness to this area. The design option would not change the low rating for intactness.	*(Medium)*/**No change in rating** The streetscape, landscaping, and building relationship to the street create an area of medium visual unity, which would not be changed by the scale or line of the design option.	*(Medium)*/**No change in category**
NE 16th Elevated Alternative (D2E)				
68. All of Alternative D2E	Impacts would be the same as those described for *Preferred Alternative D2A* except for D2A - NE 24th Design Option.	Impacts would be the same as those described for *Preferred Alternative D2A* except for D2A - NE 24th Design Option.	Impacts would be the same as those described for *Preferred Alternative D2A* except for D2A - NE 24th Design Option.	*(Medium)*/**No change in category**
SR 520 Alternative (D5)				
69. All of Alternative D5 except for 152nd Avenue NE from NE 24th Street to SR 520	*(Low)*/**No change in rating** The elevated retained cut and at-grade portions of the Alternative D5 route along with the two potential stations would not detract from the low degree of vividness and memorability of the areas they would pass near, and they might improve the vividness and memorability along SR 520.	*(Low)/***No change in rating** The elevated, at-grade, and retained-cut routes and their associated stations would be similar in scale and character to the mix of land uses near which they would be sited, and they would not change the low intactness found along much of the route.	*(Low to Medium)/***No change in rating** Some of the route is located between SR 520 and industrial areas and are at least partially unified in terms of closely following a freeway from much of its route.	*(Low)*/**No change in category**
70. 152nd Avenue NE from NE 24th Street to SR 520	Impacts would be the same as those described for *Preferred Alternative D2A*.	Impacts would be the same as those described for *Preferred Alternative D2A*.	Impacts would be the same as those described for *Preferred Alternative D2A*.	*(Medium)*/**No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)*/**with Project**	**Intactness** (*Existing)*/**with Project**	**Unity** (*Existing)*/**with Project**	**Visual Quality Category** (*Existing)***/ with Project**
NE 20th Alternative (D3)				
71. All of Alternative D3 except for 152nd Avenue NE from NE 24th Street to SR 520	*(Low)***/No change in rating** The elevated, at-grade, and retained-cut routes and their associated stations would not reduce the vividness or memorability of the areas through which they would pass. At-grade and retained-cut routes would be less noticeable than the elevated routes, but none of the three would change the generally low vividness ratings of these areas.	*(Low)/***No change in rating** The elevated, at-grade, and retained-cut routes and their associated stations would be similar in scale and character to the mix of land uses near which they would be sited, and they would not change the low intactness found along much of Segment D.	*(Low to Medium)/***No change in rating** Some of the alternatives are in areas that are at least partially unified in terms of having an industrial or retail character, while others pass through areas that contain a mixture of land uses and have low visual unity. The alternatives would not change the ratings.	*(Low)***/No change in category**
72. 152nd Avenue NE from NE 24th Street to SR 520	Impacts would be the same as those described for *Preferred Alternative D2A*.	Impacts would be the same as those described for *Preferred Alternative D2A*.	Impacts would be the same as those described for *Preferred Alternative D2A*.	*(Medium)***/No change in category**
Segment E				
Preferred Marymoor Alternative (E2)				
73. Along SR 520 (from where Alternatives E1 and E4 diverge from SR 520) to the end of Marymoor Park	*(High)***/No change in rating** The descending and at-grade portions of the alternative would be seen to varying degrees in front of the adjacent SR 520 embankment and would have little impact on the areas vividness.	*(Medium)/***No change in rating** The descending and at-grade portions of the alternative would add another built object to this area but in terms of scale, line, and form, would be visually compatible with SR 520 and the park.	*(High)/***No change in rating** The alternative would help to unify an area that already has high visual unity.	*(High)***/No change in category**
E2 - Redmond Transit Center Design Option				
74. Near station	*(Medium)/***No change in rating** The station would fit in well with the areas near them and would contribute to the medium vividness of the areas.	*(Low)/***No change in rating** The stations would not visually intrude on the generally mixed appearance of the areas near them.	*(Low)/***No change in rating** There is a lack of visual unity along the route that the stations might assist somewhat in improving.	*(Low)/***No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	Vividness (*Existing)*/**with Project**	Intactness (*Existing)*/**with Project**	Unity (*Existing)*/**with Project**	Visual Quality Category *(Existing)*/ **with Project**
Portions of routes common to all alternatives (*Preferred Marymoor Alternative [E2]*, Redmond Way Alternative [E1], and Leary Way Alternative [E4])				
75. SR 520 from Segment D to where project alternatives diverge from each other	*(Low)/***No change in rating** The landscape seen along this segment is not vivid nor memorable and is dominated by I-405. The alternatives would be compatible with the character of SR 520 and nearby areas and roads in terms of scale, form, line, and color. The vividness rating would not change.	*(Low)/***No change in rating** The alternatives would not change the low intactness rating of this area.	*(Medium)/***No change in rating** The alternatives would reinforce the medium visual unity along this segment by following I-405.	*(Low)*/**No change in category**
76. Former BNSF Railway corridor	*(Medium)/***No change in rating** The presence of the routes and the stations would increase the vividness along the portions of this corridor where existing vividness is not as high as in some other areas (such as Redmond Town Center).	*(Low)/***No change in rating** The routes and other facilities would not improve the low intactness rating of the corridor.	*(Low)/***No change in rating** There is a strong lack of visual unity along the alternatives. The routes, stations, and other facilities would slightly improve visual unity but not enough to increase the category from low to medium.	*(Low)*/**No change in category**
Redmond Way Alternative (E1)				
77. West Lake Sammamish Parkway NE from SR 520 off-ramp to near the Sammamish River	*(Medium)*/**No change in rating** Most of the route would not change the medium vividness along the area. However, the vividness of part of this area (the hillside north of the 7-11) would be reduced to low due to removing trees and constructing the elevated structure until replanted street trees grow large enough to begin to regain the stature of the existing trees.	*(Medium)/***No change in rating** The route would not change the medium intactness of most of the parkway, but it would reduce intactness on the hillside north of the 7-11 to low due to removing trees that currently form a band on the hillside. The elevated structure would be somewhat of an encroachment in this area (although the general character of the area is influenced by the nearby parkway).	*Medium/***No change in rating** As with vividness and intactness, the route would not change the medium unity of most of the area, except for the hillside north of the 7-11, where large trees would be removed, until replanted street trees grow large enough to begin to regain the stature of the existing trees.	*(Medium)*/**No change to most (part of the area would change to low temporarily)**
78. NE Redmond Way over Sammamish River to former BNSF Railway corridor	*(High)*/**No change in rating** The elevated structure would add a vivid large-scale element to this area and would remove some trees, but due to the presence of the NE Redmond Way overpass and numerous other trees, it would not be appear greatly out of place in terms of form, materials, and color.	*(Medium)/***No change in rating** Removing some trees could be noticed by some park and trail users but would not lower the medium intactness of this area.	*(High)/***No change in rating** Redmond Way passes along areas with much vegetation that helps create a visually unified landscape. The presence of the elevated structure would add an element that would follow NE Redmond Way and reinforce the unity.	*(High)/***No change in category**

TABLE 2 CONTINUED
Change in Visual Quality Categories

Segment/ Subarea of Segment	**Vividness** (*Existing)***/with Project**	**Intactness** (*Existing)***/with Project**	**Unity** (*Existing)***/with Project**	**Visual Quality Category** *(Existing***)/ with Project**
Leary Way Alternative (E4)				
79. Leary Way NE from SR 520 off-ramp to former BNSF Railway corridor	*(High)*/**Medium** The tree-lined character of part of this portion of Leary Way NE would change with the construction of the elevated and transition structures and, to a lesser extent, the at-grade portions of the alternative. The vividness of this part of the road would be reduced to medium, until replanted street trees grow large enough to begin to regain the stature of the existing trees.	*(Medium)/***Medium** The area's medium intactness would not be lowered enough by the presence of the elevated structure to be reclassified to low. This part of Leary Way NE would still have medium intactness due to the presence of the bridge over the Sammamish River and the trees near the portion of the street east of the bridge.	*(High)*/**Medium** The visual unity of the portion of the alternative would be somewhat lowered by the presence of the elevated structure and the removal of trees, but not enough to reclassify the unity rating to low, until replanted street trees grow large enough to begin to regain the stature of the existing trees and help visually unify the street.	*(High)***/Medium**
[a] D2A -120th Station Design Option impacts would be the same as those for *Preferred Alternative D2A*.				

Appendix F4.6

Washington State Intersection Screening Tool (Version 2.0) and Greenhouse Gas Estimating Methodologies and Results

Washington State Intersection Screening Tool (Version 2.0) and Greenhouse Gas Estimating Methodologies and Results

PREPARED FOR:	Sound Transit
PREPARED BY:	Joza Bautista/Entech Consulting Group
COPIES:	Michelle Jones/Entech Consulting Group
DATE:	November 1, 2010

The East Link Project is located in a carbon monoxide (CO) maintenance area; therefore, the state and federal air quality conformity regulations require a demonstration to ensure transportation activities associated with the project will not cause new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS). To satisfy this requirement, air quality modeling is used to calculate air quality impacts for comparison of build with no build conditions. The project must meet air quality conformity standards for a CO maintenance area. CO is the only pollutant for which quantitative modeling guidance for transportation projects exists.

The Washington State Intersection Screening Tool (WASIST), Version 2.0, was selected to model and analyze the CO levels of the specifically impacted intersections in the project vicinity. Developed by the Washington State Department of Transportation (WSDOT), WASIST is a screening model for determining the worst-case scenario for CO concentrations at signalized intersections and on metered roadways. WASIST uses predefined traffic data to estimate the project-generated CO emissions by inputting a combination of worse-case scenarios simultaneously into the model to produce the highest possible level of CO emissions. By using a combination of these worse-case scenarios and predefined data assumptions, the model can estimate worse-case CO concentrations for intersections and metered roadways within the project area. Traffic data for the project area were collected to determine which intersections would be representative for modeling and further degrade the level of service (LOS) from "D" to "E" or "F" under the future build alternatives. Screened intersections meeting these criteria underwent a CO hot-spot modeling screening analysis. If the worse-case intersections do not impact air quality, then all other intersections would experience a lesser impact. Exhibits 4.6-2 through 4.6-4 in Section 4.6, Air Quality, of the Final EIS show all intersections considered and those that meet the WASIST criteria for modeling CO concentrations.

The initial step in the WASIST modeling process is to perform a prescreen. This requires three informational inputs: the intersection location, the traffic volume on the intersection's busiest leg, and the distance of the closest receptors to the roadway edge. Once these are entered into the model, the results of the prescreen are summarized and displayed with a "pass" or "fail" result given in the report. A "pass" result does not require a complete WASIST analysis; a "fail" result, however, does require a complete WASIST analysis be performed to better estimate the intersection's impact on ambient CO concentrations. There are three informational data input categories necessary to perform a complete WASIST analysis:

1. **General inputs.** These include the project's general characteristics, such as the project name, intersections name, year of the analysis, background concentration, and whether the project is located in a CO maintenance area.
2. **Intersection inputs.** These include detailed information on the modeled intersection, the intersection layout, peak-hour traffic volumes, approach speed, and signal timing.
3. **Receptor inputs.** These include more specific information concerning receptors and the distance from the edge of the roadways and quadrants in which they are located.

After these informational data inputs are entered, the model calculates the worst-case CO concentrations at the specified intersections. The results of the 1-hour and 8-hour CO concentrations that were calculated are summarized in a report. If the specified receptor CO concentrations are less than the 1-hour and 8-hour NAAQS of 35 parts per million (ppm) and 9 ppm, respectively, then the intersection does not require further CO hot-spot dispersion modeling, and it passes the complete WASIST analysis. Further, CO concentrations would not be expected to exceed the NAAQS, and no additional modeling would be required.

References

WSDOT. 2005. Washington State Intersection Screening Tool, Version 2.0. Washington State Department of Transportation, Olympia, Washington. June 2009.

Segment A

***Preferred Alternative A1* CO Concentrations**

Existing CO Concentrations			**No Build CO Concentrations**						**Build CO Concentrations**					
			2020			**2030**			**2020**			**2030**		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
South Royal Brougham Way and 4th Avenue South	D	6.9	South Royal Brougham Way and 4th Avenue South	D	4.1	South Royal Brougham Way and 4th Avenue South	F	4.9	South Royal Brougham Way and 4th Avenue South	D	4.1	South Royal Brougham Way and 4th Avenue South	F	4.9
Dearborn Street and Rainier Avenue South	F	6.8	Dearborn Street and Rainier Avenue South	F	4.3	Dearborn Street and Rainier Avenue South	F	4.7	Dearborn Street and Rainier Avenue South	F	4.3	Dearborn Street and Rainier Avenue South	F	4.8
Rainier Avenue South and 23rd Avenue South	D	6.5	Rainier Avenue South and 23rd Avenue South	E	4.2	Rainier Avenue South and 23rd Avenue South	F	4.6	Rainier Avenue South and 23rd Avenue South	E	4.1	Rainier Avenue South and 23rd Avenue South	F	4.6
North Mercer Way and Island Crest Way	B	3.8	North Mercer Way and Island Crest Way	D	3.6	North Mercer Way and Island Crest Way	E	3.9	North Mercer Way and Island Crest Way	D	3.6	North Mercer Way and Island Crest Way	E	3.9

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Segment B

Alternative B1 CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	E	4.6	108: 112th Avenue SE and Bellevue Way	E	5.4
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	D	4.7	14: Bellevue Way and 112th Avenue SE	D	5.2
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B2A CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	D	4.5	108: 112th Avenue SE and Bellevue Way	D	5.2
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	F	4.8	14: Bellevue Way and 112th Avenue SE	F	5.4
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative B2E CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	C	4.8	14: Bellevue Way and 112th Avenue SE	**C**	5.3
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Preferred Alternative B2M-C9T CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	C	4.8	14: Bellevue Way and 112th Avenue SE	**C**	5.3
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Note: WASIST results reflect CO concentrations for *Preferred Alternative B2M* connecting to *Preferred Alternative C9T*.

Preferred Alternative B2M-C11A CO Concentrations

Existing CO Concentrations			**No Build CO Concentrations**						**Build Concentrations**					
			2020			**2030**			**2020**			**2030**		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	C	4.8	14: Bellevue Way and 112th Avenue SE	**C**	5.3
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.2

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B3 CO Concentrations

Existing CO Concentrations			**No Build CO Concentrations**						**Build CO Concentrations**					
			2020			**2030**			**2020**			**2030**		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	F	4.8	14: Bellevue Way and 112th Avenue SE	F	5.4
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.2

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B7 CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
108: 112th Avenue SE and Bellevue Way	F	7.2	108: 112th Avenue SE and Bellevue Way	D	4.6	108: 112th Avenue SE and Bellevue Way	D	5.2	108: 112th Avenue SE and Bellevue Way	D	4.5	108: 112th Avenue SE and Bellevue Way	D	5.2
**			14: Bellevue Way and 112th Avenue SE	C	4.6	14: Bellevue Way and 112th Avenue SE	C	5.3	14: Bellevue Way and 112th Avenue SE	C	4.5	14: Bellevue Way and 112th Avenue SE	C	5.3
SE 8th Street and 118th Avenue SE	F	5.4	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.1	SE 8th Street and 118th Avenue SE	F	4.5	SE 8th Street and 118th Avenue SE	F	5.2

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Segment C

Alternative C1T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue SE	E	6.5	Main Street and 112th Avenue SE	F	4.2	Main Street and 112th Avenue SE	F	4.8	Main Street and 112th Avenue SE	F	4.3	Main Street and 112th Avenue SE	F	4.8
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	C	4.4
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	4.0	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	**E**	4.0	NE 4th Street and 108th Avenue NE	**E**	**4.7**	NE 4th Street and 108th Avenue NE	**E**	**4.1**	NE 4th Street and 108th Avenue NE	**F**	**4.8**
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.2	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	NE 4th Street and 112th Avenue NE	**D**	4.3	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	4.1	NE 8th Street and 106th Avenue NE	**D**	**4.6**	NE 8th Street and 106th Avenue NE	**D**	**4.2**	NE 8th Street and 106th Avenue NE	**D**	**4.6**
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	F	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	5.2	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative C2T CO Concentrations

Existing CO Concentrations			**No-Build CO Concentrations**						**Build Concentrations**					
			2020			**2030**			**2020**			**C2T**		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.3	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	C	4.4
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	D	4.3	NE 4th Street and 106th Avenue NE	E	4.0	NE 4th Street and 106th Avenue NE	D	4.3
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	**E**	**4.0**	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	E	4.1	NE 4th Street and 108th Avenue NE	F	4.8
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.2	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	D	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	F	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative C3T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.3	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	D	3.8	NE 2nd Street and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	C	4.4
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	D	4.3	NE 4th Street and 106th Avenue NE	D	4.0	NE 4th Street and 106th Avenue NE	D	4.3
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	**E**	**4.0**	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	D	4.1	NE 4th Street and 108th Avenue NE	E	4.8
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	D	4.2	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8	NE 4th Street and 112th Avenue NE	E	4.3	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th a Street and 106th Avenue NE	D	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	F	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative C4A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.4	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.3	Main Street and 112th Avenue NE	F	4.9
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	D	3.8	NE 2nd Street and 110th Avenue NE	D	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.8	NE 2nd Street and 112th Avenue NE	D	4.5
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	D	4.1	NE 4th Street and 106th Avenue NE	E	4.5
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	D	4.0	NE 4th Street and 108th Avenue NE	F	4.6
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	D	4.0	NE 4th Street and 110th Avenue NE	F	4.6
NE 4th Street and 112th Avenue NE	D	6.5	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**E**	**4.4**	NE 4th Street and 112th Avenue NE	F	5.1
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	D	4.8
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.1	NE 8th Street and 108th Avenue NE	D	4.7
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.2	NE 8th Street and 110th Avenue NE	F	4.8
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.8	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative C7E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd and 110th Avenue NE	E	3.8	NE 2nd and 110th Avenue NE	C	4.0	NE 2nd and 110th Avenue NE	E	3.8	NE 2nd and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	D	4.5
NE 4th Street and 106th Avenue NE	D	5.7	**	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	E	4.0	NE 4th Street and 106th Avenue NE	E	4.3
NE 4th Street and 108th Avenue NE	D	6.0		E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	E	4.1	NE 4th Street and 108th Avenue NE	F	4.7
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.2	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	D	4.5
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	**D**	**4.3**	NE 8th Street and 108th Avenue NE	E	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Ave Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative C8E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.5	Main Street and 112th Avenue NE	F	4.9
**			NE 2nd and 110th Avenue NE	E	3.8	NE 2nd and 110th Avenue NE	C	4.0	NE 2nd and 110th Avenue NE	E	3.8	NE 2nd and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	D	4.4
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	D	4.0	NE 4th Street and 106th Avenue NE	D	4.4
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	E	4.2	NE 4th Street and 108th Avenue NE	F	4.8
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.2	NE 4th Street and 110th Avenue NE	E	4.7
NE 4th Street and 112th Avenue NE	D	6.5	**	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.9
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	D	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	F	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	F	4.4	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.6	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	F	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative C9A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	E	3.7	NE 2nd Street and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	C	4.4
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	D	4.0	NE 4th Street and 106th Avenue NE	D	4.3
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	E	4.1	NE 4th Street and 108th Avenue NE	F	4.8
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.5
NE 4th Street and 112th Avenue NE	D	6.5	**	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	D	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	E	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.8	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Preferred Alternative C9T CO Concentrations

Existing CO Concentrations			**No-Build CO Concentrations**						**Build CO Concentrations**					
			2020			**2030**			**2020**			**2030**		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.3	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd and 110th Avenue NE	E	3.8	NE 2nd and 110th Avenue NE	C	4.0	NE 2nd and 110th Avenue NE	E	3.8	NE 2nd and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.8	NE 2nd Street and 112th Avenue NE	C	4.4
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	D	4.0	NE 4th Street and 106th Avenue NE	D	4.3
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	E	4.1	NE 4th Street and 108th Avenue NE	F	4.7
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	D	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	D	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	E	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	FE	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.8	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Preferred Alternative C11A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.3	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.9	NE 2nd Street and 112th Avenue NE	D	4.5
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	E	4.0	NE 4th Street and 106th Avenue NE	E	4.3
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	F	4.1	NE 4th Street and 108th Avenue NE	F	4.7
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	**	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	E	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	E	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.4	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.8	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative C14E CO Concentrations

			No-Build CO Concentrations						**Build CO Concentrations**					
Existing CO Concentrations			**2020**			**2030**			**2020**			**2030**		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Main Street and Bellevue Way	E	6.8	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0	Main Street and Bellevue Way	F	4.5	Main Street and Bellevue Way	F	5.0
Main Street and 112th Avenue NE	E	6.5	Main Street and 112th Avenue NE	F	4.2	Main Street and 112th Avenue NE	F	4.8	Main Street and 112th Avenue NE	F	4.3	Main Street and 112th Avenue NE	F	4.8
**			NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0	NE 2nd Street and 110th Avenue NE	E	3.8	NE 2nd Street and 110th Avenue NE	C	4.0
**			NE 2nd Street and 112th Avenue NE	C	3.8	NE 2nd Street and 112th Avenue NE	C	4.4	NE 2nd Street and 112th Avenue NE	D	3.8	NE 2nd Street and 112th Avenue NE	D	4.5
NE 4th Street and 106th Avenue NE	D	5.7	NE 4th Street and 106th Avenue NE	**D**	**4.0**	NE 4th Street and 106th Avenue NE	**D**	**4.3**	NE 4th Street and 106th Avenue NE	D	4.0	NE 4th Street and 106th Avenue NE	E	4.3
NE 4th Street and 108th Avenue NE	D	6.0	NE 4th Street and 108th Avenue NE	E	4.0	NE 4th Street and 108th Avenue NE	E	4.7	NE 4th Street and 108th Avenue NE	E	4.1	NE 4th Street and 108th Avenue NE	F	4.7
**			NE 4th Street and 110th Avenue NE	E	4.1	NE 4th Street and 110th Avenue NE	E	4.8	NE 4th Street and 110th Avenue NE	E	4.2	NE 4th Street and 110th Avenue NE	E	4.6
NE 4th Street and 112th Avenue NE	D	6.5	**	**D**	**4.3**	NE 4th Street and 112th Avenue NE	**E**	**4.8**	NE 4th Street and 112th Avenue NE	**D**	**4.3**	NE 4th Street and 112th Avenue NE	E	4.8
NE 8th Street and 106th Avenue NE	D	6.2	NE 8th Street and 106th Avenue NE	**D**	**4.1**	NE 8th Street and 106th Avenue NE	D	4.6	NE 8th Street and 106th Avenue NE	D	4.2	NE 8th Street and 106th Avenue NE	D	4.6
NE 8th Street and 108th Avenue NE	F	6.5	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 108th Avenue NE	E	4.8	NE 8th Street and 108th Avenue NE	D	4.3	NE 8th Street and 106th Avenue NE	E	4.8
NE 8th Street and 110th Avenue NE	F	6.6	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0	NE 8th Street and 110th Avenue NE	E	4.3	NE 8th Street and 110th Avenue NE	F	5.0
NE 8th Street and 116th Avenue NE	F	7.5	NE 8th Street and 116th Avenue NE	D	4.7	NE 8th Street and 116th Avenue NE	D	5.4	NE 8th Street and 116th Avenue NE	D	4.8	NE 8th Street and 116th Avenue NE	D	5.4
NE 12th Street and 112th Avenue NE	D	6.4	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8	NE 12th Street and 112th Avenue NE	E	4.3	NE 12th Street and 112th Avenue NE	F	4.8

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Segment D

***Preferred Alternative D2A* CO Concentrations**

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
NE 20th Street and 140th Avenue NE	D	7.3	NE 20th Street and 140th Avenue NE	F	4.7	NE 20th Street and 140th Avenue NE	F	5.4	NE 20th Street and 140th Avenue NE	F	4.6	NE 20th Street and 140th Avenue NE	F	5.4
NE 20th Street and 148th Avenue NE	E	7.8	NE 20th Street and 148th Avenue NE	F	4.8	NE 20th Street and 148th Avenue NE	E	5.1	NE 20th Street and 148th Avenue NE	F	4.7	NE 20th Street and 148th Avenue NE	E	5.1
NE 24th Street and 148th Avenue NE	E	8.2	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7
NE 40th Street and 156th Avenue NE	D	8.0	NE 40th Street and 156th Avenue NE	E	4.6	NE 40th Street and 156th Avenue NE	F	5.4	NE 40th Street and 156th Avenue NE	E	4.8	NE 40th Street and 156th Avenue NE	F	5.5

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative D2E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
NE 20th Street and 140th Avenue NE	D	7.3	NE 20th Street and 140th Avenue NE	F	4.7	NE 20th Street and 140th Avenue NE	F	5.4	NE 20th Street and 140th Avenue NE	F	4.6	NE 20th Street and 140th Avenue NE	F	5.4
NE 20th Street and 148th Avenue NE	E	7.8	NE 20th Street and 148th Avenue NE	F	4.8	NE 20th Street and 148th Avenue NE	E	5.1	NE 20th Street and 148th Avenue NE	F	4.7	NE 20th Street and 148th Avenue NE	E	5.1
NE 24th Street and 148th Avenue NE	E	8.2	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7
NE 40th Street and 156th Avenue NE	D	8.0	NE 40th Street and 156th Avenue NE	E	4.6	NE 40th Street and 156th Avenue NE	F	5.4	NE 40th Street and 156th Avenue NE	E	4.8	NE 40th Street and 156th Avenue NE	F	5.5

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative D3 CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
NE 20th Street and 140th Avenue NE	D	7.3	NE 20th Street and 140th Avenue NE	F	4.7	NE 20th Street and 140th Avenue NE	F	5.4	NE 20th Street and 140th Avenue NE	F	4.7	NE 20th Street and 140th Avenue NE	F	5.4
NE 20th Street and 148th Avenue NE	E	7.8	NE 20th Street and 148th Avenue NE	F	4.8	NE 20th Street and 148th Avenue NE	E	5.1	NE 20th Street and 148th Avenue NE	F	4.6	NE 20th Street and 148th Avenue NE	F	5.5
NE 24th and 148th Avenue NE	E	8.2	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7	NE 24th St and 148th Avenue NE	F	5.0	NE 24th St and 148th Avenue NE	F	5.7
NE 40th Street and 156th Avenue NE	D	8.0	NE 40th Street and 156th Avenue NE	E	4.6	NE 40th Street and 156th Avenue NE	F	5.4	NE 40th Street and 156th Avenue NE	E	4.8	NE 40th Street and 156th Avenue NE	F	5.5

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative D5 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
NE 20th Street and 140th Avenue NE	D	7.3	NE 20th Street and 140th Avenue NE	F	4.7	NE 20th Street and 140th Avenue NE	F	5.4	NE 20th Street and 140th Avenue NE	F	4.6	NE 20th Street and 140th Avenue NE	F	5.4
NE 20th Street and 148th Avenue NE	E	7.8	NE 20th Street and 148th Avenue NE	F	4.8	NE 20th Street and 148th Avenue NE	E	5.1	NE 20th Street and 148th Avenue NE	F	4.7	NE 20th Street and 148th Avenue NE	E	5.2
NE 24th Street and 148th Avenue NE	E	8.2	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7	NE 24th Street and 148th Avenue NE	F	5.0	NE 24th Street and 148th Avenue NE	F	5.7
NE 40th Street and 156th Avenue NE	D	8.0	NE 40th Street and 156th Avenue NE	E	4.6	NE 40th Street and 156th Avenue NE	F	5.4	NE 40th Street and 156th Avenue NE	E	4.7	NE 40th Street and 156th Avenue NE	F	5.5

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Segment E

Alternative E1 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
Redmond Way and NE 76th Street	E	7.0	Redmond Way and NE 76th Street		4.5	Redmond Way and NE 76th Street	D	5.2	Redmond Way and NE 76th Street	C	4.5	Redmond Way and NE 76th Street	C	5.2
**			Redmond Way and 161th Avenue NE	D	3.7	Redmond Way and 161th Avenue NE	E	4.0	Redmond Way and 161th Avenue NE	C	3.7	Redmond Way and 161th Avenue NE	D	3.9
West Lake Sammamish Parkway and Leary Way (SR 520 westbound and West Lake Sammamish Parkway)	F	8.0	SR 520 westbound and West Lake Sammamish Parkway	F	5.1	SR 520 westbound and West Lake Sammamish Parkway	F	5.9	SR 520 westbound and West Lake Sammamish Parkway	F	5.1	SR 520 westbound and West Lake Sammamish Parkway	F	5.9
SR 520 eastbound and Redmond Way	D	7.5	Redmond Way and SR 520 eastbound	E	5.4	Redmond Way and SR 520 eastbound	F	6.1	SR 520 eastbound and Redmond Way	C	5.4	S SR 520 eastbound and Redmond Way	E	6.6

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Preferred Alternative E2 CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**	**Intersection**	**LOS**	**CO Conc.**
Redmond Way and NE 76th Street	E	7.0	Redmond Way and NE 76th Street		4.5	Redmond Way and NE 76 Street	D	5.2	Redmond Way and NE 76th Street	C	4.5	Redmond Way and NE 76th Street	C	5.2
**			Redmond Way and 161th Avenue NE	D	3.7	Redmond Way and 161th Avenue NE	E	4.0	Redmond Way and 161th Avenue NE	C	3.7	Redmond Way and 161th Avenue NE	D	4.0
West Lake Sammamish Parkway and Leary Way (SR 520 westbound and West Lake Sammamish Parkway)	F	8.0	SR 520 westbound and West Lake Sammamish Parkway	F	5.1	SR 520 westbound and West Lake Sammamish Parkway	F	5.9	SR 520 westbound and West Lake Sammamish Parkway	F	5.1	SR 520 westbound and West Lake Sammamish Parkway	F	5.9
SR 520 eastbound and Redmond Way	D	7.5	Redmond Way and SR 520 eastbound	E	5.4	Redmond Way and SR 520 eastbound	F	6.1	SR 520 eastbound and Redmond Way	C	5.4	SR 520 eastbound and Redmond Way	E	6.6

* CO concentrations in parts per million (ppm).
** Intersections did not trigger modeling requirements.

Alternative E4 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
Redmond Way and NE 76th Street	E	7.0	Redmond Way and NE 76th Street		4.5	Redmond Way and NE 76th Street	D	5.2	Redmond Way and NE 76th Street	C	4.5	Redmond Way and NE 76th Street	C	5.2
**			Redmond Way and 161th Avenue NE	D	3.7	Redmond Way and 161th Avenue NE	E	3.9	Redmond Way and 161th Avenue NE	C	3.7	Redmond Way and 161th Avenue NE	D	3.9
West Lake Sammamish Parkway and Leary Way (SR 520 westbound and West Lake Sammamish Parkway)	F	8.0	SR 520 westbound and West Lake Sammamish Parkway	F	5.1	SR 520 westbound and West Lake Sammamish Parkway	F	5.9	SR 520 westbound and West Lake Sammamish Parkway	F	5.1	SR 520 westbound and West Lake Sammamish Parkway	F	5.9
SR 520 eastbound and Redmond Way	D	7.5	Redmond Way and SR 520 eastbound	E	5.4	Redmond Way and SR 520 eastbound	F	6.6	SR 520 eastbound and Redmond Way	C	5.4	SR 520 eastbound and Redmond Way	E	6.6

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

CO_2 Equivalent Emissions Savings for High and Low East Link Project Ridership for the Puget Sound Region

Energy Consumption during Operations for Region

Vehicle Type	Consumption Factor (Btu/mile)	2030 No Build		2030 Build - High Ridership		2030 Build - Low Ridership		% Change in Btus from No Build	
		Daily VMT	Million Btu	Daily VMT	Million Btu	Daily VMT	Million Btu	High Ridership	Low Ridership
Passenger vehicle	5,894	111,389,000	656,531	111,159,647	655,179	111,212,303	655,489	-0.2%	-0.2%
Heavy duty	22,077	5,085,486	112,272	5,084,386	112,248	5,084,386	112,248	-0.02%	-0.02%
Transit bus	39,906	201,916	8,058	199,056	7,944	199,056	7,944	-1.4%	-1.4%
Commuter rail	94,587	1,524	144	1,524	144	1,524	144	0.0%	0.0%
Light rail	62,601	12,241	766	16,600	1,039	16,600	1,039	35.6%	35.6%
Total		116,690,167	777,771	116,461,213	776,554	116,513,869	776,864		

Passenger vehicle includes automobiles, motorcycles, and light trucks.

Gallons of Fuel Consumed and CO_2 Emissions for Region

Vehicle Type	Fuel Consumption Factor (mile/gal)[a]	CO_2 (g/gal)	2030 No Build			2030 Build-High Ridership			2030 Build-Low Ridership		
			Daily VMT	Fuel Consumed (gallons)	CO_2 Emissions (metric tonnes)	Daily VMT	Fuel Consumed (gallons)	CO_2 Emissions (metric tonnes)	Daily VMT	Fuel Consumed (gallons)	CO_2 Emissions (metric tonnes)
Passenger vehicle	22.9	8,810	111,389,000	4,864,148	42,853	111,159,647	4,854,133	42,765	111,212,303	4,856,432	42,785
Heavy duty	5.8	10,150	5,085,486	876,808	8,900	5,084,386	876,618	8,898	5,084,386	876,618	8,898
Transit bus			201,916			199,056			199,056		
Diesel	4.1	10,274	139,322	33,981	349	137,349	33,500	344	137,349	33,500	344
Hybrid	3.4	10,274	24,230	7,126	73	23,887	7,026	72	23,887	7,026	72
CNG	4.0	7,517	22,211	5,553	42	21,896	5,474	41	21,896	5,474	41
Trolley	37,270	8,482	16,127	4,813	41	15,586	4,651	39	15,586	4,651	39
Commuter rail	94,587	8,810	1,524	1,154	10	1,524	1,154	10	1,524	1,154	10
Light rail	62,601	8,810	12,241	6,136	54	16,600	8,321	73	16,600	8,321	73
Total			116,892,057	5,799,720	52,322	116,659,931	5,790,877	52,243	116,712,587	5,793,177	52,263

[a] The consumption factor for trolley, commuter rail, and light rail are in BTU per mile, not miles per gallon.

CO_2 Equivalent Emissions Savings for High and Low East Link Project Ridership for the Project Subarea

Energy Consumption during Operations for Subarea

Vehicle Type	Consumption Factor (Btu/mile)	2030 No Build		2030 Build - High Ridership		2030 Build - Low Ridership		% Change in Btus from No Build	
		Daily VMT	Million Btu	Daily VMT	Million Btu	Daily VMT	Million Btu	High Ridership	Low Ridership
Passenger vehicle	5,894	39,649,559	233,695	39,431,673	232,410	39,481,697	232,705	-0.6	-0.4
Heavy duty	22,077	1,849,522	40,832	1,849,938	40,841	1,849,938	40,841	0.02	0.02
Transit bus	39,906	112,890	4,505	110,028	4,391	110,028	4,391	-2.5	-2.5
Commuter rail	94,587	312	30	312	30	312	30	0.0	0.0
Light rail	62,601	8,745	547	13,053	817	13,053	817	49.3	49.3
Total		41,621,028	279,608	41,405,004	278,489	41,455,028	278,784		

Passenger vehicle includes automobiles, motorcycles, and light trucks.

Gallons of Fuel Consumed and CO_2 Emissions for Subarea

Vehicle Type	Fuel Consumption Factor (mile/gal)[a]	CO_2 (g/gal)	2030 No Build			2030 Build-High Ridership			2030 Build-Low Ridership		
			Daily VMT	Fuel Consumed (gallons)	CO_2 Emissions (metric tonnes)	Daily VMT	Fuel Consumed (gallons)	CO_2 Emissions (metric tonnes)	Daily VMT	Fuel Consumed (gallons)	CO_2 Emissions (metric tonnes)
Passenger vehicle	22.9	8,810	39,649,559	1,731,422	15,254	39,431,673	1,721,907	15,170	39,481,697	1,724,092	15,189
Heavy duty	5.8	10,150	1,849,522	318,883	3,237	1,849,938	318,955	3,237	1,849,938	318,955	3,237
Transit bus			112,890			110,028			110,028		
Diesel	4.1	10,274	77,894	18,999	195	75,919	18,517	190	75,919	18,517	190
Hybrid	3.4	10,274	13,547	3,984	41	13,203	3,883	40	13,203	3,883	40
CNG	4.0	7,517	12,418	3,104	23	12,103	3,026	23	12,103	3,026	23
Trolley	37,270	8,482	6,558	1,957	17	6,155	1,837	16	6,155	1,837	16
Commuter rail	94,587	8,810	312	236	2	312	236	2	312	236	2
Light rail	62,601	8,810	8,745	4,384	39	13,053	6,543	58	13,053	6,543	58
Total			41,731,445	2,082,969	18,807	41,512,385	2,074,904	18,736	41,562,409	2,077,089	18,755

[a] The consumption factor for trolley, commuter rail, and light rail are in BTU per mile, not miles per gallon.

Appendix F4.9

Impervious Areas and Stormwater Facilities

Table F4.9-1
Existing and Proposed Impervious Area, Excluding Maintenance Facilities

Major Downstream Waterbody	Drainage Basin	Existing and Proposed Impervious Area (IA) by Indicated Segment and Project Alternative (acres)																	
		A		B															
		A1*		B2M-C11A*		B2M-C9T*		B1		B2-A		B2-E		B3		B3-114th		B7	
		Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.
Lake Washington	Seattle CSO	7.2	7.2																
	Lake Washington	17.6	17.6																
	Mercer Island	17.6	18.1																
	Beaux Arts	0.1	0.1	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.9	0.7	0.7
Mercer Slough	Mercer Slough			13.6	22.0	9.3	17.4	17.1	22.5	16.1	21.3	10.0	13.5	14.0	17.8	13.8	18.0	12.1	15.7
	Maydenbauer Creek							3.7	4.5										
	Sturtevant Creek			0.9	1.0	0.6	0.9			0.3	0.5	0.0	0.2	0.3	1.5	0.3	1.5	0.1	0.1
Kelsey Creek	Kelsey Creek																	0.5	0.7
	West Tributary																		
	Goff Creek																		
	Valley Creek																		
	Sears Creek																		
Sammamish River	W. Lake Sammamish																		
	E. Lake Sammamish																		
	Westside																		
	Marymoor																		
	City Center																		
	Bear Creek																		
Total		42.4	43.1	15.3	23.9	10.8	19.2	21.5	27.7	17.1	22.6	10.8	14.5	15.0	20.0	15.0	20.4	13.4	17.3
Total Increase in IA (acres)		0.6		8.6		8.4		*6.2*		5.5		3.7		5.0		5.4		3.9	
Total % Increase in IA		2%		56%		77%		29%		32%		35%		33%		36%		29%	

Major Downstream Waterbody	Drainage Basin	C																			
		C11A*		C9T*		C1-T		C2-T		C3-T		C4-A		C7-E		C8-E		C9A		C14E	
		Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.
Lake Washington	Seattle CSO																				
	Lake Washington																				
	Mercer Island																				
	Beaux Arts																				
Mercer Slough	Mercer Slough	0.6	1.0									0.1	0.1								
	Maydenbauer Creek	2.6	6.9			5.9	6.3	2.3	2.4	0.7	0.7	2.8	2.8								
	Sturtevant Creek	20.2	20.4	15.0	19.9	3.8	4.0	4.1	4.6	1.7	2.5	9.0	11.7	4.2	5.7	4.9	6.8	24.1	28.8	15.7	18.5
Kelsey Creek	Kelsey Creek																				
	West Tributary																				
	Goff Creek																				
	Valley Creek																				
	Sears Creek																				
Sammamish River	W. Lake Sammamish																				
	E. Lake Sammamish																				
	Westside																				
	Marymoor																				
	City Center																				
	Bear Creek																				
Total		23.4	28.2	15.0	19.9	9.7	10.2	6.5	7.0	2.4	3.2	11.9	14.6	4.2	5.7	4.9	6.8	24.1	28.8	15.7	18.5
Total Increase in IA (acres)		4.9		4.9		0.5		0.5		0.7		*2.7*		1.5		1.9		4.7		2.8	
Total % Increase in IA		21%		33%		6%		8%		31%		23%		35%		38%		19%		18%	

Major Downstream Waterbody	Drainage Basin	D											
		D2-A*		D2A-120th		D2A-24th		D2-E		D3		D5	
		Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.
Lake Washington	Seattle CSO												
	Lake Washington												
	Mercer Island												
	Beaux Arts												
Mercer Slough	Mercer Slough												
	Maydenbauer Creek												
	Sturtevant Creek	3.8	4.3	3.8	4.3	3.8	4.3	1.9	2.4	2.1	2.6	0.5	0.9
Kelsey Creek	Kelsey Creek	0.1	0.8	0.1	0.8	0.1	0.8	0.7	0.9	2.1	2.4	0.0	0.2
	West Tributary	4.8	5.9	4.8	5.9	4.8	5.9	2.5	2.6	2.2	2.4	2.0	3.3
	Goff Creek	9.3	9.0	9.3	9.0	9.3	9.0	3.7	4.2	4.7	5.2	0.1	0.9
	Valley Creek	0.9	3.2	0.9	3.2	1.1	3.6	0.7	2.3	4.3	4.7	0.3	3.3
	Sears Creek	0.8	2.1	0.8	2.1	3.0	3.7	2.9	3.6	12.0	14.4	3.5	4.8
Sammamish River	W. Lake Sammamish	6.1	11.2	6.1	11.2	6.1	11.2	2.1	7.5	2.1	7.7	2.1	7.6
	E. Lake Sammamish												
	Westside												
	Marymoor												
	City Center												
	Bear Creek												
Total		25.8	36.4	25.8	36.4	28.2	38.4	14.5	23.4	29.6	39.4	8.5	21.0
Total Increase in IA (acres)		10.7		10.7		10.3		8.9		9.8		*12.5*	
Total % Increase in IA		41%		41%		36%		62%		33%		148%	

Major Downstream Waterbody	Drainage Basin	E							
		E2*		E1		E2-RedTC		E4	
		Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.
Lake Washington	Seattle CSO								
	Lake Washington								
	Mercer Island								
	Beaux Arts								
Mercer Slough	Mercer Slough								
	Maydenbauer Creek								
	Sturtevant Creek								
Kelsey Creek	Kelsey Creek								
	West Tributary								
	Goff Creek								
	Valley Creek								
	Sears Creek								
Sammamish River	W. Lake Sammamish	0.5	0.7	0.5	0.7	0.5	0.7	0.5	0.7
	E. Lake Sammamish	0.0	0.0	0.3	0.5	0.0	0.0	0.1	0.4
	Westside	2.6	7.6	3.3	9.0	2.6	7.6	3.2	8.2
	Marymoor	8.8	7.9	8.2	4.6	8.8	7.9	7.0	4.2
	City Center	2.4	1.5	2.3	3.4	3.7	4.2	1.4	2.4
	Bear Creek	2.6	3.5	2.4	3.0	2.6	3.5	3.4	4.8
Total		16.8	21.2	16.9	21.1	18.1	23.9	15.5	20.8
Total Increase in IA (acres)		4.4		4.2		*5.8*		5.3	
Total % Increase in IA		26%		25%		32%		34%	

Notes:
* = preferred alternative.

The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to the impacts for either *Preferred Alternative C9T* or *B2M*.

TABLE F4.9-2
Existing and Proposed Impervious Area for Maintenance Facilities

Drainage Basin	Area (acres)	Existing and Proposed Impervious Area (IA) by Indicated Segment and Project Alternative (acres)																							
		MF1						MF2						MF3						MF5					
		D2		D3		D5		D2		D3		D5		D2		D3		D5		E1		E2		E4	
		Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.	Exist	Prop.
Sturtevant Creek	773.0	2.4	3.5	2.4	3.5	2.4	3.3					0.7	1.1												
Kelsey Creek	2822.4													2.4	0.4	1.6	0.7	1.6	0.4						
West Tributary	1005.8	5.6	8.2	5.6	8.2	6.8	8.5	11.5	11.1	11.5	11.1	15.7	11.6												
Goff Creek	674.4													11.9	10.2	11.9	10.7	11.9	11.0						
Valley Creek	1390.9													0.2	2.2	0.7	1.4	0.4	1.4						
Marymoor	414.8																			11.2	13.5	13.6	15.5	13.1	14.9
Total	21535.8	8.0	11.7	8.0	11.7	9.2	11.7	11.5	11.1	11.5	11.1	16.4	12.7	14.5	12.8	14.1	12.8	13.8	12.8	11.2	13.5	13.6	15.5	13.1	14.9
Total Increase in IA		3.7		3.7		2.6		-0.3		-0.3		-3.7		-1.7		-1.3		-1.0		2.3		1.9		1.8	
Total % Increase in IA		46%		46%		28%		-3%		-3%		-23%		-12%		-9%		-7%		20%		14%		14%	

Appendix F4.9

Stormwater Management for East Link Project

The approach to stormwater management proposed within each segment of the East Link Project is summarized below. The numbers of water quality and detention vaults and the surface areas of detention ponds and constructed stormwater wetlands are shown in Table F4.9-3 for each segment. The size and locations of these facilities will change as more detailed engineering is performed in future project phases. There is the potential for contribution to regional detention and treatment facilities, where available or appropriate, as an alternative to onsite detention or treatment systems, via vaults or ponds.

F4.9.1 Segment A

Segment A (see Exhibit 4.9-1 in Section 4.9 of the Final Environmental Impact Statement [EIS]) passes through the Cities of Seattle and Mercer Island and stays within the Washington State Department of Transportation (WSDOT) right-of-way along Interstate 90 (I-90) for the entire length of the segment. An existing highway drainage system serves the entire segment. A small amount of the D2 Roadway in the western portion of this segment would be reconstructed; therefore, a single detention vault is proposed at this location. Because this area drains to Seattle's combined sewer, no stormwater treatment would be required. No detention or water quality treatment facilities would be required for the remainder of this segment because the project would create little or no new or reconstructed pavement areas.

F4.9.2 Segment B

Segment B (see Exhibit 4.9-2 in Section 4.9 of the Final EIS) falls within the City of Bellevue. The City of Bellevue has a fully separated stormwater system that drains to local streams, Mercer Slough, or Lake Washington. The runoff from large portions of Segment B alternatives could be routed directly to Mercer Slough, a detention-exempt water body, and would therefore require no detention. Detention would be required for the northern portion of Segment B, however. Note that the Bellevue Way Alternative (B1) is isolated from Mercer Slough, and this alternative would require seven vaults to provide the required detention. A small constructed wetland would provide treatment to runoff from the reconstructed South Bellevue Park-and-Ride.

F4.9.3 Segment C

Segment C (see Exhibit 4.9-3 in Section 4.9 of the Final EIS) also falls within the City of Bellevue. Most of this segment lies within the Sturtevant Creek Basin that drains much of Downtown Bellevue. Sturtevant Creek Basin is an urbanized basin with greater than 40 percent impervious area. Projects occurring within this basin are subject to a lower detention requirement. Project stormwater need only be detained to meet existing (rather than forested) conditions (Volume II, Section 2.5.7 of Ecology's 2005 *Stormwater Management Manual for Western Washington*). As a result, fewer project detention vaults are required in this basin, compared to much of the rest of the study area.

Portions of the western alternatives (Bellevue Way Tunnel [C1T], 106th NE Tunnel [C2T], 108th NE Tunnel [C3T], 114th NE Elevated [C14E] and the west leg of the Couplet [C4A]) Alternative lie within the Downtown Bellevue stormwater service area. Runoff collected in this service area is conveyed directly to Lake Washington (a water body exempt from detention requirements) and would therefore not require detention. However, treatment facilities would be required to treat runoff from pollution-generating impervious surfaces (PGISs).

This is the only segment with tunnel alternatives. The portions of the tunnel alternatives that would not disturb the overlying surface or that would be constructed with a landscaped surface cover would not require stormwater facilities. In general, the tunnel and the elevated alternatives would require fewer detention vaults than the at-grade alternative.

F4.9.4 Segment D

Segment D (see Exhibit 4.9-4 in Section 4.9 of the Final EIS) passes through the cities of Bellevue and

Redmond. The area drains to several small tributaries to Kelsey Creek: West Tributary Kelsey Creek, Goff Creek, and Sears Creek. There would be considerably more detention and water quality treatment facilities in this segment compared with the other segments because there are no detention-exempt receiving waters. The NE 20th Alternative (D3) would require the largest number of detention vaults (16) in this segment.

A portion of the elevated route of the State Route (SR) 520 Alternative (D5) runs along an open, vegetated area paralleling the south side of SR 520. This situation provides the opportunity for route runoff to be dispersed beneath the guideway, eliminating the need for stormwater facilities. A similar stretch of elevated rail using this dispersal technique was constructed for the Central Link in Tukwila.

A constructed wetland would provide treatment for runoff from the maintenance facility. In addition, a small constructed wetland and a wetpond would be constructed to provide stormwater management at the Overlake Transit Center.

F4.9.5 Segment E

Segment E (see Exhibit 4.9-5 in Section 4.9 of the Final EIS) lies within the City of Redmond. Nearly all of the runoff from the southern portion of Segment E would be routed directly to the Sammamish River (a water body exempt from detention requirements) and would therefore not require detention. Project runoff within downtown Redmond lies within the city's downtown stormwater service area which also conveys collected stormwater directly to the Sammamish River. Stormwater treatment, prior to river discharge, is also provided within this stormwater service area. Therefore, the portions of the project that lie within the downtown stormwater service area would not be required to provide either detention or treatment.

A portion of the *Preferred Marymoor Alternative (E2)* is proposed to be constructed along the south shoulder of SR 520. Plans for expanding of this highway call for converting of this shoulder to an ecology embankment that would be used to infiltrate and treat highway runoff. The highway expansion would likely be completed before the East Link Project and would reduce the area available for the construction of *Preferred Alternative E2*. To accommodate the highway requirements, if E2 is selected, Sound Transit proposes to reconstruct the highway shoulder to a more compact median application of the ecology embankment that would provide the required treatment of highway runoff using less land area. An underdrain would be installed to collect infiltrated highway runoff.

In the eastern portion of Segment E, a park-and-ride lot and a maintenance facility are proposed. This area has permeable soils and an onsite constructed wetland and infiltration pond could be used for runoff. This area lies within the Redmond Wellhead Protection Area, and infiltration of stormwater would require special measures so that groundwater quality would be not affected.

TABLE F4.9-3
Number of Vaults and Wetland/Pond Surface Area

Segments	Alternatives[a]	Small Detention and Water Quality Vaults (Quantity) [b]	Medium Detention and Water Quality Vaults (Quantity)[c]	Large Detention and Water Quality Vaults (Quantity)[d]	Constructed Wetland Water Surface Area (acres)	Detention Pond Water Surface Area (acres)
A	*A1*	1	0	0	0	0
B	*B2M-C11A*	0	1	0	0.5	0
	B2M-C9T	0	1	0	0.5	0
	B1	3	3	0	0.5	0
	B2A	1	1	1	0.5	0
	B2E	0	1	0	0.5	0
	B3	2	1	1	0	0
	B3 - 114th Extension Design Option	2	1	1	0	0
	B7	0	1	1	0	0
C	*C11A*	0	2	0	0	0
	C9T[e]	0	2	0	0	0
	C1T	2	1	0	0	0
	C2T	2	0	0	0	0
	C3T	2	0	0	0	0
	C4A	3	0	0	0	0
	C7E	0	1	0	0	0
	C8E	1	1	0	0	0
	C9A	1	1	0	0	0
	C14E	2	0	0	0	0
D	*D2A*	1	2	2	1.1	0.8
	D2A - 120th Station Design Option	1	2	2	1.1	0.8
	D2A - NE 24th Design Option	0	3	2	1.1	0.8
	D2E	1	4	2	1.1	0.8
	D3	0	4	10	1.1	0.8
	D5	0	1	3	1.1	0.8
E	*E2*	1	0	0	0.8	0
	E1	0	0	0	0.8	0
	E2 – Redmond Transit Center Design Option	1	0	0	0.8	0
	E4	0	0	0	0.8	0

[a] Italics indicates the identified preferred alternative(s) for each segment.

[b] A "small" vault has a storage capacity less than 0.6 acre-feet.

[c] A "medium" vault has a storage capacity between 0.6 and 1.4 acre-feet

[d] A "large" vault has a storage capacity greater than 1.4 acre-feet.

[e] The C9T - East Main Station Design Option connecting from *Preferred Alternative B2M* would not result in a change to the impacts for either *Preferred Alternative C9T* or *B2M*.

Appendix F4.11

Geologic Unit Summaries, Hazard Areas, and Boring Locations

Appendix F4.11

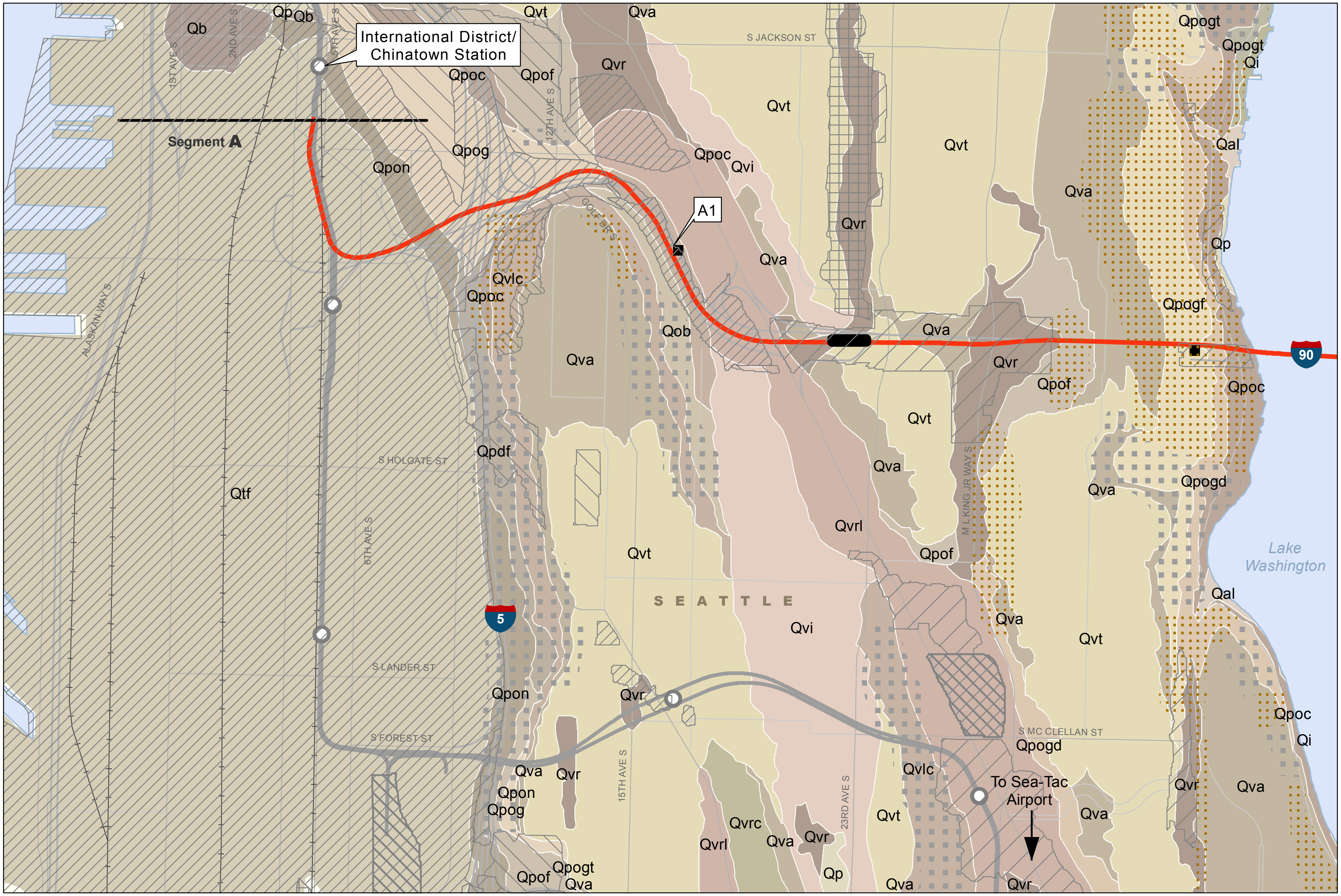
Geologic Unit Summaries, Hazard Areas, and Boring Locations

TABLE F4.11-1
Summary of Geologic Units and their Engineering Properties

Geologic Unit (Map Symbol)	Description	General Constructability	Density and/or Hardness	Strength	Permeability	Liquefaction Potential [a]
Modified land (m) [b] or ▨ or ▨	Fill and/or graded natural deposits that obscure or alter the original deposit	Varying, depending on whether nonengineered or engineered; poor foundation support and potentially poor cut stability if nonengineered, depending on composition and density and/or hardness of material; excellent foundation support and cut stability if engineered	Very soft to stiff or very loose to dense	Potentially low	Variable	Potentially high
Mass wastage (Qmw) or ∷∷	Colluvium, soil, landslide debris, and organic matter; common below springs where peaty deposits are also present; mapped on steep slopes; deposits, both mapped and unmapped, include abundant landslides up to 500 feet long	Poor foundation support, poor cut stability	Loose to dense and soft to stiff; variable degree of consolidation, depending on material in colluvium and its coherency	Potentially low	Variable	Potentially high
Landslide (Qls) ▪ ▪	Blocks of surficial deposits transported downslope en masse by gravity; numerous unmapped areas of both landslide and related mass-wastage deposits occur along slopes; landslide terrain, often including benches that slope back into the hillside and have wetlands and peat deposits	Poor foundation support, poor cut stability, potential for additional slide movement	Very loose to very dense or soft to hard; variable degree of consolidation, depending on material coherency	Potentially low	Variable	Potentially high
Wetland deposits (Qw)	Organic-rich sediment, peat, and fine-grained alluvium, poorly drained and intermittently wet; not all deposits mapped	Poor foundation support, poor cut stability, high occurrence of groundwater, wet-weather sensitive, poor soils for reuse as engineered fill due to wet conditions and a high fines and organic content	Very soft to medium stiff or very loose to medium dense	Potentially low	Variable	Potentially high
Tideflat deposits (Qtf)	Silt, sand, organic sediment, and detritus, with some shells, historically exposed in broad coastal benches at low tide and now covered with fill	Poor foundation support, poor cut stability, high occurrence of groundwater, wet-weather sensitive, poor soils to reuse as engineered fill due to wet conditions and generally a high fines content	Very loose to dense or very soft to stiff	Potentially low	Variable	Potentially high

TABLE F4.11-1 CONTINUED
Summary of Geologic Units and their Engineering Properties

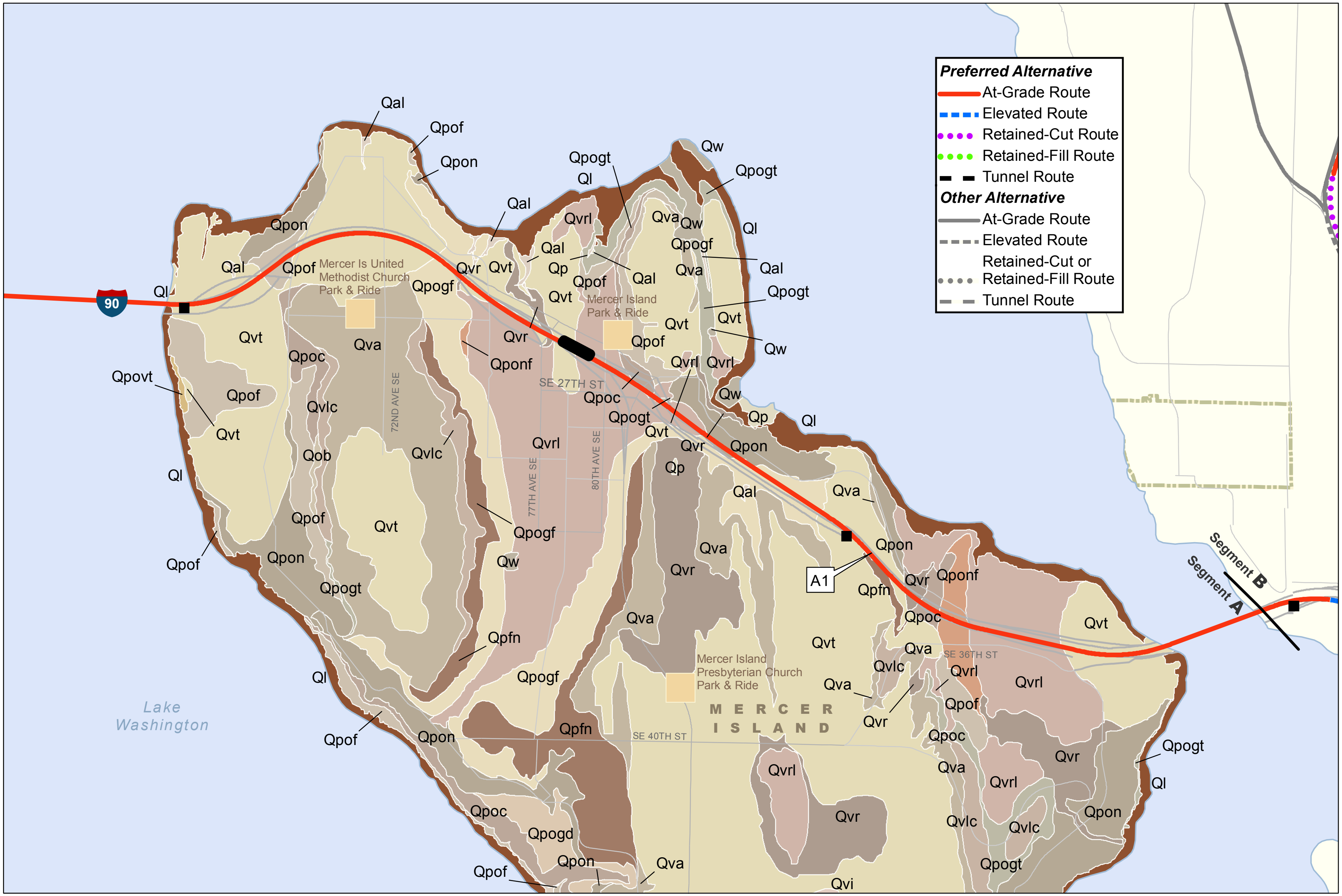
Geologic Unit (Map Symbol)	Description	General Constructability	Density and/or Hardness	Strength	Permeability	Liquefaction Potential [a]
Younger alluvium (Qyal)	Silt, sand, gravel, and cobbles deposited by streams and running water; locally contains soft peat lenses	Poor to good foundation support, depending on composition, density and/or hardness, and construction type; some soils might be wet-weather sensitive; some soils might be suitable for reuse as engineered fill, depending on amount of fines content; poor where peat materials occur	Loose to dense or soft to stiff	Low to medium	Variable	Potentially high
Lake deposits (Ql)	Silt and clay with local sand layers, peat, and other organic sediments deposited into Lake Washington; most mapped areas are lake-bottom sediments exposed when Lake Washington was lowered in 1916; at many locations, the lake deposits are thin and overlie a dense substrate; commonly capped by fill to improve building sites	Poor foundation support; poor cut stability; high groundwater occurrence; wet-weather sensitive; poor soils for reuse as engineered fill due to wet conditions and a high fines content	Very soft to medium stiff or very loose to medium dense	Potentially low	Low	Potentially high
Vashon recessional outwash deposits (Qvr)	Layered sand and gravel, deposited in outwash channels of melting glaciers during the ice retreat; also includes deposits that accumulated in or adjacent to recessional lakes; deposits less than about 3 feet thick not shown on map	Good foundation support and cut stability when undisturbed; potential groundwater occurrence; soils suitable for reuse as engineered fill	Loose to dense	Low to medium	Medium	Potentially high
Vashon recessional lacustrine deposits (Qvrl)	Thinly layered silt and clay with local sand layers, peat, and other organic sediments, deposited in slow-flowing water and temporary lakes	Poor to good foundation support and cut stability, depending on composition, density and/or hardness, and construction type; wet-weather sensitive; poor soils for reuse as engineered fill due to high fines content	Very soft to stiff	Medium	Low	Low to medium
Vashon till (Qvt)	Compact mixture of silt, sand, and gravel, glacially transported and deposited under ice; contains layers of sand and gravel; cobbles are common; upper 3 feet of till generally weathered and only medium dense to dense	Excellent foundation support and stable cuts when undisturbed; low groundwater occurrence; wet-weather sensitive; soils suitable for reuse as engineered fill depending on moisture content	Dense to very dense; sand commonly less dense	High	Low	Low
Vashon advance outwash (Qva)	Sand and gravel deposited by streams from advancing ice sheet; silt lenses locally present in upper part and common in lower part	Excellent foundation support and stable cuts when undisturbed, unless below the water table or exposed to water; potentially high groundwater occurrence; soils suitable for reuse as engineered fill	Dense to very dense	High[c]	High	Low


Qb
Qp
Qb
2ND AVE S
1ST AVE S
5TH AVE S
International District/
Chinatown Station
Qvt
Qva
S JACKSON ST
Qpogt
Qpogt
Qi
Qvr
Qpoc
Qpof
12TH AVE S
Qvt
Qvt
Segment A
Qpog
Qpon
Qpoc
Qvi
Qal
Qva
A1
GOLF DR S
Qvr
Qp
Qva
Qvlc
Qpoc
Qpogf
Qob
Qva
Qva
Qvr
90
Qpof
Qpoc
ALASKAN WAY S
Qvt
S HOLGATE ST
Qpdf
Qva
M L KING JR WAY S
Qva
Qpogd
Qtf
Qvrl
6TH AVE S
Qvt
Qpof
Lake
Washington
SEATTLE
Qal
5
Qvi
Qva
Qvt
S LANDER ST
Qpon
Qvr
S MC CLELLAN ST
Qpoc
S FOREST ST
Qpogd
Qi
Qva
Qvr
Qvlc
To Sea-Tac
Airport
Qvr
Qva
Qpon
15TH AVE S
Qva
Qpog
Qvrc
Qvt
23RD AVE S
Qvrl
Qva
Qvr
Qpogt
Qpof
Qva
Qp
Qva
Qvr

Source: Data digitized from GeomapNW at the University of Washington (2007); Sound Transit (2007) and King County (2006).

At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
Mass Wastage Deposit
Landslide Deposits
Modified Land
Artificial Fill
Landfill Debris
Filled River Channels
Graded Land
Regraded Land
Traction Power Substation
Proposed Station
Central Link Alignment and Station
N
0
0.25 Miles

Exhibit F4.11-1
Surficial Geology
Segment A, Seattle
East Link Project


Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
90
Lake Washington
MERCER ISLAND
Mercer Is United Methodist Church Park & Ride
Mercer Island Park & Ride
Mercer Island Presbyterian Church Park & Ride
SE 27TH ST
SE 36TH ST
SE 40TH ST
72ND AVE SE
77TH AVE SE
80TH AVE SE
A1
Segment B
Segment A
Qal
Qpof
Qpon
Qpogt
Ql
Qw
Qvrl
Qva
Qpogf
Qvr
Qvt
Qp
Qponf
Qpoc
Qpovt
Qvlc
Qob
Qpfn
Qpogd
Qvi

Source: Data digitized from GeomapNW at the University of Washington (2007); King County (2006).

■ Traction Power Substation

● Proposed Station

▭ City Limits

N

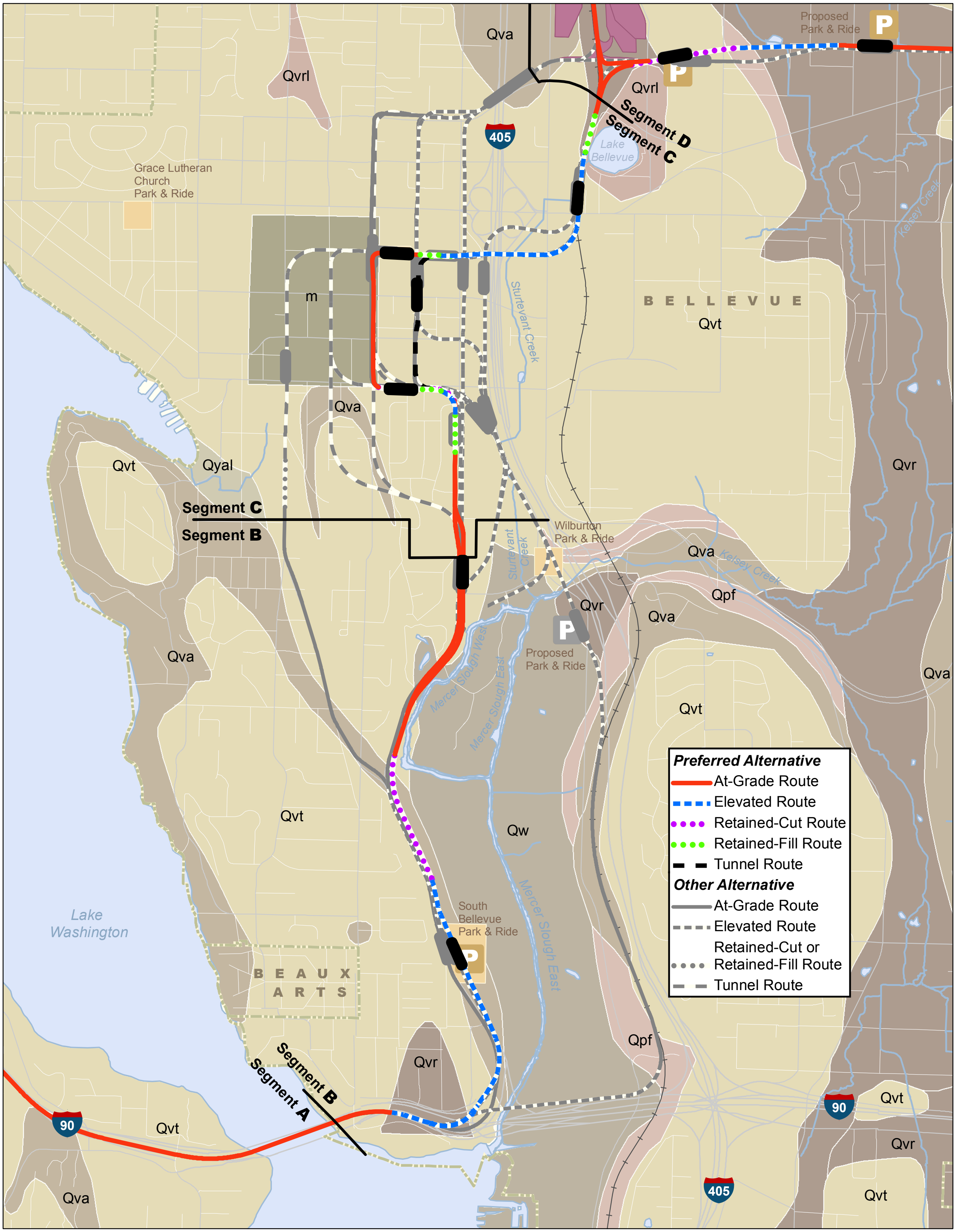
0 0.25 Miles

Exhibit F4.11-2

Surficial Geology

Segment A - Mercer Island

East Link Project


Qva
Qvrl
Proposed
Park & Ride
P
Qvrl
405
Segment D
Segment C
Lake
Bellevue
Grace Lutheran
Church
Park & Ride
m
Sturtevant Creek
B E L L E V U E
Qvt
Kelsey Creek
Qva
Qvt
Qyal
Qvr
Segment C
Segment B
Wilburton
Park & Ride
Sturtevant
Creek
Qva
Kelsey Creek
Qpf
Qvr
Qva
P
Proposed
Park & Ride
Qva
Mercer Slough West
Mercer Slough East
Qva
Qvt
Qvt
Qw
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Cut or
Retained-Fill Route
Tunnel Route
Lake
Washington
South
Bellevue
Park & Ride
P
Mercer Slough East
B E A U X
A R T S
Qpf
Qvr
Segment B
Segment A
90
Qvt
90
Qvt
Qvr
Qva
405
Qvt

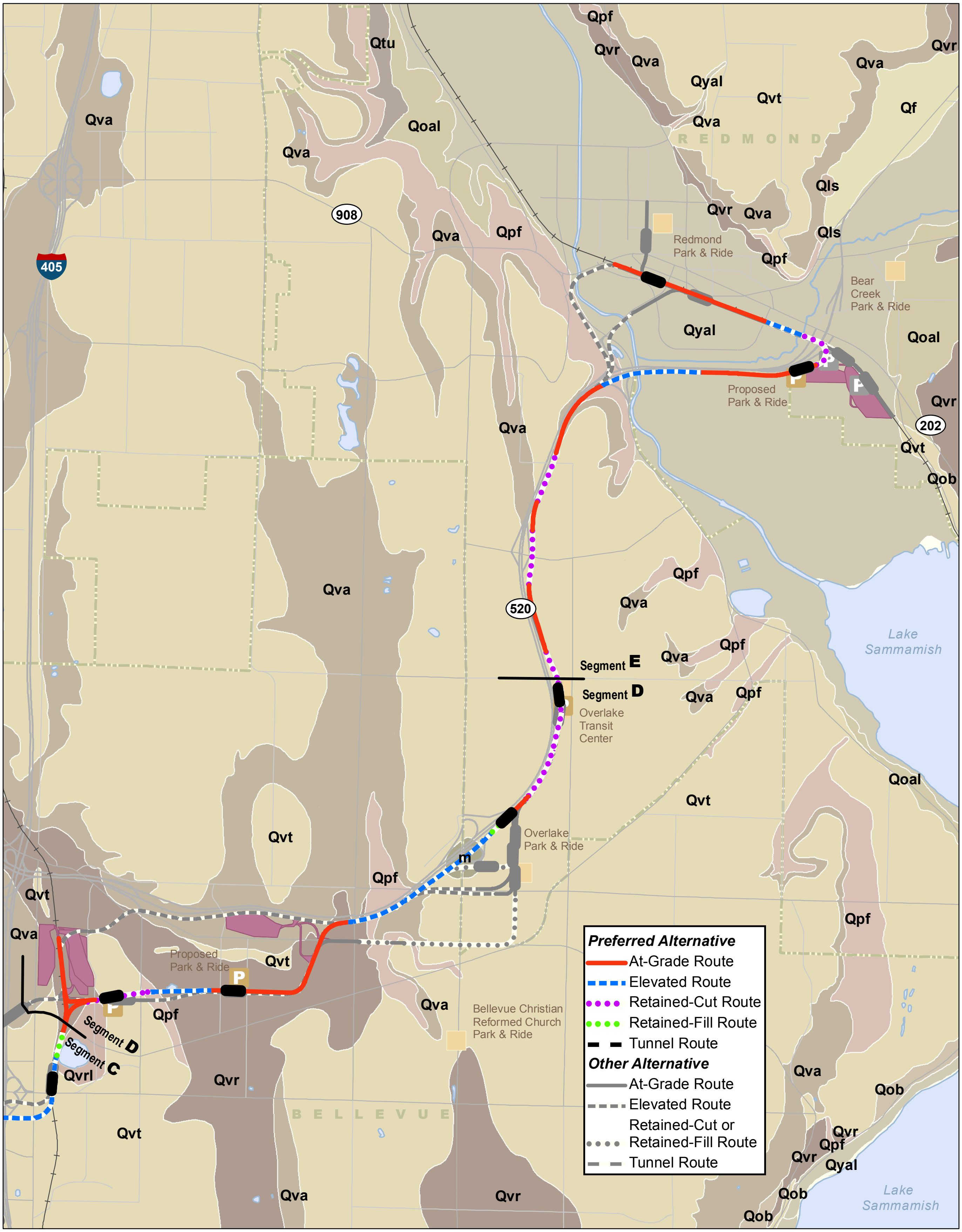
Source: Data from City of Bellevue (2005) and King County (2006).

Proposed Station
City Limits
Railroad

N

0 0.25 Miles

Exhibit F4.11-3
Surficial Geology
Segment B/C
East Link Project


Qpf
Qtu
Qvr
Qva
Qyal
Qvt
Qvr
Qva
Qf
Qva
Qoal
Qva
REDMOND
Qls
908
Qvr
Qva
Qls
Qva
Qpf
Redmond
Park & Ride
Qpf
405
Bear
Creek
Park & Ride
Qyal
Qoal
Proposed
Park & Ride
Qvr
202
Qva
Qvt
Qob
Qva
Qpf
Qva
520
Lake
Sammamish
Qpf
Segment E
Qva
Segment D
Qva
Qpf
Overlake
Transit
Center
Qoal
Qvt
Qvt
Overlake
Park & Ride
Qpf
Qvt
Qpf
Qva
Proposed
Park & Ride
Qvt
Qpf
Qva
Bellevue Christian
Reformed Church
Park & Ride
Segment D
Segment C
Qvrl
Qvr
Qva
Qob
BELLEVUE
Qvt
Qvr
Qpf
Qvr
Qyal
Qob
Lake
Sammamish
Qva
Qvr
Qob
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Cut or
Retained-Fill Route
Tunnel Route
N
0
0.5 Miles

Source: Data from City of Bellevue (2005) and King County (2006).

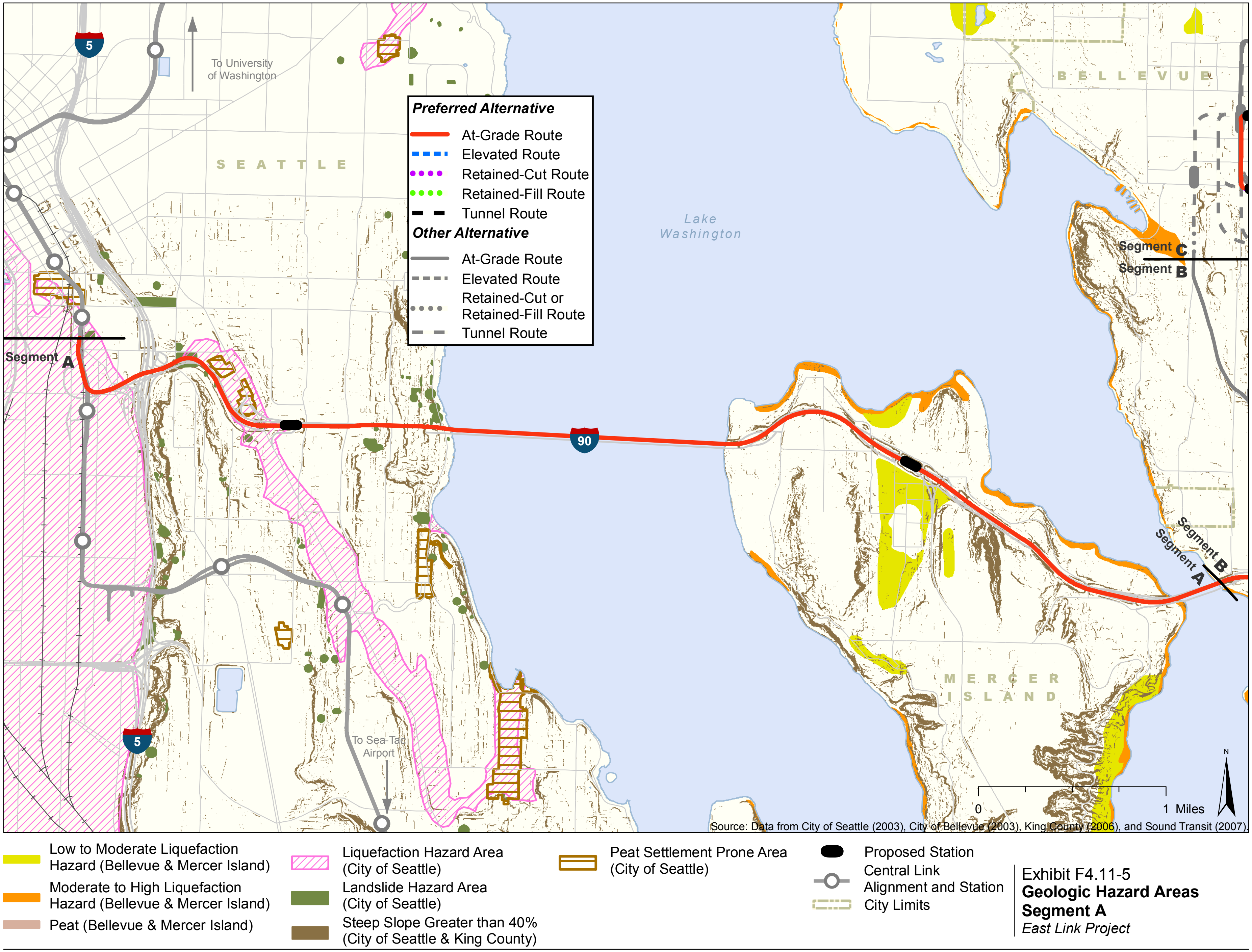
Proposed Station
Maintenance Facility
City Limits

Exhibit F4.11-4

Suficial Geology

Segment D/E

East Link Project


Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
5
90
To University of Washington
SEATTLE
Lake Washington
BELLEVUE
MERCER ISLAND
Segment A
Segment B
Segment C
To Sea-Tac Airport
0
1 Miles
N
Low to Moderate Liquefaction Hazard (Bellevue & Mercer Island)
Moderate to High Liquefaction Hazard (Bellevue & Mercer Island)
Peat (Bellevue & Mercer Island)
Liquefaction Hazard Area (City of Seattle)
Landslide Hazard Area (City of Seattle)
Steep Slope Greater than 40% (City of Seattle & King County)
Peat Settlement Prone Area (City of Seattle)
Proposed Station
Central Link Alignment and Station
City Limits

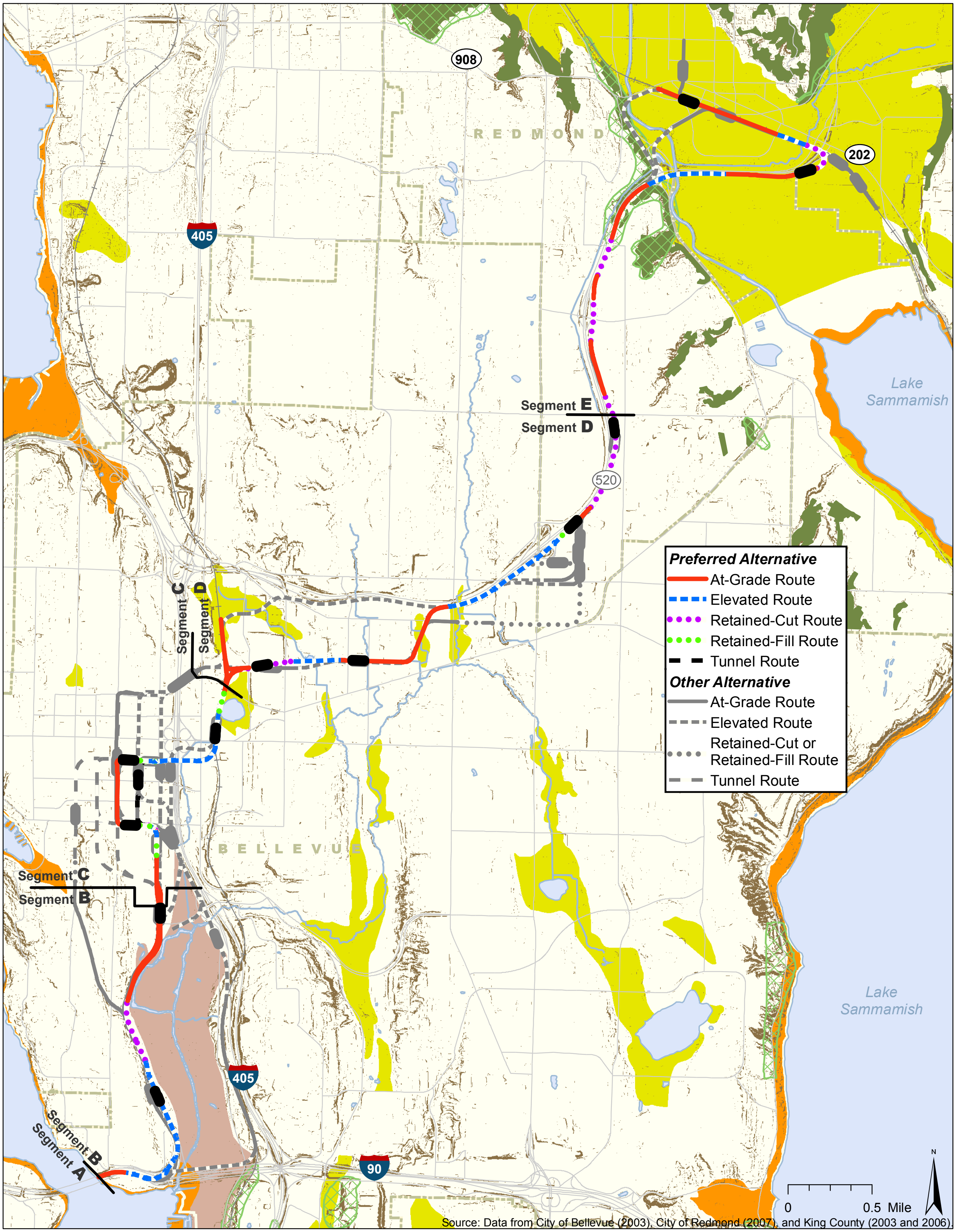
Source: Data from City of Seattle (2003), City of Bellevue (2003), King County (2006), and Sound Transit (2007).

Exhibit F4.11-5

Geologic Hazard Areas

Segment A

East Link Project


908
R E D M O N D
202
405
Lake Sammamish
Segment E
Segment D
520
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternative
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Segment C
Segment D
B E L L E V U E
Segment C
Segment B
405
Lake Sammamish
Segment B
Segment A
90
0
0.5 Mile
N
Low to Moderate Liquefaction Hazard
Moderate to High Liquefaction Hazard
Peat
Landslide Hazard Area (City of Redmond)
Landslide Hazard Area (King County)
Steep Slope Greater than 40% (City of Bellevue & King County)
Proposed Station
City Limits

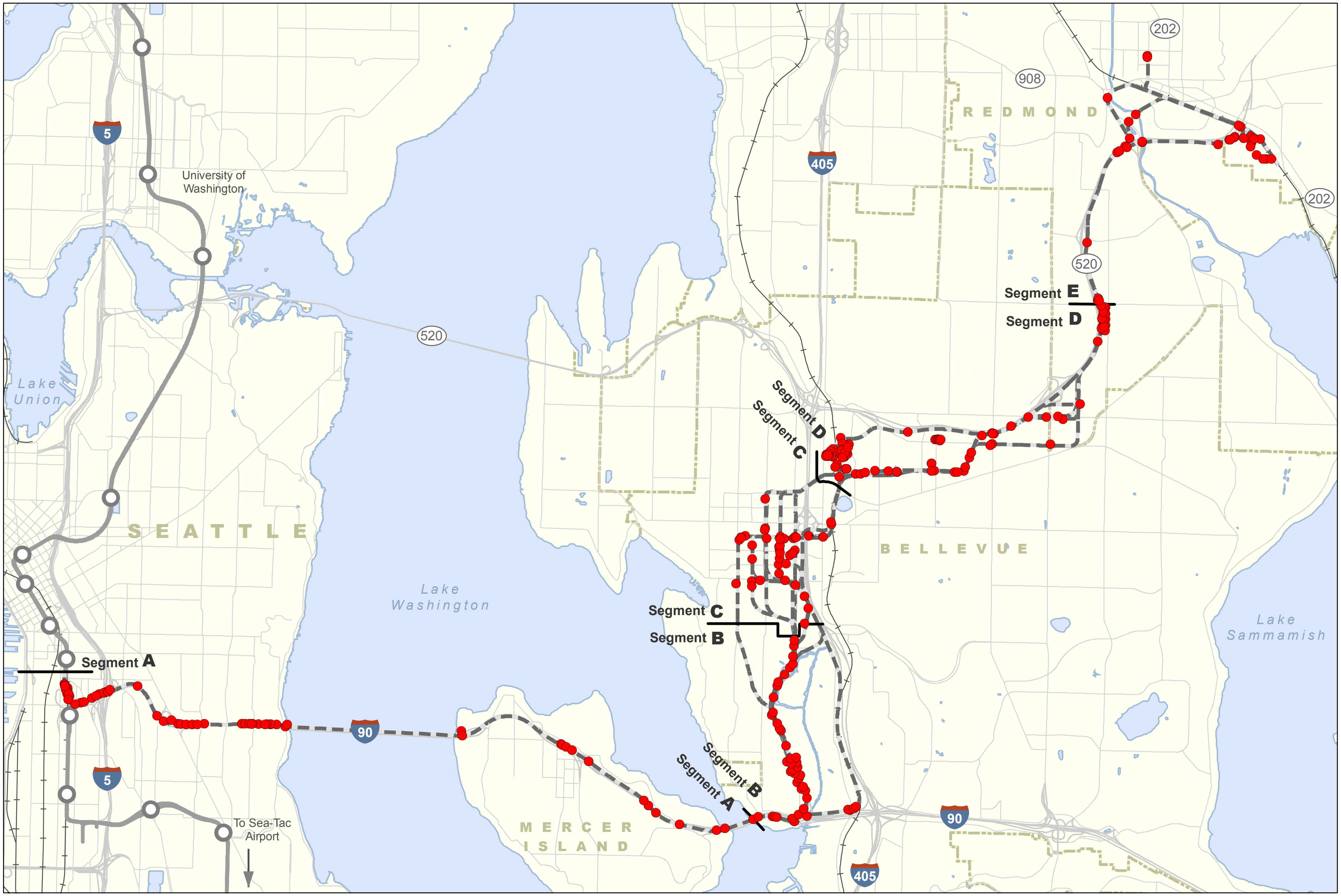
Source: Data from City of Bellevue (2003), City of Redmond (2007), and King County (2003 and 2006).

Exhibit F4.11-6

Geologic Hazard Areas

Segment B/C/D/E

East Link Project


202
908
REDMOND
405
520
University of Washington
5
SEATTLE
Lake Union
Lake Washington
Segment E
Segment D
Segment D
Segment C
BELLEVUE
Segment C
Segment B
Lake Sammamish
Segment A
90
Segment B
Segment A
MERCER ISLAND
To Sea-Tac Airport
202

Source: Data from GeoMapNW at the University of Washington (2007), Sound Transit (2007), and King County (2006).

● Existing Soil Boring Within the Alternative and Maintenance Facility Right-of-Way

East Link Proposed Alternative

Central Link Alignment and Station

N

0 1 Mile

Exhibit F4.11-7

Existing Soil Borings

Segments A,B,C,D, and E

East Link Project

Appendix F4.17

Park and Recreational Resources Inventory

TABLE F4.17-1
Parks and Recreational Facilities in Study Area

Resource Name	Size (acres)	Type and/or Function	Facilities	Ownership	Funding	4(f) or 6(f)
Segment A, Interstate 90						
Sturgus Park	2.0	Open space	Wooded hillside with trails; contains the I-90 Bicycle Trail	City of Seattle		4(f) [a]
Taejon Park	2.0	Open space	Wooded hillside with trails; contains the I-90 Bicycle Trail	City of Seattle		4(f) [a]
I-90 Lid Park (unnamed portion)		Open space	Wooded hillside; contains the I-90 Bicycle Trail	City of Seattle		4(f) [a]
Judkins Park and Playfield; part of the I-90 Lid	6.2	Community park	Picnic tables, paths, tennis courts, play area	City of Seattle, WSDOT	RCO	4(f)
Judge Charles M. Stokes Overlook; part of the I-90 Lid	5.2	Community park	Walking trail	WSDOT		4(f)
Benvenuto Viewpoint; part of the I-90 Lid	1.7	Viewpoint	None	WSDOT; City of Seattle		4(f)
Sam Smith Park; part of the I-90 Lid	15.2	Community park	Play area, picnic tables, tennis courts, off-leash dog park, art	WSDOT		4(f)
East Portal Viewpoint; part of the I-90 Lid	6.9	Viewpoint	Contains the I-90 Bicycle Trail	WSDOT		4(f)
South Day Street Park and Boat Ramp	3.9	Waterfront park	Waterfront access and boat dock under I-90	WSDOT, DNR		4(f)
Mercer Island; Park Lid	2.0	Landscape strips	None	WSDOT		NA
Outdoor sculpture gallery; part of the I-90 Lid	1.6, Part of Park on the Lid	Community park	Outdoor art, picnic benches	WSDOT, City of Mercer Island		4(f)
Gallagher Hill Open Space	11.3	Open space	None	City of Mercer Island		4(f)
Luther Burbank Park (includes Upper Luther Burbank Park)	77	Waterfront park, wilderness area	Play area, dog park, picnic and barbeque area, tennis court, basketball court, boat dock, fishing pier, swimming beach, amphitheater, pedestrian walkway over I-90, 3 miles of trails	City of Mercer Island		4(f)

TABLE F4.17-1 CONTINUED
Parks and Recreational Facilities in Study Area

Resource Name	Size (acres)	Type and/or Function	Facilities	Ownership	Funding	4(f) or 6(f)
Segment B, South Bellevue						
Enatai Beach Park	4.2	Neighborhood park	Dock, boat house, picnic area, seasonal canoe and kayak rentals; connection to the I-90 trail	City of Bellevue, WSDOT	RCO	4(f)
Mercer Slough Nature Park	320	Community park	Trails, visitor center, environmental education center, picnic areas, waterfront, canoe launch, blueberry farm, restrooms	City of Bellevue	RCO	4(f)
					LWCF	6(f)
Bellevue Way Greenbelt	0.37	Open space/undeveloped	Landscaping	City of Bellevue		N/A
BNSF Railway Trail (proposed)	North Renton to Snohomish	Regional trail	To include pedestrian and bicycle paths	Port of Seattle	(RCO - proposed)	NA
Segment C, Downtown Bellevue						
Surrey Downs Park	11.4	Neighborhood park	Trails, ball fields	City of Bellevue		4(f)
NE 2nd Pocket Parks	0.62	Open space/undeveloped	Benches	City of Bellevue		4(f)
Downtown Park	20.5	Community park	Play area, formal gardens, benches	City of Bellevue		4(f)
Ashwood Park	3.09	Neighborhood park	Multiuse field	City of Bellevue		4(f)
Library Plaza; part of the Bellevue Library	0.8	Mini park	Benches	King County Library System		4(f)
McCormick Park planned extension from Bellevue Way SE to 106th Avenue NE (as part of 1200 Bellevue Way development)	2.69	Neighborhood park	Walking paths, benches	City of Bellevue		4(f)
Proposed neighborhood park along Main Street	Unknown	Neighborhood park	Green buffer area between the single-family residential areas south of Main Street and the high-density and commercial areas north of Main Street	N/A		NA
BNSF Railway Trail (proposed)	See Segment B			BNSF Railway	(RCO - proposed)	NA

TABLE F4.17-1 CONTINUED
Parks and Recreational Facilities in Study Area

Resource Name	Size (acres)	Type and/or Function	Facilities	Ownership	Funding	4(f) or 6(f)
Segment D, Bel-Red/Overlake						
Highlands Park and Community Center	11.6	Community park	Baseball field, softball field, tennis courts, play area, picnic tables, community center, skate park	City of Bellevue	RCO	4(f)
BNSF Railway Trail (proposed)	See Segment B			BNSF Railway	(RCO - proposed)	NA
Bel-Red Subarea Plan parks and open space system	Unknown	Various	Proposed facilities include trails along stream corridors, urban and natural open space areas, community facilities, community and neighborhood parks, and cultural and arts features.	City of Bellevue, various		NA
Segment E, Downtown Redmond						
Redmond West Wetlands	4.4	Resource park	Interpretive trail	City of Redmond		4(f)
Town Center Open Space	44	Open space	Walking trail	PRR Redmond Retail (private)		NA
Luke McRedmond Landing	2.1	Resource park	Picnic shelter, canoe launch, access to Sammamish River Trail	King County		4(f)
Anderson Park	2.8	Neighborhood park	Play area, picnic shelter, log cabin rentals, public art	City of Redmond		4(f)
O'Leary Park	0.12	Resource park	Plaza rest area with public art	City of Redmond		4(f)
Old Firehouse Teen Center	0.8	Resource park	Teen center facility, including indoor media center and outdoor basketball court	City of Redmond		4(f)
Edge Skate Park	1.4	Resource park	Graffiti wall, skate facility, picnic tables	City of Redmond		4(f)
Marymoor Park	640	Resource park	Multipurpose recreational fields, velodrome, climbing rock, off-leash dog park, amphitheater, portion of the Sammamish River trail	King County	RCO	4(f)
Sammamish River Trail site	165.9	Resource park	Bicycle racks, picnic tables	King County	RCO	4(f)
Sammamish River Trail	10.88 miles	Regional trail	Paved trail with soft surface shoulders; equestrian use permitted; connects Marymoor Park with the Burke-Gilman Trail	King County	RCO	4(f)

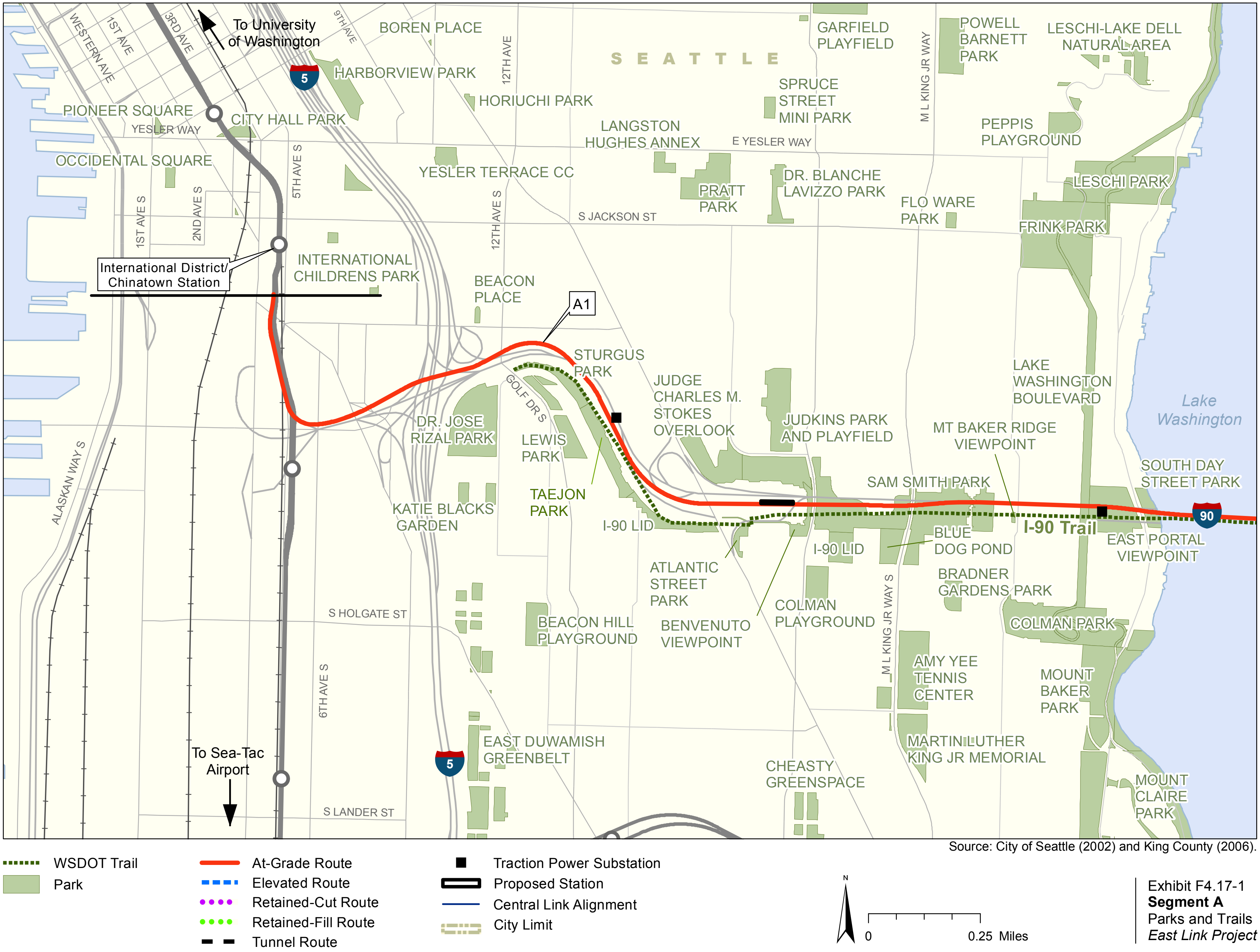
TABLE F4.17-1 CONTINUED
Parks and Recreational Facilities in Study Area

Resource Name	Size (acres)	Type and/or Function	Facilities	Ownership	Funding	4(f) or 6(f)
Dudley Carter Park	2.32	Community park	None	City of Redmond	RCO	4(f)
East Lake Sammamish Trail (Built)	10.7 miles	Regional trail (portions open)	Interim soft-surface trail on BNSF Railway corridor	King County		4(f)
Redmond Central Connector-Proposed Trail (former BNSF)	3.9 miles	Regional trail	Paved multi-use trail on the BNSF Railway corridor	City of Redmond		4(f)
Bridle Crest Trail	2.1 miles	Neighborhood trail	Soft surface, multiuse trail	King County, City of Redmond		4(f)
Bear Creek Trail	1.4 miles	Trail	Paved trail	City of Redmond	RCO	4(f)

Notes:

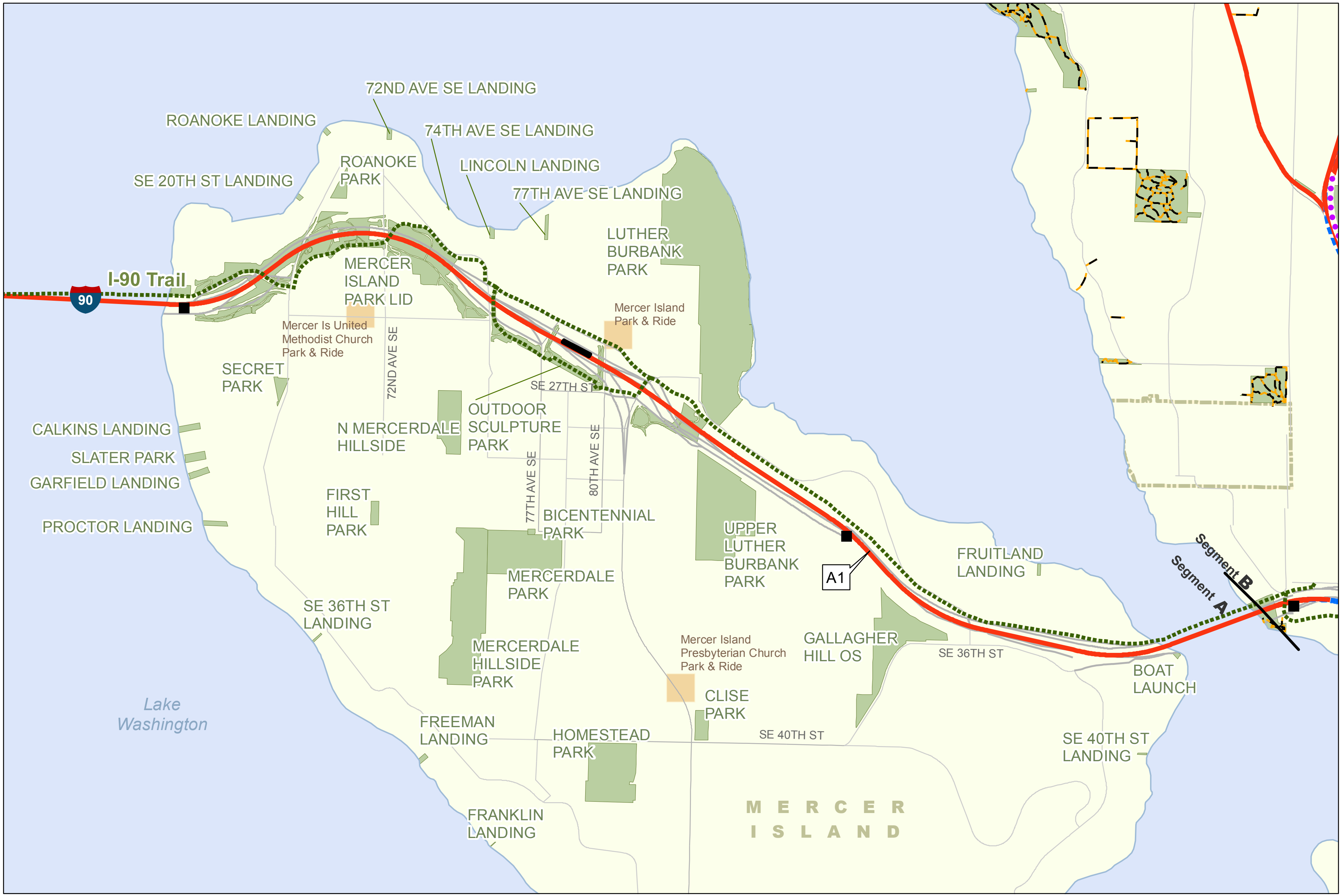
[a] The I-90 Trail portion is considered a transportation facility and therefore not declared a 4(f) resource-per U.S. Department of Transportation letter to WSDOT November 25, 2002.

BNSF	Burlington Northern Santa Fe
DNR	Washington State Department of Natural Resources
LWCF	Land and Water Conservation Fund
N/A	Not applicable
RCO	Recreation and Conservation Office/Washington State
WSDOT	Washington State Department of Transportation


To University of Washington
BOREN PLACE
SEATTLE
GARFIELD PLAYFIELD
POWELL BARNETT PARK
LESCHI-LAKE DELL NATURAL AREA
WESTERN AVE
1ST AVE
3RD AVE
9TH AVE
5
HARBORVIEW PARK
12TH AVE
HORIUCHI PARK
SPRUCE STREET MINI PARK
M L KING JR WAY
PIONEER SQUARE
YESLER WAY
CITY HALL PARK
LANGSTON HUGHES ANNEX
E YESLER WAY
PEPPIS PLAYGROUND
OCCIDENTAL SQUARE
5TH AVE S
YESLER TERRACE CC
DR. BLANCHE LAVIZZO PARK
LESCHI PARK
1ST AVE S
2ND AVE S
12TH AVE S
PRATT PARK
FLO WARE PARK
S JACKSON ST
FRINK PARK
International District/ Chinatown Station
INTERNATIONAL CHILDRENS PARK
BEACON PLACE
A1
STURGUS PARK
JUDGE CHARLES M. STOKES OVERLOOK
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
Lake Washington
GOLF DR S
DR. JOSE RIZAL PARK
LEWIS PARK
MT BAKER RIDGE VIEWPOINT
SOUTH DAY STREET PARK
ALASKAN WAY S
SAM SMITH PARK
TAEJON PARK
KATIE BLACKS GARDEN
I-90 LID
I-90 Trail
90
BLUE DOG POND
EAST PORTAL VIEWPOINT
I-90 LID
ATLANTIC STREET PARK
BRADNER GARDENS PARK
S HOLGATE ST
COLMAN PLAYGROUND
M L KING JR WAY S
BEACON HILL PLAYGROUND
BENVENUTO VIEWPOINT
COLMAN PARK
AMY YEE TENNIS CENTER
MOUNT BAKER PARK
6TH AVE S
To Sea-Tac Airport
EAST DUWAMISH GREENBELT
5
MARTIN LUTHER KING JR MEMORIAL
CHEASTY GREENSPACE
MOUNT CLAIRE PARK
S LANDER ST
WSDOT Trail
Park
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Central Link Alignment
City Limit
N
0
0.25 Miles

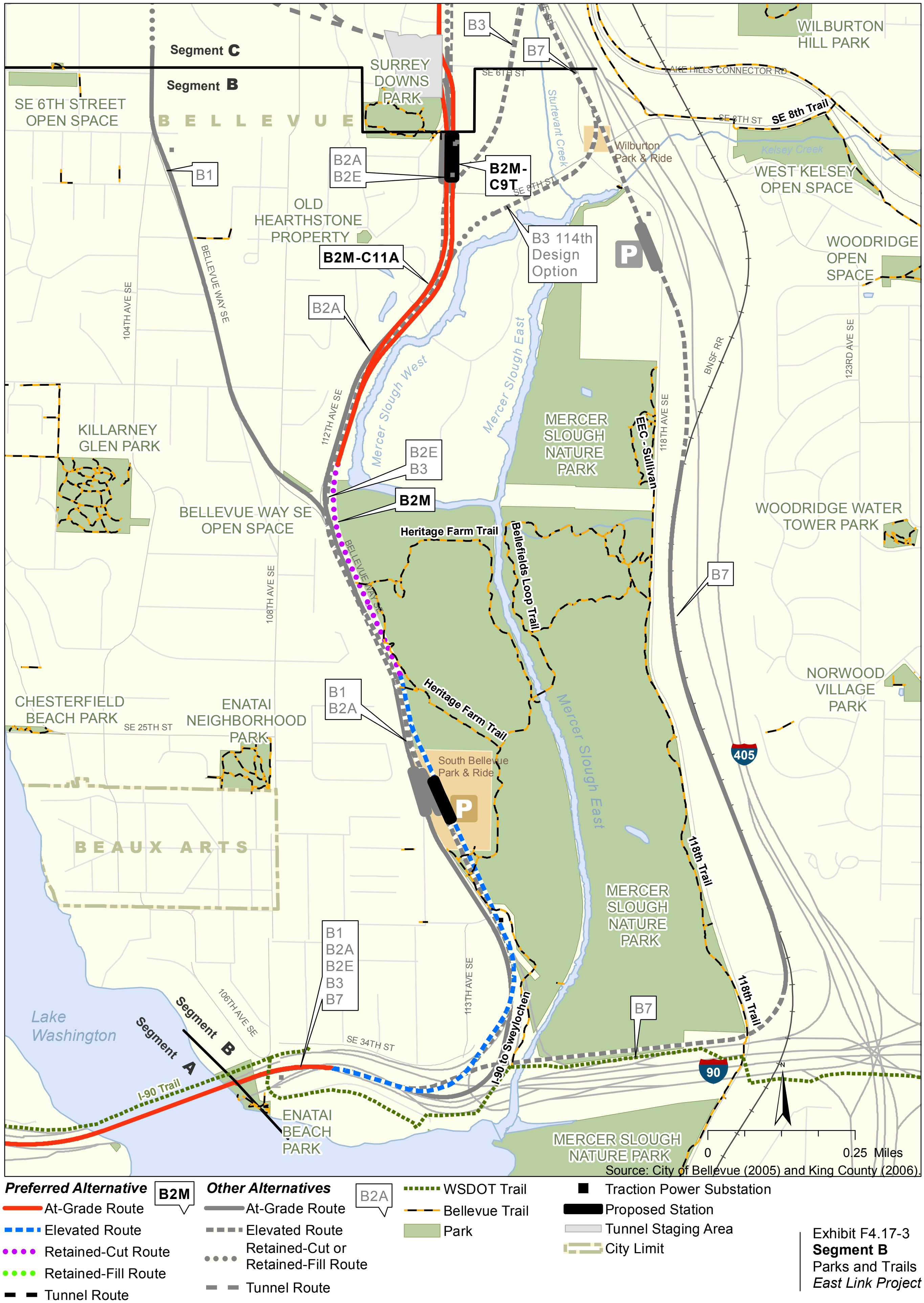
Source: City of Seattle (2002) and King County (2006).

Exhibit F4.17-1
Segment A
Parks and Trails
East Link Project


72ND AVE SE LANDING
ROANOKE LANDING
74TH AVE SE LANDING
ROANOKE PARK
LINCOLN LANDING
SE 20TH ST LANDING
77TH AVE SE LANDING
LUTHER BURBANK PARK
I-90 Trail
90
MERCER ISLAND PARK LID
Mercer Island Park & Ride
Mercer Is United Methodist Church Park & Ride
72ND AVE SE
SECRET PARK
SE 27TH ST
OUTDOOR SCULPTURE PARK
CALKINS LANDING
N MERCERDALE HILLSIDE
80TH AVE SE
SLATER PARK
GARFIELD LANDING
77TH AVE SE
FIRST HILL PARK
BICENTENNIAL PARK
PROCTOR LANDING
UPPER LUTHER BURBANK PARK
FRUITLAND LANDING
A1
Segment B
Segment A
MERCERDALE PARK
SE 36TH ST LANDING
GALLAGHER HILL OS
Mercer Island Presbyterian Church Park & Ride
MERCERDALE HILLSIDE PARK
SE 36TH ST
BOAT LAUNCH
Lake Washington
CLISE PARK
FREEMAN LANDING
HOMESTEAD PARK
SE 40TH ST
SE 40TH ST LANDING
FRANKLIN LANDING
MERCER ISLAND
WSDOT Trail
Bellevue Trail
Park
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
City Limit
N
0
0.25 Miles

Source: City of Mercer Island (2006), City of Bellevue (2005), and King County (2006).

Exhibit F4.17-2
Segment A
Parks and Trails
East Link Project


Segment C
Segment B
SE 6TH STREET OPEN SPACE
BELLEVUE
SURREY DOWNS PARK
B3
B7
SE 6TH ST
LAKE HILLS CONNECTOR RD
WILBURTON HILL PARK
SE 8TH ST
SE 8th Trail
Sturtevant Creek
Wilburton Park & Ride
Kelsey Creek
WEST KELSEY OPEN SPACE
B1
B2A
B2E
B2M-C9T
SE 8TH ST
OLD HEARTHSTONE PROPERTY
B2M-C11A
B3 114th Design Option
WOODRIDGE OPEN SPACE
BELLEVUE WAY SE
104TH AVE SE
B2A
BNSF RR
123RD AVE SE
Mercer Slough West
Mercer Slough East
112TH AVE SE
KILLARNEY GLEN PARK
MERCER SLOUGH NATURE PARK
EEC - Sullivan
118TH AVE SE
B2E
B3
B2M
BELLEVUE WAY SE OPEN SPACE
Heritage Farm Trail
Bellefields Loop Trail
WOODRIDGE WATER TOWER PARK
108TH AVE SE
B7
Heritage Farm Trail
Mercer Slough East
NORWOOD VILLAGE PARK
B1
B2A
CHESTERFIELD BEACH PARK
ENATAI NEIGHBORHOOD PARK
SE 25TH ST
405
South Bellevue Park & Ride
BEAUX ARTS
118th Trail
MERCER SLOUGH NATURE PARK
B1
B2A
B2E
B3
B7
113TH AVE SE
106TH AVE SE
B7
118th Trail
Lake Washington
Segment B
Segment A
SE 34TH ST
I-90 to Sweylochen
I-90 Trail
90
ENATAI BEACH PARK
MERCER SLOUGH NATURE PARK
0
0.25 Miles
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
WSDOT Trail
Bellevue Trail
Park
Traction Power Substation
Proposed Station
Tunnel Staging Area
City Limit

Source: City of Bellevue (2005) and King County (2006).

Exhibit F4.17-3
Segment B
Parks and Trails
East Link Project

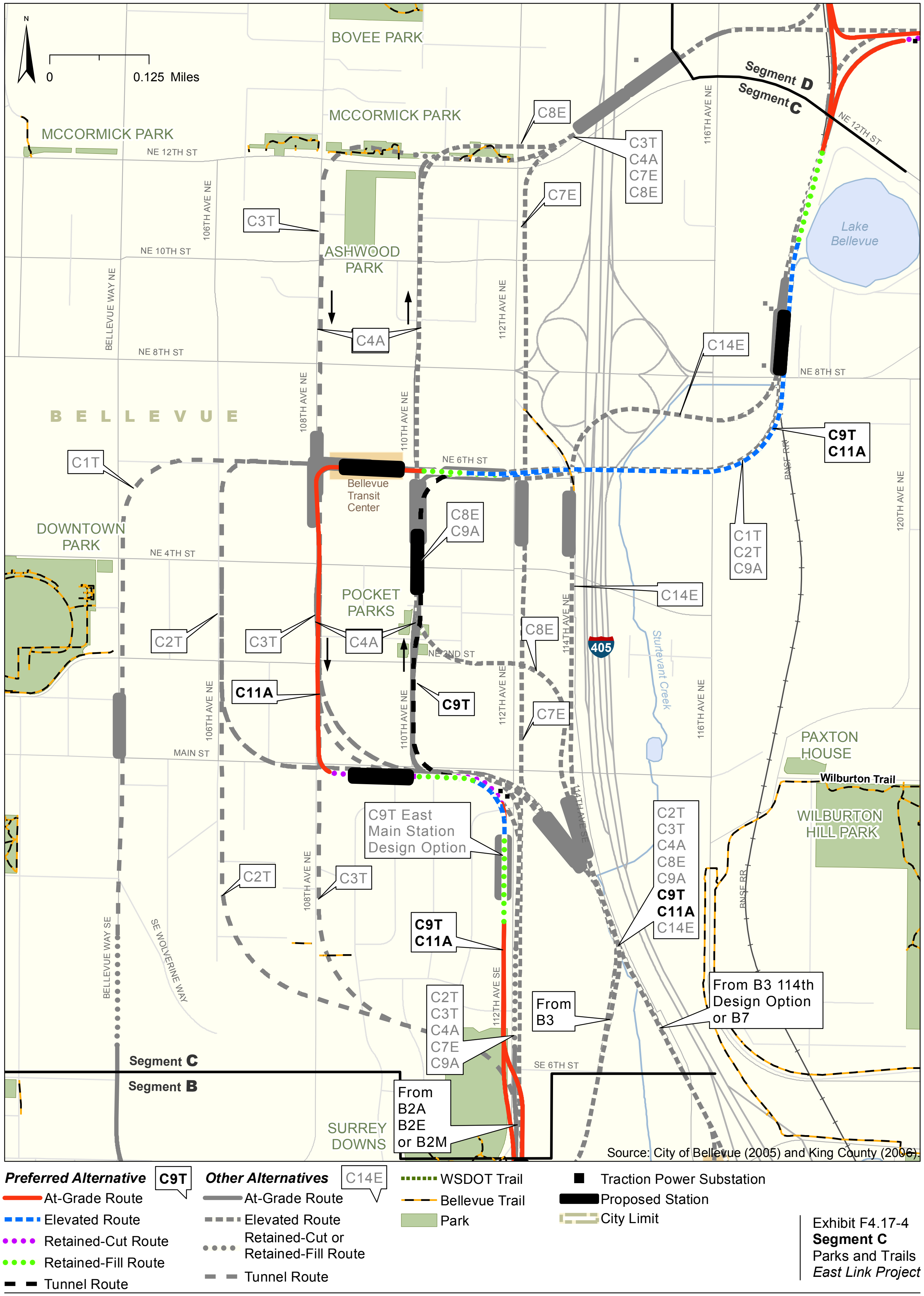
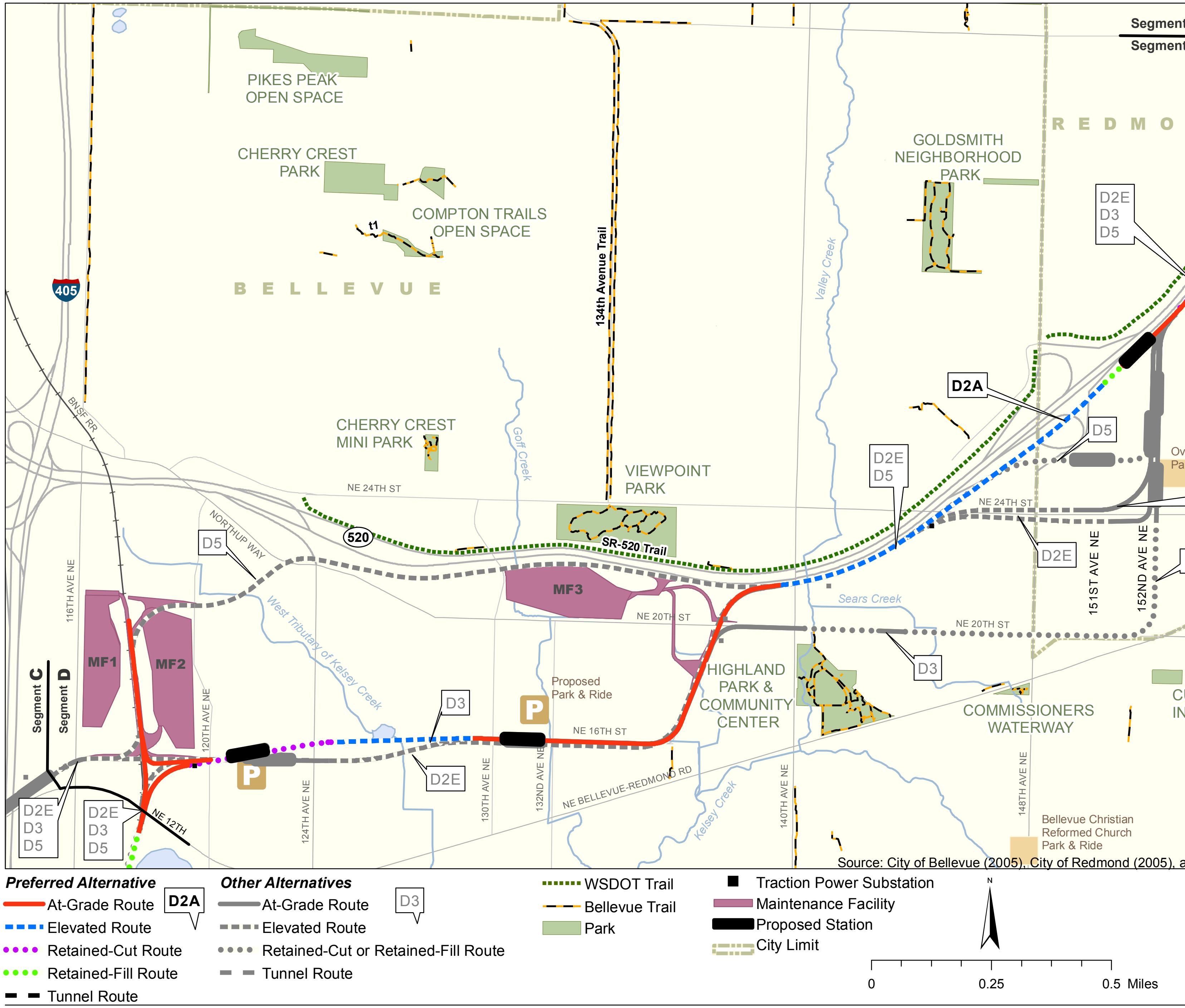
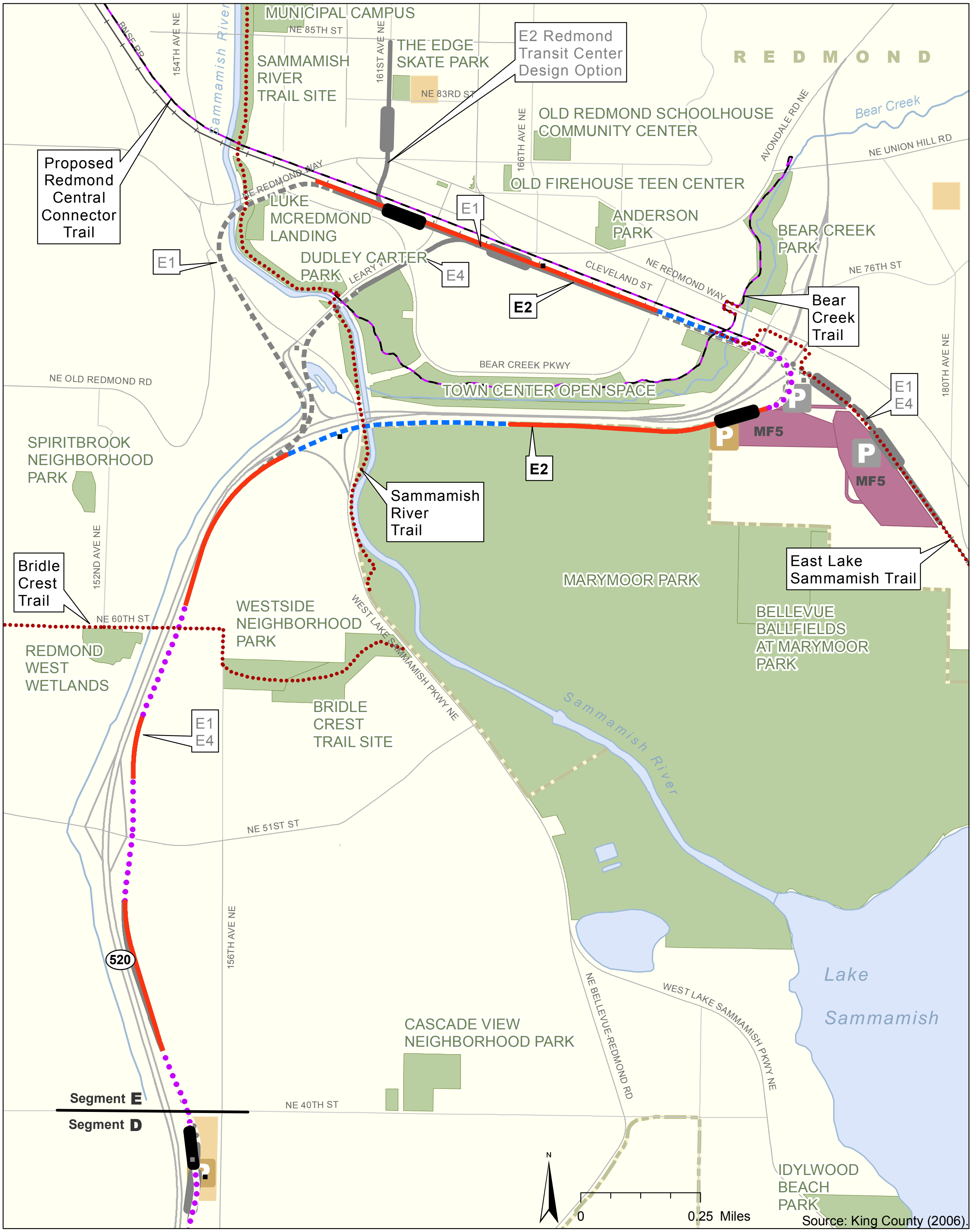

N
0
0.125 Miles
BOVEE PARK
MCCORMICK PARK
MCCORMICK PARK
NE 12TH ST
C8E
C3T
C4A
C7E
C8E
Segment D
Segment C
NE 12TH ST
116TH AVE NE
C7E
C3T
106TH AVE NE
NE 10TH ST
ASHWOOD PARK
Lake Bellevue
BELLEVUE WAY NE
NE 8TH ST
C4A
112TH AVE NE
C14E
NE 8TH ST
108TH AVE NE
110TH AVE NE
BELLEVUE
NE 6TH ST
C9T
C11A
C1T
Bellevue Transit Center
C8E
C9A
DOWNTOWN PARK
NE 4TH ST
C1T
C2T
C9A
BNSF RR
120TH AVE NE
POCKET PARKS
C14E
C2T
C3T
C4A
C8E
114TH AVE NE
405
NE 2ND ST
Sturtevant Creek
C11A
C9T
112TH AVE NE
C7E
106TH AVE NE
110TH AVE NE
116TH AVE NE
MAIN ST
PAXTON HOUSE
Wilburton Trail
WILBURTON HILL PARK
114TH AVE SE
C9T East Main Station Design Option
C2T
C3T
C4A
C8E
C9A
C9T
C11A
C14E
C2T
C3T
108TH AVE NE
BNSF RR
C9T
C11A
BELLEVUE WAY SE
SE WOLVERINE WAY
From B3 114th Design Option or B7
C2T
C3T
C4A
C7E
C9A
112TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
From B2A B2E or B2M
SURREY DOWNS
Source: City of Bellevue (2005) and King County (2006)
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C14E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
WSDOT Trail
Bellevue Trail
Park
Traction Power Substation
Proposed Station
City Limit

Exhibit F4.17-4
Segment C
Parks and Trails
East Link Project


Segment E
Segment D
SR-520 Trail
Overlake Transit Center
REDMOND
GOLDSMITH NEIGHBORHOOD PARK
PIKES PEAK OPEN SPACE
CHERRY CREST PARK
COMPTON TRAILS OPEN SPACE
t1
BELLEVUE
405
134th Avenue Trail
Valley Creek
520
D2E
D3
D5
D2A
D5
CHERRY CREST MINI PARK
Goff Creek
VIEWPOINT PARK
D2E
D5
Overlake Park & Ride
NE 24TH ST
NE 24TH ST
D2A NE 24th Design Option
BNSF RR
NORTHUP WAY
D5
520
SR-520 Trail
D2E
151ST AVE NE
152ND AVE NE
D3
156TH AVE NE
156TH AVE NE
MF3
NE 20TH ST
Sears Creek
NE 20TH ST
NE 20TH ST
116TH AVE NE
MF1
MF2
West Tributary of Kelsey Creek
D3
HIGHLAND PARK & COMMUNITY CENTER
Proposed Park & Ride
P
D3
COMMISSIONERS WATERWAY
CUSTOM INDUSTRIES
Segment C
Segment D
120TH AVE NE
NE 16TH ST
D2E
130TH AVE NE
132ND AVE NE
NE BELLEVUE-REDMOND RD
Kelsey Creek
140TH AVE NE
148TH AVE NE
124TH AVE NE
P
NE 12TH
D2E
D3
D5
D2E
D3
D5
Bellevue Christian Reformed Church Park & Ride
Preferred Alternative
D2A
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
D3
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
WSDOT Trail
Bellevue Trail
Park
Traction Power Substation
Maintenance Facility
Proposed Station
City Limit
N
0
0.25
0.5 Miles

Source: City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Exhibit F4.17-5
Segment D
Parks and Trails
East Link Project



MUNICIPAL CAMPUS
NE 85TH ST
THE EDGE SKATE PARK
SAMMAMISH RIVER TRAIL SITE
E2 Redmond Transit Center Design Option
R E D M O N D
NE 83RD ST
161ST AVE NE
154TH AVE NE
BNSF RR
Sammamish River
OLD REDMOND SCHOOLHOUSE COMMUNITY CENTER
Bear Creek
NE UNION HILL RD
AVONDALE RD NE
166TH AVE NE
Proposed Redmond Central Connector Trail
OLD FIREHOUSE TEEN CENTER
NE REDMOND WAY
LUKE MCREDMOND LANDING
E1
ANDERSON PARK
BEAR CREEK PARK
DUDLEY CARTER PARK
LEARY WAY
E4
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
E2
Bear Creek Trail
180TH AVE NE
BEAR CREEK PKWY
NE OLD REDMOND RD
TOWN CENTER OPEN SPACE
E1
E4
MF5
MF5
P
P
P
E2
SPIRITBROOK NEIGHBORHOOD PARK
Sammamish River Trail
152ND AVE NE
Bridle Crest Trail
MARYMOOR PARK
East Lake Sammamish Trail
NE 60TH ST
WESTSIDE NEIGHBORHOOD PARK
WEST LAKE SAMMAMISH PKWY NE
BELLEVUE BALLFIELDS AT MARYMOOR PARK
REDMOND WEST WETLANDS
BRIDLE CREST TRAIL SITE
E1
E4
Sammamish River
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
WEST LAKE SAMMAMISH PKWY NE
NE BELLEVUE-REDMOND RD
CASCADE VIEW NEIGHBORHOOD PARK
Segment E
Segment D
NE 40TH ST
N
0
0.25 Miles
IDYLWOOD BEACH PARK

Source: King County (2006).

Preferred Alternative E2	*Other Alternatives* E1		
At-Grade Route	At-Grade Route	King County Trail	Traction Power Substation
Elevated Route	Elevated Route	Redmond Trail	Proposed Station
Retained-Cut Route	Retained-Cut or Retained-Fill Route	Park	Maintenance Facility
Retained-Fill Route			City Limits
Tunnel Route	Tunnel Route		

Exhibit F4.17-6
Segment E
Parks and Trails
East Link Project

Appendix F5

Reasonably Foreseeable Future Actions in Study Area

TABLE F5-1
Reasonably Foreseeable Future Actions in Study Area

Name of Project (Sponsor)	Description	Expected Start Date or Status	Identified Environmental Impacts
WSDOT			
I-90 Two-Way Transit and HOV Operations (WSDOT and Sound Transit)	The project will provide full-time HOV lanes for eastbound and westbound traffic on the outer I-90 roadways and will retain the existing reversible lane operations in the center roadway (implementation of Alternative R-8A).	Stage 1: complete Stage 2: under construction (2010 through 2012) Stage 3; design (2008 through 2011), construction (2012 through 2014)	Hazardous materials, construction impacts, water resources
SR 520 Bridge Replacement and HOV Project (WSDOT)	This project will improve access and mobility from Seattle to Redmond.	Environmental documentation underway 2011 construction start	Parks, historic resources, Section 4(f), water resources, wetlands, fisheries, wildlife hazardous materials, visual
I-405 NE 8th Street to SR 520 Braided Crossing (WSDOT)	This project will construct new structures to separate northbound traffic exiting to SR 520 from traffic entering I-405 in Bellevue. The project also adds a new eastbound collector distributor lane along SR 520 to separate the on- and off-ramps between I-405 and 124th Avenue NE traffic and a new on ramp at NE 10th Street to SR 520.	Under construction	None after mitigation
Sound Transit			
ST2	Extends Link light rail to the north, south, and east and increases Express Regional bus service and Sounder commuter rail service.	Ongoing, commenced in 2009	Project specific impacts to be determined
City of Mercer Island			
Town Center District Plan	This project supports the development of the Town Center District as the primary urban center for Mercer Island.	Currently being implemented	Minor impacts related to redevelopment of existing urban property
Mercer Island Private Development Projects			
Aviara	2441 76th Avenue SE; 14,100 square feet commercial 165 units	In review	Discussed under Town Center District Plan
City of Bellevue			
Downtown Implementation and Subarea Plan	This project supports the development of downtown Bellevue as the primary urban center of the Eastside; for related development,	Document completed 2006, to be implemented	Hazardous materials, right-of-way, utilities, wetlands, wildlife, and visual
Bel-Red Corridor Project	The proposed action is the adoption of amendments to various city planning documents to designate new land uses and identify supporting transportation improvements for redevelopment of the Bel-Red Corridor.	Plan adopted February 2009	Hazardous materials, right-of-way, public services, utilities, visual, and construction
Surrey Downs Park Master Plan	Will redesign Surrey Downs Park to better serve the neighborhood. The master plan will represent a long-term vision for the park, guiding redevelopment by identifying opportunities and constraints	Environmental review process complete, SEPA Determination of Non-significance issued January 2009, Master Plan adopted March 2009	Visual, construction, utilities

TABLE F5-1 CONTINUED
Reasonably Foreseeable Future Actions in Study Area

Name of Project (Sponsor)	Description	Expected Start Date or Status	Identified Environmental Impacts
Bellevue Private Development Projects[a]			
The Spring District	36-acre mixed-use neighborhood in Bel-Red area 4-million-square-foot office 1,000 multifamily residences 16-acre open space	Conceptual	
The Summit Building C	320 108th Avenue NE 300,000-square-foot office	In review	Discussed under Downtown Implementation Plan
Legacy Apartments/Legacy Tower	200 106th Avenue NE 250 apartments 11,000-square-foot retail	Completed	Discussed under Downtown Implementation Plan
Pacific Regent Phase II	919 109th Avenue NE Senior housing, 168 units	In review	Discussed under Downtown Implementation Plan
Bellevue Park Hotel	25 102nd Avenue NE 9 stories, 100 hotel rooms	In review	
Park Metro	11017 NE 12th Street 75 residential units	In review	
Bellevue Library (parking structure)	1111 110th Avenue NE 3-level parking structure (250 stalls, 108,000 square feet)	In review	
Lincoln Square Expansion	410 Bellevue Way NE 120 hotel rooms 200 condominiums 545,000-square-foot office 392,000-square-foot retail	In review	
SOMA Towers Phase I	200106th Avenue NE 2 towers 266 residential units 35,000-square-foot retail 4,000-square-foot office	In review	
Tateuchi Center	855 106th Avenue NE 2,000-seat performance hall	In review	
Vida Condominiums	11011 NE 9th Street 241 residential units 8,000-square-foot retail	Design review	
Temporary Bank of America	10825 NE 2nd Street 5,760-square-foot office	Design review	
LIHI Bellevue Commons	204 111th Avenue NE	Preliminary planning stages for housing, no permits applied for	
8th Street Office Highrise	10833 NE 8th Street 800,000-square-foot office 10,000-square-foot retail	Design review	

TABLE F5-1 CONTINUED
Reasonably Foreseeable Future Actions in Study Area

Name of Project (Sponsor)	Description	Expected Start Date or Status	Identified Environmental Impacts
Hanover Bellevue Cadillac	1001 106th Avenue NE 2 towers 295 residential units 818,000-square-foot retail	Completed	None after mitigation
Baker Main/SU Development	10703 Main Street 73 residential units 1,400-square-foot retail	Under construction	None after mitigation
Marriott Hotel	200 110th Ave NE 376 rooms 7,500 square foot restaurant	In review	
Bellevue Park Apartments	10203 NE 1st Street	Preliminary planning stages for Housing First	
City of Redmond			
Downtown Redmond Way Stormwater Trunk	Installation of new stormwater utility along portions of the former BNSF Railway Corridor.	Construction expected to start Summer 2011	Utilities
161st Street Extension	161st Avenue NE Extension from Bear Creek Parkway to Redmond Way	Under construction	None after mitigation
Redmond Central Connector Master Plan	Connector trail in the former BNSF Railway right-of-way with adjacent parks. The approximate 1.75-mile trail would connect with the East Lake Sammamish Trail.	Adopted trail 2004, in the planning stages, Final Master Plan and SEPA review due for council adoption June, 2011, implementation 2012 through 2025	None after mitigation
Overlake Neighborhood Plan Update and Implementation (Redmond)	The updated Overlake Neighborhood Plan includes land use changes and public investments for the Overlake Neighborhood through 2030.	Plan approved in 2007, implementation ongoing	Utilities, water resources, wetlands, and visual
Redmond Downtown Neighborhood Plan	The Downtown Neighborhood Plan includes land use changes and public investment for the Downtown Neighborhood through 2022.	Plan approved in 2006, implementation ongoing	Transportation, utilities, water resources, wetlands, and visual
Redmond Private Development Projects			
Microsoft Expansion (Microsoft/Redmond)	Microsoft is expanding its Redmond Campus to include an additional 3.1 million square feet of new office to accommodate an additional roughly 12,000 employees.	Under construction	Minor impacts related to redevelopment of existing urban property
Microsoft Building 83	4480 154th Place NE 4-story, 313,790-square-foot office building	Construction on hold (as of August 2010)	
Overlake Design District Master Plan	1.17 million square feet of office 35,000 square feet of retail 182,000 square feet of hotel 1.4 million square feet of residential	Pre-application review process Fall 2010 Master Plan and Development Agreement anticipated submitted winter 2010/2011 City Council review anticipated in spring 2011	
Cleveland Street East	16095 Cleveland Street 115 condos with retail 6-story mixed-use building	Under construction (as of August 2010)	Minor impacts related to redevelopment of existing urban property

TABLE F5-1 CONTINUED
Reasonably Foreseeable Future Actions in Study Area

Name of Project (Sponsor)	Description	Expected Start Date or Status	Identified Environmental Impacts
Center Pointe	130 condos 15,000 square feet of retail	In review	Minor impacts related to redevelopment of existing urban property
Tudor Manor	8385 166th Avenue NE 9 townhouses	Project on hold (as of June 2010)	Minor impacts related to redevelopment of existing urban property
Perrigo Park	8310 165th Avenue NE 15 condos	Construction on hold (as of June 2010)	Minor impacts related to redevelopment of existing urban property
Redmond Court	21 townhomes	Under construction	Minor impacts related to redevelopment of existing urban property
Redmond Way East & West	16025 Cleveland Street and 15955 Redmond Way Center 250 residential units 11,000 square feet of retail	Under construction	
Penny Lane Townhomes	7950 170th Avenue NE 3-story townhomes	Under review Project on hold (as of June 2010)	
The Stelvio	15815 Bear Creek Parkway 6-story mixed-use building	Under review	
Old Town Mixed Use	16161 Cleveland Street 150 residential units 8,000 square feet retail	Under review	
Gabelein Apartments	17150 Avondale Way 4 2-story townhome-style apartments	Project on hold	
Park Place Apartments	7805 170th Place NE 66 apartments	Under construction (as of August 2010)	Minor impacts related to redevelopment of existing urban property
Joint City of Bellevue/City of Redmond			
Bellevue/Redmond Overlake Transportation Study (BROTS) (Bellevue/Redmond)	The objective of BROTS is to jointly manage land use and traffic congestion in the Overlake neighborhood and Bel-Red Corridor.	Ongoing; adoption of successor agreement initially targeted for 2008. As of December 2010 this has not occurred.	N/A
King County			
North Mercer-Enatai Interceptors	Planning Phase	2012 – 2030	To be determined
Brightwater Reclaimed Water Pipeline	Regional Wastewater Treatment Plant	Under construction	Water resources, geology, wetlands, parks, energy, construction

[a] Expected start dates for Bellevue private development projects (excluding the Spring District) sources include Downtown Bellevue Major Project List (3rd quarter 2009 and 4th quarter 2010) and Downtown Bellevue Development Pipeline: 2007-2013. The Spring District start date is unknown at this time.

FINAL EIS

EAST LINK PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

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SOUNDTRANSIT

SEATTLE
MERCER ISLAND
BELLEVUE
OVERLAKE
REDMOND

Maps and Drawings

Appendix G1 Conceptual Design Drawings by Alternative

SOUNDTRANSIT
CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State
Department of Transportation

U.S. Department of Transportation
Federal Transit
Administration

July 2011

Appendix G1

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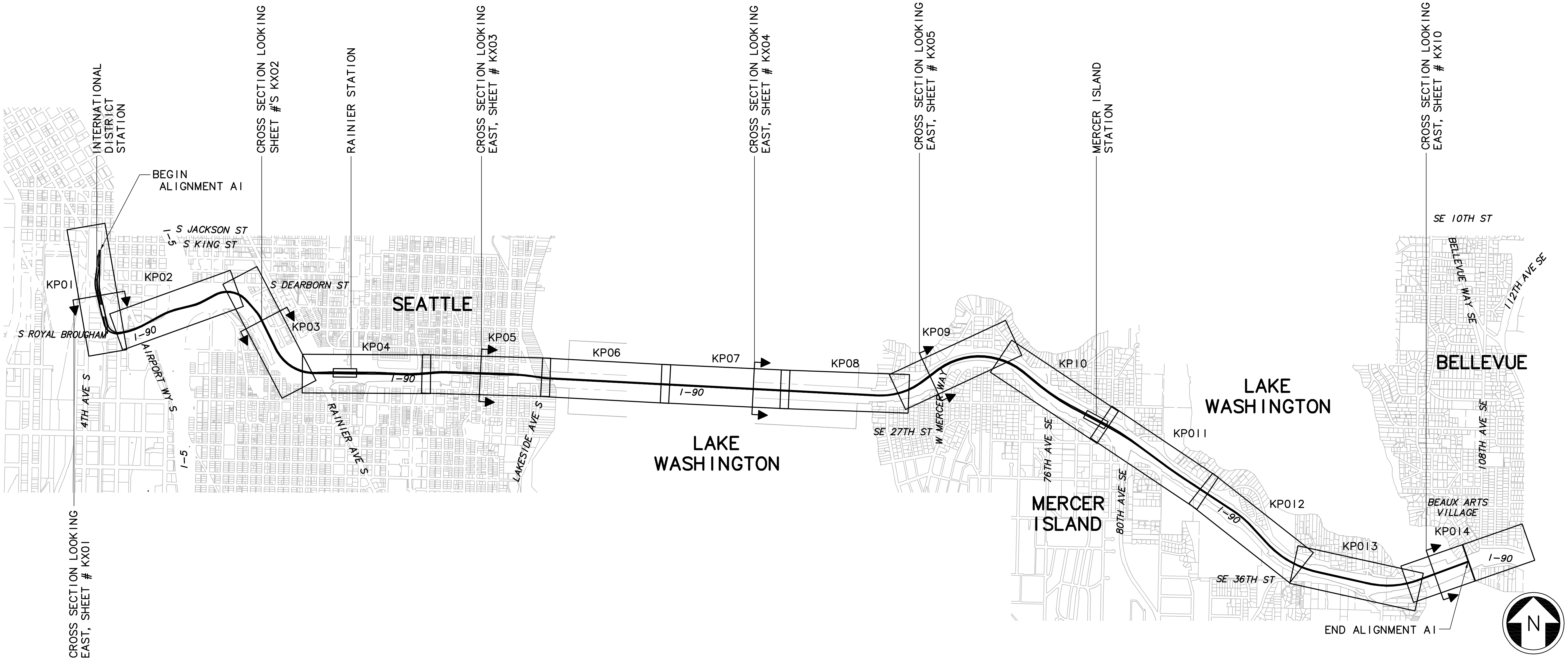
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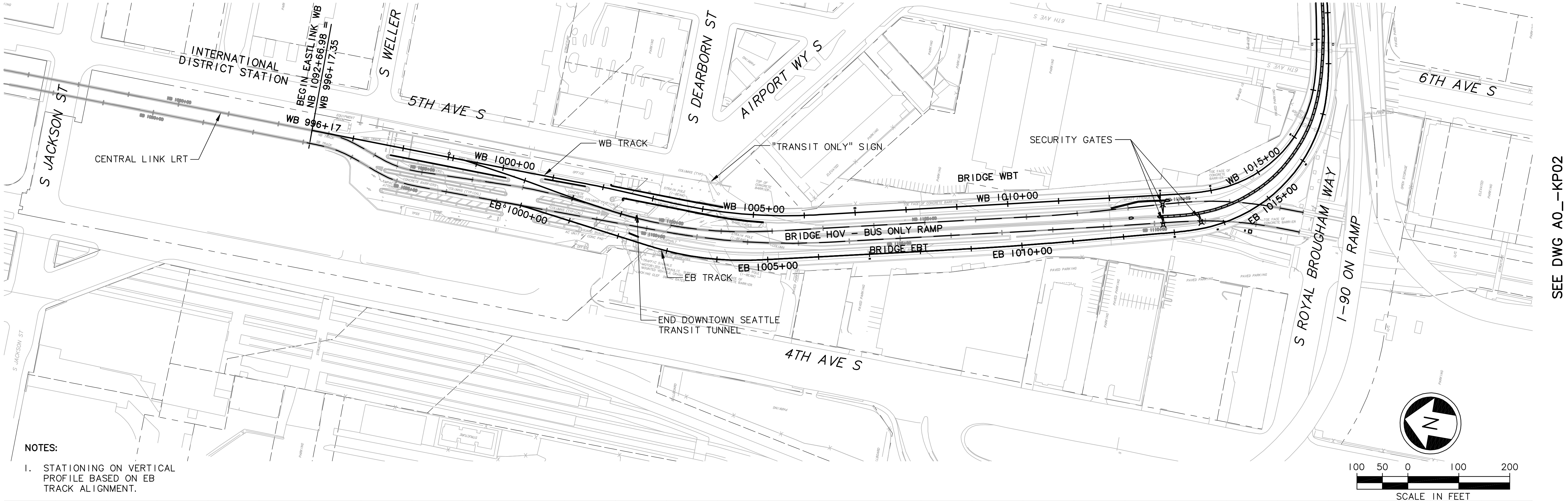
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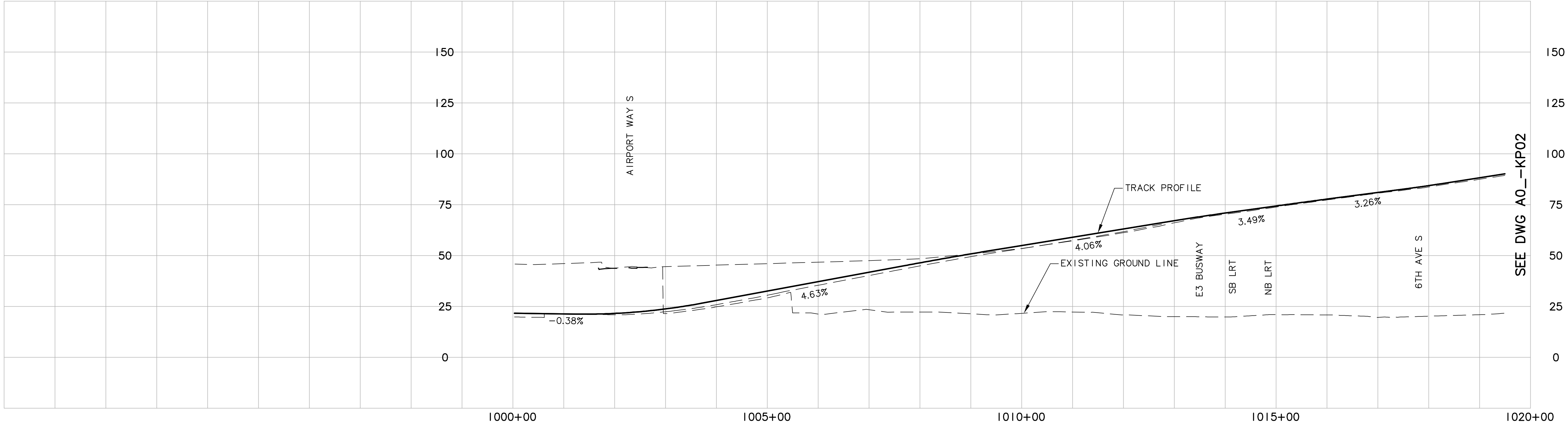

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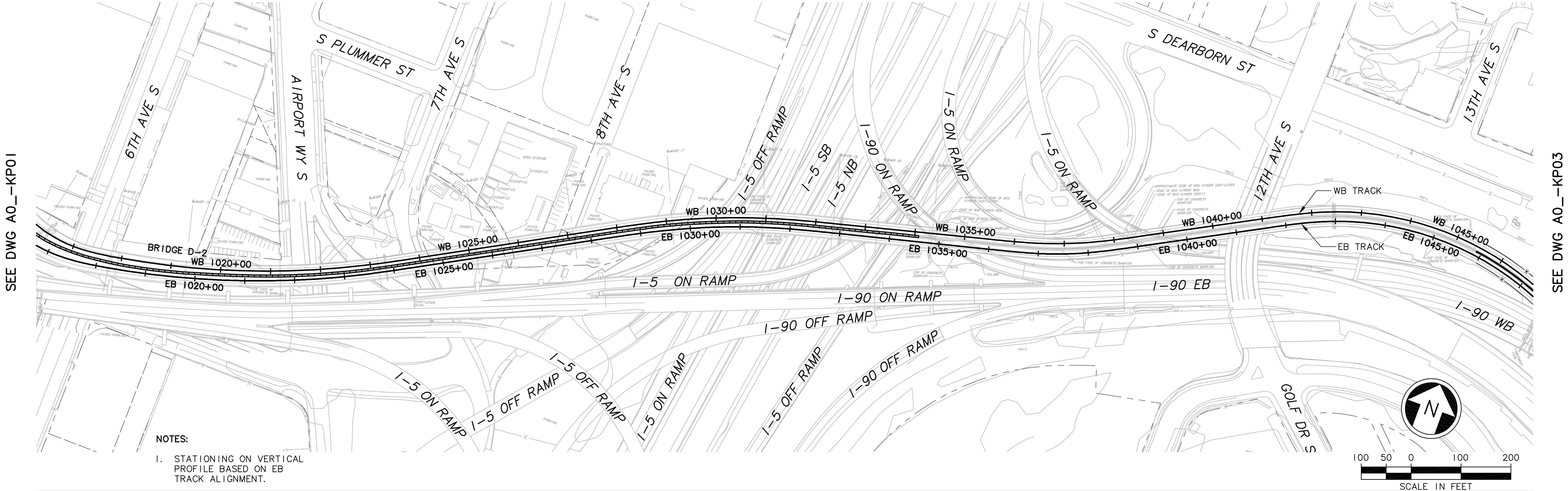
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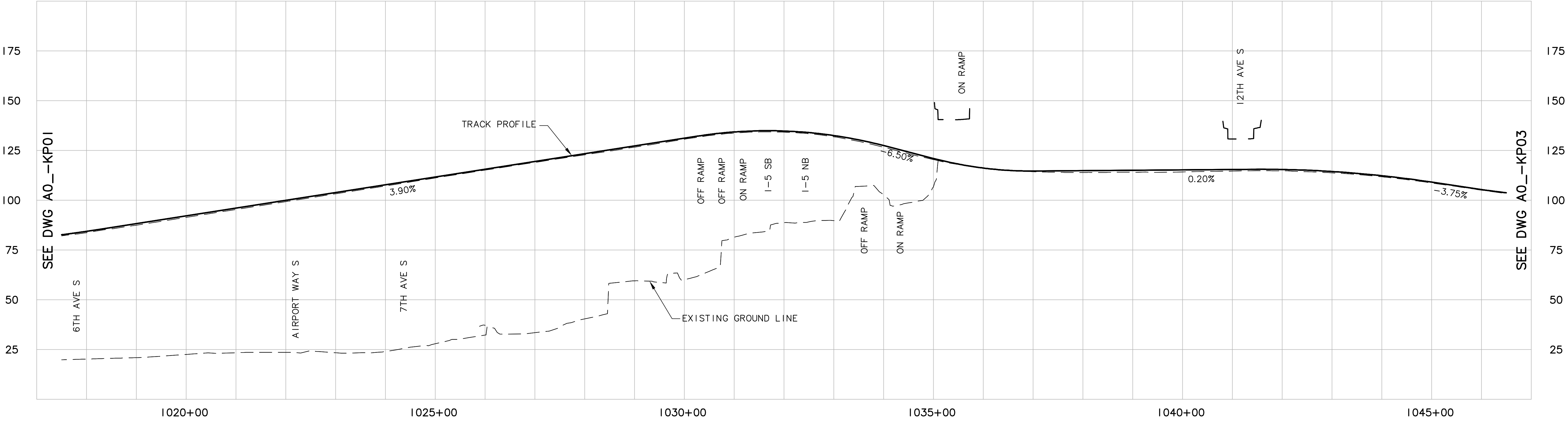

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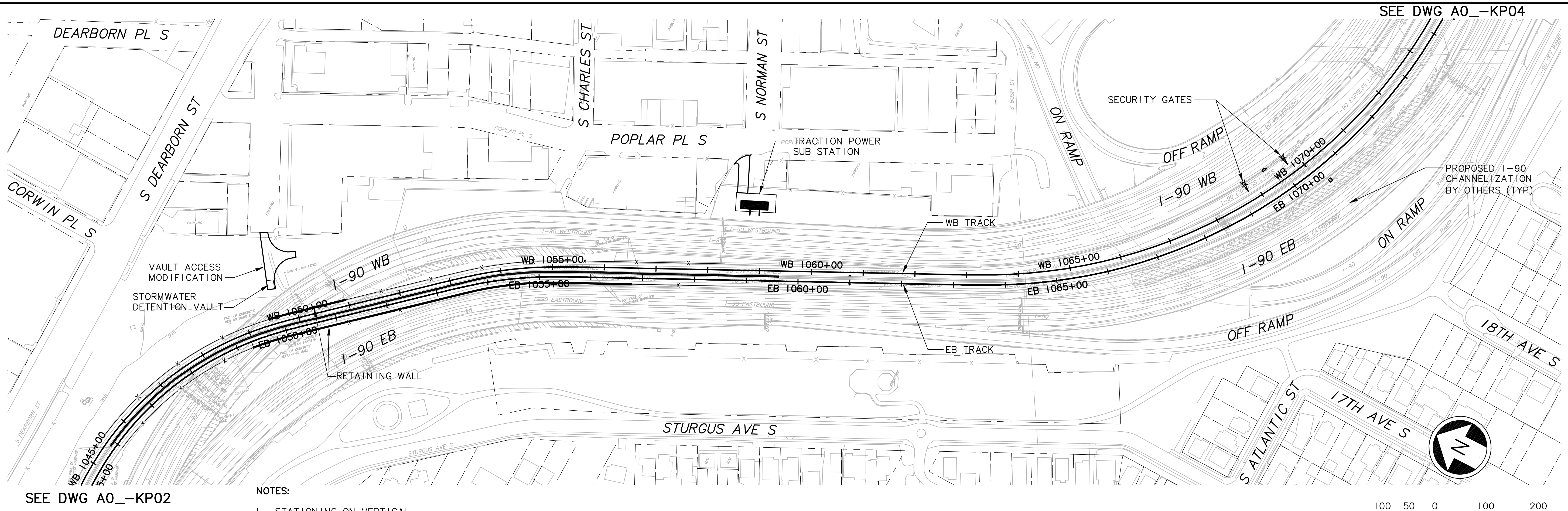
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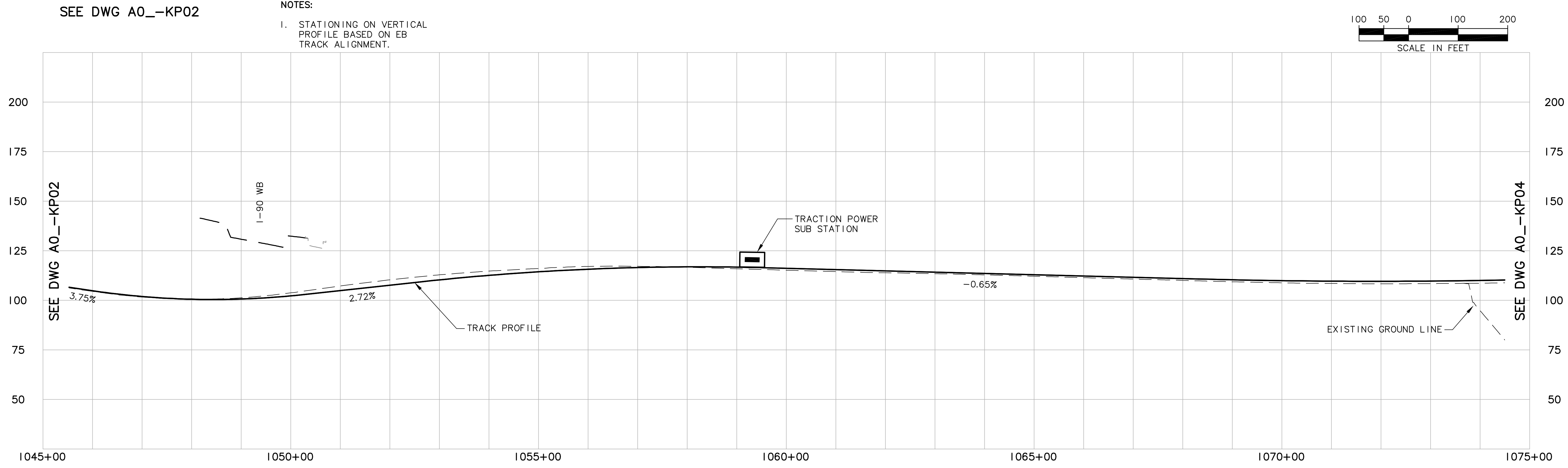

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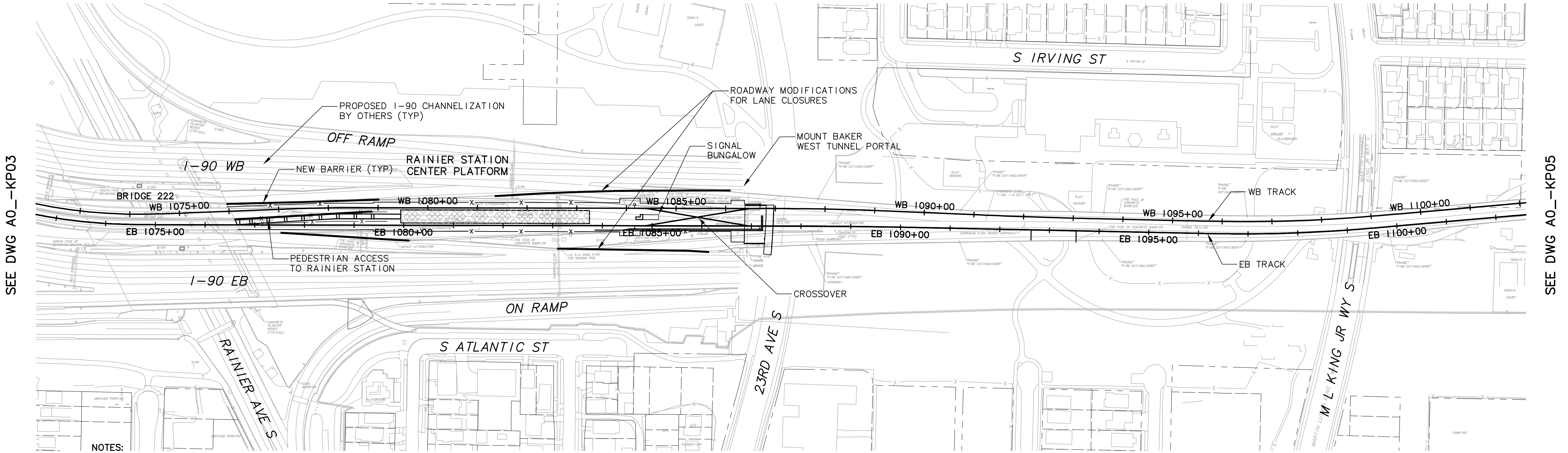
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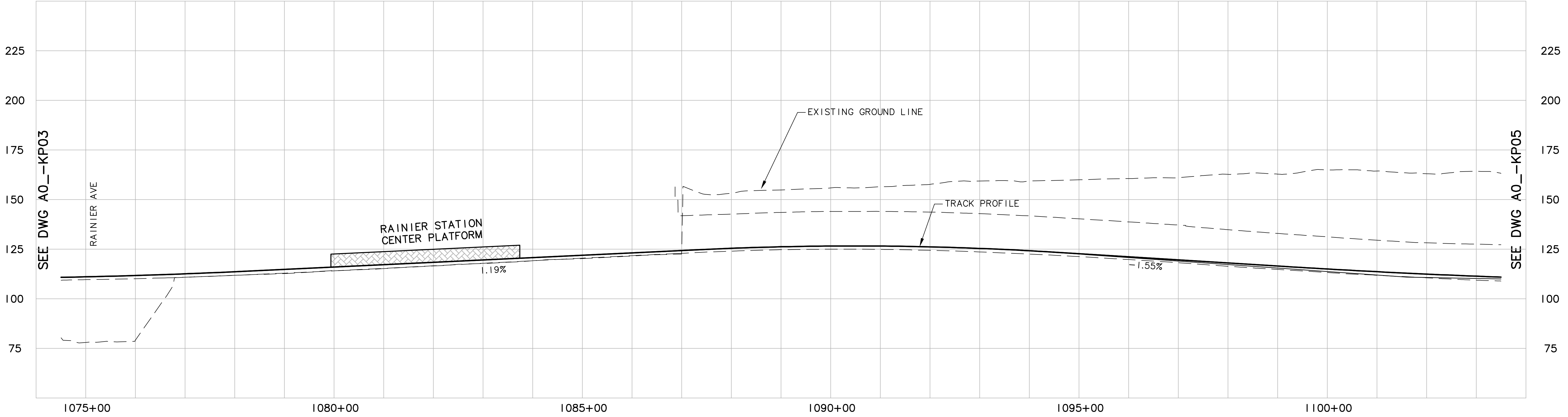

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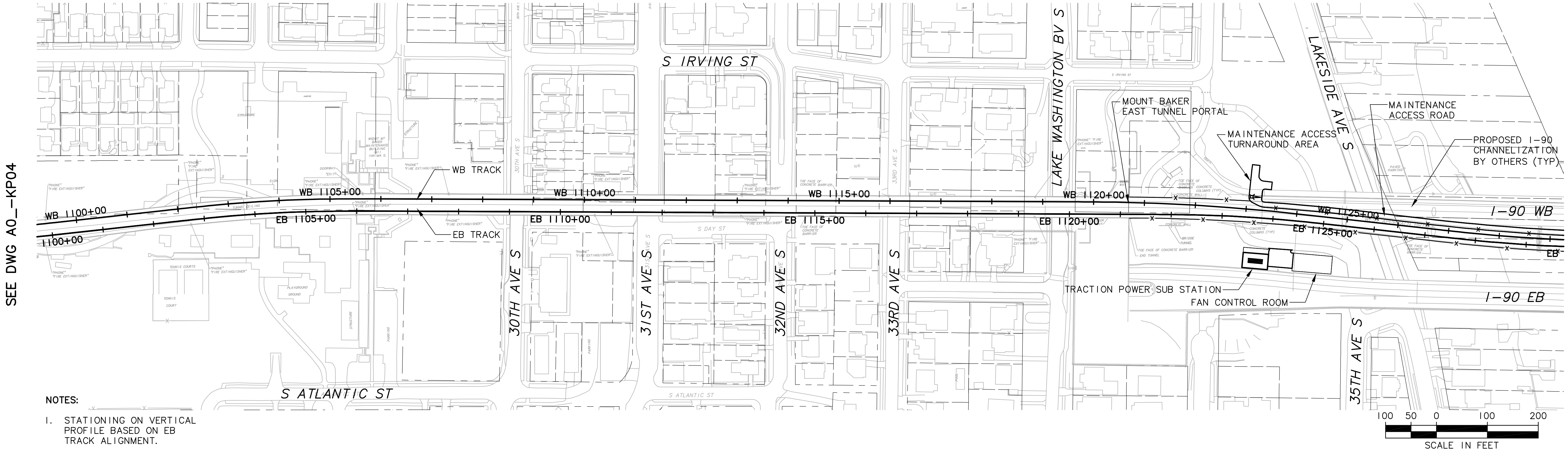

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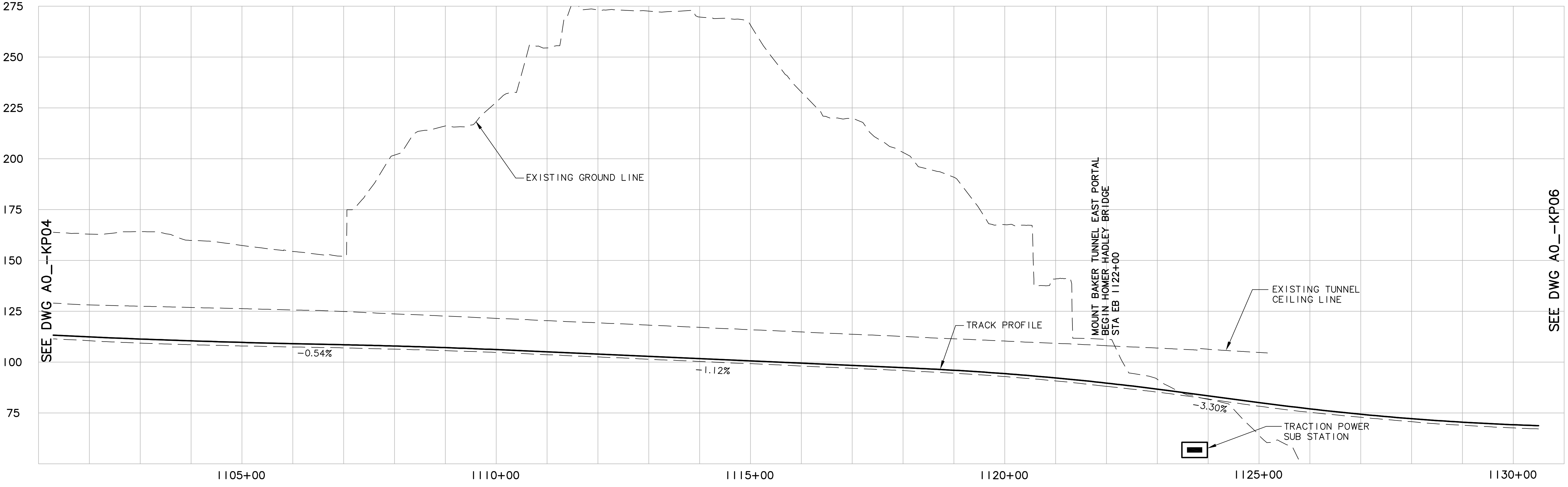
TRACTION POWER SUB STATION
FAN CONTROL ROOM
SEE DWG A0_-KP06
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
Approved By:

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INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

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Submitted:
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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELA__1A0_KP05.dwg
Contract No.:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A

ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.:
1A0_-KP05

Sheet No.: A-6
Rev.:

c:\work\feis\ELA__1A0_KP05.dwg
02/23/11 15:36 : bolimaf OE6579

DWG INFO:

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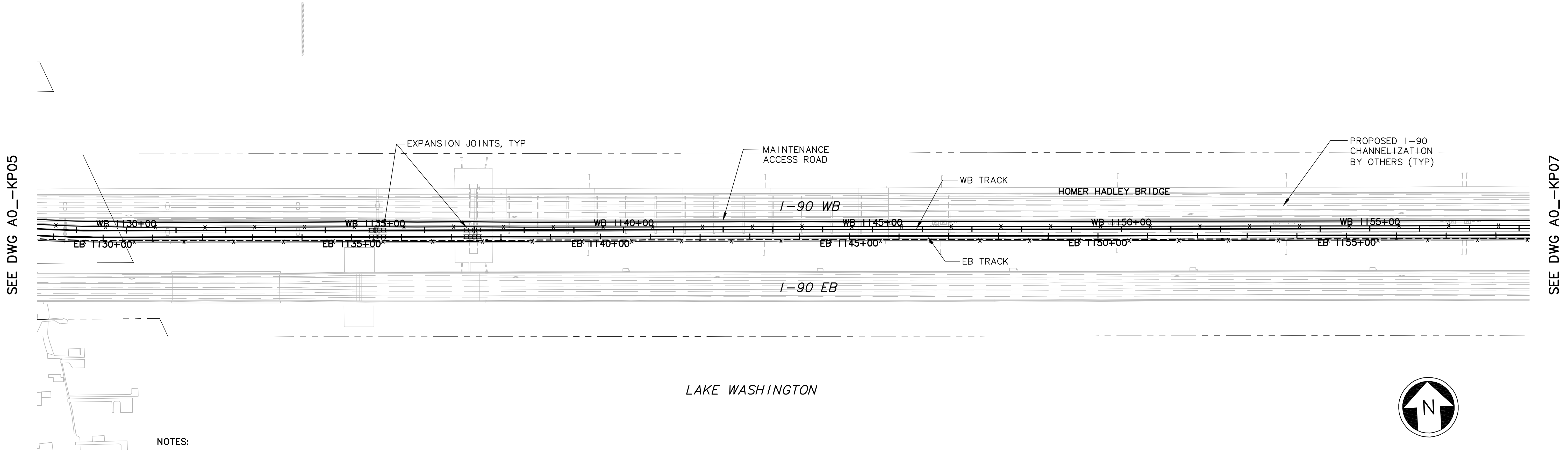
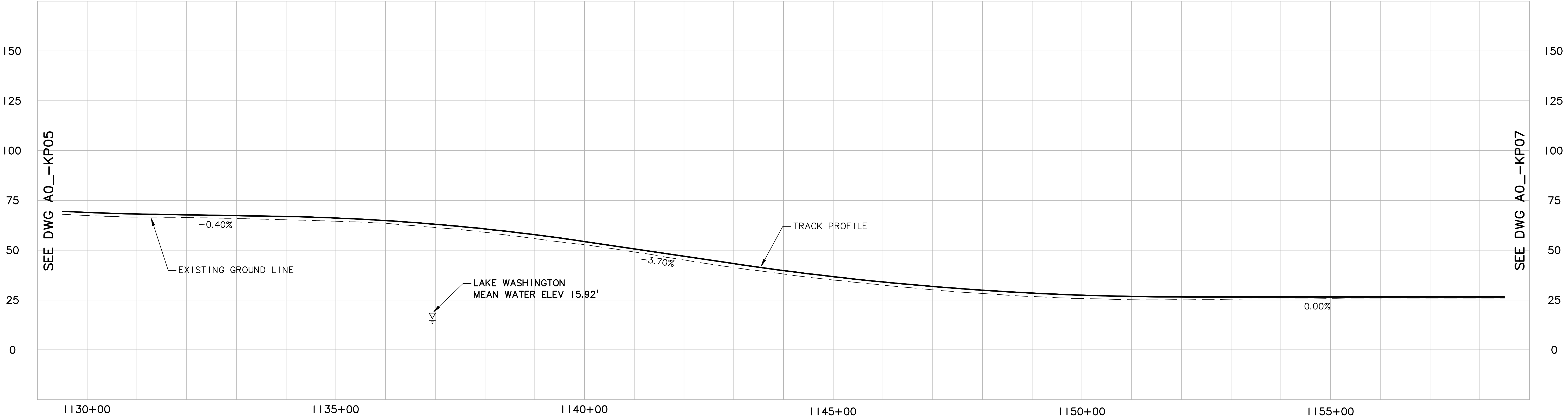


SEE DWG A0_-KP05
EXPANSION JOINTS, TYP
MAINTENANCE ACCESS ROAD
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
WB TRACK
HOMER HADLEY BRIDGE
I-90 WB
WB 1130+00
WB 1135+00
WB 1140+00
WB 1145+00
WB 1150+00
WB 1155+00
EB 1130+00
EB 1135+00
EB 1140+00
EB 1145+00
EB 1150+00
EB 1155+00
EB TRACK
I-90 EB
LAKE WASHINGTON
N
100 50 0 100 200
SCALE IN FEET
SEE DWG A0_-KP07

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



c:\work\feis\ELA__1A0_KP06.dwg
02/23/11 15:37 : bolimaf OE6579

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Filename: ELA__1A0_KP06.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.: 1A0_-KP06
Sheet No.: A-7
Rev.:

DWG INFO:

LTSCALE:
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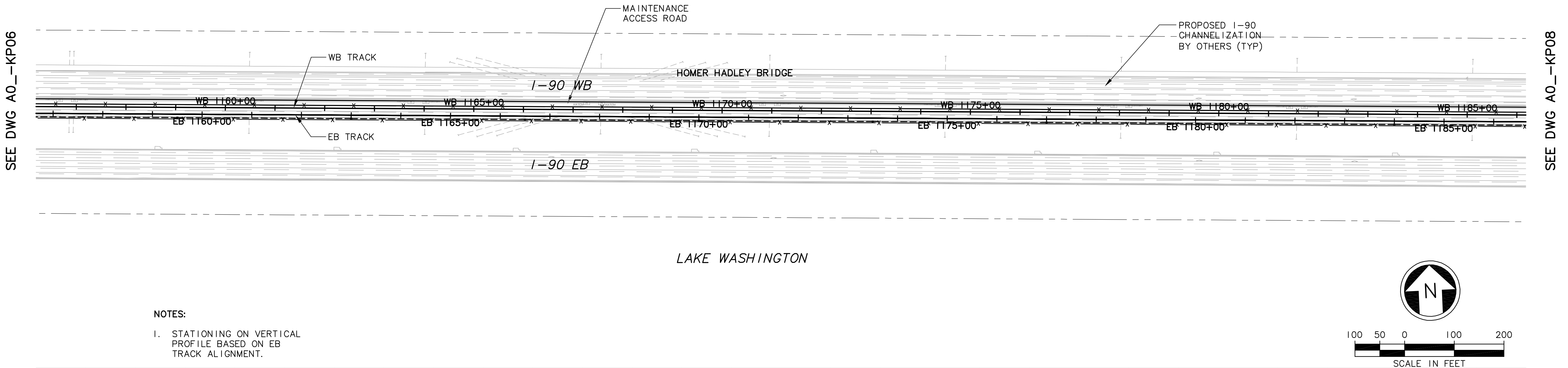
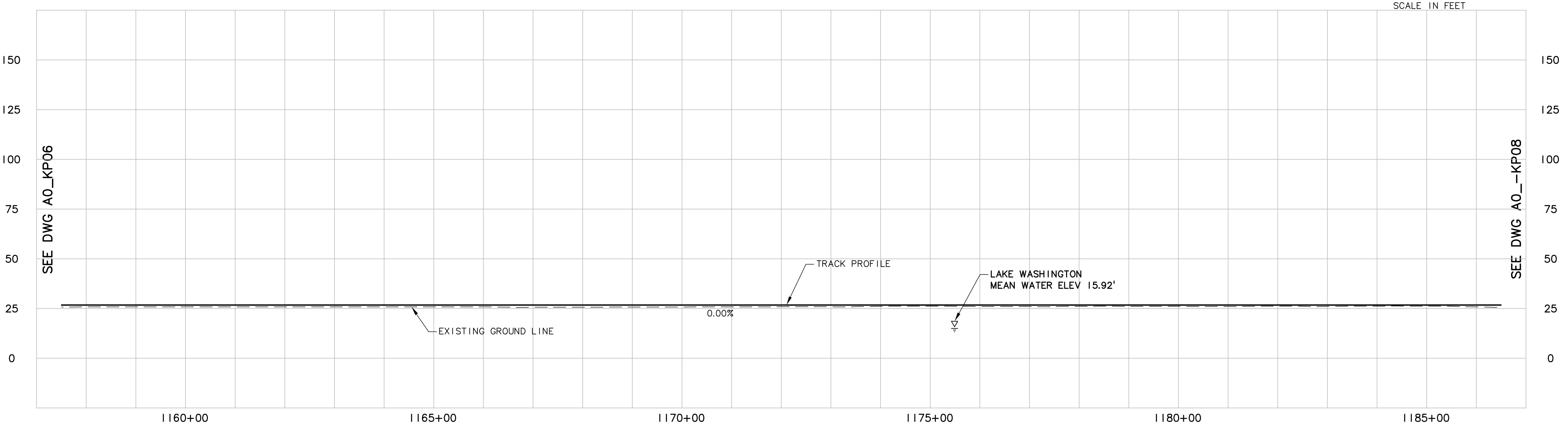


SEE DWG A0_-KP06
MAINTENANCE ACCESS ROAD
WB TRACK
HOMER HADLEY BRIDGE
I-90 WB
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
WB 1160+00
WB 1165+00
WB 1170+00
WB 1175+00
WB 1180+00
WB 1185+00
EB 1160+00
EB 1165+00
EB 1170+00
EB 1175+00
EB 1180+00
EB 1185+00
EB TRACK
I-90 EB
SEE DWG A0_-KP08
LAKE WASHINGTON
N
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



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Filename: ELA__1A0_KP07.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A

ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.: 1A0_-KP07
Sheet No.: A-8
Rev.:

DWG INFO:

LTSCALE:
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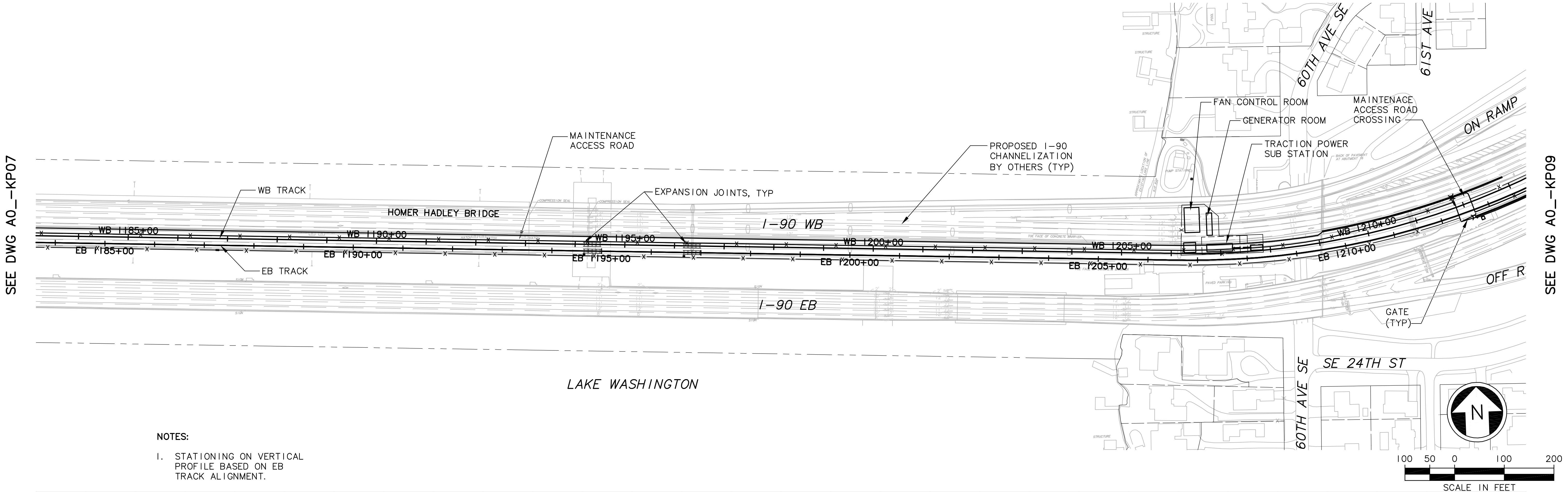
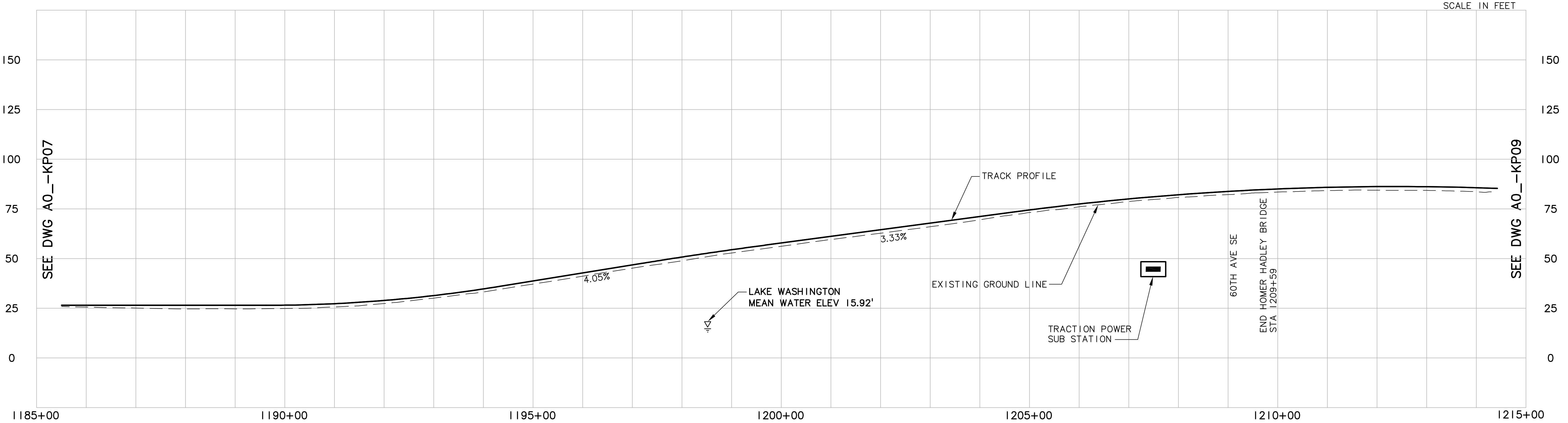


SEE DWG A0_-KP07
MAINTENANCE ACCESS ROAD
WB TRACK
EXPANSION JOINTS, TYP
HOMER HADLEY BRIDGE
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
I-90 WB
WB 1185+00
WB 1190+00
WB 1195+00
WB 1200+00
WB 1205+00
WB 1210+00
EB 1185+00
EB 1190+00
EB 1195+00
EB 1200+00
EB 1205+00
EB 1210+00
EB TRACK
I-90 EB
LAKE WASHINGTON
FAN CONTROL ROOM
GENERATOR ROOM
TRACTION POWER SUB STATION
MAINTENACE ACCESS ROAD CROSSING
60TH AVE SE
61ST AVE
ON RAMP
OFF R
GATE (TYP)
SE 24TH ST
60TH AVE SE
N
100 50 0 100 200
SCALE IN FEET
SEE DWG A0_-KP09

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A

ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.:
1A0_-KP08

Sheet No.: Rev.:
A-9

DWG INFO:

LTSCALE:
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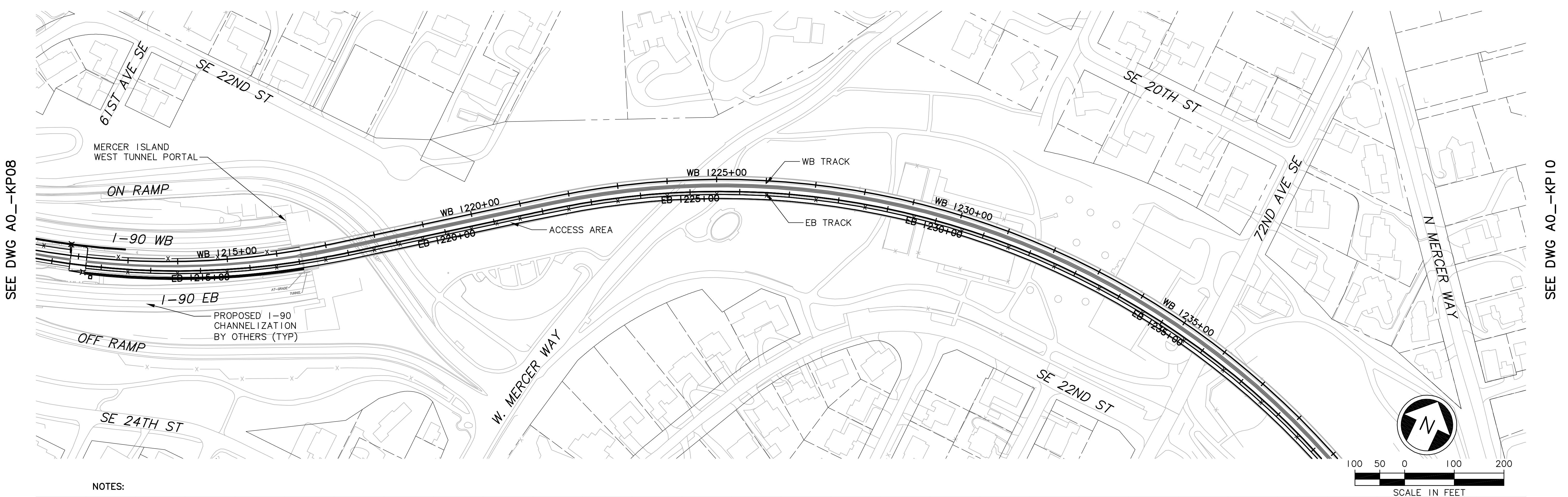
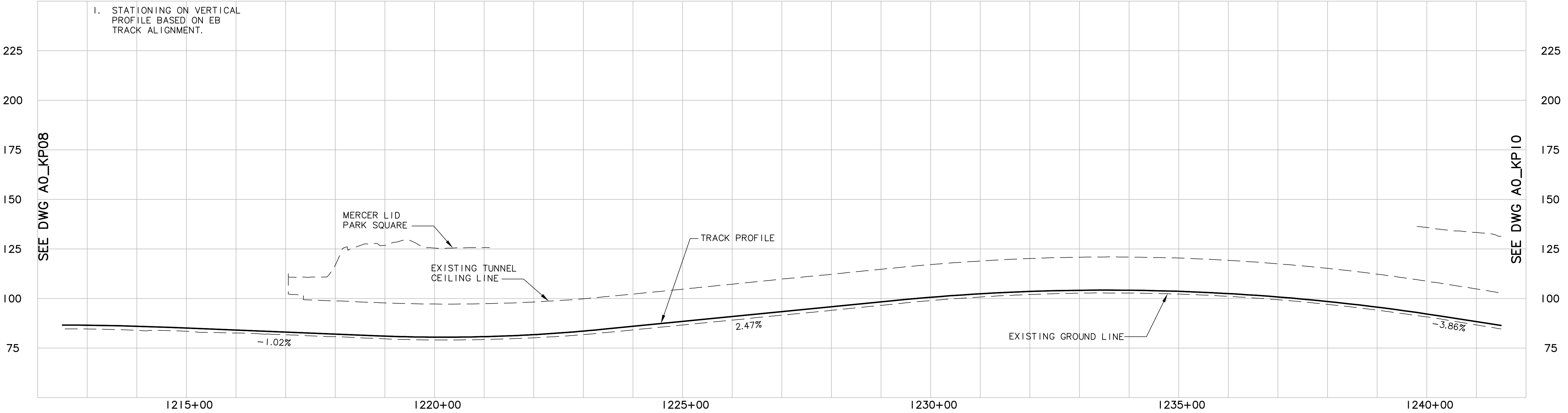

SEE DWG A0_-KP08
SEE DWG A0_-KP10
61ST AVE SE
SE 22ND ST
SE 20TH ST
72ND AVE SE
N MERCER WAY
MERCER ISLAND WEST TUNNEL PORTAL
ON RAMP
I-90 WB
I-90 EB
OFF RAMP
SE 24TH ST
W. MERCER WAY
SE 22ND ST
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
WB 1215+00
EB 1215+00
WB 1220+00
EB 1220+00
ACCESS AREA
WB 1225+00
EB 1225+00
WB TRACK
EB TRACK
WB 1230+00
EB 1230+00
WB 1235+00
EB 1235+00
AT-GRADE
TUNNEL
N
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



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Filename:
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Contract No.:
Date:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.:
1A0_-KP09

Sheet No.: A-10
Rev.:

DWG INFO:

LTSCALE:
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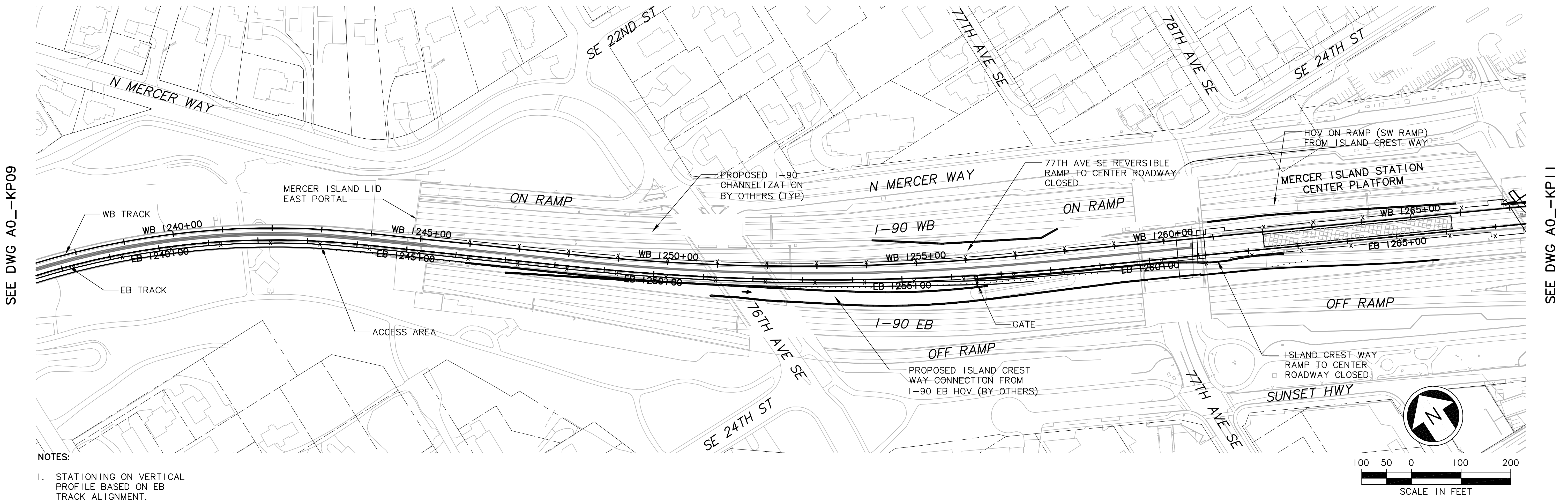
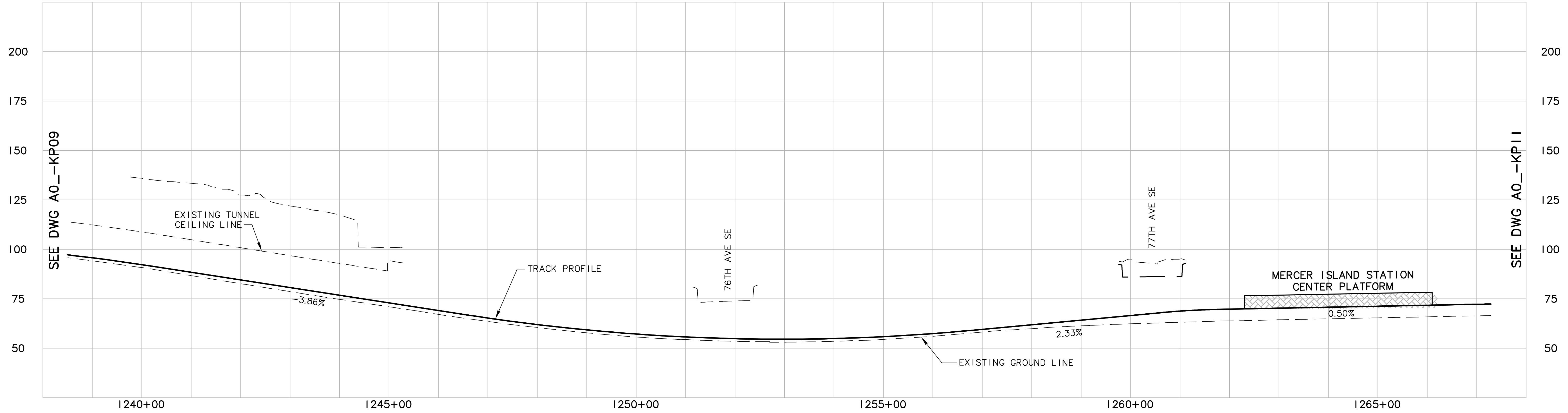
key_East


SEE DWG A0_-KP09
SEE DWG A0_-KP11
N MERCER WAY
SE 22ND ST
77TH AVE SE
78TH AVE SE
SE 24TH ST
HOV ON RAMP (SW RAMP) FROM ISLAND CREST WAY
77TH AVE SE REVERSIBLE RAMP TO CENTER ROADWAY CLOSED
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
MERCER ISLAND LID EAST PORTAL
N MERCER WAY
MERCER ISLAND STATION CENTER PLATFORM
ON RAMP
ON RAMP
I-90 WB
WB TRACK
WB 1240+00
WB 1245+00
WB 1250+00
WB 1255+00
WB 1260+00
WB 1265+00
EB 1240+00
EB 1245+00
EB 1250+00
EB 1255+00
EB 1260+00
EB 1265+00
EB TRACK
OFF RAMP
I-90 EB
GATE
ACCESS AREA
76TH AVE SE
OFF RAMP
PROPOSED ISLAND CREST WAY CONNECTION FROM I-90 EB HOV (BY OTHERS)
ISLAND CREST WAY RAMP TO CENTER ROADWAY CLOSED
77TH AVE SE
SUNSET HWY
SE 24TH ST
N
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.


SEE DWG A0_-KP09
SEE DWG A0_-KP11
200
175
150
125
100
75
50
EXISTING TUNNEL CEILING LINE
76TH AVE SE
77TH AVE SE
TRACK PROFILE
MERCER ISLAND STATION CENTER PLATFORM
-3.86%
2.33%
0.50%
EXISTING GROUND LINE
1240+00
1245+00
1250+00
1255+00
1260+00
1265+00

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Date:

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Filename: ELA__1A0_KP10.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.: 1A0_-KP10
Sheet No.: A-11
Rev.:

DWG INFO:

LTSCALE:
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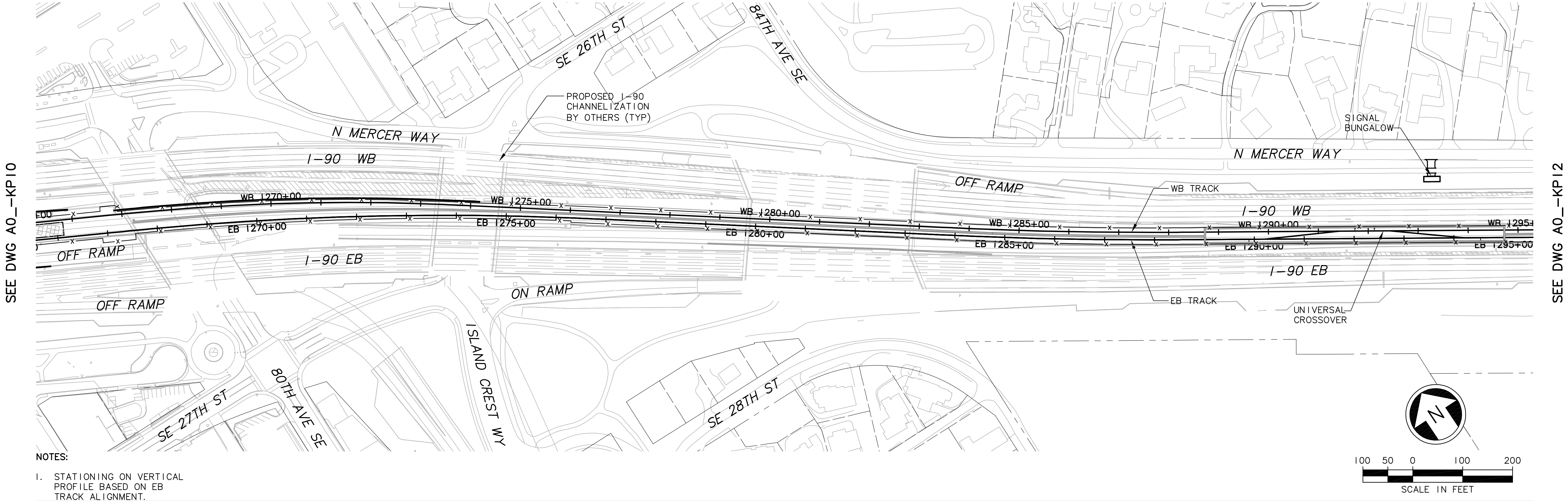
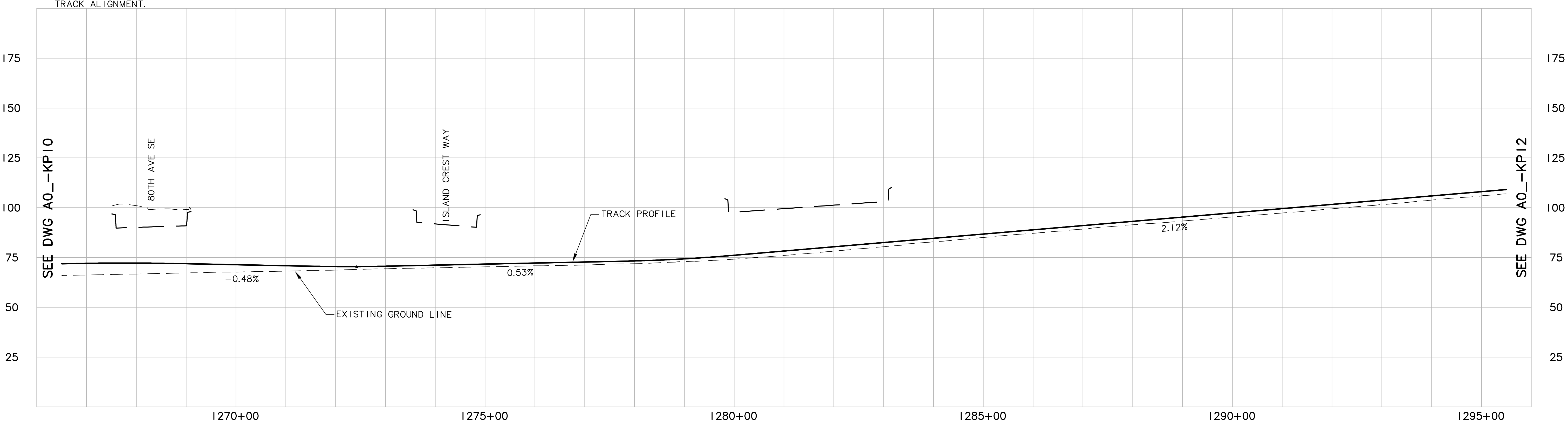
key_East


SEE DWG A0_-KP10
SE 26TH ST
84TH AVE SE
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
N MERCER WAY
I-90 WB
WB 1270+00
WB 1275+00
WB 1280+00
WB 1285+00
WB 1290+00
WB 1295+
EB 1270+00
EB 1275+00
EB 1280+00
EB 1285+00
EB 1290+00
EB 1295+00
OFF RAMP
I-90 EB
ON RAMP
ISLAND CREST WY
SE 27TH ST
80TH AVE SE
SE 28TH ST
N MERCER WAY
SIGNAL BUNGALOW
OFF RAMP
WB TRACK
I-90 WB
I-90 EB
EB TRACK
UNIVERSAL CROSSOVER
N
SEE DWG A0_-KP12
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



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Submitted:

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Date:

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Filename:
ELA__1A0_KP11.dwg

Contract No.:

Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.:
1A0_-KP11

Sheet No.: Rev.:
A-12

DWG INFO:

LTSCALE:
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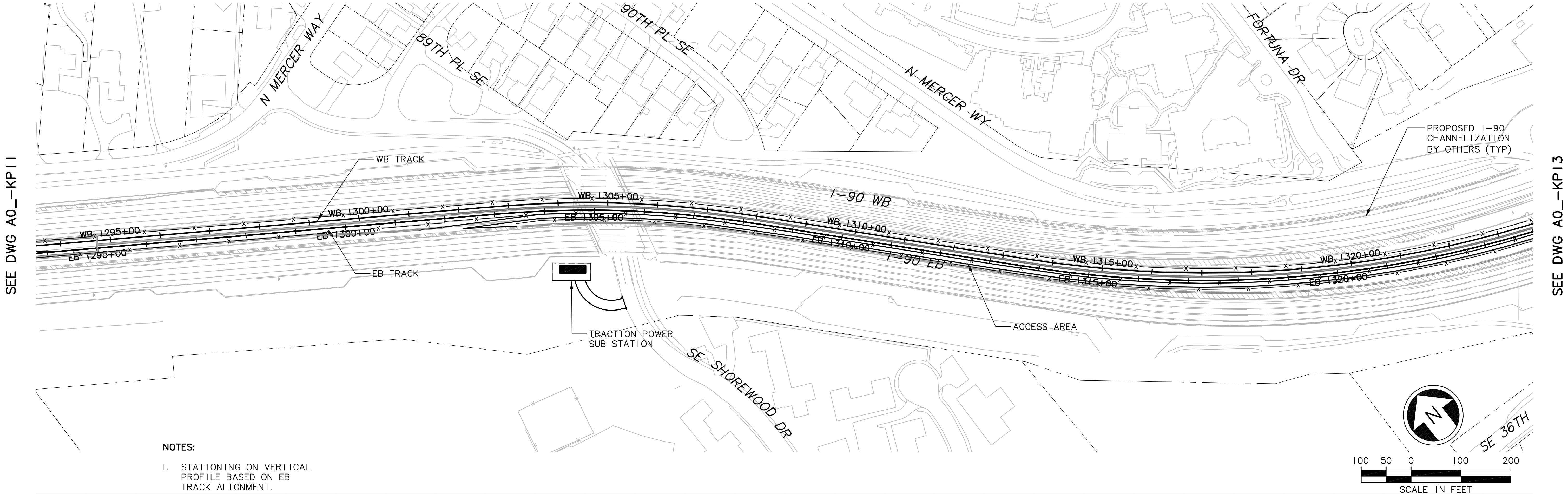
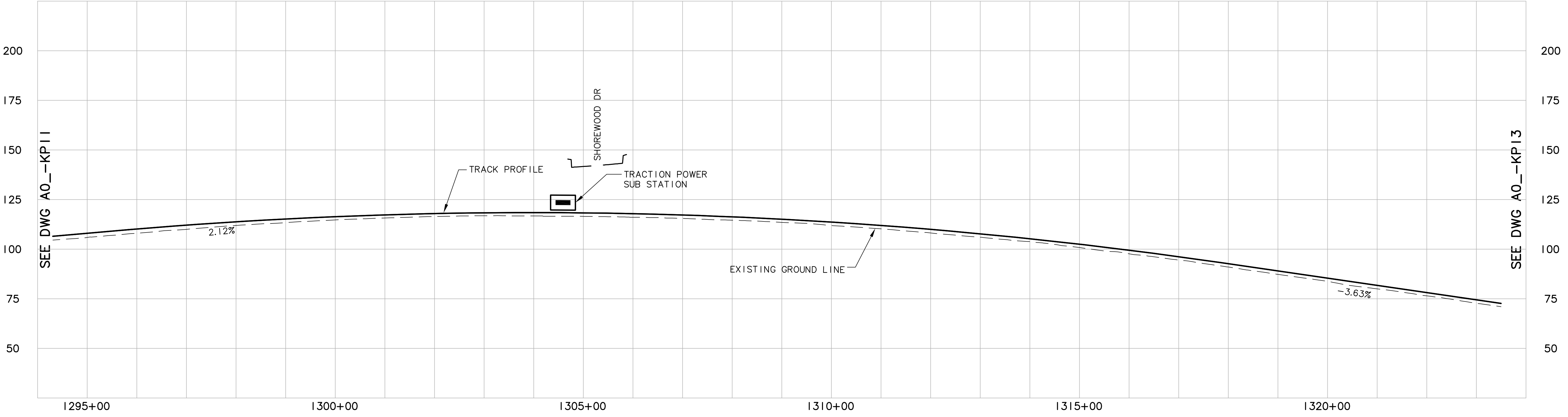

SEE DWG A0_-KP11
N MERCER WAY
89TH PL SE
90TH PL SE
N MERCER WY
FORTUNA DR
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
WB TRACK
WB 1295+00
EB 1295+00
WB 1300+00
EB 1300+00
WB 1305+00
EB 1305+00
I-90 WB
WB 1310+00
EB 1310+00
I-90 EB
WB 1315+00
EB 1315+00
WB 1320+00
EB 1320+00
EB TRACK
TRACTION POWER SUB STATION
SE SHOREWOOD DR
ACCESS AREA
N
SE 36TH
SEE DWG A0_-KP13
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



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BOLIMA DRAFTING & DESIGN INC.

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Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELA__1A0_KP12.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.:
1A0_-KP12
Sheet No.:
Rev.:
A-13

DWG INFO:

LTSCALE:
1=1

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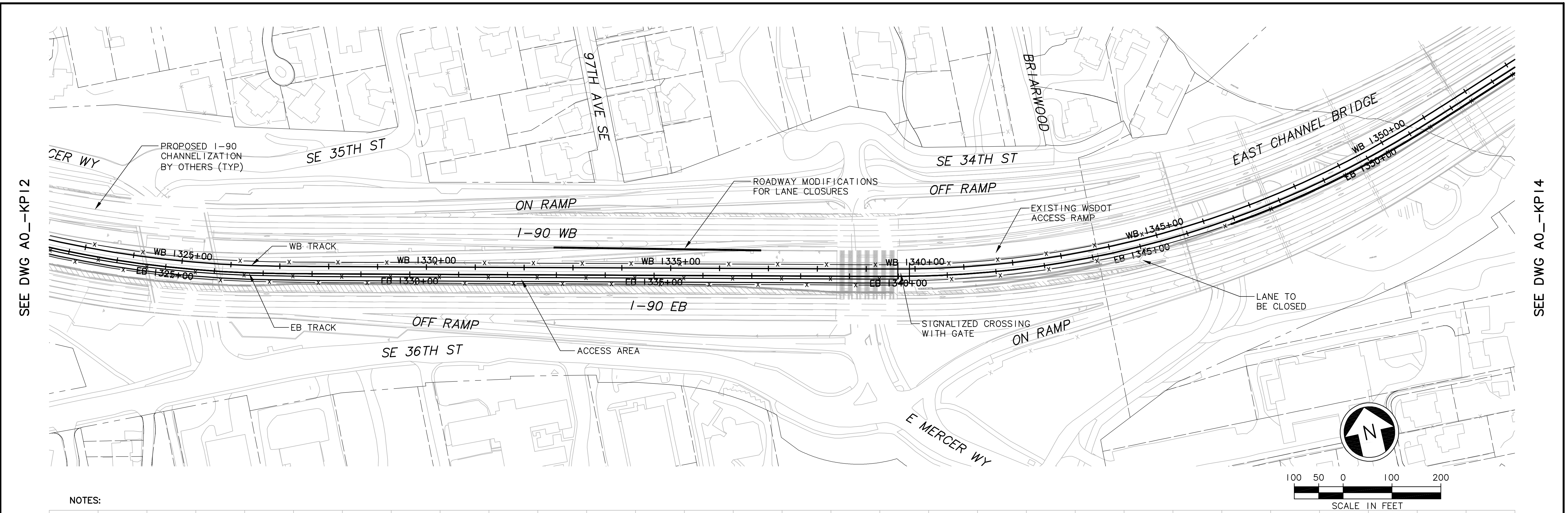
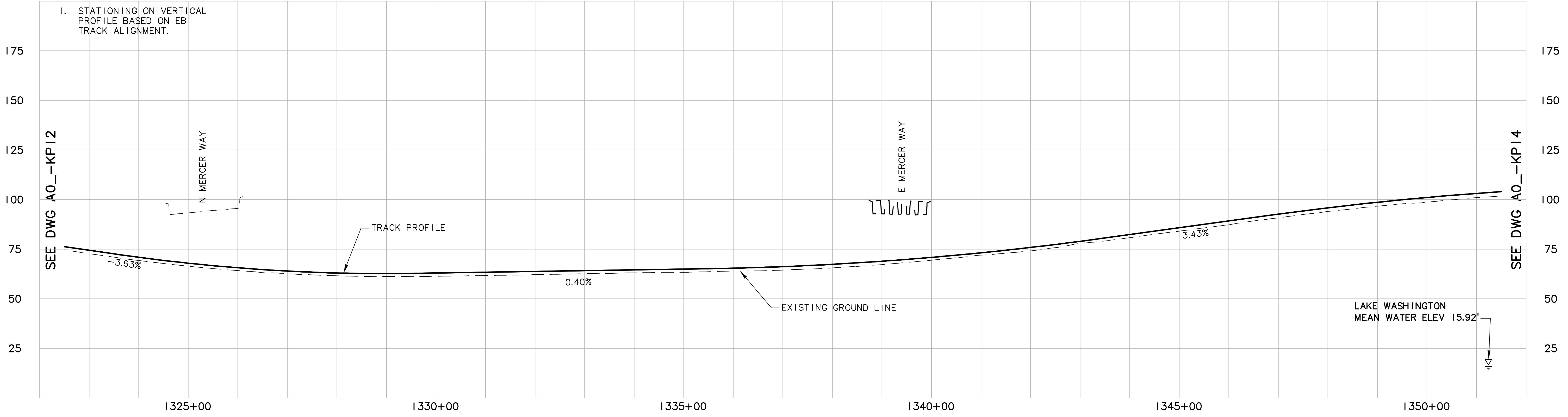

SEE DWG A0_-KP12
SEE DWG A0_-KP14
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
CER WY
SE 35TH ST
97TH AVE SE
BRIARWOOD
SE 34TH ST
EAST CHANNEL BRIDGE
ROADWAY MODIFICATIONS FOR LANE CLOSURES
OFF RAMP
ON RAMP
I-90 WB
EXISTING WSDOT ACCESS RAMP
WB TRACK
WB 1325+00
EB 1325+00
WB 1330+00
EB 1330+00
WB 1335+00
EB 1335+00
WB 1340+00
EB 1340+00
WB 1345+00
EB 1345+00
WB 1350+00
EB 1350+00
LANE TO BE CLOSED
I-90 EB
EB TRACK
OFF RAMP
SIGNALIZED CROSSING WITH GATE
ON RAMP
SE 36TH ST
ACCESS AREA
E MERCER WY
N
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.



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Submitted:
Date:
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Date:

Scale:
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Filename:
ELA__1A0_KP13.dwg
Contract No.:
Date:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A

ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.:
1A0_-KP13

Sheet No.: A-14
Rev.:

DWG INFO:

LTSCALE:
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ZG-G10010
x0216rx
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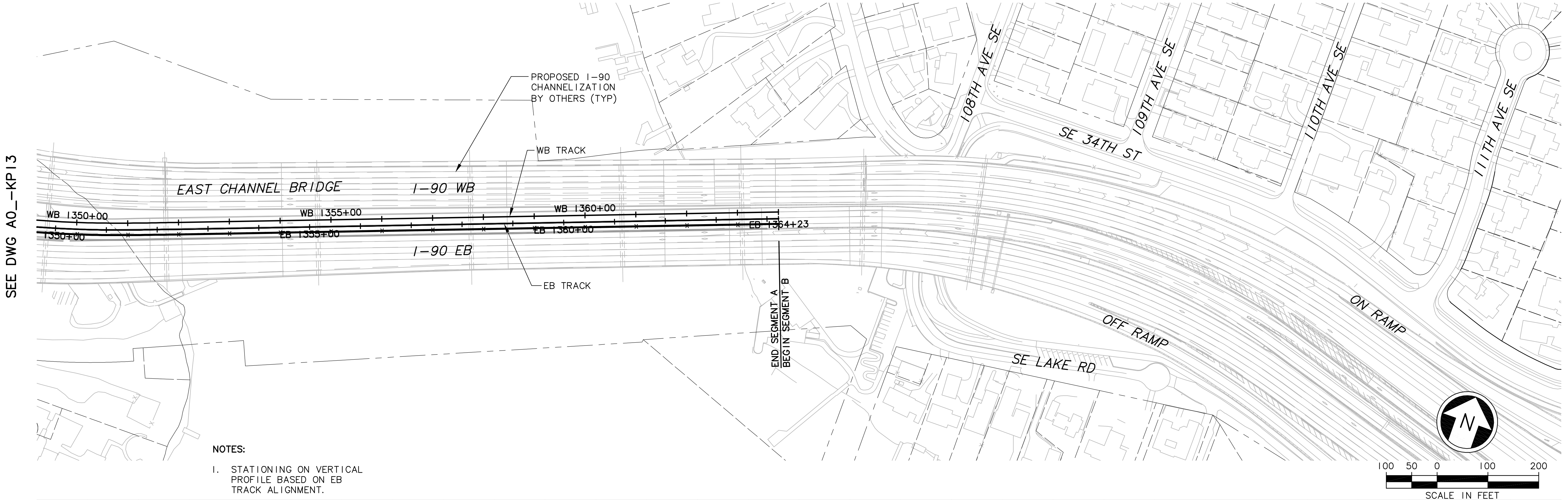
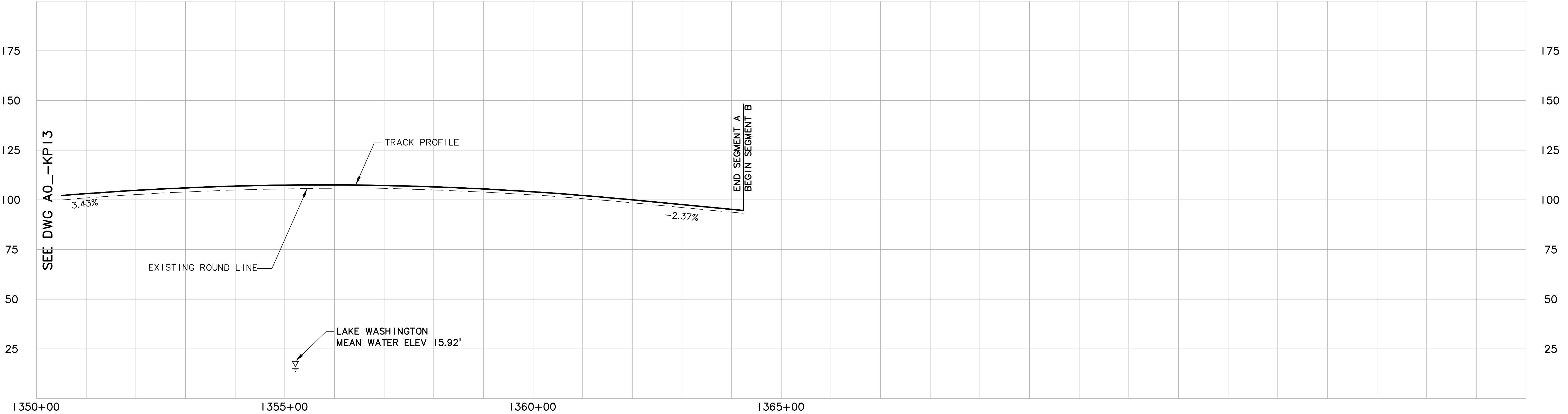
x0516rx
x0516sf
-Unresolved:
ELA_A0_J0
ELA_A0__KA
key_East


SEE DWG A0_-KP13
PROPOSED I-90 CHANNELIZATION BY OTHERS (TYP)
WB TRACK
EAST CHANNEL BRIDGE
I-90 WB
WB 1350+00
WB 1355+00
WB 1360+00
1350+00
EB 1355+00
EB 1360+00
EB 1364+23
I-90 EB
EB TRACK
END SEGMENT A
BEGIN SEGMENT B
108TH AVE SE
109TH AVE SE
110TH AVE SE
111TH AVE SE
SE 34TH ST
ON RAMP
OFF RAMP
SE LAKE RD
N
100 50 0 100 200
SCALE IN FEET

NOTES:

1. STATIONING ON VERTICAL PROFILE BASED ON EB TRACK ALIGNMENT.


175
150
125
100
75
50
25
SEE DWG A0_-KP13
TRACK PROFILE
END SEGMENT A
BEGIN SEGMENT B
3.43%
-2.37%
EXISTING ROUND LINE
LAKE WASHINGTON
MEAN WATER ELEV 15.92'
1350+00
1355+00
1360+00
1365+00

c:\work\feis\ELA__1A0_KP14.dwg
02/23/11 15:40 : bolimaf OE6579

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INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

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Date:
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Scale: H: 1"=100'; V: 1"=25'
Filename: ELA__1A0_KP14.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A

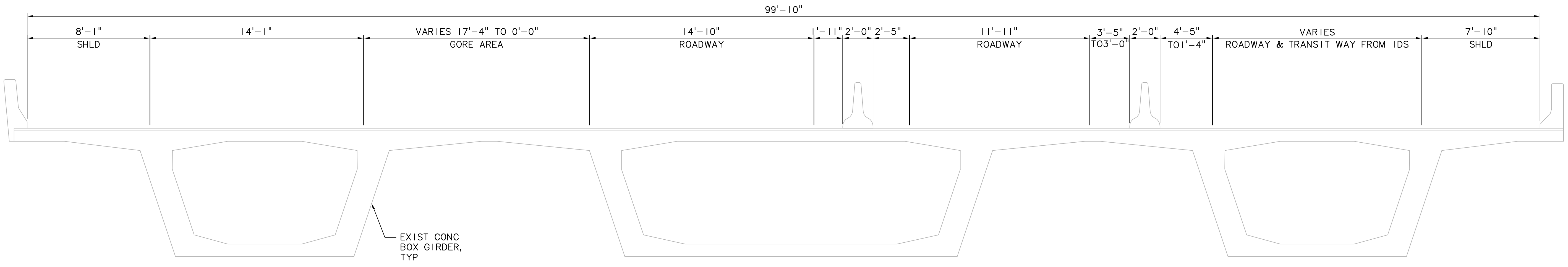
ALTERNATIVE A1
TRACK PLAN & PROFILE

Drawing No.: 1A0_-KP14
Sheet No.: A-15
Rev.:

DWG INFO:

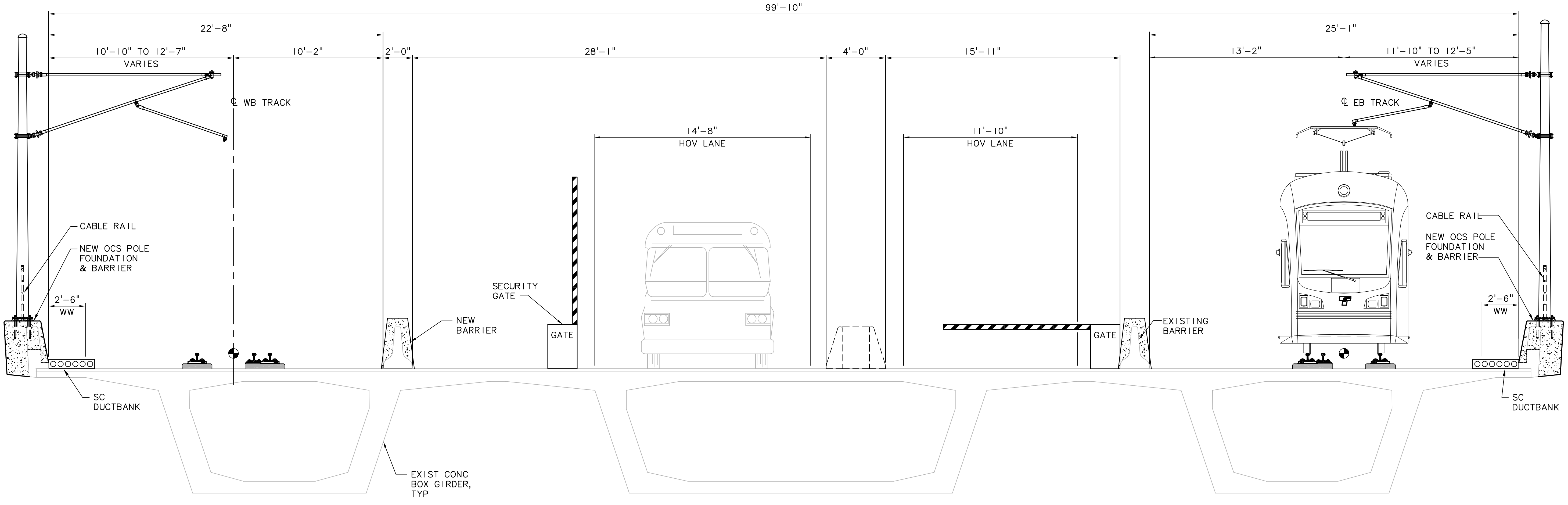
LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ZG–2234H
–Unresolved:


99'–10"
8'–1"
SHLD
14'–1"
VARIES 17'–4" TO 0'–0"
GORE AREA
14'–10"
ROADWAY
1'–11"
2'–0"
2'–5"
11'–11"
ROADWAY
3'–5"
TO3'–0"
2'–0"
4'–5"
TO1'–4"
VARIES
ROADWAY & TRANSIT WAY FROM IDS
7'–10"
SHLD
EXIST CONC
BOX GIRDER,
TYP

EXISTING BRIDGE D–2

SCALE: NTS


99'–10"
22'–8"
25'–1"
10'–10" TO 12'–7"
VARIES
10'–2"
2'–0"
28'–1"
4'–0"
15'–11"
13'–2"
11'–10" TO 12'–5"
VARIES
℄ WB TRACK
℄ EB TRACK
14'–8"
HOV LANE
11'–10"
HOV LANE
CABLE RAIL
NEW OCS POLE
FOUNDATION
& BARRIER
2'–6"
WW
SECURITY
GATE
GATE
NEW
BARRIER
GATE
EXISTING
BARRIER
CABLE RAIL
NEW OCS POLE
FOUNDATION
& BARRIER
2'–6"
WW
SC
DUCTBANK
EXIST CONC
BOX GIRDER,
TYP
SC
DUCTBANK

GATED BRIDGE D–2 LRT DOUBLE TRACK

SCALE: NTS

c:\work\feis\ELA__1A0_KX01.dwg
02/23/11 15:41 : bolimaf OE6579

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Filename: ELA__1A0_KX01.dwg
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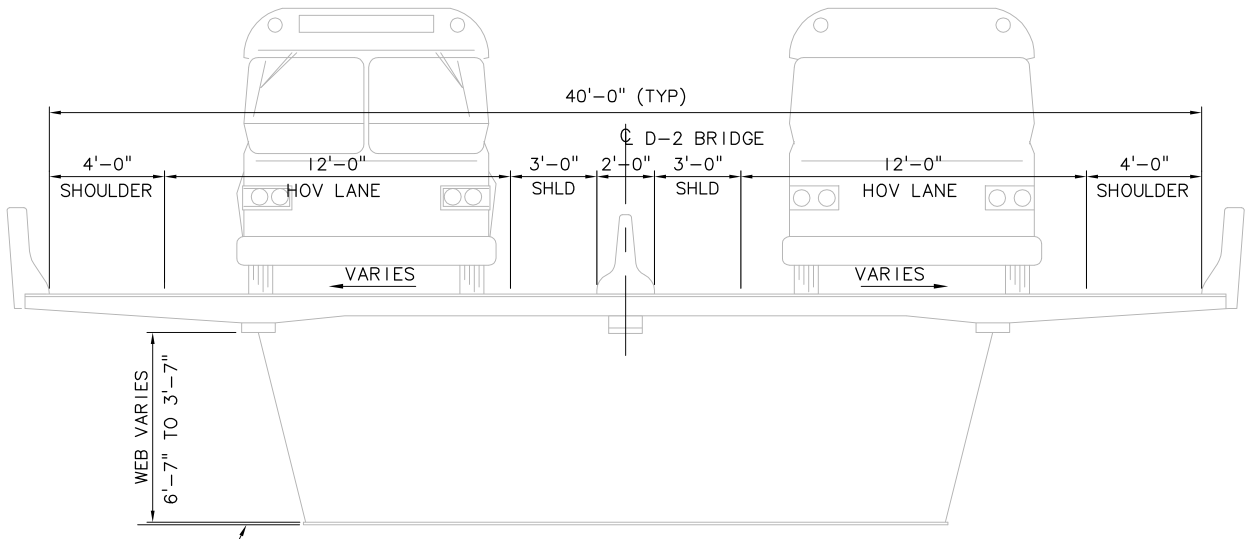
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TYPICAL SECTION
D–2 BRIDGE / GATE

Drawing No.: 1A0_–KX01
Sheet No.: A-16
Rev.:

DWG INFO:

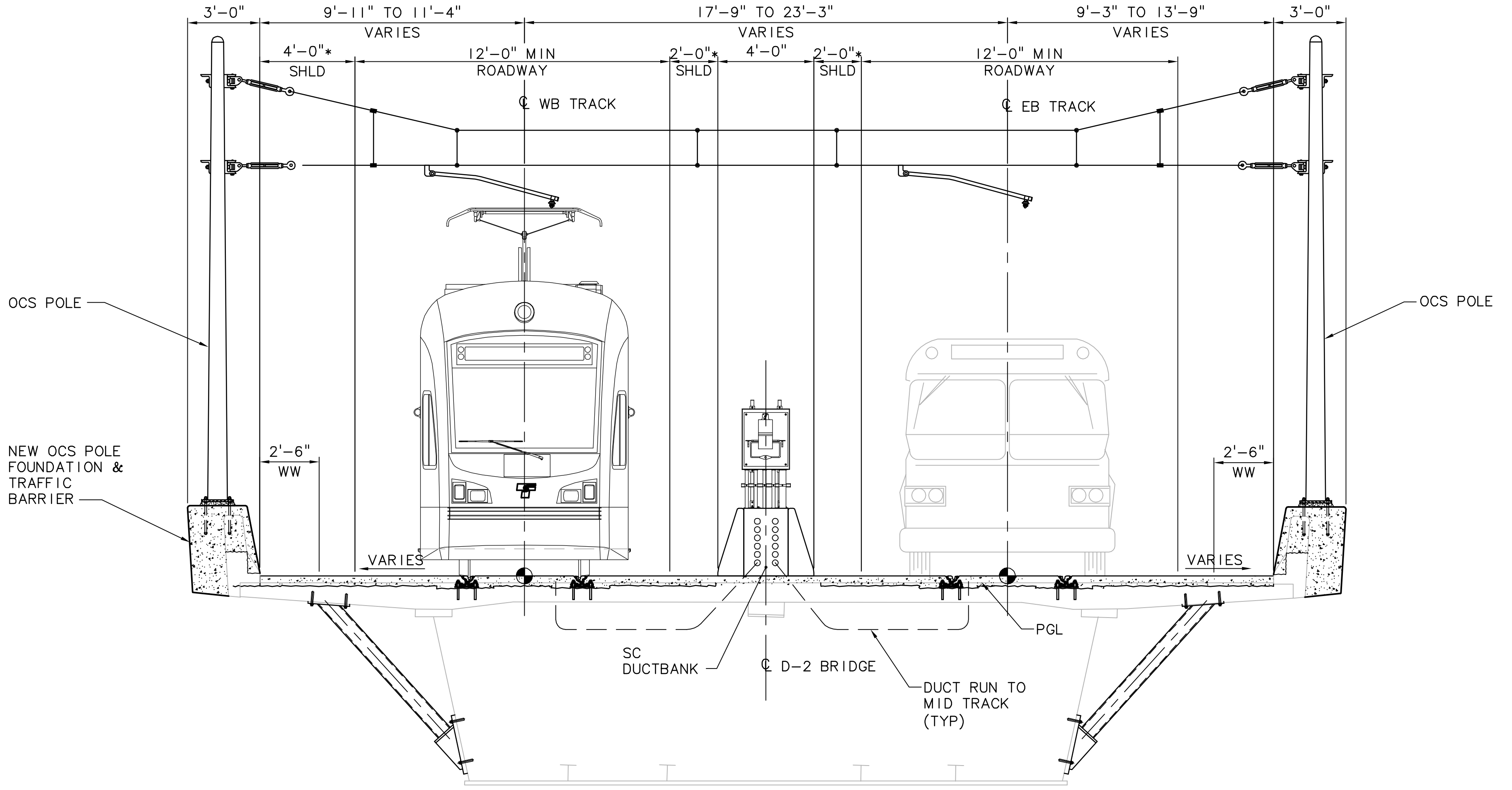
LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ZG-2234H
-Unresolved:


40'-0" (TYP)
℄ D-2 BRIDGE
4'-0"
SHOULDER
12'-0"
HOV LANE
3'-0"
SHLD
2'-0"
3'-0"
SHLD
12'-0"
HOV LANE
4'-0"
SHOULDER
VARIES
VARIES
WEB VARIES
6'-7" TO 3'-7"
BOTTOM OF FLANGE

EXISTING BRIDGE D-2

SCALE: NTS


3'-0"
9'-11" TO 11'-4"
VARIES
17'-9" TO 23'-3"
VARIES
9'-3" TO 13'-9"
VARIES
3'-0"
4'-0"*
SHLD
12'-0" MIN
ROADWAY
2'-0"*
SHLD
4'-0"
2'-0"*
SHLD
12'-0" MIN
ROADWAY
℄ WB TRACK
℄ EB TRACK
OCS POLE
OCS POLE
NEW OCS POLE FOUNDATION & TRAFFIC BARRIER
2'-6"
WW
2'-6"
WW
VARIES
VARIES
PGL
SC DUCTBANK
℄ D-2 BRIDGE
DUCT RUN TO MID TRACK (TYP)

TYPICAL SECTION – BRIDGE D-2 – JOINT OPERATIONS OPTION
LRT DOUBLE TRACK – EMBEDDED RI52 GIRDER RAIL – W/EXPRESS BUSES

SCALE: NTS

* WIDTH VARIES, MAINTAIN EXISTING CHANNELIZATION

c:\work\feis\ELA__1A0_KX02.dwg
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TYPICAL SECTION
JOINT OPERATIONS D-2 BRIDGE

Drawing No.: 1A0_-KX02
Sheet No.: A-17
Rev.:

DWG INFO:
LTSCALE:
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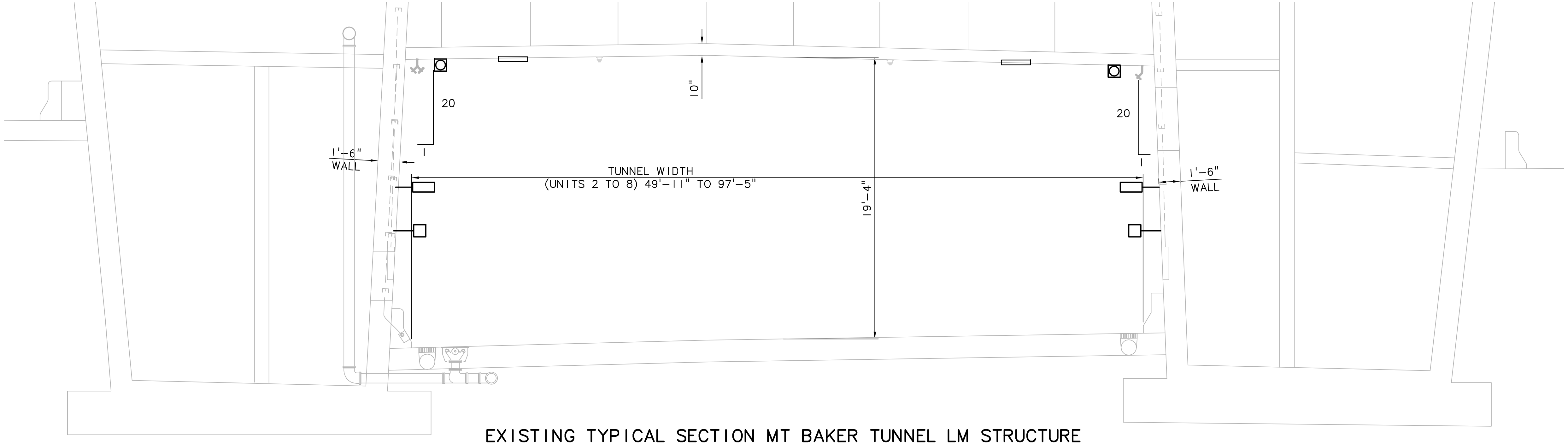
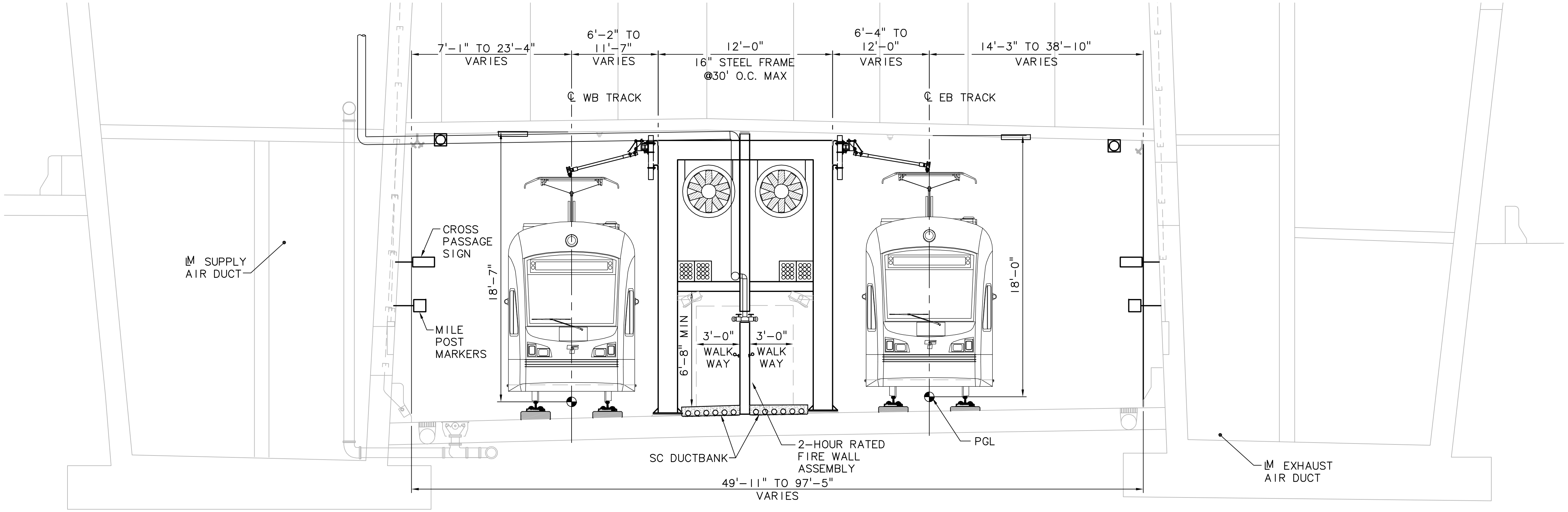
XREFs:
-Attach:
-Overlay:
Zg-2234h
-Unresolved:



10"
20
20
1'-6"
WALL
1'-6"
WALL
TUNNEL WIDTH
(UNITS 2 TO 8) 49'-11" TO 97'-5"
19'-4"

EXISTING TYPICAL SECTION MT BAKER TUNNEL LM STRUCTURE

SCALE: NTS



7'-1" TO 23'-4"
VARIES
6'-2" TO
11'-7"
VARIES
12'-0"
16" STEEL FRAME
@30' O.C. MAX
6'-4" TO
12'-0"
VARIES
14'-3" TO 38'-10"
VARIES
℄ WB TRACK
℄ EB TRACK
LM SUPPLY
AIR DUCT
CROSS
PASSAGE
SIGN
MILE
POST
MARKERS
18'-7"
18'-0"
6'-8" MIN
3'-0"
WALK
WAY
3'-0"
WALK
WAY
SC DUCTBANK
2-HOUR RATED
FIRE WALL
ASSEMBLY
PGL
LM EXHAUST
AIR DUCT
49'-11" TO 97'-5"
VARIES

TYPICAL SECTION I-90 MT BAKER TUNNEL LM STRUCTURE – LRT DOUBLE TRACK – DIRECT FIXATION TRACK

SCALE: NTS

c:\work\feis\ELA__1A0_KX03.dwg
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Filename: ELA__1A0_KX03.dwg
Contract No.:
Date: 02/22/11

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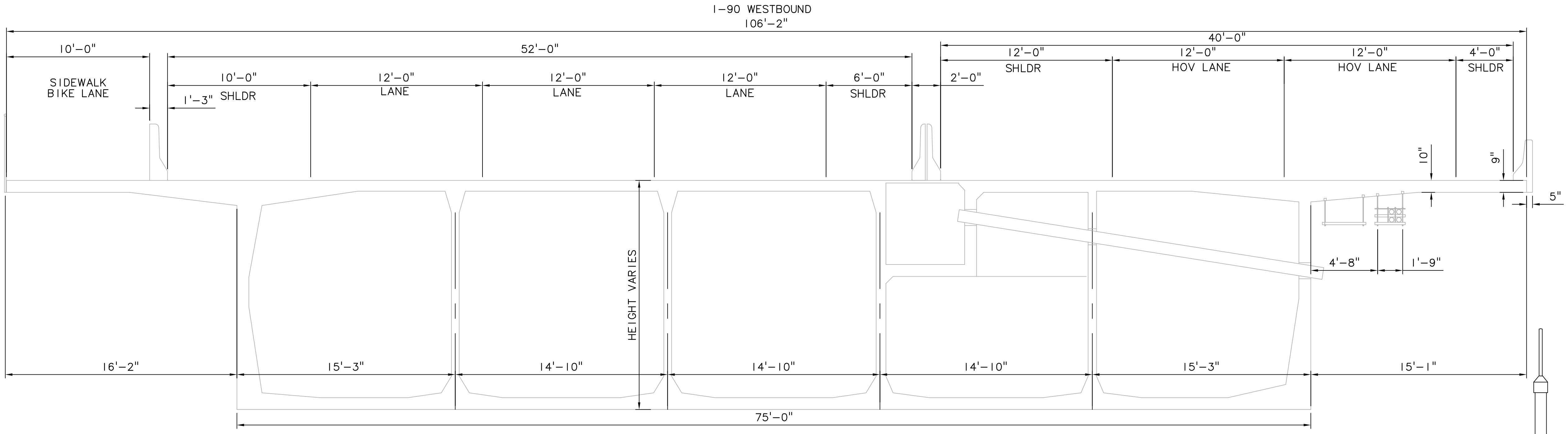
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TYPICAL SECTION
I-90 MT BAKER TUNNEL

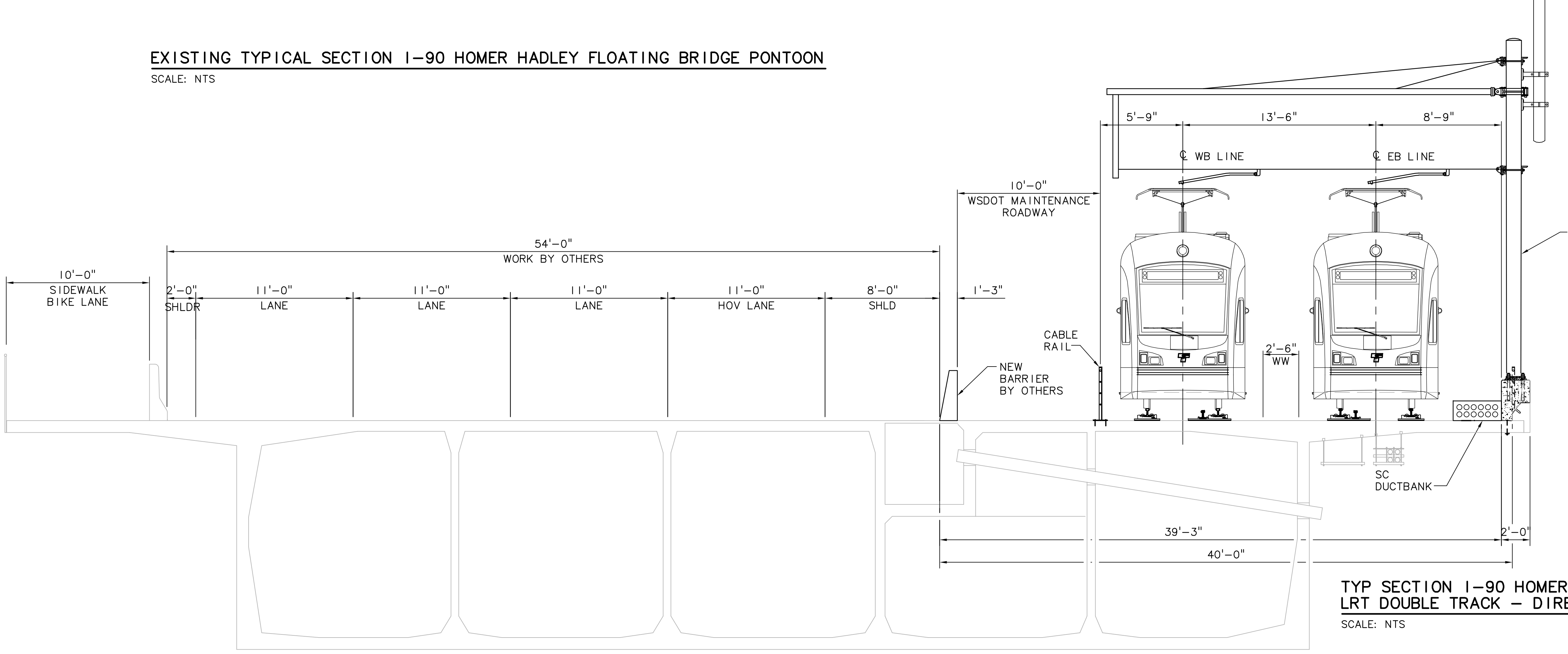
Drawing No.: 1A0_-KX03
Sheet No.: A-18
Rev.:

DWG INFO:
LTSCALE: 1=1
XREFs:
-Attach:
-Overlay: ZG-2234H
-Unresolved:


I-90 WESTBOUND
106'-2"
10'-0"
SIDEWALK BIKE LANE
52'-0"
10'-0"
1'-3"
SHLDR
12'-0"
LANE
12'-0"
LANE
12'-0"
LANE
6'-0"
SHLDR
40'-0"
2'-0"
12'-0"
SHLDR
12'-0"
HOV LANE
12'-0"
HOV LANE
4'-0"
SHLDR
10"
9"
5"
4'-8"
1'-9"
HEIGHT VARIES
16'-2"
15'-3"
14'-10"
14'-10"
14'-10"
15'-3"
15'-1"
75'-0"

EXISTING TYPICAL SECTION I-90 HOMER HADLEY FLOATING BRIDGE PONTOON

SCALE: NTS


5'-9"
13'-6"
8'-9"
℄ WB LINE
℄ EB LINE
10'-0"
WSDOT MAINTENANCE ROADWAY
54'-0"
WORK BY OTHERS
10'-0"
SIDEWALK BIKE LANE
2'-0"
SHLDR
11'-0"
LANE
11'-0"
LANE
11'-0"
LANE
11'-0"
HOV LANE
8'-0"
SHLD
1'-3"
CABLE RAIL
2'-6"
WW
NEW BARRIER BY OTHERS
OCS POLE TYP
SC DUCTBANK
39'-3"
2'-0"
40'-0"

TYP SECTION I-90 HOMER HADLEY FLOATING BRIDGE PONTOON
LRT DOUBLE TRACK - DIRECT FIXATION TRACK

SCALE: NTS

c:\work\feis\ELA__1A0_KX04.dwg
02/23/11 15:41 : bolimaf OE6579

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Filename: ELA__1A0_KX04.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TYPICAL SECTION
I-90 HOMER HADLEY FLOATING BRIDGE

Drawing No.: 1A0_-KX04
Sheet No.: A-19
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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-Overlay:
ZG-2234H
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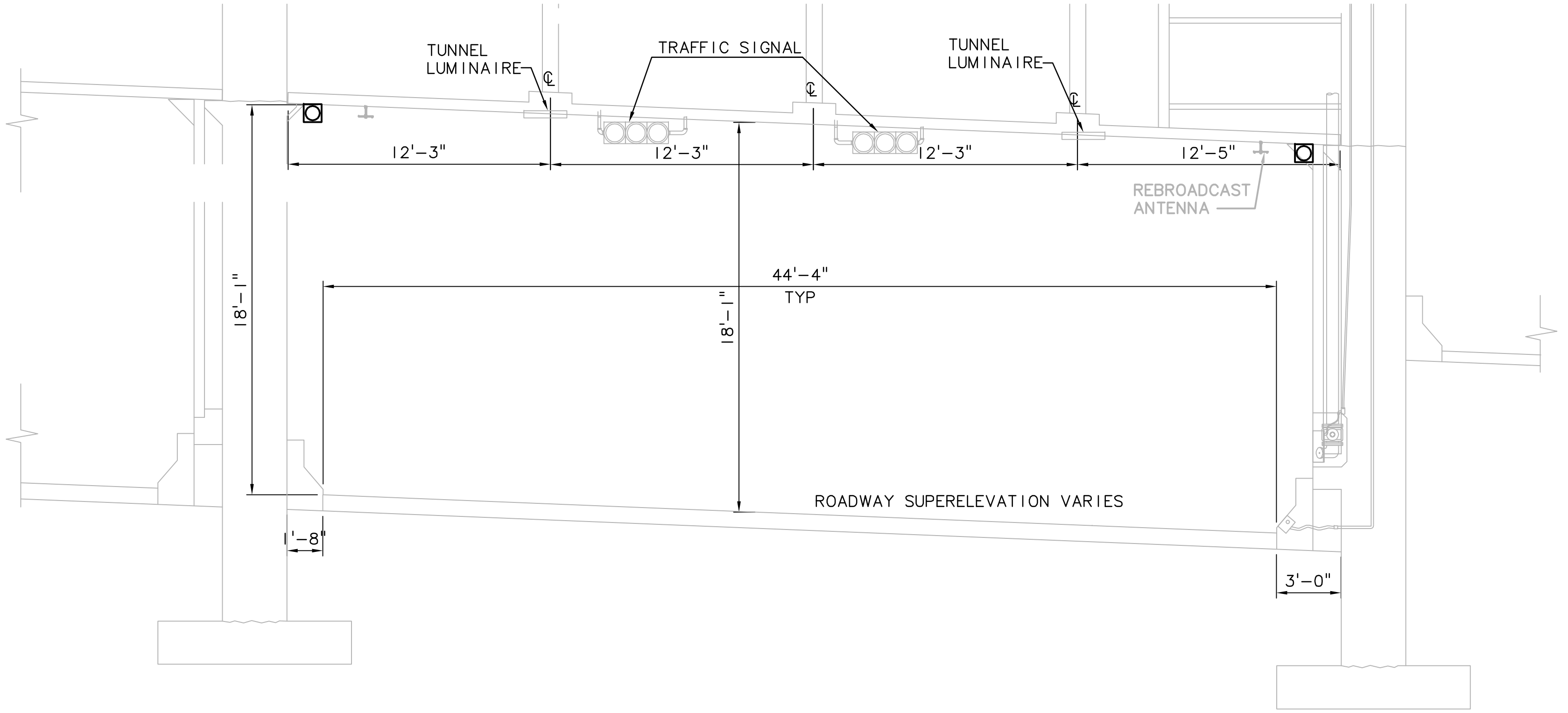
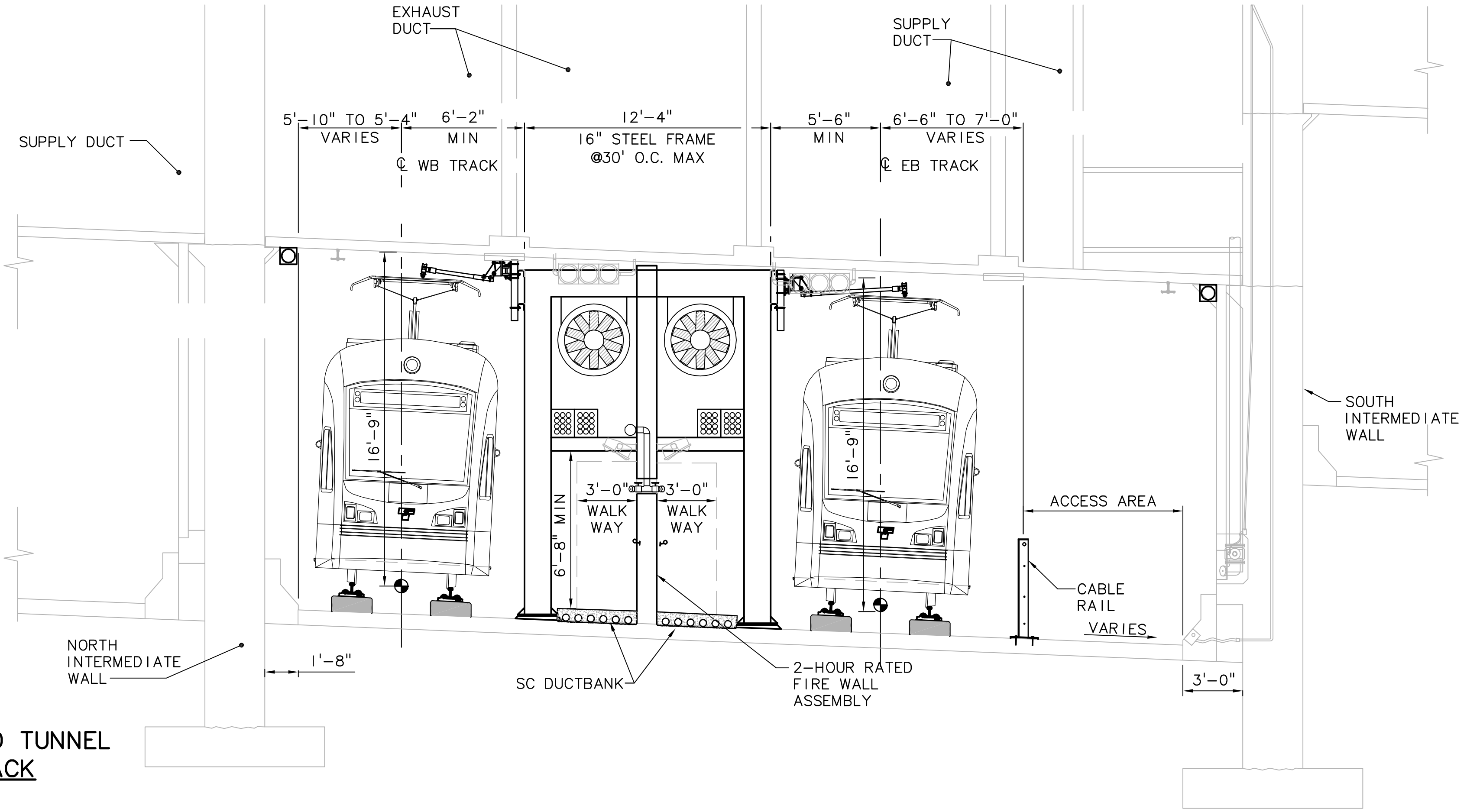

TUNNEL LUMINAIRE
℄
TRAFFIC SIGNAL
℄
TUNNEL LUMINAIRE
℄
12'-3"
12'-3"
12'-3"
12'-5"
REBROADCAST ANTENNA
18'-1"
44'-4" TYP
18'-1"
ROADWAY SUPERELEVATION VARIES
1'-8"
3'-0"

EXISTING I-90 MERCER ISLAND LID TUNNEL STRUCTURE
SCALE: NTS


EXHAUST DUCT
SUPPLY DUCT
5'-10" TO 5'-4" VARIES
6'-2" MIN
℄ WB TRACK
12'-4"
16" STEEL FRAME @30' O.C. MAX
5'-6" MIN
6'-6" TO 7'-0" VARIES
℄ EB TRACK
SUPPLY DUCT
16'-9"
16'-9"
6'-8" MIN
3'-0"
WALK WAY
3'-0"
WALK WAY
SOUTH INTERMEDIATE WALL
ACCESS AREA
CABLE RAIL
VARIES
NORTH INTERMEDIATE WALL
1'-8"
SC DUCTBANK
2-HOUR RATED FIRE WALL ASSEMBLY
3'-0"

TYPICAL SECTION I-90 MERCER ISLAND LID TUNNEL
LRT DOUBLE TRACK - DIRECT FIXATION TRACK
SCALE: NTS

c:\work\feis\ELA__IA0_KX05.dwg
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Date:

Scale: NTS
Filename: ELA__IA0_KX05.dwg
Contract No.:
Date: 02/22/11

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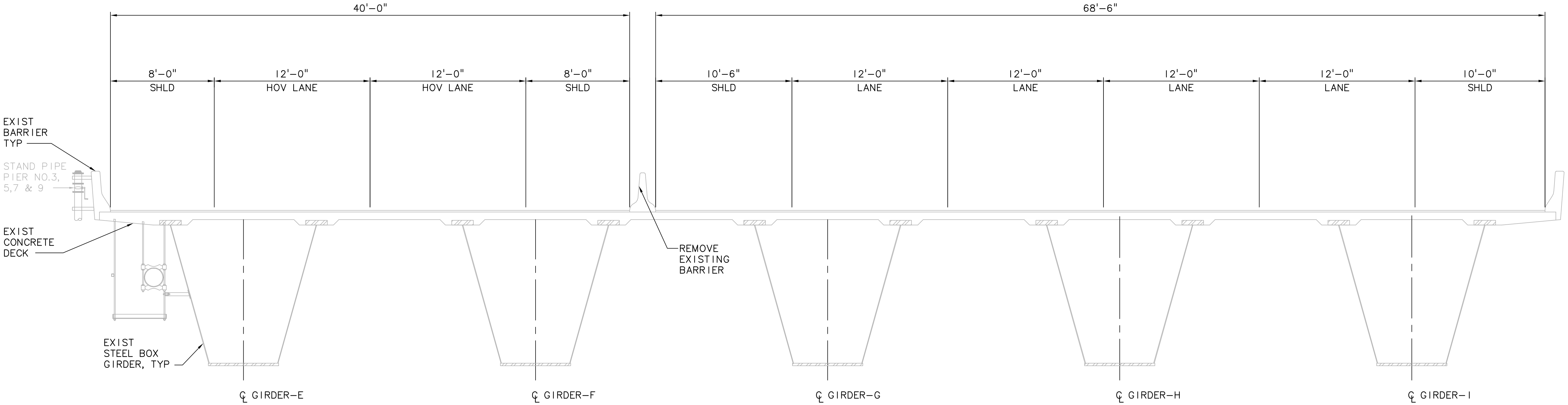
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TYPICAL SECTION
I-90 MERCER ISLAND TUNNEL

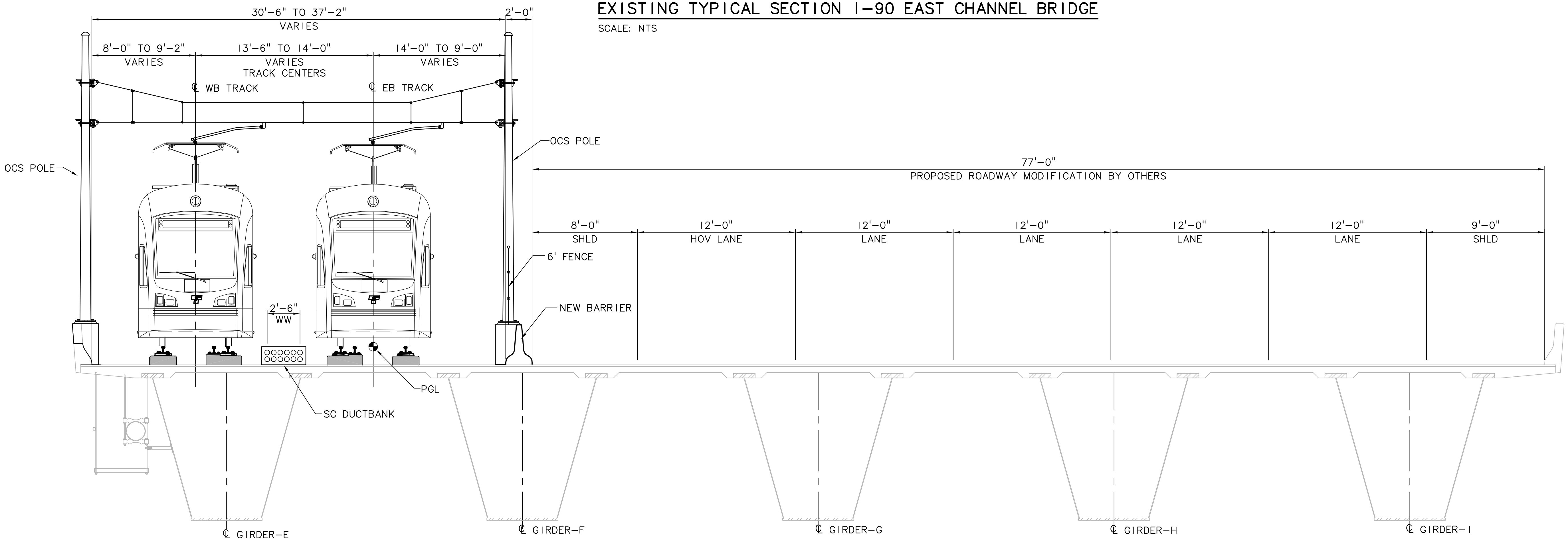
Drawing No.: IA0_-KX05
Sheet No.: A-20
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
-Overlay:
ZG-2234H
-Unresolved:


40'-0"
68'-6"
8'-0" SHLD
12'-0" HOV LANE
12'-0" HOV LANE
8'-0" SHLD
10'-6" SHLD
12'-0" LANE
12'-0" LANE
12'-0" LANE
12'-0" LANE
10'-0" SHLD
EXIST BARRIER TYP
STAND PIPE PIER NO.3, 5,7 & 9
EXIST CONCRETE DECK
REMOVE EXISTING BARRIER
EXIST STEEL BOX GIRDER, TYP
℄ GIRDER-E
℄ GIRDER-F
℄ GIRDER-G
℄ GIRDER-H
℄ GIRDER-I

EXISTING TYPICAL SECTION I-90 EAST CHANNEL BRIDGE

SCALE: NTS


30'-6" TO 37'-2" VARIES
2'-0"
8'-0" TO 9'-2" VARIES
13'-6" TO 14'-0" VARIES TRACK CENTERS
14'-0" TO 9'-0" VARIES
℄ WB TRACK
℄ EB TRACK
OCS POLE
OCS POLE
2'-6" WW
PGL
SC DUCTBANK
6' FENCE
NEW BARRIER
77'-0" PROPOSED ROADWAY MODIFICATION BY OTHERS
8'-0" SHLD
12'-0" HOV LANE
12'-0" LANE
12'-0" LANE
12'-0" LANE
12'-0" LANE
9'-0" SHLD
℄ GIRDER-E
℄ GIRDER-F
℄ GIRDER-G
℄ GIRDER-H
℄ GIRDER-I

TYPICAL SECTION I-90 EAST CHANNEL BRIDGE - LRT DOUBLE TRACK - DIRECT FIXATION TRACK

SCALE: NTS

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
ALTERNATIVE A1
TYPICAL SECTION
I-90 MERCER ISLAND

Drawing No.: 1A0_-KX10
Sheet No.: A-21
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELA_L60_CA
ELA_L60_CM
ELA_L60_LP
ELA_N03_AG
ELA_N03_AP
ELA_N03_AS
ZG-2234H
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x7819rx
x7819sf
x7822sf
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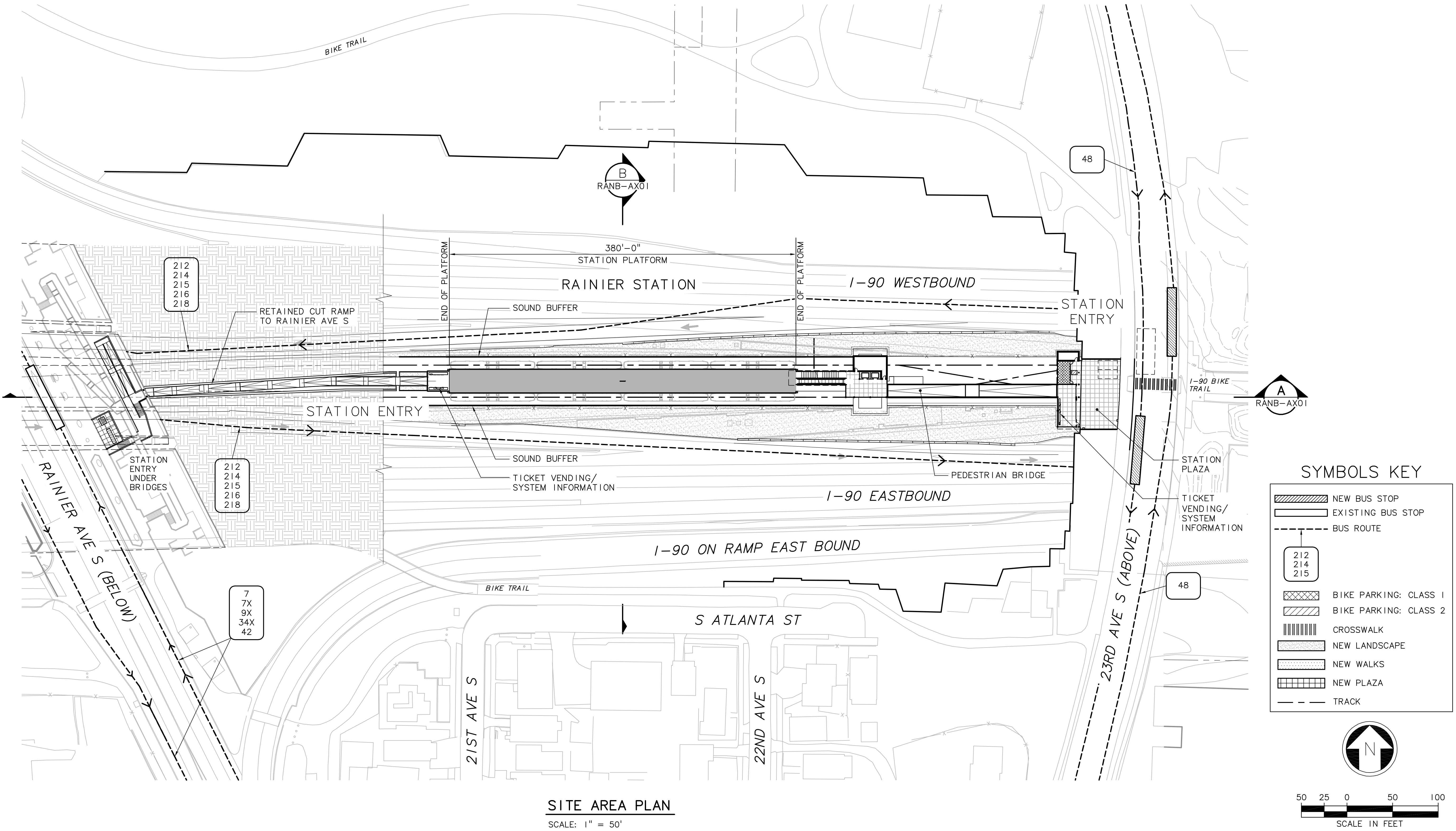
1
2
3
4
5
BIKE TRAIL
B
RANB-AX01
380'-0"
STATION PLATFORM
END OF PLATFORM
END OF PLATFORM
RAINIER STATION
I-90 WESTBOUND
STATION ENTRY
212
214
215
216
218
RETAINED CUT RAMP TO RAINIER AVE S
SOUND BUFFER
48
STATION ENTRY
I-90 BIKE TRAIL
A
RANB-AX01
STATION ENTRY UNDER BRIDGES
212
214
215
216
218
SOUND BUFFER
TICKET VENDING/ SYSTEM INFORMATION
PEDESTRIAN BRIDGE
STATION PLAZA
TICKET VENDING/ SYSTEM INFORMATION
I-90 EASTBOUND
RAINIER AVE S (BELOW)
I-90 ON RAMP EAST BOUND
BIKE TRAIL
48
7
7X
9X
34X
42
S ATLANTA ST
21ST AVE S
22ND AVE S
23RD AVE S (ABOVE)
SYMBOLS KEY
▨ NEW BUS STOP
▭ EXISTING BUS STOP
– – – BUS ROUTE
212
214
215
▩ BIKE PARKING: CLASS 1
▨ BIKE PARKING: CLASS 2
▥ CROSSWALK
▒ NEW LANDSCAPE
░ NEW WALKS
▦ NEW PLAZA
— — TRACK
N
50 25 0 50 100
SCALE IN FEET

SITE AREA PLAN

SCALE: 1" = 50'

c:\work\feis\ELA_IRANBAS01.dwg
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Submitted:

Date:

IBI GROUP

IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Approved:

SOUNDTRANSIT

Date:

Scale: 1"=50'

Filename: ELA_IRANBAS01.dwg

Contract No.:

Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
RAINIER STATION
STATION AREA PLAN

Drawing No.: RANB-AS01

Sheet No.: A-22

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELA_N03_AX
ZG-2234H
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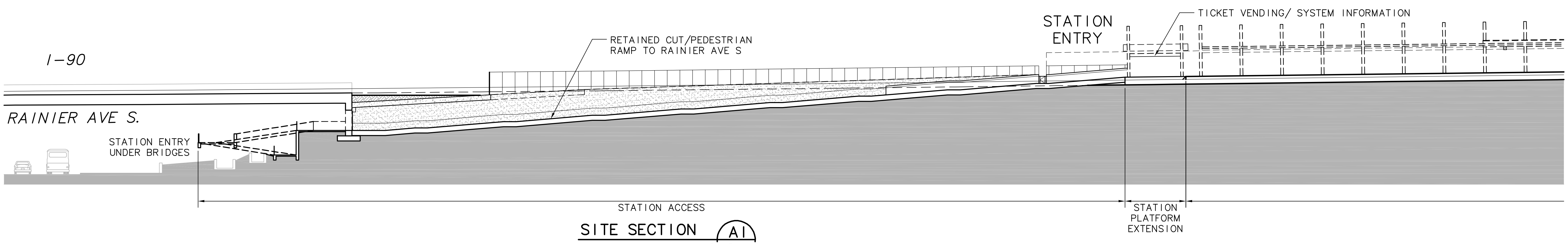
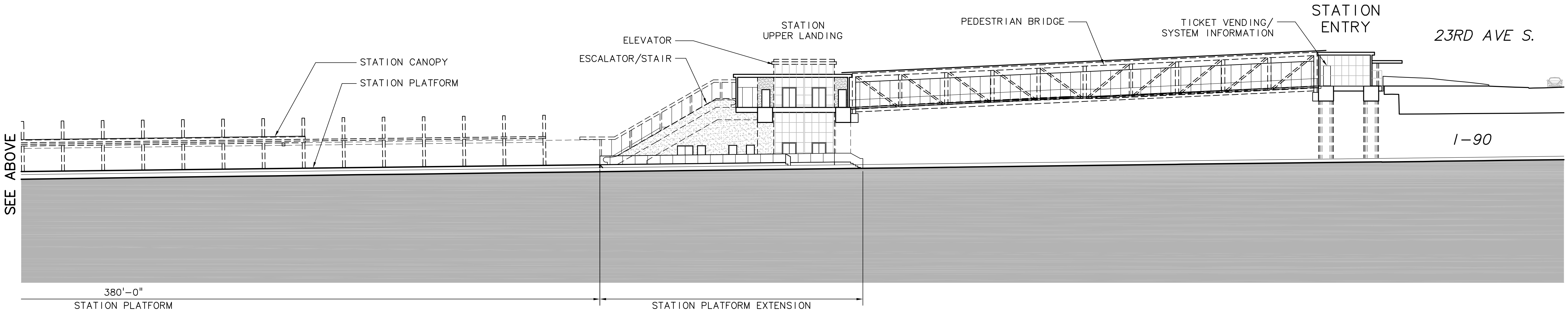

I-90
RAINIER AVE S.
RETAINED CUT/PEDESTRIAN RAMP TO RAINIER AVE S
STATION ENTRY
TICKET VENDING/ SYSTEM INFORMATION
STATION ENTRY UNDER BRIDGES
SEE BELOW
STATION ACCESS
STATION PLATFORM EXTENSION

SITE SECTION A1

RANB-AX01

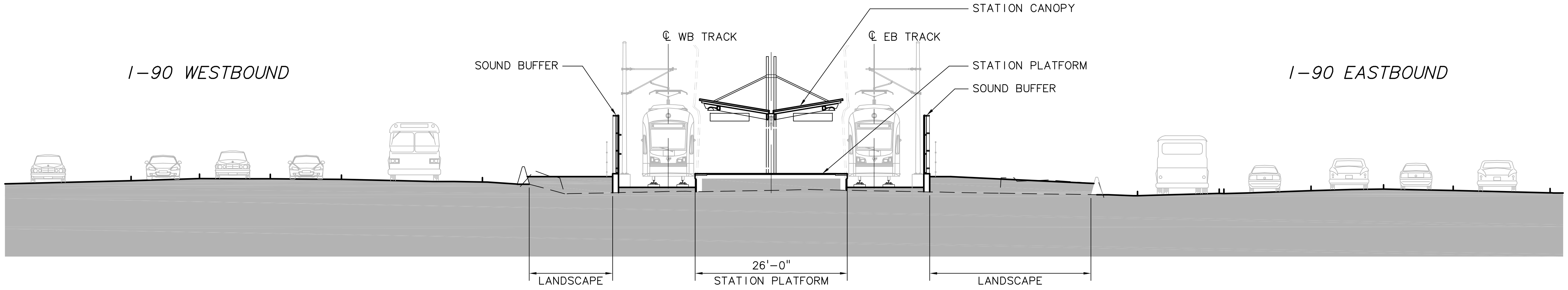
SCALE: 1" = 20'


STATION UPPER LANDING
ELEVATOR
ESCALATOR/STAIR
STATION CANOPY
STATION PLATFORM
PEDESTRIAN BRIDGE
TICKET VENDING/ SYSTEM INFORMATION
STATION ENTRY
23RD AVE S.
I-90
SEE ABOVE
380'-0"
STATION PLATFORM
STATION PLATFORM EXTENSION

SITE SECTION A2

RANB-AX01

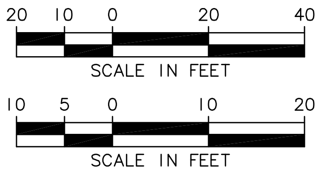
SCALE: 1" = 20'


STATION CANOPY
℄ WB TRACK
℄ EB TRACK
I-90 WESTBOUND
I-90 EASTBOUND
SOUND BUFFER
STATION PLATFORM
SOUND BUFFER
LANDSCAPE
26'-0"
STATION PLATFORM
LANDSCAPE

SITE SECTION B

RANB-AX01

SCALE: 1" = 10'


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

c:\work\feis\ELA_IRANBAX01.dwg
02/23/11 15:33 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

IBI GROUP

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Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELA_IRANBAX01.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A

RAINIER STATION
SITE SECTIONS

Drawing No.: RANB-AX01

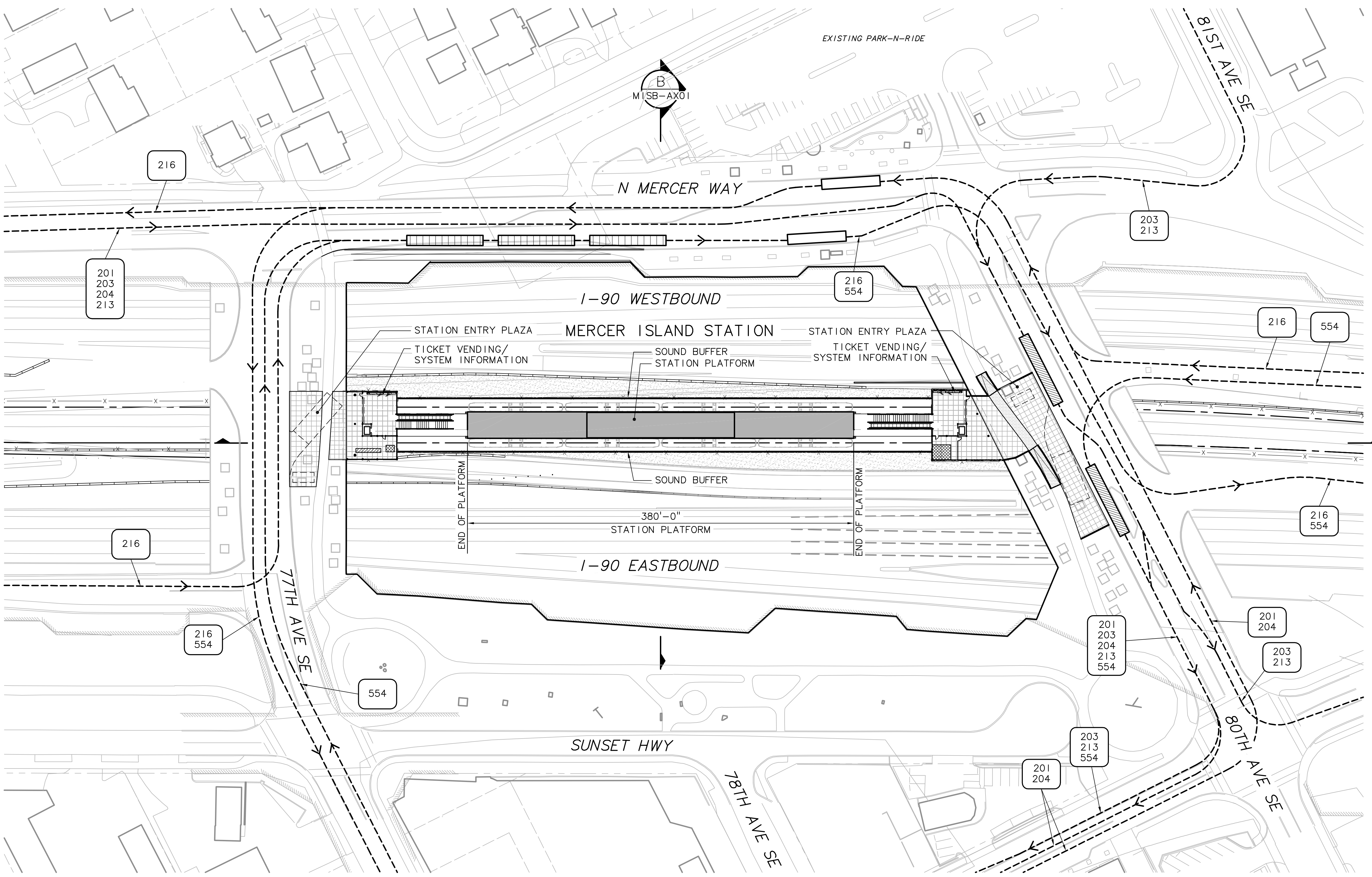
Sheet No.: A-23

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELA_L60_CA
ELA_L60_CM
ELA_L60_KA
ELA_L60_LP
ELA_L60_SP
ELA_N05_AG
ELA_N05_AP
ELA_N05_AS
ZG-2234H
x9316rx
x9319rx
x9319sf
x9322rx
x9322sf
-Unresolved:



EXISTING PARK-N-RIDE
81ST AVE SE
B
MISB-AX01
216
N MERCER WAY
203
213
201
203
204
213
216
554
I-90 WESTBOUND
STATION ENTRY PLAZA
MERCER ISLAND STATION
STATION ENTRY PLAZA
TICKET VENDING/
SYSTEM INFORMATION
SOUND BUFFER
STATION PLATFORM
TICKET VENDING/
SYSTEM INFORMATION
216
554
A
MISB-AX01
SOUND BUFFER
END OF PLATFORM
380'-0"
STATION PLATFORM
END OF PLATFORM
216
554
216
I-90 EASTBOUND
77TH AVE SE
216
554
554
201
203
204
213
554
201
204
203
213
SUNSET HWY
78TH AVE SE
203
213
554
201
204
80TH AVE SE

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
- - -	BUS ROUTE
201 203 204	
▩	BIKE PARKING: CLASS I
▨	BIKE PARKING: CLASS 2
░	NEW LANDSCAPE
░	NEW WALKS/ RAMP
▦	NEW PLAZA
— —	TRACK

50 25 0 50 100
SCALE IN FEET

SITE AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
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FEIS CONCEPTUAL

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SOUND TRANSIT

Submitted:
Date:
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Date:

Scale: 1"=50'
Filename: ELA_IMISBAS01.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED
HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
MERCER ISLAND STATION
STATION AREA PLAN

Drawing No.: MISB-AS01
Sheet No.: A-24
Rev.:

c:\work\feis\ELA_IMISBAS01.dwg
02/23/11 15:31 : bolimaf 0E6579

DWG INFO:

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-Overlay:
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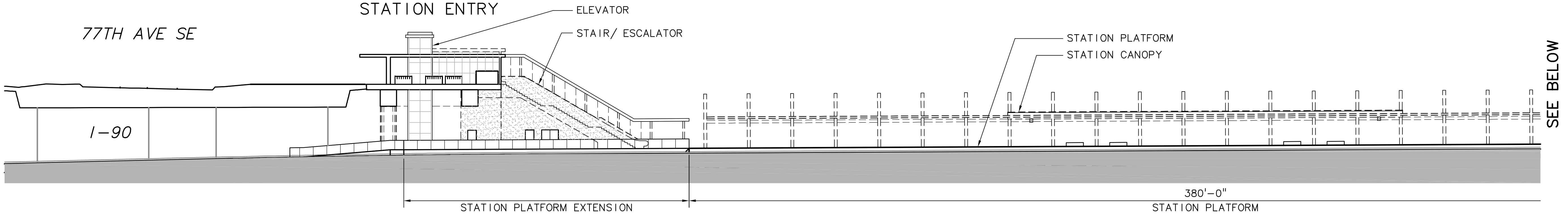
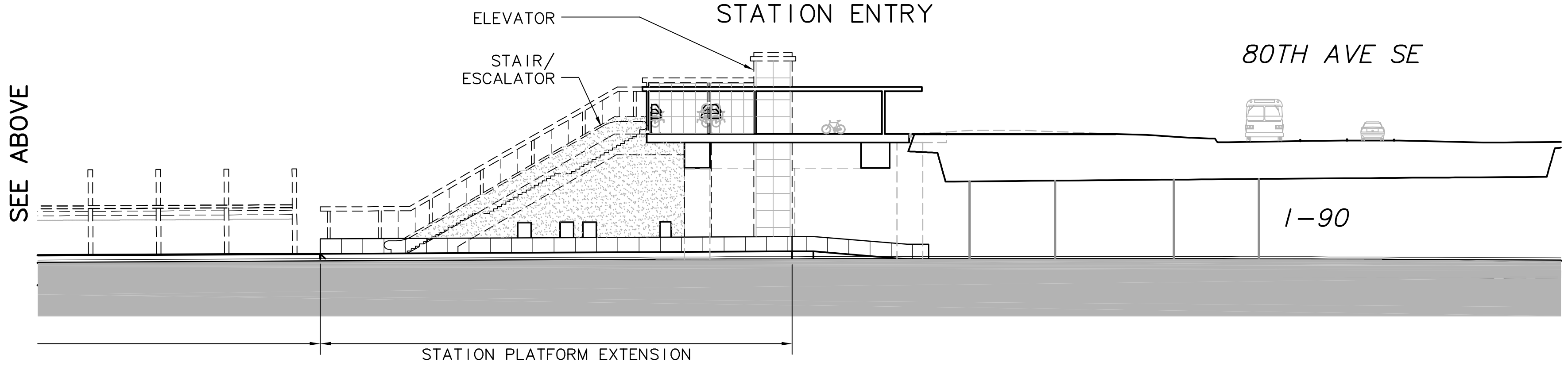
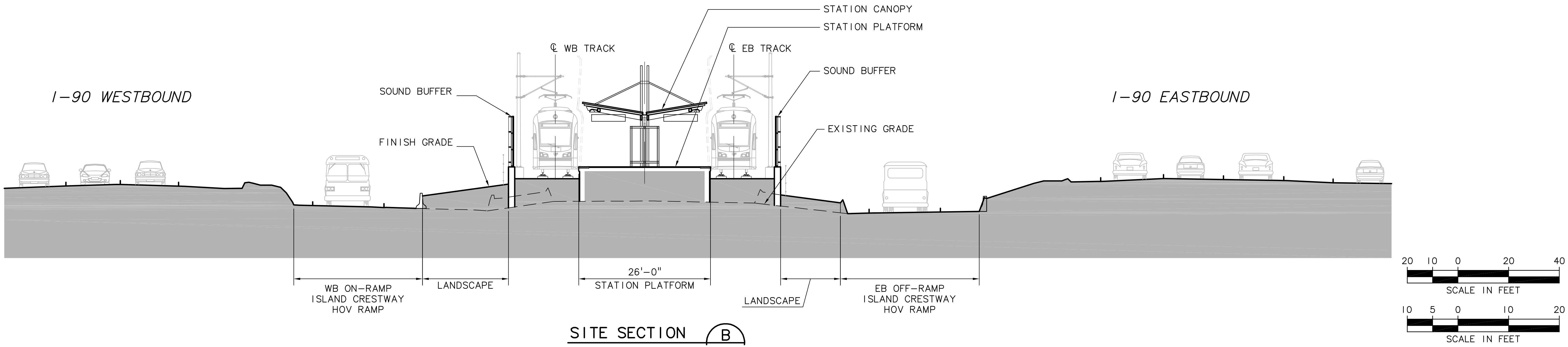

STATION ENTRY
ELEVATOR
STAIR/ ESCALATOR
77TH AVE SE
I-90
STATION PLATFORM
STATION CANOPY
SEE BELOW
380'-0"
STATION PLATFORM EXTENSION
STATION PLATFORM

SITE SECTION A1 MISB-AX01
SCALE: 1" = 20'


ELEVATOR
STATION ENTRY
STAIR/
ESCALATOR
80TH AVE SE
SEE ABOVE
I-90
STATION PLATFORM EXTENSION

SITE SECTION A2 MISB-AX01
SCALE: 1" = 20'


STATION CANOPY
STATION PLATFORM
℄ WB TRACK
℄ EB TRACK
SOUND BUFFER
SOUND BUFFER
I-90 WESTBOUND
I-90 EASTBOUND
FINISH GRADE
EXISTING GRADE
26'-0"
STATION PLATFORM
WB ON-RAMP
ISLAND CRESTWAY
HOV RAMP
LANDSCAPE
LANDSCAPE
EB OFF-RAMP
ISLAND CRESTWAY
HOV RAMP
20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

SITE SECTION B MISB-AX01
SCALE: 1" = 10'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:
Date:

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fax 206.521.9095

Approved:
Date:

SOUNDTRANSIT

Scale: AS NOTED
Filename: ELA_IMISBAX01.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT A
MERCER ISLAND STATION
SITE SECTIONS

Drawing No.: MISB-AX01
Sheet No.: A-25
Rev.:

c:\work\feis\ELA_IMISBAX01.dwg
02/23/11 15:32 : bolimaf 0E6579

XREF'S

Resolved

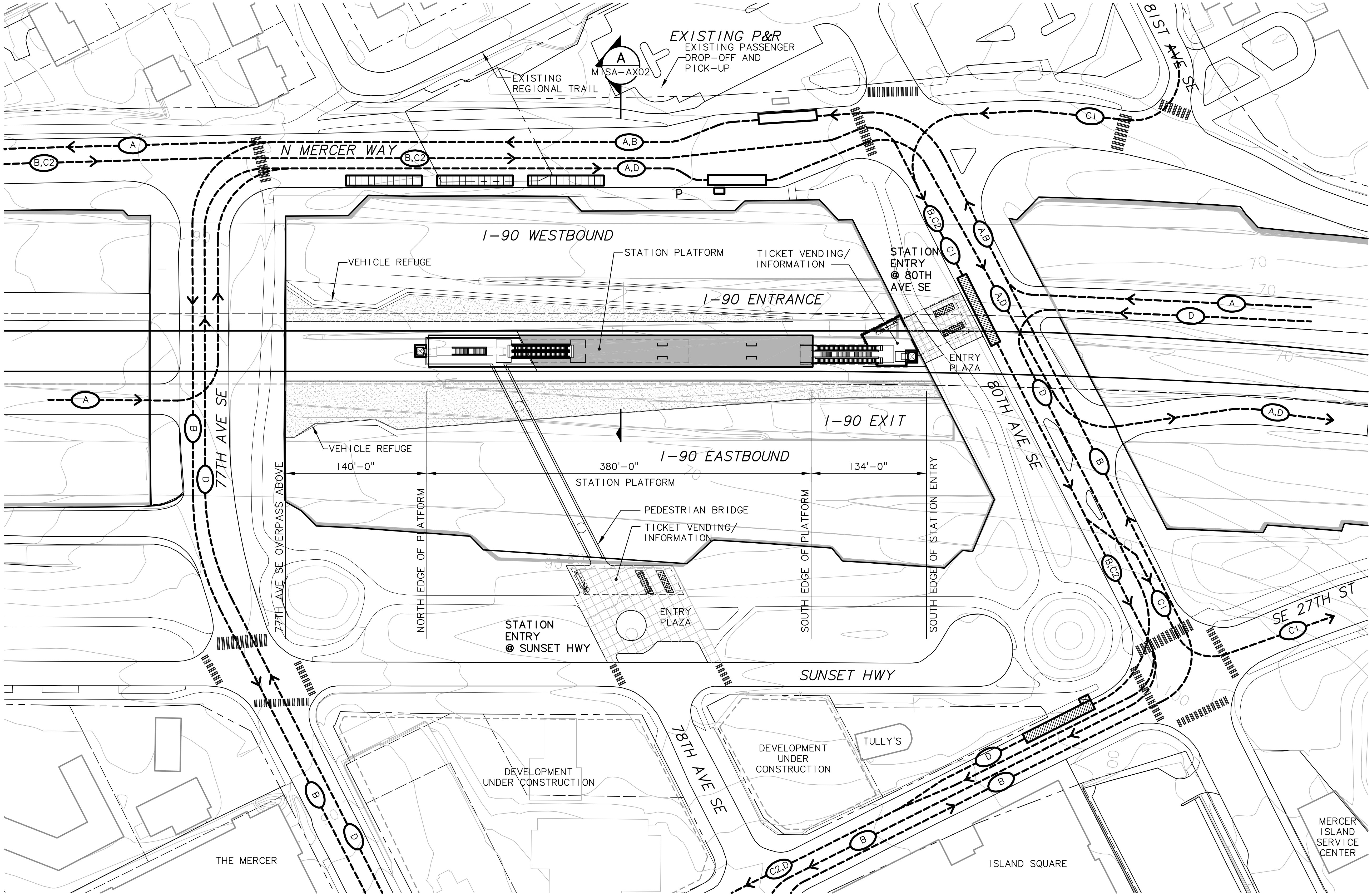
ELA_A0_CM
ELA_A0__KA
ELA_MISAAG_A
ELA_MISAAP_A
ELA_MISAAS_I
ELA_MISA_AZ
REG-DCON
ZG-2234H
x9316rx
x9319cn
x9319rx
x9319sf
x9322rx
x9322sf

Unresolved

X9316OP
X9319OP
X9322OP
x9319ut
x9319vg

LTSCALE

1=1



EXISTING P&R
EXISTING PASSENGER DROP-OFF AND PICK-UP
A
MISA-AX02
EXISTING REGIONAL TRAIL
81ST AVE SE
N MERCER WAY
A
A,B
B,C2
B,C2
A,D
C1
P
I-90 WESTBOUND
STATION PLATFORM
TICKET VENDING/ INFORMATION
STATION ENTRY @ 80TH AVE SE
VEHICLE REFUGE
I-90 ENTRANCE
70
70
70
B,C2
C1
A,B
A,D
A
D
ENTRY PLAZA
80TH AVE SE
D
A,D
A
I-90 EXIT
I-90 EASTBOUND
VEHICLE REFUGE
140'-0"
380'-0"
134'-0"
STATION PLATFORM
77TH AVE SE
77TH AVE SE OVERPASS ABOVE
NORTH EDGE OF PLATFORM
SOUTH EDGE OF PLATFORM
SOUTH EDGE OF STATION ENTRY
B
D
PEDESTRIAN BRIDGE
TICKET VENDING/ INFORMATION
STATION ENTRY @ SUNSET HWY
ENTRY PLAZA
B
B,C2
C1
SE 27TH ST
C1
SUNSET HWY
78TH AVE SE
DEVELOPMENT UNDER CONSTRUCTION
DEVELOPMENT UNDER CONSTRUCTION
TULLY'S
D
D
B
B
B
C2,D
THE MERCER
ISLAND SQUARE
MERCER ISLAND SERVICE CENTER
1
2
3
4
5

STATION ACCESS PLAN

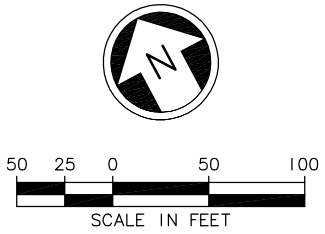
SCALE: 1" = 50'

NOTES

1. ALIGNMENT A1

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
A	BUS ROUTE : 216
B	BUS ROUTE : 201, 204
C1	BUS ROUTE : 203, 213 (EAST OF 80TH AVE SE)
C2	BUS ROUTE : 203, 213 (WEST OF 80TH AVE SE)
D	BUS ROUTE : 554
▩	BIKE STORAGE
▩	BIKE RACKS
▥	CROSSWALK
░	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK
▭	TRAIN



N
50 25 0 50 100
SCALE IN FEET

c:\work\ELA\MISA_AS02.dwg
10/20/08 11:12 : eackerm 0E5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

STREETER & ASSOCIATES ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET SEATTLE, WA 98101-2901
206-621-9270 (FAX) 206-621-7715

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'-0"
Filename: ELA\MISA_AS02.dwg
Contract No.: EL SEG_A
Date:

EAST LINK PROJECT
SEGMENT A
MERCER ISLAND STATION W/ PEDESTRIAN BRIDGE
I-90 ALTERNATIVE A1
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: MISA-AS02
Sheet No.: A-26
Rev.:

XREF'S
Resolved
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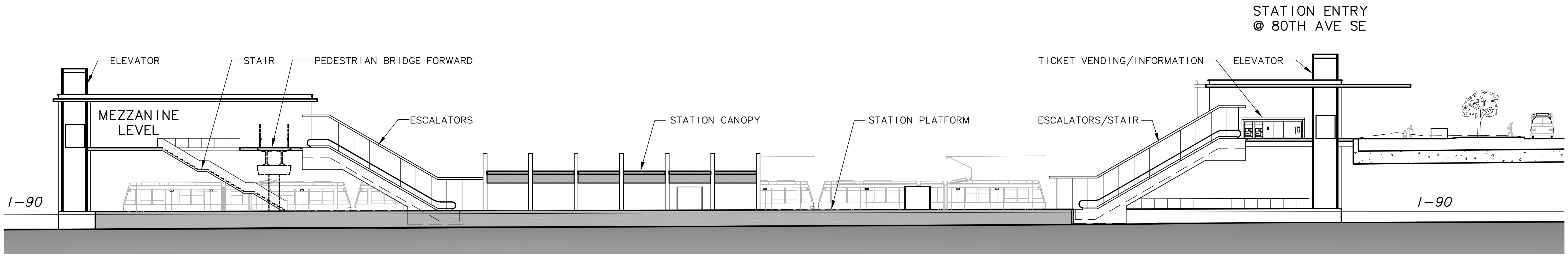
REG-DCON
ZG-2234H
Unresolved

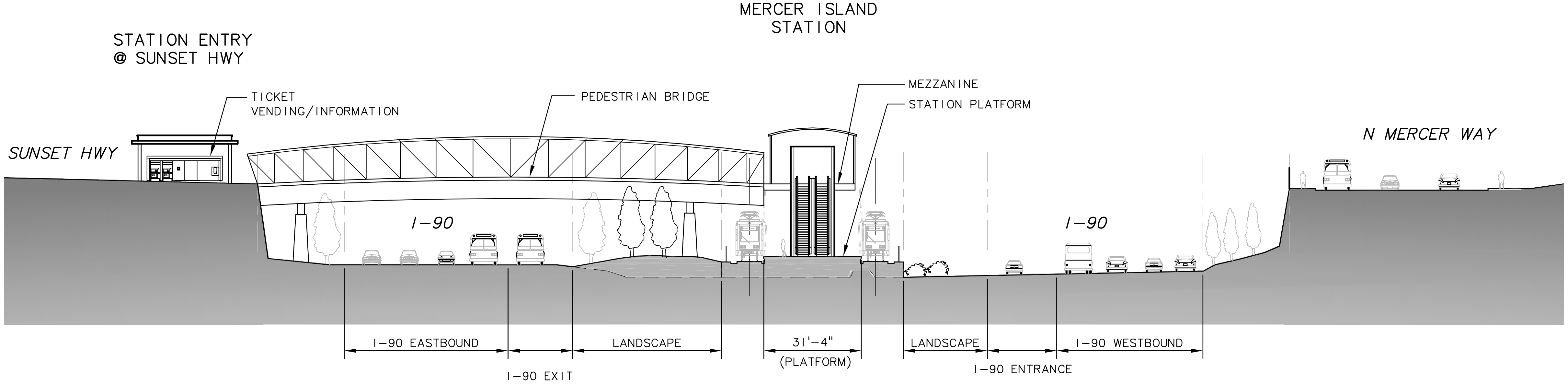
LTSCALE
I=I



STATION ENTRY @ 80TH AVE SE
ELEVATOR
STAIR
PEDESTRIAN BRIDGE FORWARD
MEZZANINE LEVEL
ESCALATORS
STATION CANOPY
STATION PLATFORM
TICKET VENDING/INFORMATION
ELEVATOR
ESCALATORS/STAIR
I-90
I-90

ELEVATION

SCALE: 1" = 20'



MERCER ISLAND STATION
STATION ENTRY @ SUNSET HWY
TICKET VENDING/INFORMATION
PEDESTRIAN BRIDGE
MEZZANINE
STATION PLATFORM
SUNSET HWY
N MERCER WAY
I-90
I-90
I-90 EASTBOUND
I-90 EXIT
LANDSCAPE
31'-4" (PLATFORM)
LANDSCAPE
I-90 ENTRANCE
I-90 WESTBOUND

SECTION

SCALE: 1" = 20'

A
MISA-AX01
MISA-AS01

20 10 0 20 40
SCALE IN FEET

c:\work\ELAIMISA_AX02.dwg
10/16/08 08:35 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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CH2MHILL
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SEATTLE, WA 98101-2901 (FAX) 206-621-7715

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'-0"
Filename: ELAIMISA_AX02.dwg
Contract No.: EL SEG_A
Date:

EAST LINK PROJECT
SEGMENT A
MERCER ISLAND STATION W/ PEDESTRIAN BRIDGE
I-90 ALTERNATIVE A1
ELEVATION AND SECTIONS

THIS PRINT REDUCED HALF SCALE

Drawing No.: MISA-AX02
Sheet No.: A-27
Rev.:

XREF'S

Resolved

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REG-DCON
X00_L251KA
ZG-2234H
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x0225rx
x0516rx
x0516sf
x0519rx
x0519sf
x0522rx
x0525rx
x6919rx
x6922rx
x6925rx
x7219rx
x7222rx
x7225rx
x7519rx
x7522rx
x7819rx
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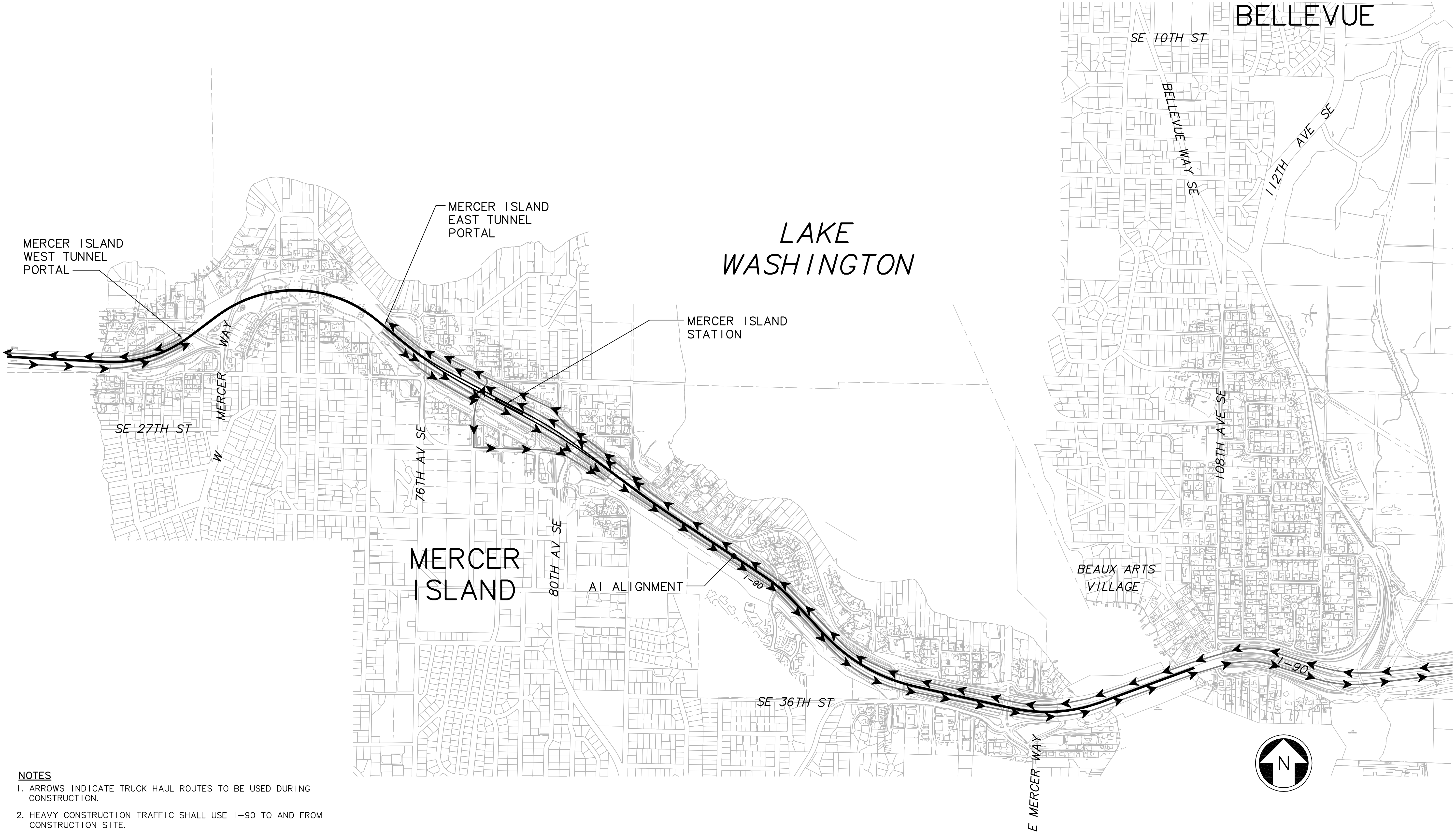
BELLEVUE
SE 10TH ST
BELLEVUE WAY SE
112TH AVE SE
LAKE WASHINGTON
MERCER ISLAND EAST TUNNEL PORTAL
MERCER ISLAND WEST TUNNEL PORTAL
MERCER ISLAND STATION
W MERCER WAY
SE 27TH ST
76TH AV SE
80TH AV SE
MERCER ISLAND
A1 ALIGNMENT
I-90
108TH AVE SE
BEAUX ARTS VILLAGE
I-90
SE 36TH ST
E MERCER WAY
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90 TO AND FROM CONSTRUCTION SITE.

c:\work\ELA1A0__CC02.dwg
10/16/08 08:27 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

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Date:
Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELA1A0__CC02.dwg
Contract No.: EL SEG_A
Date:

EAST LINK PROJECT
SEGMENT A
ALTERNATIVE A1

CONSTRUCTION TRUCK HAUL ROUTE PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: A0_-CC02
Sheet No.: A-28
Rev.:

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
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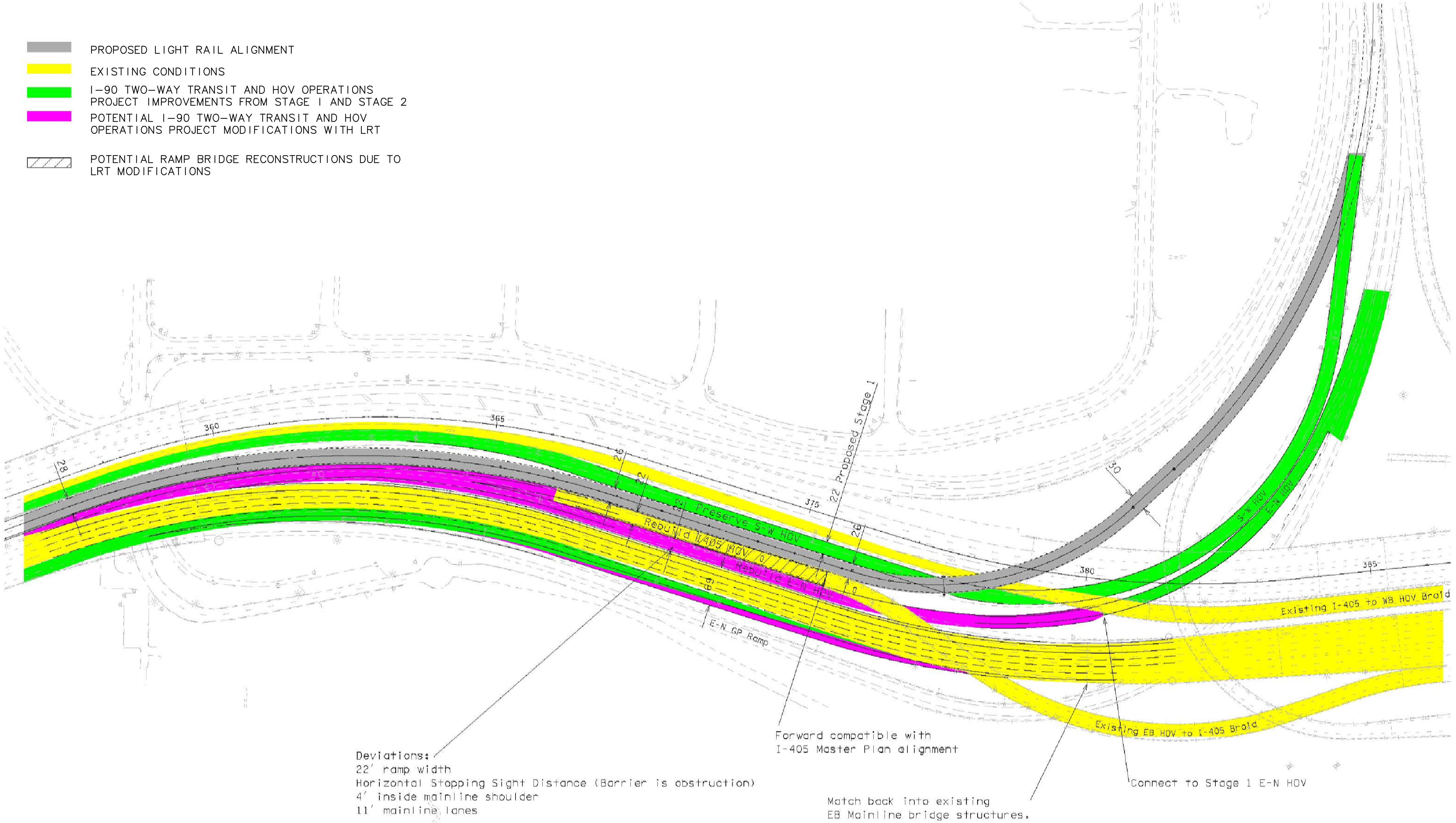

360
365
375
380
385
28
26
22
22
26
30
22 Proposed Stage 1
c/l Preserve S-W HOV
Rebuild I-405 HOV
Rebuild E-N HOV
E-N GP Ramp
S-W HOV
E-N HOV
Existing I-405 to WB HOV Braid
Existing EB HOV to I-405 Braid

▬ PROPOSED LIGHT RAIL ALIGNMENT

🟨 EXISTING CONDITIONS

🟩 I-90 TWO-WAY TRANSIT AND HOV OPERATIONS PROJECT IMPROVEMENTS FROM STAGE 1 AND STAGE 2

🟪 POTENTIAL I-90 TWO-WAY TRANSIT AND HOV OPERATIONS PROJECT MODIFICATIONS WITH LRT

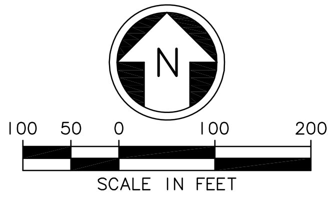
▨ POTENTIAL RAMP BRIDGE RECONSTRUCTIONS DUE TO LRT MODIFICATIONS

Deviations:
22' ramp width
Horizontal Stopping Sight Distance (Barrier is obstruction)
4' inside mainline shoulder
11' mainline lanes

Forward compatible with
I-405 Master Plan alignment

Match back into existing
EB Mainline bridge structures.

Connect to Stage 1 E-N HOV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50
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100
200
SCALE IN FEET

HNTB PROJECT NO. 28799

c:\work\ELBIB0__KZ10.dwg
11/12/08 14:55 : eackerm 0E5396

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Designed By:
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FEIS CONCEPTUAL

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Date:
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Date:

SOUND TRANSIT

Scale: 1"=100'
Filename: ELBIB0__KZ10.dwg
Contract No.: EL SEG_B
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2M, B2A, B2E, B3, AND B7

I-90 EB TO BELLEVUE WAY HOV
DIRECT ACCESS RAMP RECONSTRUCTION

Drawing No.: B0_-KZ10
Sheet No.: B-1
Rev.:

XREF'S

Resolved
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x0531UT
x0534UT
x0831UT
x0834UT
ELC_C8E_KA
ELD_D0__MF_I
ELD_D2A_KA
ELD_D2E_US
REG-DCON
Zg-2234h
x0531rx
x0531sf
x0534rx
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x0831rx
x0831sf
x0834rx
x0834sf

Unresolved
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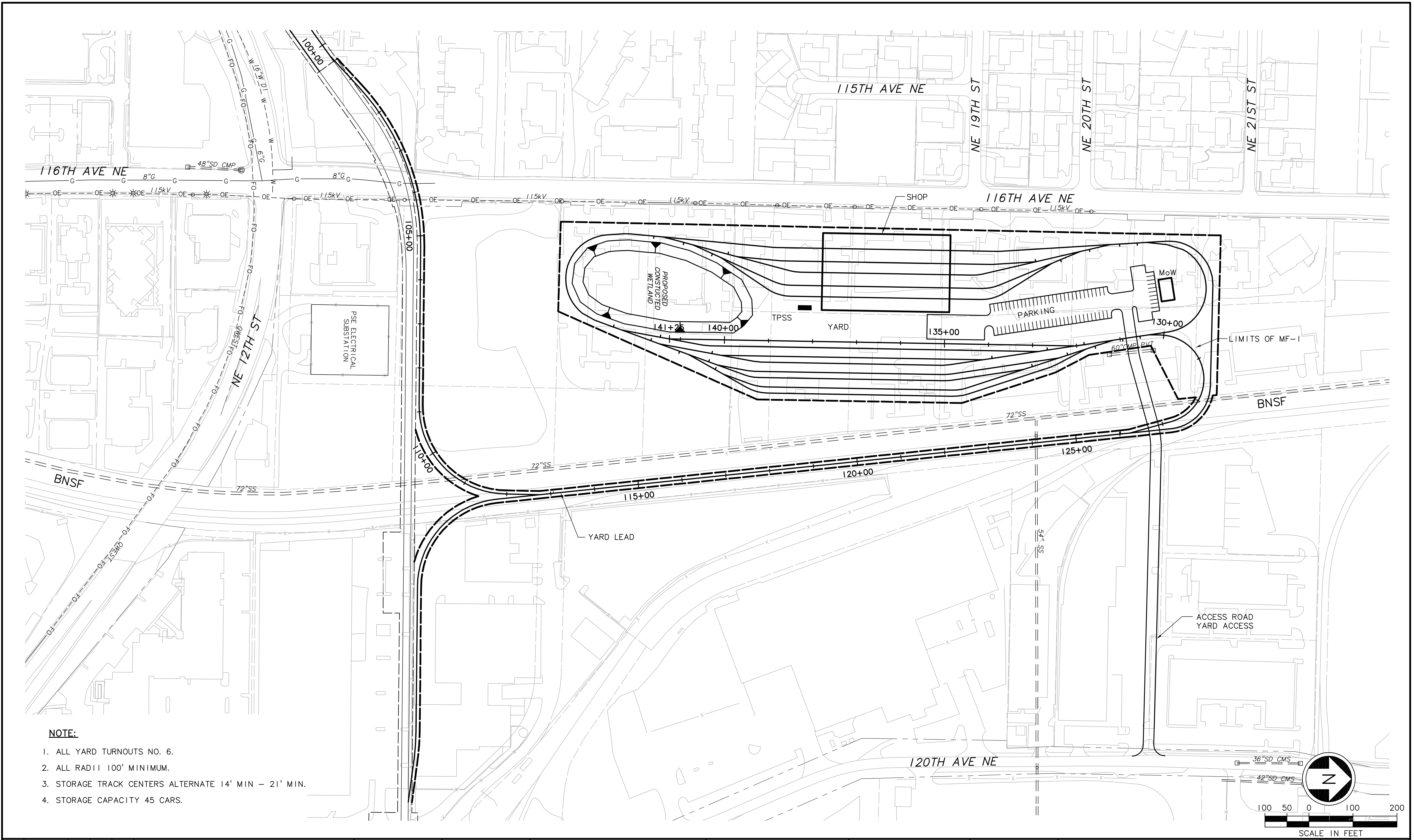
key_East

LTSCALE

I=I



1
2
3
4
5
100+00
105+00
110+00
115+00
120+00
125+00
130+00
135+00
140+00
141+25
116TH AVE NE
115TH AVE NE
NE 19TH ST
NE 20TH ST
NE 21ST ST
NE 12TH ST
120TH AVE NE
48"SD CMP
8"G
6"G
16"W DI
115kV
OE
G
W
FO
QWEST FO
PSE ELECTRICAL SUBSTATION
SHOP
MoW
PARKING
TPSS
YARD
PROPOSED CONSTUCTED WETLAND
60"CMP PVT
LIMITS OF MF-I
BNSF
72"SS
54"SS
YARD LEAD
ACCESS ROAD YARD ACCESS
36"SD CMS
42"SD CMS
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 45 CARS.

c:\work\ELD1D0__MP01.dwg
10/16/08 10:35 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: 1"=100'
Filename: ELD1D0__MP01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF1 - D2A, D2E & D3
LAYOUT & SITE PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: D0_-MP01
Sheet No.: D-94
Rev.:

XREF'S
Resolved
x0531UT
x0534UT
x0831UT
x0834UT
ELC_C8E_KA
ELD_D0__MF_2
ELD_D2A_KA
ELD_D3__US
REG-DCON
Zg-2234h
x0531rx
x0531sf
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x0831rx
x0831sf
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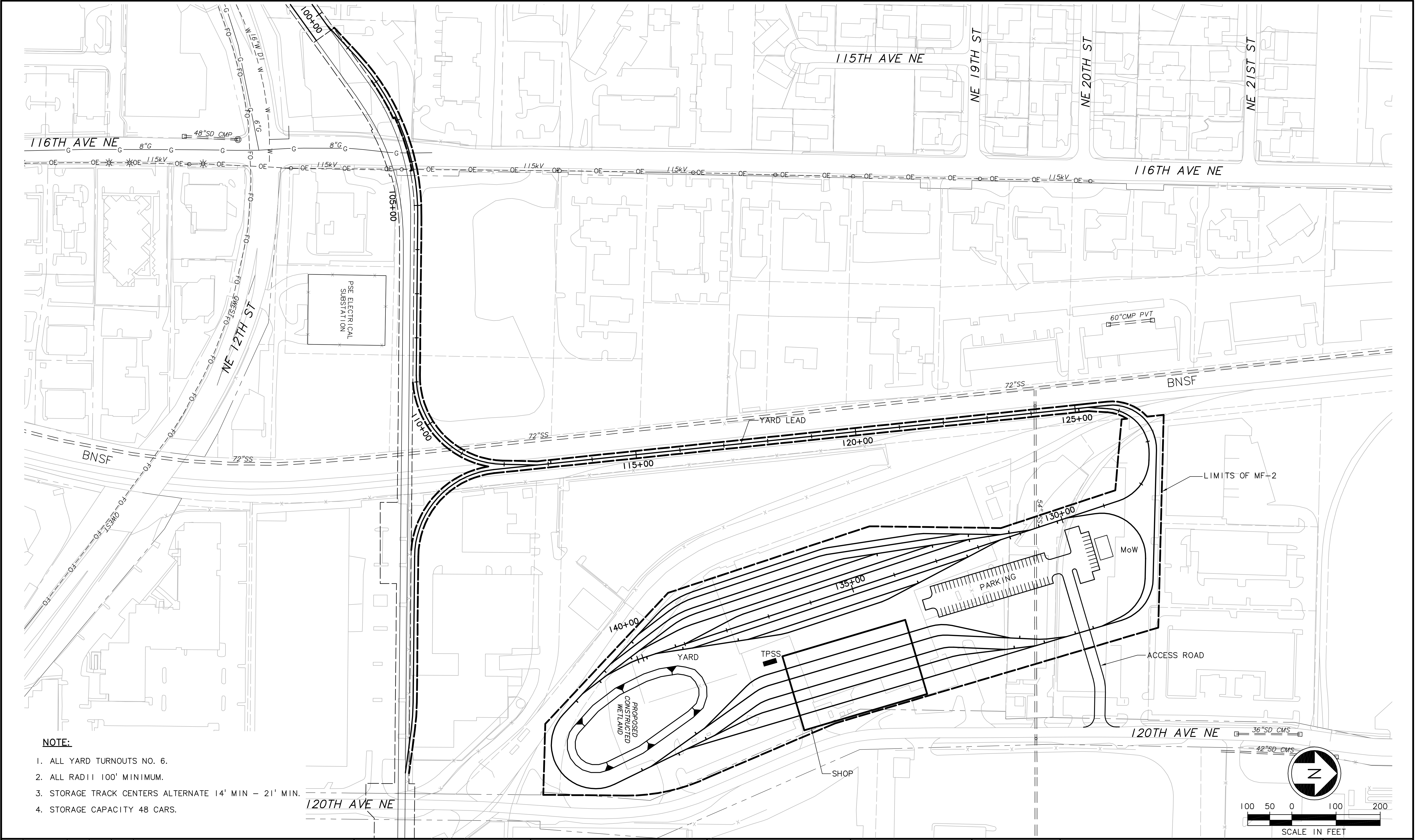
x0834sf
Unresolved
key_East
LTSCALE
1=1



115TH AVE NE
NE 19TH ST
NE 20TH ST
NE 21ST ST
116TH AVE NE
116TH AVE NE
48"SD CMP
8"G
8"G
6"G
16"W DI W
115kV
115kV
115kV
115kV
115kV
OE
FO
G
W
100+00
105+00
110+00
115+00
120+00
125+00
130+00
135+00
140+00
PSE ELECTRICAL SUBSTATION
NE 12TH ST
QWEST FO
60"CMP PVT
72"SS
72"SS
72"SS
54"SS
BNSF
BNSF
YARD LEAD
LIMITS OF MF-2
MoW
PARKING
YARD
TPSS
PROPOSED CONSTRUCTED WETLAND
ACCESS ROAD
SHOP
120TH AVE NE
120TH AVE NE
36"SD CMS
42"SD CMS
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 48 CARS.

c:\work\ELDID0__MP02.dwg
10/16/08 10:36 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: 1"=100'
Filename: ELDID0__MP02.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF2 - D2A, D2E & D3
LAYOUT & SITE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D0__MP02
Sheet No.: D-95
Rev.:

XREF'S

Resolved
----
x1131UT
x1134UT
x1431UT
x1434UT
ELD_D2A_KA
ELD_D2A_US
ELD_D2E_US
ELD_D2__MF_3
ELE_EX__KA
REG-DCON
Zg-2234h
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
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x1434sf

Unresolved
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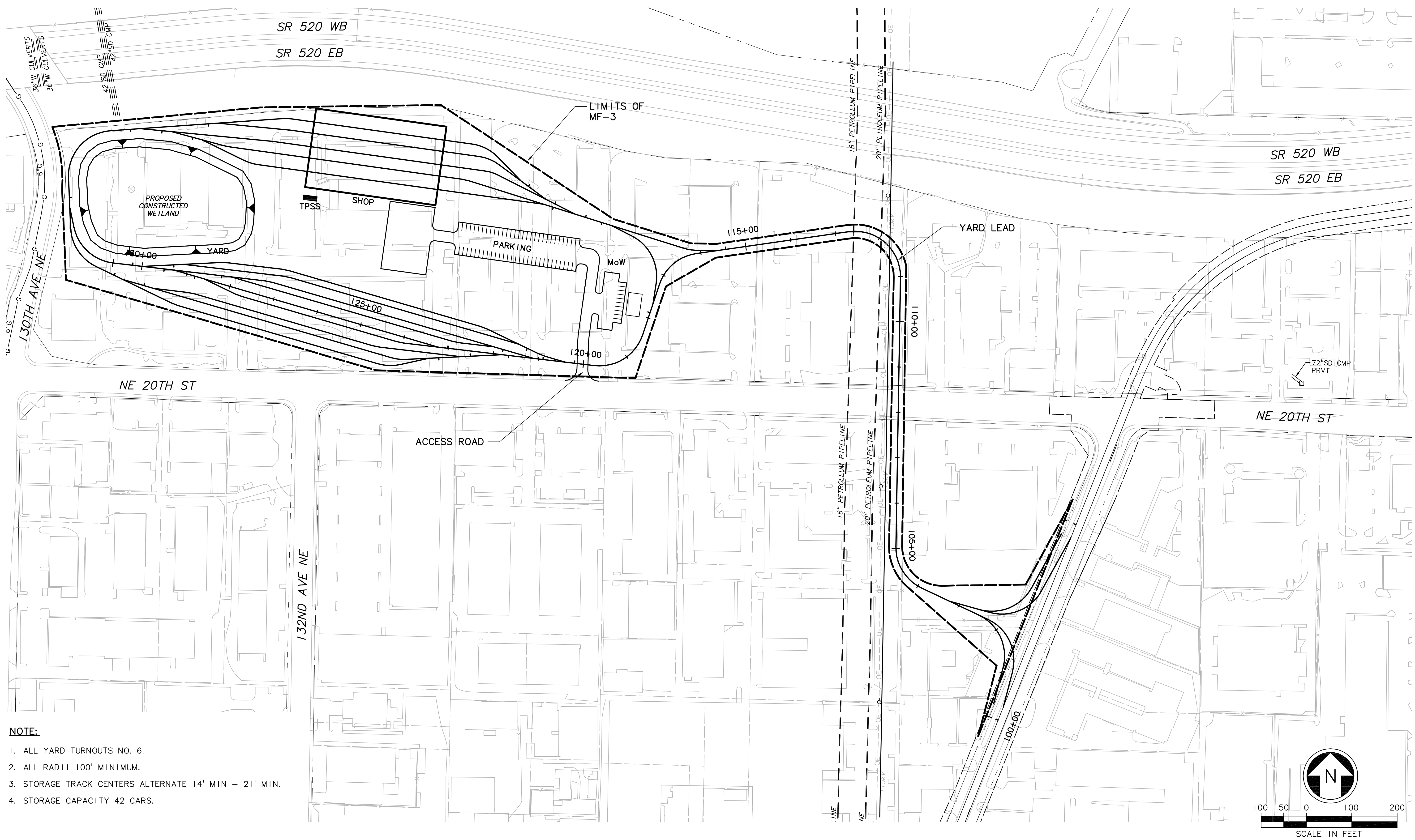
key_East

LTSCALE

1=1


SR 520 WB
SR 520 EB
36"W CULVERTS
36"W CULVERTS
42"SD CMP
42"SD CMP
LIMITS OF MF-3
16" PETROLEUM PIPELINE
20" PETROLEUM PIPELINE
SR 520 WB
SR 520 EB
PROPOSED CONSTRUCTED WETLAND
TPSS
SHOP
YARD
130+00
PARKING
MoW
115+00
YARD LEAD
110+00
125+00
120+00
130TH AVE NE
6"G
NE 20TH ST
ACCESS ROAD
72"SD CMP PRVT
NE 20TH ST
132ND AVE NE
16" PETROLEUM PIPELINE
20" PETROLEUM PIPELINE
105+00
100+00
N
100
50
0
100
200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 42 CARS.

c:\work\ELD1D2__MP01.dwg
10/16/08 10:36 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=100'
Filename: ELD1D2__MP01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF3 - D2

LAYOUT & SITE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D2_-MP01
Sheet No.: D-96
Rev.:

XREF'S

Resolved
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x1131UT
x1134UT
x1431UT
x1434UT
ELD_D3__KA
ELD_D3__MF_3
ELD_D3__US
REG-DCON
Zg-2234h
x1131rx
x1131sf
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Unresolved
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key_East

LTSCALE

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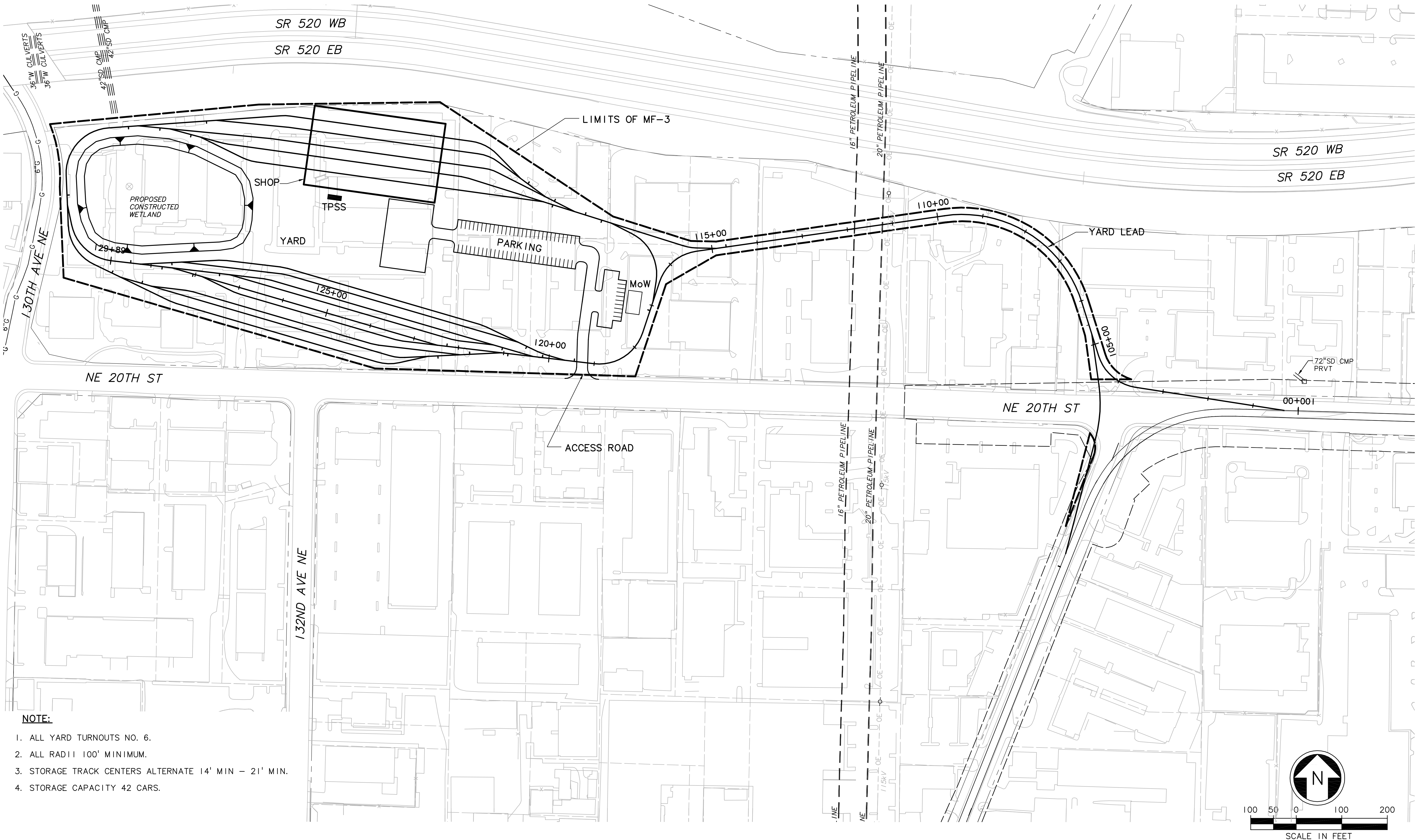

SR 520 WB
SR 520 EB
36"W CULVERTS
36"W CULVERTS
42"SD CMP
42"SD CMP
LIMITS OF MF-3
16" PETROLEUM PIPELINE
20" PETROLEUM PIPELINE
SR 520 WB
SR 520 EB
SHOP
TPSS
PROPOSED CONSTRUCTED WETLAND
YARD
PARKING
MoW
129+80
125+00
120+00
115+00
110+00
105+00
00+001
YARD LEAD
130TH AVE NE
NE 20TH ST
NE 20TH ST
ACCESS ROAD
72"SD CMP PRVT
132ND AVE NE
16" PETROLEUM PIPELINE
20" PETROLEUM PIPELINE
OE
115kV
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN – 21' MIN.
4. STORAGE CAPACITY 42 CARS.

c:\work\ELDID3__MP01.dwg
10/16/08 10:54 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:

Approved By:

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Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: 1"=100'
Filename: ELDID3__MP01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF3 – D3

LAYOUT & SITE PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: D3_-MP01
Sheet No.: D-97
Rev.:

XREF'S

Resolved
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x0531UT
x0534UT
x0831UT
x0834UT
ELD_D5__KA
ELD_D5__MF_1
ELD_D5__US
REG-DCON
Zg-2234h
x0531rx
x0531sf
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x0534sf
x0831rx
x0831sf
x0834rx
x0834sf

Unresolved

LTSCALE

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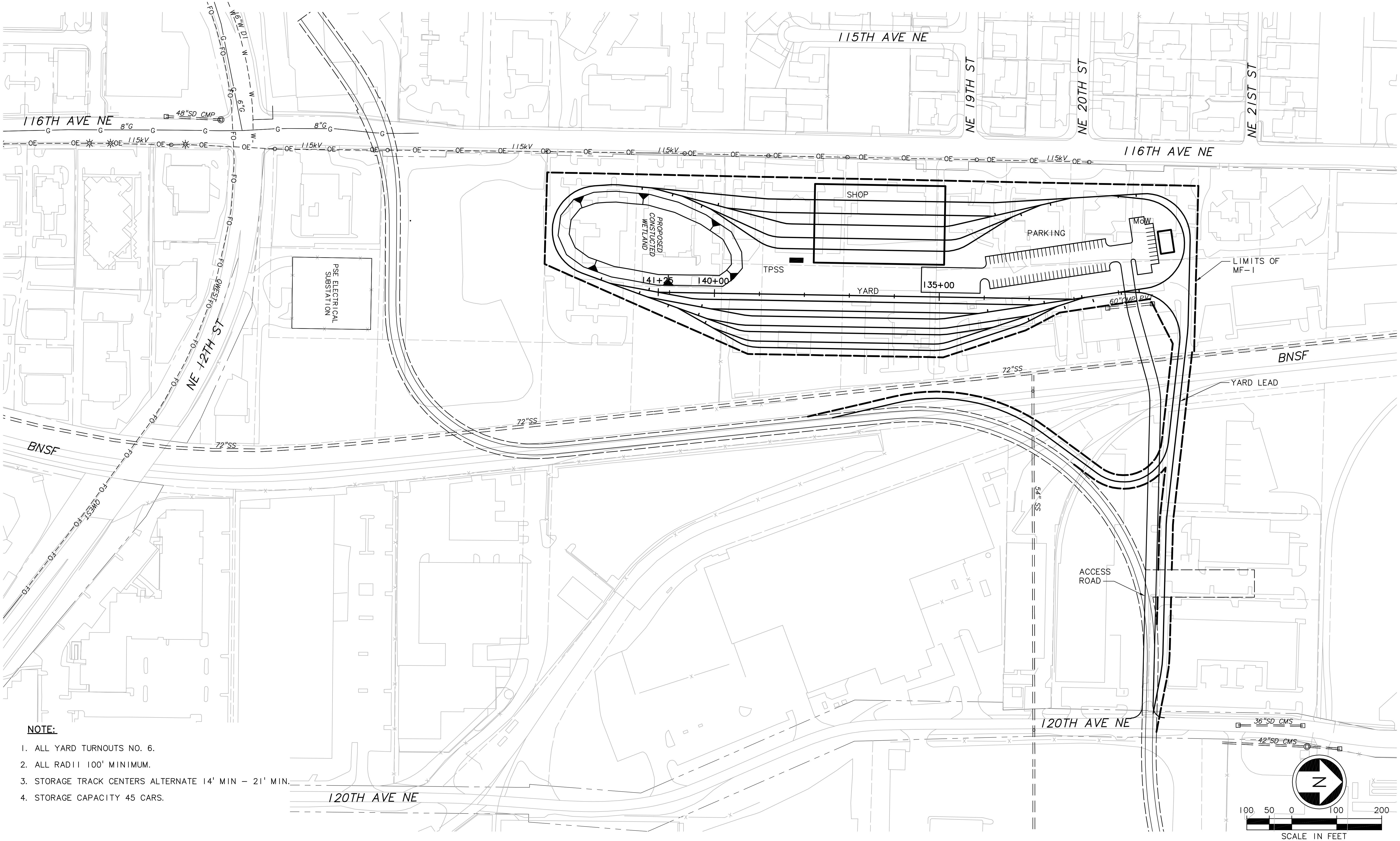

115TH AVE NE
NE 19TH ST
NE 20TH ST
NE 21ST ST
116TH AVE NE
116TH AVE NE
48"SD CMP
8"G
8"G
6"G
6"W DI
115kV
115kV
115kV
115kV
115kV
FO
G
W
OE
SHOP
PARKING
MOW
PROPOSED CONSTUCTED WETLAND
TPSS
141+25
140+00
135+00
YARD
LIMITS OF MF-1
60"CMP PVT
PSE ELECTRICAL SUBSTATION
NE 12TH ST
QWEST FO
BNSF
BNSF
72"SS
72"SS
72"SS
YARD LEAD
54"SS
ACCESS ROAD
120TH AVE NE
120TH AVE NE
36"SD CMS
42"SD CMS
N
100 50 0 100 200
SCALE IN FEET
1
2
3
4
5

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN – 21' MIN.
4. STORAGE CAPACITY 45 CARS.

c:\work\ELD1D5__MP01.dwg
10/16/08 11:01 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

SOUND TRANSIT

Scale: 1"=100'
Filename: ELD1D5__MP01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF1 – D5

LAYOUT & SITE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_-MP01
Sheet No.: D-98
Rev.:

XREF'S

Resolved
----
x0531UT
x0534UT
x0831UT
x0834UT
ELD_D5__KA
ELD_D5__MF_2
ELD_D5__US
REG-DCON
Zg-2234h
x0531rx
x0531sf
x0534rx
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x0834sf

Unresolved
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key_East

LTSCALE

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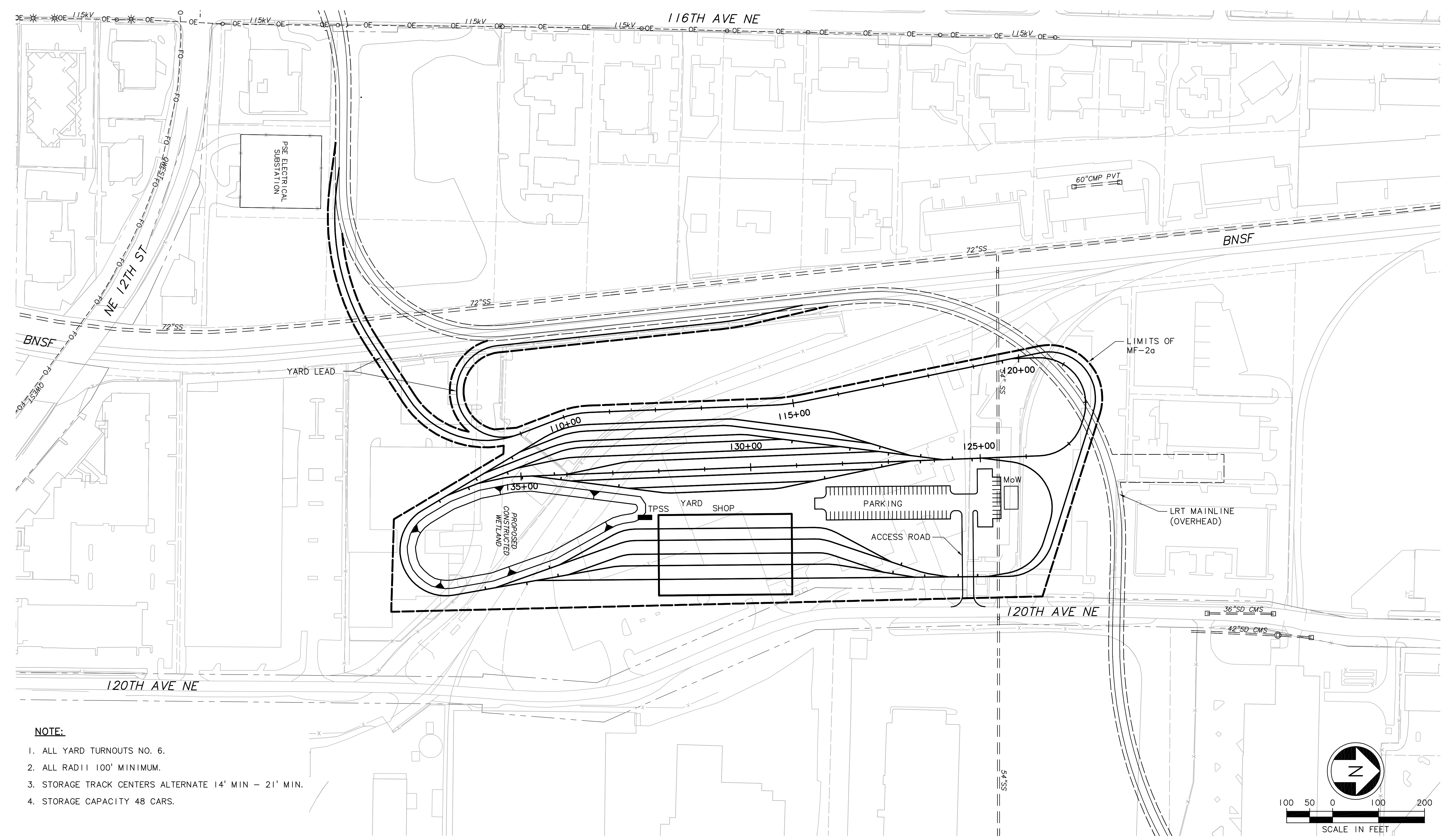
116TH AVE NE
115kV
OE
FO
QWEST FO
PSE ELECTRICAL SUBSTATION
NE 12TH ST
BNSF
72"SS
60"CMP PVT
YARD LEAD
LIMITS OF MF-2a
120+00
115+00
110+00
130+00
125+00
135+00
54" SS
MoW
PARKING
TPSS
YARD
SHOP
PROPOSED CONSTRUCTED WETLAND
ACCESS ROAD
LRT MAINLINE (OVERHEAD)
120TH AVE NE
36"SD CMS
42"SD CMS
N
100
50
0
100
200
SCALE IN FEET
1
2
3
4
5

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 48 CARS.

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Date:

SOUNDTRANSIT

Scale: 1"=100'
Filename: ELDID5__MP02.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF2a - D5
LAYOUT & SITE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_-MP02
Sheet No.: D-99
Rev.:

XREF'S

Resolved
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x1134UT
x1431UT
x1434UT
ELD_D5__KA
ELD_D5__MF_3
ELD_D5__US
ELE_EX__KA
REG-DCON
Zg-2234h
x1131rx
x1131sf
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x1434rx
x1434sf

Unresolved
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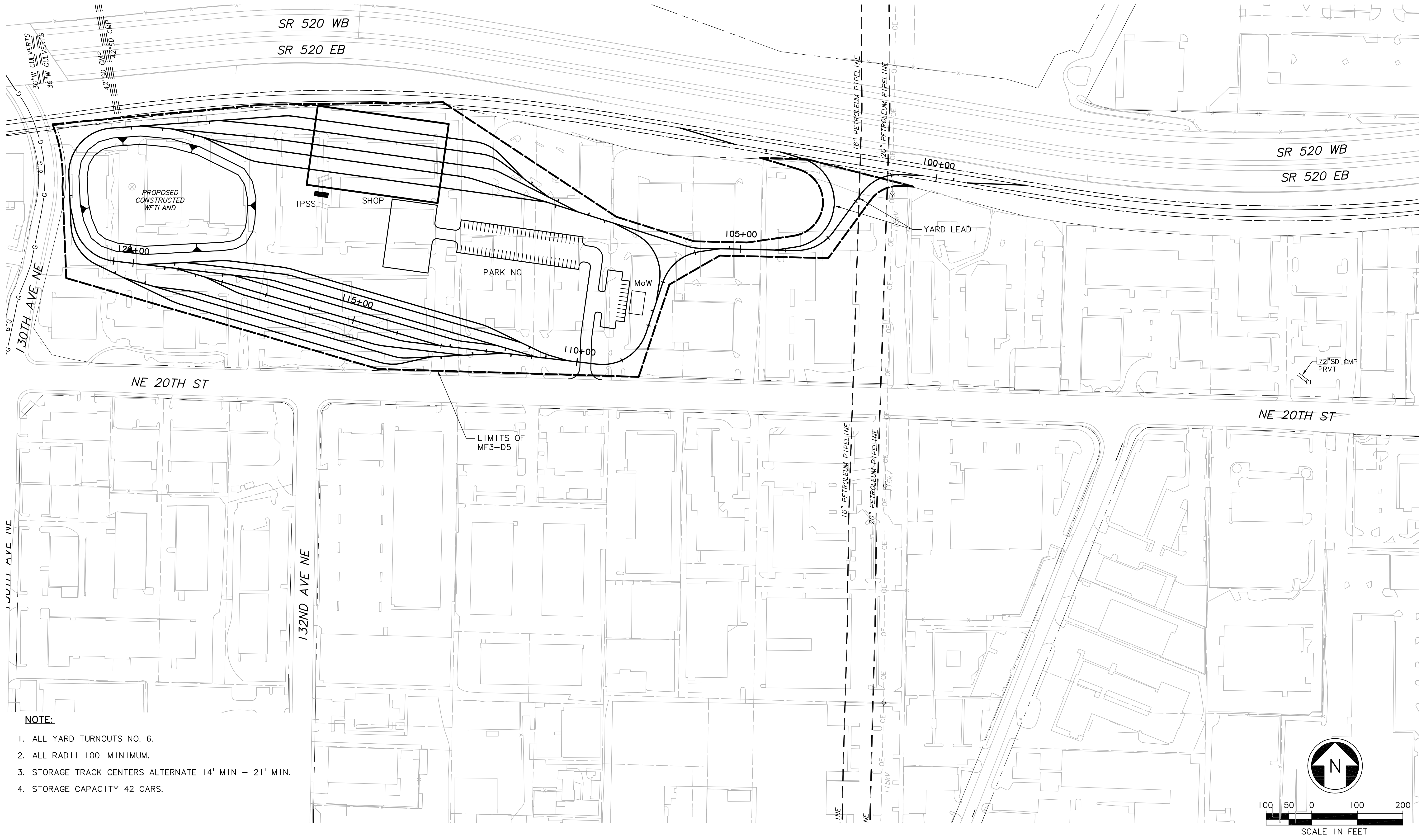
key_East

LTSCALE

1=1


SR 520 WB
SR 520 EB
36"W CULVERTS
36"W CULVERTS
42"SD CMP
42"SD CMP
16" PETROLEUM PIPELINE
20" PETROLEUM PIPELINE
PROPOSED CONSTRUCTED WETLAND
TPSS
SHOP
PARKING
MoW
120+00
115+00
110+00
105+00
100+00
YARD LEAD
LIMITS OF MF3-D5
NE 20TH ST
NE 20TH ST
130TH AVE NE
130TH AVE NE
132ND AVE NE
72"SD CMP PRVT
115kV
OE
G
6"G
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 42 CARS.

c:\work\ELDID5__MP03.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: 1"=100'
Filename: ELDID5__MP03.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
MAINTENANCE FACILITY
MF3 - D5

LAYOUT & SITE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_-MP03
Sheet No.: D-100
Rev.:

XREF'S

Resolved

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REG-DCON
ZG-2234H
x0216rx
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
x0819rx
x0822rx
x0825rx
x0828rx
x9316rx
x9319rx
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LTSCALE

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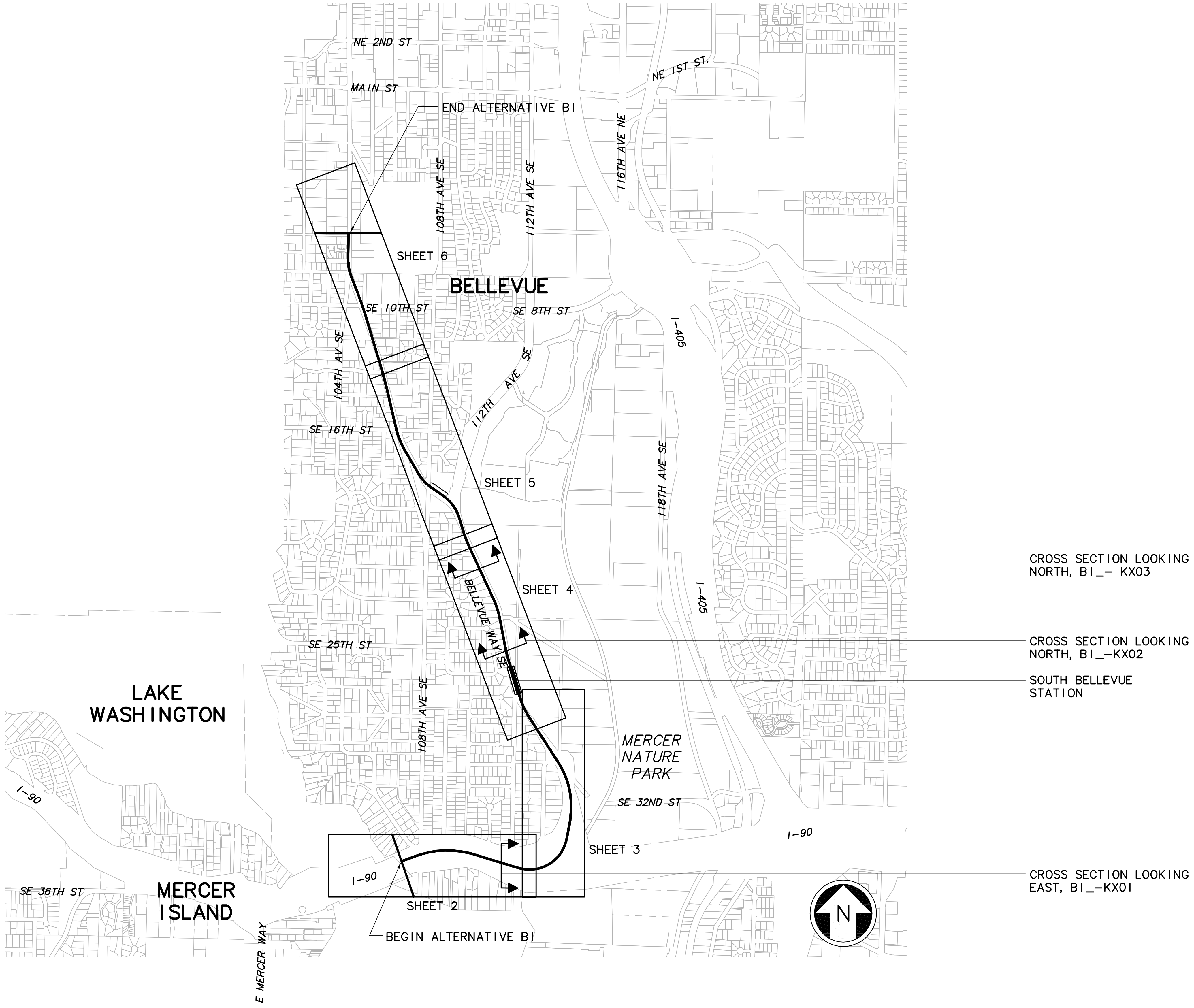
NE 2ND ST
MAIN ST
NE 1ST ST.
END ALTERNATIVE BI
108TH AVE SE
112TH AVE SE
116TH AVE NE
SHEET 6
BELLEVUE
SE 10TH ST
SE 8TH ST
I-405
104TH AV SE
112TH AVE SE
SE 16TH ST
SHEET 5
118TH AVE SE
CROSS SECTION LOOKING NORTH, BI_- KX03
SHEET 4
BELLEVUE WAY SE
I-405
SE 25TH ST
CROSS SECTION LOOKING NORTH, BI_-KX02
LAKE WASHINGTON
108TH AVE SE
SOUTH BELLEVUE STATION
MERCER NATURE PARK
I-90
SE 32ND ST
I-90
SHEET 3
I-90
CROSS SECTION LOOKING EAST, BI_-KX01
SE 36TH ST
MERCER ISLAND
SHEET 2
N
BEGIN ALTERNATIVE BI
E MERCER WAY

c:\work\ELBIBI__GZ05.dwg
10/16/08 08:39 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELBIBI__GZ05.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE BI -
BELLEVUE WAY
KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: BI_-GZ05
Sheet No.: B-26
Rev.:

XREF'S
Resolved
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ELB_BI__JO
ELB_BI__KA
REG-DCON
ZG-2234H
ZG-G10010
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x0216sf
x0516rx
x0516sf
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LTSCALE
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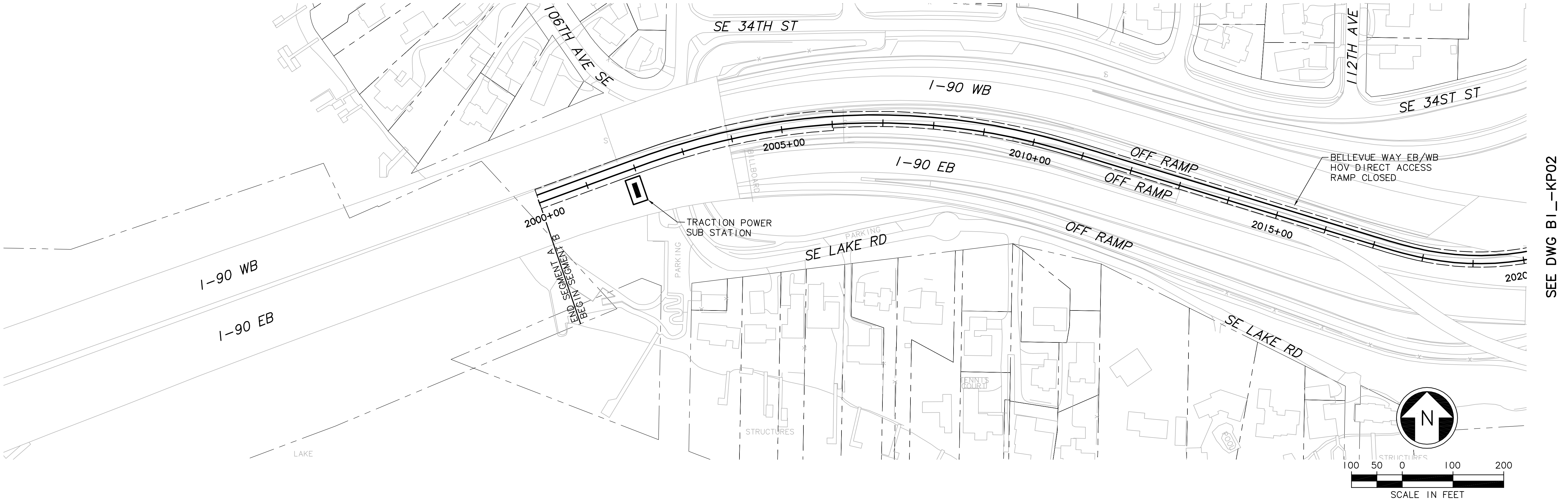
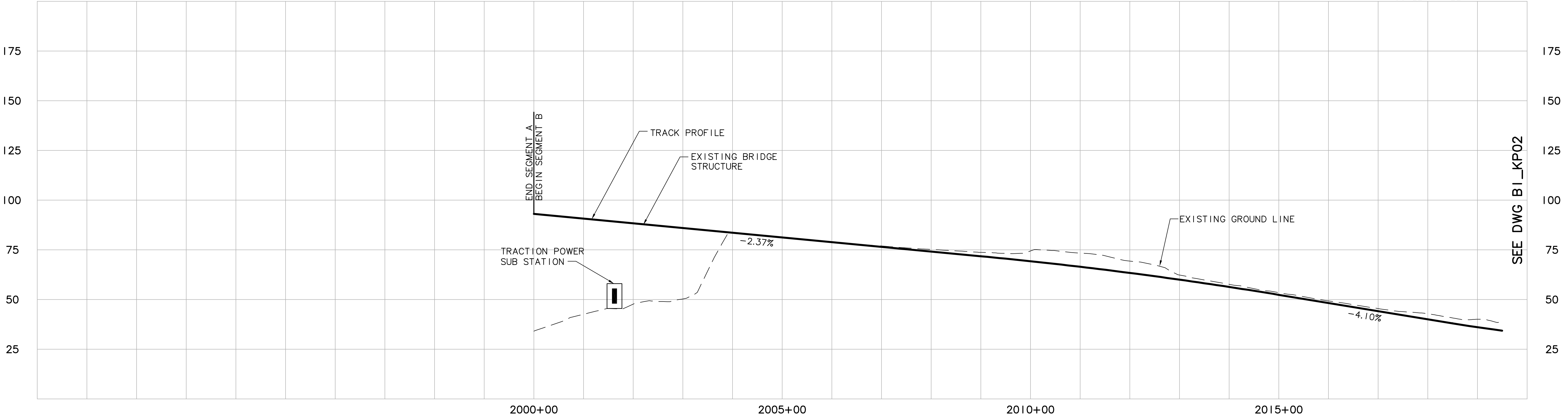


106TH AVE SE
SE 34TH ST
I-90 WB
112TH AVE
SE 34ST ST
2005+00
2010+00
OFF RAMP
OFF RAMP
BELLEVUE WAY EB/WB
HOV DIRECT ACCESS
RAMP CLOSED
I-90 EB
2000+00
TRACTION POWER
SUB STATION
2015+00
BILLBOARD
PARKING
PARKING
SE LAKE RD
OFF RAMP
2020
SEE DWG BI_-KP02
I-90 WB
I-90 EB
END SEGMENT A
BEGIN SEGMENT B
SE LAKE RD
TENNIS COURT
STRUCTURES
STRUCTURES
LAKE
N
100 50 0 100 200
SCALE IN FEET



175
150
125
100
75
50
25
END SEGMENT A
BEGIN SEGMENT B
TRACK PROFILE
EXISTING BRIDGE
STRUCTURE
-2.37%
TRACTION POWER
SUB STATION
EXISTING GROUND LINE
-4.10%
SEE DWG BI_KP02
2000+00
2005+00
2010+00
2015+00

c:\work\ELBIBI__KP01.dwg
10/16/08 08:40 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELBIBI__KP01.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 -
BELLEVUE WAY
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B1_-KP01
Sheet No.:
Rev.:
B-27

DWG INFO:

LTSCALE:
1=1

XREFs:
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–Overlay:
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ELB_B1__KA
ZG-2234H
ZG-G10010
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x0516sf
x0519rx
x0519sf
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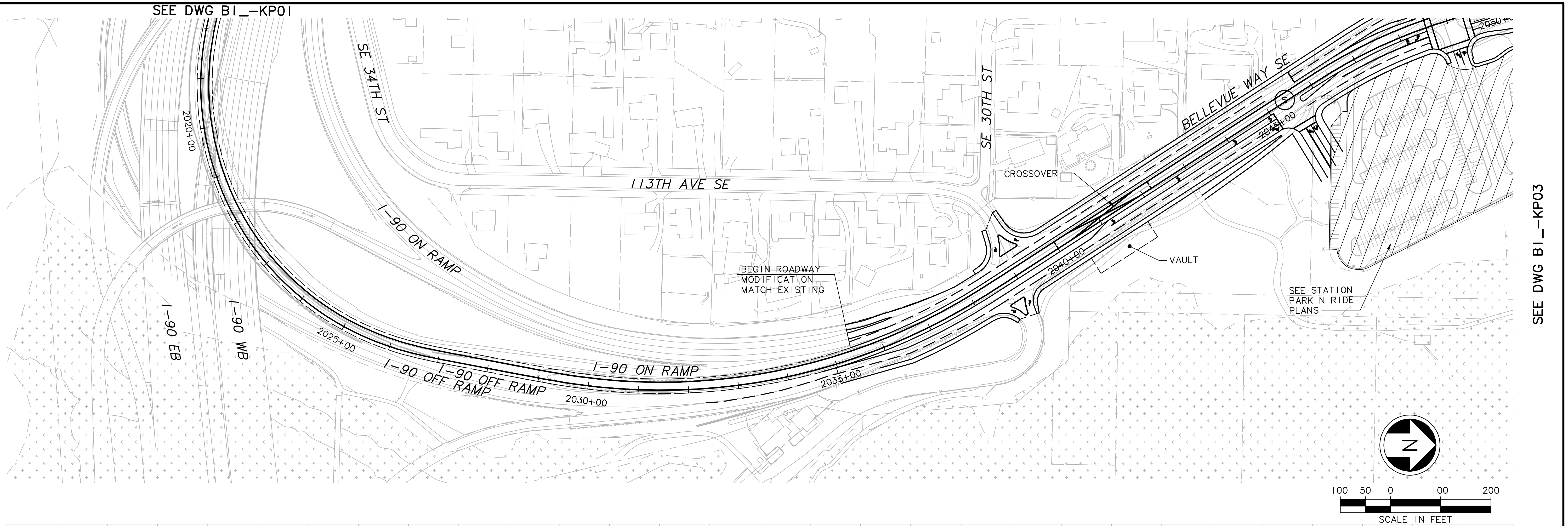
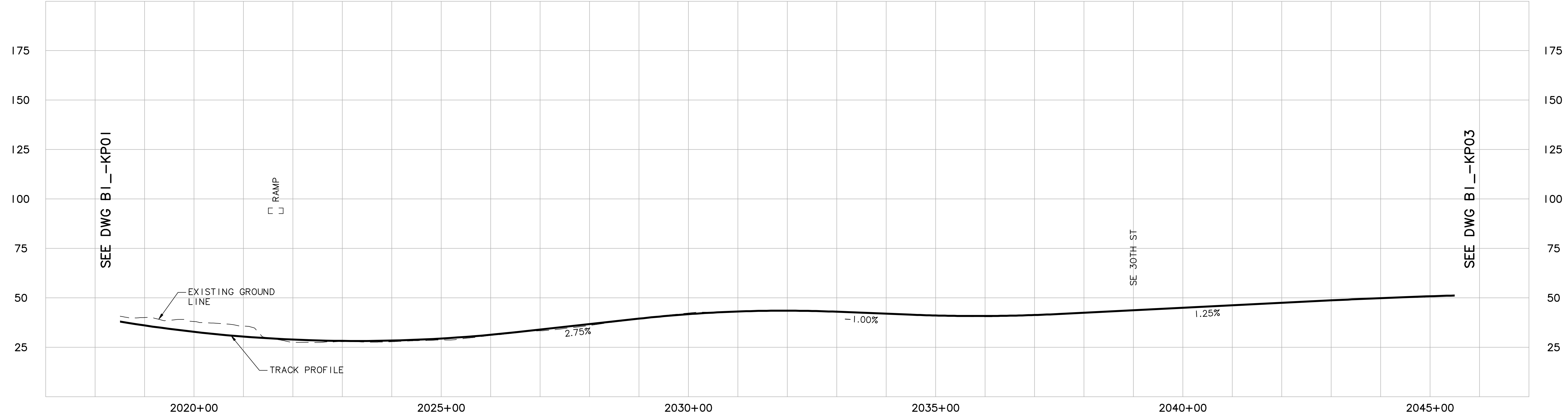


SEE DWG B1_-KP01
SE 34TH ST
2020+00
113TH AVE SE
I-90 ON RAMP
I-90 EB
I-90 WB
2025+00
I-90 OFF RAMP
I-90 OFF RAMP
I-90 ON RAMP
2030+00
2035+00
BEGIN ROADWAY MODIFICATION MATCH EXISTING
SE 30TH ST
CROSSOVER
BELLEVUE WAY SE
2045+00
2050+00
2040+00
VAULT
SEE STATION PARK N RIDE PLANS
SEE DWG B1_-KP03
N
100 50 0 100 200
SCALE IN FEET



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04/26/11 10:51 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Approved By:

FEIS CONCEPTUAL

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PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B1__KP02.dwg
Contract No.:
EL SEG_B
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 -
BELLEVUE WAY
TRACK PLAN & PROFILE

Drawing No.:
B1_-KP02
Sheet No.:
Rev.:
B-28

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELB_B1__CM
ELB_B1__KA
ZG-2234H
ZG-G10010
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x0219sf
x0222rx
x0222sf
x0519rx
x0519sf
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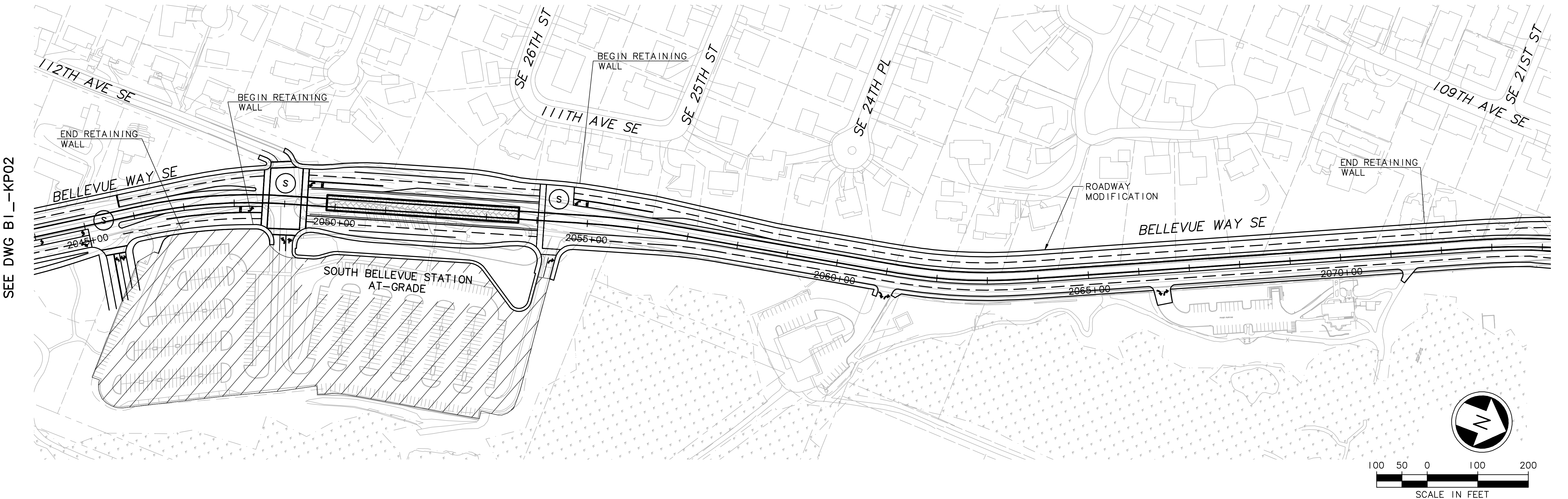
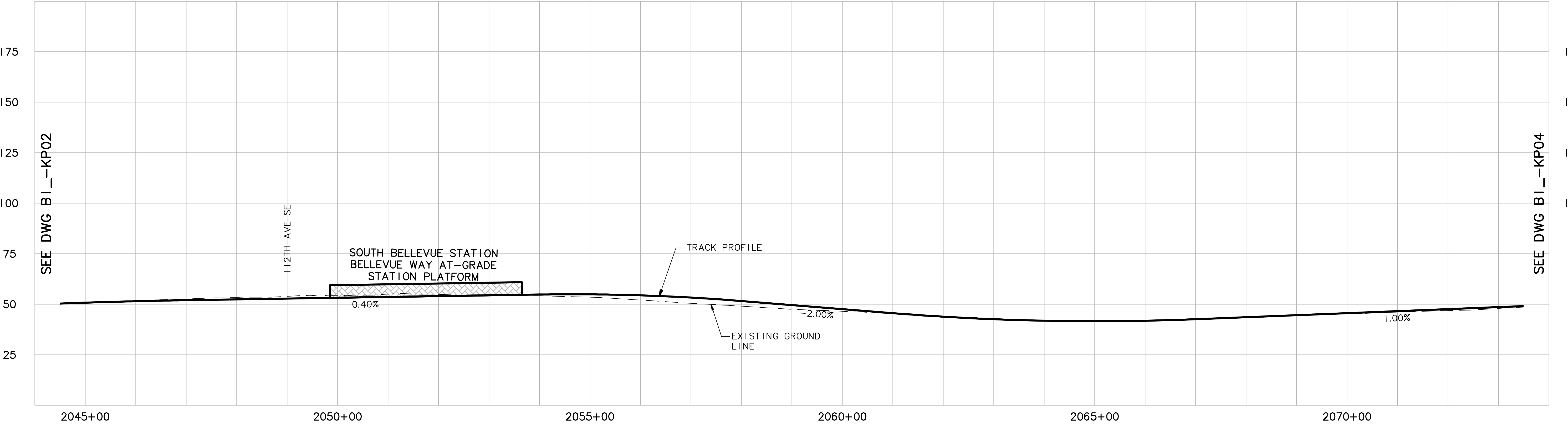


SEE DWG B1_-KP02
112TH AVE SE
SE 26TH ST
111TH AVE SE
SE 25TH ST
SE 24TH PL
109TH AVE SE
SE 21ST ST
BEGIN RETAINING WALL
BEGIN RETAINING WALL
END RETAINING WALL
END RETAINING WALL
BELLEVUE WAY SE
BELLEVUE WAY SE
ROADWAY MODIFICATION
SOUTH BELLEVUE STATION AT-GRADE
S
S
S
2045+00
2050+00
2055+00
2060+00
2065+00
2070+00
N
100 50 0 100 200
SCALE IN FEET
SEE DWG B1_-KP04



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04/26/11 10:48 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUND TRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B1__KP03.dwg
Contract No.:
EL SEG_B
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 -
BELLEVUE WAY
TRACK PLAN & PROFILE

Drawing No.:
B1_-KP03
Sheet No.: Rev.:
B-29

XREF'S

Resolved

ELB_BI__CM
ELB_BI__JO
ELB_BI__KA
REG-DCON
ZG-2234H
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x0219rx
x0219sf
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x0222sf

Unresolved
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key_East

LTSCALE

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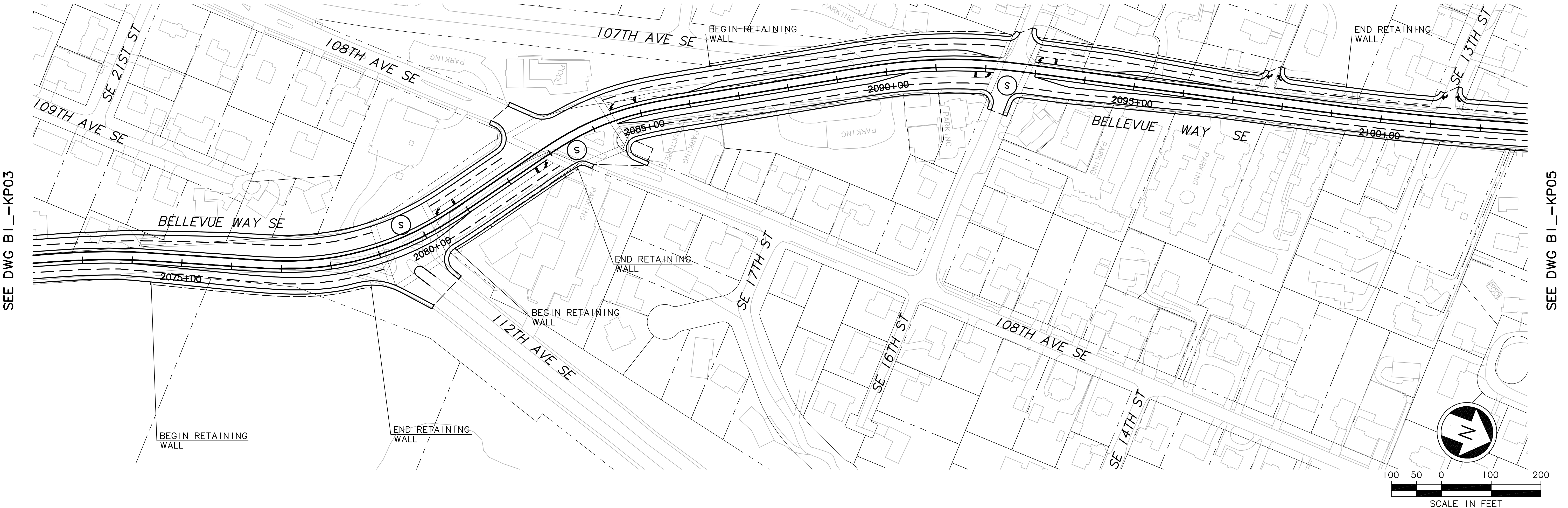
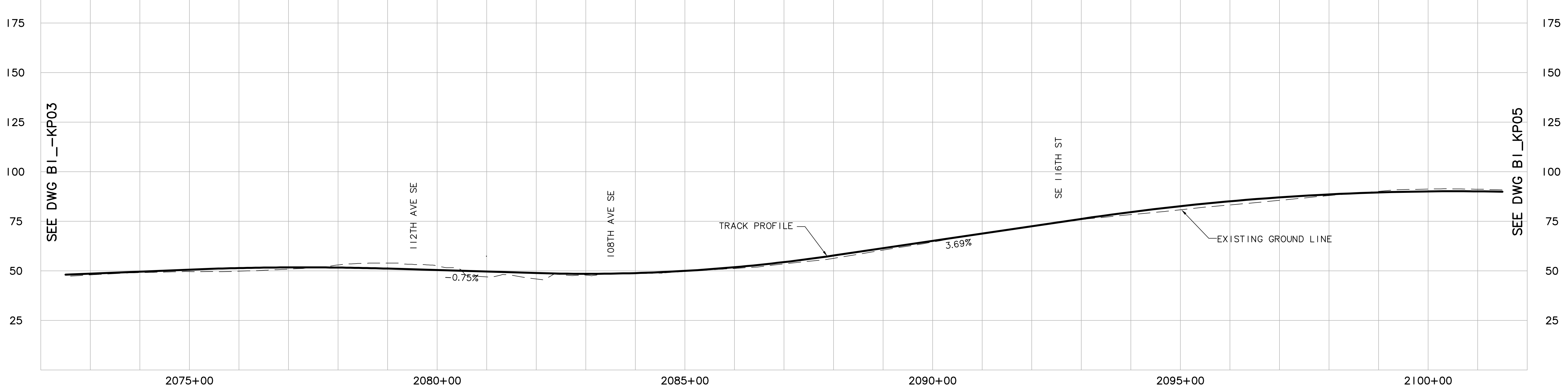

SEE DWG BI_-KP03
107TH AVE SE
108TH AVE SE
SE 21ST ST
109TH AVE SE
BEGIN RETAINING WALL
END RETAINING WALL
PARKING
POOL
2090+00
2095+00
2100+00
2085+00
2080+00
2075+00
S
BELLEVUE WAY SE
SE 13TH ST
END RETAINING WALL
BEGIN RETAINING WALL
SE 17TH ST
112TH AVE SE
SE 16TH ST
SE 14TH ST
BEGIN RETAINING WALL
END RETAINING WALL
N
100 50 0 100 200
SCALE IN FEET
SEE DWG BI_-KP05



c:\work\ELBIBI__KP04.dwg : eackerm OE5396
10/16/08 08:40

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELBIBI__KP04.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE BI -
BELLEVUE WAY
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
BI_-KP04
Sheet No.:
B-30
Rev.:

XREF'S

Resolved

ELB_B1__CM
ELB_B1__JO
ELB_B1__KA
REG-DCON
ZG-2234H
ZG-G10010
x0222rx
x0222sf
x0225rx
x0225sf

Unresolved
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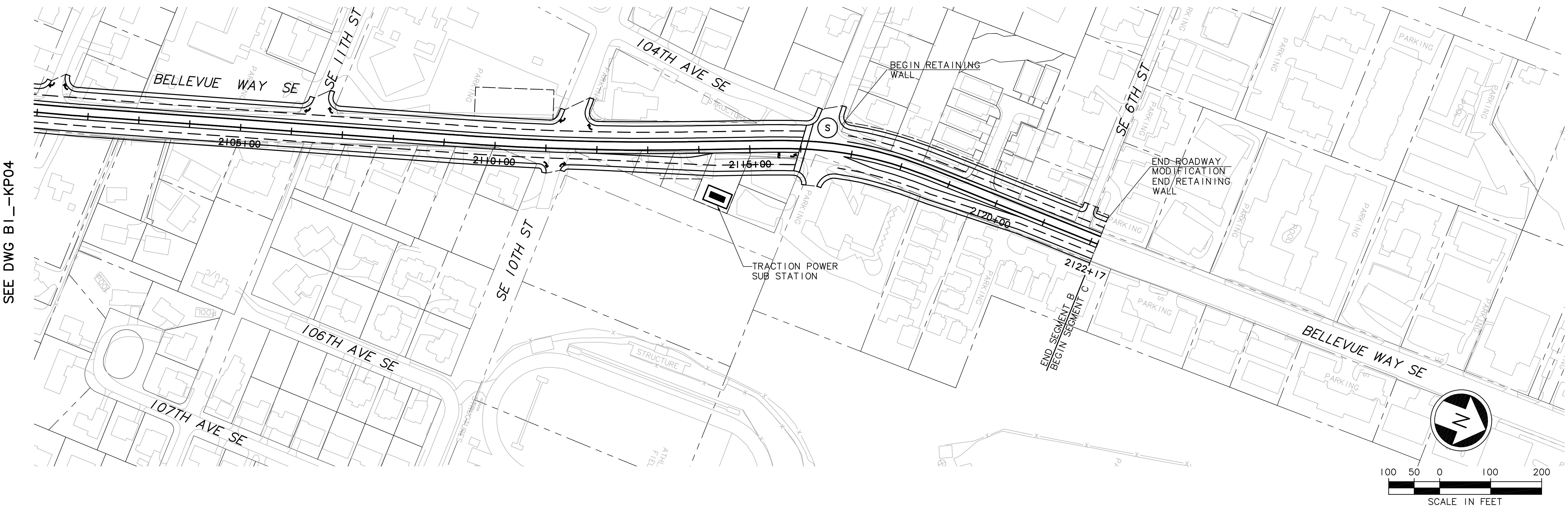
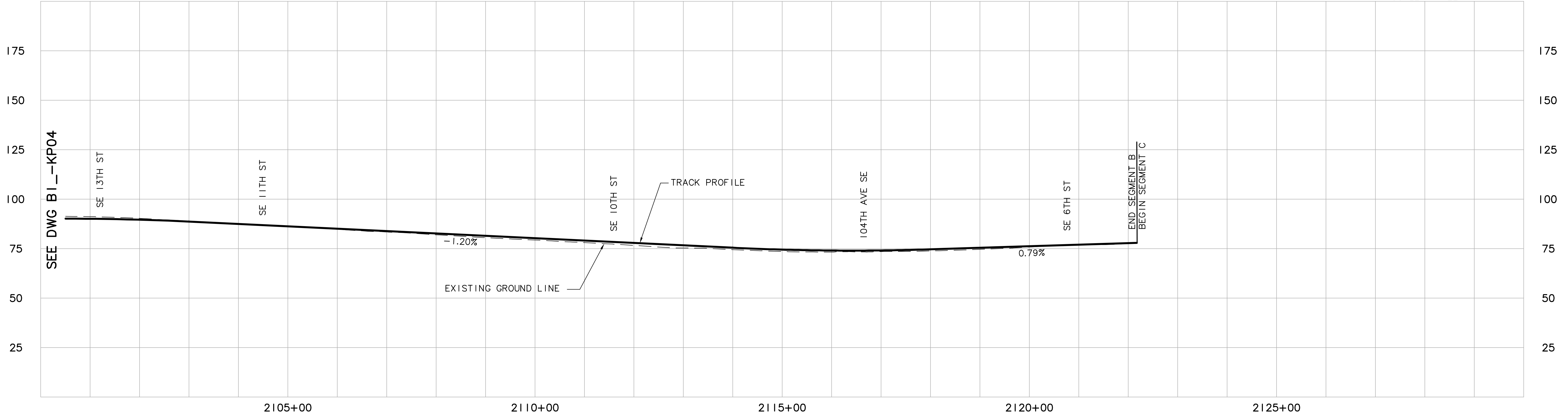
key_East

LTSCALE

1=1


SEE DWG B1_-KP04
BELLEVUE WAY SE
SE 11TH ST
104TH AVE SE
PARKING
STRUCTURE
BEGIN RETAINING WALL
S
SE 6TH ST
2105+00
2110+00
2115+00
2120+00
2122+17
END ROADWAY MODIFICATION
END RETAINING WALL
TRACTION POWER SUB STATION
SE 10TH ST
END SEGMENT B
BEGIN SEGMENT C
POOL
106TH AVE SE
107TH AVE SE
BELLEVUE WAY SE
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELB1B1__KP05.dwg
10/16/08 08:41 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

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Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B1__KP05.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 –

BELLEVUE WAY
TRACK PLAN & PROFILE

THIS PRINT REDUCED
HALF SCALE

Drawing No.:
B1_-KP05

Sheet No.:
Rev.:
B-31

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
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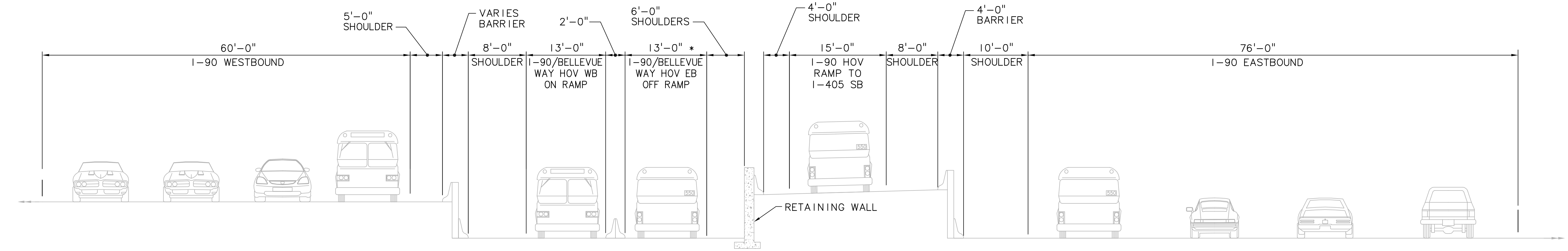
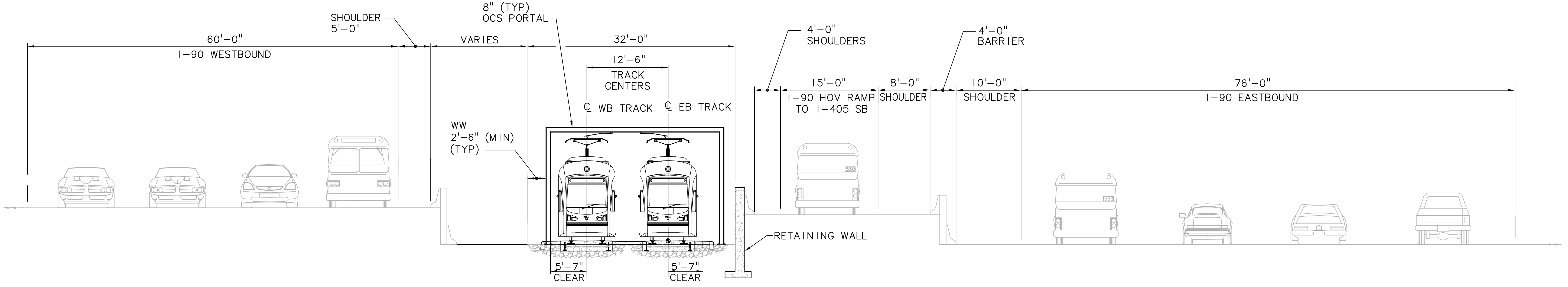

5'-0"
SHOULDER
VARIES
BARRIER
2'-0"
6'-0"
SHOULDERS
4'-0"
SHOULDER
4'-0"
BARRIER
60'-0"
I-90 WESTBOUND
8'-0"
SHOULDER
13'-0"
I-90/BELLEVUE WAY HOV WB ON RAMP
13'-0" *
I-90/BELLEVUE WAY HOV EB OFF RAMP
15'-0"
I-90 HOV RAMP TO I-405 SB
8'-0"
SHOULDER
10'-0"
SHOULDER
76'-0"
I-90 EASTBOUND
RETAINING WALL

EXISTING ROADWAY SECTION – I-90 & BELLEVUE WAY RAMP

SCALE: NTS

* PER R8-A STAGE I COMPLETION


SHOULDER
5'-0"
8" (TYP)
OCS PORTAL
60'-0"
I-90 WESTBOUND
VARIES
32'-0"
12'-6"
TRACK CENTERS
℄ WB TRACK
℄ EB TRACK
4'-0"
SHOULDERS
4'-0"
BARRIER
15'-0"
I-90 HOV RAMP TO I-405 SB
8'-0"
SHOULDER
10'-0"
SHOULDER
76'-0"
I-90 EASTBOUND
WW
2'-6" (MIN)
(TYP)
RETAINING WALL
5'-7"
CLEAR
5'-7"
CLEAR

PROPOSED LRT SECTION – I-90 & BELLEVUE WAY RAMP

SCALE: NTS

c:\work\ELBIB1__KX01.dwg
10/16/08 08:41 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT
Date:

Scale: NTS
Filename: ELBIB1__KX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 –
BELLEVUE WAY
TYPICAL SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: B1_-KX01
Sheet No.: B-32
Rev.:

XREF'S

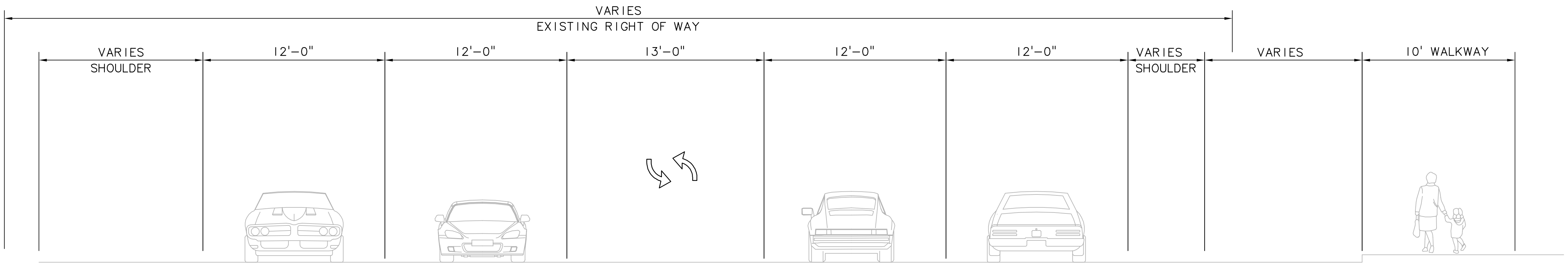
Resolved

ZG-2234H
REG-DCON

Unresolved

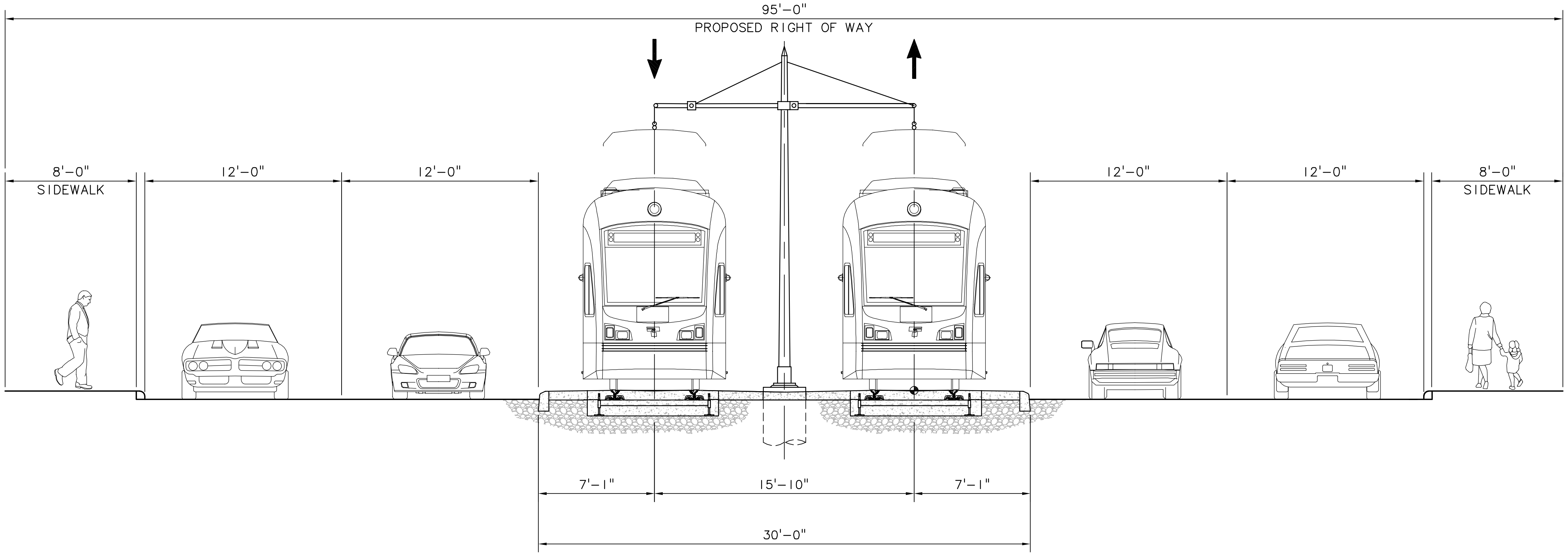
LTSCALE

1=1


VARIES
EXISTING RIGHT OF WAY
VARIES
SHOULDER
12'-0"
12'-0"
13'-0"
12'-0"
12'-0"
VARIES
SHOULDER
VARIES
10' WALKWAY

EXISTING ROADWAY SECTION – S BELLEVUE WAY (SOUTH OF S BELLEVUE P & R)

SCALE: NTS


95'-0"
PROPOSED RIGHT OF WAY
8'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
8'-0"
SIDEWALK
7'-1"
15'-10"
7'-1"
30'-0"

PROPOSED ROADWAY & LRT SECTION – S BELLEVUE WAY (SOUTH OF S BELLEVUE P & R)

SCALE: NTS

c:\work\ELBIBI__KX02.dwg
10/16/08 08:41 : eackerm OE5396

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Date:

Scale: NTS

Filename: ELBIBI__KX02.dwg

Contract No.: EL SEG_B

Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 –
BELLEVUE WAY
TYPICAL SECTION

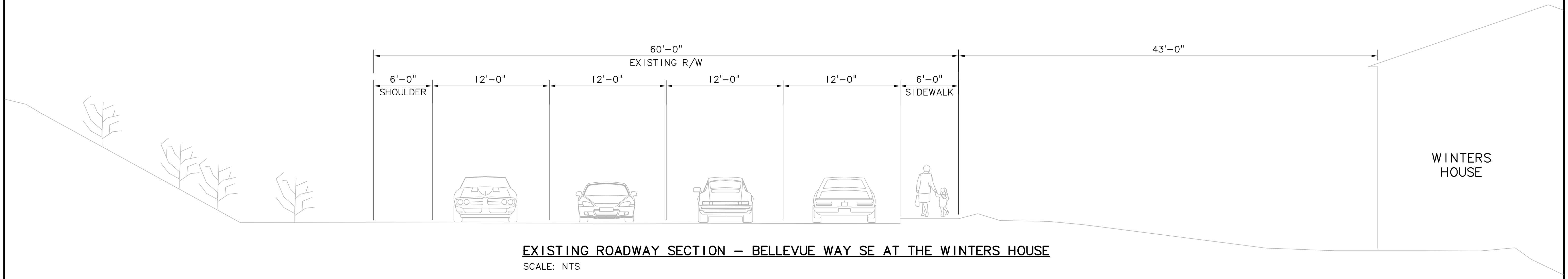
THIS PRINT REDUCED HALF SCALE

Drawing No.: B1_-KX02

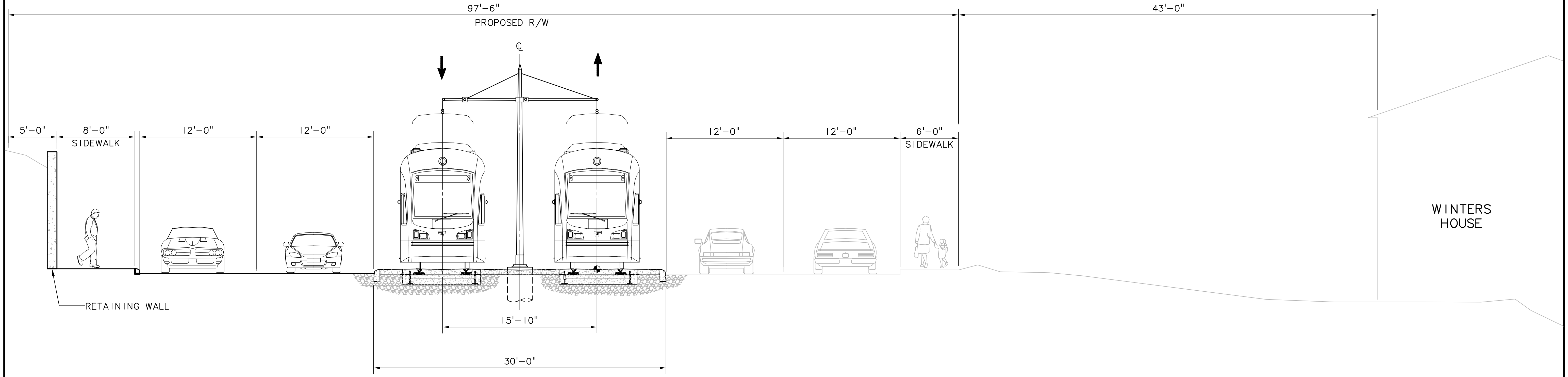
Sheet No.: B-33

Rev.:

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
1=1


60'-0"
EXISTING R/W
43'-0"
6'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK
WINTERS HOUSE

EXISTING ROADWAY SECTION - BELLEVUE WAY SE AT THE WINTERS HOUSE
SCALE: NTS


97'-6"
PROPOSED R/W
43'-0"
℄
5'-0"
8'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK
WINTERS HOUSE
RETAINING WALL
15'-10"
30'-0"

PROPOSED ROADWAY & LRT SECTION - BELLEVUE WAY SE AT THE WINTERS HOUSE (WIDENING TO WEST)
SCALE: NTS

c:\work\ELB1B1__KX03.dwg
10/16/08 08:42 : eackerm OE5396

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Scale: NTS
Filename: ELB1B1__KX03.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 -
BELLEVUE WAY
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B1_-KX03
Sheet No.: B-34
Rev.:

XREF'S

Resolved

ELB_B1__KA
REG-DCON
Zg-2234h
x0216rx
x0216sf
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0516sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0816rx
x0816sf
x0819rx
x0819sf
x0822rx
x0822sf
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x9619rx
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x9919rx

Unresolved

LTSCALE

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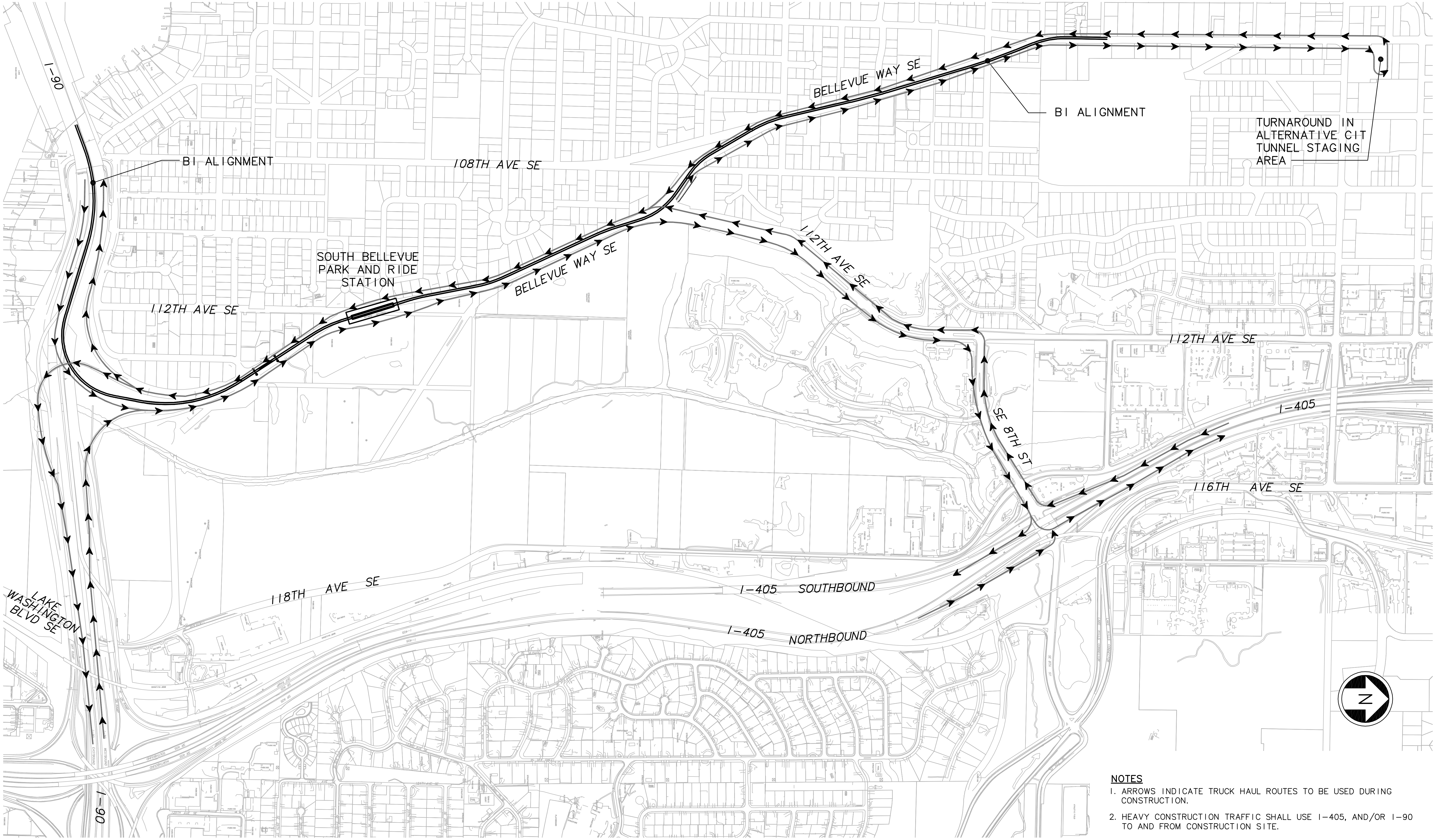
I-90
B1 ALIGNMENT
108TH AVE SE
BELLEVUE WAY SE
B1 ALIGNMENT
TURNAROUND IN ALTERNATIVE C1T TUNNEL STAGING AREA
SOUTH BELLEVUE PARK AND RIDE STATION
BELLEVUE WAY SE
112TH AVE SE
112TH AVE SE
112TH AVE SE
SE 8TH ST
I-405
116TH AVE SE
118TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
LAKE WASHINGTON BLVD SE
I-90
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR I-90 TO AND FROM CONSTRUCTION SITE.

c:\work\ELB1B1__CC01.dwg
10/16/08 08:39 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELB1B1__CC01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B1 -
BELLEVUE WAY
CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: B1_-CC01
Sheet No.: B-35
Rev.:

XREF'S

Resolved

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REG-DCON
ZG-2234H
x0216rx
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
x0819rx
x0822rx
x0825rx
x0828rx
x9316rx
x9319rx
x9322rx
x9616rx
x9619rx
x9916rx
x9919rx

Unresolved

St_Names_E_20
key_East

LTSCALE

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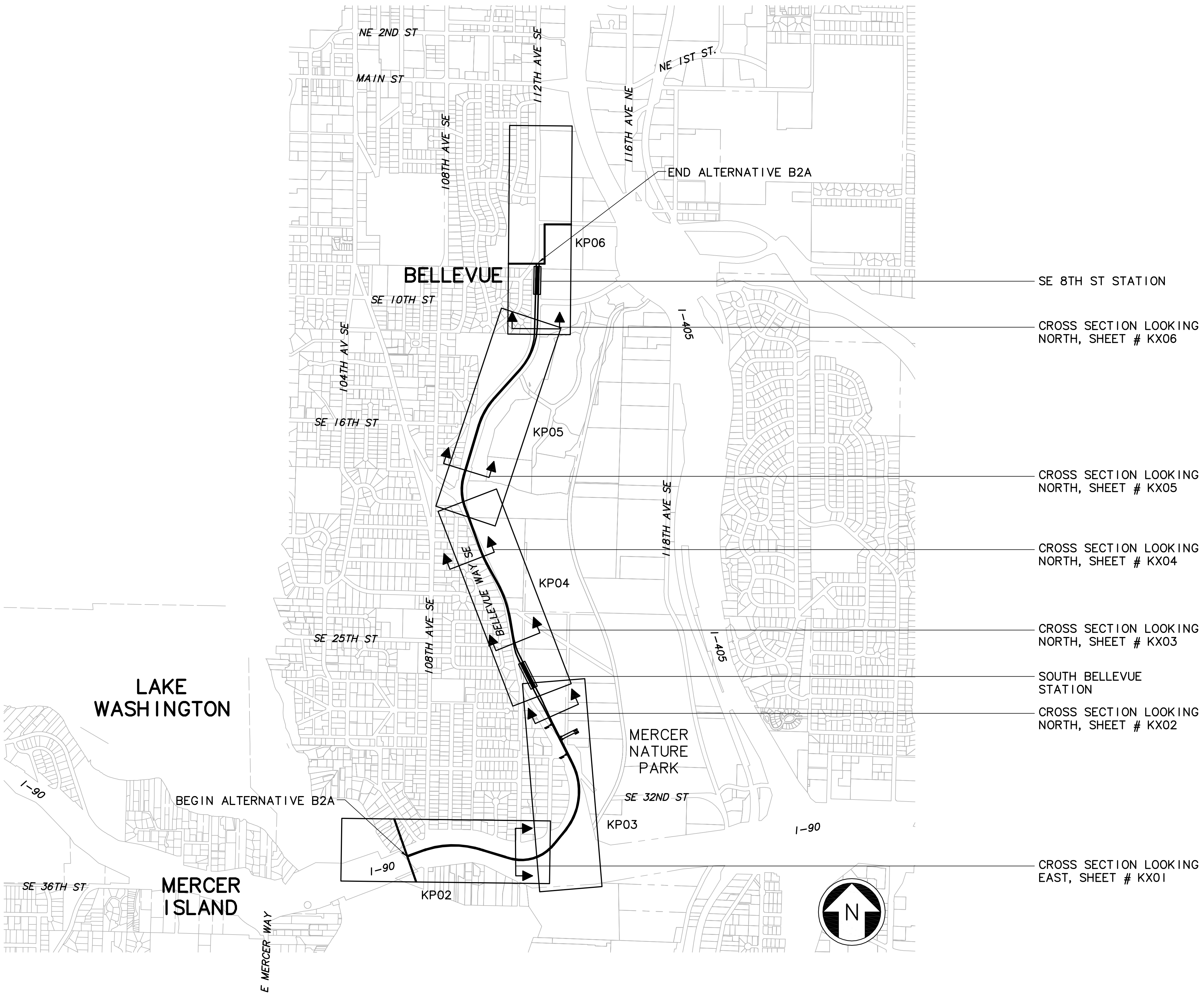
10/16/08 08:43 : eackerm OE5396



NE 2ND ST
MAIN ST
112TH AVE SE
NE 1ST ST.
116TH AVE NE
108TH AVE SE
END ALTERNATIVE B2A
KP06
BELLEVUE
SE 10TH ST
SE 8TH ST STATION
CROSS SECTION LOOKING NORTH, SHEET # KX06
I-405
104TH AV SE
SE 16TH ST
KP05
CROSS SECTION LOOKING NORTH, SHEET # KX05
118TH AVE SE
CROSS SECTION LOOKING NORTH, SHEET # KX04
BELLEVUE WAY SE
KP04
108TH AVE SE
SE 25TH ST
CROSS SECTION LOOKING NORTH, SHEET # KX03
I-405
LAKE WASHINGTON
SOUTH BELLEVUE STATION
CROSS SECTION LOOKING NORTH, SHEET # KX02
MERCER NATURE PARK
I-90
BEGIN ALTERNATIVE B2A
SE 32ND ST
KP03
I-90
I-90
CROSS SECTION LOOKING EAST, SHEET # KX01
SE 36TH ST
MERCER ISLAND
KP02
E MERCER WAY
N
1
2
3
4
5

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELB1B2A_GZ05.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B2A-GZ05
Sheet No.: B-36
Rev.:

XREF'S

Resolved
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zg-2234h
zg-g10010
ELB_B2A_KA
ELB_B2A__CM
ELB_B2A__JO
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x0516rx
x0516sf

Unresolved
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key_East

LTSCALE

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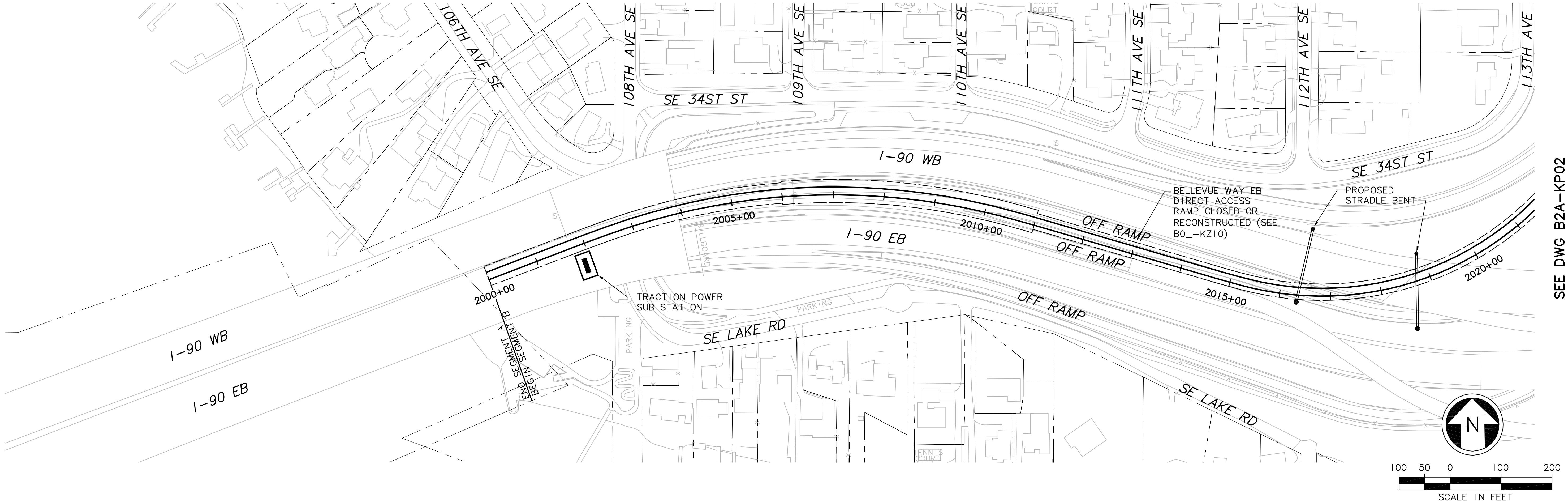
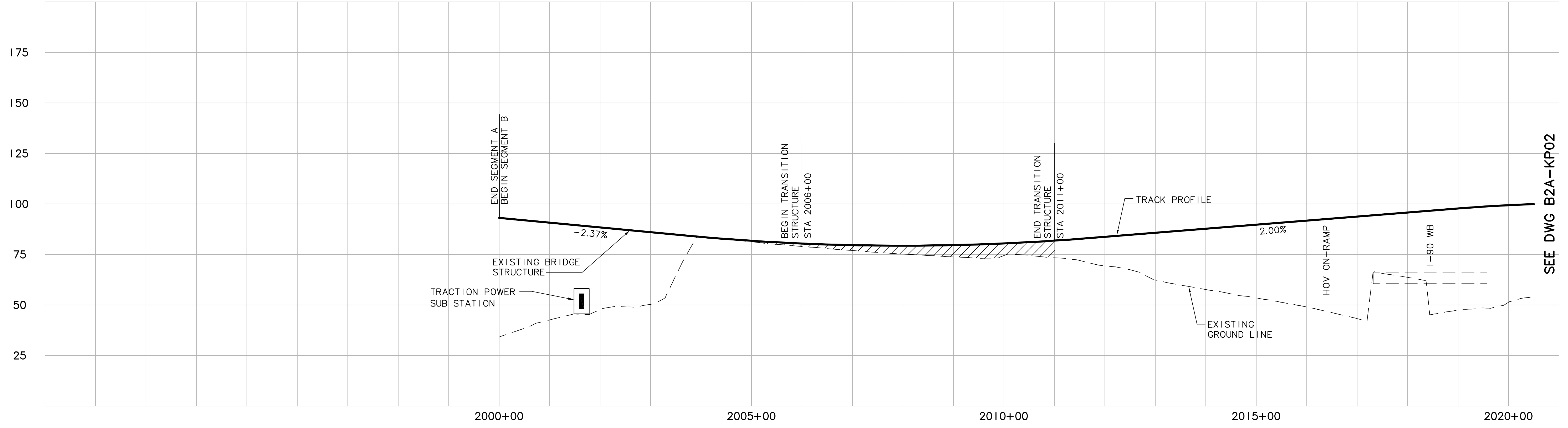

106TH AVE SE
108TH AVE SE
109TH AVE SE
110TH AVE SE
111TH AVE SE
112TH AVE SE
113TH AVE
SE 34ST ST
SE 34ST ST
I-90 WB
I-90 EB
I-90 WB
I-90 EB
OFF RAMP
OFF RAMP
OFF RAMP
2000+00
2005+00
2010+00
2015+00
2020+00
BELLEVUE WAY EB DIRECT ACCESS RAMP CLOSED OR RECONSTRUCTED (SEE B0_-KZ10)
PROPOSED STRADLE BENT
TRACTION POWER SUB STATION
END SEGMENT A
BEGIN SEGMENT B
SE LAKE RD
SE LAKE RD
PARKING
PARKING
BILLBOARD
TENNIS COURT
SEE DWG B2A-KP02
N
100 50 0 100 200
SCALE IN FEET


175
150
125
100
75
50
25
END SEGMENT A
BEGIN SEGMENT B
BEGIN TRANSITION STRUCTURE STA 2006+00
END TRANSITION STRUCTURE STA 2011+00
TRACK PROFILE
-2.37%
2.00%
EXISTING BRIDGE STRUCTURE
TRACTION POWER SUB STATION
HOV ON-RAMP
I-90 WB
EXISTING GROUND LINE
SEE DWG B2A-KP02
2000+00
2005+00
2010+00
2015+00
2020+00

c:\work\ELB1B2A_KP01.dwg eackerm OE5396
11/10/08 13:24 :

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B2A_KP01.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B2A-KP01
Sheet No.:
B-37
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
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ELB_B2A__CM
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x0516sf
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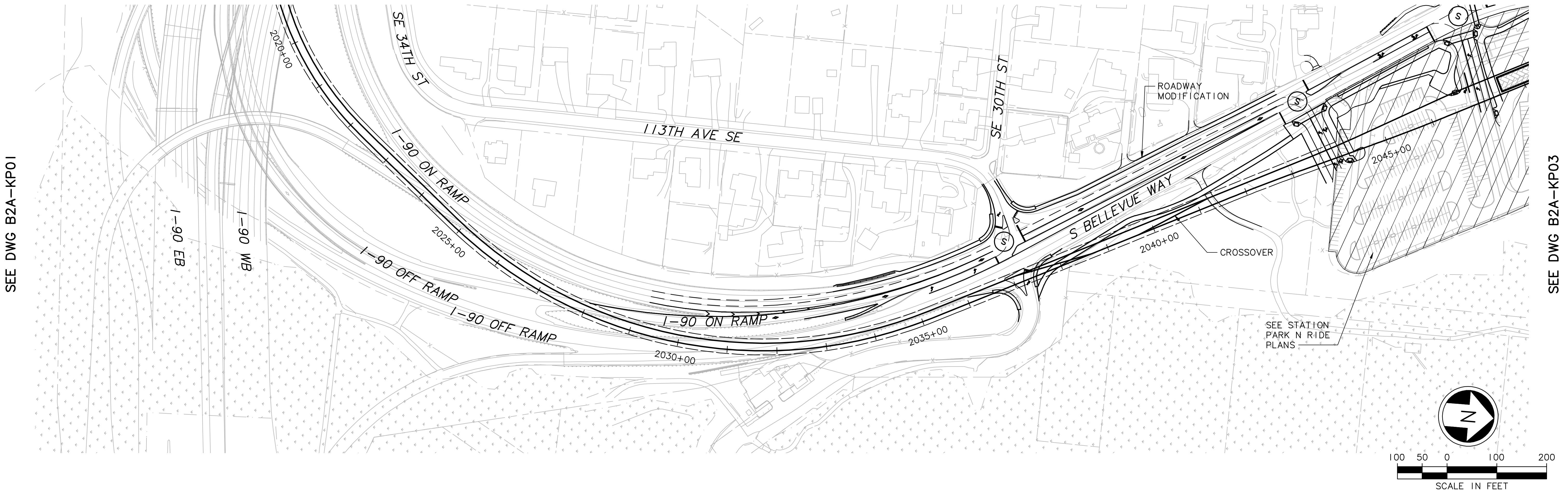
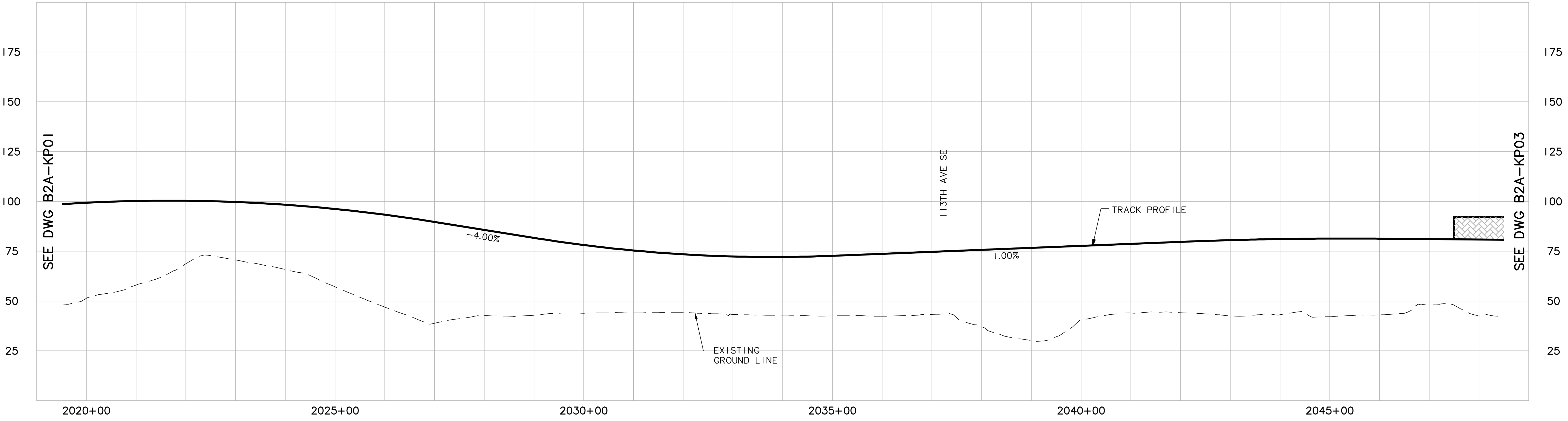

SEE DWG B2A-KP01
SEE DWG B2A-KP03
SE 34TH ST
113TH AVE SE
SE 30TH ST
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00
I-90 EB
I-90 WB
I-90 ON RAMP
I-90 OFF RAMP
I-90 OFF RAMP
I-90 ON RAMP
S BELLEVUE WAY
ROADWAY MODIFICATION
CROSSOVER
SEE STATION PARK N RIDE PLANS
N
100 50 0 100 200
SCALE IN FEET


SEE DWG B2A-KP01
SEE DWG B2A-KP03
175
150
125
100
75
50
25
113TH AVE SE
TRACK PROFILE
-4.00%
1.00%
EXISTING GROUND LINE
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

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H: 1"=100'; V: 1"=25'

Filename:
ELB1B2A_KP02.dwg

Contract No.:
EL SEG_B

Date:

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EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TRACK PLAN & PROFILE

Drawing No.:
B2A-KP02

Sheet No.: B-38
Rev.:

c:\work\feis\segment b\b2a\ELB1B2A_KP02.dwg
04/27/11 16:12 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

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zg-g1010
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ELB_B2A__CM
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x0522rx
x0522sf
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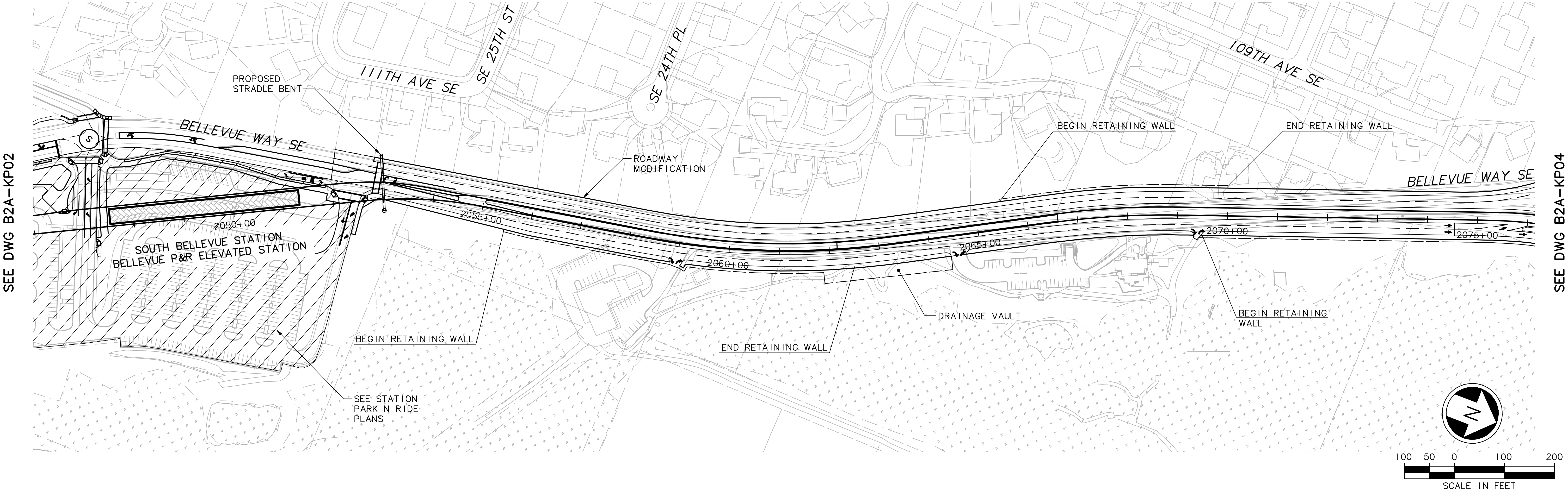
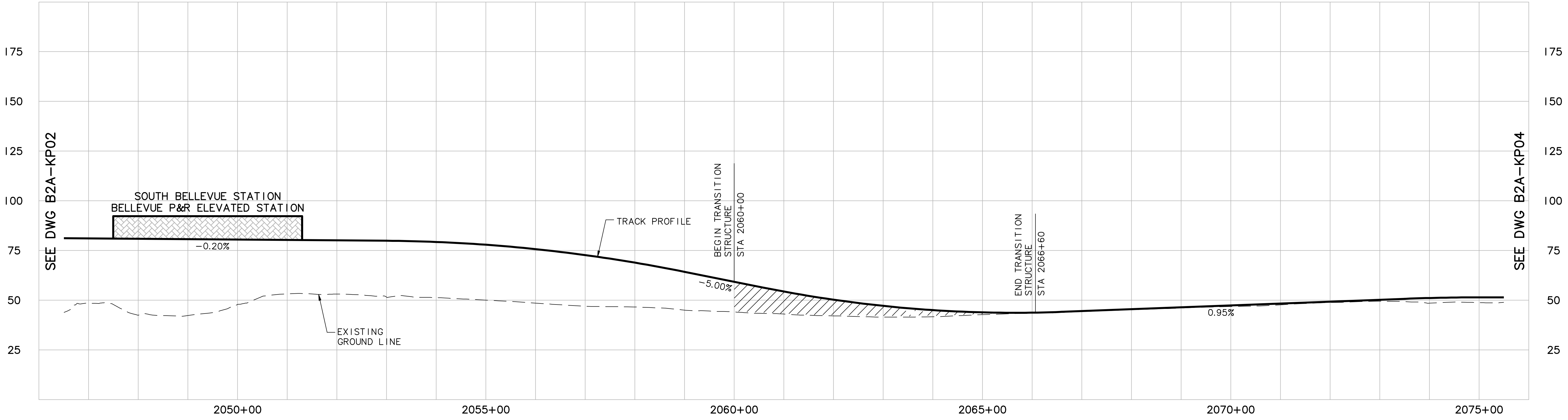

SEE DWG B2A-KP02
PROPOSED STRADLE BENT
111TH AVE SE
SE 25TH ST
SE 24TH PL
109TH AVE SE
BELLEVUE WAY SE
ROADWAY MODIFICATION
BEGIN RETAINING WALL
END RETAINING WALL
BELLEVUE WAY SE
SEE DWG B2A-KP04
2050+00
2055+00
2060+00
2065+00
2070+00
2075+00
SOUTH BELLEVUE STATION
BELLEVUE P&R ELEVATED STATION
DRAINAGE VAULT
BEGIN RETAINING WALL
BEGIN RETAINING WALL
END RETAINING WALL
SEE STATION PARK N RIDE PLANS
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

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Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B2A_KP03.dwg
Contract No.:
EL SEG_B
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TRACK PLAN & PROFILE

Drawing No.:
B2A-KP03

Sheet No.: B-39
Rev.:

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04/27/11 16:15 : khuum OE6585

XREF'S

Resolved
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zg-2234h
zg-g10010
ELB_B2A_KA
ELB_B2A__CM
ELB_B2A__JO
REG-DCON
x0222rx
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x0522sf
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Unresolved
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key_East

LTSCALE

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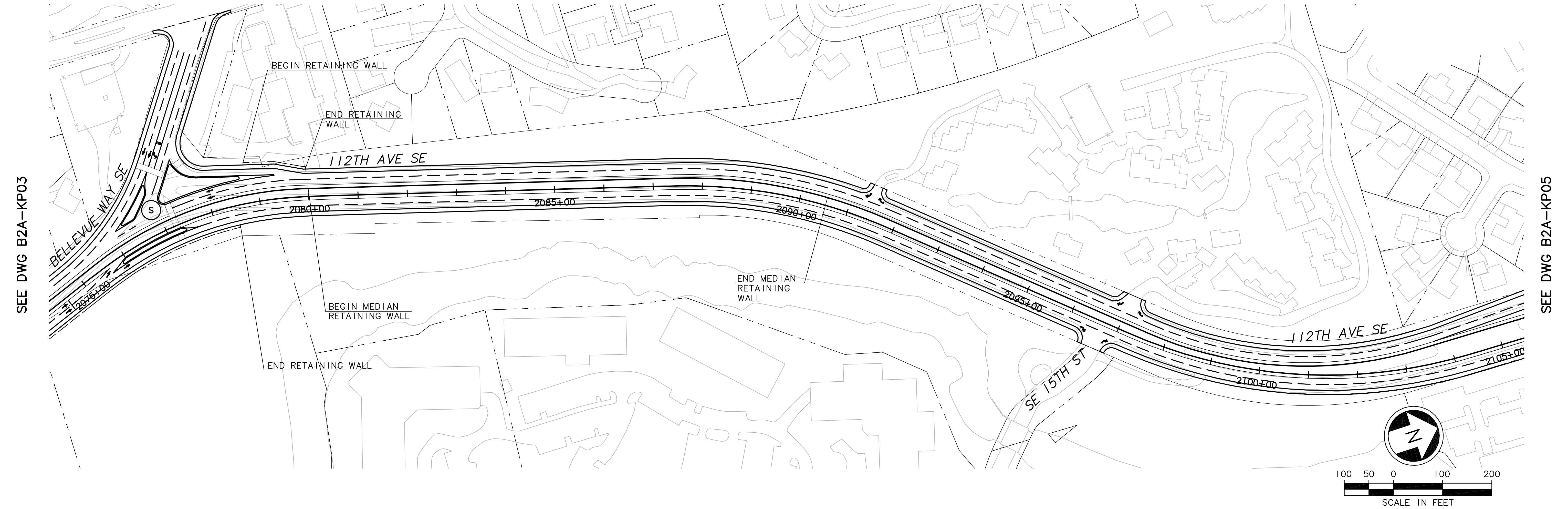
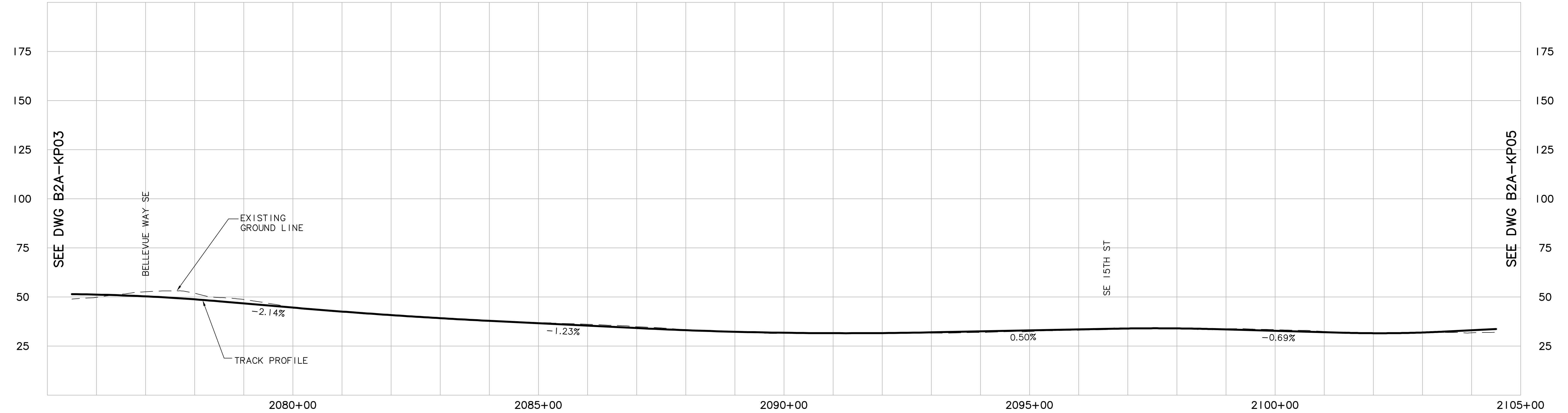


SEE DWG B2A-KP03
BEGIN RETAINING WALL
END RETAINING WALL
112TH AVE SE
BELLEVUE WAY SE
S
2075+00
2080+00
2085+00
2090+00
2095+00
2100+00
2105+00
BEGIN MEDIAN RETAINING WALL
END RETAINING WALL
END MEDIAN RETAINING WALL
112TH AVE SE
SE 15TH ST
N
SEE DWG B2A-KP05
100 50 0 100 200
SCALE IN FEET



c:\work\ELB1B2A_KP04.dwg
10/16/08 08:44 : eackerm OE5396

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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELB1B2A_KP04.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TRACK PLAN & PROFILE

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HALF SCALE

Drawing No.: B2A-KP04
Sheet No.: B-40
Rev.:

XREF'S

Resolved
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zg-2234h
zg-g10010
ELB_B2A_KA
ELB_B2A__CM
ELB_B2A__JO
ELC_C2T_KA
REG-DCON
x0522rx
x0522sf
x0525rx
x0525sf

Unresolved
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key_East

LTSCALE

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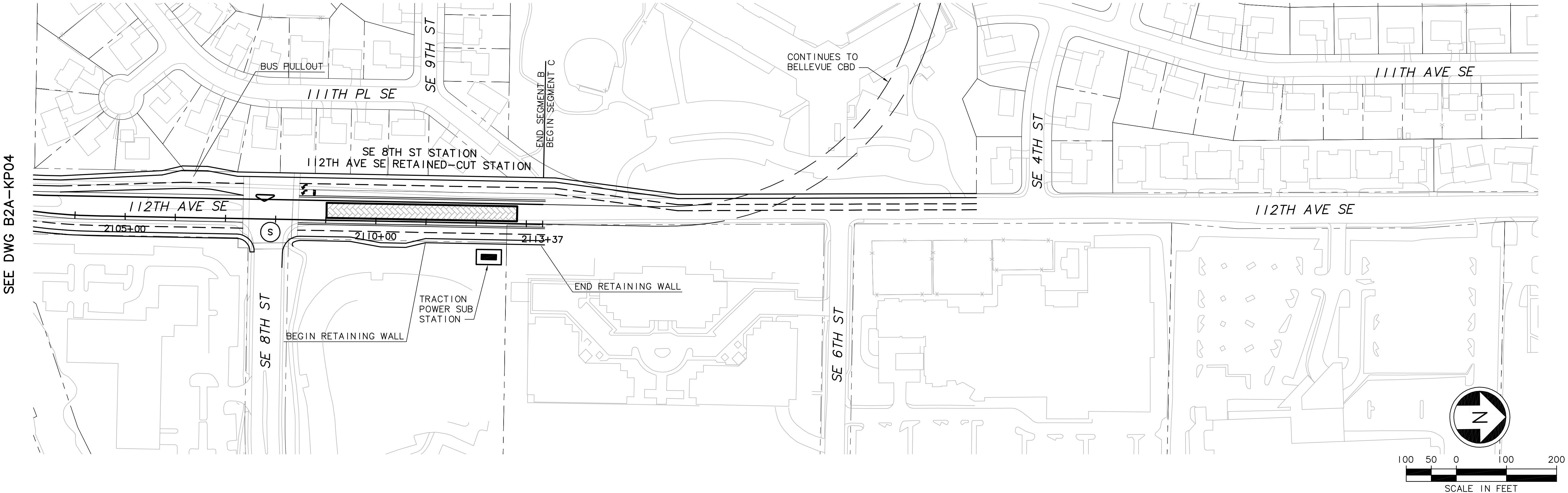
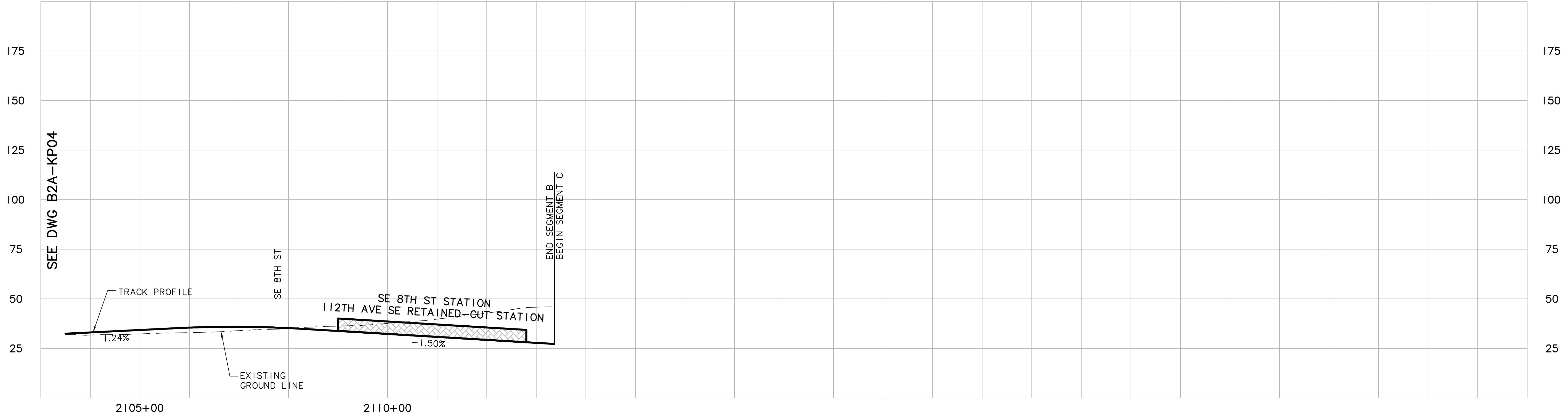

SEE DWG B2A-KP04
BUS PULLOUT
111TH PL SE
SE 9TH ST
END SEGMENT B
BEGIN SEGMENT C
CONTINUES TO BELLEVUE CBD
111TH AVE SE
SE 4TH ST
SE 8TH ST STATION
112TH AVE SE RETAINED-CUT STATION
112TH AVE SE
2105+00
2110+00
2113+37
S
END RETAINING WALL
TRACTION POWER SUB STATION
BEGIN RETAINING WALL
SE 8TH ST
SE 6TH ST
N
100 50 0 100 200
SCALE IN FEET


SEE DWG B2A-KP04
175
150
125
100
75
50
25
END SEGMENT B
BEGIN SEGMENT C
SE 8TH ST
TRACK PROFILE
SE 8TH ST STATION
112TH AVE SE RETAINED-CUT STATION
1.24%
-1.50%
EXISTING GROUND LINE
2105+00
2110+00

c:\work\ELB\B2A_KP05.dwg
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Filename:
ELB\B2A_KP05.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TRACK PLAN & PROFILE

THIS PRINT REDUCED
HALF SCALE

Drawing No.:
B2A-KP05
Sheet No.:
Rev.:
B-41

XREF'S

Resolved
----
zg-2234h
zg-g10010
ELB_B2A_KA
ELB_B2A__CM
ELB_B2A__JO
ELC_C4A_KA
REG-DCON
x0522rx
x0522sf
x0525rx
x0525sf

Unresolved
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key_East

LTSCALE

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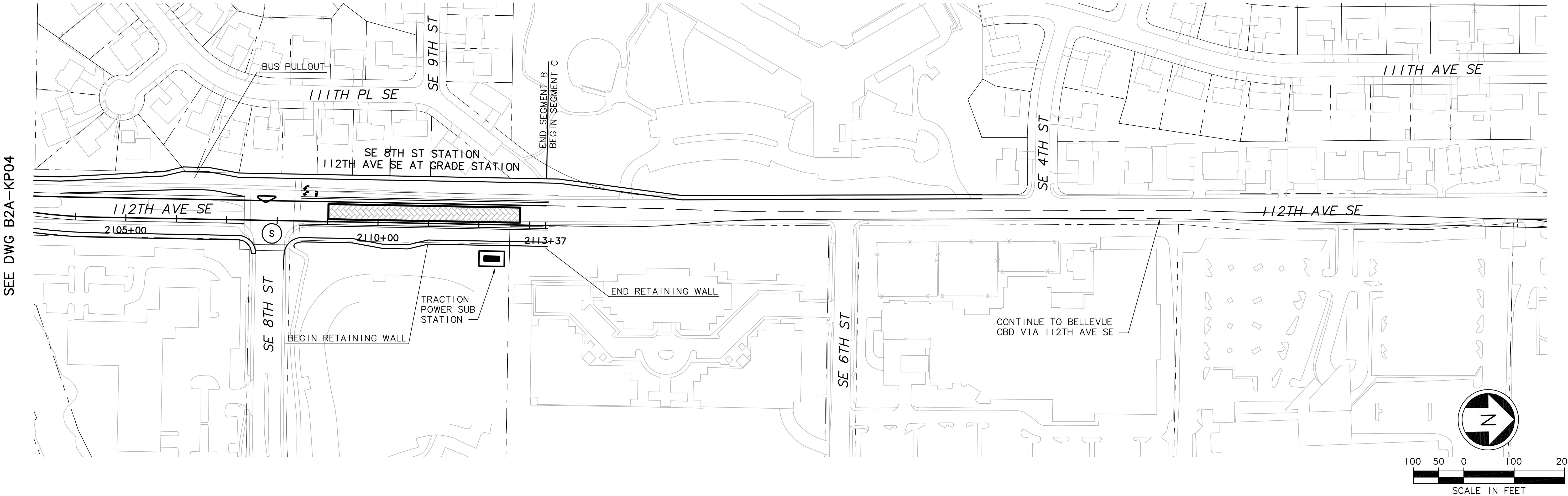
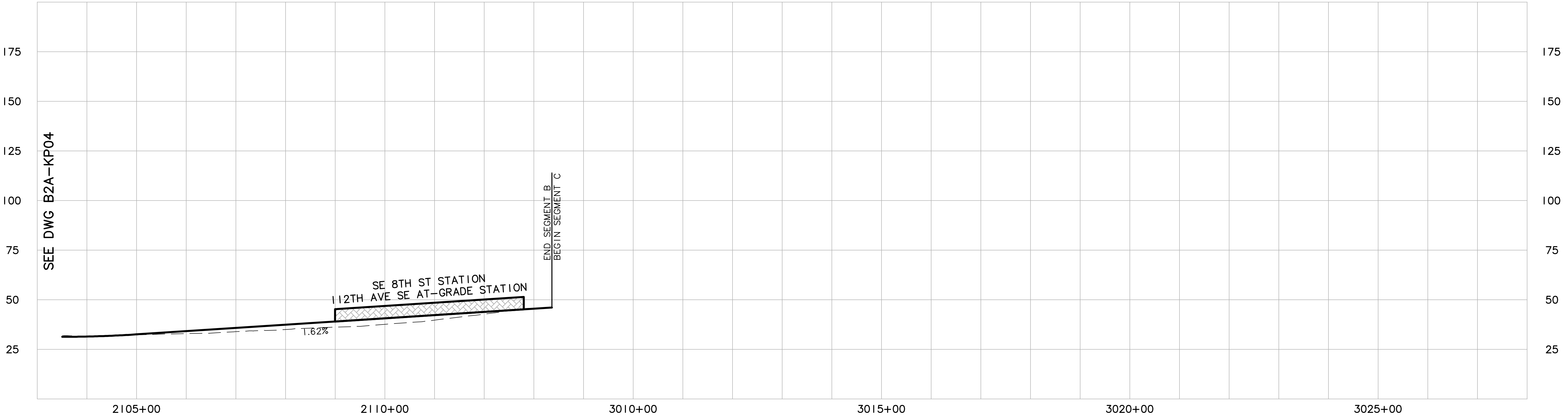

SEE DWG B2A-KP04
BUS PULLOUT
111TH PL SE
SE 9TH ST
END SEGMENT B
BEGIN SEGMENT C
SE 8TH ST STATION
112TH AVE SE AT GRADE STATION
112TH AVE SE
2105+00
S
2110+00
2113+37
SE 8TH ST
TRACTION
POWER SUB
STATION
BEGIN RETAINING WALL
END RETAINING WALL
SE 6TH ST
SE 4TH ST
111TH AVE SE
112TH AVE SE
CONTINUE TO BELLEVUE
CBD VIA 112TH AVE SE
N
100 50 0 100 200
SCALE IN FEET


SEE DWG B2A-KP04
175
150
125
100
75
50
25
END SEGMENT B
BEGIN SEGMENT C
SE 8TH ST STATION
112TH AVE SE AT-GRADE STATION
1.62%
2105+00
2110+00
3010+00
3015+00
3020+00
3025+00

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Date:

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H: 1"=100'; V: 1"=25'
Filename:
ELB\B2A_KP05A.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TRACK PLAN & PROFILE

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Drawing No.:
B2A-KP05a
Sheet No.:
Rev.:
B-42

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
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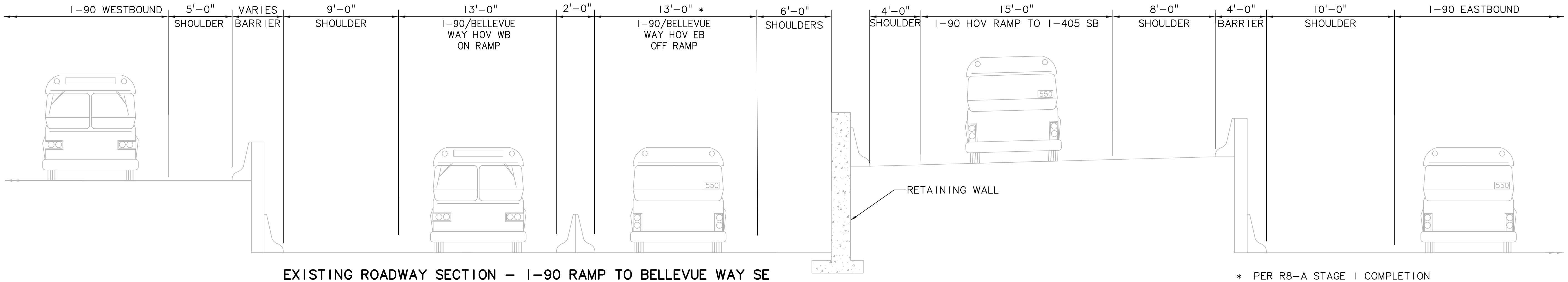
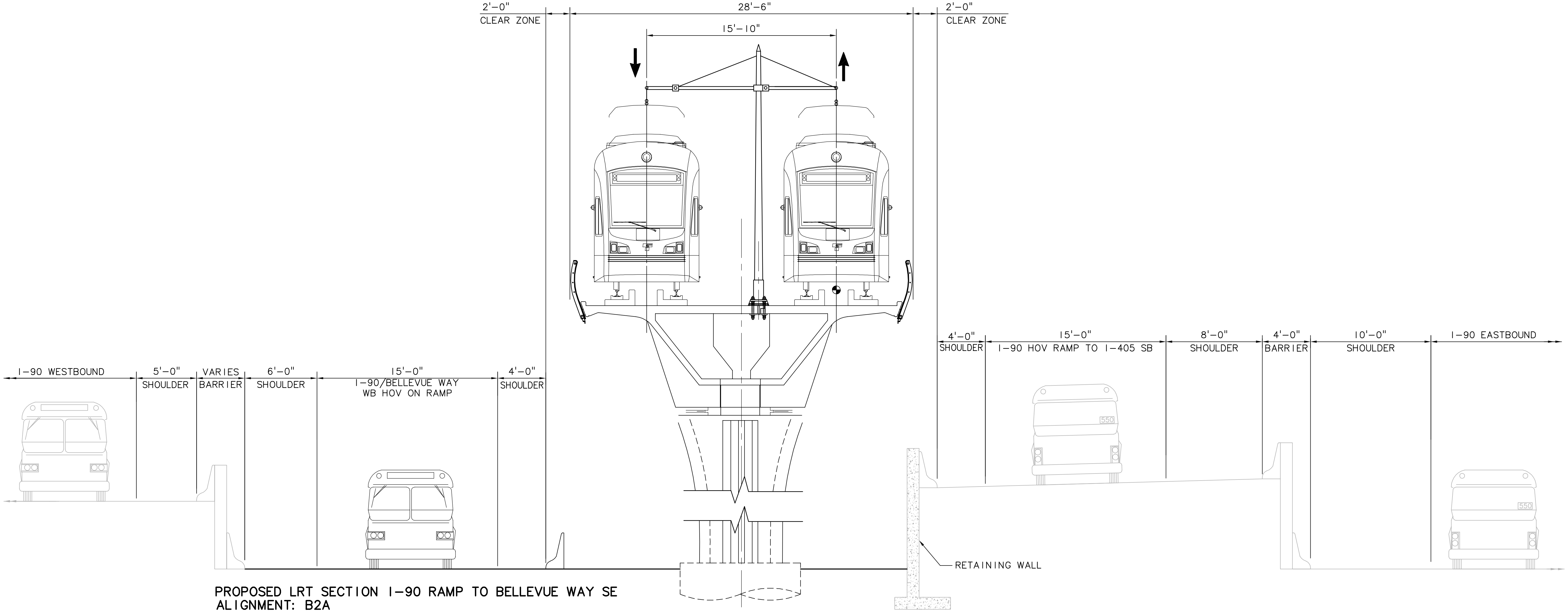

I-90 WESTBOUND
5'-0" SHOULDER
VARIES BARRIER
9'-0" SHOULDER
13'-0" I-90/BELLEVUE WAY HOV WB ON RAMP
2'-0"
13'-0" * I-90/BELLEVUE WAY HOV EB OFF RAMP
6'-0" SHOULDERS
4'-0" SHOULDER
15'-0" I-90 HOV RAMP TO I-405 SB
8'-0" SHOULDER
4'-0" BARRIER
10'-0" SHOULDER
I-90 EASTBOUND
550
RETAINING WALL

EXISTING ROADWAY SECTION – I-90 RAMP TO BELLEVUE WAY SE

SCALE: NTS

* PER R8-A STAGE I COMPLETION


2'-0" CLEAR ZONE
28'-6"
2'-0" CLEAR ZONE
15'-10"
I-90 WESTBOUND
5'-0" SHOULDER
VARIES BARRIER
6'-0" SHOULDER
15'-0" I-90/BELLEVUE WAY WB HOV ON RAMP
4'-0" SHOULDER
4'-0" SHOULDER
15'-0" I-90 HOV RAMP TO I-405 SB
8'-0" SHOULDER
4'-0" BARRIER
10'-0" SHOULDER
I-90 EASTBOUND
550
RETAINING WALL

PROPOSED LRT SECTION I-90 RAMP TO BELLEVUE WAY SE
ALIGNMENT: B2A
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Filename: ELB1B2A_KX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TYPICAL SECTION

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Drawing No.: B2A-KX01
Sheet No.: B-43
Rev.:

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
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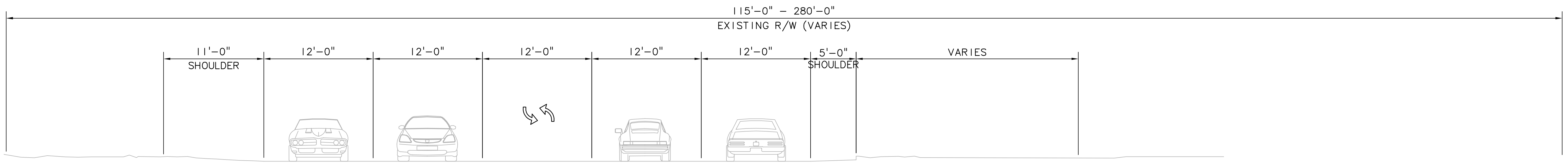
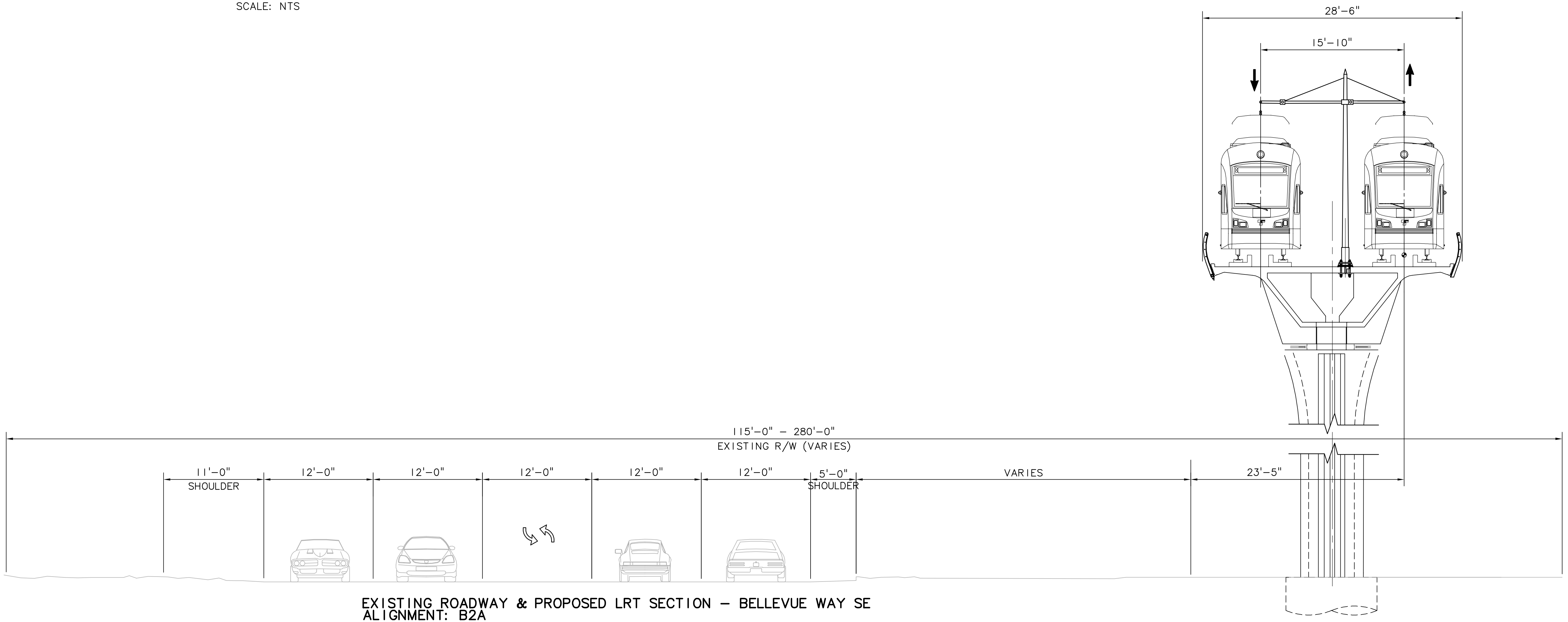

115'-0" - 280'-0"
EXISTING R/W (VARIES)
11'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
5'-0"
SHOULDER
VARIES

EXISTING ROADWAY SECTION - BELLEVUE WAY SE (SOUTH OF S. BELLEVUE P&R)

SCALE: NTS


28'-6"
15'-10"
115'-0" - 280'-0"
EXISTING R/W (VARIES)
11'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
5'-0"
SHOULDER
VARIES
23'-5"

EXISTING ROADWAY & PROPOSED LRT SECTION - BELLEVUE WAY SE
ALIGNMENT: B2A
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TYPICAL SECTION

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Drawing No.: B2A-KX02
Sheet No.: B-44
Rev.:

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved

LTSCALE
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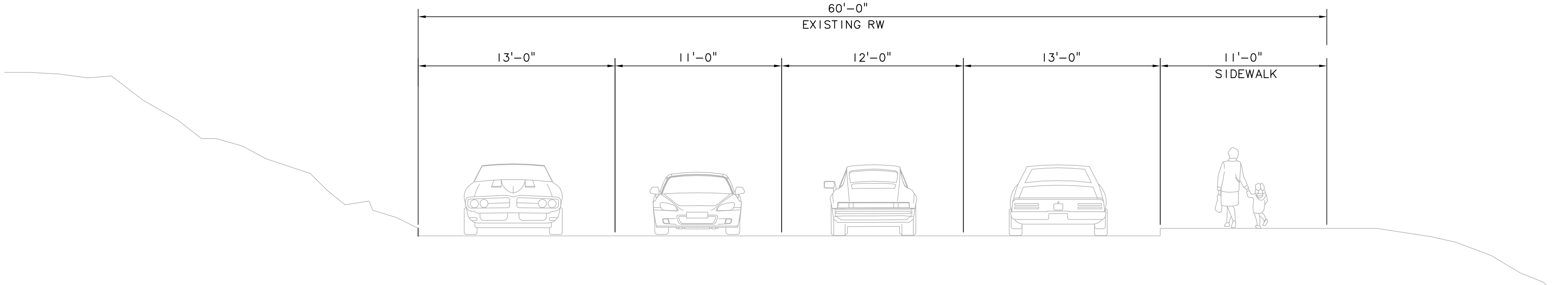
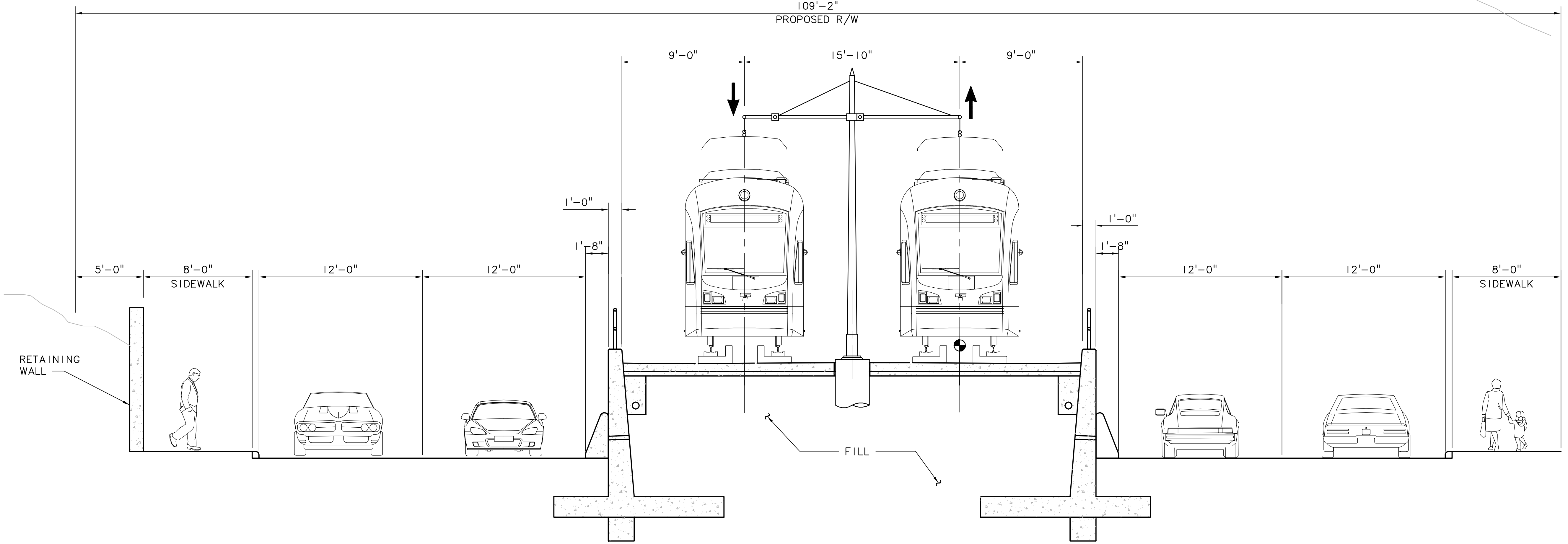

60'-0"
EXISTING RW
13'-0"
11'-0"
12'-0"
13'-0"
11'-0"
SIDEWALK

EXISTING ROADWAY SECTION – BELLEVUE WAY SE (SOUTH OF WINTERS HOUSE)

SCALE: NTS


109'-2"
PROPOSED R/W
9'-0"
15'-10"
9'-0"
1'-0"
1'-8"
1'-0"
1'-8"
5'-0"
8'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
8'-0"
SIDEWALK
RETAINING WALL
FILL

PROPOSED ROADWAY & LRT SECTION – BELLEVUE WAY SE (WIDENING TO WEST AND EAST)
ALIGNMENT: B2A
AT-GRADE DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELB1B2A_KX03.dwg
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Date:

Scale: NTS
Filename: ELB1B2A_KX03.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B2A-KX03
Sheet No.: B-45
Rev.:

XREF'S
Resolved
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REG-DCON
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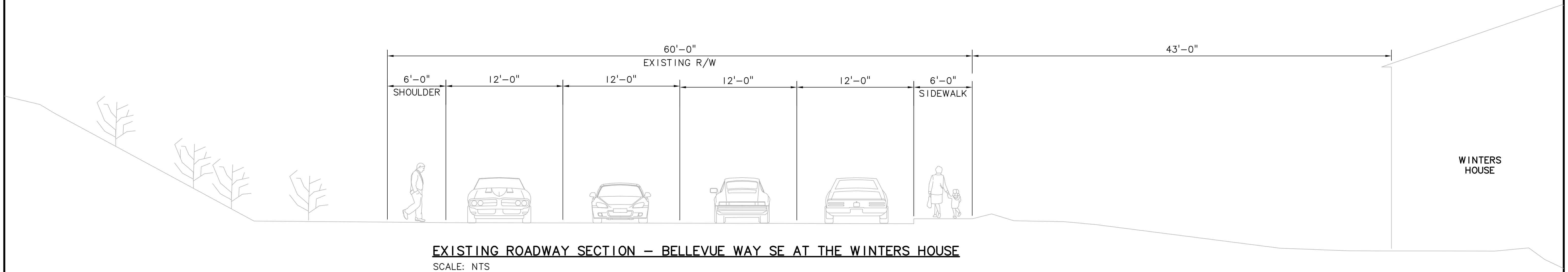
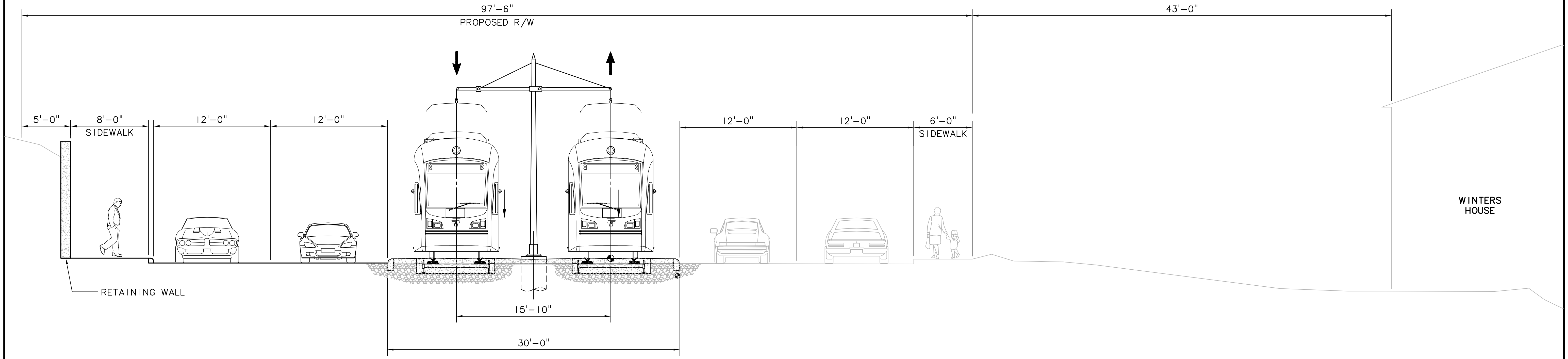

60'-0"
EXISTING R/W
43'-0"
6'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK
WINTERS HOUSE

EXISTING ROADWAY SECTION – BELLEVUE WAY SE AT THE WINTERS HOUSE

SCALE: NTS


97'-6"
PROPOSED R/W
43'-0"
5'-0"
8'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK
WINTERS HOUSE
RETAINING WALL
15'-10"
30'-0"

PROPOSED ROADWAY & LRT SECTION – BELLEVUE WAY SE AT THE WINTERS HOUSE (WIDENING TO WEST)
ALIGNMENT: B2A
AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELBIB2A_KX04.dwg
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Filename: ELBIB2A_KX04.dwg
Contract No.: EL SEG_B
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EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TYPICAL SECTION

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Drawing No.: B2A-KX04
Sheet No.: B-46
Rev.:

XREF'S
Resolved
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REG-DCON
Unresolved
LTSCALE
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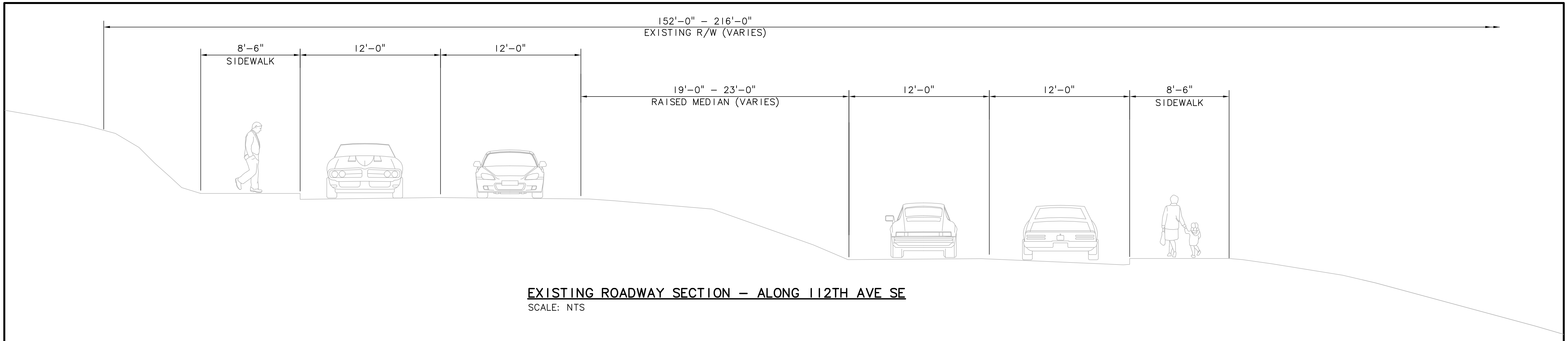
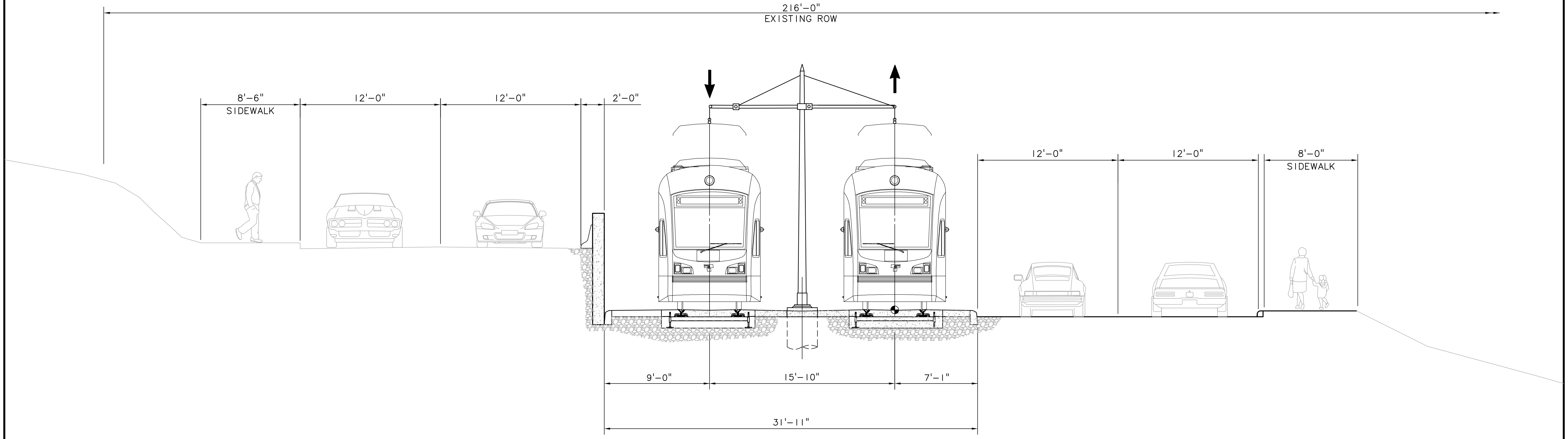

152'-0" - 216'-0"
EXISTING R/W (VARIES)
8'-6"
SIDEWALK
12'-0"
12'-0"
19'-0" - 23'-0"
RAISED MEDIAN (VARIES)
12'-0"
12'-0"
8'-6"
SIDEWALK

EXISTING ROADWAY SECTION – ALONG 112TH AVE SE
SCALE: NTS


216'-0"
EXISTING ROW
8'-6"
SIDEWALK
12'-0"
12'-0"
2'-0"
12'-0"
12'-0"
8'-0"
SIDEWALK
9'-0"
15'-10"
7'-1"
31'-11"

PROPOSED ROADWAY & LRT SECTION – ALONG 112TH AVE SE
ALIGNMENT: B2A
AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY
SCALE: NTS

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Scale: NTS
Filename: ELB1B2A_KX05.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B2A-KX05
Sheet No.: B-47
Rev.:

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XREF'S

Resolved

ZG-2234H
REG-DCON

Unresolved

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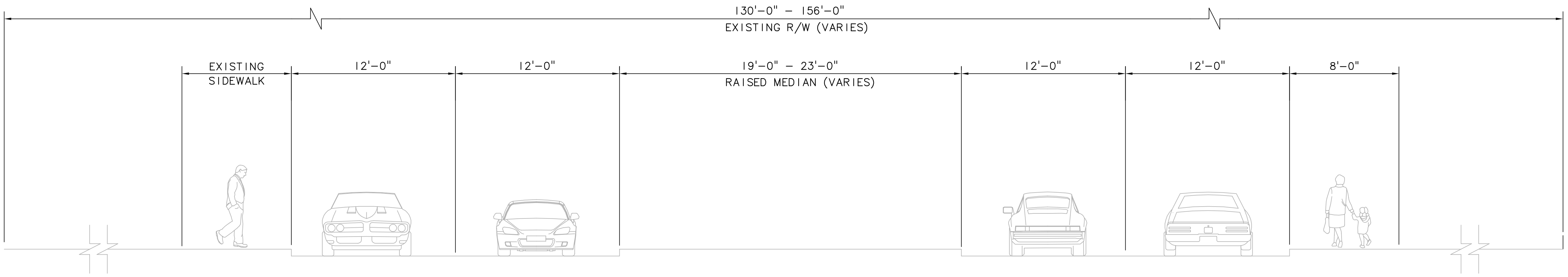
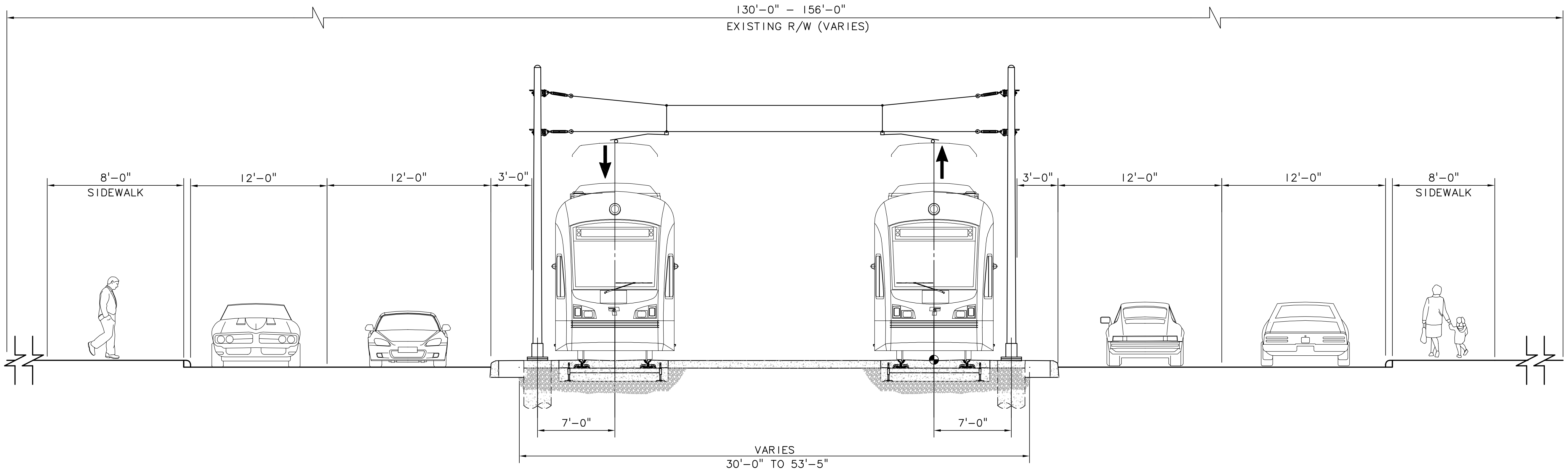


130'-0" - 156'-0"
EXISTING R/W (VARIES)
EXISTING SIDEWALK
12'-0"
12'-0"
19'-0" - 23'-0"
RAISED MEDIAN (VARIES)
12'-0"
12'-0"
8'-0"

EXISTING ROADWAY SECTION - 112TH AVE SE (SOUTH OF SE 8TH ST)

SCALE: NTS



130'-0" - 156'-0"
EXISTING R/W (VARIES)
8'-0"
SIDEWALK
12'-0"
12'-0"
3'-0"
3'-0"
12'-0"
12'-0"
8'-0"
SIDEWALK
7'-0"
7'-0"
VARIES
30'-0" TO 53'-5"

PROPOSED ROADWAY & LRT SECTION - 112TH AVE SE
ALIGNMENT: B2A
AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Scale: NTS
Filename: ELBIB2A_KX06.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A
TYPICAL SECTION

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Drawing No.: B2A-KX06
Sheet No.: B-48
Rev.:

XREF'S

Resolved

ELB_B2A_KA
REG-DCON
Zg-2234h
x0216rx
x0216sf
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0516sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
x0525sf
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LTSCALE

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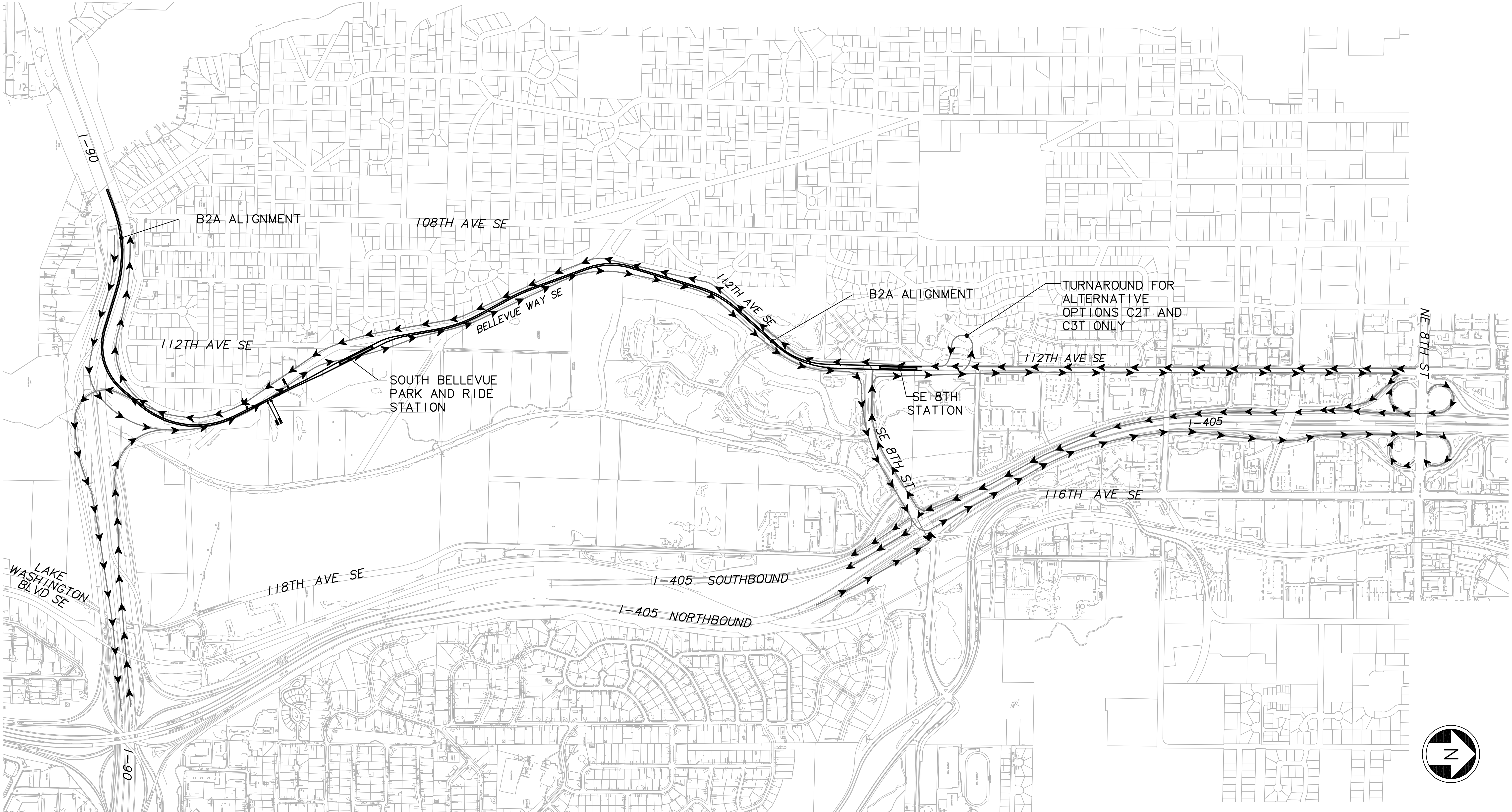
I-90
B2A ALIGNMENT
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
SOUTH BELLEVUE PARK AND RIDE STATION
112TH AVE SE
B2A ALIGNMENT
TURNAROUND FOR ALTERNATIVE OPTIONS C2T AND C3T ONLY
NE 8TH ST
112TH AVE SE
SE 8TH STATION
SE 8TH ST
I-405
116TH AVE SE
LAKE WASHINGTON BLVD SE
118TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
I-90
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR I-90 TO AND FROM CONSTRUCTION SITE.

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10/16/08 08:42 : eackerm OE5396

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Filename: ELBIB2A_CC01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2A

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: B2A-CC01
Sheet No.: B-49
Rev.:

XREF'S

Resolved

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REG-DCON
ZG-2234H
x0216rx
x0219rx
x0222rx
x0225rx
x0228rx
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x0522rx
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x0528rx
x0816rx
x0819rx
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x0825rx
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x9316rx
x9319rx
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St_Names_E_2
key_East

LTSCALE

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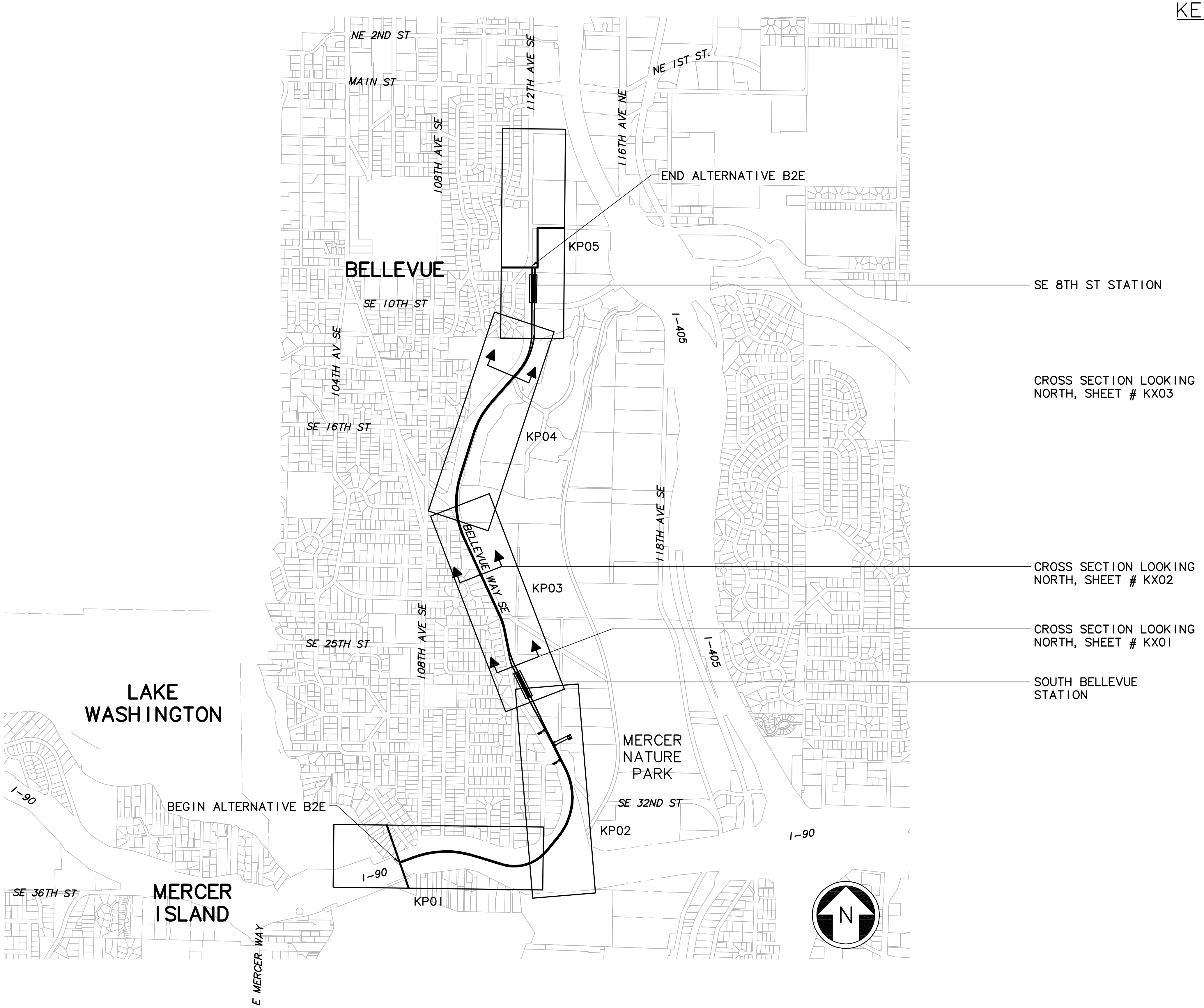
KEY PAGE



NE 2ND ST
MAIN ST
112TH AVE SE
NE 1ST ST.
116TH AVE NE
108TH AVE SE
END ALTERNATIVE B2E
KP05
BELLEVUE
SE 8TH ST STATION
SE 10TH ST
I-405
104TH AV SE
CROSS SECTION LOOKING NORTH, SHEET # KX03
SE 16TH ST
KP04
118TH AVE SE
BELLEVUE WAY SE
CROSS SECTION LOOKING NORTH, SHEET # KX02
KP03
CROSS SECTION LOOKING NORTH, SHEET # KX01
SE 25TH ST
108TH AVE SE
I-405
SOUTH BELLEVUE STATION
LAKE WASHINGTON
MERCER NATURE PARK
I-90
BEGIN ALTERNATIVE B2E
SE 32ND ST
KP02
I-90
I-90
SE 36TH ST
MERCER ISLAND
KP01
E MERCER WAY
N

c:\work\ELBIB2E_GZ05.dwg
10/16/08 08:47 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

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Date:
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Date:

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Scale: NTS
Filename: ELBIB2E_GZ05.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E

KEY PLAN

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Drawing No.: B2E-GZ05
Sheet No.: B-50
Rev.:

XREF'S

Resolved
----
zg-2234h
zg-g10010
ELB_B2E_CM
ELB_B2E_KA
ELB_B2E__JO
REG-DCON
x0216rx
x0216sf
x0516rx
x0516sf

Unresolved
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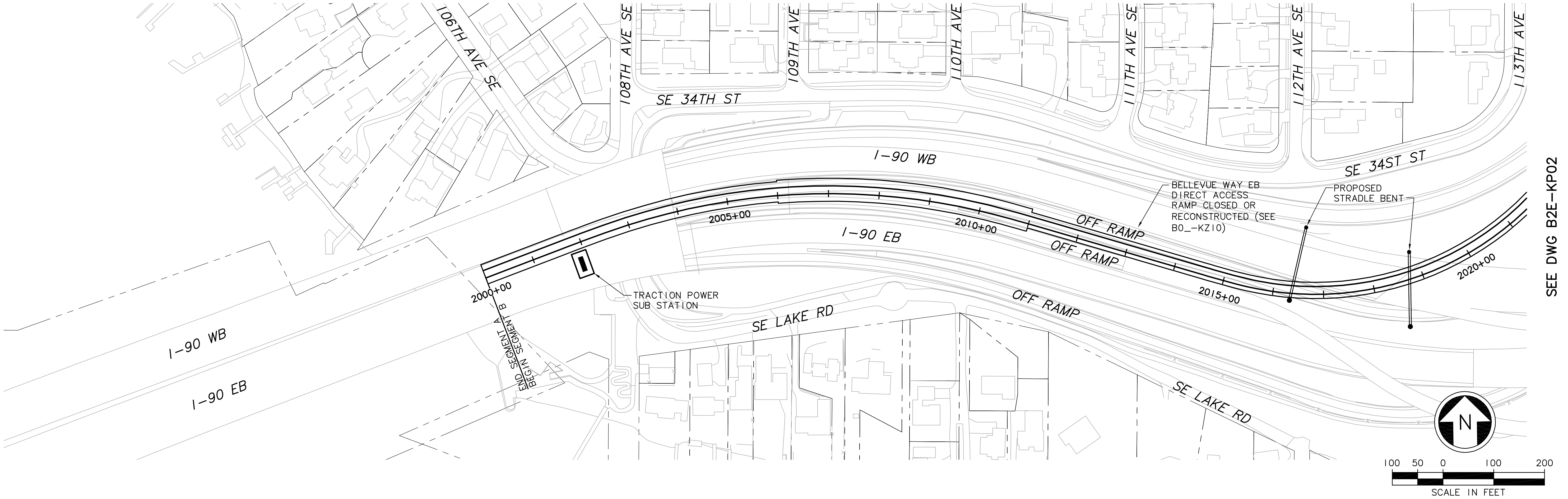
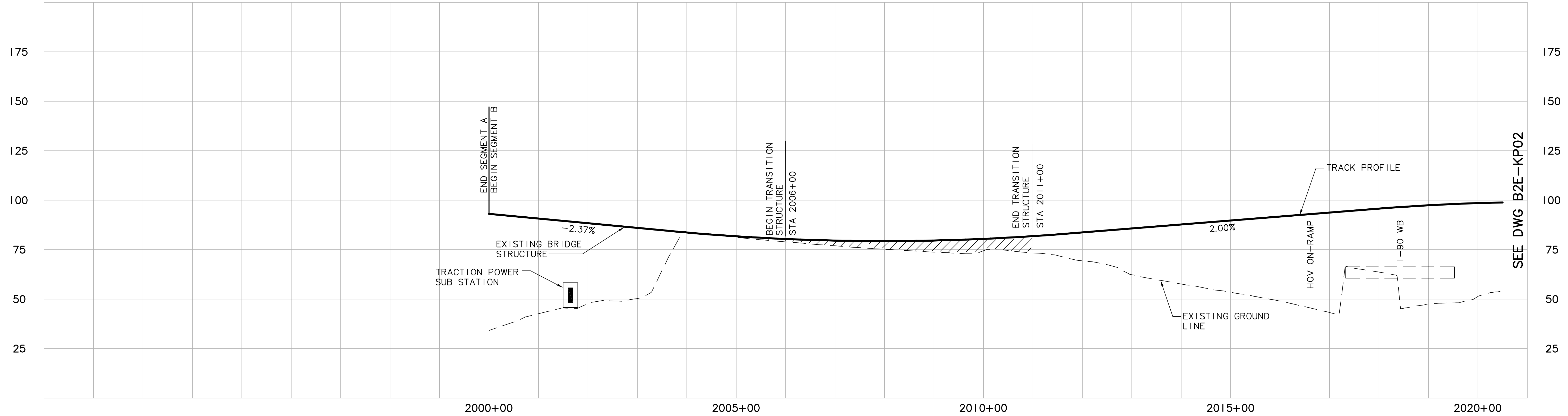
key_East

LTSCALE

1=1


106TH AVE SE
108TH AVE SE
109TH AVE
110TH AVE
111TH AVE SE
112TH AVE SE
113TH AVE
SE 34TH ST
SE 34ST ST
I-90 WB
I-90 EB
OFF RAMP
OFF RAMP
OFF RAMP
BELLEVUE WAY EB DIRECT ACCESS RAMP CLOSED OR RECONSTRUCTED (SEE B0_-KZ10)
PROPOSED STRADLE BENT
2000+00
2005+00
2010+00
2015+00
2020+00
TRACTION POWER SUB STATION
END SEGMENT A
BEGIN SEGMENT B
SE LAKE RD
SE LAKE RD
I-90 WB
I-90 EB
SEE DWG B2E-KP02
N
100 50 0 100 200
SCALE IN FEET



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Scale: H: 1"=100'; V: 1"=25'
Filename: ELB1B2E_KP01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TRACK PLAN & PROFILE

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Drawing No.: B2E-KP01
Sheet No.: B-51
Rev.:

c:\work\ELB1B2E_KP01.dwg
11/10/08 13:25 : eackerm OE5396

DWG INFO:

LTSCALE:
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XREFs:
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zg-g10010
-Overlay:
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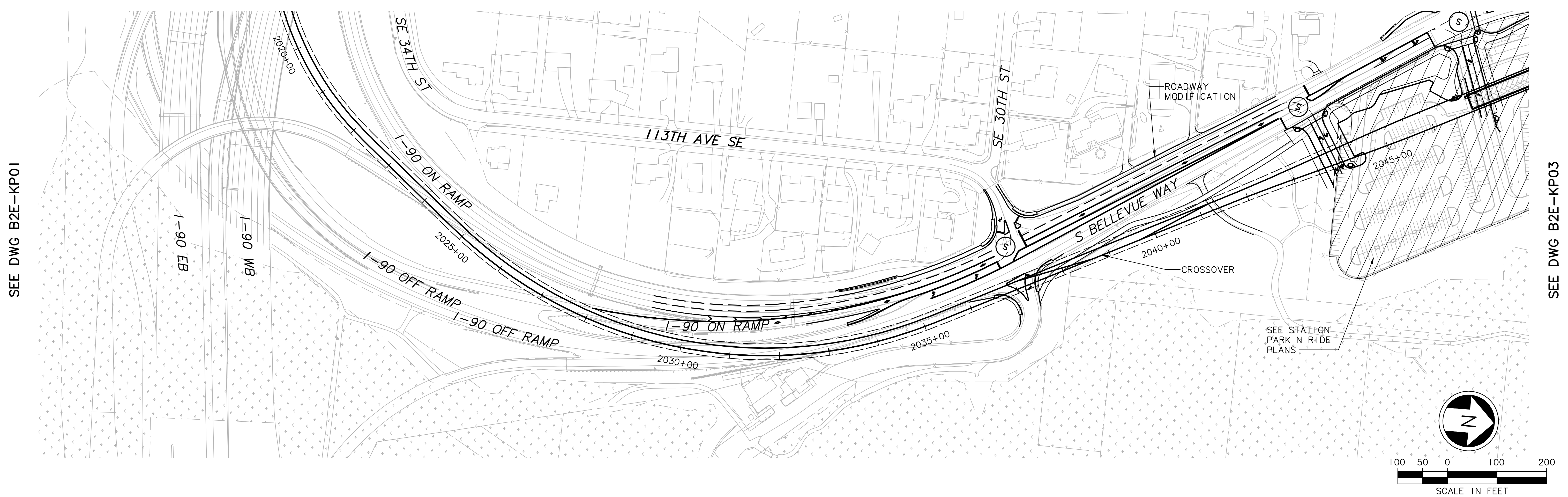
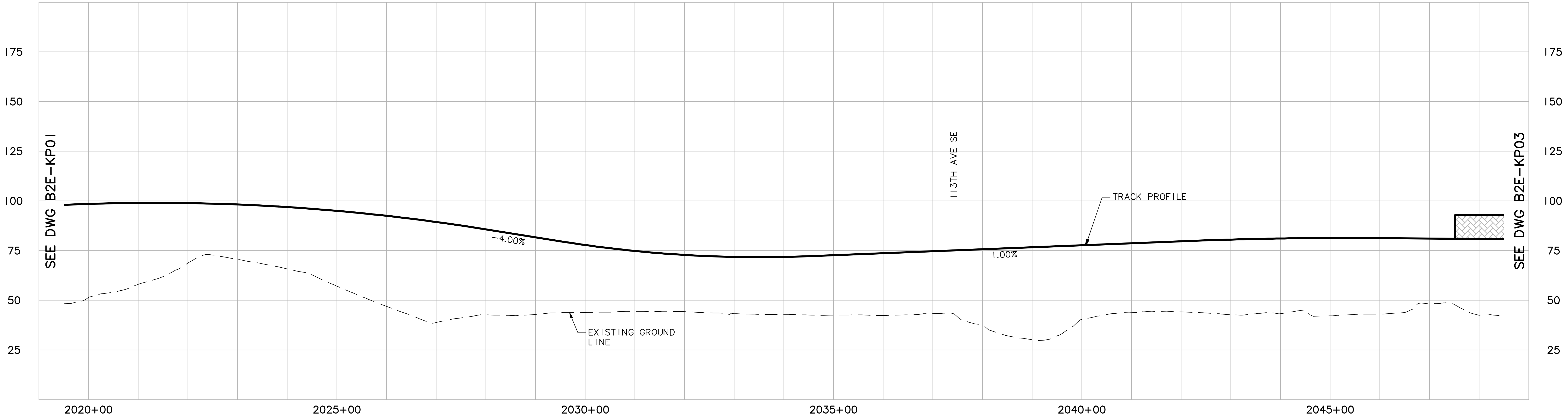
ELB_B2E_KA
x0516rx
x0516sf
x0519rx
x0519sf
-Unresolved:



SEE DWG B2E-KP01
SEE DWG B2E-KP03
SE 34TH ST
113TH AVE SE
SE 30TH ST
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00
I-90 EB
I-90 WB
I-90 ON RAMP
I-90 OFF RAMP
I-90 OFF RAMP
I-90 ON RAMP
S BELLEVUE WAY
ROADWAY MODIFICATION
CROSSOVER
SEE STATION PARK N RIDE PLANS
S
S
S
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment b\b2e\ELB1B2E_KP02.dwg
04/27/11 16:29 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B2E_KP02.dwg
Contract No.:
EL SEG_B
Date:

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EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TRACK PLAN & PROFILE

Drawing No.:
B2E-KP02
Sheet No.:
Rev.:
B-52

DWG INFO:

LTSCALE:
1=1

XREFs:
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zg–g10010
–Overlay:
ELB_B2E_CM
ELB_B2E_KA
x0219rx
x0219sf
x0222rx
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x0525sf
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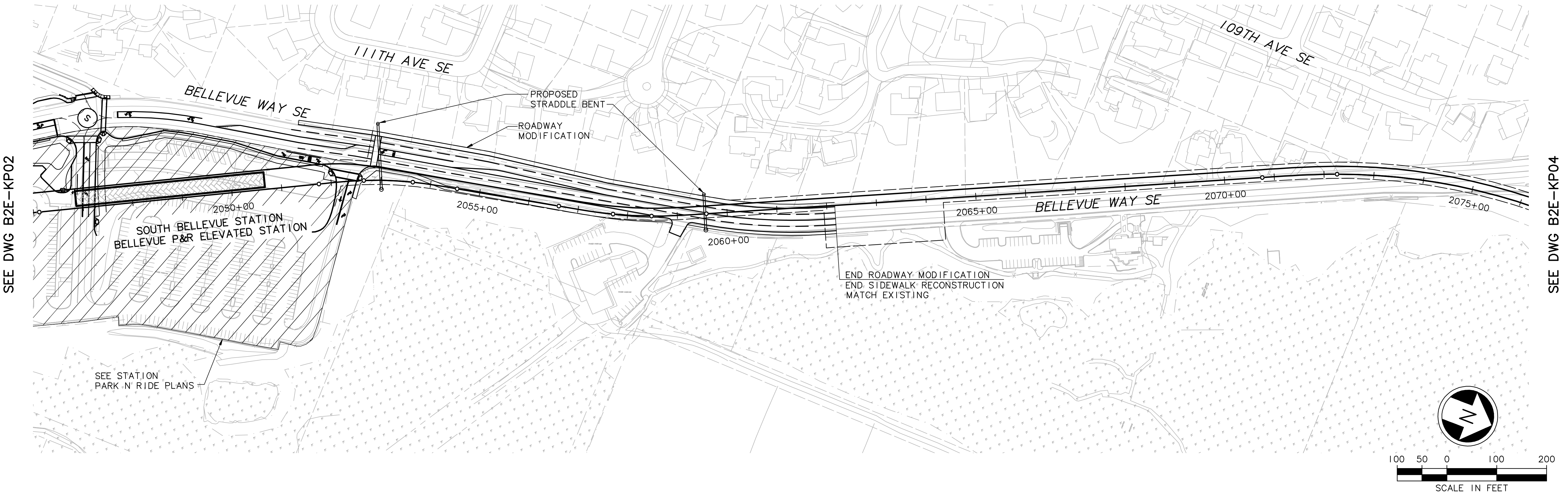
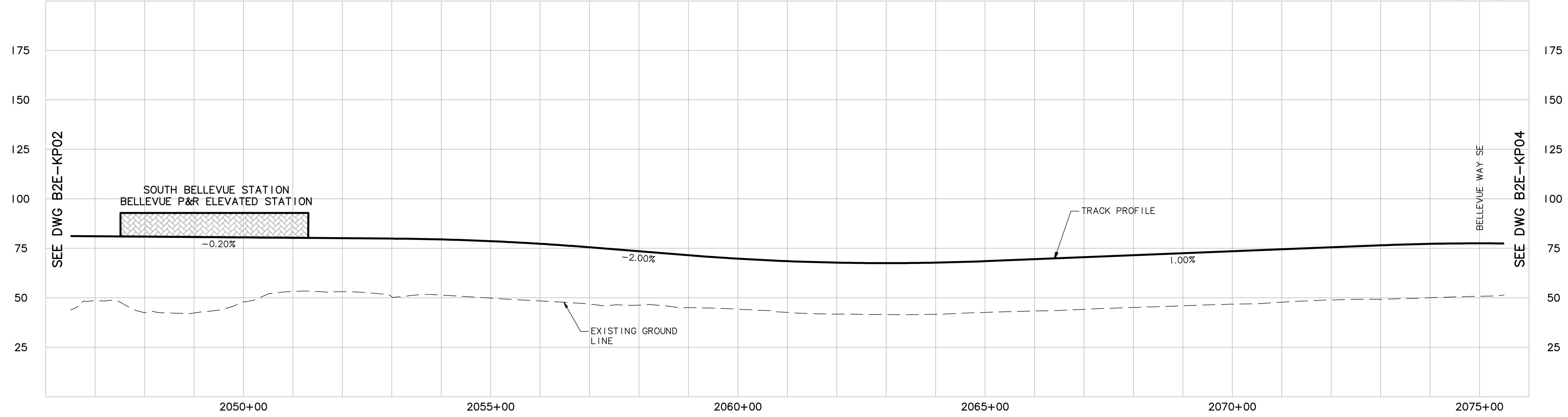

SEE DWG B2E–KP02
111TH AVE SE
109TH AVE SE
BELLEVUE WAY SE
PROPOSED
STRADDLE BENT
ROADWAY
MODIFICATION
2050+00
2055+00
2060+00
2065+00
2070+00
2075+00
SOUTH BELLEVUE STATION
BELLEVUE P&R ELEVATED STATION
BELLEVUE WAY SE
END ROADWAY MODIFICATION
END SIDEWALK RECONSTRUCTION
MATCH EXISTING
SEE STATION
PARK N RIDE PLANS
N
100 50 0 100 200
SCALE IN FEET
SEE DWG B2E–KP04



c:\work\feis\segment b\b2e\ELB1B2E_KP03.dwg
04/27/11 16:32 : khuum OE6585

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Date:

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Scale:
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Filename:
ELB1B2E_KP03.dwg
Contract No.:
EL SEG_B
Date:

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EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TRACK PLAN & PROFILE

Drawing No.:
B2E–KP03

Sheet No.: Rev.:
B-53

XREF'S

Resolved
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zg-2234h
zg-g10010
ELB_B2E_KA
ELB_B2E__JO
REG-DCON
x0222rx
x0222sf
x0522rx
x0522sf
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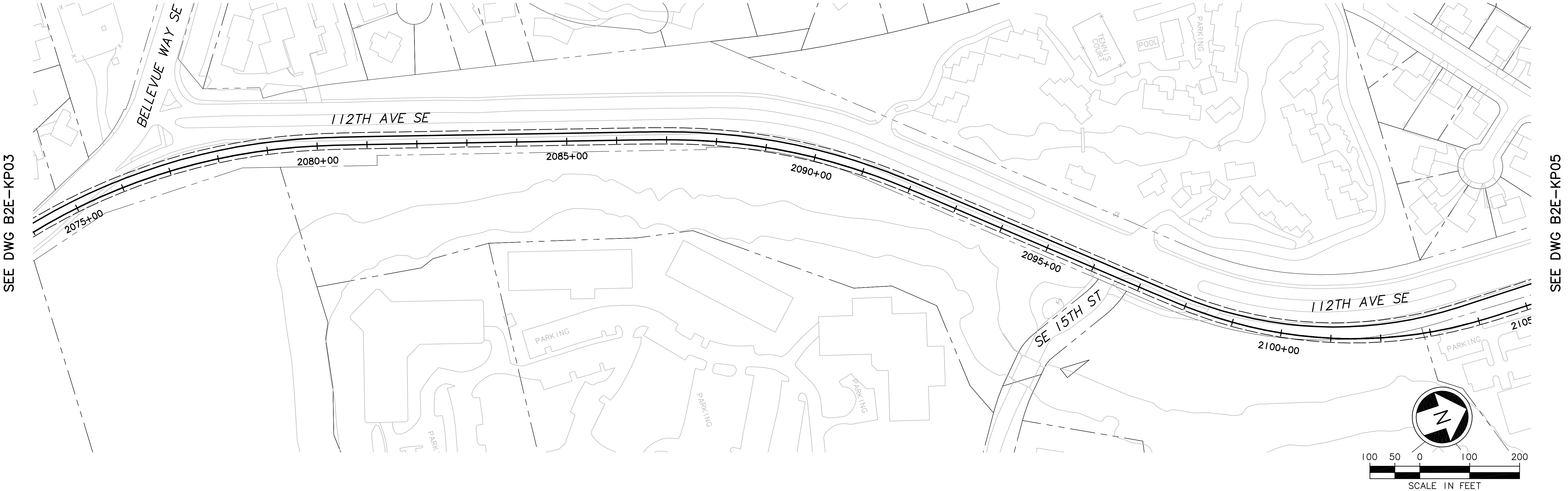
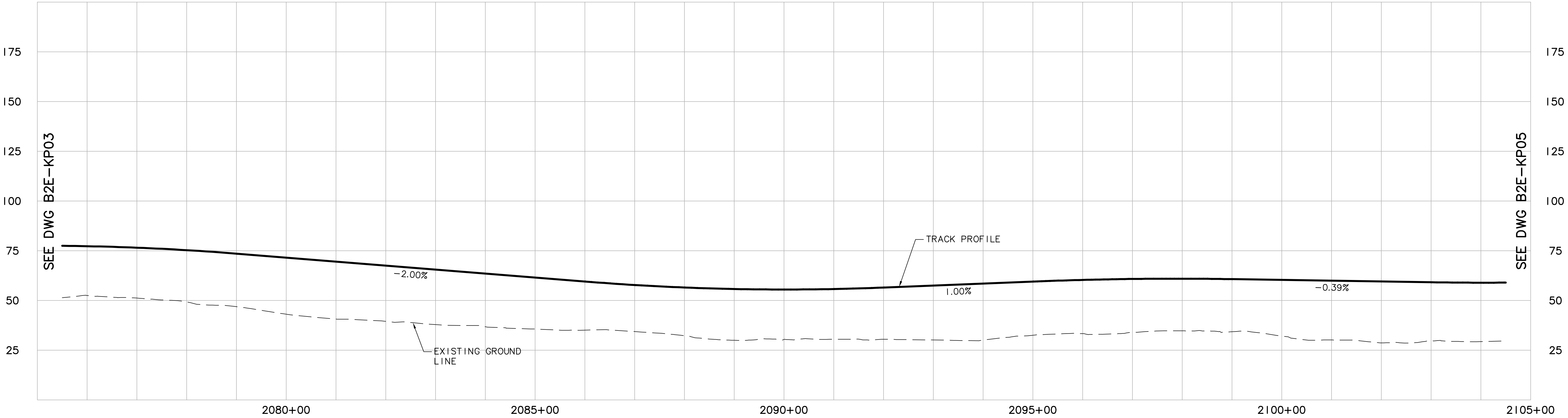
Unresolved

ELB_B3__CM
key_East

LTSCALE

1=1


SEE DWG B2E-KP03
BELLEVUE WAY SE
112TH AVE SE
2075+00
2080+00
2085+00
2090+00
2095+00
2100+00
2105
TENNIS COURT
POOL
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
SE 15TH ST
112TH AVE SE
N
SEE DWG B2E-KP05
100 50 0 100 200
SCALE IN FEET



c:\work\ELB1B2E_KP04.dwg
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H: 1"=100'; V: 1"=25'
Filename:
ELB1B2E_KP04.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B2E-KP04
Sheet No.:
Rev.:
B-54

XREF'S

Resolved
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zg–g10010
ELB_B2E_CM
ELB_B2E_KA
ELB_B2E__JO
ELC_C7E_KA
REG–DCON
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x0522sf
x0525rx
x0525sf

Unresolved
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key_East

LTSCALE

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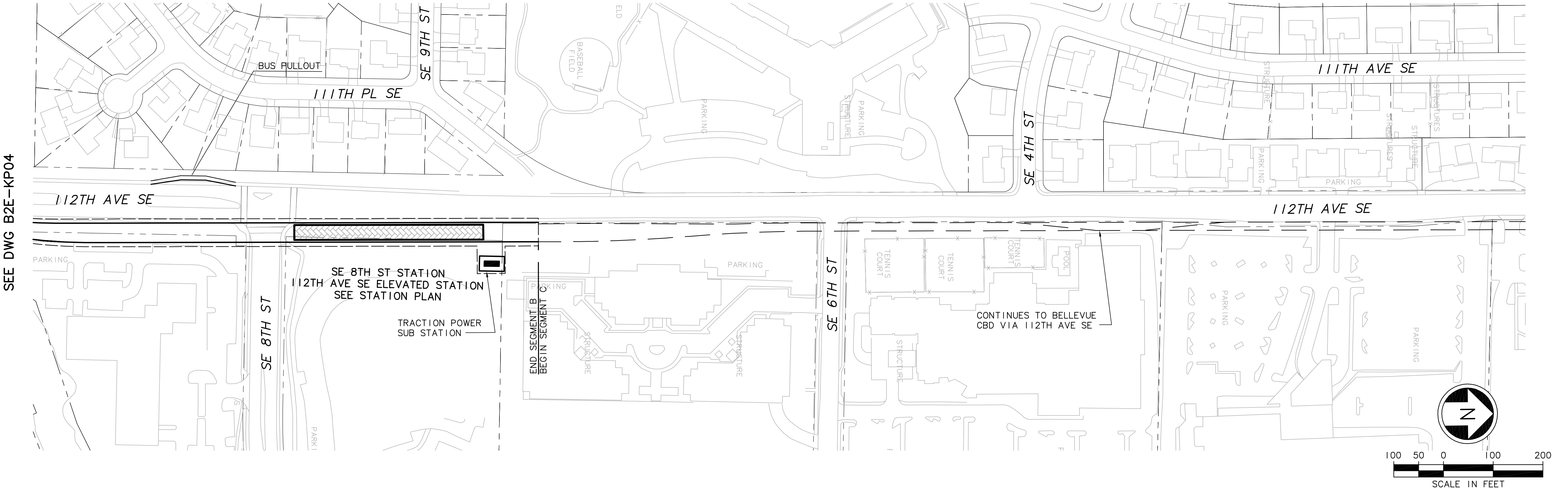
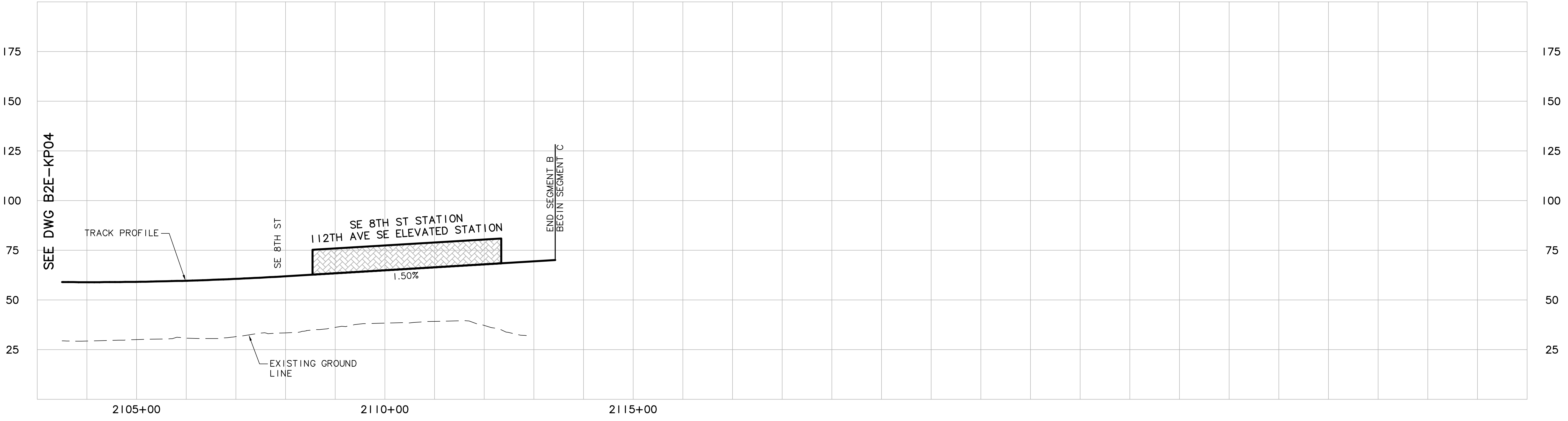

SEE DWG B2E–KP04
BUS PULLOUT
111TH PL SE
SE 9TH ST
BASEBALL FIELD
PARKING
STRUCTURE
111TH AVE SE
SE 4TH ST
112TH AVE SE
112TH AVE SE
PARKING
SE 8TH ST STATION
112TH AVE SE ELEVATED STATION
SEE STATION PLAN
TRACTION POWER SUB STATION
SE 8TH ST
END SEGMENT B
BEGIN SEGMENT C
SE 6TH ST
TENNIS COURT
POOL
CONTINUES TO BELLEVUE CBD VIA 112TH AVE SE
N
100 50 0 100 200
SCALE IN FEET


SEE DWG B2E–KP04
175
150
125
100
75
50
25
TRACK PROFILE
SE 8TH ST
SE 8TH ST STATION
112TH AVE SE ELEVATED STATION
1.50%
END SEGMENT B
BEGIN SEGMENT C
EXISTING GROUND LINE
2105+00
2110+00
2115+00

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SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B2E_KP05.dwg
Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B2E–KP05
Sheet No.:
B-55
Rev.:

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
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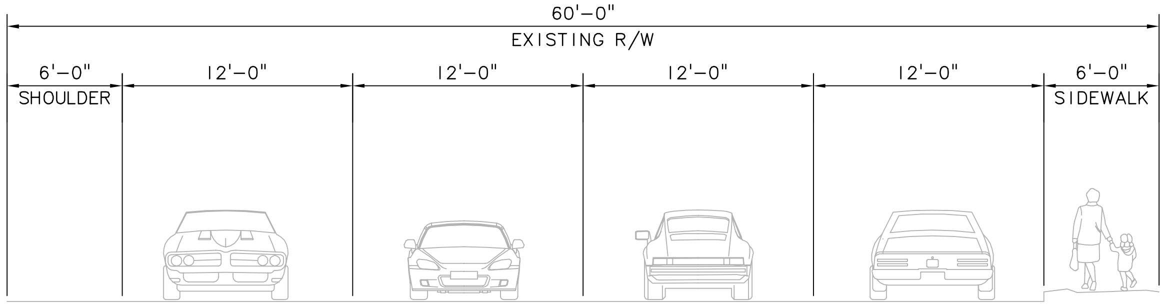
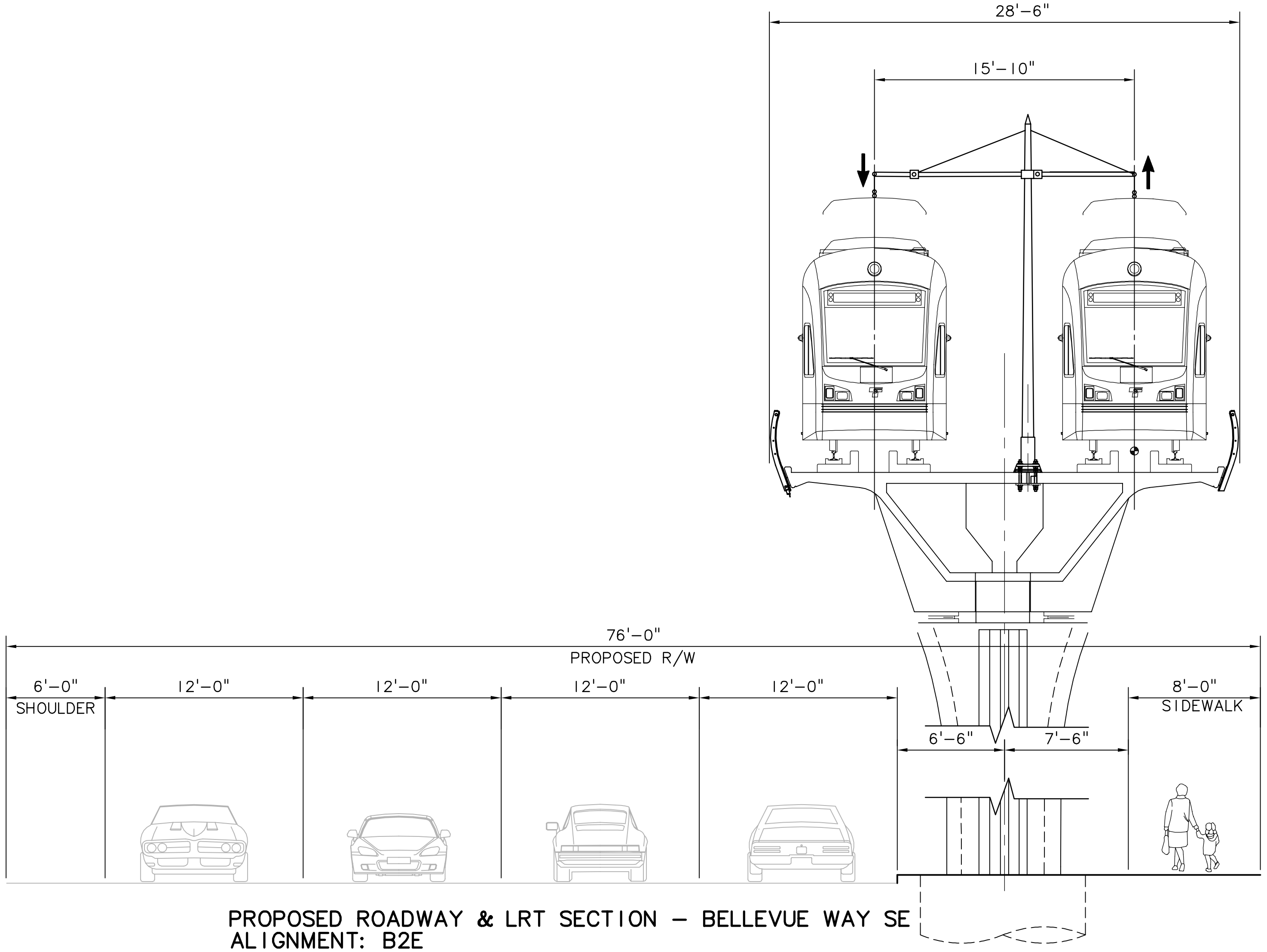


60'-0"
EXISTING R/W
6'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK

EXISTING ROADWAY SECTION – BELLEVUE WAY SE (NORTH OF S. BELLVUE P&R)

SCALE: NTS



28'-6"
15'-10"
76'-0"
PROPOSED R/W
6'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
8'-0"
SIDEWALK
6'-6"
7'-6"

PROPOSED ROADWAY & LRT SECTION – BELLEVUE WAY SE
ALIGNMENT: B2E
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Scale: NTS
Filename: ELB1B2E_KX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TYPICAL SECTION

THIS PRINT REDUCED
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Drawing No.: B2E-KX01
Sheet No.: B-56
Rev.:

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
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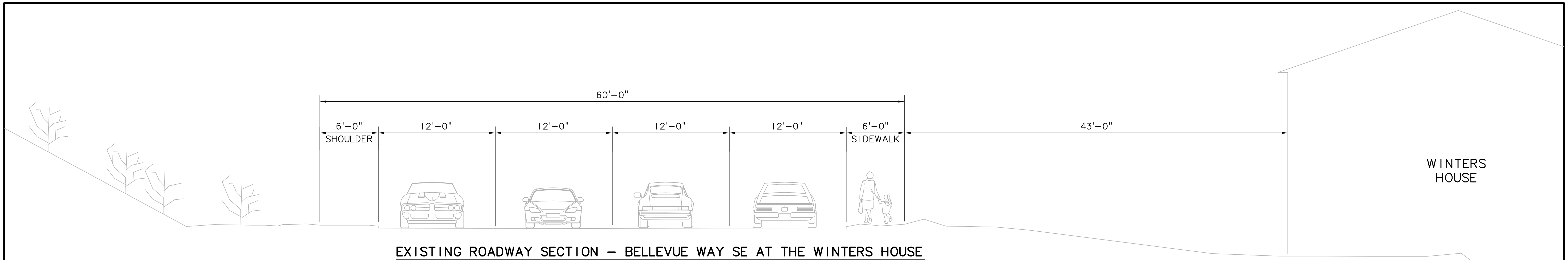
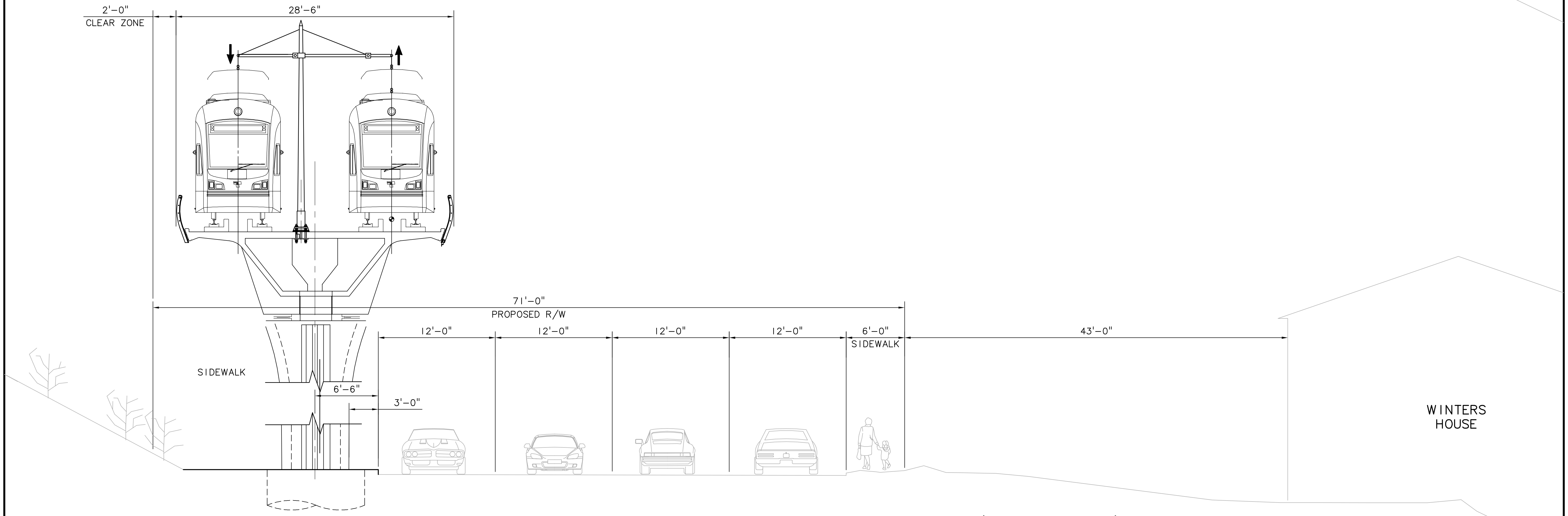

60'-0"
6'-0"
SHOULDER
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK
43'-0"
WINTERS HOUSE

EXISTING ROADWAY SECTION – BELLEVUE WAY SE AT THE WINTERS HOUSE
SCALE: NTS


2'-0"
CLEAR ZONE
28'-6"
71'-0"
PROPOSED R/W
12'-0"
12'-0"
12'-0"
12'-0"
6'-0"
SIDEWALK
43'-0"
SIDEWALK
6'-6"
3'-0"
WINTERS HOUSE

PROPOSED ROADWAY & LRT SECTION – BELLEVUE WAY SE AT THE WINTERS HOUSE (WINDING TO WEST)
ALIGNMENT: B2E
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELBIB2E_KX02.dwg
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Scale: NTS
Filename: ELBIB2E_KX02.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TYPICAL SECTION

THIS PRINT REDUCED
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Drawing No.: B2E-KX02
Sheet No.: B-57
Rev.:

XREF'S
Resolved
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REG-DCON
Unresolved
LTSCALE
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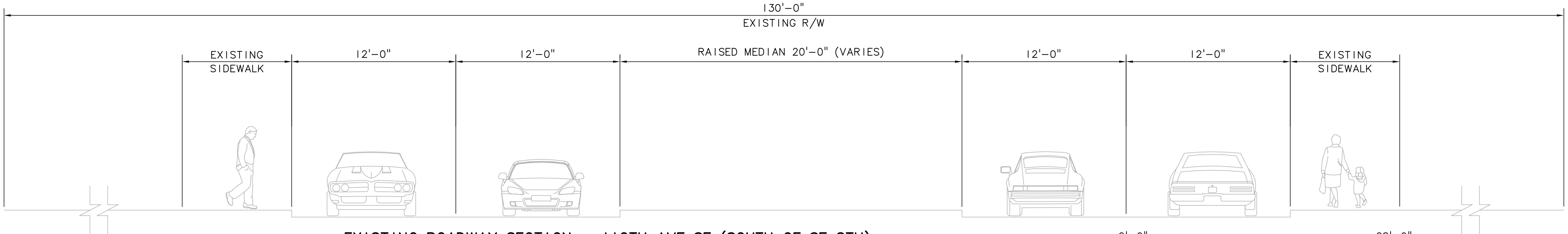
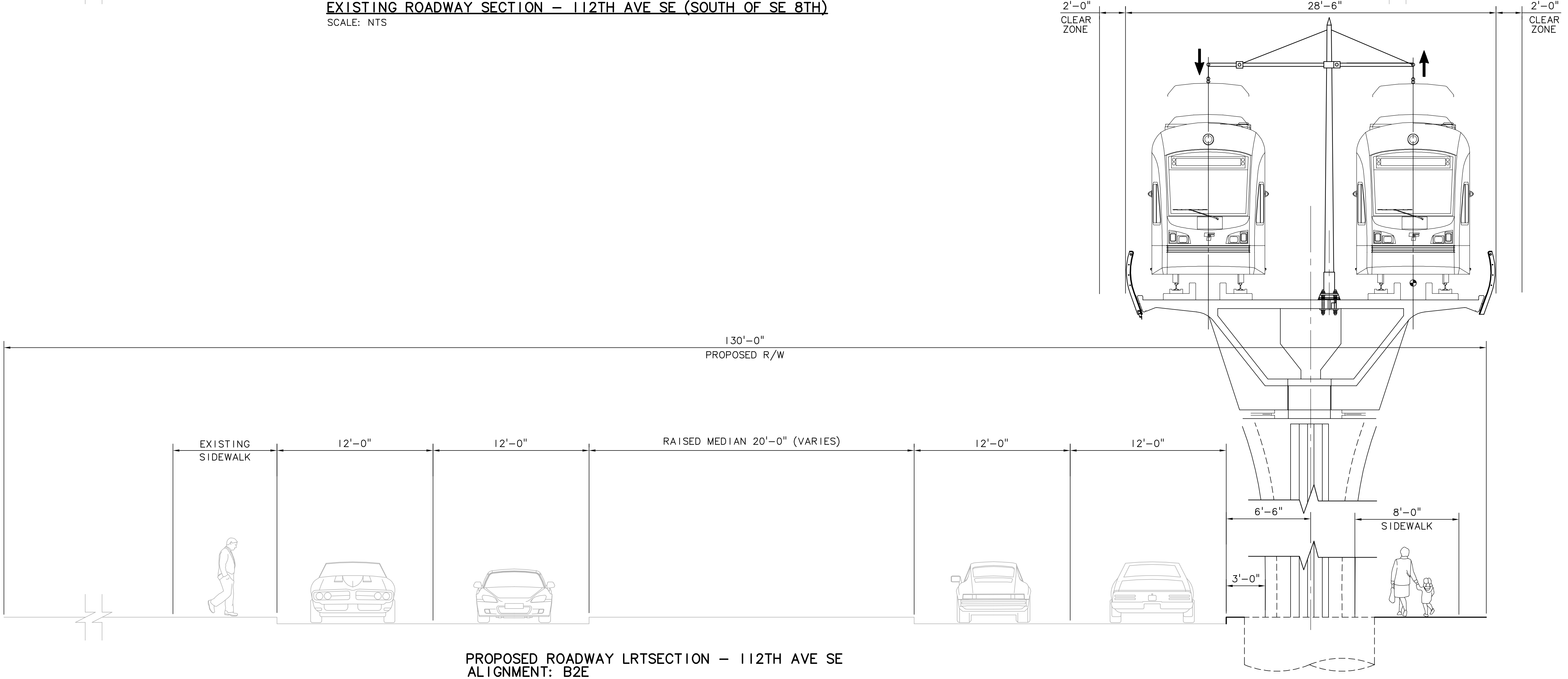

130'-0"
EXISTING R/W
EXISTING SIDEWALK
12'-0"
12'-0"
RAISED MEDIAN 20'-0" (VARIES)
12'-0"
12'-0"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION – 112TH AVE SE (SOUTH OF SE 8TH)
SCALE: NTS


2'-0"
CLEAR ZONE
28'-6"
2'-0"
CLEAR ZONE
130'-0"
PROPOSED R/W
EXISTING SIDEWALK
12'-0"
12'-0"
RAISED MEDIAN 20'-0" (VARIES)
12'-0"
12'-0"
6'-6"
8'-0"
SIDEWALK
3'-0"

PROPOSED ROADWAY LRTSECTION – 112TH AVE SE
ALIGNMENT: B2E
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELB1B2E_KX03.dwg
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Scale: NTS
Filename: ELB1B2E_KX03.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B2E-KX03
Sheet No.: B-58
Rev.:

XREF'S

Resolved

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REG-DCON
Zg-2234h
x0216rx
x0216sf
x0219rx
x0222rx
x0225rx
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x0516sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
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x0531rx
x0531sf
x0816rx
x0816sf
x0819rx
x0819sf
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Unresolved

LTSCALE

1=1

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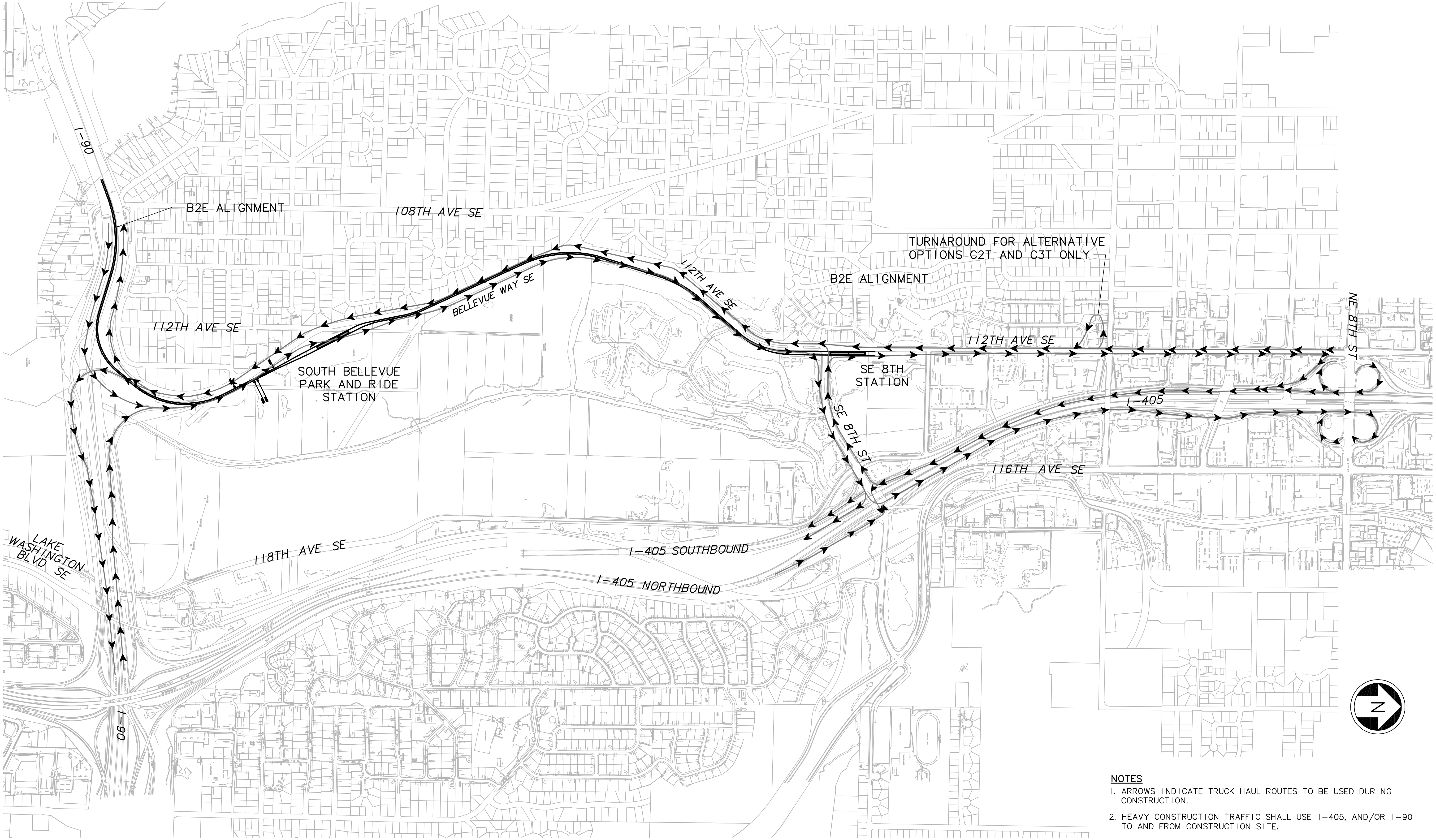
10/16/08 08:46 : eackerm OE5396



I-90
B2E ALIGNMENT
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
SOUTH BELLEVUE PARK AND RIDE STATION
112TH AVE SE
TURNAROUND FOR ALTERNATIVE OPTIONS C2T AND C3T ONLY
B2E ALIGNMENT
112TH AVE SE
NE 8TH ST
SE 8TH STATION
SE 8TH ST
I-405
116TH AVE SE
LAKE WASHINGTON BLVD SE
118TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
I-90
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR I-90 TO AND FROM CONSTRUCTION SITE.

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

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SOUNDTRANSIT

Scale: NTS
Filename: ELB1B2E_CC01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B2E

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: B2E-CC01
Sheet No.: B-59
Rev.:

XREF'S

Resolved

ELB_B3__KA
REG-DCON
ZG-2234H
x0216rx
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
x0819rx
x0822rx
x0825rx
x0828rx
x9316rx
x9319rx
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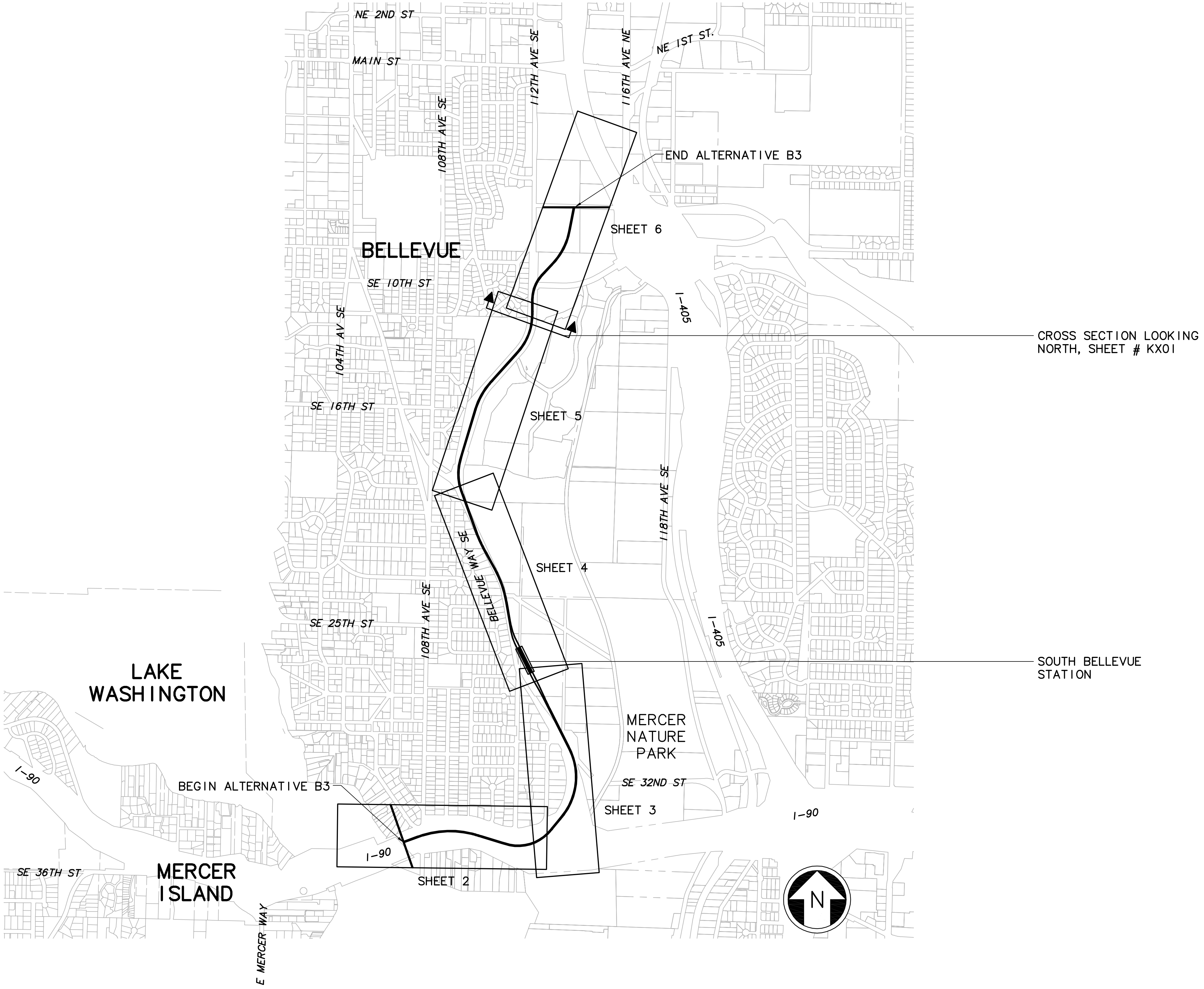
Unresolved

St_Names_E_2
key_East

LTSCALE

1=1



NE 2ND ST
MAIN ST
112TH AVE SE
116TH AVE NE
NE 1ST ST.
108TH AVE SE
END ALTERNATIVE B3
SHEET 6
BELLEVUE
SE 10TH ST
I-405
CROSS SECTION LOOKING NORTH, SHEET # KX01
104TH AV SE
SE 16TH ST
SHEET 5
118TH AVE SE
BELLEVUE WAY SE
SHEET 4
SE 25TH ST
108TH AVE SE
I-405
SOUTH BELLEVUE STATION
LAKE WASHINGTON
MERCER NATURE PARK
I-90
BEGIN ALTERNATIVE B3
SE 32ND ST
SHEET 3
I-90
I-90
SE 36TH ST
MERCER ISLAND
SHEET 2
N
E MERCER WAY

c:\work\ELBIB3__GZ05.dwg
10/16/08 08:50 : eackerm OE5396

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELBIB3__GZ05.dwg
Contract No.: EL SEG_B
Date:

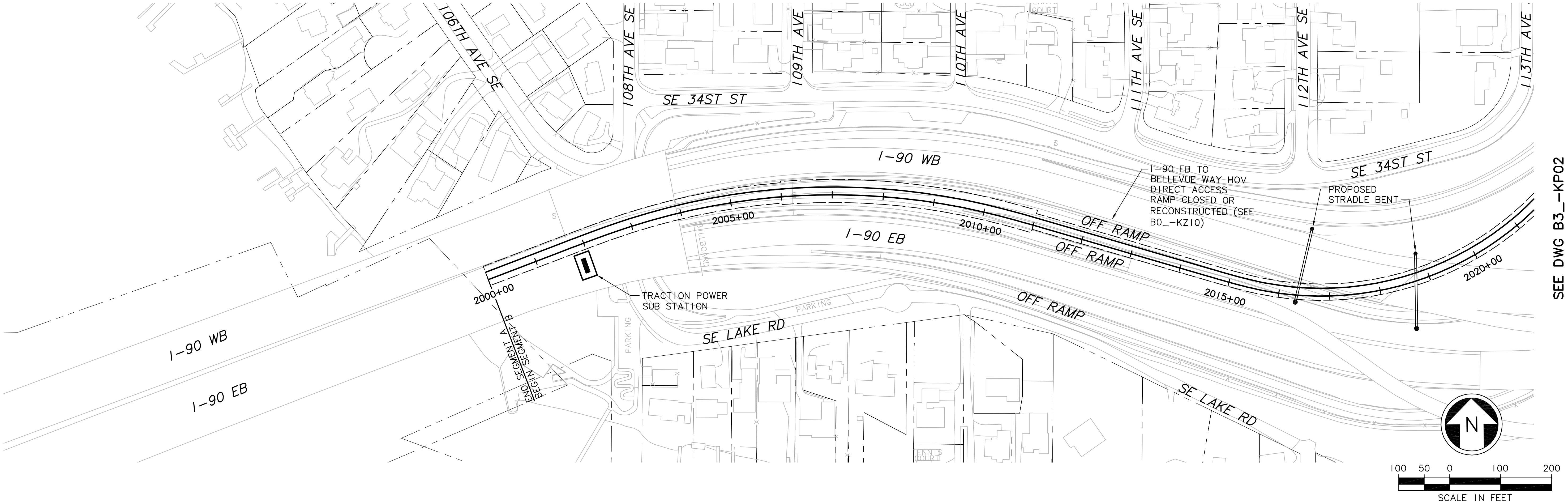
EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3

KEY PLAN

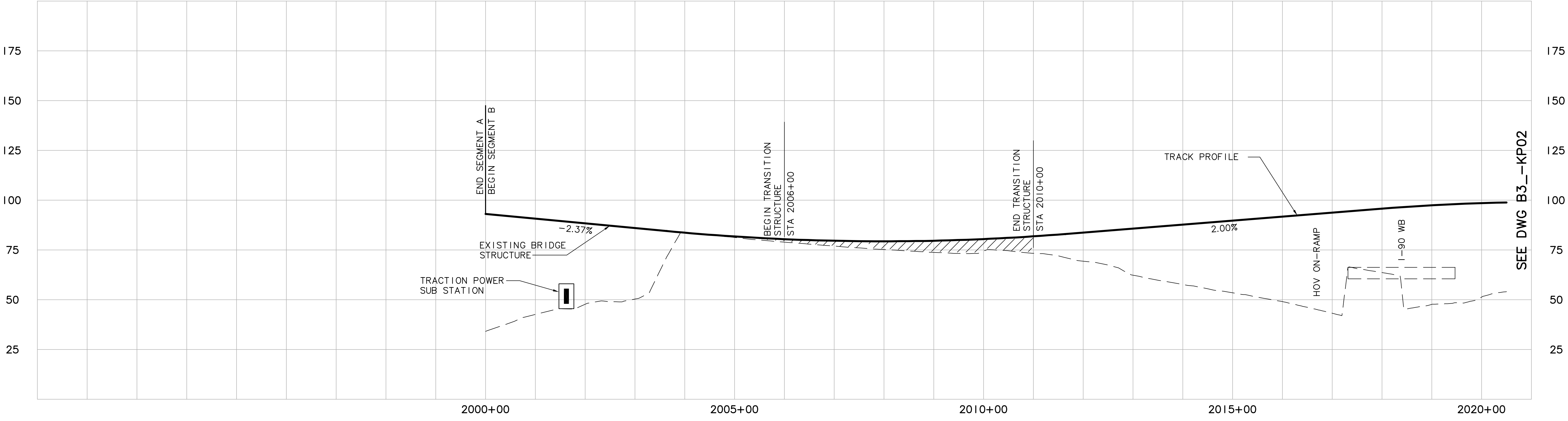
THIS PRINT REDUCED HALF SCALE

Drawing No.: B3_-GZ05
Sheet No.: B-60
Rev.:

XREF'S
Resolved
zg-2234h
zg-g1001O
ELB_B3__CM
ELB_B3__JO
ELB_B3__KA
REG-DCON
x0216rx
x0216sf
x0516rx
x0516sf
Unresolved
key_East
LTSCALE
1=1



106TH AVE SE
108TH AVE SE
109TH AVE
110TH AVE
111TH AVE SE
112TH AVE SE
113TH AVE
SE 34ST ST
I-90 WB
SE 34ST ST
I-90 EB TO BELLEVUE WAY HOV DIRECT ACCESS RAMP CLOSED OR RECONSTRUCTED (SEE B0_-KZ10)
PROPOSED STRADLE BENT
OFF RAMP
OFF RAMP
2005+00
2010+00
I-90 EB
2015+00
2020+00
2000+00
TRACTION POWER SUB STATION
OFF RAMP
PARKING
SE LAKE RD
I-90 WB
END SEGMENT A
BEGIN SEGMENT B
I-90 EB
SE LAKE RD
N
100 50 0 100 200
SCALE IN FEET
SEE DWG B3_-KP02



175
150
125
100
75
50
25
END SEGMENT A
BEGIN SEGMENT B
BEGIN TRANSITION STRUCTURE STA 2006+00
END TRANSITION STRUCTURE STA 2010+00
TRACK PROFILE
-2.37%
2.00%
EXISTING BRIDGE STRUCTURE
TRACTION POWER SUB STATION
HOV ON-RAMP
I-90 WB
SEE DWG B3_-KP02
2000+00
2005+00
2010+00
2015+00
2020+00

c:\work\ELB1B3__KP01.DWG
11/10/08 13:25 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELB1B3__KP01.DWG
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: B3_-KP01
Sheet No.: B-61
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
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ELB_B3__KA
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x0516sf
x0519rx
x0519sf
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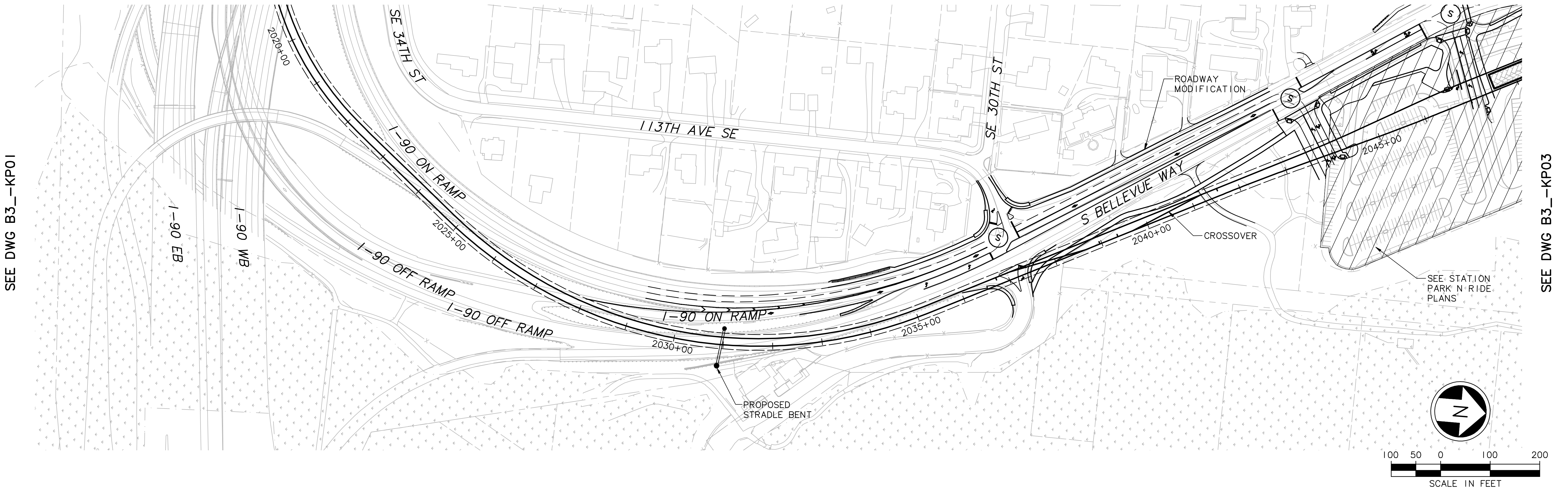
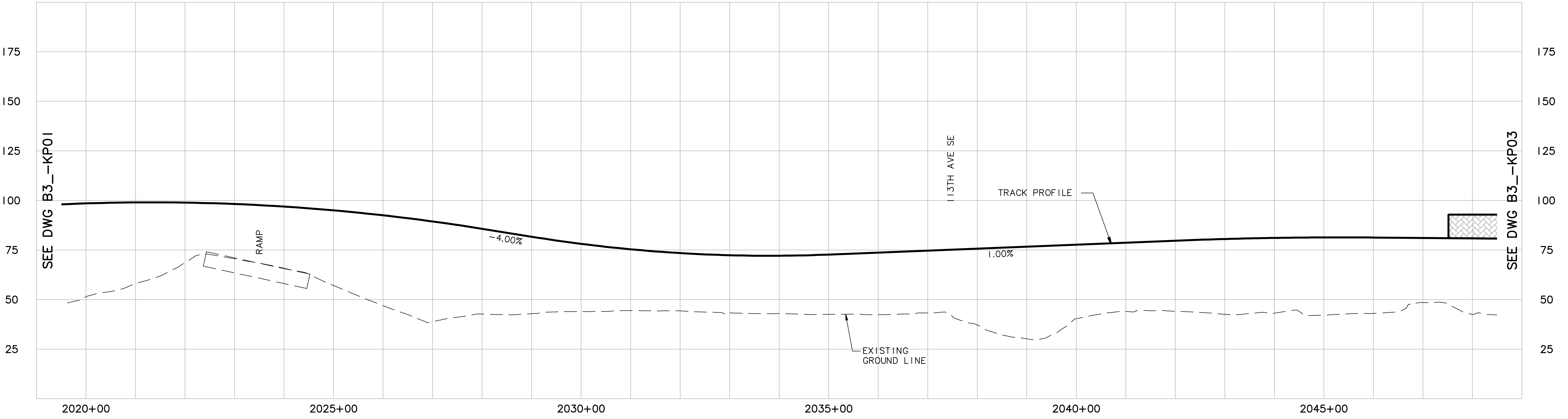


SEE DWG B3_-KP01
SEE DWG B3_-KP03
SE 34TH ST
113TH AVE SE
SE 30TH ST
I-90 EB
I-90 WB
I-90 ON RAMP
I-90 OFF RAMP
I-90 OFF RAMP
I-90 ON RAMP
S BELLEVUE WAY
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00
ROADWAY MODIFICATION
CROSSOVER
SEE STATION PARK N RIDE PLANS
PROPOSED STRADLE BENT
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment b\b3\ELB1B3__KP02.dwg
04/27/11 16:39 : khuum OE6585

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B3__KP02.dwg
Contract No.:
EL SEG_B
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3
TRACK PLAN & PROFILE

Drawing No.:
B3_-KP02
Sheet No.:
B-62
Rev.:

DWG INFO:

LTSCALE:
1=1

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zg–g10010
–Overlay:
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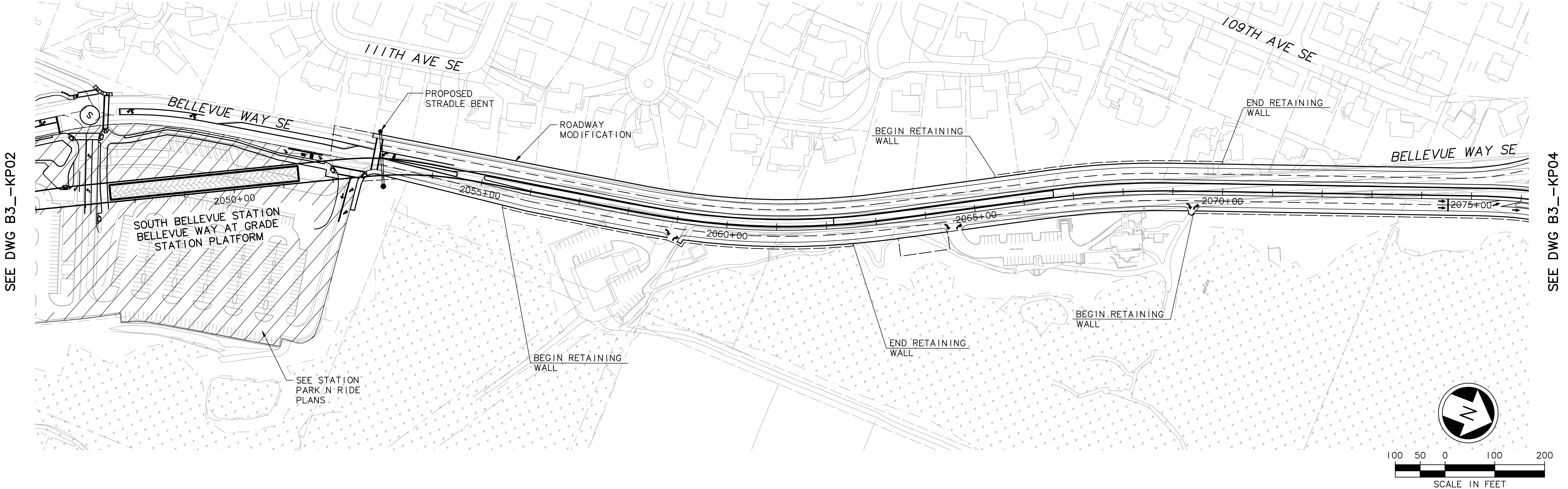
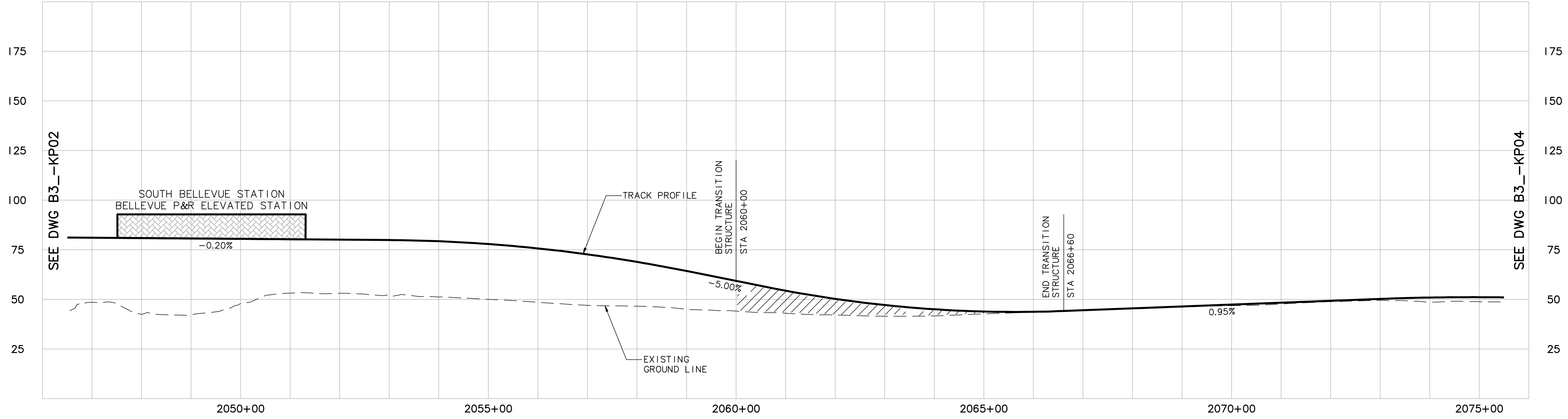


SEE DWG B3_–KP02
111TH AVE SE
109TH AVE SE
BELLEVUE WAY SE
BELLEVUE WAY SE
PROPOSED STRADLE BENT
ROADWAY MODIFICATION
BEGIN RETAINING WALL
END RETAINING WALL
BEGIN RETAINING WALL
END RETAINING WALL
BEGIN RETAINING WALL
END RETAINING WALL
2050+00
2055+00
2060+00
2065+00
2070+00
2075+00
SOUTH BELLEVUE STATION BELLEVUE WAY AT GRADE STATION PLATFORM
SEE STATION PARK N RIDE PLANS
N
100 50 0 100 200
SCALE IN FEET
SEE DWG B3_–KP04



c:\work\feis\segment b\b3\ELB1B3__KP03.dwg
04/27/11 16:41 : khuum OE6585

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SOUNDTRANSIT
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB1B3__KP03.dwg
Contract No.:
EL SEG_B
Date:

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EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3
TRACK PLAN & PROFILE

Drawing No.:
B3_–KP03
Sheet No.:
Rev.:
B-63

XREF'S
Resolved
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zg-g10010
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ELB_B3__JO
ELB_B3__KA
REG-DCON
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key_East
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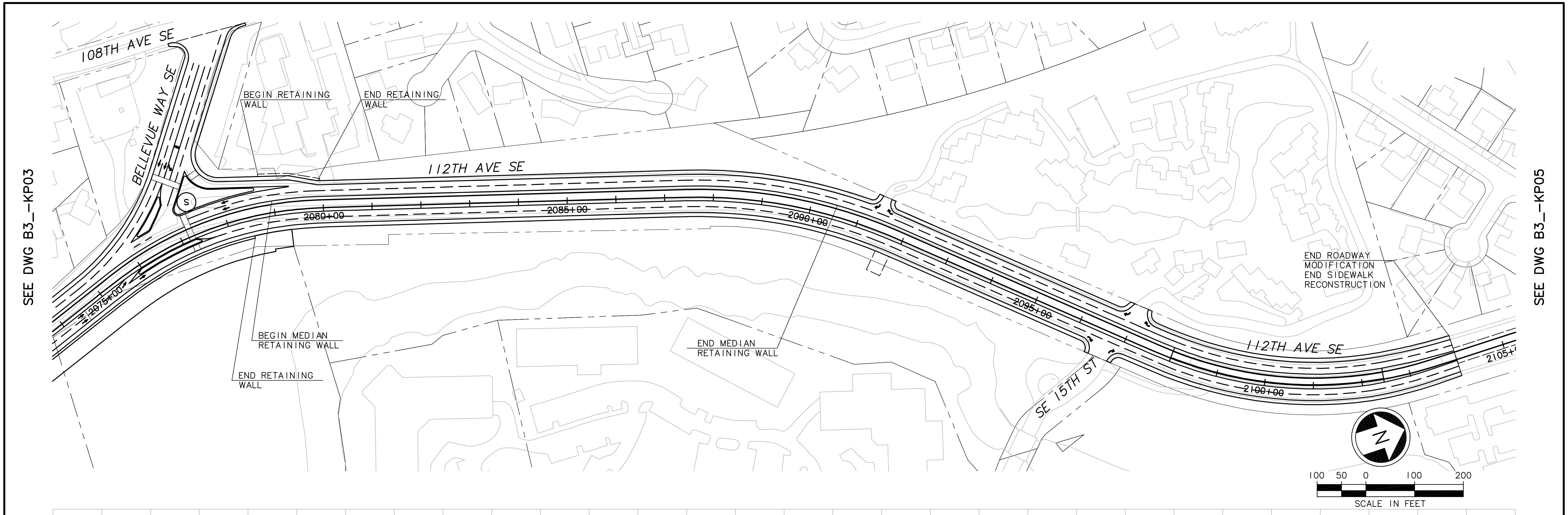
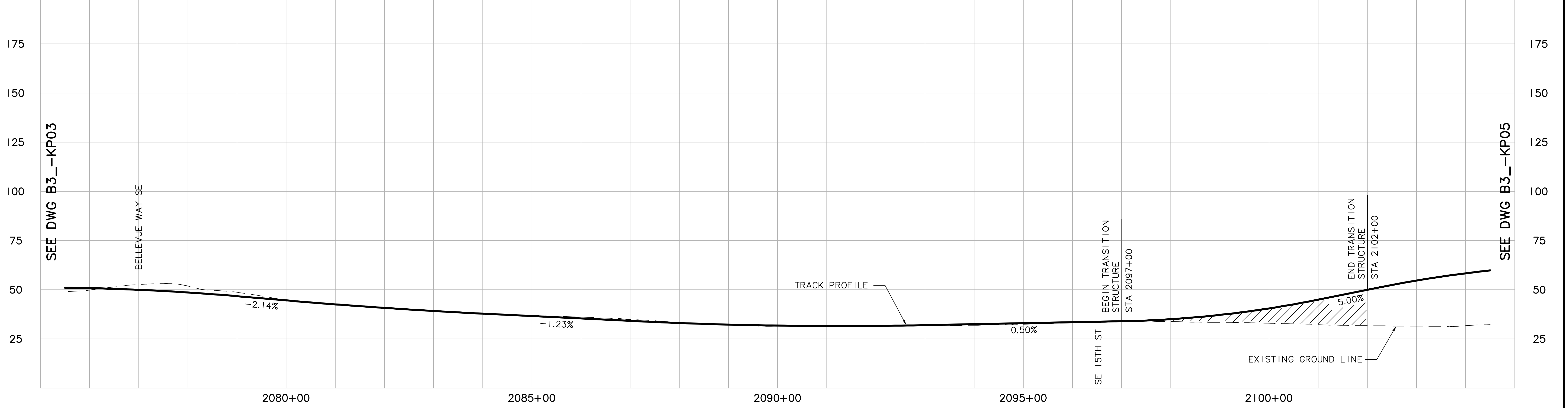

SEE DWG B3_-KP03
108TH AVE SE
BELLEVUE WAY SE
BEGIN RETAINING WALL
END RETAINING WALL
112TH AVE SE
S
2075+00
2080+00
2085+00
2090+00
2095+00
2100+00
2105+
BEGIN MEDIAN RETAINING WALL
END MEDIAN RETAINING WALL
END RETAINING WALL
END ROADWAY MODIFICATION
END SIDEWALK RECONSTRUCTION
112TH AVE SE
SE 15TH ST
N
100 50 0 100 200
SCALE IN FEET
SEE DWG B3_-KP05



c:\work\ELB\B3__KP04.dwg
10/16/08 08:51 :: eackerm OE5396

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Filename:
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Contract No.:
EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B3_-KP04
Sheet No.:
Rev.:
B-64

XREF'S

Resolved
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zg-g10010
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ELB_B3__JO
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Unresolved
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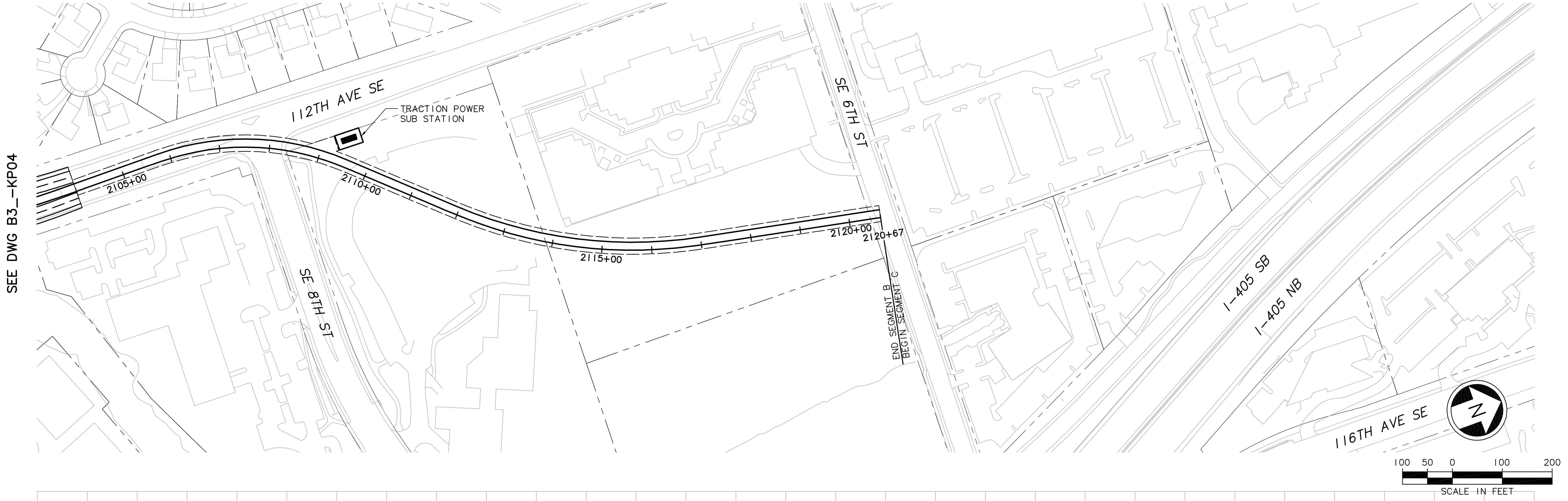
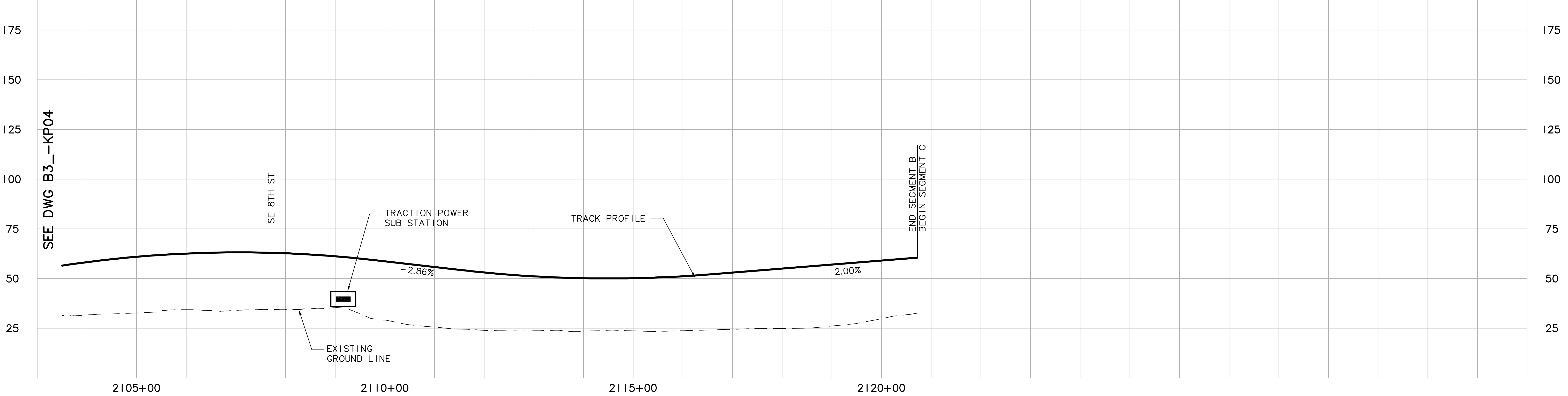
key_East

LTSCALE

1=1


SEE DWG B3_-KP04
112TH AVE SE
TRACTION POWER
SUB STATION
2105+00
2110+00
2115+00
2120+00
2120+67
SE 8TH ST
SE 6TH ST
END SEGMENT B
BEGIN SEGMENT C
I-405 SB
I-405 NB
116TH AVE SE
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELBIB3__KP05.dwg
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Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELBIB3__KP05.dwg

Contract No.:
EL SEG_B

Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3
TRACK PLAN & PROFILE

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HALF SCALE

Drawing No.:
B3_-KP05

Sheet No.: B-65

Rev.:

XREF'S
Resolved
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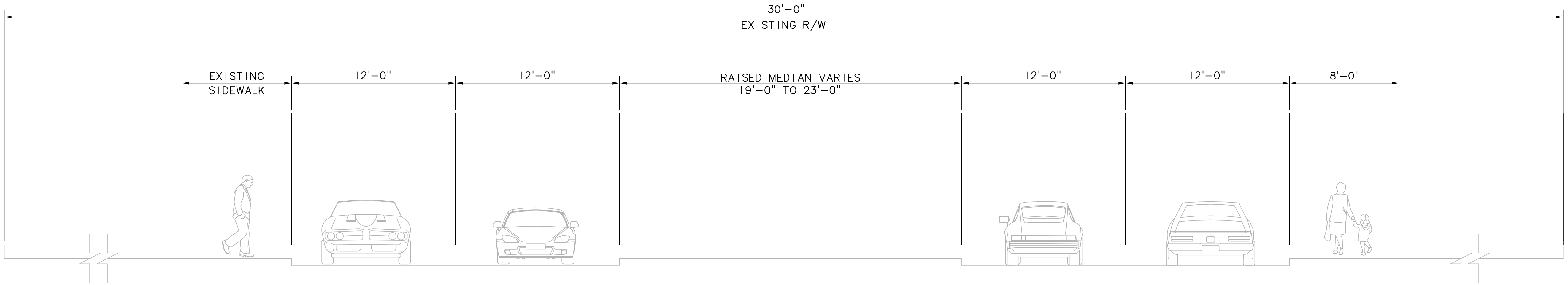
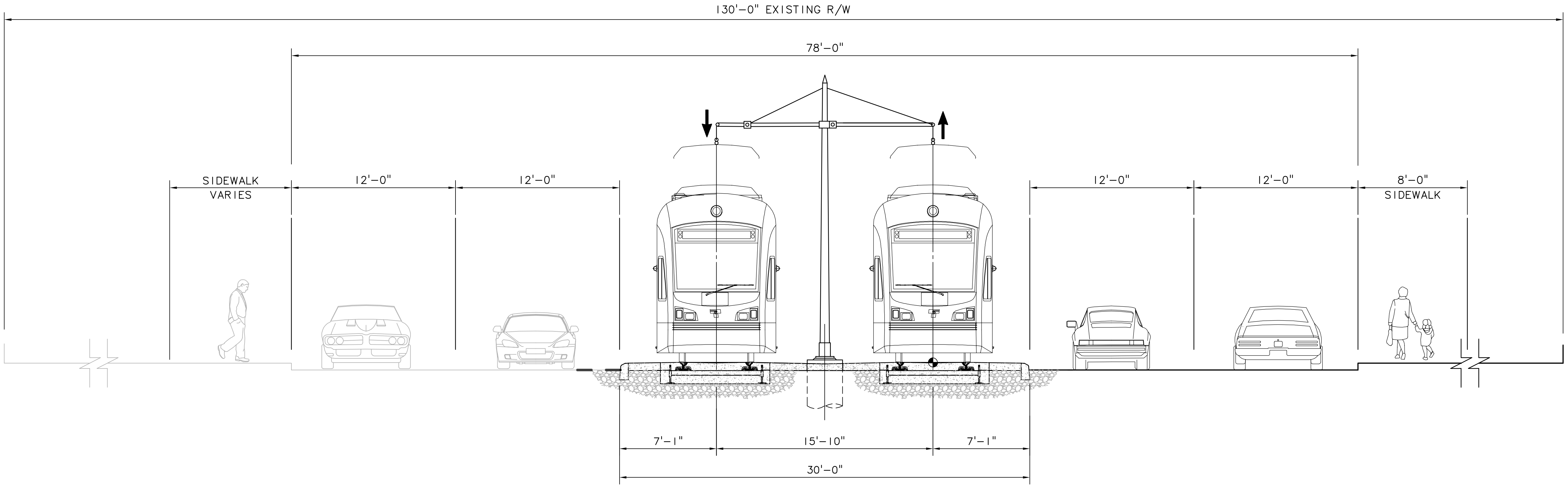
REG-DCON
Unresolved
LTSCALE
1=1


130'-0"
EXISTING R/W
EXISTING SIDEWALK
12'-0"
12'-0"
RAISED MEDIAN VARIES
19'-0" TO 23'-0"
12'-0"
12'-0"
8'-0"

EXISTING ROADWAY SECTION – 112TH AVE SE (SOUTH OF SE 8TH ST)
SCALE: NTS


130'-0" EXISTING R/W
78'-0"
SIDEWALK VARIES
12'-0"
12'-0"
12'-0"
12'-0"
8'-0" SIDEWALK
7'-1"
15'-10"
7'-1"
30'-0"

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE (WIDENING TO EAST)
ALIGNMENT: B3
AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELB1B3__KX01.dwg
10/16/08 08:51 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

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Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELB1B3__KX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B3_-KX01
Sheet No.: B-66
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
ELB_B3DO_KA-100
SUB-SDEIS
ZG-2234H
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x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
x0819rx
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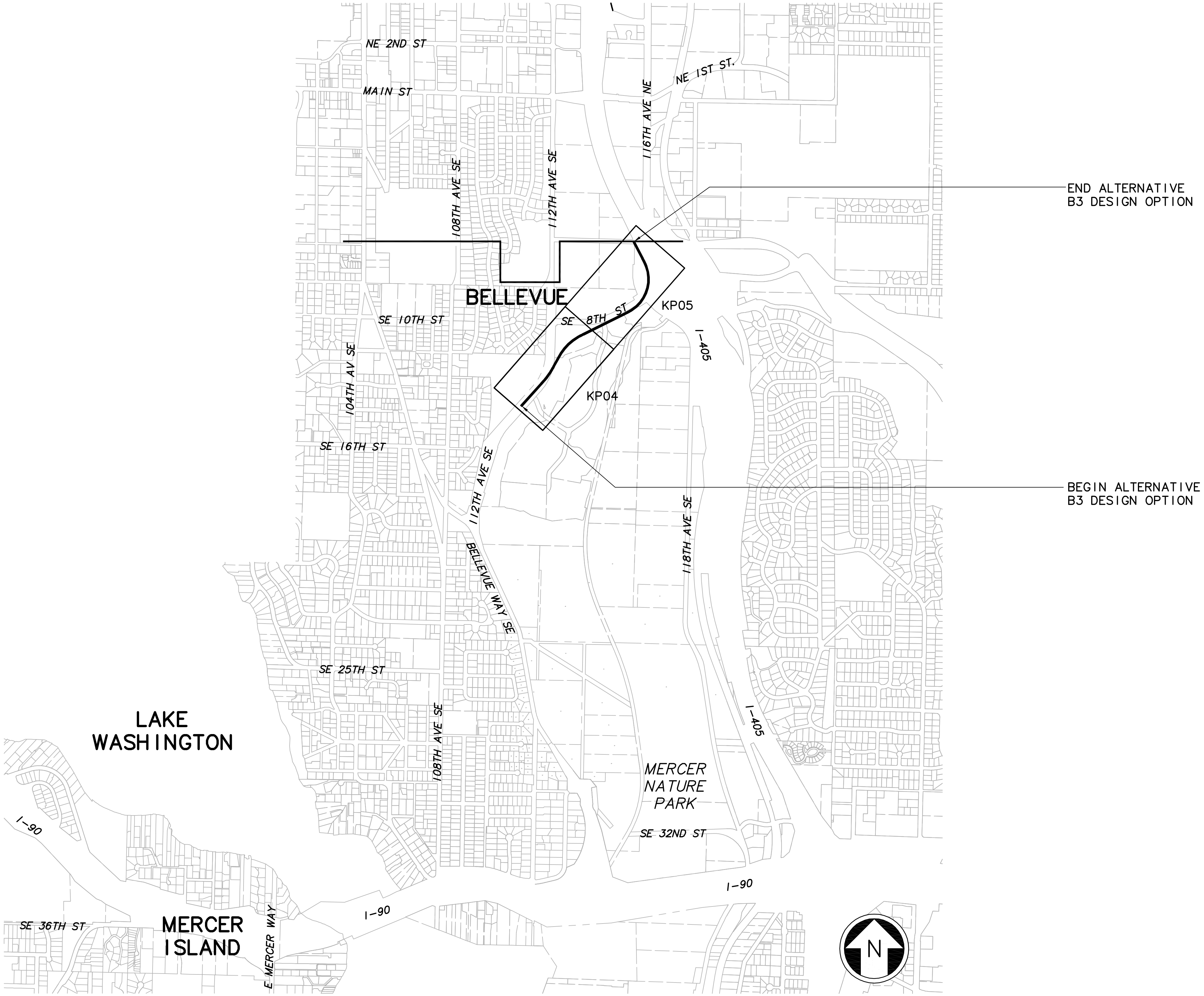
NE 2ND ST
MAIN ST
NE 1ST ST.
116TH AVE NE
108TH AVE SE
112TH AVE SE
END ALTERNATIVE
B3 DESIGN OPTION
BELLEVUE
SE 10TH ST
SE 8TH ST
KP05
I-405
104TH AV SE
KP04
SE 16TH ST
112TH AVE SE
BEGIN ALTERNATIVE
B3 DESIGN OPTION
118TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
LAKE
WASHINGTON
I-405
108TH AVE SE
MERCER
NATURE
PARK
I-90
SE 32ND ST
I-90
I-90
SE 36TH ST
MERCER
ISLAND
E MERCER WAY
N

c:\work\sdeis\ELB_2B3__GZ05.dwg
10/08/10 09:37 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

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Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELB_2B3__GZ05.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B3
114TH EXTENSION DESIGN OPTION
KEY PLAN

Drawing No.: B3__-GZ05

Sheet No.: B-67
Rev.:

DWG INFO:

LTSCALE:
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zg-2234h
zg-g10010
-Overlay:
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x0219sf
x0222rx
x0222sf
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x0525rx
x0525sf
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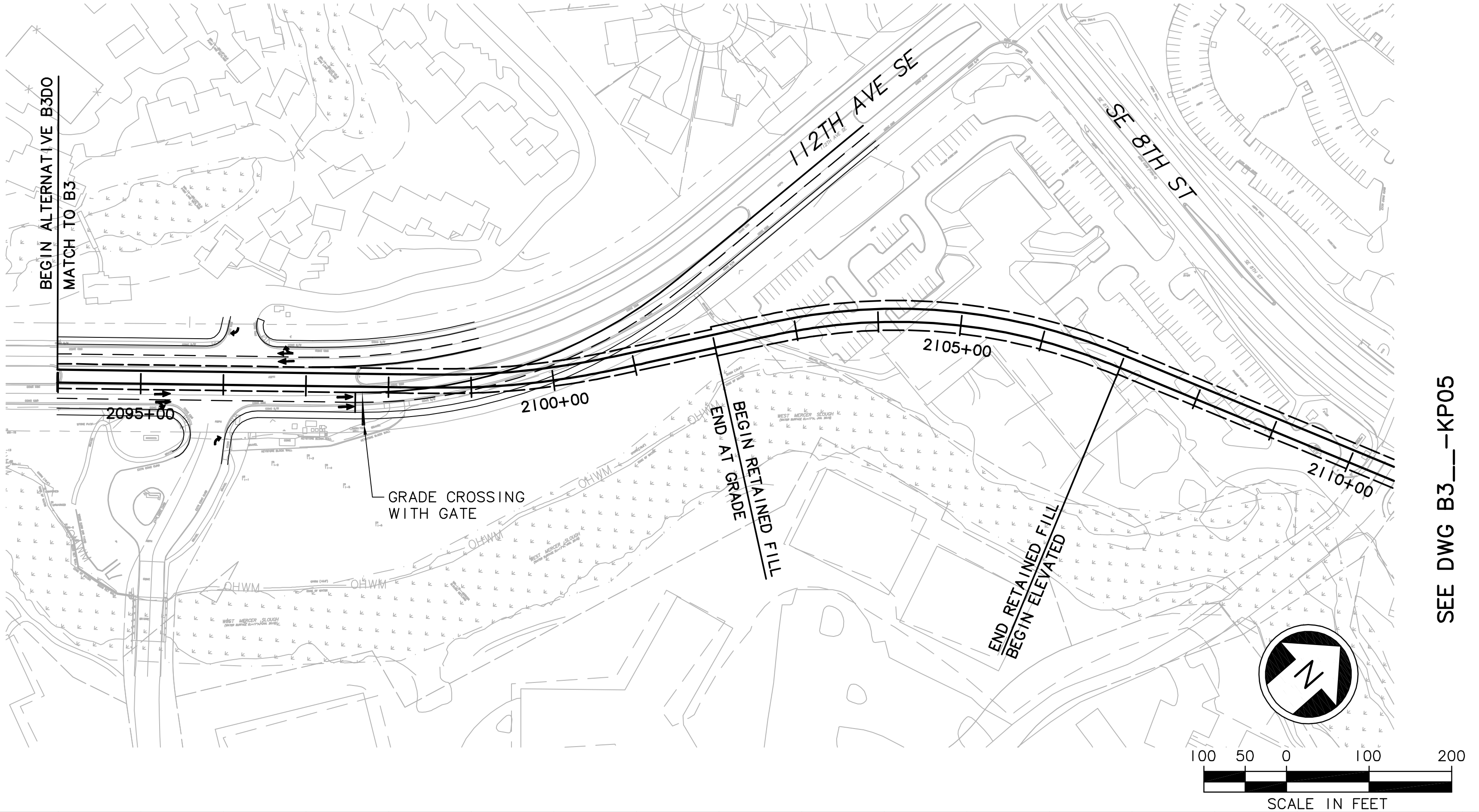
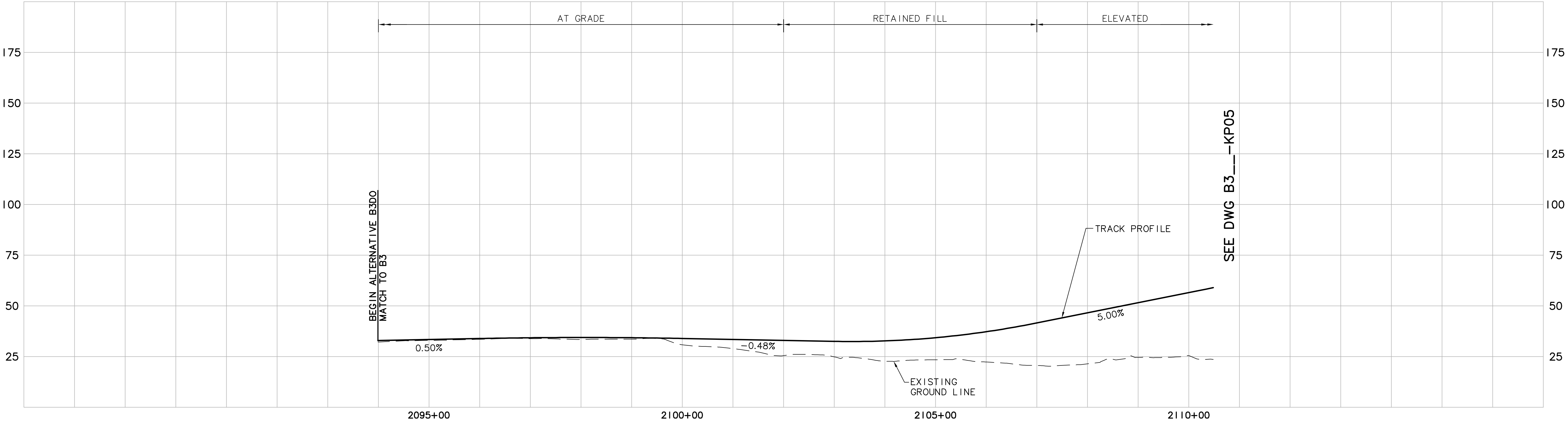
key_East



BEGIN ALTERNATIVE B3DO
MATCH TO B3
112TH AVE SE
SE 8TH ST
2095+00
2100+00
2105+00
2110+00
GRADE CROSSING
WITH GATE
BEGIN RETAINED FILL
END AT GRADE
END RETAINED FILL
BEGIN ELEVATED
N
SEE DWG B3__-KP05
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELB_2B3__KP04.dwg
10/13/10 13:30 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:

Date:

Approved:

Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELB_2B3__KP04.dwg

Contract No.:

Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B3__-KP04

Sheet No.: Rev.:
B-68

DWG INFO:

LTSCALE:
1=1

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x0219sf
x0222rx
x0222sf
x0225rx
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x0525rx
x0525sf
x1405_chan
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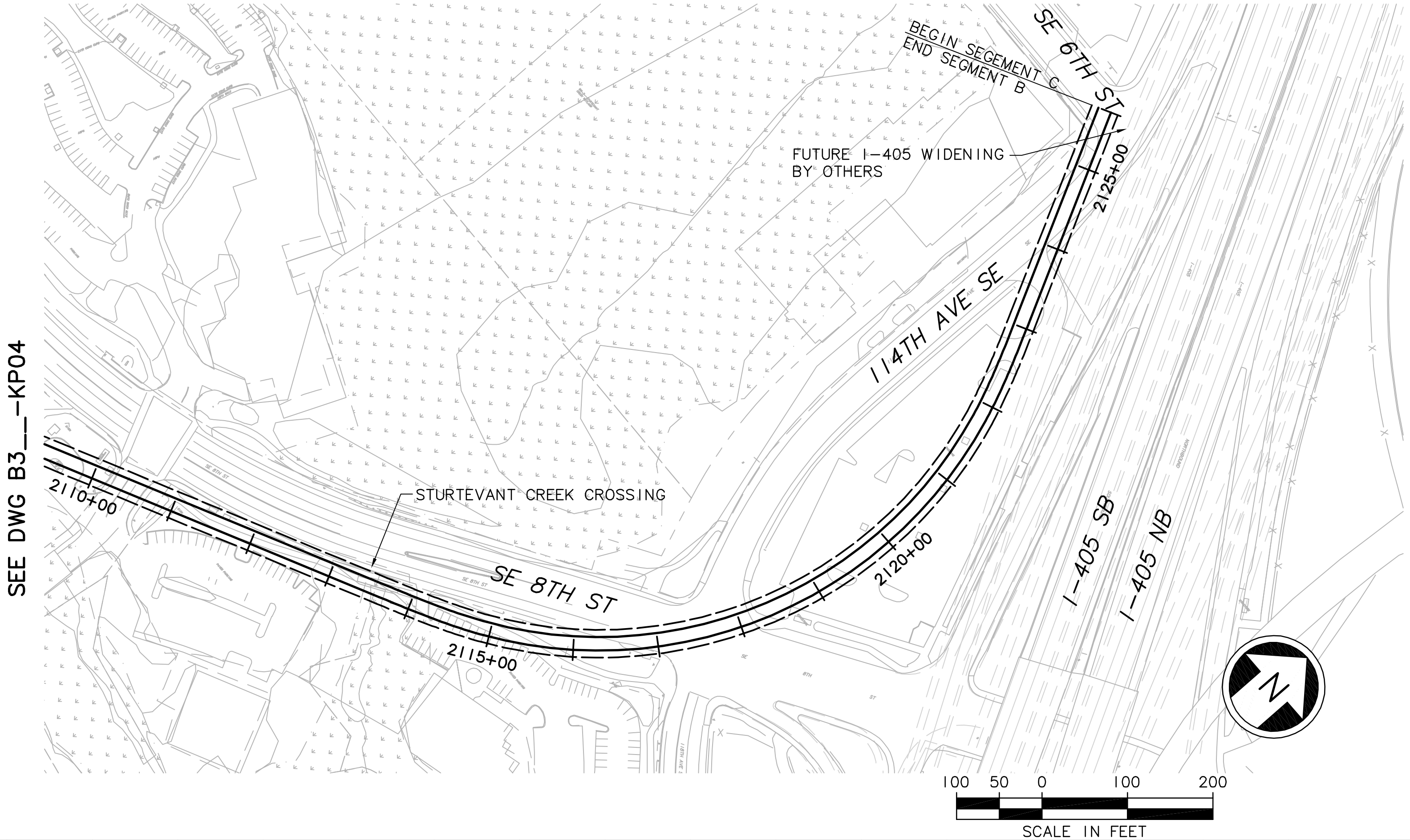
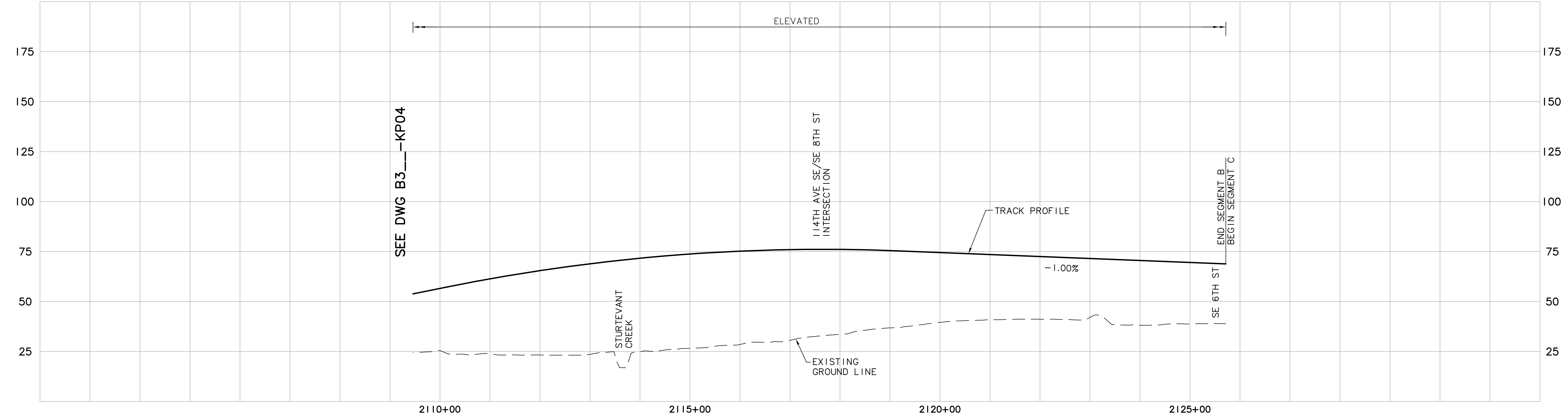
key_East


SEE DWG B3__–KP04
BEGIN SEGMENT C
END SEGMENT B
SE 6TH ST
FUTURE I–405 WIDENING
BY OTHERS
2125+00
114TH AVE SE
STURTEVANT CREEK CROSSING
2110+00
SE 8TH ST
2120+00
2115+00
I–405 SB
I–405 NB
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELB_2B3__KP05.dwg
02/22/11 15:39 : bolimaf OE6579

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Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB_2B3__KP05.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B3
TRACK PLAN & PROFILE

Drawing No.:
B3__–KP05
Sheet No.: B-69
Rev.:

XREF'S

Resolved

ELB_B3__KA
REG-DCON
Zg-2234h
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x0216sf
x0219rx
x0222rx
x0225rx
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x0819rx
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Unresolved

LTSCALE

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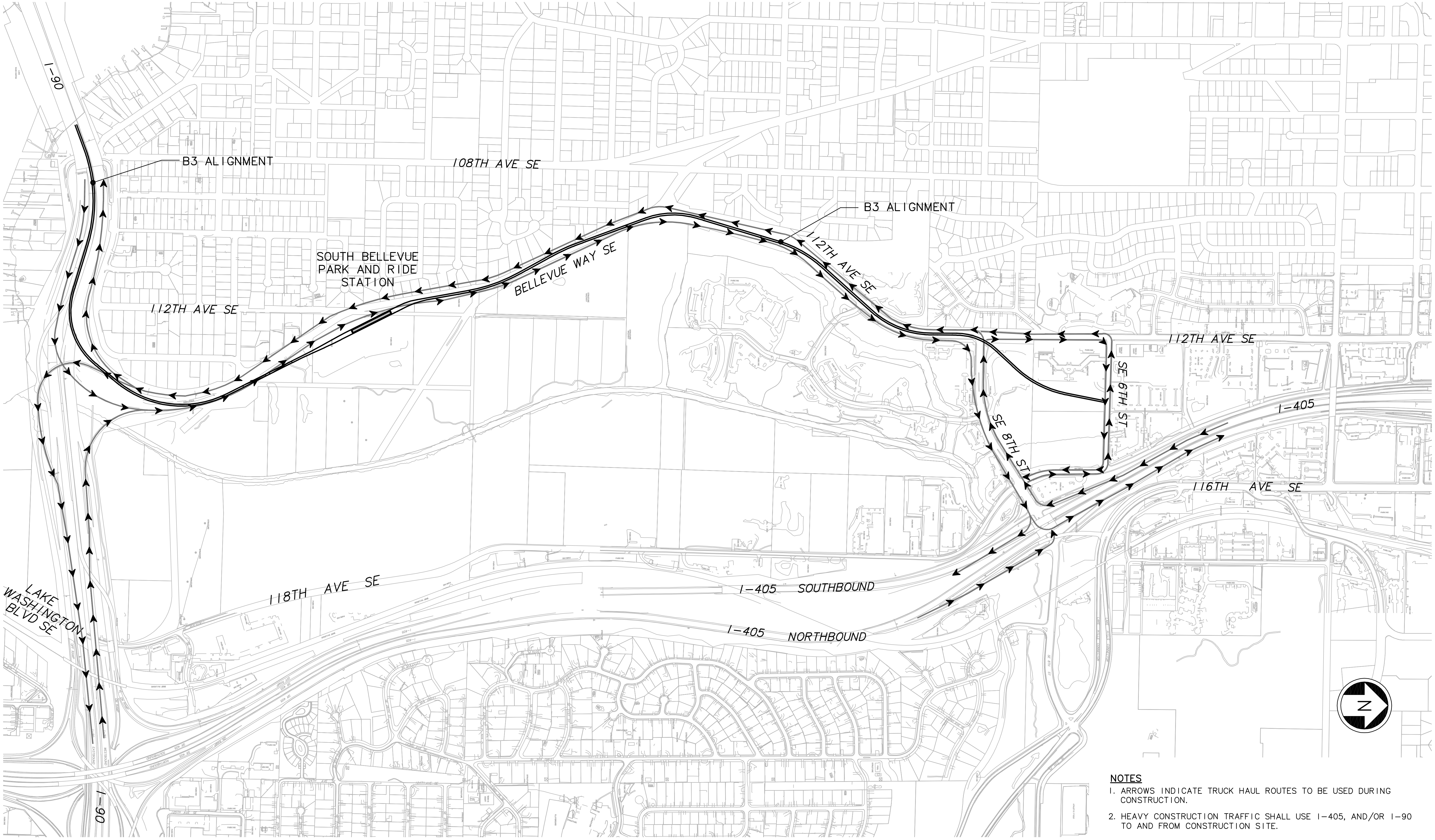

I-90
B3 ALIGNMENT
108TH AVE SE
B3 ALIGNMENT
112TH AVE SE
SOUTH BELLEVUE PARK AND RIDE STATION
BELLEVUE WAY SE
112TH AVE SE
112TH AVE SE
SE 6TH ST
I-405
SE 8TH ST
116TH AVE SE
LAKE WASHINGTON BLVD SE
118TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
I-90
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR I-90 TO AND FROM CONSTRUCTION SITE.

c:\work\ELBIB3__CC01.dwg
10/16/08 08:49 : eackerm OE5396

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Date:

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Date:

Scale: NTS
Filename: ELBIB3__CC01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B3

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: B3_-CC01
Sheet No.: B-70
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Attach:
-Overlay:
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x0819rx
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x9616rx
x9619rx
x9916rx
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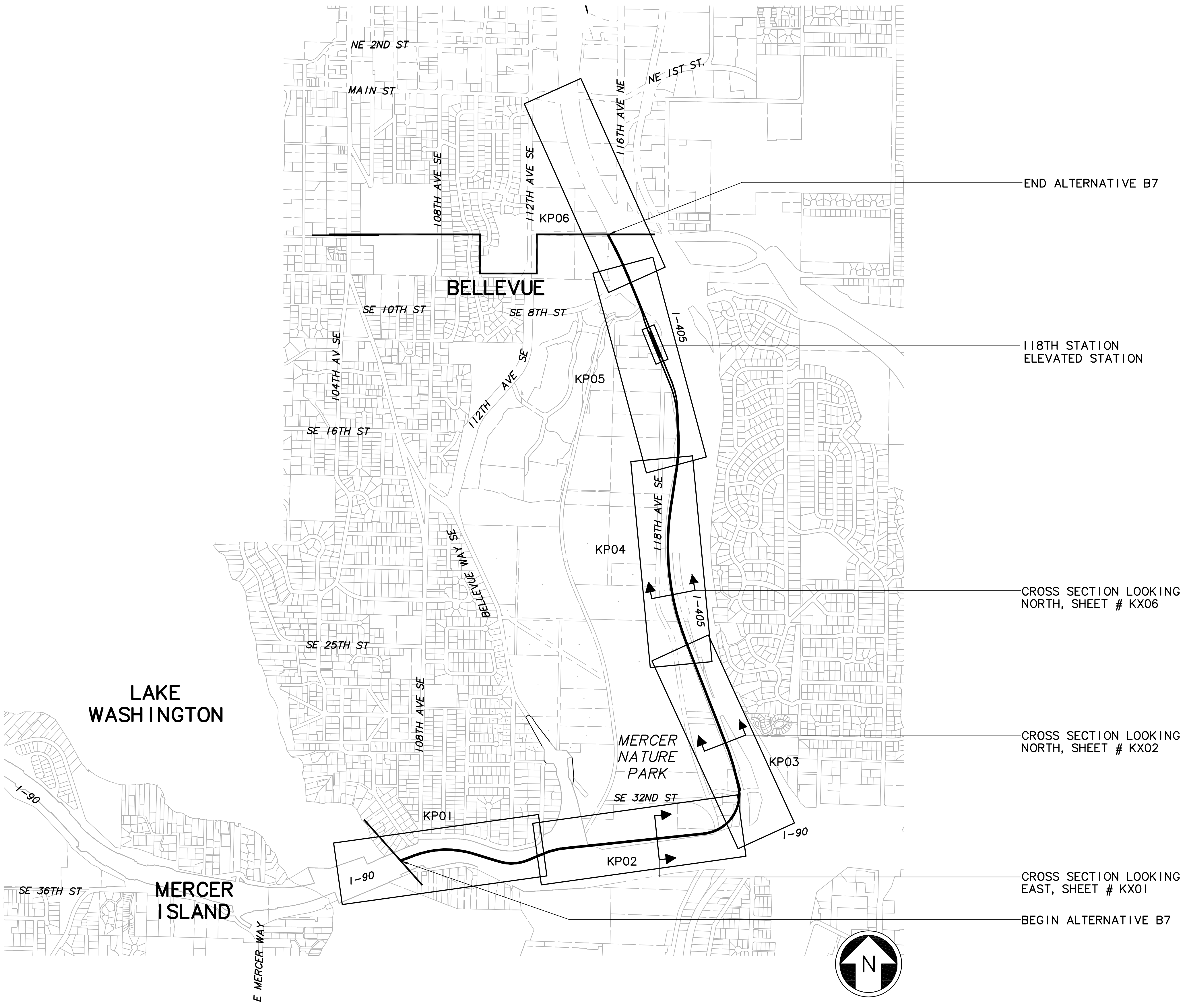
NE 2ND ST
MAIN ST
NE 1ST ST.
116TH AVE NE
108TH AVE SE
112TH AVE SE
KP06
END ALTERNATIVE B7
BELLEVUE
SE 10TH ST
SE 8TH ST
I-405
118TH STATION
ELEVATED STATION
104TH AV SE
112TH AVE SE
KP05
SE 16TH ST
118TH AVE SE
KP04
BELLEVUE WAY SE
I-405
CROSS SECTION LOOKING
NORTH, SHEET # KX06
SE 25TH ST
LAKE
WASHINGTON
108TH AVE SE
MERCER
NATURE
PARK
CROSS SECTION LOOKING
NORTH, SHEET # KX02
KP03
I-90
SE 32ND ST
KP01
I-90
KP02
CROSS SECTION LOOKING
EAST, SHEET # KX01
I-90
SE 36TH ST
MERCER
ISLAND
BEGIN ALTERNATIVE B7
E MERCER WAY
N

c:\work\feis\ELB_IB7__GZ05.dwg
02/22/11 15:34 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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CONCEPTUAL

CH2MHILL

INCA
ENGINEERS INC.

BOLIMA
DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELB_IB7__GZ05.dwg
Contract No.:
Date: 02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
KEY PLAN

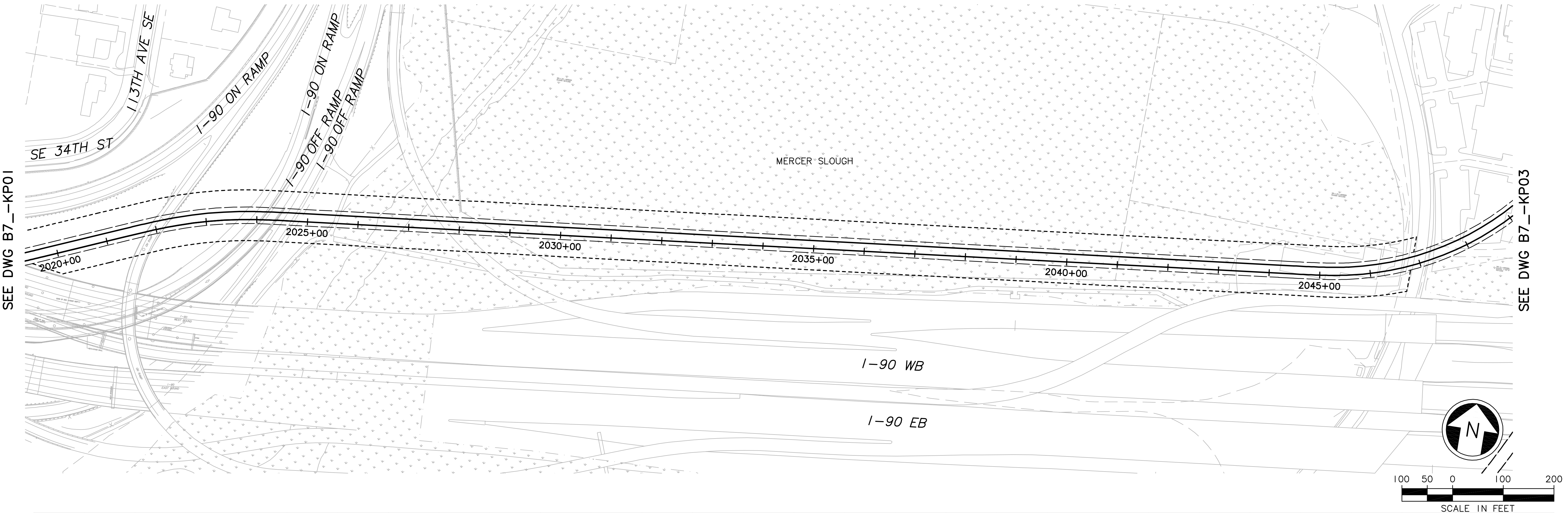
THIS PRINT REDUCED HALF SCALE

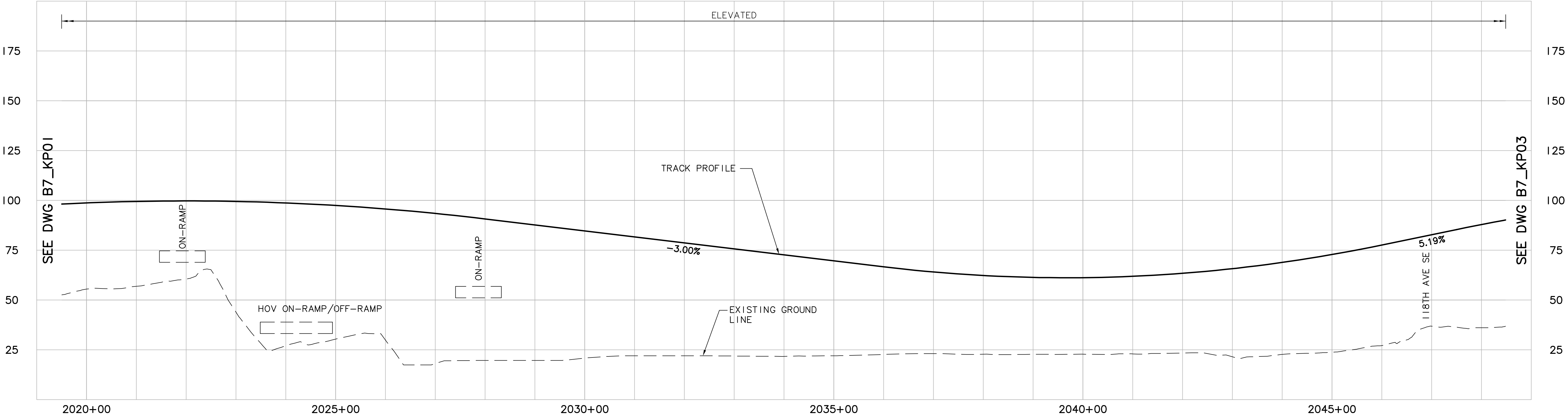
Drawing No.: B7__-GZ05
Sheet No.: B-71
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
-Overlay:
ELB_B7__CM-100
ELB_B7__JO-100
ELB_B7__KA-100-REV
x0516rx
x0516sf
x0816rx
x0816sf
-Unresolved:
key_East


SEE DWG B7_-KP01
SE 34TH ST
113TH AVE SE
I-90 ON RAMP
I-90 ON RAMP
I-90 OFF RAMP
I-90 OFF RAMP
MERCER SLOUGH
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00
I-90 WB
I-90 EB
N
SEE DWG B7_-KP03
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELB_IB7__KP02.dwg
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H: 1"=100'; V: 1"=25'
Filename:
ELB_IB7__KP02.dwg
Contract No.:
Date:
02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
TRACK PLAN & PROFILE

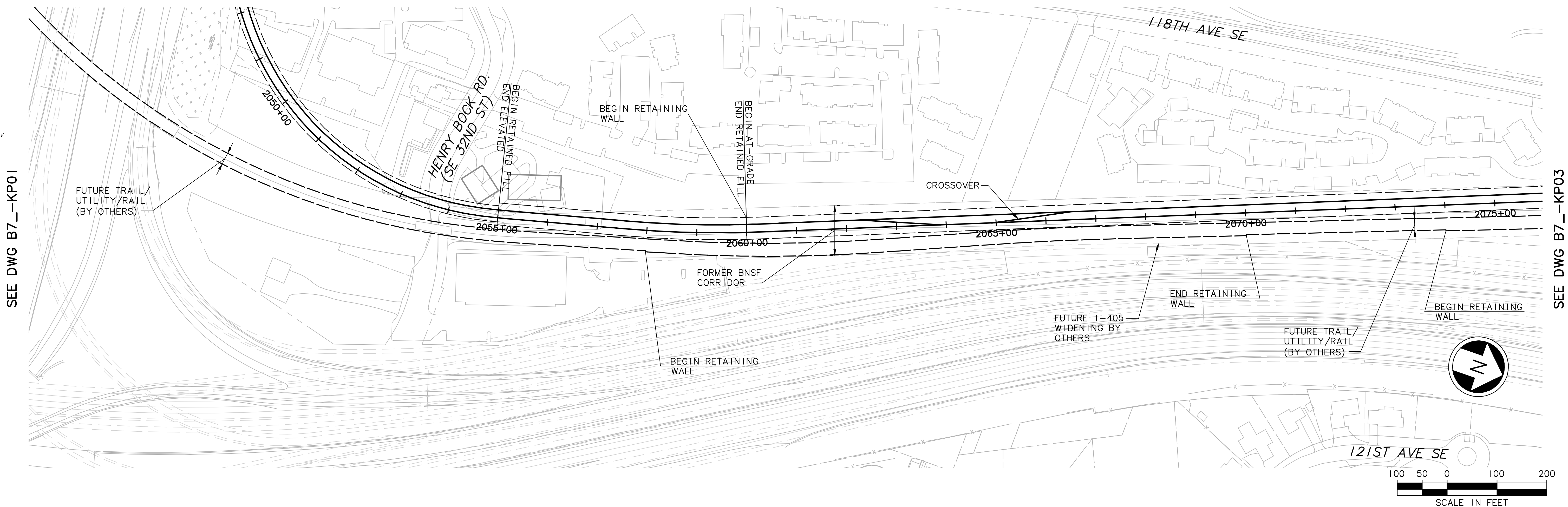
THIS PRINT REDUCED HALF SCALE

Drawing No.:
B7__-KP02
Sheet No.:
B-72
Rev.:

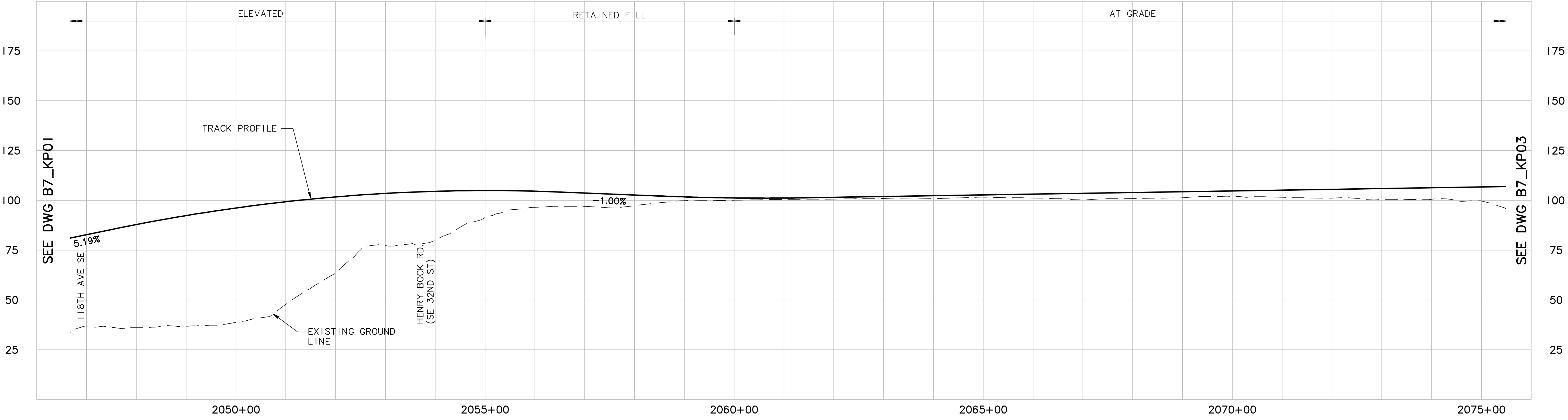
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
-Overlay:
ELB_B7__JO-100
ELB_B7__KA-100-REV
SUB-FEIS
x0519rx
x0519sf
x0816rx
x0816sf
x0819rx
x0819sf
x1405_chan
-Unresolved:
ELB_B7__CM-100
key_East



SEE DWG B7_-KP01
118TH AVE SE
2050+00
HENRY BOCK RD. (SE 32ND ST)
BEGIN RETAINED FILL
END ELEVATED
BEGIN RETAINING WALL
BEGIN AT-GRADE
END RETAINED FILL
CROSSOVER
FUTURE TRAIL/ UTILITY/RAIL (BY OTHERS)
2055+00
2060+00
2065+00
2070+00
2075+00
FORMER BNSF CORRIDOR
END RETAINING WALL
FUTURE I-405 WIDENING BY OTHERS
BEGIN RETAINING WALL
FUTURE TRAIL/ UTILITY/RAIL (BY OTHERS)
BEGIN RETAINING WALL
N
121ST AVE SE
SEE DWG B7_-KP03
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment b\b7\ELB_IB7__KP03.dwg
05/06/11 16:02 : khuum OE6585

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H: 1"=100'; V: 1"=25'
Filename:
ELB_IB7__KP03.dwg
Contract No.:
Date:
02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
TRACK PLAN & PROFILE

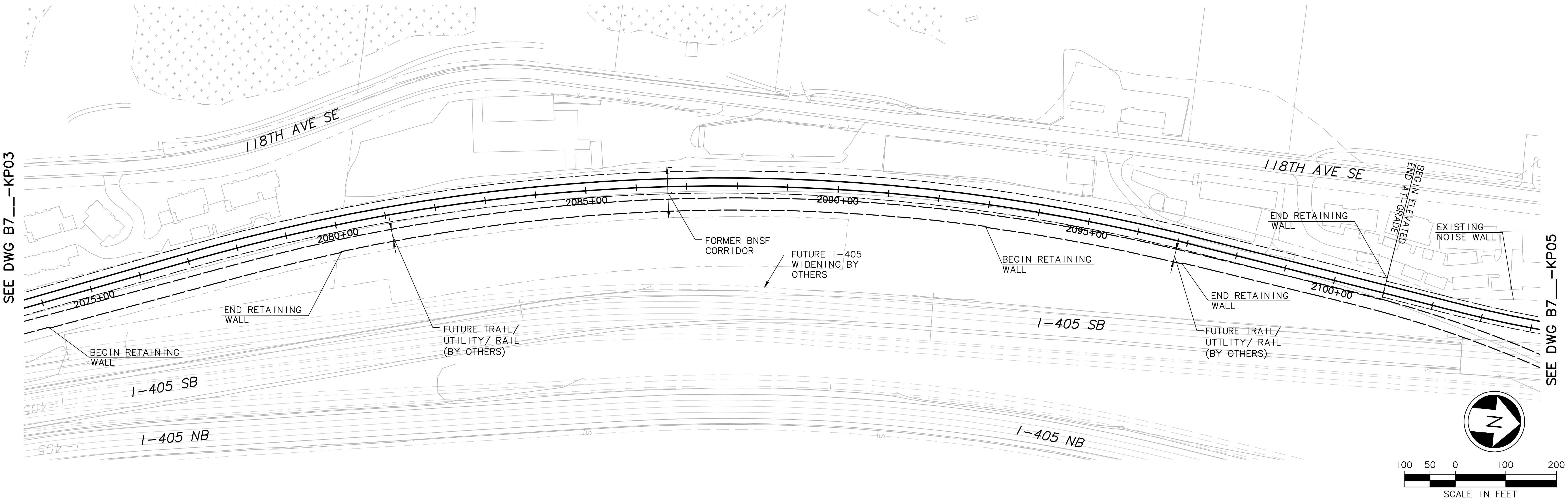
THIS PRINT REDUCED HALF SCALE

Drawing No.:
B7__-KP03
Sheet No.:
Rev.:
B-73

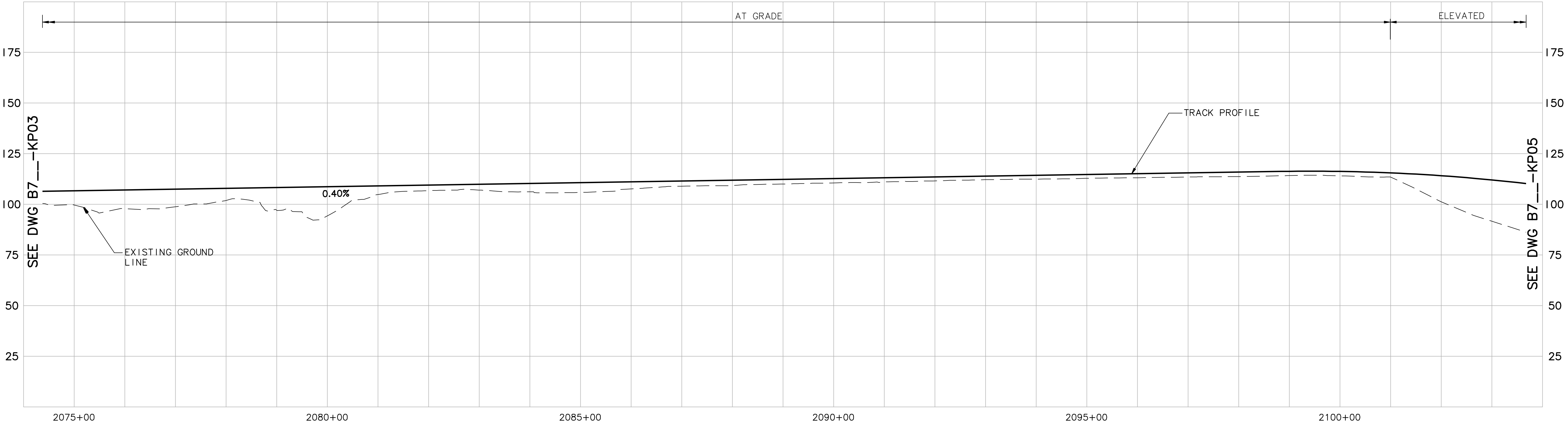
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
-Overlay:
ELB_B7__JO-100
ELB_B7__KA-100-REV
SUB-FEIS
x0219rx
x0219sf
x0222rx
x0222sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
x0525sf
x0819rx
x0819sf
x0822rx
x0822sf
x0825rx
x0825sf
x1405_chan
-Unresolved:
ELB_B7__CM-100



SEE DWG B7__-KP03
118TH AVE SE
118TH AVE SE
2075+00
2080+00
2085+00
2090+00
2095+00
2100+00
FORMER BNSF CORRIDOR
FUTURE I-405 WIDENING BY OTHERS
BEGIN RETAINING WALL
END RETAINING WALL
END RETAINING WALL
BEGIN RETAINING WALL
END RETAINING WALL
BEGIN ELEVATED
END AT-GRADE
EXISTING NOISE WALL
FUTURE TRAIL/ UTILITY/ RAIL (BY OTHERS)
FUTURE TRAIL/ UTILITY/ RAIL (BY OTHERS)
I-405 SB
I-405 SB
I-405 NB
I-405 NB
SEE DWG B7__-KP05
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment b\b7\ELB_IB7__KP04.dwg
05/23/11 10:57 : khuum 0E6585

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Filename:
ELB_IB7__KP04.dwg

Contract No.:

Date:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
TRACK PLAN & PROFILE

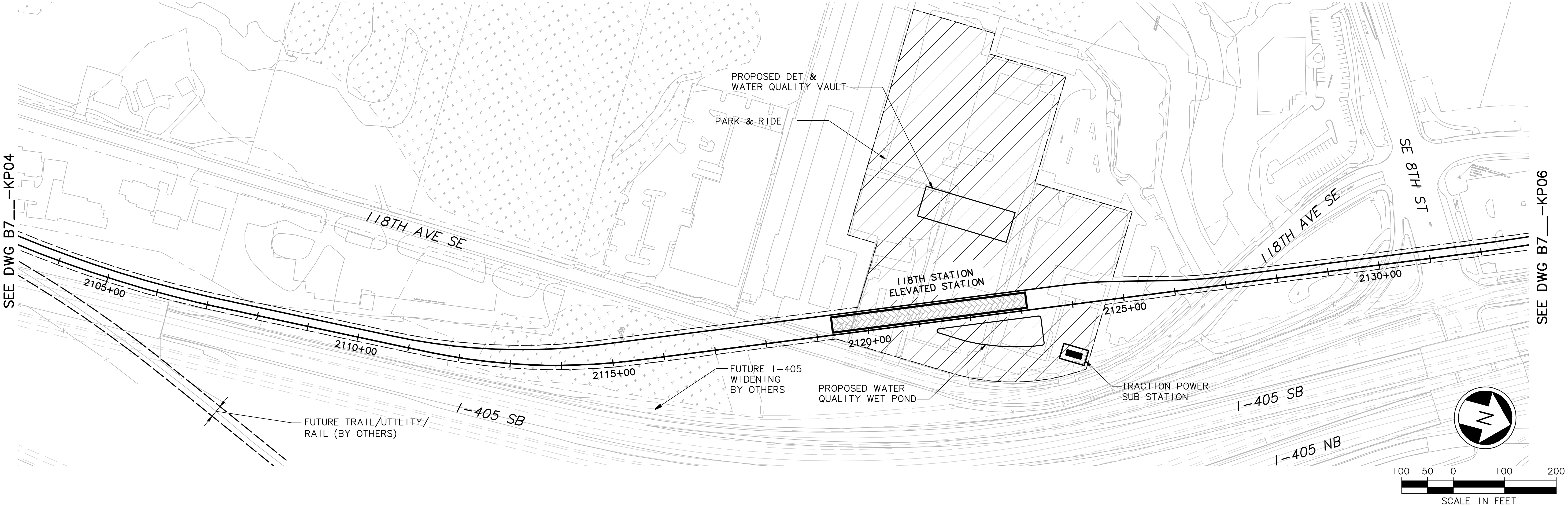
Drawing No.:
B7__-KP04

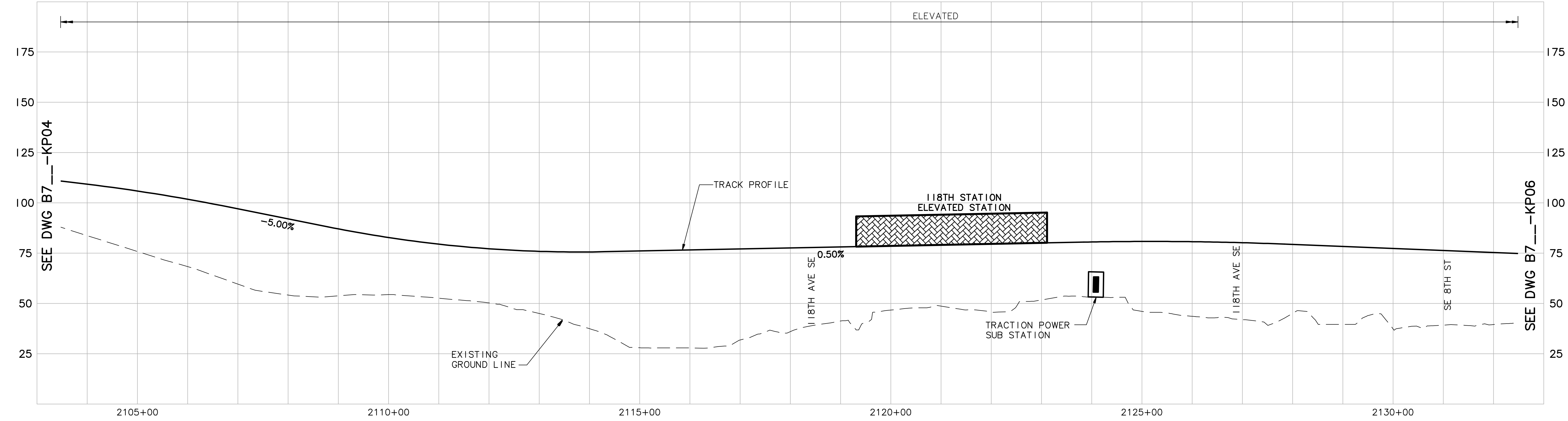
Sheet No.: Rev.:
E-74

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
-Overlay:
ELB_B7__CM-100
ELB_B7__JO-100
ELB_B7__KA-100-REV
SUB-FEIS
x0522rx
x0522sf
x0525rx
x0525sf
x0822rx
x0822sf
x0825rx
x0825sf
x1405_chan
-Unresolved:


SEE DWG B7__-KP04
118TH AVE SE
2105+00
2110+00
2115+00
2120+00
2125+00
2130+00
PROPOSED DET & WATER QUALITY VAULT
PARK & RIDE
118TH STATION ELEVATED STATION
FUTURE I-405 WIDENING BY OTHERS
PROPOSED WATER QUALITY WET POND
TRACTION POWER SUB STATION
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
I-405 SB
I-405 NB
118TH AVE SE
SE 8TH ST
N
SEE DWG B7__-KP06
100 50 0 100 200
SCALE IN FEET


ELEVATED
175
150
125
100
75
50
25
SEE DWG B7__-KP04
TRACK PROFILE
-5.00%
0.50%
118TH STATION ELEVATED STATION
118TH AVE SE
TRACTION POWER SUB STATION
118TH AVE SE
SE 8TH ST
EXISTING GROUND LINE
SEE DWG B7__-KP06
2105+00
2110+00
2115+00
2120+00
2125+00
2130+00

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05/23/11 10:55 : khuum OE6585

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Filename:
ELB_IB7__KP05.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
TRACK PLAN & PROFILE

Drawing No.:
B7__-KP05
Sheet No.: E-75
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
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zg-g10010
-Overlay:
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ELB_B7__JO-100
ELB_B7__KA-100-REV
SUB-FEIS
x0522rx
x0522sf
x0525rx
x0525sf
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x0822rx
x0822sf
x0825rx
x0825sf
x1405_chan
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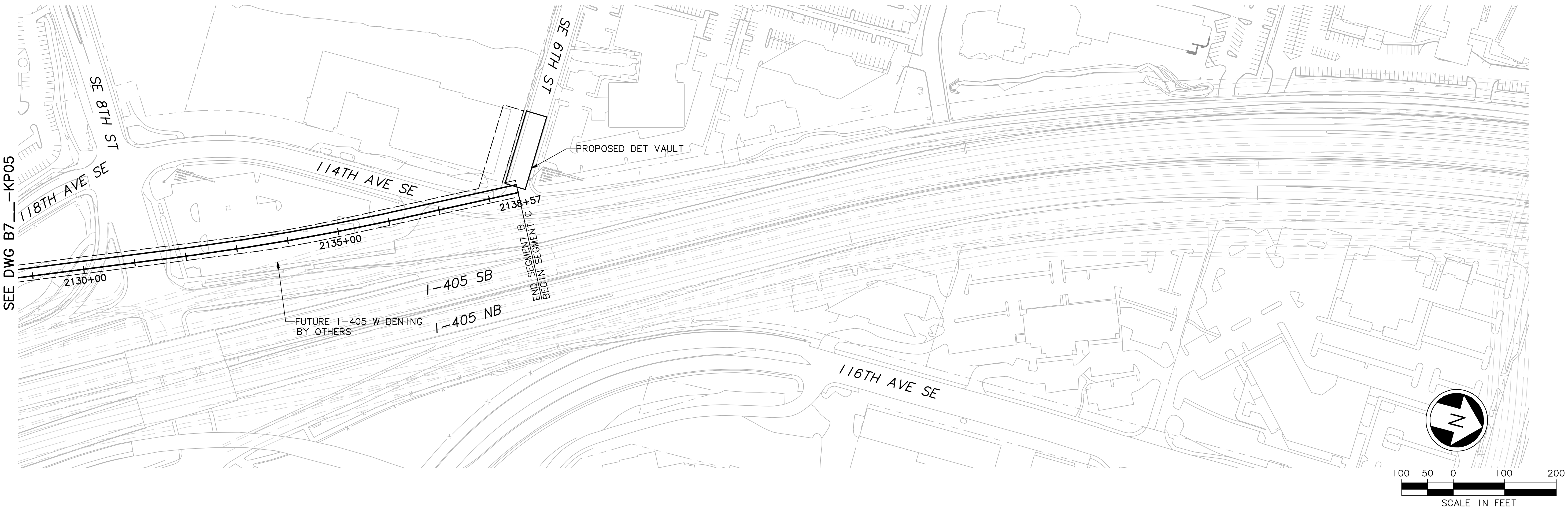
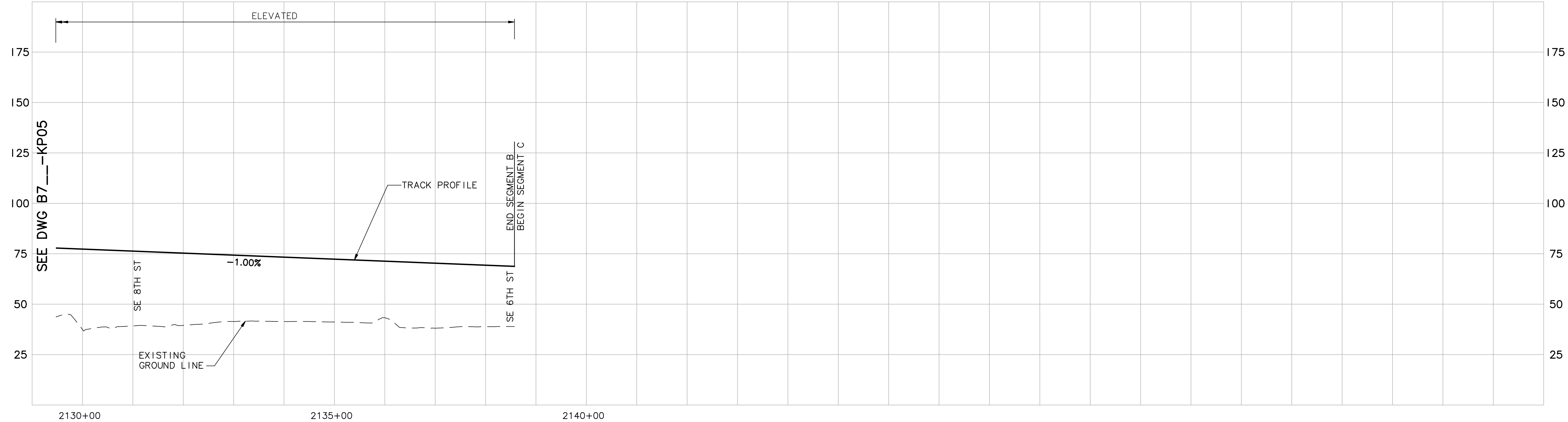

A
B
C
D
E
F
G
H
1
2
3
SE 6TH ST
SE 8TH ST
118TH AVE SE
114TH AVE SE
PROPOSED DET VAULT
2138+57
2135+00
2130+00
SEE DWG B7__-KP05
END SEGMENT B
BEGIN SEGMENT C
I-405 SB
I-405 NB
FUTURE I-405 WIDENING
BY OTHERS
116TH AVE SE
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment b\b7\ELB_IB7__KP06.dwg
04/19/11 11:03 : khuum OE6585

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Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB_IB7__KP06.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
TRACK PLAN & PROFILE

Drawing No.:
B7__-KP06
Sheet No.: Rev.:
B-76

DWG INFO:

LTSCALE:
1=1

XREFs:
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-Overlay:
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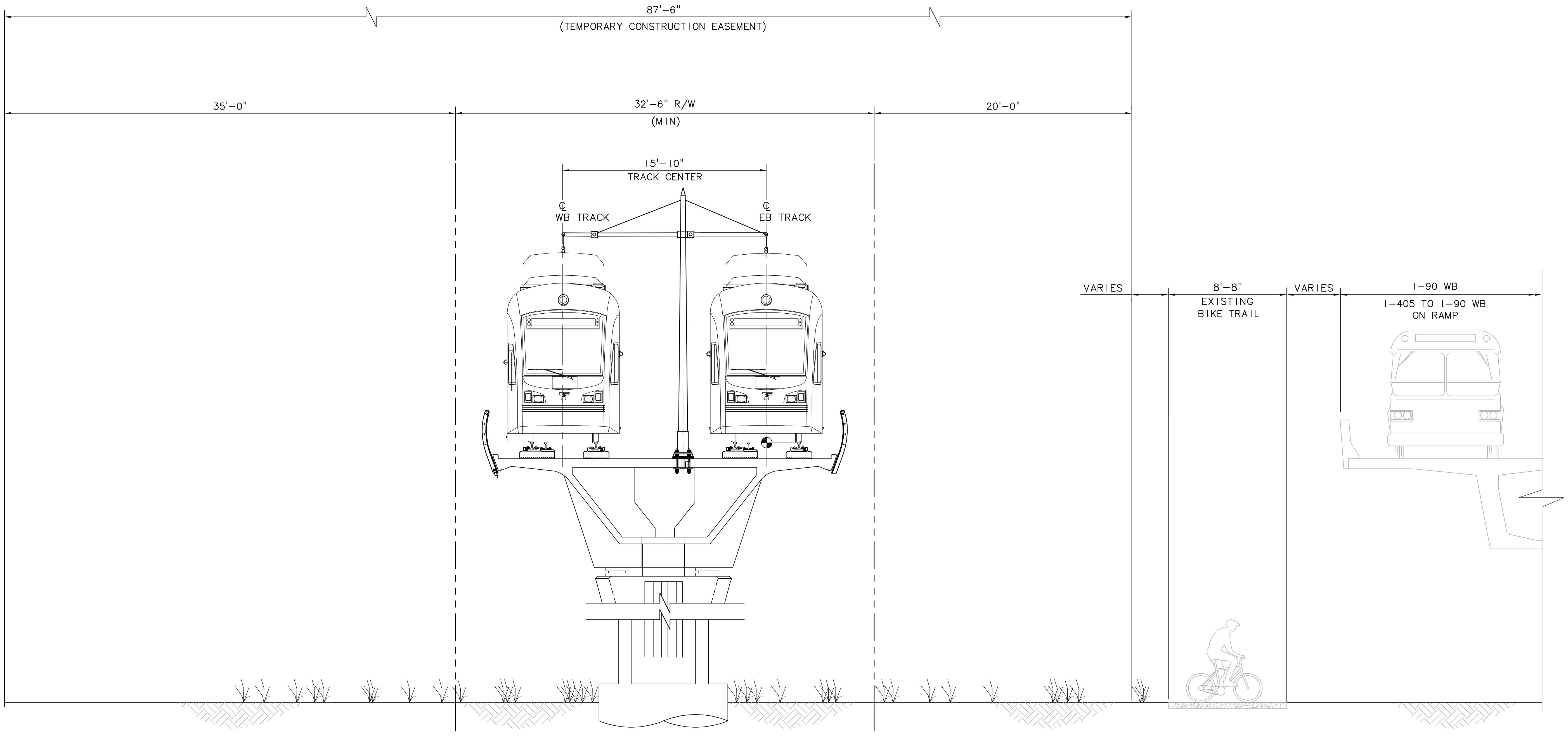
-Unresolved:



87'-6"
(TEMPORARY CONSTRUCTION EASEMENT)
35'-0"
32'-6" R/W
(MIN)
20'-0"
15'-10"
TRACK CENTER
℄ WB TRACK
℄ EB TRACK
VARIES
8'-8"
EXISTING
BIKE TRAIL
VARIES
I-90 WB
I-405 TO I-90 WB
ON RAMP

TYPICAL SECTION: ELEVATED STRUCTURE ALONG MERCER SLOUGH
ALIGNMENT: B7
DIRECT FIXATION DOUBLE TRACK

SCALE: NTS

c:\work\feis\ELB_IB7__KX01.dwg
02/22/11 15:36 : bolimaf OE6579

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Date:
Approved:

SOUNDTRANSIT
Date:

Scale: NTS
Filename: ELB_IB7__KX01.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B7
TYPICAL SECTION

Drawing No.: B7__-KX01
Sheet No.: B-77
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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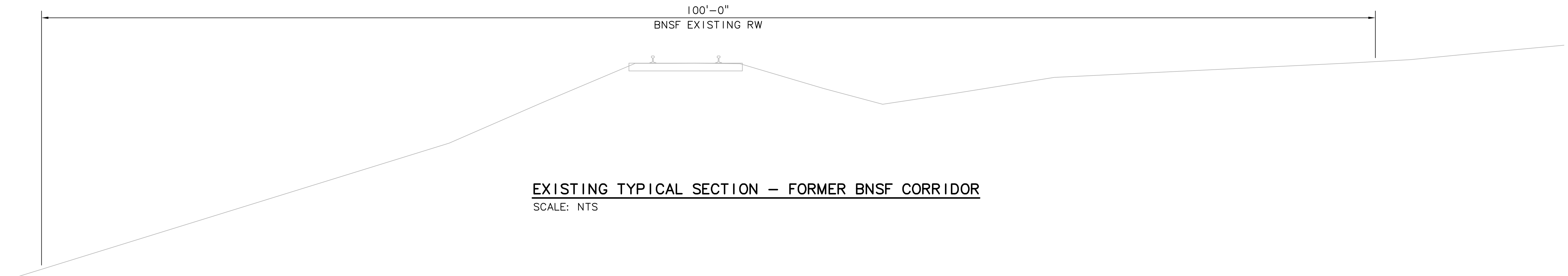
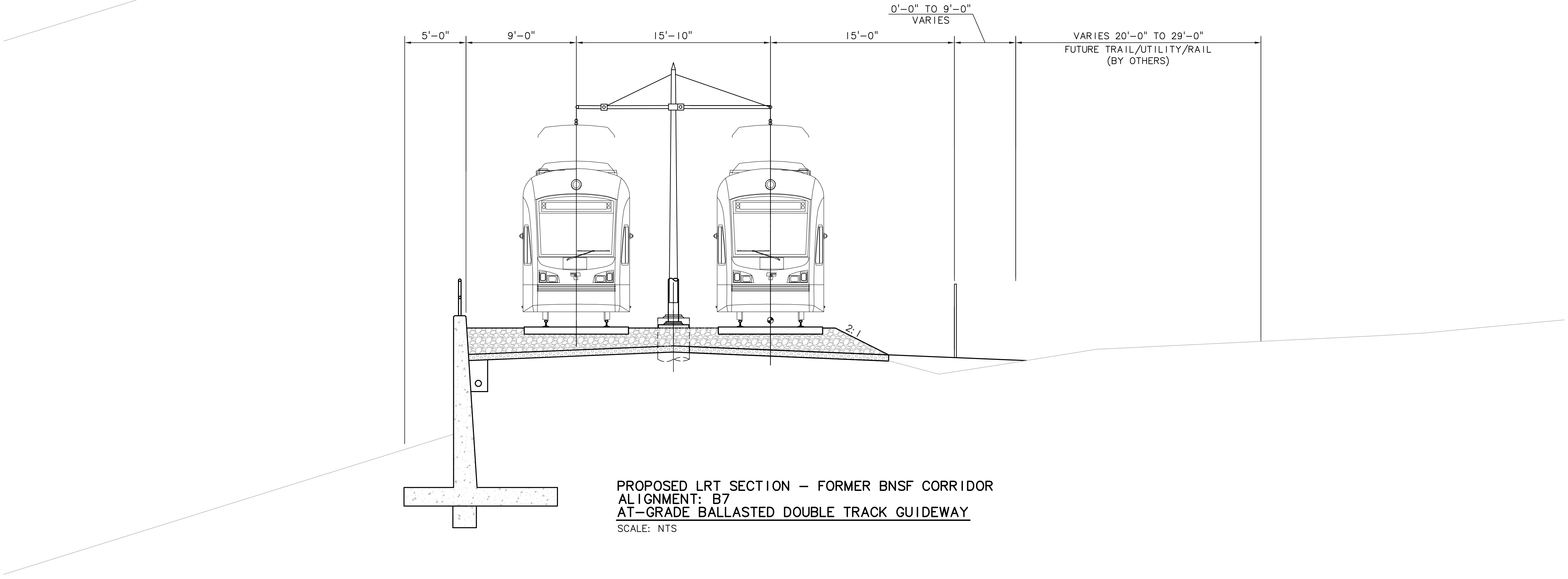
ZG–2234H
–Overlay:
–Unresolved:


100'–0"
BNSF EXISTING RW

EXISTING TYPICAL SECTION – FORMER BNSF CORRIDOR

SCALE: NTS


0'–0" TO 9'–0"
VARIES
5'–0"
9'–0"
15'–10"
15'–0"
VARIES 20'–0" TO 29'–0"
FUTURE TRAIL/UTILITY/RAIL
(BY OTHERS)
2:1

PROPOSED LRT SECTION – FORMER BNSF CORRIDOR
ALIGNMENT: B7
AT-GRADE BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Date:

Scale: NTS
Filename: ELB_IB7__KX02.dwg
Contract No.:
Date: 02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B7

TYPICAL SECTION

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Drawing No.: B7__–KX02
Sheet No.: B-78
Rev.:

c:\work\feis\ELB_IB7__KX02.dwg
02/22/11 15:37 : bolimaf OE6579

DWG INFO:

LTSCALE:
1=1

XREFs:
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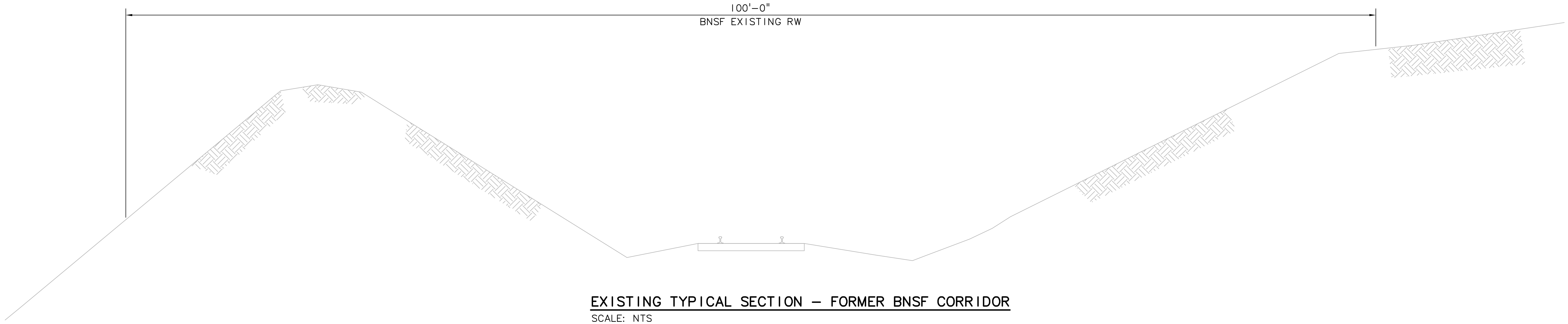
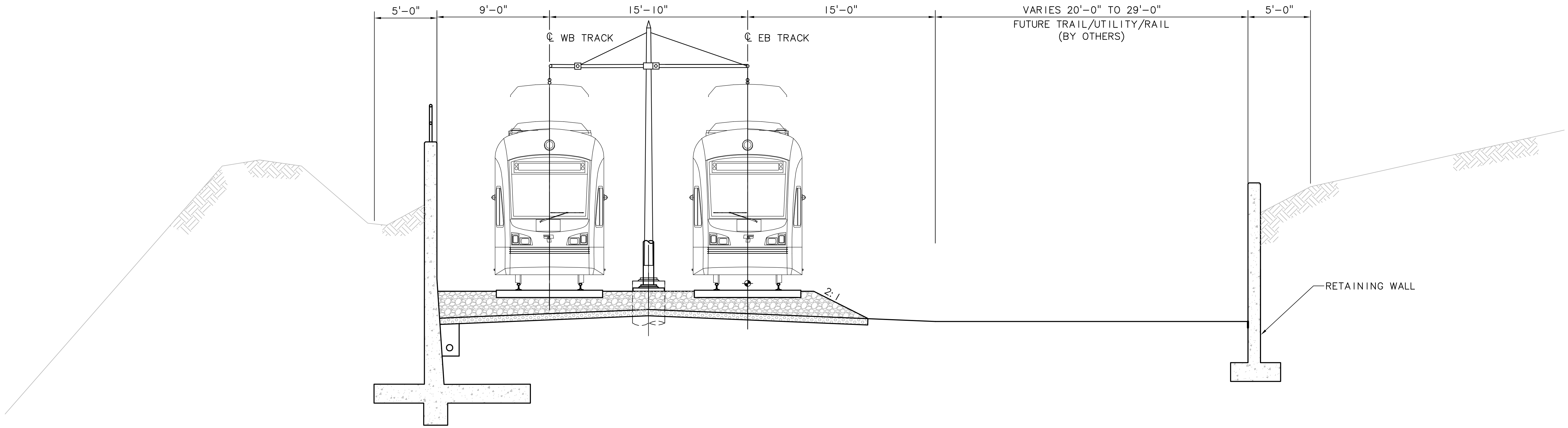
-Overlay:
-Unresolved:


100'-0"
BNSF EXISTING RW

EXISTING TYPICAL SECTION – FORMER BNSF CORRIDOR

SCALE: NTS


5'-0"
9'-0"
15'-10"
15'-0"
VARIES 20'-0" TO 29'-0"
FUTURE TRAIL/UTILITY/RAIL
(BY OTHERS)
5'-0"
℄ WB TRACK
℄ EB TRACK
2:1
RETAINING WALL

PROPOSED LRT SECTION – FORMER BNSF CORRIDOR
ALIGNMENT: B7
AT-GRADE BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\feis\ELB_IB7__KX06.dwg
02/22/11 15:37 : bolimaf OE6579

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Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELB_IB7__KX06.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B7
TYPICAL SECTION

Drawing No.: B7__-KX06
Sheet No.: B-79
Rev.:

XREF'S

Resolved

ELB_B7__KA
REG-DCON
Zg-2234h
x0216rx
x0216sf
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0516sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0816rx
x0816sf
x0819rx
x0819sf
x0822rx
x0822sf
x0825rx
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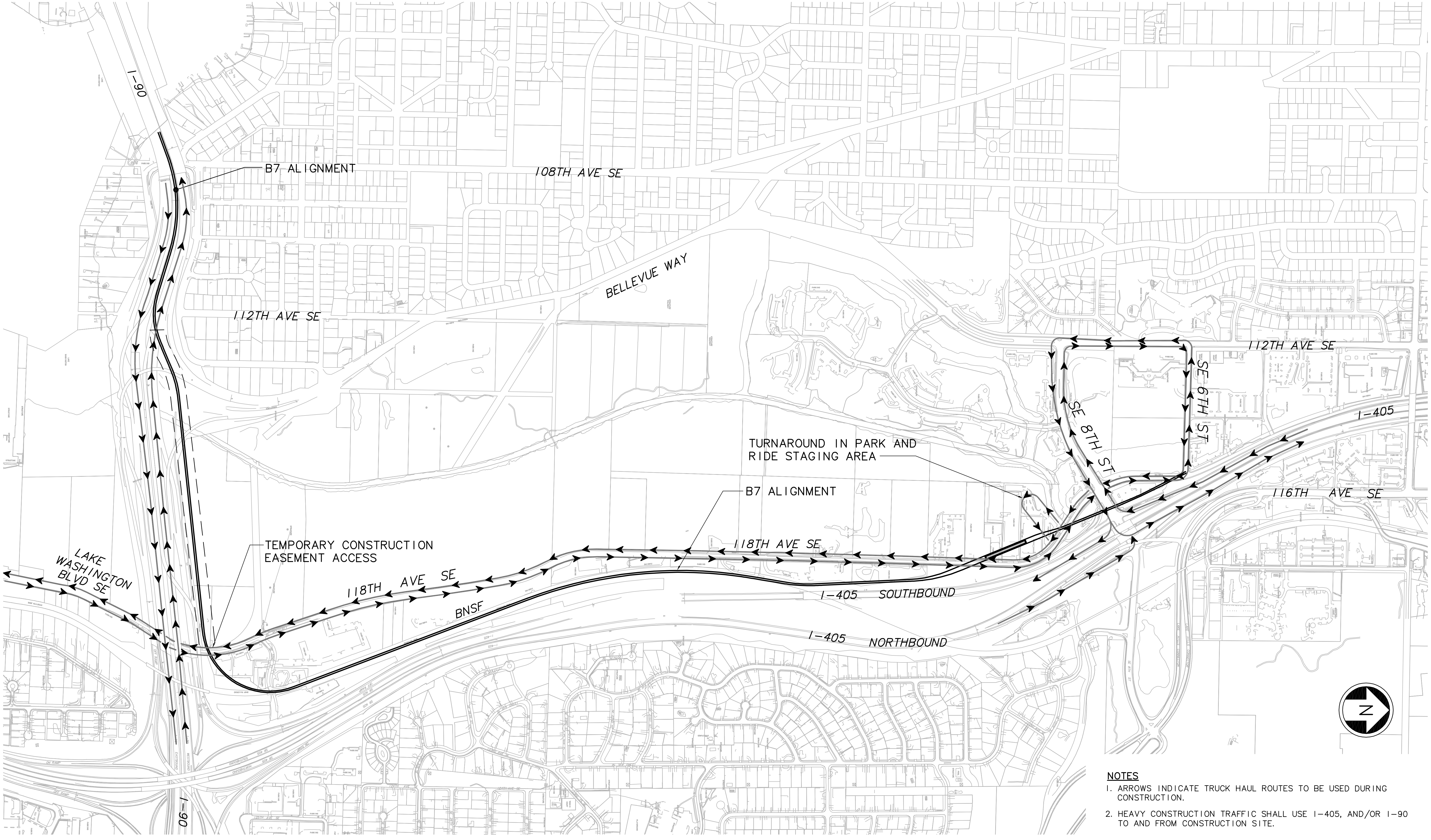
x0828rx
x9616rx
x9619rx
x9916rx
x9919rx

Unresolved

LTSCALE

1=1


I-90
B7 ALIGNMENT
108TH AVE SE
BELLEVUE WAY
112TH AVE SE
112TH AVE SE
SE 6TH ST
SE 8TH ST
I-405
TURNAROUND IN PARK AND RIDE STAGING AREA
116TH AVE SE
B7 ALIGNMENT
118TH AVE SE
TEMPORARY CONSTRUCTION EASEMENT ACCESS
LAKE WASHINGTON BLVD SE
118TH AVE SE
BNSF
I-405 SOUTHBOUND
I-405 NORTHBOUND
I-90
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR I-90 TO AND FROM CONSTRUCTION SITE.

c:\work\ELBIB7__CC01.dwg
10/16/08 08:52 : eackerm OE5396

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Date:

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Scale: NTS
Filename: ELBIB7__CC01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B
ALTERNATIVE B7

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: B7_-CC01
Sheet No.: B-80
Rev.:

XREF'S

Resolved

ELB_B1__CM
ELB_B1__KA
ELB_B2A__JO
ELB_SBEA_AP
ELB_SBEA_AS
ELB_SBEA_AZ
REG-DCON
X0519CN
X0519SF
ZG-2234H
x0519rx

Unresolved

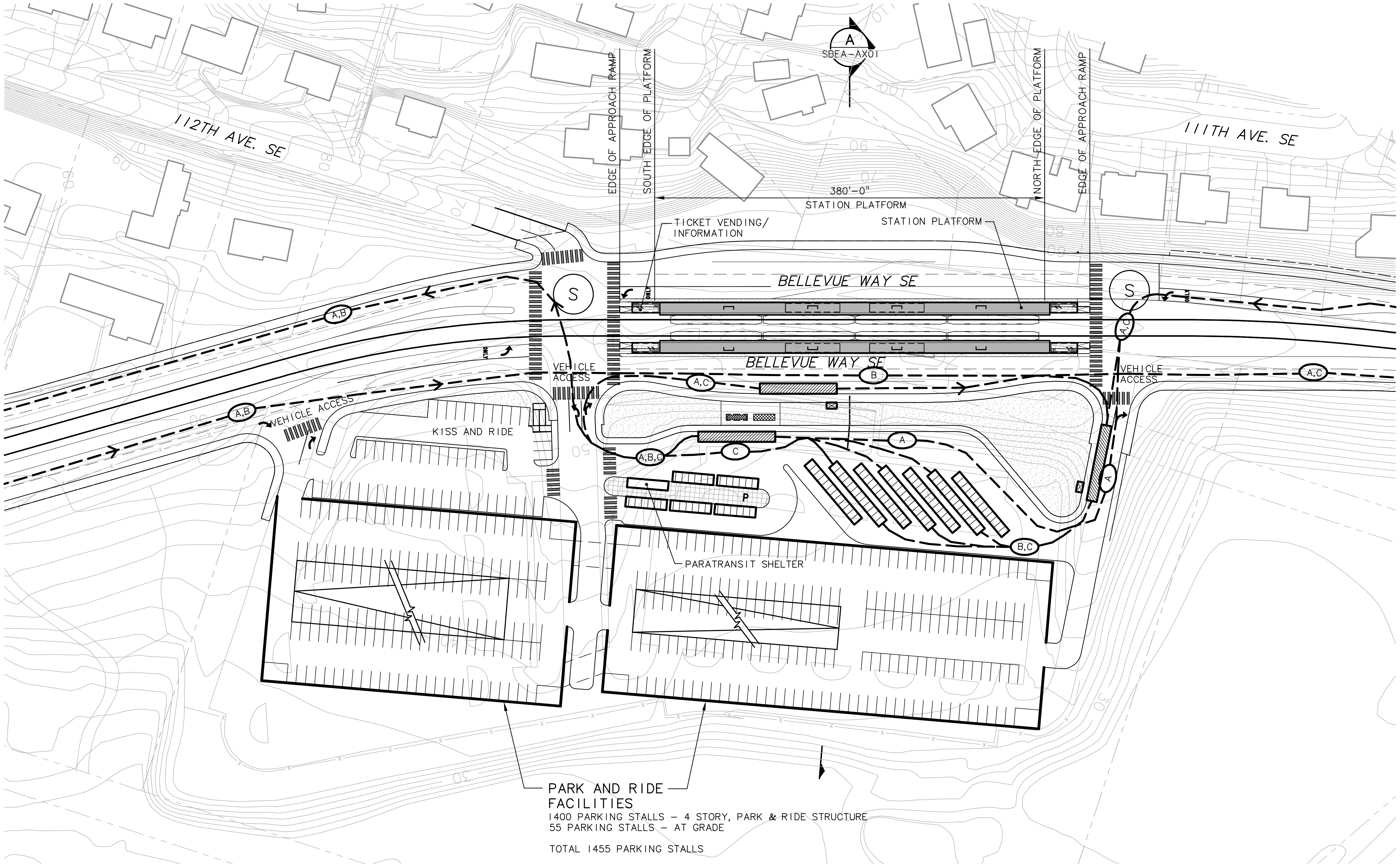
X0519OP
X0519UT
X0519VG

LTSCALE

1=1

NOTES

1. ALIGNMENT B1



A
SBEA-AS01
112TH AVE. SE
111TH AVE. SE
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
380'-0"
STATION PLATFORM
TICKET VENDING/INFORMATION
STATION PLATFORM
BELLEVUE WAY SE
BELLEVUE WAY SE
S
S
A,B
A,B
A,C
A,C
B
A
C
A,B,C
B,C
A
A,C
VEHICLE ACCESS
VEHICLE ACCESS
VEHICLE ACCESS
KISS AND RIDE
P
PARATRANSIT SHELTER
PARK AND RIDE FACILITIES
1400 PARKING STALLS - 4 STORY, PARK & RIDE STRUCTURE
55 PARKING STALLS - AT GRADE
TOTAL 1455 PARKING STALLS

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
A	BUS ROUTE : 111, 114, 222, 240, 560
B	BUS ROUTE : 210
C	BUS ROUTE : 532, 535, 234
▩	BIKE STORAGE
▩	BIKE RACKS
░	LANDSCAPE
▥	CROSSWALK
—	TRACK
▭	TRAIN

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELB1SBEA_AS01.dwg
10/16/08 09:02 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

STREETER & ASSOCIATES ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET SEATTLE, WA 98101-2901
206-621-9270 (FAX) 206-621-7715

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: 1"=50'-0"
Filename: ELB1SBEA_AS01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

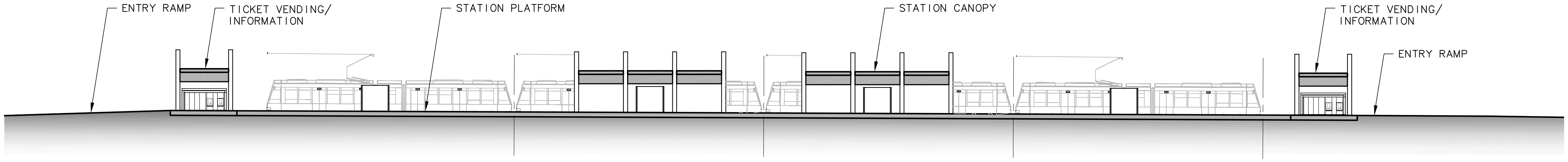
SOUTH BELLEVUE STATION
BELLEVUE WAY ALTERNATIVE B1
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: SBEA-AS01
Sheet No.: B-81
Rev.:

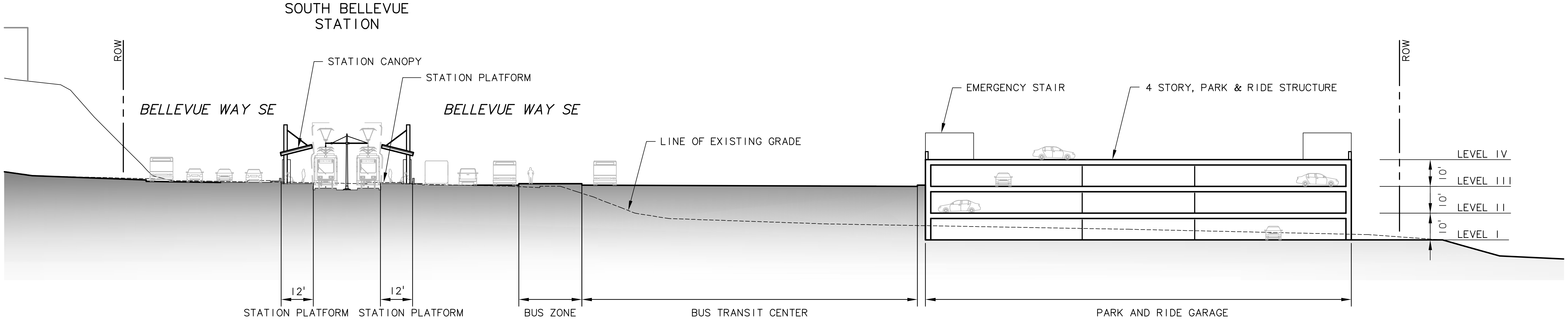
XREF'S
Resolved
ELB_SBEA_AX
REG-DCON
ZG-2234H
Unresolved

LTSCALE
1=1


ENTRY RAMP
TICKET VENDING/ INFORMATION
STATION PLATFORM
STATION CANOPY
TICKET VENDING/ INFORMATION
ENTRY RAMP

ELEVATION

SCALE: 1" = 20'


SOUTH BELLEVUE STATION
ROW
STATION CANOPY
STATION PLATFORM
BELLEVUE WAY SE
BELLEVUE WAY SE
LINE OF EXISTING GRADE
EMERGENCY STAIR
4 STORY, PARK & RIDE STRUCTURE
ROW
LEVEL IV
10'
LEVEL III
10'
LEVEL II
10'
LEVEL I
12'
12'
STATION PLATFORM
STATION PLATFORM
BUS ZONE
BUS TRANSIT CENTER
PARK AND RIDE GARAGE

SECTION LOOKING NORTH

SCALE: 1" = 20'

A
SBEA-AX01
SBEA-AS01

20 10 0 20 40
SCALE IN FEET

c:\work\ELBISBEA_AX01.dwg
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SEATTLE, WA 98101-2901
(FAX) 206-621-7715
Approved:

SOUNDTRANSIT
Date:

Scale: 1"=20'-0"
Filename: ELBISBEA_AX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

SOUTH BELLEVUE STATION
BELLEVUE WAY ALTERNATIVE B1
ELEVATION AND SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: SBEA-AX01
Sheet No.: B-82
Rev.:

XREF'S

Resolved

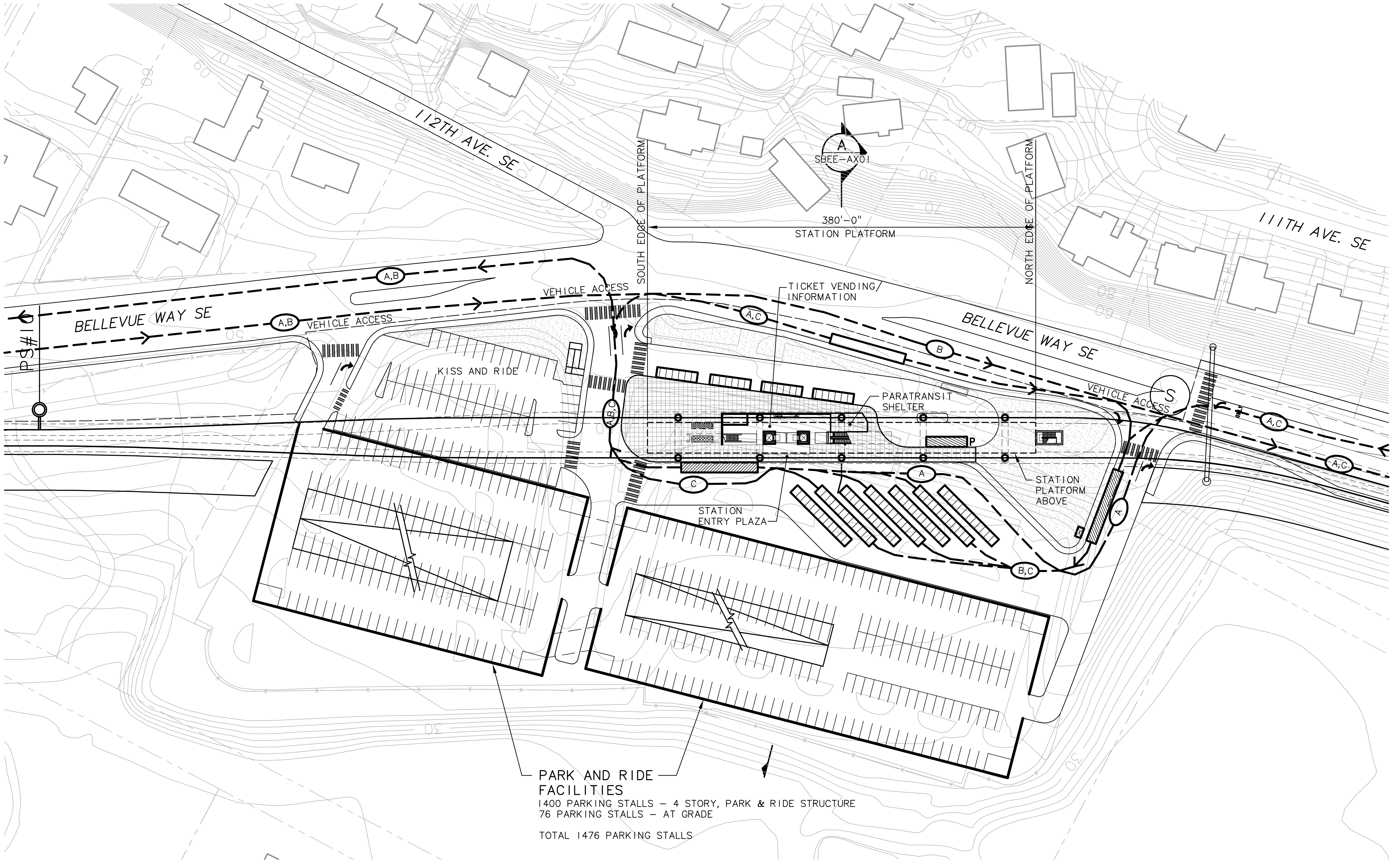
ELB_B2E_CM
ELB_B2E_KA
ELB_B2E__JO
ELB_SBEE_AG
ELB_SBEE_AS
ELB_SBEE_AZ
REG-DCON
X0519CN
X0519SF
ZG-2234H
x0519rx

Unresolved

ELB_B2A_KA
X0519OP
X0519UT
X0519VG

LTSCALE

1=1



112TH AVE. SE
111TH AVE. SE
BELLEVUE WAY SE
BELLEVUE WAY SE
PS#10
A
SBEE-AS01
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
380'-0"
STATION PLATFORM
VEHICLE ACCESS
VEHICLE ACCESS
VEHICLE ACCESS
A,B
A,B
A,C
A,C
A,C
A,B,C
B
A
A
C
B,C
S
TICKET VENDING/
INFORMATION
KISS AND RIDE
PARATRANSIT
SHELTER
P
STATION
PLATFORM
ABOVE
STATION
ENTRY PLAZA
PARK AND RIDE
FACILITIES
1400 PARKING STALLS - 4 STORY, PARK & RIDE STRUCTURE
76 PARKING STALLS - AT GRADE
TOTAL 1476 PARKING STALLS
70
60
50
30
30
110
100
90
90
80
80
N
50 25 0 50 100
SCALE IN FEET

NOTES

1. ALIGNMENTS
B2A, B2E & B3

SYMBOLS KEY

▬	NEW BUS STOP
▭	EXISTING BUS STOP
▭	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
(A)	BUS ROUTE : 48
(B)	BUS ROUTE : 7, 9X
(C)	BUS ROUTE : 212, 214, 214.5, 216, 218
▨	BIKE STORAGE
▨	BIKE RACKS
▨	LANDSCAPED AREA
▦	PAVED AREA
▥	CROSSWALK
—	TRACK
▭	TRAIN

STATION ACCESS PLAN

SCALE: 1" = 50'

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IN ASSOCIATION WITH
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ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET
206-621-9270
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Approved:
Date:

SOUNDTRANSIT

Scale: 1"=50'-0"
Filename: ELB1SBEE_AS01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

SOUTH BELLEVUE STATION
ALTERNATIVE B2A, B2E & B3
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: SBEE-AS01
Sheet No.: B-83
Rev.:

XREF'S

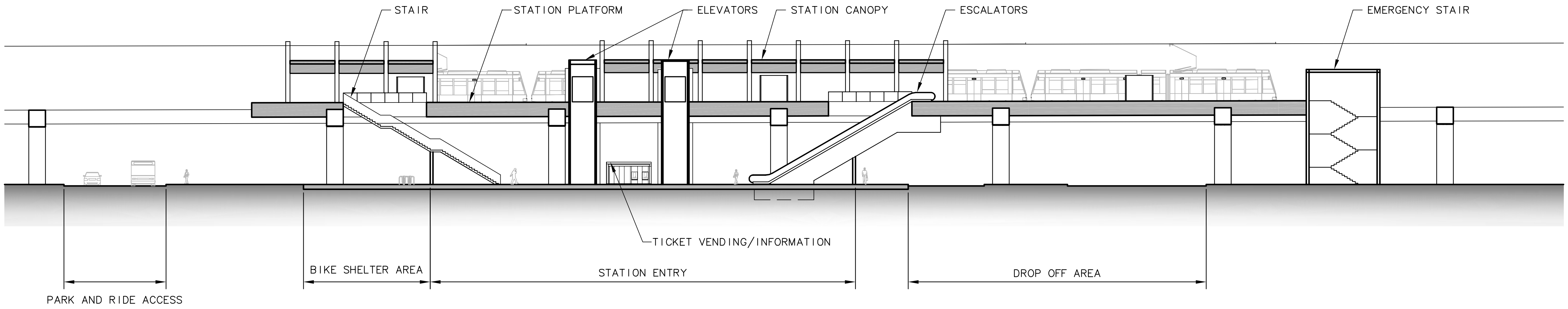
Resolved

ELB_SBEE_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

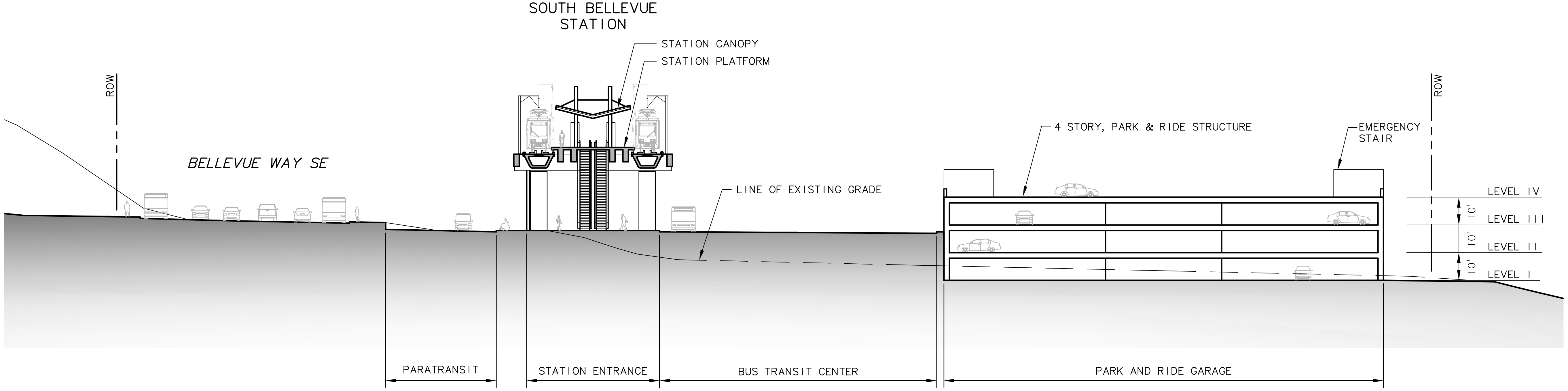
1=1



STAIR
STATION PLATFORM
ELEVATORS
STATION CANOPY
ESCALATORS
EMERGENCY STAIR
TICKET VENDING/INFORMATION
BIKE SHELTER AREA
STATION ENTRY
DROP OFF AREA
PARK AND RIDE ACCESS

ELEVATION

SCALE: 1" = 20'



SOUTH BELLEVUE STATION
STATION CANOPY
STATION PLATFORM
ROW
BELLEVUE WAY SE
LINE OF EXISTING GRADE
4 STORY, PARK & RIDE STRUCTURE
EMERGENCY STAIR
ROW
LEVEL IV
LEVEL III
LEVEL II
LEVEL I
10'
10'
10'
PARATRANSIT
STATION ENTRANCE
BUS TRANSIT CENTER
PARK AND RIDE GARAGE

SECTION LOOKING NORTH (A)

SCALE: 1" = 20'

SBEE-AX01

SBEE-AS01

20 10 0 20 40

SCALE IN FEET

c:\work\ELB\SBEE_AX01.dwg
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SOUNDTRANSIT

Submitted:

Date:

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Date:

Scale: 1"=20'-0"

Filename: ELB\SBEE_AX01.dwg

Contract No.: EL SEG_B

Date:

EAST LINK PROJECT
SEGMENT B

SOUTH BELLEVUE STATION
ALTERNATIVE B2A, B2E & B3
ELEVATION AND SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: SBEE-AX01

Sheet No.: B-84

Rev.:

XREF'S

Resolved

ELB_B2A_KA
ELB_B2A__CM
ELB_B2A__JO
ELB_BSDA_AP
ELB_BSDA_AS
ELB_BSDA_AZ
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
REG-DCON
X0525CN
X0525SF
ZG-2234H
x0525rx

Unresolved

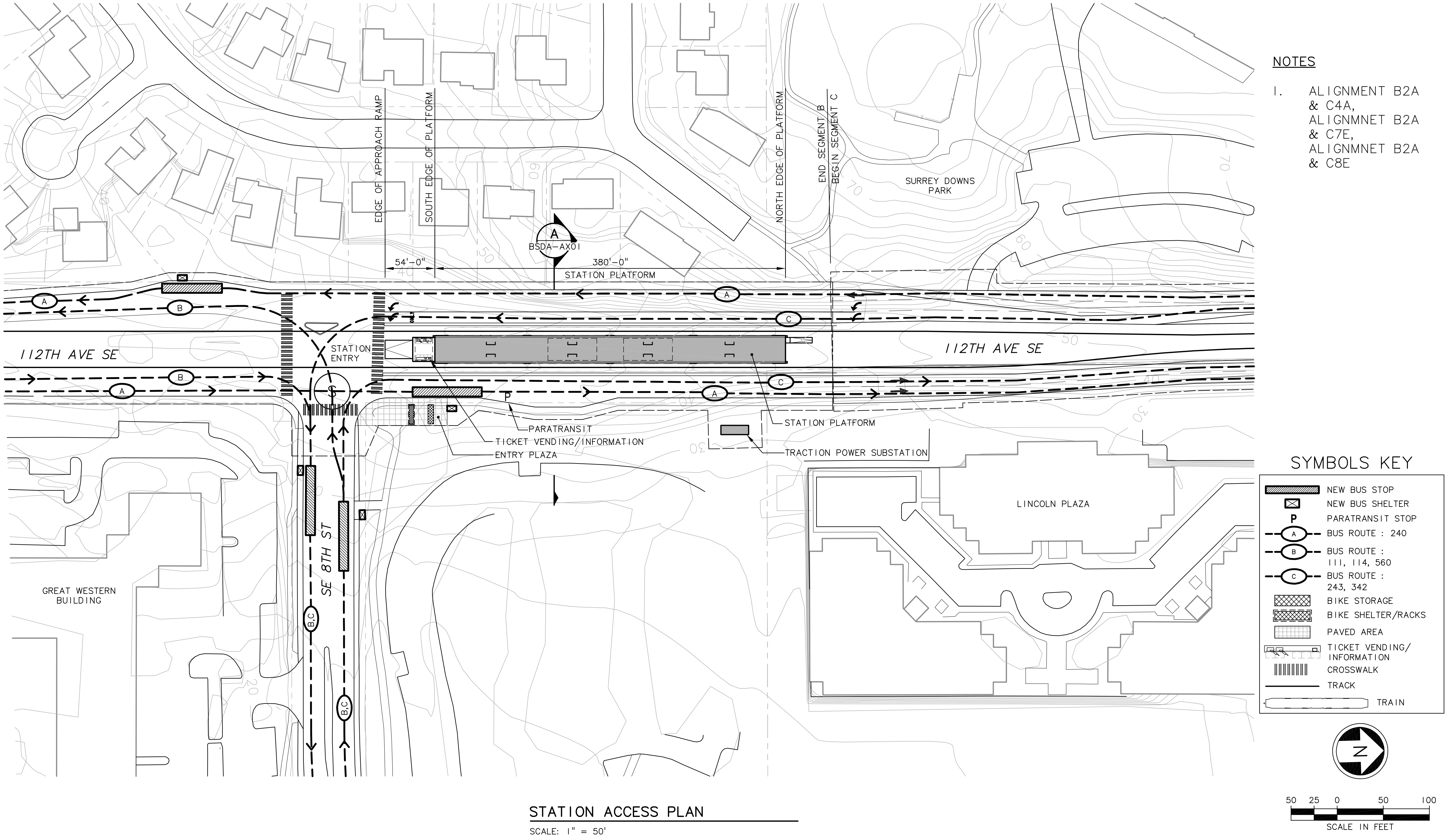
X0525OP
X0525UT
X0525VG

LTSCALE

1=1

NOTES

1. ALIGNMENT B2A & C4A, ALIGNMNET B2A & C7E, ALIGNMNET B2A & C8E



EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
END SEGMENT B
BEGIN SEGMENT C
SURREY DOWNS PARK
A
BSDA-AX01
54'-0"
380'-0"
STATION PLATFORM
112TH AVE SE
STATION ENTRY
A
B
C
B,C
S
P
PARATRANSIT
TICKET VENDING/INFORMATION
ENTRY PLAZA
STATION PLATFORM
TRACTION POWER SUBSTATION
LINCOLN PLAZA
GREAT WESTERN BUILDING
SE 8TH ST
70
60
50
40
30
20
SYMBOLS KEY
NEW BUS STOP
NEW BUS SHELTER
PARATRANSIT STOP
BUS ROUTE : 240
BUS ROUTE : 111, 114, 560
BUS ROUTE : 243, 342
BIKE STORAGE
BIKE SHELTER/RACKS
PAVED AREA
TICKET VENDING/ INFORMATION
CROSSWALK
TRACK
TRAIN
N
50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: 1"=50'-0"
Filename: ELB\BSDA_AS01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

SE 8TH STATION
112TH AT-GRADE ALTERNATIVE B2A
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BSDA-AS01
Sheet No.: B-85
Rev.:

XREF'S

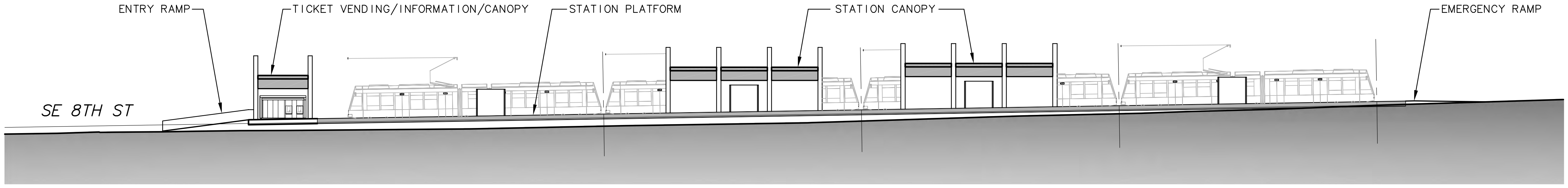
Resolved

ELB_BSDA_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

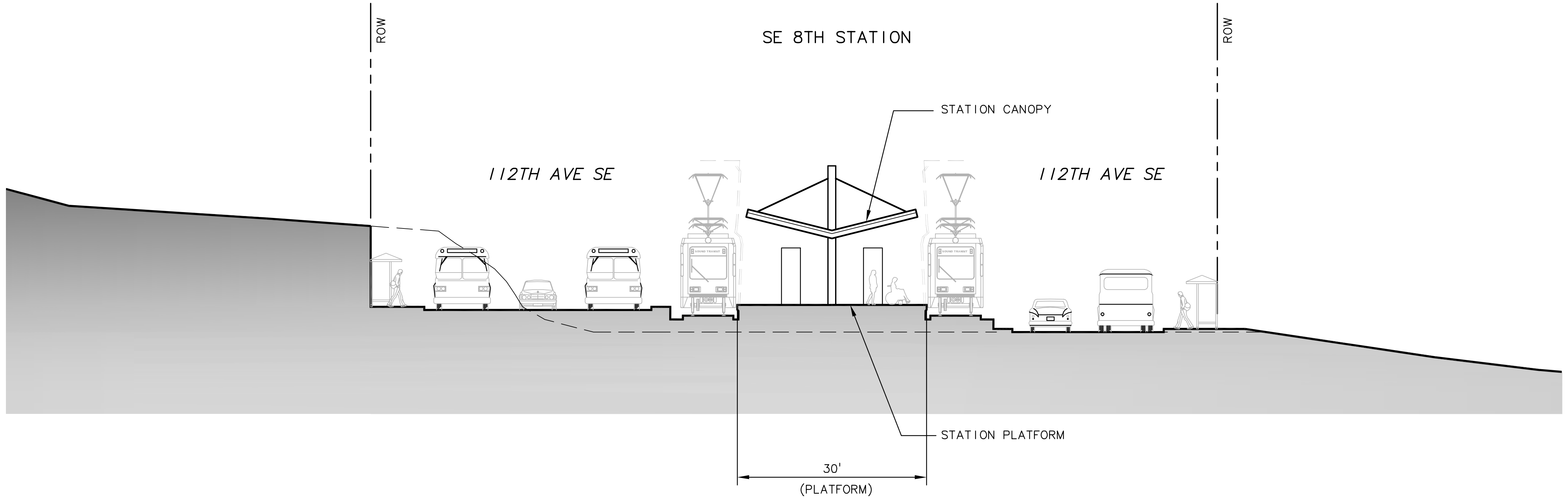
1=1


ENTRY RAMP
TICKET VENDING/INFORMATION/CANOPY
STATION PLATFORM
STATION CANOPY
EMERGENCY RAMP
SE 8TH ST

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


ROW
SE 8TH STATION
ROW
STATION CANOPY
112TH AVE SE
112TH AVE SE
STATION PLATFORM
30'
(PLATFORM)

SECTION LOOKING NORTH

A
BSDA-AX01
BSDA-AS01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELB\BSDA_AX01.dwg
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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: VARIES
Filename: ELB1BSDA_AX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

SE 8TH STATION
112TH AT-GRADE ALTERNATIVE B2A
ELEVATION AND SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BSDA-AX01
Sheet No.: B-86
Rev.:

XREF'S

Resolved

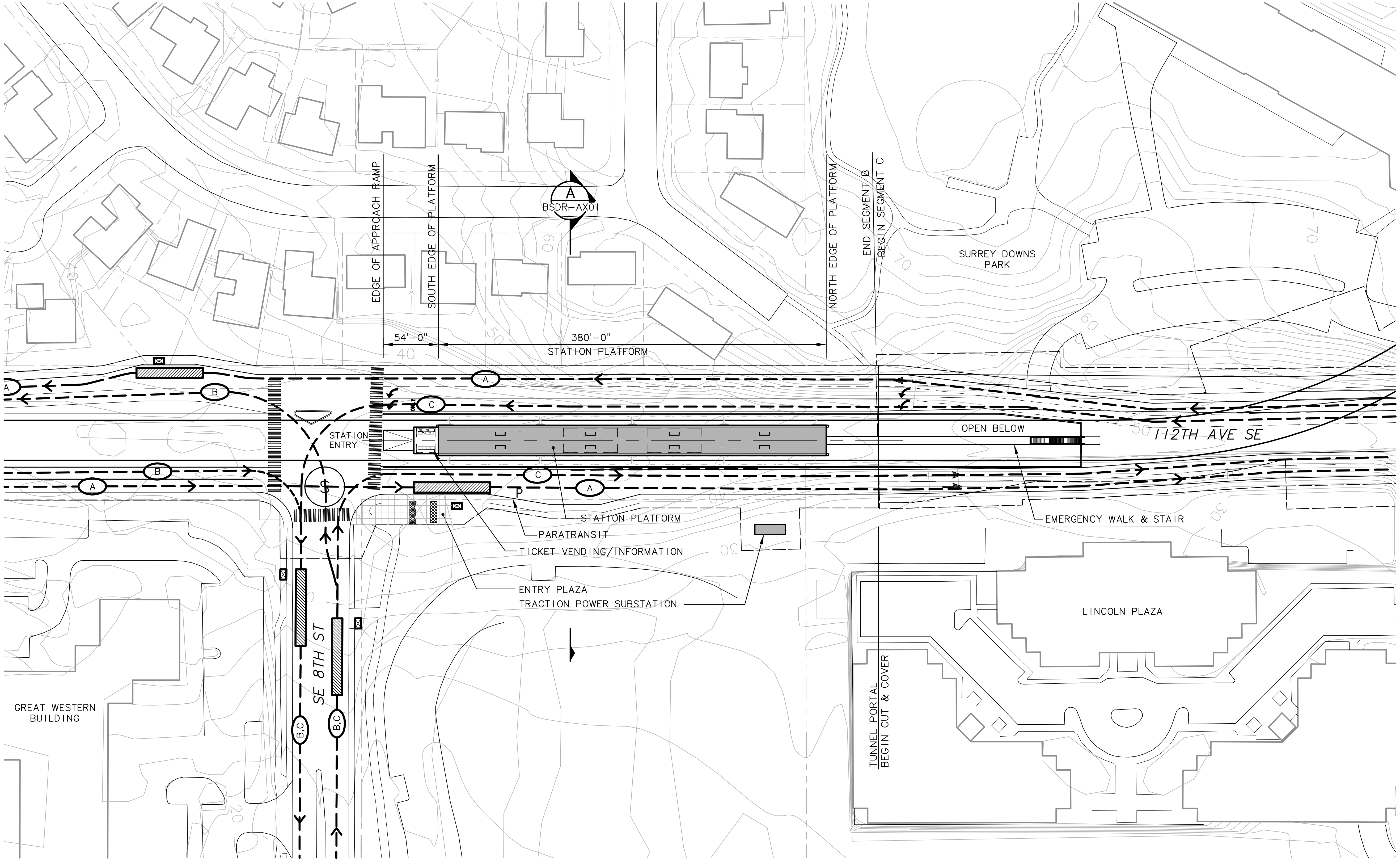
ELB_B2A_KA
ELB_B2A__CM
ELB_B2A__JO
ELB_BSDR_AP
ELB_BSDR_AS
ELB_BSDR_AZ
ELC_C3T_JO
ELC_C3T_KA
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
REG-DCON
X0225CN
X0225SF
X0525CN
X0525SF
ZG-2234H
x0225rx
x0525rx

Unresolved

X0225OP
X0225UT
X0225VG
X0525OP
X0525UT
X0525VG

LTSCALE

1=1



A
BSDR-AX01
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
END SEGMENT B
BEGIN SEGMENT C
SURREY DOWNS PARK
54'-0"
380'-0"
STATION PLATFORM
STATION ENTRY
OPEN BELOW
112TH AVE SE
A
B
C
STATION PLATFORM
PARATRANSIT
TICKET VENDING/INFORMATION
ENTRY PLAZA
TRACTION POWER SUBSTATION
EMERGENCY WALK & STAIR
P
LINCOLN PLAZA
TUNNEL PORTAL
BEGIN CUT & COVER
SE 8TH ST
B,C
GREAT WESTERN BUILDING
60
70
50
40
30
20

NOTES

1. ALIGNMENT B2A AND C2T & 3T

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
—(A)—	BUS ROUTE : 240
—(B)—	BUS ROUTE : 111, 114, 560
—(C)—	BUS ROUTE : 243, 342
▩	BIKE STORAGE
▩	BIKE SHELTER/RACKS
▦	PAVED AREA
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
—+—	TRACK
▭	TRAIN

N

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

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10/16/08 08:59 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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STREETER & ASSOCIATES ARCHITECTS AIA PLLC
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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: 1"=50'-0"
Filename: ELB\BSDR_AS01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

THIS PRINT REDUCED HALF SCALE

SE 8TH STATION
112TH AT-GRADE ALTERNATIVE B2A
STATION ACCESS PLAN

Drawing No.: BSDR-AS01
Sheet No.: B-87
Rev.:

XREF'S

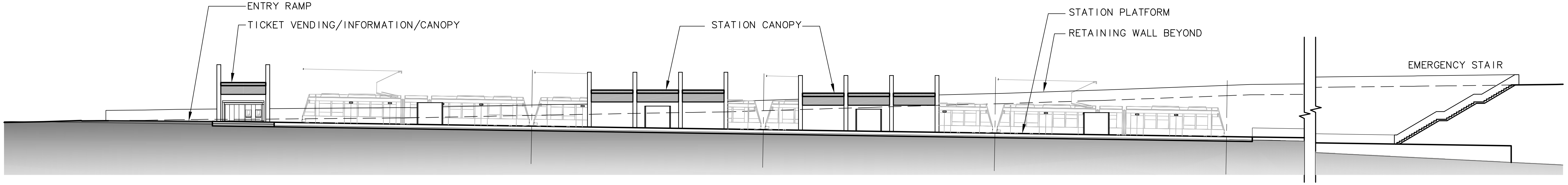
Resolved

ELB_BSDR_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

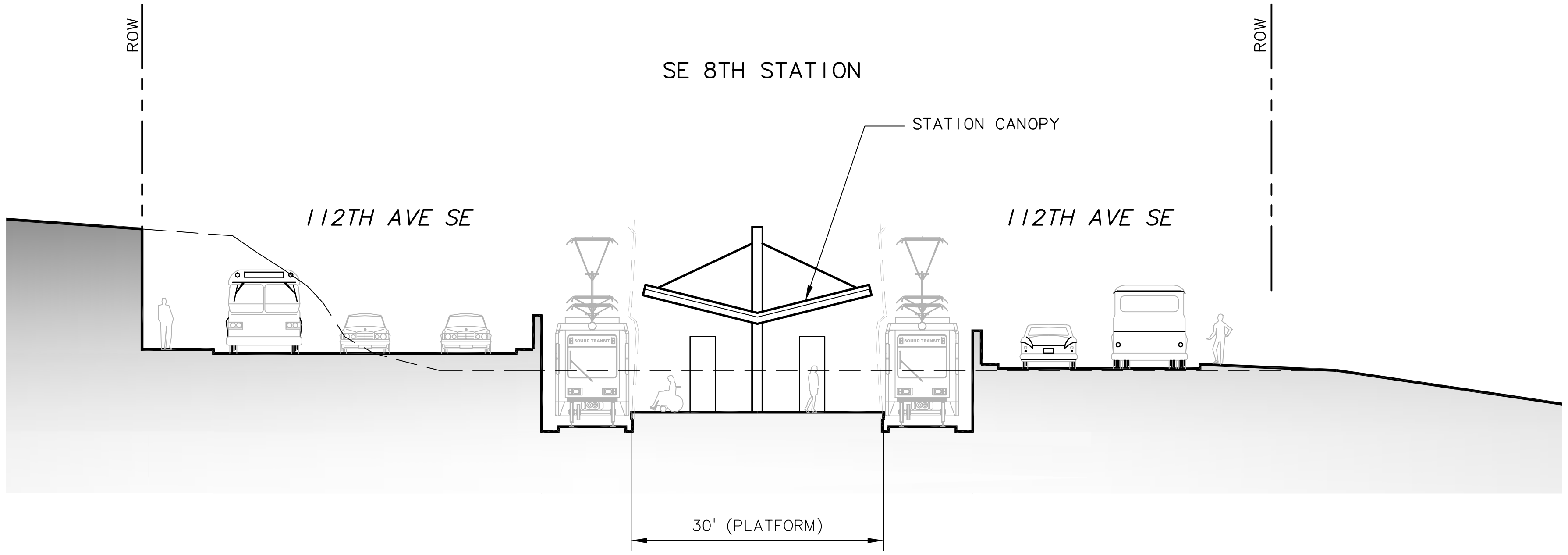
1=1


ENTRY RAMP
TICKET VENDING/INFORMATION/CANOPY
STATION CANOPY
STATION PLATFORM
RETAINING WALL BEYOND
EMERGENCY STAIR

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


ROW
ROW
SE 8TH STATION
STATION CANOPY
112TH AVE SE
112TH AVE SE
30' (PLATFORM)

SECTION LOOKING NORTH

A
BSDR-AX01
BSDR-AS01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELB\BSDR_AX01.dwg
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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: VARIES
Filename: ELB1BSDR_AX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

THIS PRINT REDUCED HALF SCALE

SE 8TH STATION
112TH AT-GRADE ALTERNATIVE B2A
ELEVATION AND SECTION

Drawing No.: BSDR-AX01
Sheet No.: B-88
Rev.:

XREF'S

Resolved

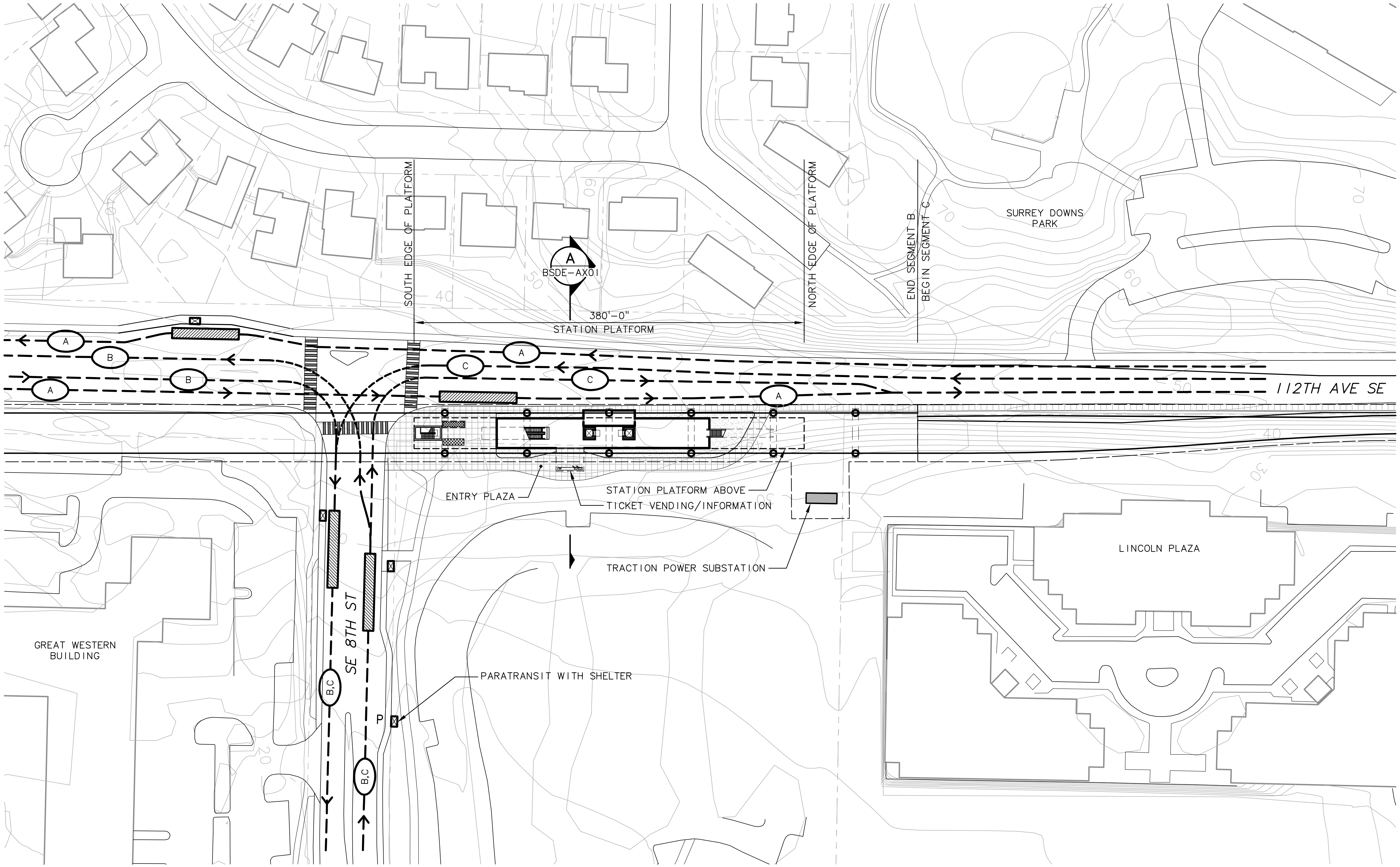
ELB_B2E_CM
ELB_B2E_KA
ELB_B2E__JO
ELB_BSDE_AG
ELB_BSDE_AS
ELB_BSDE_AZ
ELC_C7E_JO
ELC_C7E_KA
REG-DCON
X0525CN
X0525SF
ZG-2234H
x0525rx

Unresolved

ELB_BSDE_AP
ELC_C7E_CM
X0525OP
X0525UT
X0525VG

LTSCALE

1=1



SOUTH EDGE OF PLATFORM
A
BSDE-AS01
NORTH EDGE OF PLATFORM
END SEGMENT B
BEGIN SEGMENT C
SURREY DOWNS PARK
380'-0"
STATION PLATFORM
A
B
C
112TH AVE SE
ENTRY PLAZA
STATION PLATFORM ABOVE
TICKET VENDING/INFORMATION
TRACTION POWER SUBSTATION
LINCOLN PLAZA
GREAT WESTERN BUILDING
SE 8TH ST
B,C
PARATRANSIT WITH SHELTER
P
40
50
60
70
30

NOTES

1. ALIGNMENT B2E & C4A, ALIGNMNET B2E & C7E, ALIGNMNET B2E & C8E

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
Ⓐ	BUS ROUTE : 240
Ⓑ	BUS ROUTE : 111, 114, 560
Ⓒ	BUS ROUTE : 243, 342
▦	BIKE STORAGE
▦	BIKE RACKS
░	LANDSCAPED AREA
▤	PAVED AREA
	TICKET VENDING/ INFORMATION
▥	CROSSWALK
—	TRACK
	TRAIN

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELB1BSDE_AS01.dwg
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FEIS CONCEPTUAL

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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: 1"=50'-0"
Filename: ELB1BSDE_AS01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

SE 8TH STATION
112TH ELEVATED ALTERNATIVE B2E
STATION ACCESS PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: BSDE-AS01
Sheet No.: B-89
Rev.:

XREF'S

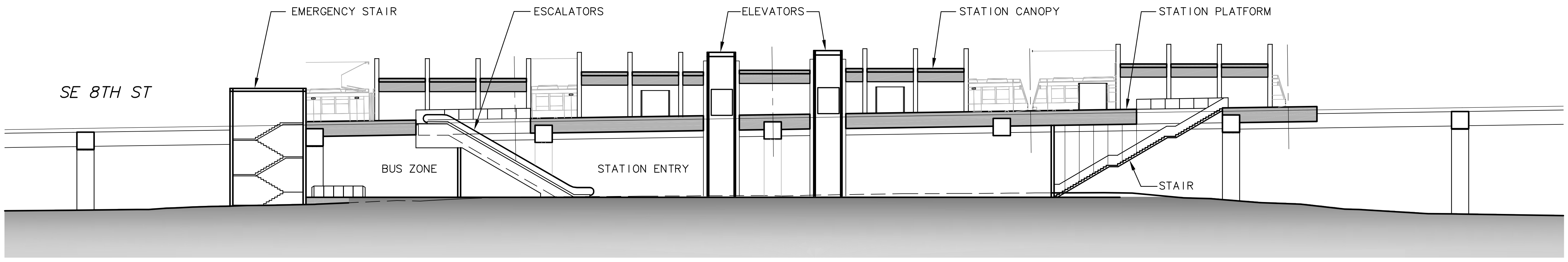
Resolved

ELB_BSDE_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

1=1



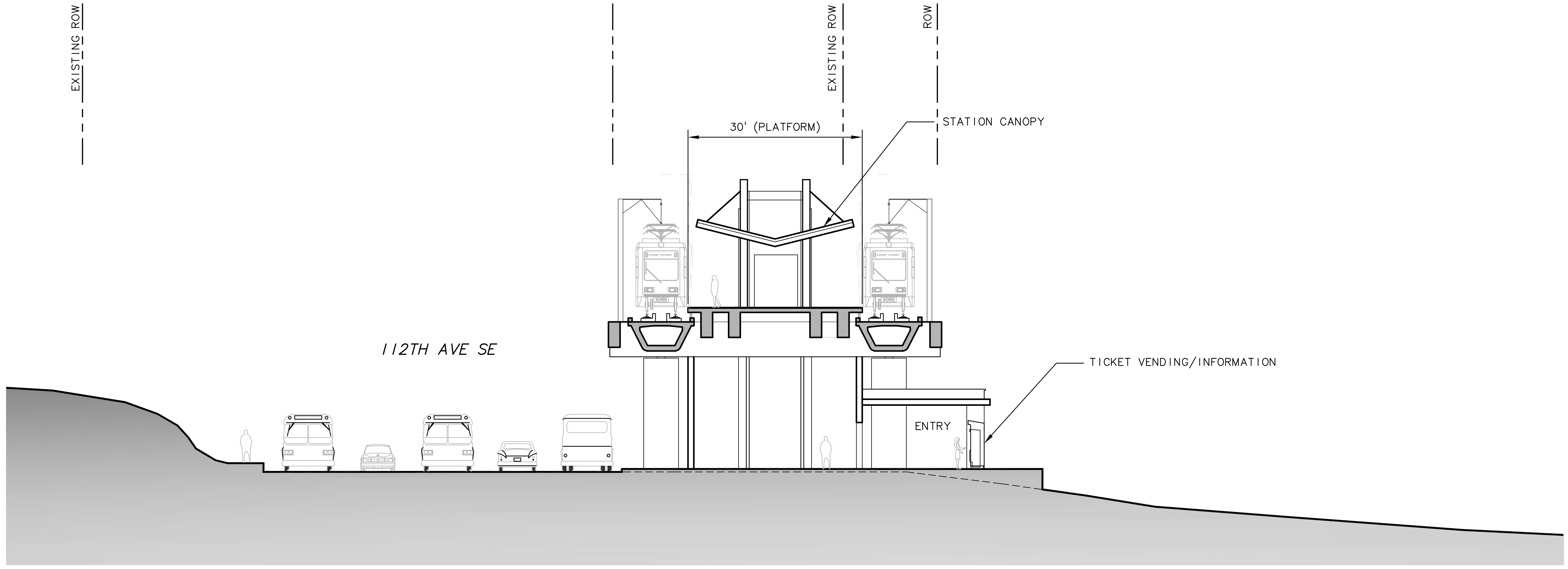
EMERGENCY STAIR
ESCALATORS
ELEVATORS
STATION CANOPY
STATION PLATFORM
SE 8TH ST
BUS ZONE
STATION ENTRY
STAIR

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET

SE 8TH STATION



EXISTING ROW
EXISTING ROW
ROW
30' (PLATFORM)
STATION CANOPY
112TH AVE SE
TICKET VENDING/INFORMATION
ENTRY

SECTION LOOKING NORTH

SCALE: 1" = 10'

A
BSDE-AX01
BSDE-AS01

10 5 0 10 20
SCALE IN FEET

c:\work\ELB\BSDE_AX01.dwg
10/16/08 08:57 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

STREETER & ASSOCIATES
ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET
206-621-9270
SEATTLE, WA 98101-2901
(FAX) 206-621-7715

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: VARIES
Filename: ELB1BSDE_AX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

SE 8TH STATION
112TH ELEVATED ALTERNATIVE B2E
ELEVATION AND SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BSDE-AX01
Sheet No.: B-90
Rev.:

XREF'S

Resolved

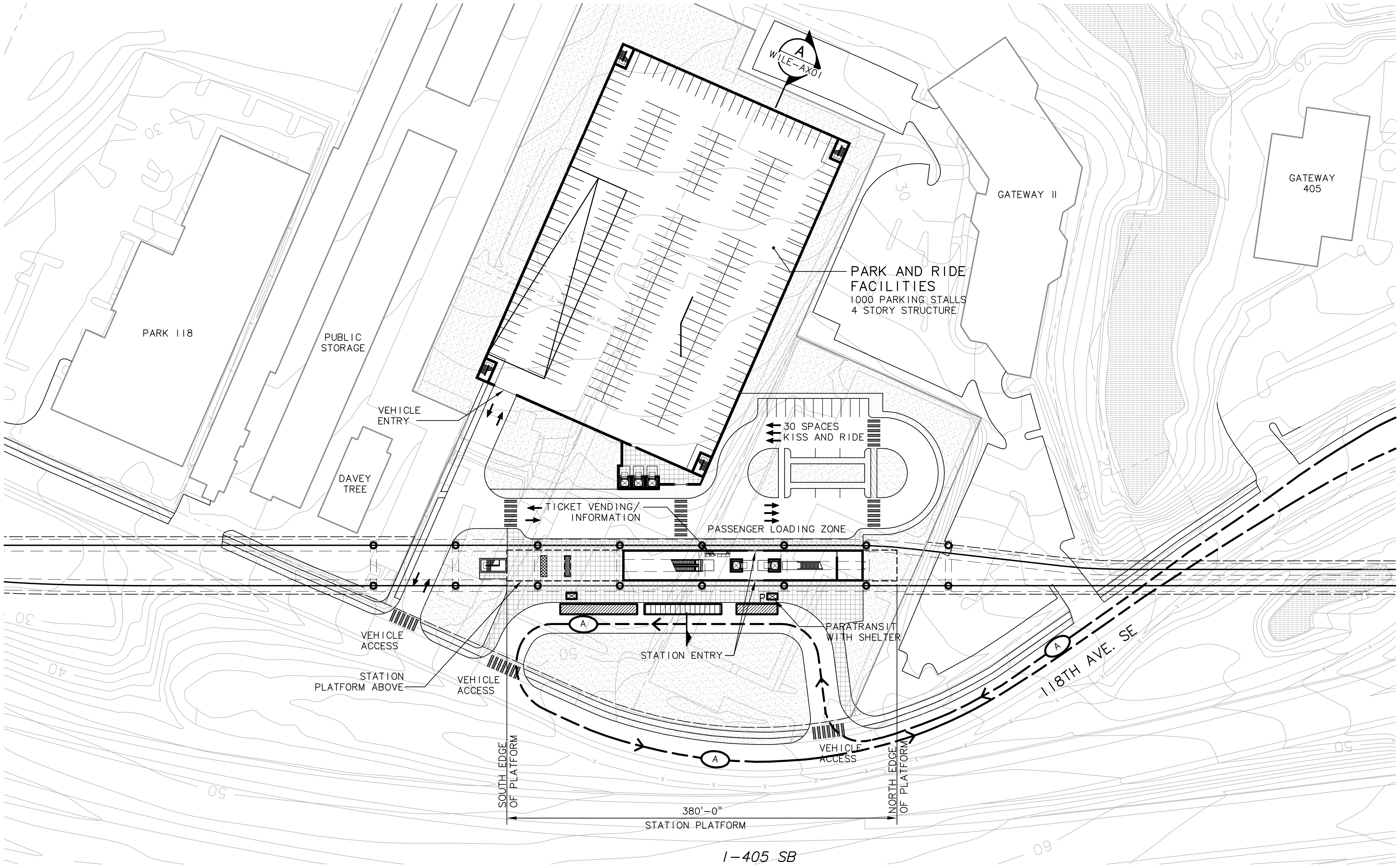
ELB_B7__CM
ELB_B7__KA
ELB_WILE_AG
ELB_WILE_AS
ELB_WILE_AZ
REG-DCON
X0522CN
X0522SF
X0525CN
X0525SF
ZG-2234H
x0522rx
x0525rx

Unresolved

X0522OP
X0525OP

LTSCALE

1=1



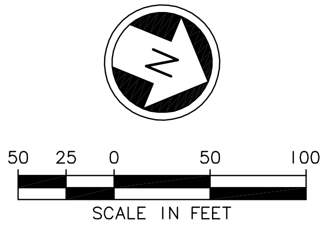
A
WILE-AS01
PARK 118
PUBLIC STORAGE
DAVEY TREE
GATEWAY II
GATEWAY 405
PARK AND RIDE FACILITIES
1000 PARKING STALLS
4 STORY STRUCTURE
VEHICLE ENTRY
30 SPACES KISS AND RIDE
TICKET VENDING/ INFORMATION
PASSENGER LOADING ZONE
PARATRANSIT WITH SHELTER
STATION ENTRY
VEHICLE ACCESS
STATION PLATFORM ABOVE
VEHICLE ACCESS
VEHICLE ACCESS
118TH AVE. SE
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
380'-0"
STATION PLATFORM
I-405 SB
30
40
50
60

NOTES

1. ALIGNMENT B7

SYMBOLS KEY

▬	NEW BUS STOP
▭	EXISTING BUS STOP
▤	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
—(A)—	BUS ROUTE : 243
▦	BIKE STORAGE
▩	BIKE SHELTER
░	LANDSCAPED AREA
▥	PAVED AREA
░	PAVED CURB
▒	WATER BODY
▮▮▮	CROSSWALK
—	TRACK
▭	TRAIN



N
50
25
0
50
100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELB1WILE_AS01.dwg
10/16/08 09:04 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

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185 UNIVERSITY STREET 206-621-9270
SEATTLE, WA 98101-2901 (FAX) 206-621-7715

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Submitted:
Date:
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Date:

Scale: 1"=50'-0"
Filename: ELB1WILE_AS01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

118TH STATION
BNSF ALTERNATIVE B7
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: WILE-AS01
Sheet No.: B-91
Rev.:

XREF'S

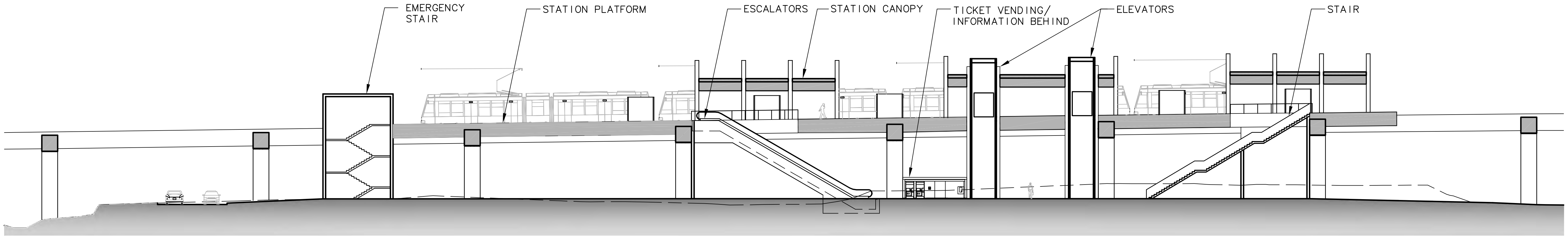
Resolved

ELB_WILE_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

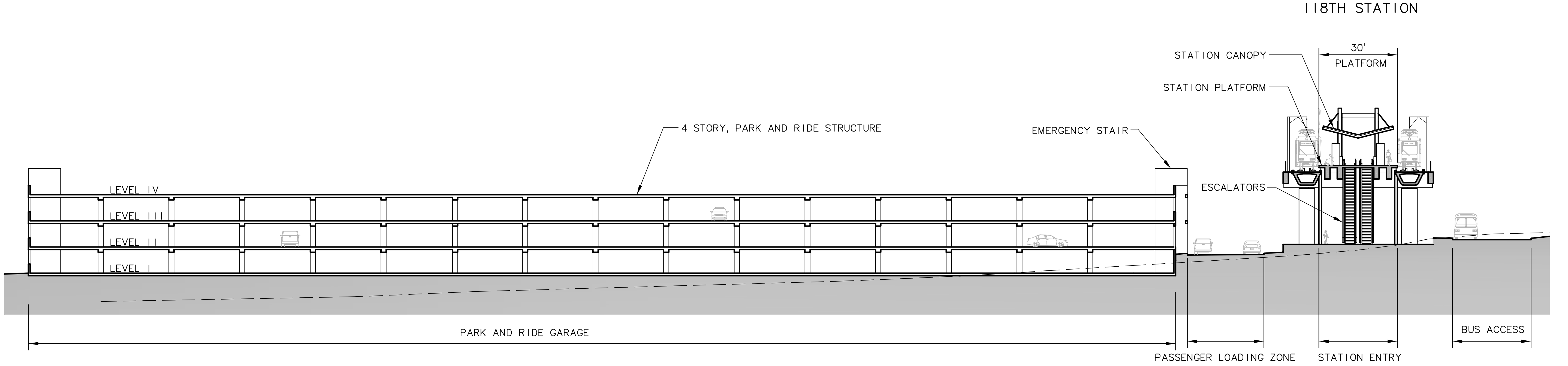
1=1



EMERGENCY STAIR
STATION PLATFORM
ESCALATORS
STATION CANOPY
TICKET VENDING/ INFORMATION BEHIND
ELEVATORS
STAIR

ELEVATION

SCALE: 1" = 20'



118TH STATION
30'
PLATFORM
STATION CANOPY
STATION PLATFORM
EMERGENCY STAIR
ESCALATORS
4 STORY, PARK AND RIDE STRUCTURE
LEVEL IV
LEVEL III
LEVEL II
LEVEL I
PARK AND RIDE GARAGE
PASSENGER LOADING ZONE
STATION ENTRY
BUS ACCESS

SECTION LOOKING NORTH

A
WILE-AX01
WILE-AS01

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

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185 UNIVERSITY STREET
206-621-9270
SEATTLE, WA 98101-2901
(FAX) 206-621-7715

SOUNDTRANSIT

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Date:
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Date:

Scale: 1"=20'-0"
Filename: ELB1WILE_AX01.dwg
Contract No.: EL SEG_B
Date:

EAST LINK PROJECT
SEGMENT B

118TH STATION
BNSF ALTERNATIVE B7
ELEVATION AND SECTION

THIS PRINT REDUCED HALF SCALE

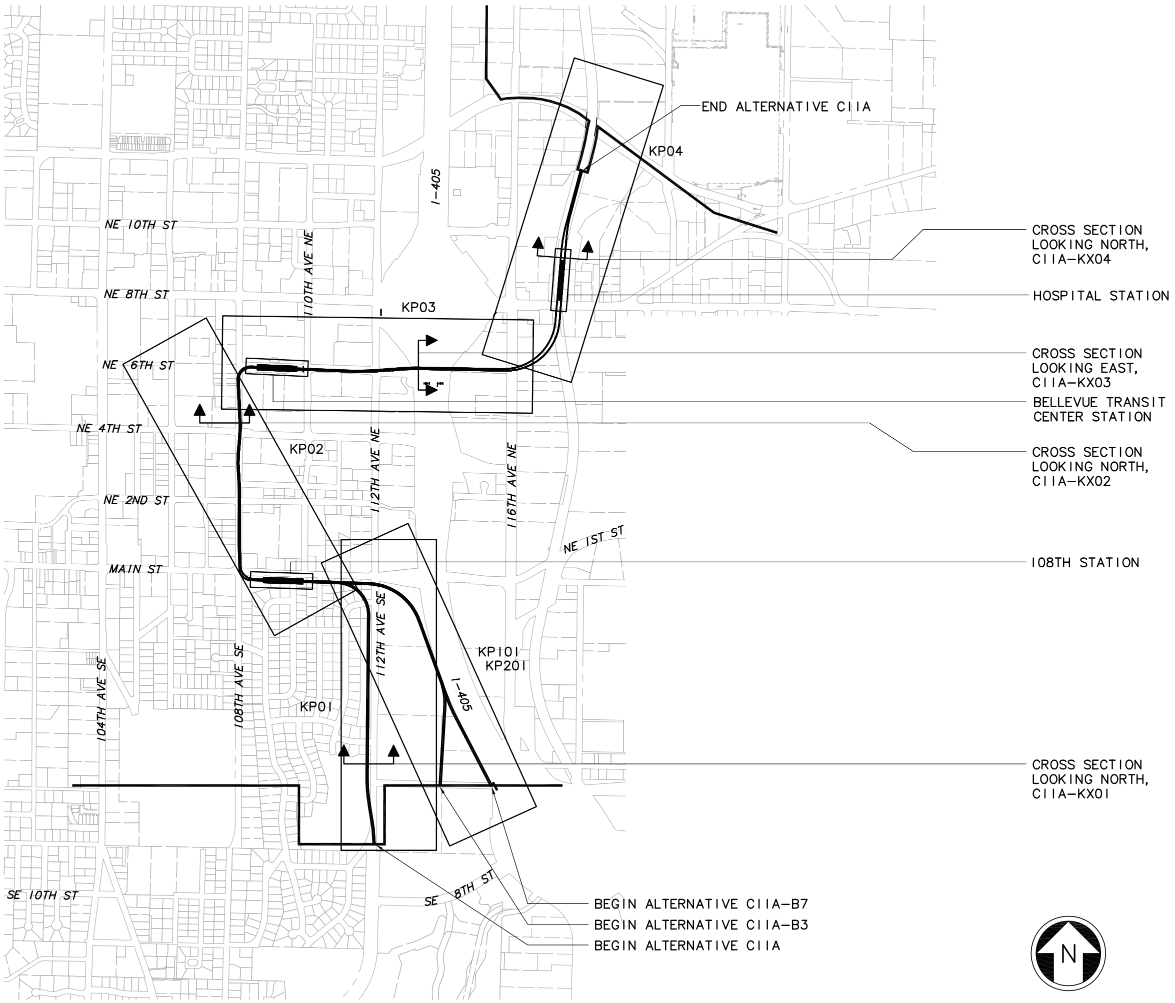
Drawing No.: WILE-AX01
Sheet No.: B-92
Rev.:

c:\work\ELB1WILE_AX01.dwg
10/16/08 09:04 : eackerm 0E5396

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C11A_B2C_KA-100
ELC_C11A_B3_KA-100
ELC_C11A_B7_KA-100
SUB-SDEIS
ZG-2234H
key_Segment
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx
-Unresolved:
vp_100_c11a


END ALTERNATIVE C11A
KP04
I-405
NE 10TH ST
110TH AVE NE
CROSS SECTION LOOKING NORTH, C11A-KX04
HOSPITAL STATION
NE 8TH ST
KP03
NE 6TH ST
CROSS SECTION LOOKING EAST, C11A-KX03
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
KP02
112TH AVE NE
116TH AVE NE
CROSS SECTION LOOKING NORTH, C11A-KX02
NE 2ND ST
NE 1ST ST
MAIN ST
108TH STATION
112TH AVE SE
KP101
KP201
I-405
104TH AVE SE
108TH AVE SE
KP01
CROSS SECTION LOOKING NORTH, C11A-KX01
SE 10TH ST
SE 8TH ST
BEGIN ALTERNATIVE C11A-B7
BEGIN ALTERNATIVE C11A-B3
BEGIN ALTERNATIVE C11A
N

c:\work\sdeis\ELC_1C11AGZ05.dwg
10/04/10 13:25 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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INCA ENGINEERS INC.

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Date:

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SOUNDTRANSIT

Scale: NTS

Filename: ELC_1C11AGZ05.dwg

Contract No.:

Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)

THIS PRINT REDUCED HALF SCALE

KEY PLAN

Drawing No.: C11A-GZ05

Sheet No.: C-1

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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-Overlay:
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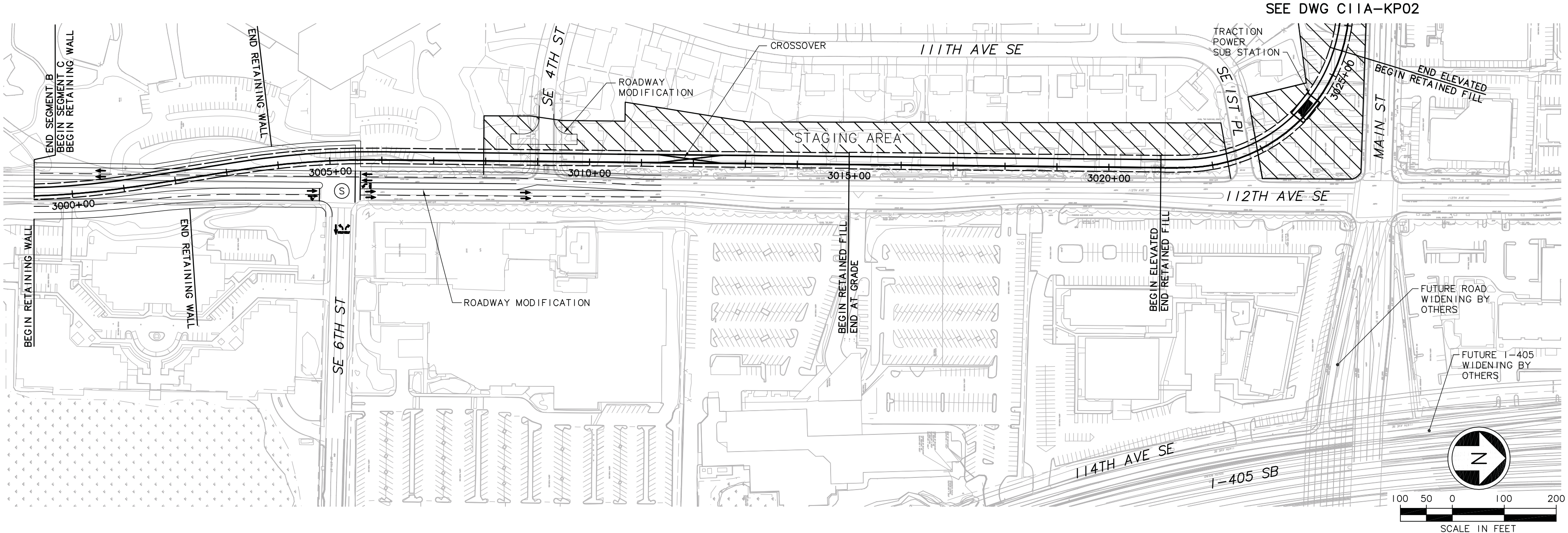
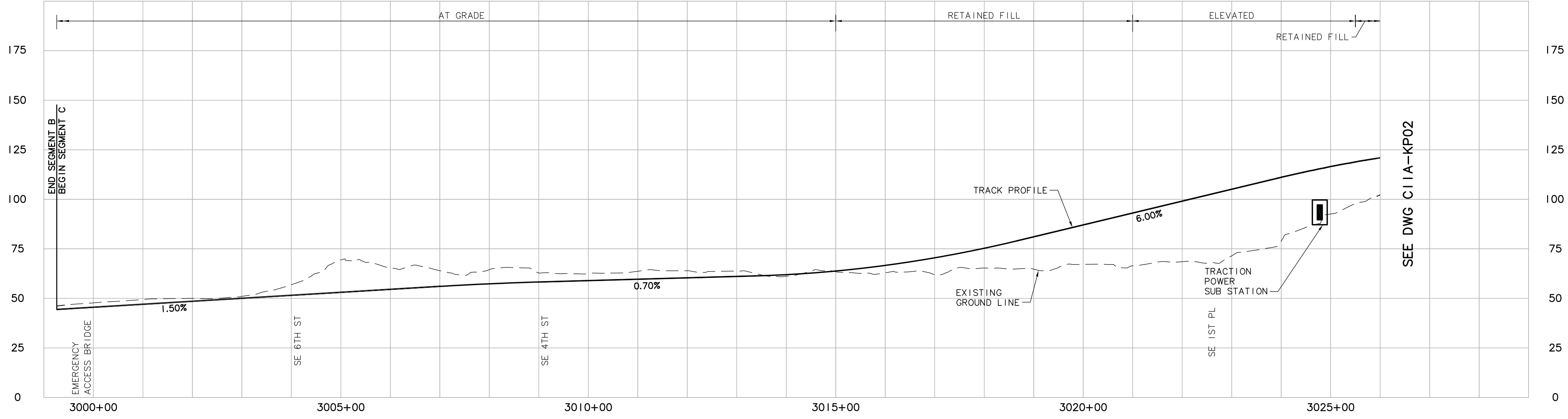
ELC_C11A_JO-100
SUB-SDEIS
XA_ELC_3Add_SF
XA_L72_SF
XF_ELC_SF
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf
x1405_chan
-Unresolved:
ELC_C2T_JO-100
ELC_L71_CM
St_Names_E_40
key_East
key_Segment
vp_100_c11a


SEE DWG C11A-KP02
END SEGMENT B
BEGIN SEGMENT C
BEGIN RETAINING WALL
END RETAINING WALL
SE 4TH ST
ROADWAY MODIFICATION
CROSSOVER
111TH AVE SE
TRACTION POWER SUB STATION
SE 1ST PL
END ELEVATED
BEGIN RETAINED FILL
3025+00
MAIN ST
STAGING AREA
3005+00
3010+00
3015+00
3020+00
3000+00
112TH AVE SE
BEGIN RETAINING WALL
END RETAINING WALL
SE 6TH ST
ROADWAY MODIFICATION
BEGIN RETAINED FILL
END AT GRADE
BEGIN ELEVATED
END RETAINED FILL
FUTURE ROAD WIDENING BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
114TH AVE SE
I-405 SB
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELC_1C11AKP01.dwg
10/04/10 13:56 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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FEIS CONCEPTUAL

CH2MHILL

Submitted:

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

SOUND TRANSIT

Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC_1C11AKP01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.: C11A-KP01
Sheet No.: C-2
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELC_C11A_B2C_KA-100
SUB-FEIS
ZG-2234H
key_Segment
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
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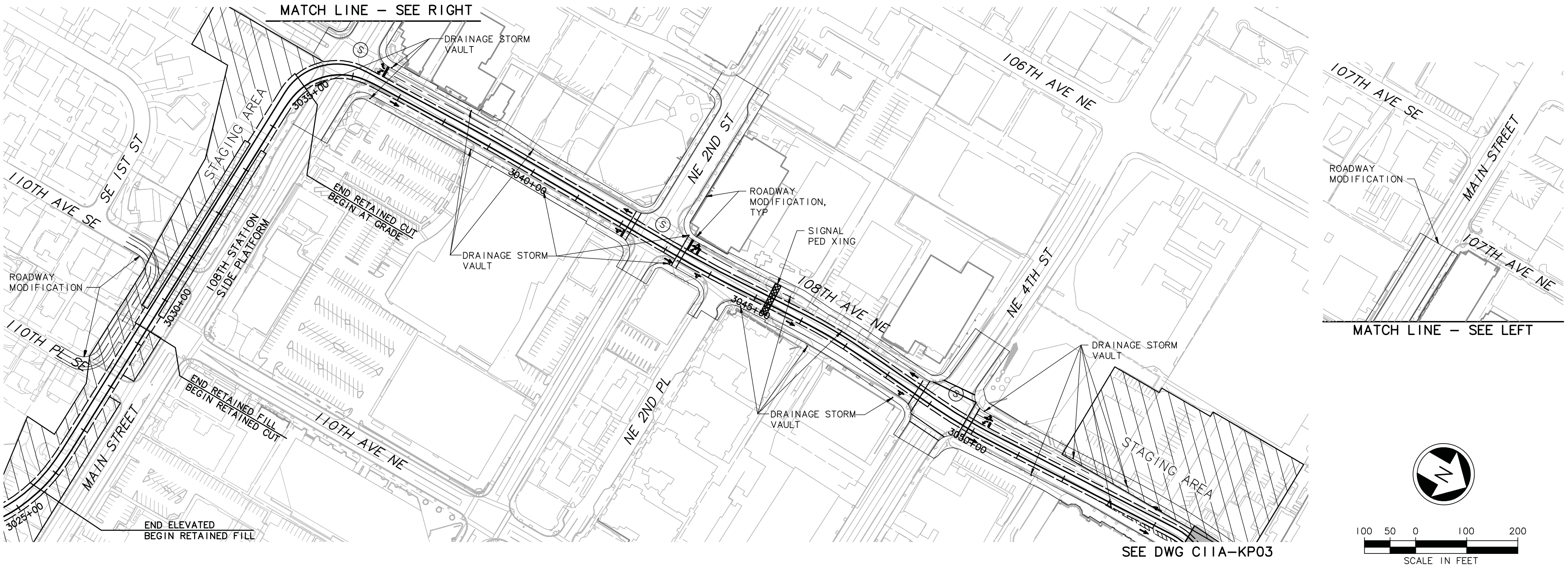
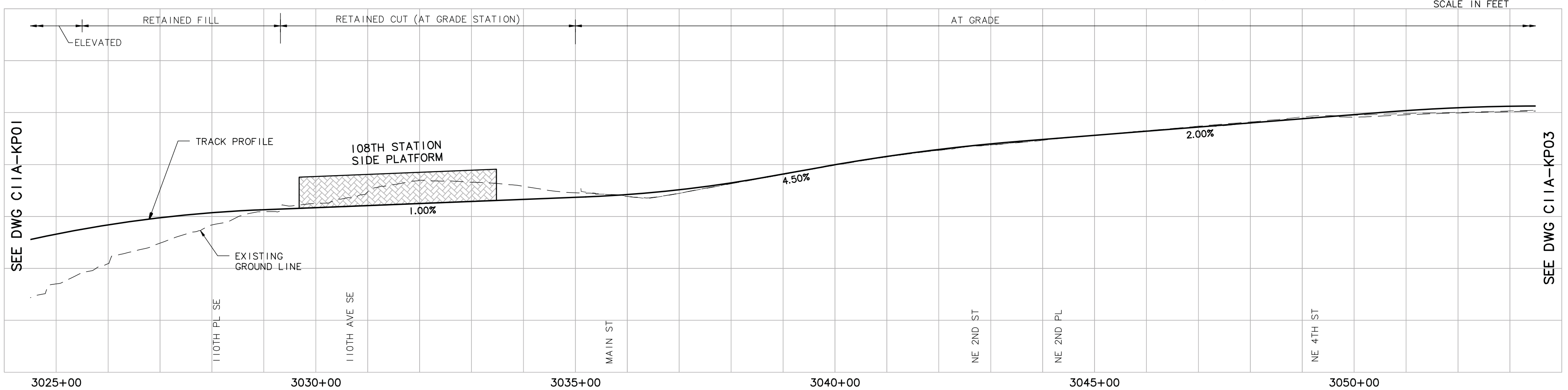
key_East
vp_100_c11a


MATCH LINE – SEE RIGHT
DRAINAGE STORM VAULT
106TH AVE NE
107TH AVE SE
MAIN STREET
ROADWAY MODIFICATION
107TH AVE NE
MATCH LINE – SEE LEFT
STAGING AREA
3035+00
SE 1ST ST
110TH AVE SE
NE 2ND ST
ROADWAY MODIFICATION, TYP
SIGNAL PED XING
3040+00
END RETAINED CUT BEGIN AT GRADE
DRAINAGE STORM VAULT
108TH STATION SIDE PLATFORM
3030+00
ROADWAY MODIFICATION
110TH PL SE
108TH AVE NE
3045+00
NE 4TH ST
DRAINAGE STORM VAULT
SEE DWG C11A-KP01
END RETAINED FILL BEGIN RETAINED CUT
110TH AVE NE
NE 2ND PL
DRAINAGE STORM VAULT
3050+00
STAGING AREA
MAIN STREET
3025+00
END ELEVATED BEGIN RETAINED FILL
SEE DWG C11A-KP03
N
100 50 0 100 200
SCALE IN FEET


RETAINED FILL
RETAINED CUT (AT GRADE STATION)
AT GRADE
ELEVATED
200
175
150
125
100
75
50
SEE DWG C11A-KP01
TRACK PROFILE
108TH STATION SIDE PLATFORM
1.00%
4.50%
2.00%
EXISTING GROUND LINE
110TH PL SE
110TH AVE SE
MAIN ST
NE 2ND ST
NE 2ND PL
NE 4TH ST
SEE DWG C11A-KP03
3025+00
3030+00
3035+00
3040+00
3045+00
3050+00

c:\work\feis\segment c\c11a\ELC_1C11AKP02.dwg
04/19/11 11:33 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

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Date:

Scale: H: 1"=100'; V: 1"=25'

Filename: ELC_1C11AKP02.dwg

Contract No.:

Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.: C11A-KP02

Sheet No.: C-3

Rev.:

DWG INFO:

LTSCALE:
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-Overlay:
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Future-NE6th
SUB-FEIS
ZG-2234H
ZG-G10010
key_Segment
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
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x0831sf
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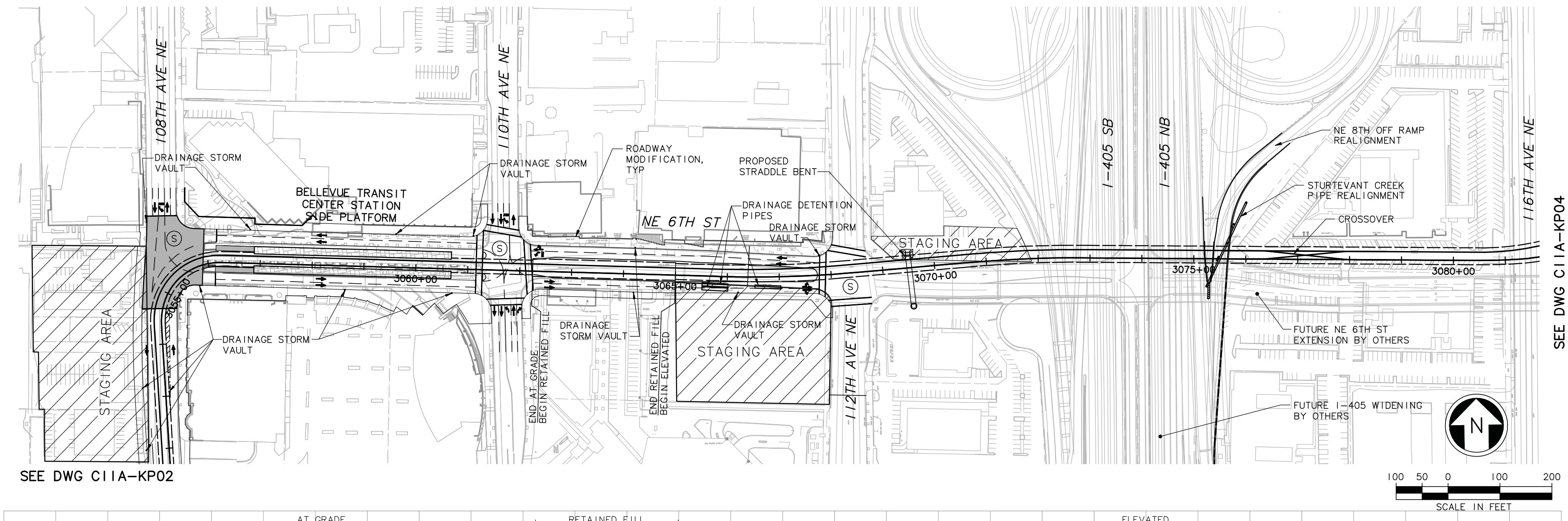
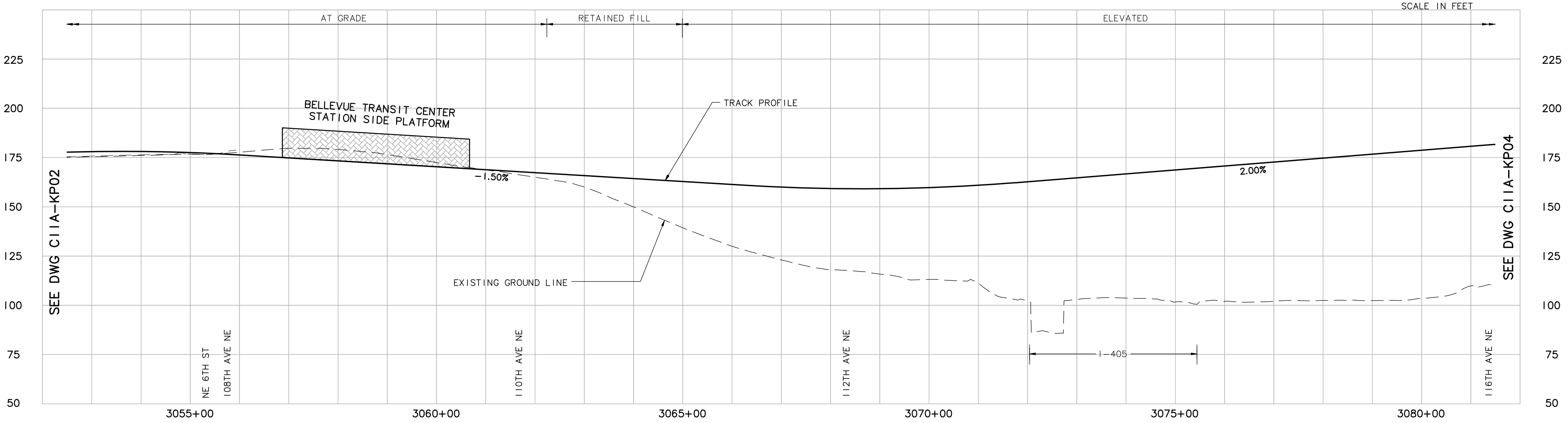
St_Names_E_40
vp_100_c11a


108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
NE 6TH ST
I-405 SB
I-405 NB
DRAINAGE STORM VAULT
BELLEVUE TRANSIT CENTER STATION SIDE PLATFORM
DRAINAGE STORM VAULT
ROADWAY MODIFICATION, TYP
PROPOSED STRADDLE BENT
DRAINAGE DETENTION PIPES
DRAINAGE STORM VAULT
STAGING AREA
NE 8TH OFF RAMP REALIGNMENT
STURTEVANT CREEK PIPE REALIGNMENT
CROSSOVER
FUTURE NE 6TH ST EXTENSION BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
DRAINAGE STORM VAULT
DRAINAGE STORM VAULT
DRAINAGE STORM VAULT
STAGING AREA
STAGING AREA
END AT GRADE BEGIN RETAINED FILL
END RETAINED FILL BEGIN ELEVATED
3055+00
3060+00
3065+00
3070+00
3075+00
3080+00
S
N
SEE DWG C11A-KP02
SEE DWG C11A-KP04
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment c\c11a\ELC_IC11AKP03.dwg
04/18/11 11:09 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

BOLIMA DRAFTING & DESIGN INC.

Submitted:

Date:

Approved:

Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELC_IC11AKP03.dwg

Contract No.:

Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C11A (PREFERRED)

TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C11A-KP03

Sheet No.: C-4
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
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x0831sf
x0831ut
x1405_chan
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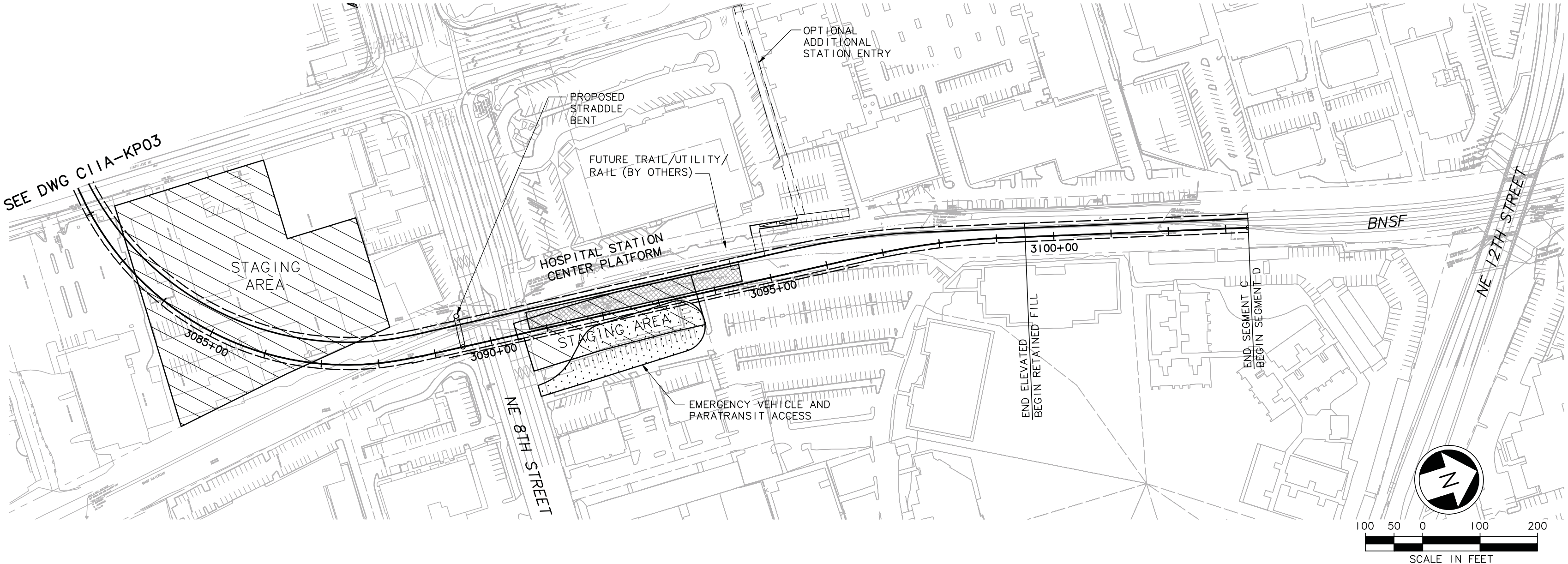
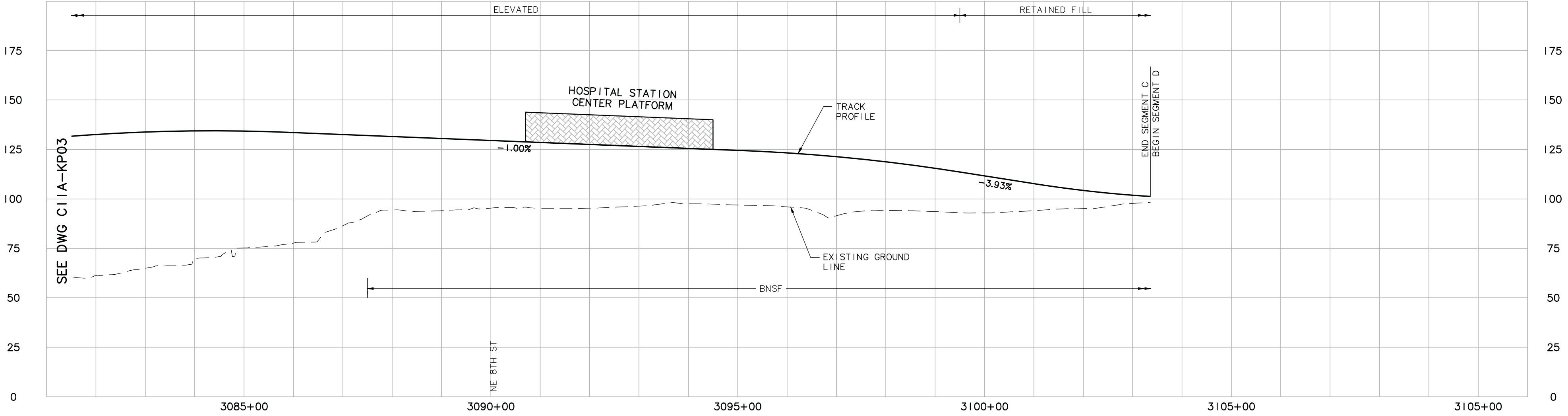
St_Names_E_40
key_East
key_Segment
vp_100_c11a


SEE DWG C11A-KP03
OPTIONAL ADDITIONAL STATION ENTRY
PROPOSED STRADDLE BENT
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
STAGING AREA
HOSPITAL STATION CENTER PLATFORM
STAGING AREA
3085+00
3090+00
3095+00
3100+00
EMERGENCY VEHICLE AND PARATRANSIT ACCESS
NE 8TH STREET
END ELEVATED BEGIN RETAINED FILL
END SEGMENT C BEGIN SEGMENT D
BNSF
NE 12TH STREET
N
100 50 0 100 200
SCALE IN FEET


ELEVATED
RETAINED FILL
175
150
125
100
75
50
25
0
HOSPITAL STATION CENTER PLATFORM
TRACK PROFILE
-1.00%
-3.93%
END SEGMENT C BEGIN SEGMENT D
SEE DWG C11A-KP03
EXISTING GROUND LINE
BNSF
NE 8TH ST
3085+00
3090+00
3095+00
3100+00
3105+00
3105+00

c:\work\feis\segment c\c11a\ELC_1C11AKP04.dwg
06/20/11 13:44 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

BOLIMA DRAFTING & DESIGN INC.

Submitted:
Date:
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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC_1C11AKP04.dwg
Contract No.:
Date:
07/30/10

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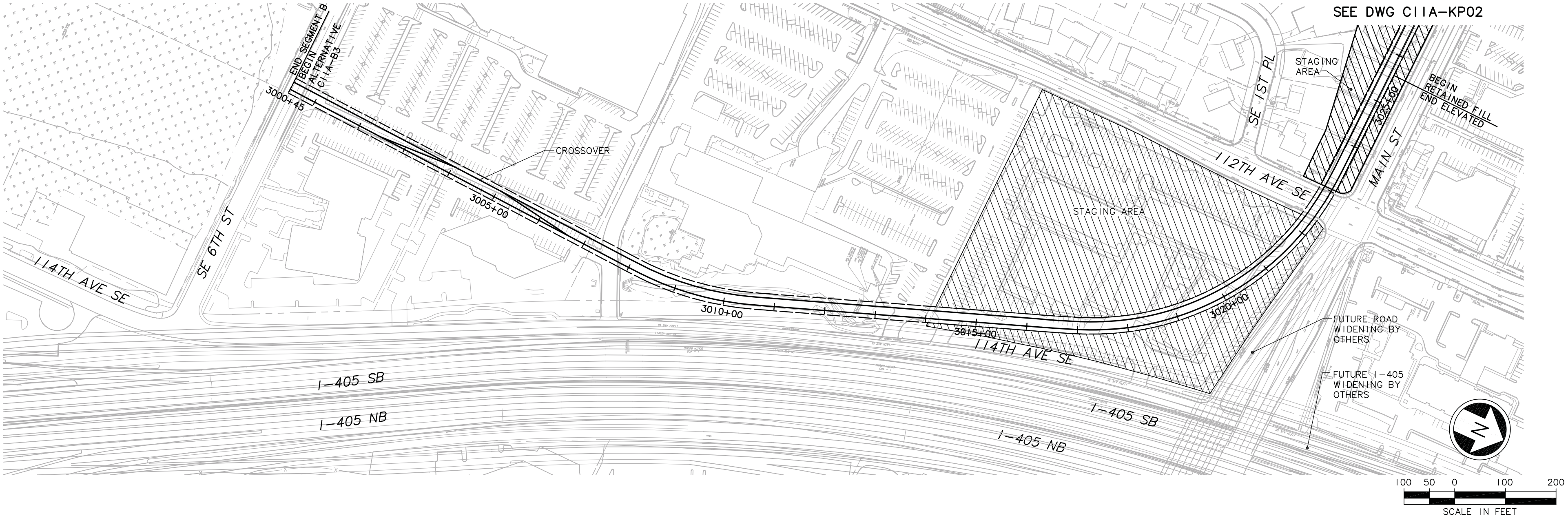
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C11A (PREFERRED)
TRACK PLAN & PROFILE

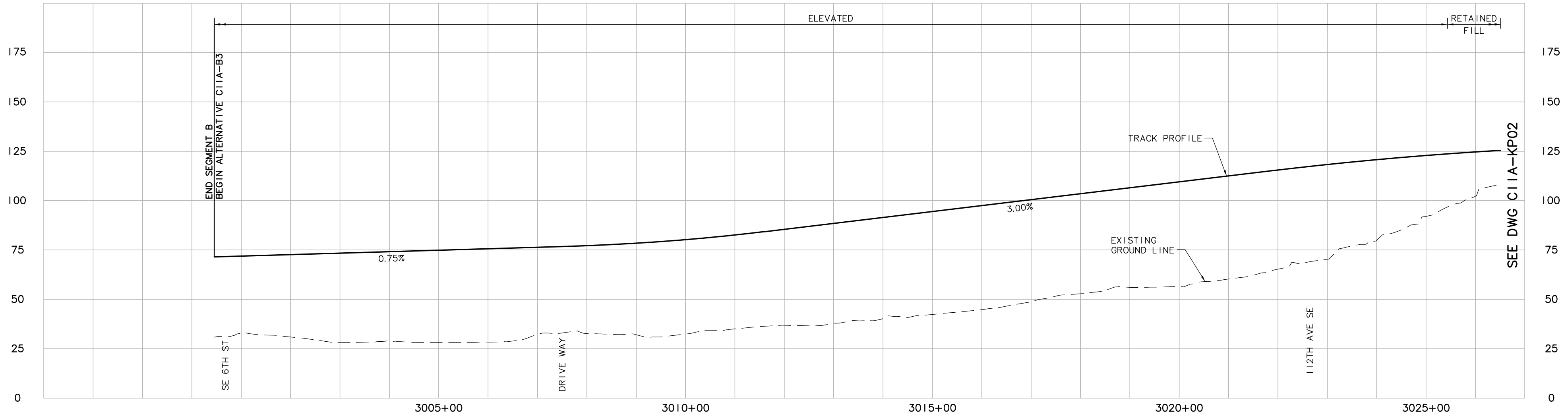
Drawing No.:
C11A-KP04
Sheet No.:
C-5
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C11A_B3_KA-100
SUB-SDEIS
XA_ELC_3Add_SF
XA_L72_SF
XF_ELC_SF
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf
x1405_chan
-Unresolved:
ELC_L71_CM
St_Names_E_40
key_East
key_Segment
vp_100_c11a


SEE DWG C11A-KP02
END SEGMENT B
BEGIN ALTERNATIVE C11A-B3
3000+45
CROSSOVER
3005+00
3010+00
3015+00
3020+00
3025+00
STAGING AREA
STAGING AREA
BEGIN RETAINED FILL
END ELEVATED
SE 1ST PL
112TH AVE SE
MAIN ST
SE 6TH ST
114TH AVE SE
114TH AVE SE
I-405 SB
I-405 NB
I-405 SB
I-405 NB
FUTURE ROAD WIDENING BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELC_C11A3KP01.dwg
10/13/10 13:40 : balimat OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC_C11A3KP01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A FROM B3
TRACK PLAN & PROFILE

Drawing No.: 11A3-KP01
Sheet No.: C-6
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C11A_B7_KA-100
SUB-SDEIS
XA_ELC_3Add_SF
XA_L72_SF
XF_ELC_SF
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
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x0531sf
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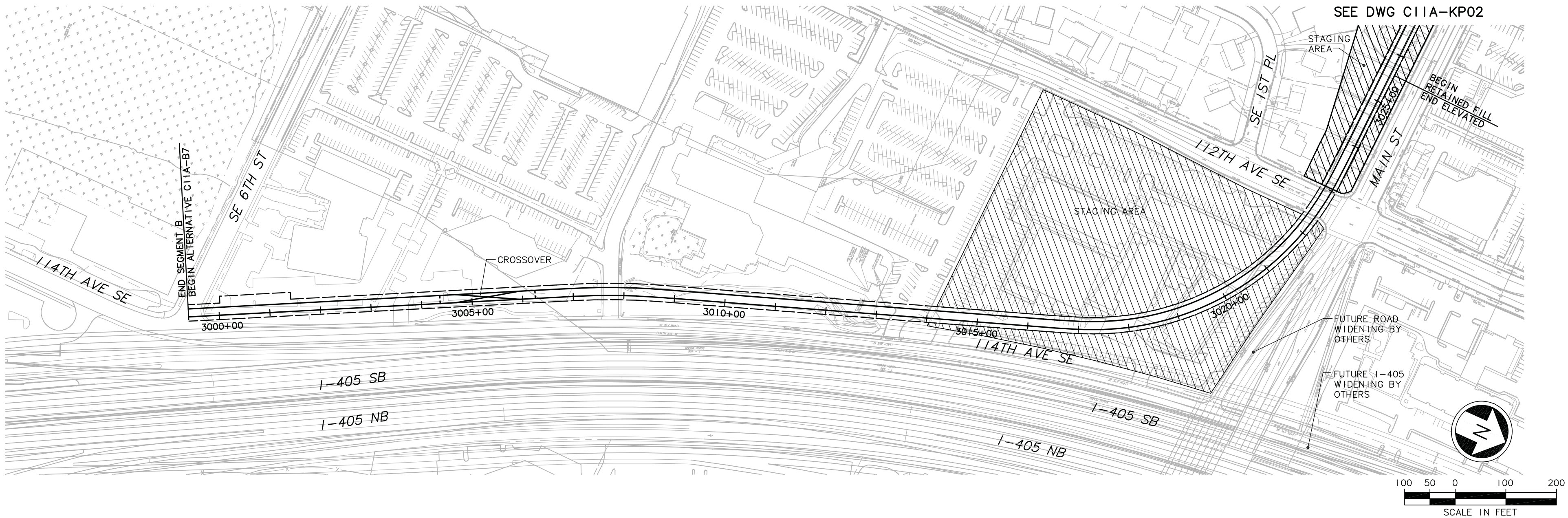
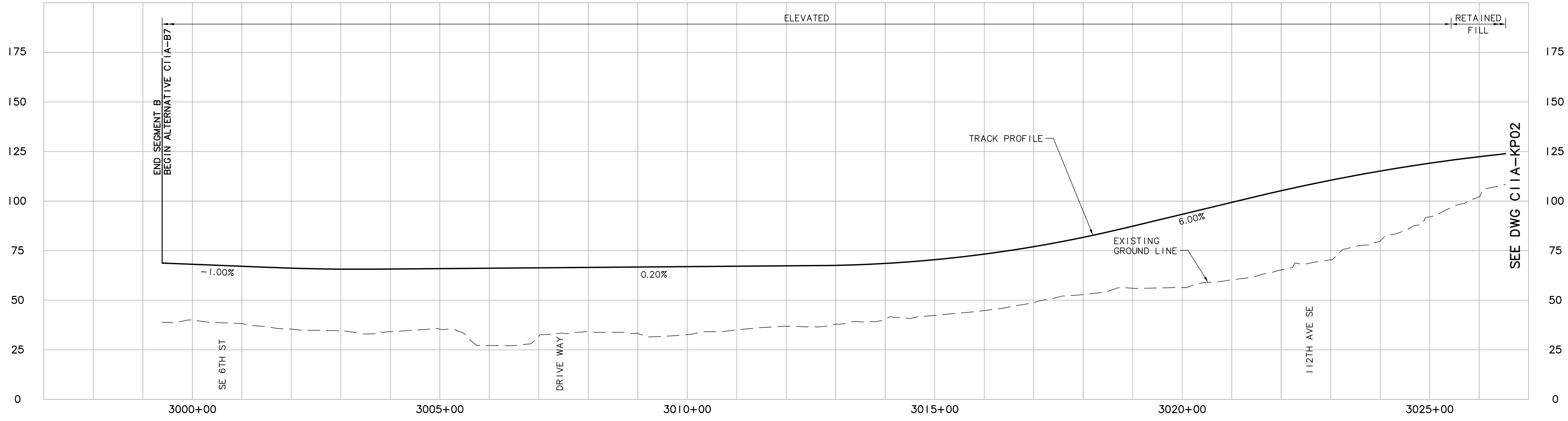
key_East
key_Segment
vp_100_c11a


SEE DWG C11A-KP02
STAGING AREA
BEGIN RETAINED FILL
END ELEVATED
SE 1ST PL
112TH AVE SE
MAIN ST
3025+00
STAGING AREA
SE 6TH ST
END SEGMENT B
BEGIN ALTERNATIVE C11A-B7
114TH AVE SE
CROSSOVER
3000+00
3005+00
3010+00
3015+00
3020+00
114TH AVE SE
FUTURE ROAD WIDENING BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
I-405 SB
I-405 NB
I-405 SB
I-405 NB
N
100 50 0 100 200
SCALE IN FEET


ELEVATED
RETAINED FILL
END SEGMENT B
BEGIN ALTERNATIVE C11A-B7
SEE DWG C11A-KP02
175
150
125
100
75
50
25
0
TRACK PROFILE
6.00%
EXISTING GROUND LINE
-1.00%
0.20%
SE 6TH ST
DRIVE WAY
112TH AVE SE
3000+00
3005+00
3010+00
3015+00
3020+00
3025+00

c:\work\sdeis\ELC_C11A7KP01.dwg
10/13/10 13:41 : bolimaf 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

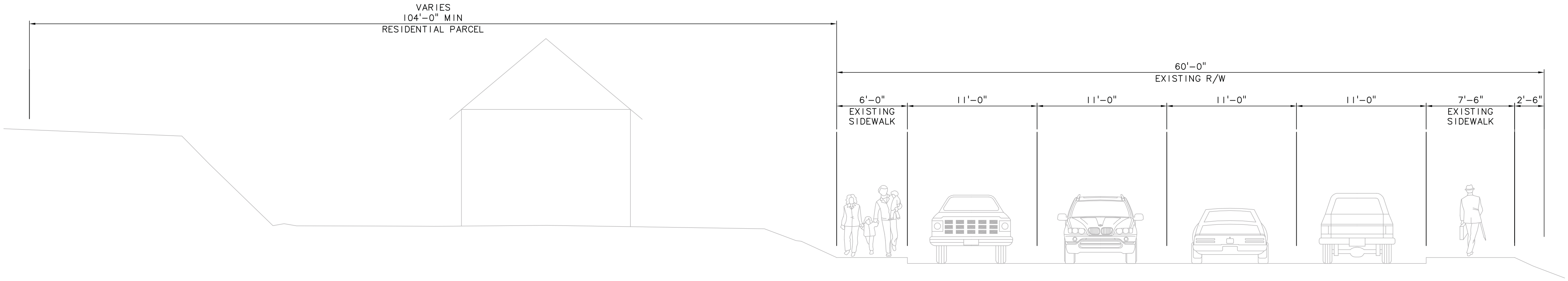
Scale: H: 1"=100'; V: 1"=25'
Filename: ELC_C11A7KP01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

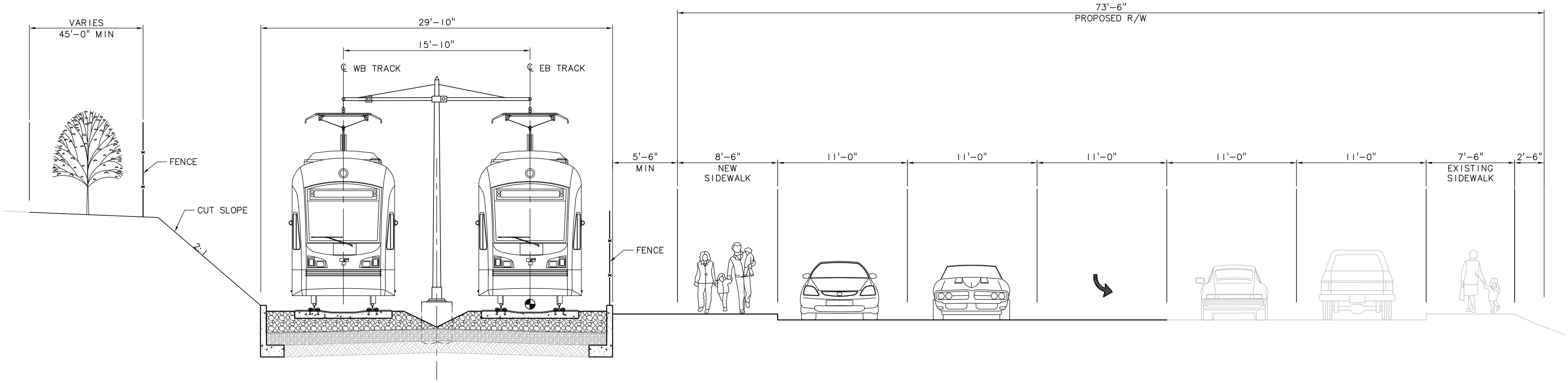
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C11A FROM B7
TRACK PLAN & PROFILE

Drawing No.: 11A7-KP01
Sheet No.: C-7
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:


VARIES
104'-0" MIN
RESIDENTIAL PARCEL
60'-0"
EXISTING R/W
6'-0"
EXISTING SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
7'-6"
EXISTING SIDEWALK
2'-6"

EXISTING ROADWAY SECTION: 112TH AVE SE (SOUTH OF SE 4TH ST)
SCALE: NTS


VARIES
45'-0" MIN
FENCE
CUT SLOPE
2:1
29'-10"
15'-10"
℄ WB TRACK
℄ EB TRACK
FENCE
5'-6"
MIN
73'-6"
PROPOSED R/W
8'-6"
NEW SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
11'-0"
7'-6"
EXISTING SIDEWALK
2'-6"

PROPOSED ROADWAY & LRT SECTION: 112TH AVE SE (WIDENING TO WEST)
ALIGNMENT: C11A
TRACK TYPE: AT-GRADE BALLASTED DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\sdeis\ELC_IC11AKX01.dwg
10/04/10 13:58 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELC_IC11AKX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)
TYPICAL SECTION
112TH AVE SE
SOUTH OF SE 4TH ST

Drawing No.: C11A-KX01
Sheet No.: C-8
Rev.:

DWG INFO:
LTSCALE: 1=1
XREFs:
-Attach:
-Overlay: ZG-2234H
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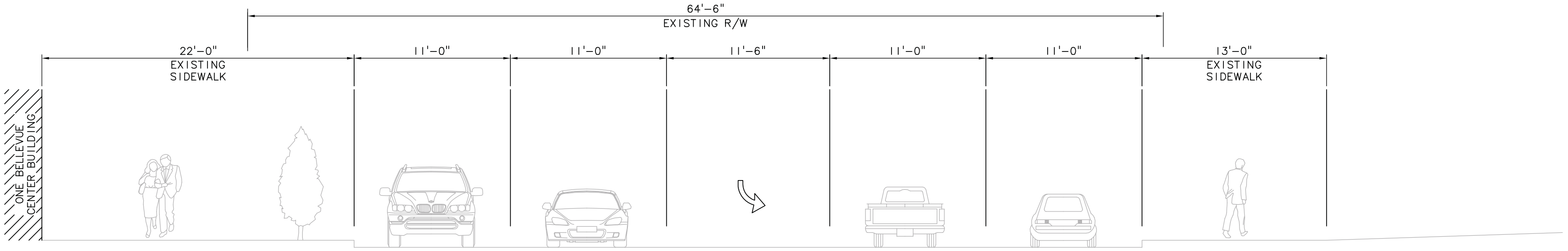
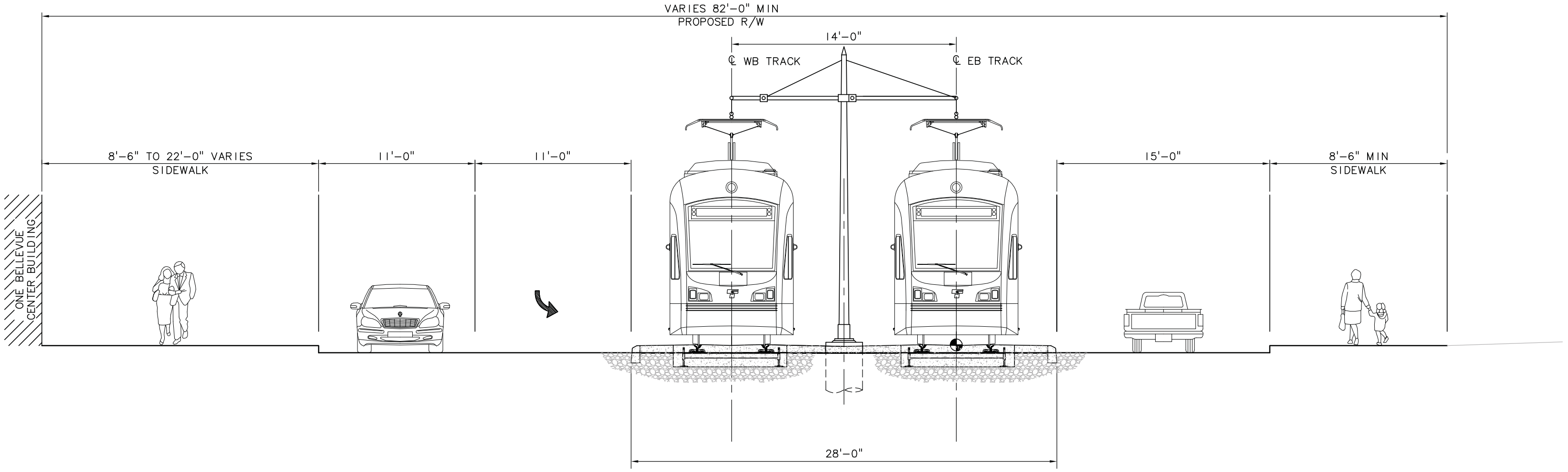


64'-6"
EXISTING R/W
22'-0"
EXISTING SIDEWALK
11'-0"
11'-0"
11'-6"
11'-0"
11'-0"
13'-0"
EXISTING SIDEWALK
ONE BELLEVUE CENTER BUILDING

EXISTING ROADWAY SECTION – 108TH AVE NE (NE 4TH ST TO NE 6TH ST)

SCALE: NTS



VARIES 82'-0" MIN
PROPOSED R/W
14'-0"
℄ WB TRACK
℄ EB TRACK
8'-6" TO 22'-0" VARIES
SIDEWALK
11'-0"
11'-0"
15'-0"
8'-6" MIN
SIDEWALK
ONE BELLEVUE CENTER BUILDING
28'-0"

PROPOSED ROADWAY & LRT SECTION – 108TH AVE NE
ALIGNMENT: C11A
AT GRADE EMBEDDED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\feis\ELC_C11AKX02.dwg
02/22/11 16:07 : balmat OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:

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Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELC_C11AKX02.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)

THIS PRINT REDUCED HALF SCALE

TYPICAL SECTION
108TH AVE NE
NE 4TH ST TO NE 6TH ST

Drawing No.: C11A-KX02
Sheet No.: C-9
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
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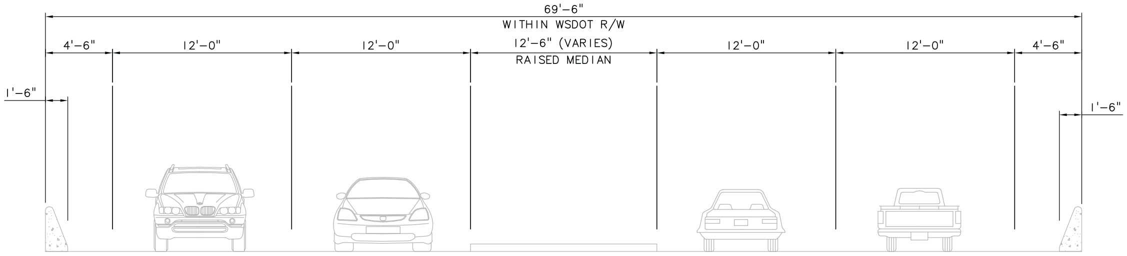
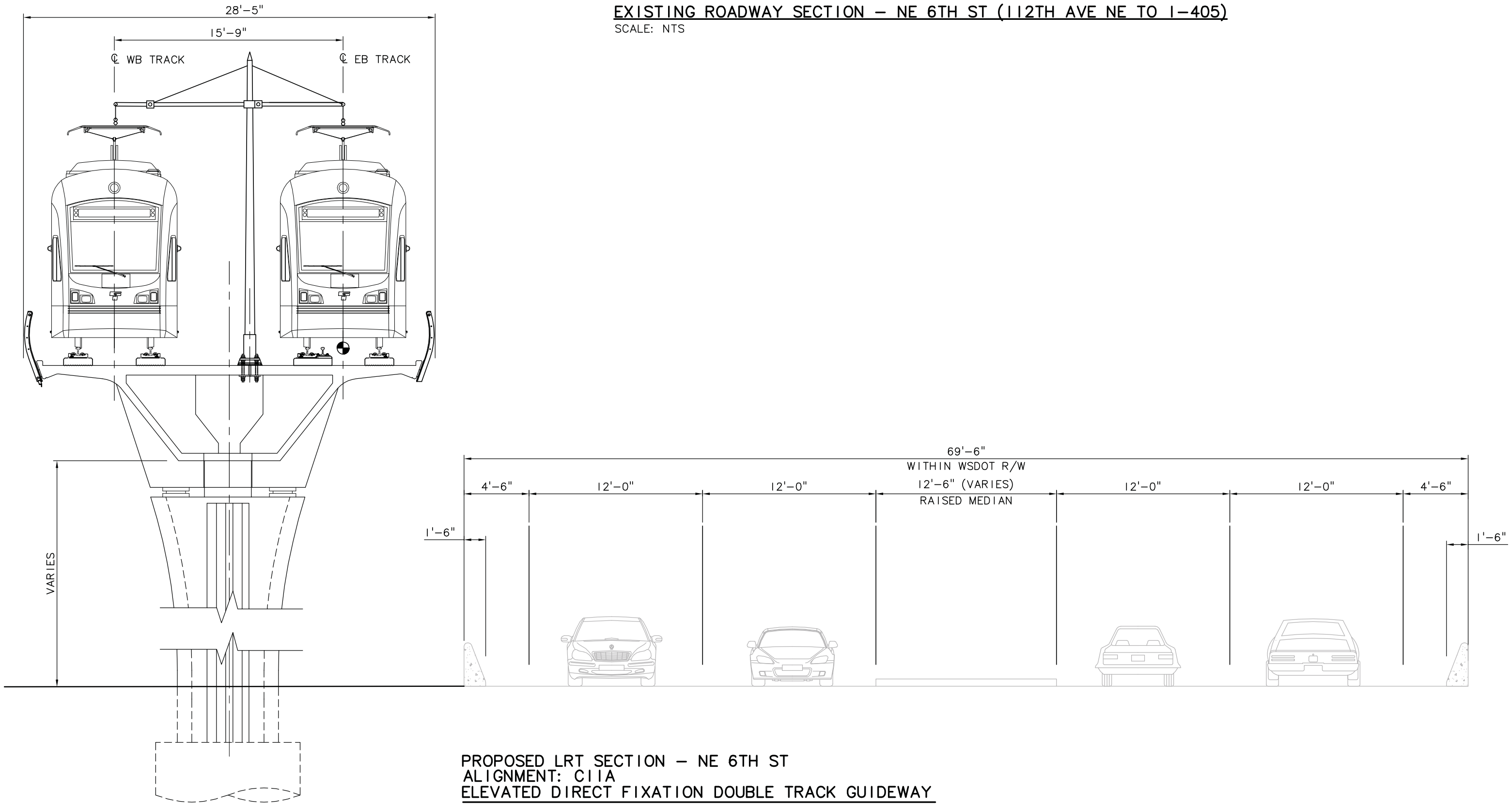


69'-6"
WITHIN WSDOT R/W
4'-6"
12'-0"
12'-0"
12'-6" (VARIES)
RAISED MEDIAN
12'-0"
12'-0"
4'-6"
1'-6"
1'-6"

EXISTING ROADWAY SECTION – NE 6TH ST (112TH AVE NE TO I-405)

SCALE: NTS



28'-5"
15'-9"
℄ WB TRACK
℄ EB TRACK
VARIES
69'-6"
WITHIN WSDOT R/W
4'-6"
12'-0"
12'-0"
12'-6" (VARIES)
RAISED MEDIAN
12'-0"
12'-0"
4'-6"
1'-6"
1'-6"

PROPOSED LRT SECTION – NE 6TH ST
ALIGNMENT: C11A
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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10/04/10 13:39 : bolimaf OE6579

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Date:
Approved:
Date:

Scale: NTS
Filename: ELC_IC11AKX03.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)
TYPICAL SECTION
NE 6TH ST
112TH AVE NE TO I-405

Drawing No.: C11A-KX03
Sheet No.: C-10
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
ZG-2234H
-Overlay:
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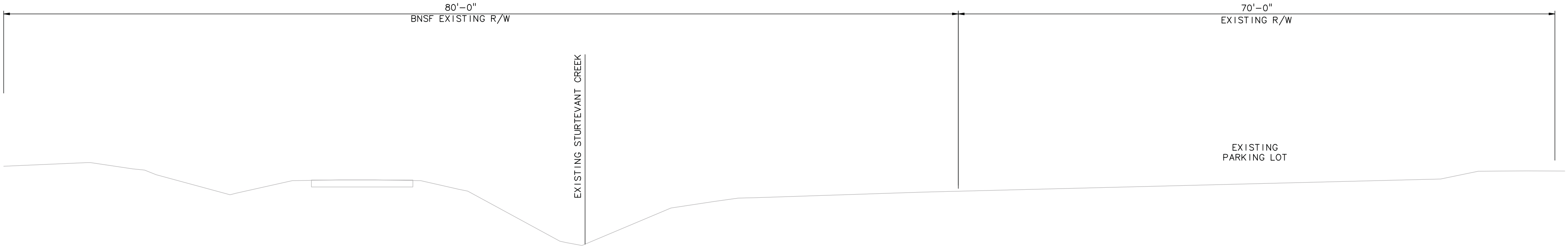
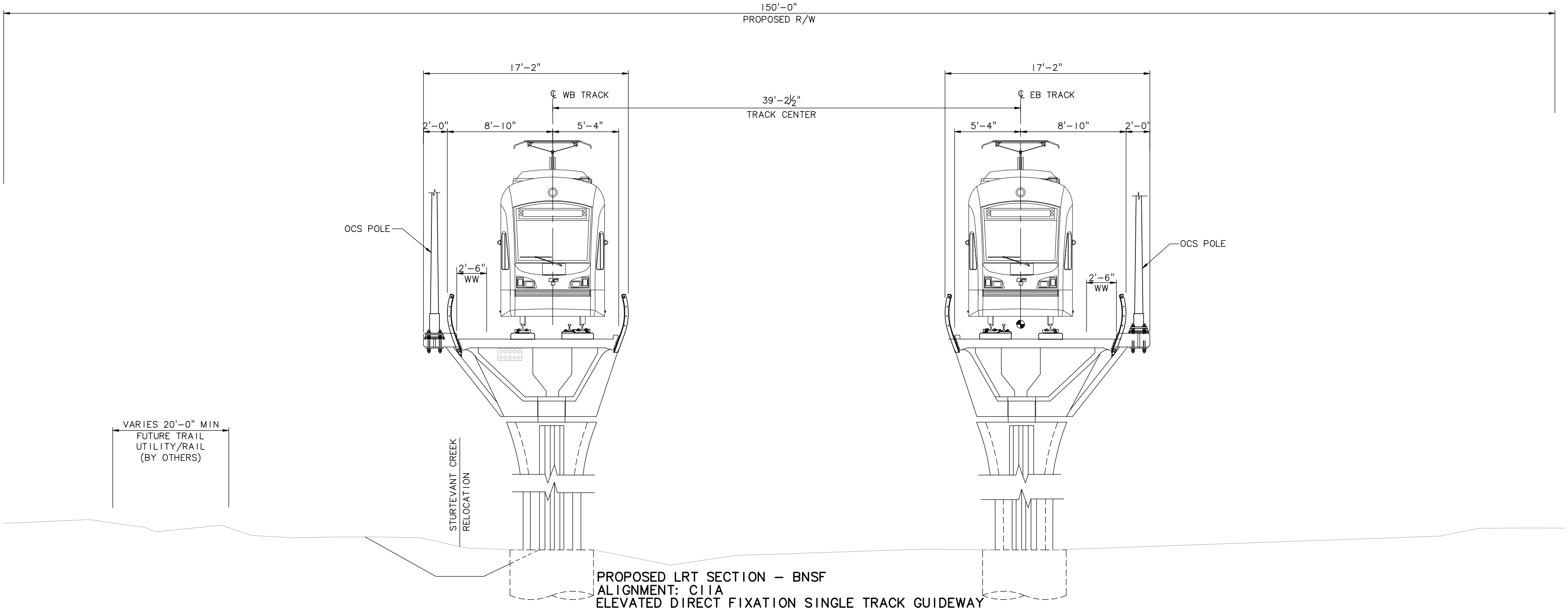

80'-0"
BNSF EXISTING R/W
70'-0"
EXISTING R/W
EXISTING STURTEVANT CREEK
EXISTING
PARKING LOT

EXISTING TYPICAL SECTION – BNSF CORRIDOR (JUST NORTH OF HOSPITAL STATION)

SCALE: NTS


150'-0"
PROPOSED R/W
17'-2"
℄ WB TRACK
39'-2½"
TRACK CENTER
17'-2"
℄ EB TRACK
2'-0"
8'-10"
5'-4"
5'-4"
8'-10"
2'-0"
OCS POLE
2'-6"
WW
2'-6"
WW
OCS POLE
VARIES 20'-0" MIN
FUTURE TRAIL
UTILITY/RAIL
(BY OTHERS)
STURTEVANT CREEK
RELOCATION

PROPOSED LRT SECTION – BNSF
ALIGNMENT: C11A
ELEVATED DIRECT FIXATION SINGLE TRACK GUIDEWAY

SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
Approved By:

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BOLIMA DRAFTING & DESIGN INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC_1C11AKX04.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)

THIS PRINT REDUCED
HALF SCALE

TYPICAL SECTION
BNSF CORRIDOR

Drawing No.: C11A–KX04
Sheet No.: C-11
Rev.:

c:\work\feis\segment c\c11a\ELC_1C11AKX04.dwg
05/09/11 15:13 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

XREFs:
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-Overlay:
City_Center_Plaza
ELC_BUSRTS-100
ELC_C11A_B2C_KA-100
ELC_N10_AP
ELC_N10_AS
ZG-2234H
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x0528cn
x0528rx
x0528sf
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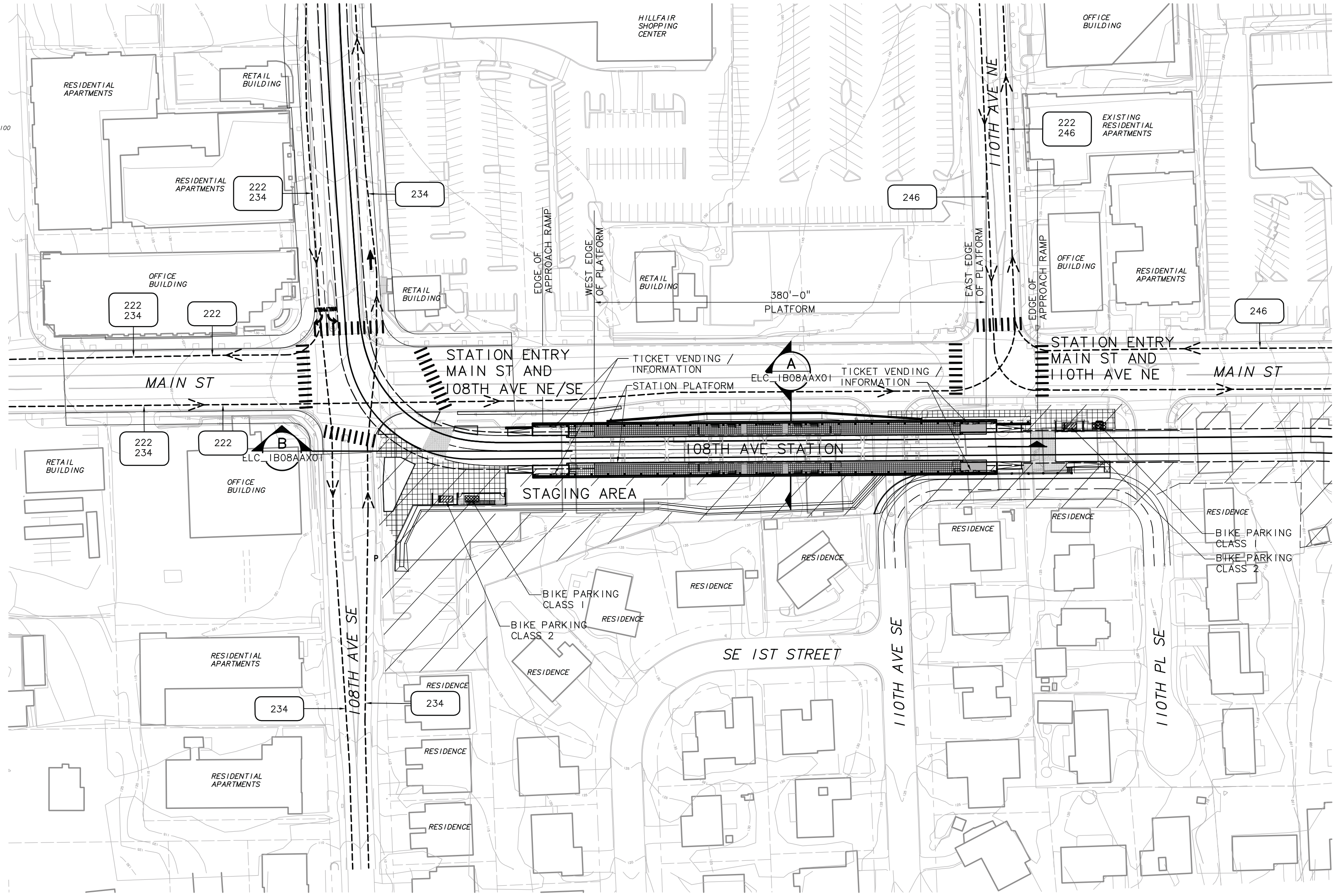
HILLFAIR SHOPPING CENTER
OFFICE BUILDING
RESIDENTIAL APARTMENTS
RETAIL BUILDING
RESIDENTIAL APARTMENTS
222 234
234
246
222 246
EXISTING RESIDENTIAL APARTMENTS
110TH AVE NE
OFFICE BUILDING
222 234
222
RETAIL BUILDING
EDGE OF APPROACH RAMP
WEST EDGE OF PLATFORM
RETAIL BUILDING
380'-0" PLATFORM
EAST EDGE OF PLATFORM
EDGE OF APPROACH RAMP
OFFICE BUILDING
RESIDENTIAL APARTMENTS
246
STATION ENTRY MAIN ST AND 108TH AVE NE/SE
TICKET VENDING / INFORMATION
STATION PLATFORM
A
ELC_IB08AAX01
TICKET VENDING / INFORMATION
STATION ENTRY MAIN ST AND 110TH AVE NE
MAIN ST
MAIN ST
222 234
222
B
ELC_IB08AAX01
RETAIL BUILDING
OFFICE BUILDING
108TH AVE STATION
STAGING AREA
RESIDENCE
RESIDENCE
RESIDENCE
BIKE PARKING CLASS 1
BIKE PARKING CLASS 2
RESIDENCE
BIKE PARKING CLASS 1
BIKE PARKING CLASS 2
RESIDENCE
RESIDENCE
SE 1ST STREET
110TH AVE SE
110TH PL SE
RESIDENTIAL APARTMENTS
234
108TH AVE SE
234
RESIDENCE
RESIDENCE
RESIDENTIAL APARTMENTS
RESIDENCE
RESIDENCE
P

STATION AREA PLAN

SCALE: 1" = 50'

NOTES

1. ALIGNMENT C11A

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
201 203	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
—	TRACK

N

50 25 0 50 100
SCALE IN FEET

c:\work\feis\ELC_IB08AAS01.dwg
02/22/11 15:59 : bolimaf 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:

HEWITT

Approved:
Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELC_IB08AAS01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)
108TH AVE NE
STATION AREA PLAN

Drawing No.: B08A-AS01
Sheet No.: C-12
Rev.:

DWG INFO:
LTSCALE:
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XREFs:
-Attach:
-Overlay:
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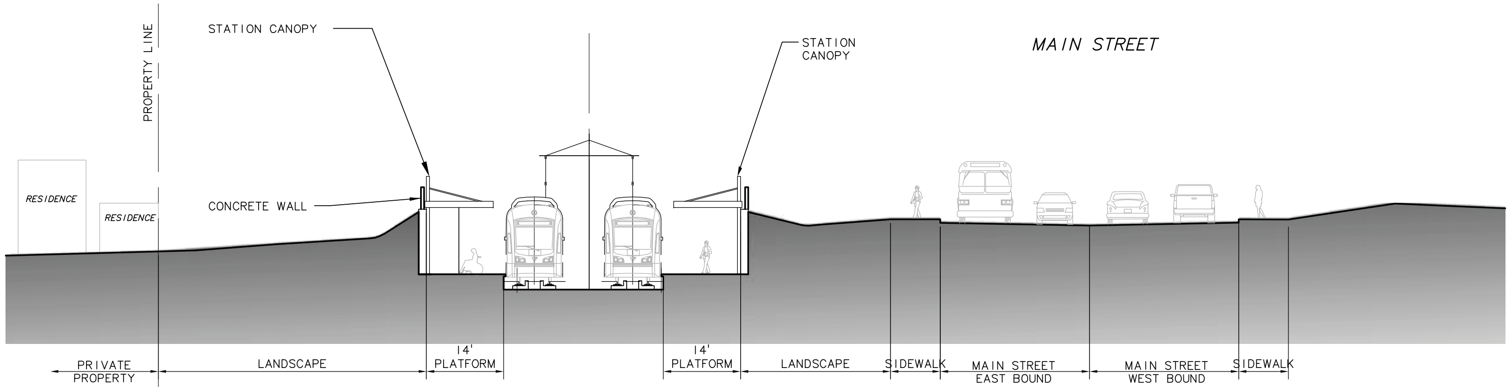
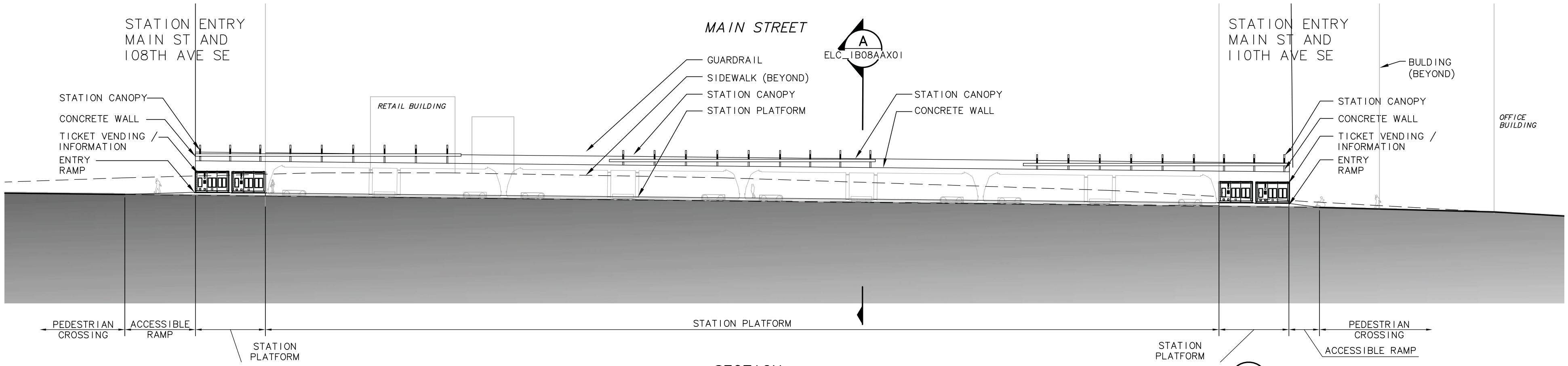
SUB-SDEIS
ZG-2234H
-Unresolved:



STATION CANOPY
PROPERTY LINE
STATION CANOPY
MAIN STREET
RESIDENCE
RESIDENCE
CONCRETE WALL
PRIVATE PROPERTY
LANDSCAPE
14' PLATFORM
14' PLATFORM
LANDSCAPE
SIDEWALK
MAIN STREET EAST BOUND
MAIN STREET WEST BOUND
SIDEWALK

SECTION A
SCALE: 1" = 10'
ELC_IB08AAS01



STATION ENTRY MAIN ST AND 108TH AVE SE
MAIN STREET
A
ELC_IB08AAX01
STATION ENTRY MAIN ST AND 110TH AVE SE
BULDING (BEYOND)
STATION CANOPY
CONCRETE WALL
TICKET VENDING / INFORMATION
ENTRY RAMP
RETAIL BUILDING
GUARDRAIL
SIDEWALK (BEYOND)
STATION CANOPY
STATION PLATFORM
STATION CANOPY
CONCRETE WALL
STATION CANOPY
CONCRETE WALL
TICKET VENDING / INFORMATION
ENTRY RAMP
OFFICE BUILDING
PEDESTRIAN CROSSING
ACCESSIBLE RAMP
STATION PLATFORM
STATION PLATFORM
STATION PLATFORM
PEDESTRIAN CROSSING
ACCESSIBLE RAMP

SECTION B
SCALE: 1" = 20'
ELC_IB08AAS01

20 10 0 20 40
SCALE IN FEET

c:\work\sdeis\ELC_IB08AAX01.dwg
10/08/10 09:40 : bdlmaf 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

Scale: AS NOTED
Filename: ELC_IB08AAX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A (PREFERRED)
108TH STATION
SITE SECTIONS

Drawing No.: B08A–AX01
Sheet No.: C-13
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
C11A_B2W
City Center Plaza
ELC_BUSRTS-100
ELC_C11A_B2C_KA-100
ELC_N11_AP_2
ELC_N11_AS_2
ZG-2234H
x0228cn
x0228rx
x0228sf
x0528cn
x0528rx
x0528sf
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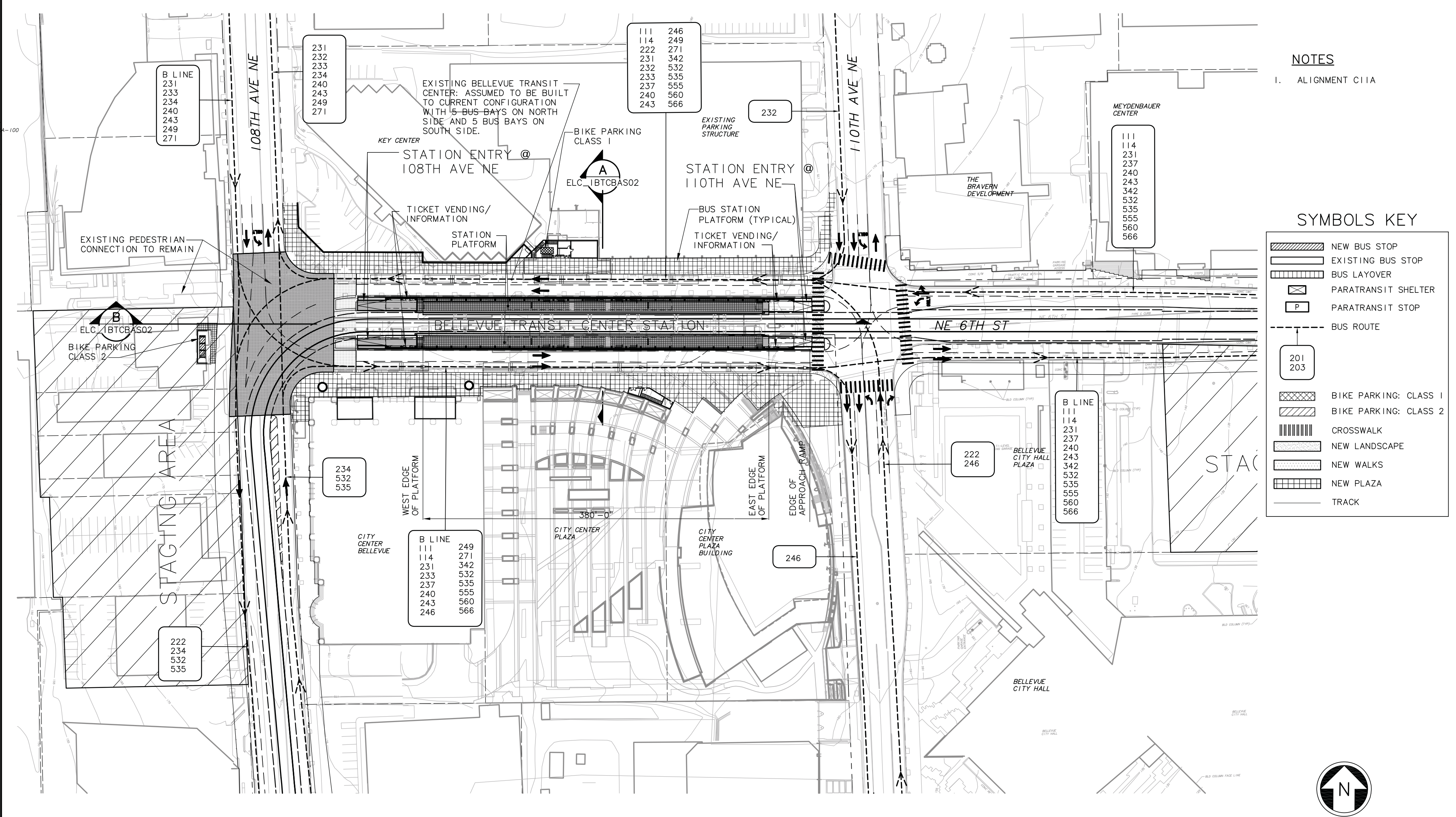
ELCIN11_AS_100

c:\work\feis\ELC_IBTCBAS01.dwg
02/22/11 16:05 : bolimaf OE6579



1
2
3
4
5
108TH AVE NE
110TH AVE NE
NE 6TH ST
B LINE 231 233 234 240 243 249 271
231 232 233 234 240 243 249 271
EXISTING BELLEVUE TRANSIT CENTER: ASSUMED TO BE BUILT TO CURRENT CONFIGURATION WITH 5 BUS BAYS ON NORTH SIDE AND 5 BUS BAYS ON SOUTH SIDE.
111 114 222 231 232 233 237 240 243 246 249 271 342 532 535 555 560 566
232
EXISTING PARKING STRUCTURE
KEY CENTER
STATION ENTRY @ 108TH AVE NE
BIKE PARKING CLASS 1
A
ELC_IBTCBAS02
STATION ENTRY @ 110TH AVE NE
TICKET VENDING/ INFORMATION
STATION PLATFORM
BUS STATION PLATFORM (TYPICAL)
TICKET VENDING/ INFORMATION
EXISTING PEDESTRIAN CONNECTION TO REMAIN
B
ELC_IBTCBAS02
BIKE PARKING CLASS 2
BELLEVUE TRANSIT CENTER STATION
STAGING AREA
THE BRAVERN DEVELOPMENT
MEYDENBAUER CENTER
111 114 231 237 240 243 342 532 535 555 560 566
234 532 535
WEST EDGE OF PLATFORM
380'-0"
EAST EDGE OF PLATFORM
EDGE OF APPROACH RAMP
CITY CENTER BELLEVUE
B LINE 111 114 231 233 237 240 243 246 249 271 342 532 535 555 560 566
CITY CENTER PLAZA
CITY CENTER PLAZA BUILDING
246
222 246
BELLEVUE CITY HALL PLAZA
B LINE 111 114 231 237 240 243 342 532 535 555 560 566
BELLEVUE CITY HALL
222 234 532 535
STAG
NOTES
1. ALIGNMENT C11A
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
PARATRANSIT SHELTER
P PARATRANSIT STOP
BUS ROUTE
201 203
BIKE PARKING: CLASS 1
BIKE PARKING: CLASS 2
CROSSWALK
NEW LANDSCAPE
NEW WALKS
NEW PLAZA
TRACK
N

STATION AREA PLAN

SCALE: 1" = 50'

50 25 0 50 100
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

HEWITT

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELC_IBTCBAS01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C11A
BTC STATION
STATION AREA PLAN

Drawing No.: BTCB-AS01
Sheet No.: C-14
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELCIN11_AX_100
SUB-SDEIS
ZG-2234H
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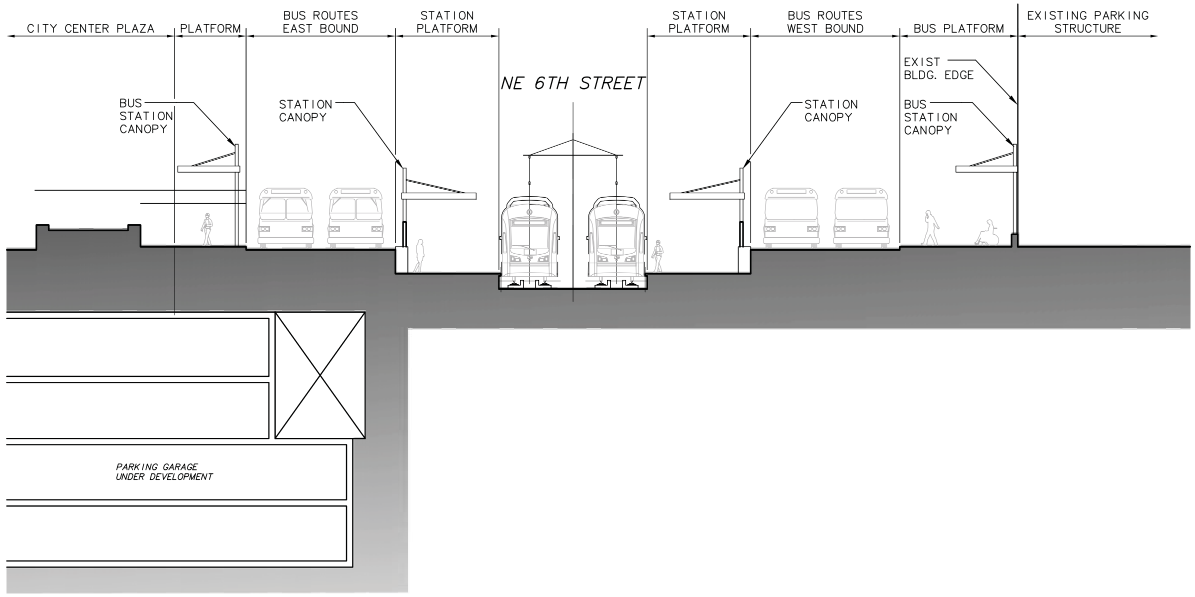
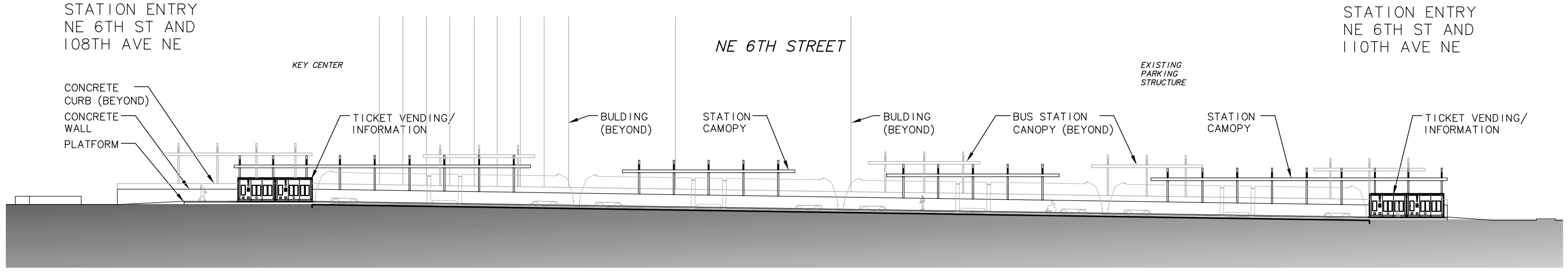

CITY CENTER PLAZA
PLATFORM
BUS ROUTES EAST BOUND
STATION PLATFORM
STATION PLATFORM
BUS ROUTES WEST BOUND
BUS PLATFORM
EXISTING PARKING STRUCTURE
NE 6TH STREET
BUS STATION CANOPY
STATION CANOPY
STATION CANOPY
EXIST BLDG. EDGE
BUS STATION CANOPY
PARKING GARAGE UNDER DEVELOPMENT

SECTION
SCALE: 1" = 10'
A
ELC_IBTCBAS01


STATION ENTRY NE 6TH ST AND 108TH AVE NE
KEY CENTER
NE 6TH STREET
STATION ENTRY NE 6TH ST AND 110TH AVE NE
EXISTING PARKING STRUCTURE
CONCRETE CURB (BEYOND)
CONCRETE WALL
PLATFORM
TICKET VENDING/ INFORMATION
BULDING (BEYOND)
STATION CAMOPY
BULDING (BEYOND)
BUS STATION CANOPY (BEYOND)
STATION CAMOPY
TICKET VENDING/ INFORMATION

SECTION
SCALE: 1" = 20'
B
ELC_IBTCBAS01

20 10 0 20 40
SCALE IN FEET

c:\work\sdeis\ELC_IBTCBAX01.dwg
10/14/10 10:47 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

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CH2MHILL

Submitted:
Date:

HEWITT

Approved:
Date:

SOUNDTRANSIT

Scale: AS NOTED
Filename: ELC_IBTCBAX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C11A
BTC STATION
SITE SECTIONS

Drawing No.: BTCB-AX01
Sheet No.: C-15
Rev.:

DWG INFO:

LTSCALE:
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ELC_L71_CM
ELC_L71_LP
ELC_L71_SP
ELC_N12_AG
ELC_N12_AS
SUB-FEIS
ZG-2234H
x0528cn
x0528rx
x0528sf
x0531cn
x0531rx
x0531sf
x1405_chan
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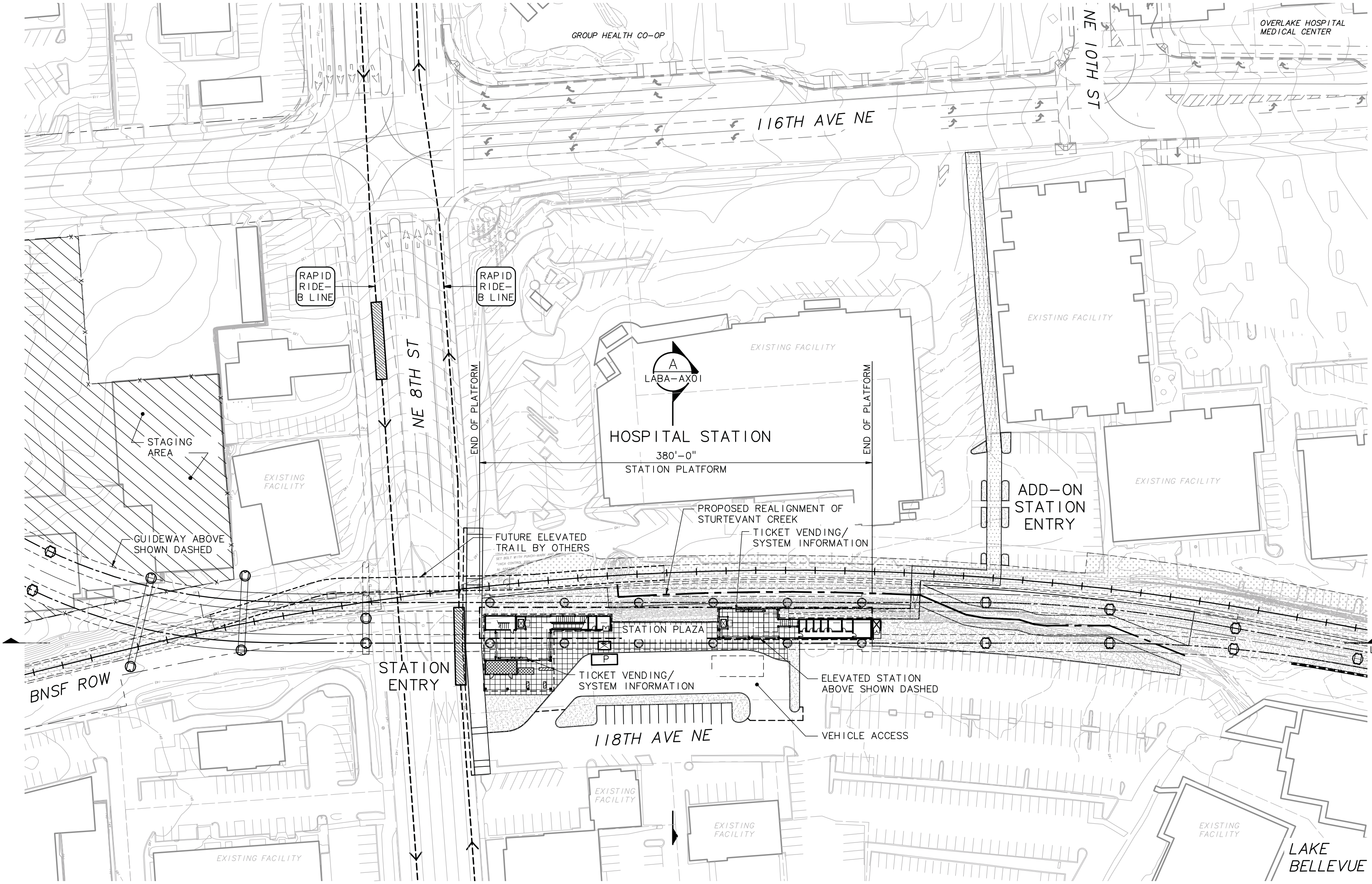
c:\work\feis\segment c\c9t-main\ELC_ILABAAS01.dwg
06/08/11 15:13 : khuum OE6585



GROUP HEALTH CO-OP
OVERLAKE HOSPITAL MEDICAL CENTER
NE 10TH ST
116TH AVE NE
RAPID RIDE-B LINE
RAPID RIDE-B LINE
NE 8TH ST
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
A
LABA-AX01
HOSPITAL STATION
380'-0"
STATION PLATFORM
END OF PLATFORM
END OF PLATFORM
STAGING AREA
ADD-ON STATION ENTRY
PROPOSED REALIGNMENT OF STURTEVANT CREEK
TICKET VENDING/ SYSTEM INFORMATION
GUIDEWAY ABOVE SHOWN DASHED
FUTURE ELEVATED TRAIL BY OTHERS
STATION PLAZA
P
STATION ENTRY
BNSF ROW
TICKET VENDING/ SYSTEM INFORMATION
ELEVATED STATION ABOVE SHOWN DASHED
VEHICLE ACCESS
118TH AVE NE
A
LABA-AX01
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
LAKE BELLEVUE

NOTES

1. ALIGNMENT C11A, C9T AND C11A

SYMBOLS KEY

▨	NEW BUS STOP
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -▶- - -	BUS ROUTE
RAPID BUS-B LINE	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
┼─┼	FUTURE TRAIL/UTILITY/ RAIL BY OTHERS
— — —	TRACK

Z

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

IBI GROUP
IBI Group
801 Second Avenue - Suite 1400
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Submitted:
Date:
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Date:

Scale: 1"=50'
Filename: ELC_ILABAAS01.dwg
Contract No.:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALTS C11A, C9T, C9A
HOSPITAL STATION
STATION AREA PLAN

Drawing No.: LABA-AS01
Sheet No.: C-16
Rev.:

A B C D E F G H

1 2 3 4

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ELC_N12_AX
SUB-FEIS
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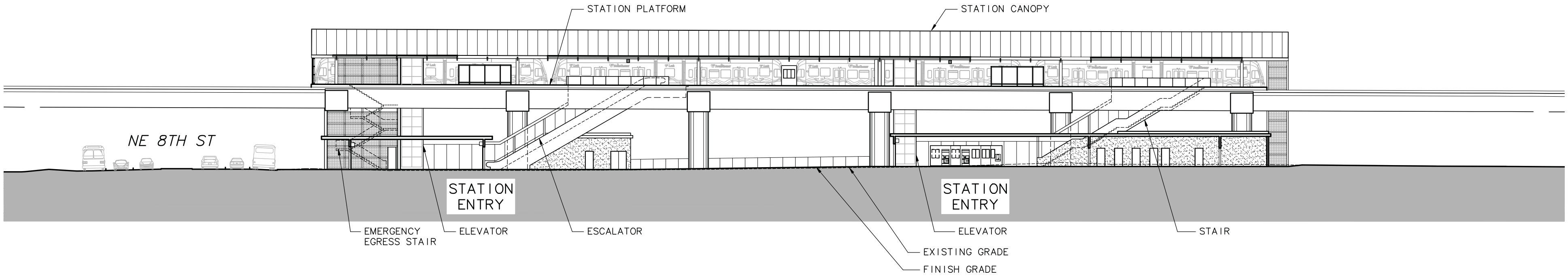
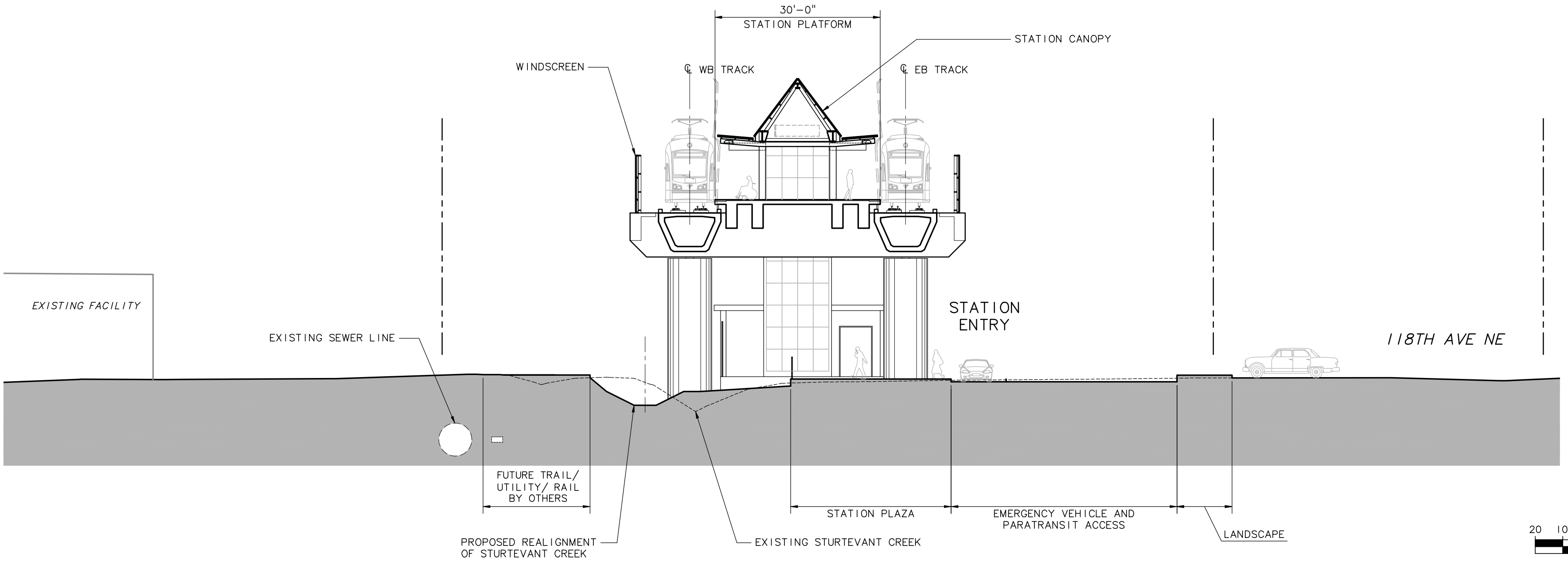
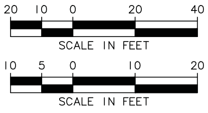

STATION PLATFORM
STATION CANOPY
NE 8TH ST
STATION ENTRY
STATION ENTRY
EMERGENCY EGRESS STAIR
ELEVATOR
ESCALATOR
ELEVATOR
STAIR
EXISTING GRADE
FINISH GRADE

SITE SECTION (A) LABA-AX01
SCALE: 1" = 20'


30'-0"
STATION PLATFORM
STATION CANOPY
WINDSCREEN
℄ WB TRACK
℄ EB TRACK
EXISTING FACILITY
EXISTING SEWER LINE
STATION ENTRY
118TH AVE NE
FUTURE TRAIL/ UTILITY/ RAIL BY OTHERS
STATION PLAZA
EMERGENCY VEHICLE AND PARATRANSIT ACCESS
LANDSCAPE
PROPOSED REALIGNMENT OF STURTEVANT CREEK
EXISTING STURTEVANT CREEK


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

SITE SECTION (B) LABA-AX01
SCALE: 1" = 10'

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

Submitted:

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801 Second Avenue - Suite 1400
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tel 206.521.9091
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Date:
Approved:

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Date:

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Filename: ELC_ILABAAX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALTS C11A, C9T, C9A
HOSPITAL STATION
SITE SECTIONS

Drawing No.: LABA-AX01
Sheet No.: C-17
Rev.:

c:\work\feis\segment c\c9t-main\ELC_ILABAAX01.dwg
06/08/11 14:57 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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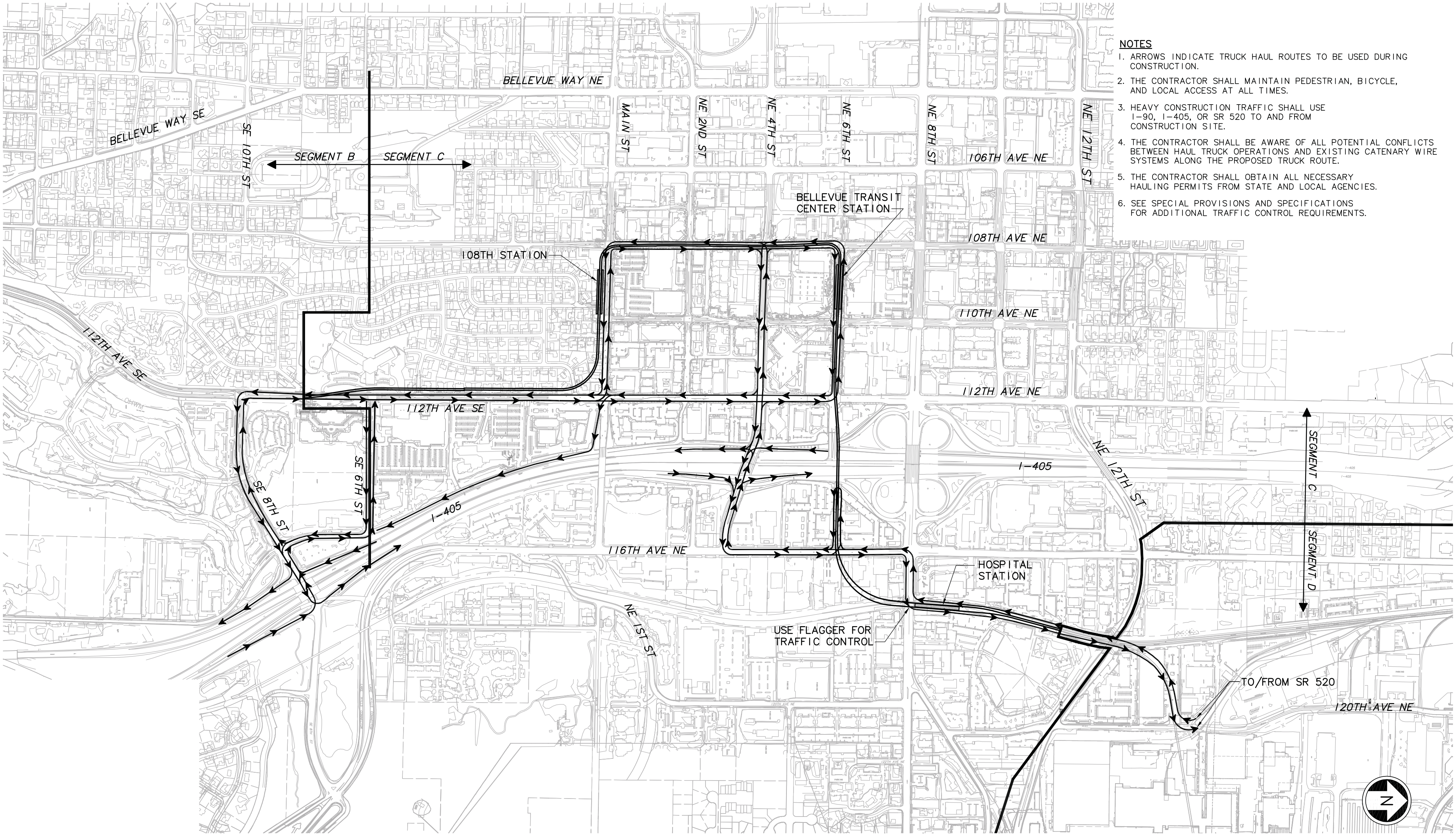
ELD_L75_KA
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0825rx
x0825sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf
-Unresolved:
XA_ELC_3Add_SF
XA_L72_SF
XF_ELC_SF


1
2
3
4
5
BELLEVUE WAY NE
BELLEVUE WAY SE
SE 10TH ST
SEGMENT B
SEGMENT C
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
NE 12TH ST
106TH AVE NE
BELLEVUE TRANSIT CENTER STATION
108TH AVE NE
108TH STATION
110TH AVE NE
112TH AVE SE
112TH AVE NE
112TH AVE SE
SE 6TH ST
SE 8TH ST
I-405
I-405
NE 12TH ST
SEGMENT C
SEGMENT D
116TH AVE NE
HOSPITAL STATION
NE 1ST ST
USE FLAGGER FOR TRAFFIC CONTROL
TO/FROM SR 520
120TH AVE NE
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN, BICYCLE, AND LOCAL ACCESS AT ALL TIMES.
3. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.
4. THE CONTRACTOR SHALL BE AWARE OF ALL POTENTIAL CONFLICTS BETWEEN HAUL TRUCK OPERATIONS AND EXISTING CATENARY WIRE SYSTEMS ALONG THE PROPOSED TRUCK ROUTE.
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY HAULING PERMITS FROM STATE AND LOCAL AGENCIES.
6. SEE SPECIAL PROVISIONS AND SPECIFICATIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.

c:\work\feis\ELC_C11A_CC01.dwg
02/22/11 16:17 : bolimaf OE6579

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Scale: NTS
Filename: ELC_C11A_CC01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C11A (PREFERRED)
CONSTRUCTION HAUL ROUTE PLAN

Drawing No.: C11A_-CC01
Sheet No.: C-18
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ELC_C9T_MAIN_KA-100
SUB-SDEIS
ZG-2234H
key_Segment
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x0225rx
x0228rx
x0231rx
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x0534rx
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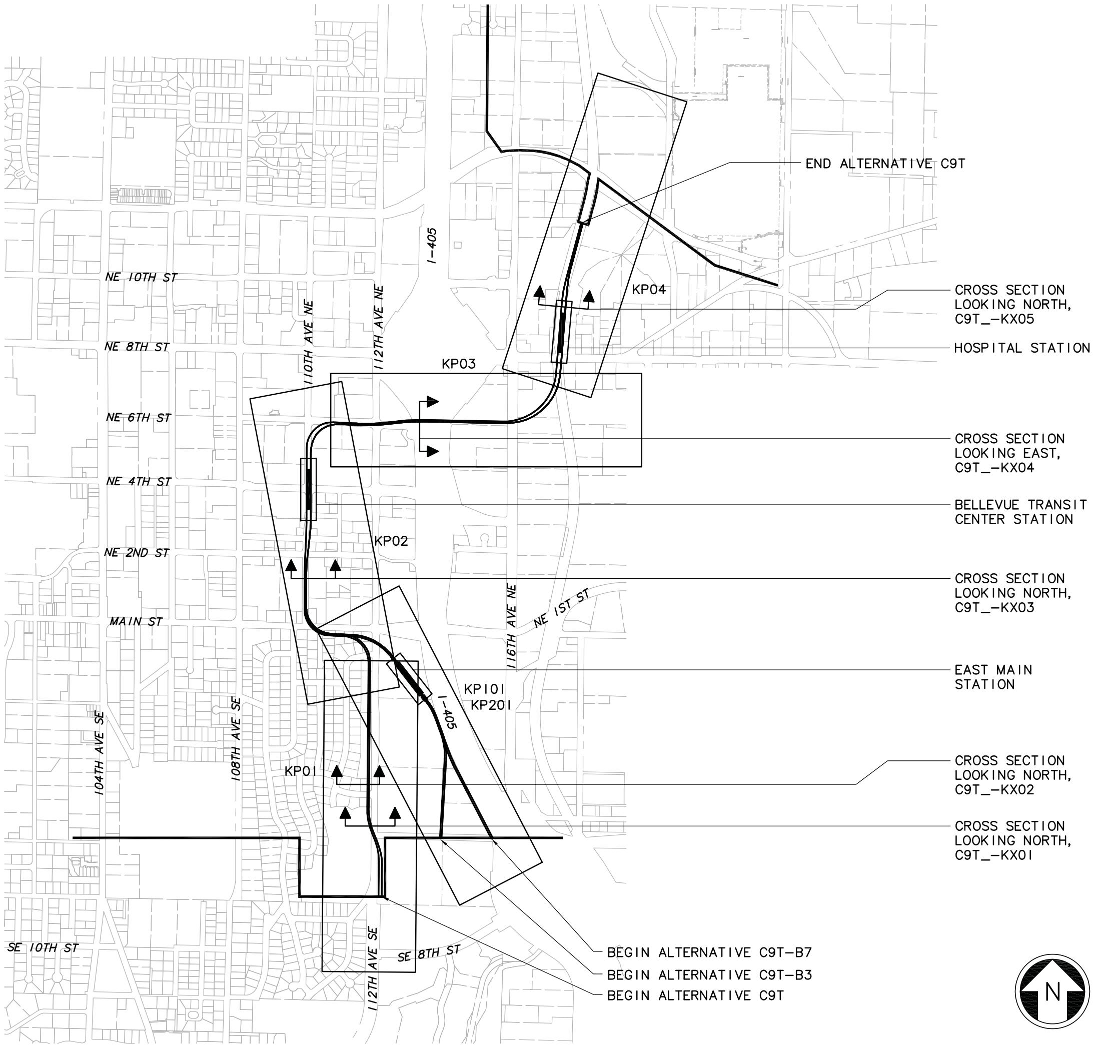
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
104TH AVE SE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
116TH AVE NE
NE 1ST ST
SE 10TH ST
SE 8TH ST
I-405
I-405
KP04
KP03
KP02
KP101
KP201
KP01
END ALTERNATIVE C9T
CROSS SECTION LOOKING NORTH, C9T_-KX05
HOSPITAL STATION
CROSS SECTION LOOKING EAST, C9T_-KX04
BELLEVUE TRANSIT CENTER STATION
CROSS SECTION LOOKING NORTH, C9T_-KX03
EAST MAIN STATION
CROSS SECTION LOOKING NORTH, C9T_-KX02
CROSS SECTION LOOKING NORTH, C9T_-KX01
BEGIN ALTERNATIVE C9T-B7
BEGIN ALTERNATIVE C9T-B3
BEGIN ALTERNATIVE C9T
N

c:\work\sdeis\ELC_IC9T_GZ05.dwg
10/08/10 11:49 : bolimaf OE6579

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Date:
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Date:

Scale: NTS
Filename: ELC_IC9T_GZ05.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)
KEY PLAN

Drawing No.: C9T_-GZ05
Sheet No.: C-19
Rev.:

DWG INFO:

LTSCALE:
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zg-g10010
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x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
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x0831sf
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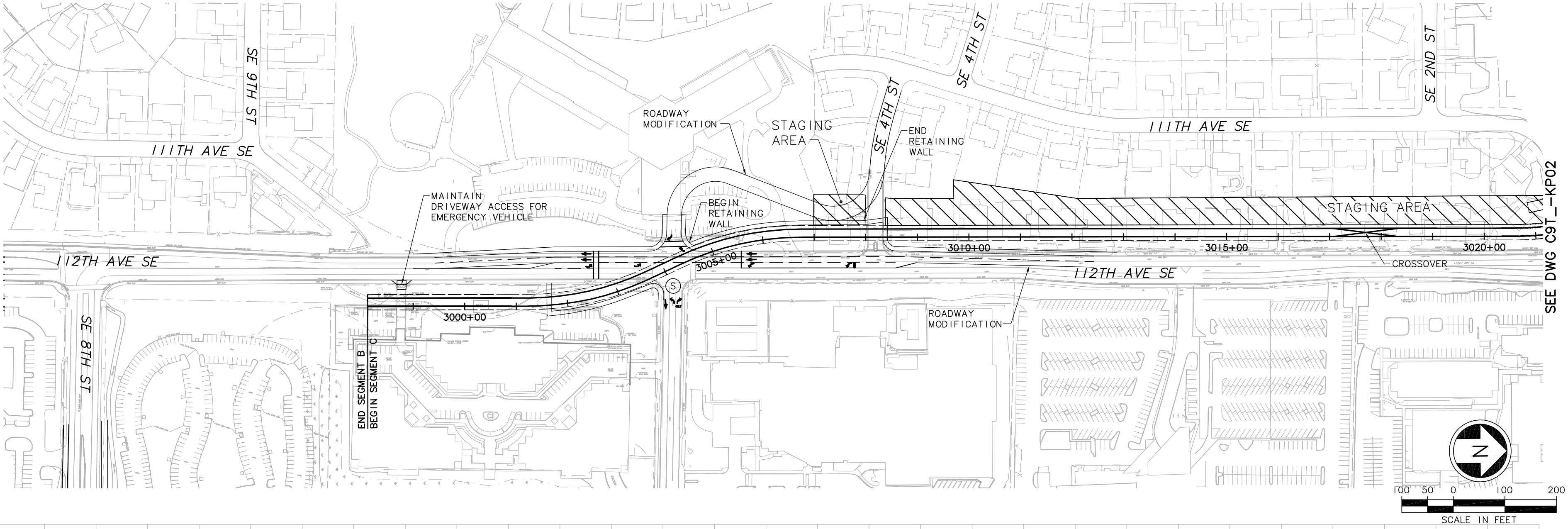
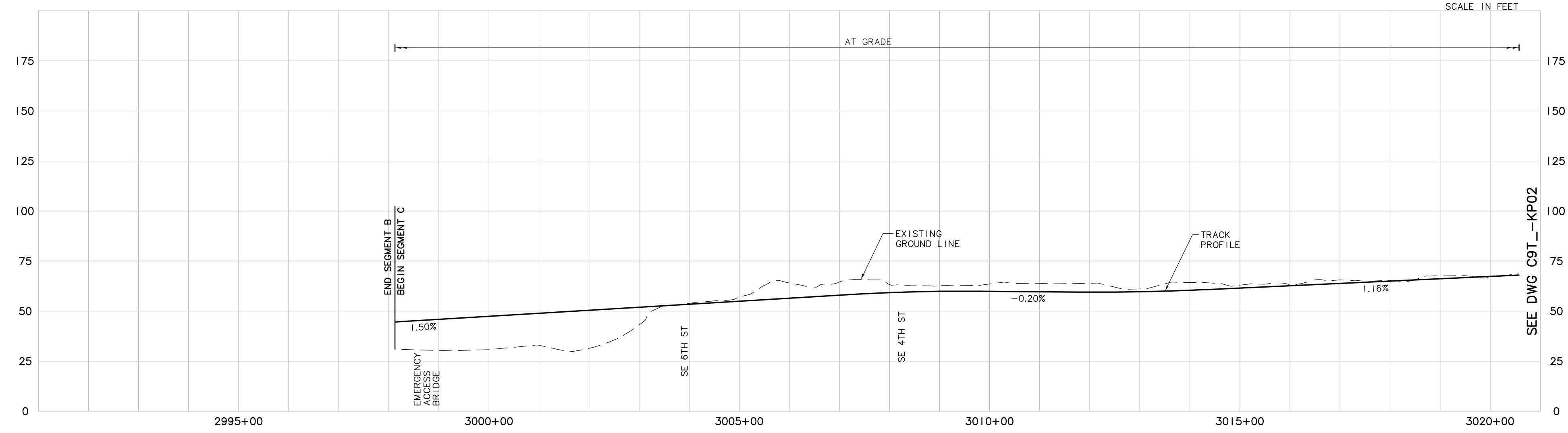
XA_L72_SF
XF_ELC_SF


SE 9TH ST
111TH AVE SE
MAINTAIN DRIVEWAY ACCESS FOR EMERGENCY VEHICLE
ROADWAY MODIFICATION
STAGING AREA
SE 4TH ST
END RETAINING WALL
SE 4TH ST
SE 2ND ST
111TH AVE SE
BEGIN RETAINING WALL
STAGING AREA
SEE DWG C9T_-KP02
112TH AVE SE
3005+00
3010+00
3015+00
3020+00
CROSSOVER
112TH AVE SE
3000+00
S
ROADWAY MODIFICATION
SE 8TH ST
END SEGMENT B
BEGIN SEGMENT C
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELC_IC9T_KP01.dwg
02/23/11 14:17 : balimat OE6579

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Submitted:
Date:
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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC_IC9T_KP01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9T (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.: C9T_-KP01
Sheet No.: C-20
Rev.:

DWG INFO:

LTSCALE:
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ZG-G10010
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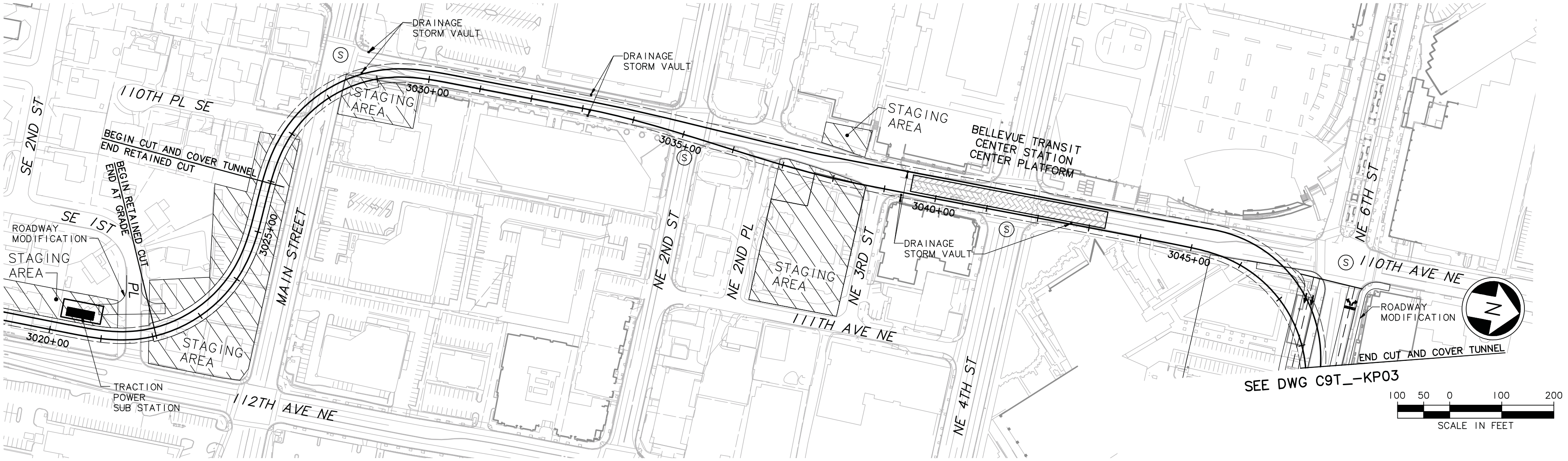
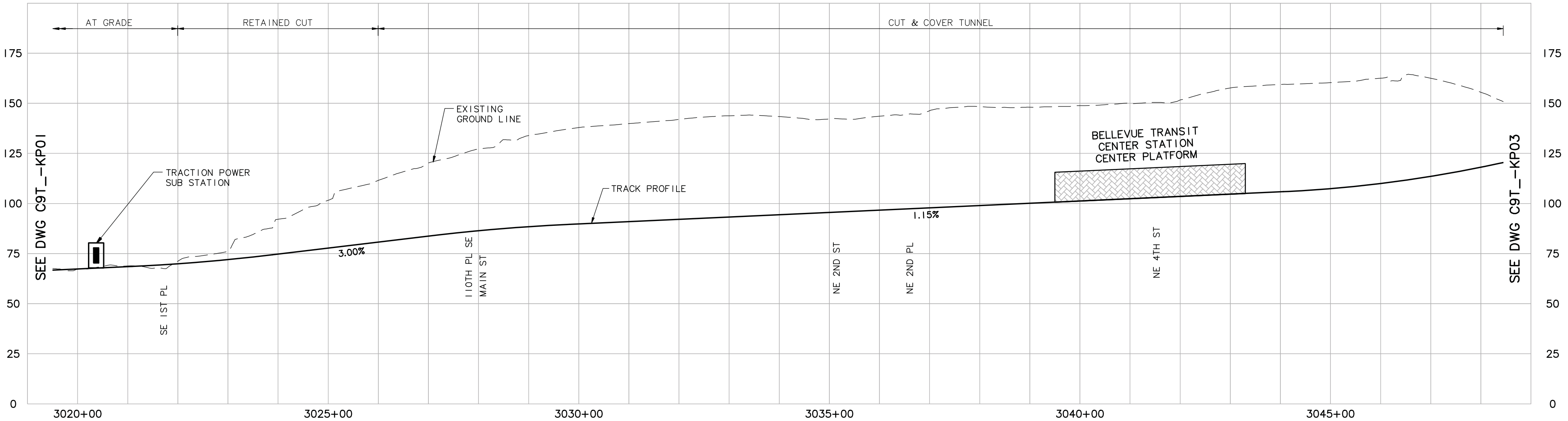

DRAINAGE STORM VAULT
DRAINAGE STORM VAULT
110TH PL SE
SE 2ND ST
STAGING AREA
3030+00
3035+00
BEGIN CUT AND COVER TUNNEL
END RETAINED CUT
BEGIN RETAINED CUT
END AT GRADE
STAGING AREA
BELLEVUE TRANSIT CENTER STATION CENTER PLATFORM
NE 6TH ST
SE 1ST
PL
3025+00
MAIN STREET
NE 2ND ST
NE 2ND PL
STAGING AREA
NE 3RD ST
3040+00
DRAINAGE STORM VAULT
3045+00
110TH AVE NE
ROADWAY MODIFICATION
STAGING AREA
ROADWAY MODIFICATION
SEE DWG C9T_-KP01
3020+00
STAGING AREA
111TH AVE NE
N
END CUT AND COVER TUNNEL
TRACTION POWER SUB STATION
112TH AVE NE
NE 4TH ST
SEE DWG C9T_-KP03
100 50 0 100 200
SCALE IN FEET



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INCA ENGINEERS INC.

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Date:

Scale: H: 1"=100'; V: 1"=25'

Filename: ELC_IC9T_KP02.dwg

Contract No.:

Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)
TRACK PLAN & PROFILE

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Drawing No.: C9T_-KP02

Sheet No.: C-21

Rev.:

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04/18/11 15:38 : khuum OE6585

DWG INFO:

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Future-NE6th
ZG-2234H
ZG-G10010
key_Segment
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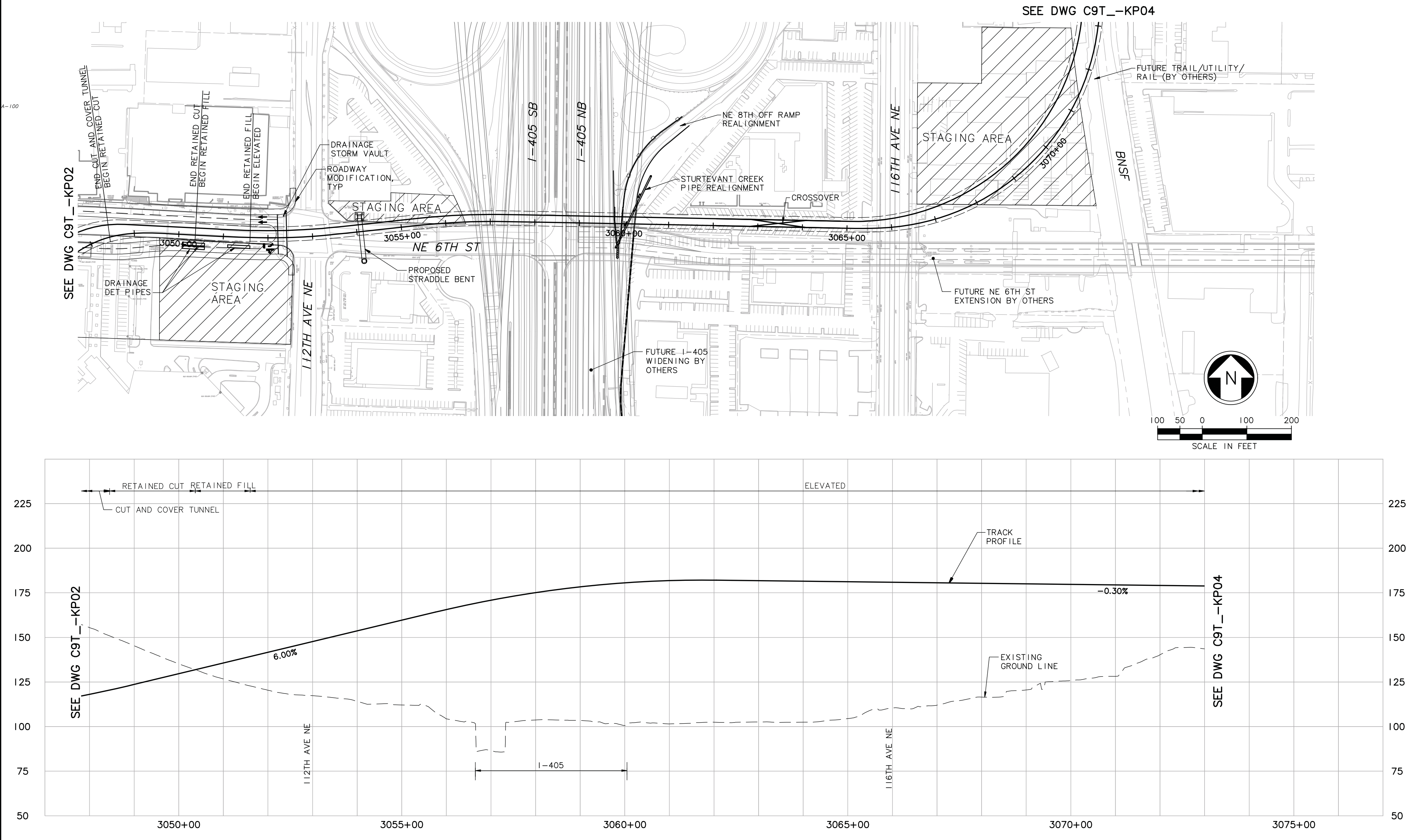
A
B
C
D
E
F
G
H
1
2
3
4
SEE DWG C9T_-KP04
SEE DWG C9T_-KP02
END CUT AND COVER TUNNEL
BEGIN RETAINED CUT
END RETAINED CUT
BEGIN RETAINED FILL
END RETAINED FILL
BEGIN ELEVATED
DRAINAGE STORM VAULT
ROADWAY MODIFICATION, TYP
STAGING AREA
I-405 SB
I-405 NB
NE 8TH OFF RAMP REALIGNMENT
STURTEVANT CREEK PIPE REALIGNMENT
CROSSOVER
116TH AVE NE
STAGING AREA
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
BNSF
3070+00
3050+00
3055+00
NE 6TH ST
3060+00
3065+00
DRAINAGE DET PIPES
STAGING AREA
112TH AVE NE
PROPOSED STRADDLE BENT
FUTURE NE 6TH ST EXTENSION BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET
RETAINED CUT
RETAINED FILL
ELEVATED
CUT AND COVER TUNNEL
TRACK PROFILE
-0.30%
6.00%
EXISTING GROUND LINE
112TH AVE NE
I-405
116TH AVE NE
SEE DWG C9T_-KP02
SEE DWG C9T_-KP04
225
200
175
150
125
100
75
50
3050+00
3055+00
3060+00
3065+00
3070+00
3075+00

c:\work\feis\segment c\c9t-main\ELC_IC9T_KP03.dwg
04/19/11 11:11 : khuum OE6585

C-21

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

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CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

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Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC_IC9T_KP03.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.:
C9T_-KP03
Sheet No.:
Rev.:
C-22

DWG INFO:

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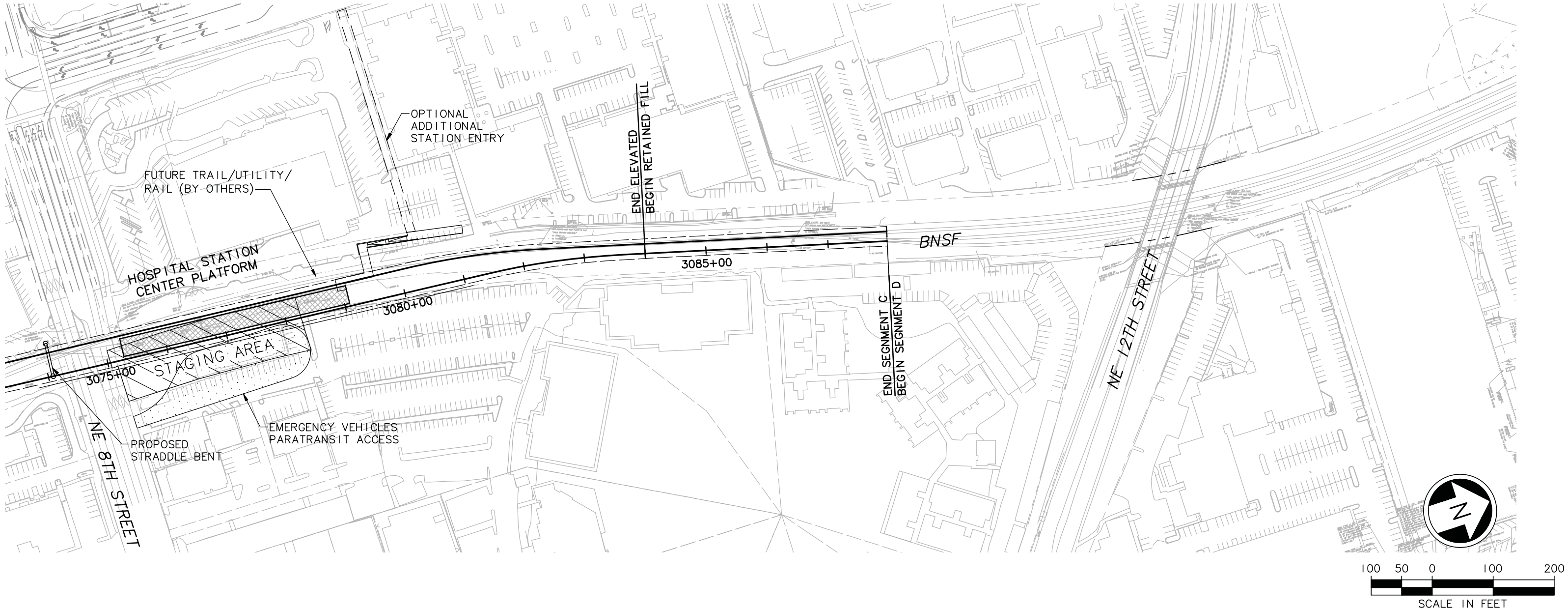
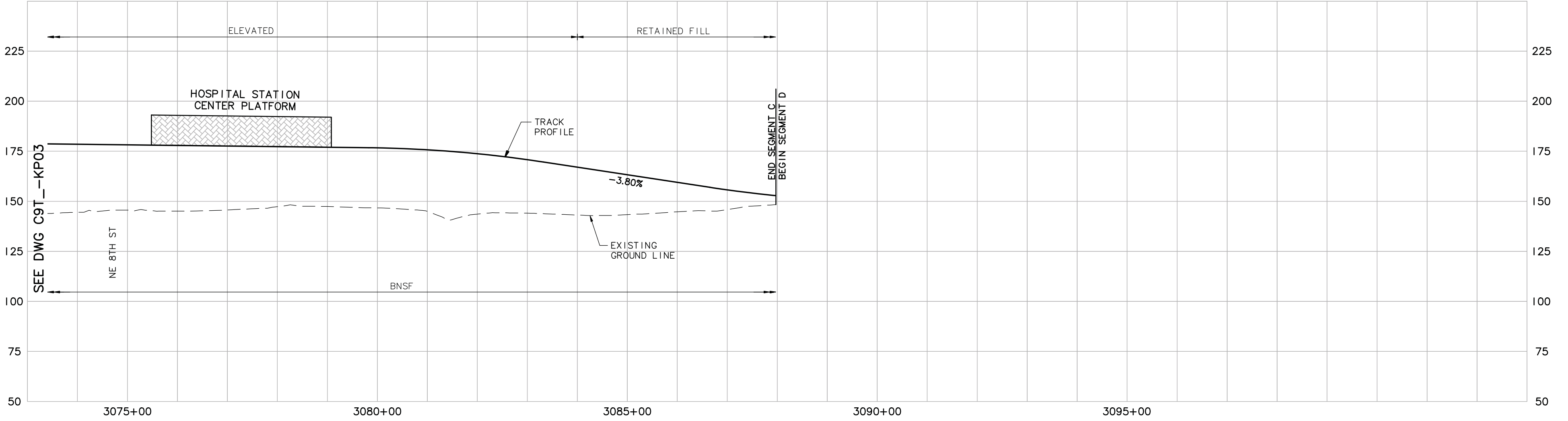

SEE DWG C9T_-KP03
OPTIONAL ADDITIONAL STATION ENTRY
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
HOSPITAL STATION CENTER PLATFORM
END ELEVATED BEGIN RETAINED FILL
BNSF
3085+00
3080+00
3075+00
STAGING AREA
END SEGMENT C BEGIN SEGMENT D
NE 12TH STREET
NE 8TH STREET
PROPOSED STRADDLE BENT
EMERGENCY VEHICLES PARATRANSIT ACCESS
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Drawn By:
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BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC_IC9T_KP04.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9T (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.: C9T_-KP04

Sheet No.: C-23
Rev.:

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06/20/11 13:35 : khuum OE6585

DWG INFO:

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1=1

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zg-g10010
-Overlay:
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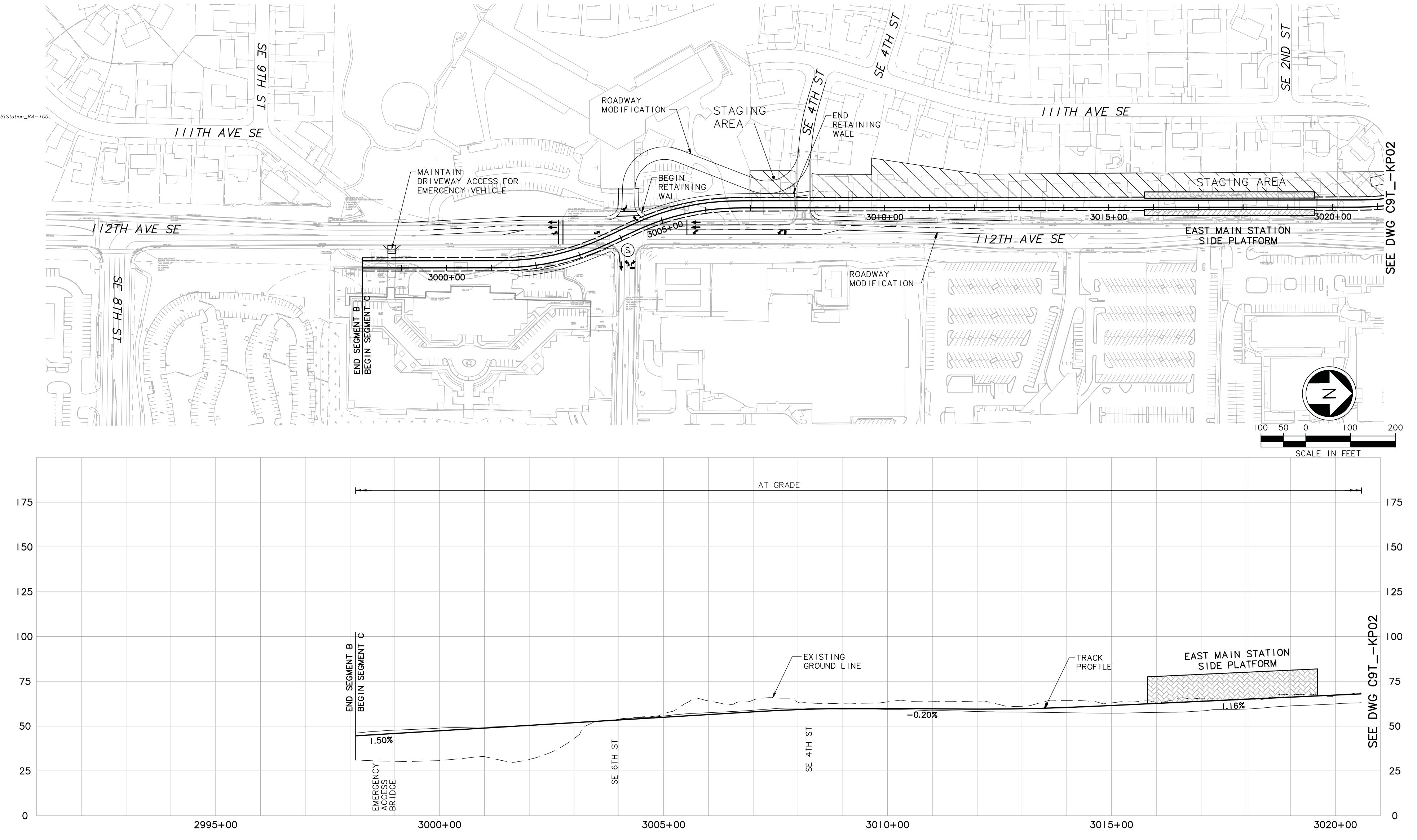
04/27/11 10:42 : khuum OE6585



A
B
C
D
E
F
G
H
1
2
3
4
SE 9TH ST
111TH AVE SE
ROADWAY MODIFICATION
STAGING AREA
SE 4TH ST
END RETAINING WALL
SE 4TH ST
SE 2ND ST
111TH AVE SE
MAINTAIN DRIVEWAY ACCESS FOR EMERGENCY VEHICLE
BEGIN RETAINING WALL
STAGING AREA
112TH AVE SE
3005+00
3010+00
3015+00
3020+00
112TH AVE SE
EAST MAIN STATION SIDE PLATFORM
SEE DWG C9T_-KP02
3000+00
ROADWAY MODIFICATION
SE 8TH ST
END SEGMENT B
BEGIN SEGMENT C
N
100 50 0 100 200
SCALE IN FEET
AT GRADE
175
150
125
100
75
50
25
0
EXISTING GROUND LINE
TRACK PROFILE
EAST MAIN STATION SIDE PLATFORM
SEE DWG C9T_-KP02
END SEGMENT B
BEGIN SEGMENT C
1.50%
-0.20%
1.16%
EMERGENCY ACCESS BRIDGE
SE 6TH ST
SE 4TH ST
2995+00
3000+00
3005+00
3010+00
3015+00
3020+00

No.	Date	Dsn.	Chk.	App.	Revisions

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC_IC9T_KP01A.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T
EAST MAIN STATION DESIGN OPTION
TRACK PLAN & PROFILE

Drawing No.:
C9T_KP01A

Sheet No.: C-24
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
-Overlay:
ELC_C9T_B3_KA-100
SUB-SDEIS
XA_ELC_3Add_SF
XA_L72_SF
XF_ELC_SF
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
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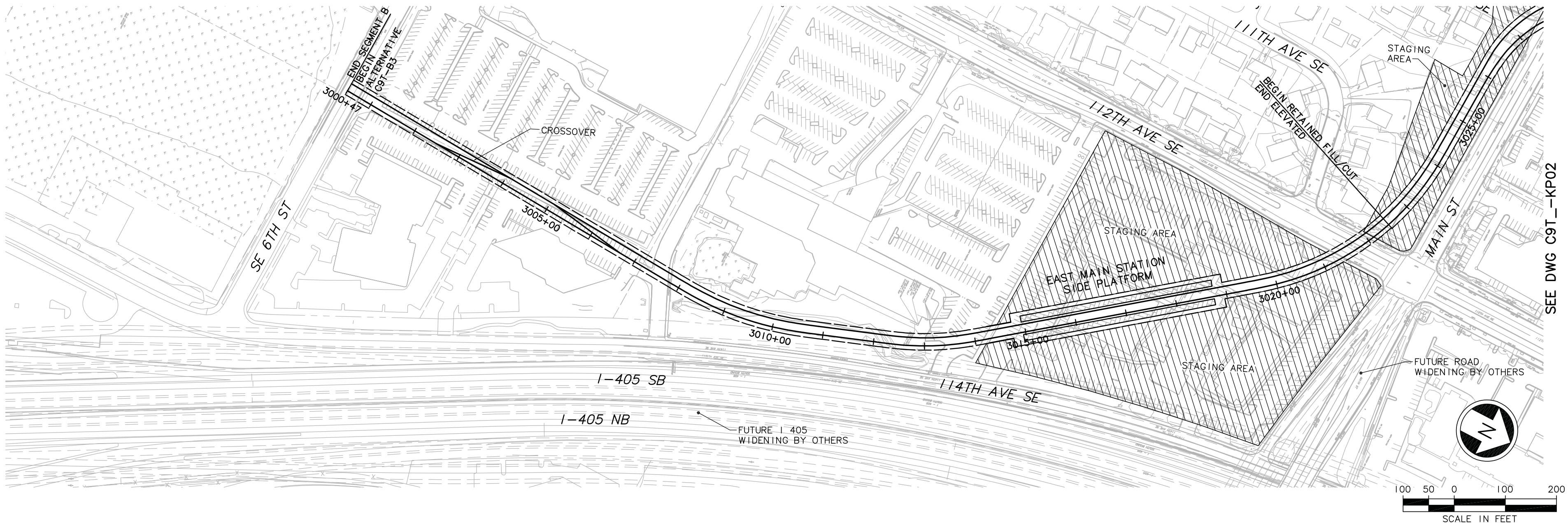
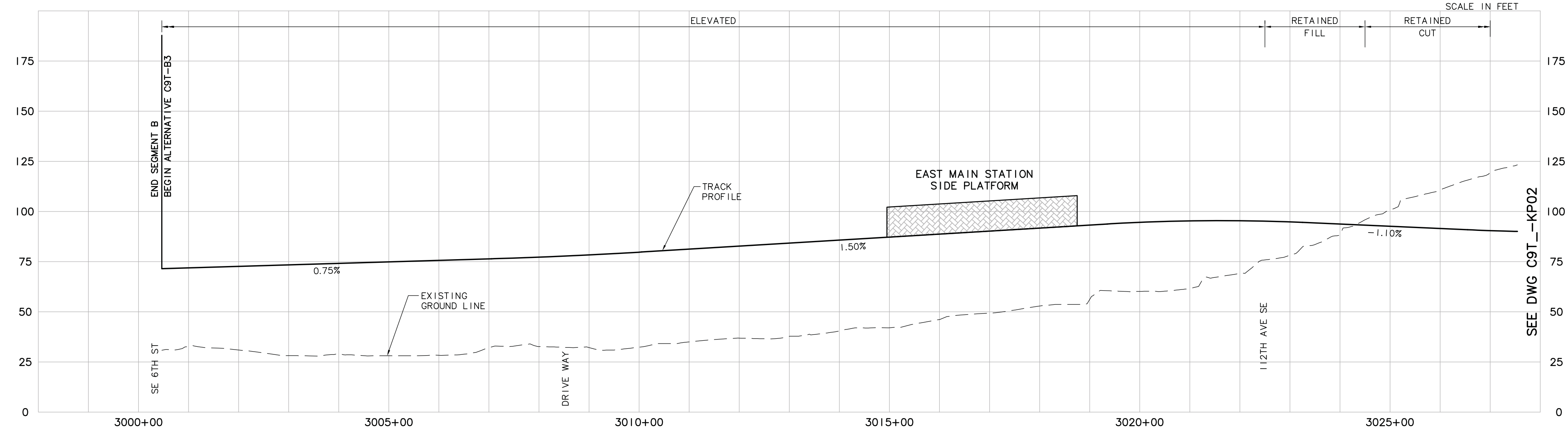
x0831sf
x1405_chan
-Unresolved:



END SEGMENT B
BEGIN ALTERNATIVE C9T-B3
3000+47
CROSSOVER
SE 6TH ST
3005+00
3010+00
3015+00
3020+00
3025+00
111TH AVE SE
112TH AVE SE
114TH AVE SE
BEGIN RETAINED FILL/CUT
END ELEVATED
STAGING AREA
EAST MAIN STATION SIDE PLATFORM
STAGING AREA
STAGING AREA
MAIN ST
SEE DWG C9T_-KP02
I-405 SB
I-405 NB
FUTURE I 405 WIDENING BY OTHERS
FUTURE ROAD WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELC_C9T3KP01.dwg
10/13/10 15:54 : bolimat OE6579

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H: 1"=100'; V: 1"=25'
Filename:
ELC_C9T3KP01.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T FROM B3
TRACK PLAN & PROFILE

Drawing No.:
9T3K-KP01

Sheet No.: C-25
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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zg-g10010
-Overlay:
ELC_C9T_B7_KA-100
SUB-SDEIS
XA_ELC_3Add_SF
XA_L72_SF
XF_ELC_SF
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
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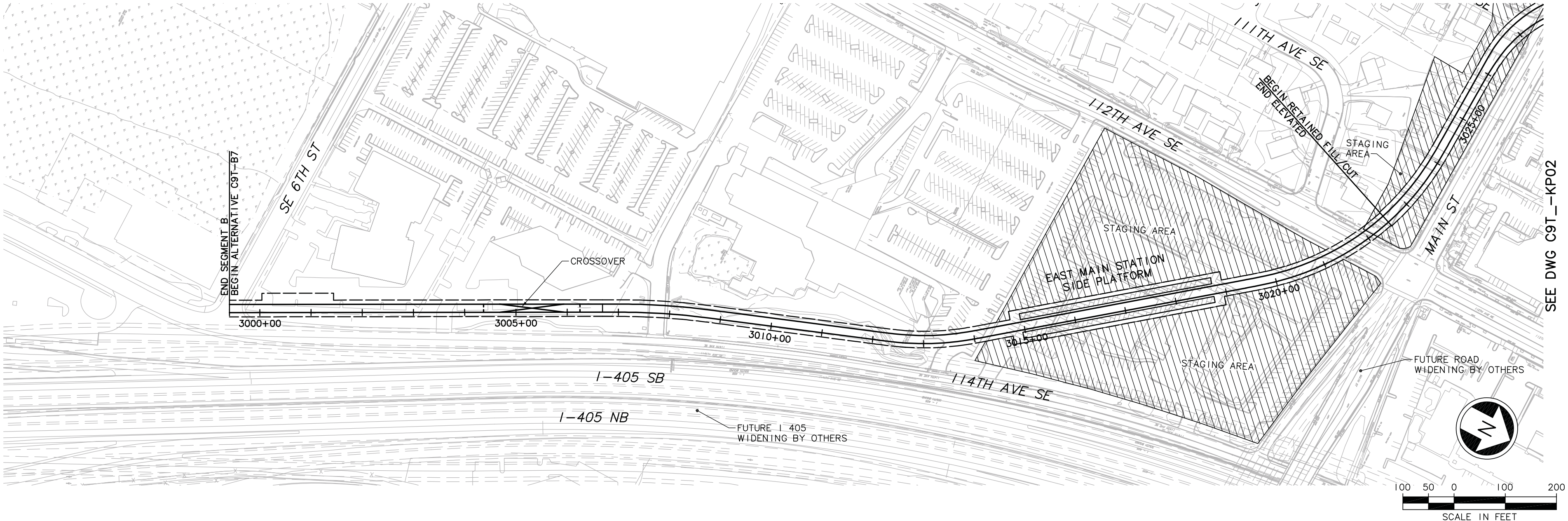
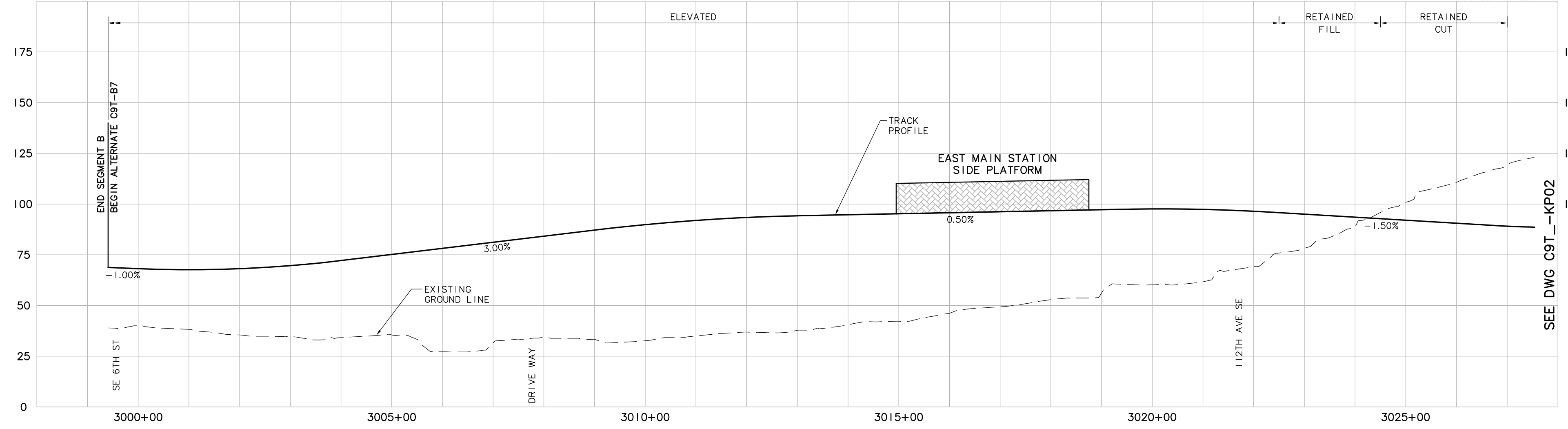
x0831rx
x0831sf
x1405_chan
-Unresolved:


END SEGMENT B
BEGIN ALTERNATIVE C9T-B7
SE 6TH ST
CROSSOVER
3000+00
3005+00
3010+00
3015+00
3020+00
3025+00
EAST MAIN STATION
SIDE PLATFORM
STAGING AREA
STAGING AREA
STAGING
AREA
BEGIN RETAINED FILL/CUT
END ELEVATED
111TH AVE SE
112TH AVE SE
114TH AVE SE
MAIN ST
I-405 SB
I-405 NB
FUTURE I 405
WIDENING BY OTHERS
FUTURE ROAD
WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C9T_-KP02


ELEVATED
RETAINED
FILL
RETAINED
CUT
175
150
125
100
75
50
25
0
END SEGMENT B
BEGIN ALTERNATE C9T-B7
TRACK
PROFILE
EAST MAIN STATION
SIDE PLATFORM
-1.00%
3.00%
0.50%
-1.50%
EXISTING
GROUND LINE
SE 6TH ST
DRIVE WAY
112TH AVE SE
3000+00
3005+00
3010+00
3015+00
3020+00
3025+00
SEE DWG C9T_-KP02

c:\work\sdeis\ELC_C9T7KP01.dwg
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Filename:
ELC_C9T7KP01.dwg

Contract No.:

Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T FROM B7
TRACK PLAN & PROFILE

Drawing No.:
9T7K-KP01

Sheet No.:
C-26

Rev.:

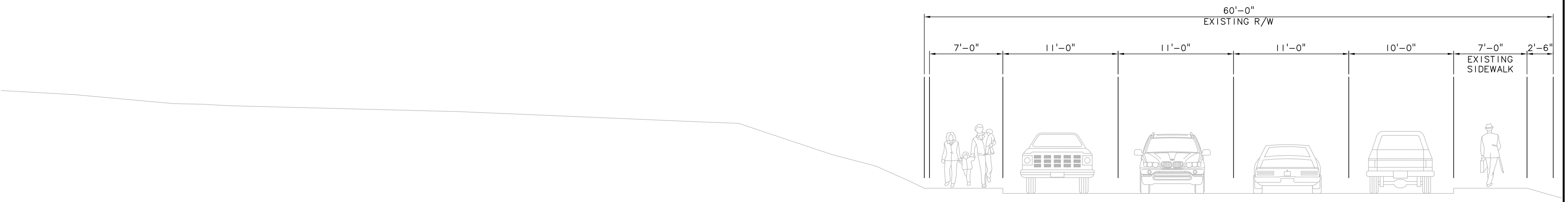
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:

1

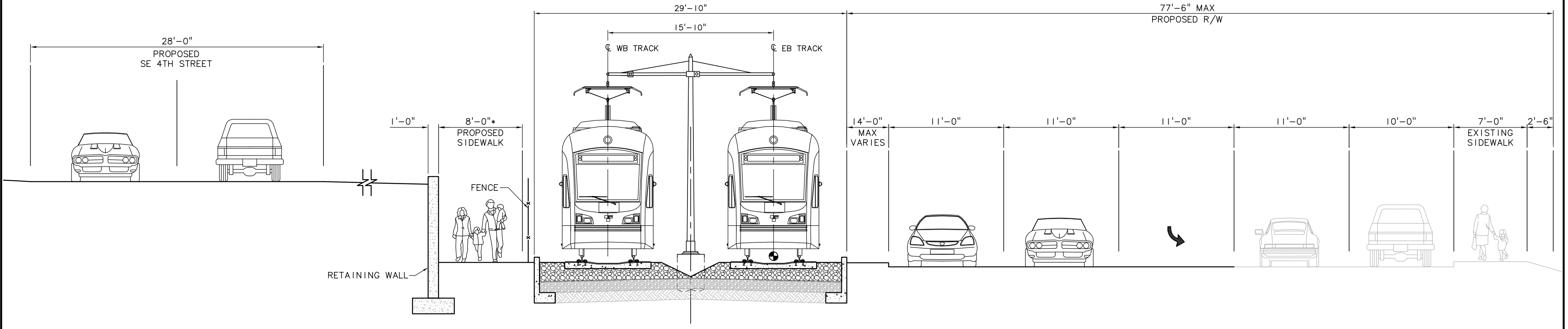
2


60'-0"
EXISTING R/W
7'-0"
11'-0"
11'-0"
11'-0"
10'-0"
7'-0"
EXISTING SIDEWALK
2'-6"

EXISTING ROADWAY SECTION - 112TH AVE SE (NORTH OF SE 6TH ST)
SCALE: NTS

3

4


28'-0"
PROPOSED
SE 4TH STREET
1'-0"
8'-0"*
PROPOSED SIDEWALK
FENCE
RETAINING WALL
29'-10"
15'-10"
℄ WB TRACK
℄ EB TRACK
77'-6" MAX
PROPOSED R/W
14'-0"
MAX VARIES
11'-0"
11'-0"
11'-0"
11'-0"
10'-0"
7'-0"
EXISTING SIDEWALK
2'-6"

PROPOSED ROADWAY & LRT SECTION - WEST OF 112TH AVE SE
ALIGNMENT: C9T
AT-GRADE BALLASTED DOUBLE TRACK GUIDEWAY
SCALE: NTS

* SIDEWALK ON THE WEST SIDE OF TRACK FROM SE 6TH STREET TO SE 4TH STREET
SIDEWALK ON THE EAST SIDE OF TRACK FROM SE 4TH STREET TO MAIN STREET.

5

c:\work\sdeis\ELC_IC9T_KX01.dwg
10/04/10 14:02 : bolimaf OE6579

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Date:

Scale: NTS
Filename: ELC_IC9T_KX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)
TYPICAL SECTION
112TH AVE SE
NORTH OF SE 6TH ST

Drawing No.: C9T_-KX01
Sheet No.: C-27
Rev.:

DWG INFO:

LTSCALE:
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XREFs:
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-Overlay:
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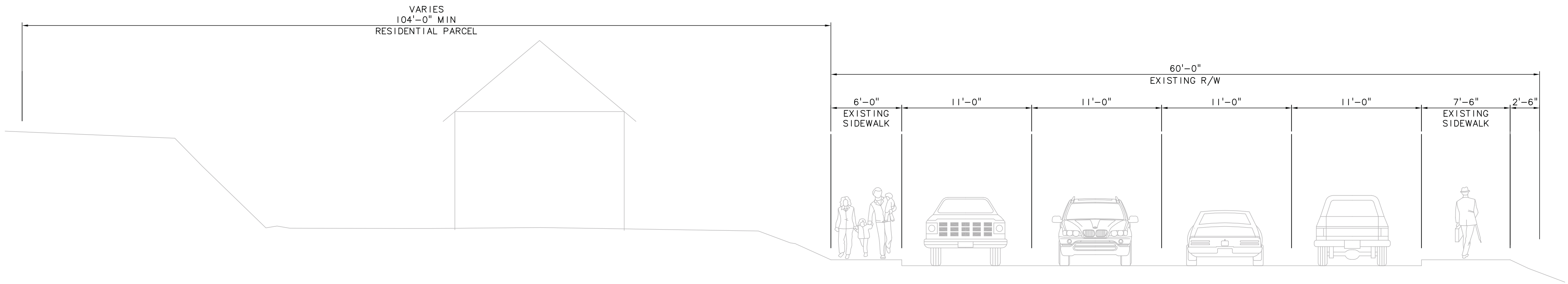
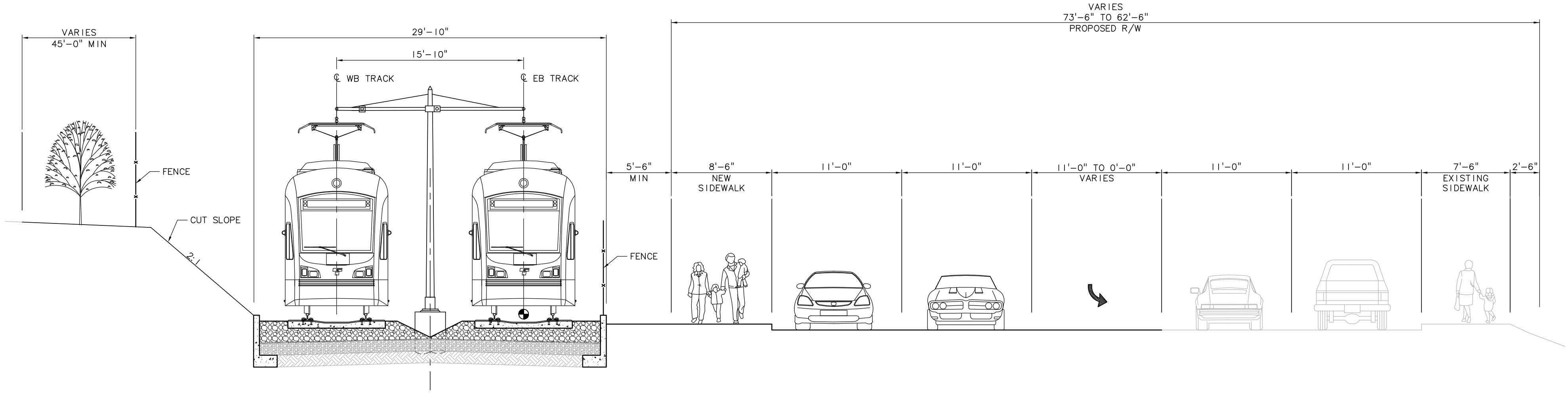

VARIES
104'-0" MIN
RESIDENTIAL PARCEL
60'-0"
EXISTING R/W
6'-0"
EXISTING SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
7'-6"
EXISTING SIDEWALK
2'-6"

EXISTING ROADWAY SECTION – 112TH AVE SE (NORTH OF SE 4TH ST)

SCALE: NTS


VARIES
45'-0" MIN
FENCE
CUT SLOPE
2:1
29'-10"
15'-10"
℄ WB TRACK
℄ EB TRACK
FENCE
5'-6"
MIN
VARIES
73'-6" TO 62'-6"
PROPOSED R/W
8'-6"
NEW SIDEWALK
11'-0"
11'-0"
11'-0" TO 0'-0"
VARIES
11'-0"
11'-0"
7'-6"
EXISTING SIDEWALK
2'-6"

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE (WIDENING TO WEST)
ALIGNMENT: C9T
AT-GRADE BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\sdeis\ELC_IC9T_KX02.dwg
10/04/10 14:02 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

Scale: NTS
Filename: ELC_IC9T_KX02.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9T (PREFERRED)

TYPICAL SECTION
112TH AVE SE
NORTH OF SE 4TH ST

Drawing No.: C9T_-KX02
Sheet No.: C-28
Rev.:

DWG INFO:

LTSCALE:
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XREFs:
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-Overlay:
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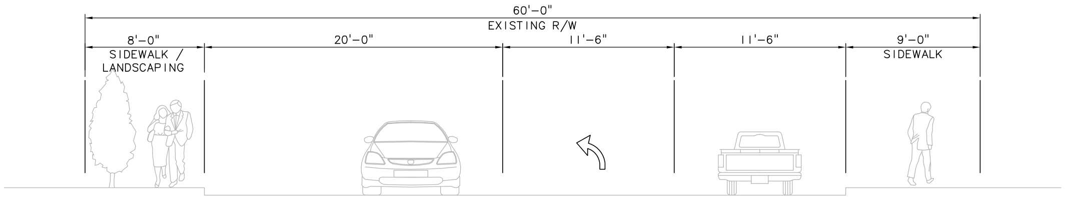
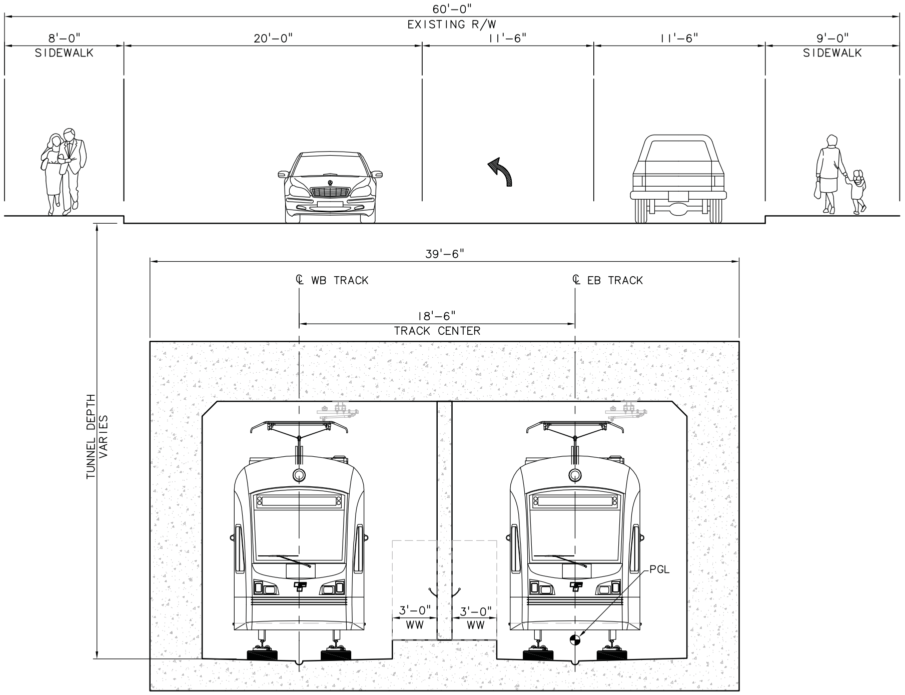

60'-0"
EXISTING R/W
8'-0"
SIDEWALK /
LANDSCAPING
20'-0"
11'-6"
11'-6"
9'-0"
SIDEWALK

EXISTING ROADWAY SECTION – 110TH AVE NE (MAIN ST TO NE 2ND ST)
SCALE: NTS


60'-0"
EXISTING R/W
8'-0"
SIDEWALK
20'-0"
11'-6"
11'-6"
9'-0"
SIDEWALK
39'-6"
℄ WB TRACK
℄ EB TRACK
18'-6"
TRACK CENTER
TUNNEL DEPTH
VARIES
PGL
3'-0"
WW
3'-0"
WW

PROPOSED ROADWAY & LRT SECTION – 110TH AVE NE
ALIGNMENT: C9T
CUT & COVER DIRECT FIXATION DOUBLE TRACK
SCALE: NTS

c:\work\sdeis\ELC_IC9T_KX03.dwg
10/04/10 14:02 : bolimaf OE6579

No. Date Dsn. Chk. App. Revisions

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Approved:
Date:

Scale: NTS
Filename: ELC_IC9T_KX03.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9T (PREFERRED)

TYPICAL SECTION
110TH AVE NE
MAIN ST TO NE 2ND ST

Drawing No.: C9T_-KX03
Sheet No.: C-29
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
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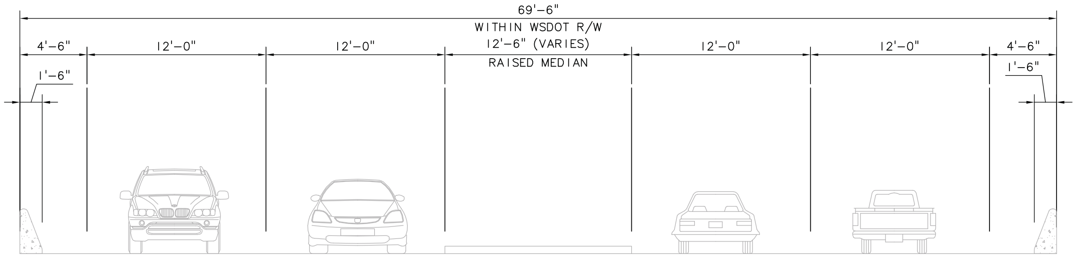
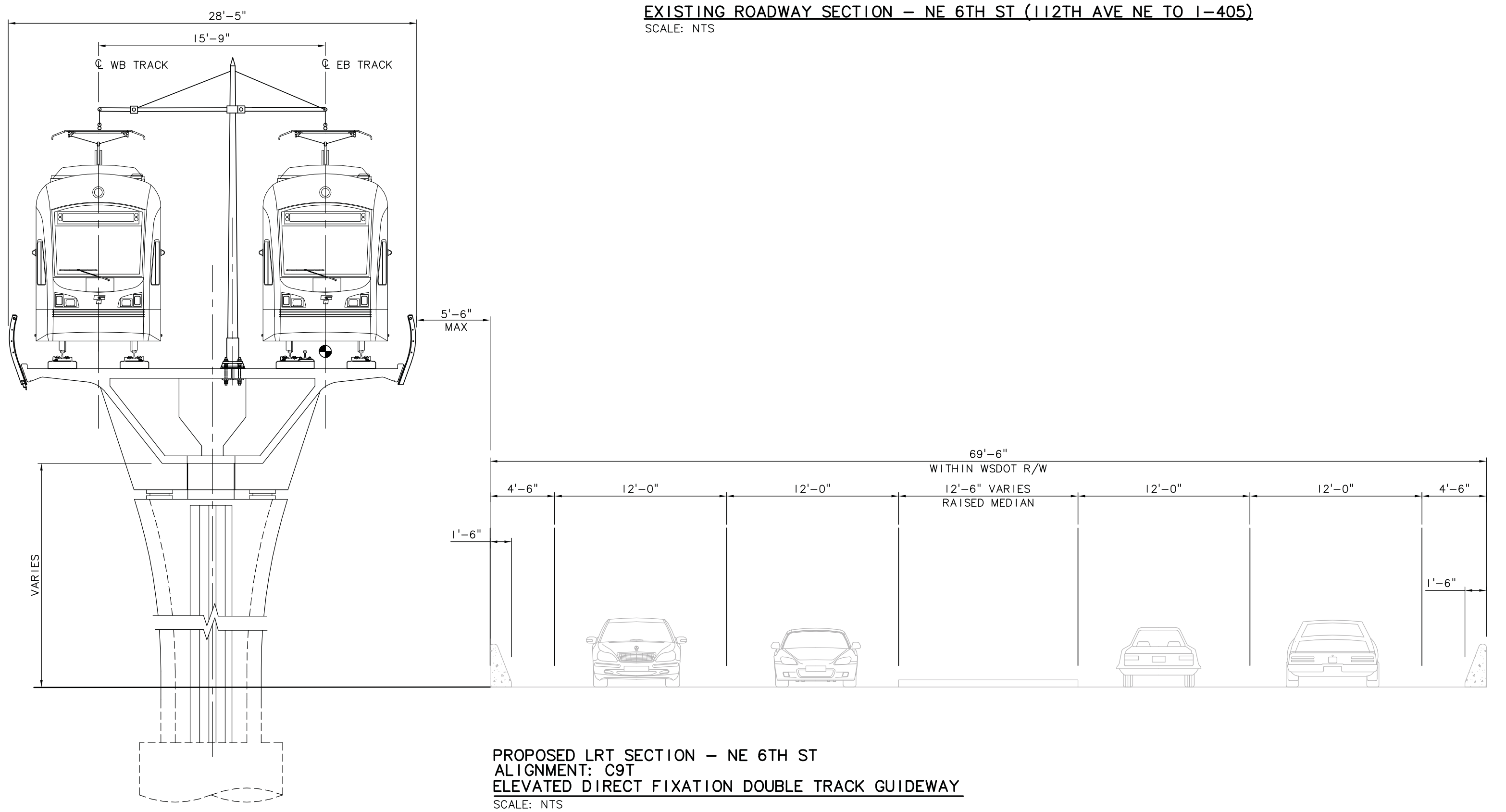


69'-6"
WITHIN WSDOT R/W
4'-6"
12'-0"
12'-0"
12'-6" (VARIES)
RAISED MEDIAN
12'-0"
12'-0"
4'-6"
1'-6"
1'-6"

EXISTING ROADWAY SECTION – NE 6TH ST (112TH AVE NE TO I-405)
SCALE: NTS



28'-5"
15'-9"
℄ WB TRACK
℄ EB TRACK
5'-6"
MAX
VARIES
69'-6"
WITHIN WSDOT R/W
4'-6"
12'-0"
12'-0"
12'-6" VARIES
RAISED MEDIAN
12'-0"
12'-0"
4'-6"
1'-6"
1'-6"

PROPOSED LRT SECTION – NE 6TH ST
ALIGNMENT: C9T
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\sdeis\ELC_IC9T_KX04.dwg
10/04/10 14:02 : bolimaf OE6579

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Date:
Approved:
Date:

Scale: NTS
Filename: ELC_IC9T_KX04.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9T (PREFERRED)

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TYPICAL SECTION
NE 6TH ST
112TH AVE NE TO I-405

Drawing No.: C9T_–KX04
Sheet No.: C-30
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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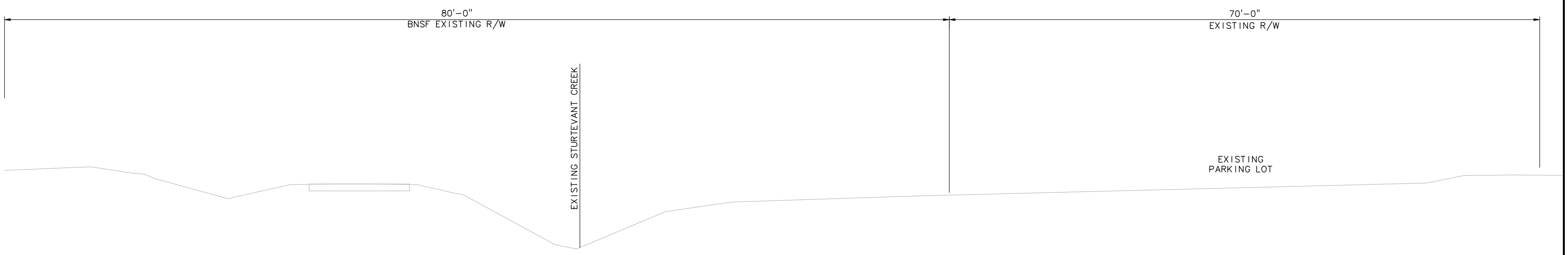
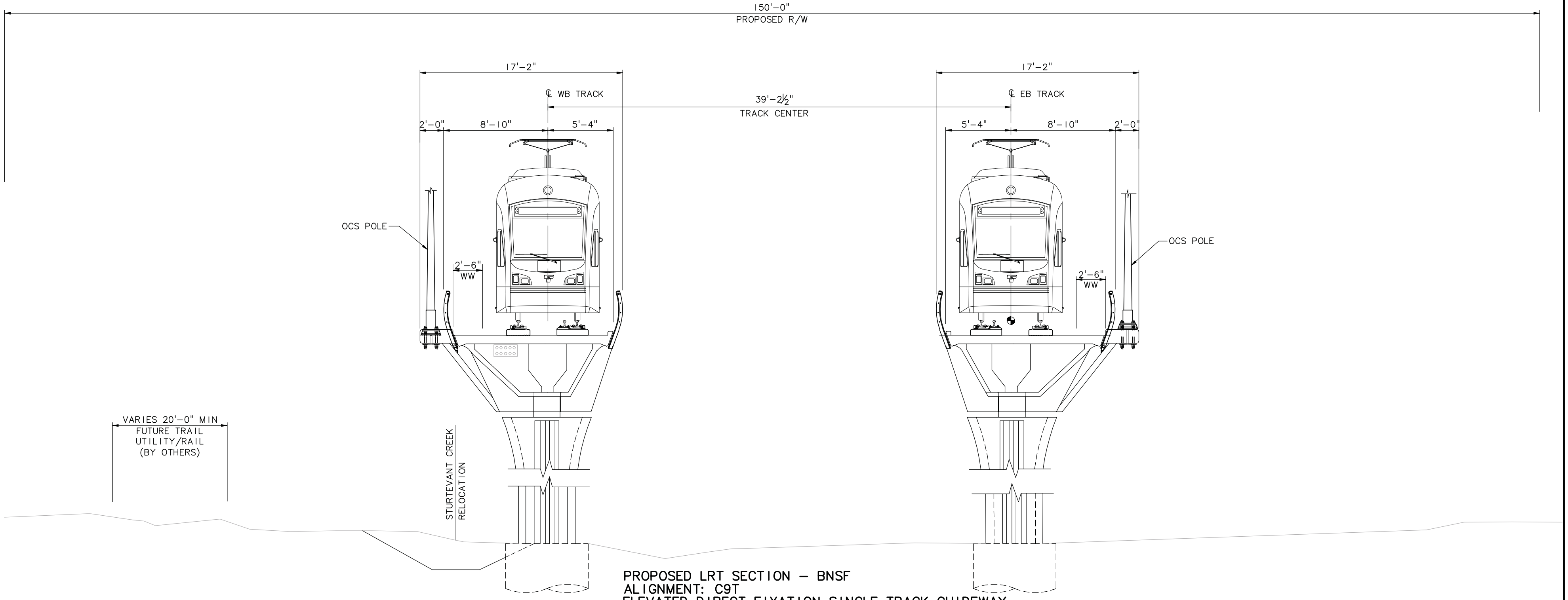

80'-0"
BNSF EXISTING R/W
70'-0"
EXISTING R/W
EXISTING STURTEVANT CREEK
EXISTING
PARKING LOT

EXISTING TYPICAL SECTION - BNSF CORRIDOR (JUST NORTH OF HOSPITAL STATION)

SCALE: NTS


150'-0"
PROPOSED R/W
17'-2"
℄ WB TRACK
39'-2½"
TRACK CENTER
17'-2"
℄ EB TRACK
2'-0"
8'-10"
5'-4"
5'-4"
8'-10"
2'-0"
OCS POLE
2'-6"
WW
2'-6"
WW
OCS POLE
VARIES 20'-0" MIN
FUTURE TRAIL
UTILITY/RAIL
(BY OTHERS)
STURTEVANT CREEK
RELOCATION

PROPOSED LRT SECTION - BNSF
ALIGNMENT: C9T
ELEVATED DIRECT FIXATION SINGLE TRACK GUIDEWAY

SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

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Date:

Scale: NTS
Filename: ELC_IC9T_KX05.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)

TYPICAL SECTION
BNSF CORRIDOR

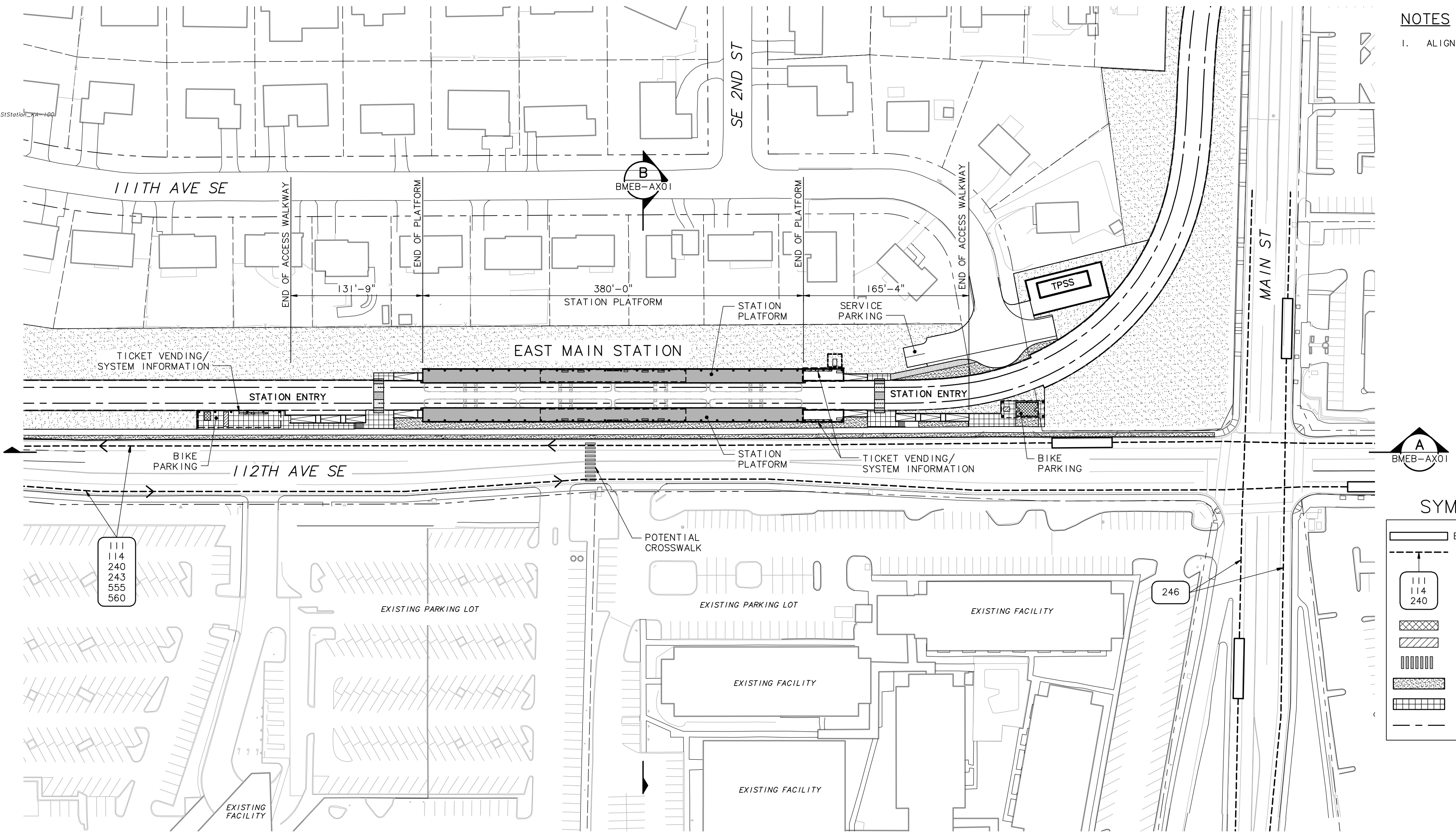
Drawing No.: C9T_-KX05
Sheet No.: C-31
Rev.:

c:\work\feis\segment c\c9t-main\ELC_IC9T_KX05.dwg
05/09/11 15:14 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_BMEE_AP_1
ELC_BMEE_AS_1
ELC_C9T_MAIN_MainStStation_KA-100
ZG-2234H
key_Segment
x0525rx
x0525sf
x0528rx
x0528sf
-Unresolved:



A
B
C
D
E
F
G
H
1
2
3
4
SE 2ND ST
111TH AVE SE
B
BMEB-AX01
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
END OF ACCESS WALKWAY
131'-9"
380'-0"
STATION PLATFORM
165'-4"
STATION PLATFORM
SERVICE PARKING
TPSS
MAIN ST
EAST MAIN STATION
TICKET VENDING/ SYSTEM INFORMATION
STATION ENTRY
STATION ENTRY
BIKE PARKING
112TH AVE SE
STATION PLATFORM
TICKET VENDING/ SYSTEM INFORMATION
BIKE PARKING
A
BMEB-AX01
POTENTIAL CROSSWALK
111
114
240
243
555
560
246
EXISTING PARKING LOT
EXISTING PARKING LOT
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY

NOTES

1. ALIGNMENT C9T

SYMBOLS KEY

▭	EXISTING BUS STOP
- - -	BUS ROUTE
111 114 240	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
░	NEW LANDSCAPE
▦	NEW PLAZA
— —	TRACK

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

c:\work\feis\segment c\c9t with main st station\ELC_IBMEBAS01.dwg
05/16/11 11:42 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

Date:

IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Approved:

SOUNDTRANSIT

Date:

Scale: 1" = 50'
Filename: ELC_IBMEBAS01.dwg
Contract No.: FEIS
Date: 05/12/11

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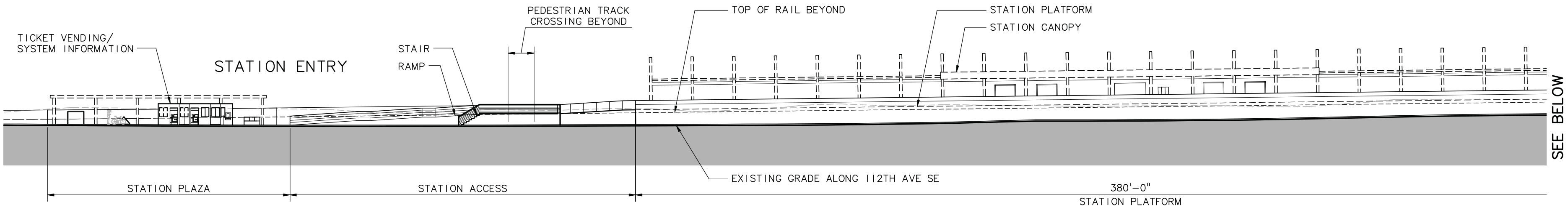
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T
EAST MAIN STATION DESIGN OPTION
STATION AREA PLAN

Drawing No.: BMEB-AS01
Sheet No.: C-32
Rev.:

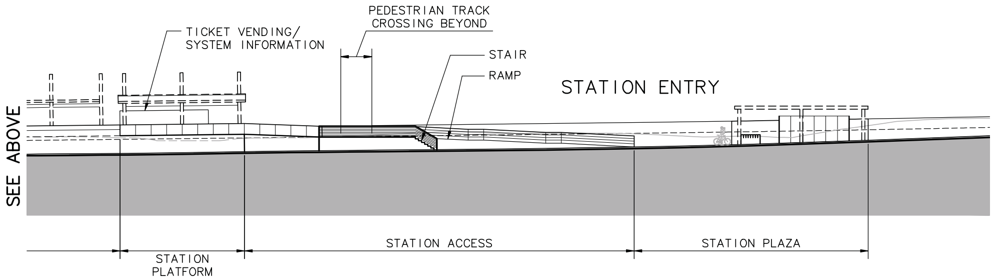
DWG INFO:

LTSCALE:
1=1

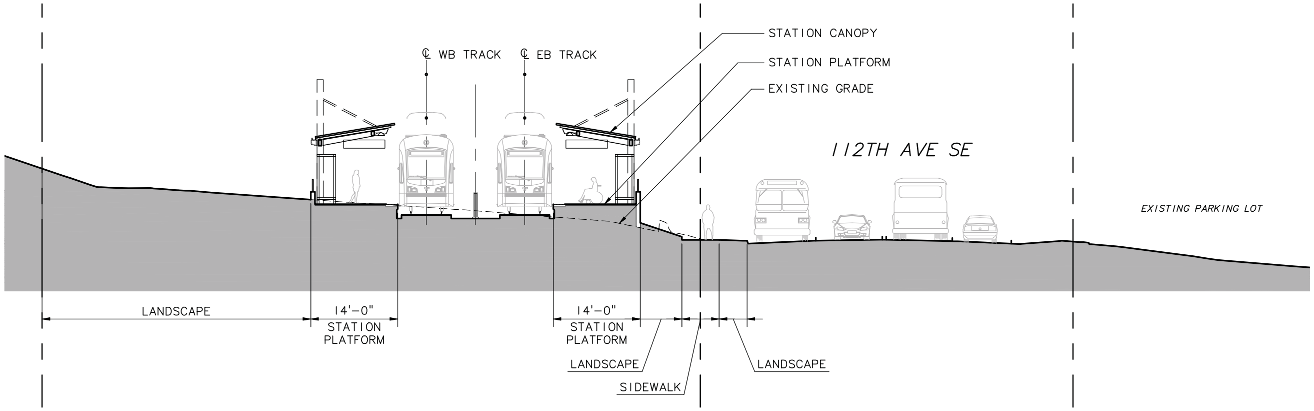
XREFs:
-Attach:
-Overlay:
ELC_BMEE_AX_1
ZG-2234H
-Unresolved:


PEDESTRIAN TRACK CROSSING BEYOND
TICKET VENDING/ SYSTEM INFORMATION
STATION ENTRY
STAIR
RAMP
TOP OF RAIL BEYOND
STATION PLATFORM
STATION CANOPY
SEE BELOW
EXISTING GRADE ALONG 112TH AVE SE
STATION PLAZA
STATION ACCESS
380'-0"
STATION PLATFORM

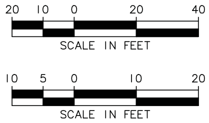
SITE SECTION A1
SCALE: 1" = 20'
BMEB-AX01


SEE ABOVE
TICKET VENDING/ SYSTEM INFORMATION
PEDESTRIAN TRACK CROSSING BEYOND
STAIR
RAMP
STATION ENTRY
STATION PLATFORM EXTENSION
STATION ACCESS
STATION PLAZA

SITE SECTION A2
SCALE: 1" = 20'
BMEB-AX01


STATION CANOPY
STATION PLATFORM
EXISTING GRADE
℄ WB TRACK
℄ EB TRACK
112TH AVE SE
EXISTING PARKING LOT
LANDSCAPE
14'-0"
STATION PLATFORM
14'-0"
STATION PLATFORM
LANDSCAPE
SIDEWALK
LANDSCAPE

SITE SECTION B
SCALE: 1" = 10'
BMEB-AX01


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:
Date:

IBI GROUP
IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA
tel 206.521.9091
fax 206.521.9095

Approved:
Date:

SOUNDTRANSIT

Scale: AS NOTED
Filename: ELC_IBMEBAX01.dwg
Contract No.: FEIS
Date: 05/12/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T
EAST MAIN STATION DESIGN OPTION
SITE SECTIONS

THIS PRINT REDUCED HALF SCALE

Drawing No.: BMEB-AX01
Sheet No.: C-33
Rev.:

c:\work\feis\segment c\c9t with main st station\ELC_IBMEBAX01.dwg
05/16/11 11:44 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
City_Center_Plaza
ELC_BUSRTS-100
ELC_C9T_MAIN_KA-100
ELC_N11_AG_1
ELC_N11_AG_3
SUB-FEIS
ZG-2234H
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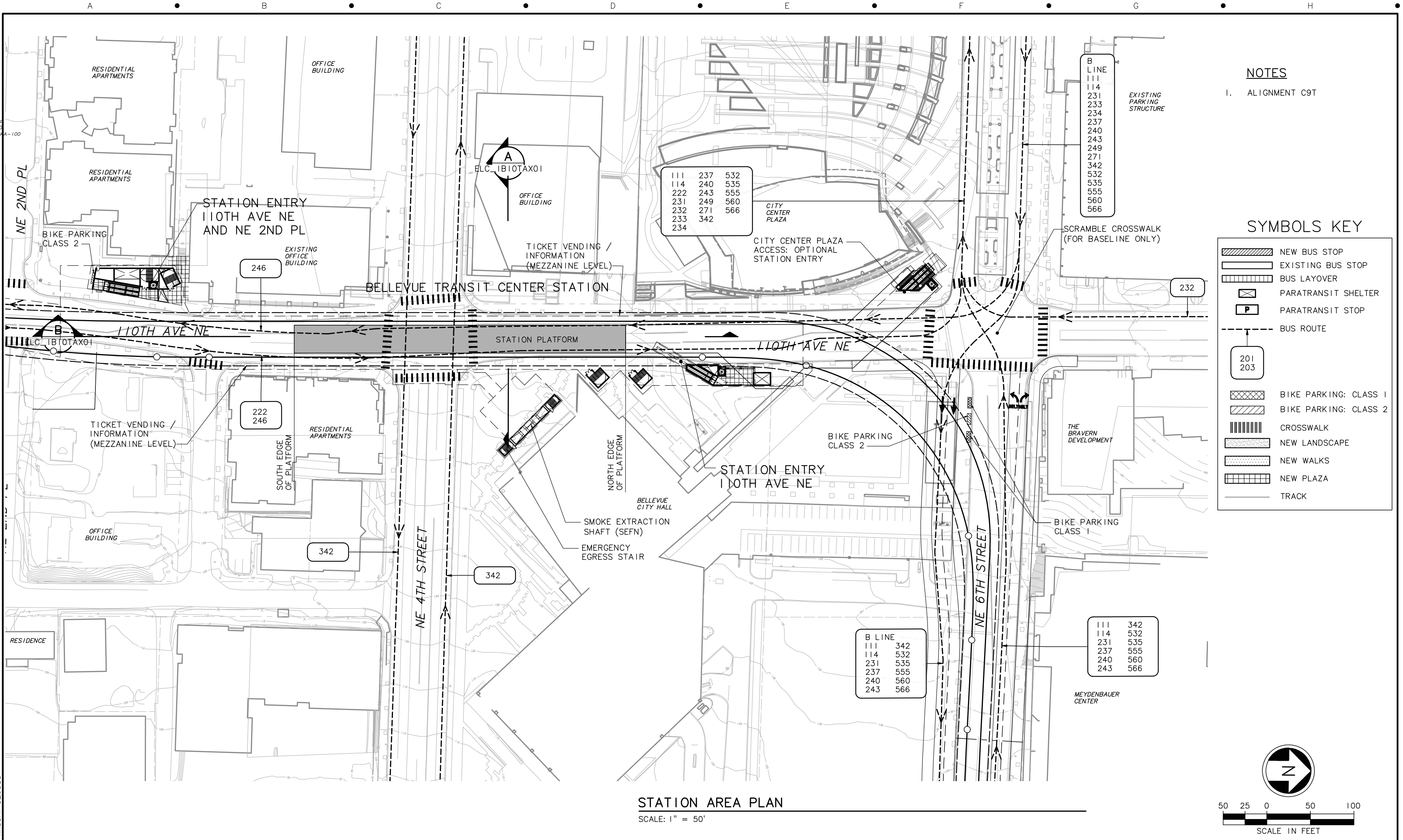
x0228rx
x0228sf
x0528cn
x0528rx
x0528sf
-Unresolved:
ELC_L71_CM



A
B
C
D
E
F
G
H
1
2
3
4
RESIDENTIAL APARTMENTS
OFFICE BUILDING
NE 2ND PL
STATION ENTRY 110TH AVE NE AND NE 2ND PL
BIKE PARKING CLASS 2
EXISTING OFFICE BUILDING
246
A
ELC_IB10TAX01
TICKET VENDING / INFORMATION (MEZZANINE LEVEL)
BELLEVUE TRANSIT CENTER STATION
111 237 532
114 240 535
222 243 555
231 249 560
232 271 566
233 342
234
CITY CENTER PLAZA
CITY CENTER PLAZA ACCESS: OPTIONAL STATION ENTRY
EXISTING PARKING STRUCTURE
B LINE
111
114
231
233
234
237
240
243
249
271
342
532
535
555
560
566
SCRAMBLE CROSSWALK (FOR BASELINE ONLY)
232
B
ELC_IB10TAX01
110TH AVE NE
STATION PLATFORM
110TH AVE NE
222
246
TICKET VENDING / INFORMATION (MEZZANINE LEVEL)
RESIDENTIAL APARTMENTS
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
BIKE PARKING CLASS 2
STATION ENTRY 110TH AVE NE
THE BRAVERN DEVELOPMENT
BELLEVUE CITY HALL
SMOKE EXTRACTION SHAFT (SEFN)
EMERGENCY EGRESS STAIR
BIKE PARKING CLASS 1
OFFICE BUILDING
342
342
NE 4TH STREET
NE 6TH STREET
RESIDENCE
B LINE
111 342
114 532
231 535
237 555
240 560
243 566
111 342
114 532
231 535
237 555
240 560
243 566
MEYDENBAUER CENTER
N
NOTES
1. ALIGNMENT C9T
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
PARATRANSIT SHELTER
P PARATRANSIT STOP
BUS ROUTE
201 203
BIKE PARKING: CLASS 1
BIKE PARKING: CLASS 2
CROSSWALK
NEW LANDSCAPE
NEW WALKS
NEW PLAZA
TRACK
50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

HEWITT

SOUND TRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC_IB10TAS01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)
BTC STATION
STATION AREA PLAN

Drawing No.: B10T-AS01
Sheet No.: C-34
Rev.:

c:\work\feis\segment c\c9t-main\ELC_IB10TAS01.dwg
04/18/11 17:05 : khuum OE6585

XREF'S

Resolved

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SUB-SDEIS
ZG-2234H

Unresolved

LTSCALE

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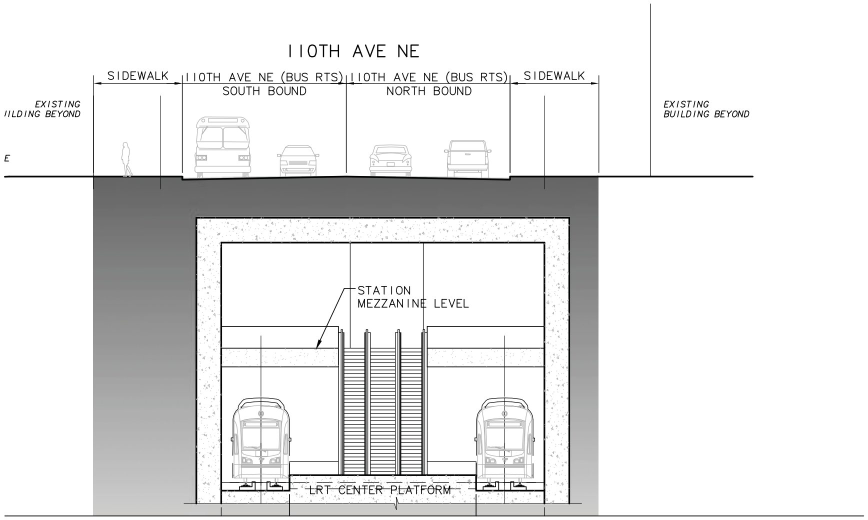
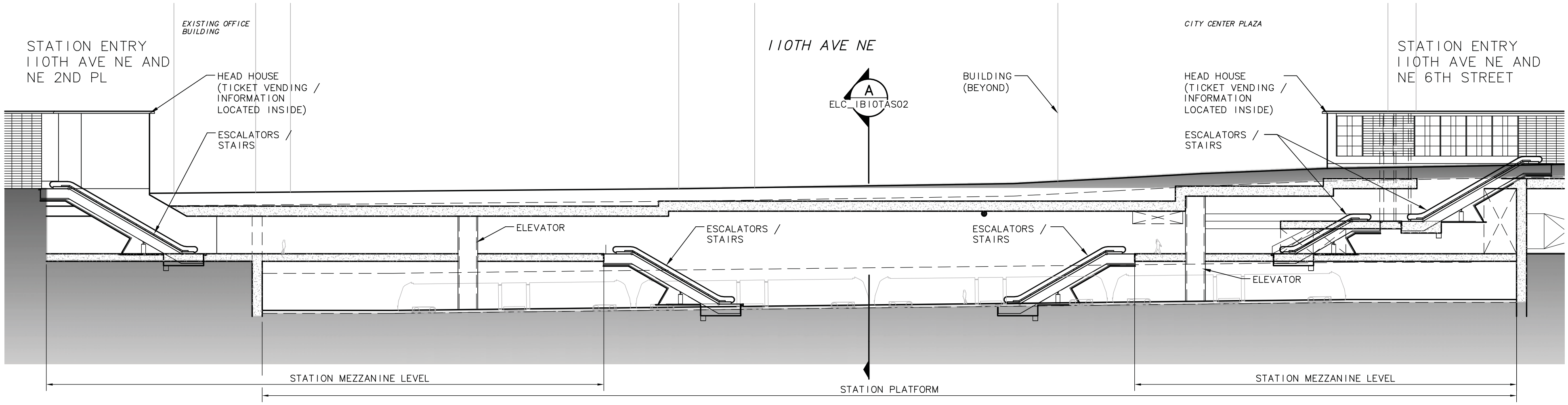

110TH AVE NE
SIDEWALK
110TH AVE NE (BUS RTS) SOUTH BOUND
110TH AVE NE (BUS RTS) NORTH BOUND
SIDEWALK
EXISTING BUILDING BEYOND
EXISTING BUILDING BEYOND
STATION MEZZANINE LEVEL
LRT CENTER PLATFORM

SECTION

SCALE: 1" = 10'

A
ELC_IB10TAX01


STATION ENTRY 110TH AVE NE AND NE 2ND PL
EXISTING OFFICE BUILDING
HEAD HOUSE (TICKET VENDING / INFORMATION LOCATED INSIDE)
ESCALATORS / STAIRS
110TH AVE NE
A
ELC_IB10TAS02
BUILDING (BEYOND)
ELEVATOR
ESCALATORS / STAIRS
ESCALATORS / STAIRS
CITY CENTER PLAZA
HEAD HOUSE (TICKET VENDING / INFORMATION LOCATED INSIDE)
ESCALATORS / STAIRS
STATION ENTRY 110TH AVE NE AND NE 6TH STREET
ELEVATOR
STATION MEZZANINE LEVEL
STATION PLATFORM
STATION MEZZANINE LEVEL

SECTION

SCALE: 1" = 20'

B
ELC_IB10TAS01

20 10 0 20 40
SCALE IN FEET

c:\work\sdeis\ELC_IB10TAX01.dwg
08/17/10 12:00 : BOLIMAF OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
Submitted:

HEWITT
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: AS NOTED
Filename: ELC_IB10TAX01.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9T (PREFERRED)
BTC STATION
SITE SECTIONS

THIS PRINT REDUCED HALF SCALE

Drawing No.: B10T-AX01
Sheet No.: C-35
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELB_L65_KA-1
ELC_L71_KA
ELD_L75_KA
SUB-FEIS
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
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x0834rx
x0834sf
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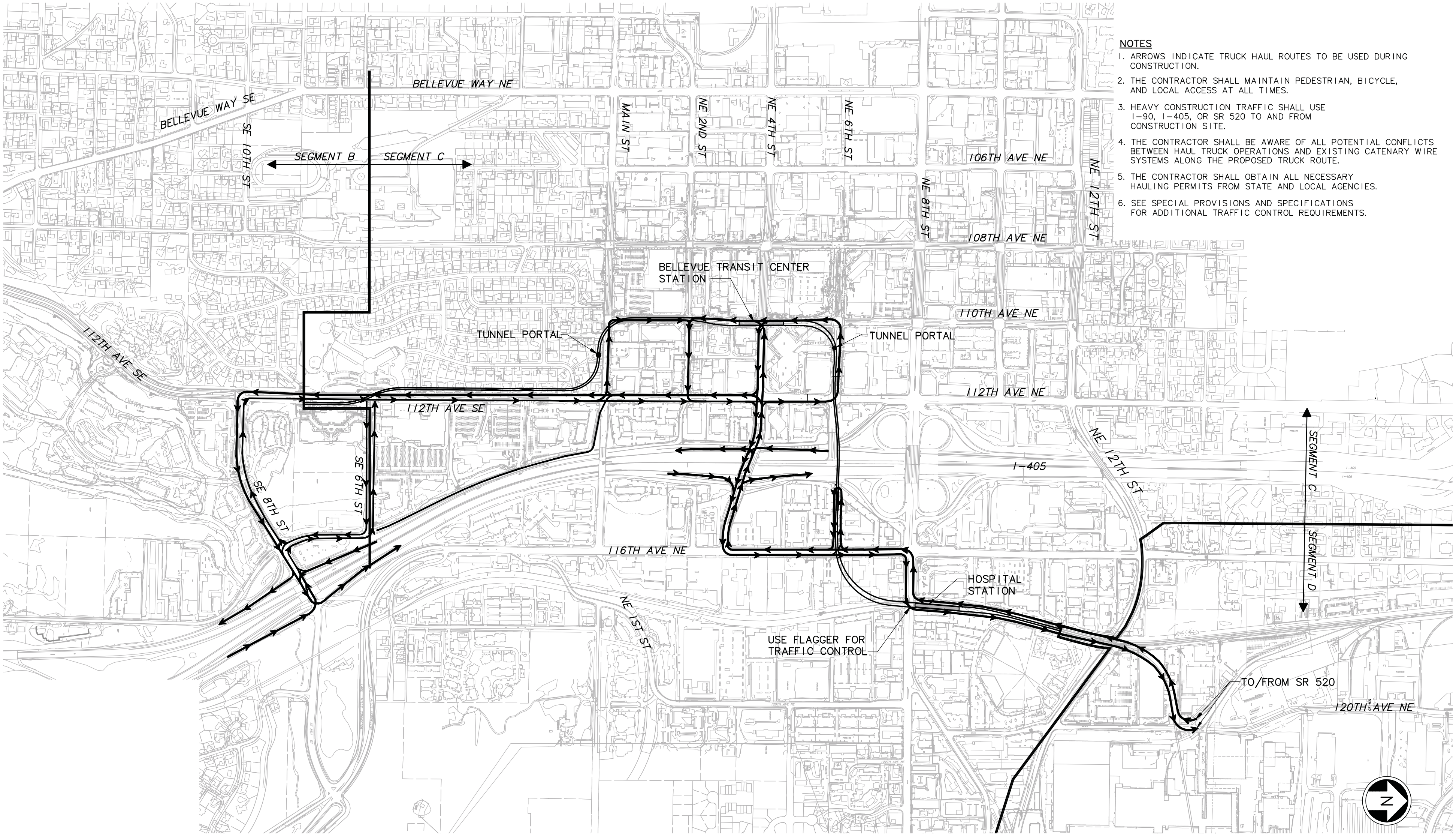
A
B
C
D
E
F
G
H
1
2
3
4
BELLEVUE WAY NE
BELLEVUE WAY SE
SE 10TH ST
SEGMENT B
SEGMENT C
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
106TH AVE NE
108TH AVE NE
NE 12TH ST
BELLEVUE TRANSIT CENTER STATION
TUNNEL PORTAL
TUNNEL PORTAL
110TH AVE NE
112TH AVE SE
112TH AVE SE
112TH AVE NE
SE 6TH ST
SE 8TH ST
I-405
NE 12TH ST
SEGMENT C
SEGMENT D
116TH AVE NE
NE 1ST ST
HOSPITAL STATION
USE FLAGGER FOR TRAFFIC CONTROL
TO/FROM SR 520
120TH AVE NE
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN, BICYCLE, AND LOCAL ACCESS AT ALL TIMES.
3. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.
4. THE CONTRACTOR SHALL BE AWARE OF ALL POTENTIAL CONFLICTS BETWEEN HAUL TRUCK OPERATIONS AND EXISTING CATENARY WIRE SYSTEMS ALONG THE PROPOSED TRUCK ROUTE.
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY HAULING PERMITS FROM STATE AND LOCAL AGENCIES.
6. SEE SPECIAL PROVISIONS AND SPECIFICATIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.

c:\work\feis\segment c\c9t-main\ELC_C9T_CC01.dwg
06/20/11 13:17 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELC_C9T_CC01.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9T (PREFERRED)

THIS PRINT REDUCED HALF SCALE

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: C9T_-CC01

Sheet No.: C-36
Rev.:

XREF'S

Resolved

ELC_CIT_KA
REG-DCON
ZG-2234H
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
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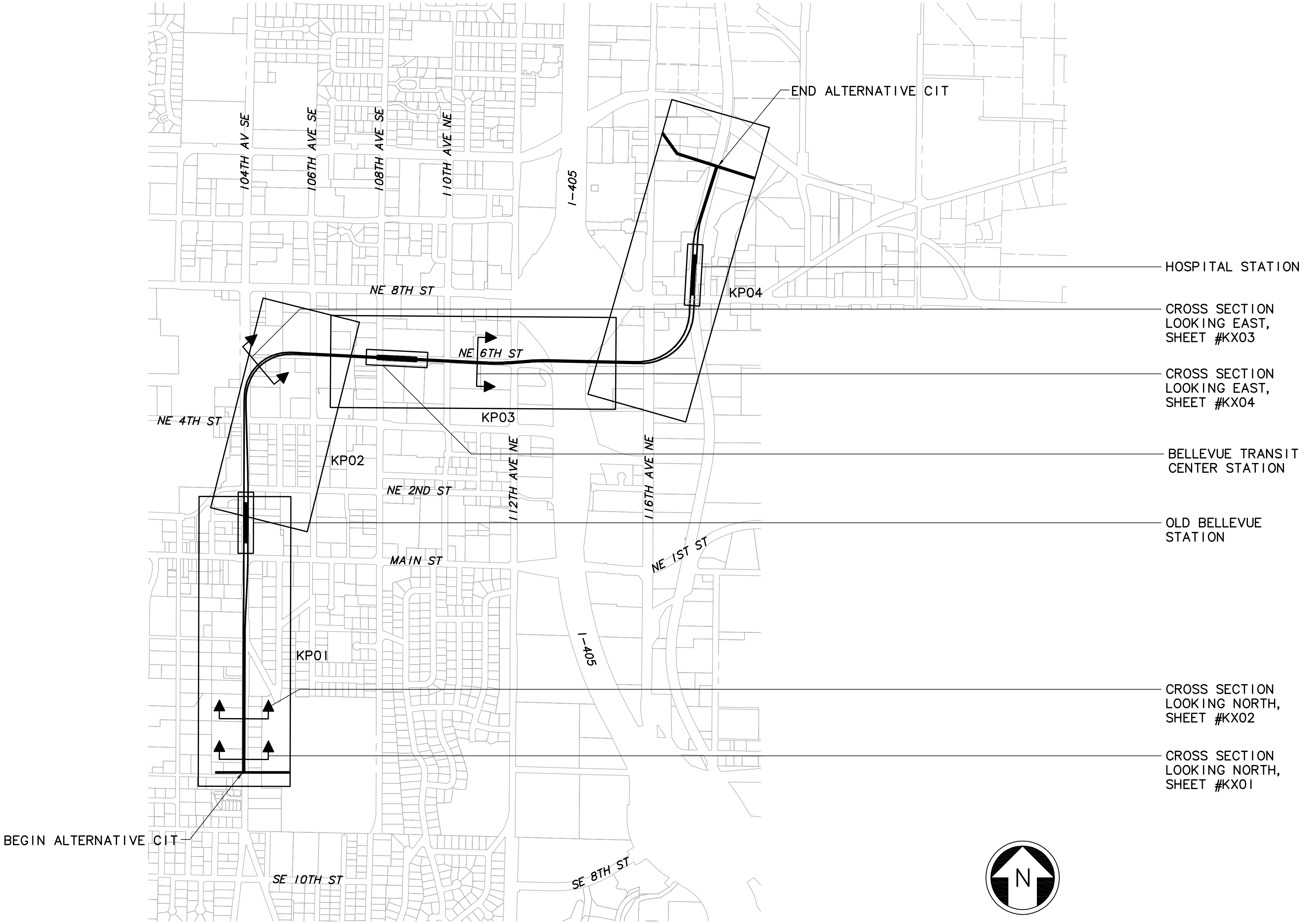
key_East
key_Segment

LTSCALE

1=1

c:\work\ELCICIT_GZ05.dwg
10/16/08 09:52 : eackerm OE5396


END ALTERNATIVE CIT
104TH AV SE
106TH AVE SE
108TH AVE SE
110TH AVE NE
I-405
HOSPITAL STATION
KP04
NE 8TH ST
CROSS SECTION LOOKING EAST, SHEET #KX03
NE 6TH ST
CROSS SECTION LOOKING EAST, SHEET #KX04
KP03
NE 4TH ST
BELLEVUE TRANSIT CENTER STATION
KP02
112TH AVE NE
116TH AVE NE
NE 2ND ST
OLD BELLEVUE STATION
NE 1ST ST
MAIN ST
I-405
KP01
CROSS SECTION LOOKING NORTH, SHEET #KX02
CROSS SECTION LOOKING NORTH, SHEET #KX01
BEGIN ALTERNATIVE CIT
SE 10TH ST
SE 8TH ST
N

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

Submitted:
Date:
Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELCICIT_GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: CIT-BI
ALTERNATIVE CIT

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: CIT-GZ05
Sheet No.: C-37
Rev.:

XREF'S

Resolved

ELC_CIT_CM
ELC_CIT_JO
ELC_CIT_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

St_Names_E_48

LTSCALE

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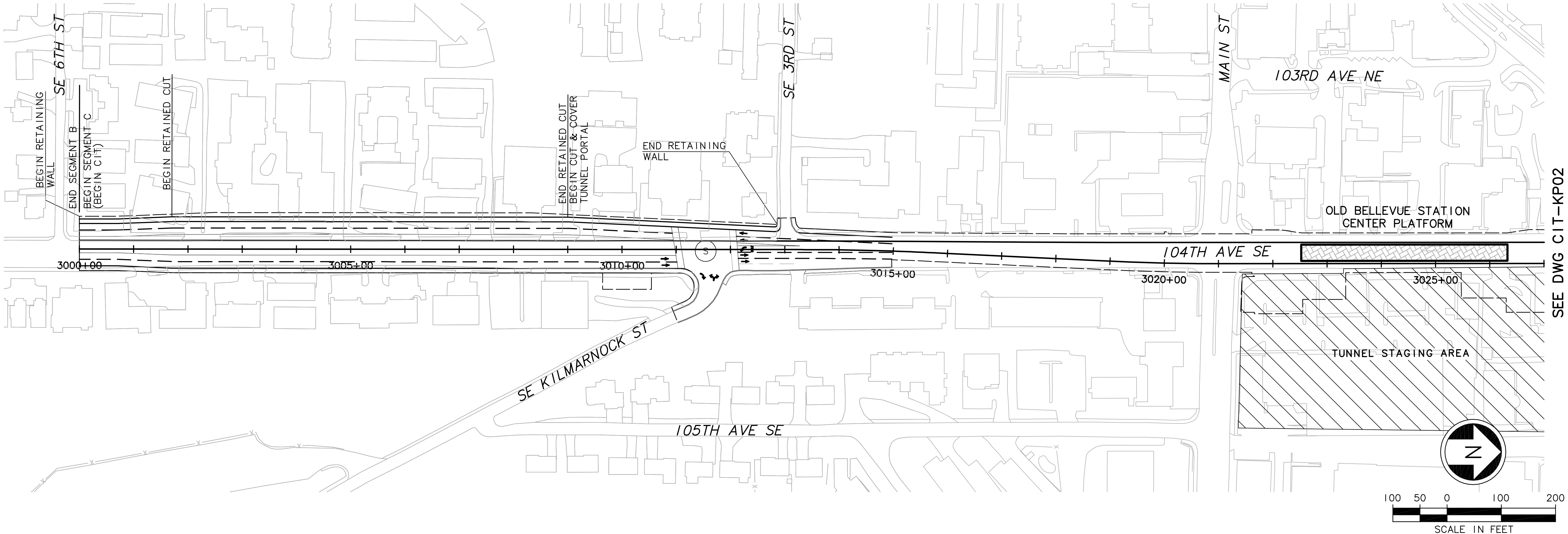
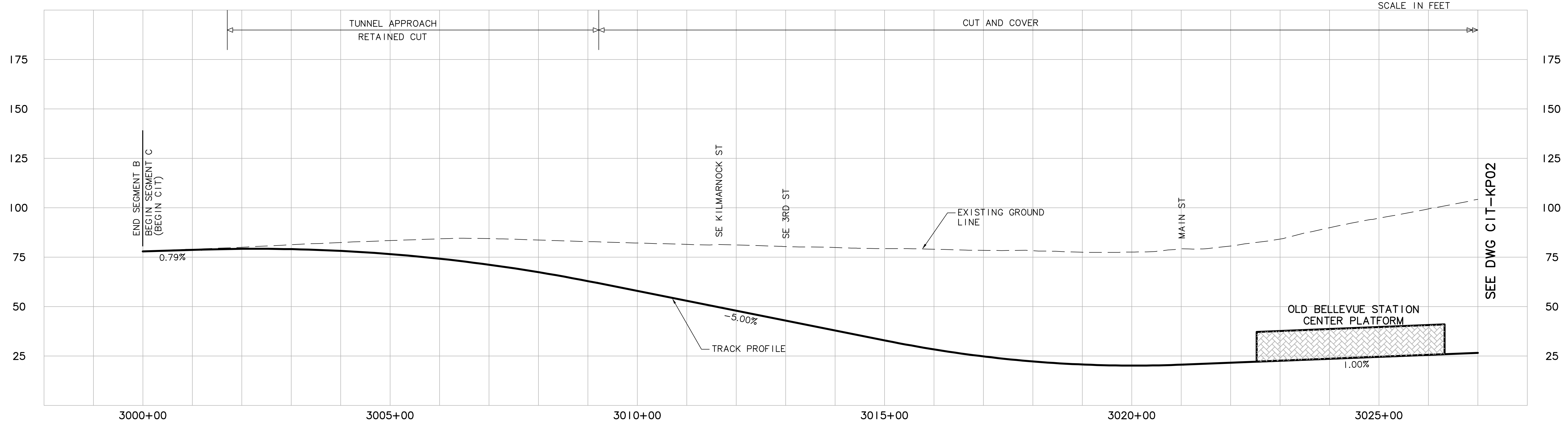


SE 6TH ST
BEGIN RETAINING WALL
END SEGMENT B
BEGIN SEGMENT C (BEGIN CIT)
BEGIN RETAINED CUT
END RETAINED CUT
BEGIN CUT & COVER
TUNNEL PORTAL
END RETAINING WALL
SE 3RD ST
MAIN ST
103RD AVE NE
OLD BELLEVUE STATION
CENTER PLATFORM
104TH AVE SE
3000+00
3005+00
3010+00
3015+00
3020+00
3025+00
SE KILMARNOCK ST
TUNNEL STAGING AREA
105TH AVE SE
N
SEE DWG CIT-KP02
100 50 0 100 200
SCALE IN FEET



TUNNEL APPROACH
RETAINED CUT
CUT AND COVER
175
150
125
100
75
50
25
END SEGMENT B
BEGIN SEGMENT C (BEGIN CIT)
0.79%
SE KILMARNOCK ST
SE 3RD ST
MAIN ST
EXISTING GROUND LINE
-5.00%
TRACK PROFILE
OLD BELLEVUE STATION
CENTER PLATFORM
1.00%
SEE DWG CIT-KP02
3000+00
3005+00
3010+00
3015+00
3020+00
3025+00

c:\work\ELCICIT_KP01.dwg
10/16/08 09:53 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: H: 1"=100'; V: 1"=25'
Filename: ELCICIT_KP01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: CIT-B1
ALTERNATIVE CIT
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: CIT-KP01
Sheet No.: C-38
Rev.:

XREF'S

Resolved

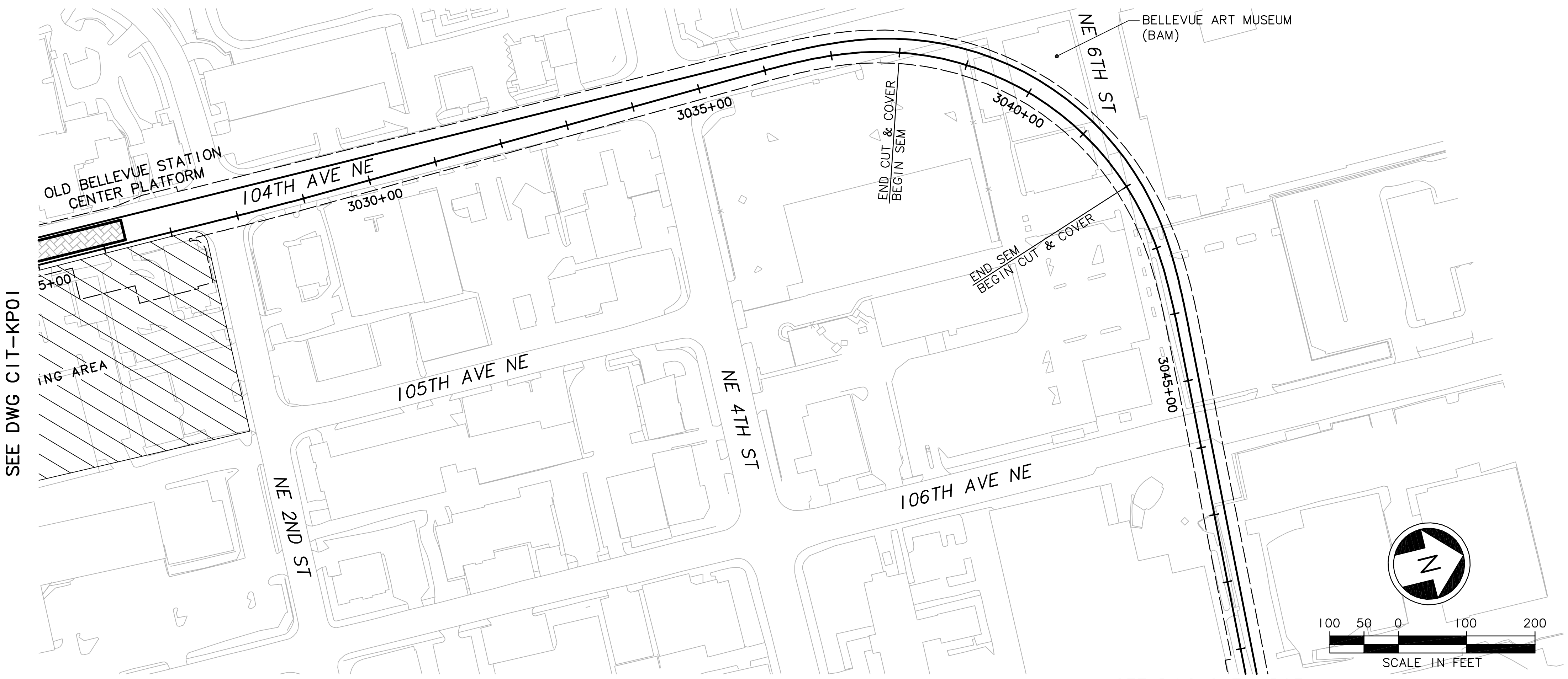
ELC_CIT_CM
ELC_CIT_JO
ELC_CIT_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

St_Names_E_40
key_East

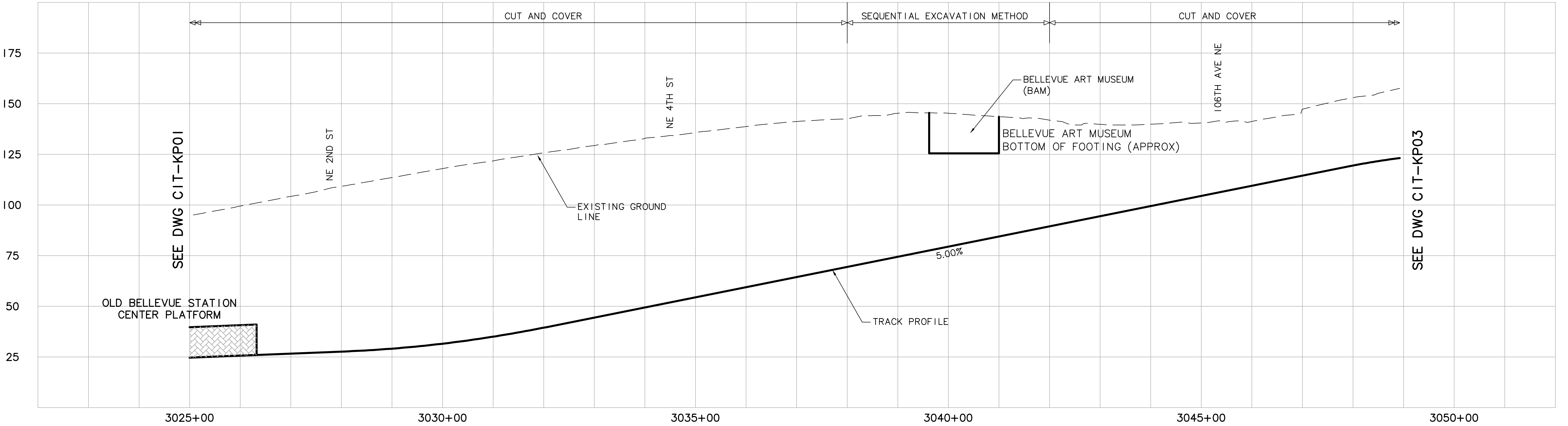
LTSCALE

1=1



BELLEVUE ART MUSEUM
(BAM)
NE 6TH ST
OLD BELLEVUE STATION
CENTER PLATFORM
104TH AVE NE
3030+00
3035+00
3040+00
3045+00
END CUT & COVER
BEGIN SEM
END SEM
BEGIN CUT & COVER
SEE DWG CIT-KP01
5+00
ING AREA
105TH AVE NE
NE 4TH ST
NE 2ND ST
106TH AVE NE
N
100 50 0 100 200
SCALE IN FEET

SEE DWG CIT-KP03



c:\work\ELCICIT_KP02.dwg
10/16/08 09:53 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELCICIT_KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: CIT-B1
ALTERNATIVE CIT
TRACK PLAN & PROFILE

THIS PRINT REDUCED
HALF SCALE

Drawing No.:
CIT-KP02
Sheet No.:
C-39
Rev.:

XREF'S

Resolved

ELC_CIT_CM
ELC_CIT_JO
ELC_CIT_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
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St_Names_E_40
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LTSCALE

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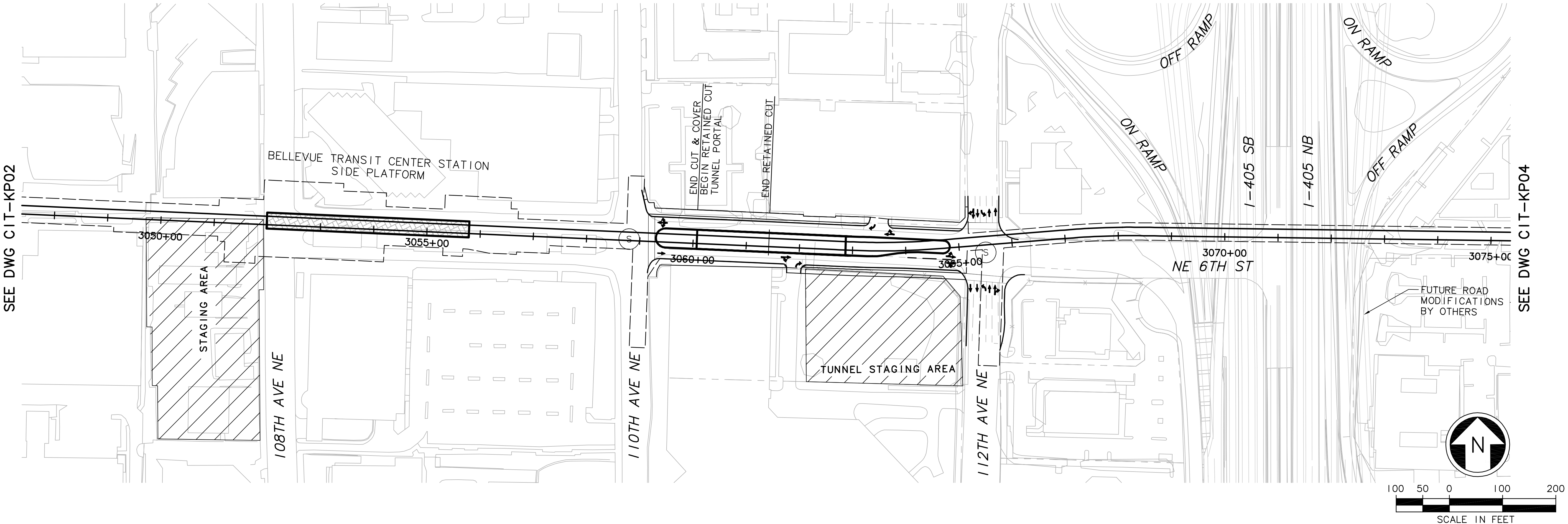
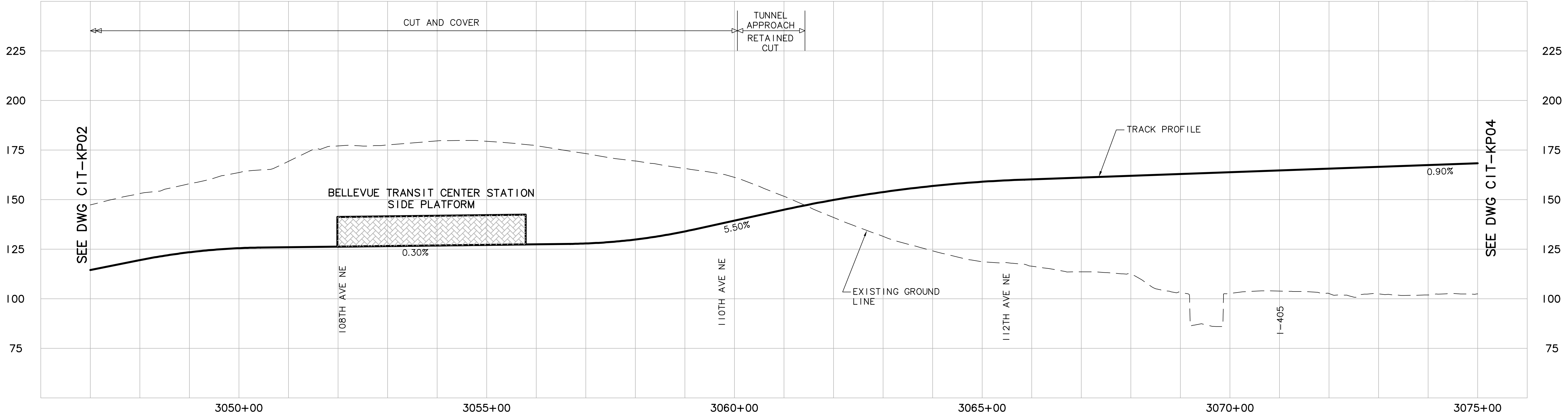


SEE DWG CIT-KP02
BELLEVUE TRANSIT CENTER STATION SIDE PLATFORM
STAGING AREA
3050+00
3055+00
108TH AVE NE
110TH AVE NE
END CUT & COVER
BEGIN RETAINED CUT
TUNNEL PORTAL
END RETAINED CUT
3060+00
TUNNEL STAGING AREA
3065+00
112TH AVE NE
ON RAMP
OFF RAMP
I-405 SB
I-405 NB
ON RAMP
OFF RAMP
3070+00
NE 6TH ST
3075+00
FUTURE ROAD MODIFICATIONS BY OTHERS
SEE DWG CIT-KP04
N
100 50 0 100 200
SCALE IN FEET



CUT AND COVER
TUNNEL APPROACH
RETAINED CUT
225
200
175
150
125
100
75
SEE DWG CIT-KP02
BELLEVUE TRANSIT CENTER STATION SIDE PLATFORM
0.30%
108TH AVE NE
5.50%
110TH AVE NE
EXISTING GROUND LINE
112TH AVE NE
TRACK PROFILE
0.90%
I-405
SEE DWG CIT-KP04
3050+00
3055+00
3060+00
3065+00
3070+00
3075+00

c:\work\ELCICIT_KP03.dwg
10/16/08 09:54 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.
Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELCICIT_KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: CIT-BI
ALTERNATIVE CIT
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
CIT-KP03
Sheet No.:
Rev.:
C-40

XREF'S

Resolved

ELC_CIT_CM
ELC_CIT_JO
ELC_CIT_KA
REG-DCON
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ZG-G10010
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x0231rx
x0231sf
x0528rx
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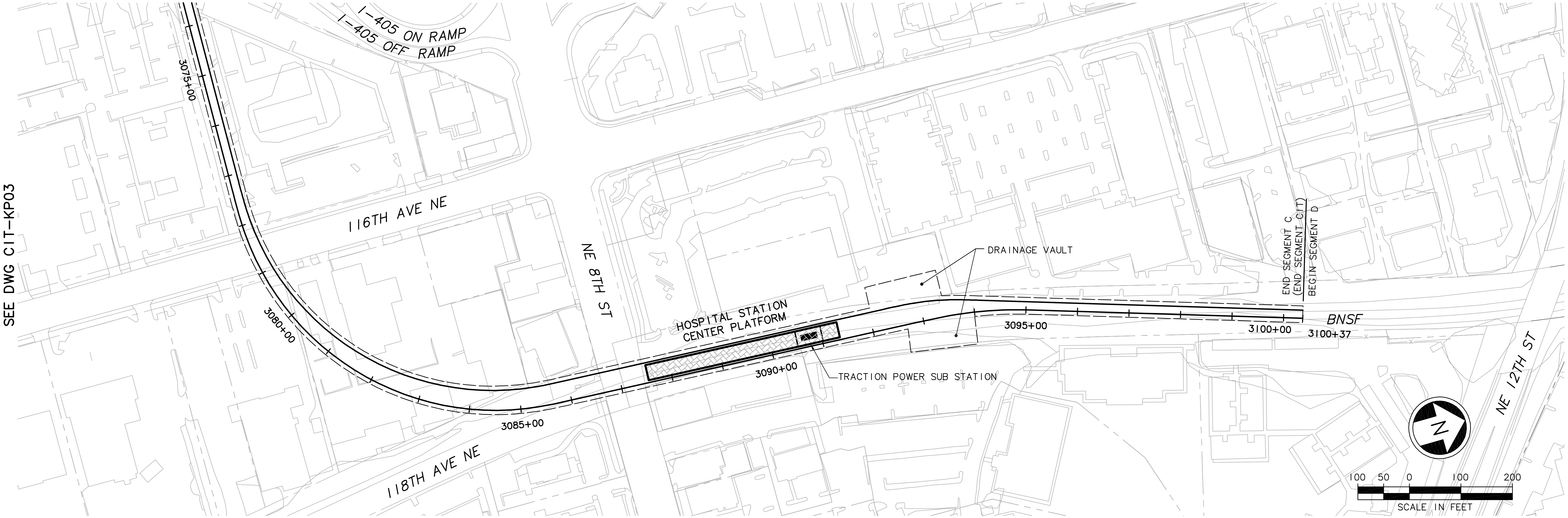
x0831sf

Unresolved

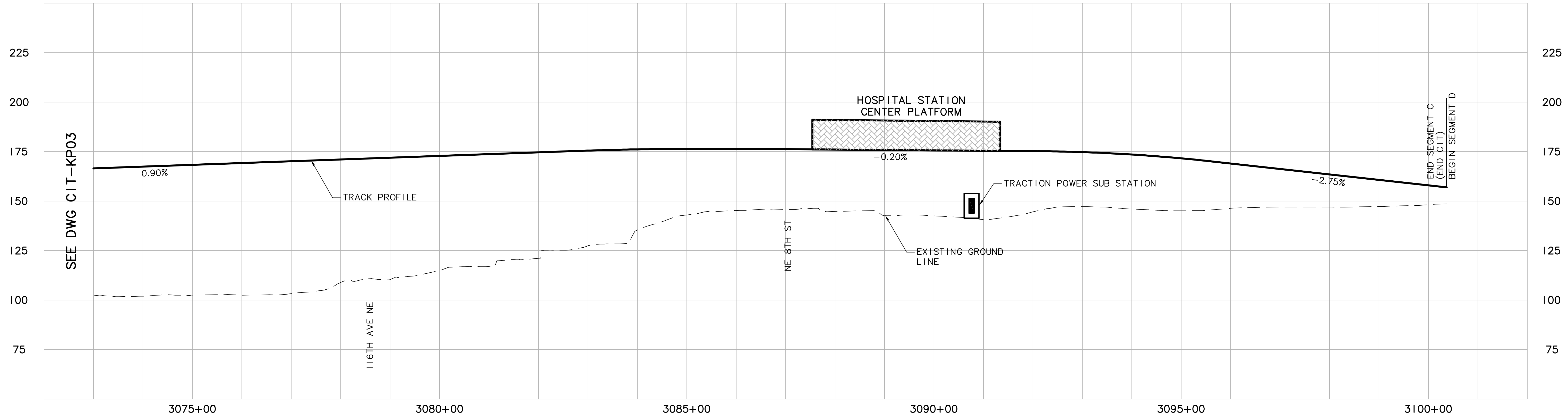
St_Names_E_4
key_East

LTSCALE

1=1



I-405 ON RAMP
I-405 OFF RAMP
SEE DWG CIT-KP03
116TH AVE NE
NE 8TH ST
118TH AVE NE
3075+00
3080+00
3085+00
3090+00
3095+00
3100+00
3100+37
HOSPITAL STATION CENTER PLATFORM
DRAINAGE VAULT
TRACTION POWER SUB STATION
END SEGMENT C (END SEGMENT CIT) BEGIN SEGMENT D
BNSF
NE 12TH ST
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELCICIT_KP04.dwg
10/16/08 09:54 : eackerm OE5396

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Scale: H: 1"=100'; V: 1"=25'
Filename: ELCICIT_KP04.dwg
Contract No.: EL SEG_C
Date:

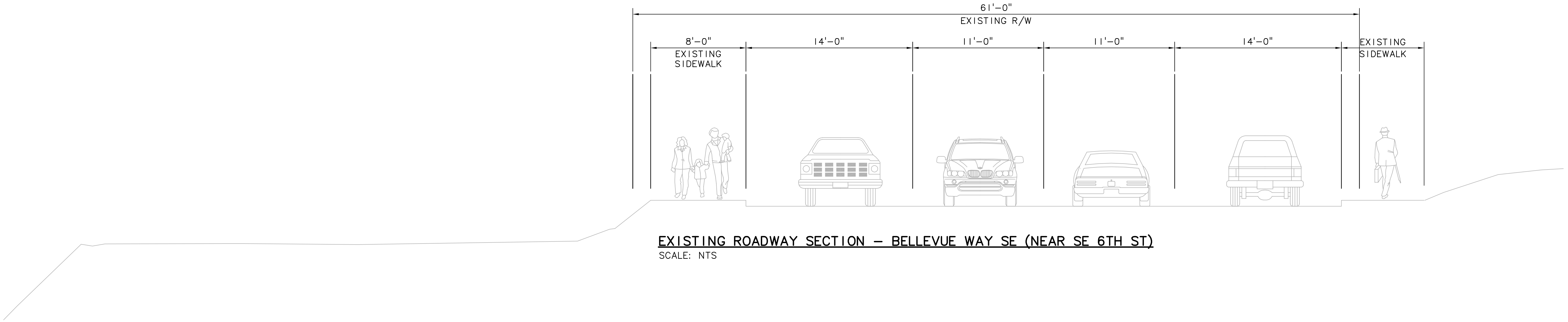
EAST LINK PROJECT
SEGMENT C: CIT-B1
ALTERNATIVE CIT
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: CIT-KP04
Sheet No.: C-41
Rev.:

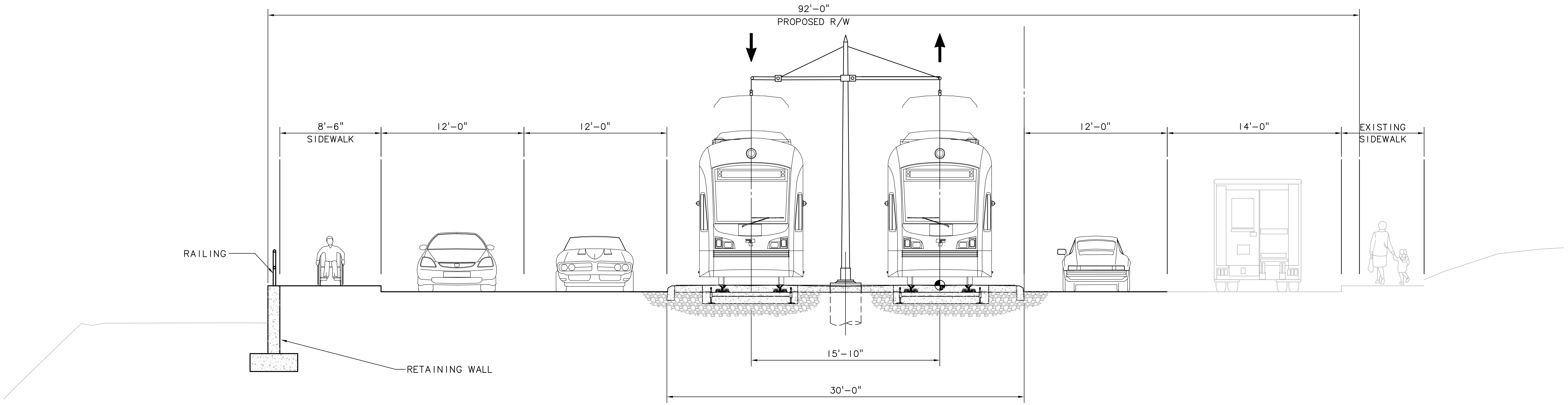
XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved

LTSCALE
1=1


61'-0"
EXISTING R/W
8'-0"
EXISTING SIDEWALK
14'-0"
11'-0"
11'-0"
14'-0"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION – BELLEVUE WAY SE (NEAR SE 6TH ST)

SCALE: NTS


92'-0"
PROPOSED R/W
8'-6"
SIDEWALK
12'-0"
12'-0"
12'-0"
14'-0"
EXISTING SIDEWALK
RAILING
RETAINING WALL
15'-10"
30'-0"

PROPOSED ROADWAY & LRT SECTION – BELLEVUE WAY SE (WIDENING TO WEST)
ALIGNMENT: CIT
AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Scale: NTS
Filename: ELCICIT_KX01.dwg
Contract No.: EL SEG_C
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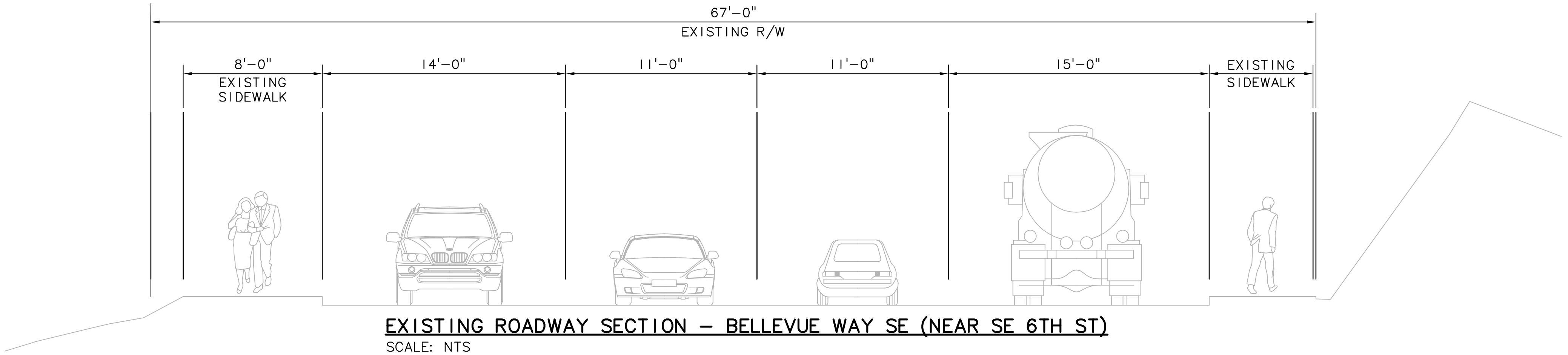
EAST LINK PROJECT
SEGMENT C
ALTERNATIVE CIT
TYPICAL SECTION

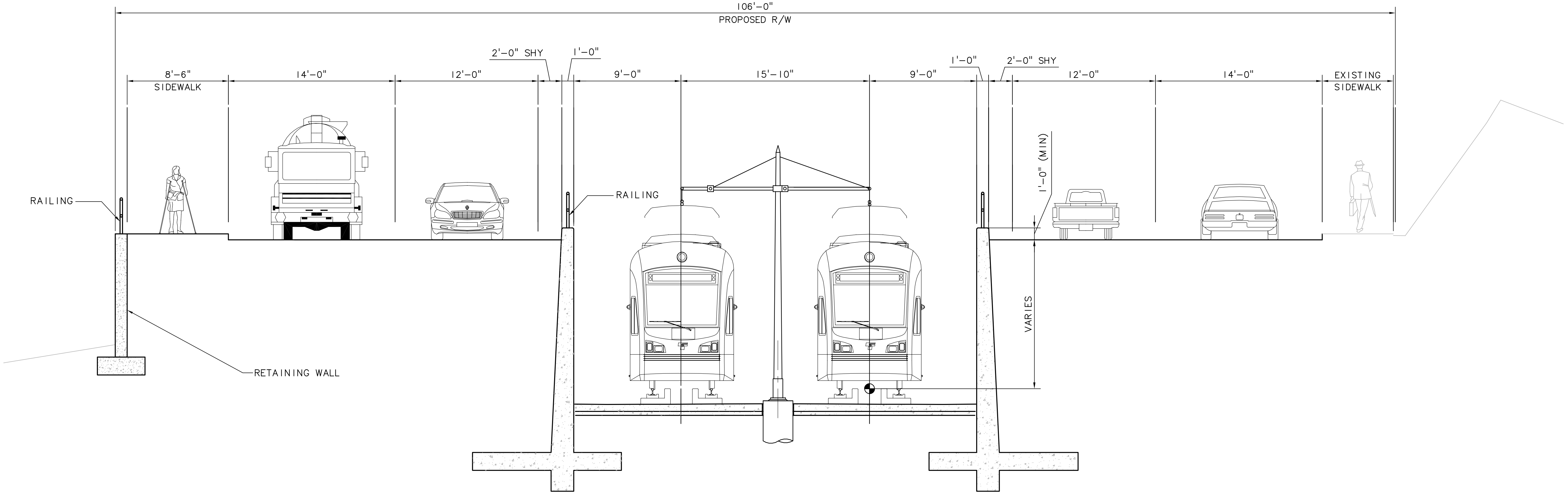
THIS PRINT REDUCED
HALF SCALE

Drawing No.: CIT-KX01
Sheet No.: C-42
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


67'-0"
EXISTING R/W
8'-0"
EXISTING SIDEWALK
14'-0"
11'-0"
11'-0"
15'-0"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION – BELLEVUE WAY SE (NEAR SE 6TH ST)
SCALE: NTS


106'-0"
PROPOSED R/W
2'-0" SHY
1'-0"
1'-0"
2'-0" SHY
8'-6"
SIDEWALK
14'-0"
12'-0"
9'-0"
15'-10"
9'-0"
12'-0"
14'-0"
EXISTING SIDEWALK
1'-0" (MIN)
RAILING
RAILING
VARIES
RETAINING WALL

PROPOSED ROADWAY & LRT SECTION – BELLEVUE WAY SE (WIDENING TO WEST)
ALIGNMENT: CIT
RETAINED CUT DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELCICIT_KX02.dwg
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SOUNDTRANSIT
Date:

Scale: NTS
Filename: ELCICIT_KX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE CIT
TYPICAL SECTION

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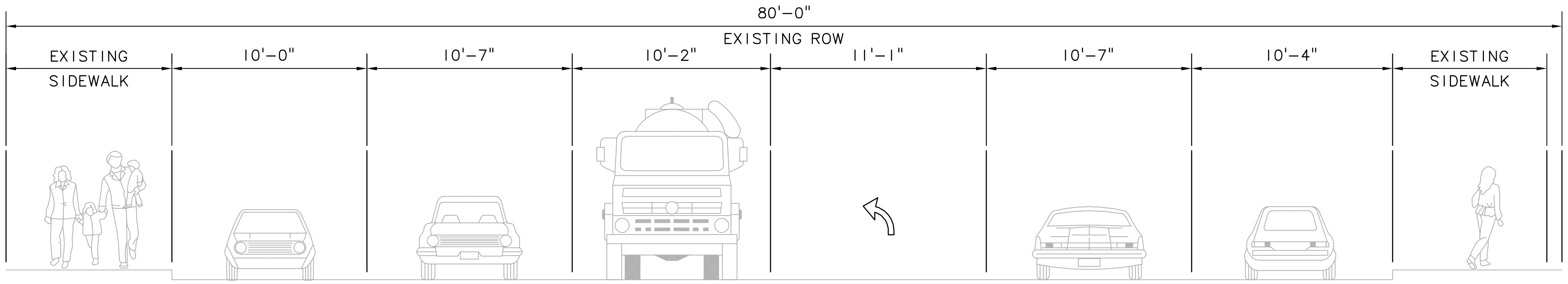
HALF SCALE

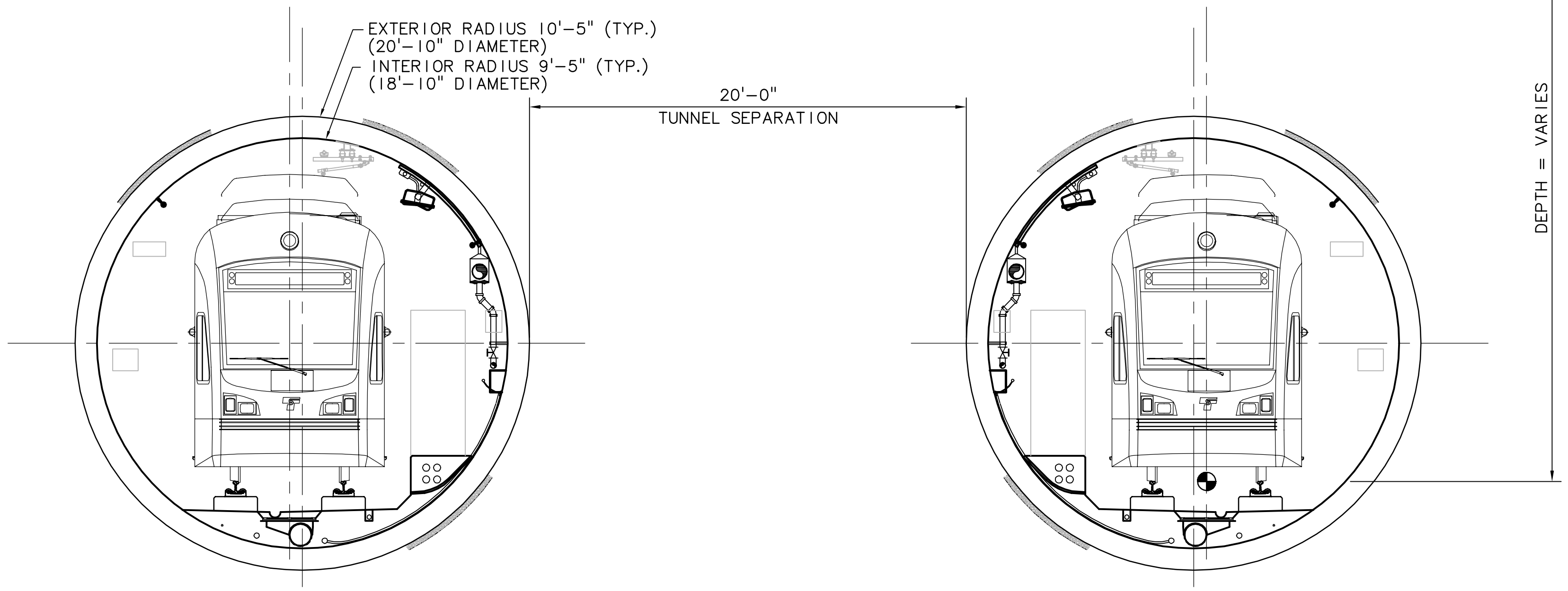
Drawing No.: CIT-KX02
Sheet No.: C-43
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


80'-0"
EXISTING ROW
EXISTING SIDEWALK
10'-0"
10'-7"
10'-2"
11'-1"
10'-7"
10'-4"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION – BELLEVUE WAY SE

SCALE: NTS


EXTERIOR RADIUS 10'-5" (TYP.)
(20'-10" DIAMETER)
INTERIOR RADIUS 9'-5" (TYP.)
(18'-10" DIAMETER)
20'-0"
TUNNEL SEPARATION
DEPTH = VARIES

PROPOSED LRT SECTION – BELLEVUE WAY SE & NE 6TH ST (UNDER BAM)
ALIGNMENT: CIT
MINED TUNNEL DIRECT FIXATION DOUBLE TRACK

SCALE: NTS

c:\work\ELCICIT_KX03.dwg
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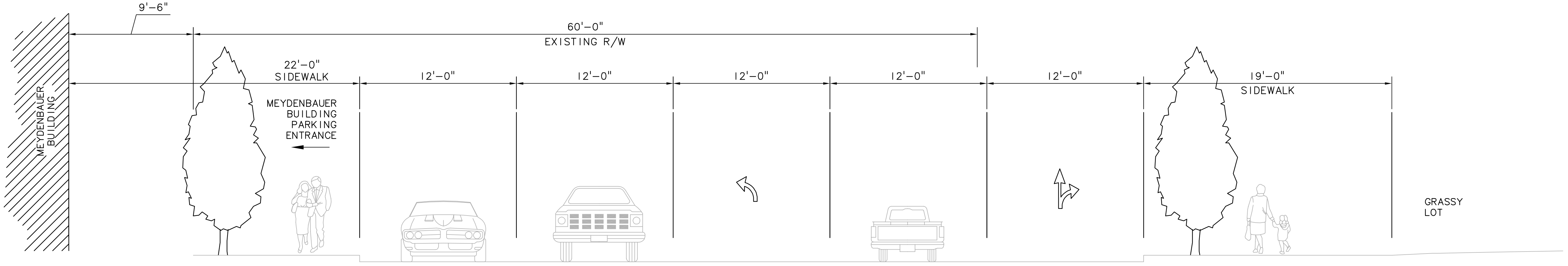
Scale: NTS
Filename: ELCICIT_KX03.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE CIT
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

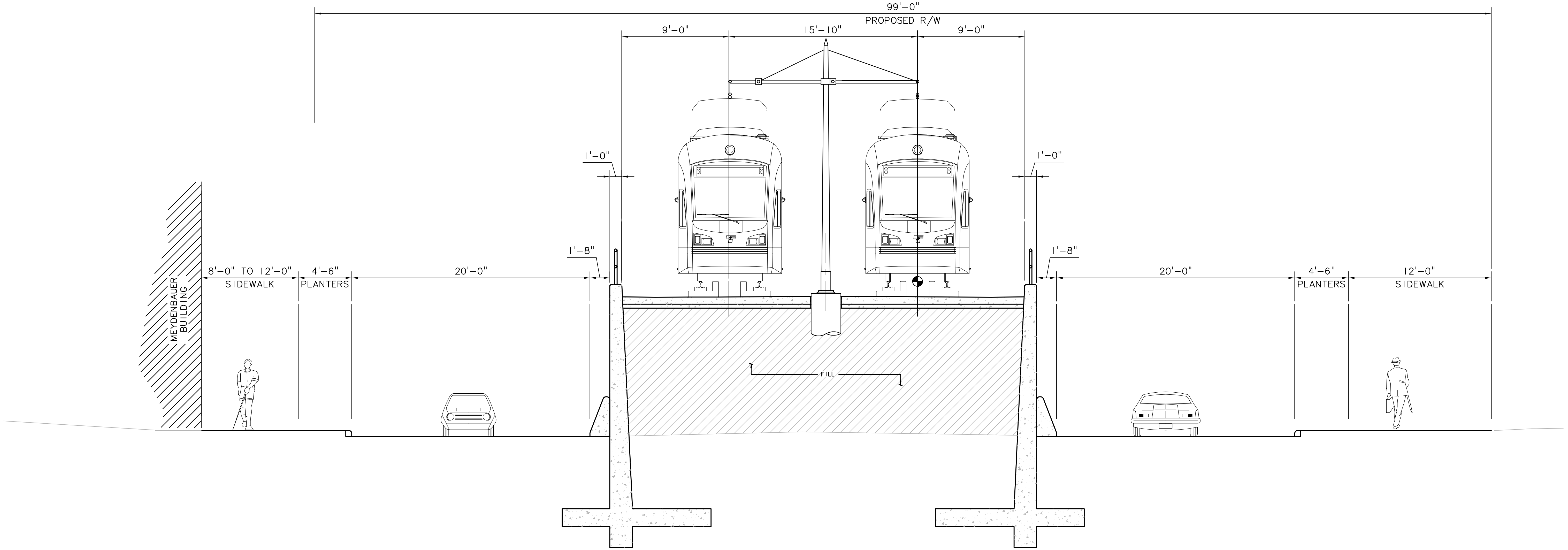
Drawing No.: CIT-KX03
Sheet No.: C-44
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


9'-6"
60'-0"
EXISTING R/W
22'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
19'-0"
SIDEWALK
MEYDENBAUER BUILDING
MEYDENBAUER BUILDING PARKING ENTRANCE
GRASSY LOT

EXISTING ROADWAY SECTION – NE 6TH ST (BETWEEN 110TH AVE NE AND 112TH AVE NE)

SCALE: NTS


99'-0"
PROPOSED R/W
9'-0"
15'-10"
9'-0"
1'-0"
1'-0"
1'-8"
1'-8"
8'-0" TO 12'-0"
SIDEWALK
4'-6"
PLANTERS
20'-0"
20'-0"
4'-6"
PLANTERS
12'-0"
SIDEWALK
MEYDENBAUER BUILDING
FILL

PROPOSED ROADWAY & LRT SECTION – NE 6TH ST
ALIGNMENT: CIT
RETAINED FILL DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Date:

Scale: NTS
Filename: ELCICIT_KX04.dwg
Contract No.: EL SEG_C
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EAST LINK PROJECT
SEGMENT C
ALTERNATIVE CIT
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: CIT-KX04
Sheet No.: C-45
Rev.:

XREF'S

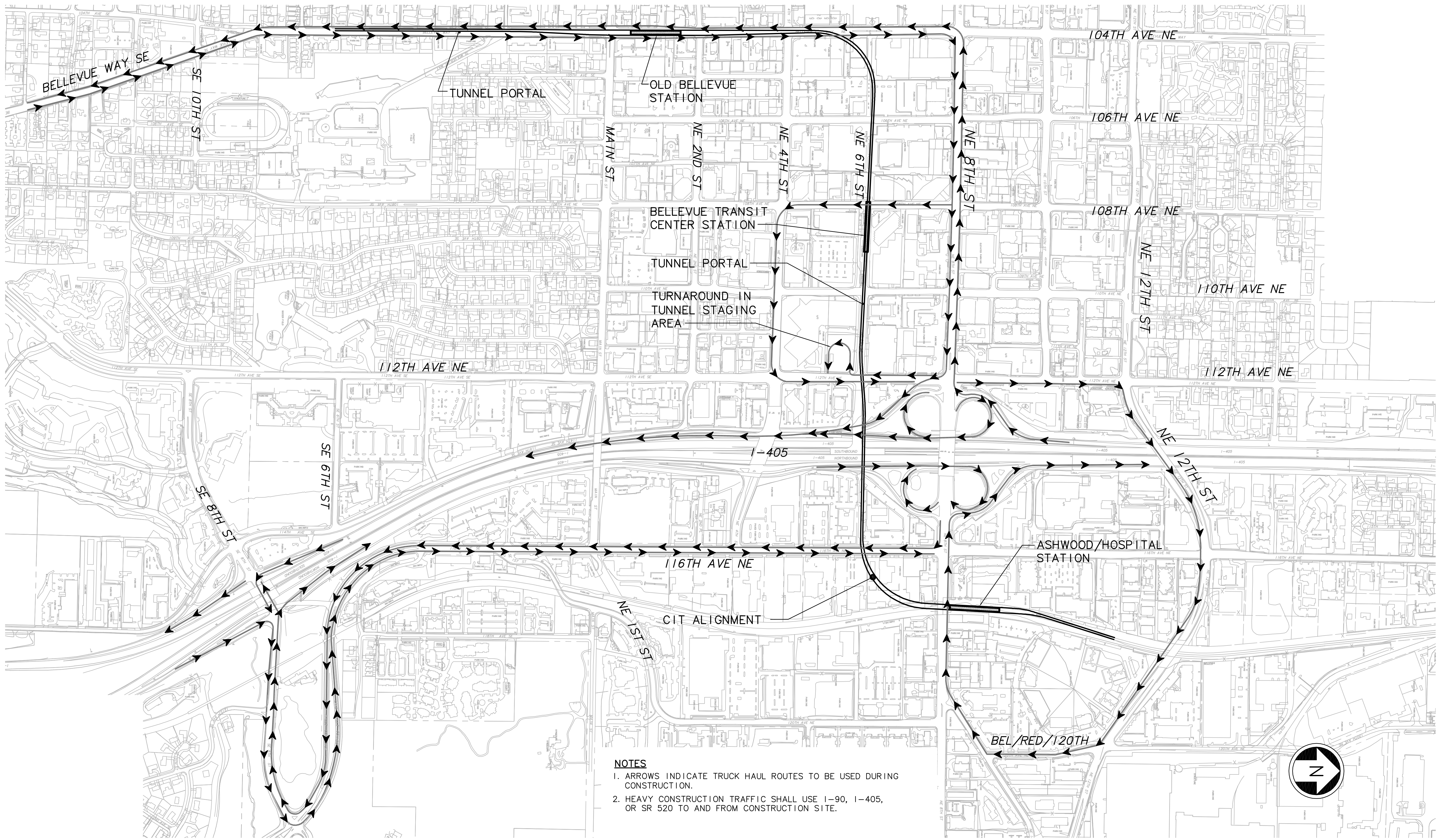
Resolved

ELC_CIT_KA
REG-DCON
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0825rx
x0825sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf

Unresolved

LTSCALE

1=1


1
2
3
4
5
BELLEVUE WAY SE
SE 10TH ST
TUNNEL PORTAL
OLD BELLEVUE STATION
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
104TH AVE NE
106TH AVE NE
108TH AVE NE
110TH AVE NE
NE 12TH ST
112TH AVE NE
BELLEVUE TRANSIT CENTER STATION
TUNNEL PORTAL
TURNAROUND IN TUNNEL STAGING AREA
I-405
SE 6TH ST
SE 8TH ST
116TH AVE NE
NE 1ST ST
CIT ALIGNMENT
ASHWOOD/HOSPITAL STATION
BEL/RED/120TH
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\ELCICIT_CC01.dwg
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Scale: NTS
Filename: ELCICIT_CC01.dwg
Contract No.: EL SEG_C
Date:

SEGMENT C
ALTERNATIVE CIT

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: CIT-CC01
Sheet No.: C-46
Rev.:

XREF'S

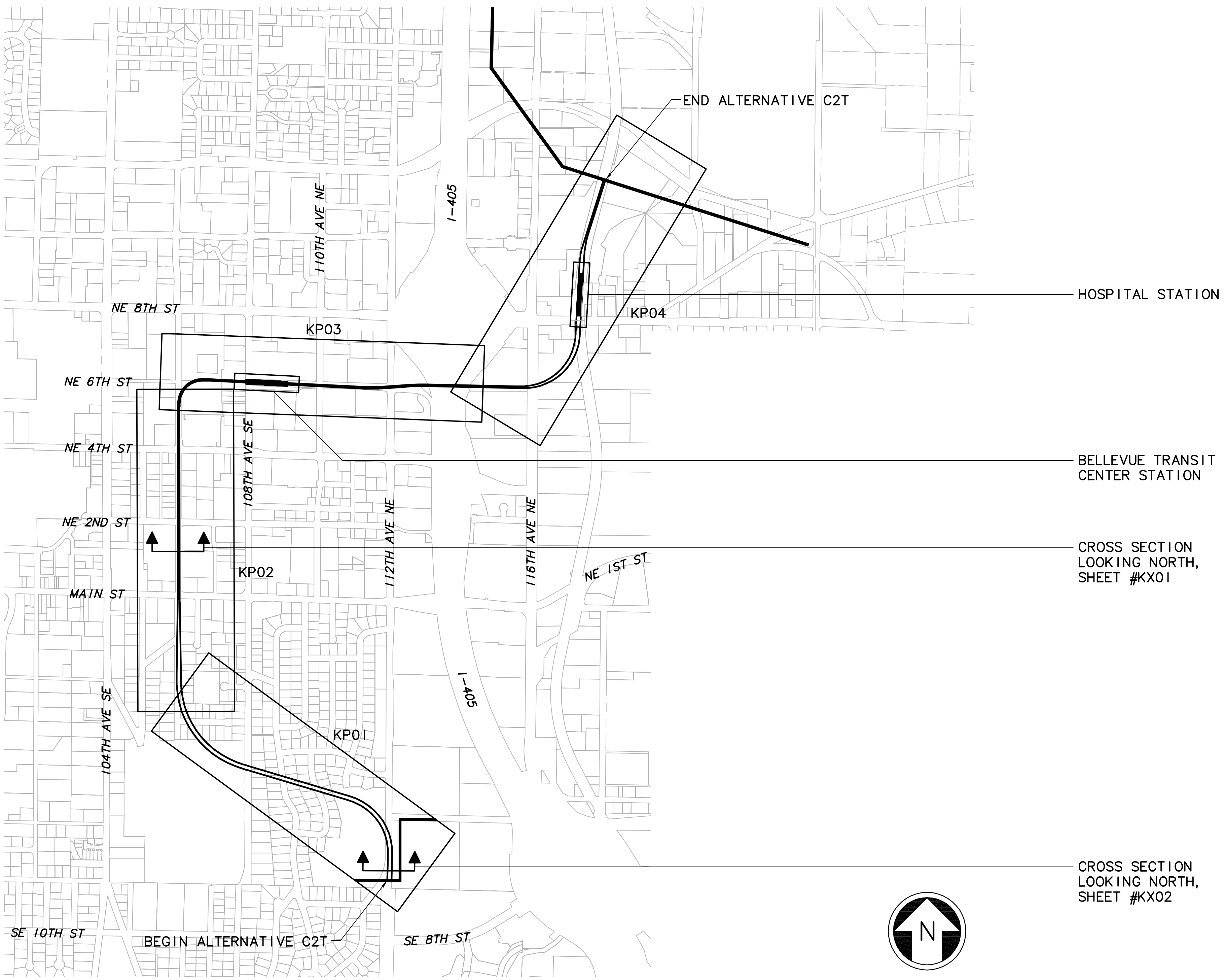
Resolved

ELC_C2T_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
----
key_East
key_Segment

LTSCALE

1=1



END ALTERNATIVE C2T
I-405
110TH AVE NE
HOSPITAL STATION
KP04
NE 8TH ST
KP03
NE 6TH ST
NE 4TH ST
108TH AVE SE
BELLEVUE TRANSIT
CENTER STATION
NE 2ND ST
112TH AVE NE
116TH AVE NE
NE 1ST ST
CROSS SECTION
LOOKING NORTH,
SHEET #KX01
KP02
MAIN ST
I-405
104TH AVE SE
KP01
CROSS SECTION
LOOKING NORTH,
SHEET #KX02
N
SE 10TH ST
BEGIN ALTERNATIVE C2T
SE 8TH ST

c:\work\ELCIC2T_GZ05.dwg
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Scale: NTS
Filename: ELCIC2T_GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2A OPTION
ALTERNATIVE C2T

KEY PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: C2T-GZ05
Sheet No.: C-47
Rev.:

XREF'S

Resolved

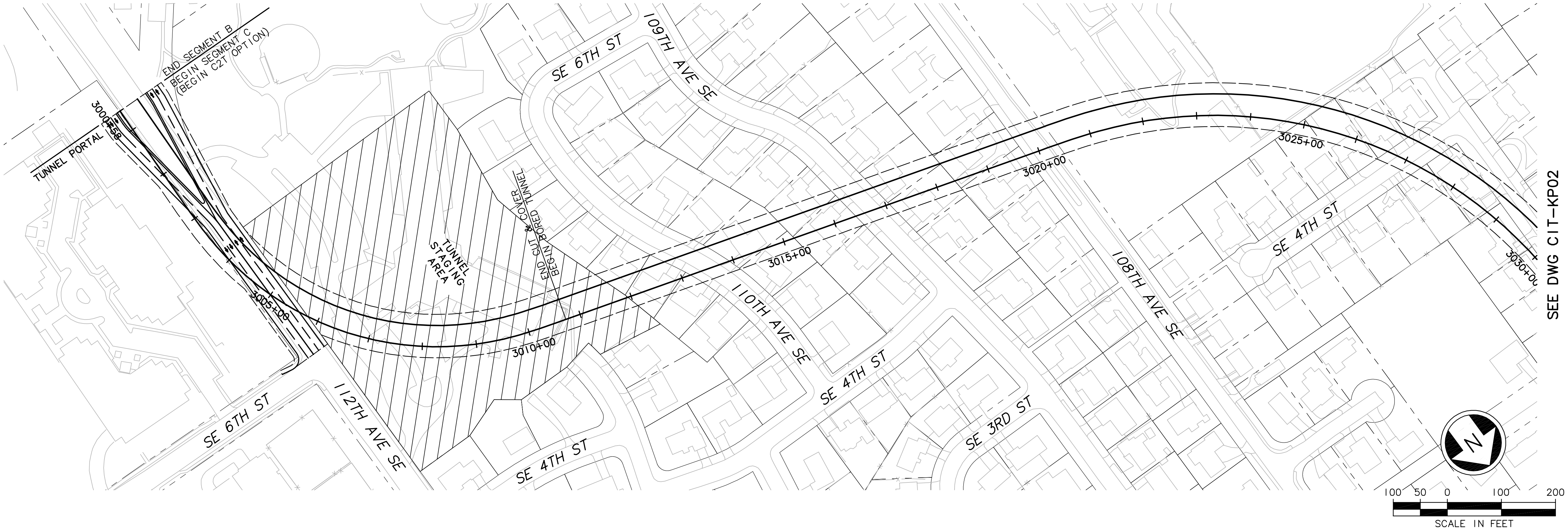
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

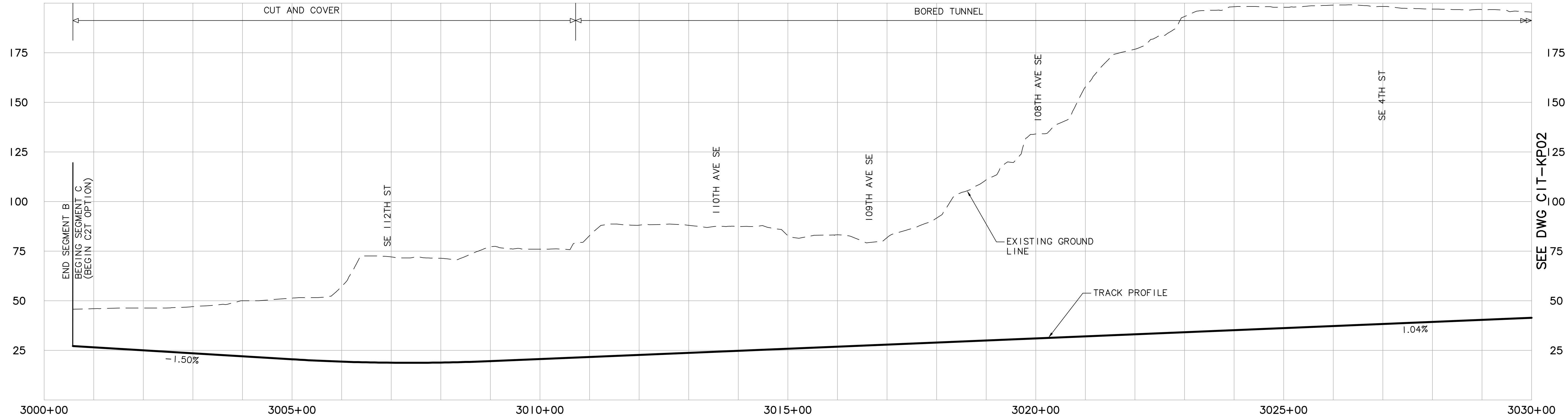
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


END SEGMENT B
BEGIN SEGMENT C
(BEGIN C2T OPTION)
3000+58
TUNNEL PORTAL
3005+00
3010+00
3015+00
3020+00
3025+00
3030+00
TUNNEL STAGING AREA
END CUT & COVER
BEGIN BORED TUNNEL
SE 6TH ST
109TH AVE SE
110TH AVE SE
108TH AVE SE
112TH AVE SE
SE 4TH ST
SE 3RD ST
N
SEE DWG C1T-KP02
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C2T_KP01.dwg
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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T_KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2A OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T-KP01
Sheet No.: C-48
Rev.:

XREF'S

Resolved

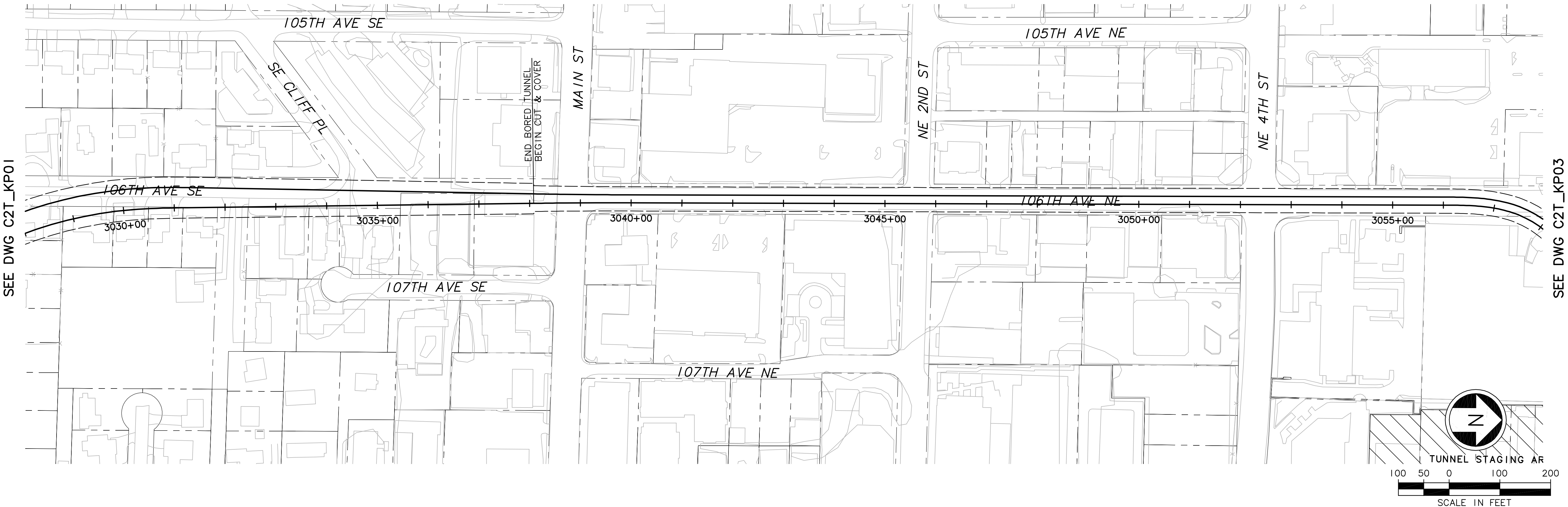
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

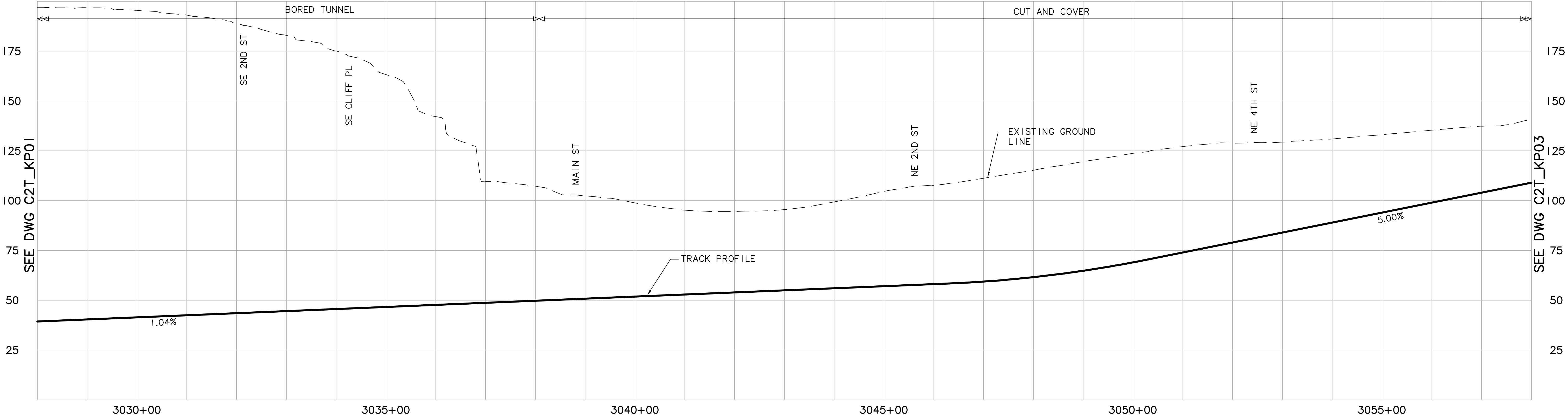
St_Names_E_48
key_East

LTSCALE

1=1



105TH AVE SE
SE CLIFF PL
END BORED TUNNEL BEGIN CUT & COVER
MAIN ST
105TH AVE NE
NE 2ND ST
NE 4TH ST
SEE DWG C2T_KP01
SEE DWG C2T_KP03
106TH AVE SE
106TH AVE NE
3030+00
3035+00
3040+00
3045+00
3050+00
3055+00
107TH AVE SE
107TH AVE NE
N
TUNNEL STAGING AR
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C2T_KP02.dwg
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Date:

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T_KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2A OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T-KP02
Sheet No.:
Rev.:
C-49

XREF'S

Resolved

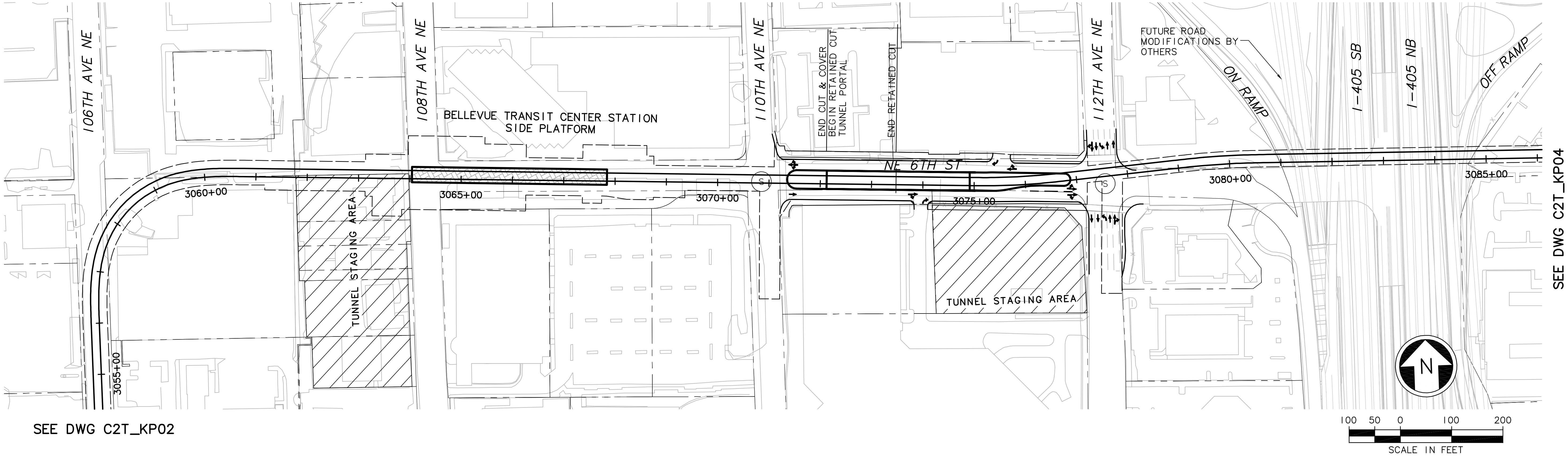
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

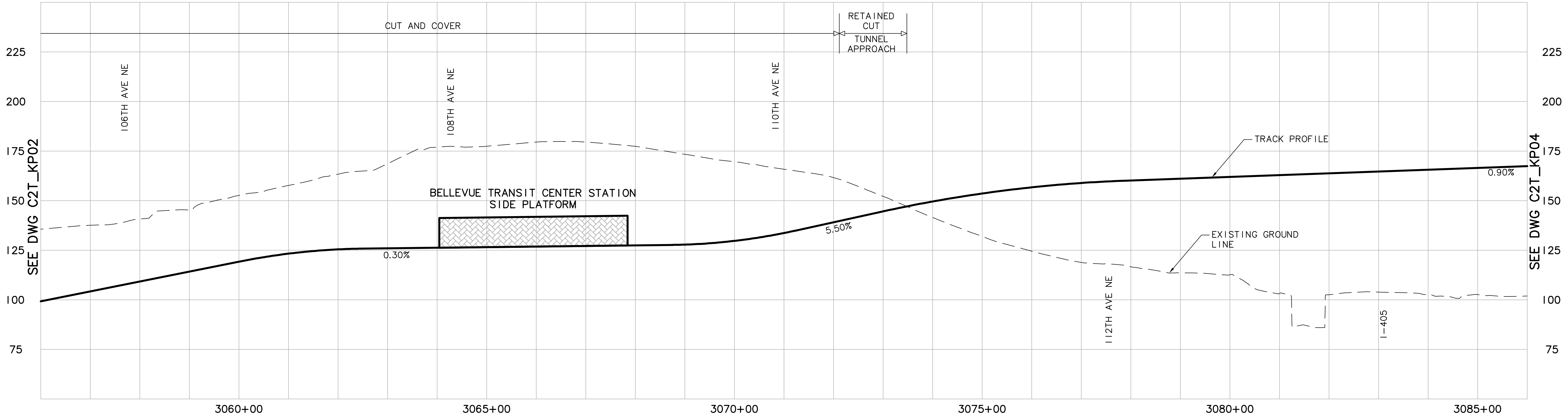
Unresolved

St_Names_E_4
key_East

LTSCALE

1=1


106TH AVE NE
108TH AVE NE
BELLEVUE TRANSIT CENTER STATION
SIDE PLATFORM
110TH AVE NE
END CUT & COVER
BEGIN RETAINED CUT
TUNNEL PORTAL
END RETAINED CUT
112TH AVE NE
FUTURE ROAD MODIFICATIONS BY OTHERS
ON RAMP
I-405 SB
I-405 NB
OFF RAMP
NE 6TH ST
3055+00
3060+00
3065+00
3070+00
3075+00
3080+00
3085+00
TUNNEL STAGING AREA
TUNNEL STAGING AREA
SEE DWG C2T_KP04
N
SEE DWG C2T_KP02
100 50 0 100 200
SCALE IN FEET


CUT AND COVER
RETAINED CUT
TUNNEL APPROACH
225
200
175
150
125
100
75
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
I-405
SEE DWG C2T_KP02
SEE DWG C2T_KP04
TRACK PROFILE
0.90%
BELLEVUE TRANSIT CENTER STATION
SIDE PLATFORM
0.30%
5.50%
EXISTING GROUND LINE
3060+00
3065+00
3070+00
3075+00
3080+00
3085+00

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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T_KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2A (BASELINE)
ALTERNATIVE C2T
TRACK PLAN & PROFILE

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Drawing No.:
C2T-KP03

Sheet No.: C-50
Rev.:

SEE DWG C2T-KP03

XREF'S

Resolved

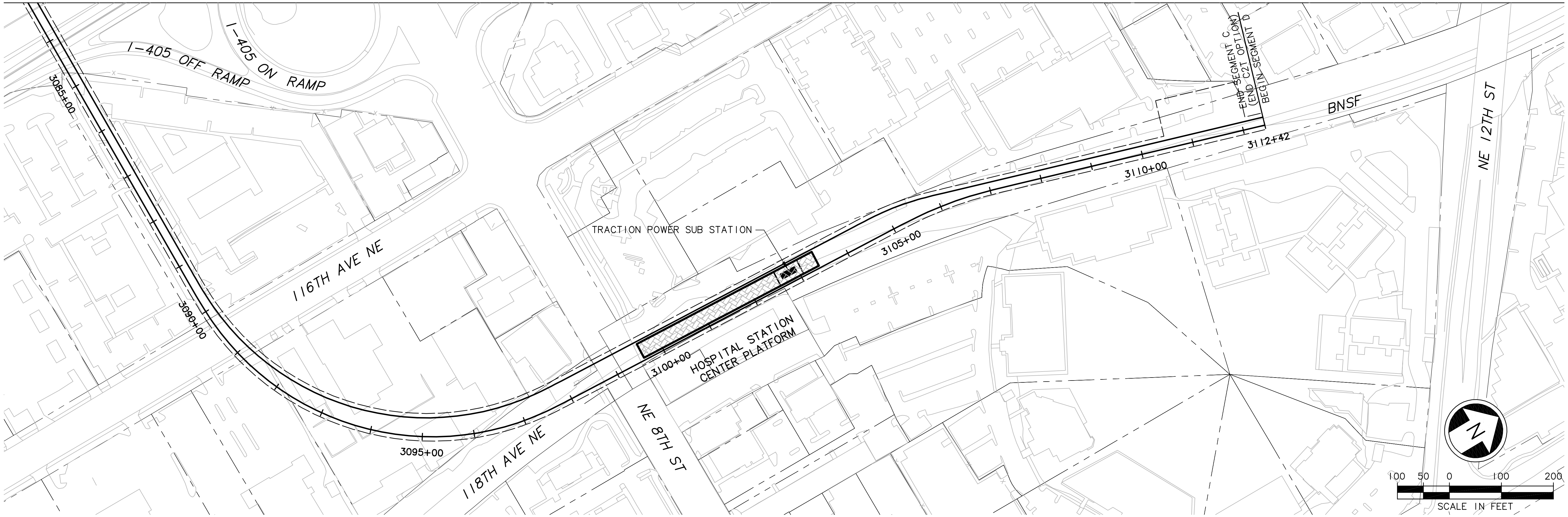
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

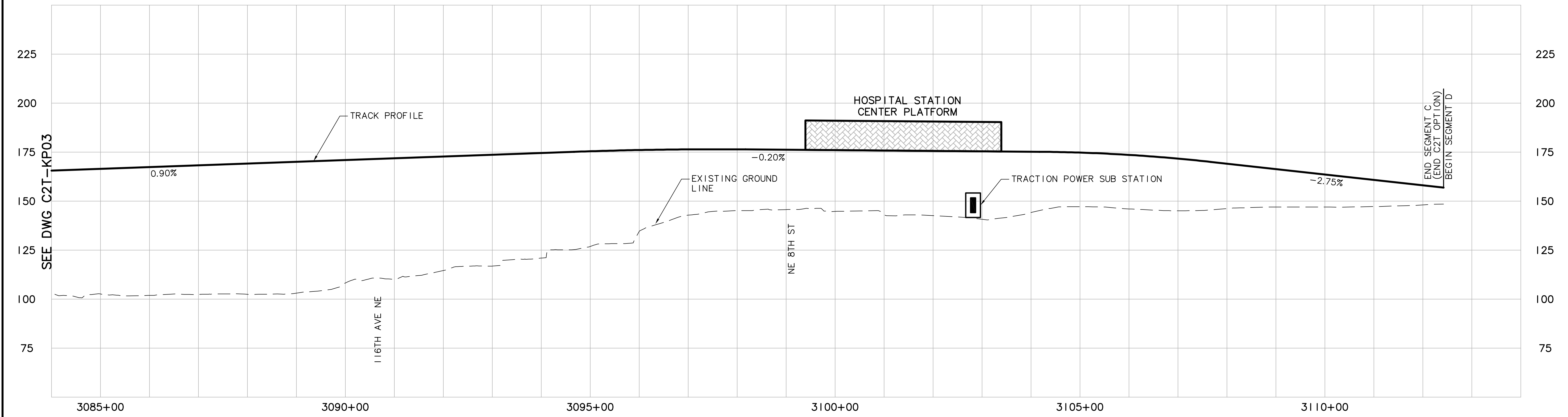
St_Names_E_4
key_East

LTSCALE

1=1



I-405 OFF RAMP
I-405 ON RAMP
3085+00
3090+00
3095+00
3100+00
3105+00
3110+00
3112+42
116TH AVE NE
118TH AVE NE
NE 8TH ST
NE 12TH ST
BNSF
TRACTION POWER SUB STATION
HOSPITAL STATION CENTER PLATFORM
END SEGMENT C (END C2T OPTION) BEGIN SEGMENT D
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC\C2T_KP04.dwg
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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC\C2T_KP04.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2A (BASELINE)
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T-KP04
Sheet No.: C-51
Rev.:

XREF'S

Resolved

ELC_C2T_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
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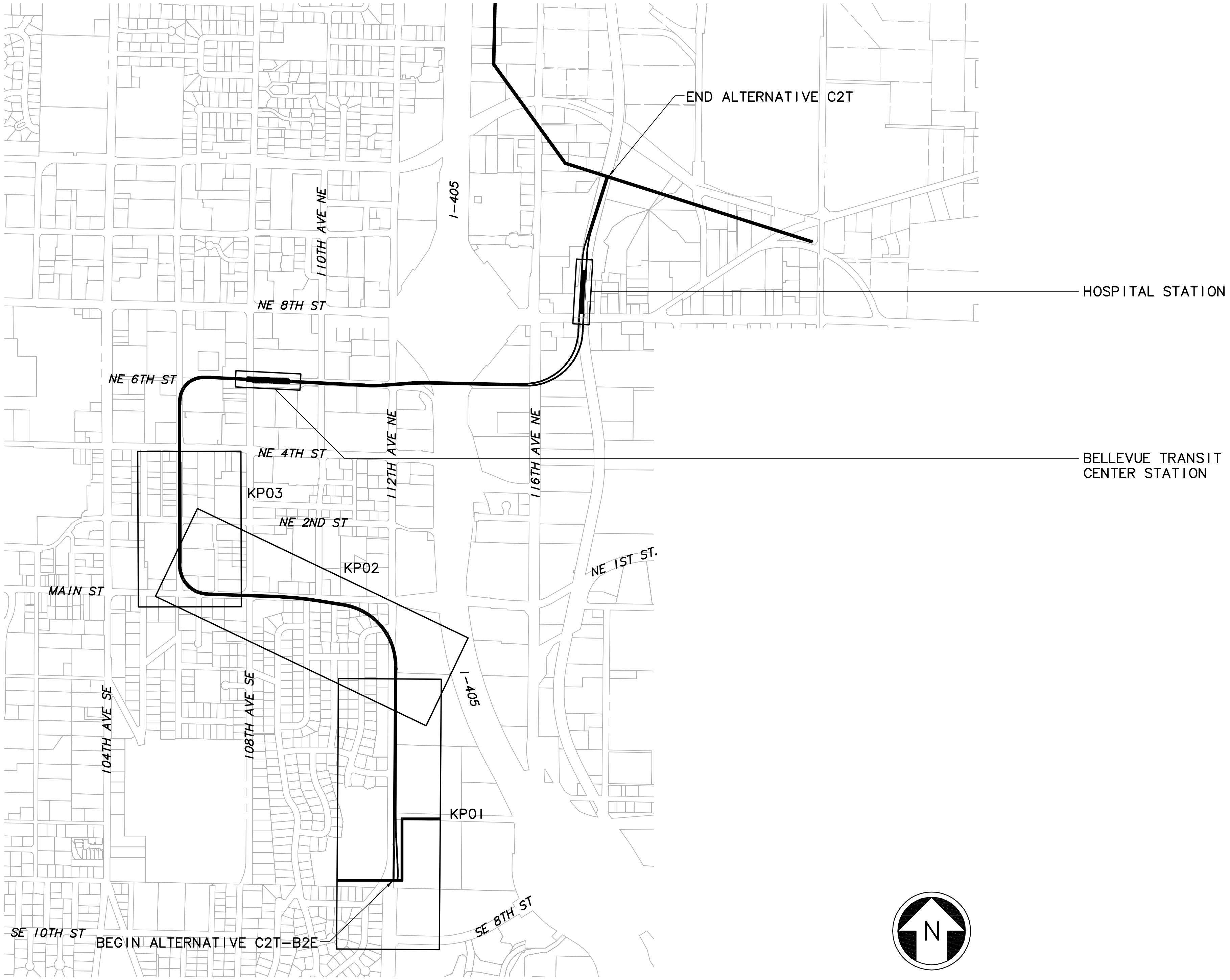
key_East

LTSCALE

1=1



END ALTERNATIVE C2T
HOSPITAL STATION
BELLEVUE TRANSIT CENTER STATION
I-405
110TH AVE NE
NE 8TH ST
NE 6TH ST
NE 4TH ST
112TH AVE NE
116TH AVE NE
KP03
NE 2ND ST
KP02
NE 1ST ST.
MAIN ST
104TH AVE SE
108TH AVE SE
I-405
KP01
SE 10TH ST
BEGIN ALTERNATIVE C2T-B2E
SE 8TH ST
N

c:\work\ELC1C2T2GZ05.dwg
10/16/08 09:55 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C2T2GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2E OPTION
ALTERNATIVE C2T

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T2GZ05
Sheet No.: C-52
Rev.:

XREF'S

Resolved

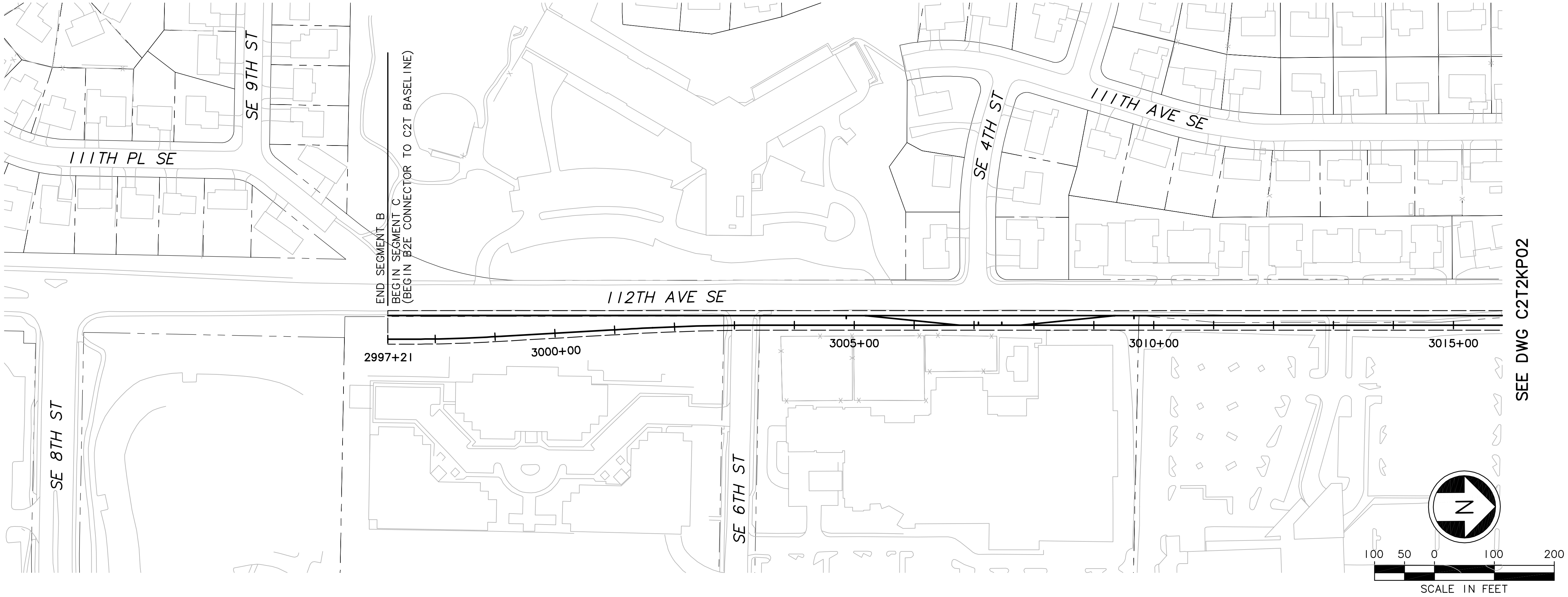
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

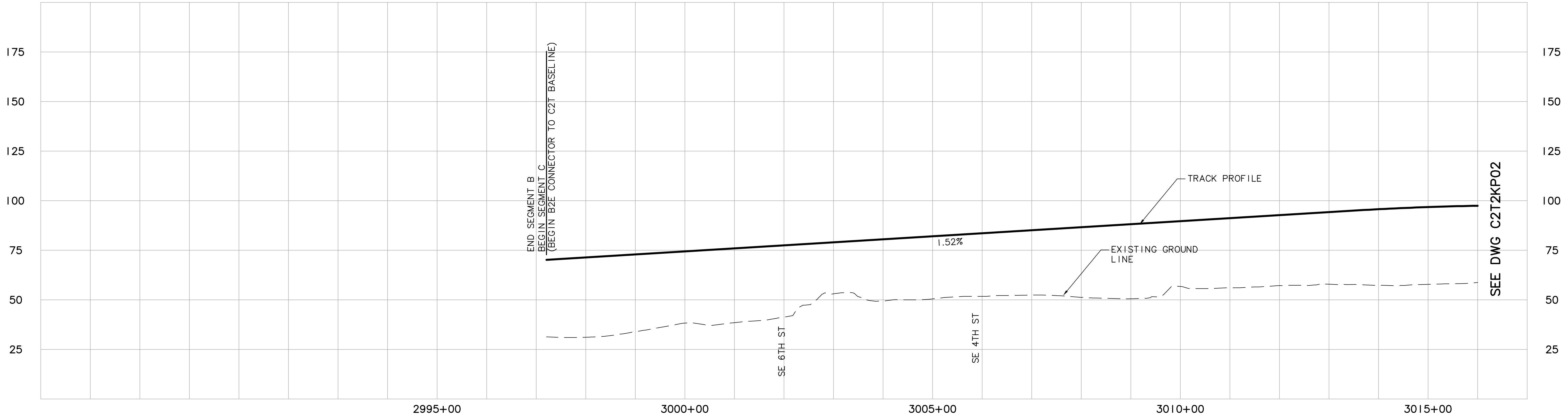
St_Names_E_40
key_East

LTSCALE

1=1



SE 9TH ST
111TH PL SE
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B2E CONNECTOR TO C2T BASELINE)
SE 4TH ST
111TH AVE SE
112TH AVE SE
2997+21
3000+00
3005+00
3010+00
3015+00
SEE DWG C2T2KP02
SE 8TH ST
SE 6TH ST
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
Approved By:

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Submitted:
Date:
Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T2KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2E OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T2KP01
Sheet No.:
Rev.:
C-53

c:\work\ELC1C2T2KP01.dwg
10/16/08 09:56 : eackerm OE5396

XREF'S

Resolved

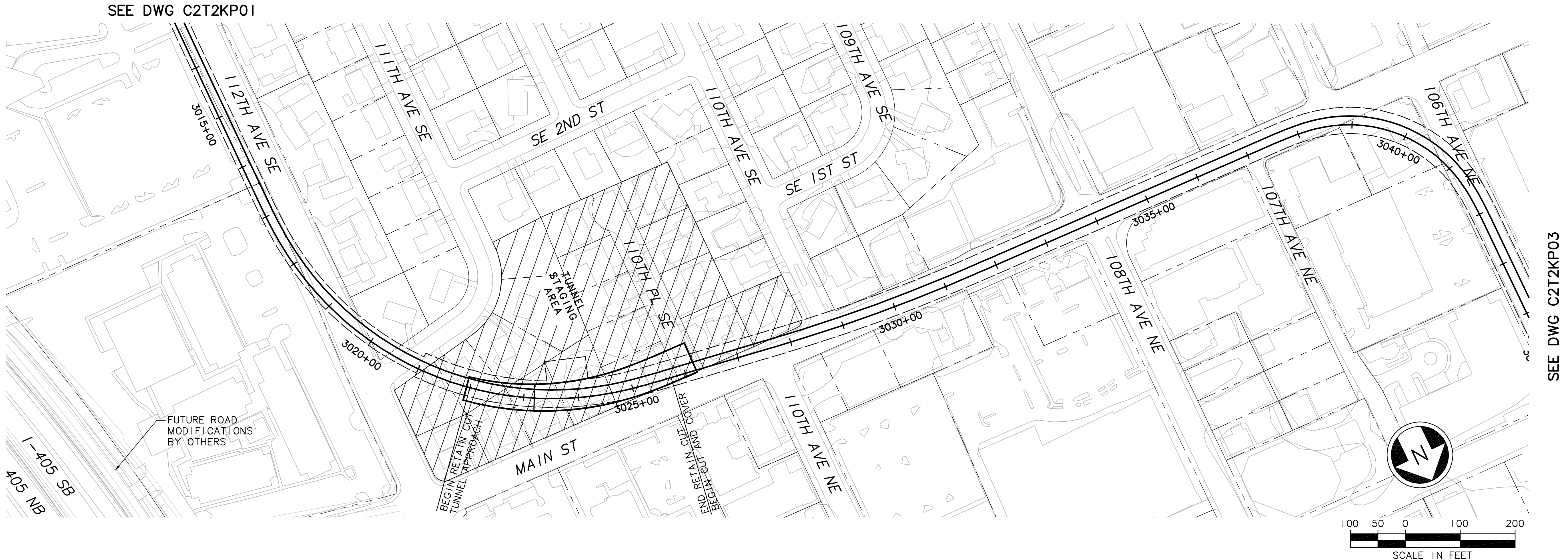
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

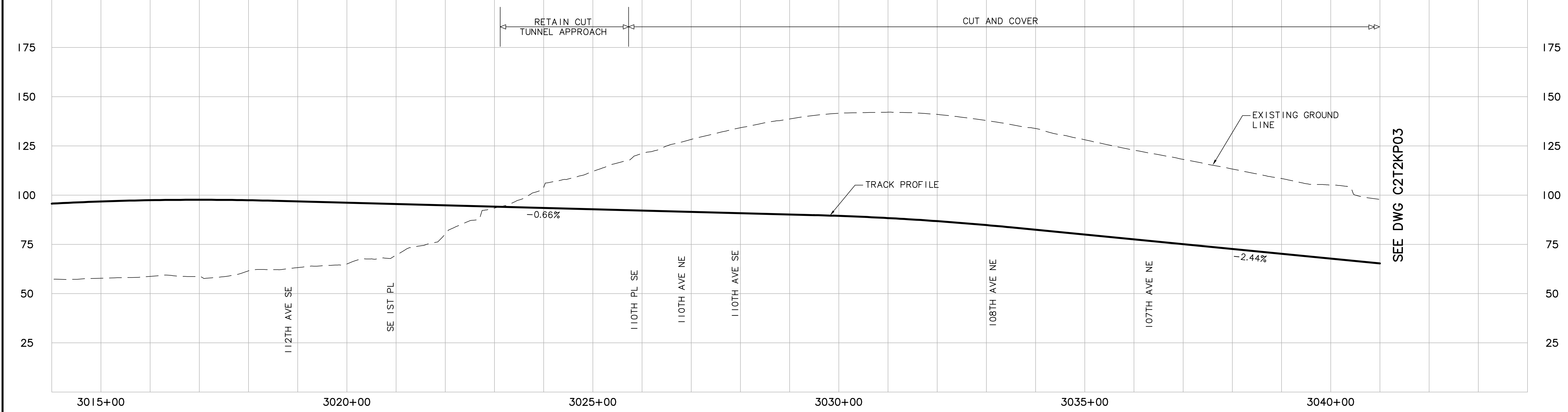
Unresolved

St_Names_E_4
key_East

LTSCALE

1=1


SEE DWG C2T2KP01
112TH AVE SE
3015+00
111TH AVE SE
SE 2ND ST
110TH AVE SE
109TH AVE SE
SE 1ST ST
106TH AVE NE
3040+00
107TH AVE NE
3035+00
108TH AVE NE
3030+00
TUNNEL STAGING AREA
110TH PL SE
3020+00
3025+00
FUTURE ROAD MODIFICATIONS BY OTHERS
I-405 SB
405 NB
MAIN ST
BEGIN RETAIN CUT TUNNEL APPROACH
END RETAIN CUT BEGIN CUT AND COVER
110TH AVE NE
N
SEE DWG C2T2KP03
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C2T2KP02.dwg
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Date:

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T2KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2E OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T2KP02
Sheet No.:
Rev.:
C-54

XREF'S

Resolved

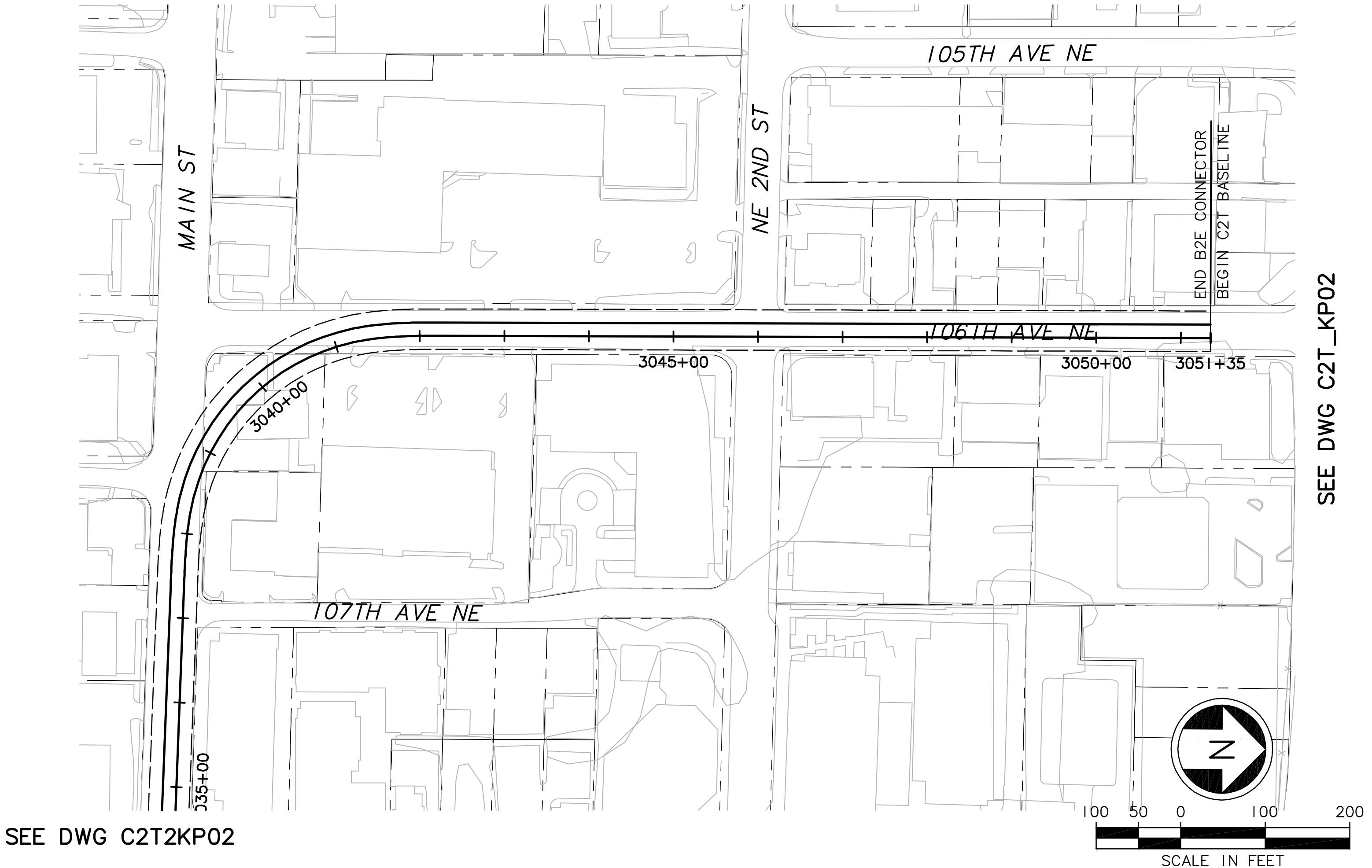
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

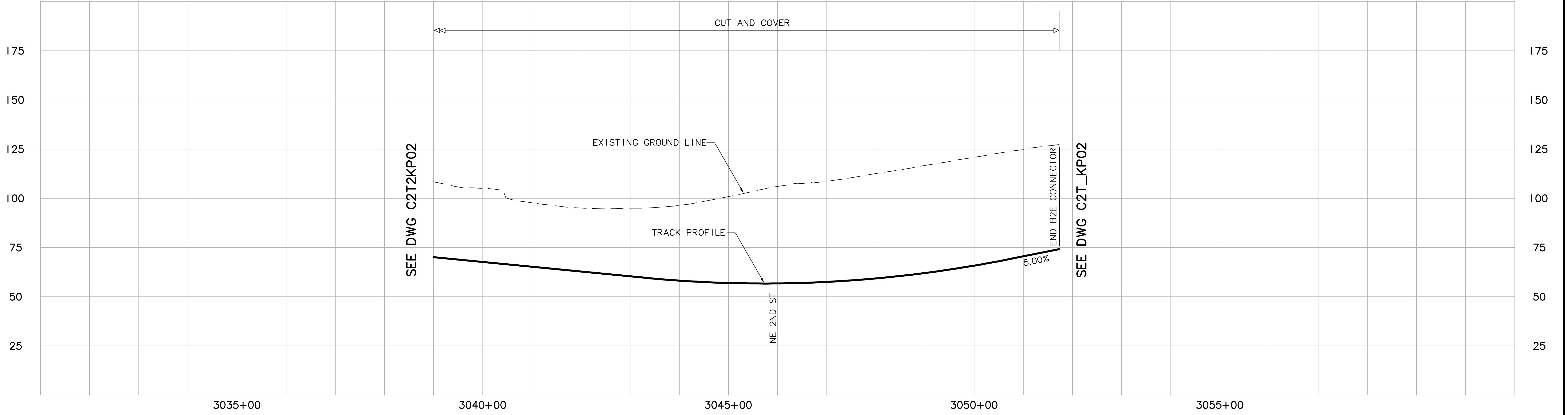
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


105TH AVE NE
MAIN ST
NE 2ND ST
END B2E CONNECTOR
BEGIN C2T BASELINE
SEE DWG C2T_KP02
106TH AVE NE
3045+00
3050+00
3051+35
3040+00
107TH AVE NE
3035+00
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C2T2KP02



No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC|C2T2KP03.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B2E OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T2KP03
Sheet No.: C-55
Rev.:

c:\work\ELC|C2T2KP03.dwg
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XREF'S

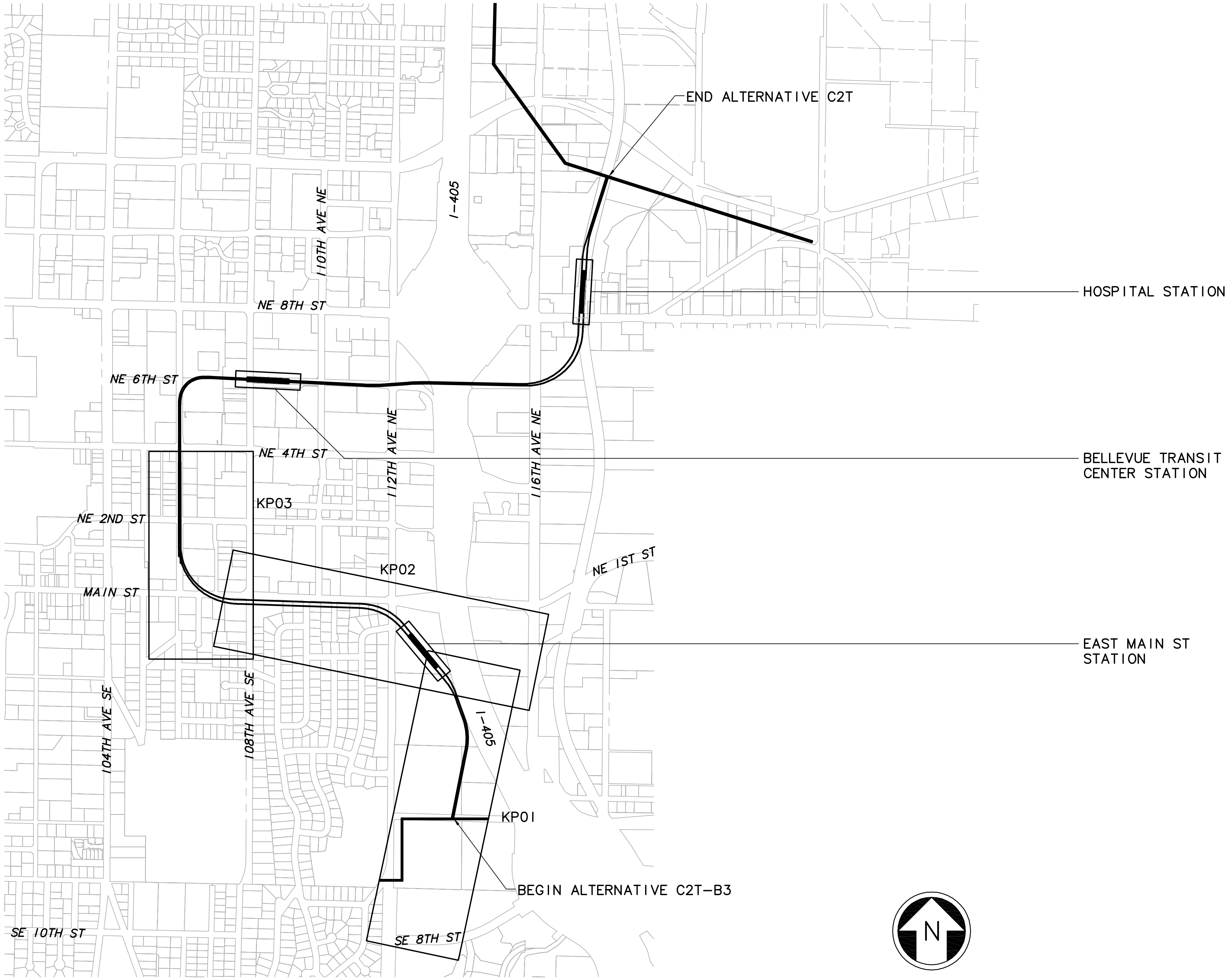
Resolved

ELC_C2T_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
----
key_East

LTSCALE

1=1



END ALTERNATIVE C2T
I-405
110TH AVE NE
HOSPITAL STATION
NE 8TH ST
NE 6TH ST
NE 4TH ST
112TH AVE NE
116TH AVE NE
BELLEVUE TRANSIT CENTER STATION
KP03
NE 2ND ST
KP02
NE 1ST ST
MAIN ST
EAST MAIN ST STATION
104TH AVE SE
108TH AVE SE
I-405
KP01
BEGIN ALTERNATIVE C2T-B3
N
SE 10TH ST
SE 8TH ST

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELCIC2T3GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B3 OPTION
ALTERNATIVE C2T

KEY PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: C2T3GZ05
Sheet No.: C-56
Rev.:

XREF'S

Resolved

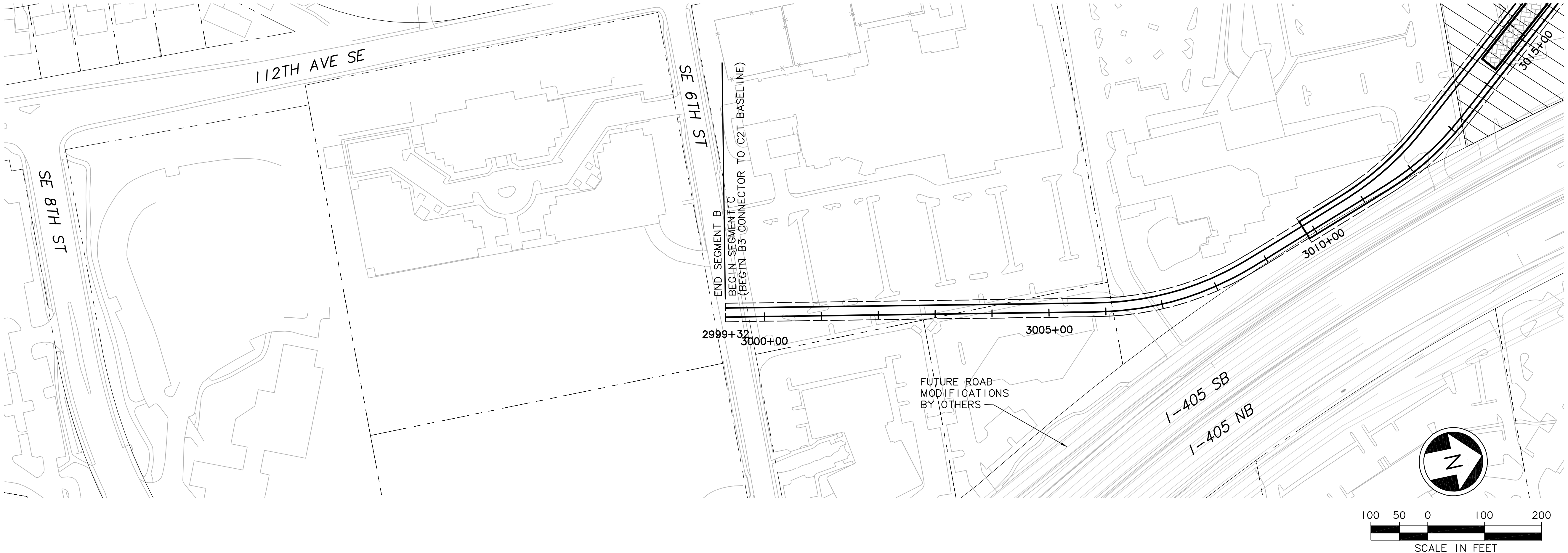
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

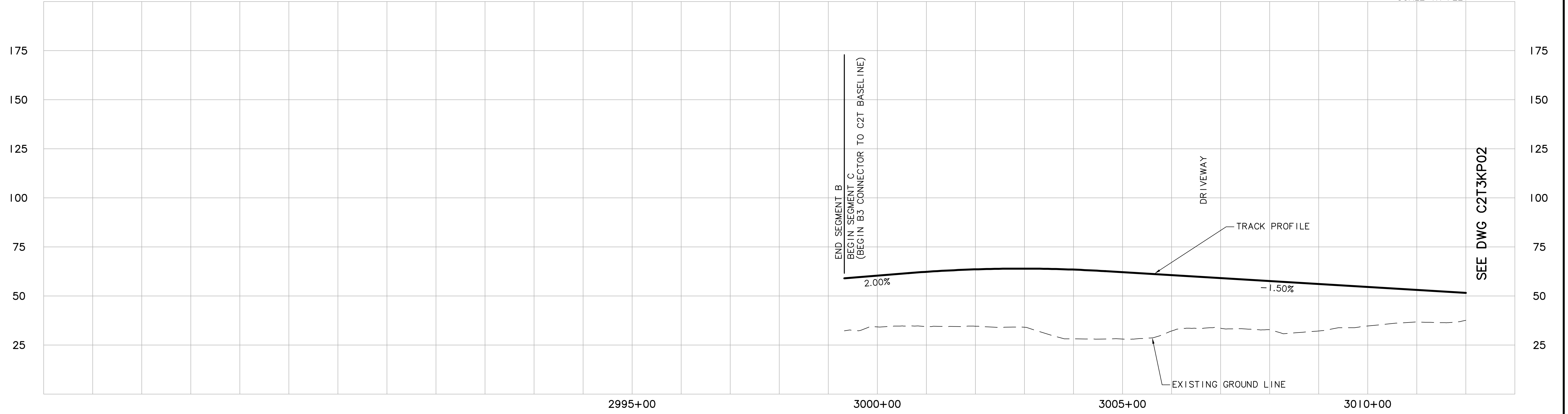
Unresolved

St_Names_E_4
key_East

LTSCALE

1=1


112TH AVE SE
SE 8TH ST
SE 6TH ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B3 CONNECTOR TO C2T BASELINE)
2999+32
3000+00
3005+00
3010+00
3015+00
FUTURE ROAD MODIFICATIONS BY OTHERS
I-405 SB
I-405 NB
N
SEE DWG C2T3KP02
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C2T3KP01.dwg
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Date:

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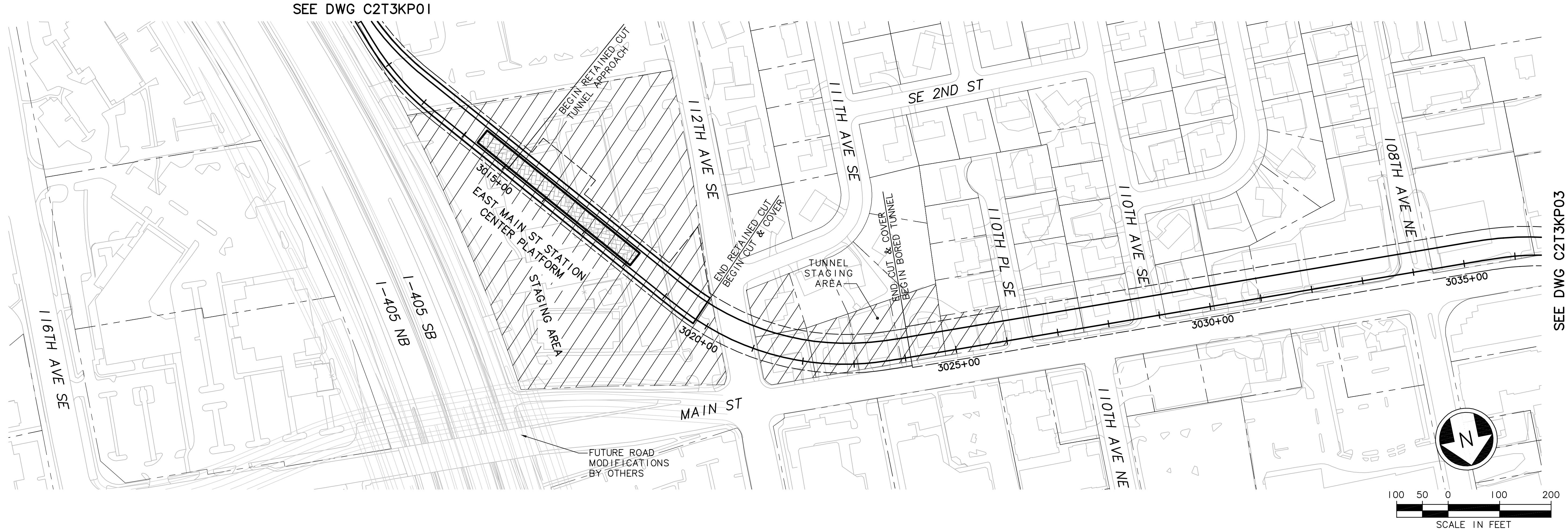
Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C2T3KP01.dwg
Contract No.: EL SEG_C
Date:

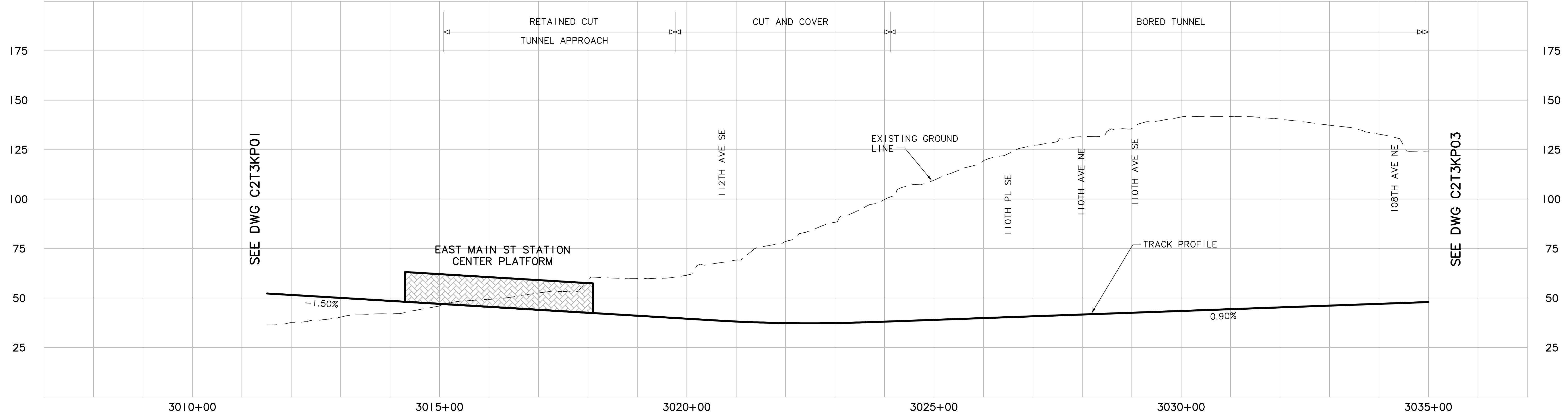
EAST LINK PROJECT
SEGMENT C: C2T-B3 OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T3KP01
Sheet No.: C-57
Rev.:

XREF'S
Resolved
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf
Unresolved
St_Names_E_4
key_East
LTSCALE
1=1


SEE DWG C2T3KP01
BEGIN RETAINED CUT TUNNEL APPROACH
3015+00
EAST MAIN ST STATION CENTER PLATFORM
STAGING AREA
I-405 SB
I-405 NB
116TH AVE SE
112TH AVE SE
END RETAINED CUT BEGIN CUT & COVER
3020+00
111TH AVE SE
SE 2ND ST
TUNNEL STAGING AREA
END CUT & COVER BEGIN BORED TUNNEL
110TH PL SE
3025+00
110TH AVE SE
110TH AVE NE
3030+00
108TH AVE NE
3035+00
SEE DWG C2T3KP03
MAIN ST
FUTURE ROAD MODIFICATIONS BY OTHERS
N
100 50 0 100 200
SCALE IN FEET


RETAINED CUT
TUNNEL APPROACH
CUT AND COVER
BORED TUNNEL
175
150
125
100
75
50
25
SEE DWG C2T3KP01
112TH AVE SE
EXISTING GROUND LINE
110TH PL SE
110TH AVE NE
110TH AVE SE
108TH AVE NE
SEE DWG C2T3KP03
EAST MAIN ST STATION CENTER PLATFORM
TRACK PROFILE
-1.50%
0.90%
3010+00
3015+00
3020+00
3025+00
3030+00
3035+00

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CH2MHILL
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Date:
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Date:

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Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C2T3KP02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B3 OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T3KP02
Sheet No.: C-58
Rev.:

XREF'S

Resolved

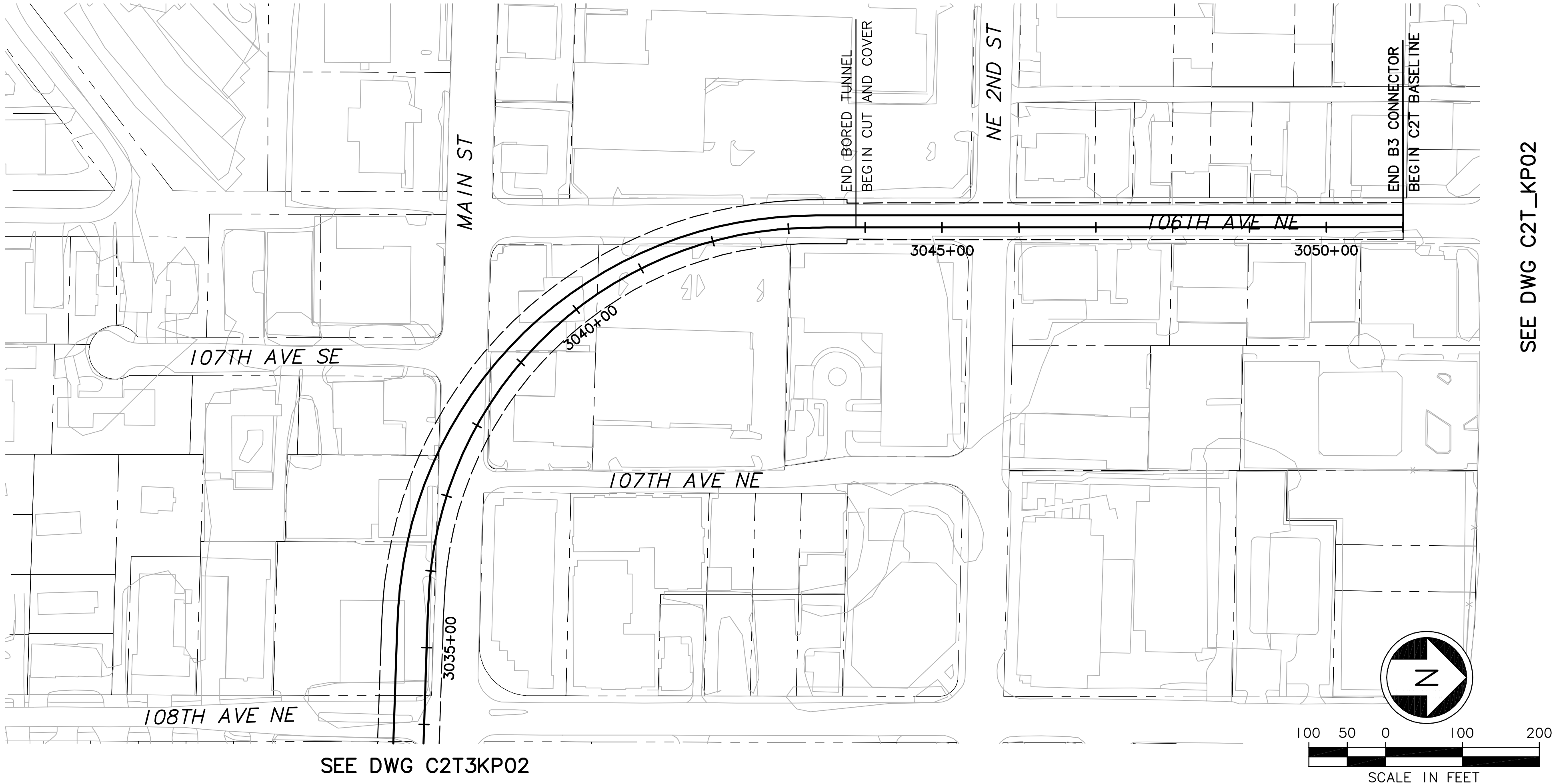
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

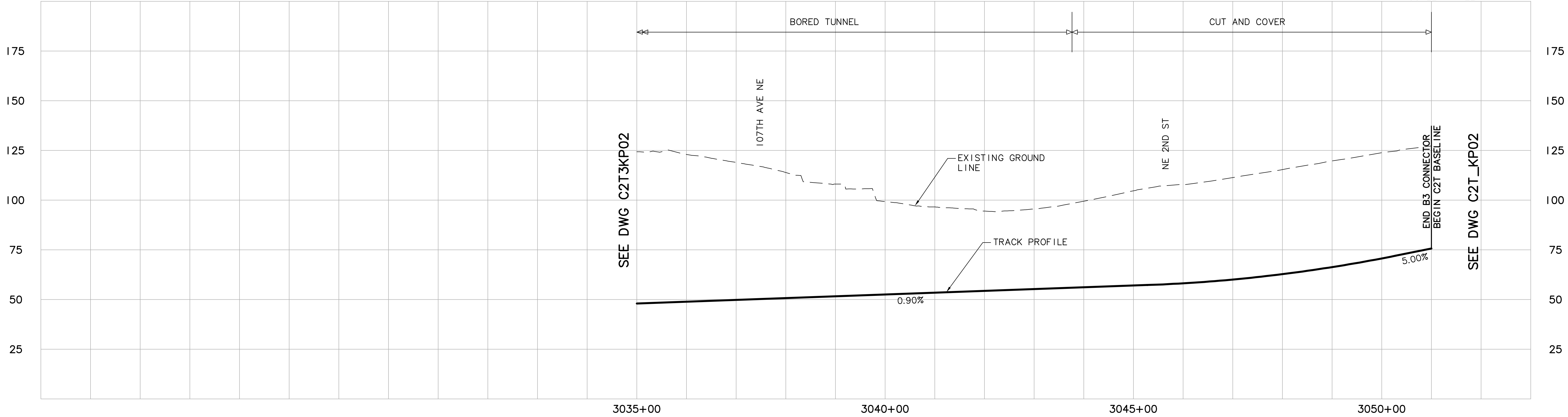
St_Names_E_4
key_East

LTSCALE

1=1



MAIN ST
END BORED TUNNEL
BEGIN CUT AND COVER
NE 2ND ST
END B3 CONNECTOR
BEGIN C2T BASELINE
106TH AVE NE
3045+00
3050+00
3040+00
107TH AVE SE
107TH AVE NE
3035+00
108TH AVE NE
SEE DWG C2T_KP02
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C2T3KP02



c:\work\ELC\C2T3KP03.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T3KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B3 OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T3KP03
Sheet No.: C-59
Rev.:

XREF'S

Resolved

ELC_C2T_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
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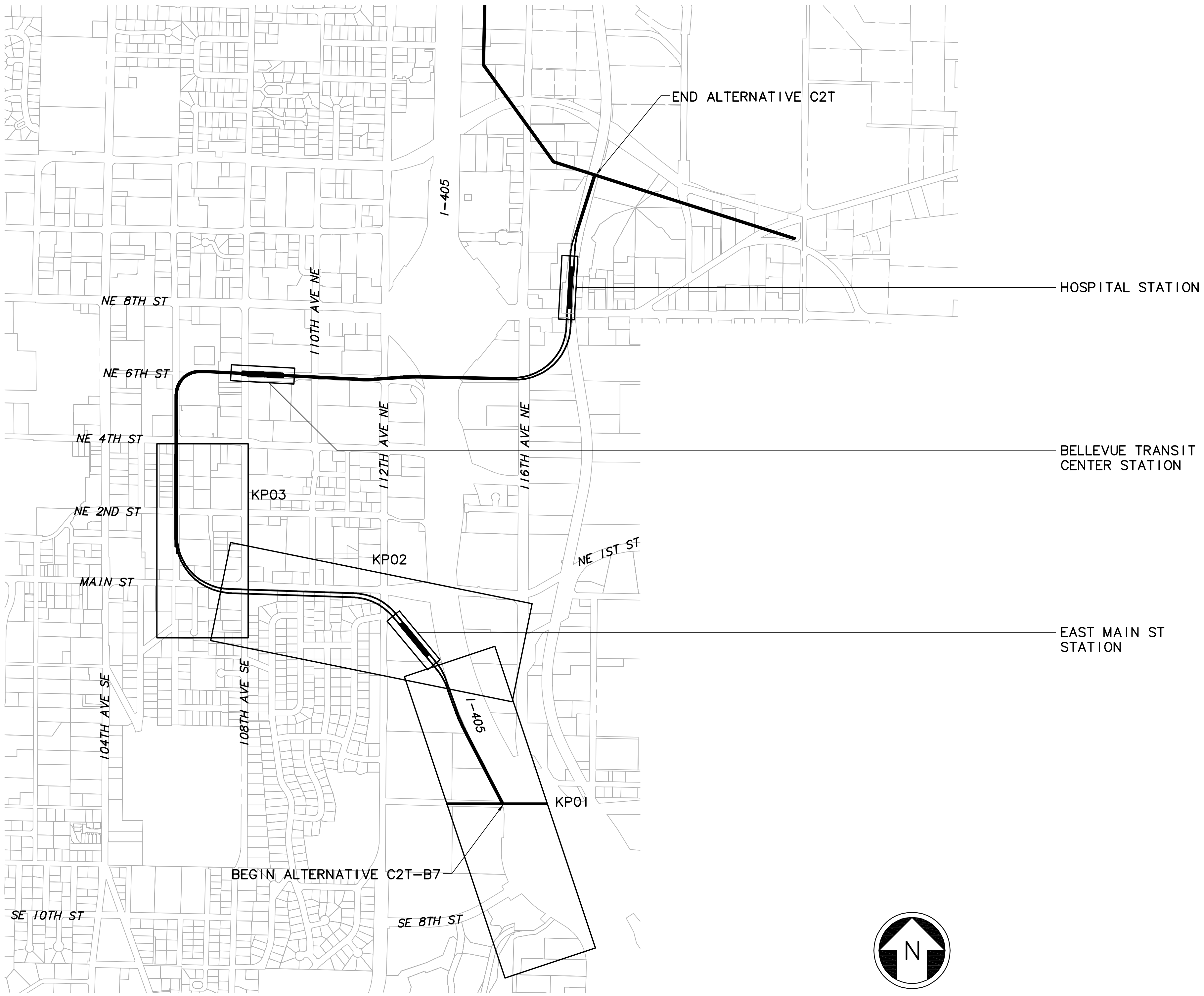
key_East

LTSCALE

1=1



END ALTERNATIVE C2T
I-405
HOSPITAL STATION
NE 8TH ST
110TH AVE NE
NE 6TH ST
NE 4TH ST
BELLEVUE TRANSIT CENTER STATION
112TH AVE NE
116TH AVE NE
KP03
NE 2ND ST
KP02
NE 1ST ST
MAIN ST
EAST MAIN ST STATION
104TH AVE SE
108TH AVE SE
I-405
KP01
BEGIN ALTERNATIVE C2T-B7
SE 10TH ST
SE 8TH ST
N

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Date:
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELCIC2T7GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B7 OPTION
ALTERNATIVE C2T

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T7GZ05
Sheet No.: C-60
Rev.:

XREF'S

Resolved

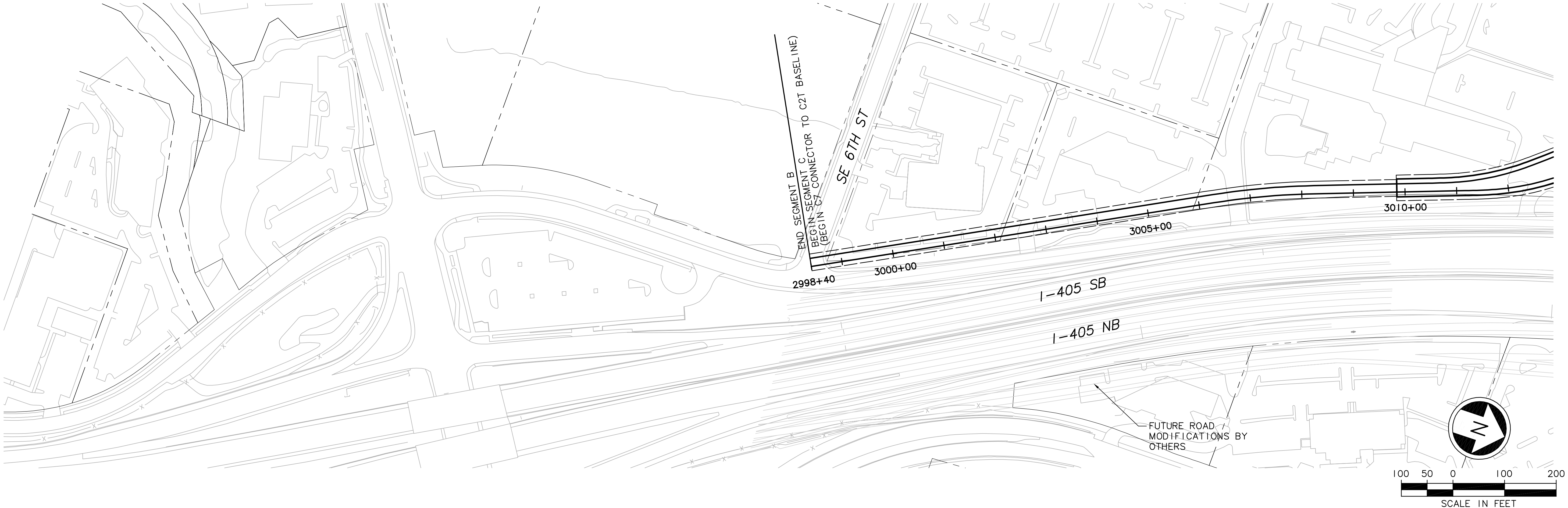
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

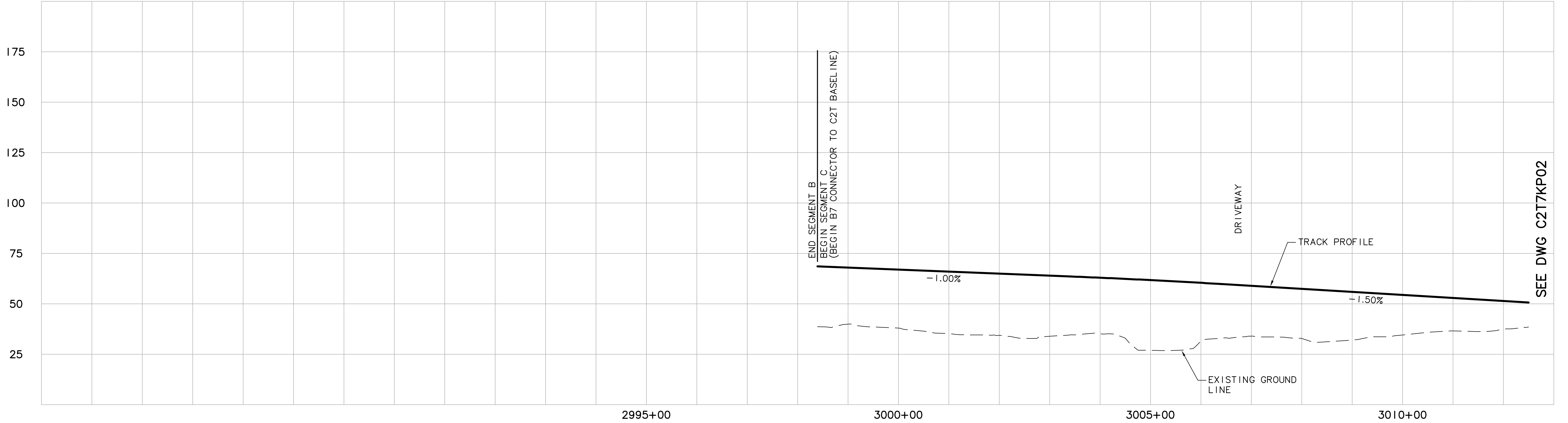
St_Names_E_4
key_East

LTSCALE

1=1



END SEGMENT B
BEGIN SEGMENT C
(BEGIN B7 CONNECTOR TO C2T BASELINE)
SE 6TH ST
2998+40
3000+00
3005+00
3010+00
I-405 SB
I-405 NB
FUTURE ROAD MODIFICATIONS BY OTHERS
N
SEE DWG C2T7KP02
100 50 0 100 200
SCALE IN FEET



175
150
125
100
75
50
25
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B7 CONNECTOR TO C2T BASELINE)
DRIVEWAY
TRACK PROFILE
-1.00%
-1.50%
EXISTING GROUND LINE
SEE DWG C2T7KP02
2995+00
3000+00
3005+00
3010+00

c:\work\ELC\C2T7KP01.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T7KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B7 OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T7KP01
Sheet No.:
Rev.:
C-61

XREF'S

Resolved

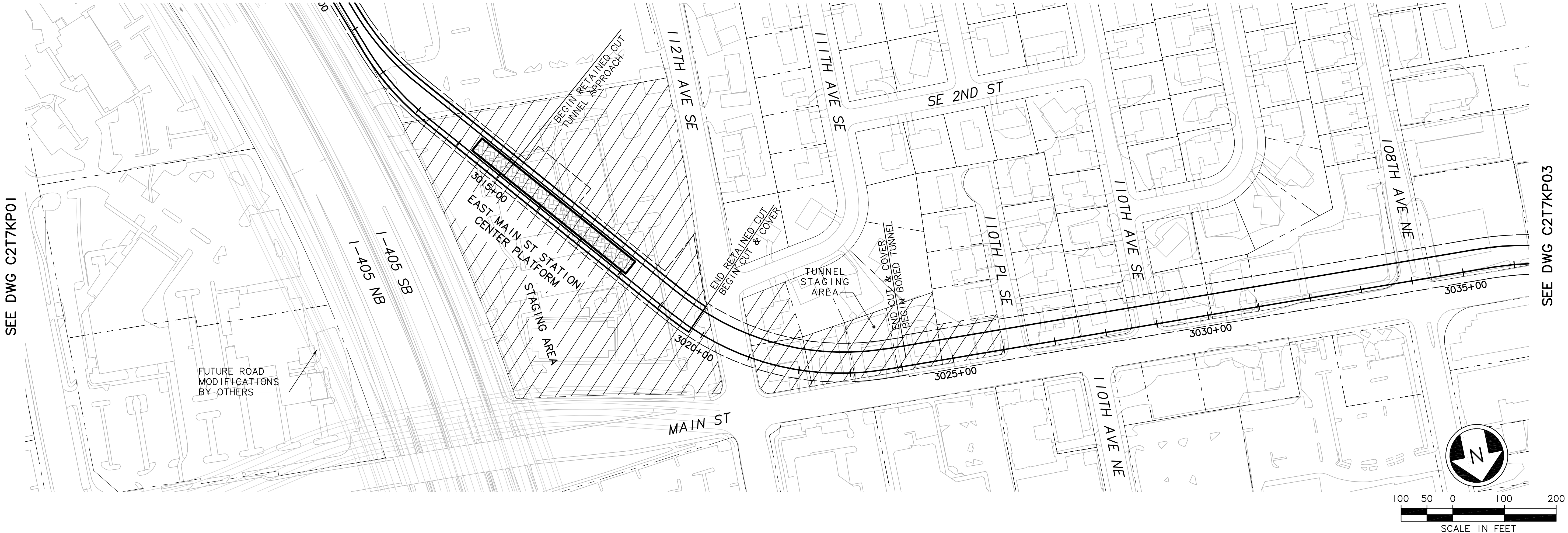
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

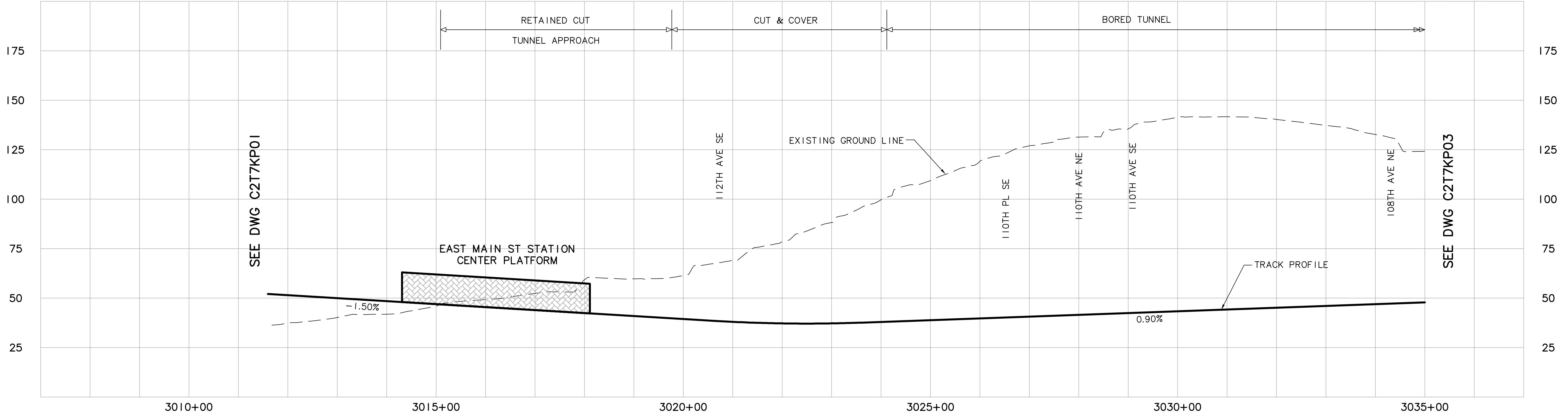
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


SEE DWG C2T7KP01
I-405 SB
I-405 NB
BEGIN RETAINED CUT TUNNEL APPROACH
3015+00
EAST MAIN ST STATION CENTER PLATFORM
STAGING AREA
FUTURE ROAD MODIFICATIONS BY OTHERS
112TH AVE SE
111TH AVE SE
SE 2ND ST
END RETAINED CUT BEGIN CUT & COVER
3020+00
MAIN ST
TUNNEL STAGING AREA
END CUT & COVER BEGIN BORED TUNNEL
3025+00
110TH PL SE
110TH AVE SE
110TH AVE NE
3030+00
108TH AVE NE
3035+00
SEE DWG C2T7KP03
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C2T7KP02.dwg
10/16/08 09:59 : eackerm OE5396

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Checked By:

Approved By:

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SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C2T7KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C2T-B7 OPTION
ALTERNATIVE C2T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C2T7KP02
Sheet No.:
Rev.:
C-62

XREF'S

Resolved

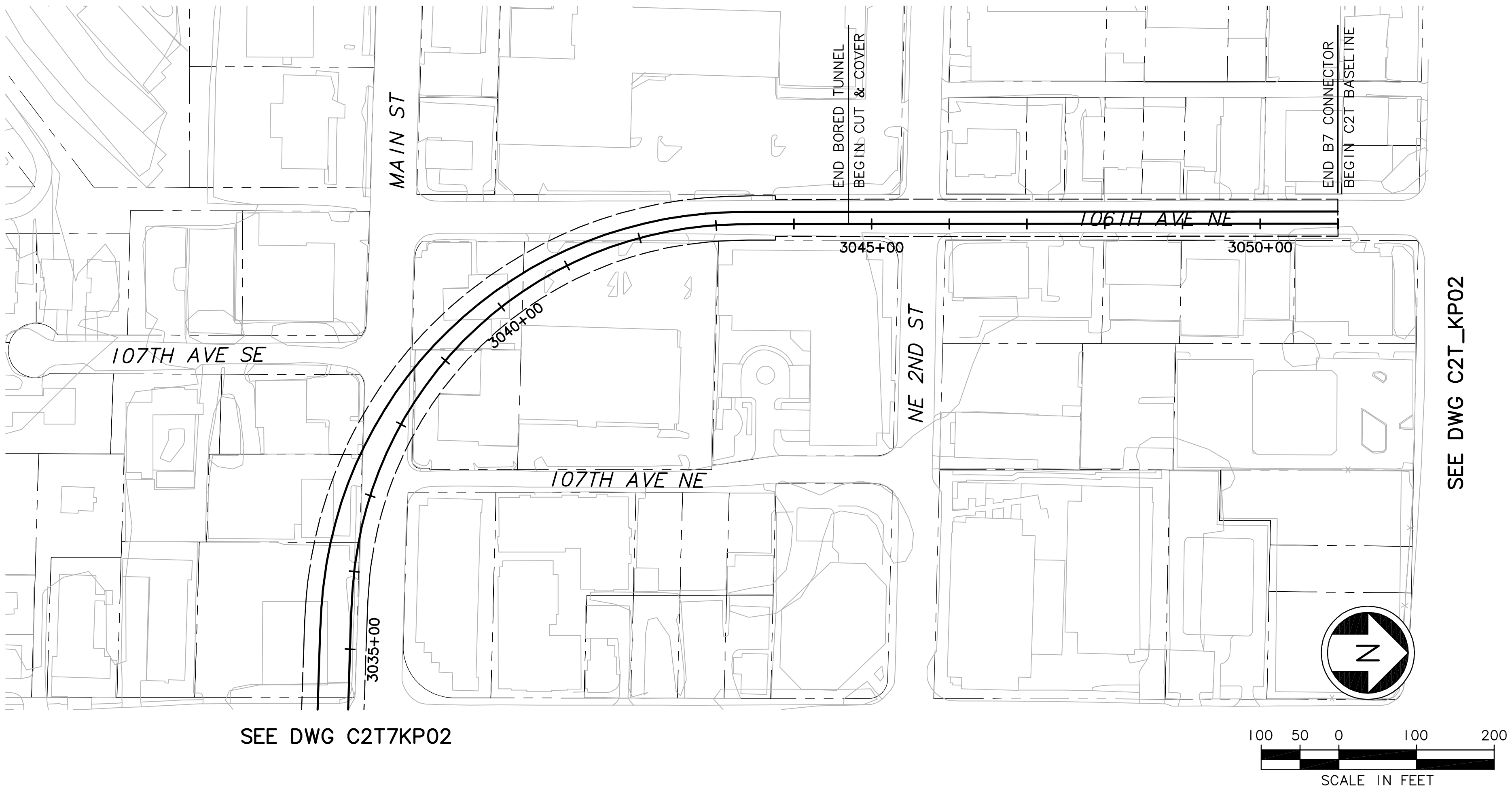
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

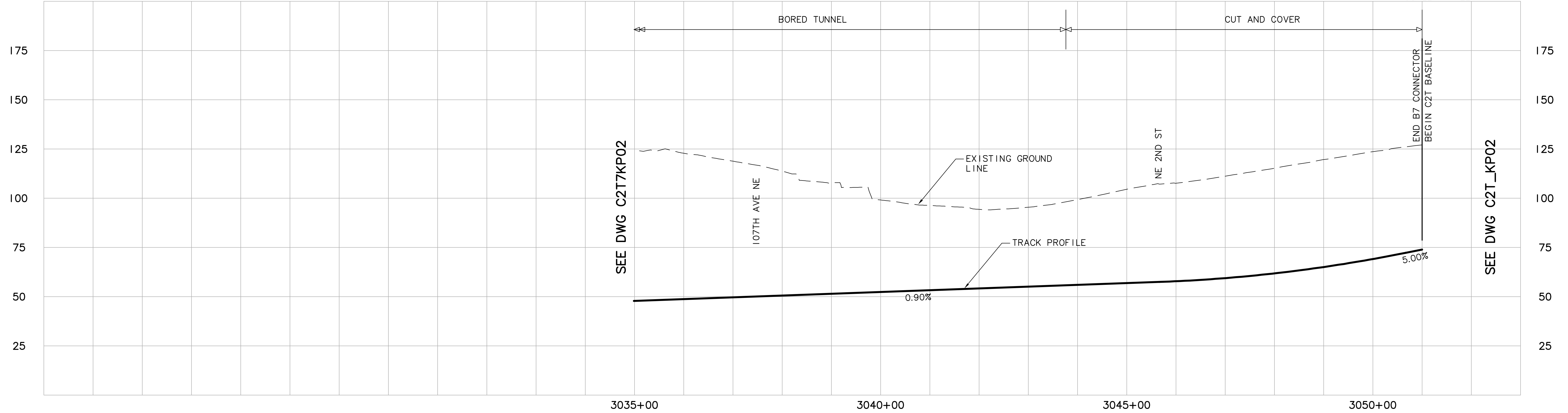
Unresolved

St_Names_E_4
key_East

LTSCALE

1=1


MAIN ST
END BORED TUNNEL
BEGIN CUT & COVER
END B7 CONNECTOR
BEGIN C2T BASELINE
106TH AVE NE
3045+00
3050+00
3040+00
NE 2ND ST
107TH AVE SE
107TH AVE NE
3035+00
SEE DWG C2T_KP02
N
SEE DWG C2T7KP02
100 50 0 100 200
SCALE IN FEET



c:\work\ELC\C2T7KP03.dwg
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Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELC1C2T7KP03.dwg

Contract No.:
EL SEG_C

Date:

EAST LINK PROJECT
SEGMENT C: C2T-B7 OPTION
ALTERNATIVE C2T

TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

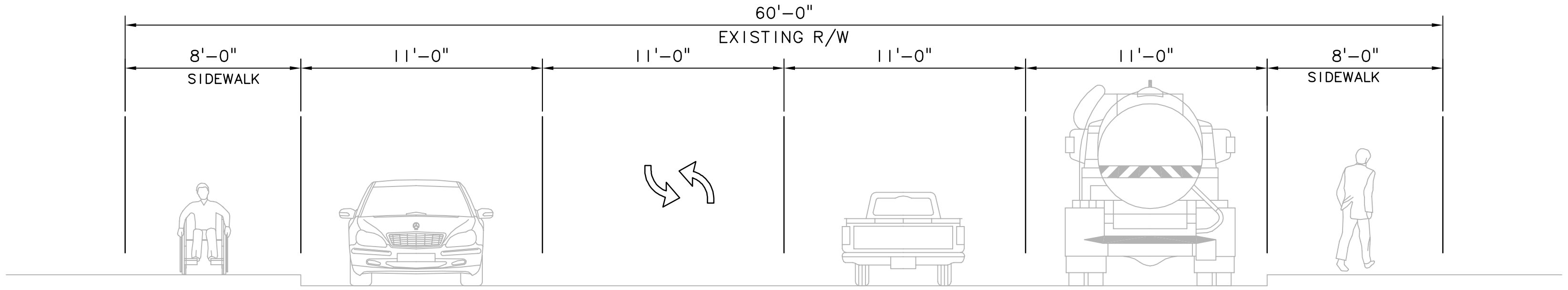
Drawing No.:
C2T7KP03

Sheet No.:
Rev.:

C-63

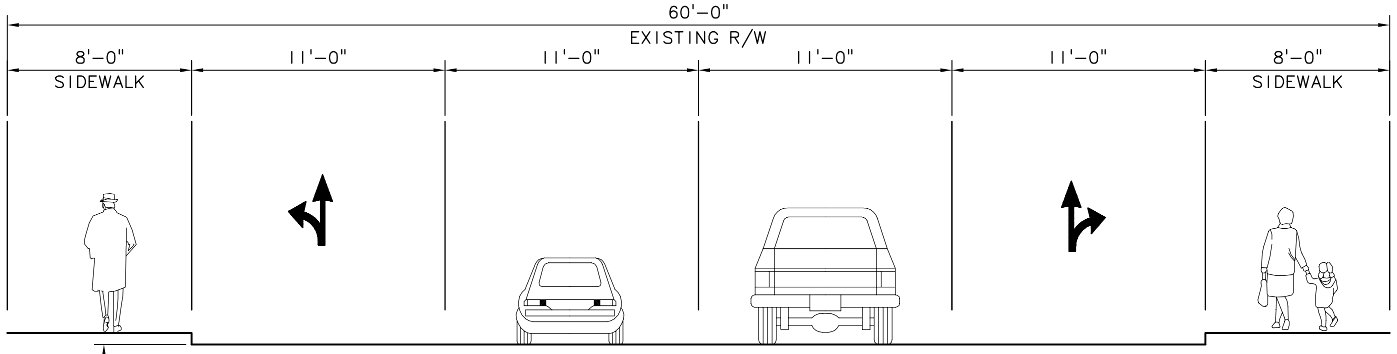
XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1

NOTE:
CITY OF BELLEVUE – TFP#172 – 106TH AND 108TH AVENUES ONE-WAY COUPLET CONVERSION.

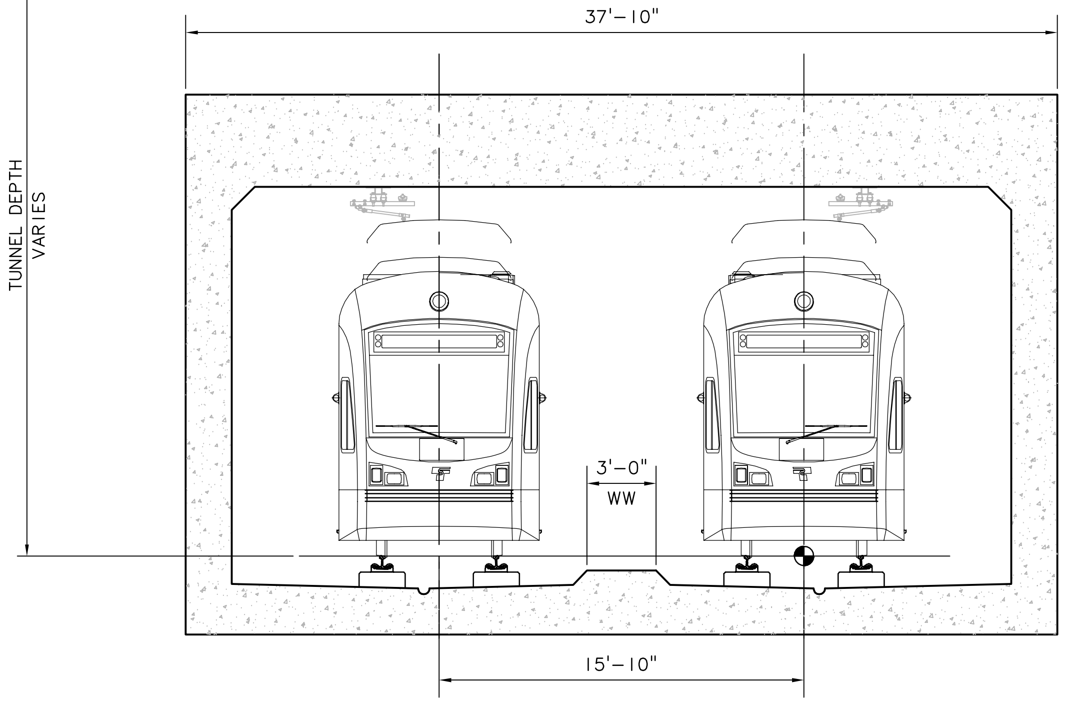

60'-0"
EXISTING R/W
8'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
8'-0"
SIDEWALK

EXISTING ROADWAY SECTION – 106TH AVE NE

SCALE: NTS


60'-0"
EXISTING R/W
8'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
8'-0"
SIDEWALK

PROPOSED ROADWAY SECTION (BY OTHERS – SEE NOTE)


37'-10"
TUNNEL DEPTH VARIES
3'-0"
WW
15'-10"

PROPOSED ROADWAY & LRT SECTION – 106TH AVE NE
ALIGNMENT: C2T
CUT & COVER DIRECT FIXATION DOUBLE TRACK

SCALE: NTS

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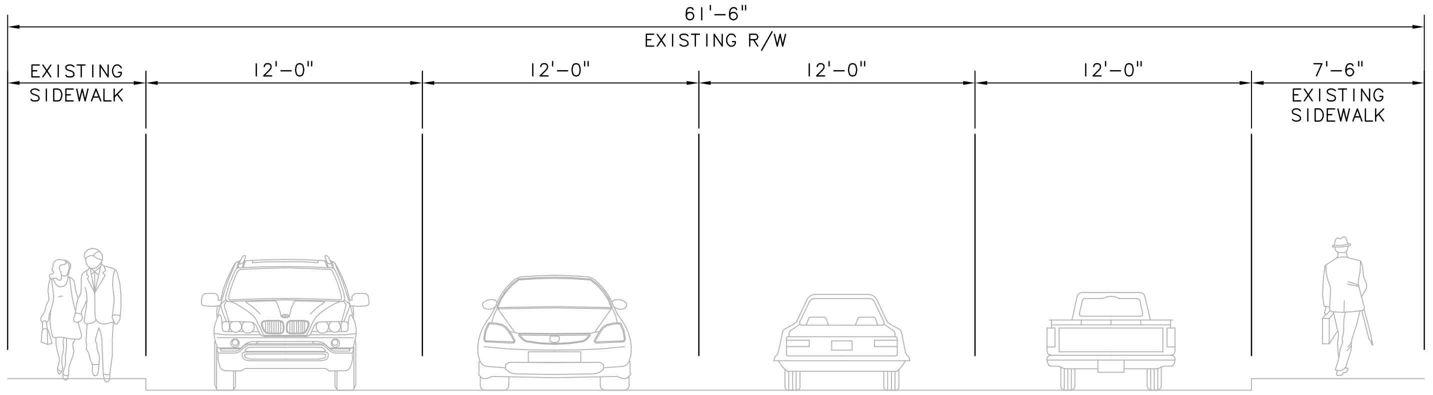
Scale: NTS
Filename: ELC1C2T_KX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C2T
TYPICAL SECTION

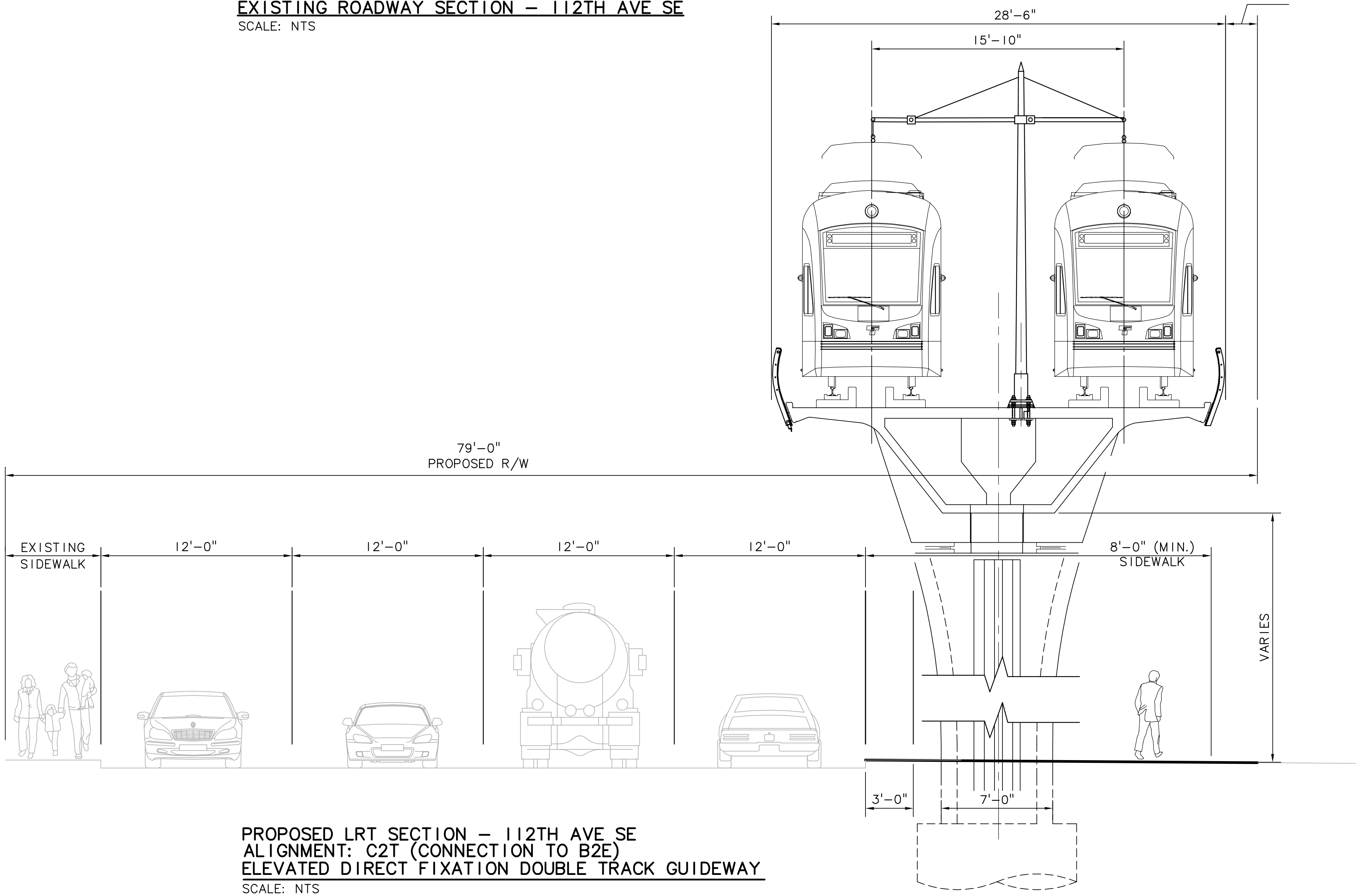
THIS PRINT REDUCED HALF SCALE

Drawing No.: C2T-KX01
Sheet No.: C-64
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


61'-6"
EXISTING R/W
EXISTING SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
7'-6"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION – 112TH AVE SE
SCALE: NTS


2'-0"
28'-6"
15'-10"
79'-0"
PROPOSED R/W
EXISTING SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
8'-0" (MIN.)
SIDEWALK
VARIES
3'-0"
7'-0"

PROPOSED LRT SECTION – 112TH AVE SE
ALIGNMENT: C2T (CONNECTION TO B2E)
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

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Scale: NTS
Filename: ELCIC2T_KX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C2T
TYPICAL SECTION

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Drawing No.: C2T-KX02
Sheet No.: C-65
Rev.:

XREF'S
Resolved
ELC_C2T_KA
REG-DCON
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0825rx
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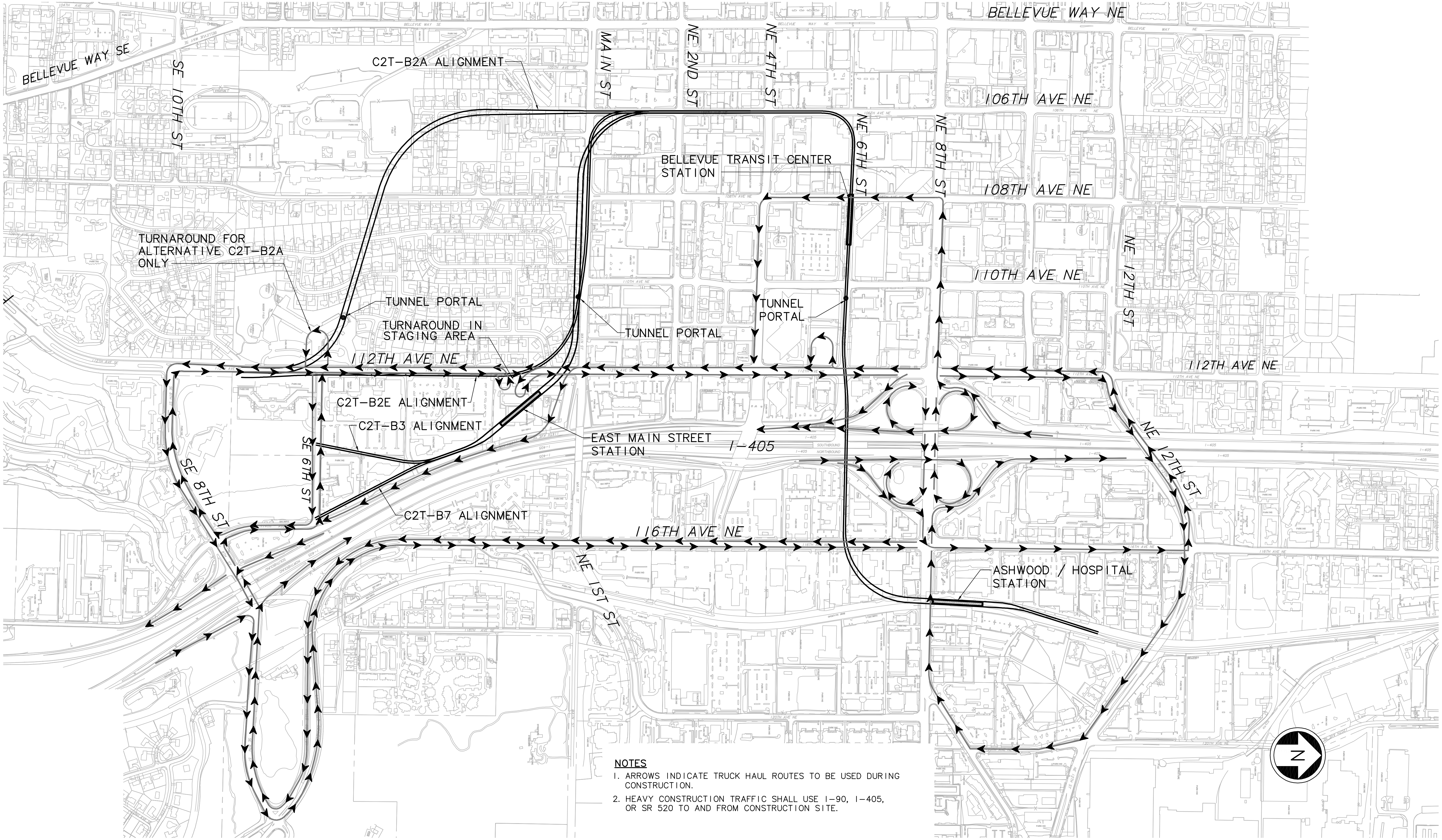
Unresolved
key_East
LTSCALE
1=1


BELLEVUE WAY NE
BELLEVUE WAY SE
SE 10TH ST
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
106TH AVE NE
108TH AVE NE
110TH AVE NE
NE 12TH ST
112TH AVE NE
C2T-B2A ALIGNMENT
BELLEVUE TRANSIT CENTER STATION
TURNAROUND FOR ALTERNATIVE C2T-B2A ONLY
TUNNEL PORTAL
TURNAROUND IN STAGING AREA
TUNNEL PORTAL
TUNNEL PORTAL
112TH AVE NE
C2T-B2E ALIGNMENT
C2T-B3 ALIGNMENT
SE 6TH ST
EAST MAIN STREET STATION
I-405
SE 8TH ST
C2T-B7 ALIGNMENT
116TH AVE NE
NE 1ST ST
ASHWOOD / HOSPITAL STATION
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\ELC\C2T_CC01.dwg
10/16/08 10:00 : eackerm OE5396

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Scale: NTS
Filename: ELC1C2T_CC01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C2T

CONSTRUCTION TRUCK HAUL ROUTE PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: C2T-CC01
Sheet No.: C-66
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C3T_B2A_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
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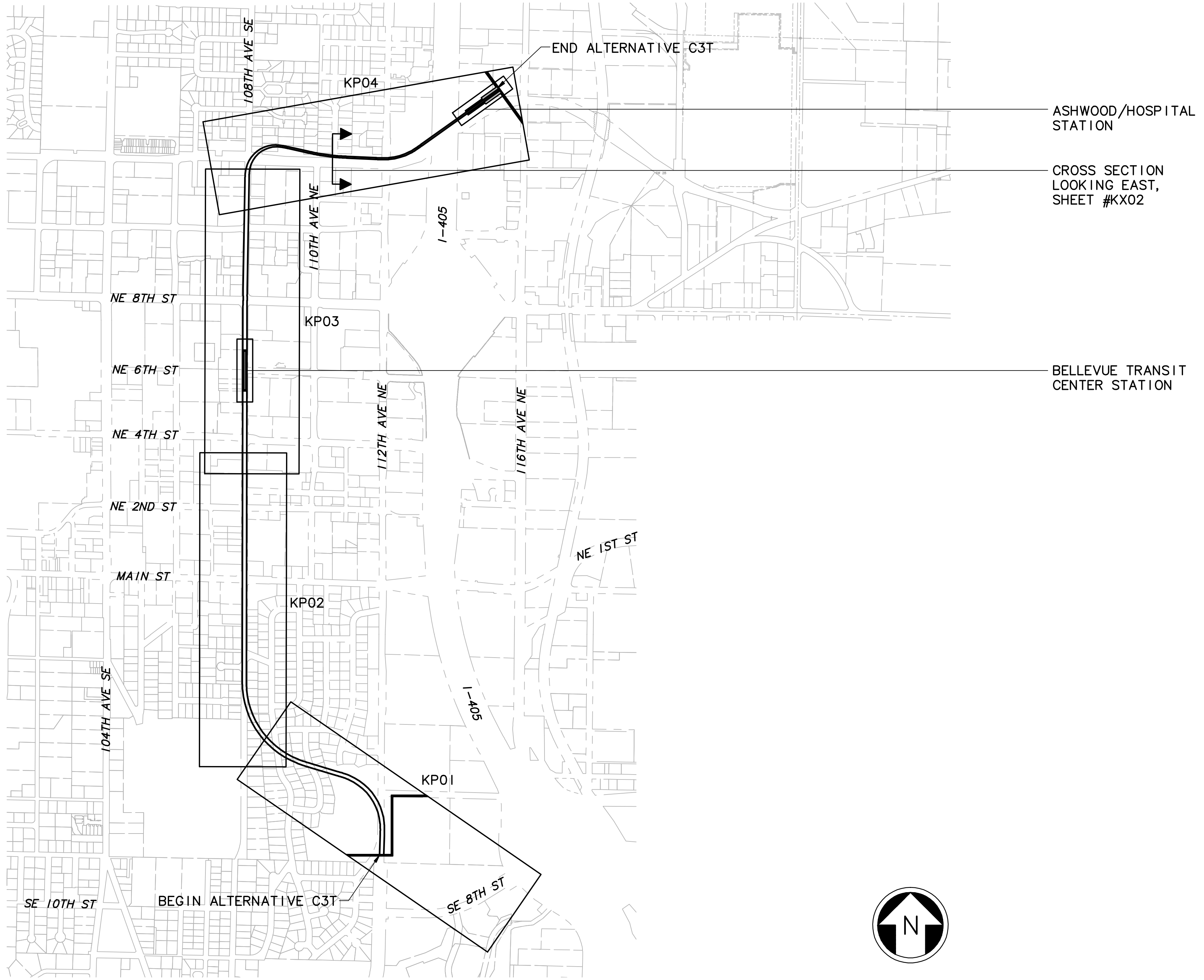
x0534rx
x0831rx
x0834rx
-Unresolved:



END ALTERNATIVE C3T
KP04
108TH AVE SE
ASHWOOD/HOSPITAL STATION
CROSS SECTION LOOKING EAST, SHEET #KX02
110TH AVE NE
I-405
NE 8TH ST
KP03
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
112TH AVE NE
116TH AVE NE
NE 2ND ST
NE 1ST ST
MAIN ST
KP02
104TH AVE SE
I-405
KP01
SE 10TH ST
BEGIN ALTERNATIVE C3T
SE 8TH ST
N

c:\work\feis\segment c\c3t\ELC1C3T_GZ05.dwg
04/20/11 11:15 : khuum OE6585

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Scale: NTS
Filename: ELC1C3T_GZ05.dwg
Contract No.: EL SEG_C
Date:

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EAST LINK PROJECT
SEGMENT C: C3T-B2A OPTION
ALTERNATIVE C3T

KEY PLAN

Drawing No.: C3T-GZ05
Sheet No.: C-67
Rev.:

XREF'S

Resolved

ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

St_Names_E_4

LTSCALE
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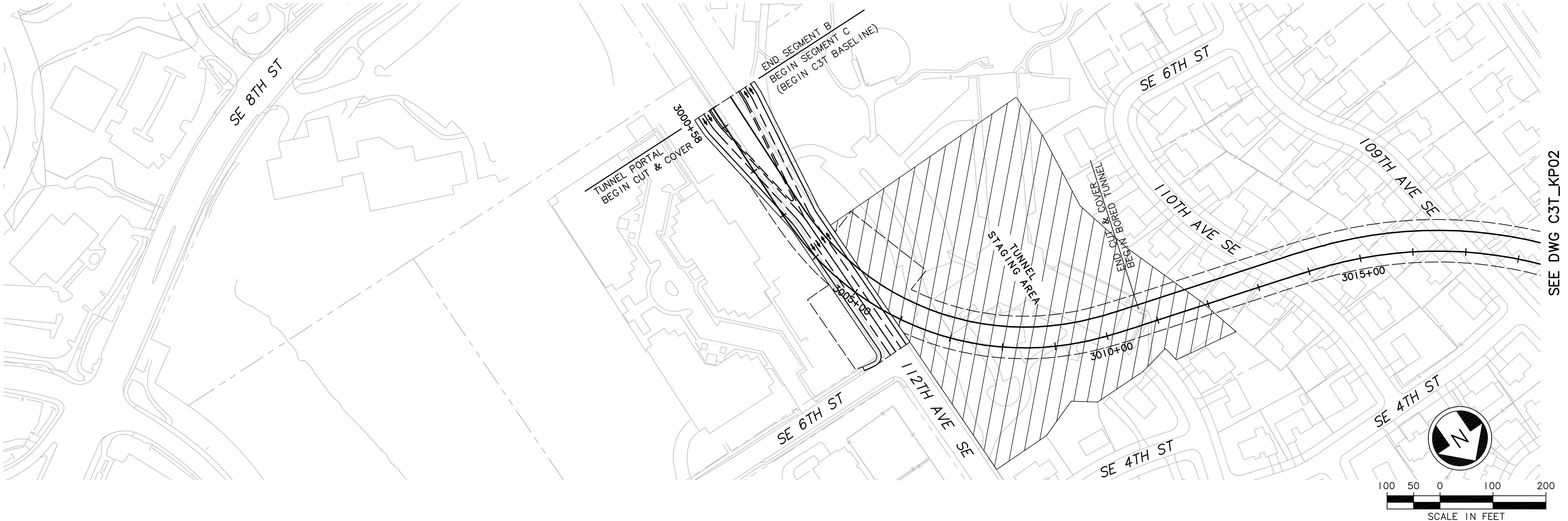
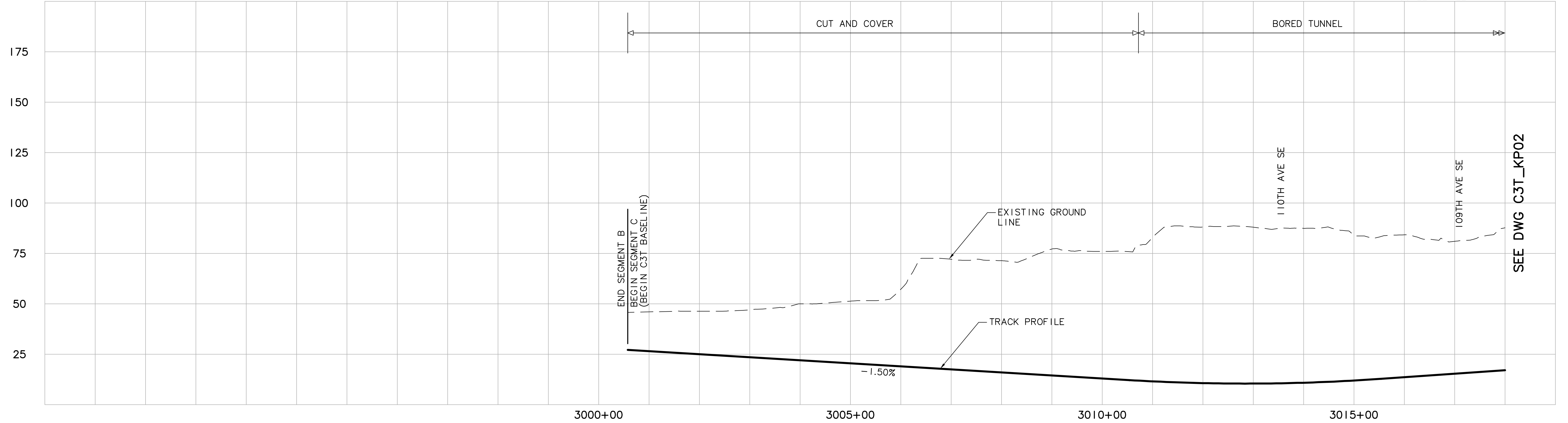
l=l


SE 8TH ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN C3T BASELINE)
3000+58
TUNNEL PORTAL
BEGIN CUT & COVER
SE 6TH ST
109TH AVE SE
110TH AVE SE
TUNNEL STAGING AREA
END CUT & COVER
BEGIN BORED TUNNEL
3005+00
3010+00
3015+00
SE 6TH ST
112TH AVE SE
SE 4TH ST
SE 4TH ST
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C3T_KP02



c:\work\ELCIC3T_KP01.dwg
10/16/08 10:08 : eackerm OE5396

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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELCIC3T_KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B2A OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C3T-KP01
Sheet No.:
Rev.:
C-68

XREF'S

Resolved

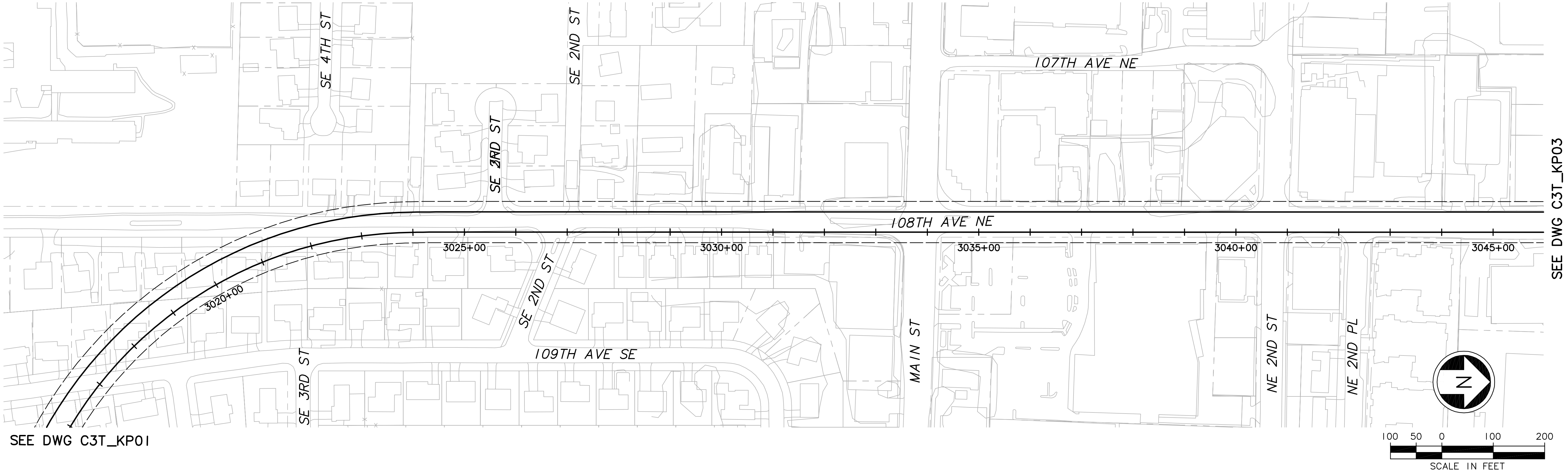
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

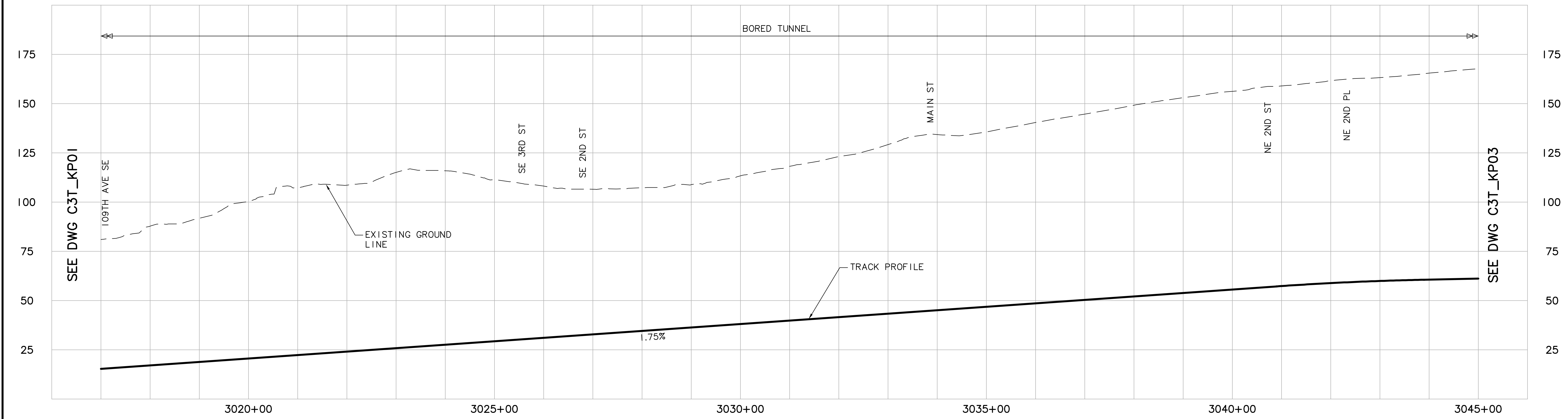
St_Names_E_4

LTSCALE

1=1



SE 4TH ST
SE 2ND ST
SE 3RD ST
107TH AVE NE
108TH AVE NE
3020+00
3025+00
3030+00
3035+00
3040+00
3045+00
SE 2ND ST
109TH AVE SE
SE 3RD ST
MAIN ST
NE 2ND ST
NE 2ND PL
N
SEE DWG C3T_KP03
SEE DWG C3T_KP01
100 50 0 100 200
SCALE IN FEET



c:\work\ELCIC3T_KP02.dwg
10/16/08 10:08 : eackerm OE5396

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Date:

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELCIC3T_KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B2A OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C3T-KP02
Sheet No.:
Rev.:
C-69

XREF'S
Resolved
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
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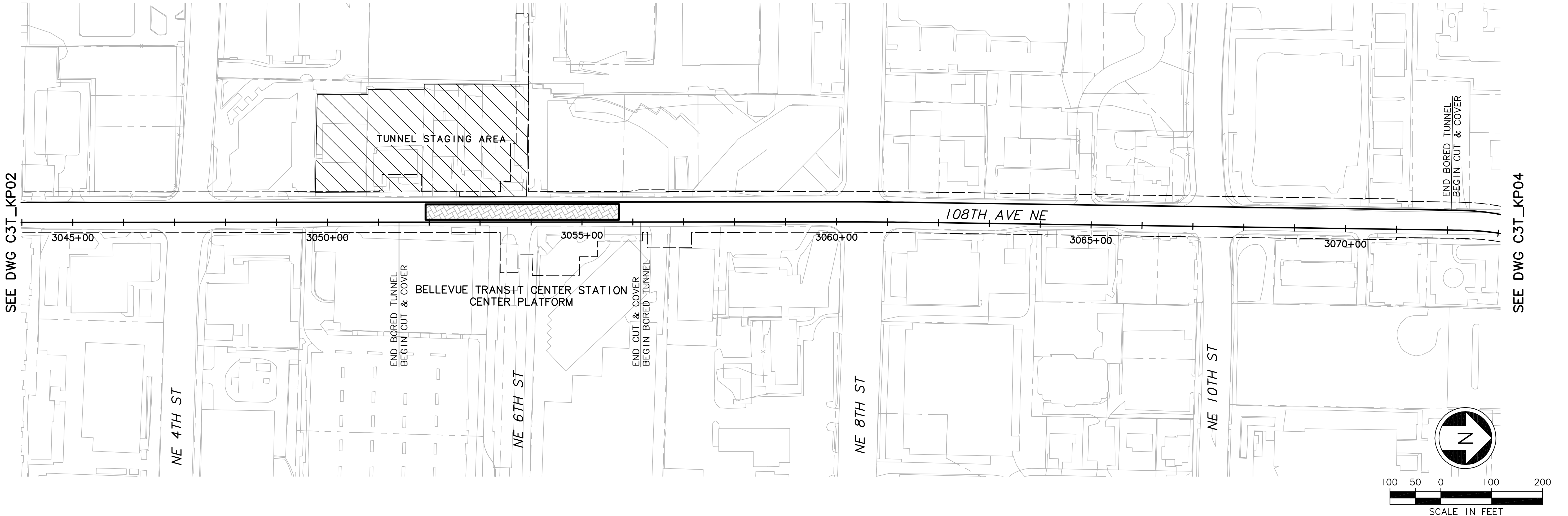
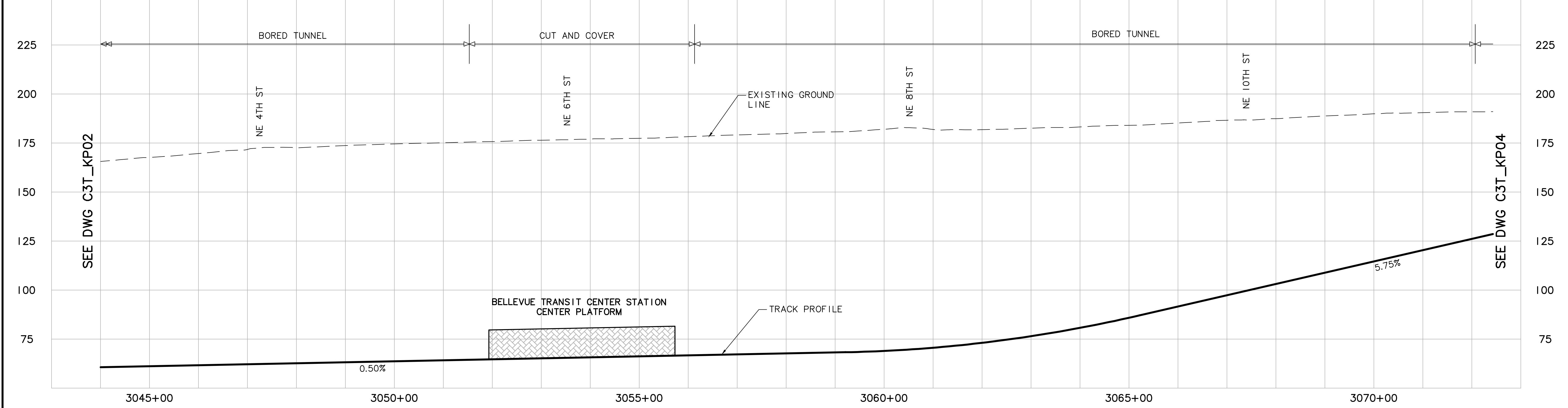
key_East
LTSCALE
1=1



SEE DWG C3T_KP02
TUNNEL STAGING AREA
108TH AVE NE
3045+00
3050+00
3055+00
3060+00
3065+00
3070+00
END BORED TUNNEL
BEGIN CUT & COVER
BELLEVUE TRANSIT CENTER STATION
CENTER PLATFORM
END CUT & COVER
BEGIN BORED TUNNEL
END BORED TUNNEL
BEGIN CUT & COVER
NE 4TH ST
NE 6TH ST
NE 8TH ST
NE 10TH ST
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C3T_KP04



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10/16/08 10:09 : eackerm OE5396

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Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C3T_KP03.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B2A (BASELINE)
ALTERNATIVE C3T
TRACK PLAN & PROFILE

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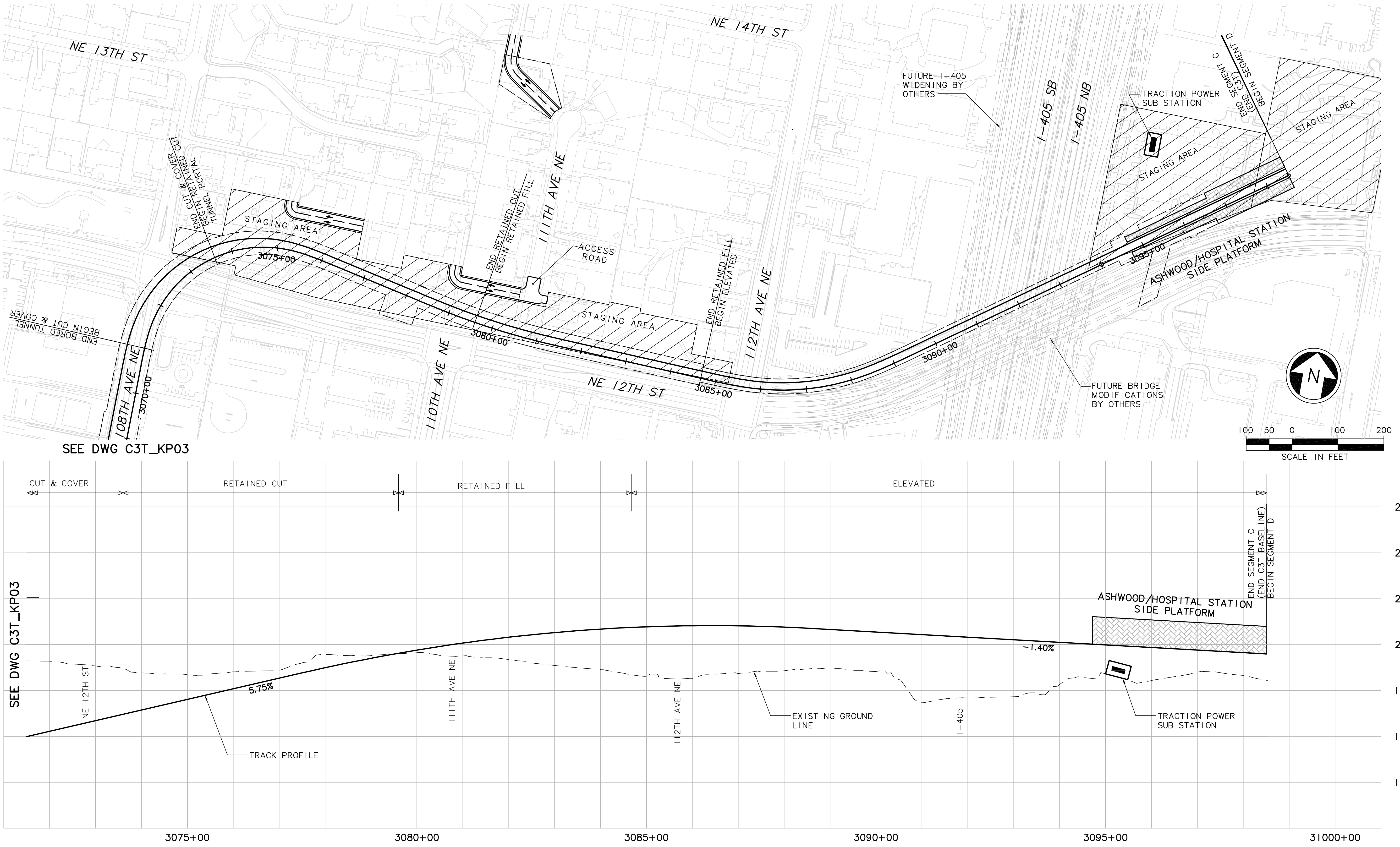
Drawing No.: C3T-KP03
Sheet No.: C-70
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELC_C3T_JO–100
ELC_C3T_KA–100
ZG–2234H
ZG–G10010
key_East
x0231rx
x0231sf
x0531rx
x0531sf
x1405_chan
–Unresolved:
St_Names_E_40

c:\work\feis\ELC_IC3T_KP04.dwg
02/22/11 16:08 : bolimaf OE6579


1
2
3
4
5
NE 13TH ST
NE 14TH ST
FUTURE I-405 WIDENING BY OTHERS
I-405 SB
I-405 NB
TRACTION POWER SUB STATION
END SEGMENT C (END C3T) BEGIN SEGMENT D
STAGING AREA
STAGING AREA
END CUT & COVER BEGIN RETAINED CUT TUNNEL PORTAL
STAGING AREA
END RETAINED CUT BEGIN RETAINED FILL
111TH AVE NE
ACCESS ROAD
END RETAINED FILL BEGIN ELEVATED
112TH AVE NE
ASHWOOD/HOSPITAL STATION SIDE PLATFORM
3075+00
3080+00
3085+00
3090+00
3095+00
3070+00
END BORED TUNNEL BEGIN CUT & COVER
STAGING AREA
110TH AVE NE
108TH AVE NE
NE 12TH ST
FUTURE BRIDGE MODIFICATIONS BY OTHERS
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C3T_KP03
CUT & COVER
RETAINED CUT
RETAINED FILL
ELEVATED
END SEGMENT C (END C3T BASELINE) BEGIN SEGMENT D
275
250
225
200
175
150
125
SEE DWG C3T_KP03
ASHWOOD/HOSPITAL STATION SIDE PLATFORM
-1.40%
5.75%
NE 12TH ST
111TH AVE NE
112TH AVE NE
I-405
EXISTING GROUND LINE
TRACTION POWER SUB STATION
TRACK PROFILE
3075+00
3080+00
3085+00
3090+00
3095+00
31000+00

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Filename:
ELC_IC3T_KP04.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – C3T-B2A (BASELINE)

ALTERNATIVE C3T
TRACK PLAN & PROFILE

Drawing No.:
C3T_–KP04

Sheet No.:
Rev.:
C-71

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C3T_B2E_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
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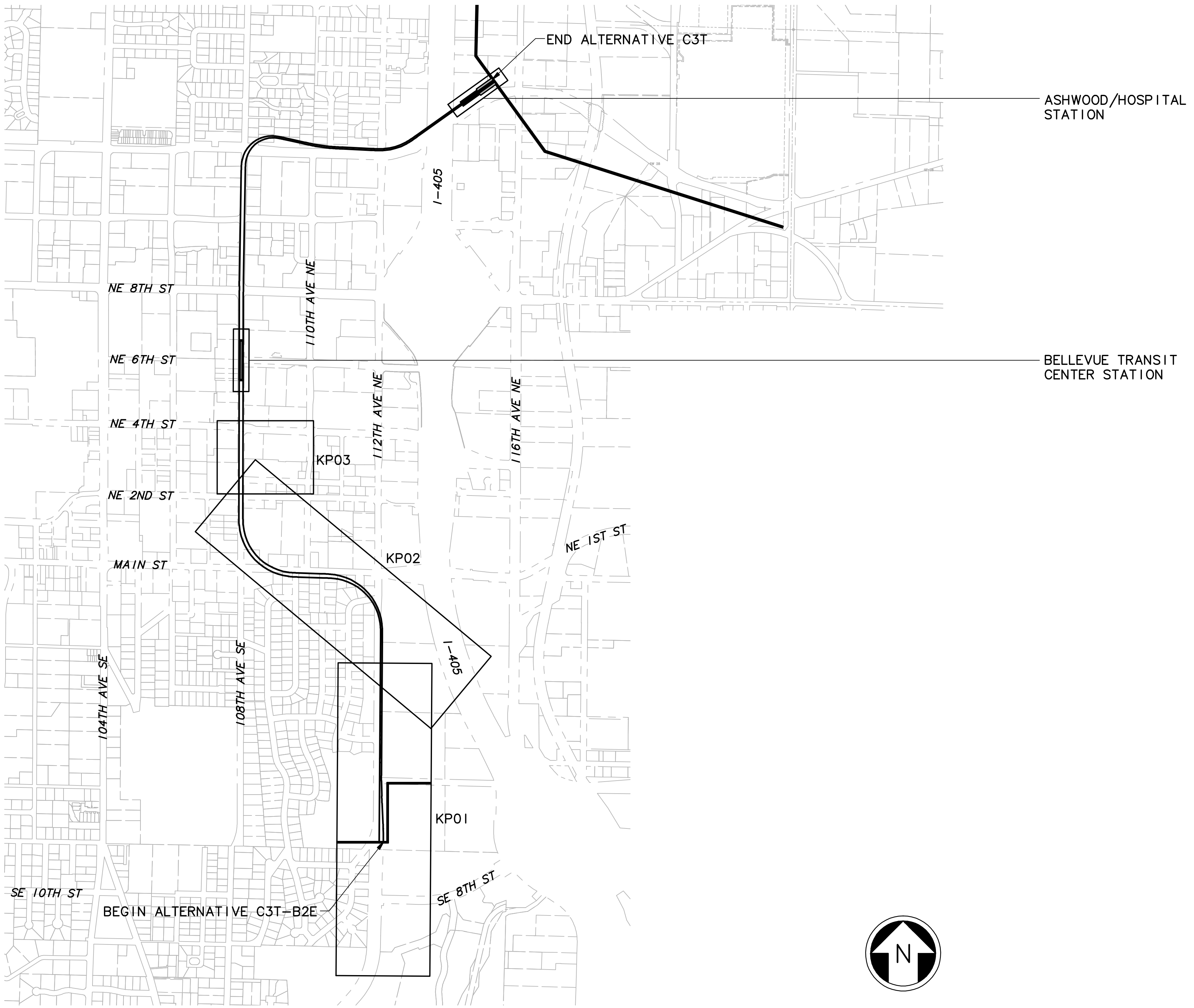
x0534rx
x0831rx
x0834rx
-Unresolved:



END ALTERNATIVE C3T
ASHWOOD/HOSPITAL STATION
I-405
NE 8TH ST
110TH AVE NE
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
112TH AVE NE
116TH AVE NE
KP03
NE 2ND ST
NE 1ST ST
MAIN ST
KP02
I-405
104TH AVE SE
108TH AVE SE
KP01
SE 10TH ST
SE 8TH ST
BEGIN ALTERNATIVE C3T-B2E
N

c:\work\feis\segment c\c3t\ELC1C3T2GZ05.dwg
04/20/11 11:26 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

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Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C3T2GZ05.dwg
Contract No.: EL SEG_C
Date:

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EAST LINK PROJECT
SEGMENT C: C3T-B2E OPTION
ALTERNATIVE C3T

KEY PLAN

Drawing No.: C3T2GZ05
Sheet No.: C-72
Rev.:

XREF'S

Resolved

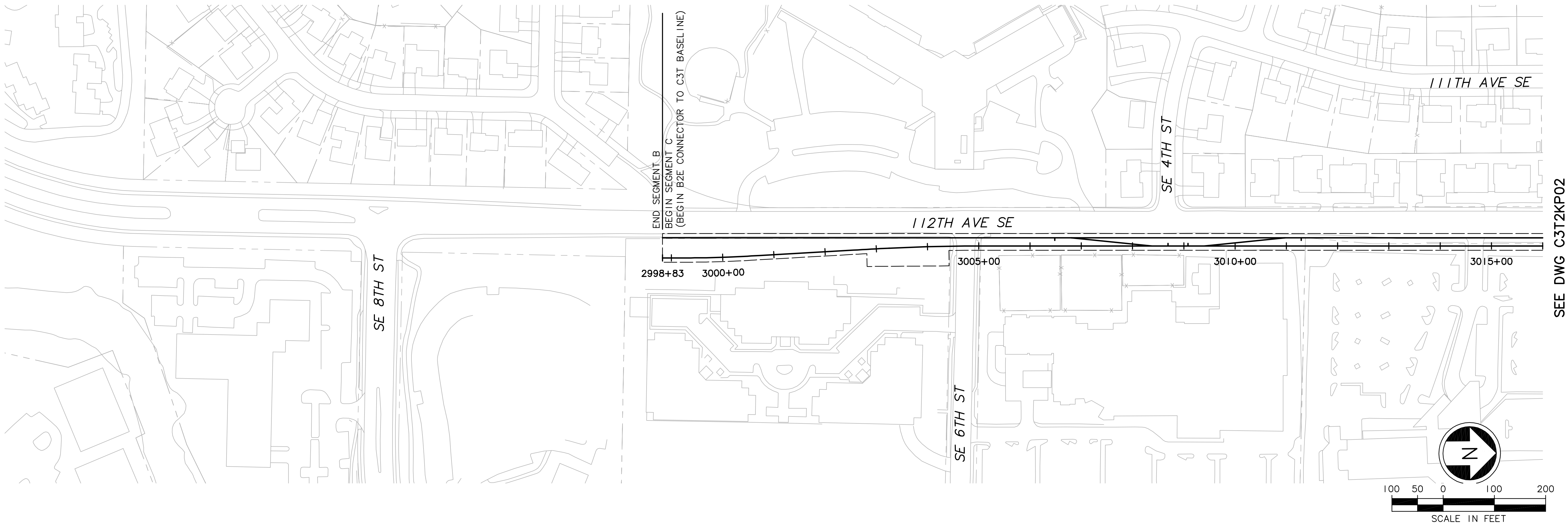
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

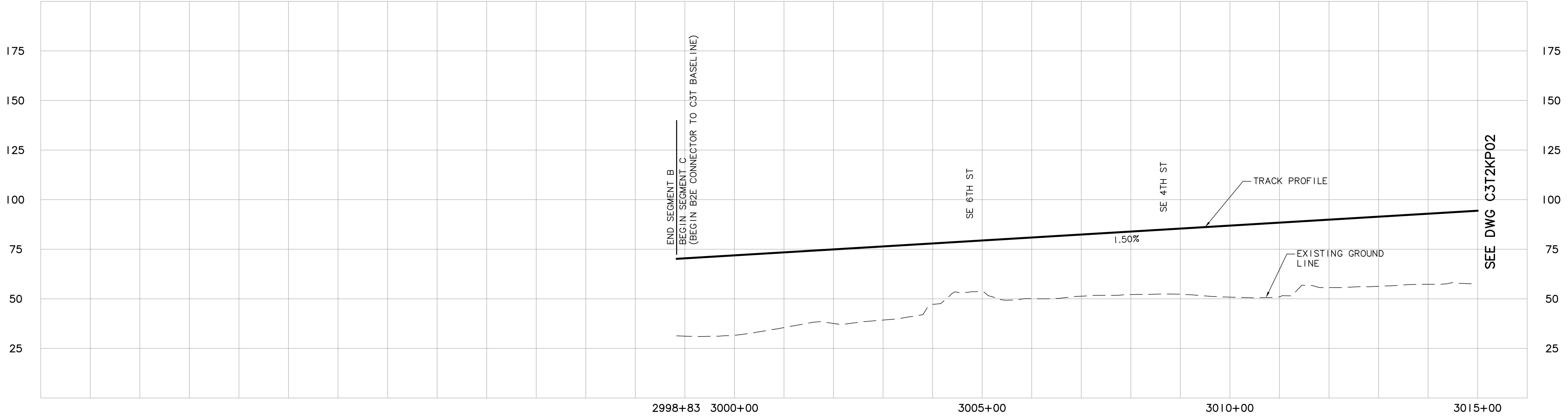
St_Names_E_4
key_East

LTSCALE

1=1



111TH AVE SE
SE 4TH ST
112TH AVE SE
SE 8TH ST
SE 6TH ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B2E CONNECTOR TO C3T BASELINE)
2998+83
3000+00
3005+00
3010+00
3015+00
SEE DWG C3T2KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C3T2KP01.dwg
10/16/08 10:03 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

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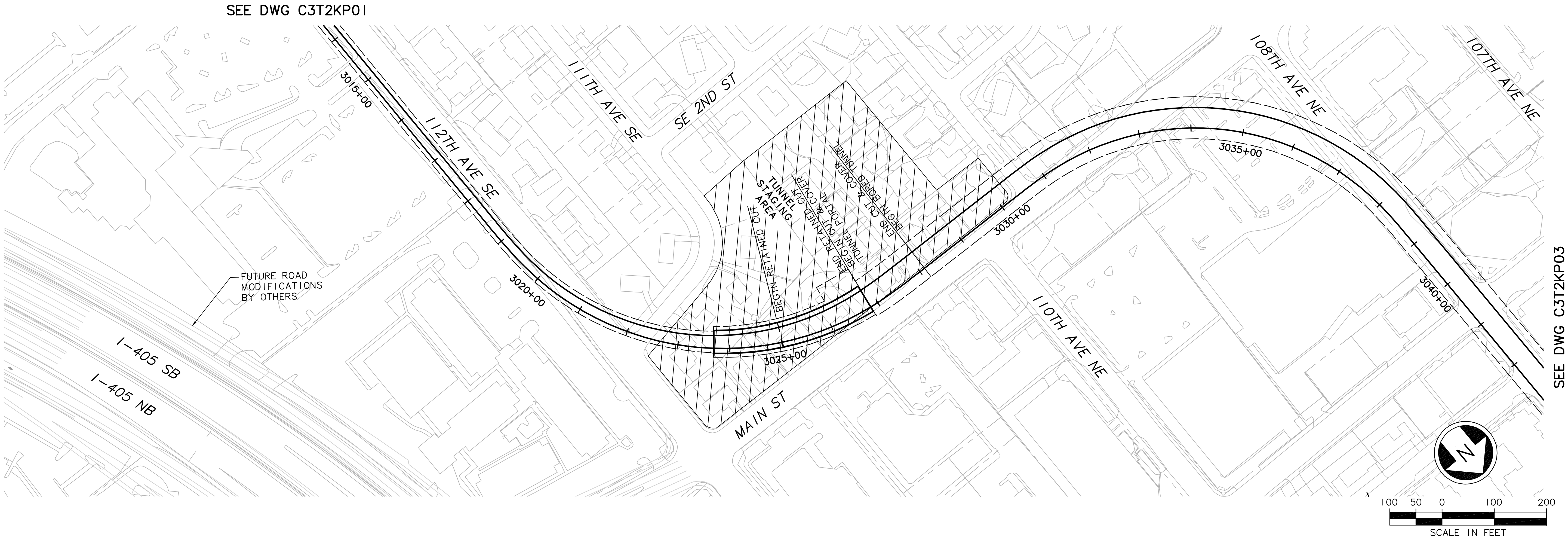
Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C3T2KP01.dwg
Contract No.:
EL SEG_C
Date:

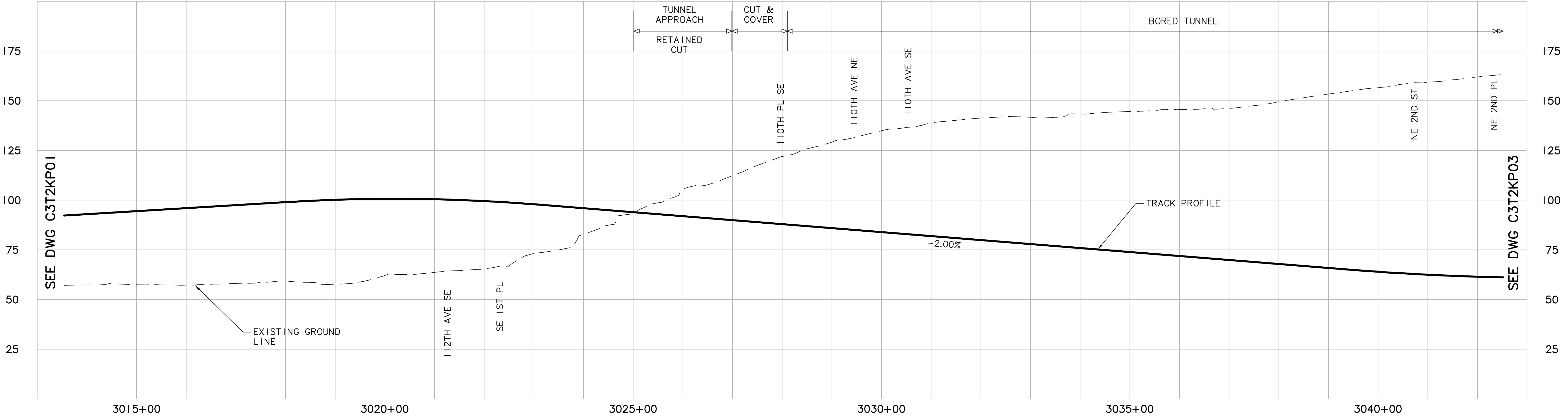
EAST LINK PROJECT
SEGMENT C: C3T-B2E OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C3T2KP01
Sheet No.:
Rev.:
C-73

XREF'S
Resolved
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
ELC_1405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf
Unresolved
St_Names_E_4
key_East
LTSCALE
1=1


SEE DWG C3T2KP01
SEE DWG C3T2KP03
3015+00
3020+00
3025+00
3030+00
3035+00
3040+00
112TH AVE SE
111TH AVE SE
SE 2ND ST
108TH AVE NE
107TH AVE NE
110TH AVE NE
MAIN ST
I-405 SB
I-405 NB
FUTURE ROAD MODIFICATIONS BY OTHERS
TUNNEL STAGING AREA
BEGIN RETAINED CUT
END RETAINED CUT
BEGIN CUT & COVER
TUNNEL PORTAL
END CUT & COVER
BEGIN BORED TUNNEL
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C3T2KP02.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C3T2KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B2E OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C3T2KP02
Sheet No.:
Rev.:
C-74

XREF'S

Resolved

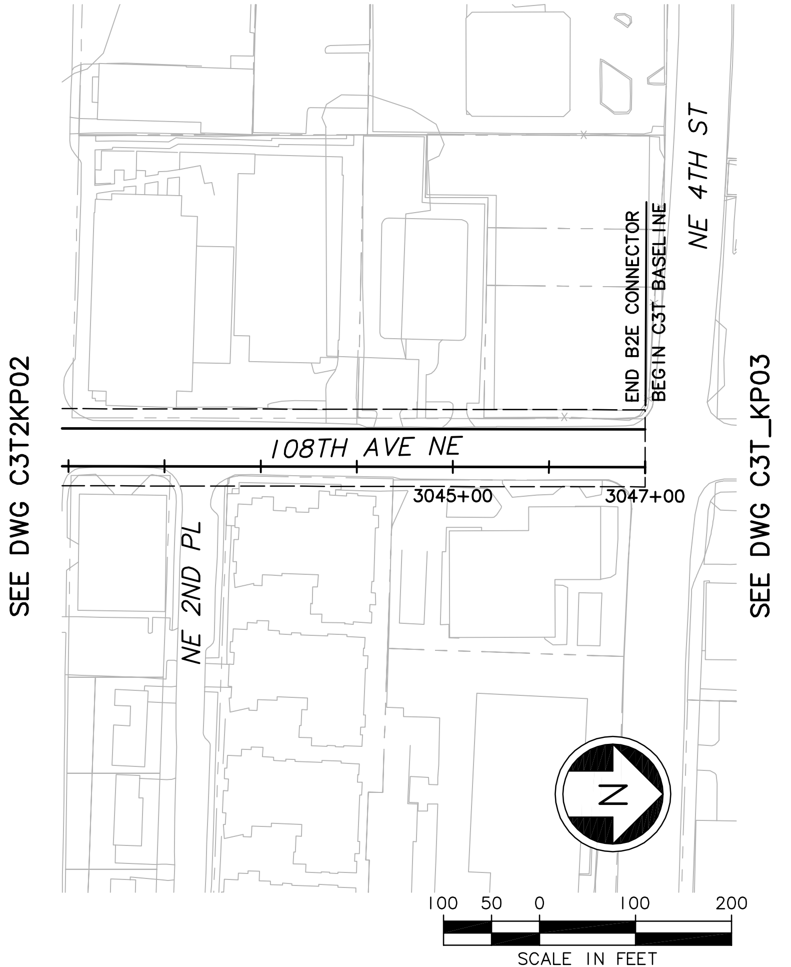
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

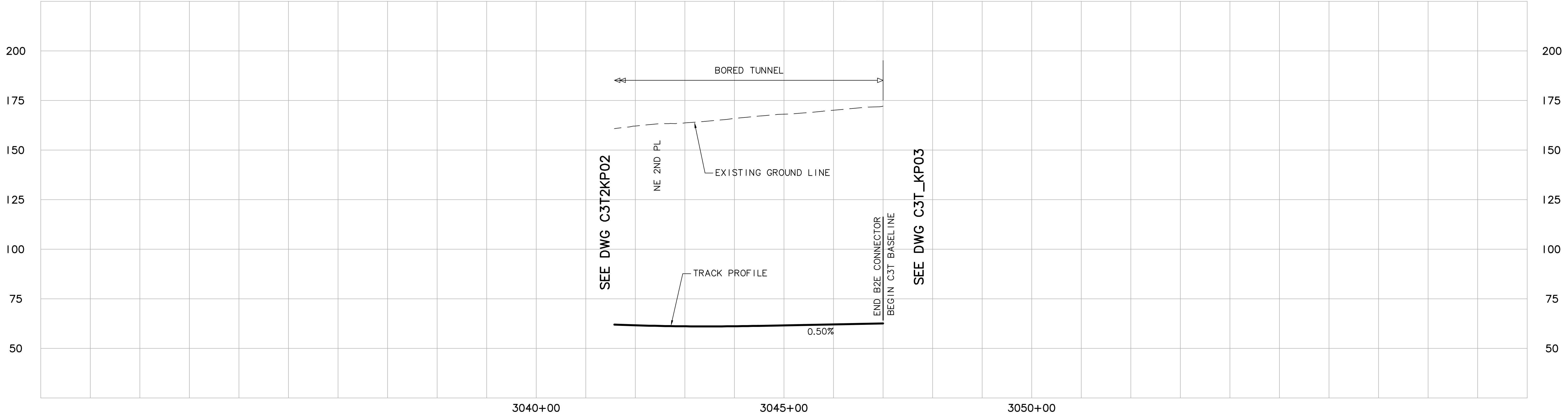
St_Names_E_4
key_East

LTSCALE

1=1



SEE DWG C3T2KP02
NE 4TH ST
END B2E CONNECTOR
BEGIN C3T BASELINE
108TH AVE NE
3045+00
3047+00
NE 2ND PL
SEE DWG C3T_KP03
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C3T2KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B2E OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

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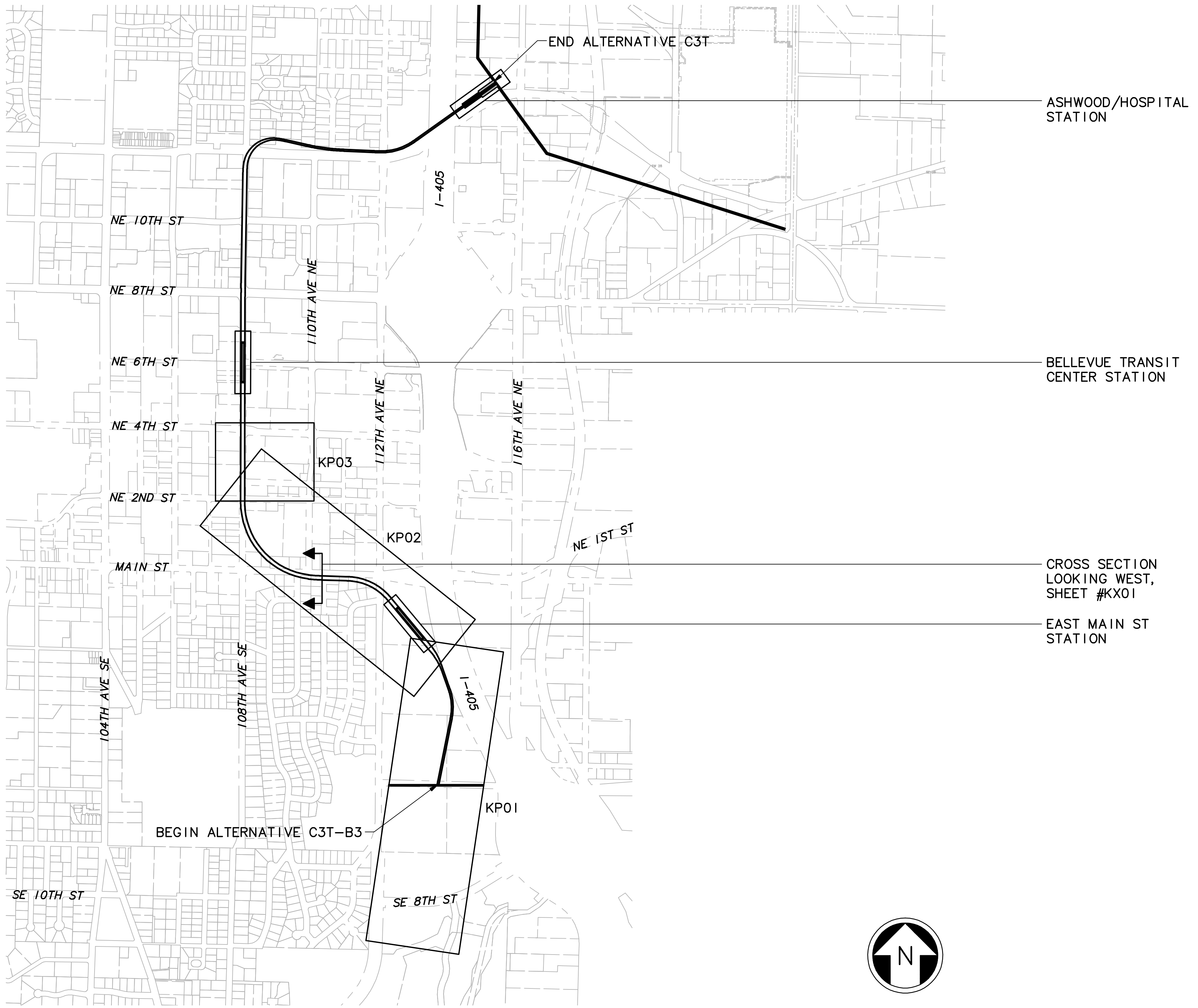
Drawing No.:
C3T2KP03
Sheet No.:
Rev.:
C-75

c:\work\ELC1C3T2KP03.dwg
10/16/08 10:04 : eackerm OE5396

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C3T_B3_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0831rx
x0834rx
-Unresolved:


END ALTERNATIVE C3T
ASHWOOD/HOSPITAL STATION
I-405
NE 10TH ST
NE 8TH ST
110TH AVE NE
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
112TH AVE NE
116TH AVE NE
NE 4TH ST
KP03
NE 2ND ST
KP02
NE 1ST ST
MAIN ST
CROSS SECTION LOOKING WEST, SHEET #KX01
EAST MAIN ST STATION
104TH AVE SE
108TH AVE SE
I-405
KP01
BEGIN ALTERNATIVE C3T-B3
SE 10TH ST
SE 8TH ST
N

c:\work\feis\segment c\c3t\ELC1C3T3GZ05.dwg
04/20/11 11:37 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Scale: NTS
Filename: ELC1C3T3GZ05.dwg
Contract No.: EL SEG_C
Date:

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EAST LINK PROJECT
SEGMENT C: C3T-B3 OPTION
ALTERNATIVE C3T

KEY PLAN

Drawing No.: C3T3GZ05
Sheet No.: C-76
Rev.:

XREF'S

Resolved

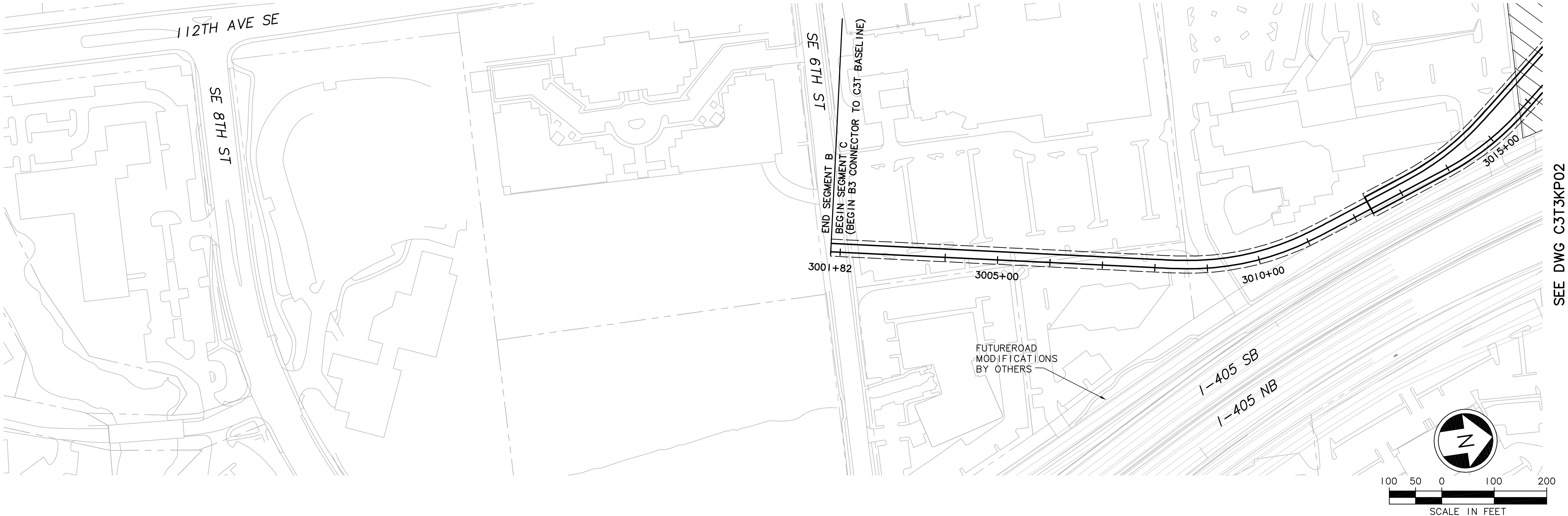
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

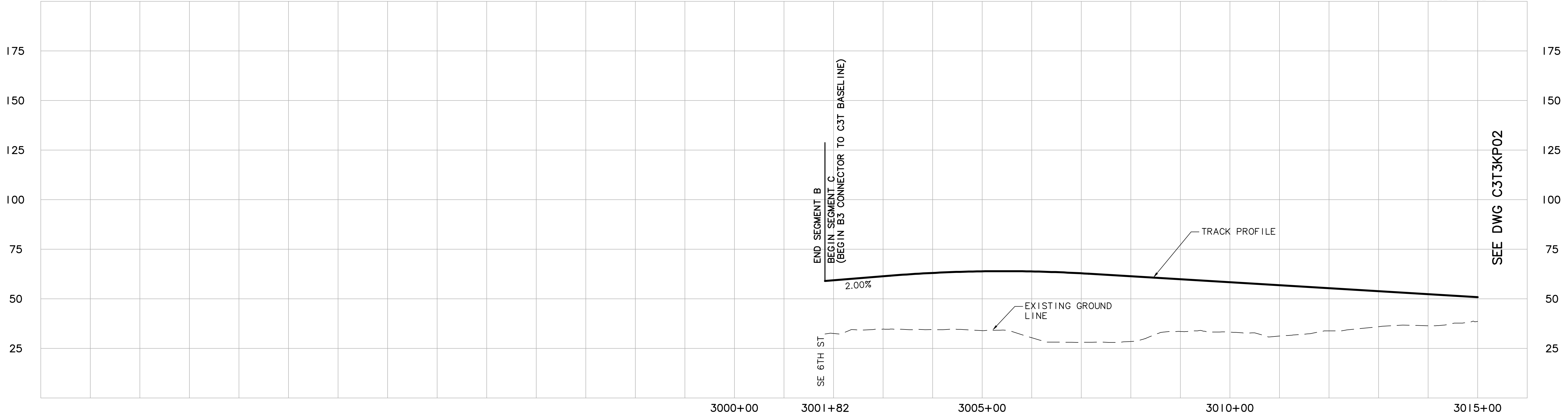
St_Names_E_40
key_East

LTSCALE

1=1



112TH AVE SE
SE 8TH ST
SE 6TH ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B3 CONNECTOR TO C3T BASELINE)
3001+82
3005+00
3010+00
3015+00
FUTUREROAD MODIFICATIONS BY OTHERS
I-405 SB
I-405 NB
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C3T3KP02



c:\work\ELC1C3T3KP01.dwg
10/16/08 10:04 : eackerm OE5396

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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C3T3KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B3 OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C3T3KP01
Sheet No.:
Rev.:
C-77

XREF'S

Resolved

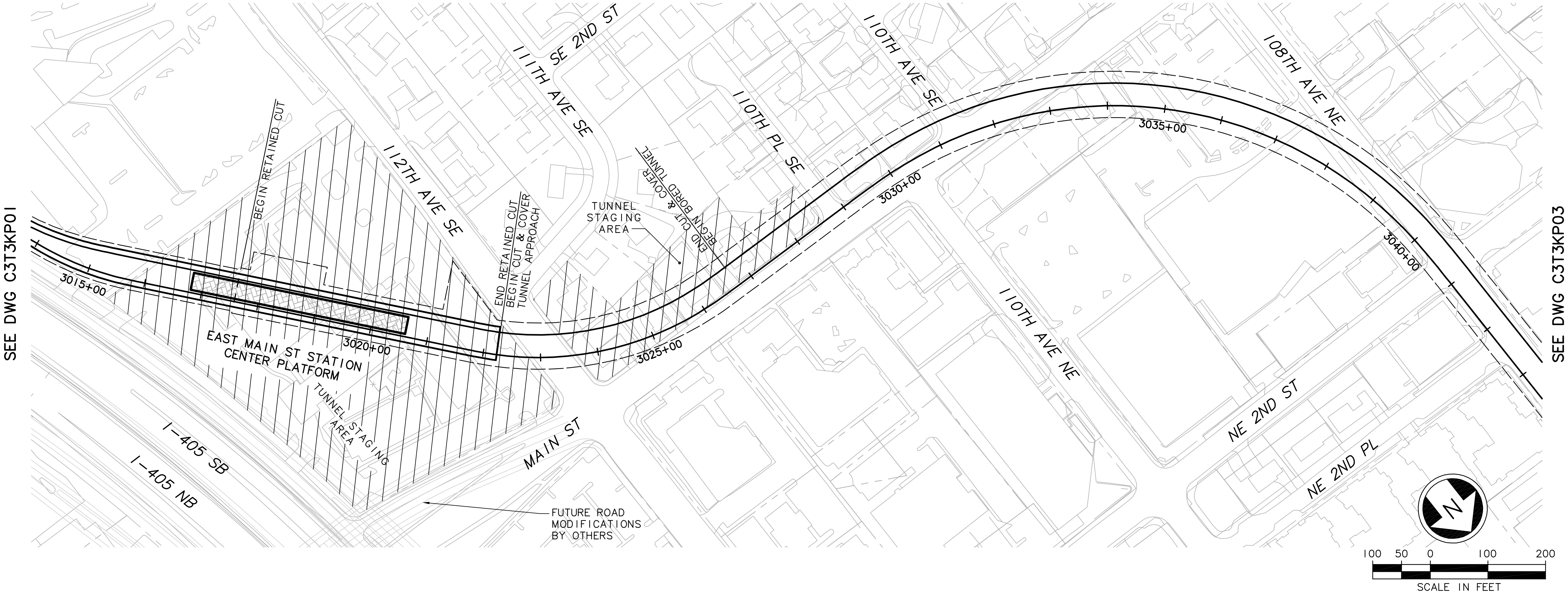
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

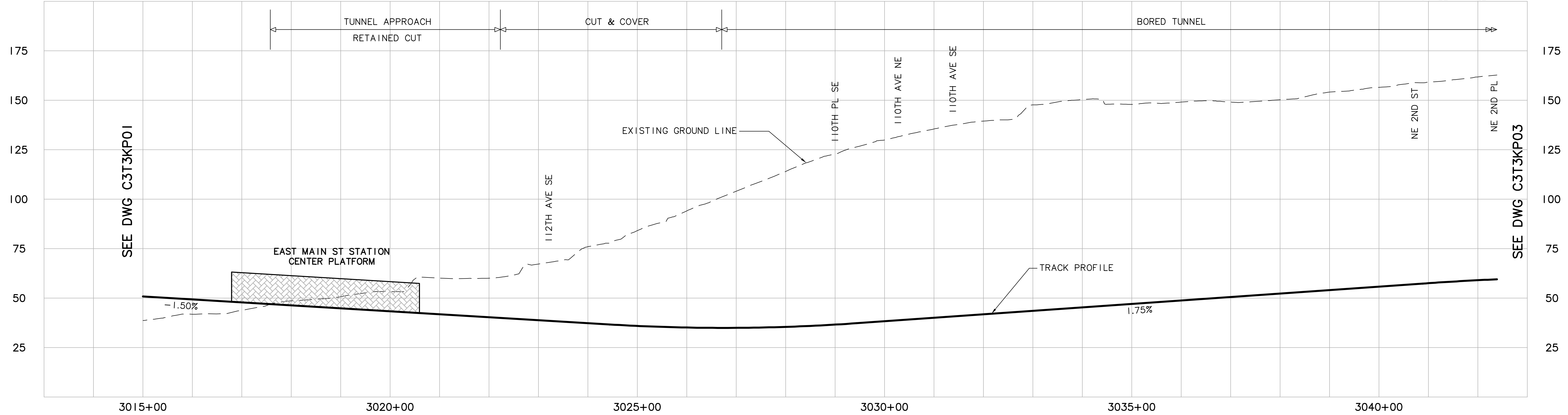
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


SEE DWG C3T3KP01
SEE DWG C3T3KP03
SE 2ND ST
111TH AVE SE
110TH PL SE
110TH AVE SE
108TH AVE NE
112TH AVE SE
BEGIN RETAINED CUT
END RETAINED CUT
BEGIN CUT & COVER
TUNNEL APPROACH
TUNNEL STAGING AREA
END CUT & COVER
BEGIN BORED TUNNEL
3015+00
3020+00
3025+00
3030+00
3035+00
3040+00
EAST MAIN ST STATION
CENTER PLATFORM
TUNNEL STAGING AREA
I-405 SB
I-405 NB
MAIN ST
FUTURE ROAD MODIFICATIONS BY OTHERS
110TH AVE NE
NE 2ND ST
NE 2ND PL
N
100 50 0 100 200
SCALE IN FEET


TUNNEL APPROACH
RETAINED CUT
CUT & COVER
BORED TUNNEL
175
150
125
100
75
50
25
SEE DWG C3T3KP01
SEE DWG C3T3KP03
112TH AVE SE
110TH PL SE
110TH AVE NE
110TH AVE SE
NE 2ND ST
NE 2ND PL
EXISTING GROUND LINE
EAST MAIN ST STATION
CENTER PLATFORM
TRACK PROFILE
-1.50%
1.75%
3015+00
3020+00
3025+00
3030+00
3035+00
3040+00

c:\work\ELC1C3T3KP02.dwg
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Date:

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Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C3T3KP02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B3 OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

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Drawing No.: C3T3KP02
Sheet No.: C-78
Rev.:

XREF'S

Resolved

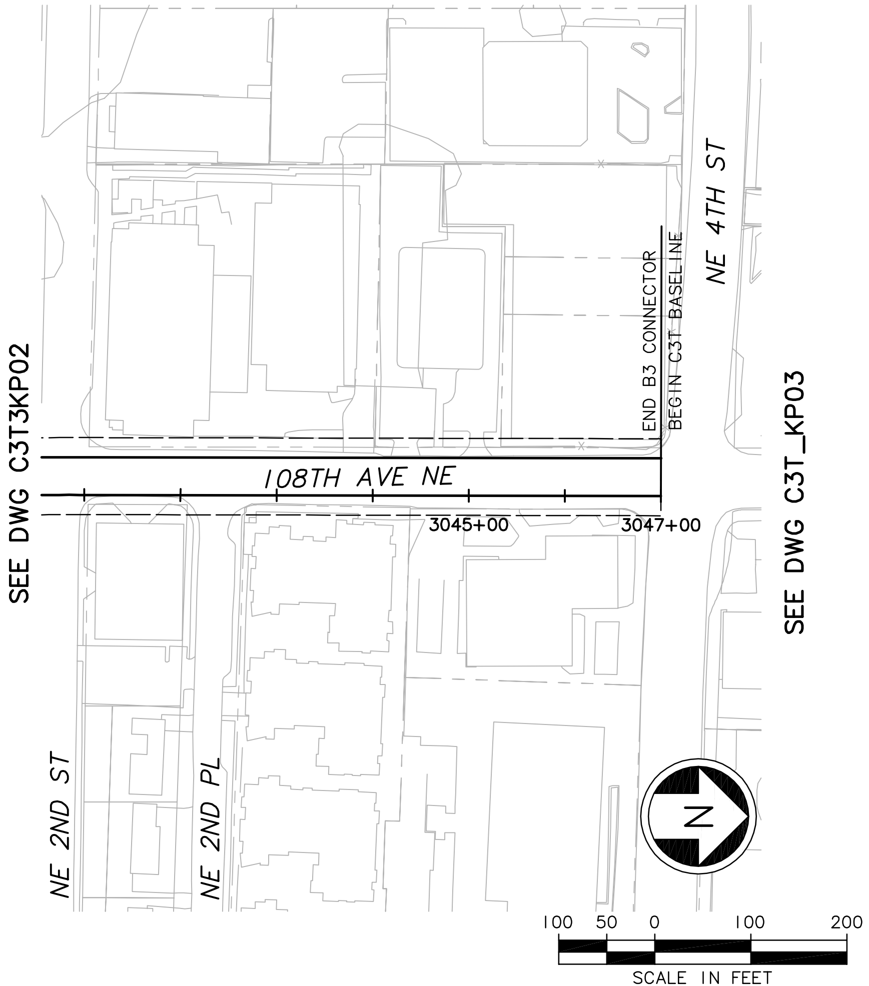
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

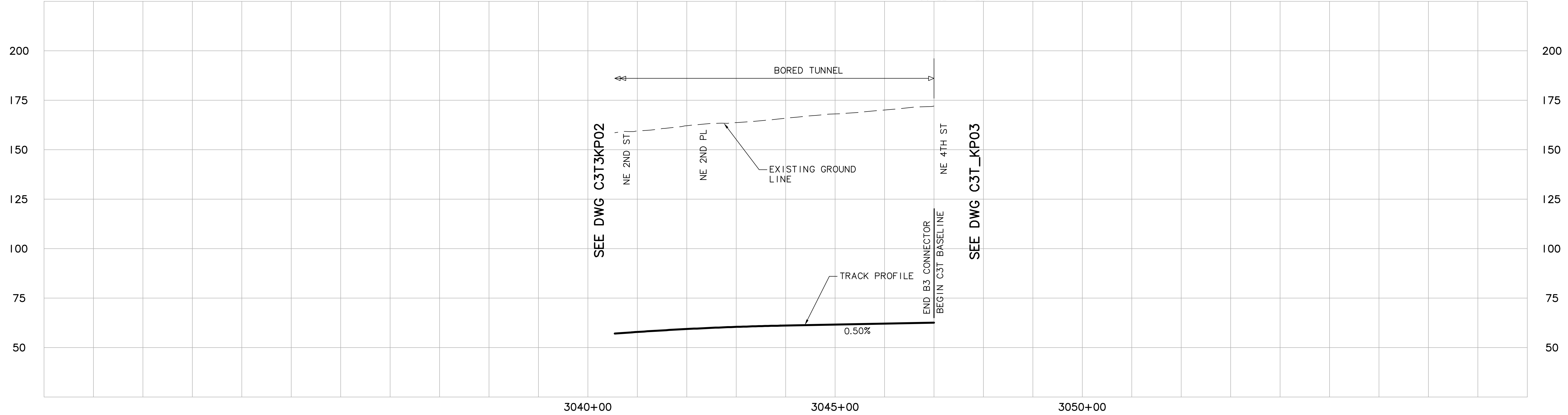
St_Names_E_40
key_East

LTSCALE

1=1



SEE DWG C3T3KP02
SEE DWG C3T_KP03
END B3 CONNECTOR
BEGIN C3T BASELINE
NE 4TH ST
108TH AVE NE
3045+00
3047+00
NE 2ND ST
NE 2ND PL
N
100 50 0 100 200
SCALE IN FEET



200
175
150
125
100
75
50
BORED TUNNEL
SEE DWG C3T3KP02
NE 2ND ST
NE 2ND PL
EXISTING GROUND LINE
NE 4TH ST
SEE DWG C3T_KP03
END B3 CONNECTOR
BEGIN C3T BASELINE
TRACK PROFILE
0.50%
3040+00
3045+00
3050+00

c:\work\ELCIC3T3KP03.dwg
10/16/08 10:05 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELCIC3T3KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B3 OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

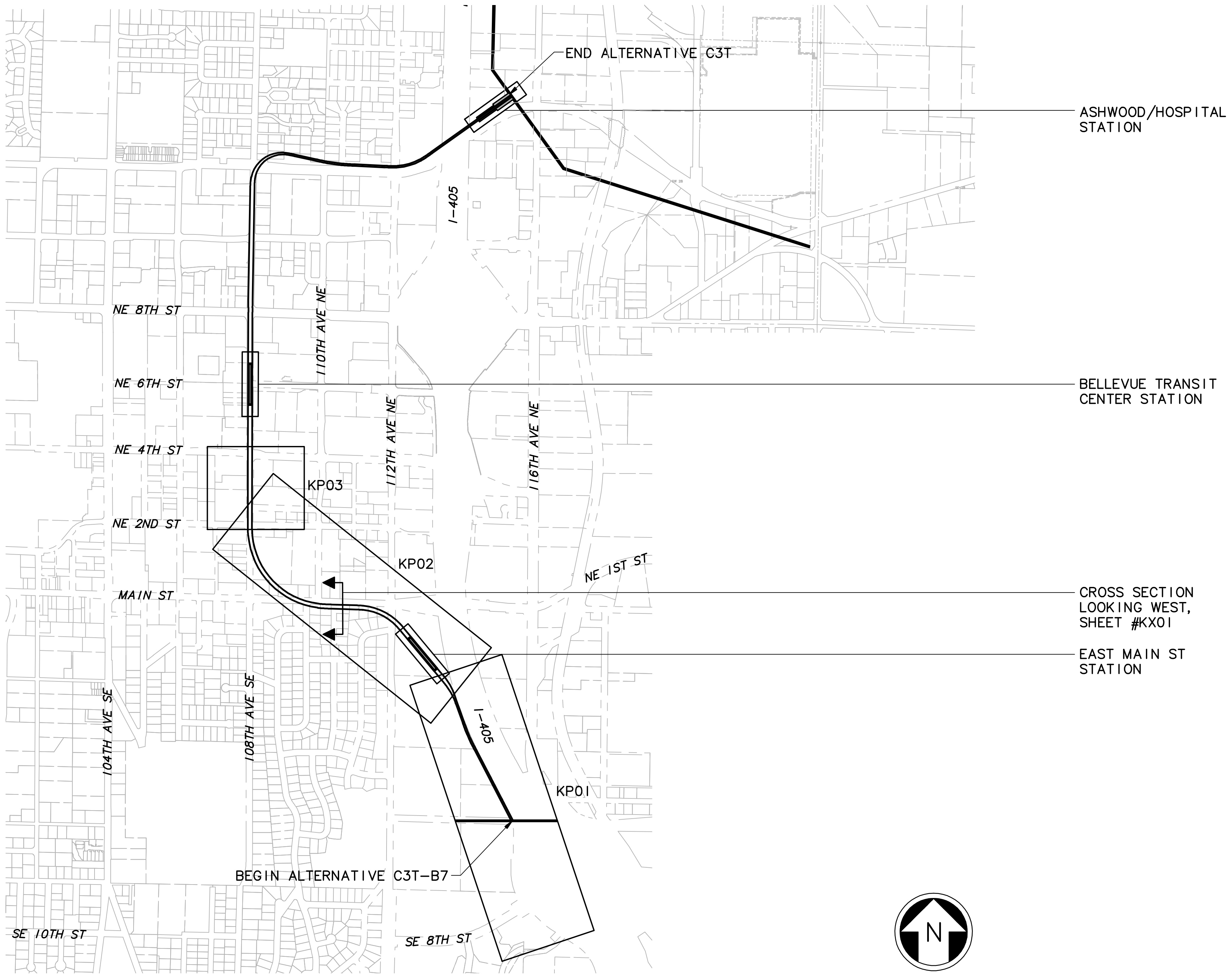
THIS PRINT REDUCED
HALF SCALE

Drawing No.:
C3T3KP03
Sheet No.: C-79
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELC_C3T_B7_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx
–Unresolved:


END ALTERNATIVE C3T
ASHWOOD/HOSPITAL STATION
I-405
NE 8TH ST
110TH AVE NE
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
112TH AVE NE
116TH AVE NE
NE 4TH ST
KP03
NE 2ND ST
KP02
NE 1ST ST
MAIN ST
CROSS SECTION LOOKING WEST, SHEET #KX01
EAST MAIN ST STATION
104TH AVE SE
108TH AVE SE
I-405
KP01
BEGIN ALTERNATIVE C3T-B7
SE 10TH ST
SE 8TH ST
N

c:\work\feis\segment c\c3t\ELC1C3T7GZ05.dwg
04/20/11 11:45 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

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Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C3T7GZ05.dwg
Contract No.: EL SEG_C
Date:

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EAST LINK PROJECT
SEGMENT C: C3T-B7 OPTION
ALTERNATIVE C3T

KEY PLAN

Drawing No.: C3T7GZ05
Sheet No.: C-80
Rev.:

XREF'S

Resolved

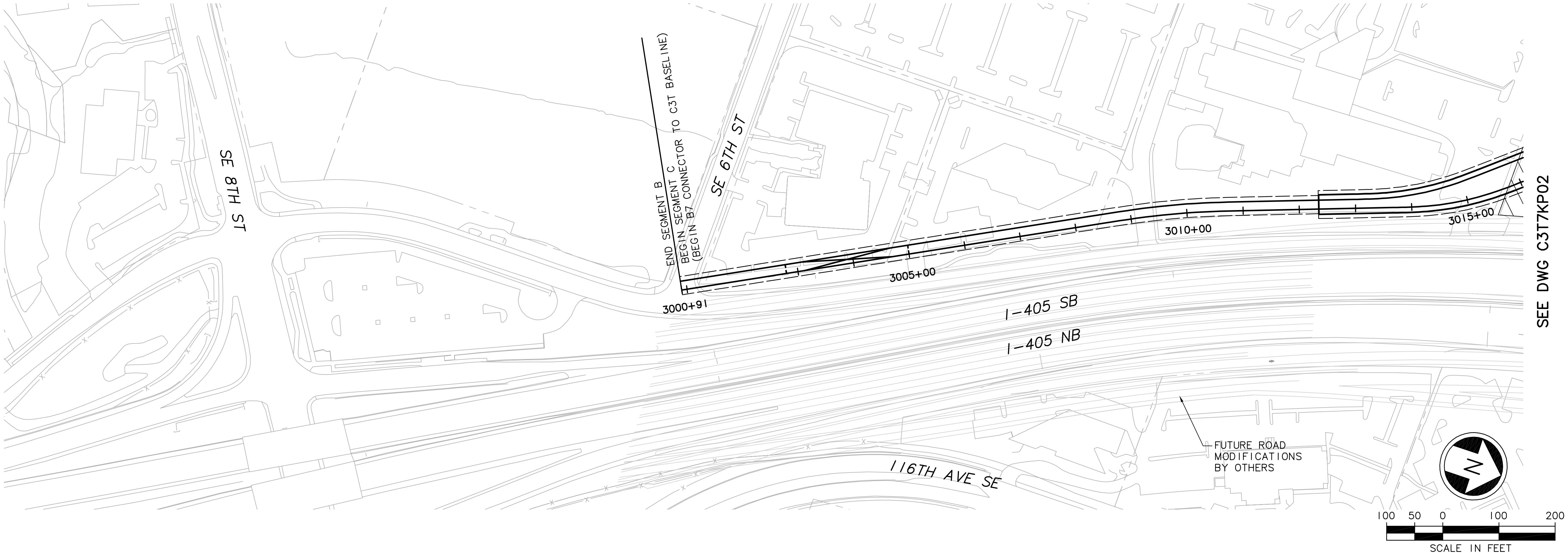
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

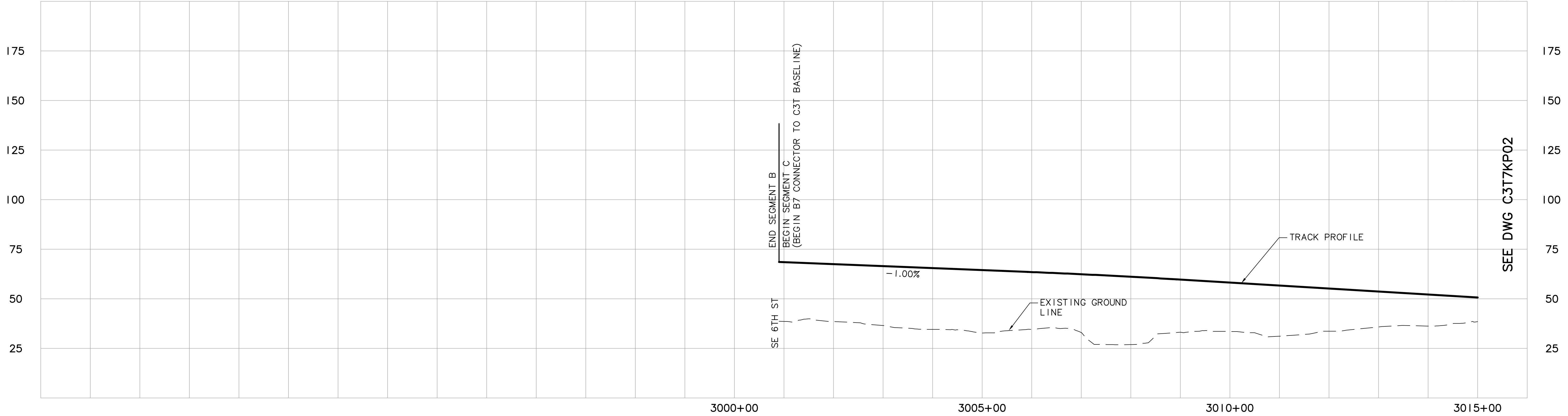
St_Names_E_40
key_East

LTSCALE

1=1



SE 8TH ST
SE 6TH ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B7 CONNECTOR TO C3T BASELINE)
3000+91
3005+00
3010+00
3015+00
I-405 SB
I-405 NB
116TH AVE SE
FUTURE ROAD MODIFICATIONS BY OTHERS
SEE DWG C3T7KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C3T7KP01.dwg : eackerm OE5396
10/16/08 10:06

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C3T7KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B7 OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED * HALF SCALE

Drawing No.:
C3T7KP01
Sheet No.:
Rev.:
C-81

XREF'S

Resolved

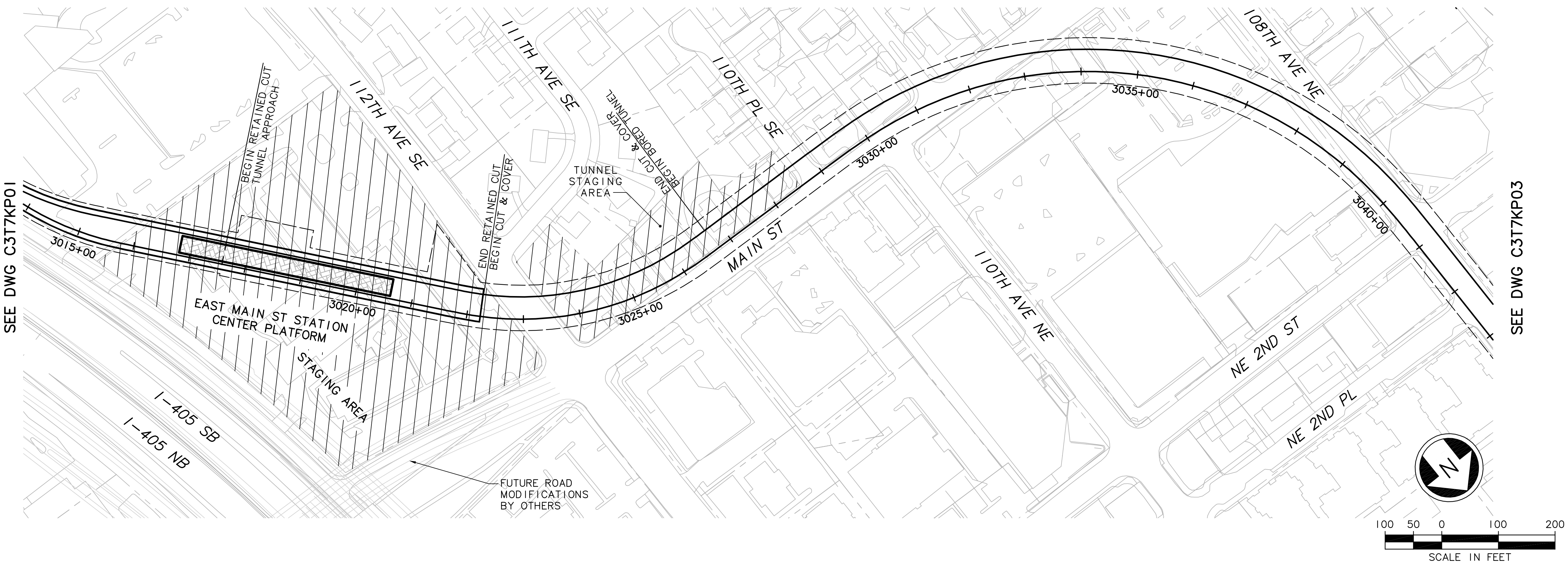
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

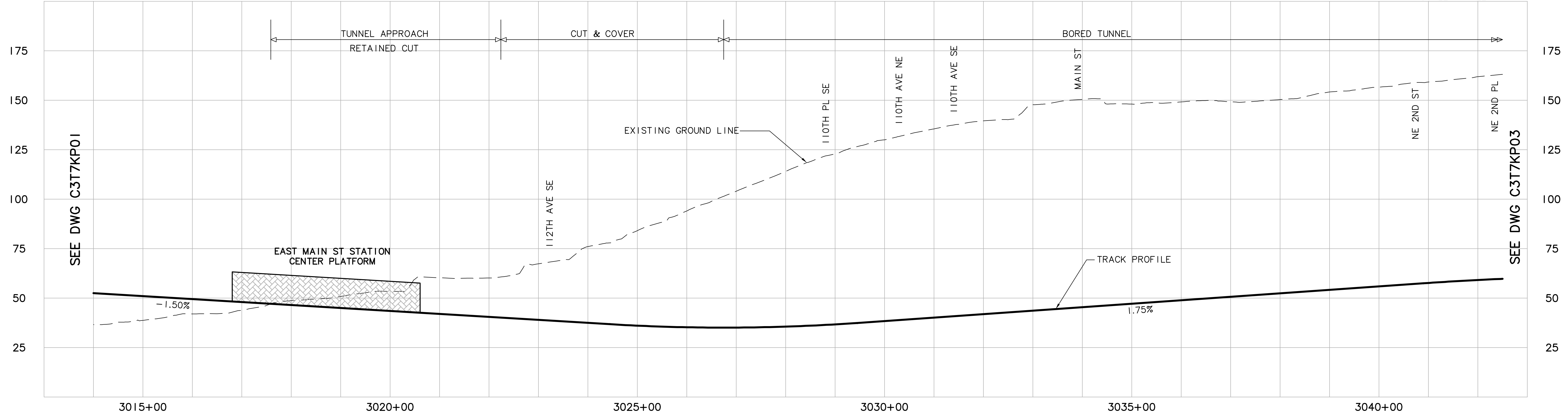
Unresolved

St_Names_E_4
key_East

LTSCALE

1=1


SEE DWG C3T7KP01
SEE DWG C3T7KP03
BEGIN RETAINED CUT TUNNEL APPROACH
112TH AVE SE
111TH AVE SE
110TH PL SE
END CUT & COVER BEGIN BORED TUNNEL
TUNNEL STAGING AREA
END RETAINED CUT BEGIN CUT & COVER
108TH AVE NE
3015+00
3020+00
3025+00
3030+00
3035+00
3040+00
EAST MAIN ST STATION CENTER PLATFORM
STAGING AREA
MAIN ST
110TH AVE NE
NE 2ND ST
NE 2ND PL
I-405 SB
I-405 NB
FUTURE ROAD MODIFICATIONS BY OTHERS
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C3T7KP02.dwg
10/16/08 10:06 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
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Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C3T7KP02.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C3T-B7 OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C3T7KP02
Sheet No.:
C-82
Rev.:

XREF'S

Resolved

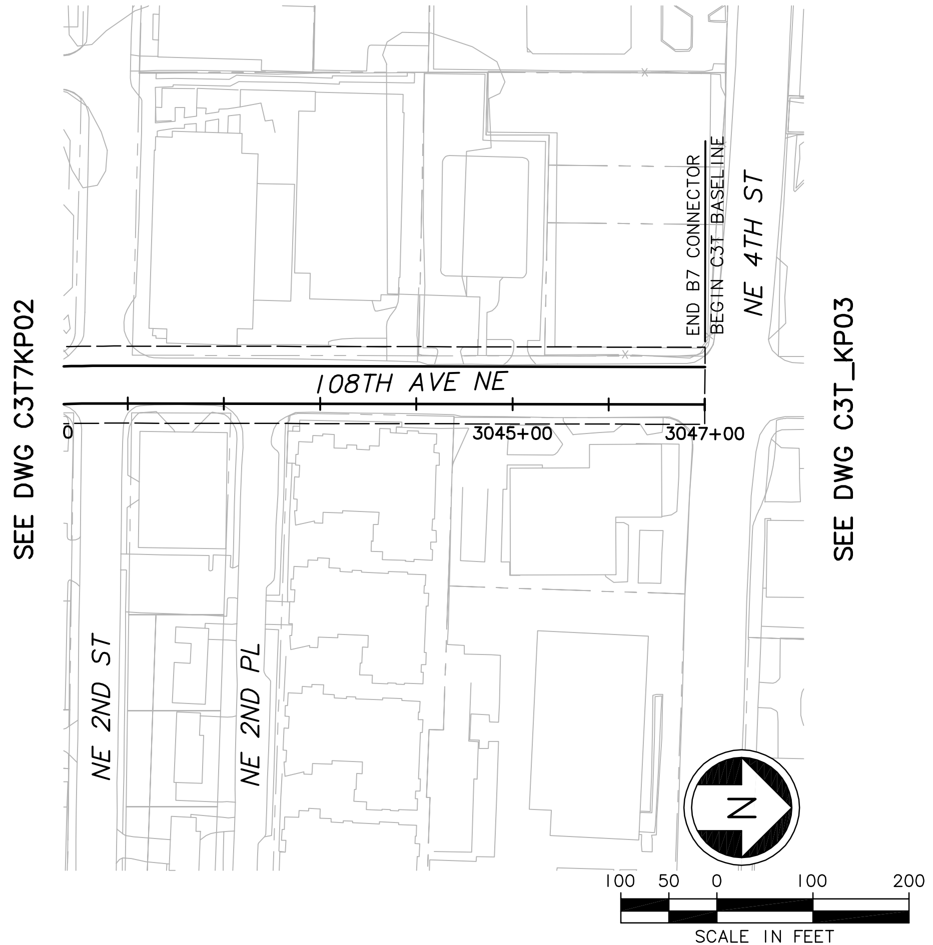
ELC_C3T_CM
ELC_C3T_JO
ELC_C3T_KA
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf

Unresolved

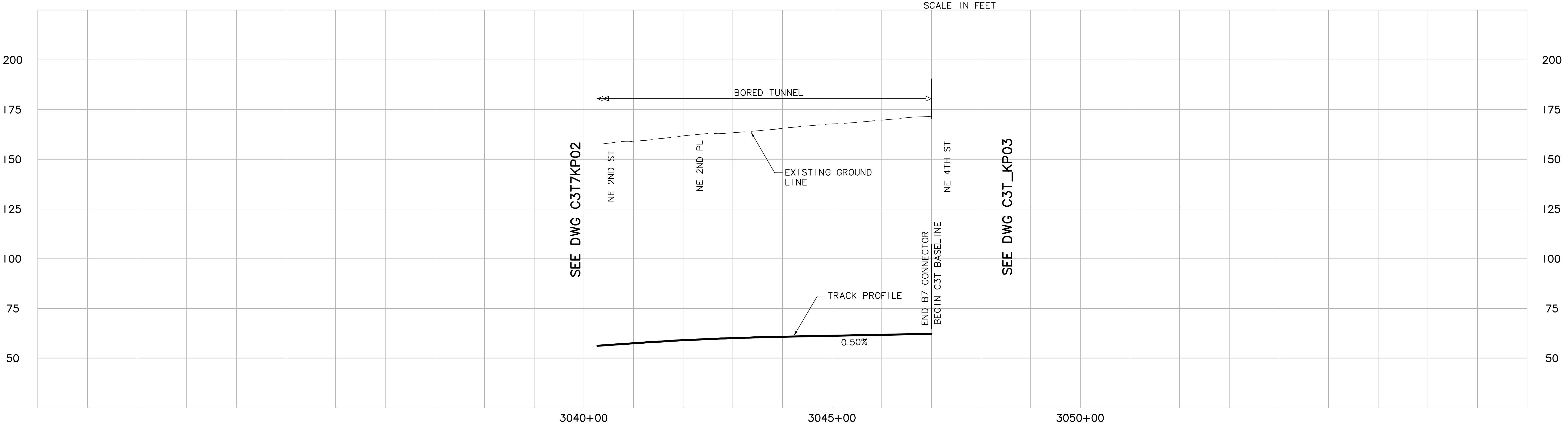
St_Names_E_40
key_East

LTSCALE

1=1



SEE DWG C3T7KP02
END B7 CONNECTOR
BEGIN C3T BASELINE
NE 4TH ST
SEE DWG C3T_KP03
108TH AVE NE
0
3045+00
3047+00
NE 2ND ST
NE 2ND PL
N
100 50 0 100 200
SCALE IN FEET



200
175
150
125
100
75
50
BORED TUNNEL
EXISTING GROUND LINE
NE 2ND ST
NE 2ND PL
NE 4TH ST
SEE DWG C3T7KP02
SEE DWG C3T_KP03
END B7 CONNECTOR
BEGIN C3T BASELINE
TRACK PROFILE
0.50%
3040+00
3045+00
3050+00

c:\work\ELC1C3T7KP03.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C3T7KP03.dwg
Contract No.: EL SEG_C
Date:

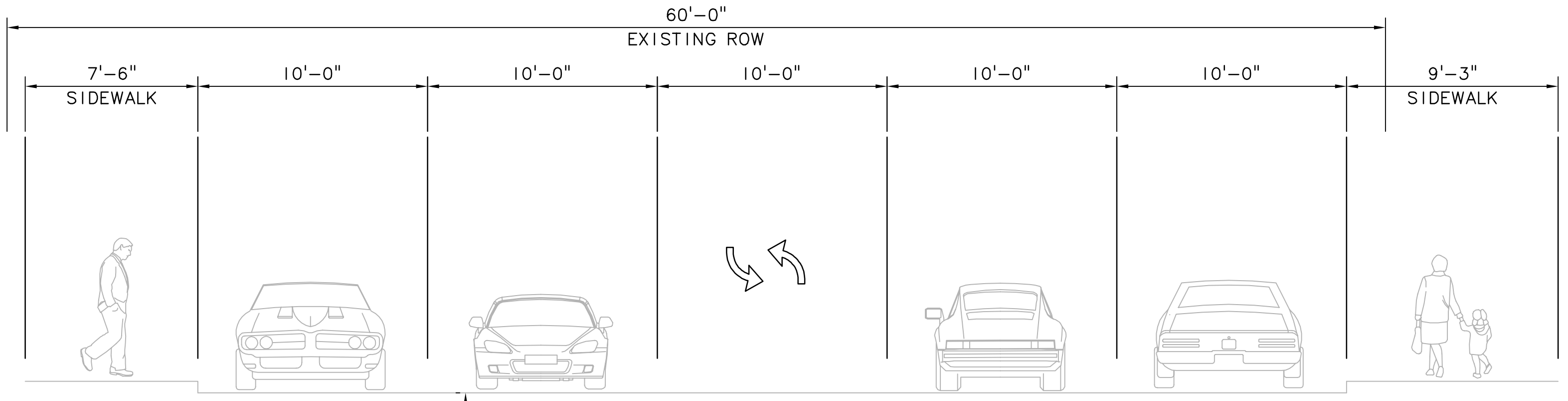
EAST LINK PROJECT
SEGMENT C: C3T-B7 OPTION
ALTERNATIVE C3T
TRACK PLAN & PROFILE

THIS PRINT REDUCED * HALF SCALE

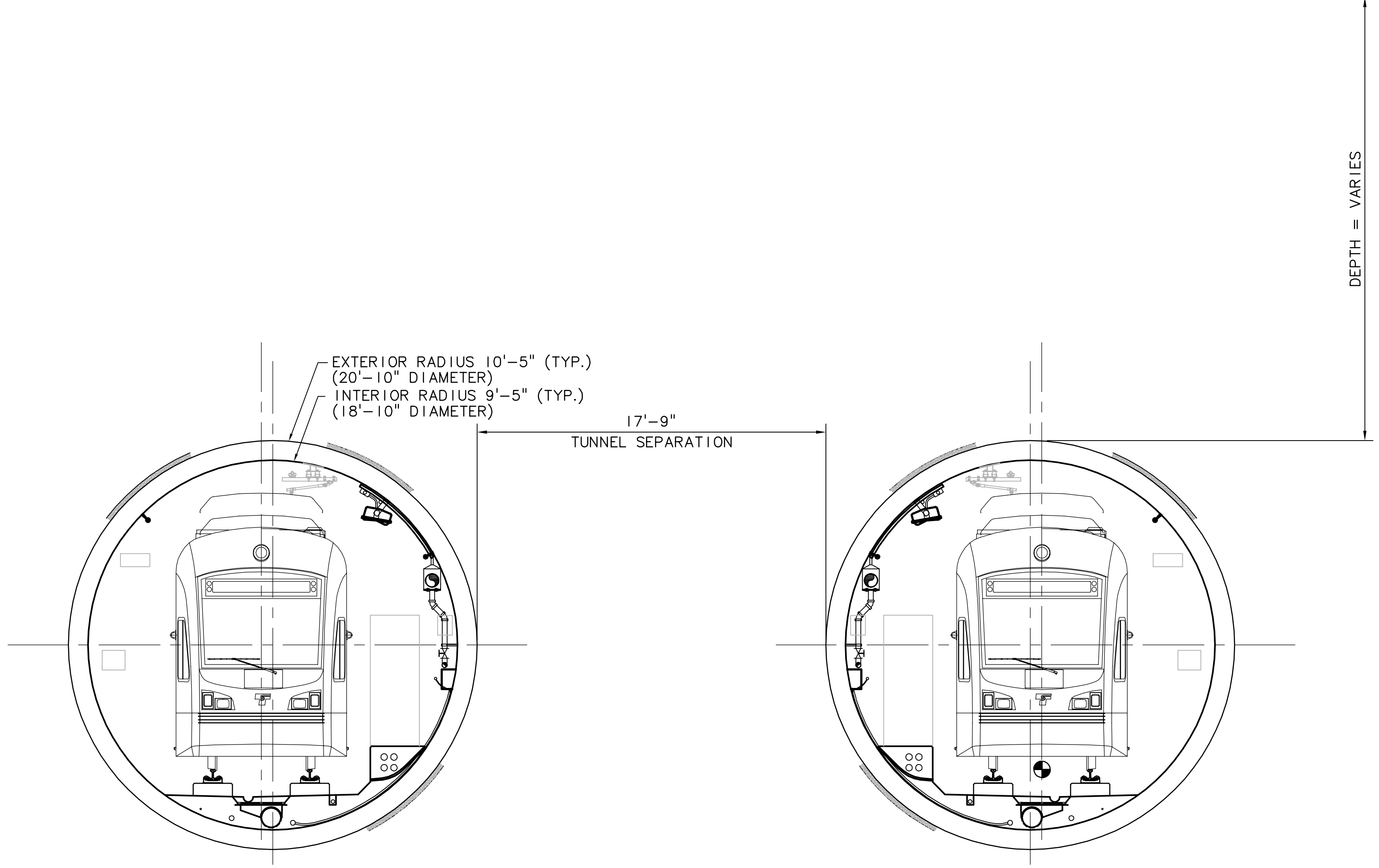
Drawing No.: C3T7KP03
Sheet No.: C-83
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved

LTSCALE
1=1


60'-0"
EXISTING ROW
7'-6"
SIDEWALK
10'-0"
10'-0"
10'-0"
10'-0"
10'-0"
9'-3"
SIDEWALK

EXISTING ROADWAY SECTION – MAIN STREET
SCALE: NTS


DEPTH = VARIES
EXTERIOR RADIUS 10'-5" (TYP.)
(20'-10" DIAMETER)
INTERIOR RADIUS 9'-5" (TYP.)
(18'-10" DIAMETER)
17'-9"
TUNNEL SEPARATION

PROPOSED LRT SECTION – MAIN STREET
ALIGNMENT: C3T (CONNECTING TO B3 & B7)
BORED TUNNEL DIRECT FIXATION DOUBLE TRACK
SCALE: NTS

c:\work\ELC1C3T_KX01.dwg
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Date:

SOUNDTRANSIT

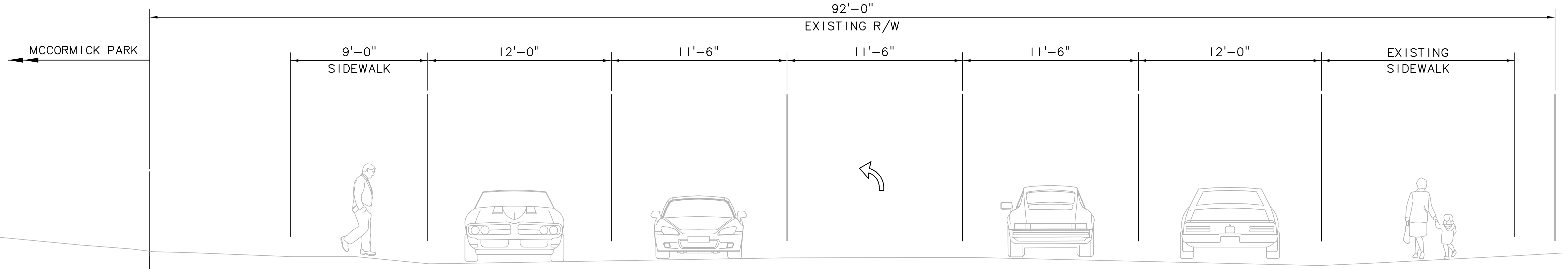
Scale: NTS
Filename: ELC1C3T_KX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C3T
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

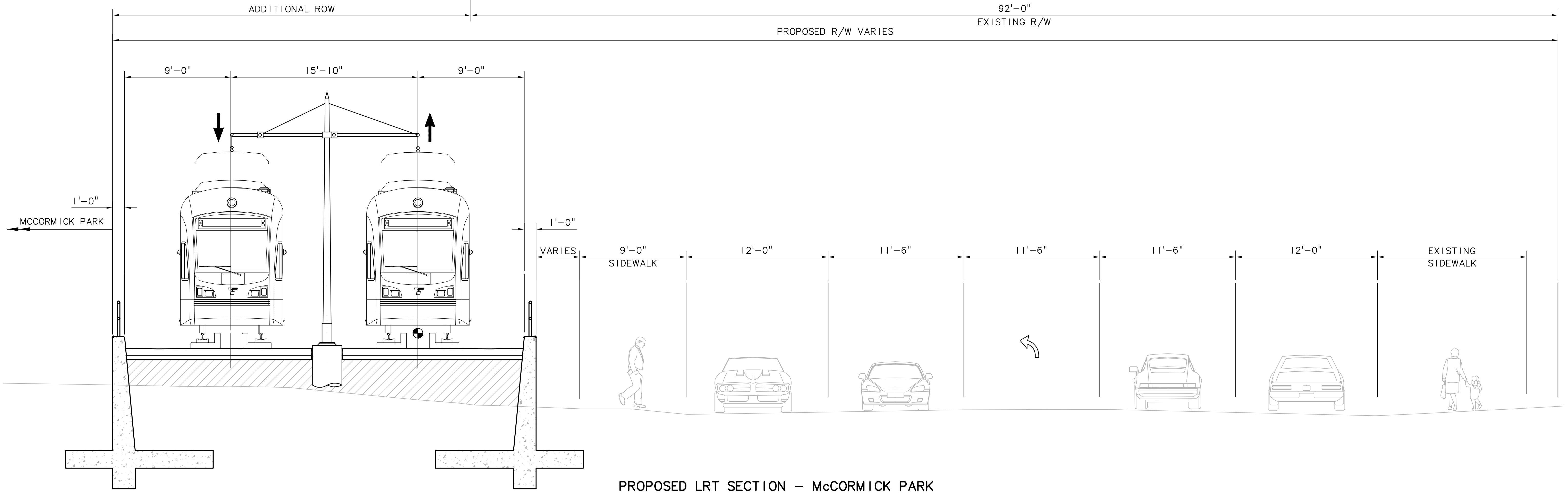
Drawing No.: C3T-KX01
Sheet No.: C-84
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


MCCORMICK PARK
92'-0"
EXISTING R/W
9'-0"
SIDEWALK
12'-0"
11'-6"
11'-6"
11'-6"
12'-0"
EXISTING
SIDEWALK

EXISTING ROADWAY SECTION – McCORMICK PARK (NE 12TH ST)

SCALE: NTS


ADDITIONAL ROW
92'-0"
EXISTING R/W
PROPOSED R/W VARIES
9'-0"
15'-10"
9'-0"
1'-0"
MCCORMICK PARK
1'-0"
VARIES
9'-0"
SIDEWALK
12'-0"
11'-6"
11'-6"
11'-6"
12'-0"
EXISTING
SIDEWALK

PROPOSED LRT SECTION – McCORMICK PARK
ALIGNMENT: C3T
RETAINED FILL DIRECT FIXATION DOUBLE TRCK GUIDEWAY

SCALE: NTS

c:\work\ELCIC3T_KX02.dwg
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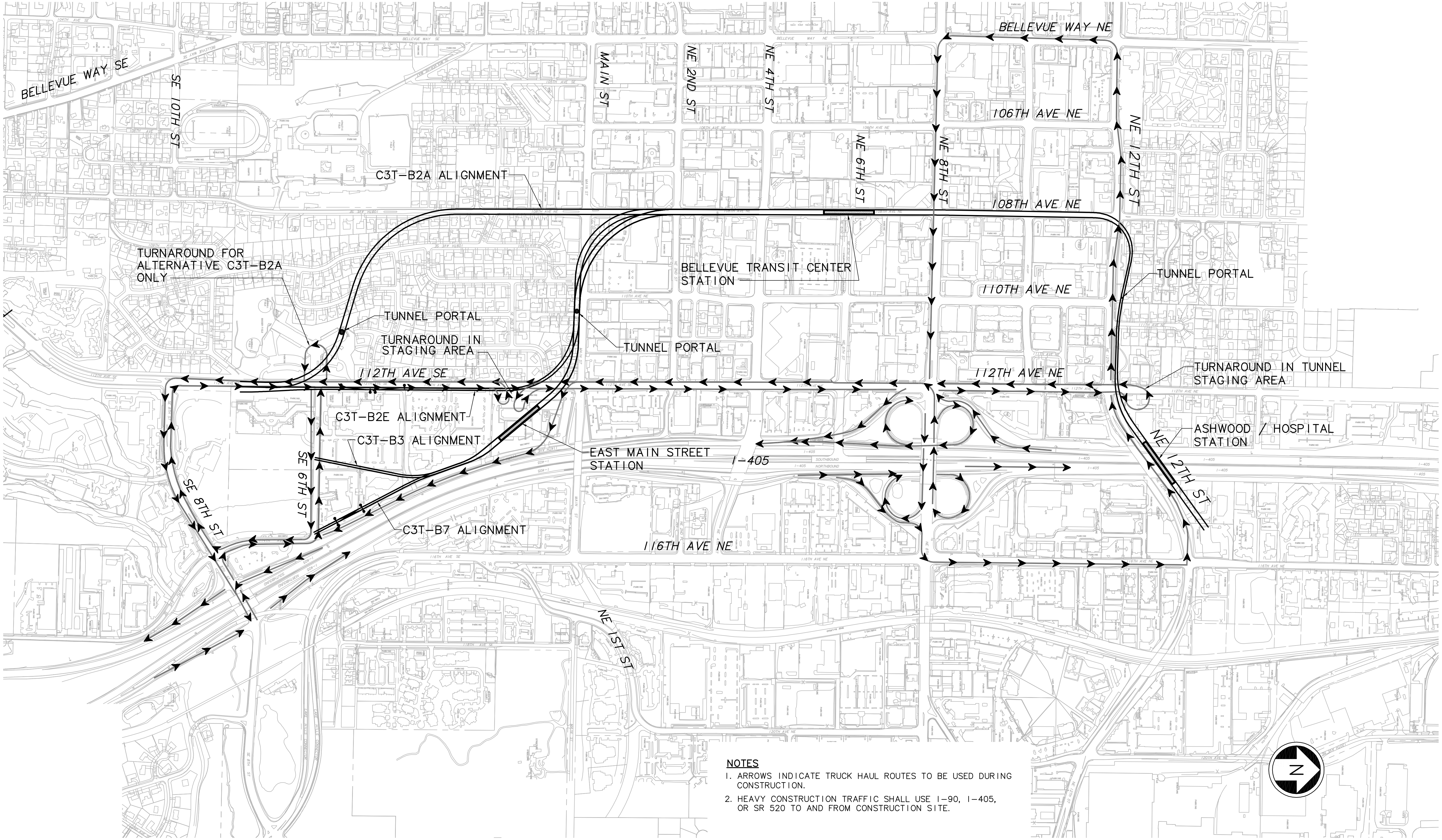
Scale: NTS
Filename: ELCIC3T_KX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C3T
TYPICAL SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: C3T-KX02
Sheet No.: C-85
Rev.:

XREF'S
Resolved
ELC_C3T_KA
REG-DCON
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0825rx
x0825sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf
Unresolved
LTSCALE
1=1



BELLEVUE WAY SE
SE 10TH ST
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
BELLEVUE WAY NE
106TH AVE NE
NE 12TH ST
C3T-B2A ALIGNMENT
108TH AVE NE
TURNAROUND FOR ALTERNATIVE C3T-B2A ONLY
BELLEVUE TRANSIT CENTER STATION
TUNNEL PORTAL
110TH AVE NE
TUNNEL PORTAL
TURNAROUND IN STAGING AREA
TUNNEL PORTAL
112TH AVE SE
112TH AVE NE
TURNAROUND IN TUNNEL STAGING AREA
C3T-B2E ALIGNMENT
C3T-B3 ALIGNMENT
ASHWOOD / HOSPITAL STATION
SE 6TH ST
EAST MAIN STREET STATION
I-405
NE 12TH ST
SE 8TH ST
C3T-B7 ALIGNMENT
116TH AVE NE
NE 1ST ST
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\ELC1C3T_CC01.dwg
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Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C3T_CC01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C3T
CONSTRUCTION TRUCK HAUL ROUTE PLAN

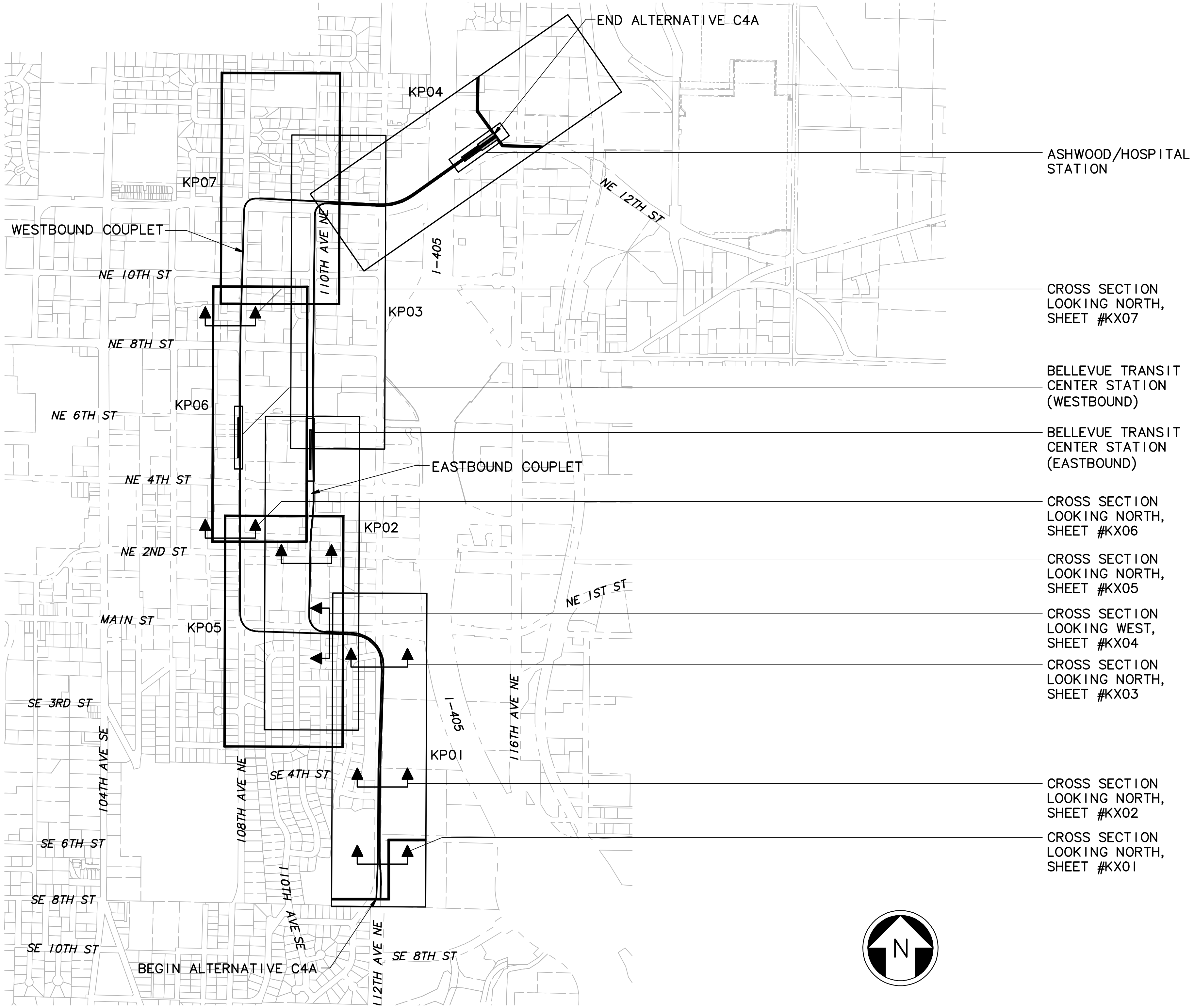
THIS PRINT REDUCED HALF SCALE

Drawing No.: C3T-CC01
Sheet No.: C-86
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C4A_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx
-Unresolved:


END ALTERNATIVE C4A
KP04
ASHWOOD/HOSPITAL STATION
NE 12TH ST
KP07
WESTBOUND COUPLET
110TH AVE NE
I-405
NE 10TH ST
CROSS SECTION LOOKING NORTH, SHEET #KX07
KP03
NE 8TH ST
BELLEVUE TRANSIT CENTER STATION (WESTBOUND)
KP06
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION (EASTBOUND)
EASTBOUND COUPLET
NE 4TH ST
CROSS SECTION LOOKING NORTH, SHEET #KX06
KP02
NE 2ND ST
CROSS SECTION LOOKING NORTH, SHEET #KX05
NE 1ST ST
MAIN ST
KP05
CROSS SECTION LOOKING WEST, SHEET #KX04
CROSS SECTION LOOKING NORTH, SHEET #KX03
SE 3RD ST
I-405
116TH AVE NE
104TH AVE SE
108TH AVE NE
SE 4TH ST
KP01
CROSS SECTION LOOKING NORTH, SHEET #KX02
SE 6TH ST
CROSS SECTION LOOKING NORTH, SHEET #KX01
SE 8TH ST
110TH AVE SE
SE 10TH ST
BEGIN ALTERNATIVE C4A
112TH AVE NE
SE 8TH ST
N

c:\work\feis\segment c\c4a\ELC1C4A_GZ05.dwg
04/19/11 16:07 : khuum 0E6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

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IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C4A_GZ05.dwg
Contract No.: EL SEG_C
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT C: C4A-B2A OPTION
ALTERNATIVE C4A

KEY PLAN

Drawing No.: C4A-GZ05
Sheet No.: C-87
Rev.:

XREF'S

Resolved

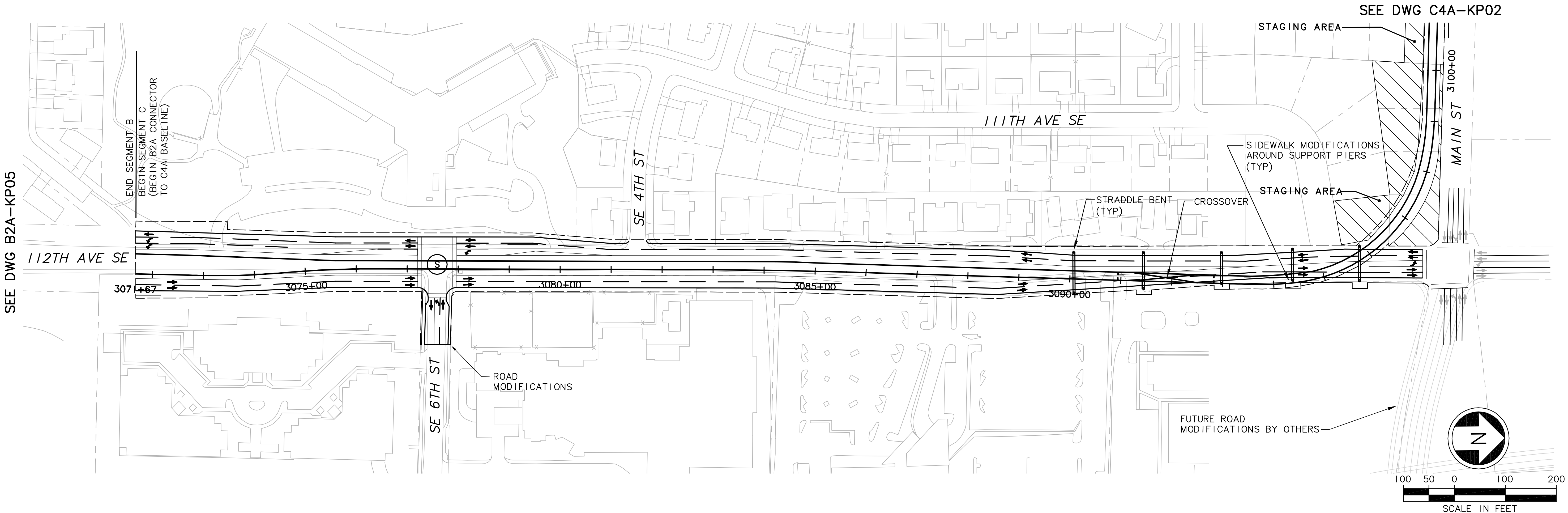
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
ELC_1405_P
REG-DCON
ZG-2234H
ZG-G10010
key_East
x0225rx
x0225sf
x0228rx
x0525rx
x0525sf
x0528rx
x0531rx
x0531sf
x0534rx
x0534sf

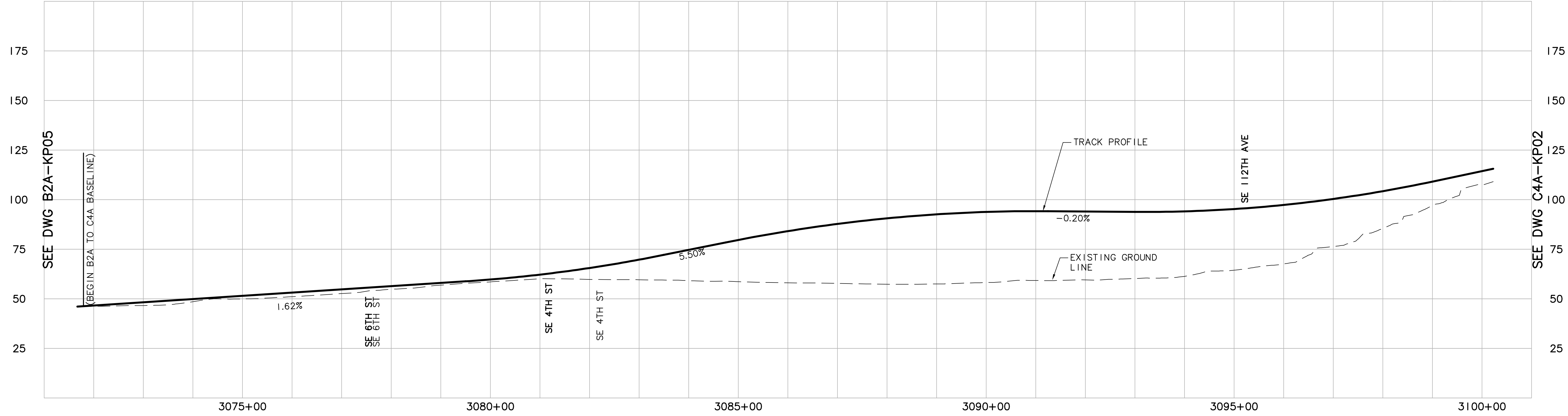
Unresolved

St_Names_E_4

LTSCALE

1=1


SEE DWG C4A-KP02
STAGING AREA
3100+00
MAIN ST
111TH AVE SE
SIDEWALK MODIFICATIONS AROUND SUPPORT PIERS (TYP)
STAGING AREA
STRADDLE BENT (TYP)
CROSSOVER
SE 4TH ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B2A CONNECTOR TO C4A BASELINE)
SEE DWG B2A-KP05
112TH AVE SE
3071+67
3075+00
3080+00
3085+00
3090+00
S
SE 6TH ST
ROAD MODIFICATIONS
FUTURE ROAD MODIFICATIONS BY OTHERS
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C4A_KP01.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
Approved By:

FEIS CONCEPTUAL

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PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C4A_KP01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A-B2A OPTION
ALTERNATIVE C4A
TRACK PLAN & PROFILE

THIS PRINT REDUCED * HALF SCALE

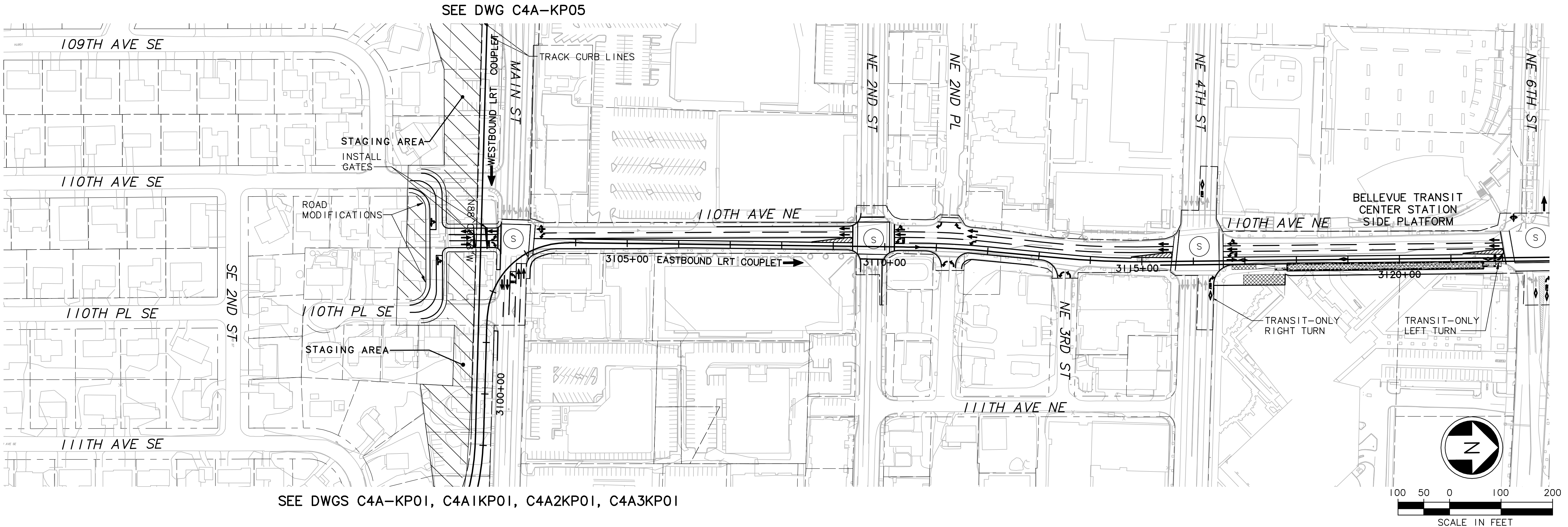
Drawing No.: C4A-KP01
Sheet No.: C-88
Rev.:

DWG INFO:

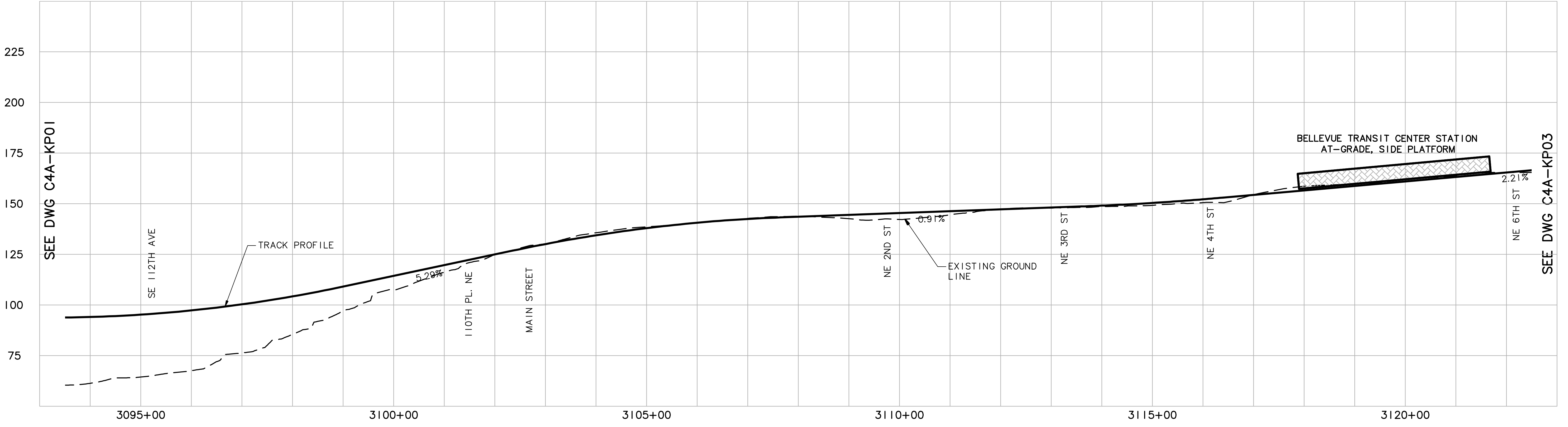
LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
ZG-2234H
ZG-G10010
key_East
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
-Unresolved:

c:\work\feis\segment c\c4a\ELC_1C4A_KP02.dwg
06/16/11 13:13 : khuum 0E6585



SEE DWG C4A-KP05
109TH AVE SE
TRACK CURB LINES
WESTBOUND LRT COUPLET
MAIN ST
NE 2ND ST
NE 2ND PL
NE 4TH ST
NE 6TH ST
STAGING AREA
INSTALL GATES
110TH AVE SE
ROAD MODIFICATIONS
110TH AVE NE
BELLEVUE TRANSIT CENTER STATION SIDE PLATFORM
SEE DWG C4A-KP03
3105+00 EASTBOUND LRT COUPLET
3110+00
3115+00
3120+00
SE 2ND ST
110TH PL SE
NE 3RD ST
TRANSIT-ONLY RIGHT TURN
TRANSIT-ONLY LEFT TURN
STAGING AREA
3100+00
111TH AVE NE
111TH AVE SE
N
SEE DWGS C4A-KP01, C4A1KP01, C4A2KP01, C4A3KP01
100 50 0 100 200
SCALE IN FEET



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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC_1C4A_KP02.dwg
Contract No.:
EL SEG_C
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT C: C4A-B2A (BASELINE)
ALTERNATIVE C4A
TRACK PLAN & PROFILE

Drawing No.:
C4A-KP02

Sheet No.: Rev.:
C-89

XREF'S

Resolved

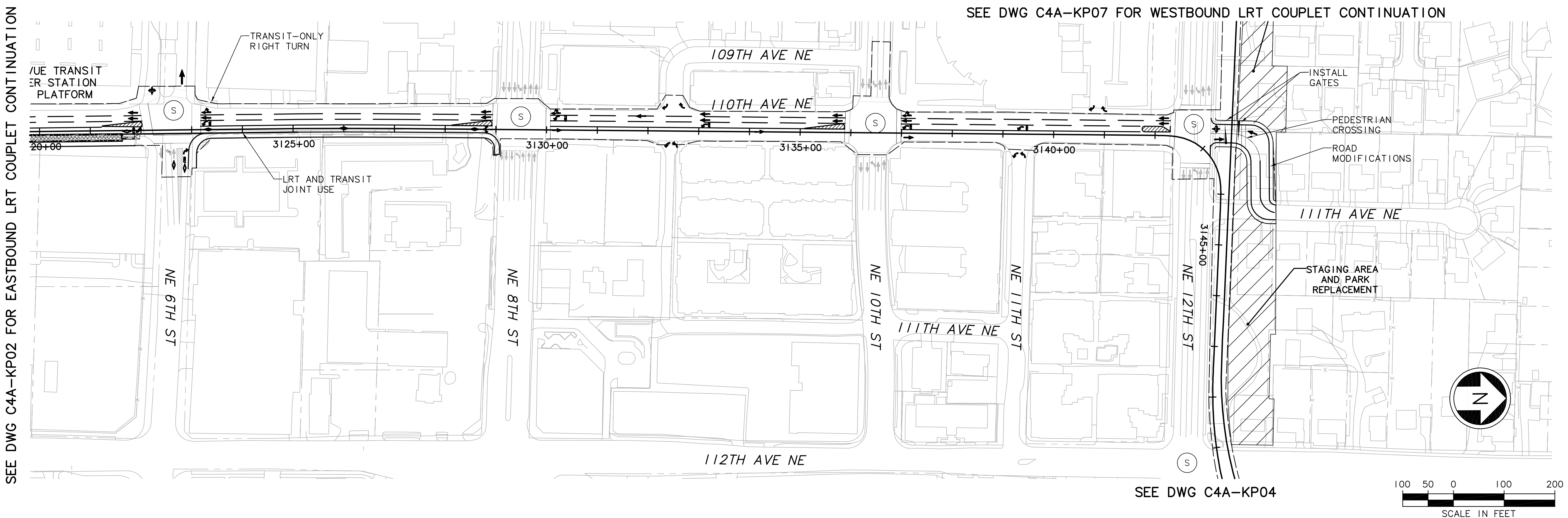
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
REG-DCON
ZG-2234H
ZG-G10010
key_East
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved

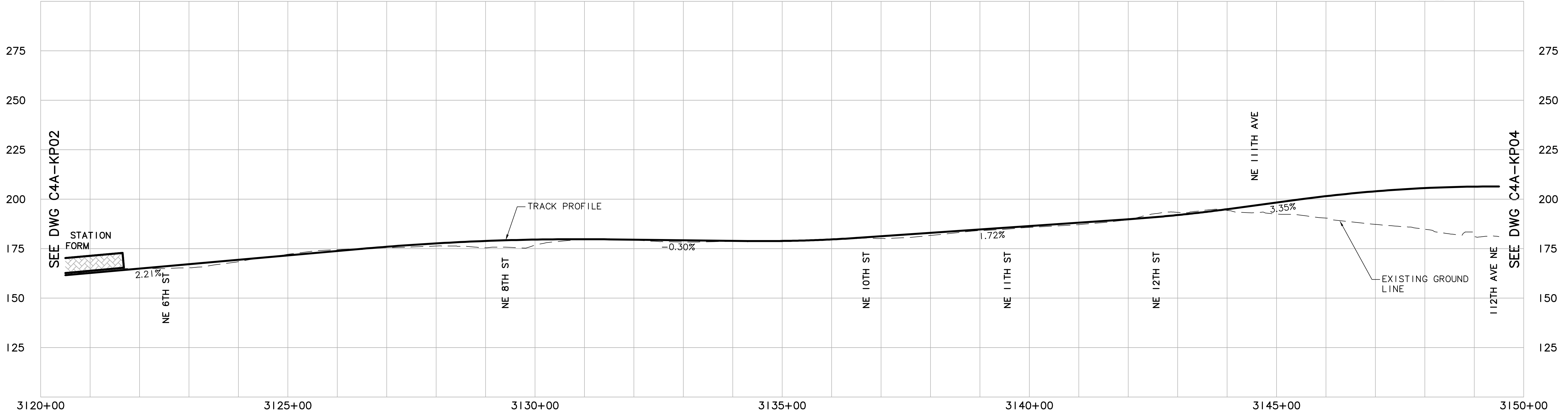
C4A
St_Names_E_40

LTSCALE

1=1



SEE DWG C4A-KP07 FOR WESTBOUND LRT COUPLET CONTINUATION
SEE DWG C4A-KP02 FOR EASTBOUND LRT COUPLET CONTINUATION
VUE TRANSIT
ER STATION
PLATFORM
TRANSIT-ONLY RIGHT TURN
LRT AND TRANSIT JOINT USE
109TH AVE NE
110TH AVE NE
111TH AVE NE
111TH AVE NE
112TH AVE NE
NE 6TH ST
NE 8TH ST
NE 10TH ST
NE 11TH ST
NE 12TH ST
3120+00
3125+00
3130+00
3135+00
3140+00
3145+00
S
INSTALL GATES
PEDESTRIAN CROSSING
ROAD MODIFICATIONS
STAGING AREA AND PARK REPLACEMENT
N
SEE DWG C4A-KP04
100
50
0
100
200
SCALE IN FEET



c:\work\ELC1C4A_KP03.dwg
10/16/08 10:14 : eackerm OE5396

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Date:
Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C4A_KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A-B2A (BASELINE)
ALTERNATIVE C4A
TRACK PLAN & PROFILE

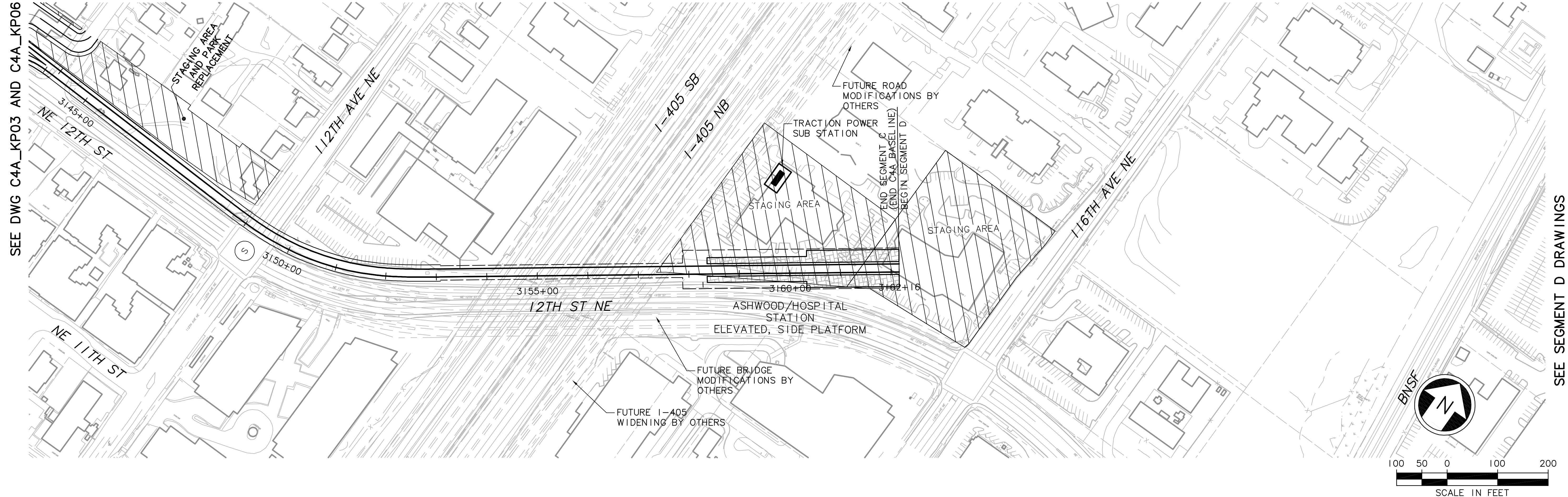
THIS PRINT REDUCED HALF SCALE

Drawing No.:
C4A-KP03
Sheet No.:
Rev.:
C-90

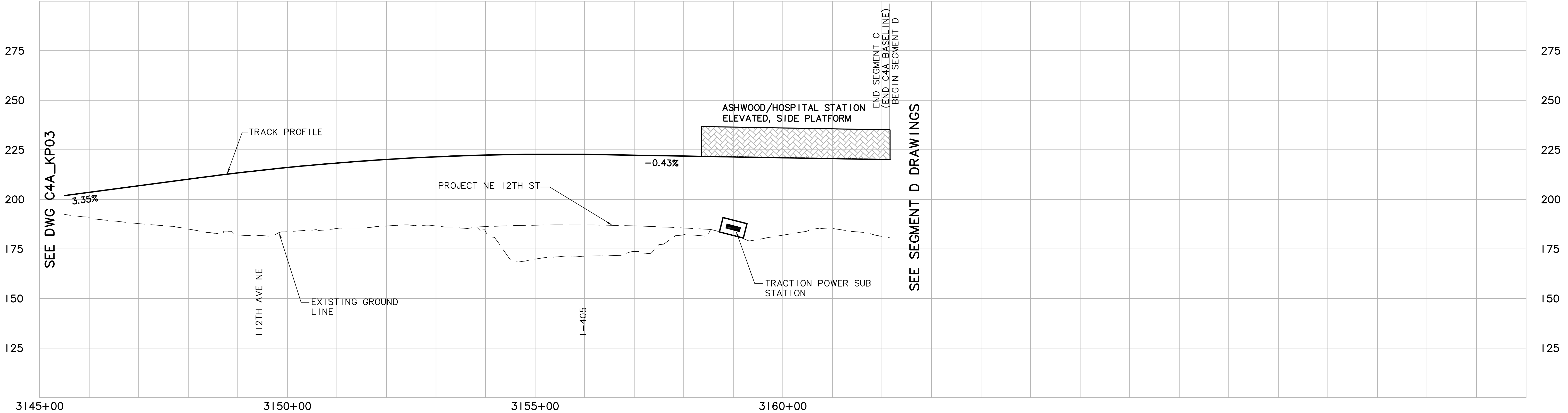
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C4A_CM-100
ELC_C4A_JO-100
ELC_C4A_KA-100
ZG-2234H
ZG-G10010
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x1405_chan
-Unresolved:
key_East



SEE DWG C4A_KP03 AND C4A_KP06
STAGING AREA AND PARK REPLACEMENT
3145+00
NE 12TH ST
112TH AVE NE
3150+00
3155+00
12TH ST NE
I-405 SB
I-405 NB
FUTURE ROAD MODIFICATIONS BY OTHERS
TRACTION POWER SUB STATION
END SEGMENT C (END C4A BASELINE) BEGIN SEGMENT D
STAGING AREA
STAGING AREA
3160+00
3162+16
ASHWOOD/HOSPITAL STATION ELEVATED, SIDE PLATFORM
116TH AVE NE
NE 11TH ST
FUTURE BRIDGE MODIFICATIONS BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
BNSF
N
PARKING
SEE SEGMENT D DRAWINGS
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELC_1C4A_KP04.dwg
02/22/11 16:08 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
Approved By:

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Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC_1C4A_KP04.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – C4A-B2A (BASELINE)

ALTERNATIVE C4A
TRACK PLAN & PROFILE

Drawing No.:
C4A_-KP04
Sheet No.: Rev.:
C-91

XREF'S

Resolved

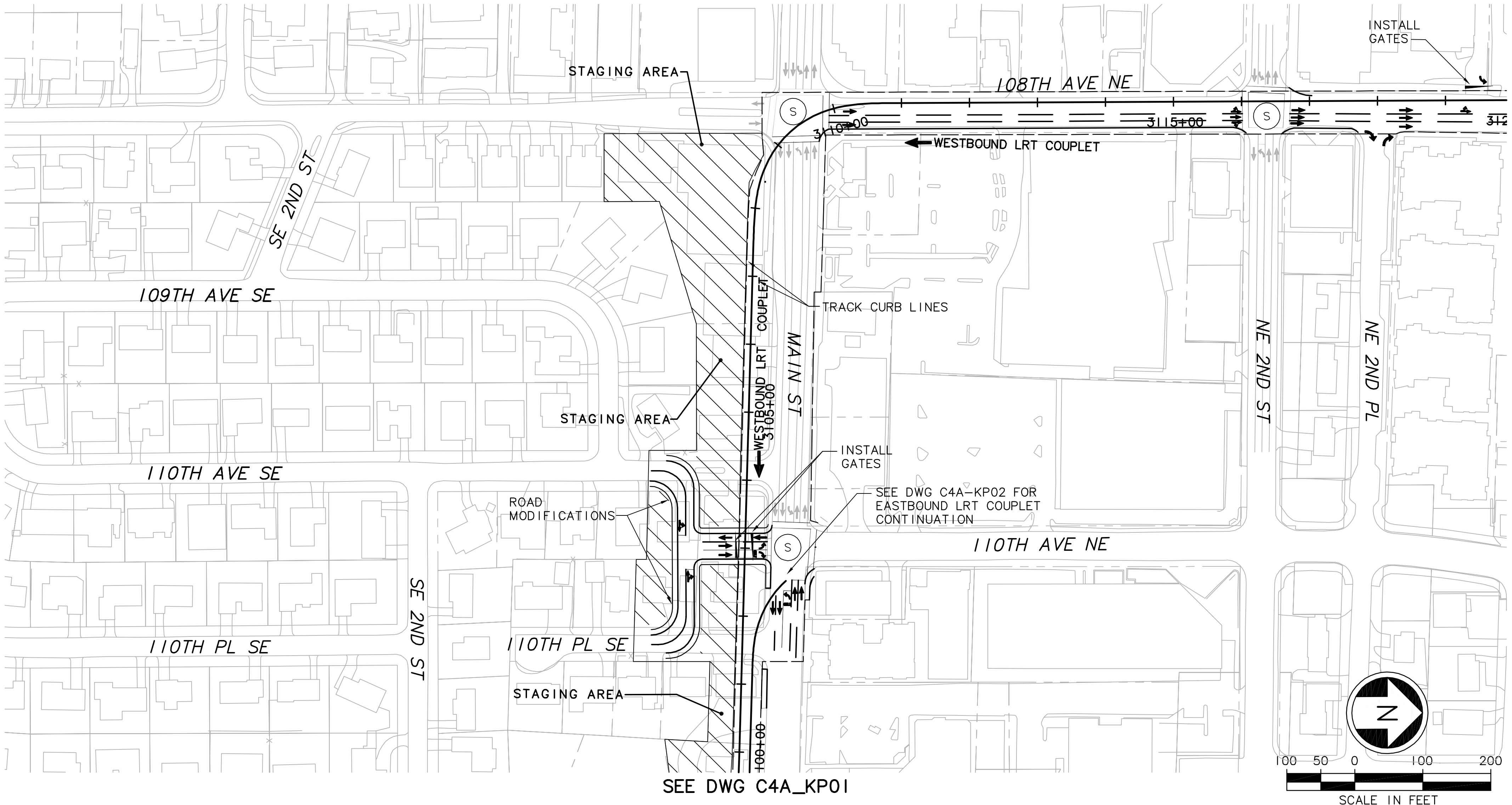
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
REG-DCON
ZG-2234H
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved

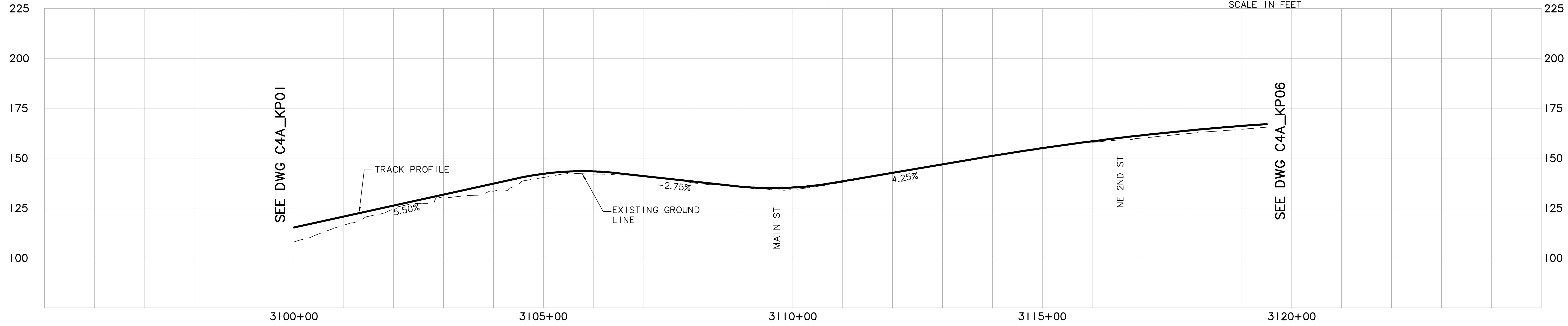
C4A
key_East

LTSCALE

1=1



INSTALL GATES
STAGING AREA
108TH AVE NE
3110+00
3115+00
WESTBOUND LRT COUPLET
SEE DWG C4A_KP06
SE 2ND ST
109TH AVE SE
TRACK CURB LINES
WESTBOUND LRT COUPLET
MAIN ST
3105+00
NE 2ND ST
NE 2ND PL
STAGING AREA
110TH AVE SE
INSTALL GATES
SEE DWG C4A-KP02 FOR EASTBOUND LRT COUPLET CONTINUATION
ROAD MODIFICATIONS
110TH AVE NE
SE 2ND ST
110TH PL SE
110TH PL SE
STAGING AREA
3100+00
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C4A_KP01



c:\work\ELC1C4A_KP05.dwg
10/16/08 10:15 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Date:

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C4A_KP05.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A WESTBOUND
ALTERNATIVE C4A
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C4A-KP05
Sheet No.:
C-92
Rev.:

XREF'S

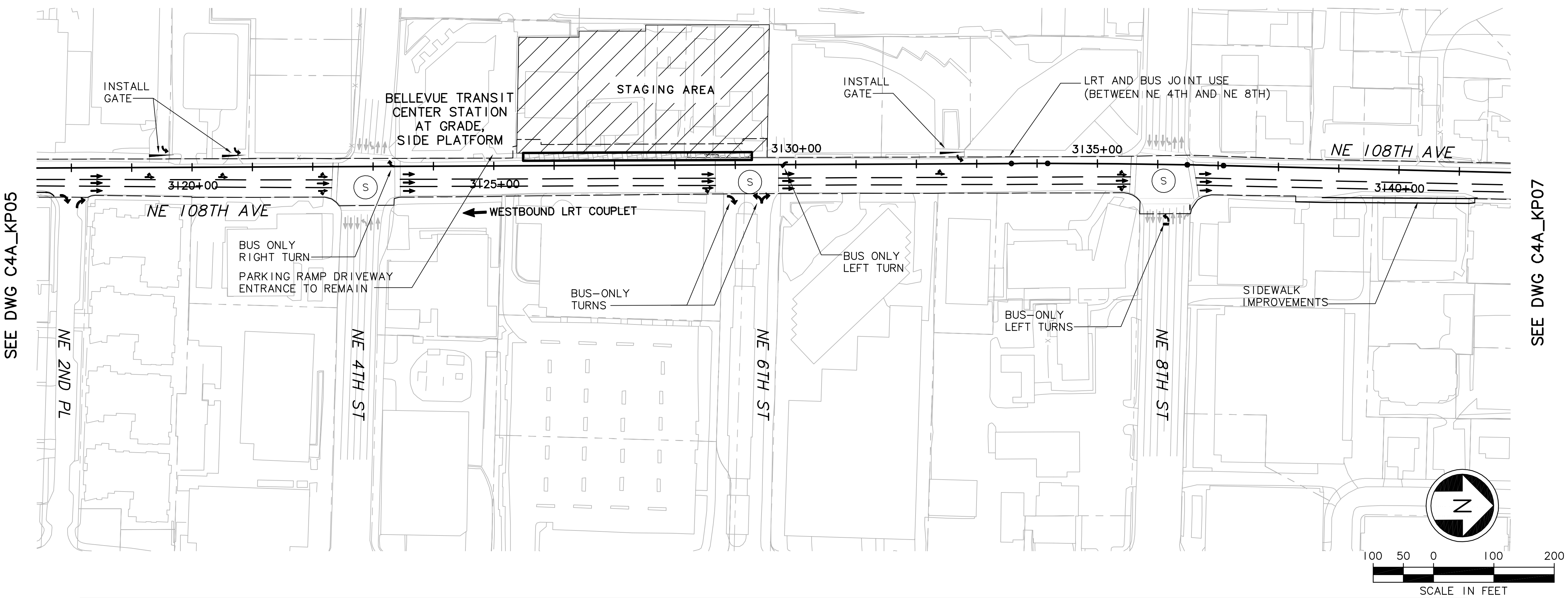
Resolved

ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
REG-DCON
ZG-2234H
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf

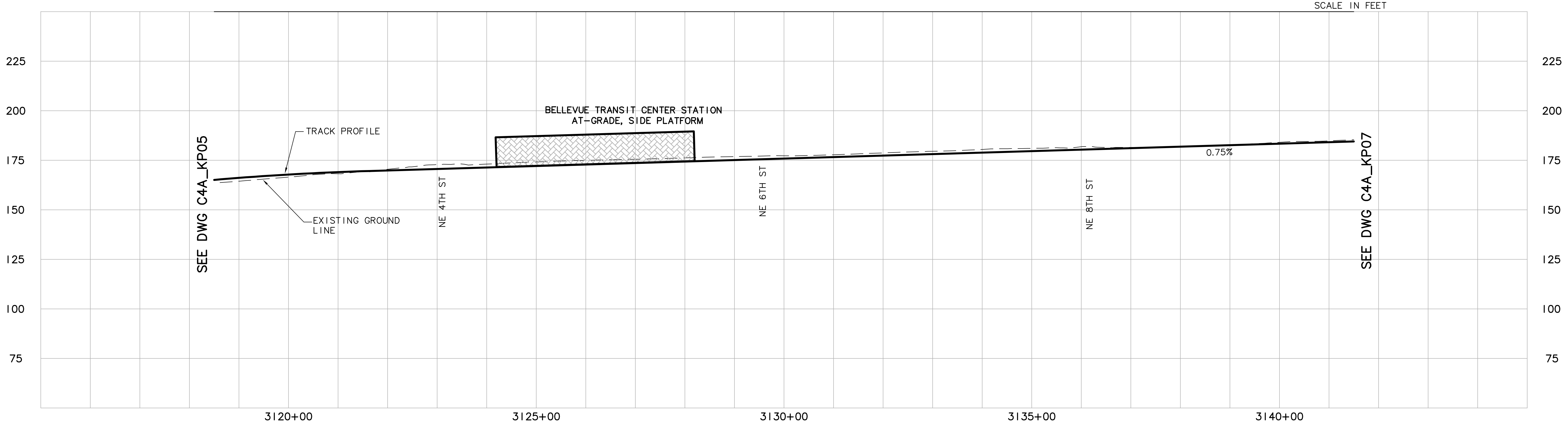
Unresolved

C4A
key_East

LTSCALE
1=1



SEE DWG C4A_KP05
INSTALL GATE
BELLEVUE TRANSIT CENTER STATION AT GRADE, SIDE PLATFORM
STAGING AREA
INSTALL GATE
LRT AND BUS JOINT USE (BETWEEN NE 4TH AND NE 8TH)
NE 108TH AVE
3120+00
3125+00
3130+00
3135+00
3140+00
NE 108TH AVE
WESTBOUND LRT COUPLET
BUS ONLY RIGHT TURN
PARKING RAMP DRIVEWAY ENTRANCE TO REMAIN
BUS-ONLY TURNS
BUS ONLY LEFT TURN
BUS-ONLY LEFT TURNS
SIDEWALK IMPROVEMENTS
NE 2ND PL
NE 4TH ST
NE 6TH ST
NE 8TH ST
S
SEE DWG C4A_KP07
N
100 50 0 100 200
SCALE IN FEET



225
200
175
150
125
100
75
BELLEVUE TRANSIT CENTER STATION AT-GRADE, SIDE PLATFORM
TRACK PROFILE
EXISTING GROUND LINE
SEE DWG C4A_KP05
NE 4TH ST
NE 6TH ST
NE 8TH ST
0.75%
SEE DWG C4A_KP07
3120+00
3125+00
3130+00
3135+00
3140+00

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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PARSONS & **INCA** ENGINEERS INC.

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Date:
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Date:

SOUNDTRANSIT

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C4A_KP06.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A WESTBOUND
ALTERNATIVE C4A
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C4A-KP06
Sheet No.: C-93
Rev.:

c:\work\ELC1C4A_KP06.dwg
10/16/08 10:16 : eackerm 0E5396

XREF'S

Resolved

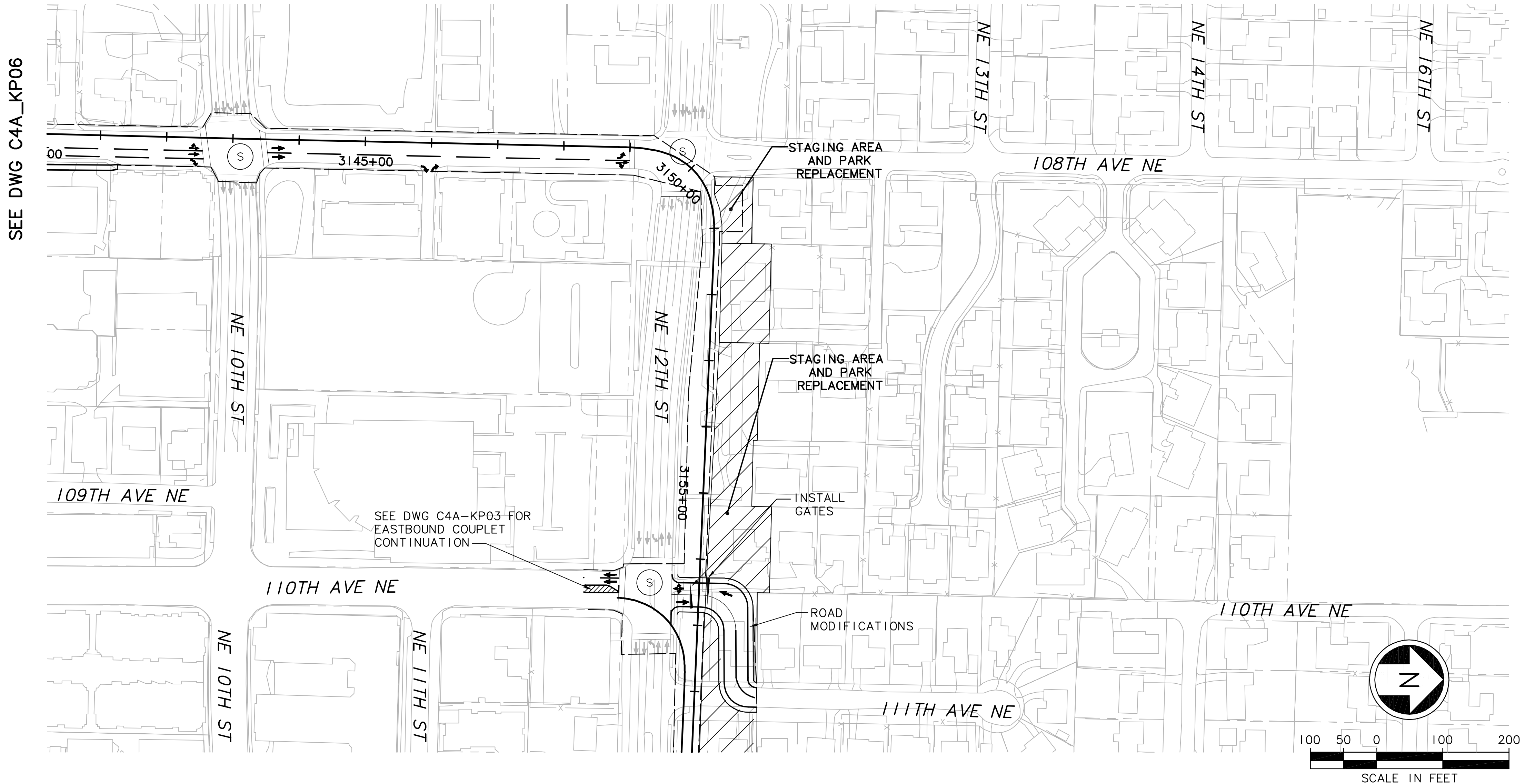
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
REG-DCON
ZG-2234H
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved

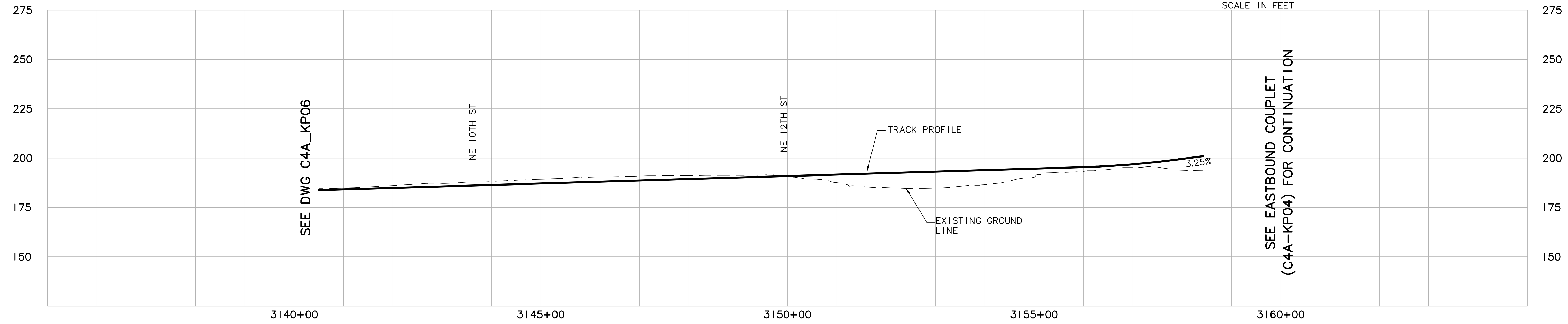
C4A
key_East

LTSCALE

1=1



SEE DWG C4A_KP06
00
3145+00
3150+00
3155+00
S
NE 13TH ST
NE 14TH ST
NE 16TH ST
108TH AVE NE
STAGING AREA AND PARK REPLACEMENT
STAGING AREA AND PARK REPLACEMENT
NE 10TH ST
NE 12TH ST
109TH AVE NE
INSTALL GATES
SEE DWG C4A-KP03 FOR EASTBOUND COUPLET CONTINUATION
110TH AVE NE
ROAD MODIFICATIONS
110TH AVE NE
NE 10TH ST
NE 11TH ST
111TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC\C4A_KP07.dwg
10/16/08 10:16 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC\C4A_KP07.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A WESTBOUND
ALTERNATIVE C4A
TRACK PLAN & PROFILE

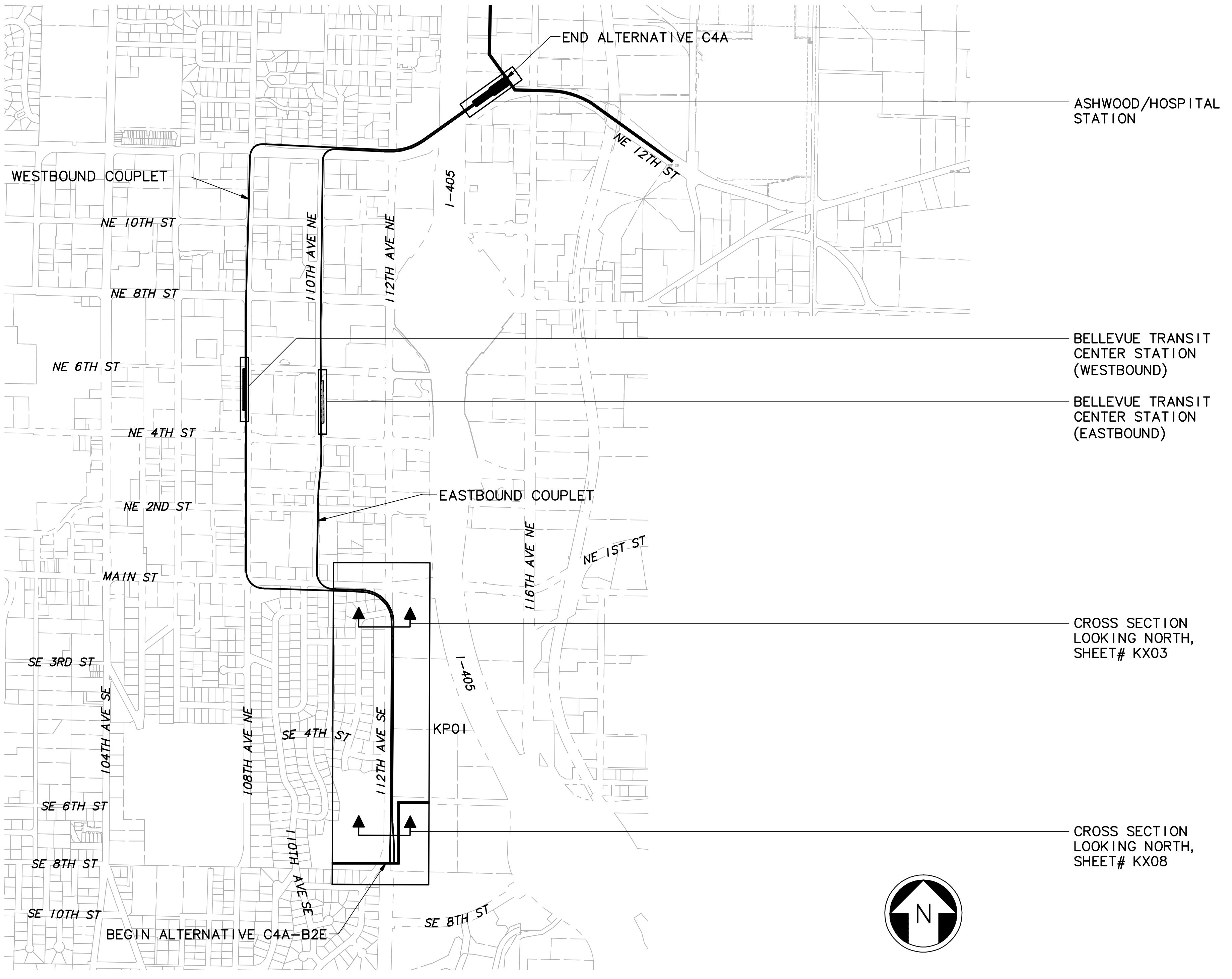
THIS PRINT REDUCED HALF SCALE

Drawing No.:
C4A-KP07
Sheet No.:
Rev.:
C-94

DWG INFO:

LTSCALE:
1=1

XREFs:
—Attach:
—Overlay:
ELC_C4A_B2E_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx
—Unresolved:



END ALTERNATIVE C4A
ASHWOOD/HOSPITAL STATION
NE 12TH ST
WESTBOUND COUPLET
I-405
NE 10TH ST
110TH AVE NE
112TH AVE NE
NE 8TH ST
BELLEVUE TRANSIT CENTER STATION (WESTBOUND)
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION (EASTBOUND)
NE 4TH ST
EASTBOUND COUPLET
NE 2ND ST
116TH AVE NE
NE 1ST ST
MAIN ST
CROSS SECTION LOOKING NORTH, SHEET# KX03
SE 3RD ST
I-405
104TH AVE SE
108TH AVE NE
SE 4TH ST
112TH AVE SE
KP01
SE 6TH ST
CROSS SECTION LOOKING NORTH, SHEET# KX08
SE 8TH ST
110TH AVE SE
SE 10TH ST
SE 8TH ST
BEGIN ALTERNATIVE C4A-B2E
N

c:\work\feis\segment c\c4a\ELC1C4A1GZ05.dwg
04/20/11 10:08 : khuum 0E6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C4A1GZ05.dwg
Contract No.: EL SEG_C
Date:

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EAST LINK PROJECT
SEGMENT C: C4A-B2E OPTION
ALTERNATIVE C4A

KEY PLAN

Drawing No.: C4A1GZ05
Sheet No.: C-95
Rev.:

XREF'S
Resolved
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
ELC_1405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
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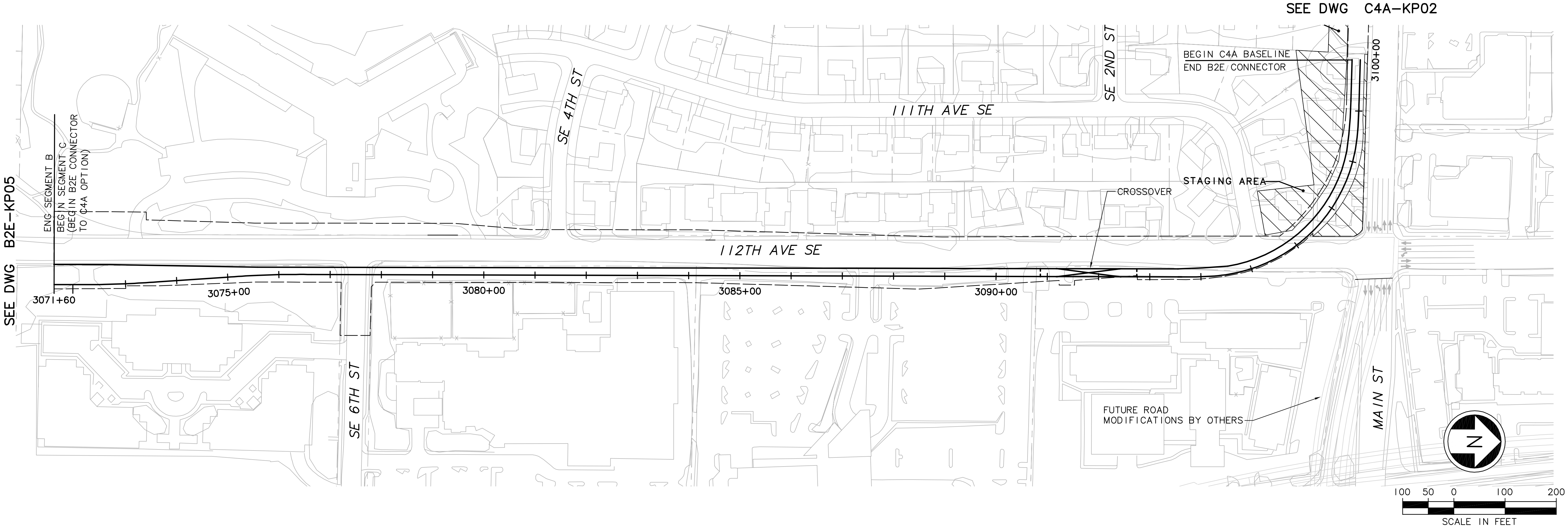
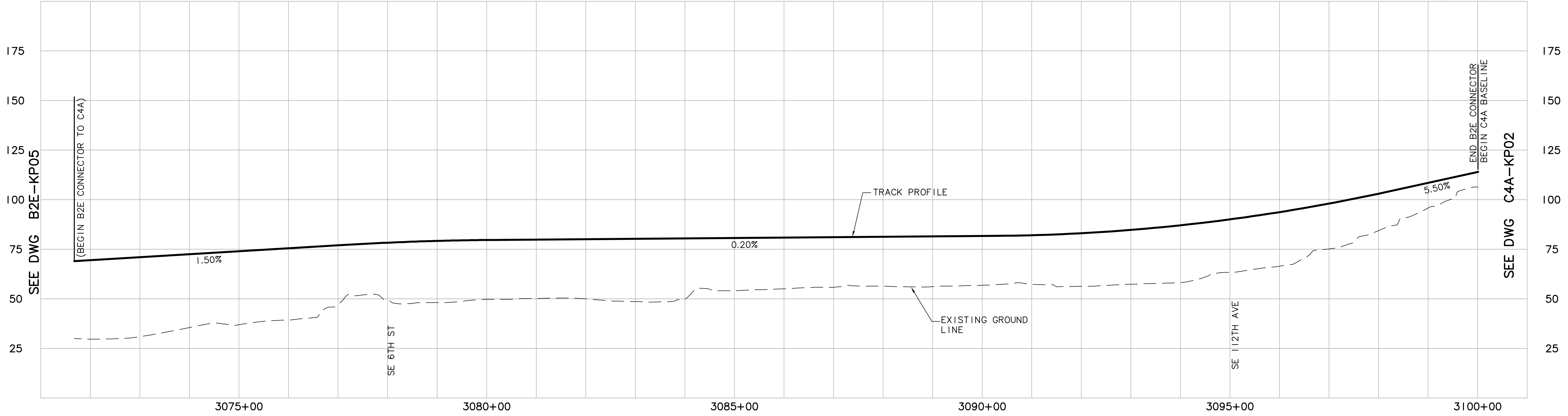
x0531sf
x0534rx
x0534sf
Unresolved
key_East
LTSCALE
1=1



SEE DWG C4A-KP02
SEE DWG B2E-KP05
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B2E CONNECTOR TO C4A OPTION)
SE 4TH ST
SE 2ND ST
111TH AVE SE
112TH AVE SE
BEGIN C4A BASELINE
END B2E CONNECTOR
3100+00
STAGING AREA
CROSSOVER
3071+60
3075+00
3080+00
3085+00
3090+00
SE 6TH ST
MAIN ST
FUTURE ROAD MODIFICATIONS BY OTHERS
N
100 50 0 100 200
SCALE IN FEET



175
150
125
100
75
50
25
SEE DWG B2E-KP05
(BEGIN B2E CONNECTOR TO C4A)
1.50%
0.20%
TRACK PROFILE
5.50%
END B2E CONNECTOR
BEGIN C4A BASELINE
SEE DWG C4A-KP02
EXISTING GROUND LINE
SE 6TH ST
SE 112TH AVE
3075+00
3080+00
3085+00
3090+00
3095+00
3100+00

c:\work\ELC\C4A\KP01.dwg
10/16/08 10:11 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C4A1KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A-B2E OPTION
ALTERNATIVE C4A
TRACK PLAN & PROFILE

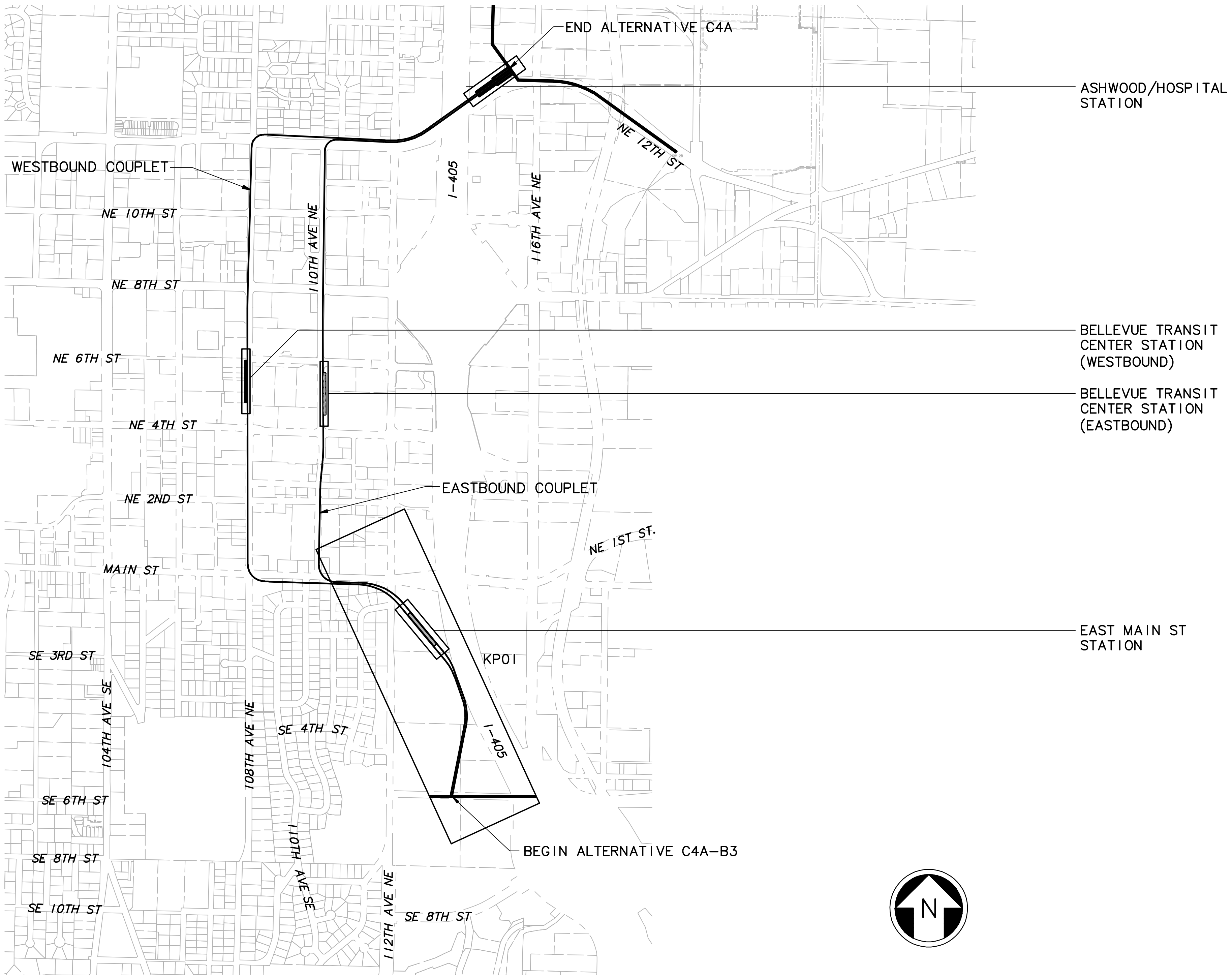
THIS PRINT REDUCED HALF SCALE

Drawing No.:
C4A1KP01
Sheet No.:
Rev.:
C-96

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C4A_B3_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx
-Unresolved:


END ALTERNATIVE C4A
ASHWOOD/HOSPITAL STATION
WESTBOUND COUPLET
NE 12TH ST
I-405
116TH AVE NE
110TH AVE NE
NE 10TH ST
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION (WESTBOUND)
BELLEVUE TRANSIT CENTER STATION (EASTBOUND)
NE 4TH ST
EASTBOUND COUPLET
NE 2ND ST
NE 1ST ST.
MAIN ST
EAST MAIN ST STATION
KP01
SE 3RD ST
104TH AVE SE
108TH AVE NE
SE 4TH ST
I-405
SE 6TH ST
BEGIN ALTERNATIVE C4A-B3
SE 8TH ST
110TH AVE SE
112TH AVE NE
SE 10TH ST
SE 8TH ST
N

c:\work\feis\segment c\c4a\ELC1C4A2GZ05.dwg
04/20/11 09:46 : khuum 0E6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C4A2GZ05.dwg
Contract No.: EL SEG_C
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT C: C4A-B3 OPTION
ALTERNATIVE C4A

KEY PLAN

Drawing No.: C4A2GZ05
Sheet No.: C-97
Rev.:

XREF'S

Resolved

ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved
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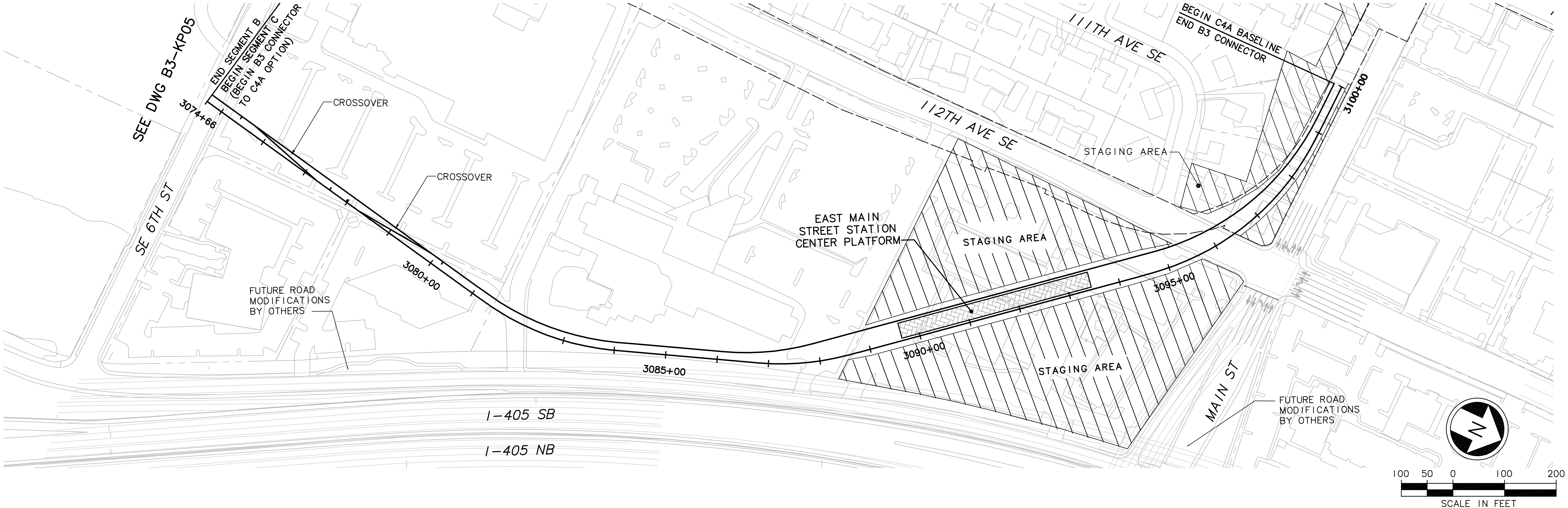
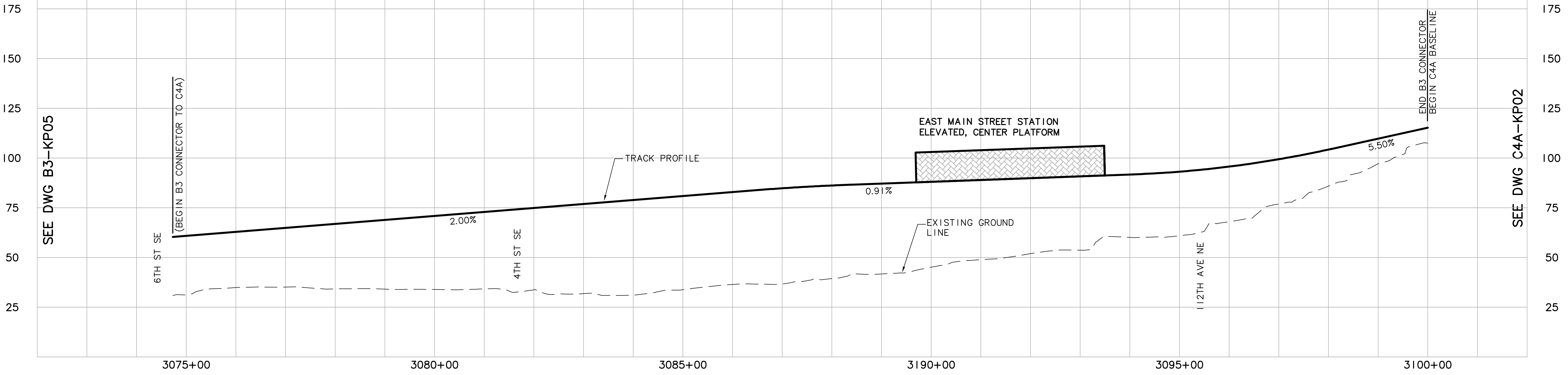
key_East

LTSCALE

1=1


SEE DWG B3-KP05
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B3 CONNECTOR TO C4A OPTION)
3074+66
CROSSOVER
CROSSOVER
SE 6TH ST
3080+00
FUTURE ROAD MODIFICATIONS BY OTHERS
3085+00
EAST MAIN STREET STATION CENTER PLATFORM
STAGING AREA
3090+00
STAGING AREA
3095+00
112TH AVE SE
111TH AVE SE
BEGIN C4A BASELINE
END B3 CONNECTOR
3100+00
STAGING AREA
MAIN ST
FUTURE ROAD MODIFICATIONS BY OTHERS
I-405 SB
I-405 NB
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C4A-KP02


175
150
125
100
75
50
25
SEE DWG B3-KP05
(BEGIN B3 CONNECTOR TO C4A)
6TH ST SE
2.00%
4TH ST SE
TRACK PROFILE
EAST MAIN STREET STATION
ELEVATED, CENTER PLATFORM
0.91%
EXISTING GROUND LINE
112TH AVE NE
5.50%
END B3 CONNECTOR
BEGIN C4A BASELINE
SEE DWG C4A-KP02
3075+00
3080+00
3085+00
3190+00
3095+00
3100+00

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10/16/08 10:11 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

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FEIS CONCEPTUAL

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Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C4A2KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A-B3 OPTION
ALTERNATIVE C4A
TRACK PLAN & PROFILE

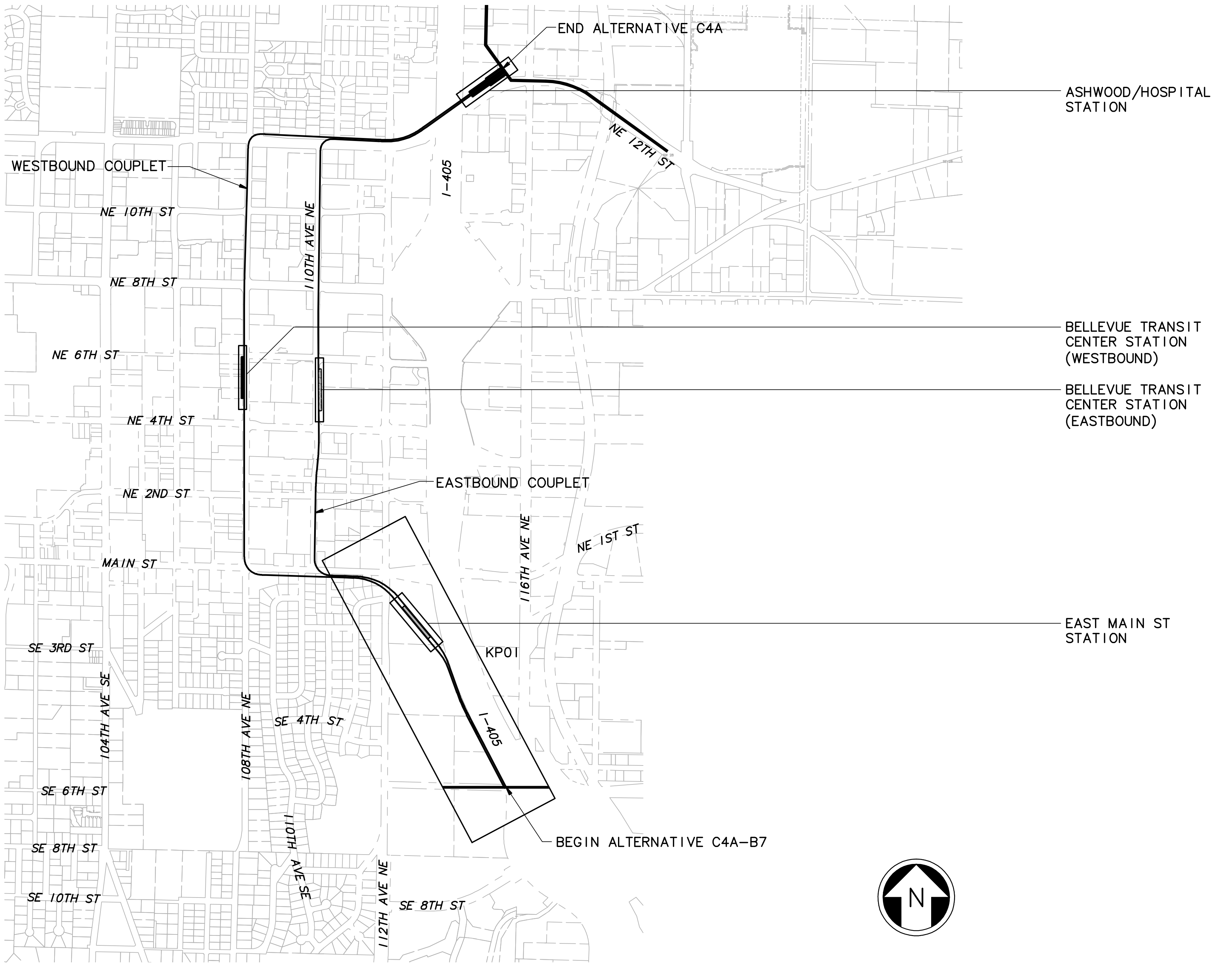
THIS PRINT REDUCED HALF SCALE

Drawing No.:
C4A2KP01
Sheet No.:
Rev.:
C-98

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELC_C4A_B7_KA-100
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx
–Unresolved:



END ALTERNATIVE C4A
ASHWOOD/HOSPITAL STATION
NE 12TH ST
WESTBOUND COUPLET
I-405
NE 10TH ST
110TH AVE NE
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION (WESTBOUND)
BELLEVUE TRANSIT CENTER STATION (EASTBOUND)
NE 4TH ST
EASTBOUND COUPLET
NE 2ND ST
116TH AVE NE
NE 1ST ST
MAIN ST
EAST MAIN ST STATION
SE 3RD ST
KP01
104TH AVE SE
108TH AVE NE
SE 4TH ST
I-405
SE 6TH ST
110TH AVE SE
BEGIN ALTERNATIVE C4A-B7
SE 8TH ST
SE 10TH ST
112TH AVE NE
SE 8TH ST
N

c:\work\feis\segment c\c4a\ELC1C4A3GZ05.dwg
04/20/11 10:03 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
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IN ASSOCIATION WITH
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Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C4A3GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A-B7 OPTION
ALTERNATIVE C4A

THIS PRINT REDUCED • HALF SCALE

KEY PLAN

Drawing No.: C4A3GZ05
Sheet No.: C-99
Rev.:

XREF'S

Resolved

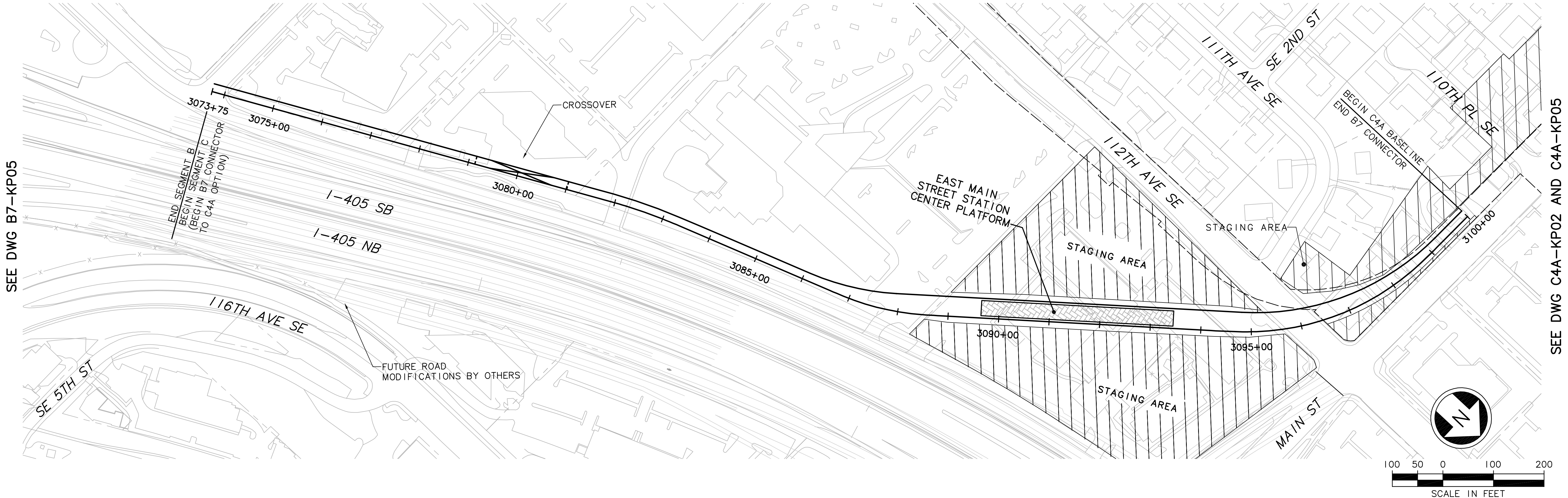
ELC_C4A_CM
ELC_C4A_JO
ELC_C4A_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0225rx
x0225sf
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

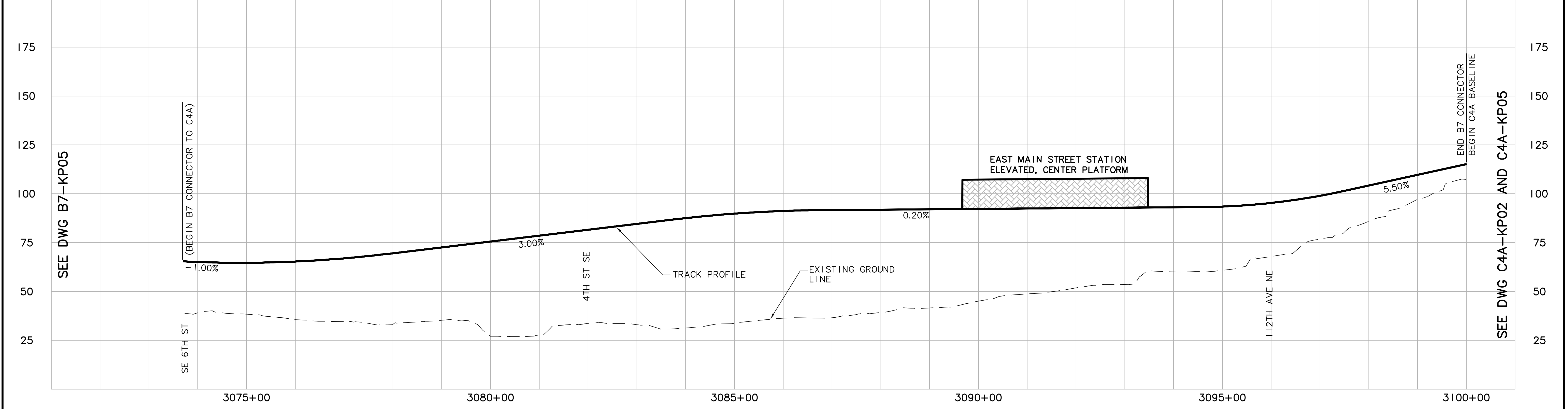
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


SEE DWG B7-KP05
3073+75
3075+00
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B7 CONNECTOR TO C4A OPTION)
CROSSOVER
3080+00
I-405 SB
I-405 NB
116TH AVE SE
FUTURE ROAD MODIFICATIONS BY OTHERS
SE 5TH ST
3085+00
EAST MAIN STREET STATION CENTER PLATFORM
STAGING AREA
3090+00
3095+00
STAGING AREA
MAIN ST
112TH AVE SE
111TH AVE SE
SE 2ND ST
110TH PL SE
BEGIN C4A BASELINE
END B7 CONNECTOR
STAGING AREA
3100+00
N
SEE DWG C4A-KP02 AND C4A-KP05
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C4A3KP01.dwg
10/16/08 10:12 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C4A3KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C4A-B7 OPTION
ALTERNATIVE C4A
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C4A3KP01
Sheet No.:
Rev.:
C-100

XREF'S

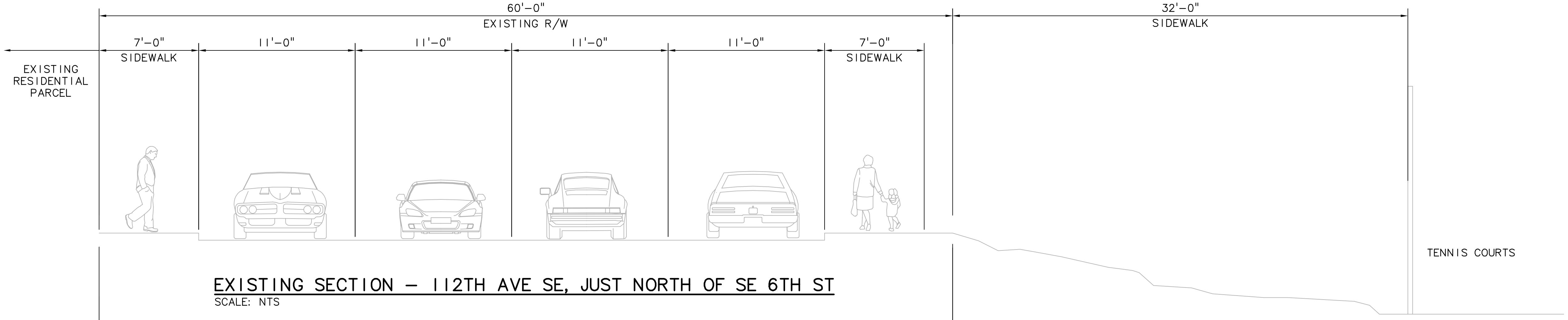
Resolved

REG-DCON
ZG-2234H

Unresolved

LTSCALE

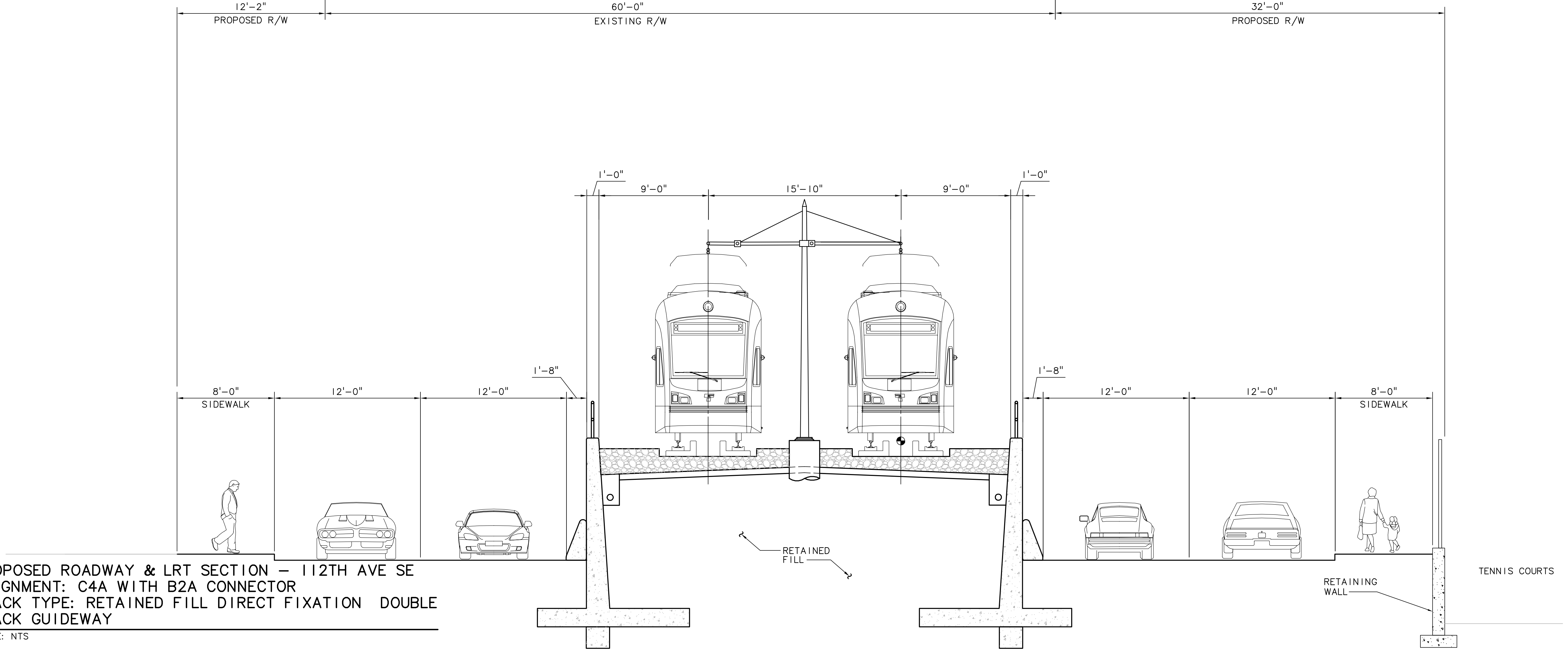
1=1



60'-0"
EXISTING R/W
32'-0"
SIDEWALK
7'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
7'-0"
SIDEWALK
EXISTING RESIDENTIAL PARCEL
TENNIS COURTS

EXISTING SECTION – 112TH AVE SE, JUST NORTH OF SE 6TH ST

SCALE: NTS



12'-2"
PROPOSED R/W
60'-0"
EXISTING R/W
32'-0"
PROPOSED R/W
1'-0"
9'-0"
15'-10"
9'-0"
1'-0"
1'-8"
1'-8"
8'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
8'-0"
SIDEWALK
RETAINED FILL
RETAINING WALL
TENNIS COURTS

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE
ALIGNMENT: C4A WITH B2A CONNECTOR
TRACK TYPE: RETAINED FILL DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELC1C4A_KX01.dwg
10/16/08 10:17 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUND TRANSIT

Scale: NTS
Filename: ELC1C4A_KX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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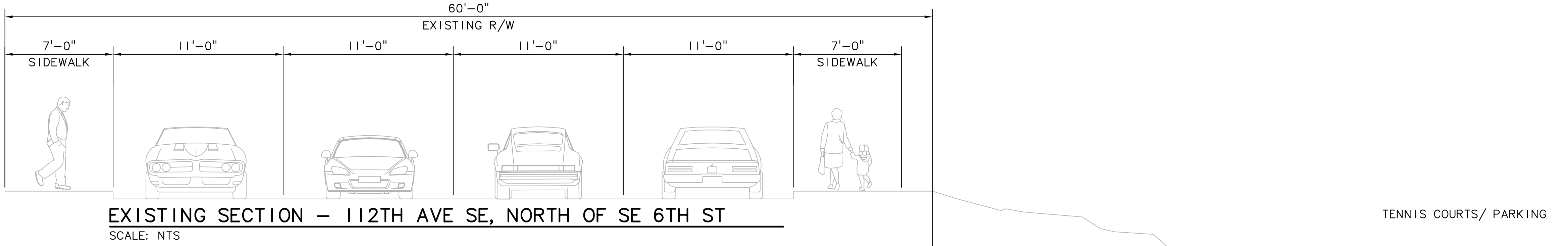
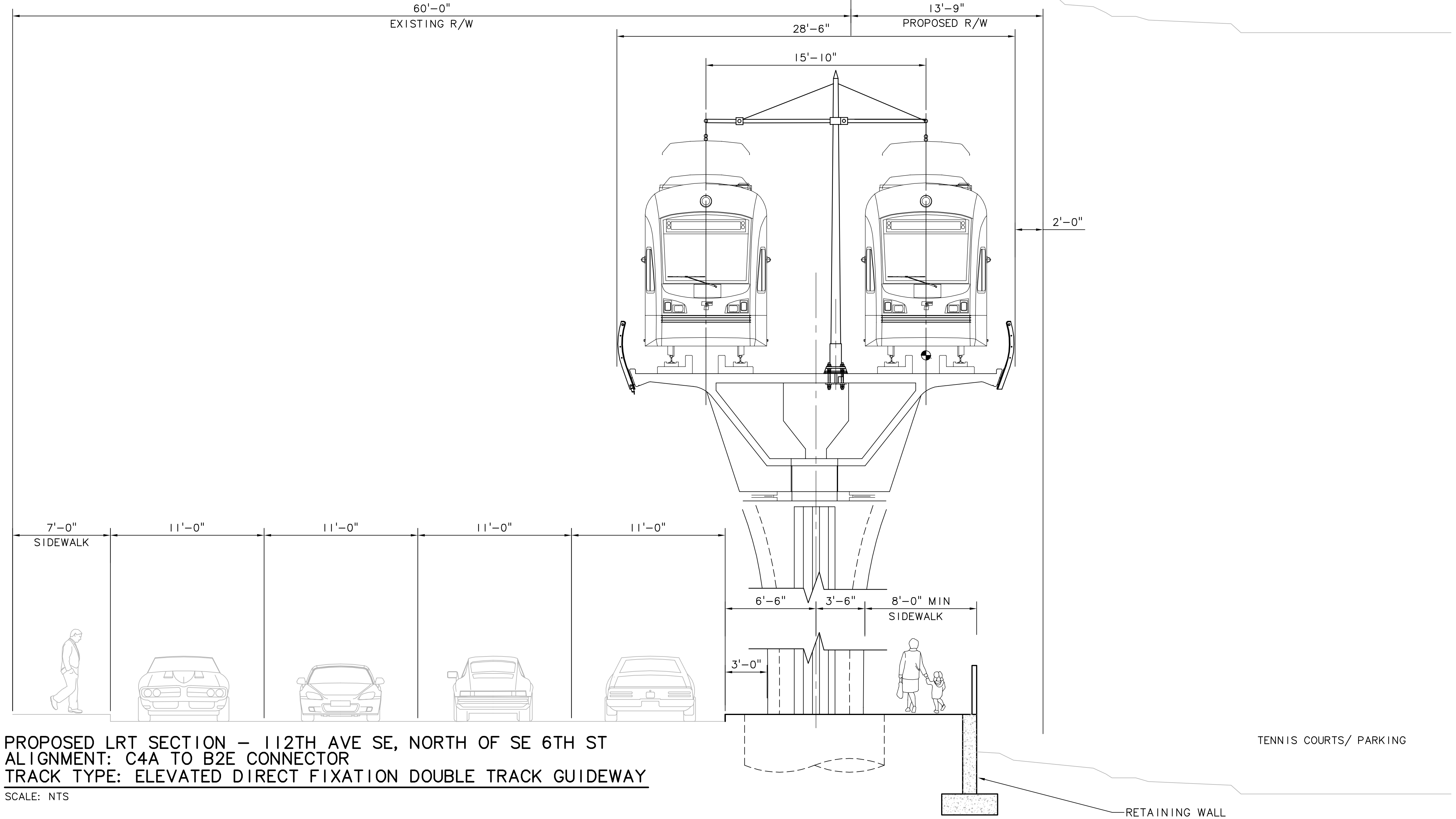
Drawing No.: C4A-KX01
Sheet No.: C-101
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


60'-0"
EXISTING R/W
7'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
7'-0"
SIDEWALK
TENNIS COURTS/ PARKING

EXISTING SECTION – 112TH AVE SE, NORTH OF SE 6TH ST

SCALE: NTS


60'-0"
EXISTING R/W
13'-9"
PROPOSED R/W
28'-6"
15'-10"
2'-0"
7'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
6'-6"
3'-6"
8'-0" MIN
SIDEWALK
3'-0"
TENNIS COURTS/ PARKING
RETAINING WALL

PROPOSED LRT SECTION – 112TH AVE SE, NORTH OF SE 6TH ST
ALIGNMENT: C4A TO B2E CONNECTOR
TRACK TYPE: ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELC1C4A_KX02.dwg
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Filename: ELC1C4A_KX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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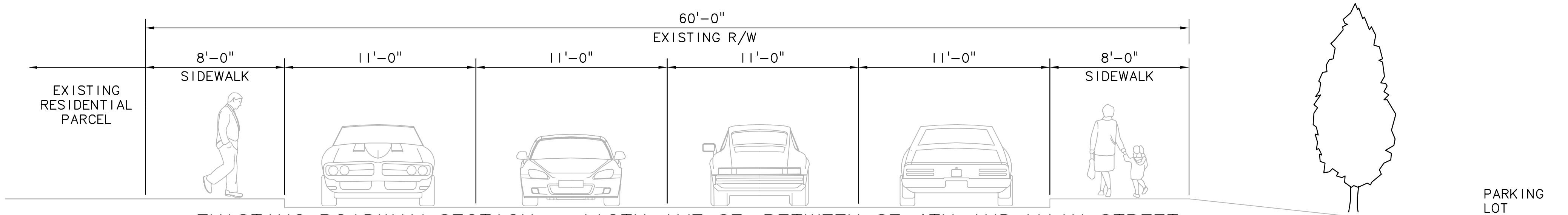
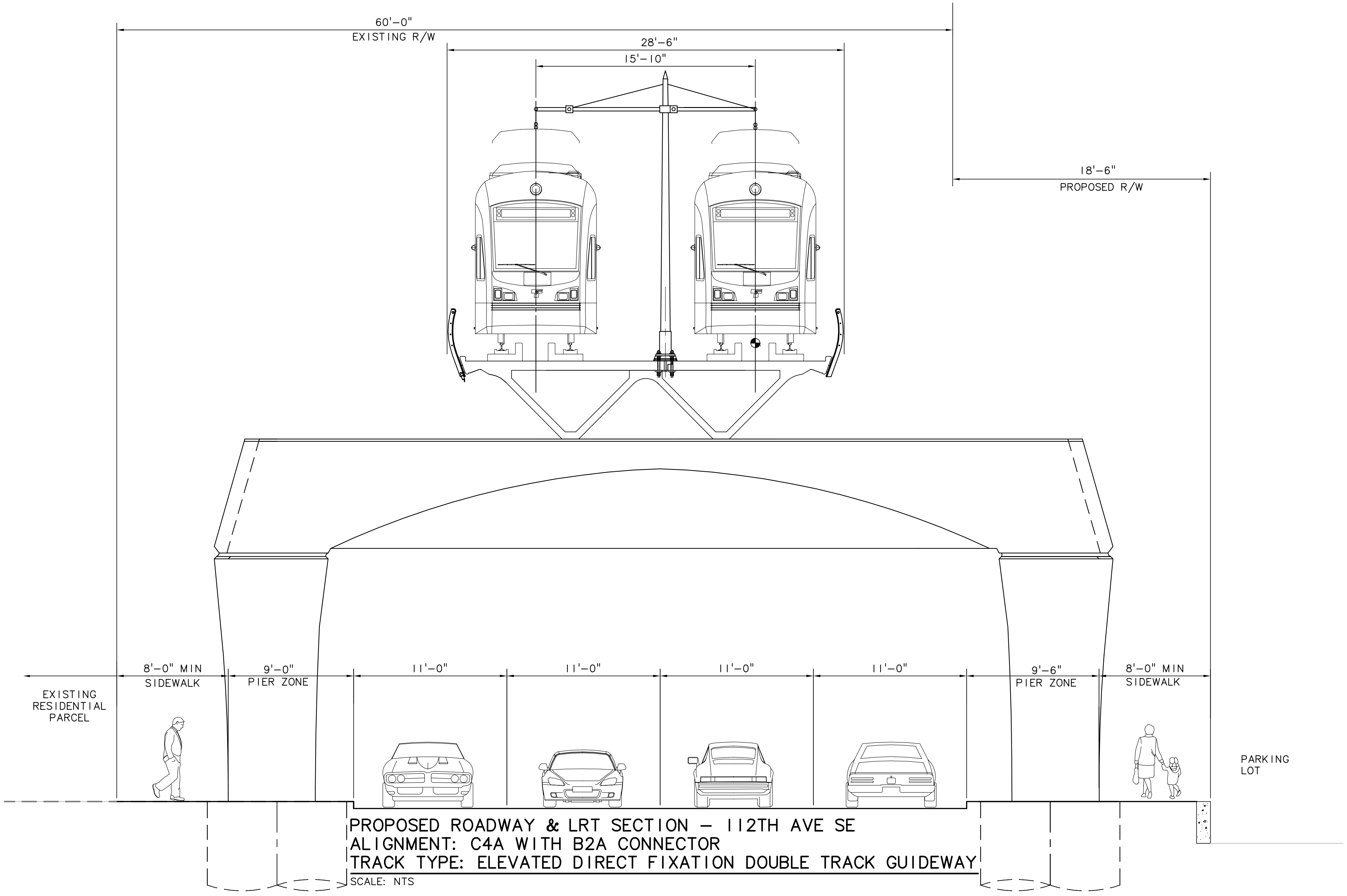
HALF SCALE

Drawing No.: C4A-KX02
Sheet No.: C-102
Rev.:


60'-0"
EXISTING R/W
8'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
8'-0"
SIDEWALK
EXISTING
RESIDENTIAL
PARCEL
PARKING
LOT

EXISTING ROADWAY SECTION – 112TH AVE SE, BETWEEN SE 4TH AND MAIN STREET

SCALE: NTS


60'-0"
EXISTING R/W
28'-6"
15'-10"
18'-6"
PROPOSED R/W
8'-0" MIN
SIDEWALK
9'-0"
PIER ZONE
11'-0"
11'-0"
11'-0"
11'-0"
9'-6"
PIER ZONE
8'-0" MIN
SIDEWALK
EXISTING
RESIDENTIAL
PARCEL
PARKING
LOT

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE
ALIGNMENT: C4A WITH B2A CONNECTOR
TRACK TYPE: ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Filename: ELC1C4A_KX03.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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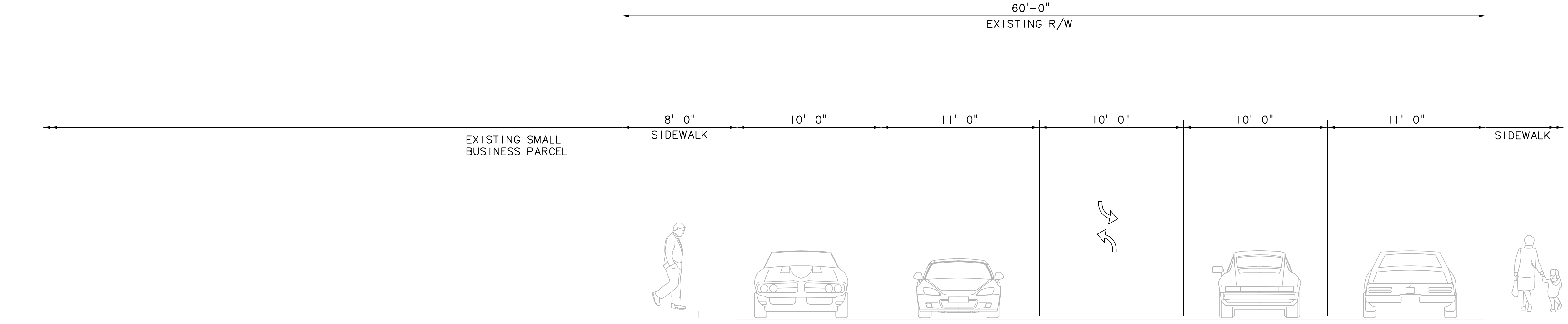
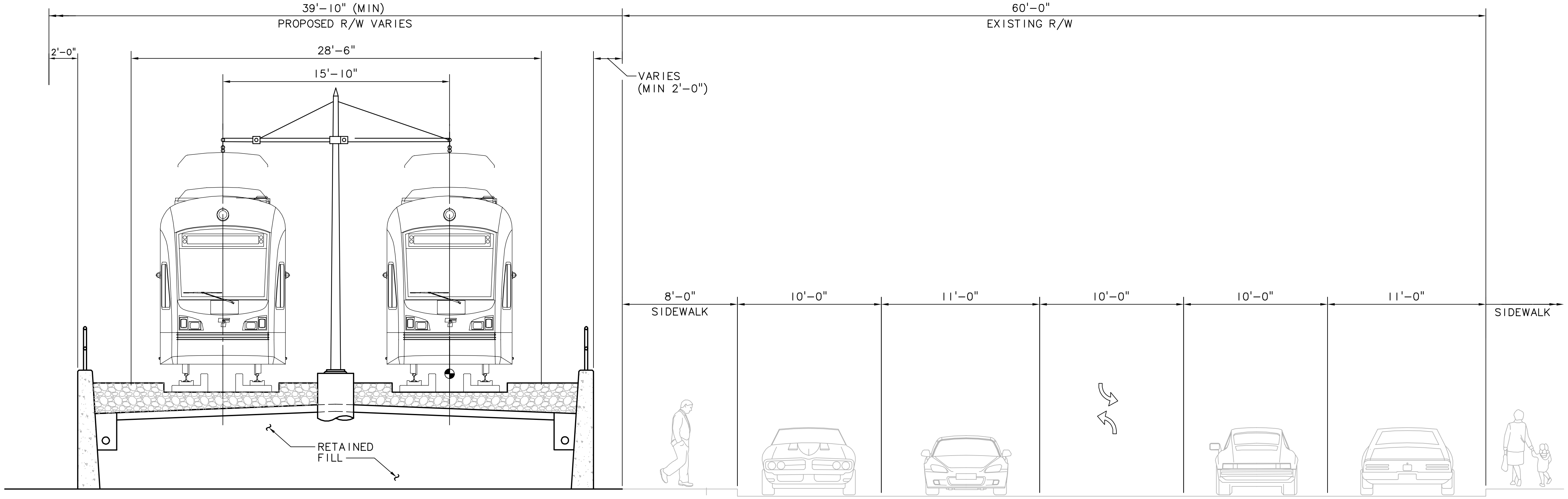
Drawing No.: C4A-KX03
Sheet No.: C-103
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


60'-0"
EXISTING R/W
EXISTING SMALL
BUSINESS PARCEL
8'-0"
SIDEWALK
10'-0"
11'-0"
10'-0"
10'-0"
11'-0"
SIDEWALK

EXISTING ROADWAY SECTION - MAIN STREET, BETWEEN 112TH AVE NE AND 110TH AVE NE

SCALE: NTS


39'-10" (MIN)
PROPOSED R/W VARIES
60'-0"
EXISTING R/W
2'-0"
28'-6"
15'-10"
VARIES
(MIN 2'-0")
RETAINED
FILL
8'-0"
SIDEWALK
10'-0"
11'-0"
10'-0"
10'-0"
11'-0"
SIDEWALK

PROPOSED ROADWAY & LRT SECTION - MAIN STREET, BETWEEN 112TH AVE NE AND 110TH AVE NE
ALIGNMENT: C4A
TRACK TYPE: RETAINED FILL DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Filename: ELCIC4A_KX04.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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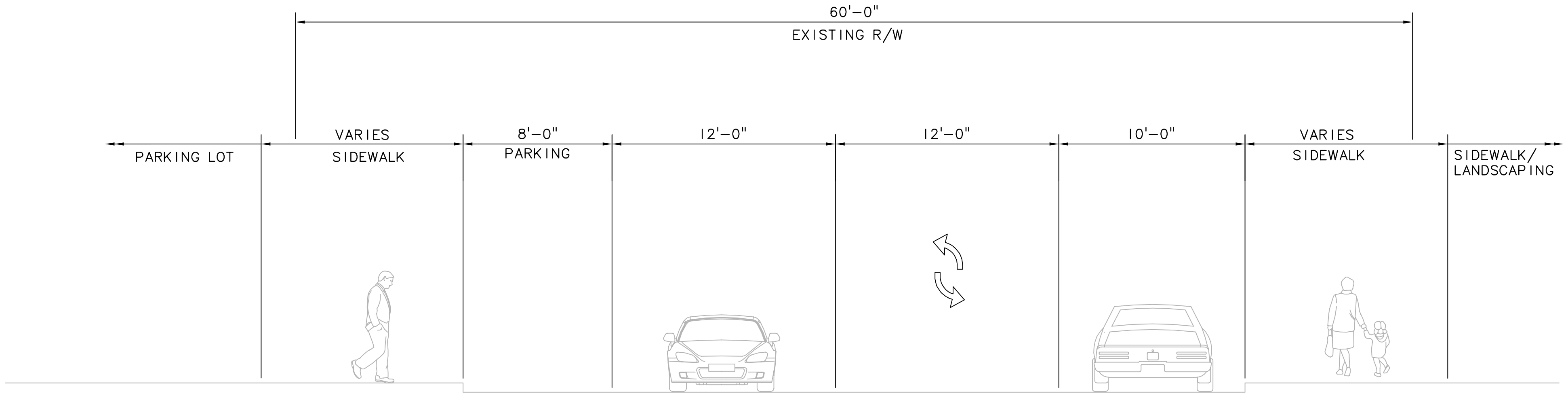
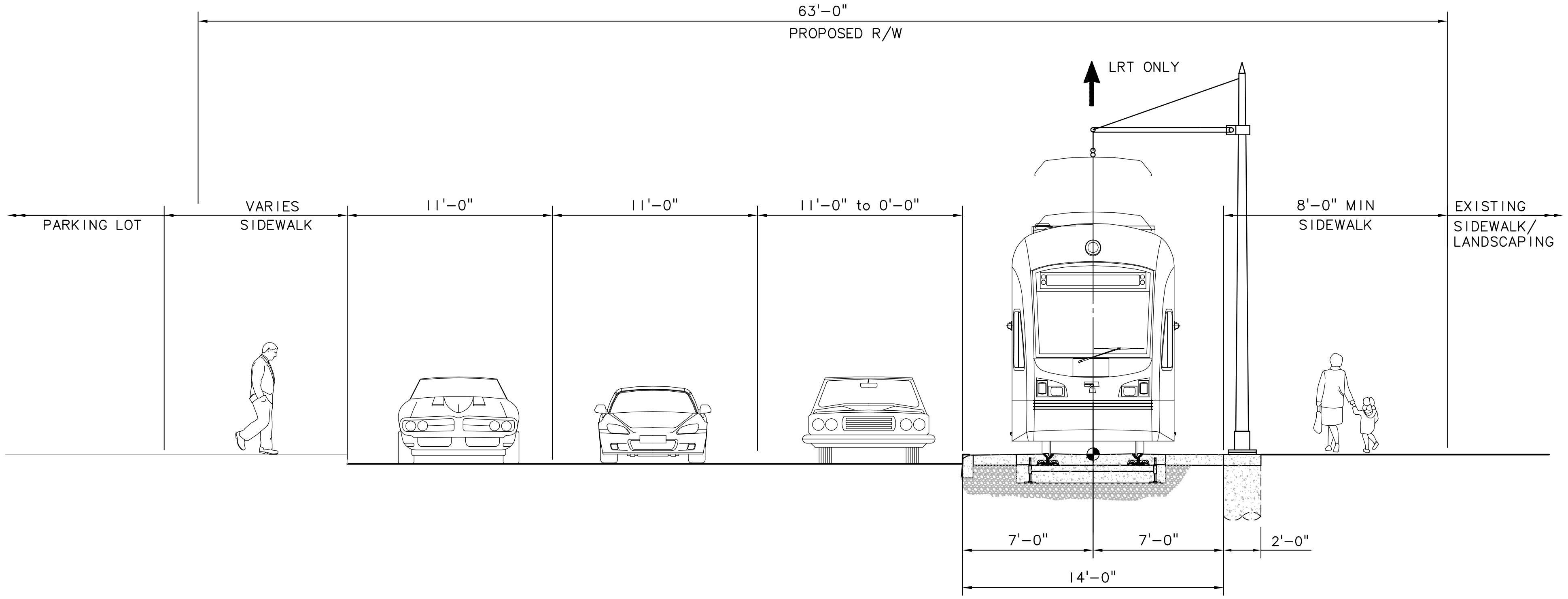
Drawing No.: C4A-KX04
Sheet No.: C-104
Rev.:

XREF'S
Resolved
REG-DCON
Zg-2234h
Unresolved
LTSCALE
1=1


60'-0"
EXISTING R/W
PARKING LOT
VARIES
SIDEWALK
8'-0"
PARKING
12'-0"
12'-0"
10'-0"
VARIES
SIDEWALK
SIDEWALK/
LANDSCAPING

EXISTING ROADWAY SECTION - 110TH AVE NE, BETWEEN MAIN ST AND NE 2ND ST

SCALE: NTS


63'-0"
PROPOSED R/W
LRT ONLY
PARKING LOT
VARIES
SIDEWALK
11'-0"
11'-0"
11'-0" to 0'-0"
8'-0" MIN
SIDEWALK
EXISTING
SIDEWALK/
LANDSCAPING
7'-0"
7'-0"
2'-0"
14'-0"

PROPOSED ROADWAY & LRT SECTION - 110TH AVE NE, BETWEEN MAIN ST AND NE 2ND ST
ALIGNMENT: C4A EAST BOUND
TRACK TYPE: AT-GRADE EMBEDDED SINGLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELCIC4A_KX05.dwg
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Filename: ELCIC4A_KX05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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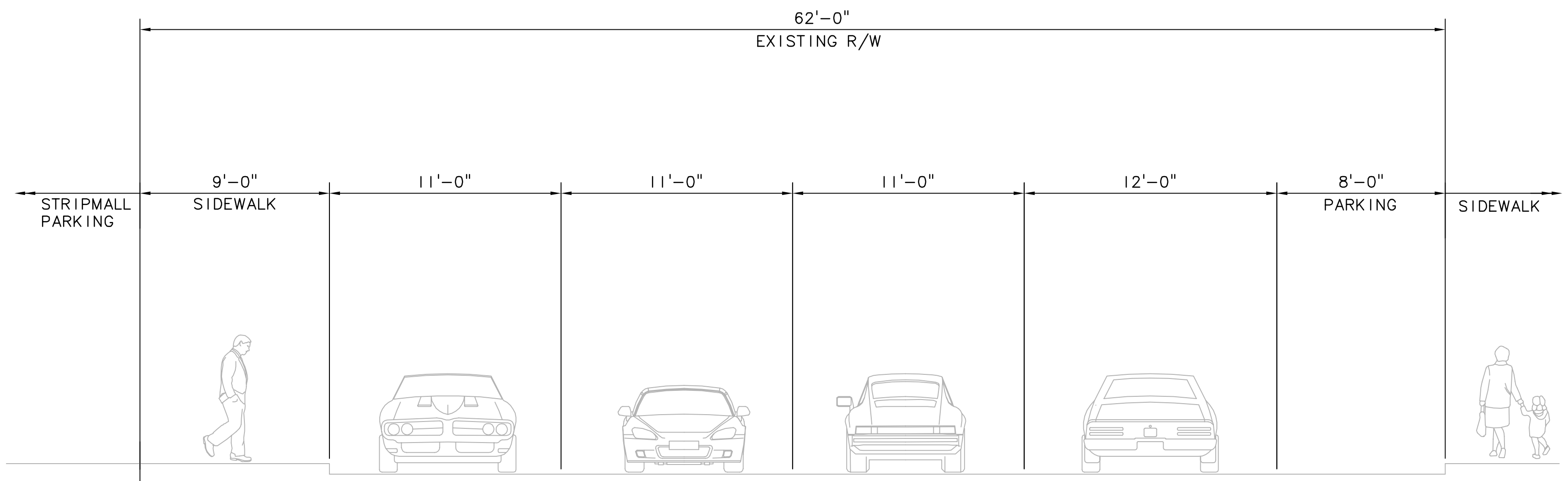
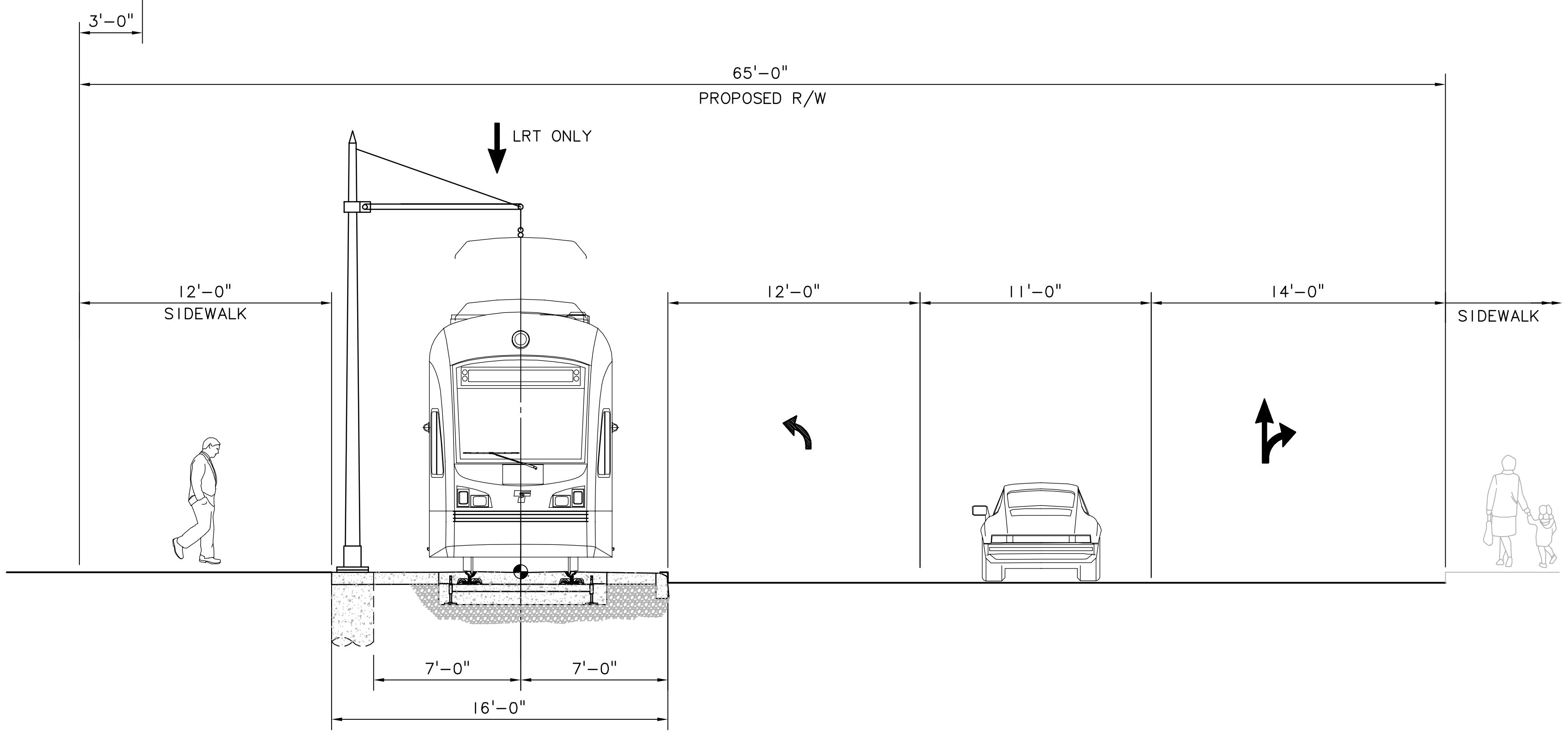
Drawing No.: C4A-KX05
Sheet No.: C-105
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1

NOTE:
1. PARALLEL 106TH AVE NE ROADWAY COUPLET WILL BE MODIFIED TO RUN SOUTHBOUND.


62'-0"
EXISTING R/W
STRIPMALL PARKING
9'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
12'-0"
8'-0"
PARKING
SIDEWALK

EXISTING ROADWAY SECTION – 108TH AVE NE, BETWEEN NE 8TH AT AND NE 10TH ST
SCALE: NTS


3'-0"
65'-0"
PROPOSED R/W
LRT ONLY
12'-0"
SIDEWALK
12'-0"
11'-0"
14'-0"
SIDEWALK
7'-0"
7'-0"
16'-0"

NEW ROADWAY & LRT SECTION – 108TH AVE NE, BETWEEN NE 8TH ST AND NE 10TH ST
ALIGNMENT: C4A WESTBOUND
TRACK TYPE: AT-GRADE EMBEDDED SINGLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELCIC4A_KX06.dwg
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Scale: NTS
Filename: ELCIC4A_KX06.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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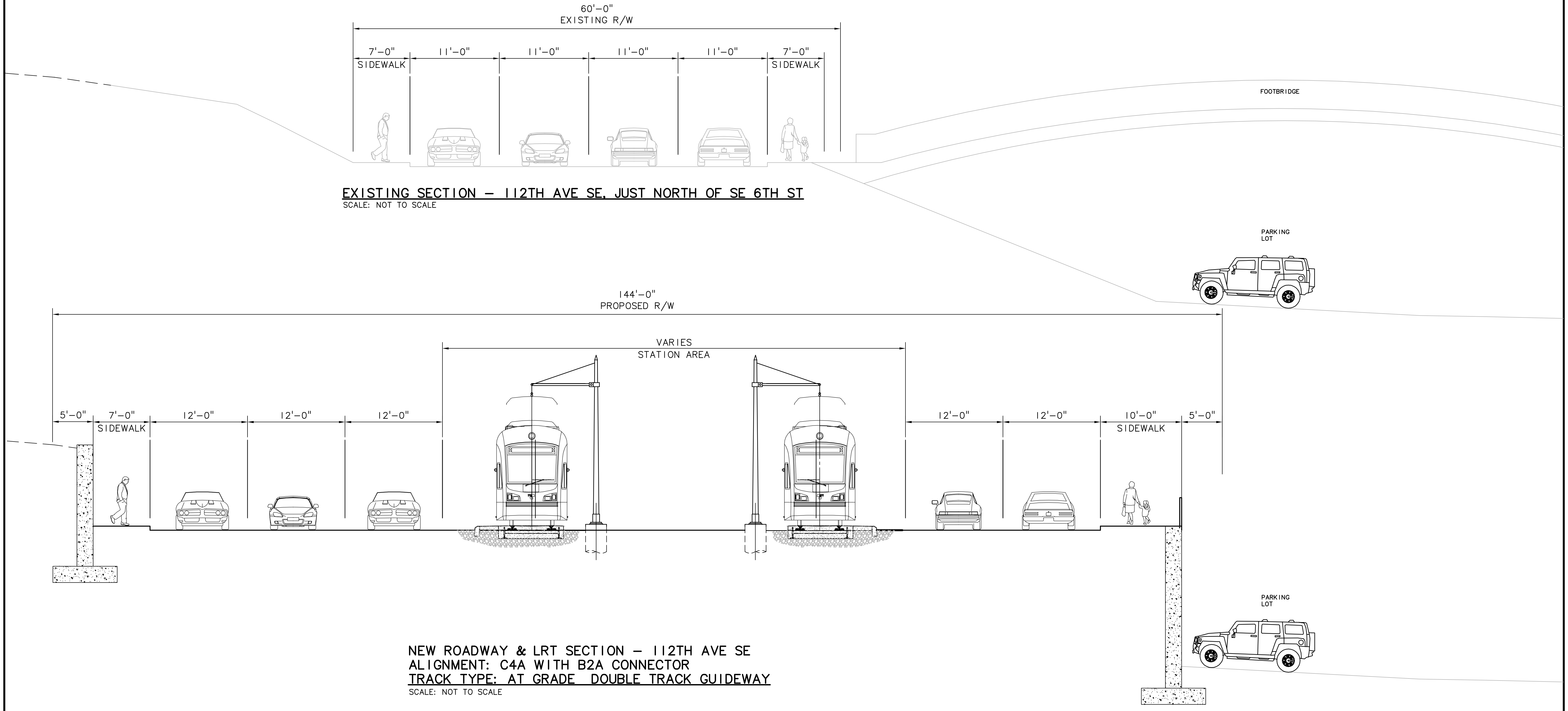
Drawing No.: C4A-KX06
Sheet No.: C-106
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved

LTSCALE
1=1


60'-0"
EXISTING R/W
7'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
7'-0"
SIDEWALK
FOOTBRIDGE
PARKING LOT
144'-0"
PROPOSED R/W
VARIES
STATION AREA
5'-0"
7'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
10'-0"
SIDEWALK
5'-0"
PARKING LOT

EXISTING SECTION – 112TH AVE SE, JUST NORTH OF SE 6TH ST
SCALE: NOT TO SCALE

NEW ROADWAY & LRT SECTION – 112TH AVE SE
ALIGNMENT: C4A WITH B2A CONNECTOR
TRACK TYPE: AT GRADE DOUBLE TRACK GUIDEWAY
SCALE: NOT TO SCALE

c:\work\ELCIC4A_KX07.dwg
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Date:

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Scale: NTS
Filename: ELCIC4A_KX07.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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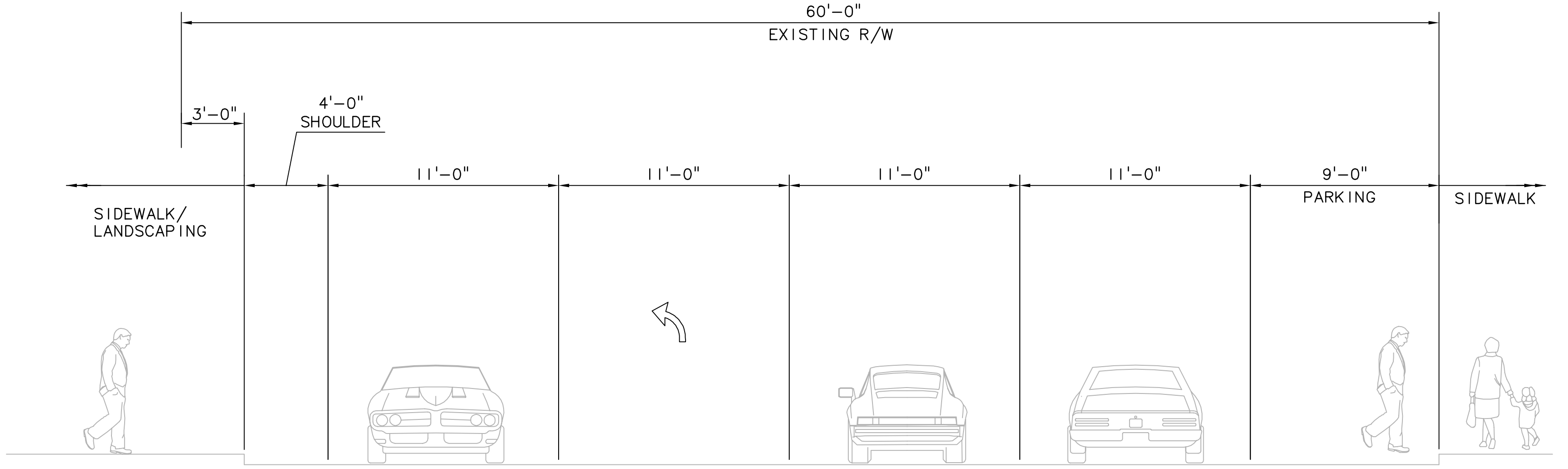
HALF SCALE

Drawing No.: C4A-KX07
Sheet No.: C-107
Rev.:

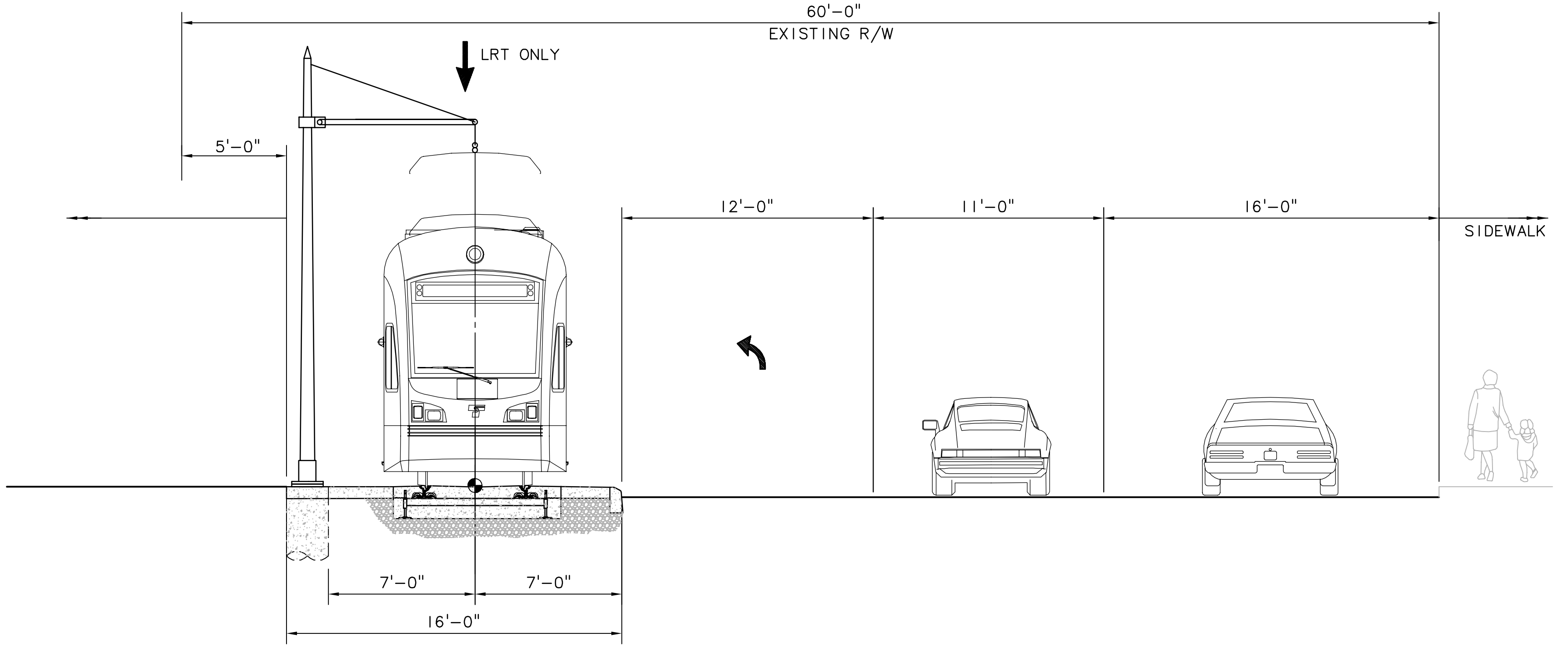
XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1

NOTE:
1. PARALLEL 106TH AVE NE ROADWAY COUPLET WILL BE MODIFIED TO RUN SOUTHBOUND.



60'-0"
EXISTING R/W
3'-0"
4'-0"
SHOULDER
11'-0"
11'-0"
11'-0"
11'-0"
9'-0"
PARKING
SIDEWALK/
LANDSCAPING
SIDEWALK

EXISTING ROADWAY SECTION – 108TH AVE NE, BETWEEN NE 2ND PLACE AND NE 4TH PLACE
SCALE: NTS



60'-0"
EXISTING R/W
LRT ONLY
5'-0"
12'-0"
11'-0"
16'-0"
SIDEWALK
7'-0"
7'-0"
16'-0"

PROPOSED ROADWAY & LRT SECTION – 108TH AVE NE, BETWEEN NE 2ND PLACE AND NE 4TH STREET
ALIGNMENT: C4A WEST BOUND
TRACK TYPE: AT-GRADE EMBEDDED SINGLE TRACK GUIDEWAY
SCALE: NTS

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Scale: NTS
Filename: ELCIC4A_KXII.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
TYPICAL SECTION

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Drawing No.: C4A-KXII
Sheet No.: C-108
Rev.:

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XREF'S

Resolved

ELC_C4A_KA
REG-DCON
ZG-2234H
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x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
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x0834sf

Unresolved

LTSCALE

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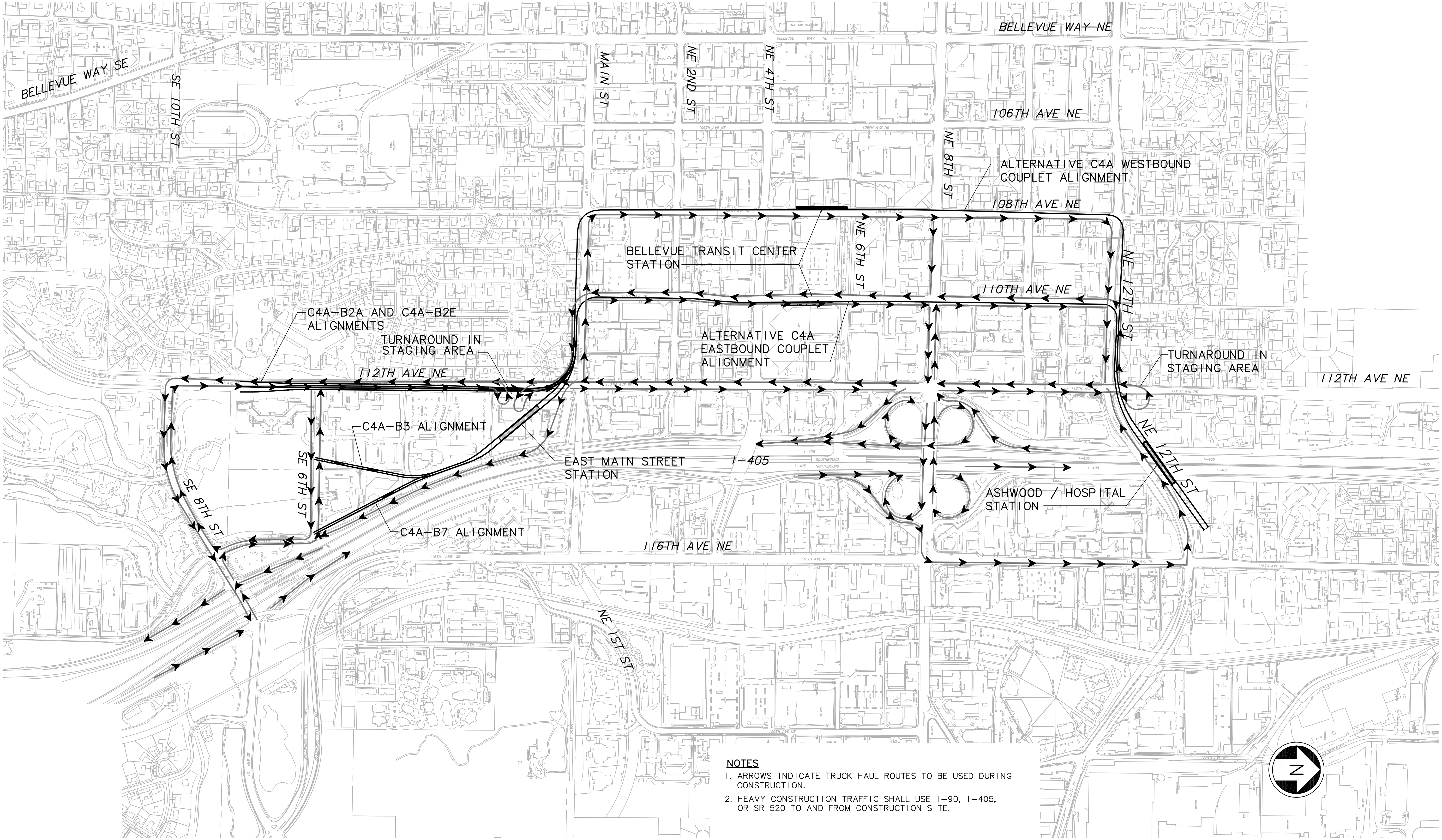
1
2
3
4
5
BELLEVUE WAY SE
SE 10TH ST
MAIN ST
NE 2ND ST
NE 4TH ST
BELLEVUE WAY NE
106TH AVE NE
NE 8TH ST
ALTERNATIVE C4A WESTBOUND COUPLET ALIGNMENT
108TH AVE NE
BELLEVUE TRANSIT CENTER STATION
NE 6TH ST
110TH AVE NE
NE 12TH ST
C4A-B2A AND C4A-B2E ALIGNMENTS
TURNAROUND IN STAGING AREA
ALTERNATIVE C4A EASTBOUND COUPLET ALIGNMENT
TURNAROUND IN STAGING AREA
112TH AVE NE
112TH AVE NE
C4A-B3 ALIGNMENT
SE 6TH ST
EAST MAIN STREET STATION
I-405
SE 8TH ST
C4A-B7 ALIGNMENT
ASHWOOD / HOSPITAL STATION
116TH AVE NE
NE 1ST ST
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

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Scale: NTS
Filename: ELC1C4A_CC01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C4A
CONSTRUCTION TRUCK HAUL ROUTE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C4A-CC01
Sheet No.: C-109
Rev.:

XREF'S

Resolved

ELC_C7E_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
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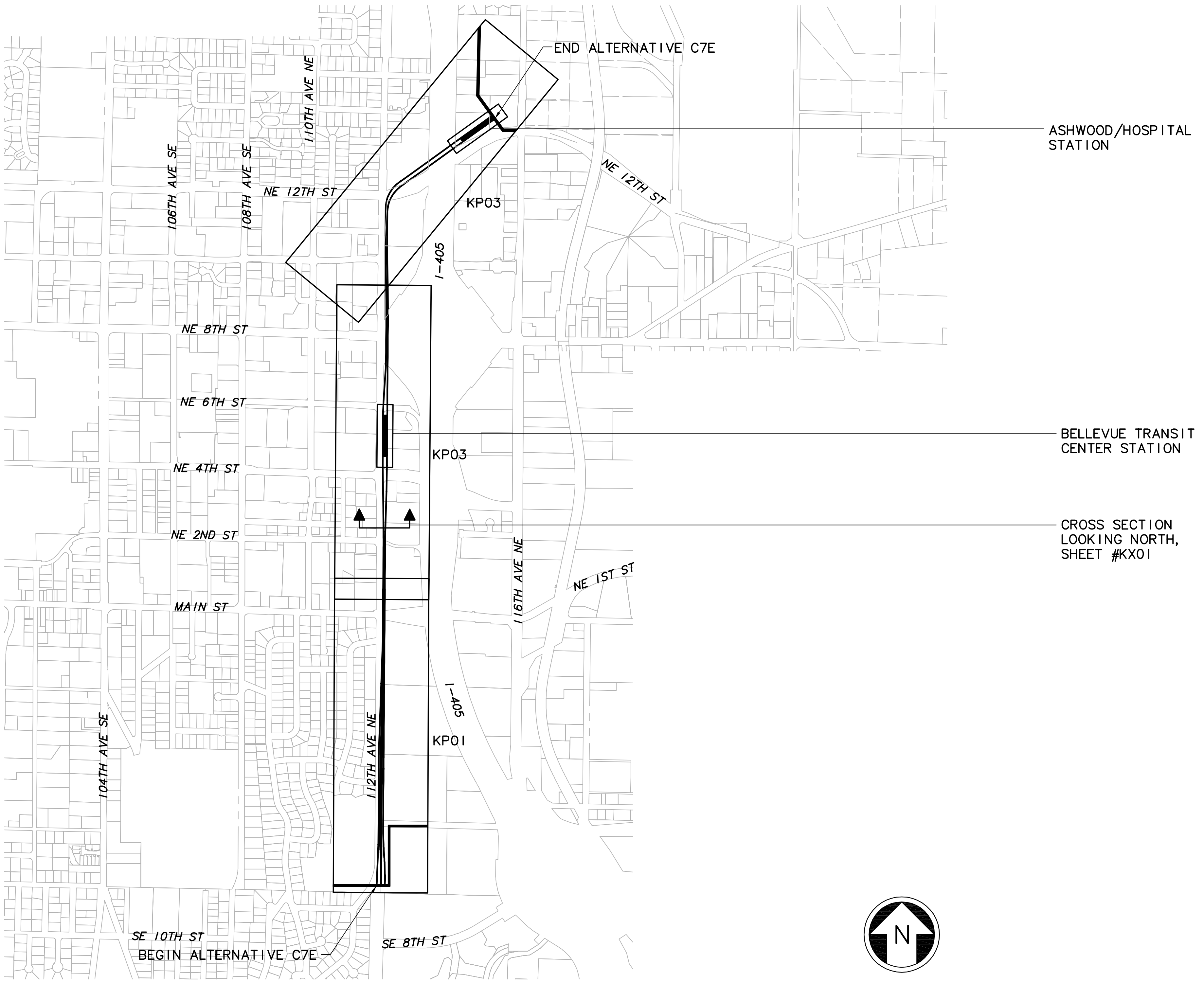
key_East

LTSCALE

1=1


END ALTERNATIVE C7E
ASHWOOD/HOSPITAL STATION
110TH AVE NE
106TH AVE SE
108TH AVE SE
NE 12TH ST
NE 12TH ST
KP03
I-405
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
KP03
NE 4TH ST
CROSS SECTION LOOKING NORTH, SHEET #KX01
NE 2ND ST
116TH AVE NE
NE 1ST ST
MAIN ST
I-405
104TH AVE SE
112TH AVE NE
KP01
SE 10TH ST
BEGIN ALTERNATIVE C7E
SE 8TH ST
N

c:\work\ELC1C7E_GZ05.dwg
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Filename: ELC1C7E_GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B2E OPTION
ALTERNATIVE C7E

KEY PLAN

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Drawing No.: C7E-GZ05
Sheet No.: C-110
Rev.:

XREF'S

Resolved

ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
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x0525sf
x0528rx
x0528sf
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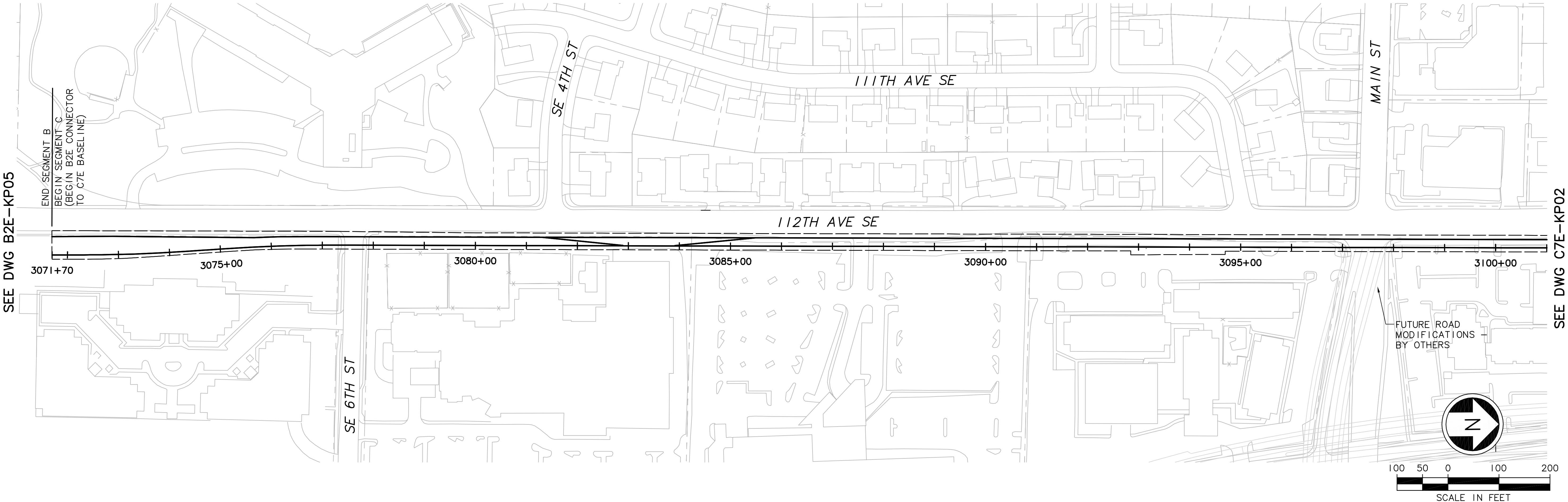
x0531sf
x0534rx
x0534sf

Unresolved

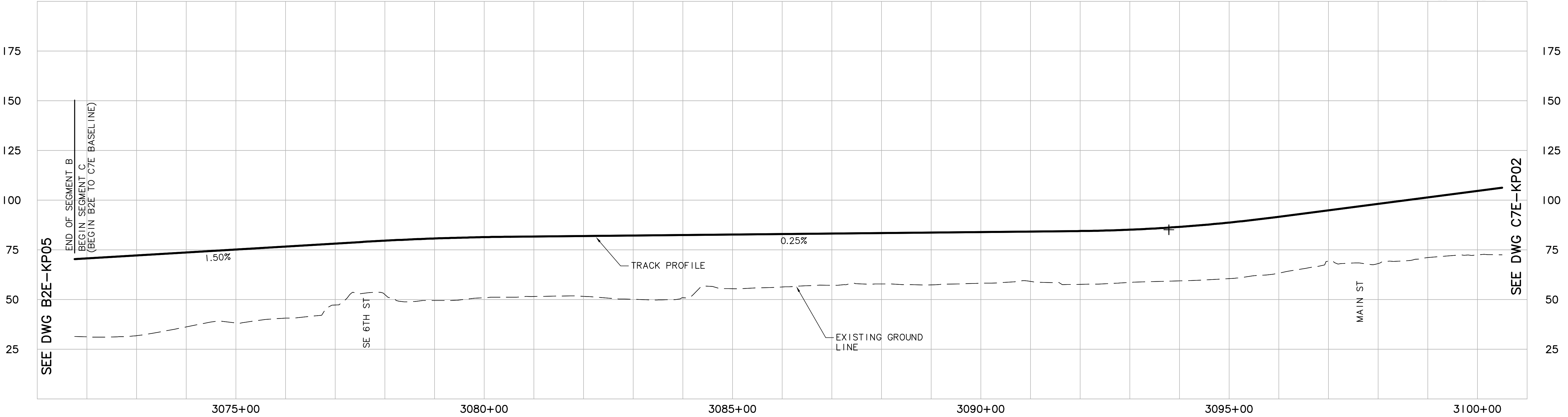
St_Names_E_40
key_East

LTSCALE

1=1



111TH AVE SE
SE 4TH ST
MAIN ST
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B2E CONNECTOR TO C7E BASELINE)
SEE DWG B2E-KP05
112TH AVE SE
3071+70
3075+00
3080+00
3085+00
3090+00
3095+00
3100+00
SEE DWG C7E-KP02
FUTURE ROAD MODIFICATIONS BY OTHERS
SE 6TH ST
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C7E_KP01.dwg
10/16/08 10:22 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C7E_KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B2E OPTION
ALTERNATIVE C7E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C7E-KP01
Sheet No.:
Rev.:
C-111

XREF'S

Resolved

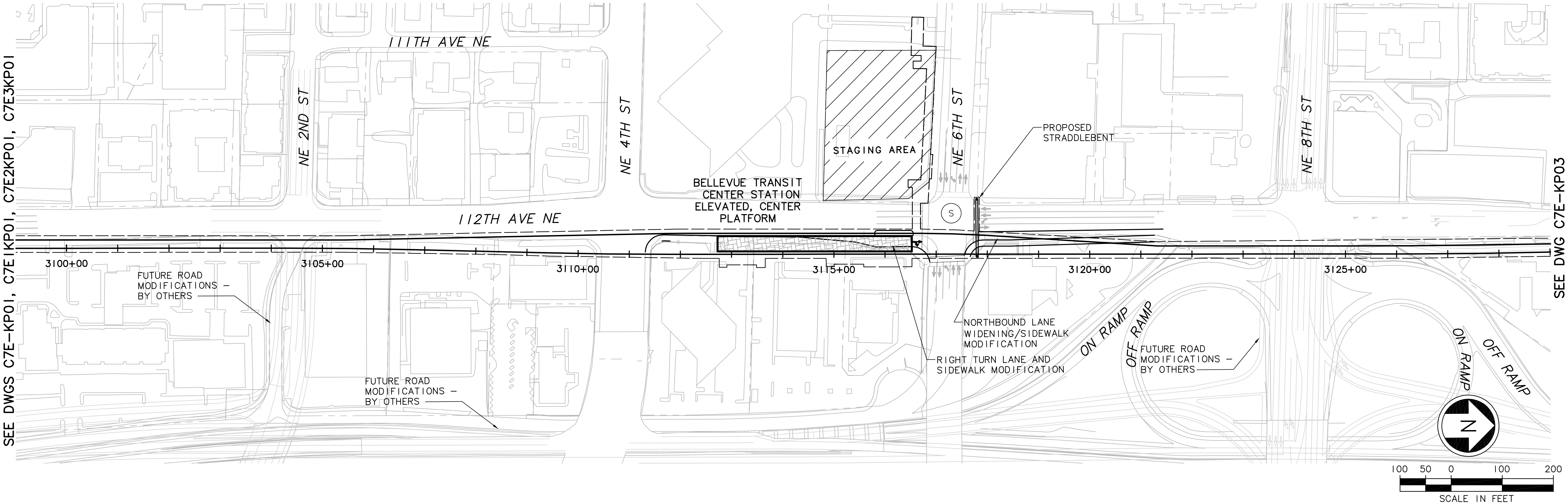
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ELC_1405_P
REG-DCON
ZG-2234H
ZG-G10010
key_East
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved

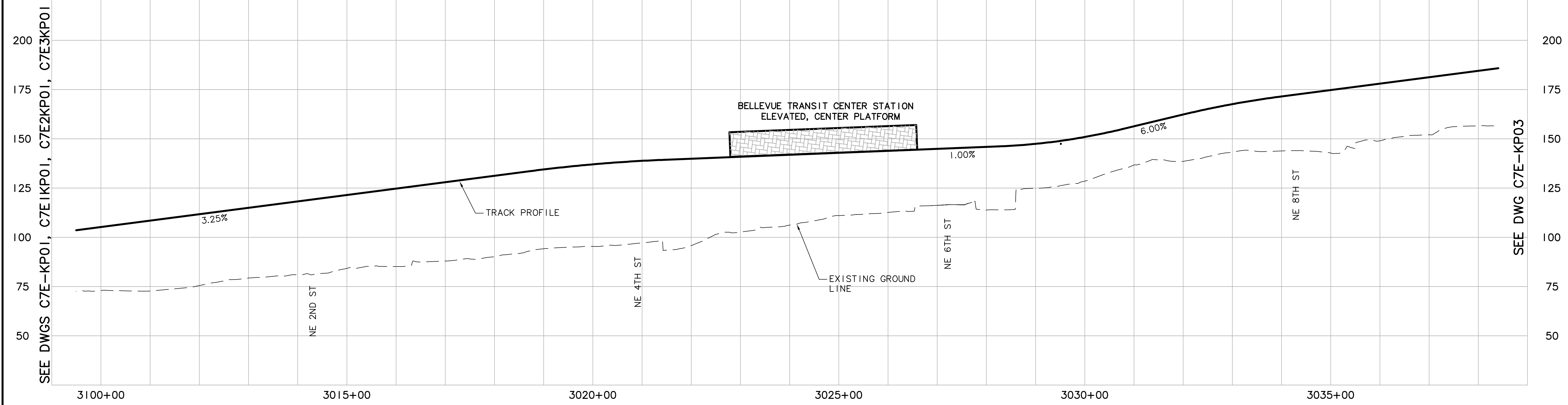
St_Names_E_48

LTSCALE

1=1



SEE DWGS C7E-KP01, C7E1KP01, C7E2KP01, C7E3KP01
111TH AVE NE
NE 2ND ST
NE 4TH ST
STAGING AREA
NE 6TH ST
PROPOSED STRADDLEBENT
NE 8TH ST
SEE DWG C7E-KP03
BELLEVUE TRANSIT CENTER STATION ELEVATED, CENTER PLATFORM
112TH AVE NE
3100+00
3105+00
3110+00
3115+00
3120+00
3125+00
FUTURE ROAD MODIFICATIONS – BY OTHERS
NORTHBOUND LANE WIDENING/SIDEWALK MODIFICATION
RIGHT TURN LANE AND SIDEWALK MODIFICATION
ON RAMP
OFF RAMP
FUTURE ROAD MODIFICATIONS – BY OTHERS
ON RAMP
OFF RAMP
FUTURE ROAD MODIFICATIONS – BY OTHERS
S
N
100 50 0 100 200
SCALE IN FEET



SEE DWGS C7E-KP01, C7E1KP01, C7E2KP01, C7E3KP01
SEE DWG C7E-KP03
200
175
150
125
100
75
50
BELLEVUE TRANSIT CENTER STATION ELEVATED, CENTER PLATFORM
6.00%
1.00%
3.25%
TRACK PROFILE
EXISTING GROUND LINE
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
3100+00
3015+00
3020+00
3025+00
3030+00
3035+00

c:\work\ELC1C7E_KP02.dwg
10/16/08 10:23 : eackerm 0E5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C7E_KP02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B2E (BASELINE)
ALTERNATIVE C7E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C7E-KP02
Sheet No.: C-112
Rev.:

XREF'S

Resolved

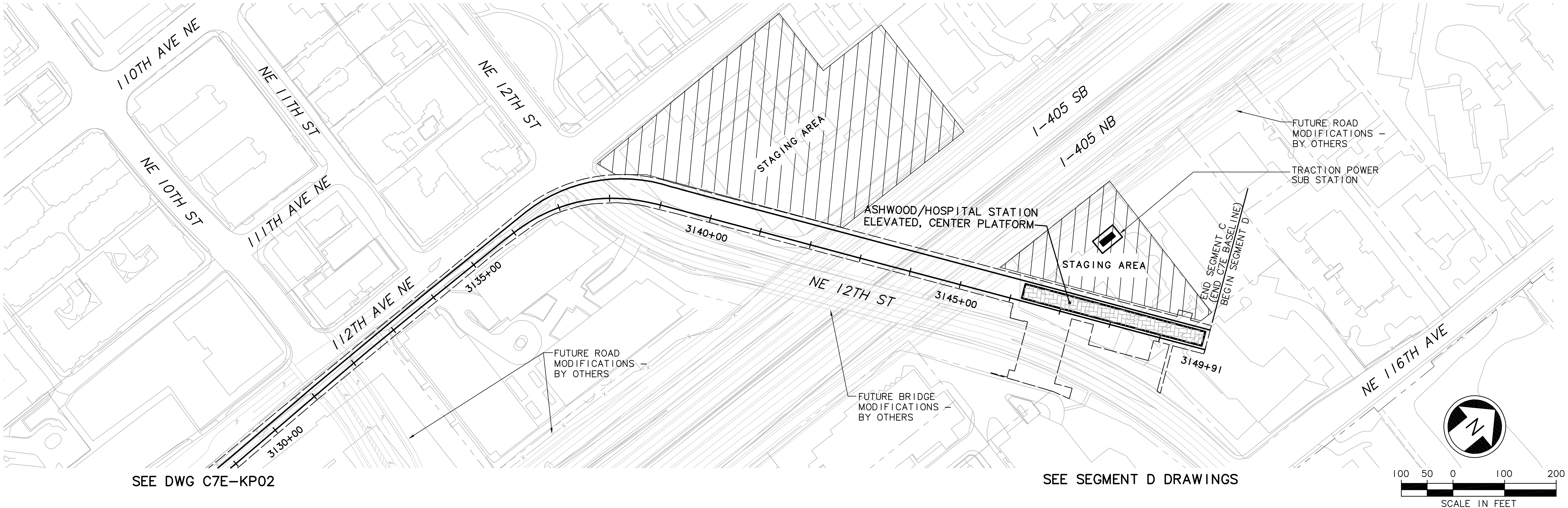
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
key_East
x0231rx
x0231sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved

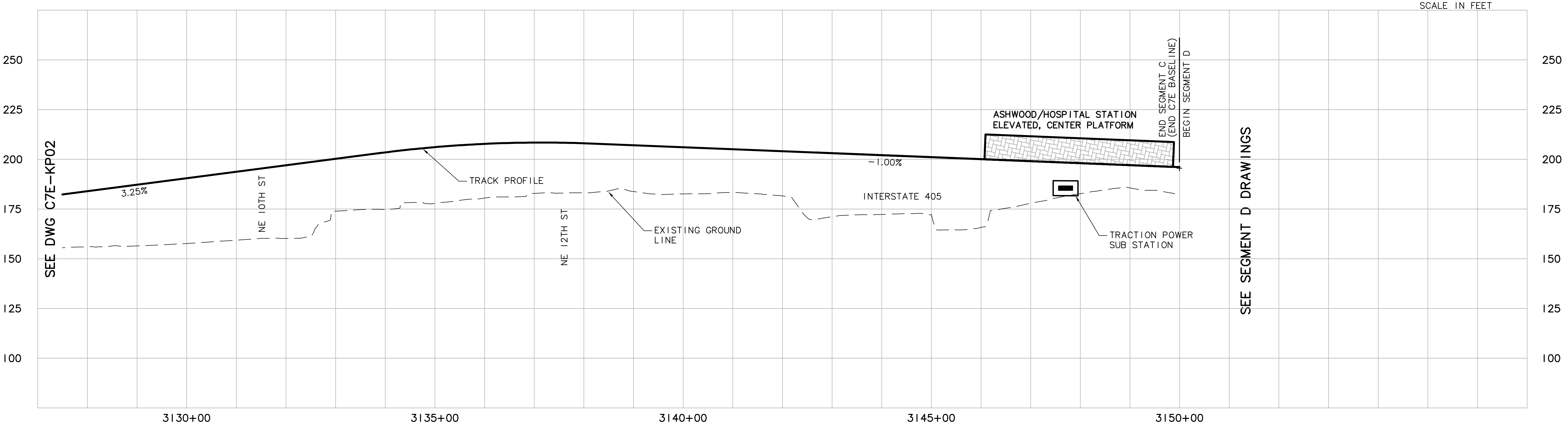
St_Names_E_4

LTSCALE

1=1



110TH AVE NE
NE 11TH ST
NE 12TH ST
NE 10TH ST
111TH AVE NE
112TH AVE NE
STAGING AREA
I-405 SB
I-405 NB
FUTURE ROAD MODIFICATIONS – BY OTHERS
TRACTION POWER SUB STATION
ASHWOOD/HOSPITAL STATION ELEVATED, CENTER PLATFORM
STAGING AREA
END SEGMENT C (END C7E BASELINE) BEGIN SEGMENT D
3140+00
3135+00
NE 12TH ST
3145+00
3149+91
FUTURE ROAD MODIFICATIONS – BY OTHERS
FUTURE BRIDGE MODIFICATIONS – BY OTHERS
NE 116TH AVE
3130+00
N
SEE DWG C7E-KP02
SEE SEGMENT D DRAWINGS
100 50 0 100 200
SCALE IN FEET



250
225
200
175
150
125
100
SEE DWG C7E-KP02
ASHWOOD/HOSPITAL STATION ELEVATED, CENTER PLATFORM
END SEGMENT C (END C7E BASELINE) BEGIN SEGMENT D
-1.00%
TRACK PROFILE
3.25%
NE 10TH ST
INTERSTATE 405
NE 12TH ST
EXISTING GROUND LINE
TRACTION POWER SUB STATION
SEE SEGMENT D DRAWINGS
3130+00
3135+00
3140+00
3145+00
3150+00

c:\work\ELCIC7E_KP03.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted: Date: Approved: Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELCIC7E_KP03.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B2E (BASELINE)
ALTERNATIVE C7E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C7E-KP03
Sheet No.: Rev.:
C-113

XREF'S

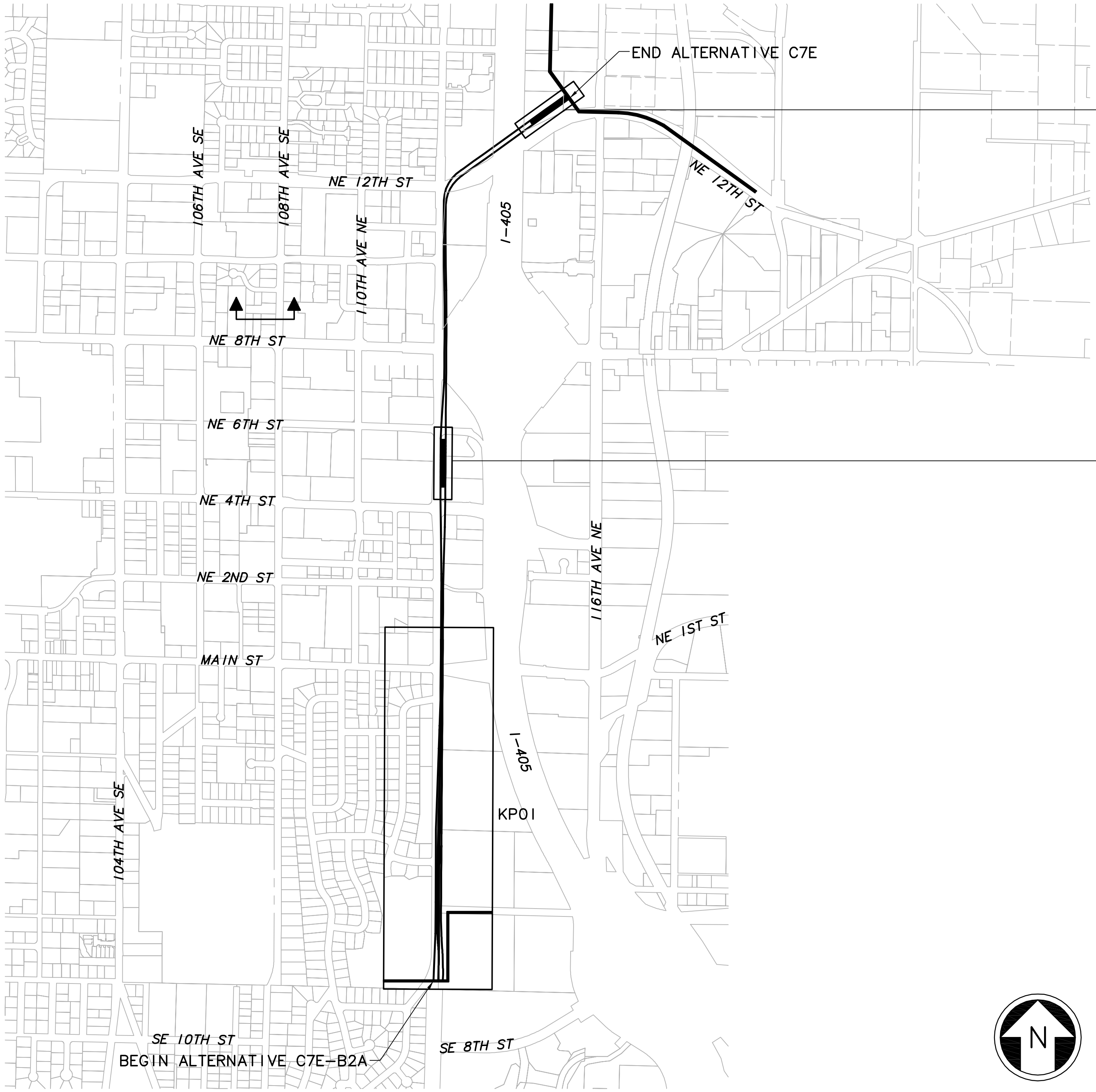
Resolved

ELC_C7E_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
----
key_East

LTSCALE

1=1



END ALTERNATIVE C7E
ASHWOOD/HOSPITAL STATION
106TH AVE SE
108TH AVE SE
NE 12TH ST
NE 12TH ST
I-405
110TH AVE NE
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
116TH AVE NE
NE 2ND ST
NE 1ST ST
MAIN ST
I-405
104TH AVE SE
KP01
SE 10TH ST
BEGIN ALTERNATIVE C7E-B2A
SE 8TH ST
N

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Scale: NTS
Filename: ELC1C7E1GZ05.dwg
Contract No.: EL SEG_C
Date:

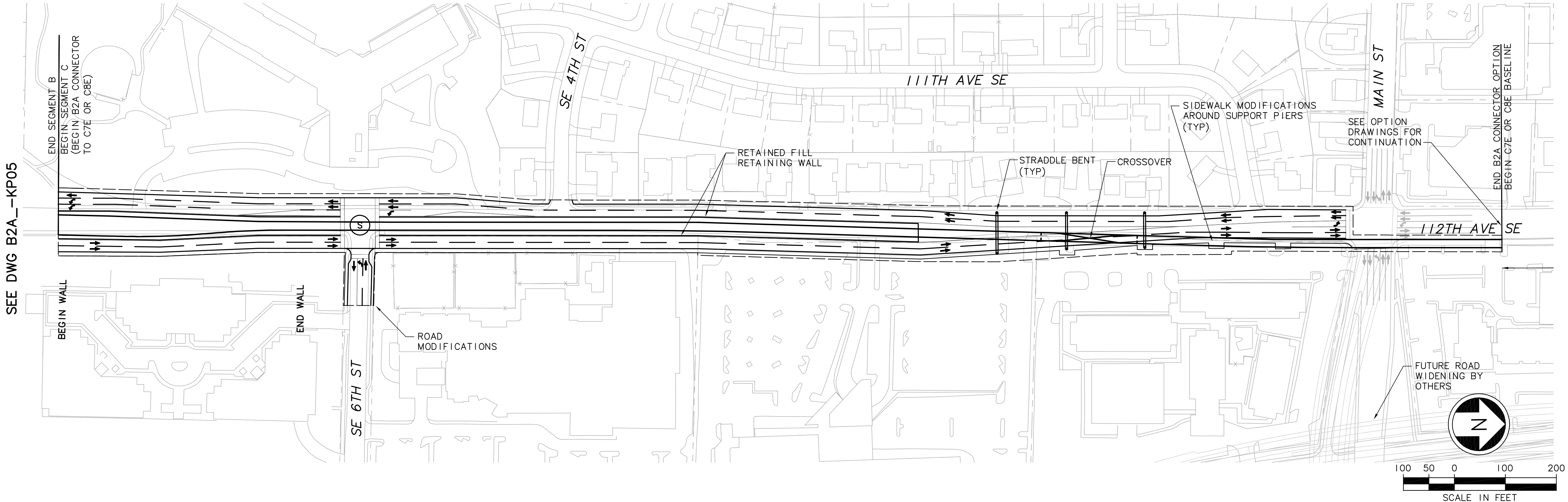
EAST LINK PROJECT
SEGMENT C: C7E-B2A OPTION
ALTERNATIVE C7E

KEY PLAN

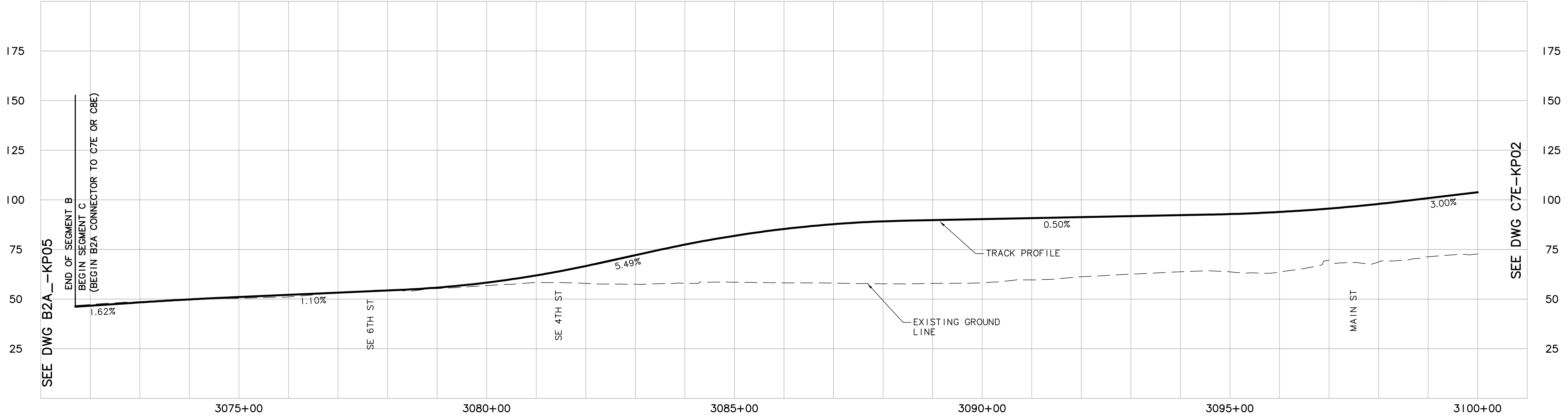
THIS PRINT REDUCED HALF SCALE

Drawing No.: C7E1GZ05
Sheet No.: C-114
Rev.:

XREF'S
Resolved
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
Unresolved
St_Names_E_4
key_East
LTSCALE
1=1



SEE DWG B2A_-KP05
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B2A CONNECTOR TO C7E OR C8E)
BEGIN WALL
END WALL
SE 4TH ST
SE 6TH ST
111TH AVE SE
RETAINED FILL RETAINING WALL
ROAD MODIFICATIONS
STRADDLE BENT (TYP)
CROSSOVER
SIDEWALK MODIFICATIONS AROUND SUPPORT PIERS (TYP)
MAIN ST
SEE OPTION DRAWINGS FOR CONTINUATION
END B2A CONNECTOR OPTION
BEGIN C7E OR C8E BASELINE
112TH AVE SE
FUTURE ROAD WIDENING BY OTHERS
SEE DWG C7E-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C7E1KP01.dwg
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PARSONS & INCA ENGINEERS INC.

Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C7E1KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B2A OPTION
ALTERNATIVE C7E
TRACK PLAN & PROFILE

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HALF SCALE

Drawing No.:
C7E1KP01
Sheet No.:
Rev.:
C-115

XREF'S

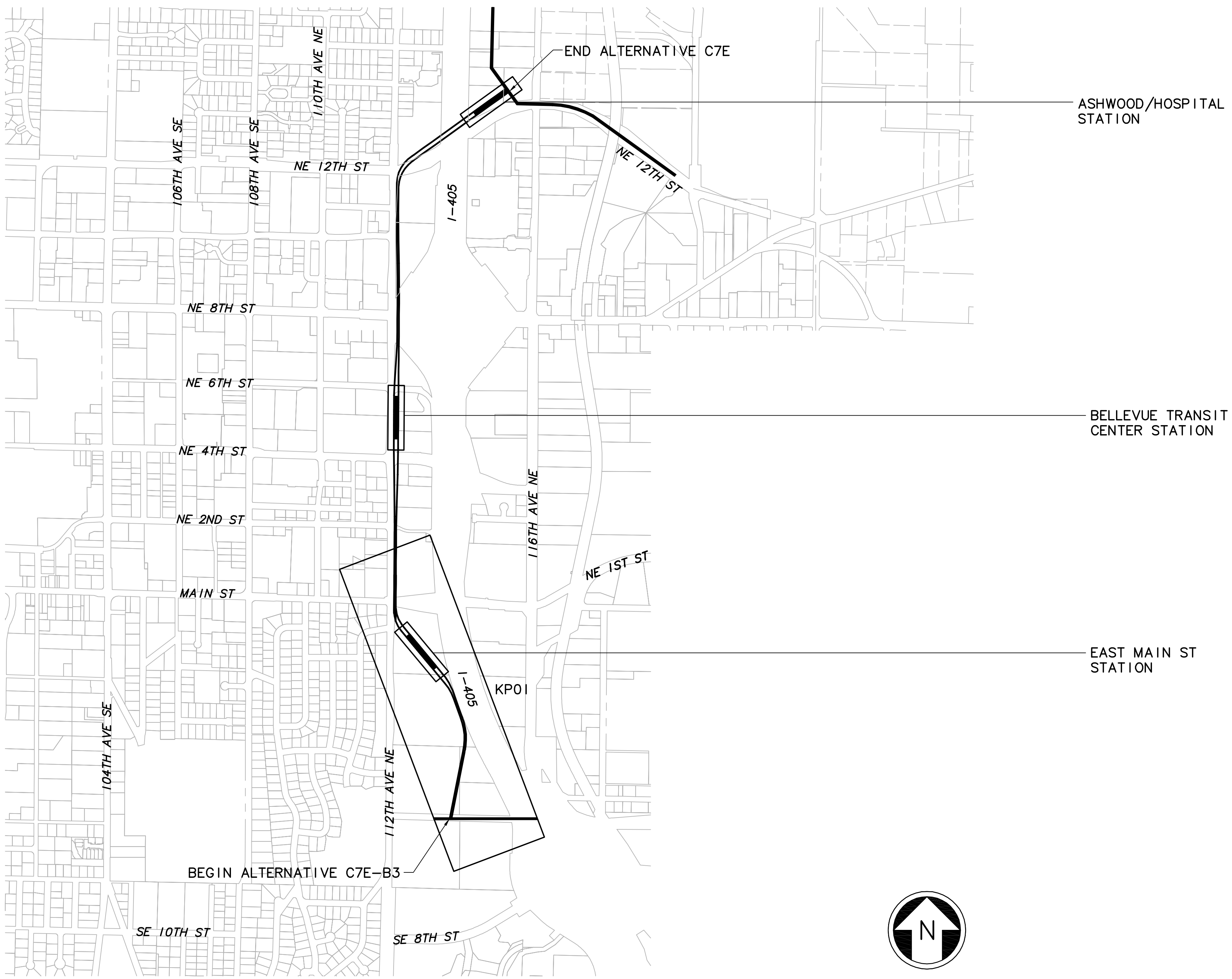
Resolved

ELC_C7E_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
----
key_East

LTSCALE

1=1



END ALTERNATIVE C7E
ASHWOOD/HOSPITAL STATION
110TH AVE NE
106TH AVE SE
108TH AVE SE
NE 12TH ST
I-405
NE 12TH ST
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
116TH AVE NE
NE 2ND ST
NE 1ST ST
MAIN ST
EAST MAIN ST STATION
I-405
KP01
104TH AVE SE
112TH AVE NE
BEGIN ALTERNATIVE C7E-B3
SE 10TH ST
SE 8TH ST
N

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C7E2GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B3 OPTION
ALTERNATIVE C7E

KEY PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: C7E2GZ05
Sheet No.: C-116
Rev.:

XREF'S

Resolved

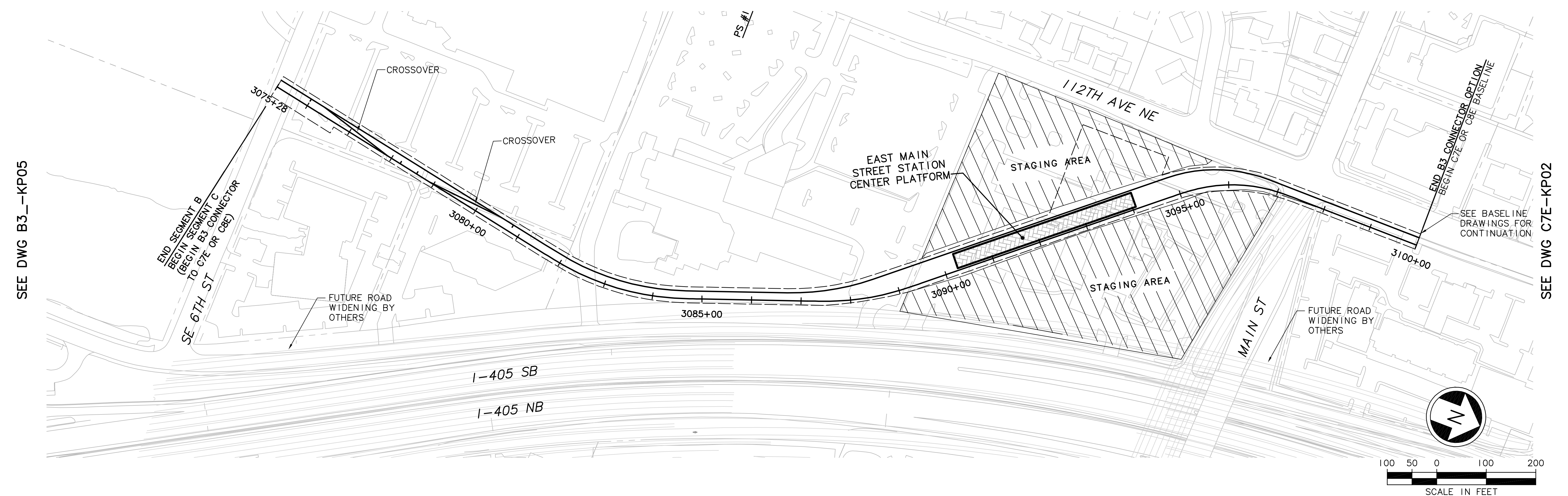
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

Unresolved

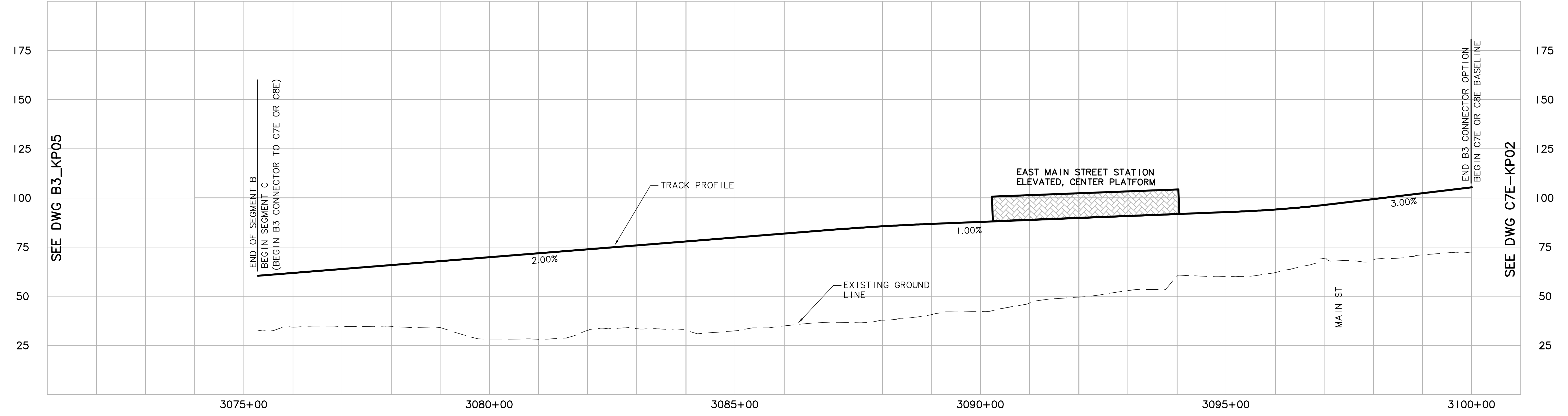
St_Names_E_4
key_East

LTSCALE

1=1



SEE DWG B3_-KP05
SEE DWG C7E-KP02
CROSSOVER
CROSSOVER
PS #1
3075+28
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B3 CONNECTOR
TO C7E OR C8E)
SE 6TH ST
3080+00
3085+00
3090+00
3095+00
3100+00
112TH AVE NE
EAST MAIN
STREET STATION
CENTER PLATFORM
STAGING AREA
STAGING AREA
END B3 CONNECTOR OPTION
BEGIN C7E OR C8E BASELINE
SEE BASELINE
DRAWINGS FOR
CONTINUATION
FUTURE ROAD
WIDENING BY
OTHERS
FUTURE ROAD
WIDENING BY
OTHERS
MAIN ST
I-405 SB
I-405 NB
N
100 50 0 100 200
SCALE IN FEET



SEE DWG B3_KP05
SEE DWG C7E-KP02
175
150
125
100
75
50
25
END OF SEGMENT B
BEGIN SEGMENT C
(BEGIN B3 CONNECTOR TO C7E OR C8E)
TRACK PROFILE
2.00%
1.00%
3.00%
EAST MAIN STREET STATION
ELEVATED, CENTER PLATFORM
EXISTING GROUND
LINE
MAIN ST
END B3 CONNECTOR OPTION
BEGIN C7E OR C8E BASELINE
3075+00
3080+00
3085+00
3090+00
3095+00
3100+00

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No.	Date	Dsn.	Chk.	App.	Revisions

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C7E2KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B3 OPTION
ALTERNATIVE C7E

TRACK PLAN & PROFILE

THIS PRINT REDUCED * HALF SCALE

Drawing No.:
C7E2KP01

Sheet No.: Rev.:
C-117

XREF'S

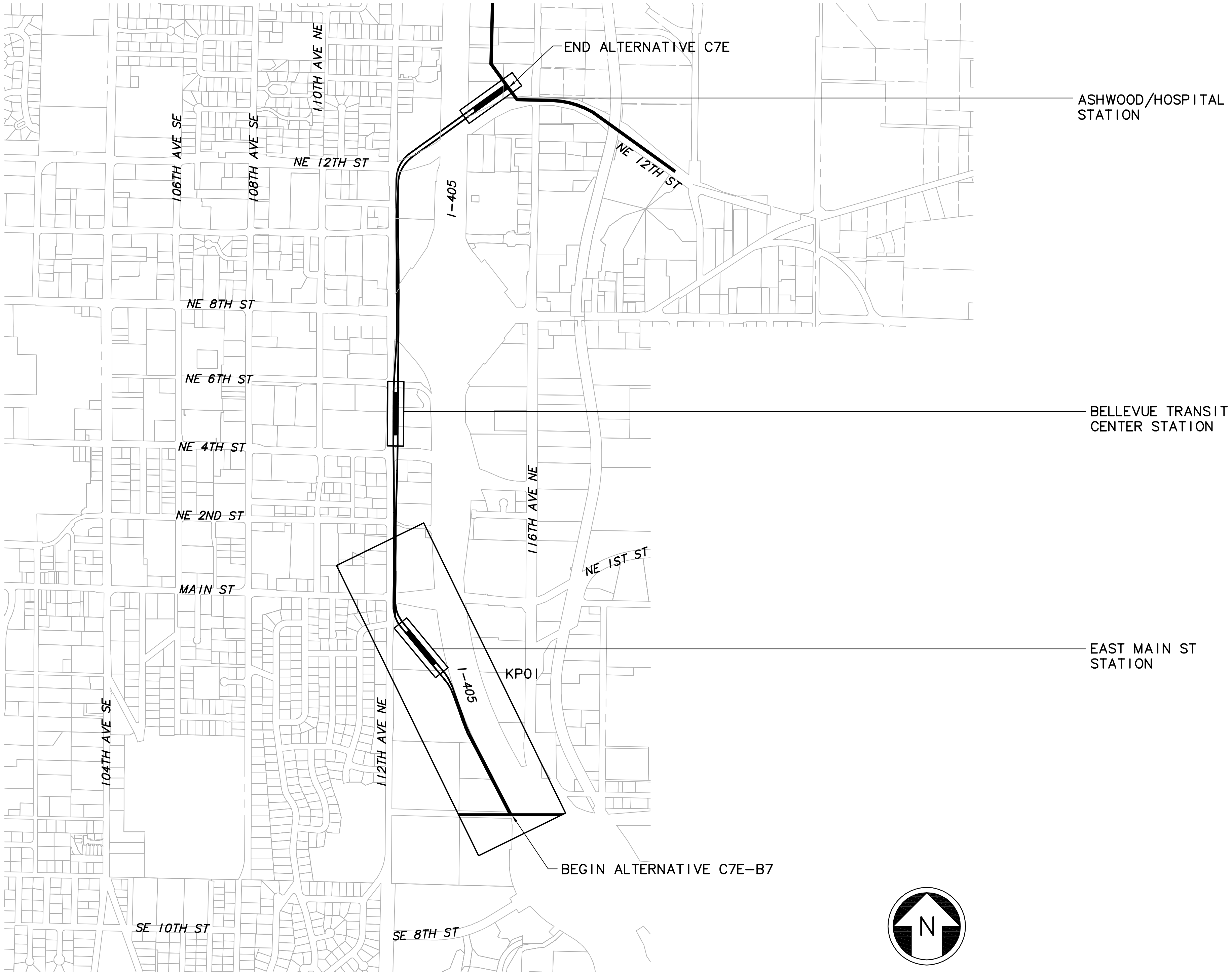
Resolved

ELC_C7E_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
----
key_East

LTSCALE

1=1



END ALTERNATIVE C7E
ASHWOOD/HOSPITAL STATION
106TH AVE SE
108TH AVE SE
110TH AVE NE
NE 12TH ST
NE 12TH ST
I-405
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
NE 2ND ST
116TH AVE NE
NE 1ST ST
MAIN ST
EAST MAIN ST STATION
KP01
I-405
104TH AVE SE
112TH AVE NE
BEGIN ALTERNATIVE C7E-B7
SE 10TH ST
SE 8TH ST
N

c:\work\ELC1C7E3GZ05.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C7E3GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B7 OPTION
ALTERNATIVE C7E

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C7E3GZ05
Sheet No.: C-118
Rev.:

XREF'S

Resolved

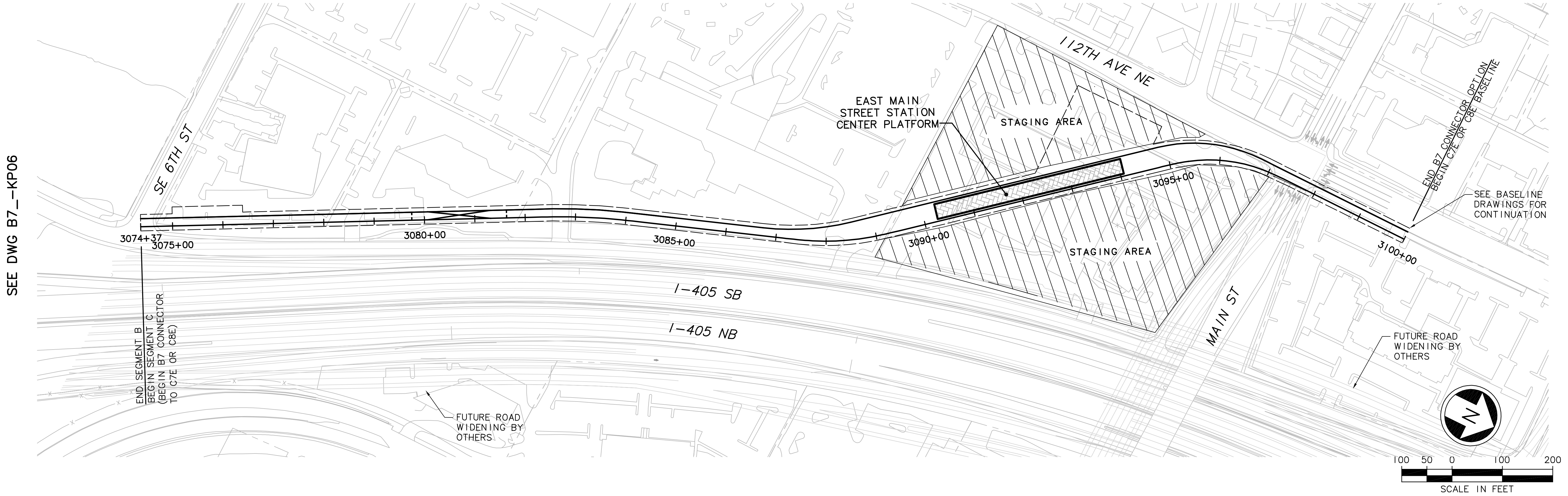
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf

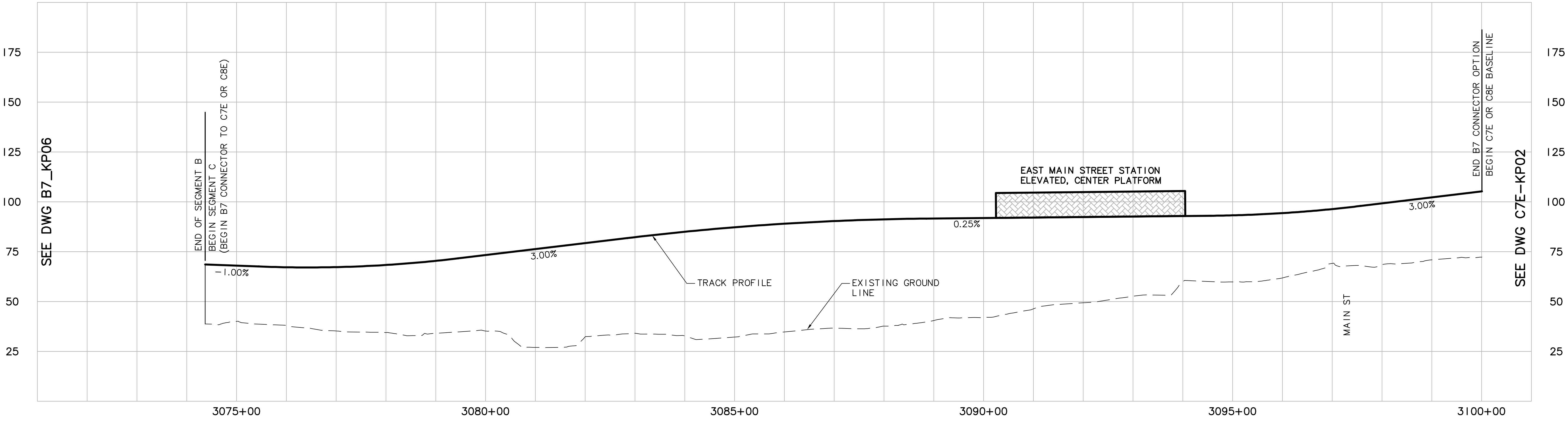
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


SEE DWG B7_-KP06
SE 6TH ST
112TH AVE NE
EAST MAIN STREET STATION CENTER PLATFORM
STAGING AREA
STAGING AREA
END B7 CONNECTOR OPTION BEGIN C7E OR C8E BASELINE
SEE BASELINE DRAWINGS FOR CONTINUATION
SEE DWG C7E-KP02
3074+37
3075+00
3080+00
3085+00
3090+00
3095+00
3100+00
I-405 SB
I-405 NB
MAIN ST
END SEGMENT B BEGIN SEGMENT C (BEGIN B7 CONNECTOR TO C7E OR C8E)
FUTURE ROAD WIDENING BY OTHERS
FUTURE ROAD WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET


SEE DWG B7_KP06
SEE DWG C7E-KP02
175
150
125
100
75
50
25
END OF SEGMENT B BEGIN SEGMENT C (BEGIN B7 CONNECTOR TO C7E OR C8E)
EAST MAIN STREET STATION ELEVATED, CENTER PLATFORM
END B7 CONNECTOR OPTION BEGIN C7E OR C8E BASELINE
-1.00%
3.00%
0.25%
3.00%
TRACK PROFILE
EXISTING GROUND LINE
MAIN ST
3075+00
3080+00
3085+00
3090+00
3095+00
3100+00

c:\work\ELC1C7E3KP01.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
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PARSONS & INCA ENGINEERS INC.

Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

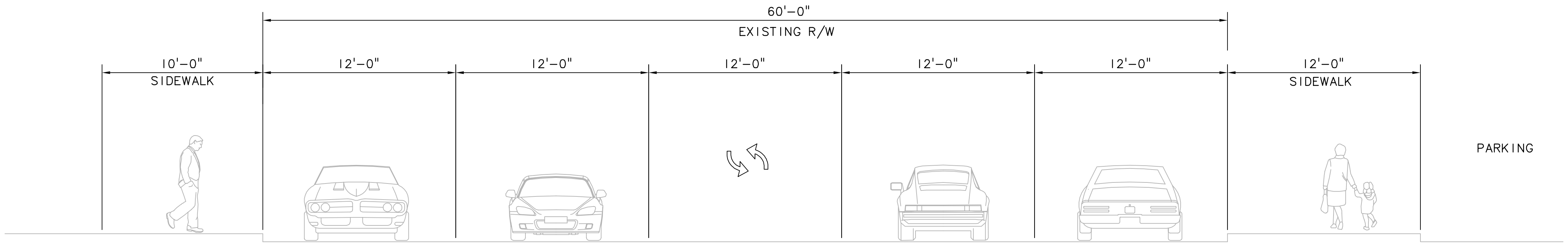
Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C7E3KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C7E-B7 OPTION
ALTERNATIVE C7E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

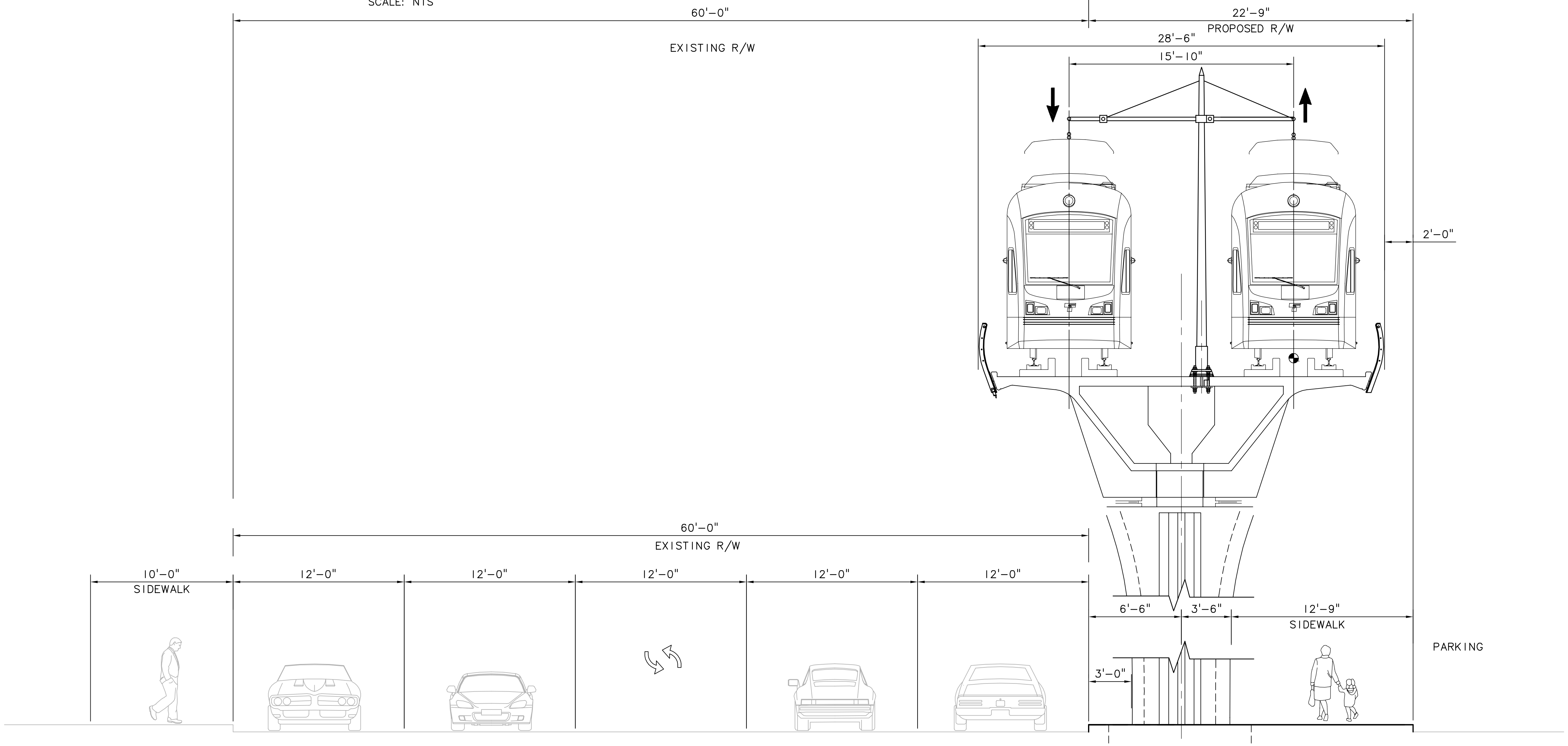
Drawing No.:
C7E3KP01
Sheet No.:
Rev.:
C-119

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


60'-0"
EXISTING R/W
10'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
SIDEWALK
PARKING

EXISTING ROADWAY SECTION – 112TH AVE NE, NORTH OF MAIN ST

SCALE: NTS


60'-0"
EXISTING R/W
22'-9"
PROPOSED R/W
28'-6"
15'-10"
2'-0"
60'-0"
EXISTING R/W
10'-0"
SIDEWALK
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
6'-6"
3'-6"
12'-9"
SIDEWALK
3'-0"
PARKING

PROPOSED ROADWAY & LRT SECTION – 112TH AVE NE, NORTH OF MAIN STREET
ALIGNMENT: C7E TO B2E CONNECTOR OPTION
TRACK TYPE: ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELC1C7E_KX01.dwg
10/16/08 10:24 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELC1C7E_KX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C7E
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: C7E–KX01
Sheet No.: C-120
Rev.:

XREF'S

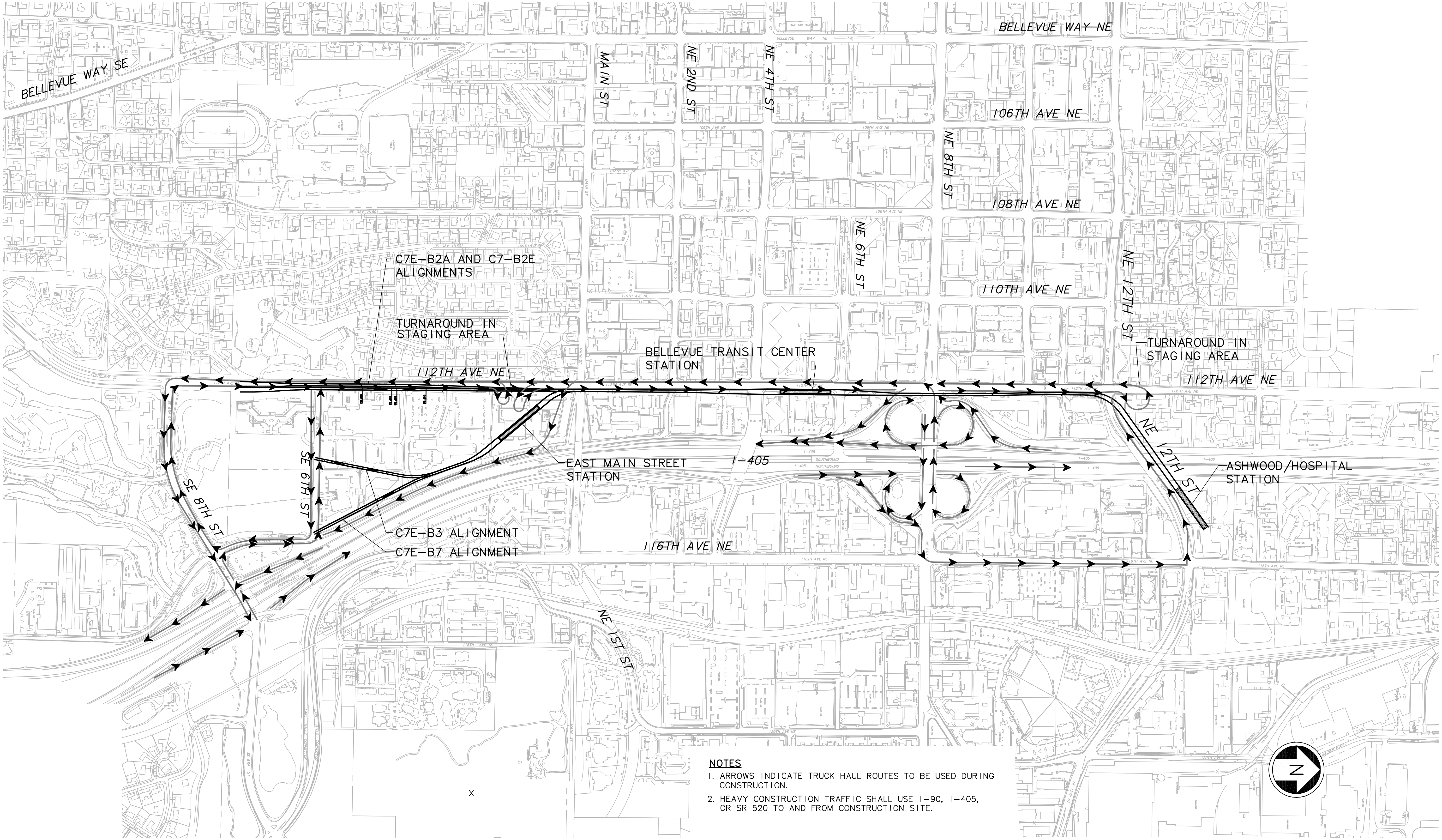
Resolved

ELC_C7E_KA
REG-DCON
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0825rx
x0825sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf

Unresolved

LTSCALE

1=1


BELLEVUE WAY SE
BELLEVUE WAY NE
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
NE 12TH ST
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
SE 6TH ST
SE 8TH ST
NE 1ST ST
I-405
C7E-B2A AND C7-B2E ALIGNMENTS
TURNAROUND IN STAGING AREA
BELLEVUE TRANSIT CENTER STATION
TURNAROUND IN STAGING AREA
EAST MAIN STREET STATION
ASHWOOD/HOSPITAL STATION
C7E-B3 ALIGNMENT
C7E-B7 ALIGNMENT
N
1
2
3
4
5

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

No.	Date	Dsn.	Chk.	App.	Revisions

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Scale: NTS
Filename: ELC1C7E_CC01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C7E

CONSTRUCTION TRUCK HAUL ROUTE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C7E-CC01
Sheet No.: C-121
Rev.:

c:\work\ELC1C7E_CC01.dwg
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XREF'S

Resolved

ELC_C8E_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
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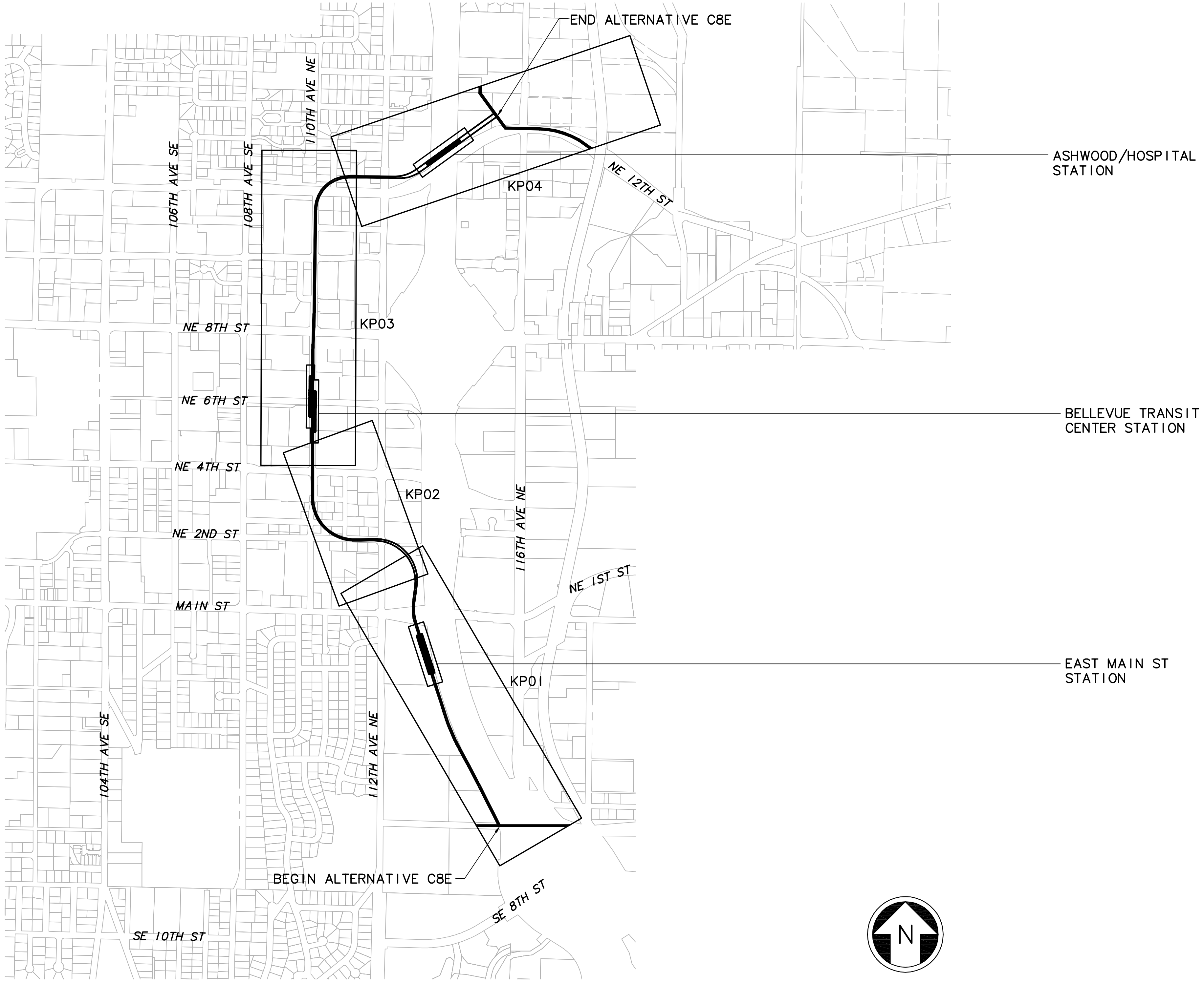
key_East

LTSCALE

1=1


END ALTERNATIVE C8E
ASHWOOD/HOSPITAL STATION
KP04
NE 12TH ST
110TH AVE NE
106TH AVE SE
108TH AVE SE
KP03
NE 8TH ST
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
NE 4TH ST
KP02
NE 2ND ST
116TH AVE NE
NE 1ST ST
MAIN ST
EAST MAIN ST STATION
KP01
104TH AVE SE
112TH AVE NE
BEGIN ALTERNATIVE C8E
SE 8TH ST
SE 10TH ST
N

c:\work\ELCIC8E_GZ05.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Scale: NTS
Filename: ELCIC8E_GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B7 OPTION
ALTERNATIVE C8E

KEY PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: C8E-GZ05
Sheet No.: C-122
Rev.:

XREF'S

Resolved

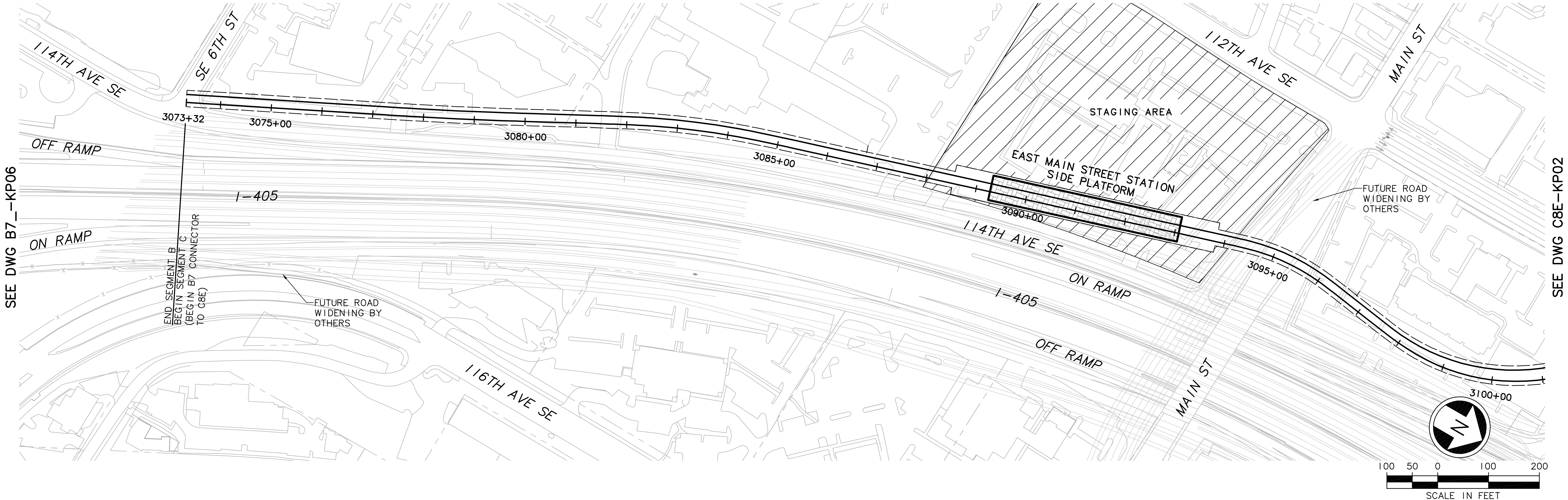
ELC_C8E_CM
ELC_C8E_KA
ELC_1405_P
REG-DCON
ZG-2234H
ZG-G10010
x0525rx
x0525sf
x0528rx
x0528sf

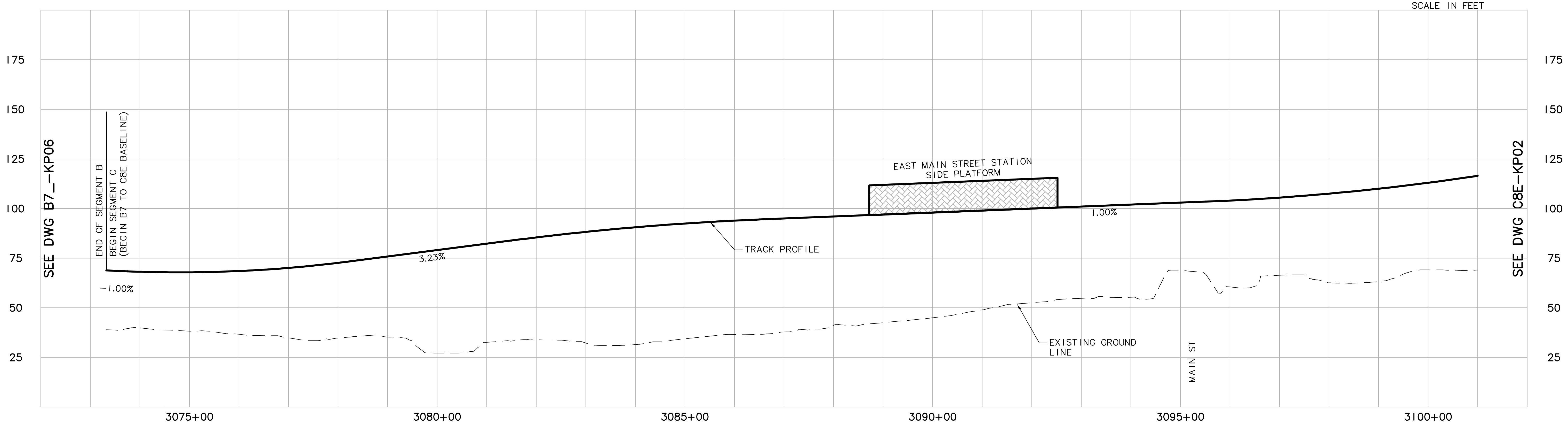
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


SEE DWG B7_-KP06
114TH AVE SE
SE 6TH ST
3073+32
3075+00
3080+00
3085+00
OFF RAMP
I-405
ON RAMP
END SEGMENT B
BEGIN SEGMENT C
(BEGIN B7 CONNECTOR TO C8E)
FUTURE ROAD WIDENING BY OTHERS
116TH AVE SE
STAGING AREA
112TH AVE SE
MAIN ST
EAST MAIN STREET STATION
SIDE PLATFORM
3090+00
114TH AVE SE
ON RAMP
I-405
OFF RAMP
MAIN ST
3095+00
3100+00
FUTURE ROAD WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C8E-KP02



c:\work\ELC1C8E_KP01.dwg
10/16/08 10:25 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C8E_KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B7 OPTION
ALTERNATIVE C8E
TRACK PLAN & PROFILE

THIS PRINT REDUCED
HALF SCALE

Drawing No.:
C8E-KP01
Sheet No.:
Rev.:
C-123

XREF'S

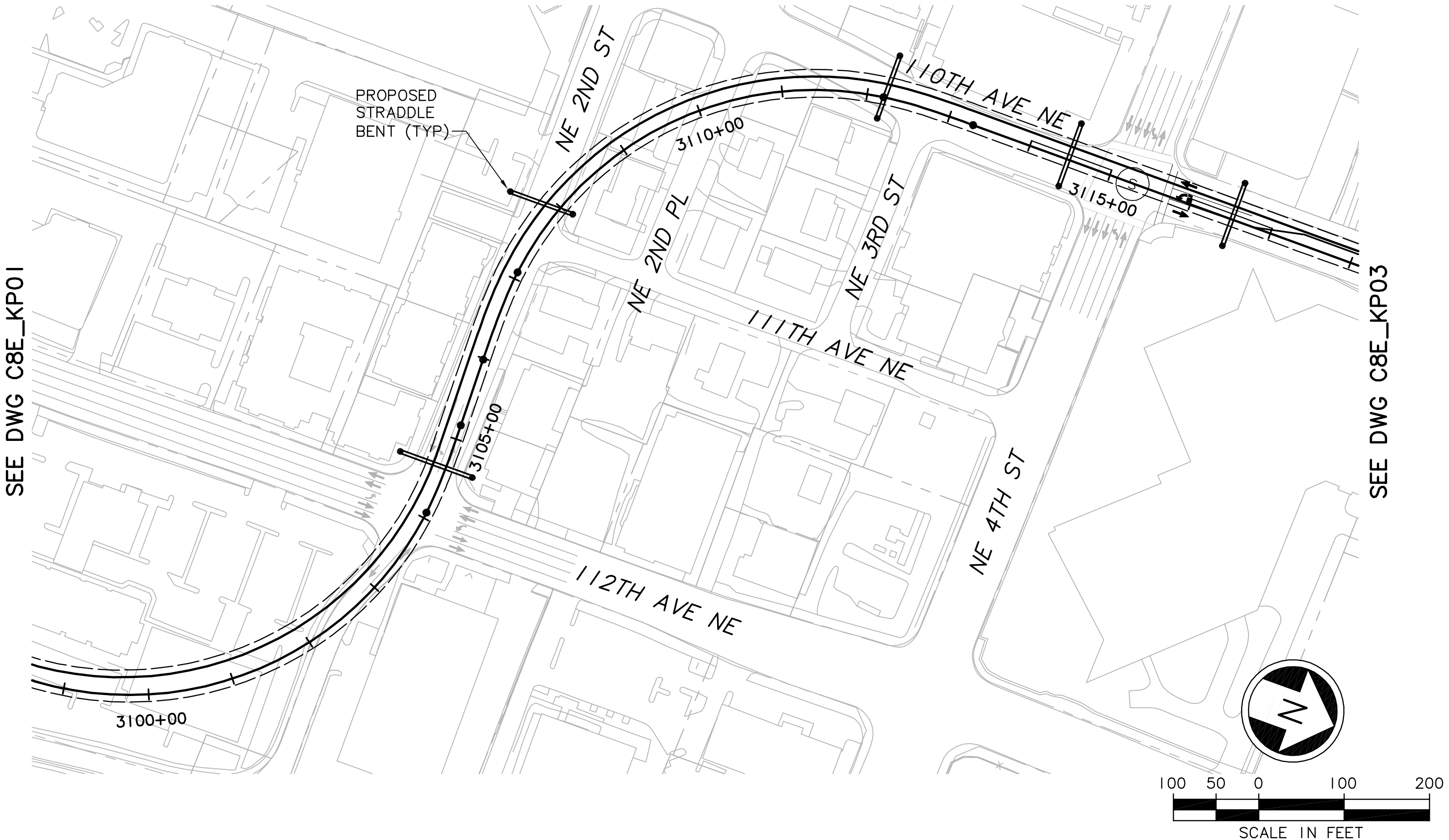
Resolved

ELC_C8E_CM
ELC_C8E_KA
REG-DCON
ZG-2234H
ZG-G10010
x0228rx
x0228sf
x0528rx
x0528sf

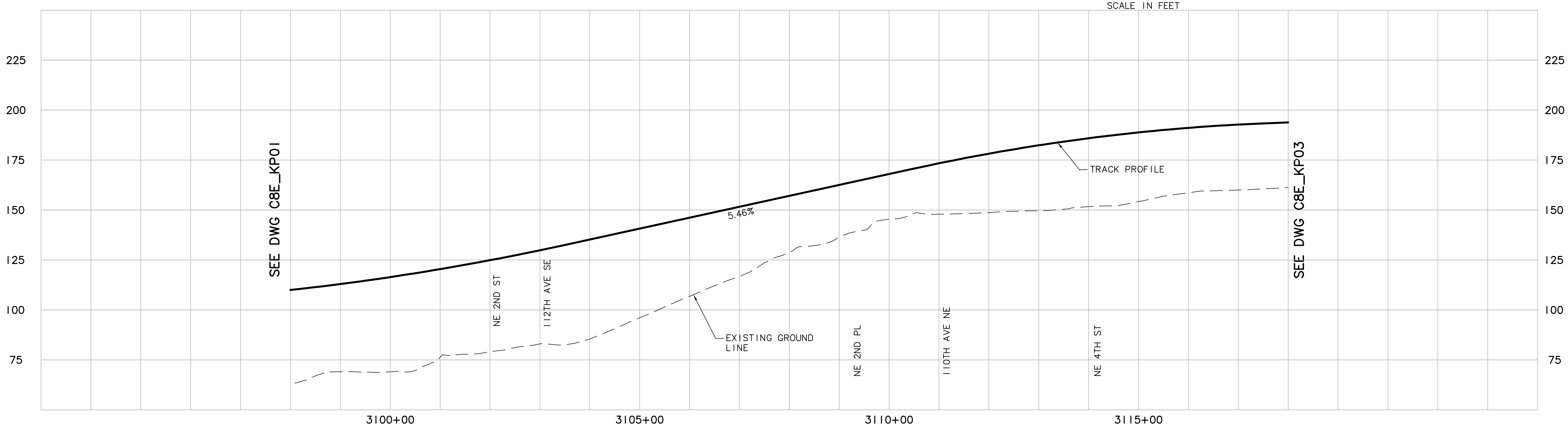
Unresolved
----
key_East

LTSCALE

1=1



SEE DWG C8E_KP01
SEE DWG C8E_KP03
PROPOSED STRADDLE BENT (TYP)
NE 2ND ST
NE 2ND PL
NE 3RD ST
NE 4TH ST
110TH AVE NE
111TH AVE NE
112TH AVE NE
3100+00
3105+00
3110+00
3115+00
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC1C8E_KP02.dwg
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SOUNDTRANSIT

Scale: H: 1"=100'; V: 1"=25'
Filename: ELC1C8E_KP02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B7 (BASELINE)
ALTERNATIVE C8E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C8E-KP02
Sheet No.: C-124
Rev.:

XREF'S

Resolved

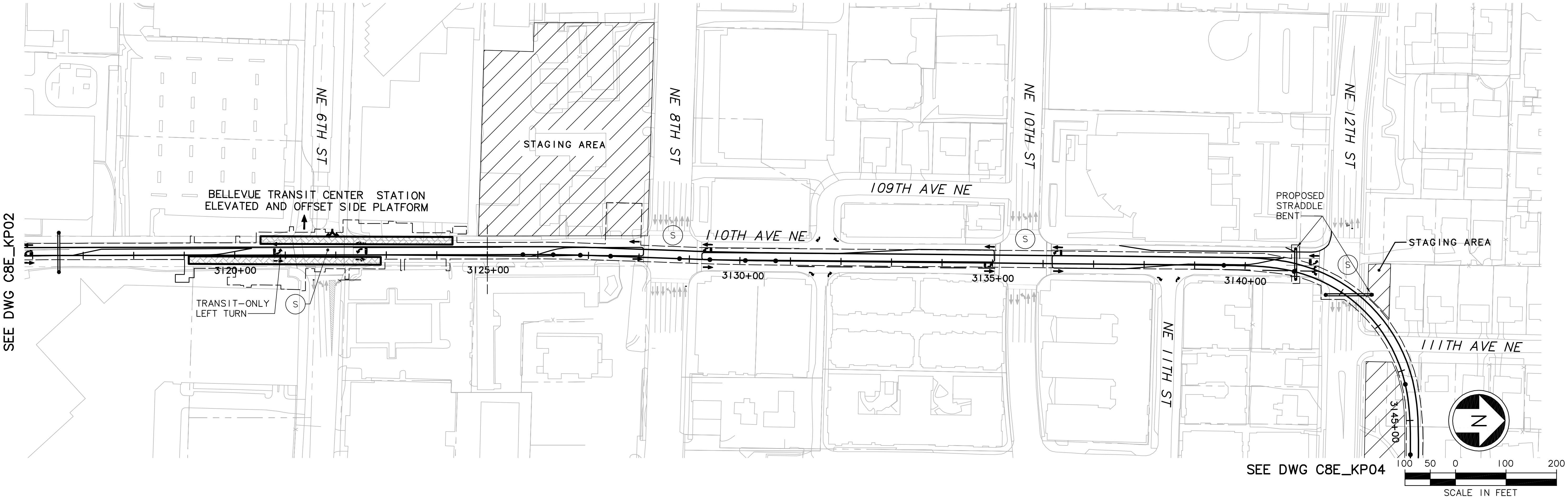
ELC_C8E_CM
ELC_C8E_JO
ELC_C8E_KA
REG-DCON
ZG-2234H
ZG-G10010
key_East
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf

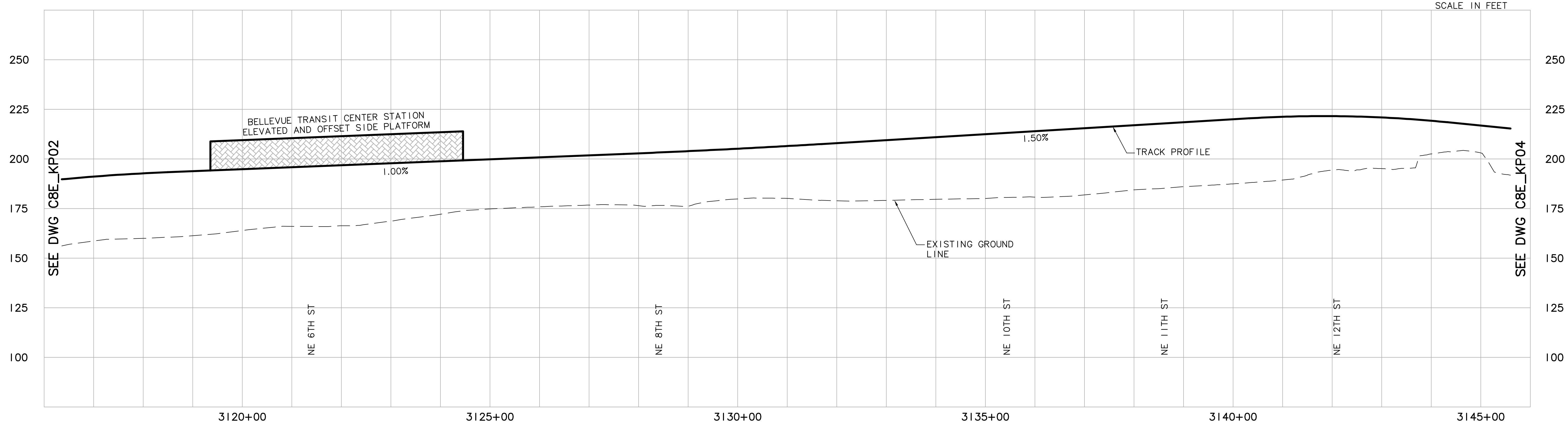
Unresolved

St_Names_E_48

LTSCALE

1=1


SEE DWG C8E_KP02
NE 6TH ST
STAGING AREA
NE 8TH ST
NE 10TH ST
NE 12TH ST
109TH AVE NE
BELLEVUE TRANSIT CENTER STATION
ELEVATED AND OFFSET SIDE PLATFORM
110TH AVE NE
PROPOSED STRADDLE BENT
STAGING AREA
3120+00
3125+00
3130+00
3135+00
3140+00
3145+00
TRANSIT-ONLY LEFT TURN
NE 11TH ST
111TH AVE NE
N
SEE DWG C8E_KP04
100 50 0 100 200
SCALE IN FEET


250
225
200
175
150
125
100
SEE DWG C8E_KP02
SEE DWG C8E_KP04
BELLEVUE TRANSIT CENTER STATION
ELEVATED AND OFFSET SIDE PLATFORM
1.00%
1.50%
TRACK PROFILE
EXISTING GROUND LINE
NE 6TH ST
NE 8TH ST
NE 10TH ST
NE 11TH ST
NE 12TH ST
3120+00
3125+00
3130+00
3135+00
3140+00
3145+00

c:\work\ELC\C8E_KP03.dwg
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Scale: H: 1"=100'; V: 1"=25'
Filename: ELC\C8E_KP03.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B7 (BASELINE)
ALTERNATIVE C8E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: C8E-KP03
Sheet No.: C-125
Rev.:

XREF'S

Resolved

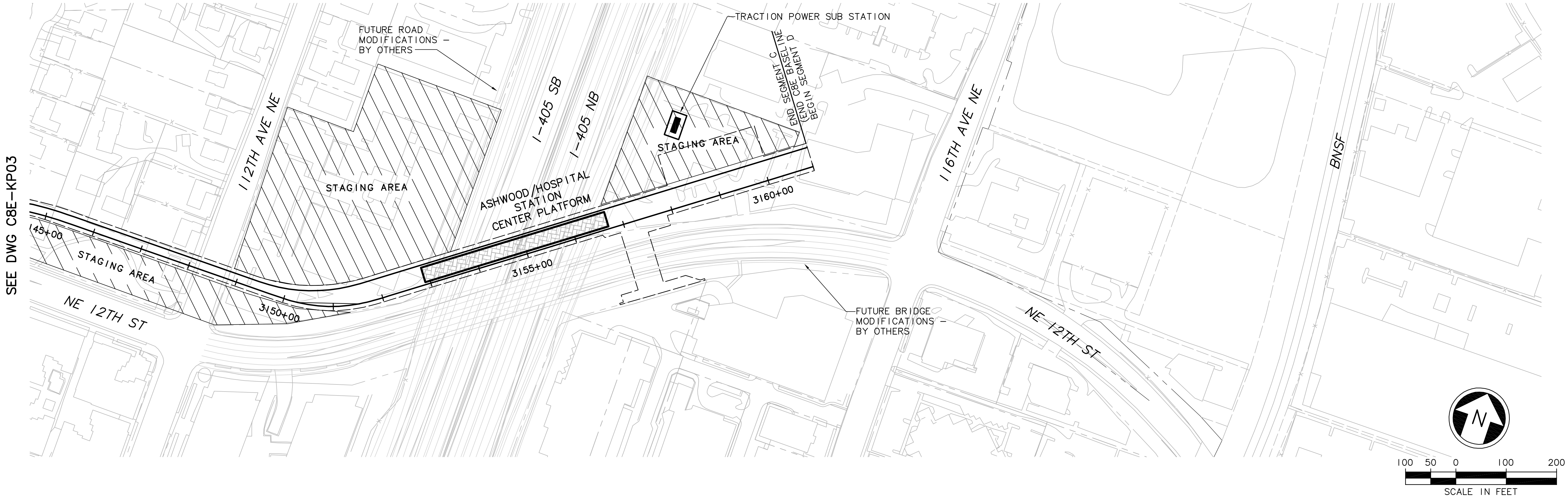
ELC_C8E_CM
ELC_C8E_JO
ELC_C8E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0831rx
x0831sf
x0831ut

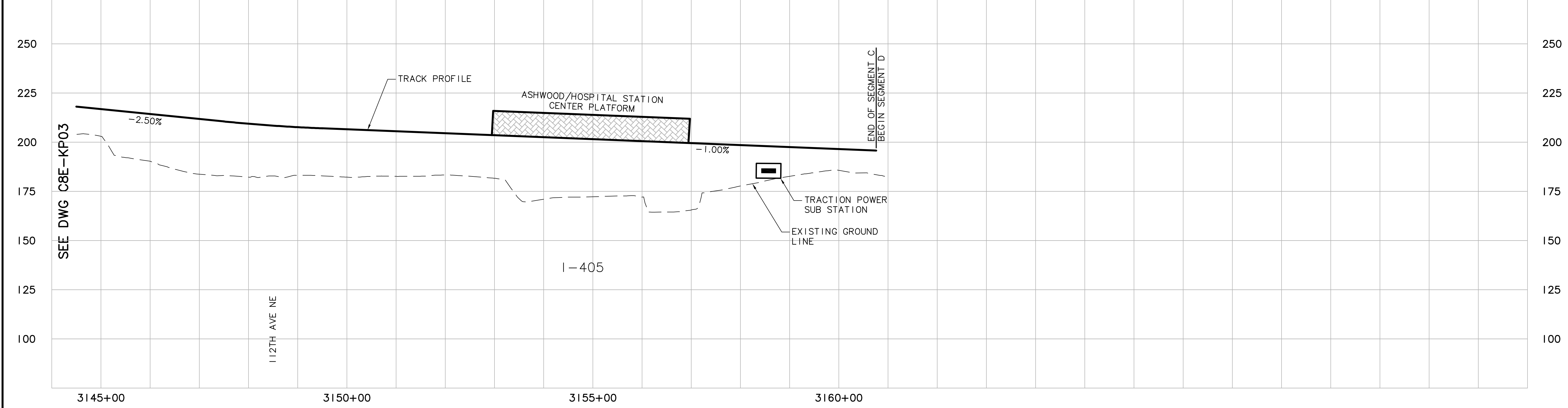
Unresolved

St_Names_E_40
key_East

LTSCALE

1=1


SEE DWG C8E-KP03
FUTURE ROAD MODIFICATIONS - BY OTHERS
112TH AVE NE
STAGING AREA
I-405 SB
I-405 NB
ASHWOOD/HOSPITAL STATION CENTER PLATFORM
TRACTION POWER SUB STATION
STAGING AREA
END SEGMENT C (END C8E BASELINE) BEGIN SEGMENT D
116TH AVE NE
BNSF
3145+00
STAGING AREA
NE 12TH ST
3150+00
3155+00
3160+00
FUTURE BRIDGE MODIFICATIONS - BY OTHERS
NE 12TH ST
N
100 50 0 100 200
SCALE IN FEET


SEE DWG C8E-KP03
250
225
200
175
150
125
100
TRACK PROFILE
-2.50%
ASHWOOD/HOSPITAL STATION CENTER PLATFORM
-1.00%
END OF SEGMENT C BEGIN SEGMENT D
TRACTION POWER SUB STATION
EXISTING GROUND LINE
I-405
112TH AVE NE
3145+00
3150+00
3155+00
3160+00

c:\work\ELC1C8E_KP04.dwg
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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC1C8E_KP04.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B7 (BASELINE)
ALTERNATIVE C8E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C8E-KP04
Sheet No.:
C-126
Rev.:

XREF'S

Resolved

ELC_C8E_KA
REG-DCON
ZG-2234H
x0222rx
x0225rx
x0228rx
x0231rx
x0522rx
x0525rx
x0528rx
x0531rx
x0534rx
x0831rx
x0834rx

Unresolved
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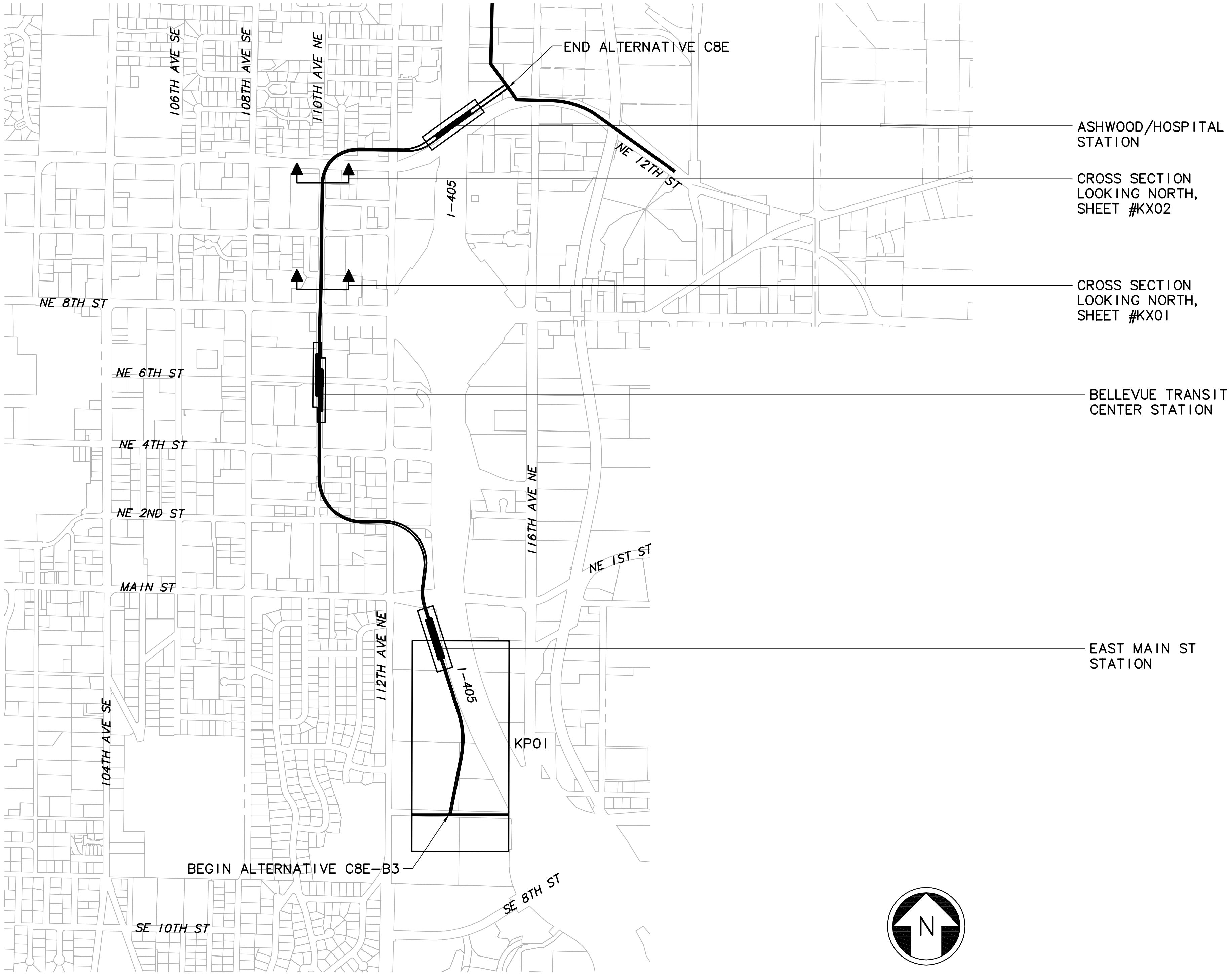
key_East

LTSCALE

1=1



END ALTERNATIVE C8E
ASHWOOD/HOSPITAL STATION
CROSS SECTION LOOKING NORTH, SHEET #KX02
CROSS SECTION LOOKING NORTH, SHEET #KX01
BELLEVUE TRANSIT CENTER STATION
EAST MAIN ST STATION
KP01
BEGIN ALTERNATIVE C8E-B3
106TH AVE SE
108TH AVE SE
110TH AVE NE
NE 12TH ST
I-405
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
116TH AVE NE
NE 1ST ST
112TH AVE NE
104TH AVE SE
SE 8TH ST
SE 10TH ST
N

c:\work\ELC\C8EIGZ05.dwg
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SOUNDTRANSIT

Scale: NTS
Filename: ELC1C8E1GZ05.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B3 OPTION
ALTERNATIVE C8E

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C8E1GZ05
Sheet No.: C-127
Rev.:

XREF'S

Resolved

ELC_C8E_KA
ELC_I405_P
REG-DCON
ZG-2234H
ZG-G10010
x0525rx
x0525sf
x0528rx
x0528sf

Unresolved
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key_East

LTSCALE

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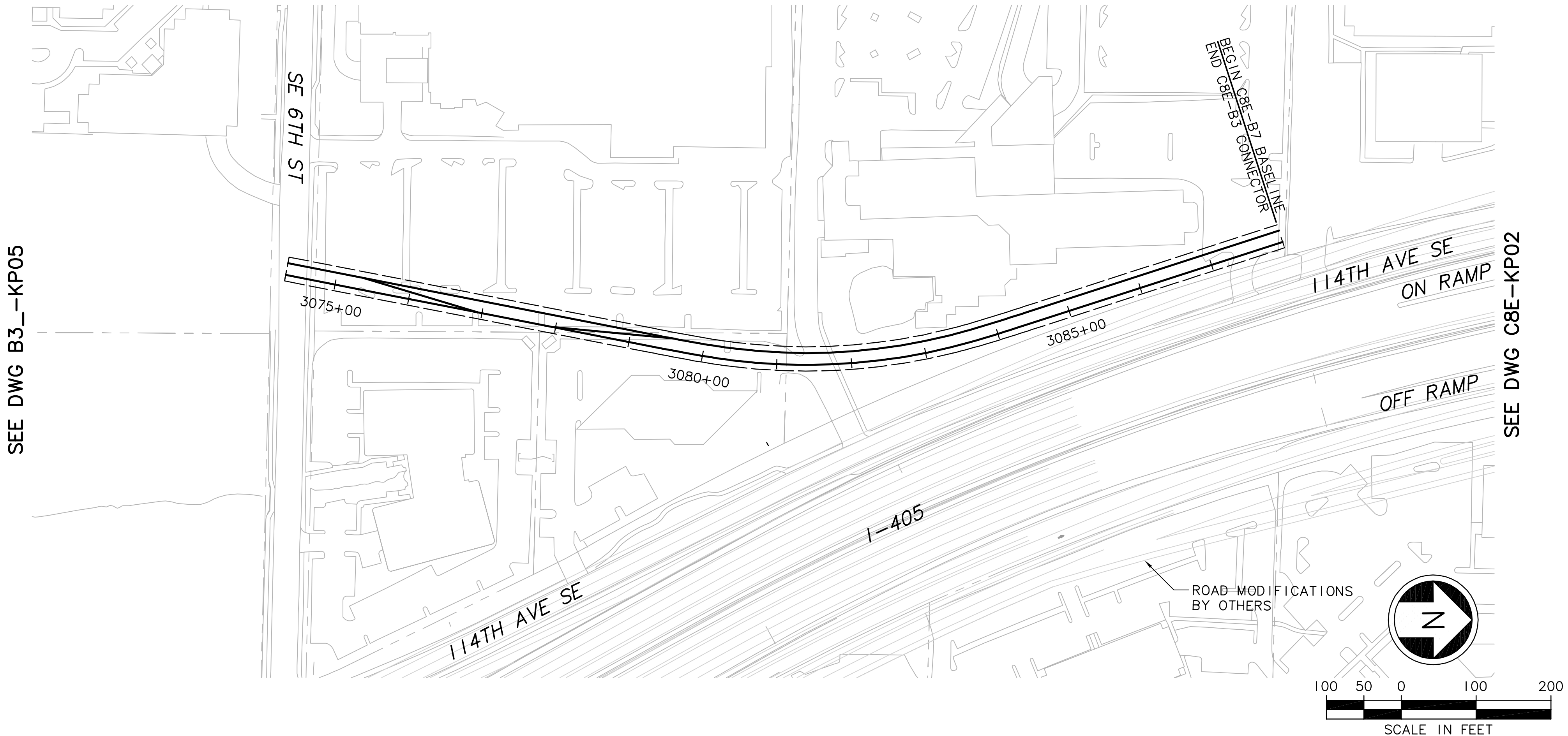
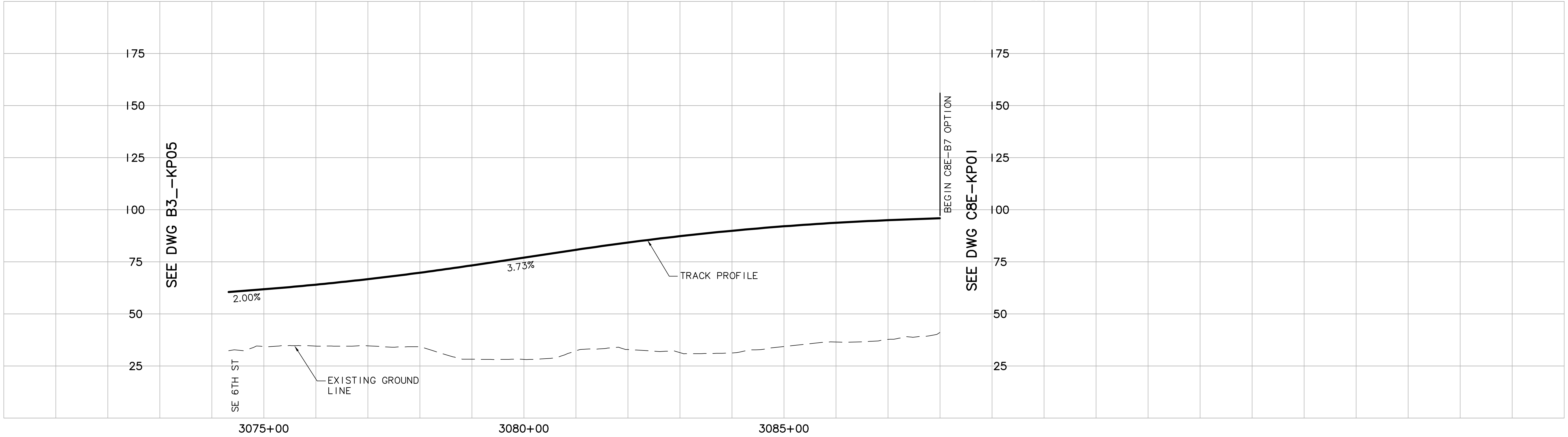

SEE DWG B3_-KP05
SE 6TH ST
BEGIN C8E-B7 BASELINE
END C8E-B3 CONNECTOR
3075+00
3080+00
3085+00
114TH AVE SE
ON RAMP
OFF RAMP
SEE DWG C8E-KP02
I-405
ROAD MODIFICATIONS
BY OTHERS
114TH AVE SE
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELC|C8E|KP01.dwg
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Date:

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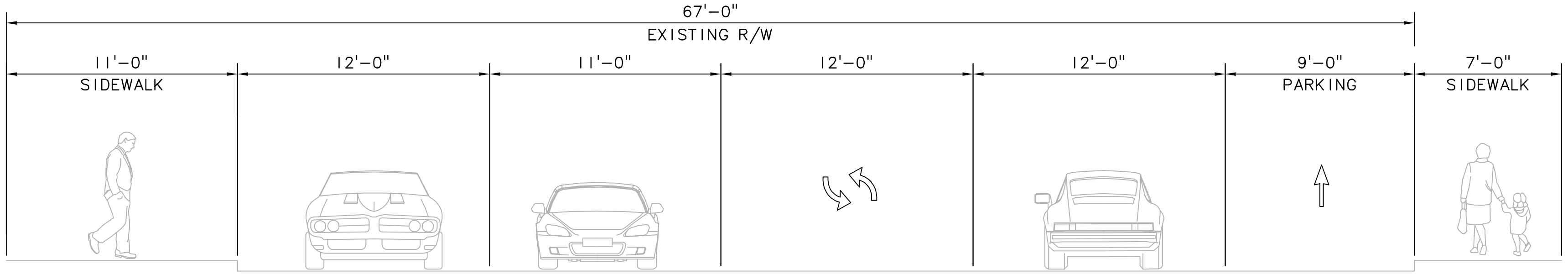
H: 1"=100'; V: 1"=25'
Filename:
ELC1C8E1KP01.dwg
Contract No.:
EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C: C8E-B3 OPTION
ALTERNATIVE C8E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

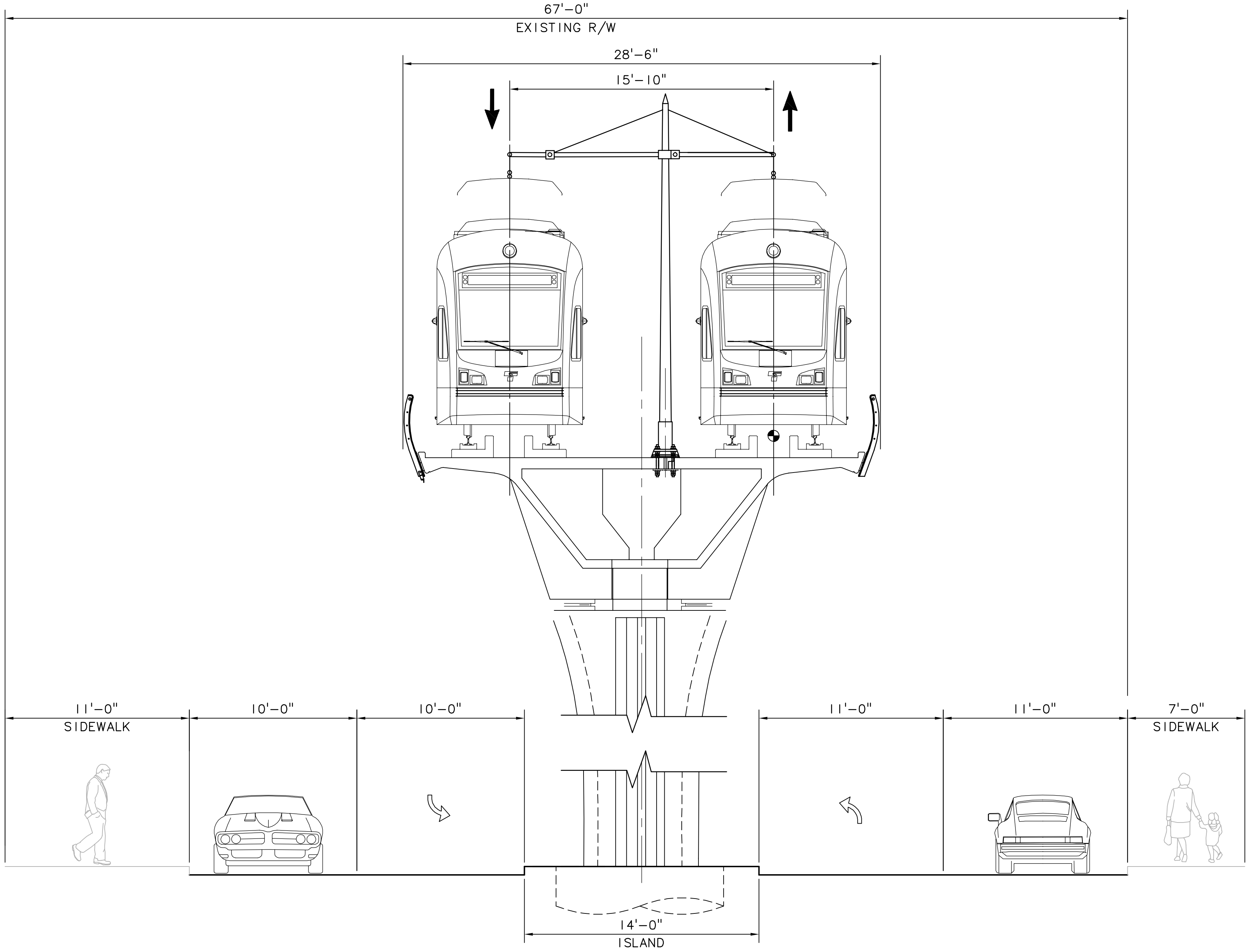
Drawing No.:
C8E1KP01
Sheet No.:
C-128
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


67'-0"
EXISTING R/W
11'-0"
SIDEWALK
12'-0"
11'-0"
12'-0"
12'-0"
9'-0"
PARKING
7'-0"
SIDEWALK

EXISTING SECTION – 110TH AVE NE, JUST NORTH OF NE 8TH ST

SCALE: NTS


67'-0"
EXISTING R/W
28'-6"
15'-10"
11'-0"
SIDEWALK
10'-0"
10'-0"
11'-0"
11'-0"
7'-0"
SIDEWALK
14'-0"
ISLAND

PROPOSED ROADWAY & LRT SECTION – 110TH AVE NE, JUST NORTH OF NE 8TH ST
ALIGNMENT: C8E
TRACK TYPE: ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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SOUNDTRANSIT

Scale: NTS
Filename: ELC1C8E_KX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C8E
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: C8E-KX05
Sheet No.: C-129
Rev.:

XREF'S

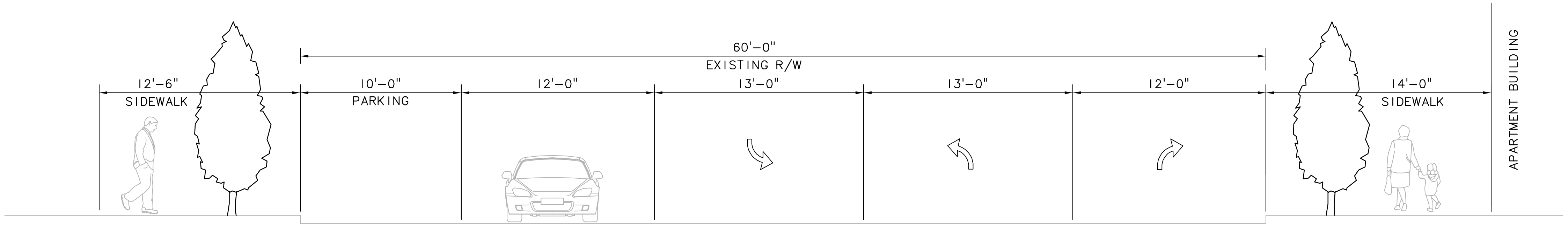
Resolved

REG-DCON
ZG-2234H

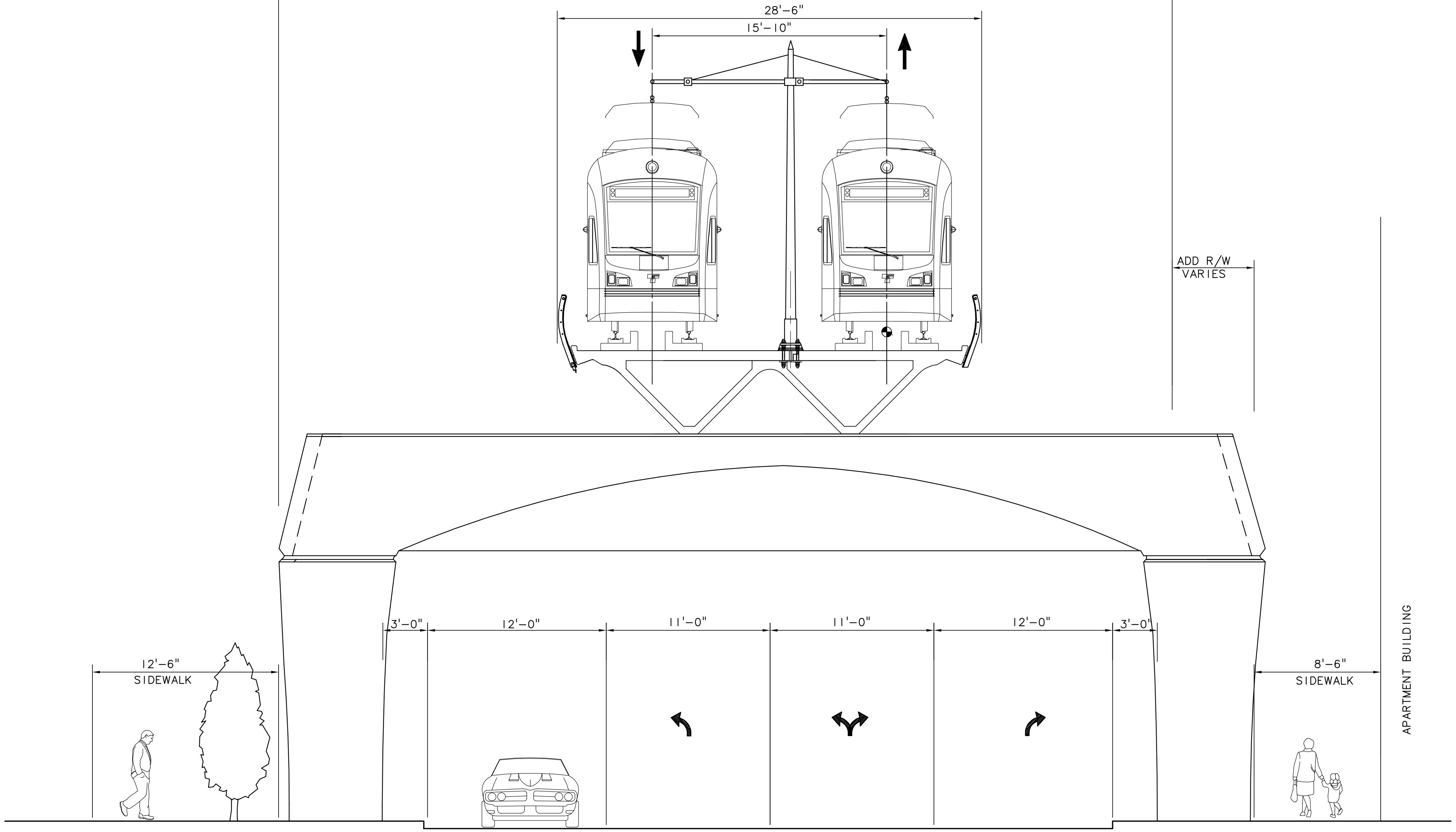
Unresolved

LTSCALE

1=1


60'-0"
EXISTING R/W
12'-6"
SIDEWALK
10'-0"
PARKING
12'-0"
13'-0"
13'-0"
12'-0"
14'-0"
SIDEWALK
APARTMENT BUILDING

EXISTING ROADWAY SECTION – 110TH AVE NE (SOUTH OF NE 12TH ST)
SCALE: NTS


28'-6"
15'-10"
ADD R/W
VARIES
3'-0"
12'-0"
11'-0"
11'-0"
12'-0"
3'-0"
12'-6"
SIDEWALK
8'-6"
SIDEWALK
APARTMENT BUILDING

PROPOSED ROADWAY & LRT SECTION – 110TH AVE NE (SOUTH OF NE 12TH ST)
ALIGNMENT: C8E
TRACK TYPE: ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELCIC8E_KX02.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELCIC8E_KX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C8E
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: C8E-KX06
Sheet No.: C-130
Rev.:

XREF'S

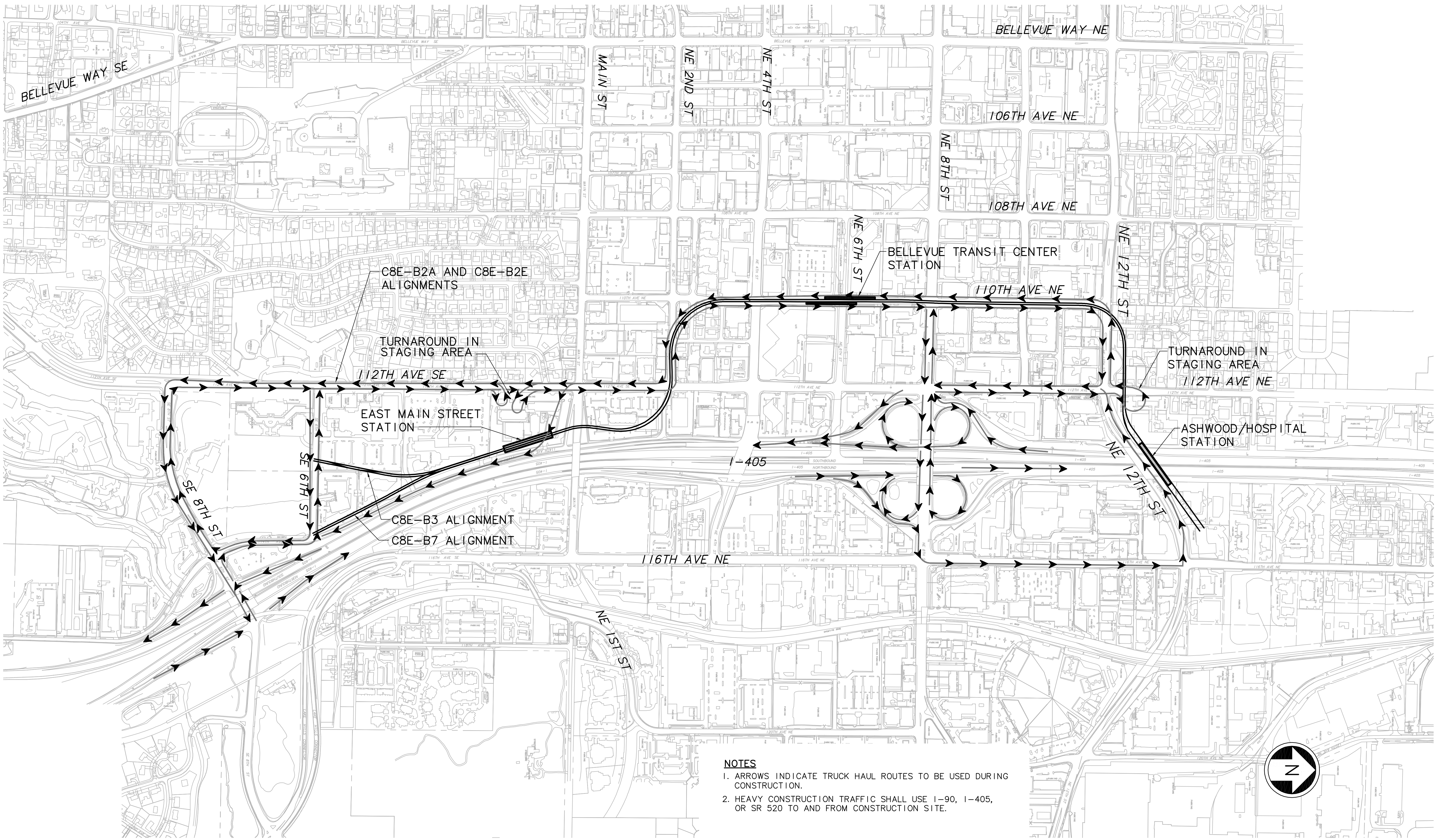
Resolved

ELC_C8E_KA
REG-DCON
ZG-2234H
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
x0231rx
x0231sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0825rx
x0825sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf

Unresolved

LTSCALE

1=1


1
2
3
4
5
BELLEVUE WAY SE
BELLEVUE WAY NE
MAIN ST
NE 2ND ST
NE 4TH ST
106TH AVE NE
NE 8TH ST
108TH AVE NE
NE 6TH ST
BELLEVUE TRANSIT CENTER
STATION
NE 12TH ST
110TH AVE NE
C8E-B2A AND C8E-B2E
ALIGNMENTS
TURNAROUND IN
STAGING AREA
TURNAROUND IN
STAGING AREA
112TH AVE SE
112TH AVE NE
EAST MAIN STREET
STATION
ASHWOOD/HOSPITAL
STATION
I-405
NE 12TH ST
SE 6TH ST
SE 8TH ST
C8E-B3 ALIGNMENT
C8E-B7 ALIGNMENT
116TH AVE NE
NE 1ST ST
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\ELCIC8E_CC01.dwg
10/16/08 10:25 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA ENGINEERS INC.**

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELCIC8E_CC01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C8E

THIS PRINT REDUCED HALF SCALE

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: C8E-CC01
Sheet No.: C-131
Rev.:

XREF'S

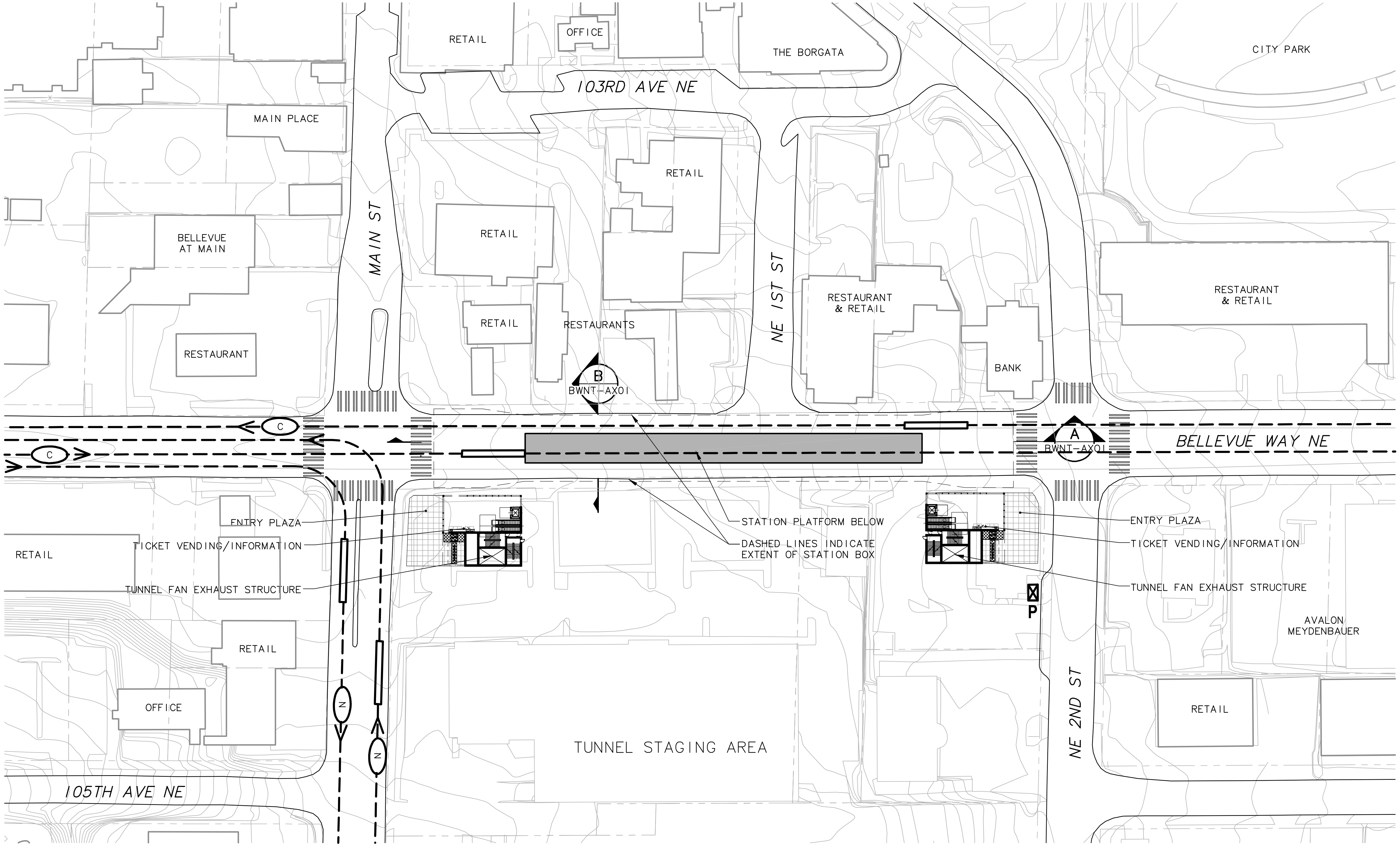
Resolved

ELC_BUSRTS_1
ELC_BWNTAG_A
ELC_BWNTAS_1
ELC_CIT_CM
ELC_CIT_KA
REG-DCON
X0228CN
X0228SF
ZG-2234H
x0228rx

Unresolved

LTSCALE

1=1



RETAIL
OFFICE
THE BORGATA
CITY PARK
103RD AVE NE
MAIN PLACE
RETAIL
BELLEVUE AT MAIN
MAIN ST
RETAIL
NE 1ST ST
RESTAURANT & RETAIL
RESTAURANT & RETAIL
RETAIL
RESTAURANTS
RESTAURANT
BANK
B
BWNT-AX01
C
A
BWNT-AX01
C
BELLEVUE WAY NE
ENTRY PLAZA
TICKET VENDING/INFORMATION
TUNNEL FAN EXHAUST STRUCTURE
STATION PLATFORM BELOW
DASHED LINES INDICATE EXTENT OF STATION BOX
ENTRY PLAZA
TICKET VENDING/INFORMATION
TUNNEL FAN EXHAUST STRUCTURE
RETAIL
P
AVALON MEYDENBAUER
RETAIL
OFFICE
N
N
TUNNEL STAGING AREA
NE 2ND ST
RETAIL
105TH AVE NE

NOTES/LEGEND HEADING

1. ALIGNMENT CIT

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
(C)	BUS ROUTE: 532, 535
(N)	BUS ROUTE: 222
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼	TRACK

STATION ACCESS PLAN

SCALE: 1"=50'

N

50 25 0 50 100

SCALE IN FEET

c:\work\ELC1BWNT_AS01.dwg
10/16/08 09:50 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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CH2MHILL
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PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:

Date:

Approved:

Date:

Scale: 1"=50'

Filename: ELC1BWNT_AS01.dwg

Contract No.: EL SEG_C

Date:

EAST LINK PROJECT
SEGMENT C

THIS PRINT REDUCED
HALF SCALE

OLD BELLEVUE STATION
BELLEVUE WAY ALTERNATIVE (CIT)
STATION ACCESS PLAN

Drawing No.: BWNT-AS01

Sheet No.: C-132

Rev.:

XREF'S

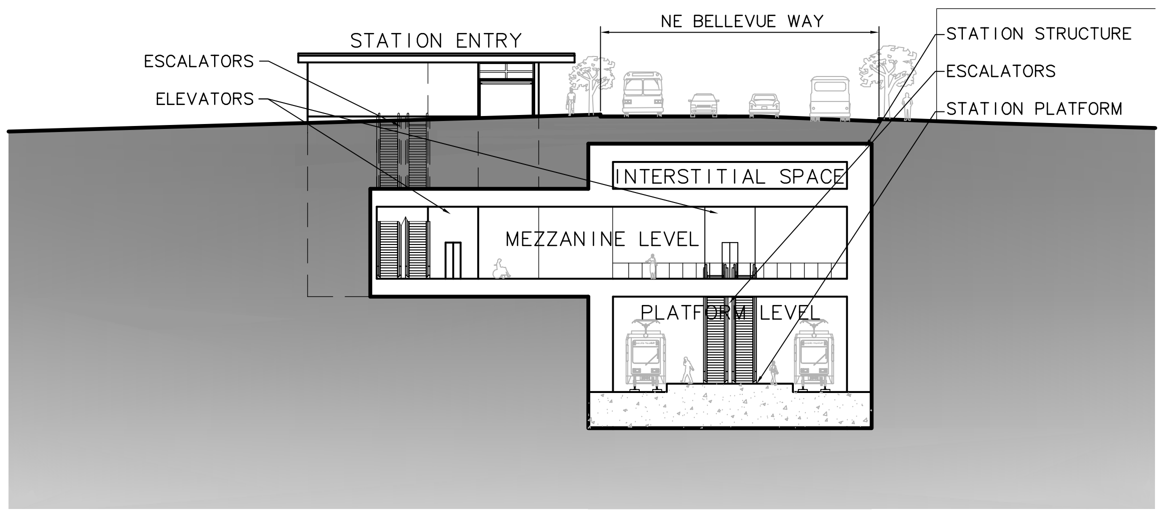
Resolved

ELC_BWNTAX_A
REG-DCON
ZG-2234H

Unresolved

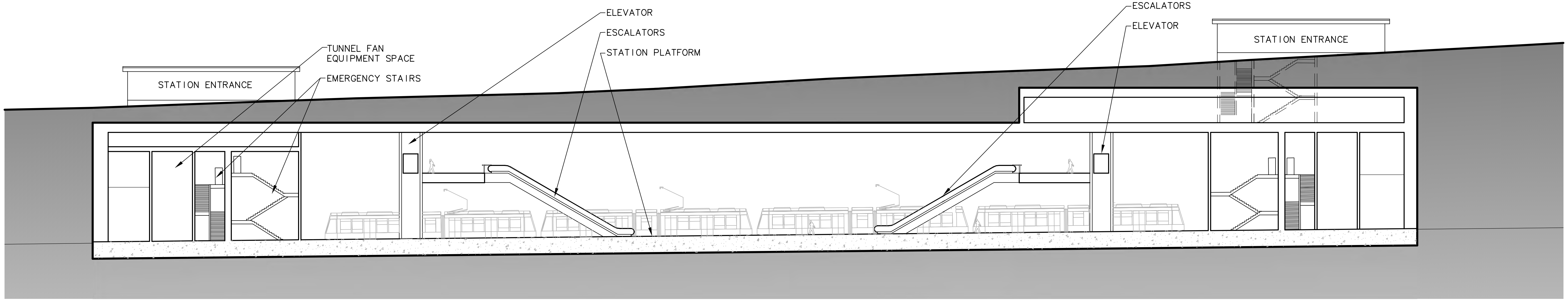
LTSCALE

1=1



ESCALATORS
ELEVATORS
STATION ENTRY
NE BELLEVUE WAY
STATION STRUCTURE
ESCALATORS
STATION PLATFORM
INTERSTITIAL SPACE
MEZZANINE LEVEL
PLATFORM LEVEL

CROSS SECTION B
SCALE: 1"=20' BWNT-AS01



ELEVATOR
ESCALATORS
STATION PLATFORM
ESCALATORS
ELEVATOR
STATION ENTRANCE
TUNNEL FAN
EQUIPMENT SPACE
EMERGENCY STAIRS
STATION ENTRANCE

SECTION A
SCALE: 1"=20' BWNT-AS01

20 10 0 20 40
SCALE IN FEET

c:\work\ELC1BWNT_AX01.dwg
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HEWITT

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Submitted:
Date:
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Date:

Scale: 1"=20'
Filename: ELC1BWNT_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

OLD BELLEVUE STATION
BELLEVUE WAY ALTERNATIVE (C1T)
CROSS SECTION & SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BWNT-AX01
Sheet No.: C-133
Rev.:

XREF'S

Resolved

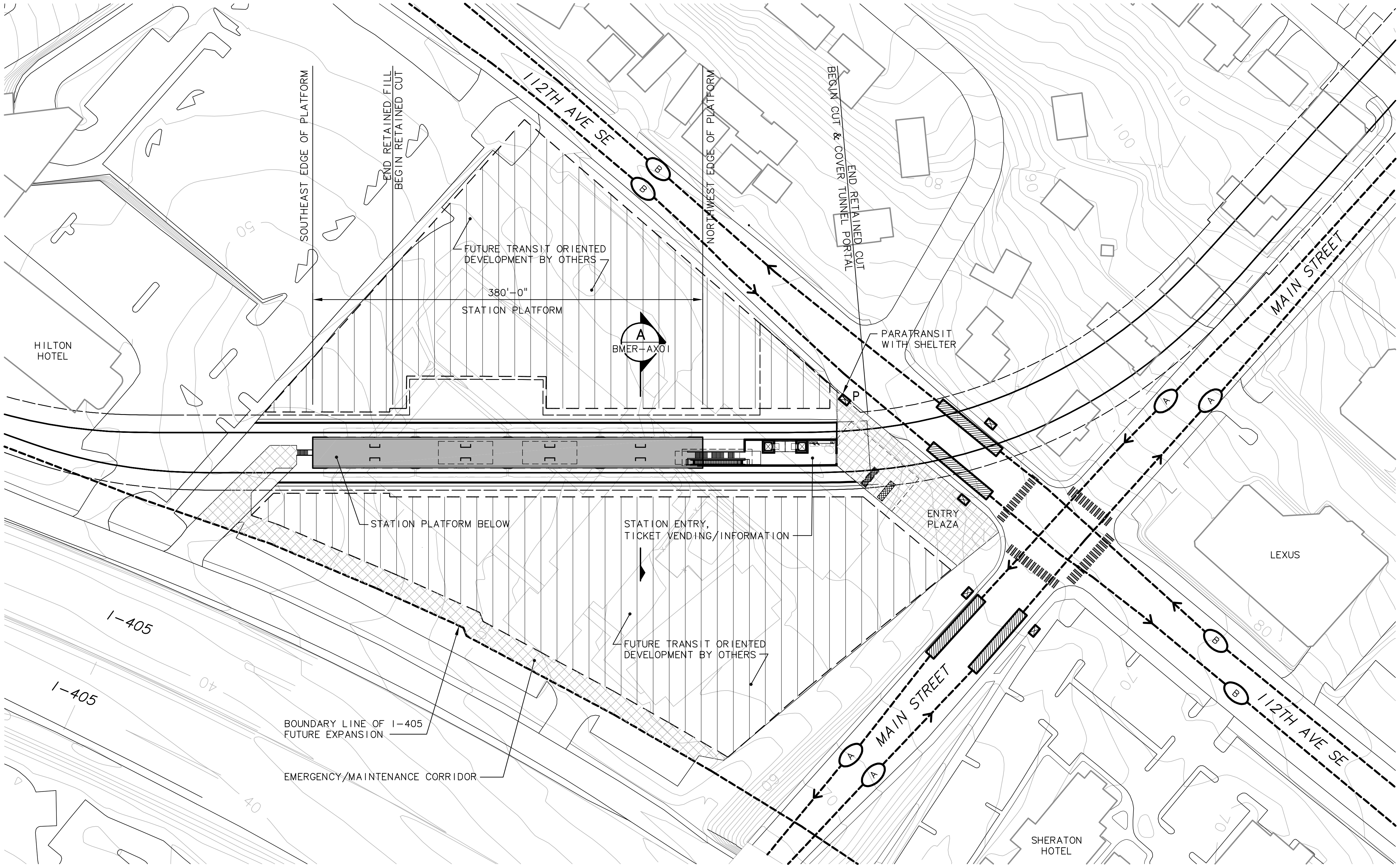
ELC_BMER_AG
ELC_BMER_AP
ELC_BMER_AS
ELC_BME__AZ
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
REG-DCON
X0525CN
X0525SF
X0528CN
X0528SF
ZG-2234H
x0525rx
x0528rx

Unresolved

ELC_C7E_CM
ELC_C7E_KA
X0525OP
X0525UT
X0525VG
X0528OP
X0528UT
X0528VG

LTSCALE

1=1



112TH AVE SE
SOUTHEAST EDGE OF PLATFORM
END RETAINED FILL
BEGIN RETAINED CUT
NORTHWEST EDGE OF PLATFORM
END RETAINED CUT
BEGIN CUT & COVER TUNNEL PORTAL
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
380'-0"
STATION PLATFORM
A
BMER-AX01
HILTON HOTEL
PARATRANSIT WITH SHELTER
P
MAIN STREET
STATION PLATFORM BELOW
STATION ENTRY, TICKET VENDING/INFORMATION
ENTRY PLAZA
LEXUS
I-405
I-405
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
BOUNDARY LINE OF I-405 FUTURE EXPANSION
EMERGENCY/MAINTENANCE CORRIDOR
MAIN STREET
112TH AVE SE
SHERATON HOTEL
A
B
110
100
90
80
70
60
50
40

NOTES

1. ALIGNMENT C2T AND C3T

SYMBOLS KEY

- ▬ NEW BUS STOP
- ☒ NEW BUS SHELTER
- P PARATRANSIT STOP
- (A) BUS ROUTE : 921
- (B) BUS ROUTE : 240, 243, 342
- ▩ BIKE STORAGE
- ▩ BIKE SHELTER/RACKS
- ▦ PAVED AREA
- TICKET VENDING/INFORMATION
- ▥ CROSSWALK
- — TRACK
- TRAIN

50 25 0 50 100
SCALE IN FEET

SITE ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELC1BMER_AS01.dwg
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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:

STREETER & ASSOCIATES
ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET
206-621-9270
SEATTLE, WA 98101-2901
(FAX) 206-621-7715

Approved:
Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELC1BMER_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

EAST MAIN STATION
ALTERNATIVE C2T & C3T
STATION ACCESS PLAN

Drawing No.: BMER-AS01
Sheet No.: C-134
Rev.:

XREF'S

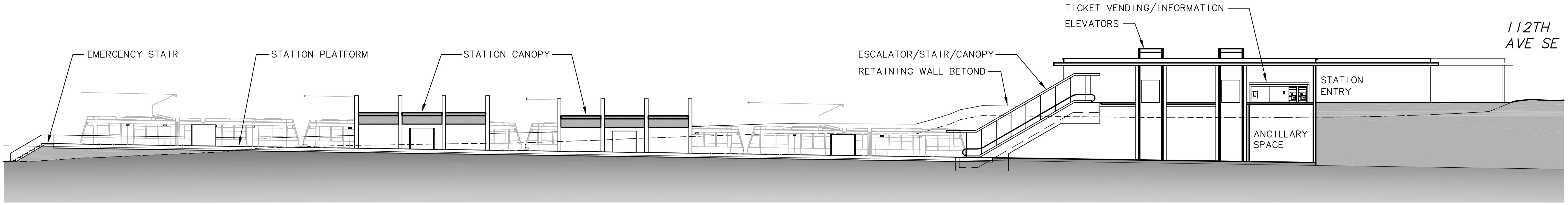
Resolved

ELC_BMER_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

1=1



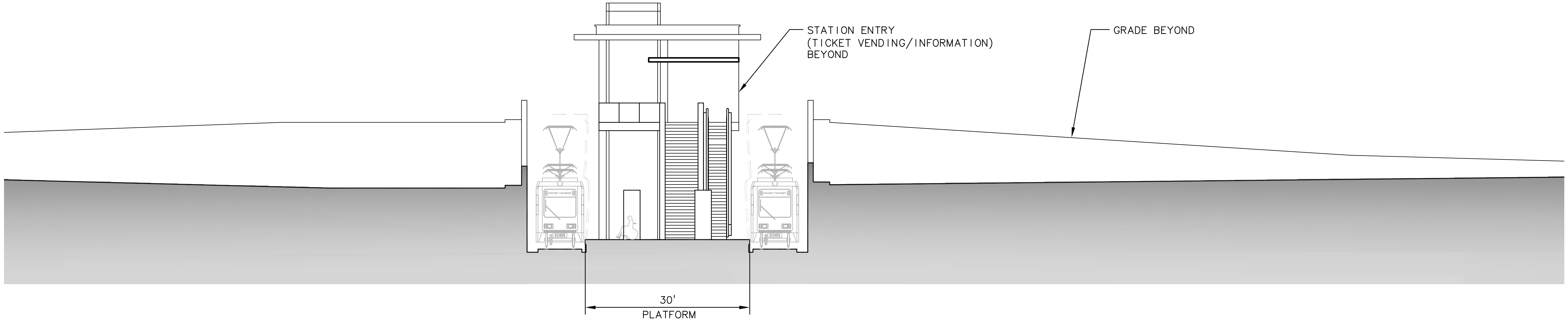
TICKET VENDING/INFORMATION
ELEVATORS
112TH AVE SE
EMERGENCY STAIR
STATION PLATFORM
STATION CANOPY
ESCALATOR/STAIR/CANOPY
RETAINING WALL BETOND
STATION ENTRY
ANCILLARY SPACE

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET

EAST MAIN STATION



STATION ENTRY (TICKET VENDING/INFORMATION) BEYOND
GRADE BEYOND
30'
PLATFORM

SECTION LOOKING NORTH

SCALE: 1" = 10'

A
BMER-AX01
BMER-AS01

10 5 0 10 20
SCALE IN FEET

c:\work\ELC1BMER_AX01.dwg
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Date:

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185 UNIVERSITY STREET SEATTLE, WA 98101-2901
206-621-9270 (FAX) 206-621-7715

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Date:

SOUNDTRANSIT

Scale: VARIES
Filename: ELC1BMER_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

EAST MAIN STATION
ALTERNATIVE C2T & C3T
ELEVATION AND SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BMER-AX01
Sheet No.: C-135
Rev.:

XREF'S

Resolved

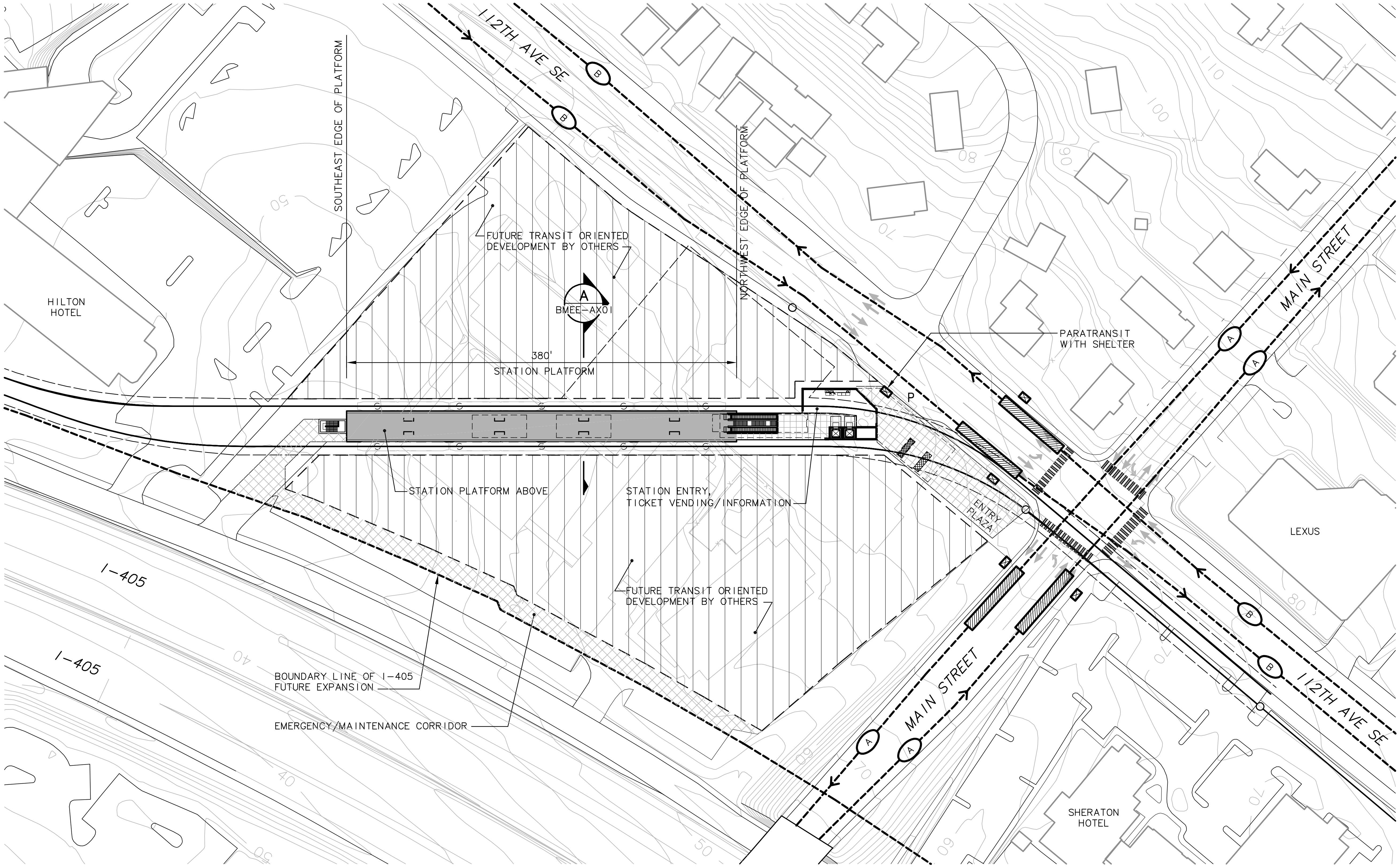
ELC_BMEE_AG
ELC_BMEE_AP
ELC_BMEE_AS
ELC_BME__AZ
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
REG-DCON
X0525CN
X0525SF
X0528CN
X0528SF
ZG-2234H
x0525rx
x0528rx

Unresolved

ELC_C4A_KA
ELC_C8E_KA
X0525OP
X0525UT
X0525VG
X0528OP
X0528UT
X0528VG

LTSCALE

1=1


112TH AVE SE
SOUTHEAST EDGE OF PLATFORM
NORTHWEST EDGE OF PLATFORM
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
A
BMEE-AS01
HILTON HOTEL
380'
STATION PLATFORM
PARATRANSIT WITH SHELTER
P
MAIN STREET
STATION PLATFORM ABOVE
STATION ENTRY, TICKET VENDING/INFORMATION
ENTRY PLAZA
LEXUS
I-405
I-405
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
BOUNDARY LINE OF I-405 FUTURE EXPANSION
EMERGENCY/MAINTENANCE CORRIDOR
MAIN STREET
112TH AVE SE
SHERATON HOTEL
A
B
110
100
90
80
70
60
50
40

NOTES

1. ALIGNMENT C4A & C7E

SYMBOLS KEY

▬	NEW BUS STOP
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
Ⓐ	BUS ROUTE : 921
Ⓑ	BUS ROUTE : 240, 243, 342
▩	BIKE STORAGE
▩	BIKE SHELTER/RACKS
▦	PAVED AREA
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
—	TRACK
▭	TRAIN

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELC1BMEE_AS01.dwg
10/16/08 09:45 : eackerm 0E5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

STREETER & ASSOCIATES
ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET SEATTLE, WA 98101-2901
206-621-9270 (FAX) 206-621-7715

SOUNDTRANSIT

Submitted: Date: Approved: Date:

Scale: 1"=50'
Filename: ELC1BMEE_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

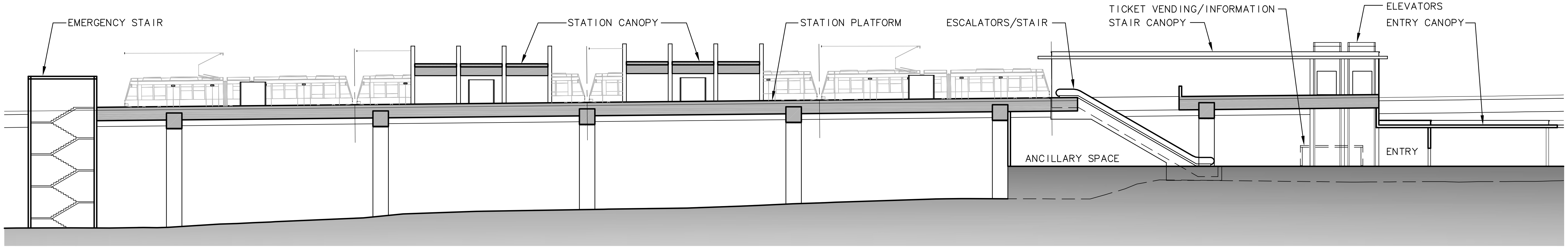
EAST MAIN STATION
ALTERNATIVE C4A & C7E
STATION ACCESS PLAN

THIS PRINT REDUCED * HALF SCALE

Drawing No.: BMEE-AS01
Sheet No.: C-136
Rev.:

XREF'S
Resolved
ELC_BMEE_AX
REG-DCON
ZG-2234H
Unresolved

LTSCALE
1=1

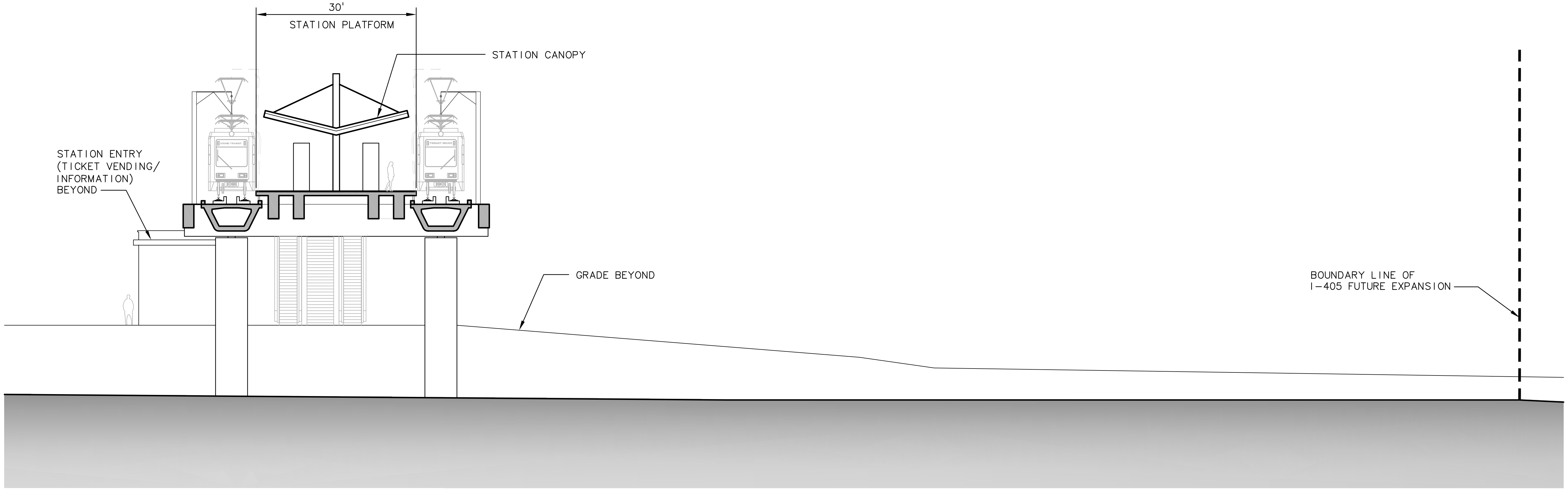

EMERGENCY STAIR
STATION CANOPY
STATION PLATFORM
ESCALATORS/STAIR
TICKET VENDING/INFORMATION
STAIR CANOPY
ELEVATORS
ENTRY CANOPY
ANCILLARY SPACE
ENTRY

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET

EAST MAIN STATION


30'
STATION PLATFORM
STATION CANOPY
STATION ENTRY (TICKET VENDING/ INFORMATION) BEYOND
GRADE BEYOND
BOUNDARY LINE OF I-405 FUTURE EXPANSION

SECTION LOOKING NORTH

A
BMEE-AX01
BMEE-AS01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELC1BMEE_AX01.dwg
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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: VARIES
Filename: ELC1BMEE_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

EAST MAIN STATION
ALTERNATIVE C4A & C7E
ELEVATION AND SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: BMEE-AX01
Sheet No.: C-137
Rev.:

XREF'S

Resolved

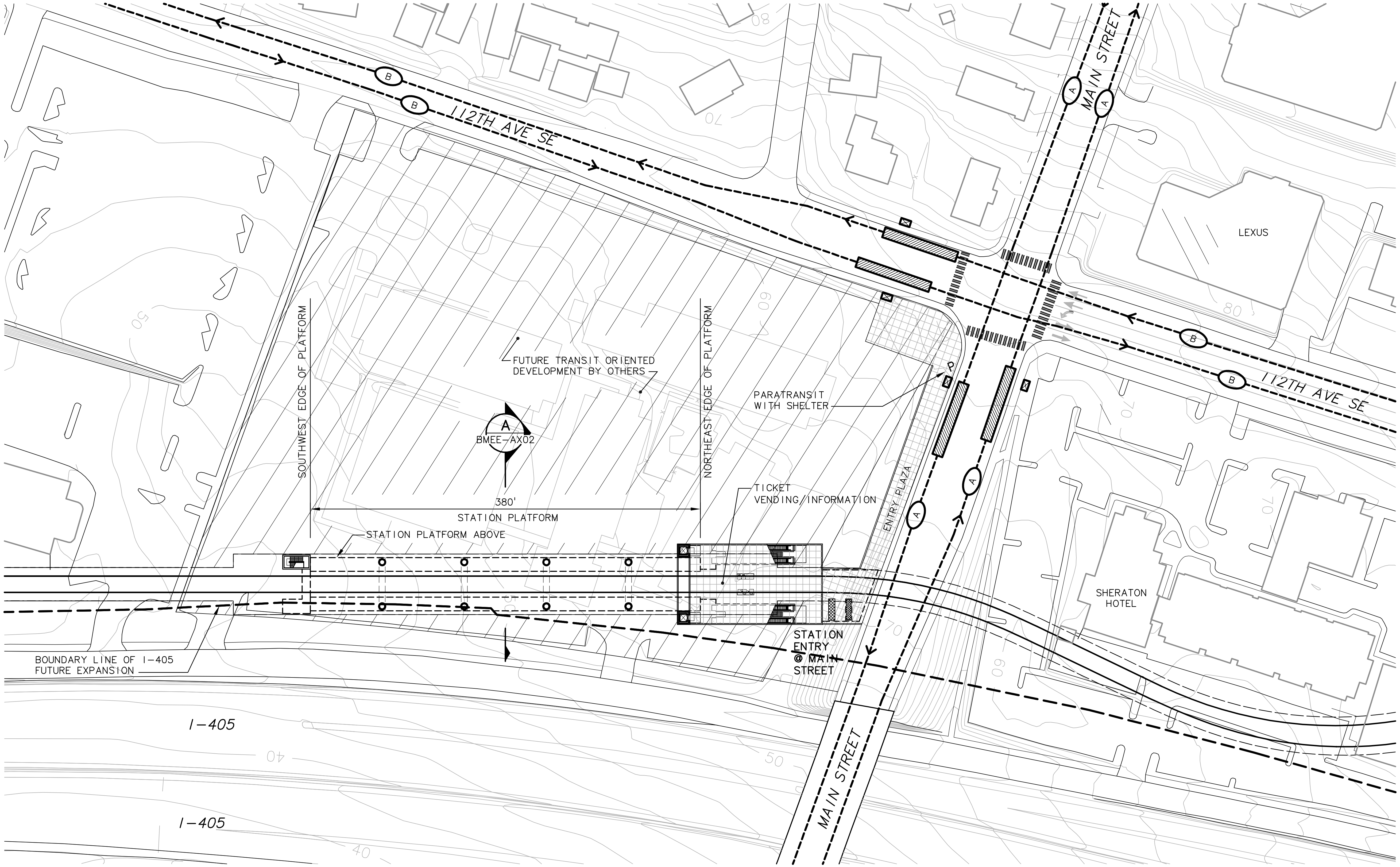
ELC_BMEE1AG
ELC_BMEE1AS
ELC_BME__AZ
ELC_C8E_CM
ELC_C8E_JO
ELC_C8E_KA
REG-DCON
X0525CN
X0525SF
X0528CN
X0528SF
ZG-2234H
x0525rx
x0528rx

Unresolved

ELC_BMEE1AP
ELC_C7E_CM
X0525OP
X0525UT
X0525VG
X0528OP
X0528UT
X0528VG

LTSCALE

1=1

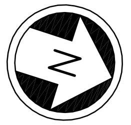

112TH AVE SE
MAIN STREET
LEXUS
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
A
BMEE-AX02
SOUTHWEST EDGE OF PLATFORM
NORTHEAST EDGE OF PLATFORM
PARATRANSIT WITH SHELTER
P
380'
STATION PLATFORM
TICKET VENDING/INFORMATION
ENTRY PLAZA
STATION PLATFORM ABOVE
SHERATON HOTEL
STATION ENTRY @ MAIN STREET
BOUNDARY LINE OF I-405 FUTURE EXPANSION
I-405
I-405
MAIN STREET
112TH AVE SE
B
A
50
60
70
80
40
1
2
3
4
5

NOTES

1. ALIGNMENT C8E

SYMBOLS KEY

▬	NEW BUS STOP
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
--(A)--	BUS ROUTE : 921
--(B)--	BUS ROUTE : 240, 243, 342
▩	BIKE STORAGE
▩	BIKE SHELTER/RACKS
▦	PAVED AREA
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
—	TRACK
▭	TRAIN



50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELCIBMEE_AS02.dwg
10/16/08 09:46 : eackerm 0E5396

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SEATTLE, WA 98101-2901
(FAX) 206-621-7715

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELCIBMEE_AS02.dwg
Contract No.: EL SEG_C
Date:

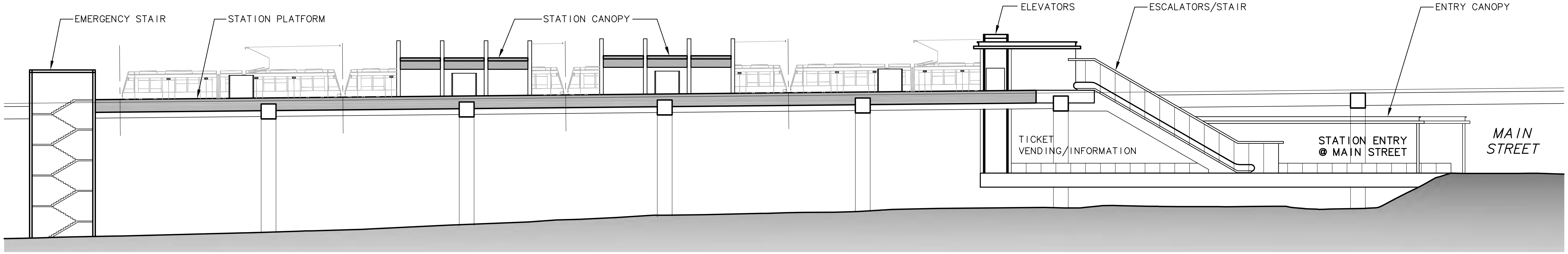
EAST LINK PROJECT
SEGMENT C

EAST MAIN STATION
110TH ELEVATED ALTERNATIVE C8E
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: BMEE-AS02
Sheet No.: C-138
Rev.:

XREF'S
Resolved
ELC_BMEE1AX
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1

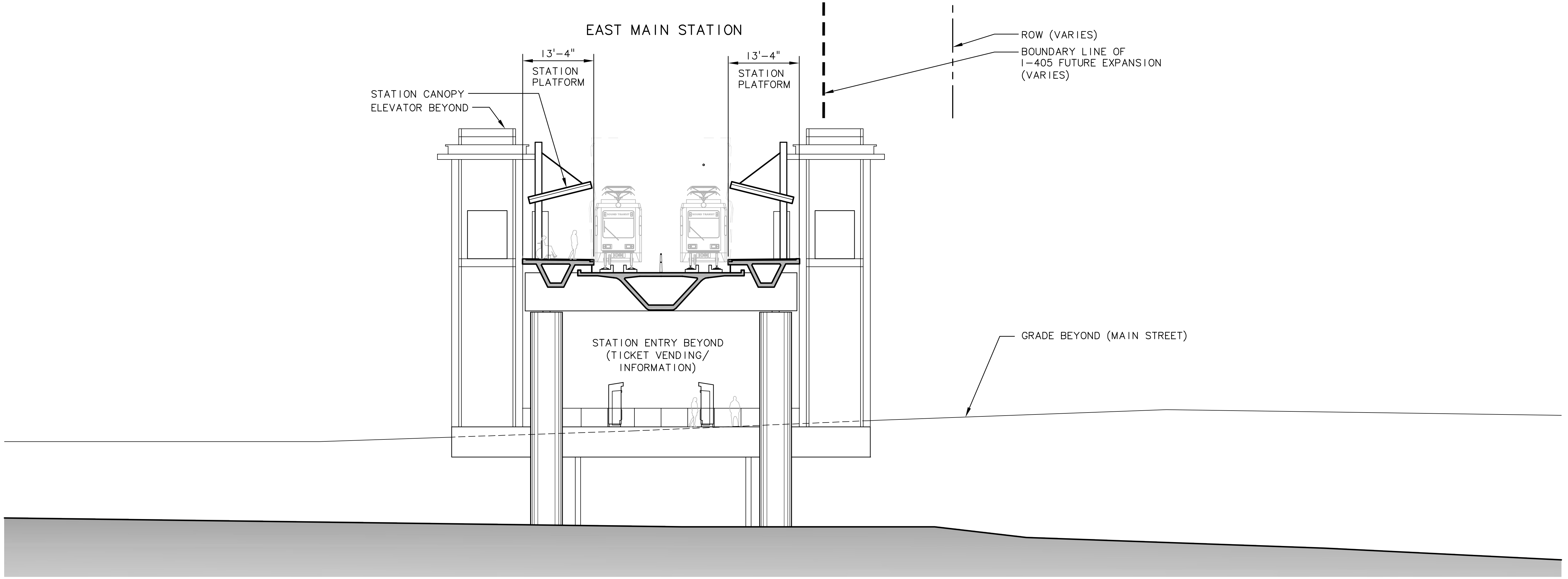


EMERGENCY STAIR
STATION PLATFORM
STATION CANOPY
ELEVATORS
ESCALATORS/STAIR
ENTRY CANOPY
TICKET
VENDING/INFORMATION
STATION ENTRY
@ MAIN STREET
MAIN
STREET

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET



EAST MAIN STATION
13'-4"
STATION
PLATFORM
13'-4"
STATION
PLATFORM
STATION CANOPY
ELEVATOR BEYOND
ROW (VARIES)
BOUNDARY LINE OF
I-405 FUTURE EXPANSION
(VARIES)
STATION ENTRY BEYOND
(TICKET VENDING/
INFORMATION)
GRADE BEYOND (MAIN STREET)

SECTION LOOKING NORTH

A
BMEE-AX02
BMEE-AS02

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELCIBMEE_AX02.dwg
10/16/08 09:47 : eackerm 0E5396

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FEIS
CONCEPTUAL

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STREETER & ASSOCIATES
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185 UNIVERSITY STREET
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SEATTLE, WA 98101-2901
(FAX) 206-621-7715

Approved:
Date:

SOUNDTRANSIT

Scale: VARIES
Filename: ELCIBMEE_AX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

EAST MAIN STATION
110TH ELEVATED ALTERNATIVE C8E
ELEVATION AND SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BMEE-AX02
Sheet No.: C-139
Rev.:

XREF'S

Resolved

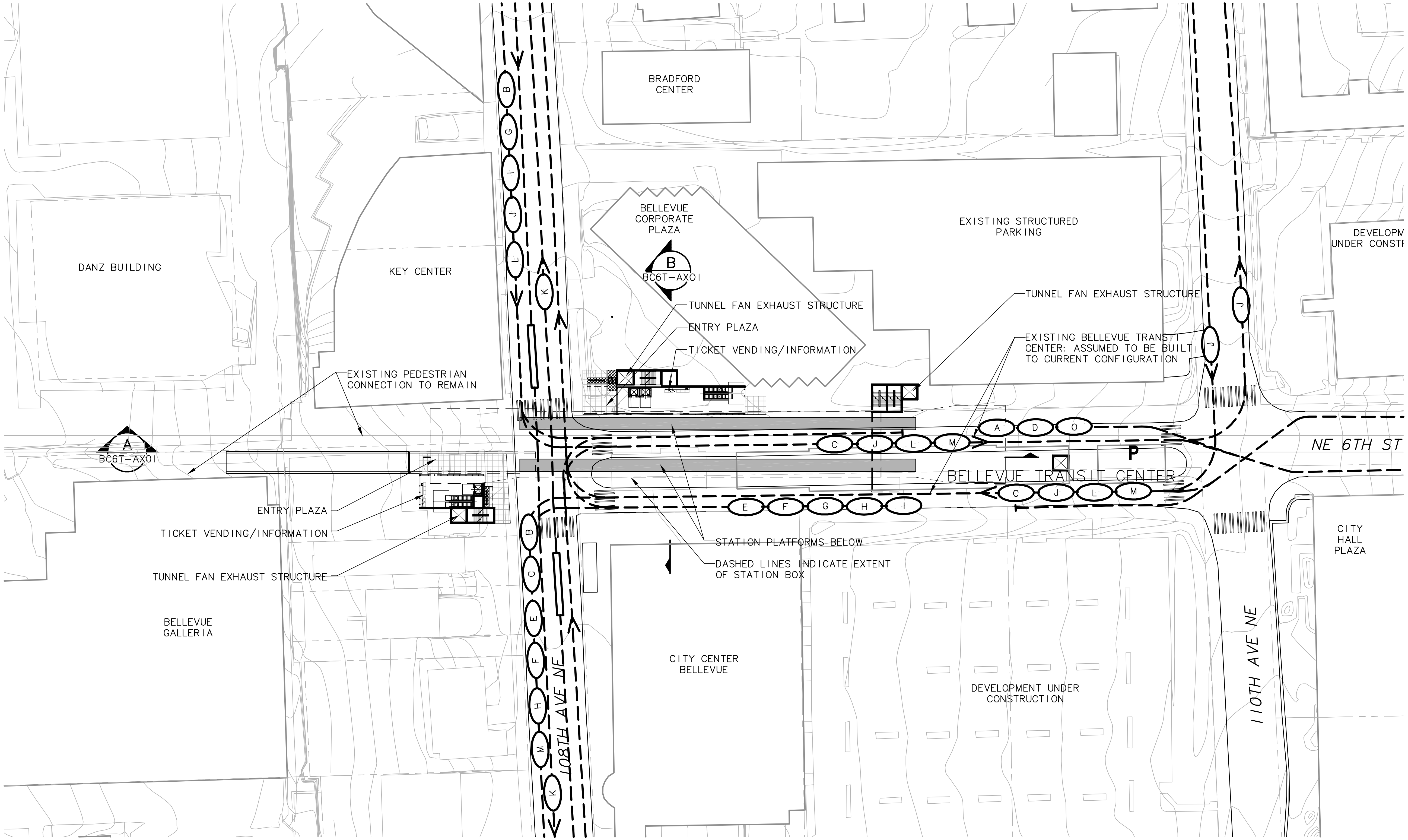
ELC_BC6TAG_A
ELC_BC6TAS_1
ELC_BUSRTS_1
ELC_CIT_KA
REG-DCON
X0228CN
X0228SF
X0528CN
X0528SF
ZG-2234H
x0228rx
x0528rx

Unresolved

ELC_CIT_CM

LTSCALE

1=1



BRADFORD CENTER
DANZ BUILDING
KEY CENTER
BELLEVUE CORPORATE PLAZA
B
BC6T-AX01
EXISTING STRUCTURED PARKING
DEVELOPM UNDER CONSTR
TUNNEL FAN EXHAUST STRUCTURE
ENTRY PLAZA
TICKET VENDING/INFORMATION
TUNNEL FAN EXHAUST STRUCTURE
EXISTING BELLEVUE TRANSIT CENTER: ASSUMED TO BE BUILT TO CURRENT CONFIGURATION
EXISTING PEDESTRIAN CONNECTION TO REMAIN
A
BC6T-AX01
NE 6TH ST
P
BELLEVUE TRANSIT CENTER
ENTRY PLAZA
TICKET VENDING/INFORMATION
TUNNEL FAN EXHAUST STRUCTURE
STATION PLATFORMS BELOW
DASHED LINES INDICATE EXTENT OF STATION BOX
CITY HALL PLAZA
BELLEVUE GALLERIA
CITY CENTER BELLEVUE
DEVELOPMENT UNDER CONSTRUCTION
108TH AVE NE
110TH AVE NE
A D O
C J L M
C J L M
E F G H I
B G I J L K
B C E F H M K
J J

STATION ACCESS PLAN

SCALE: 1"=50'

NOTES/LEGEND HEADING

1. ALIGNMENTS C1T & C2T
2. WESTBOUND BUS ROUTES 222, 240, 249, 253, 271 AND 921 TERMINATE AT BELLEVUE TRANSIT CENTER
3. EASTBOUND BUS ROUTES 111-114, 237, 560, 564 AND 565 TERMINATE AT BELLEVUE TRANSIT CENTER
4. BUS ROUTE 222 CONTINUES SOUTH ON BELLEVUE WAY SE
5. BUS ROUTE 921 CONTINUES SOUTH ON 16TH AVE SE
6. PARATRANSIT STOP AT BELLEVUE TRANSIT CENTER LOCATED IN BAY 6

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
A	BUS ROUTE: 111, 114, 560
B	BUS ROUTE: 231, 555
C	BUS ROUTE: 532, 535
D	BUS ROUTE: 564, 565
E	BUS ROUTE: 222, 921
F	BUS ROUTE: 240
G	BUS ROUTE: 249
H	BUS ROUTE: 253
I	BUS ROUTE: 271
J	BUS ROUTE: 233
K	BUS ROUTE: 234
L	BUS ROUTE: 243
M	BUS ROUTE: 342
O	BUS ROUTE: 237
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼─┼─┼	TRACK

N

50 25 0 50 100

SCALE IN FEET

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10/16/08 09:42 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
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HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1BC6T_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
ALTERNATIVES C1T & C2T
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: BC6T-AS01
Sheet No.: C-140
Rev.:

XREF'S

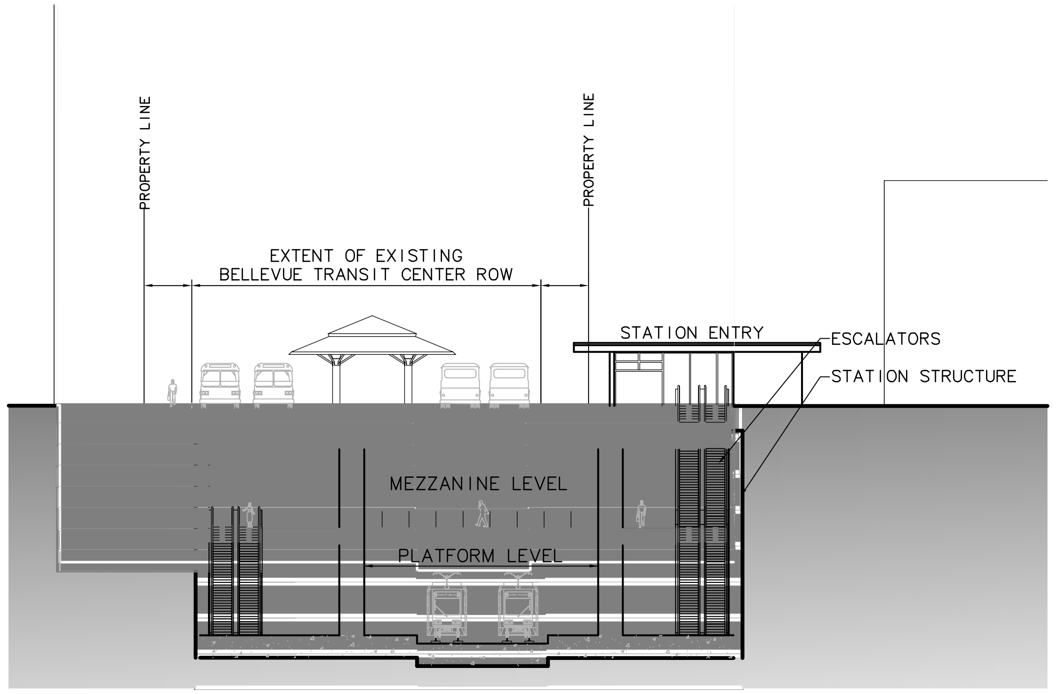
Resolved

ELC_BC6TAX_A
REG-DCON
ZG-2234H

Unresolved

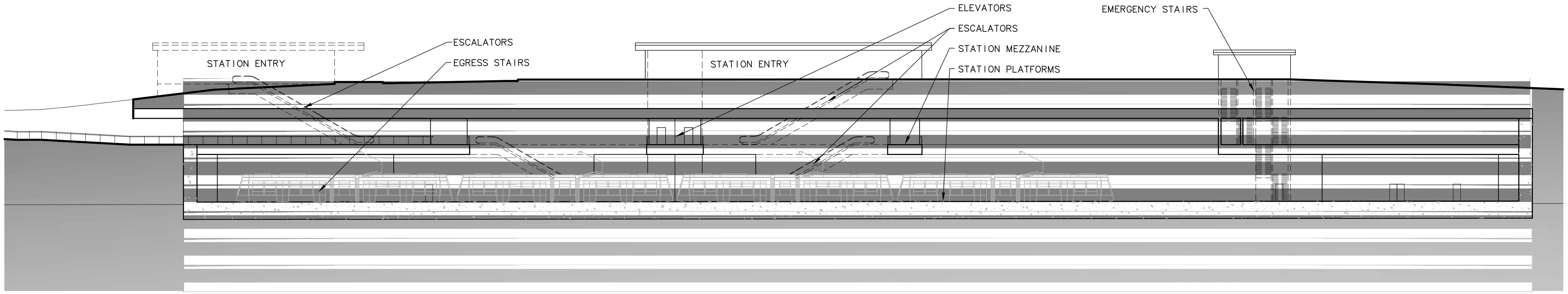
LTSCALE

1=1



PROPERTY LINE
PROPERTY LINE
EXTENT OF EXISTING
BELLEVUE TRANSIT CENTER ROW
STATION ENTRY
ESCALATORS
STATION STRUCTURE
MEZZANINE LEVEL
PLATFORM LEVEL

CROSS SECTION (B) BC6T-AS01
SCALE: 1"=20'



ESCALATORS
EGRESS STAIRS
STATION ENTRY
STATION ENTRY
ELEVATORS
ESCALATORS
STATION MEZZANINE
STATION PLATFORMS
EMERGENCY STAIRS

SECTION (A) BC6T-AS01
SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

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10/16/08 09:42 : eackerm 0E5396

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Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1BC6T_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
ALTERNATIVES C1T & C2T
CROSS SECTION & SECTION

THIS PRINT REDUCED * HALF SCALE

Drawing No.: BC6T-AX01
Sheet No.: C-141
Rev.:

XREF'S

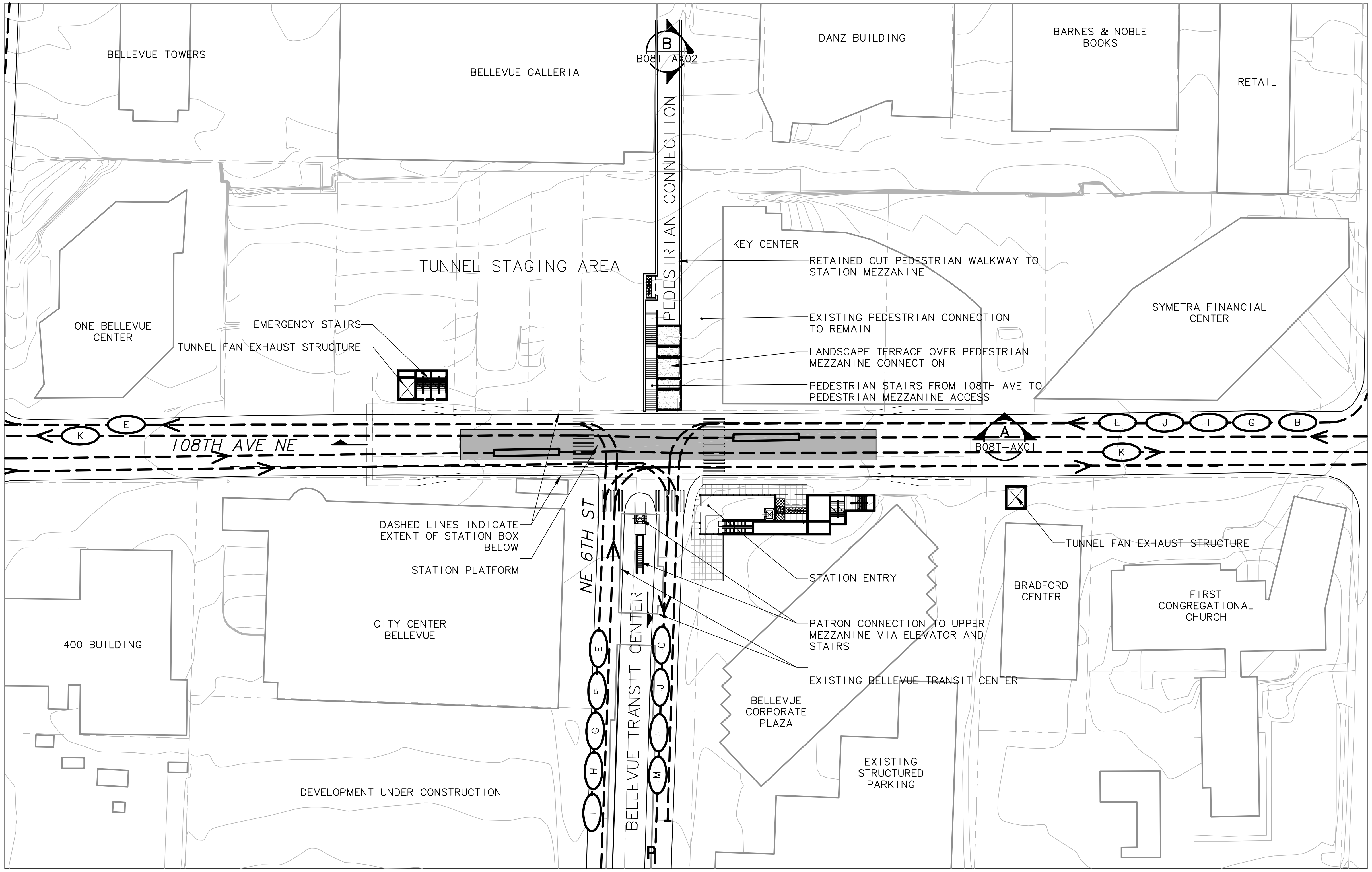
Resolved

ELC_B08TAG_A
ELC_B08TAS_1
ELC_BUSRTS_1
ELC_C3T_CM
ELC_C3T_KA
REG-DCON
X0228CN
X0231CN
X0231SF
ZG-2234H
x0228rx
x0231rx

Unresolved

LTSCALE

1=1



BELLEVUE TOWERS
BELLEVUE GALLERIA
B
B08T-AX02
DANZ BUILDING
BARNES & NOBLE BOOKS
RETAIL
PEDESTRIAN CONNECTION
KEY CENTER
TUNNEL STAGING AREA
RETAINED CUT PEDESTRIAN WALKWAY TO STATION MEZZANINE
EXISTING PEDESTRIAN CONNECTION TO REMAIN
LANDSCAPE TERRACE OVER PEDESTRIAN MEZZANINE CONNECTION
PEDESTRIAN STAIRS FROM 108TH AVE TO PEDESTRIAN MEZZANINE ACCESS
SYMETRA FINANCIAL CENTER
ONE BELLEVUE CENTER
EMERGENCY STAIRS
TUNNEL FAN EXHAUST STRUCTURE
K
E
108TH AVE NE
A
B08T-AX01
L
J
I
G
B
K
DASHED LINES INDICATE EXTENT OF STATION BOX BELOW
STATION PLATFORM
NE 6TH ST
TUNNEL FAN EXHAUST STRUCTURE
STATION ENTRY
BRADFORD CENTER
FIRST CONGREGATIONAL CHURCH
PATRON CONNECTION TO UPPER MEZZANINE VIA ELEVATOR AND STAIRS
EXISTING BELLEVUE TRANSIT CENTER
CITY CENTER BELLEVUE
400 BUILDING
BELLEVUE TRANSIT CENTER
E
F
G
H
I
C
J
L
M
P
BELLEVUE CORPORATE PLAZA
EXISTING STRUCTURED PARKING
DEVELOPMENT UNDER CONSTRUCTION

STATION ACCESS PLAN

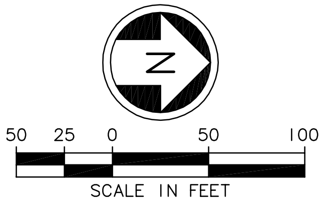
SCALE: 1"=50'

NOTES/LEGEND HEADING

1. ALIGNMENT C3T
2. WESTBOUND BUS ROUTES 222, 240, 249, 253, 271 AND 921 TERMINATE AT BELLEVUE TRANSIT CENTER
3. EASTBOUND BUS ROUTES 111-114, 237, 560, 564 AND 565 TERMINATE AT BELLEVUE TRANSIT CENTER
4. BUS ROUTE 222 CONTINUES SOUTH ON BELLEVUE WAY SE
5. BUS ROUTE 921 CONTINUES SOUTH ON 16TH AVE SE
6. PARATRANSIT STOP AT BELLEVUE TRANSIT CENTER LOCATED IN BAY 6

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
B	BUS ROUTE: 231, 555
C	BUS ROUTE: 532, 535
E	BUS ROUTE: 222, 921
F	BUS ROUTE: 240
G	BUS ROUTE: 249
H	BUS ROUTE: 253
I	BUS ROUTE: 271
J	BUS ROUTE: 233
K	BUS ROUTE: 234
L	BUS ROUTE: 243
M	BUS ROUTE: 342
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼─┼	TRACK



N
50
25
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50
100
SCALE IN FEET

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SOUND TRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1B08T_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
108TH ALTERNATIVE (C3T)
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B08T-AS01
Sheet No.: C-142
Rev.:

XREF'S

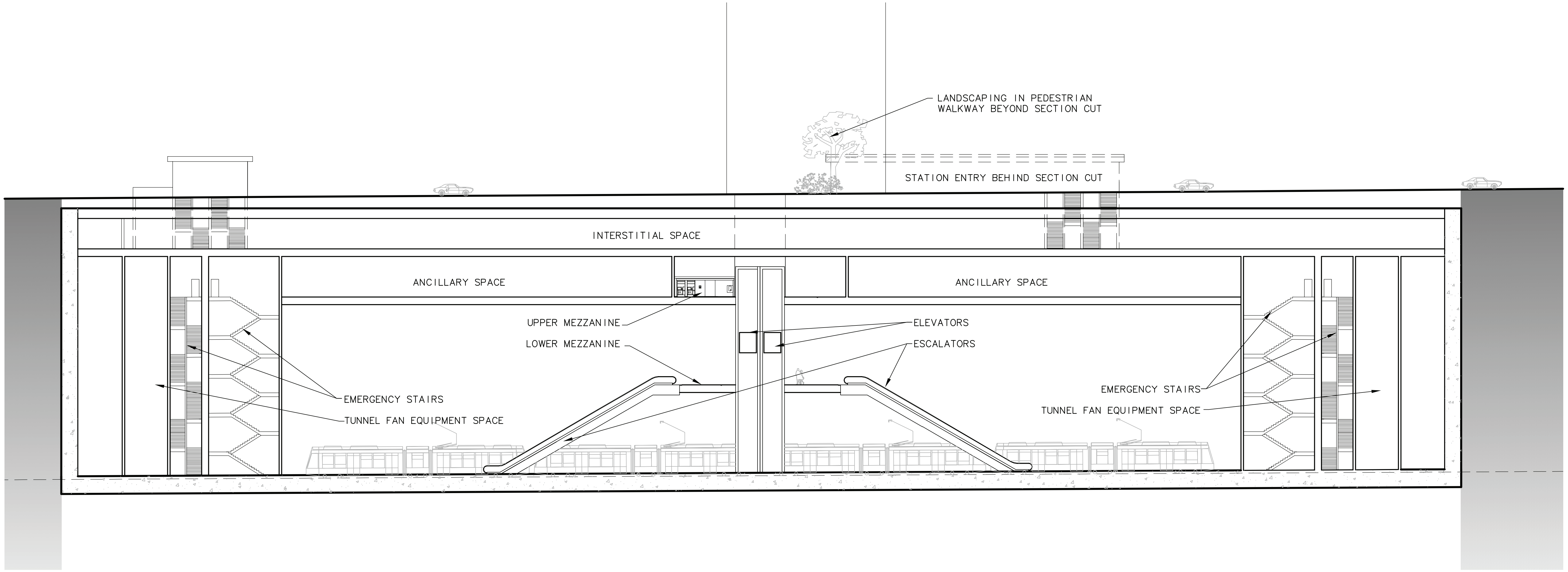
Resolved

ELC_B08TAP_A
ELC_B08TAX_A
REG-DCON
ZG-2234H

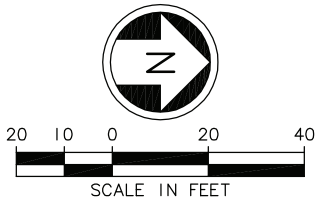
Unresolved

LTSCALE

1=1


LANDSCAPING IN PEDESTRIAN WALKWAY BEYOND SECTION CUT
STATION ENTRY BEHIND SECTION CUT
INTERSTITIAL SPACE
ANCILLARY SPACE
ANCILLARY SPACE
UPPER MEZZANINE
LOWER MEZZANINE
ELEVATORS
ESCALATORS
EMERGENCY STAIRS
TUNNEL FAN EQUIPMENT SPACE
EMERGENCY STAIRS
TUNNEL FAN EQUIPMENT SPACE

SECTION (A) B08T-AS01
SCALE: 1"=20'


N
20
10
0
20
40
SCALE IN FEET

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10/16/08 09:29 : eackerm OE5396

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B08T_AX01.dwg
Contract No.: EL SEG_C
Date:

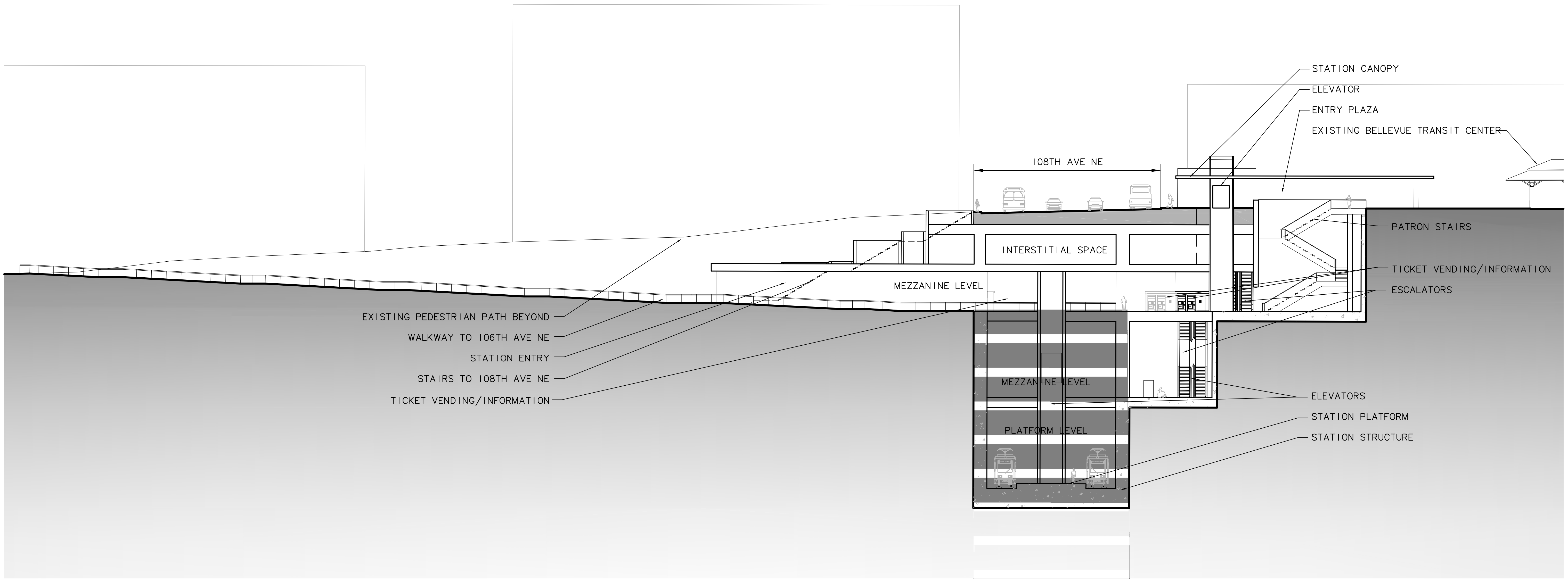
EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
108TH ALTERNATIVE (C3T)
SECTION

THIS PRINT REDUCED * HALF SCALE

Drawing No.: B08T-AX01
Sheet No.: C-143
Rev.:

XREF'S
Resolved
ELC_B08TAX_A
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


STATION CANOPY
ELEVATOR
ENTRY PLAZA
EXISTING BELLEVUE TRANSIT CENTER
108TH AVE NE
INTERSTITIAL SPACE
PATRON STAIRS
MEZZANINE LEVEL
TICKET VENDING/INFORMATION
ESCALATORS
EXISTING PEDESTRIAN PATH BEYOND
WALKWAY TO 106TH AVE NE
STATION ENTRY
STAIRS TO 108TH AVE NE
TICKET VENDING/INFORMATION
MEZZANINE LEVEL
ELEVATORS
STATION PLATFORM
PLATFORM LEVEL
STATION STRUCTURE

CROSS SECTION B

B08T-AS01

SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

c:\work\ELC1B08T_AX02.dwg
10/16/08 09:31 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B08T_AX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

THIS PRINT REDUCED HALF SCALE

BELLEVUE TRANSIT CENTER STATION
108TH ALTERNATIVE (C3T)
CROSS SECTION

Drawing No.: B08T-AX02
Sheet No.: C-144
Rev.:

XREF'S

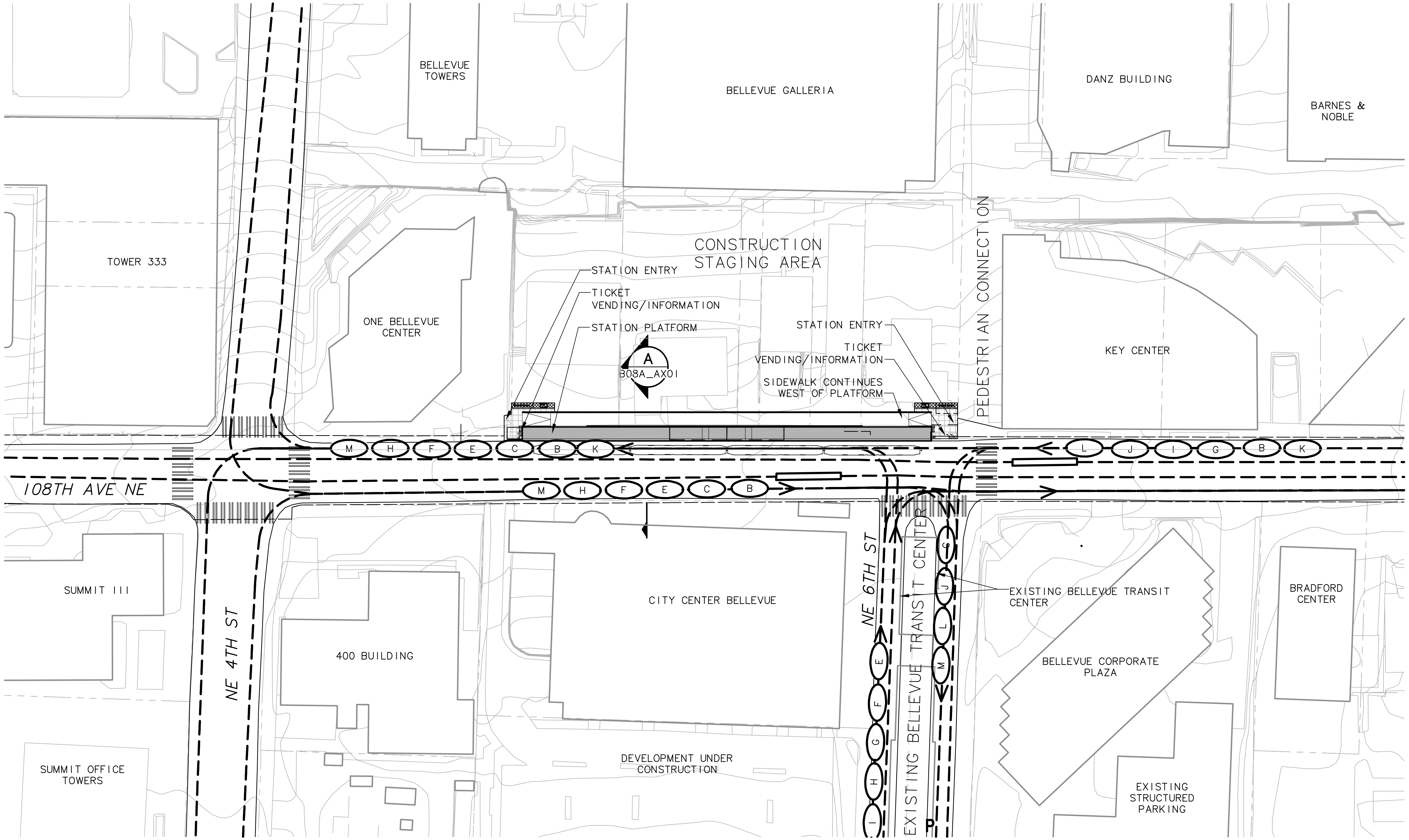
Resolved

ELC_B08AAP_A
ELC_B08AAS_I
ELC_BUSRTS_I
ELC_C4A_CM
ELC_C4A_KA
REG-DCON
X0228CN
X0228SF
ZG-2234H
x0228rx

Unresolved

LTSCALE

I=I



BELLEVUE TOWERS
BELLEVUE GALLERIA
DANZ BUILDING
BARNES & NOBLE
TOWER 333
ONE BELLEVUE CENTER
CONSTRUCTION STAGING AREA
PEDESTRIAN CONNECTION
KEY CENTER
STATION ENTRY
TICKET VENDING/INFORMATION
STATION PLATFORM
A
B08A_AX01
STATION ENTRY
TICKET VENDING/INFORMATION
SIDEWALK CONTINUES WEST OF PLATFORM
108TH AVE NE
M H F E C B K
L J I G B K
M H F E C B
SUMMIT III
NE 4TH ST
CITY CENTER BELLEVUE
NE 6TH ST
EXISTING BELLEVUE TRANSIT CENTER
EXISTING BELLEVUE TRANSIT CENTER
BRADFORD CENTER
400 BUILDING
BELLEVUE CORPORATE PLAZA
DEVELOPMENT UNDER CONSTRUCTION
SUMMIT OFFICE TOWERS
EXISTING STRUCTURED PARKING
P

NOTES/LEGEND HEADING

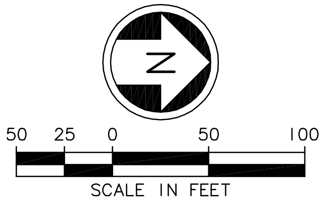
1. ALIGNMENT C4A
2. WESTBOUND BUS ROUTES 222, 240, 249, 253, 271 AND 921 TERMINATE AT BELLEVUE TRANSIT CENTER
3. EASTBOUND BUS ROUTES 111-114, 237, 560, 564 AND 565 TERMINATE AT BELLEVUE TRANSIT CENTER
4. BUS ROUTE 222 CONTINUES SOUTH ON BELLEVUE WAY SE
5. BUS ROUTE 921 CONTINUES SOUTH ON 16TH AVE SE
6. PARATRANSIT STOP AT BELLEVUE TRANSIT CENTER LOCATED IN BAY 6

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
B	BUS ROUTE: 231, 555
C	BUS ROUTE: 532, 535
E	BUS ROUTE: 222, 921
F	BUS ROUTE: 240
G	BUS ROUTE: 249
H	BUS ROUTE: 253
I	BUS ROUTE: 271
J	BUS ROUTE: 233
K	BUS ROUTE: 234
L	BUS ROUTE: 243
M	BUS ROUTE: 342
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼─┼─┼	TRACK

STATION ACCESS PLAN

SCALE: 1"=50'



N
50 25 0 50 100
SCALE IN FEET

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No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
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Approved:
Date:

Scale: 1"=50'
Filename: ELC1B08A_AS01.dwg
Contract No.: EL SEG_C
Date:

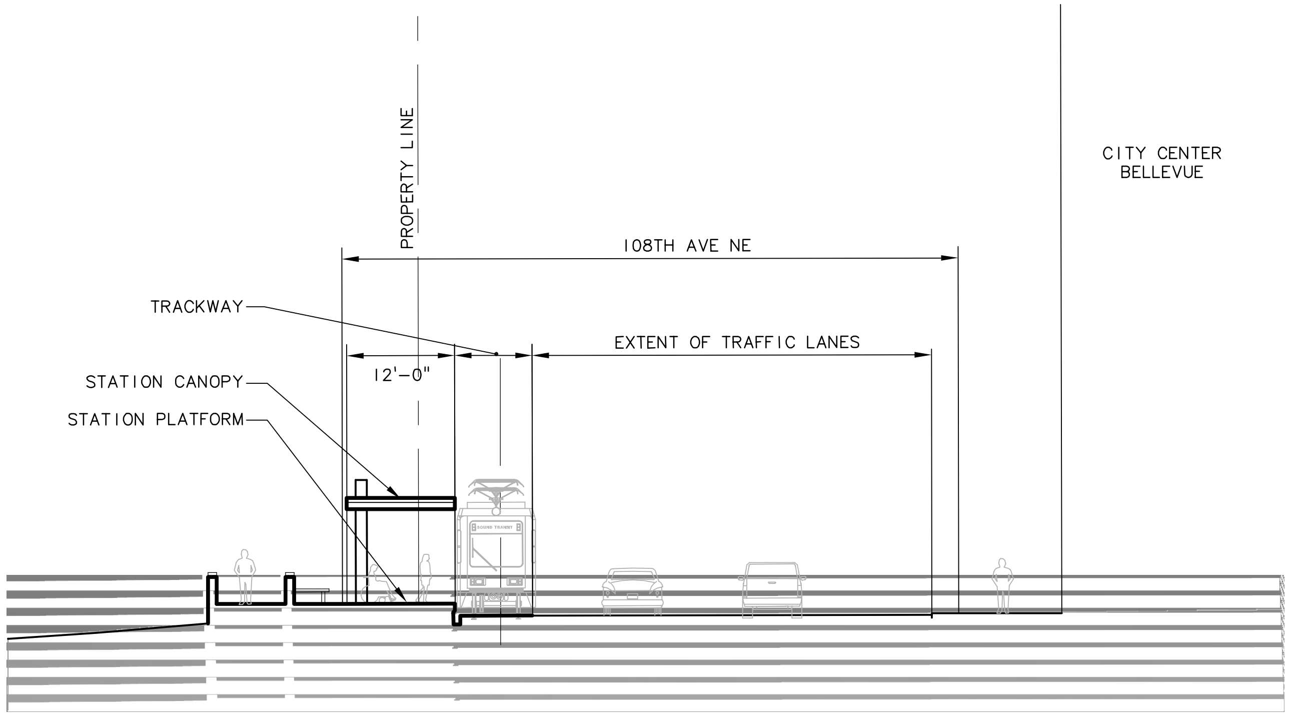
EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
AT-GRADE COUPLET (C4A) WESTBOUND
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B08A-AS01
Sheet No.: C-145
Rev.:

XREF'S
Resolved
ELC_B08AAX_A
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1

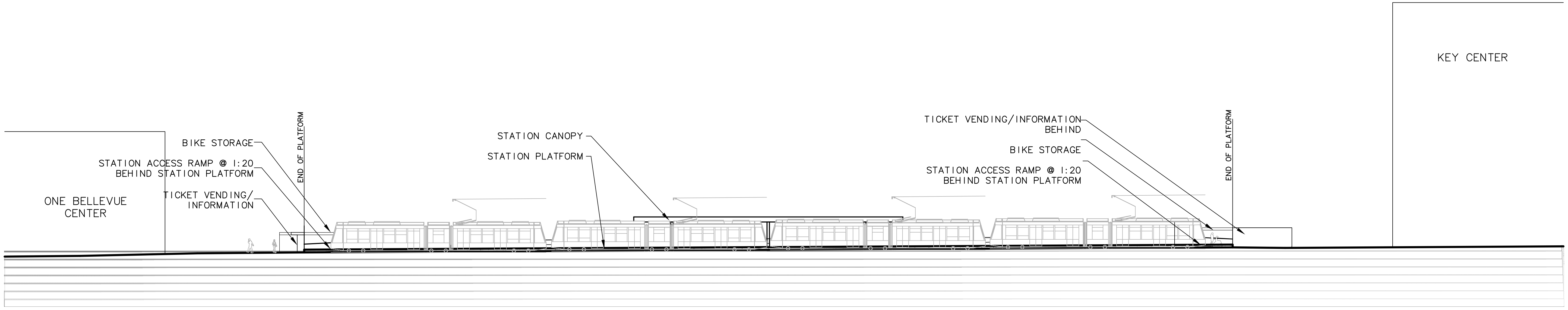


PROPERTY LINE
CITY CENTER BELLEVUE
108TH AVE NE
TRACKWAY
EXTENT OF TRAFFIC LANES
STATION CANOPY
12'-0"
STATION PLATFORM

CROSS SECTION (A) B08A-AS01

SCALE: 1"=10'

10 5 0 10 20
SCALE IN FEET



KEY CENTER
END OF PLATFORM
BIKE STORAGE
STATION ACCESS RAMP @ 1:20 BEHIND STATION PLATFORM
ONE BELLEVUE CENTER
TICKET VENDING/ INFORMATION
STATION CANOPY
STATION PLATFORM
TICKET VENDING/INFORMATION BEHIND
BIKE STORAGE
STATION ACCESS RAMP @ 1:20 BEHIND STATION PLATFORM
END OF PLATFORM

ELEVATION

SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

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HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B08A_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
AT-GRADE COUPLET (C4A) WESTBOUND
CROSS SECTION & ELEVATION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B08A-AX01
Sheet No.: C-146
Rev.:

XREF'S

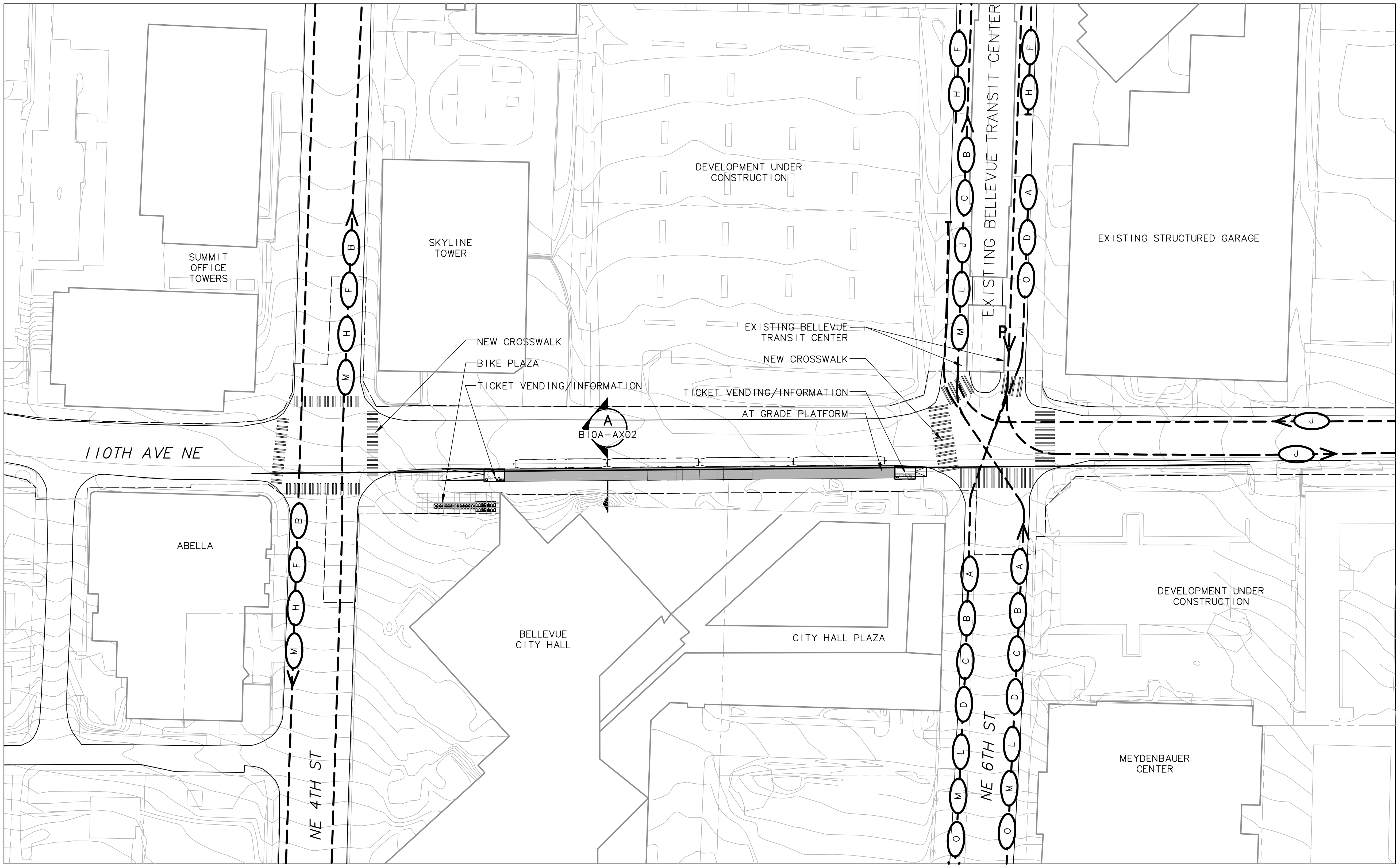
Resolved

ELC_B10AAP_B
ELC_B10AAS_2
ELC_BUSRTS_1
ELC_C4A_CM
ELC_C4A_KA
REG-DCON
X0228CN
X0228SF
X0528CN
X0528SF
ZG-2234H
x0228rx
x0528rx

Unresolved

LTSCALE

1=1



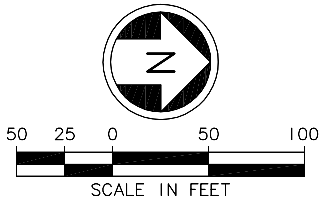
1
2
3
4
5
SUMMIT OFFICE TOWERS
SKYLINE TOWER
DEVELOPMENT UNDER CONSTRUCTION
EXISTING BELLEVUE TRANSIT CENTER
EXISTING STRUCTURED GARAGE
NEW CROSSWALK
BIKE PLAZA
TICKET VENDING/INFORMATION
EXISTING BELLEVUE TRANSIT CENTER
NEW CROSSWALK
TICKET VENDING/INFORMATION
AT GRADE PLATFORM
A
B10A-AX02
110TH AVE NE
P
ABELLA
BELLEVUE CITY HALL
CITY HALL PLAZA
DEVELOPMENT UNDER CONSTRUCTION
MEYDENBAUER CENTER
NE 4TH ST
NE 6TH ST
J
J
A
B
C
D
F
H
L
M
O

NOTES/LEGEND HEADING

1. ALIGNMENT C4A
2. WESTBOUND BUS ROUTES 222, 240, 249, 253, 271 AND 921 TERMINATE AT BELLEVUE TRANSIT CENTER
3. EASTBOUND BUS ROUTES 111-114, 237, 560, 564 AND 565 TERMINATE AT BELLEVUE TRANSIT CENTER
4. PARATRANSIT STOP AT BELLEVUE TRANSIT CENTER IS LOCATED IN BAY 6
5. EXISTING DRIVEWAY TO CITY HALL FROM 110TH AVE NE WOULD BE CLOSED

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
A	BUS ROUTE: 111-114, 560
B	BUS ROUTE: 231, 555
C	BUS ROUTE: 532, 535
D	BUS ROUTE: 564 / 565
F	BUS ROUTE: 240
H	BUS ROUTE: 253
J	BUS ROUTE: 233
L	BUS ROUTE: 243
M	BUS ROUTE: 342
O	BUS ROUTE: 237
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼─┼	TRACK



N
50
25
0
50
100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1"=50'

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10/16/08 09:35 : eackerm 0E5396

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Submitted:
Date:

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SOUNDTRANSIT
Date:

Scale: 1"=50'
Filename: ELC1B10A_AS02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

THIS PRINT REDUCED HALF SCALE

BELLEVUE TRANSIT CENTER STATION
AT-GRADE COUPLET (C4A) EASTBOUND
STATION ACCESS PLAN

Drawing No.: B10A-AS02
Sheet No.: C-147
Rev.:

XREF'S

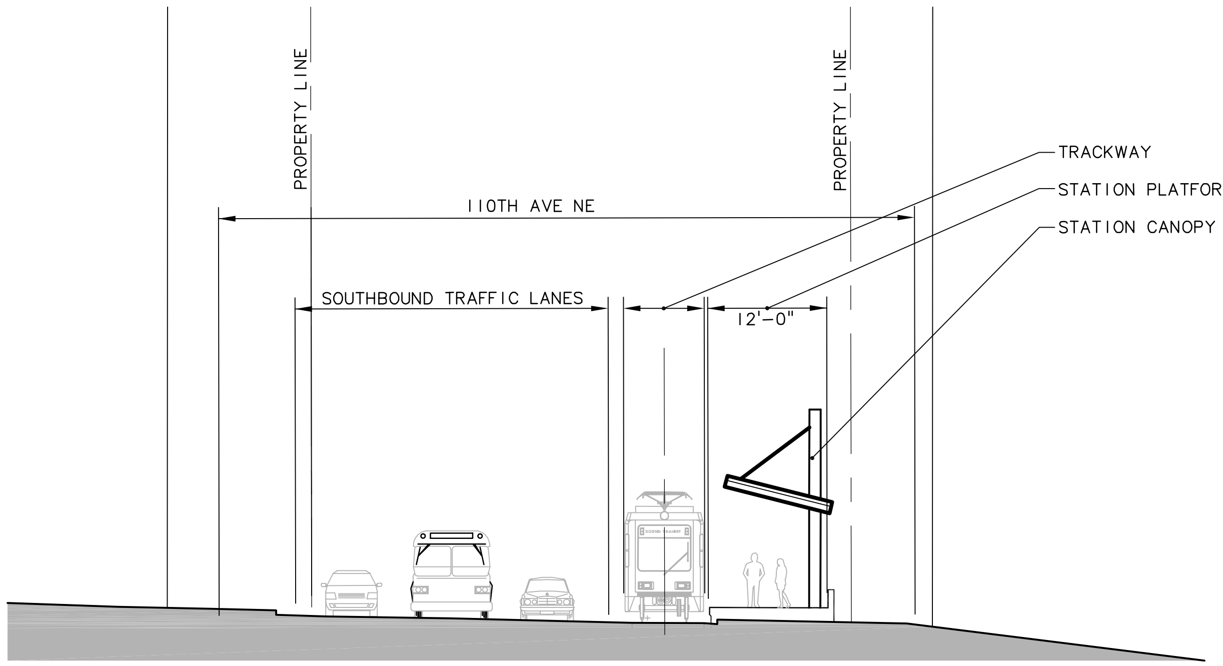
Resolved

ELC_B10AAX_B
REG-DCON
Zg-2234h

Unresolved

LTSCALE

1=1

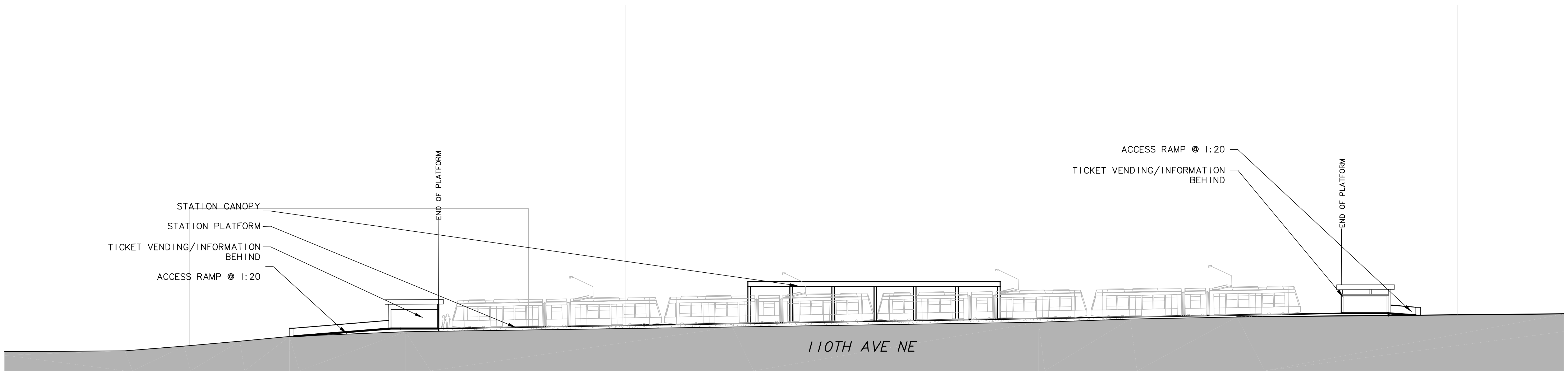


PROPERTY LINE
PROPERTY LINE
TRACKWAY
STATION PLATFORM
STATION CANOPY
110TH AVE NE
SOUTHBOUND TRAFFIC LANES
12'-0"

CROSS SECTION A

SCALE: 1"=10' B10A-AS02

10 5 0 10 20



STATION CANOPY
STATION PLATFORM
TICKET VENDING/INFORMATION BEHIND
ACCESS RAMP @ 1:20
END OF PLATFORM
ACCESS RAMP @ 1:20
TICKET VENDING/INFORMATION BEHIND
END OF PLATFORM
110TH AVE NE

ELEVATION

SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

c:\work\ELC1B10A_AX02.dwg
10/16/08 09:36 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B10A_AX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

THIS PRINT REDUCED HALF SCALE

BELLEVUE TRANSIT CENTER STATION
AT-GRADE COUPLET (C4A) EASTBOUND
CROSS SECTION & ELEVATION

Drawing No.: B10A-AX02
Sheet No.: C-148
Rev.:

XREF'S

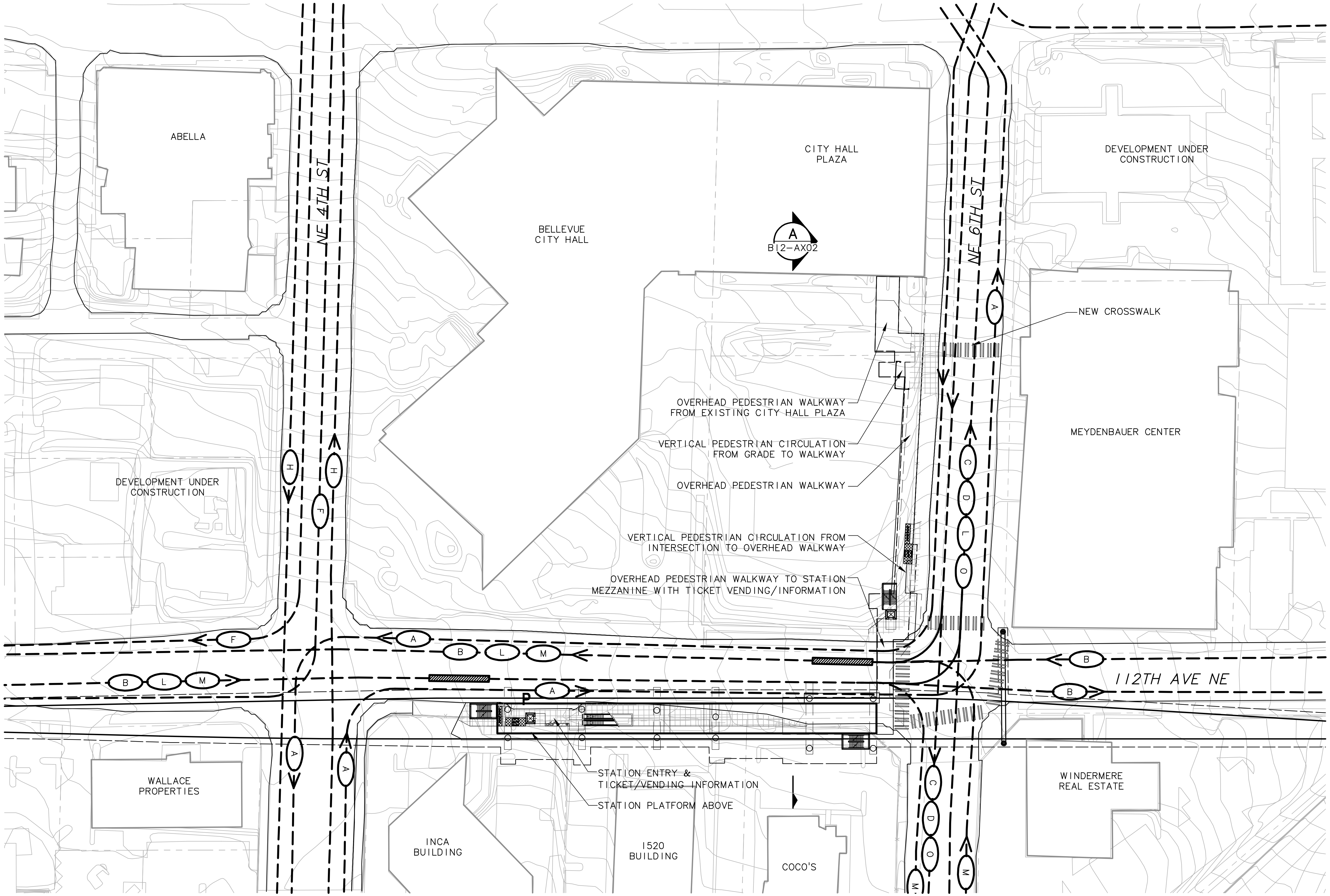
Resolved

ELC_B12EAG_A
ELC_B12EAS_1
ELC_BUSRTS_1
ELC_C7E_CM
ELC_C7E_KA
REG-DCON
X0228CN
X0228SF
X0528CN
X0528SF
ZG-2234H
x0228rx
x0528rx

Unresolved

LTSCALE

1=1


ABELLA
NE 4TH ST
BELLEVUE CITY HALL
CITY HALL PLAZA
A
B12-AX02
NE 6TH ST
DEVELOPMENT UNDER CONSTRUCTION
MEYDENBAUER CENTER
DEVELOPMENT UNDER CONSTRUCTION
112TH AVE NE
WALLACE PROPERTIES
INCA BUILDING
1520 BUILDING
COCO'S
WINDERMERE REAL ESTATE
A
B
C
D
F
H
L
M
O
P

NEW CROSSWALK

OVERHEAD PEDESTRIAN WALKWAY FROM EXISTING CITY HALL PLAZA

VERTICAL PEDESTRIAN CIRCULATION FROM GRADE TO WALKWAY

OVERHEAD PEDESTRIAN WALKWAY

VERTICAL PEDESTRIAN CIRCULATION FROM INTERSECTION TO OVERHEAD WALKWAY

OVERHEAD PEDESTRIAN WALKWAY TO STATION MEZZANINE WITH TICKET VENDING/INFORMATION

STATION ENTRY & TICKET/VENDING INFORMATION

STATION PLATFORM ABOVE

STATION ACCESS PLAN

SCALE: 1"=50'

NOTES/LEGEND HEADING

1. ALIGNMENT C7E
2. WESTBOUND ROUTES 222,240, 249, 271 AND 921 TERMINATE AT BELLEVUE TRANSIT CENTER
3. EASTBOUND ROUTES 111-114, 237, 560, 564 AND 565 TERMINATE AT BELLEVUE TRANSIT CENTER
4. BUS ROUTES 231, 240, AND 555 WOULD TRAVEL THE ROUTES DEPICTED HERE ONLY FOR THIS STATION ALIGNMENT

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
(A)	BUS ROUTE: 111-114, 560
(B)	BUS ROUTE: 240, 255
(C)	BUS ROUTE: 532, 535
(D)	BUS ROUTE: 564, 565
(F)	BUS ROUTE: 240
(H)	BUS ROUTE: 253
(L)	BUS ROUTE: 243
(M)	BUS ROUTE: 342
(O)	BUS ROUTE: 237
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼─┼	TRACK

N

50 25 0 50 100

SCALE IN FEET

c:\work\ELC1B12E_AS01.dwg
10/16/08 09:40 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
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PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1B12E_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
112TH ALTERNATIVE (C7E)
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B12E-AS01
Sheet No.: C-149
Rev.:

XREF'S

Resolved

ELC_B12EAP_A
ELC_B12EAX_A
REG-DCON
X0228CN
X0228SF
X0528CN
X0528SF
ZG-2234H
x0228rx
x0528rx

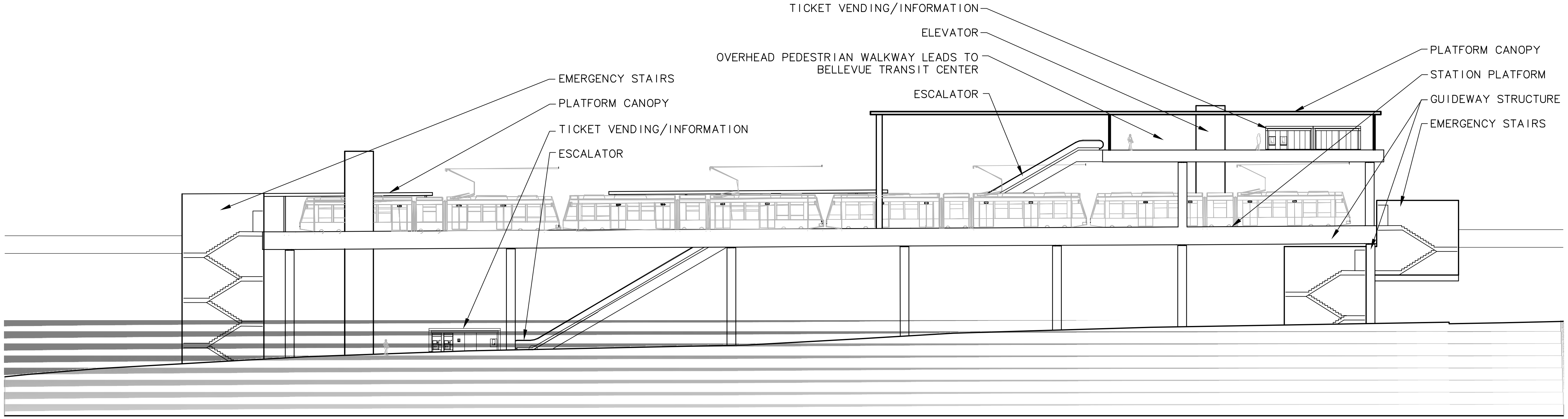
Unresolved

ELC_C7E_KA

LTSCALE

1=1

c:\work\ELC1B12E_AX01.dwg
10/16/08 09:40 : eackerm OE5396


TICKET VENDING/INFORMATION
ELEVATOR
OVERHEAD PEDESTRIAN WALKWAY LEADS TO BELLEVUE TRANSIT CENTER
ESCALATOR
EMERGENCY STAIRS
PLATFORM CANOPY
TICKET VENDING/INFORMATION
ESCALATOR
PLATFORM CANOPY
STATION PLATFORM
GUIDEWAY STRUCTURE
EMERGENCY STAIRS

ELEVATION

SCALE: 1"=20'

N

20 10 0 20 40
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B12E_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
112TH ALTERNATIVE (C7E)
ELEVATION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B12E-AX01
Sheet No.: C-150
Rev.:

XREF'S

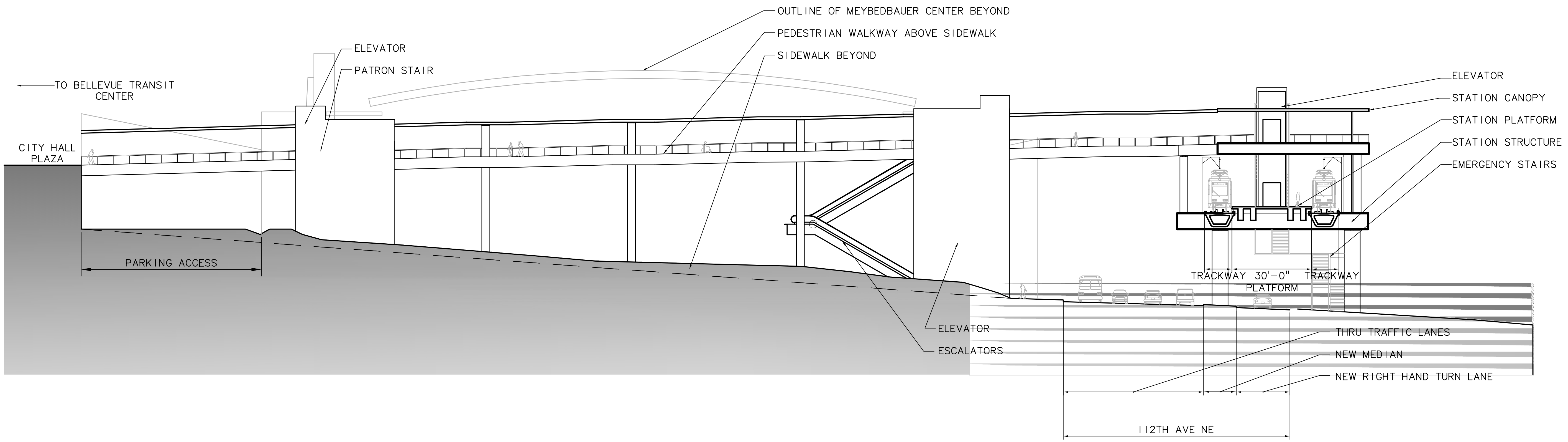
Resolved

ELC_B12EAX_A
REG-DCON
X0231CN
X0231SF
ZG-2234H
x0231rx

Unresolved

LTSCALE

1=1


OUTLINE OF MEYBEDBAUER CENTER BEYOND
PEDESTRIAN WALKWAY ABOVE SIDEWALK
SIDEWALK BEYOND
ELEVATOR
PATRON STAIR
TO BELLEVUE TRANSIT CENTER
CITY HALL PLAZA
PARKING ACCESS
ELEVATOR
ESCALATORS
ELEVATOR
STATION CANOPY
STATION PLATFORM
STATION STRUCTURE
EMERGENCY STAIRS
TRACKWAY 30'-0" TRACKWAY
PLATFORM
THRU TRAFFIC LANES
NEW MEDIAN
NEW RIGHT HAND TURN LANE
112TH AVE NE

CROSS SECTION A

B12E-AS01

SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

c:\work\ELC1B12E_AX02.dwg
10/16/08 09:41 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B12E_AX02.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
112TH ALTERNATIVE (C7E)
CROSS SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B12E-AX02
Sheet No.: C-151
Rev.:

XREF'S

Resolved

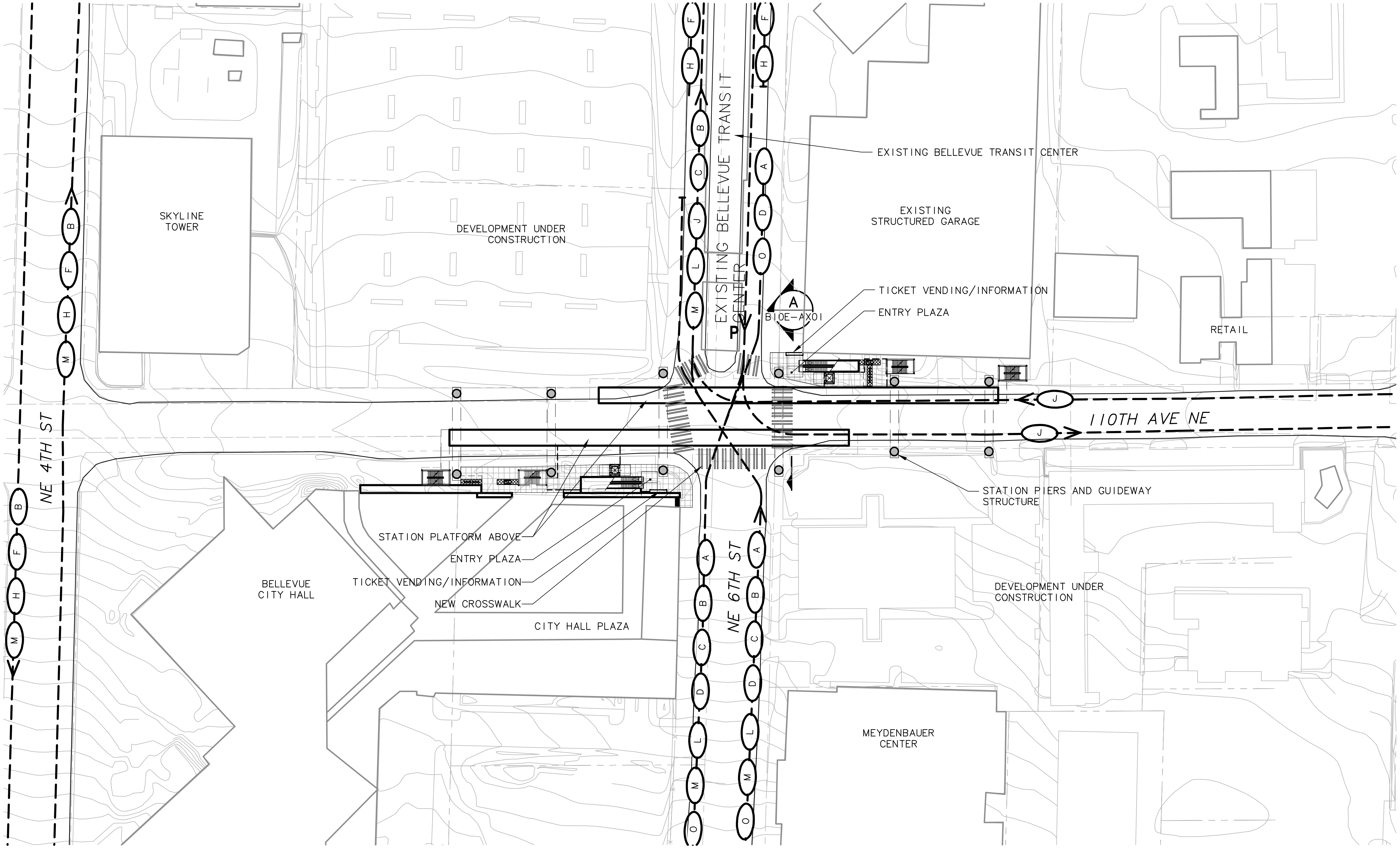
ELC_B10EAG_B
ELC_B10EAS_1
ELC_BUSRTS_1
ELC_C8E_KA
REG-DCON
X0228CN
X0228SF
X0231CN
X0231SF
X0528CN
X0528SF
X0531CN
X0531SF
ZG-2234H
x0228rx
x0231rx
x0528rx
x0531rx

Unresolved

ELC_C8E_CM

LTSCALE

1=1



SKYLINE TOWER
DEVELOPMENT UNDER CONSTRUCTION
EXISTING BELLEVUE TRANSIT CENTER
EXISTING BELLEVUE TRANSIT CENTER
EXISTING STRUCTURED GARAGE
TICKET VENDING/INFORMATION
ENTRY PLAZA
A
B10E-AS01
P
RETAIL
NE 4TH ST
110TH AVE NE
NE 6TH ST
STATION PIERS AND GUIDEWAY STRUCTURE
STATION PLATFORM ABOVE
ENTRY PLAZA
TICKET VENDING/INFORMATION
NEW CROSSWALK
BELLEVUE CITY HALL
CITY HALL PLAZA
DEVELOPMENT UNDER CONSTRUCTION
MEYDENBAUER CENTER
A
B
C
D
F
H
J
L
M
O

NOTES/LEGEND HEADING

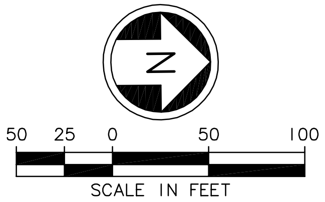
1. ALIGNMENT C8E
2. WESTBOUND BUS ROUTES 222, 240, 249, 253, 271 AND 921 TERMINATE AT BELLEVUE TRANSIT CENTER
3. EASTBOUND BUS ROUTES 111-114, 237, 560, 564 AND 565 TERMINATE AT BELLEVUE TRANSIT CENTER
4. PARATRANSIT STOP AT BELLEVUE TRANSIT CENTER LOCATED IN BAY 6

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
(A)	BUS ROUTE: 111-114, 560
(B)	BUS ROUTE: 231, 555
(C)	BUS ROUTE: 532, 535
(D)	BUS ROUTE: 564 / 565
(F)	BUS ROUTE: 240
(H)	BUS ROUTE: 253
(J)	BUS ROUTE: 233
(L)	BUS ROUTE: 243
(M)	BUS ROUTE: 342
(O)	BUS ROUTE: 237
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼─┼	TRACK

STATION ACCESS PLAN

SCALE: 1"=50'



N
50
25
0
50
100
SCALE IN FEET

c:\work\ELC1B10E_AS01.dwg
10/16/08 09:36 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

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HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1B10E_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
110TH ALTERNATIVE (C8E)
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B10E-AS01
Sheet No.: C-152
Rev.:

XREF'S

Resolved

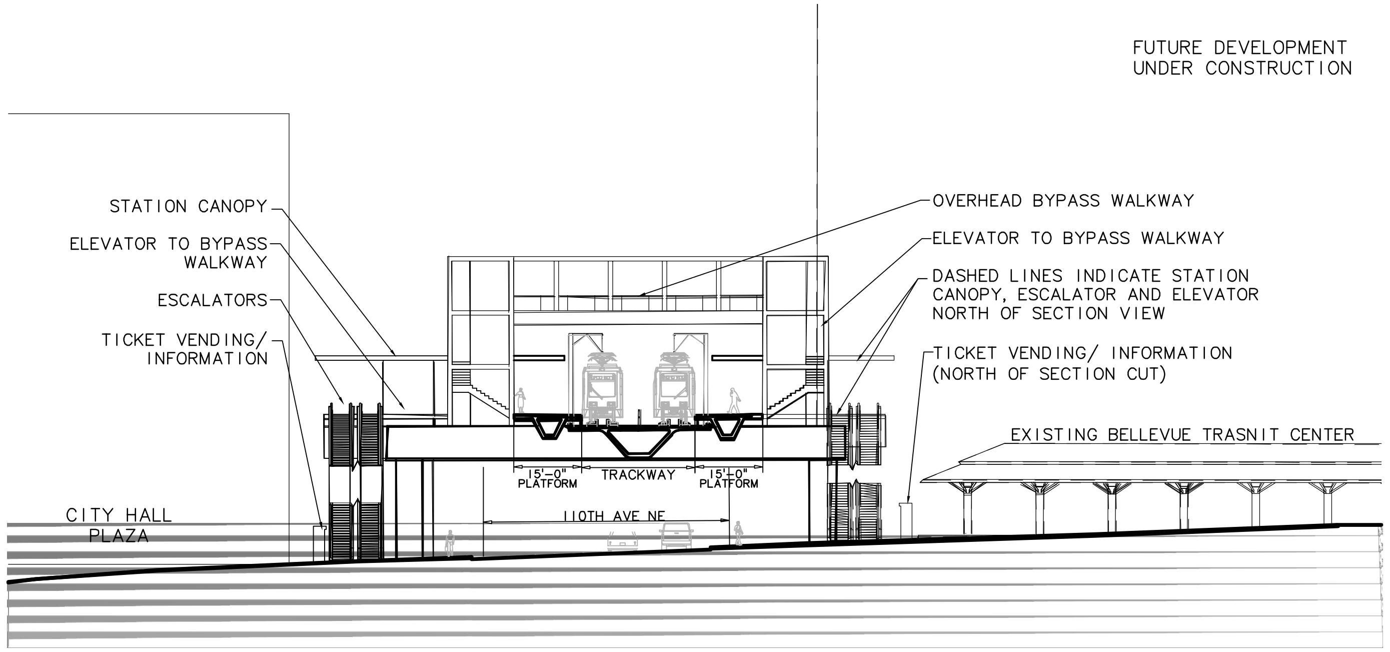
ELC_B10EAX_B
REG-DCON
ZG-2234H

Unresolved

ELC_B10EAP_B
X0228CN
X0228SF
x0228rx

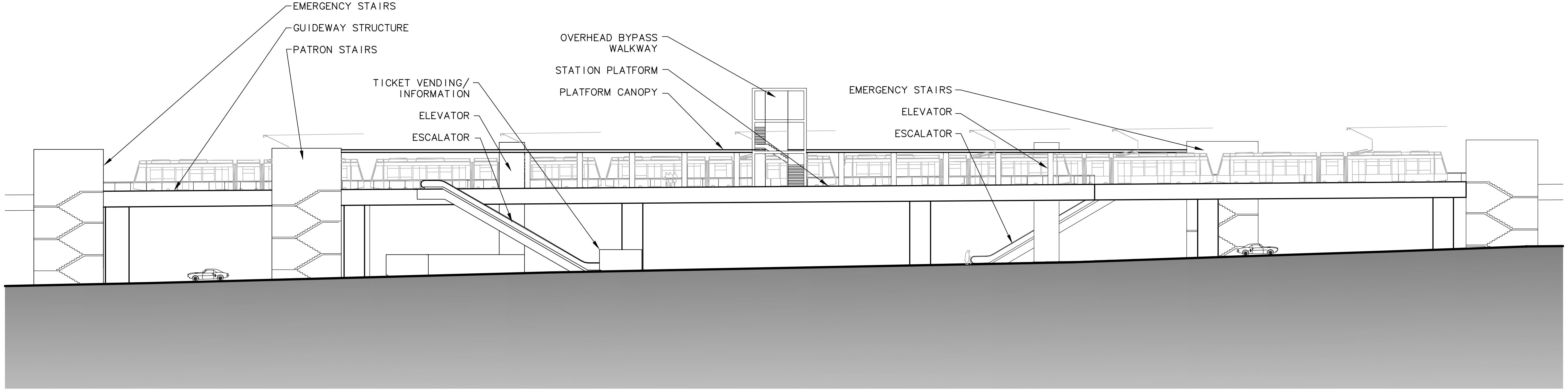
LTSCALE

1=1


FUTURE DEVELOPMENT
UNDER CONSTRUCTION
STATION CANOPY
ELEVATOR TO BYPASS WALKWAY
ESCALATORS
TICKET VENDING/ INFORMATION
OVERHEAD BYPASS WALKWAY
ELEVATOR TO BYPASS WALKWAY
DASHED LINES INDICATE STATION CANOPY, ESCALATOR AND ELEVATOR NORTH OF SECTION VIEW
TICKET VENDING/ INFORMATION (NORTH OF SECTION CUT)
EXISTING BELLEVUE TRASNIT CENTER
CITY HALL PLAZA
15'-0" PLATFORM
TRACKWAY
15'-0" PLATFORM
110TH AVE NE

CROSS SECTION (A / B10E-AX01)

SCALE: 1"=20'


EMERGENCY STAIRS
GUIDEWAY STRUCTURE
PATRON STAIRS
TICKET VENDING/ INFORMATION
ELEVATOR
ESCALATOR
OVERHEAD BYPASS WALKWAY
STATION PLATFORM
PLATFORM CANOPY
EMERGENCY STAIRS
ELEVATOR
ESCALATOR

ELEVATION

SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
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PARSONS & INCA ENGINEERS INC.

HEWITT

SOUND TRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1B10E_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

BELLEVUE TRANSIT CENTER STATION
110TH ALTERNATIVE (C8E)
CROSS SECTION & ELEVATION

THIS PRINT REDUCED HALF SCALE

Drawing No.: B10E-AX01
Sheet No.: C-153
Rev.:

c:\work\ELC1B10E_AX01.dwg
10/16/08 09:37 : eackerm OE5396

XREF'S

Resolved

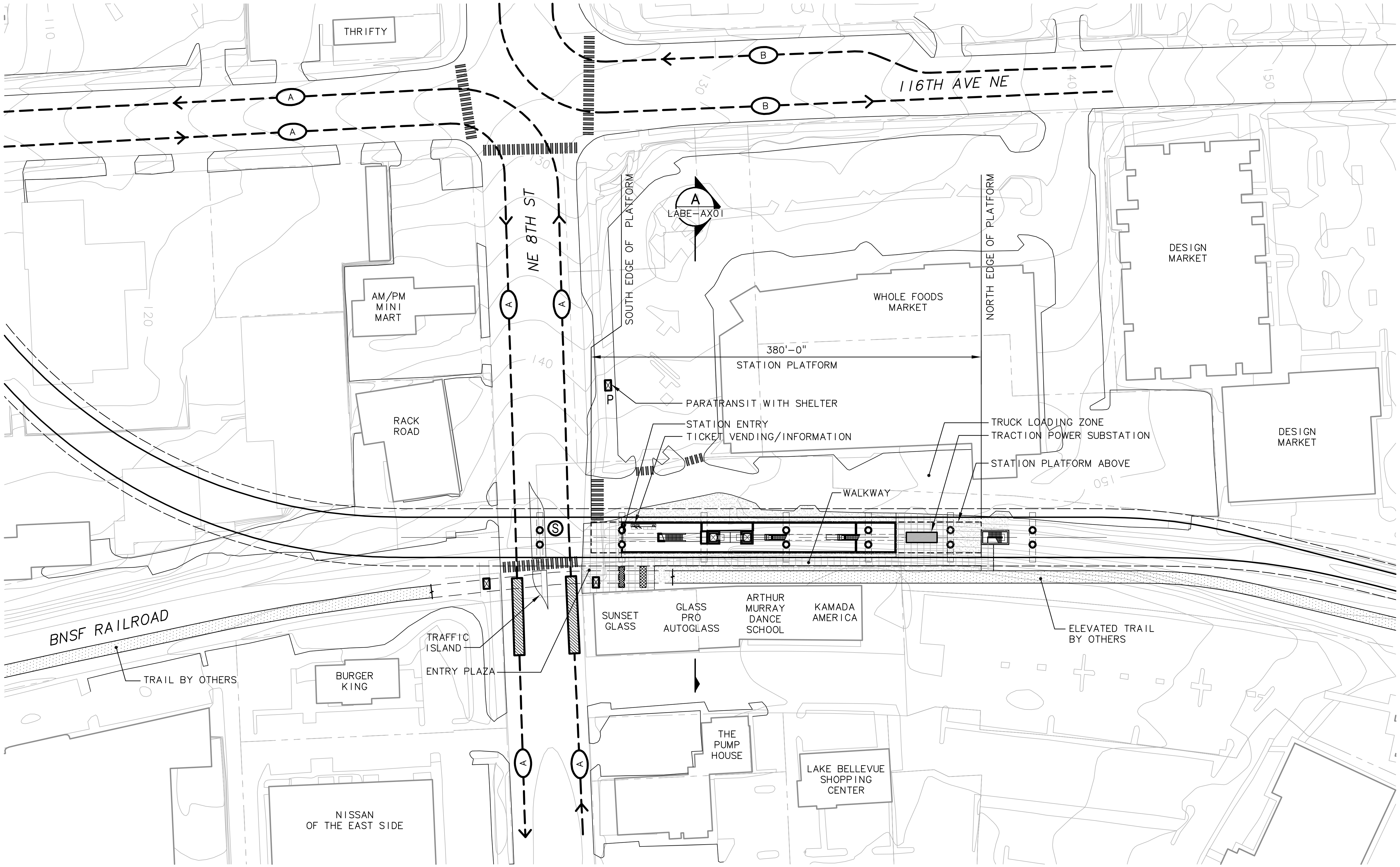
ELC_C2T_CM
ELC_C2T_JO
ELC_C2T_KA
ELC_LABE_AG
ELC_LABE_AS
ELC_LAB__AZ
REG-DCON
X0528CN
X0528SF
X0531CN
X0531SF
ZG-2234H
x0528rx
x0531rx

Unresolved

ELC_LABE_AP
X0528OP
X0531OP
X0531UT
X0531VG

LTSCALE

1=1



THRIFTY
116TH AVE NE
A
B
NE 8TH ST
A
LABE-AS01
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
AM/PM MINI MART
WHOLE FOODS MARKET
DESIGN MARKET
DESIGN MARKET
380'-0"
STATION PLATFORM
RACK ROAD
P
PARATRANSIT WITH SHELTER
STATION ENTRY
TICKET VENDING/INFORMATION
TRUCK LOADING ZONE
TRACTION POWER SUBSTATION
STATION PLATFORM ABOVE
WALKWAY
S
BNSF RAILROAD
SUNSET GLASS
GLASS PRO AUTOGLASS
ARTHUR MURRAY DANCE SCHOOL
KAMADA AMERICA
ELEVATED TRAIL BY OTHERS
TRAFFIC ISLAND
ENTRY PLAZA
TRAIL BY OTHERS
BURGER KING
THE PUMP HOUSE
LAKE BELLEVUE SHOPPING CENTER
NISSAN OF THE EAST SIDE
110
120
130
140
150

NOTES

1. ALIGNMENT CIT & C2T

SYMBOLS KEY

▬	NEW BUS STOP
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
Ⓢ	SIGNAL
–(A)–	BUS ROUTE : 253 RAPID RIDE
–(B)–	BUS ROUTE : 234
▩	BIKE STORAGE
▩	BIKE SHELTER/RACKS
▨	LANDSCAPED AREA
▦	PAVED AREA
░	TRAIL
▭	TICKET VENDING/ INFORMATION
‖‖‖‖	CROSSWALK
—	TRACK
▭	TRAIN

N

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELC1LABE_AS01.dwg
10/16/08 10:28 : eackerm 0E5396

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

STREETER & ASSOCIATES
ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET
206-621-9270
SEATTLE, WA 98101-2901
(FAX) 206-621-7715

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1LABE_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

HOSPITAL STATION
ALTERNATIVE CIT & C2T
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: LABE-AS01
Sheet No.: C-154
Rev.:

XREF'S

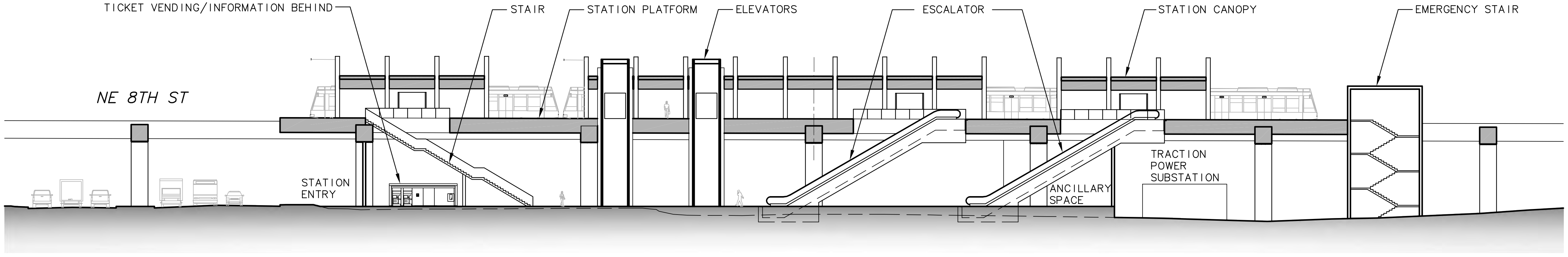
Resolved

ELC_LABE_AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

1=1

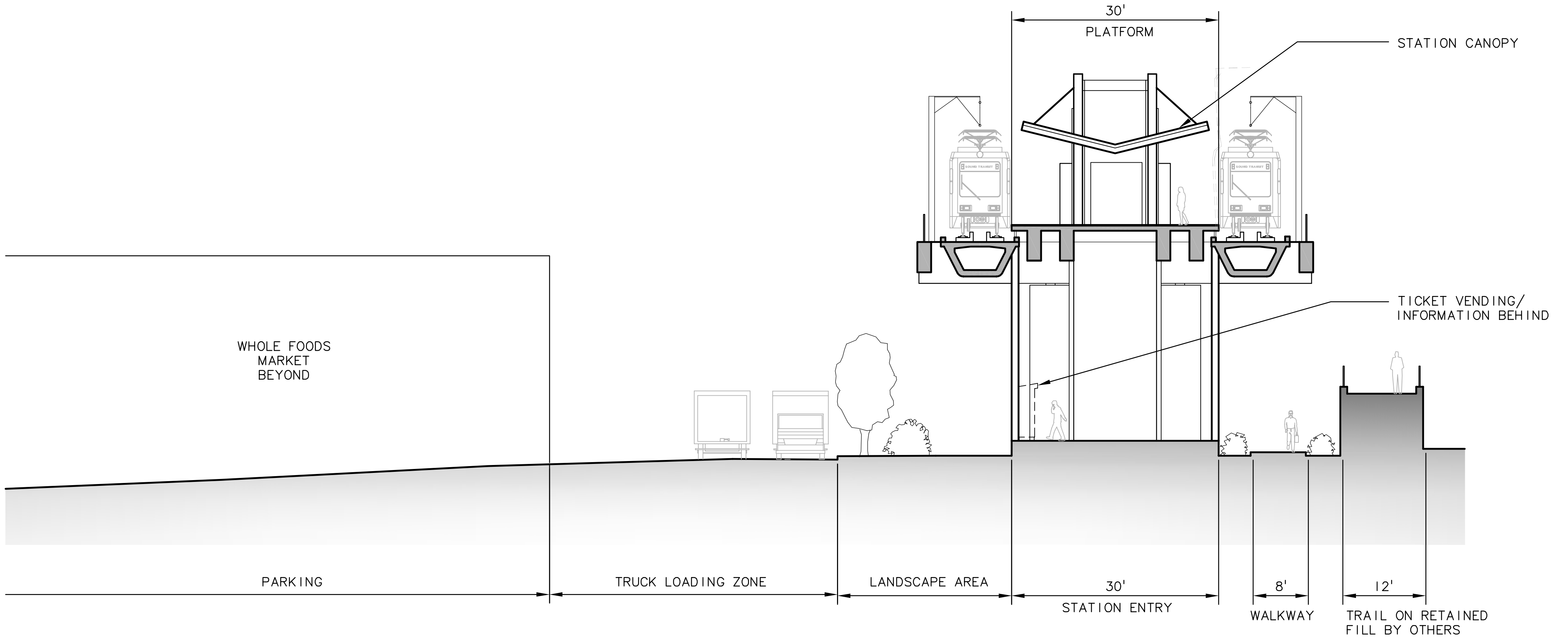

TICKET VENDING/INFORMATION BEHIND
STAIR
STATION PLATFORM
ELEVATORS
ESCALATOR
STATION CANOPY
EMERGENCY STAIR
NE 8TH ST
STATION ENTRY
TRACTION POWER SUBSTATION
ANCILLARY SPACE

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET

HOSPITAL STATION


30'
PLATFORM
STATION CANOPY
TICKET VENDING/
INFORMATION BEHIND
WHOLE FOODS
MARKET
BEYOND
PARKING
TRUCK LOADING ZONE
LANDSCAPE AREA
30'
STATION ENTRY
8'
WALKWAY
12'
TRAIL ON RETAINED
FILL BY OTHERS

SECTION LOOKING NORTH

SCALE: 1" = 10'

A
LABE-AX01
LABE-AS01

10 5 0 10 20
SCALE IN FEET

c:\work\ELCILABE_AX01.dwg
10/16/08 10:28 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:

STREETER & ASSOCIATES
ARCHITECTS AIA ▫ PLLC
185 UNIVERSITY STREET
206-621-9270
SEATTLE, WA 98101-2901
(FAX) 206-621-7715

Approved:
Date:

SOUNDTRANSIT

Scale: VARIES
Filename: ELCILABE_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

HOSPITAL STATION
ALTERNATIVE C1T & C2T
ELEVATION AND SECTION

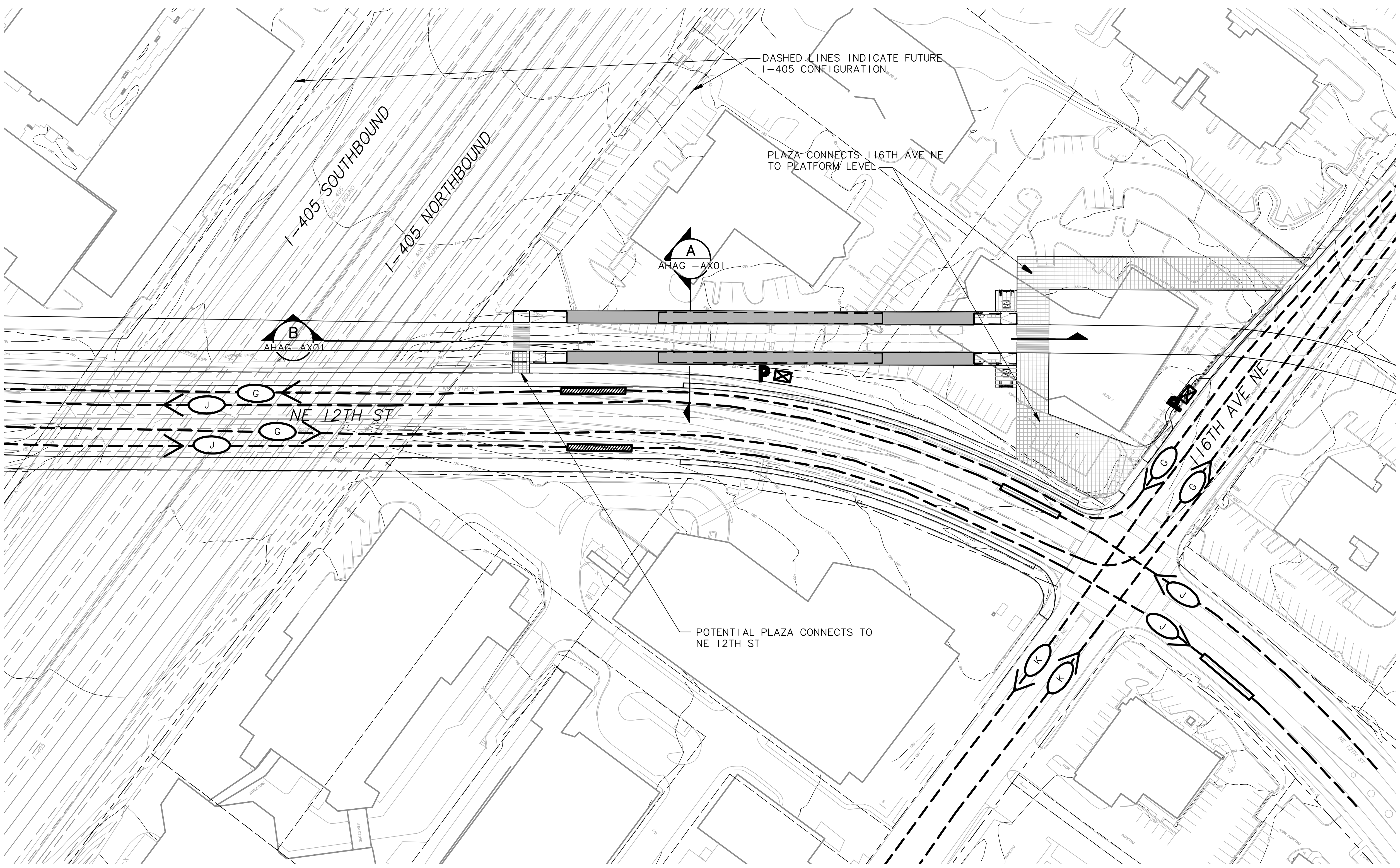
THIS PRINT REDUCED
HALF SCALE

Drawing No.: LABE-AX01
Sheet No.: C-155
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_AHEEAP_A_2A
ELC_BUSRTS_1
x0531cn
x0531rx
x0531sf
x1405_chan
zg-2234h
-Unresolved:


DASHED LINES INDICATE FUTURE I-405 CONFIGURATION
PLAZA CONNECTS 116TH AVE NE TO PLATFORM LEVEL
I-405 SOUTHBOUND
I-405 NORTHBOUND
A
AHAG-AX01
B
AHAG-AX01
NE 12TH ST
116TH AVE NE
POTENTIAL PLAZA CONNECTS TO NE 12TH ST
G
J
K
P

NOTES/LEGEND HEADING

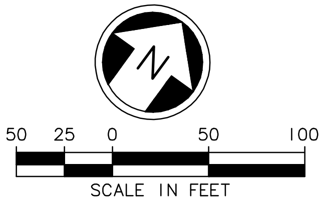
1. BUS ROUTES 233 & 249 ARE SHOWN TRAVELING OVER FUTURE EXPANDED NE 12TH ST

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
G	BUS ROUTE: 249
J	BUS ROUTE: 233
K	BUS ROUTE: 234
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼	TRACK

AT GRADE SIDE PLATFORM STATION ACCESS PLAN

SCALE: 1"=50'


N
50
25
0
50
100
SCALE IN FEET

c:\work\feis\ELC_AHAG_AS01.dwg
02/11/11 15:04 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

HEWITT

IBI GROUP
SUITE 1400
801 Second Avenue
Seattle, WA 98104-2374
Phone: (206) 521-9091
Fax: (206)521-9095

Date:

Approved:

SOUND TRANSIT

Date:

Scale: 1"=50'

Filename: ELC_AHAG_AS01.dwg

Contract No.: EL SEG_C

Date: 09/01/09

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C

ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C3T
STATION ACCESS PLAN

Drawing No.: AHAG-AS01

Sheet No.: C-156

Rev.:

DWG INFO:

LTSCALE:
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XREFs:
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-Overlay:
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zg-2234h
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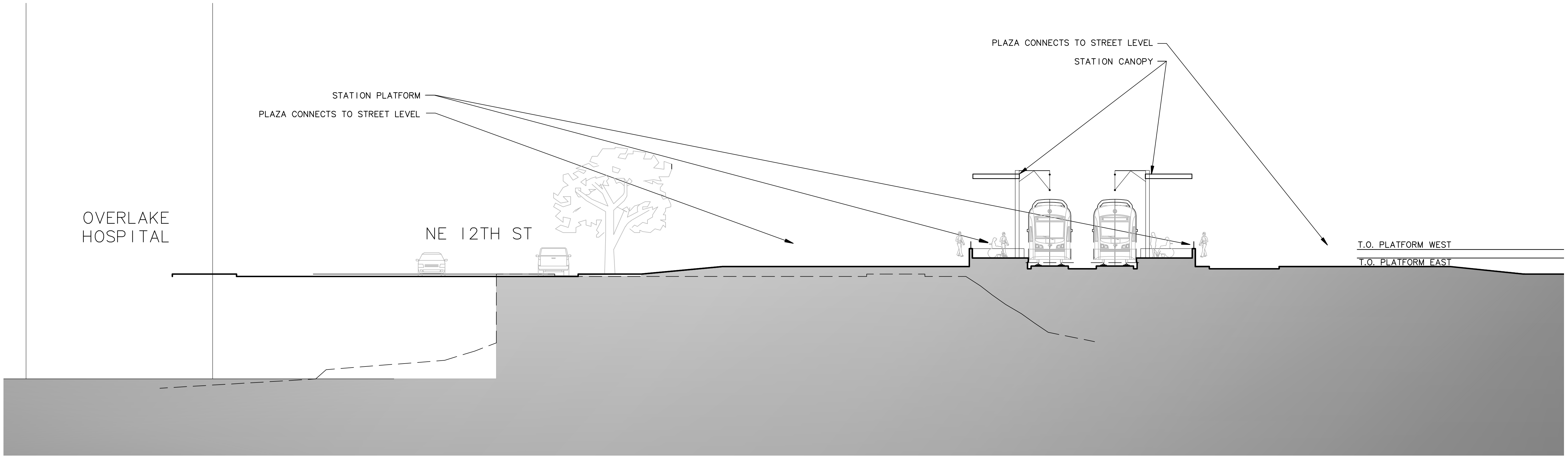
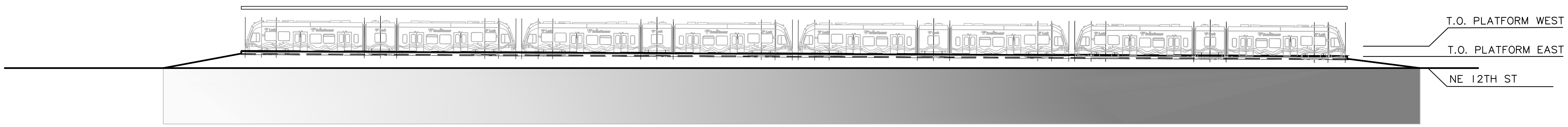


PLAZA CONNECTS TO STREET LEVEL
STATION CANOPY
STATION PLATFORM
PLAZA CONNECTS TO STREET LEVEL
OVERLAKE HOSPITAL
NE 12TH ST
T.O. PLATFORM WEST
T.O. PLATFORM EAST

SECTION (A) AHAG-AS01
SCALE: 1"=10'

10 5 0 10 20
SCALE IN FEET



T.O. PLATFORM WEST
T.O. PLATFORM EAST
NE 12TH ST

SECTION (B) AHAG-AS01
SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

c:\work\feis\ELC_AHAG_AX01.dwg
02/11/11 15:04 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

HEWITT

IBI GROUP
SUITE 1400
801 Second Avenue
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Date:
Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELC_AHAG_AX01.dwg
Contract No.: EL SEG_C
Date: 09/01/09

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C
ASHWOOD/ HOSPITAL STATION
ALTERNATE C3T
SECTIONS

Drawing No.: AHAG-AX01
Sheet No.: C-157
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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x0531rx
x0531sf
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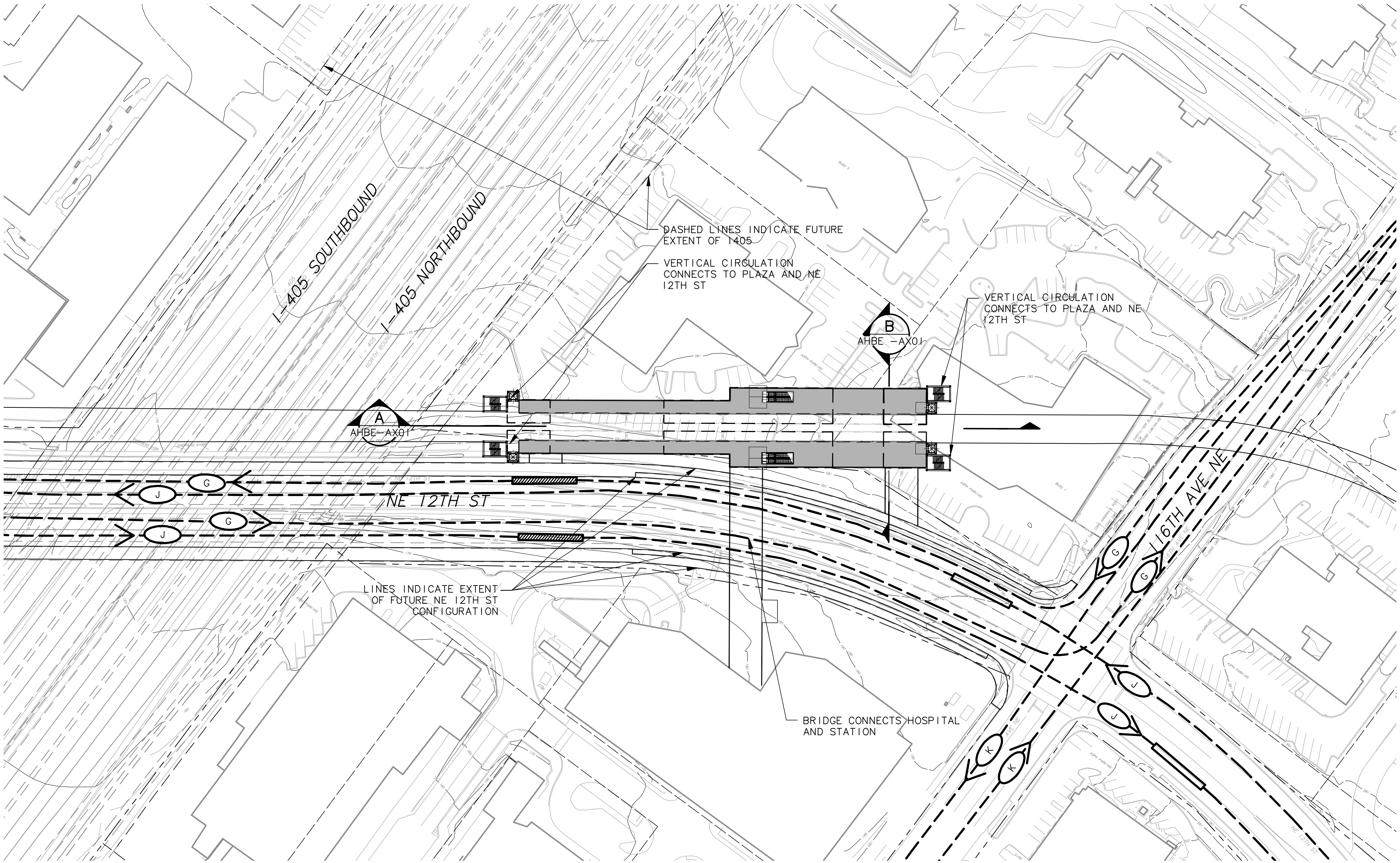

I-405 SOUTHBOUND
I-405 NORTHBOUND
DASHED LINES INDICATE FUTURE EXTENT OF I405
VERTICAL CIRCULATION CONNECTS TO PLAZA AND NE 12TH ST
VERTICAL CIRCULATION CONNECTS TO PLAZA AND NE 12TH ST
B
AHBE -AX01
A
AHBE-AX01
G
J
NE 12TH ST
LINES INDICATE EXTENT OF FUTURE NE 12TH ST CONFIGURATION
116TH AVE NE
BRIDGE CONNECTS HOSPITAL AND STATION
K

NOTES/LEGEND HEADING

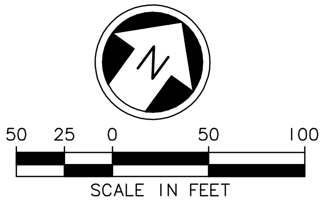
1. BUS ROUTES 233 & 249 ARE SHOWN TRAVELING OVER FUTURE EXPANDED NE 12TH ST

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	NEW BUS SHELTER
P	PARATRANSIT STOP
G	BUS ROUTE: 249
J	BUS ROUTE: 233
K	BUS ROUTE: 234
▩	BIKE STORAGE
▩	BIKE SHELTER
▭	TICKET VENDING/ INFORMATION
▥	CROSSWALK
┼	TRACK

ELEVATED W/ BRIDGE OVER NE 12TH ST
STATION ACCESS PLAN

SCALE: 1"=50'


N
50
25
0
50
100
SCALE IN FEET

c:\work\feis\ELC_AHBE_AS01.dwg
02/11/11 15:05 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

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Date:

Approved:

Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELC_AHBE_AS01.dwg
Contract No.: EL SEG_C
Date: 09/01/09

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C

ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C4A
STATION ACCESS PLAN

Drawing No.: AHBE-AS01
Sheet No.: C-158
Rev.:

DWG INFO:

LTSCALE:
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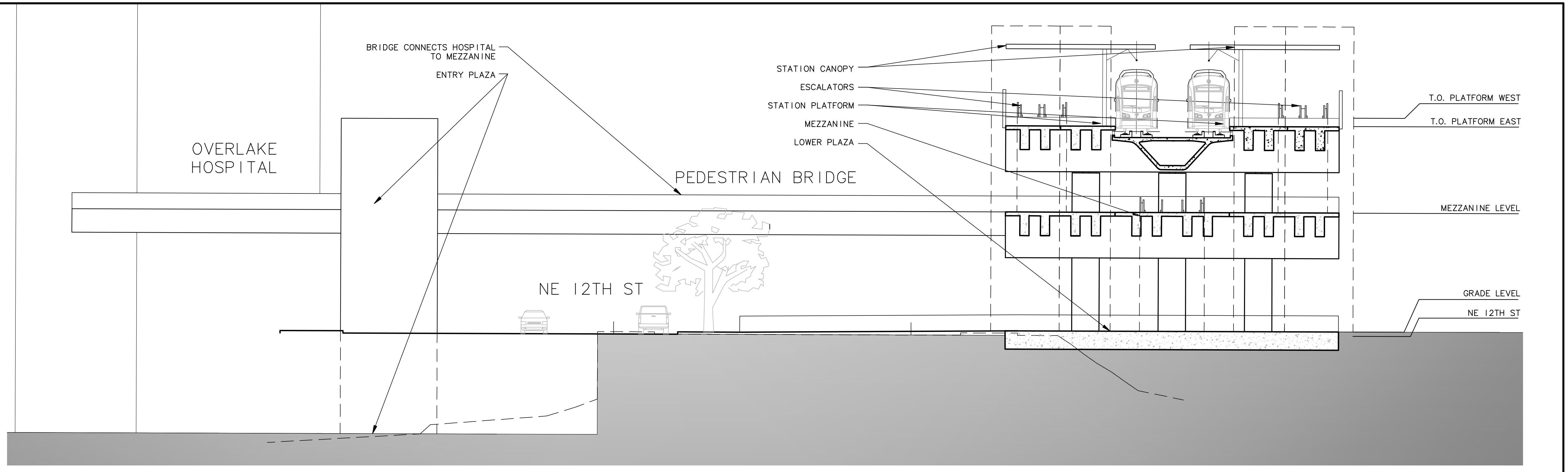
-Attach:
-Overlay:
ELC_AHEEAX_A_4E
zg-2234h
-Unresolved:

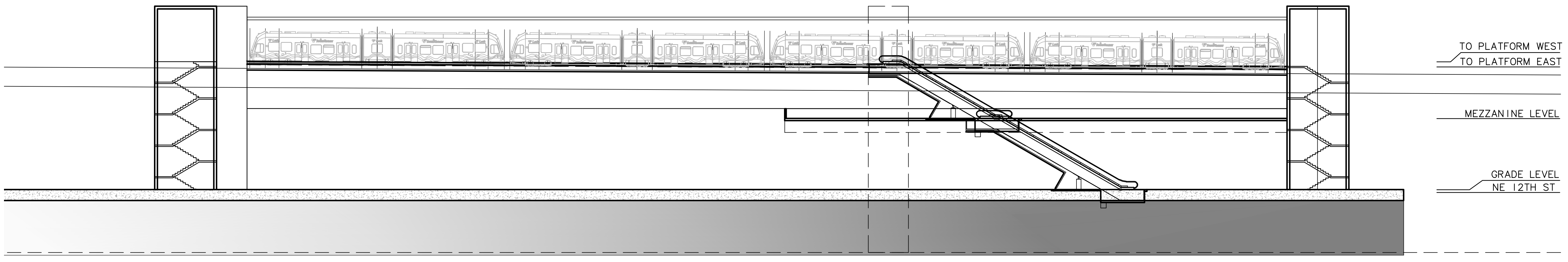


BRIDGE CONNECTS HOSPITAL TO MEZZANINE
ENTRY PLAZA
OVERLAKE HOSPITAL
PEDESTRIAN BRIDGE
NE 12TH ST
STATION CANOPY
ESCALATORS
STATION PLATFORM
MEZZANINE
LOWER PLAZA
T.O. PLATFORM WEST
T.O. PLATFORM EAST
MEZZANINE LEVEL
GRADE LEVEL
NE 12TH ST

SECTION B

SCALE: 1"=10' AHBE-AS01

10 5 0 10 20
SCALE IN FEET



TO PLATFORM WEST
TO PLATFORM EAST
MEZZANINE LEVEL
GRADE LEVEL
NE 12TH ST

SECTION A

SCALE: 1"=20' AHBE-AS01

20 10 0 20 40
SCALE IN FEET

c:\work\feis\ELC_AHBE_AX01.dwg
02/11/11 15:06 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

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CH2MHILL

Submitted:

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SUITE 1400
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Fax: (206)521-9095

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELC_AHBE_AX01.dwg
Contract No.: EL SEG_C
Date: 09/01/09

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C
ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C4A
SECTIONS

Drawing No.: AHBE-AX01
Sheet No.: C-159
Rev.:

XREF'S

Resolved

ELC_AHEEAP_A
ELC_AHEEAS_I
ELC_BUSRTS_I
ELC_C7E_CM
ELC_C7E_KA
REG-DCON
X0531CN
X0531SF
ZG-2234H
x0531rx

Unresolved

LTSCALE

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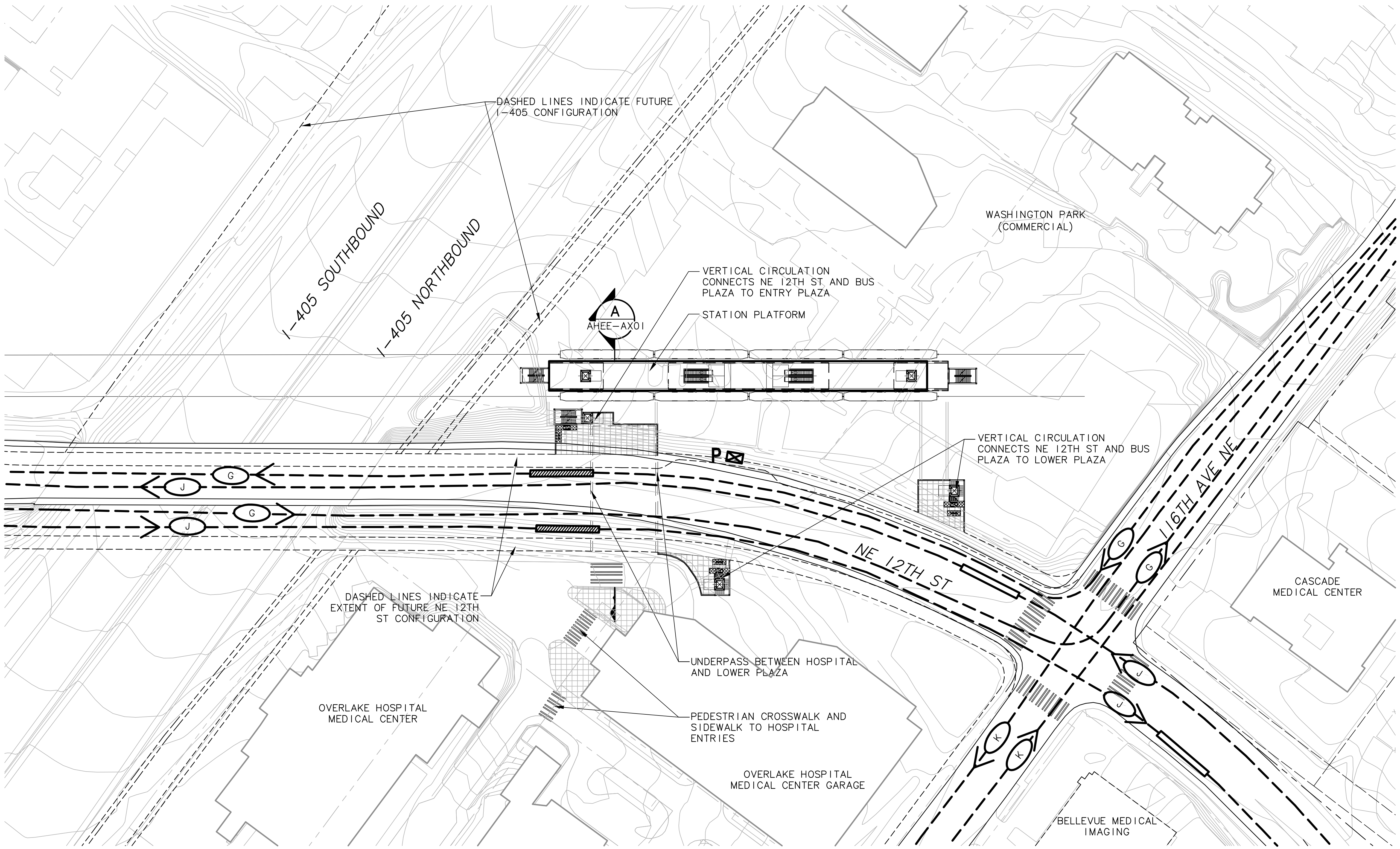

DASHED LINES INDICATE FUTURE I-405 CONFIGURATION
I-405 SOUTHBOUND
I-405 NORTHBOUND
A
AHEE-AX01
VERTICAL CIRCULATION CONNECTS NE 12TH ST AND BUS PLAZA TO ENTRY PLAZA
STATION PLATFORM
WASHINGTON PARK (COMMERCIAL)
VERTICAL CIRCULATION CONNECTS NE 12TH ST AND BUS PLAZA TO LOWER PLAZA
P
G
J
K
NE 12TH ST
116TH AVE NE
CASCADE MEDICAL CENTER
DASHED LINES INDICATE EXTENT OF FUTURE NE 12TH ST CONFIGURATION
UNDERPASS BETWEEN HOSPITAL AND LOWER PLAZA
PEDESTRIAN CROSSWALK AND SIDEWALK TO HOSPITAL ENTRIES
OVERLAKE HOSPITAL MEDICAL CENTER
OVERLAKE HOSPITAL MEDICAL CENTER GARAGE
BELLEVUE MEDICAL IMAGING

NOTES/LEGEND HEADING

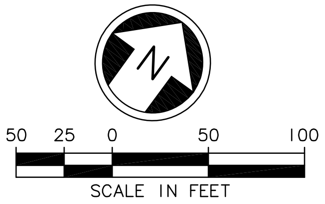
1. ALIGNMENT C7E
2. BUS ROUTES 233 & 249 ARE SHOWN TRAVELING OVER FUTURE EXPANDED NE 12TH ST

SYMBOLS KEY

▨ NEW BUS STOP
▭ EXISTING BUS STOP
▥ BUS LAYOVER
⊠ NEW BUS SHELTER
P PARATRANSIT STOP
(G) BUS ROUTE: 249
(J) BUS ROUTE: 233
(K) BUS ROUTE: 234
▩ BIKE STORAGE
▩ BIKE SHELTER
TICKET VENDING/ INFORMATION
|||||||| CROSSWALK
+—+—+ TRACK

STATION ACCESS PLAN

SCALE: 1"=50'


N
50
25
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50
100
SCALE IN FEET

c:\work\ELC1AHEE_AS01.dwg
10/16/08 09:05 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1AHEE_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C7E
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: AHEE-AS01
Sheet No.: C-160
Rev.:

XREF'S

Resolved

ELC_AHEEAX_A
REG-DCON
Zg-2234h

Unresolved

LTSCALE

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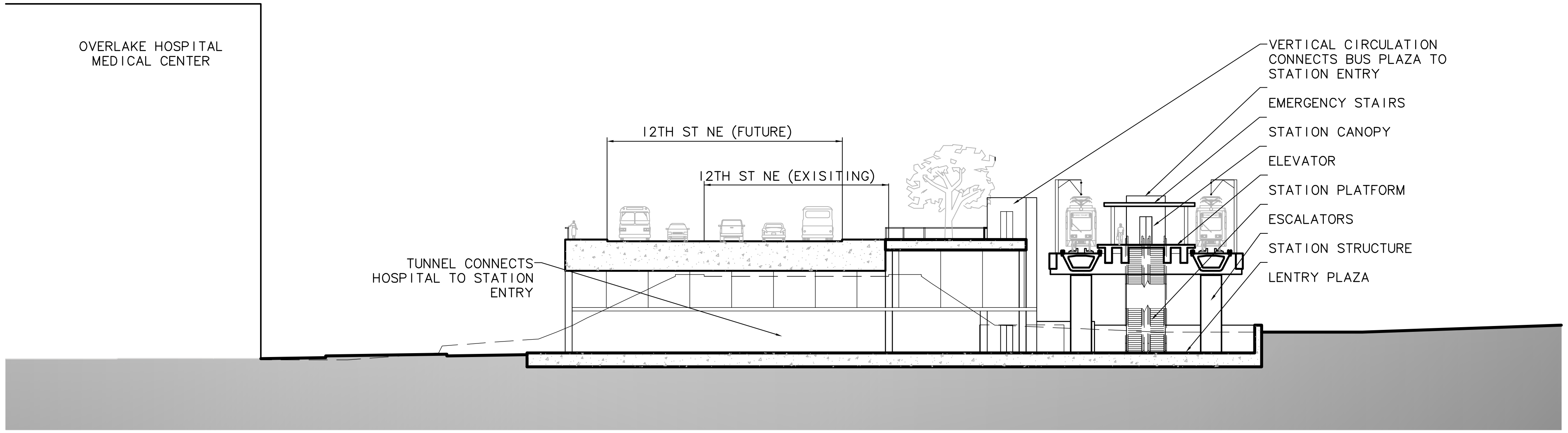
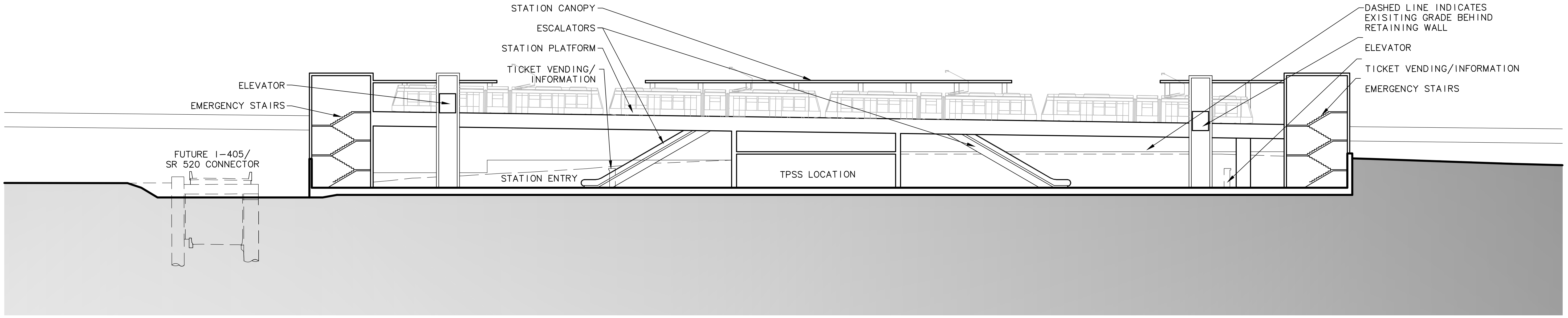


OVERLAKE HOSPITAL MEDICAL CENTER
12TH ST NE (FUTURE)
12TH ST NE (EXISITING)
TUNNEL CONNECTS HOSPITAL TO STATION ENTRY
VERTICAL CIRCULATION CONNECTS BUS PLAZA TO STATION ENTRY
EMERGENCY STAIRS
STATION CANOPY
ELEVATOR
STATION PLATFORM
ESCALATORS
STATION STRUCTURE
LENTRY PLAZA

CROSS SECTION A
SCALE: 1"=20'
AHEE-AS01



STATION CANOPY
ESCALATORS
STATION PLATFORM
TICKET VENDING/ INFORMATION
ELEVATOR
EMERGENCY STAIRS
FUTURE I-405/ SR 520 CONNECTOR
STATION ENTRY
TPSS LOCATION
DASHED LINE INDICATES EXISITING GRADE BEHIND RETAINING WALL
ELEVATOR
TICKET VENDING/INFORMATION
EMERGENCY STAIRS

ELEVATION
SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

c:\work\ELC1AHEE_AX01.dwg
10/16/08 09:06 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1AHEE_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C7E
CROSS SECTION & ELEVATION

THIS PRINT REDUCED HALF SCALE

Drawing No.: AHEE-AX01
Sheet No.: C-161
Rev.:

XREF'S

Resolved

ELC_AHWEAP_A
ELC_AHWEAS_I
ELC_BUSRTS_I
ELC_C3T_CM
ELC_C3T_KA
REG-DCON
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X0531SF
ZG-2234H
x0531rx

Unresolved

LTSCALE

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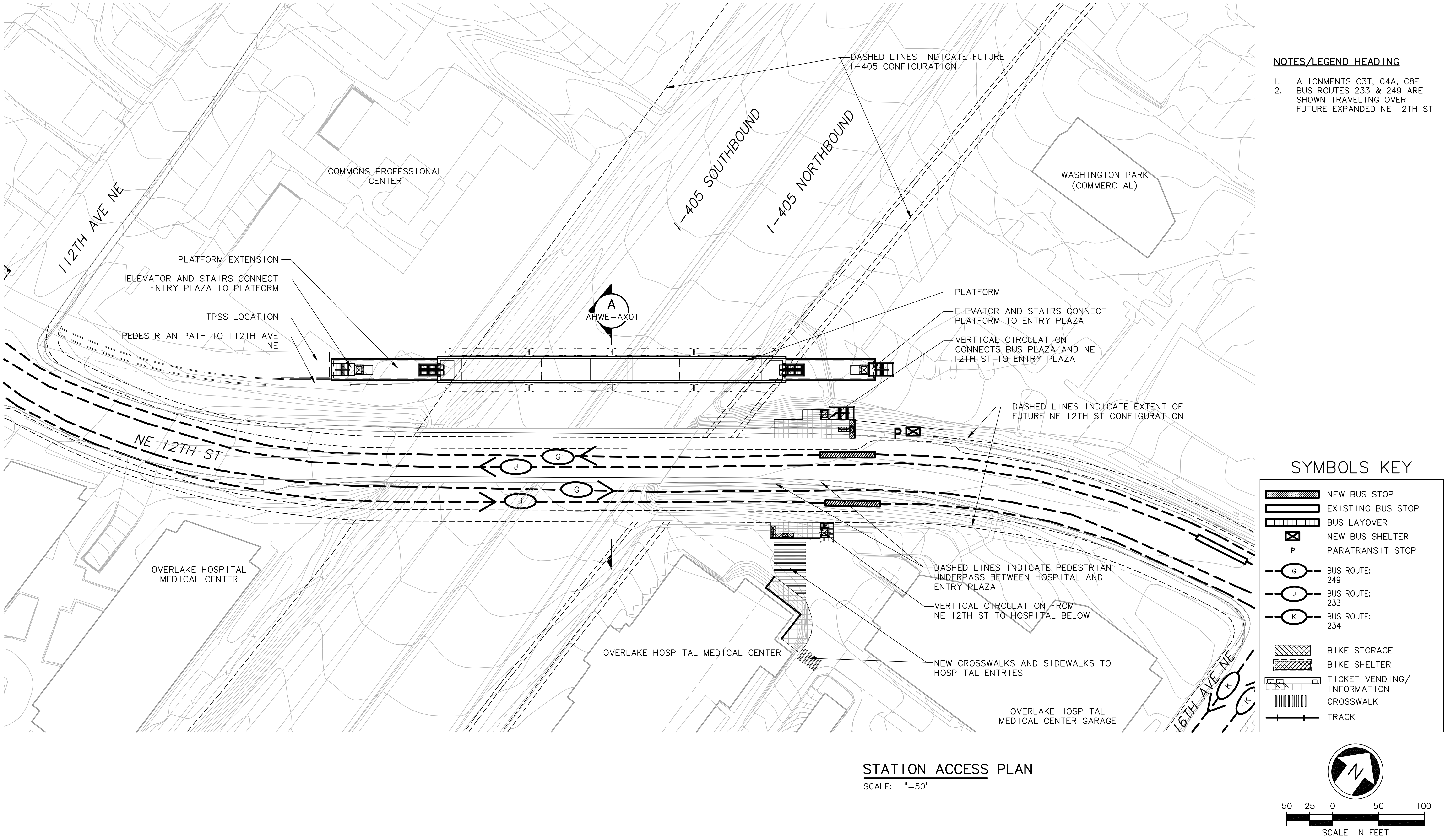

1
2
3
4
5
COMMONS PROFESSIONAL CENTER
112TH AVE NE
I-405 SOUTHBOUND
I-405 NORTHBOUND
WASHINGTON PARK (COMMERCIAL)
DASHED LINES INDICATE FUTURE I-405 CONFIGURATION
PLATFORM EXTENSION
ELEVATOR AND STAIRS CONNECT ENTRY PLAZA TO PLATFORM
TPSS LOCATION
PEDESTRIAN PATH TO 112TH AVE NE
A
AHWE-AS01
PLATFORM
ELEVATOR AND STAIRS CONNECT PLATFORM TO ENTRY PLAZA
VERTICAL CIRCULATION CONNECTS BUS PLAZA AND NE 12TH ST TO ENTRY PLAZA
DASHED LINES INDICATE EXTENT OF FUTURE NE 12TH ST CONFIGURATION
P
NE 12TH ST
J
G
G
J
OVERLAKE HOSPITAL MEDICAL CENTER
OVERLAKE HOSPITAL MEDICAL CENTER
DASHED LINES INDICATE PEDESTRIAN UNDERPASS BETWEEN HOSPITAL AND ENTRY PLAZA
VERTICAL CIRCULATION FROM NE 12TH ST TO HOSPITAL BELOW
NEW CROSSWALKS AND SIDEWALKS TO HOSPITAL ENTRIES
OVERLAKE HOSPITAL MEDICAL CENTER GARAGE
116TH AVE NE
K
K
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
NEW BUS SHELTER
P PARATRANSIT STOP
G BUS ROUTE: 249
J BUS ROUTE: 233
K BUS ROUTE: 234
BIKE STORAGE
BIKE SHELTER
TICKET VENDING/ INFORMATION
CROSSWALK
TRACK
N
50 25 0 50 100
SCALE IN FEET

NOTES/LEGEND HEADING

1. ALIGNMENTS C3T, C4A, C8E
2. BUS ROUTES 233 & 249 ARE SHOWN TRAVELING OVER FUTURE EXPANDED NE 12TH ST

STATION ACCESS PLAN

SCALE: 1"=50'

c:\work\ELC1AHWE_AS01.dwg
10/16/08 09:08 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC1AHWE_AS01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C8E
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: AHWE-AS01
Sheet No.: C-162
Rev.:

XREF'S

Resolved

ELC_AHWEAX_A
REG-DCON
ZG-2234H

Unresolved

LTSCALE

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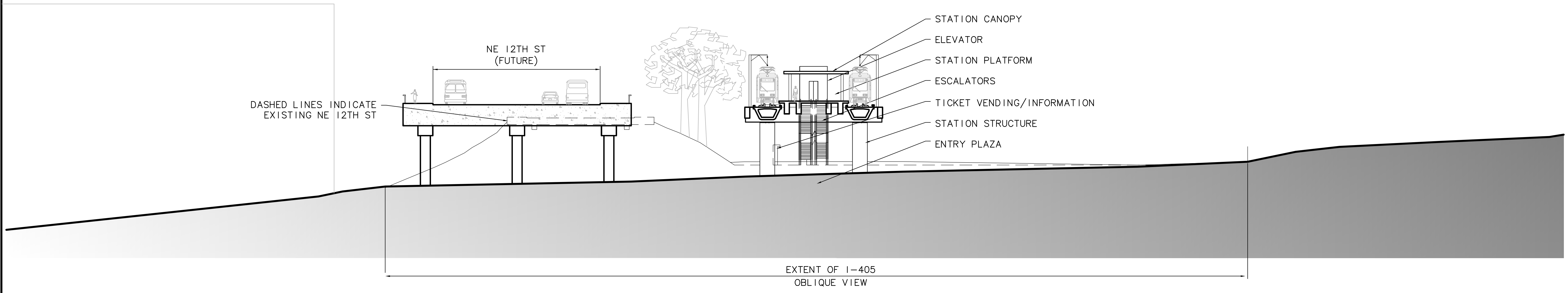
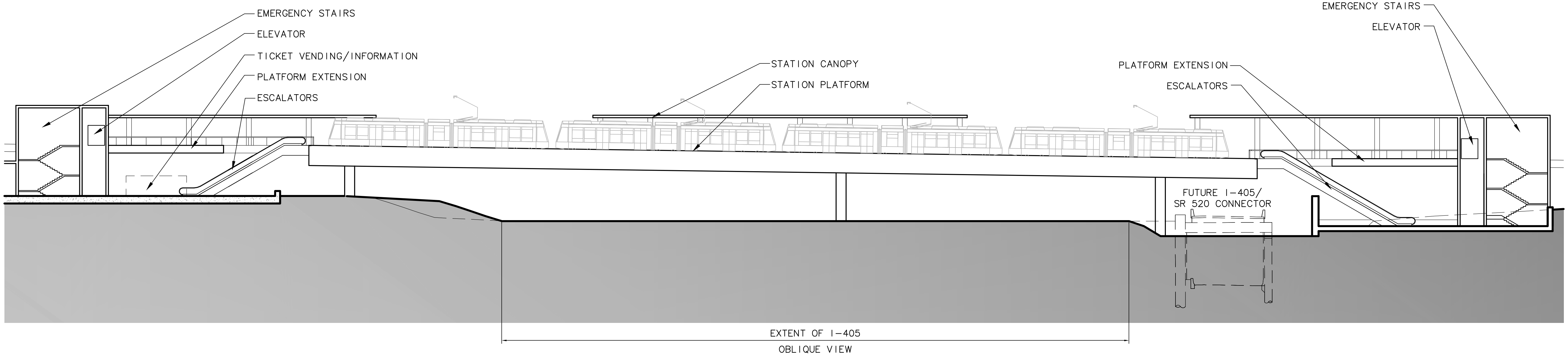

NE 12TH ST
(FUTURE)
DASHED LINES INDICATE
EXISTING NE 12TH ST
STATION CANOPY
ELEVATOR
STATION PLATFORM
ESCALATORS
TICKET VENDING/INFORMATION
STATION STRUCTURE
ENTRY PLAZA
EXTENT OF I-405
OBLIQUE VIEW

CROSS SECTION A

AHWE-AS01

SCALE: 1"=20'


EMERGENCY STAIRS
ELEVATOR
TICKET VENDING/INFORMATION
PLATFORM EXTENSION
ESCALATORS
STATION CANOPY
STATION PLATFORM
EMERGENCY STAIRS
ELEVATOR
PLATFORM EXTENSION
ESCALATORS
FUTURE I-405/
SR 520 CONNECTOR
EXTENT OF I-405
OBLIQUE VIEW

ELEVATION

SCALE: 1"=20'

20 10 0 20 40
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELC1AHWE_AX01.dwg
Contract No.: EL SEG_C
Date:

EAST LINK PROJECT
SEGMENT C

ASHWOOD/ HOSPITAL STATION
ALTERNATIVE C8E
CROSS SECTION & ELEVATION

THIS PRINT REDUCED HALF SCALE

Drawing No.: AHWE-AX01
Sheet No.: C-163
Rev.:

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10/16/08 09:08 : eackerm 0E5396

DWG INFO:

LTSCALE:
1=1

XREFs:
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–Overlay:
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ZG-2234H
key_Segment
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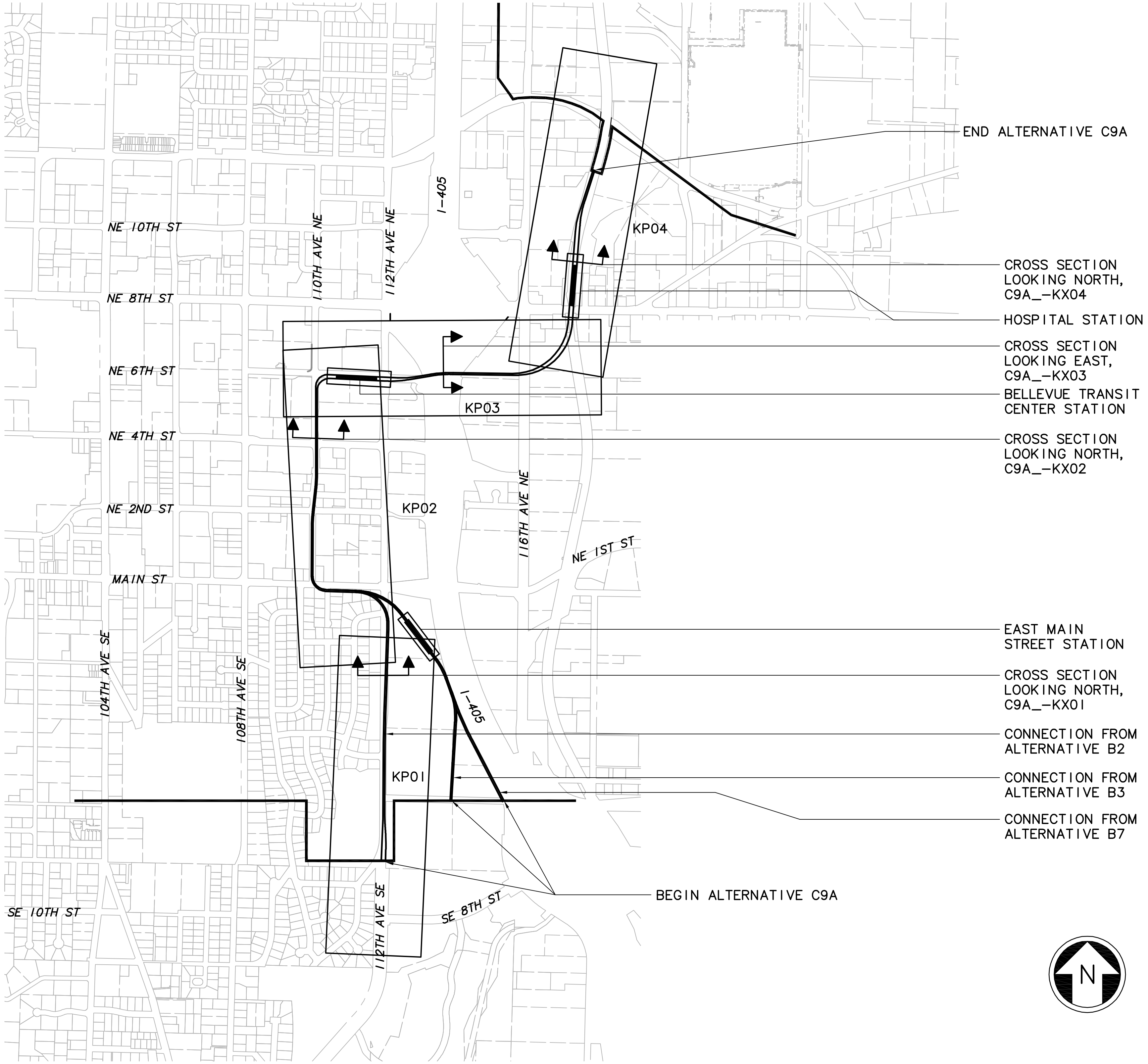
END ALTERNATIVE C9A
I-405
KP04
NE 10TH ST
110TH AVE NE
112TH AVE NE
CROSS SECTION LOOKING NORTH, C9A_-KX04
NE 8TH ST
HOSPITAL STATION
CROSS SECTION LOOKING EAST, C9A_-KX03
NE 6TH ST
BELLEVUE TRANSIT CENTER STATION
KP03
NE 4TH ST
CROSS SECTION LOOKING NORTH, C9A_-KX02
KP02
NE 2ND ST
116TH AVE NE
NE 1ST ST
MAIN ST
EAST MAIN STREET STATION
104TH AVE SE
108TH AVE SE
CROSS SECTION LOOKING NORTH, C9A_-KX01
I-405
CONNECTION FROM ALTERNATIVE B2
KP01
CONNECTION FROM ALTERNATIVE B3
CONNECTION FROM ALTERNATIVE B7
BEGIN ALTERNATIVE C9A
SE 10TH ST
112TH AVE SE
SE 8TH ST
N

c:\work\sdeis\ELC_2C9A_GZ05.dwg
10/04/10 14:05 : bolimaf 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

Submitted:
Date:
Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELC_2C9A_GZ05.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
KEY PLAN

Drawing No.: C9A_-GZ05
Sheet No.: C-164
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Attach:
-Overlay:
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ZG-2234H
ZG-G10010
key_Segment
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x0222sf
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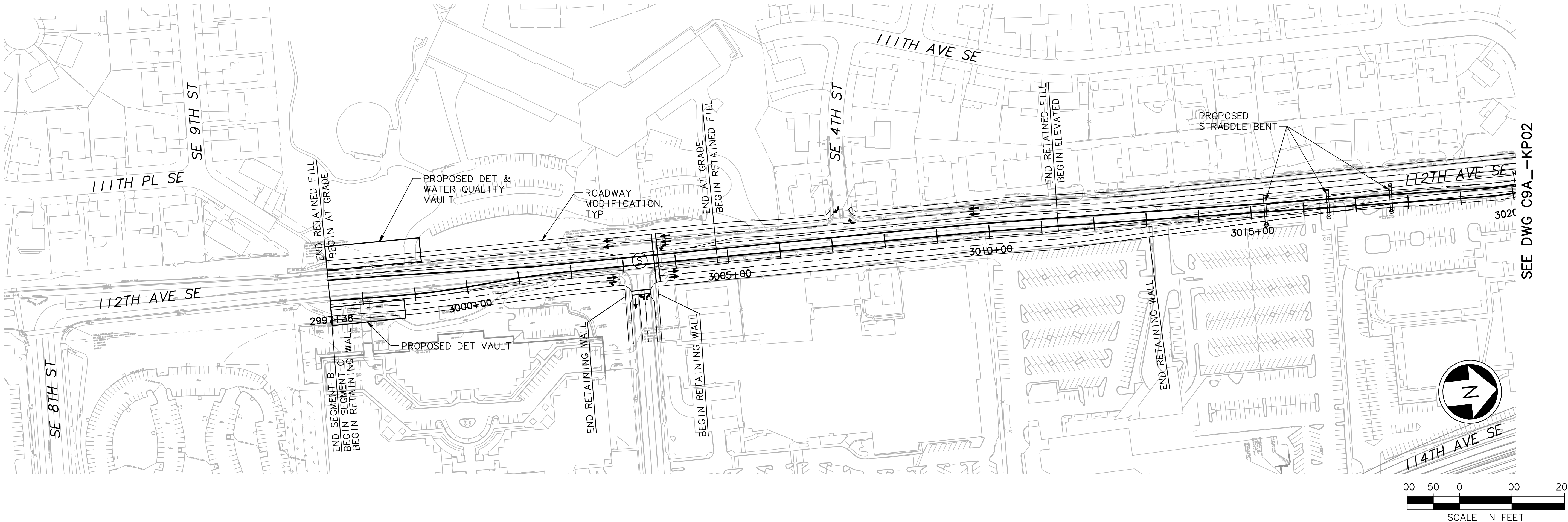
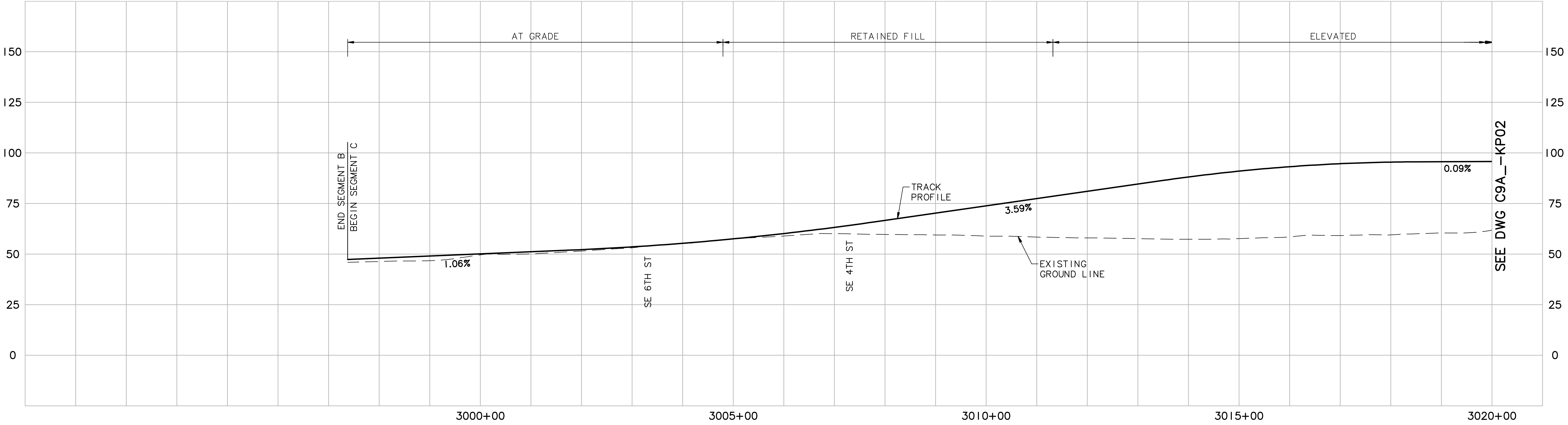

111TH PL SE
SE 9TH ST
111TH AVE SE
SE 4TH ST
112TH AVE SE
SE 8TH ST
114TH AVE SE
END RETAINED FILL
BEGIN AT GRADE
PROPOSED DET & WATER QUALITY VAULT
ROADWAY MODIFICATION, TYP
END AT GRADE
BEGIN RETAINED FILL
END RETAINED FILL
BEGIN ELEVATED
PROPOSED STRADDLE BENT
2997+38
3000+00
3005+00
3010+00
3015+00
PROPOSED DET VAULT
END SEGMENT B
BEGIN SEGMENT C
BEGIN RETAINING WALL
END RETAINING WALL
BEGIN RETAINING WALL
END RETAINING WALL
S
N
SEE DWG C9A_-KP02
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment c\c9a\ELC_2C9A_KP01.dwg
04/15/11 16:45 : khuum 0E6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC_2C9A_KP01.dwg
Contract No.:
Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A
TRACK PLAN & PROFILE

Drawing No.:
C9A_-KP01

Sheet No.: Rev.:
C-165

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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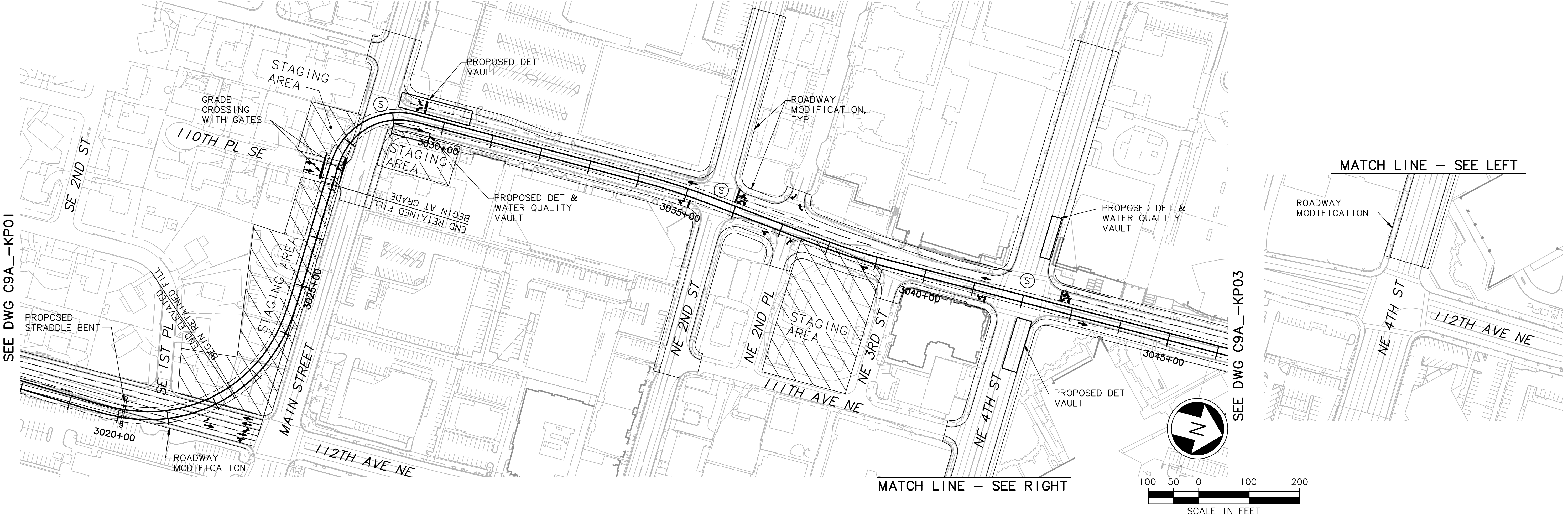
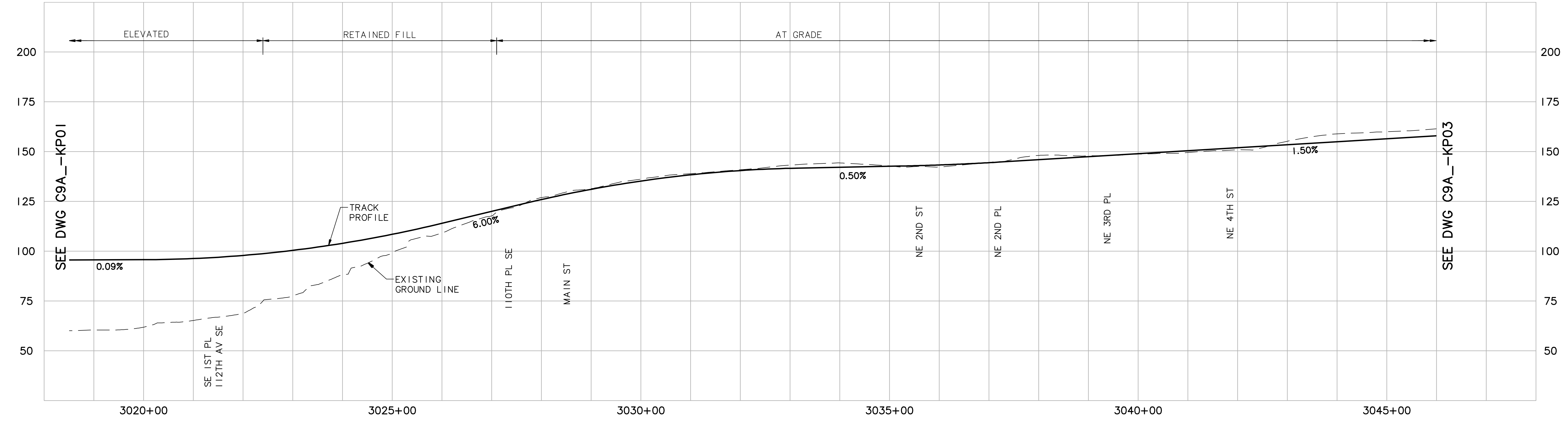

STAGING AREA
GRADE CROSSING WITH GATES
PROPOSED DET VAULT
110TH PL SE
SE 2ND ST
3030+00
STAGING AREA
PROPOSED DET & WATER QUALITY VAULT
BEGIN AT GRADE
END RETAINED FILL
ROADWAY MODIFICATION, TYP
3035+00
PROPOSED DET & WATER QUALITY VAULT
MATCH LINE - SEE LEFT
ROADWAY MODIFICATION
SEE DWG C9A_-KP01
PROPOSED STRADDLE BENT
END ELEVATED
BEGIN RETAINED FILL
SE 1ST PL
STAGING AREA
3025+00
MAIN STREET
NE 2ND ST
NE 2ND PL
STAGING AREA
NE 3RD ST
3040+00
NE 4TH ST
112TH AVE NE
3045+00
SEE DWG C9A_-KP03
3020+00
ROADWAY MODIFICATION
112TH AVE NE
111TH AVE NE
NE 4TH ST
PROPOSED DET VAULT
N
MATCH LINE - SEE RIGHT
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment c\c9a\ELC_2C9A_KP02.dwg
04/14/11 14:28 : khuum OE6585

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H: 1"=100'; V: 1"=25'

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A
TRACK PLAN & PROFILE

Drawing No.:
C9A_-KP02

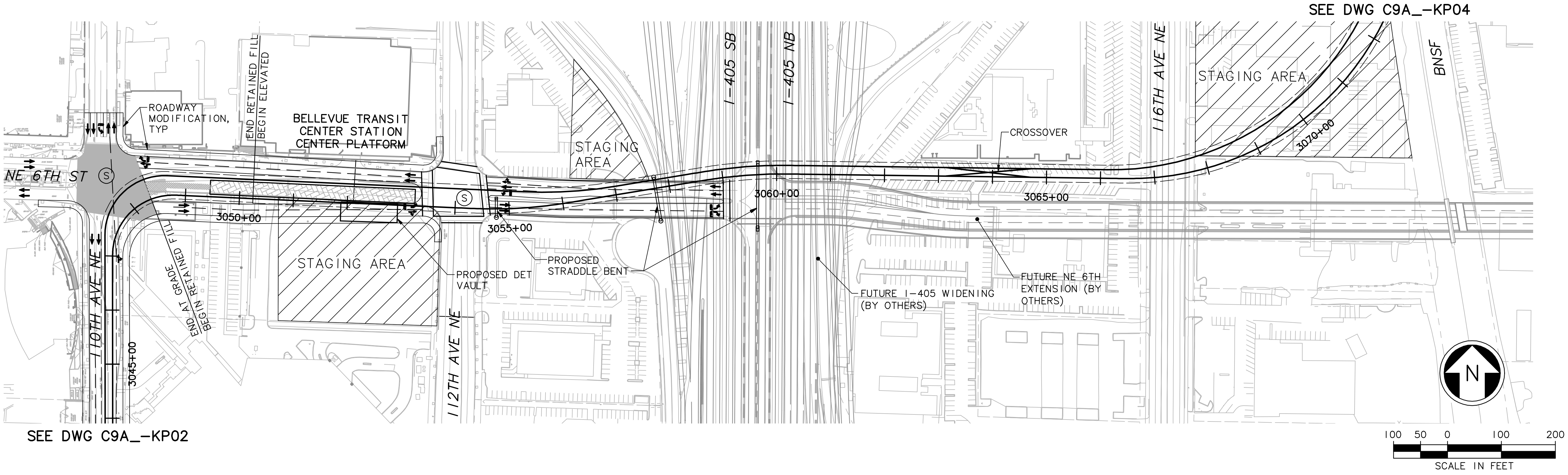
Sheet No.:
C-166

Rev.:

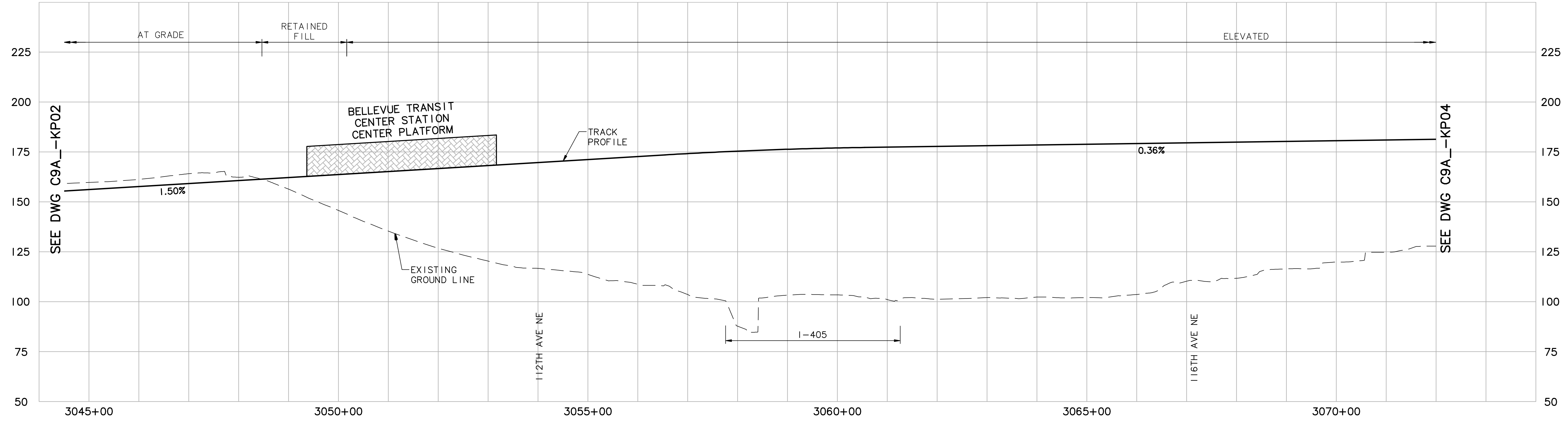
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C9A_KA-100
Future-NE6th
SUB-FEIS
ZG-2234H
ZG-G10010
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf
x1405_chan
-Unresolved:



SEE DWG C9A_-KP04
ROADWAY MODIFICATION, TYP
END RETAINED FILL
BEGIN ELEVATED
BELLEVUE TRANSIT CENTER STATION CENTER PLATFORM
STAGING AREA
I-405 SB
I-405 NB
116TH AVE NE
STAGING AREA
BNSF
CROSSOVER
3070+00
NE 6TH ST
S
3060+00
3065+00
3050+00
S
3055+00
STAGING AREA
PROPOSED DET VAULT
PROPOSED STRADDLE BENT
FUTURE I-405 WIDENING (BY OTHERS)
FUTURE NE 6TH EXTENSION (BY OTHERS)
110TH AVE NE
END AT GRADE
BEGIN RETAINED FILL
3045+00
112TH AVE NE
N
SEE DWG C9A_-KP02
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment c\c9a\ELC_2C9A_KP03.dwg
04/14/11 14:40 : khuum 0E6585

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A
TRACK PLAN & PROFILE

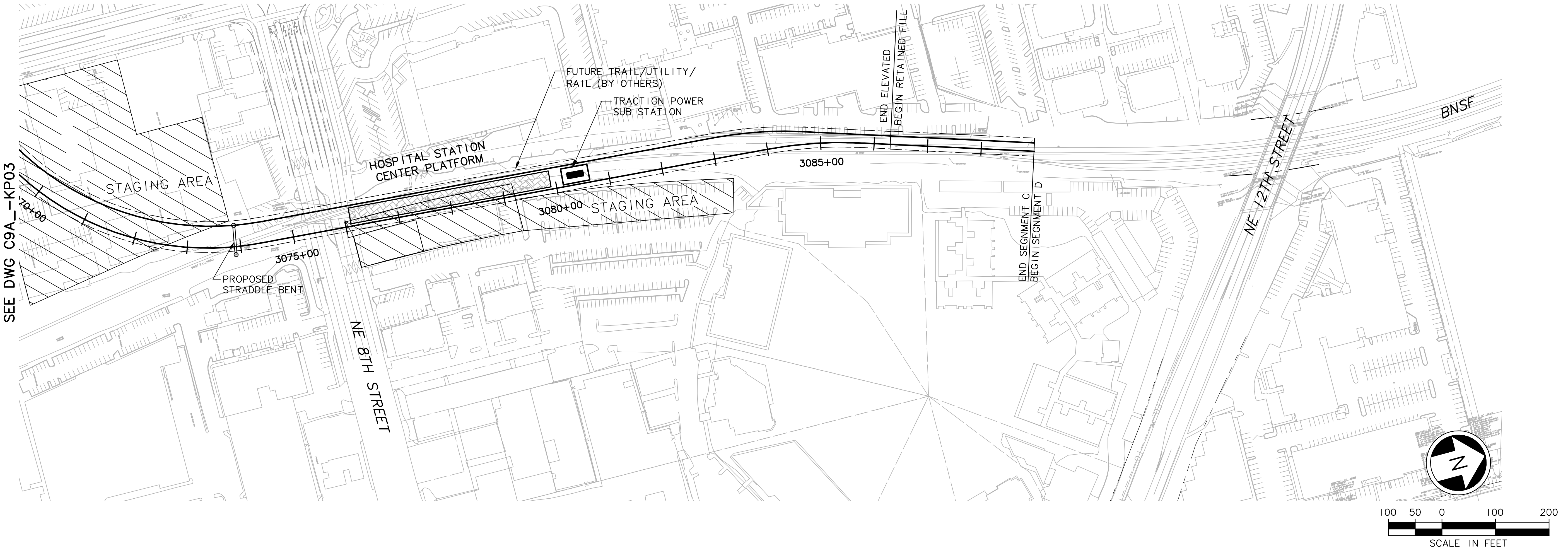
Drawing No.:
C9A_-KP03

Sheet No.: C-167
Rev.:

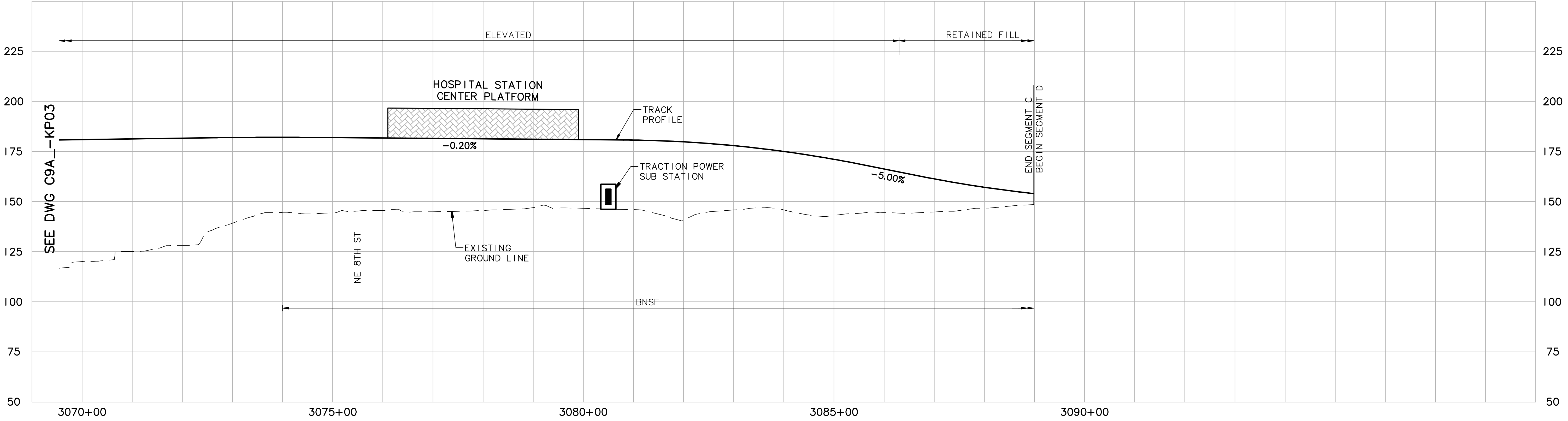
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C9A_KA-100
ZG-2234H
ZG-G10010
key_Segment
x0528sf
x0531rx
x0531sf
x0831rx
x0831sf
x0831ut
x1405_chan
-Unresolved:



SEE DWG C9A_-KP03
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
TRACTION POWER SUB STATION
HOSPITAL STATION CENTER PLATFORM
STAGING AREA
STAGING AREA
3070+00
3075+00
3080+00
3085+00
PROPOSED STRADDLE BENT
NE 8TH STREET
END ELEVATED
BEGIN RETAINED FILL
END SEGMENT C
BEGIN SEGMENT D
NE 12TH STREET
BNSF
N
100 50 0 100 200
SCALE IN FEET



ELEVATED
RETAINED FILL
HOSPITAL STATION CENTER PLATFORM
TRACK PROFILE
-0.20%
-5.00%
TRACTION POWER SUB STATION
END SEGMENT C
BEGIN SEGMENT D
SEE DWG C9A_-KP03
NE 8TH ST
EXISTING GROUND LINE
BNSF
225
200
175
150
125
100
75
50
3070+00
3075+00
3080+00
3085+00
3090+00

c:\work\feis\segment c\c9a\ELC_2C9A_KP04.dwg
03/18/11 14:54 : khuum OE6585

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Filename:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A
TRACK PLAN & PROFILE

Drawing No.:
C9A_-KP04

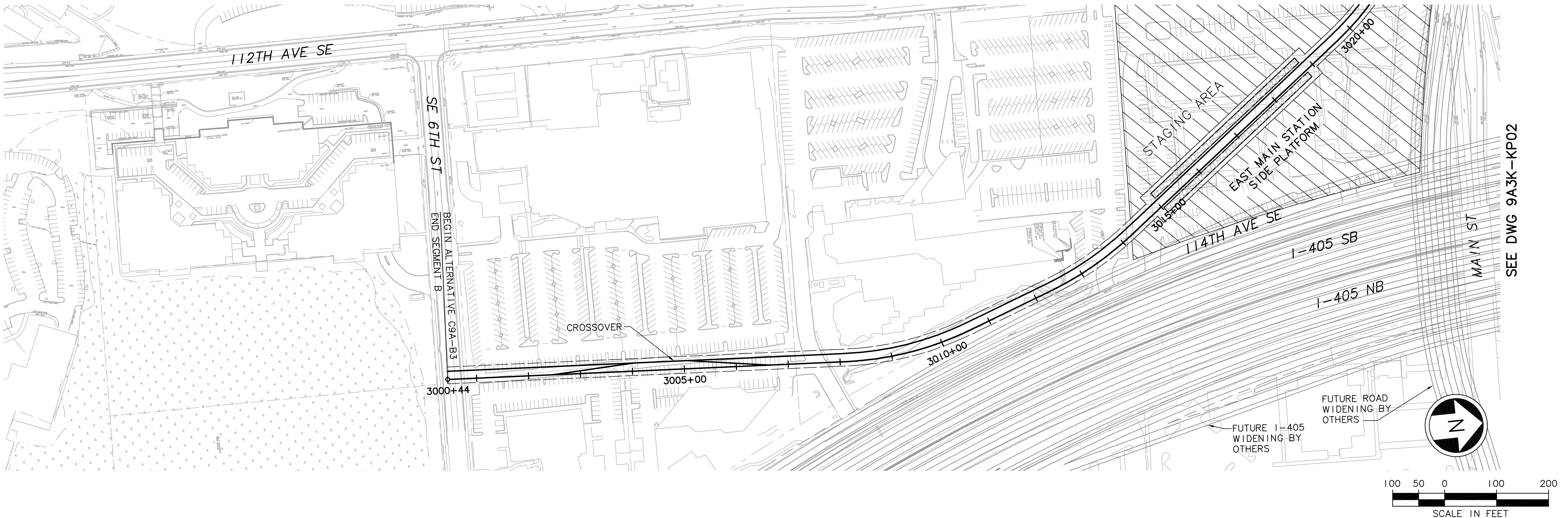
Sheet No.: C-168

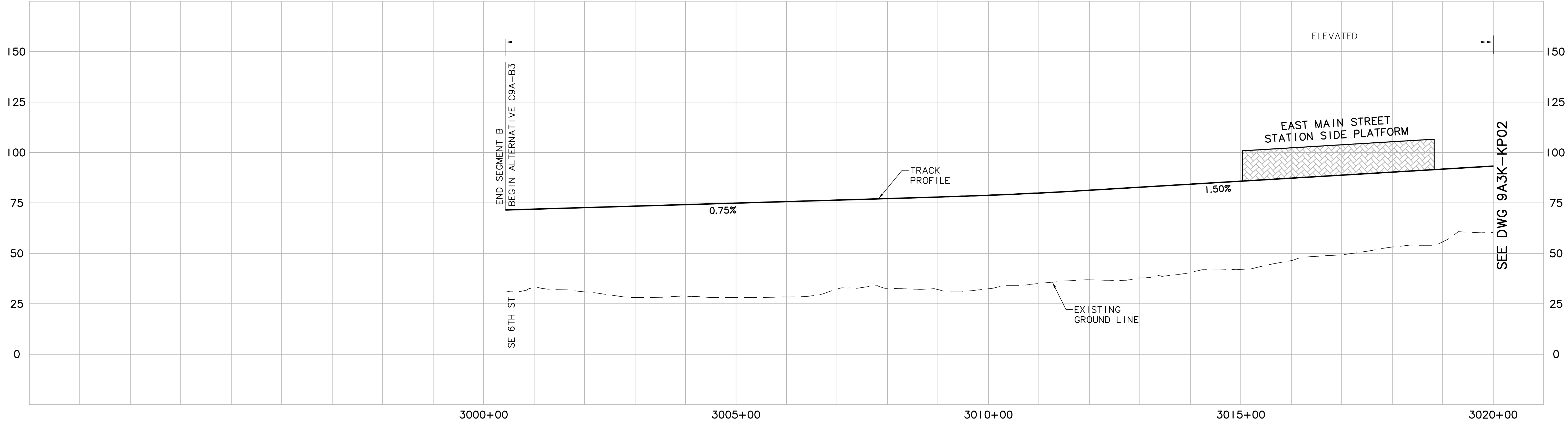
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C9A_B3_KA-100
ZG-2234H
ZG-G10010
key_Segment
x0222rx
x0222sf
x0522rx
x0522sf
x0525rx
x0525sf
x0528rx
x0528sf
x0531rx
x0531sf
x1405_chan
-Unresolved:


112TH AVE SE
SE 6TH ST
BEGIN ALTERNATIVE C9A-B3
END SEGMENT B
CROSSOVER
3000+44
3005+00
3010+00
3015+00
3020+00
STAGING AREA
EAST MAIN STATION SIDE PLATFORM
114TH AVE SE
I-405 SB
I-405 NB
MAIN ST
SEE DWG 9A3K-KP02
FUTURE ROAD WIDENING BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELC_C9A3KP01.dwg
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Filename:
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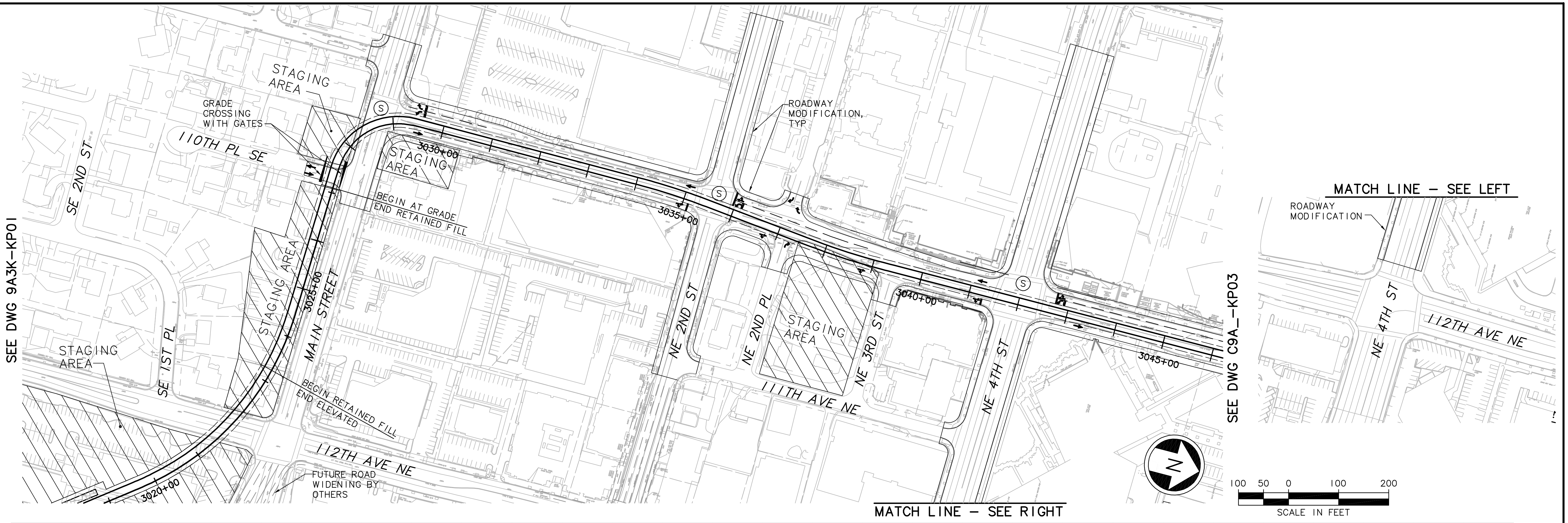
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A FROM B3
TRACK PLAN & PROFILE

Drawing No.:
9A3K-KP01
Sheet No.:
C-169
Rev.:

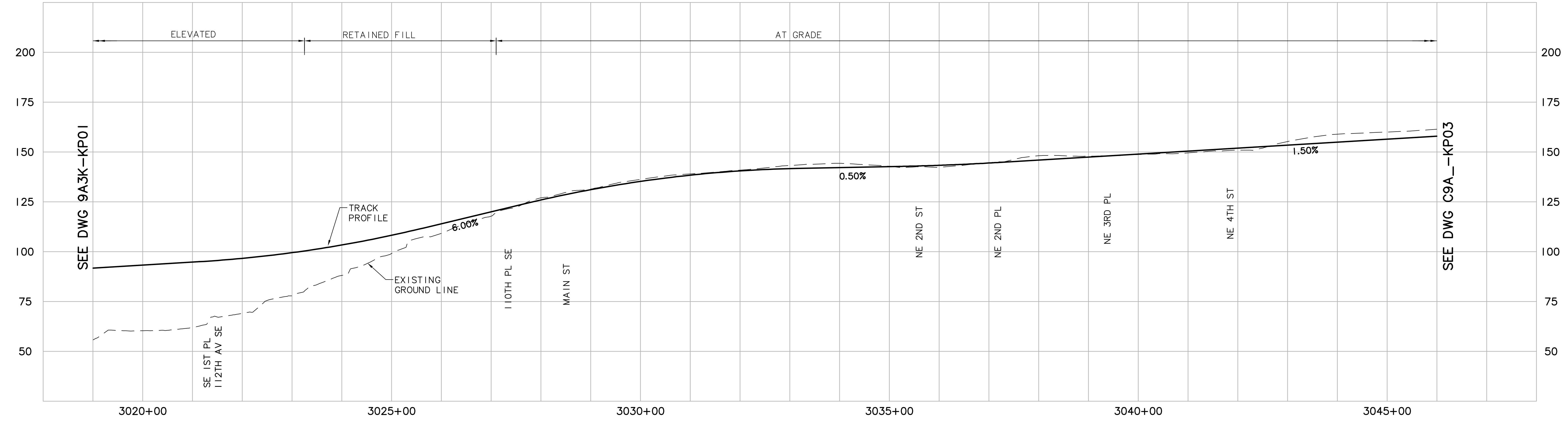
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C9A_B3_KA-100
ZG-2234H
ZG-G10010
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x1405_chan
-Unresolved:



SEE DWG 9A3K-KP01
SEE DWG C9A_-KP03
STAGING AREA
GRADE CROSSING WITH GATES
110TH PL SE
SE 2ND ST
SE 1ST PL
MAIN STREET
BEGIN AT GRADE
END RETAINED FILL
BEGIN RETAINED FILL
END ELEVATED
112TH AVE NE
FUTURE ROAD WIDENING BY OTHERS
ROADWAY MODIFICATION, TYP
NE 2ND ST
NE 2ND PL
NE 3RD ST
111TH AVE NE
NE 4TH ST
3020+00
3025+00
3030+00
3035+00
3040+00
3045+00
S
N
MATCH LINE - SEE RIGHT
MATCH LINE - SEE LEFT
ROADWAY MODIFICATION
100 50 0 100 200
SCALE IN FEET



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Filename: ELC_C9A3KP02.dwg
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A FROM B3

TRACK PLAN & PROFILE

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Drawing No.: 9A3K-KP02
Sheet No.: C-170
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C9A_B7_KA-100
ZG-2234H
ZG-G10010
key_Segment
x0222rx
x0222sf
x0522rx
x0522sf
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x0525sf
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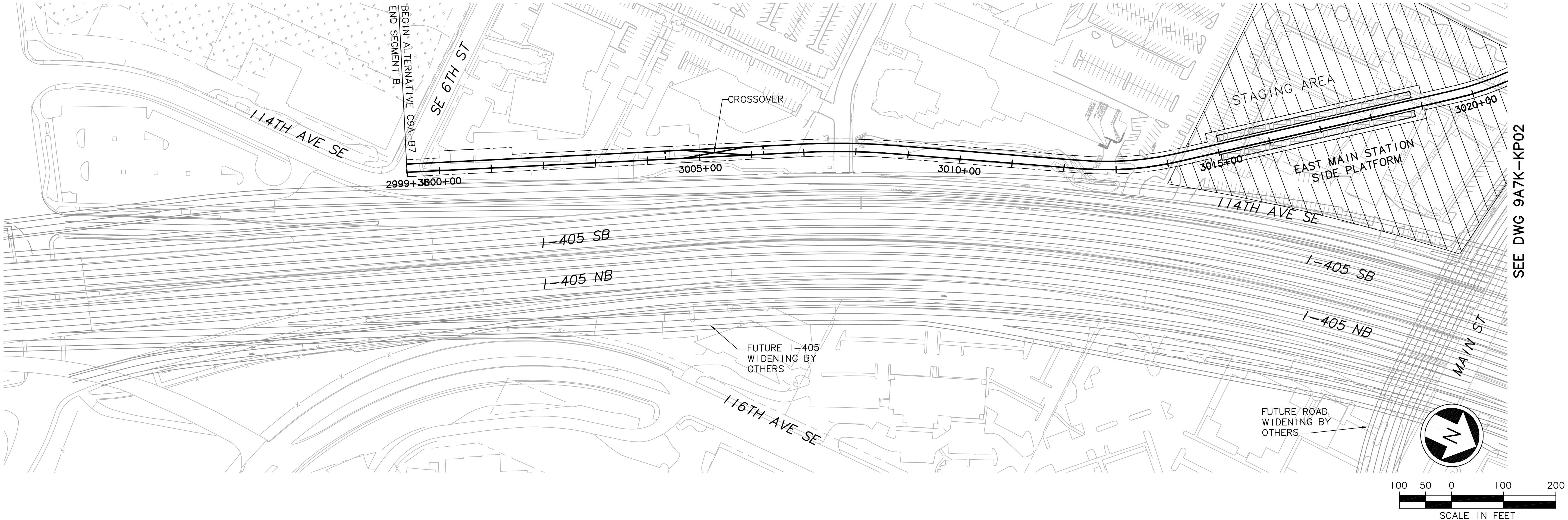
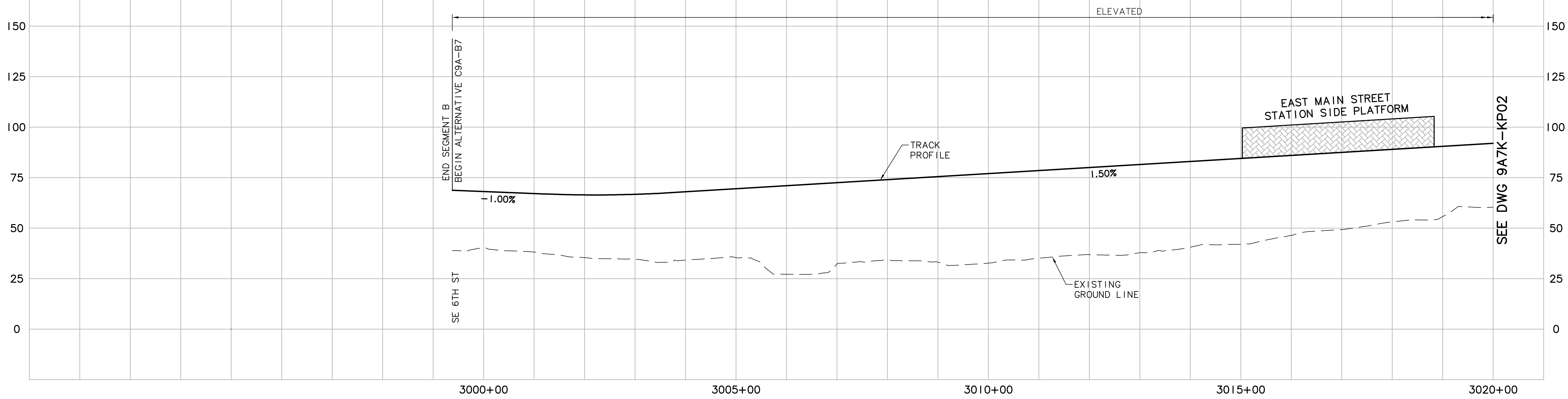
x0531sf
x1405_chan
-Unresolved:



BEGIN ALTERNATIVE C9A-B7
END SEGMENT B
SE 6TH ST
114TH AVE SE
CROSSOVER
2999+38
3000+00
3005+00
3010+00
3015+00
3020+00
STAGING AREA
EAST MAIN STATION
SIDE PLATFORM
114TH AVE SE
I-405 SB
I-405 NB
I-405 SB
I-405 NB
MAIN ST
FUTURE I-405
WIDENING BY
OTHERS
116TH AVE SE
FUTURE ROAD
WIDENING BY
OTHERS
N
100 50 0 100 200
SCALE IN FEET

SEE DWG 9A7K-KP02



ELEVATED
END SEGMENT B
BEGIN ALTERNATIVE C9A-B7
EAST MAIN STREET
STATION SIDE PLATFORM
TRACK
PROFILE
-1.00%
1.50%
EXISTING
GROUND LINE
SE 6TH ST
150
125
100
75
50
25
0
3000+00
3005+00
3010+00
3015+00
3020+00

SEE DWG 9A7K-KP02

c:\work\feis\ELC_C9A7KP01.dwg
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Filename:
ELC_C9A7KP01.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A FROM B7
TRACK PLAN & PROFILE

Drawing No.:
9A7K-KP01
Sheet No.:
C-171
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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–Overlay:
ELC_C9A_B7_KA-100
ZG-2234H
ZG-G10010
x0228rx
x0228sf
x0525rx
x0525sf
x0528rx
x0528sf
x1405_chan
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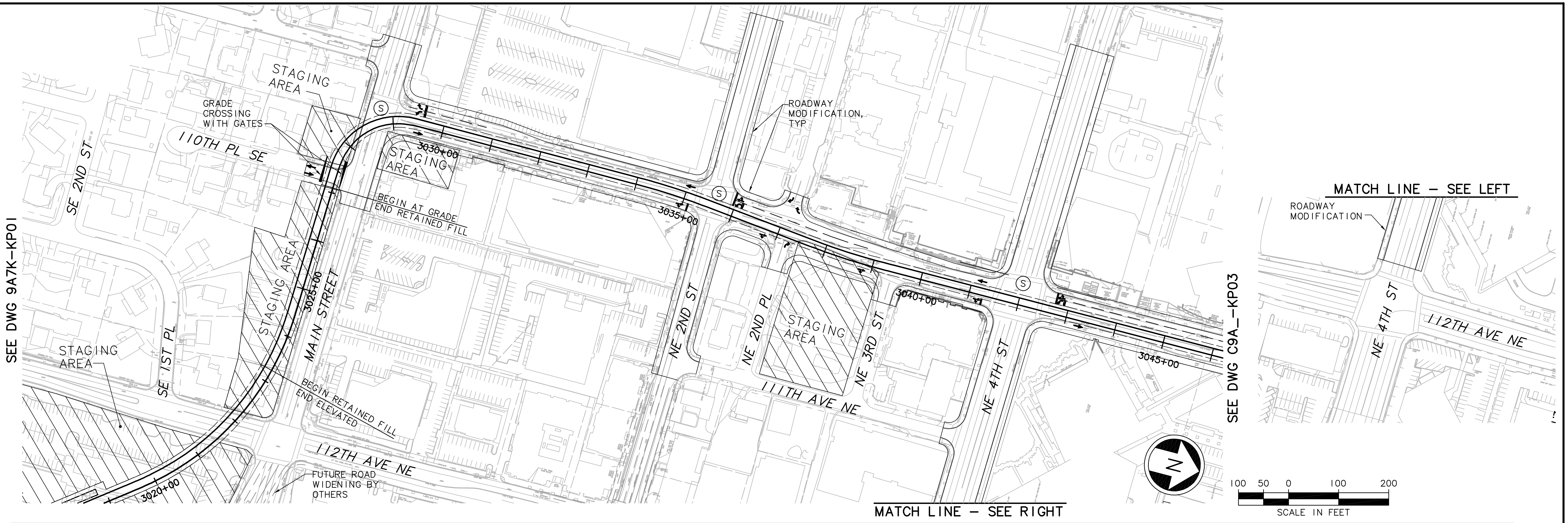
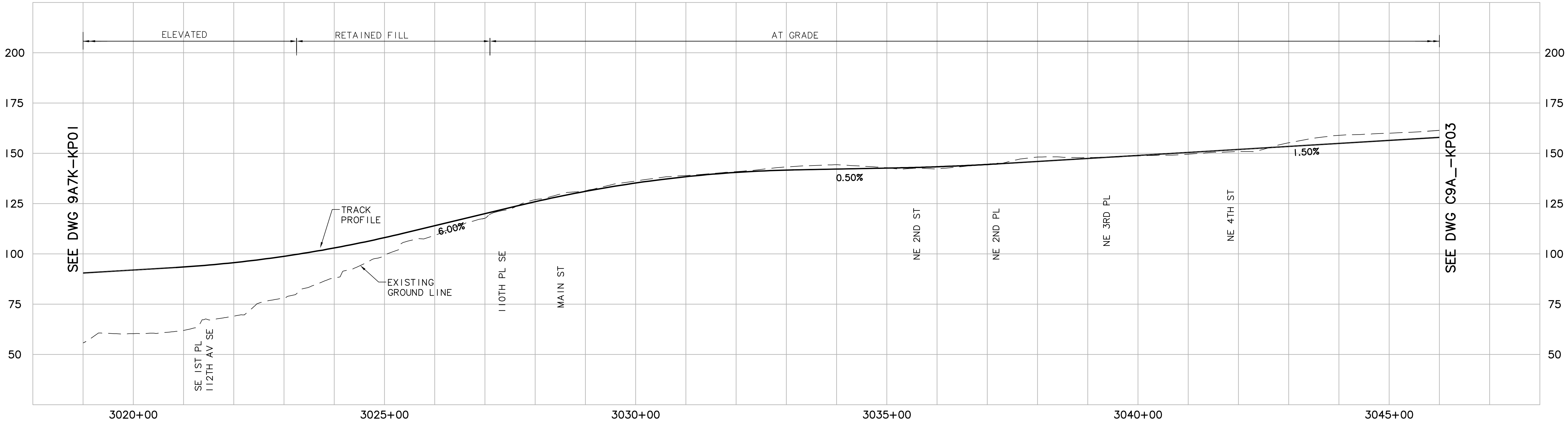


SEE DWG 9A7K-KP01
STAGING AREA
GRADE CROSSING WITH GATES
110TH PL SE
SE 2ND ST
SE 1ST PL
STAGING AREA
STAGING AREA
MAIN STREET
3025+00
3020+00
3030+00
STAGING AREA
BEGIN AT GRADE END RETAINED FILL
BEGIN RETAINED FILL END ELEVATED
112TH AVE NE
FUTURE ROAD WIDENING BY OTHERS
3035+00
NE 2ND ST
NE 2ND PL
STAGING AREA
NE 3RD ST
111TH AVE NE
3040+00
NE 4TH ST
3045+00
ROADWAY MODIFICATION, TYP
S
N
MATCH LINE – SEE RIGHT
SEE DWG C9A_-KP03
MATCH LINE – SEE LEFT
ROADWAY MODIFICATION
NE 4TH ST
112TH AVE NE
100 50 0 100 200
SCALE IN FEET



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Filename:
ELC_C9A7KP02.dwg
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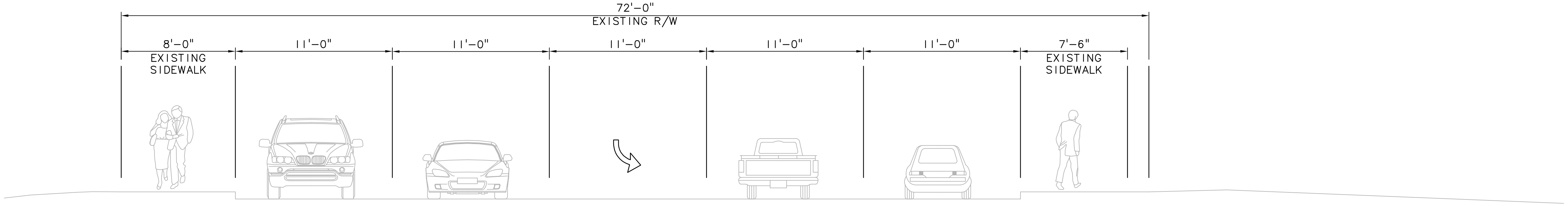
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A FROM B7
TRACK PLAN & PROFILE

Drawing No.:
9A7K-KP02
Sheet No.: C-172
Rev.:

DWG INFO:

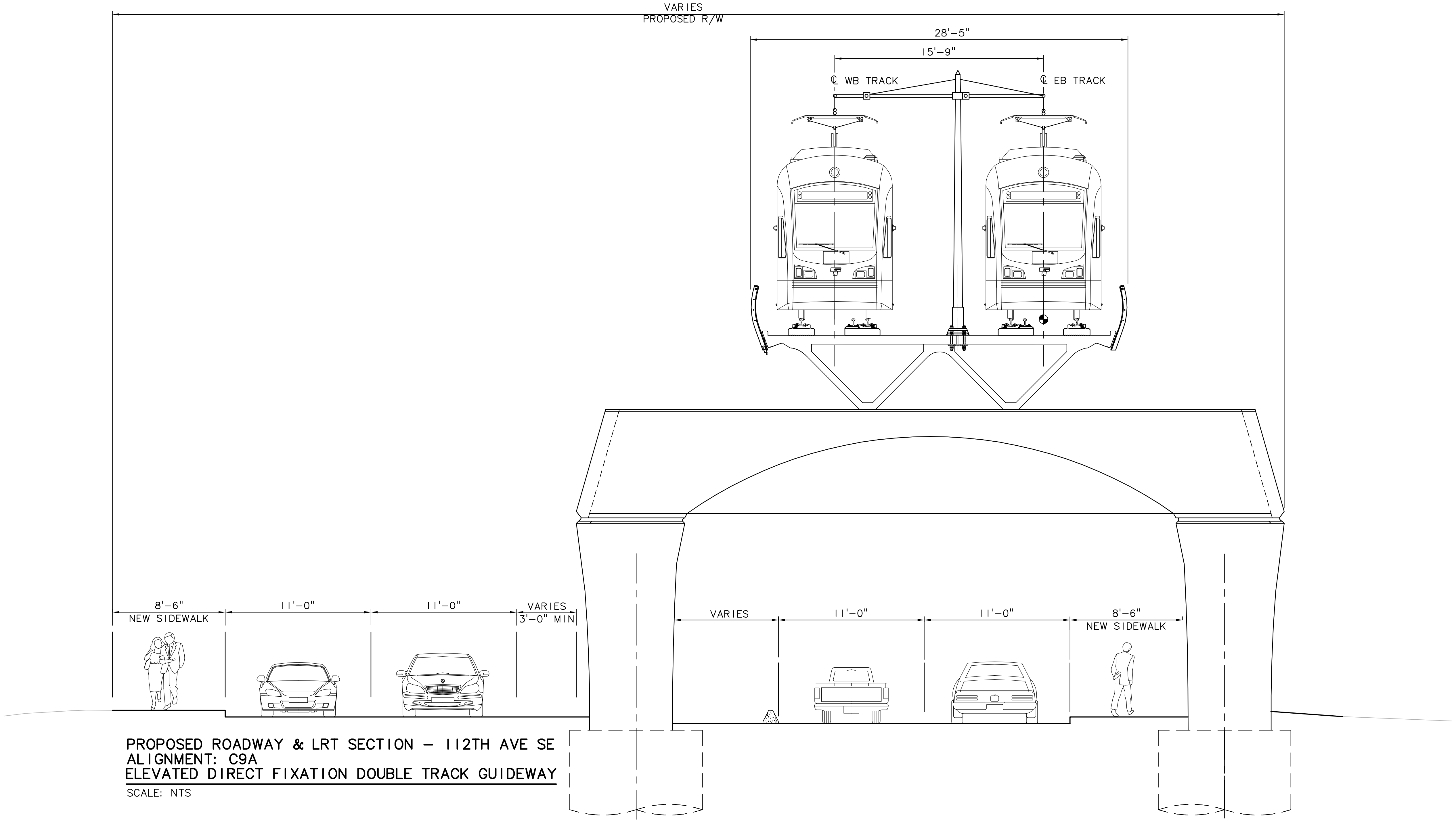
LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:


72'-0"
EXISTING R/W
8'-0"
EXISTING SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
11'-0"
7'-6"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION – 112TH AVE SE (AT RED LION HOTEL)

SCALE: NTS


VARIES
PROPOSED R/W
28'-5"
15'-9"
℄ WB TRACK
℄ EB TRACK
8'-6"
NEW SIDEWALK
11'-0"
11'-0"
VARIES
3'-0" MIN
VARIES
11'-0"
11'-0"
8'-6"
NEW SIDEWALK

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE
ALIGNMENT: C9A
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Filename: ELC_2C9A_KX01.dwg
Contract No.:
Date: 07/30/10

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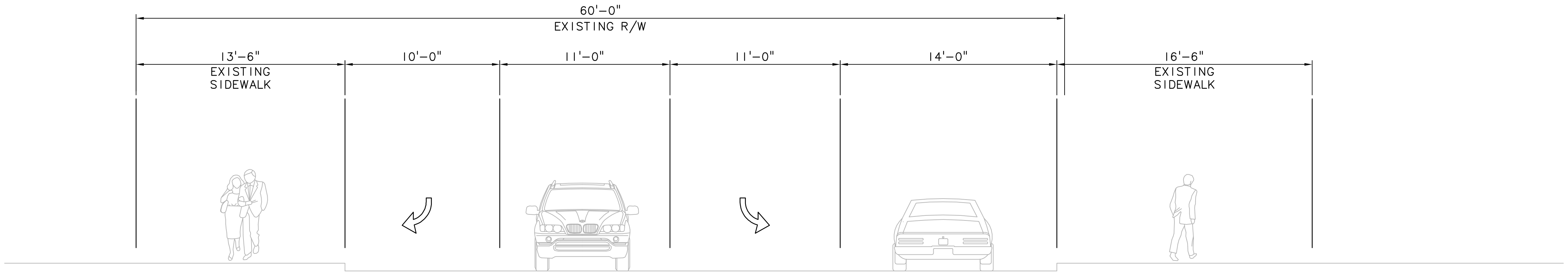
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
TYPICAL SECTION
112TH AVE SE
AT RED LION HOTEL

Drawing No.: C9A_-KX01
Sheet No.: C-173
Rev.:

DWG INFO:

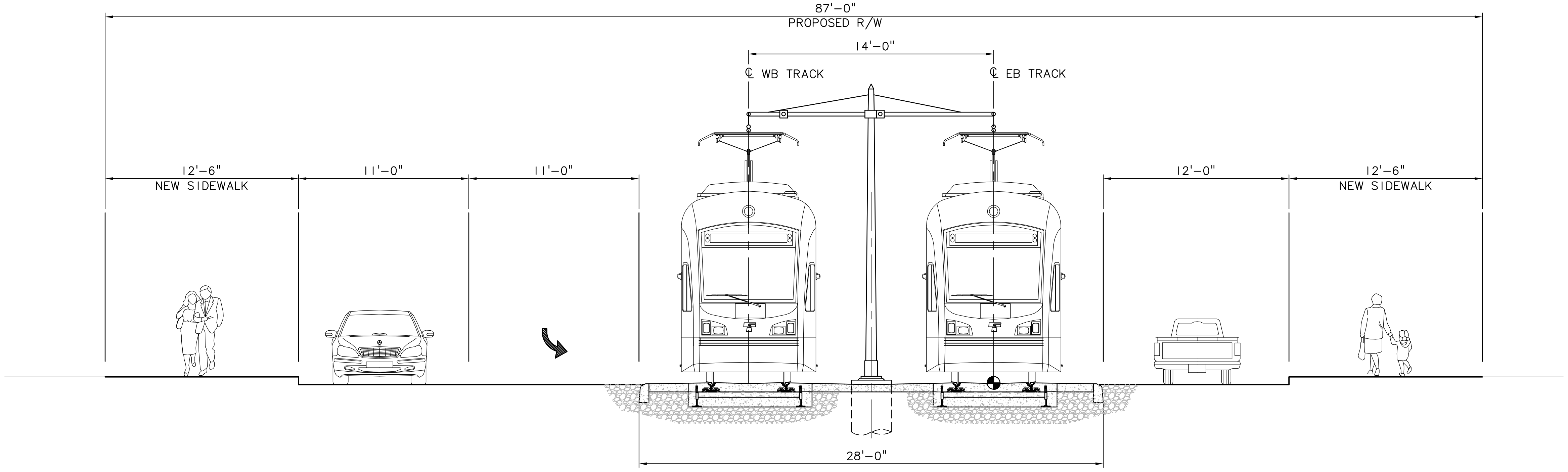
LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:


60'-0"
EXISTING R/W
13'-6"
EXISTING SIDEWALK
10'-0"
11'-0"
11'-0"
14'-0"
16'-6"
EXISTING SIDEWALK

EXISTING ROADWAY SECTION - 110TH AVE NE (NE 4TH ST TO NE 6TH ST)

SCALE: NTS


87'-0"
PROPOSED R/W
14'-0"
℄ WB TRACK
℄ EB TRACK
12'-6"
NEW SIDEWALK
11'-0"
11'-0"
12'-0"
12'-6"
NEW SIDEWALK
28'-0"

PROPOSED ROADWAY & LRT SECTION - 110TH AVE NE
ALIGNMENT: C9A
AT GRADE EMBEDDED DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A
TYPICAL SECTION
110TH AVE NE
NE 4TH ST TO NE 6TH ST

Drawing No.: C9A_-KX02
Sheet No.: C-174
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
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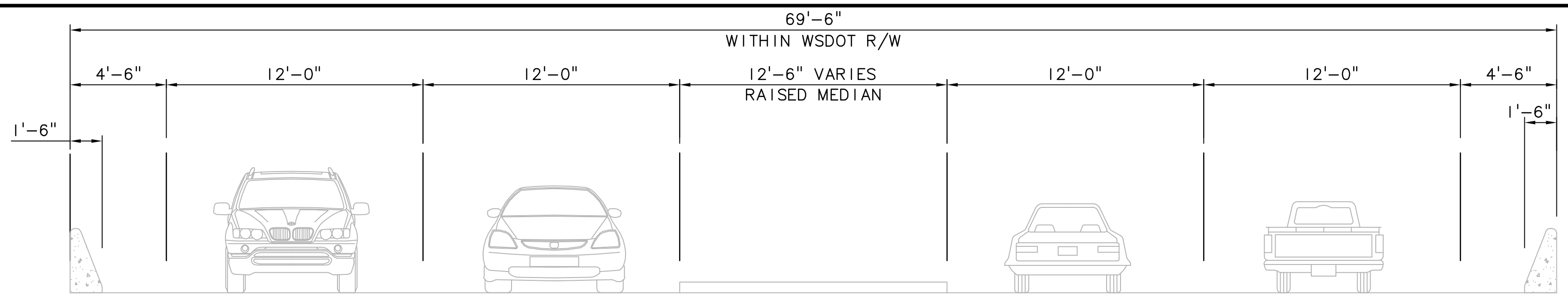
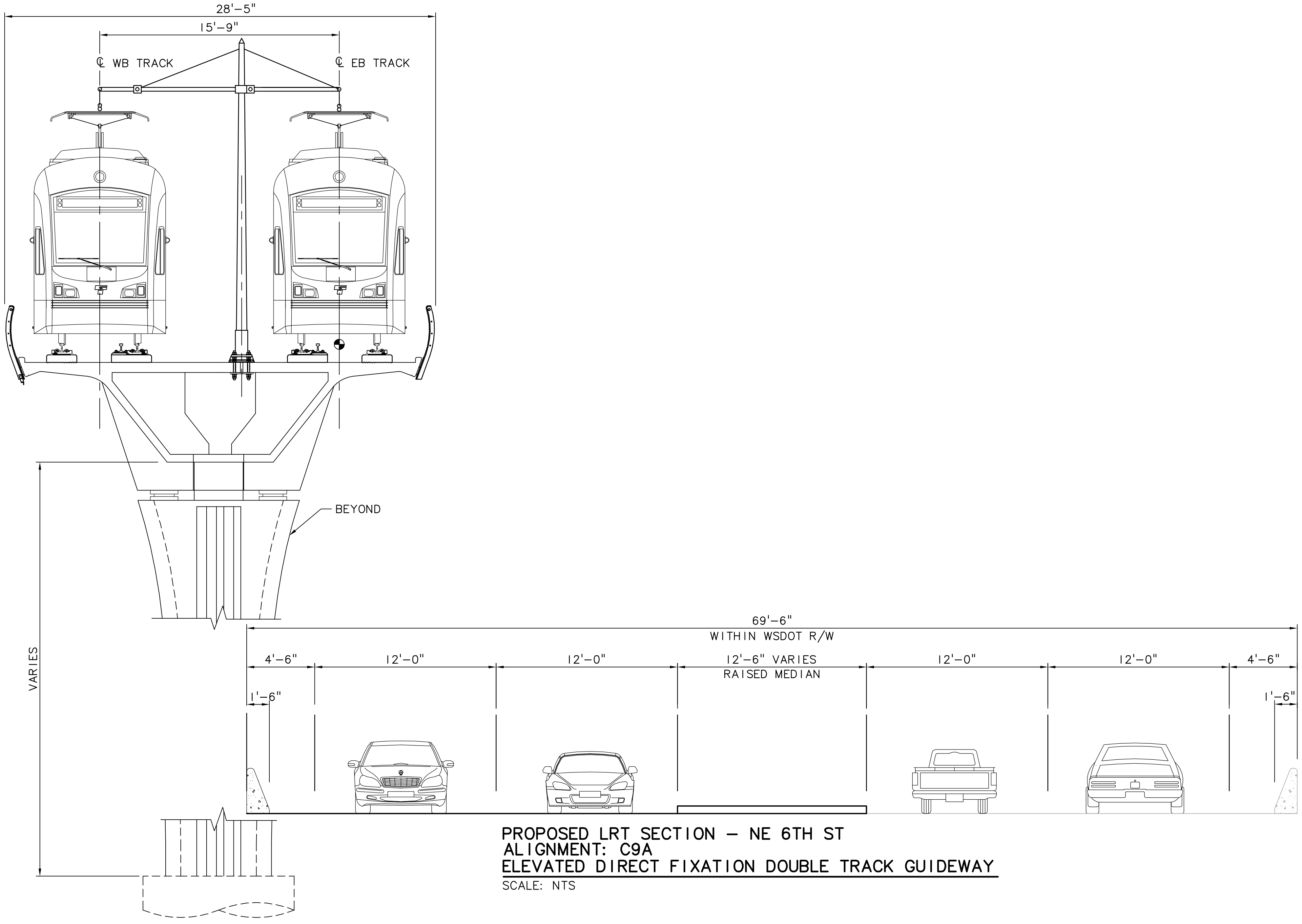
SUB-SDEIS
ZG-2234H
-Unresolved:



69'-6"
WITHIN WSDOT R/W
4'-6"
12'-0"
12'-0"
12'-6" VARIES
RAISED MEDIAN
12'-0"
12'-0"
4'-6"
1'-6"
1'-6"

EXISTING ROADWAY SECTION – NE 6TH ST (112TH AVE NE TO I-405)
SCALE: NTS



28'-5"
15'-9"
℄ WB TRACK
℄ EB TRACK
BEYOND
VARIES
69'-6"
WITHIN WSDOT R/W
4'-6"
12'-0"
12'-0"
12'-6" VARIES
RAISED MEDIAN
12'-0"
12'-0"
4'-6"
1'-6"
1'-6"

PROPOSED LRT SECTION – NE 6TH ST
ALIGNMENT: C9A
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\sdeis\ELC_2C9A_KX03.dwg
10/04/10 14:07 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

Approved:

SOUNDTRANSIT

Date:

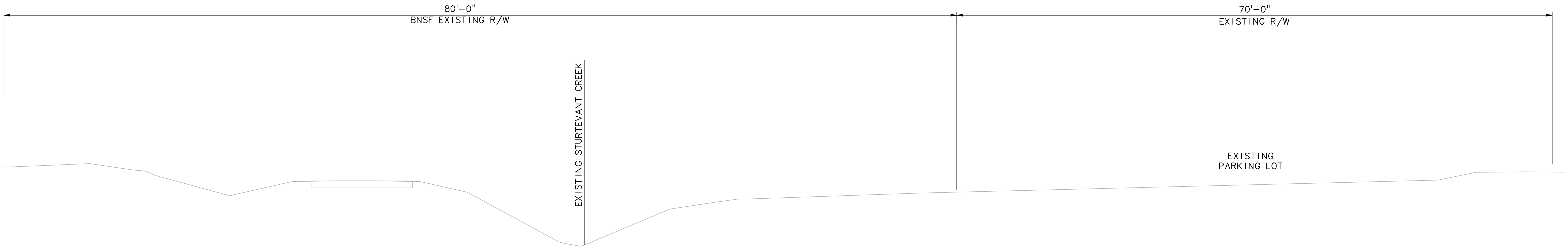
Scale: NTS
Filename: ELC_2C9A_KX03.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
TYPICAL SECTION
NE 6TH ST
112TH AVE NE TO I-405

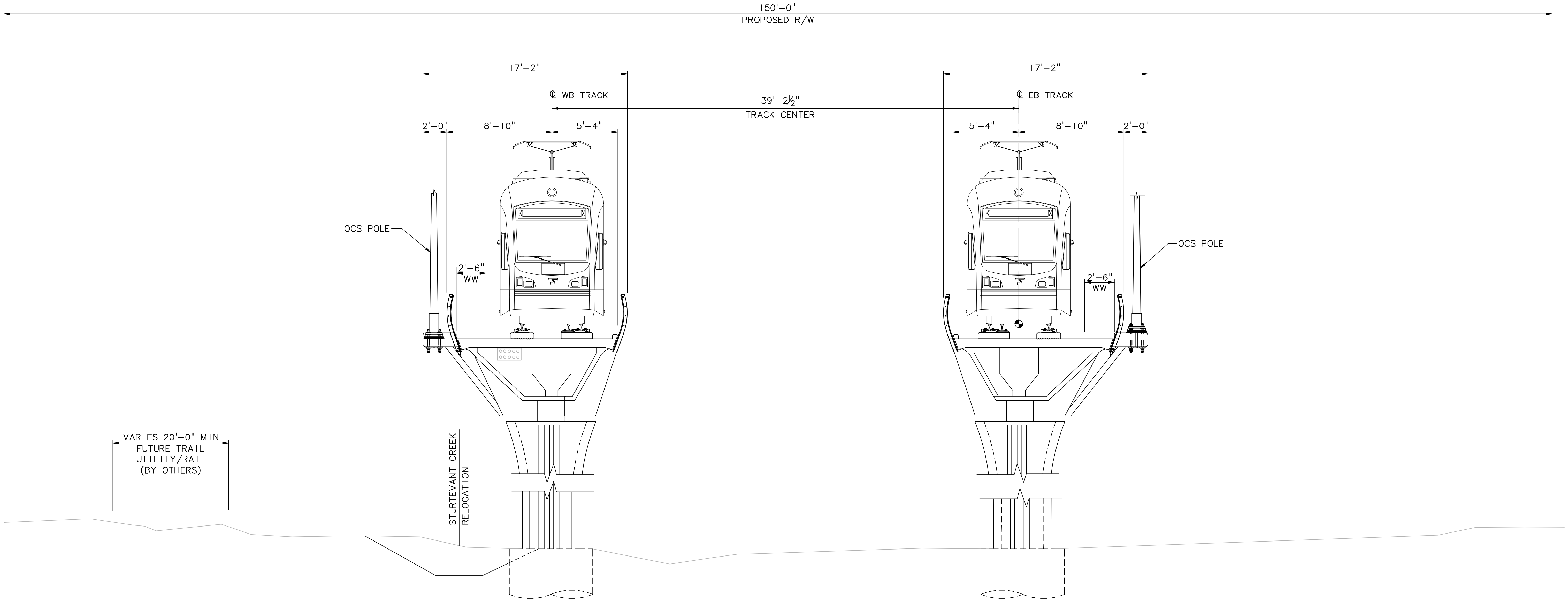
Drawing No.: C9A_-KX03
Sheet No.: C-175
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
ZG-2234H
-Overlay:
-Unresolved:


80'-0"
BNSF EXISTING R/W
70'-0"
EXISTING R/W
EXISTING STURTEVANT CREEK
EXISTING
PARKING LOT

EXISTING TYPICAL SECTION – BNSF CORRIDOR (JUST NORTH OF HOSPITAL STATION)

SCALE: NTS


150'-0"
PROPOSED R/W
17'-2"
℄ WB TRACK
39'-2½"
TRACK CENTER
17'-2"
℄ EB TRACK
2'-0"
8'-10"
5'-4"
5'-4"
8'-10"
2'-0"
OCS POLE
OCS POLE
2'-6"
WW
2'-6"
WW
VARIES 20'-0" MIN
FUTURE TRAIL
UTILITY/RAIL
(BY OTHERS)
STURTEVANT CREEK
RELOCATION

PROPOSED LRT SECTION – BNSF
ALIGNMENT: C9A
ELEVATED DIRECT FIXATION SINGLE TRACK GUIDEWAY

SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELC_2C9A_KX04.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
TYPICAL SECTION
BNSF CORRIDOR

Drawing No.: C9A_-KX04
Sheet No.: C-176
Rev.:

c:\work\feis\segment c\c9a\ELC_2C9A_KX04.dwg
05/09/11 15:17 : khuum OE6585

XREF'S

Resolved

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ELC_BMEE_AP
ELC_BMEE_AS
ELC_C7E_CM
ELC_C7E_JO
ELC_C7E_KA
ZG-2234H
x0525cn
x0525rx
x0525sf
x0528cn
x0528rx
x0528sf

Unresolved

ELC_C4A_KA
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LTSCALE

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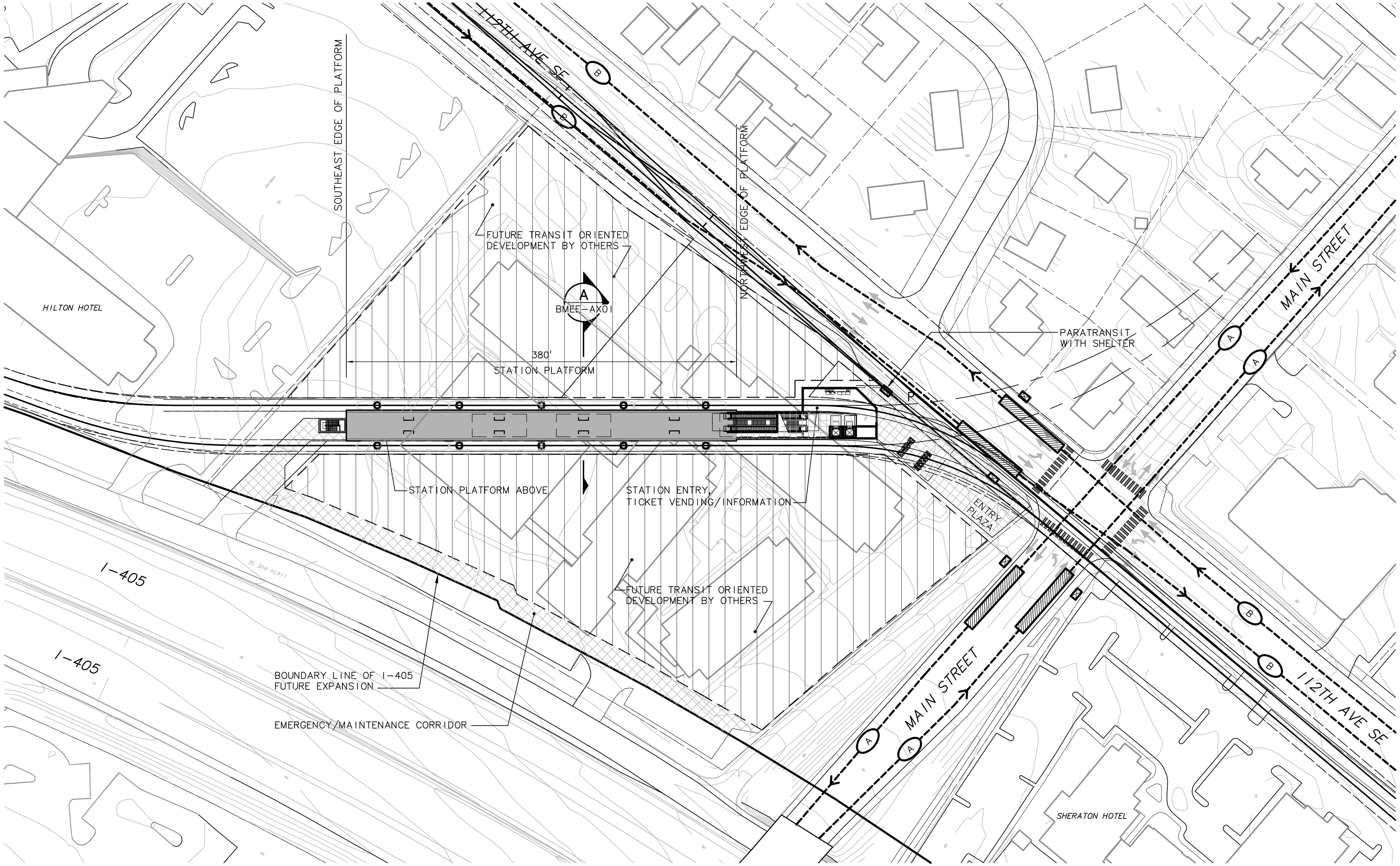

112TH AVE SE
SOUTHEAST EDGE OF PLATFORM
NORTHWEST EDGE OF PLATFORM
HILTON HOTEL
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
A
BMEE-AS01
380'
STATION PLATFORM
PARATRANSIT WITH SHELTER
P
MAIN STREET
A
B
STATION PLATFORM ABOVE
STATION ENTRY, TICKET VENDING/INFORMATION
ENTRY PLAZA
I-405
114TH AVE SE
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
BOUNDARY LINE OF I-405 FUTURE EXPANSION
EMERGENCY/MAINTENANCE CORRIDOR
MAIN STREET
112TH AVE SE
SHERATON HOTEL

NOTES

1. ALIGNMENT C9T

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
240 243 342	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
—·—	TRACK

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:
Date:

IBI GROUP
IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Approved:
Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELC_IBMEAAS01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
EAST MAIN STATION
STATION AREA PLAN

Drawing No.: BMEA-AS01
Sheet No.: C-177
Rev.:

c:\work\sdeis\ELC_IBMEAAS01.dwg
08/17/10 09:12 : BOLIMAF OE6579

XREF'S

Resolved

ELC_BMEE_AX
ZG-2234H

Unresolved

LTSCALE

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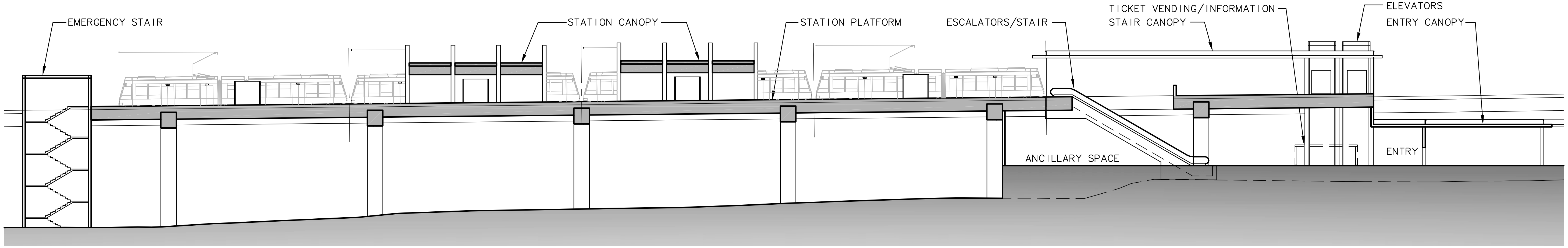
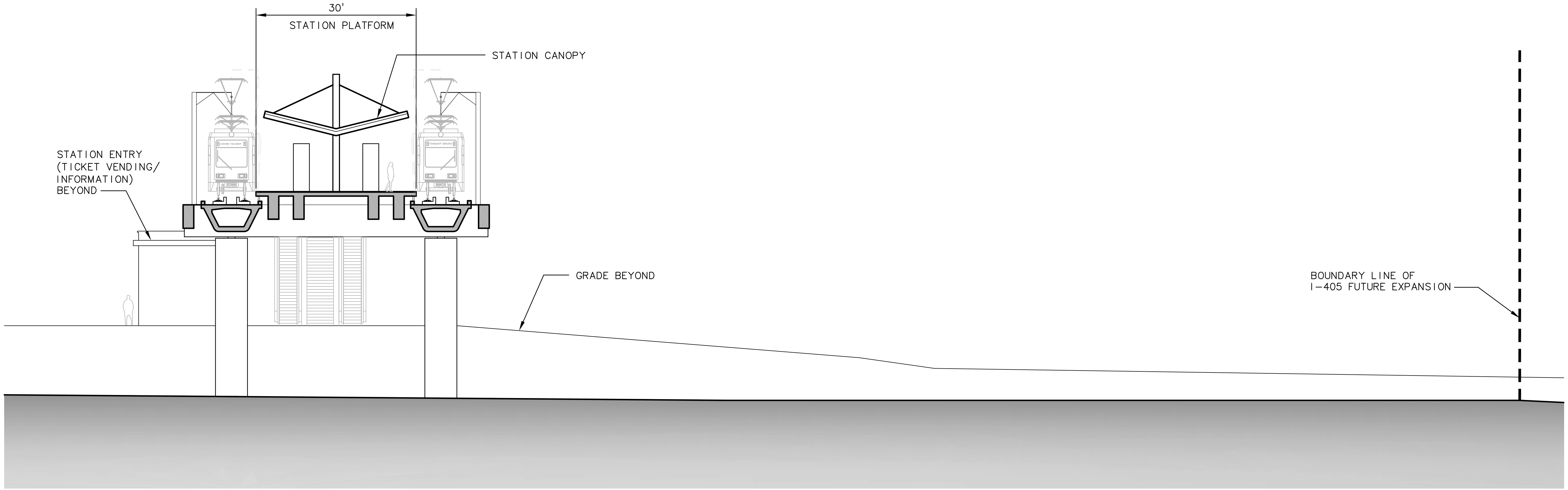

EMERGENCY STAIR
STATION CANOPY
STATION PLATFORM
ESCALATORS/STAIR
TICKET VENDING/INFORMATION
STAIR CANOPY
ELEVATORS
ENTRY CANOPY
ANCILLARY SPACE
ENTRY

ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET

EAST MAIN STATION


30'
STATION PLATFORM
STATION CANOPY
STATION ENTRY (TICKET VENDING/ INFORMATION) BEYOND
GRADE BEYOND
BOUNDARY LINE OF I-405 FUTURE EXPANSION

SECTION LOOKING NORTH

A
BMEE-AX01
BMEE-AS01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\sdeis\ELC_IBMEAAX01.dwg
08/17/10 09:13 : BOLIMAF OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

IBI GROUP
IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA
tel 206.521.9091
fax 206.521.9095

Date:
Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELC_IBMEAAX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
EAST MAIN STATION
SITE SECTIONS

Drawing No.: BMEA-AX01
Sheet No.: C-178
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
City_Center_Plaza
ELCIN11_AS_400
ELC_BUSRTS-100
ELC_C9A_KA-100
ZG-2234H
x0228cn
x0228rx
x0228sf
x0528cn
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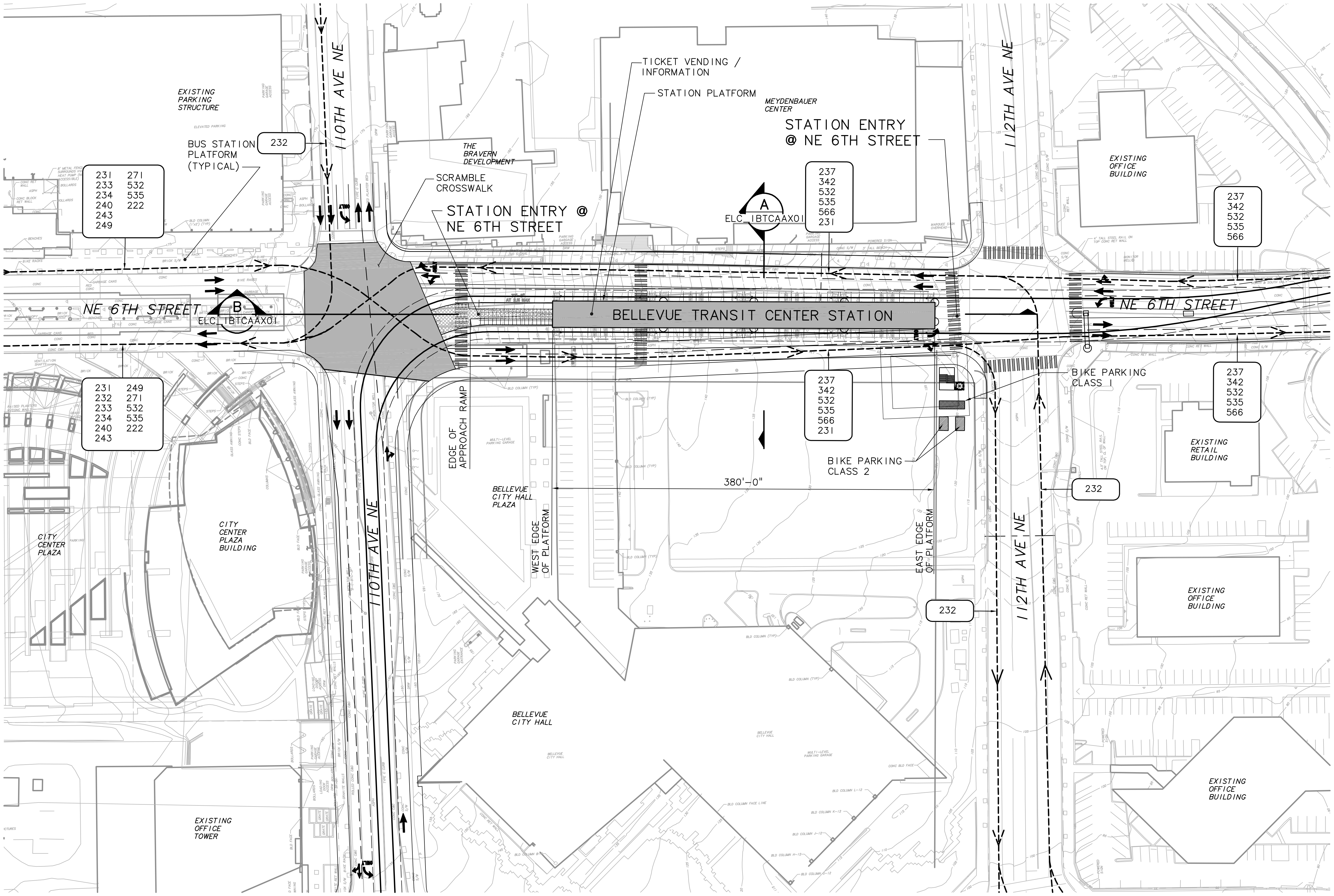
c:\work\feis\ELC_IBTCAAS01.dwg
02/22/11 16:03 : bolimaf 0E6579



EXISTING PARKING STRUCTURE
BUS STATION PLATFORM (TYPICAL)
232
231 233 234 240 243 249
271 532 535 222
110TH AVE NE
THE BRAVERN DEVELOPMENT
SCRAMBLE CROSSWALK
STATION ENTRY @ NE 6TH STREET
TICKET VENDING / INFORMATION
STATION PLATFORM
MEYDENBAUER CENTER
STATION ENTRY @ NE 6TH STREET
237 342 532 535 566 231
A
ELC_IBTCAAX01
112TH AVE NE
EXISTING OFFICE BUILDING
237 342 532 535 566
NE 6TH STREET
B
ELC_IBTCAAX01
BELLEVUE TRANSIT CENTER STATION
NE 6TH STREET
231 232 233 234 240 243
249 271 532 535 222
EDGE OF APPROACH RAMP
237 342 532 535 566 231
BIKE PARKING CLASS 1
BIKE PARKING CLASS 2
237 342 532 535 566
EXISTING RETAIL BUILDING
380'-0"
BELLEVUE CITY HALL PLAZA
WEST EDGE OF PLATFORM
EAST EDGE OF PLATFORM
232
CITY CENTER PLAZA
CITY CENTER PLAZA BUILDING
110TH AVE NE
232
112TH AVE NE
EXISTING OFFICE BUILDING
BELLEVUE CITY HALL
EXISTING OFFICE BUILDING
EXISTING OFFICE TOWER
1
2
3
4
5

STATION AREA PLAN

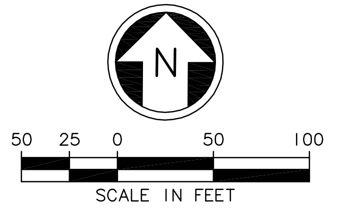
SCALE: 1" = 50'

NOTES

1. ALIGNMENT C9A

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
201 203	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
—	TRACK



N
50
25
0
50
100

SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

HEWITT

Date:
Approved:

SOUNDTRANSIT

Date:

Scale: 1"=50'
Filename: ELC_IBTCAAS01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A

BTC STATION
STATION AREA PLAN
DESIGN OPTION

Drawing No.: BTCA-AS01
Sheet No.: C-179
Rev.:

XREF'S

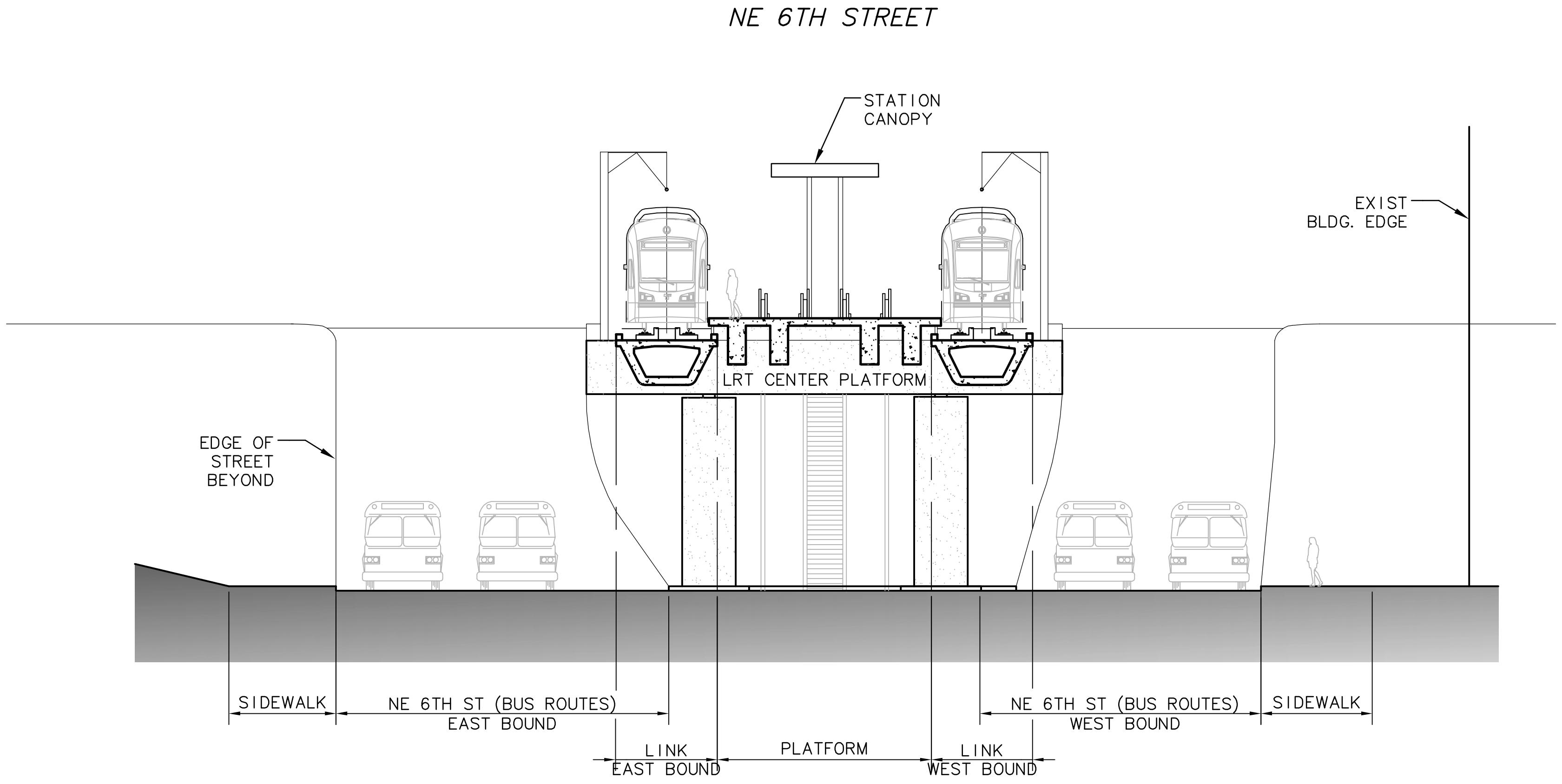
Resolved

ELCIN11_AX400
SUB-SDEIS
ZG-2234H

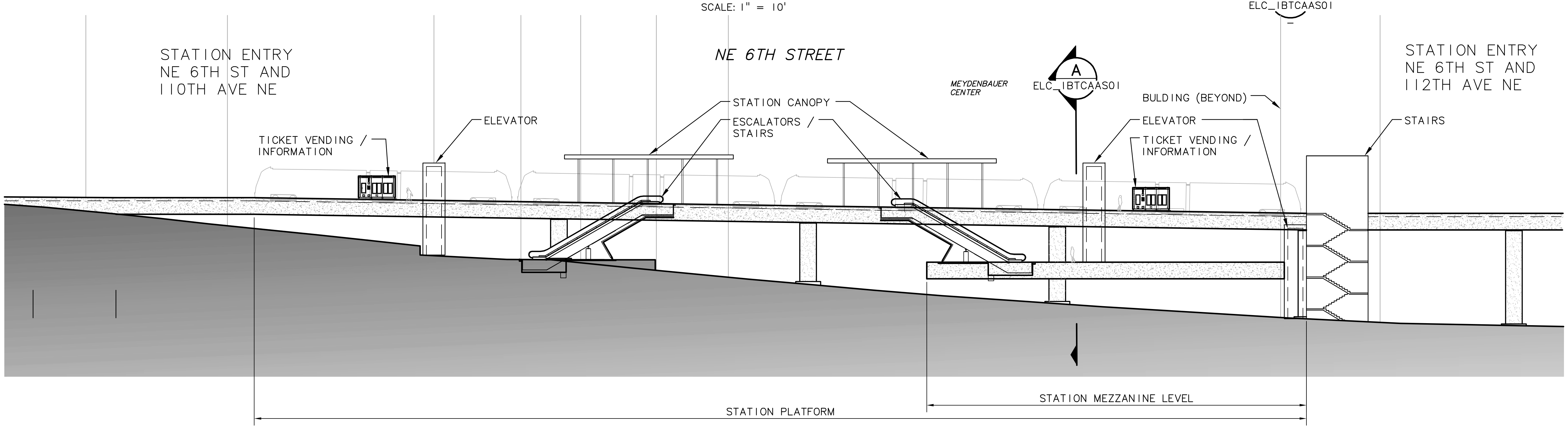
Unresolved

LTSCALE

1=1


NE 6TH STREET
STATION CANOPY
EXIST BLDG. EDGE
LRT CENTER PLATFORM
EDGE OF STREET BEYOND
SIDEWALK
NE 6TH ST (BUS ROUTES) EAST BOUND
LINK EAST BOUND
PLATFORM
LINK WEST BOUND
NE 6TH ST (BUS ROUTES) WEST BOUND
SIDEWALK

SECTION
SCALE: 1" = 10'
A
ELC_IBTCAAS01


STATION ENTRY NE 6TH ST AND 110TH AVE NE
NE 6TH STREET
MEYDENBAUER CENTER
A
ELC_IBTCAAS01
STATION ENTRY NE 6TH ST AND 112TH AVE NE
BULDING (BEYOND)
STATION CANOPY
ESCALATORS / STAIRS
ELEVATOR
TICKET VENDING / INFORMATION
ELEVATOR
TICKET VENDING / INFORMATION
STAIRS
STATION MEZZANINE LEVEL
STATION PLATFORM

SECTION
SCALE: 1" = 20'
B
ELC_IBTCAAS01

20 10 0 20 40
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

HEWITT

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: AS NOTED
Filename: ELC_IBTCAAX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C9A
BTC STATION
SITE SECTIONS

Drawing No.: BTCA-AX01
Sheet No.: C-180
Rev.:

c:\work\sdeis\ELC_IBTCAAX01.dwg
08/17/10 09:14 : BOLIMAF OE6579

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ELD_L75_KA
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x0222sf
x0225rx
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ELC_L71_KA
SUB-FEIS

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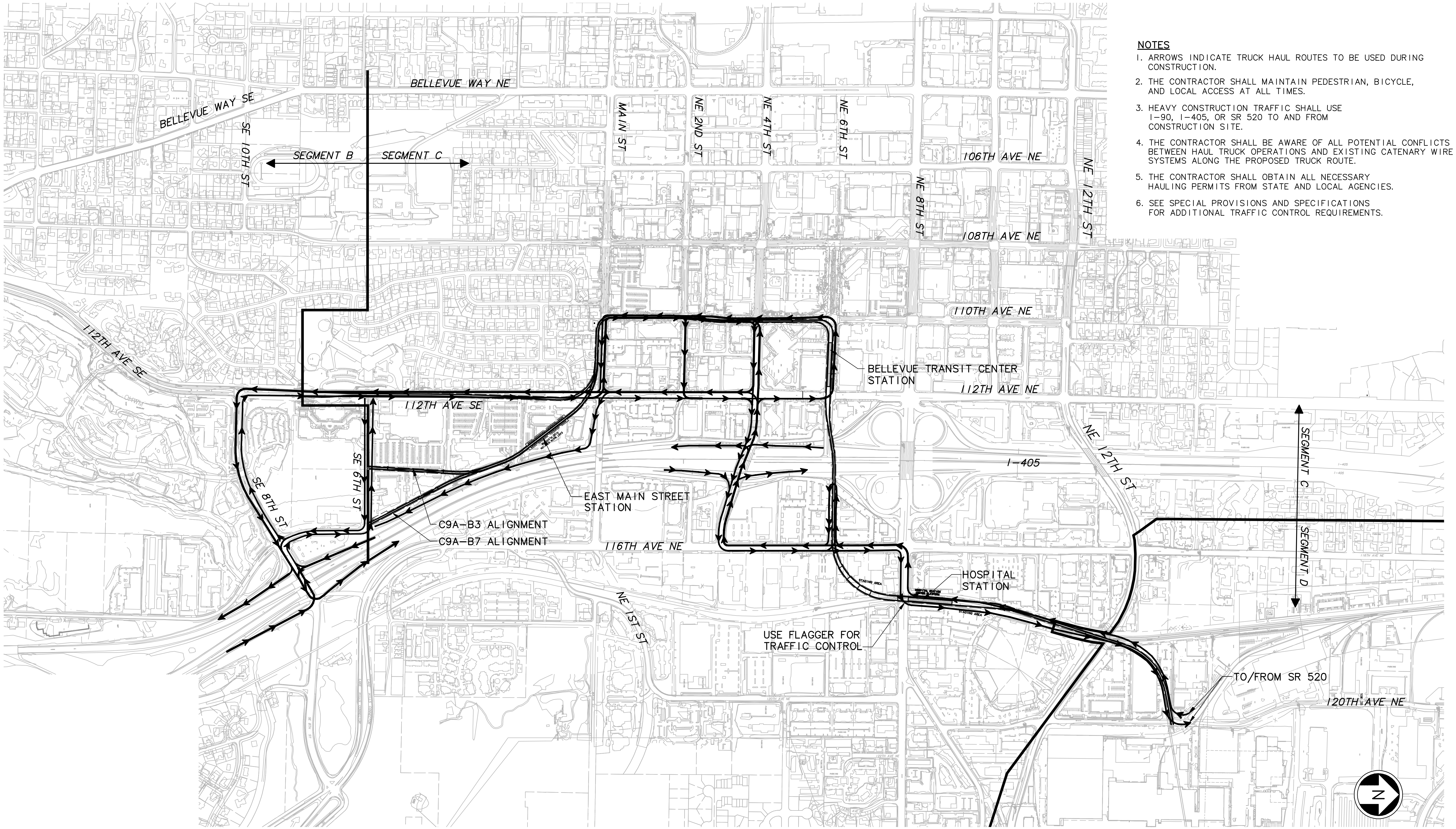
06/23/11 09:30 : mokr OE6505


BELLEVUE WAY NE
BELLEVUE WAY SE
SE 10TH ST
SEGMENT B
SEGMENT C
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
NE 12TH ST
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE SE
112TH AVE SE
BELLEVUE TRANSIT CENTER STATION
112TH AVE NE
NE 12TH ST
I-405
SEGMENT C
SEGMENT D
SE 6TH ST
SE 8TH ST
EAST MAIN STREET STATION
C9A-B3 ALIGNMENT
C9A-B7 ALIGNMENT
116TH AVE NE
HOSPITAL STATION
NE 1ST ST
USE FLAGGER FOR TRAFFIC CONTROL
TO/FROM SR 520
120TH AVE NE
STAGING AREA
STAGING AREA
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN, BICYCLE, AND LOCAL ACCESS AT ALL TIMES.
3. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.
4. THE CONTRACTOR SHALL BE AWARE OF ALL POTENTIAL CONFLICTS BETWEEN HAUL TRUCK OPERATIONS AND EXISTING CATENARY WIRE SYSTEMS ALONG THE PROPOSED TRUCK ROUTE.
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY HAULING PERMITS FROM STATE AND LOCAL AGENCIES.
6. SEE SPECIAL PROVISIONS AND SPECIFICATIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELC_C9A_CC01.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C9A
CONSTRUCTION TRUCK HAUL ROUTE PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: C9A_-CC01
Sheet No.: C-181
Rev.:

DWG INFO:

LTSCALE:
1=1

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–Attach:
–Overlay:
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XF_ELC_SF
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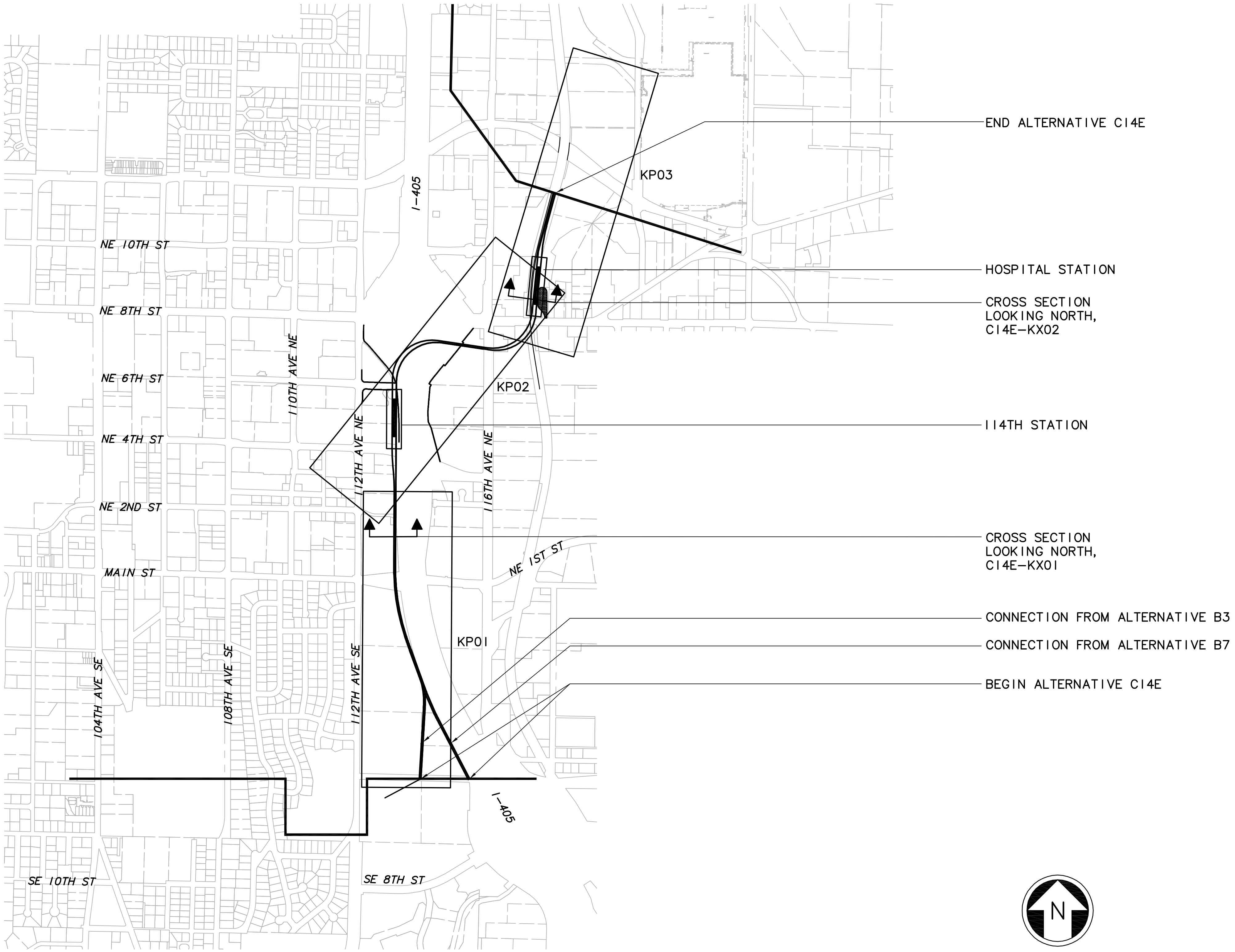
x1405_chan



END ALTERNATIVE C14E
KP03
I-405
NE 10TH ST
HOSPITAL STATION
CROSS SECTION LOOKING NORTH, C14E-KX02
NE 8TH ST
NE 6TH ST
110TH AVE NE
KP02
114TH STATION
NE 4TH ST
112TH AVE NE
116TH AVE NE
NE 2ND ST
CROSS SECTION LOOKING NORTH, C14E-KX01
NE 1ST ST
MAIN ST
KP01
CONNECTION FROM ALTERNATIVE B3
CONNECTION FROM ALTERNATIVE B7
104TH AVE SE
108TH AVE SE
112TH AVE SE
BEGIN ALTERNATIVE C14E
I-405
SE 10TH ST
SE 8TH ST
N

c:\work\sdeis\ELC__C14EGZ05.dwg
10/04/10 14:08 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELC__C14EGZ05.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C14E
KEY PLAN

Drawing No.: C14E-GZ05
Sheet No.: C-182
Rev.:

DWG INFO:

LTSCALE:
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-Overlay:
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ZG-G10010
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x0228sf
x0231rx
x0231sf
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x0531sf
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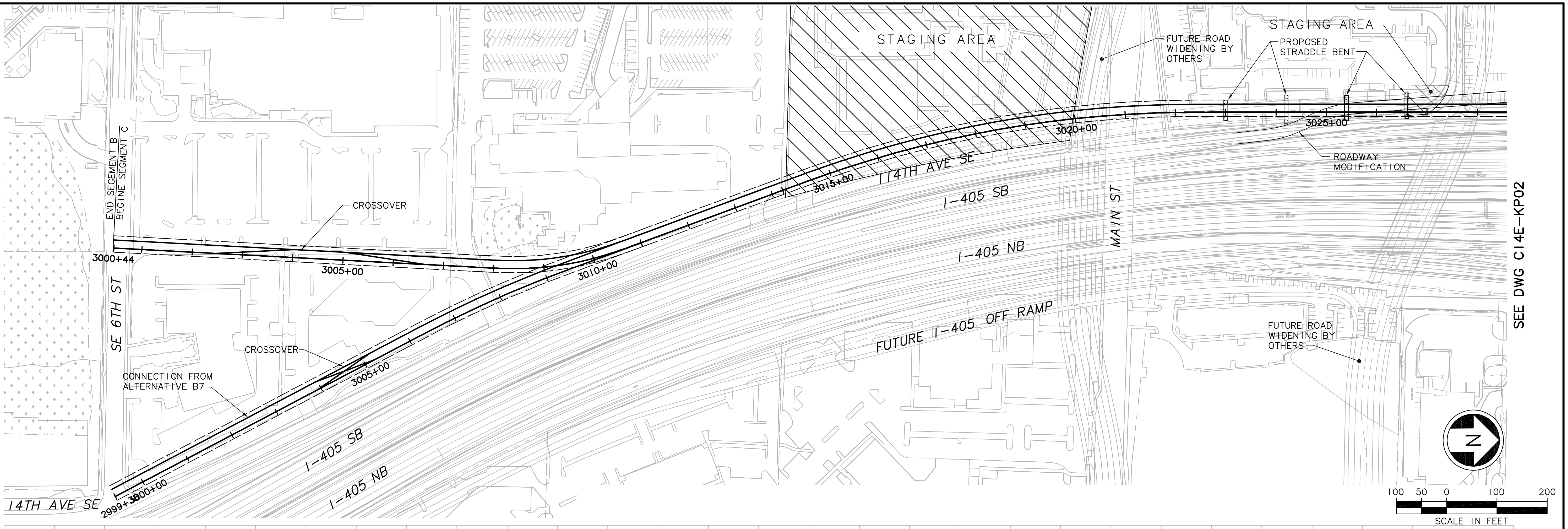
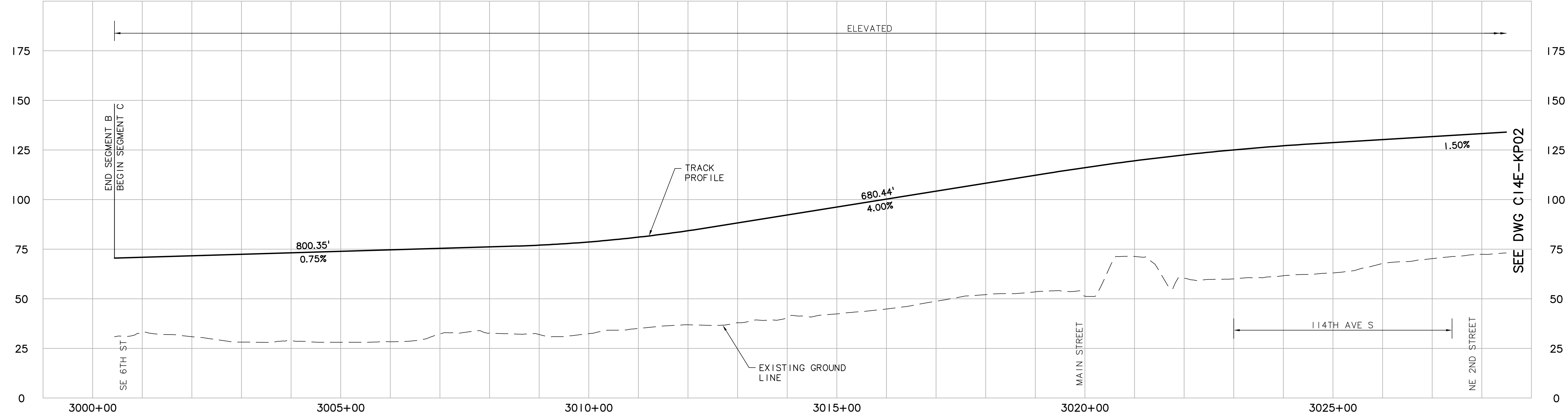
key_Segment
vp_100_c14e



STAGING AREA
STAGING AREA
FUTURE ROAD WIDENING BY OTHERS
PROPOSED STRADDLE BENT
ROADWAY MODIFICATION
END SEGMENT B
BEGINE SEGMENT C
CROSSOVER
CROSSOVER
CONNECTION FROM ALTERNATIVE B7
3000+44
3005+00
3010+00
3015+00
3020+00
3025+00
3005+00
2999+38
3000+00
114TH AVE SE
I-405 SB
I-405 NB
FUTURE I-405 OFF RAMP
MAIN ST
SE 6TH ST
114TH AVE SE
I-405 SB
I-405 NB
FUTURE ROAD WIDENING BY OTHERS
SEE DWG C14E-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELC__C14EKP01.dwg
10/04/10 14:08 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC__C14EKP01.dwg
Contract No.:
Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C14E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
C14E-KP01
Sheet No.:
C-183
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Attach:
-Overlay:
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ZG-G10010
Zg-2234h
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x0225sf
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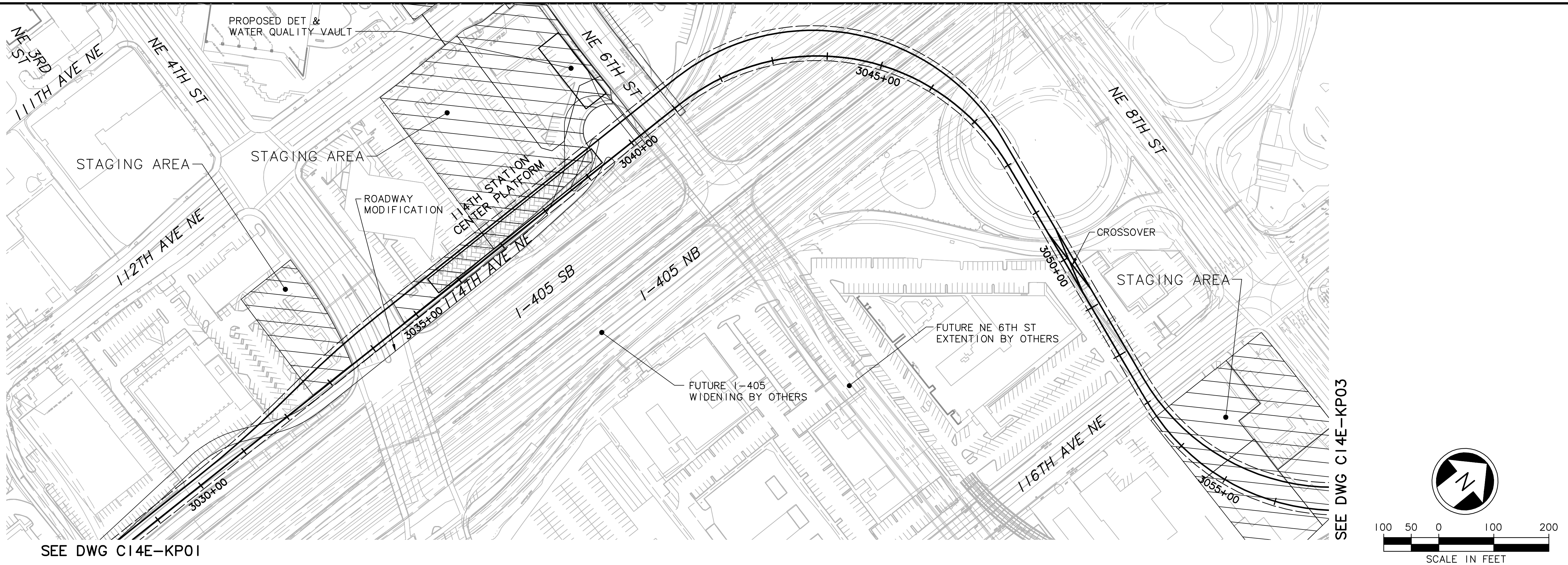
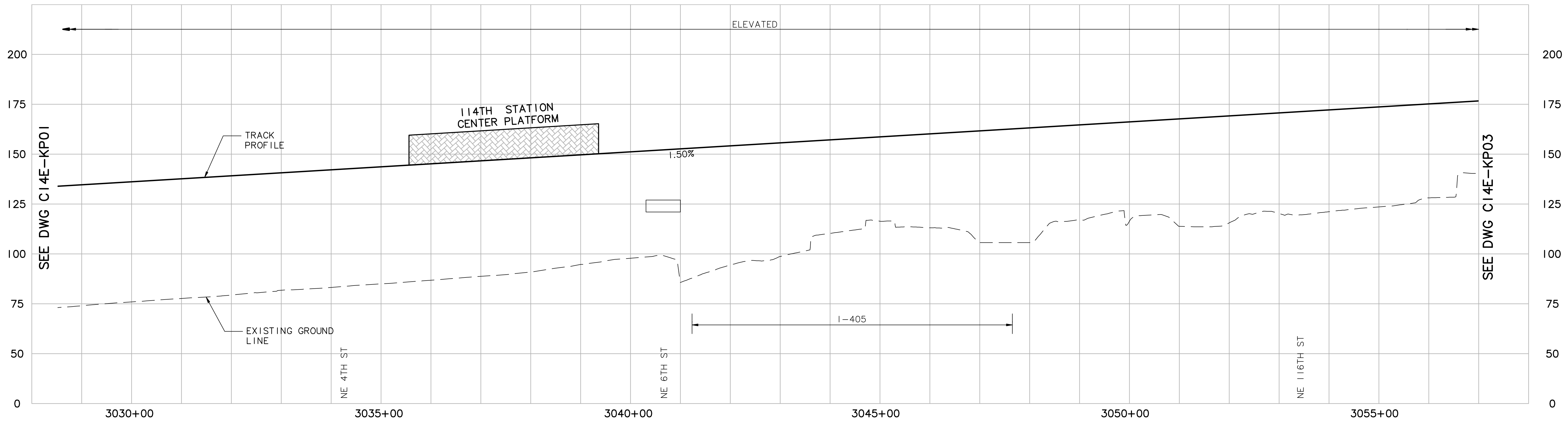
key_East



NE 3RD ST
111TH AVE NE
NE 4TH ST
PROPOSED DET & WATER QUALITY VAULT
NE 6TH ST
3045+00
NE 8TH ST
STAGING AREA
STAGING AREA
3040+00
114TH STATION CENTER PLATFORM
ROADWAY MODIFICATION
112TH AVE NE
114TH AVE NE
I-405 SB
I-405 NB
CROSSOVER
3050+00
STAGING AREA
3035+00
FUTURE NE 6TH ST EXTENTION BY OTHERS
FUTURE I-405 WIDENING BY OTHERS
116TH AVE NE
3030+00
3055+00
SEE DWG C14E-KP03
N
100 50 0 100 200
SCALE IN FEET
SEE DWG C14E-KP01



c:\work\feis\segment c\c14e\ELC__C14EKP02.dwg
04/15/11 16:23 : khuum 0E6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELC__C14EKP02.dwg
Contract No.:
Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C14E
TRACK PLAN & PROFILE

Drawing No.:
C14E-KP02
Sheet No.:
C-184
Rev.:

DWG INFO:

LTSCALE:
1=1

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–Overlay:
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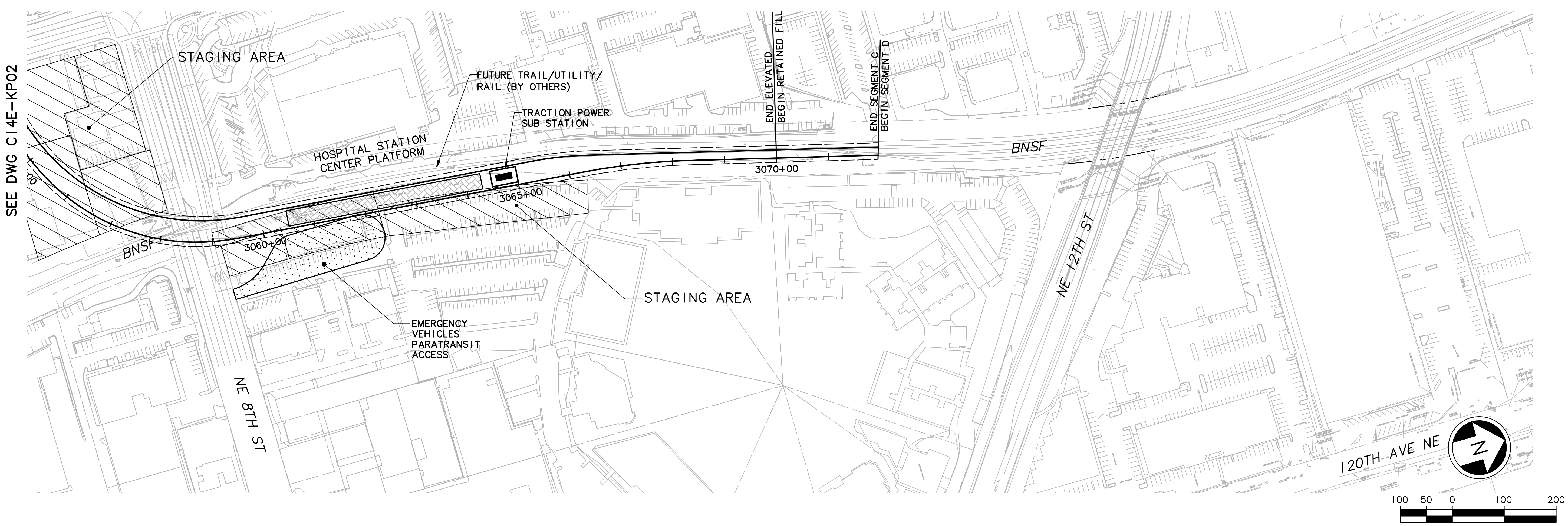
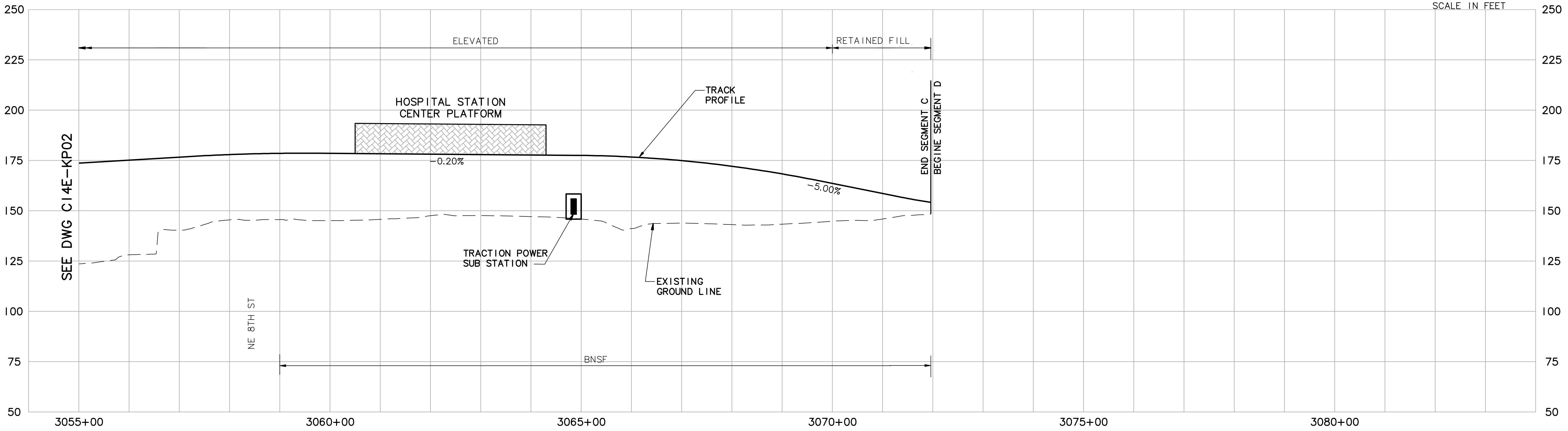

SEE DWG C14E-KP02
STAGING AREA
FUTURE TRAIL/UTILITY/
RAIL (BY OTHERS)
TRACTION POWER
SUB STATION
HOSPITAL STATION
CENTER PLATFORM
END ELEVATED
BEGIN RETAINED FILL
END SEGMENT C
BEGIN SEGMENT D
BNSF
3070+00
3065+00
3060+00
BNSF
STAGING AREA
EMERGENCY
VEHICLES
PARATRANSIT
ACCESS
NE 8TH ST
NE 12TH ST
120TH AVE NE
N
100 50 0 100 200
SCALE IN FEET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225
200
175
150
125
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75
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ELEVATED
RETAINED FILL
SEE DWG C14E-KP02
HOSPITAL STATION
CENTER PLATFORM
TRACK
PROFILE
END SEGMENT C
BEGINE SEGMENT D
-0.20%
-5.00%
TRACTION POWER
SUB STATION
EXISTING
GROUND LINE
NE 8TH ST
BNSF
3055+00
3060+00
3065+00
3070+00
3075+00
3080+00

c:\work\feis\segment c\c14e\ELC__C14EKP03.dwg
03/18/11 15:43 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

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H: 1"=100'; V: 1"=25'
Filename:
ELC__C14EKP03.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C14E
TRACK PLAN & PROFILE

Drawing No.:
C14E-KP03
Sheet No.:
C-185
Rev.:

DWG INFO:

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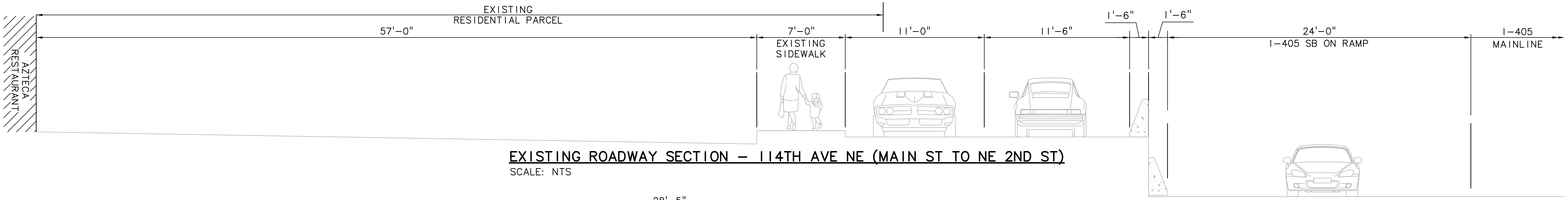
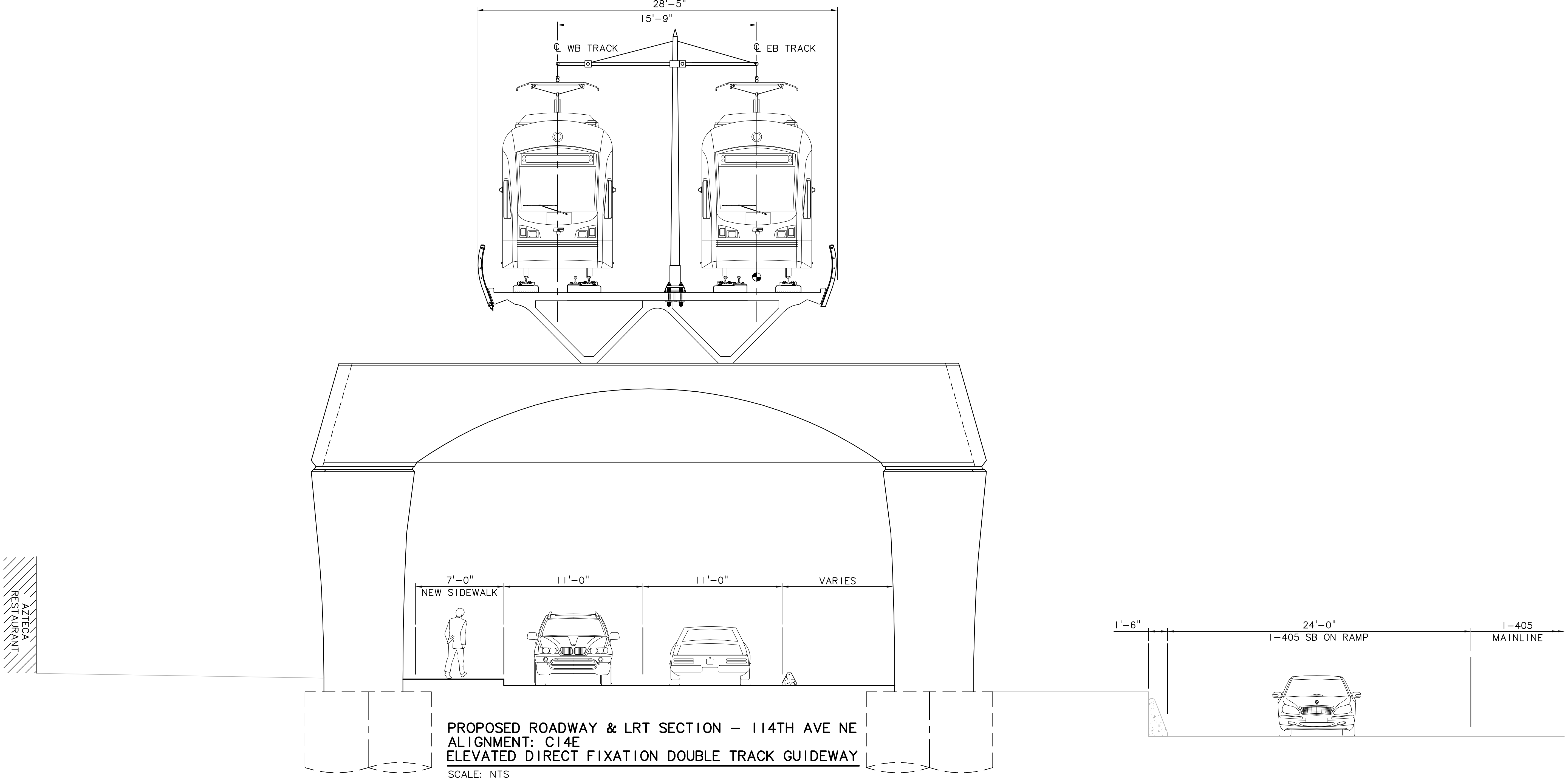

EXISTING RESIDENTIAL PARCEL
AZTECA RESTAURANT
57'-0"
7'-0"
EXISTING SIDEWALK
11'-0"
11'-6"
1'-6"
1'-6"
24'-0"
I-405 SB ON RAMP
I-405 MAINLINE

EXISTING ROADWAY SECTION – 114TH AVE NE (MAIN ST TO NE 2ND ST)

SCALE: NTS


28'-5"
15'-9"
℄ WB TRACK
℄ EB TRACK
AZTECA RESTAURANT
7'-0"
NEW SIDEWALK
11'-0"
11'-0"
VARIES
1'-6"
24'-0"
I-405 SB ON RAMP
I-405 MAINLINE

PROPOSED ROADWAY & LRT SECTION – 114TH AVE NE
ALIGNMENT: C14E
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\sdeis\ELC__C14EKX01.dwg
10/04/10 14:10 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA DRAFTING & DESIGN INC.

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Date:

Scale: NTS
Filename: ELC__C14EKX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C14E

TYPICAL SECTION
114TH AVE NE
MAIN ST TO NE 2ND ST

Drawing No.: C14E-KX01
Sheet No.: C-186
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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ZG-2234H
-Overlay:
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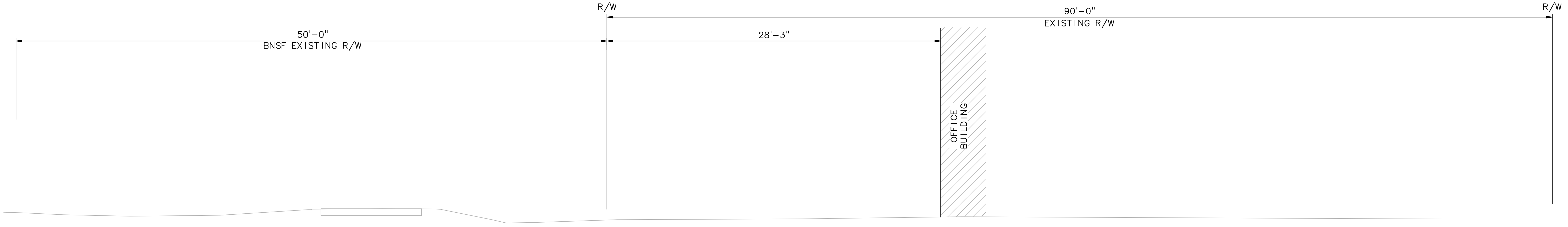
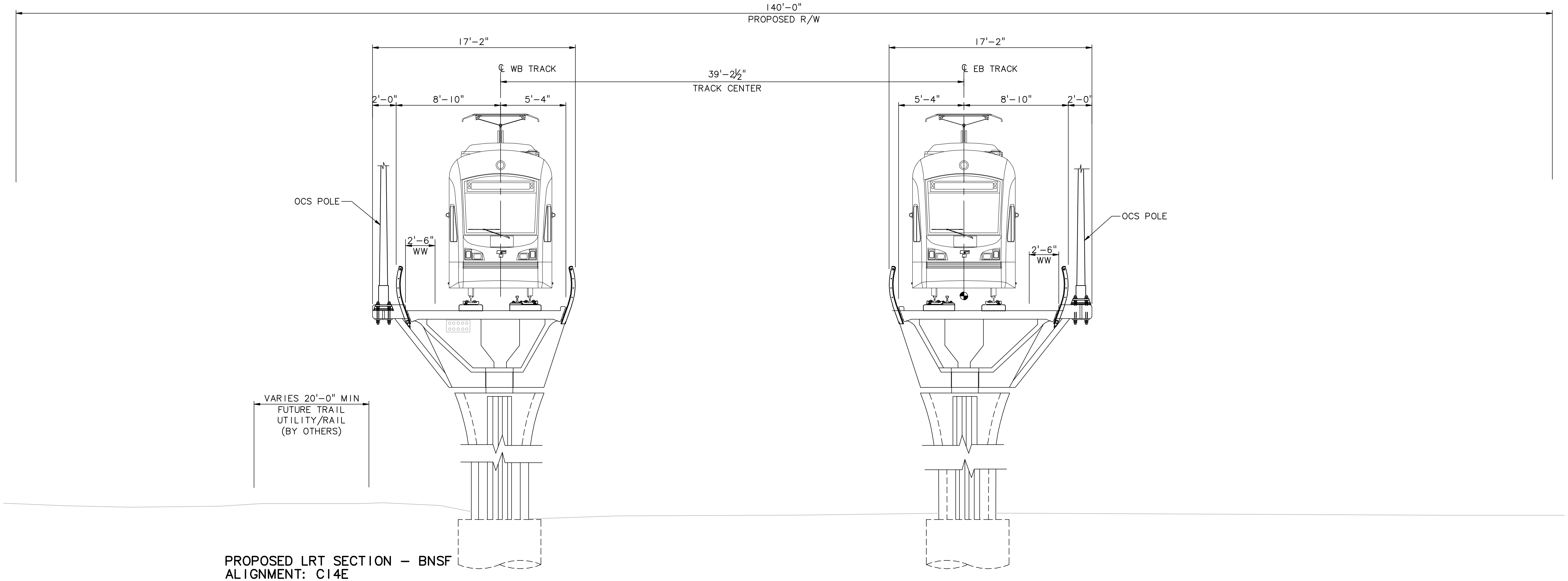

R/W
90'-0"
EXISTING R/W
R/W
50'-0"
BNSF EXISTING R/W
28'-3"
OFFICE BUILDING

EXISTING TYPICAL SECTION – BNSF CORRIDOR (JUST SOUTH OF HOSPITAL STATION)

SCALE: NTS


140'-0"
PROPOSED R/W
17'-2"
℄ WB TRACK
39'-2½"
TRACK CENTER
17'-2"
℄ EB TRACK
2'-0"
8'-10"
5'-4"
5'-4"
8'-10"
2'-0"
OCS POLE
2'-6"
WW
2'-6"
WW
OCS POLE
VARIES 20'-0" MIN
FUTURE TRAIL
UTILITY/RAIL
(BY OTHERS)

PROPOSED LRT SECTION – BNSF
ALIGNMENT: C14E
ELEVATED DIRECT FIXATION SINGLE TRACK GUIDEWAY

SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

Scale: NTS
Filename: ELC__C14EKX02.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C14E
TYPICAL SECTION
BNSF CORRIDOR

Drawing No.: C14E-KX02
Sheet No.: C-187
Rev.:

c:\work\feis\segment c\c14e\ELC__C14EKX02.dwg
05/09/11 15:24 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

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ELC_C14E_KA-100
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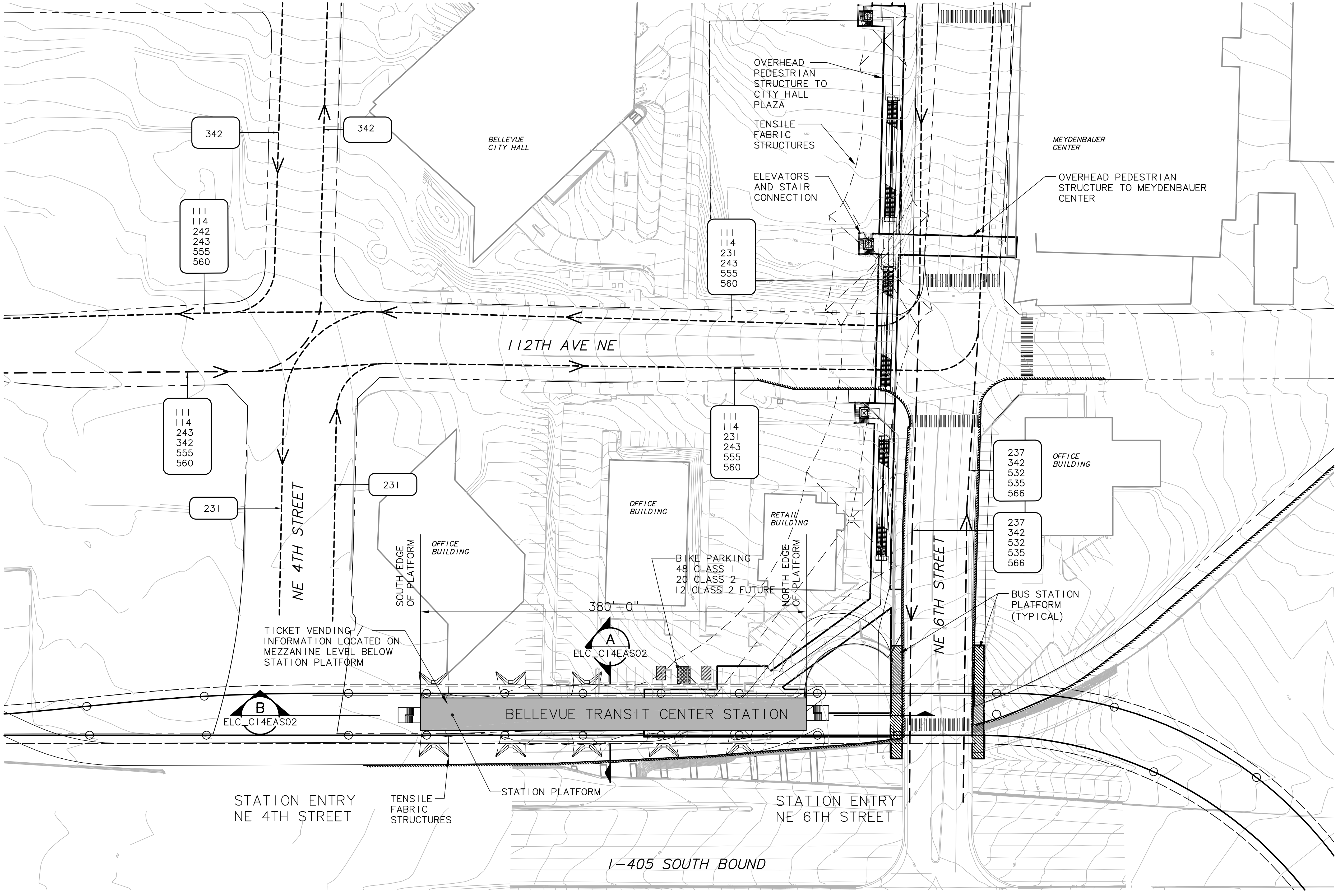


342
342
111
114
242
243
555
560
BELLEVUE CITY HALL
OVERHEAD PEDESTRIAN STRUCTURE TO CITY HALL PLAZA
TENSILE FABRIC STRUCTURES
ELEVATORS AND STAIR CONNECTION
111
114
231
243
555
560
MEYDENBAUER CENTER
OVERHEAD PEDESTRIAN STRUCTURE TO MEYDENBAUER CENTER
112TH AVE NE
111
114
243
342
555
560
231
231
111
114
231
243
555
560
237
342
532
535
566
OFFICE BUILDING
OFFICE BUILDING
RETAIL BUILDING
237
342
532
535
566
NE 4TH STREET
SOUTH EDGE OF PLATFORM
OFFICE BUILDING
BIKE PARKING
48 CLASS 1
20 CLASS 2
12 CLASS 2 FUTURE
NORTH EDGE OF PLATFORM
NE 6TH STREET
BUS STATION PLATFORM (TYPICAL)
380'-0"
TICKET VENDING INFORMATION LOCATED ON MEZZANINE LEVEL BELOW STATION PLATFORM
A
ELC_C14EAS02
B
ELC_C14EAS02
BELLEVUE TRANSIT CENTER STATION
STATION ENTRY NE 4TH STREET
TENSILE FABRIC STRUCTURES
STATION PLATFORM
STATION ENTRY NE 6TH STREET
I-405 SOUTH BOUND

STATION ACCESS PLAN

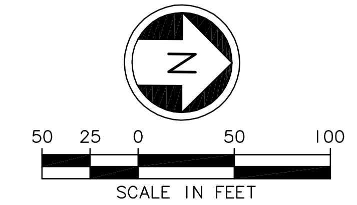
SCALE: 1" = 50'

NOTES

1. ALIGNMENT C14E

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
– – –	BUS ROUTE
201 203	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
—	TRACK



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50
25
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50
100
SCALE IN FEET

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10/13/10 14:17 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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FEIS CONCEPTUAL

CH2MHILL
Submitted:

HEWITT
Date:
Approved:

SOUNDTRANSIT
Date:

Scale: 1"=50'
Filename: ELC__C14EAS01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C14E
BTC STATION
STATION AREA PLAN

Drawing No.: C14E-AS01
Sheet No.: C-188
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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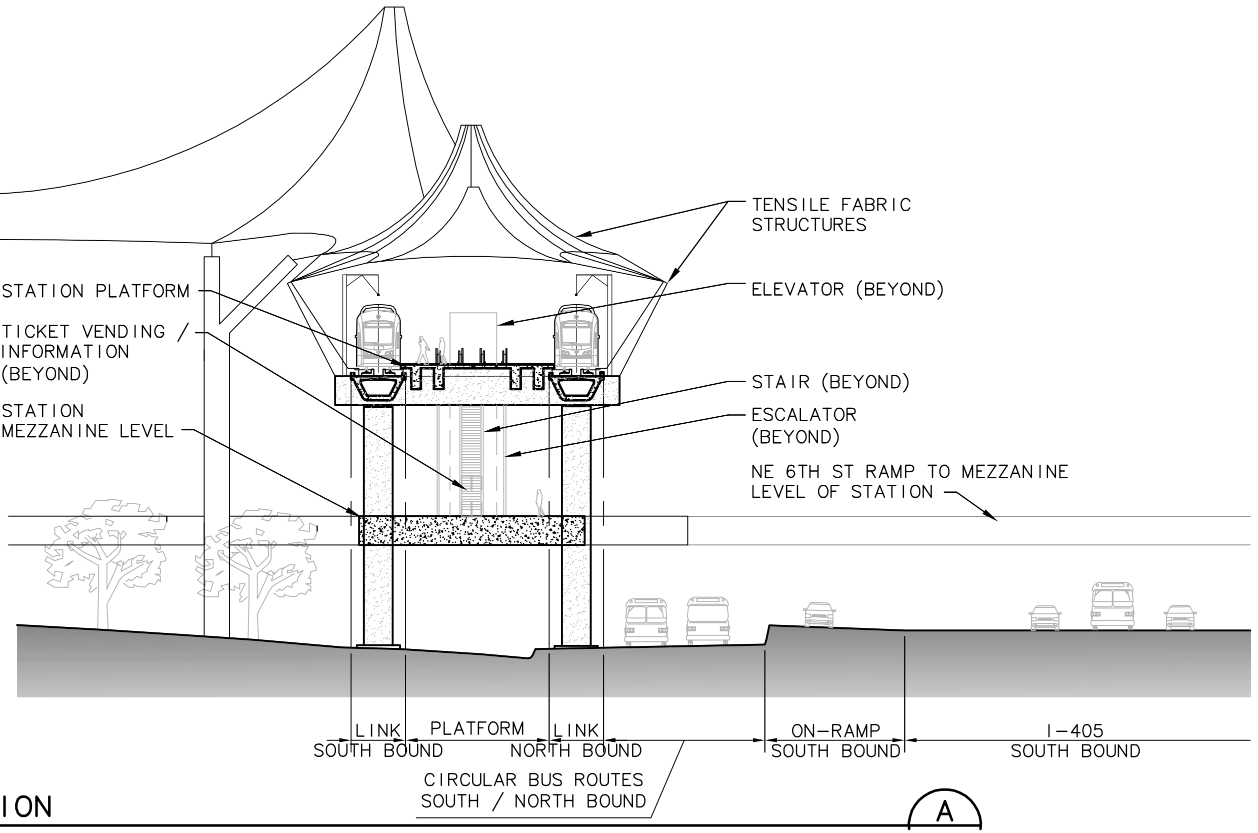
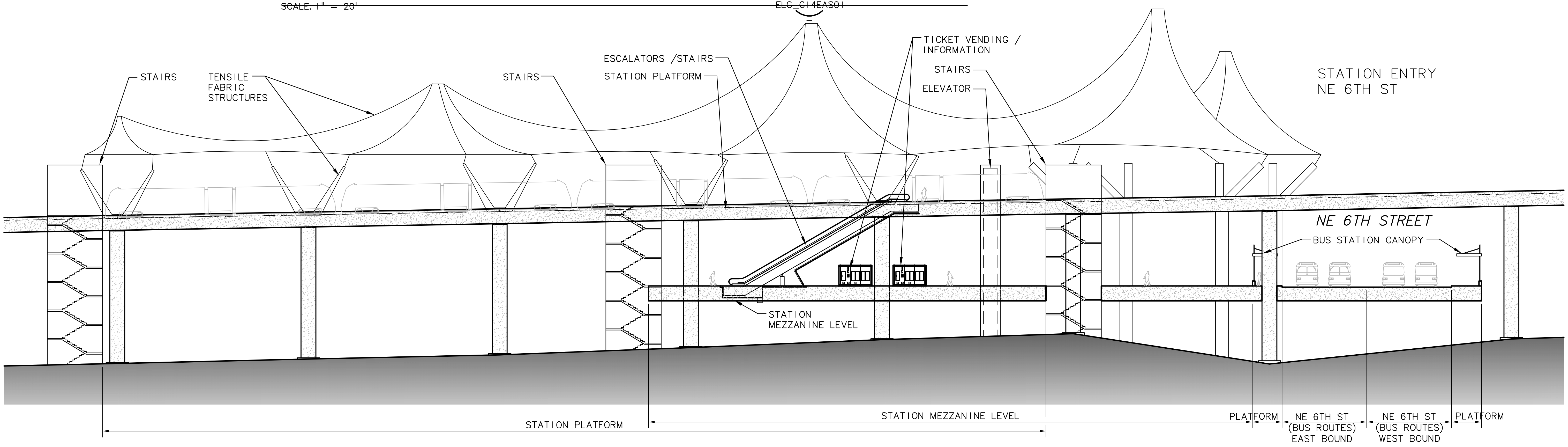

TENSILE FABRIC STRUCTURES
STATION PLATFORM
ELEVATOR (BEYOND)
TICKET VENDING / INFORMATION (BEYOND)
STAIR (BEYOND)
STATION MEZZANINE LEVEL
ESCALATOR (BEYOND)
NE 6TH ST RAMP TO MEZZANINE LEVEL OF STATION
LINK SOUTH BOUND
PLATFORM
LINK NORTH BOUND
ON-RAMP SOUTH BOUND
I-405 SOUTH BOUND
CIRCULAR BUS ROUTES SOUTH / NORTH BOUND

SECTION A

SCALE: 1" = 20'

ELC_C14EAS01


STAIRS
TENSILE FABRIC STRUCTURES
STAIRS
ESCALATORS /STAIRS
STATION PLATFORM
TICKET VENDING / INFORMATION
STAIRS
ELEVATOR
STATION ENTRY NE 6TH ST
NE 6TH STREET
BUS STATION CANOPY
STATION MEZZANINE LEVEL
STATION PLATFORM
STATION MEZZANINE LEVEL
PLATFORM
NE 6TH ST (BUS ROUTES) EAST BOUND
NE 6TH ST (BUS ROUTES) WEST BOUND
PLATFORM

SECTION B

SCALE: 1" = 20'

ELC_C14EAS01

20 10 0 20 40

SCALE IN FEET

c:\work\sdeis\ELC__C14EAX01.dwg
10/14/10 10:47 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

HEWITT

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Submitted:

Date:

Approved:

Date:

Scale: AS NOTED

Filename: ELC__C14EAX01.dwg

Contract No.:

Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C14E
BTC STATION
SITE SECTIONS

Drawing No.: C14E-AX01

Sheet No.: C-189

Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ELC_N12_AS_1
XA_ELC_3Add_SF
XF_ELC_SF
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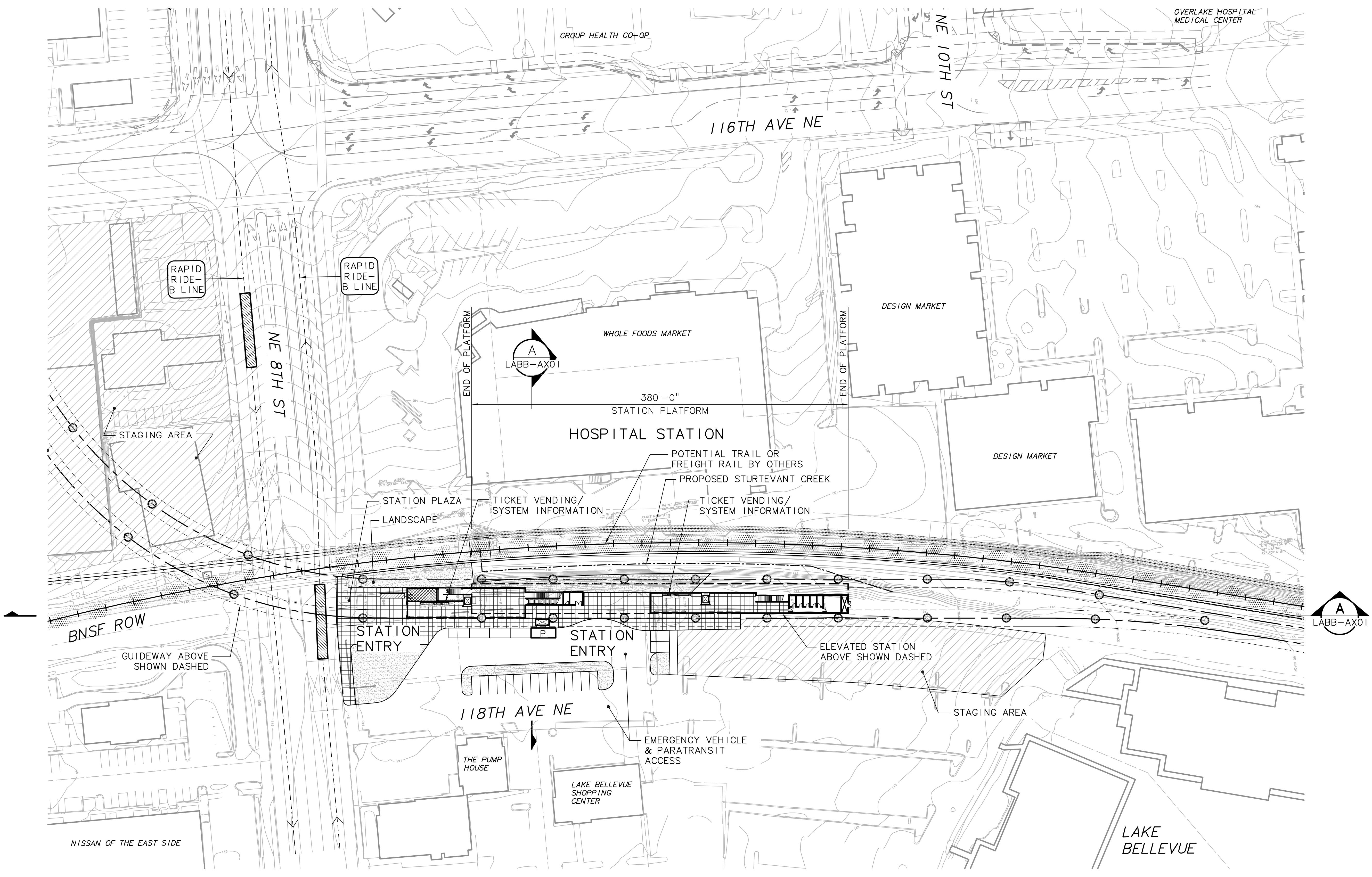


1
2
3
4
5
GROUP HEALTH CO-OP
OVERLAKE HOSPITAL MEDICAL CENTER
NE 10TH ST
116TH AVE NE
RAPID RIDE- B LINE
RAPID RIDE- B LINE
NE 8TH ST
DESIGN MARKET
WHOLE FOODS MARKET
A
LABB-AX01
END OF PLATFORM
END OF PLATFORM
380'-0"
STATION PLATFORM
HOSPITAL STATION
DESIGN MARKET
STAGING AREA
POTENTIAL TRAIL OR FREIGHT RAIL BY OTHERS
PROPOSED STURTEVANT CREEK
STATION PLAZA
TICKET VENDING/ SYSTEM INFORMATION
TICKET VENDING/ SYSTEM INFORMATION
LANDSCAPE
BNSF ROW
STATION ENTRY
STATION ENTRY
P
GUIDEWAY ABOVE SHOWN DASHED
ELEVATED STATION ABOVE SHOWN DASHED
STAGING AREA
118TH AVE NE
EMERGENCY VEHICLE & PARATRANSIT ACCESS
THE PUMP HOUSE
LAKE BELLEVUE SHOPPING CENTER
NISSAN OF THE EAST SIDE
LAKE BELLEVUE

STATION AREA PLAN

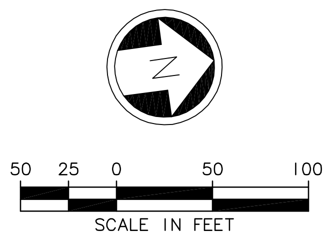
SCALE: 1" = 50'

NOTES

1. ALIGNMENT C14E

SYMBOLS KEY

▨	NEW BUS STOP
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
RAPID BUS- B LINE	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
— - —	TRACK



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SCALE IN FEET

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10/04/10 14:04 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

IBI GROUP

IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

SOUND TRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELC_1LABBAS01.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C - ALT C14E
HOSPITAL STATION
STATION AREA PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: LABB-AS01
Sheet No.: C-190
Rev.:

DWG INFO:

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–Overlay:
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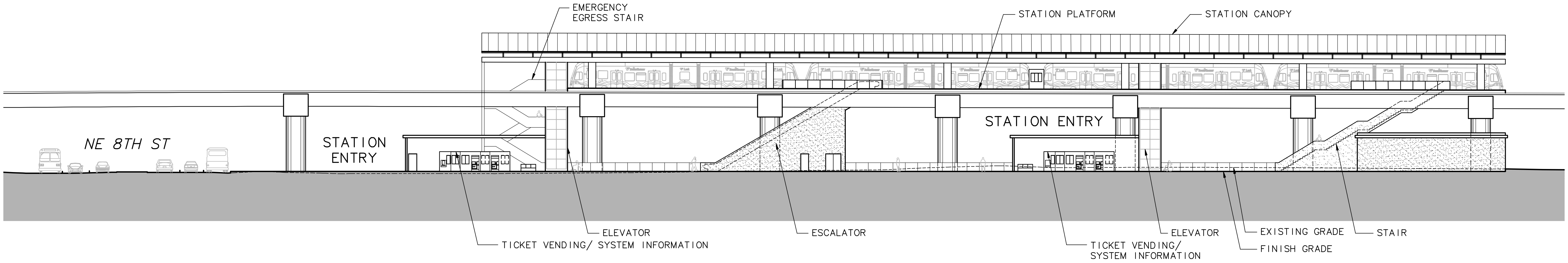
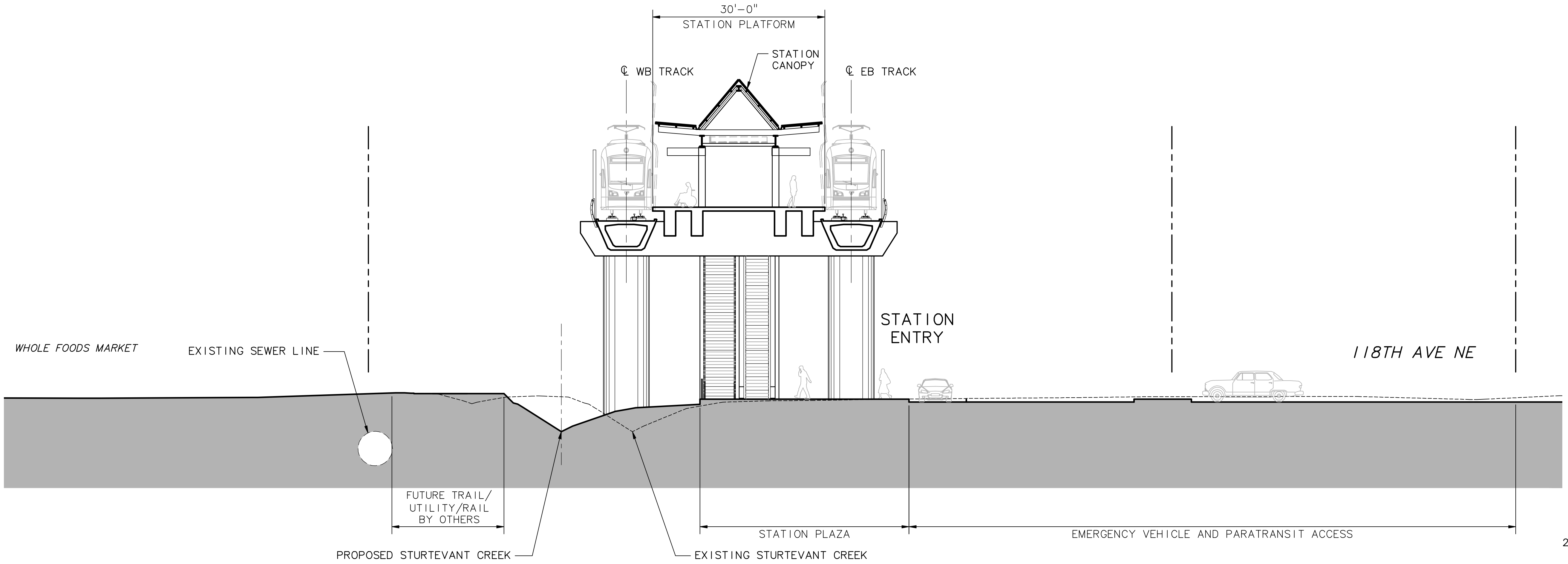

EMERGENCY EGRESS STAIR
STATION PLATFORM
STATION CANOPY
NE 8TH ST
STATION ENTRY
STATION ENTRY
ELEVATOR
TICKET VENDING/ SYSTEM INFORMATION
ESCALATOR
ELEVATOR
TICKET VENDING/ SYSTEM INFORMATION
EXISTING GRADE
FINISH GRADE
STAIR

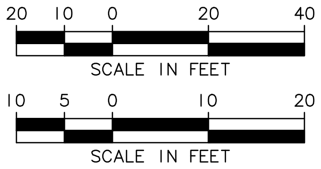
SITE SECTION A

SCALE: 1" = 20'
LABB-AX01


30'-0"
STATION PLATFORM
STATION CANOPY
℄ WB TRACK
℄ EB TRACK
STATION ENTRY
WHOLE FOODS MARKET
EXISTING SEWER LINE
118TH AVE NE
FUTURE TRAIL/ UTILITY/RAIL BY OTHERS
STATION PLAZA
EMERGENCY VEHICLE AND PARATRANSIT ACCESS
PROPOSED STURTEVANT CREEK
EXISTING STURTEVANT CREEK

SITE SECTION B

SCALE: 1" = 10'
LABB-AX01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SCALE IN FEET
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SCALE IN FEET

c:\work\feis\segment c\c14e\ELC_1LABBAX01.dwg
05/10/11 10:05 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

IBI GROUP

IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Date:
Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELC_1LABBAX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT C – ALT C14E

HOSPITAL STATION
SITE SECTIONS

Drawing No.: LABB-AX01
Sheet No.: C-191
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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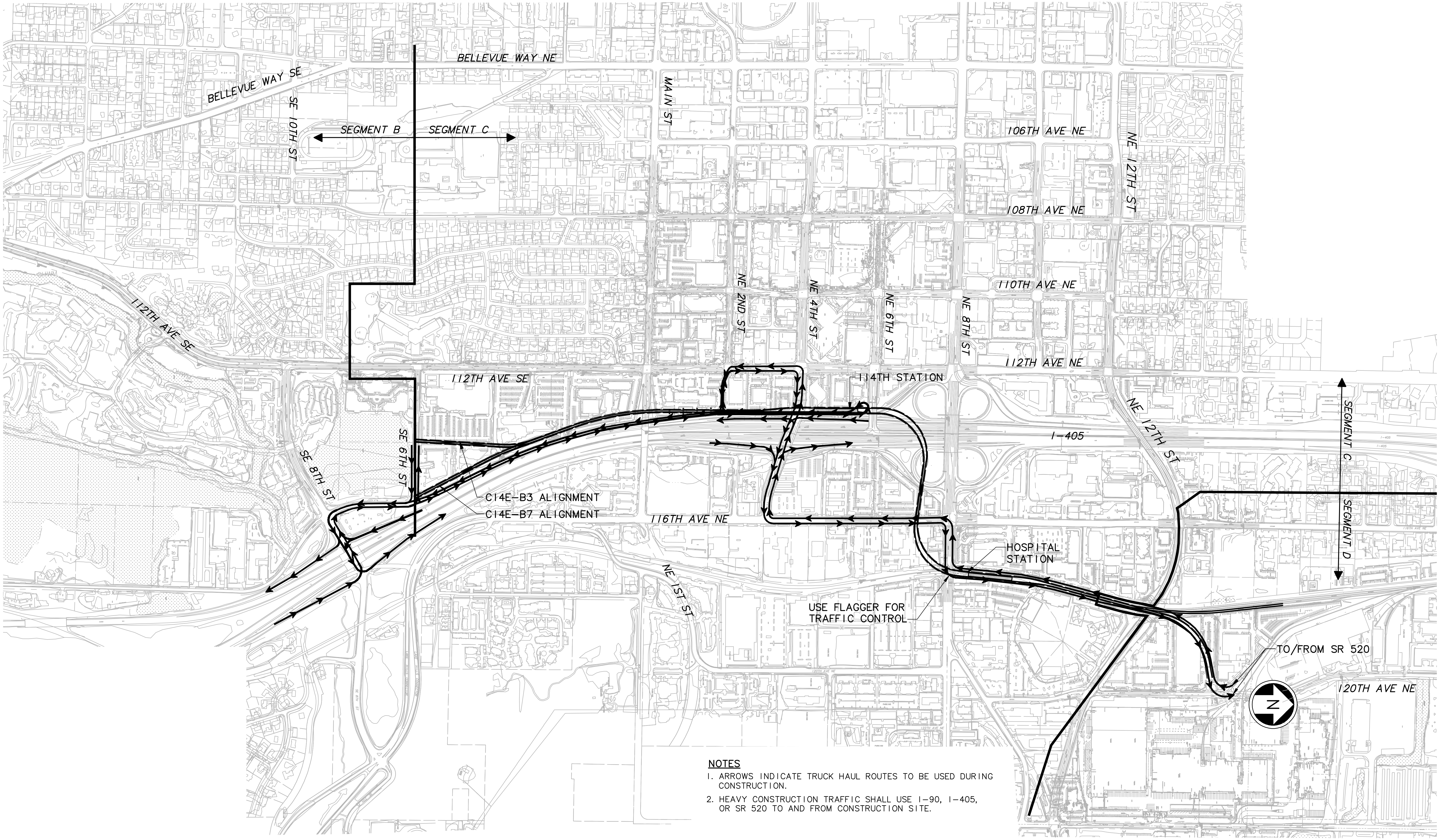

BELLEVUE WAY NE
BELLEVUE WAY SE
SE 10TH ST
SEGMENT B
SEGMENT C
MAIN ST
106TH AVE NE
NE 12TH ST
108TH AVE NE
110TH AVE NE
NE 2ND ST
NE 4TH ST
NE 6TH ST
NE 8TH ST
112TH AVE SE
112TH AVE NE
112TH AVE SE
114TH STATION
SEGMENT C
SEGMENT D
I-405
NE 12TH ST
SE 6TH ST
SE 8TH ST
C14E-B3 ALIGNMENT
C14E-B7 ALIGNMENT
116TH AVE NE
HOSPITAL STATION
NE 1ST ST
USE FLAGGER FOR TRAFFIC CONTROL
TO/FROM SR 520
120TH AVE NE
N

NOTES
1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-90, I-405, OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\ds\mokr\my documents\eastlink\environmental planning\feis\ELC_C14E_CC01.dwg
06/23/11 11:08 : mokr 0E6505

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELC_C14E_CC01.dwg
Contract No.: EL SEG_C
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT C
ALTERNATIVE C14E
CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: C14E-CC01

Sheet No.: C-192
Rev.:

DWG INFO:

LTSCALE:
1=1

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ELD_L75_KA-100
ELD_L75_KA_1-100
SUB-SDEIS
ZG-2234H
key_Segment
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x0534rx
x0831rx
x0834rx
x1131rx
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x2040rx
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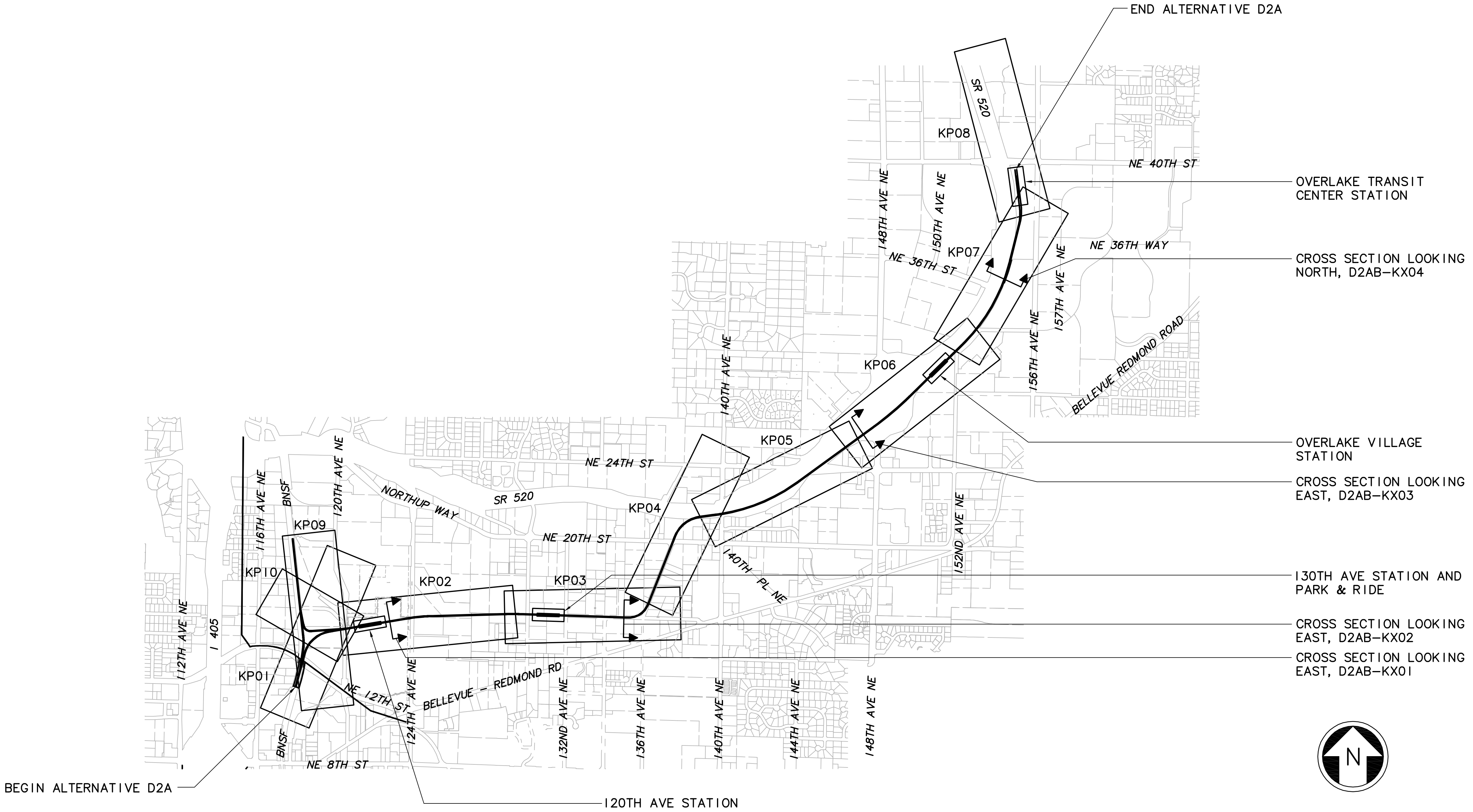
END ALTERNATIVE D2A
SR 520
KP08
NE 40TH ST
OVERLAKE TRANSIT CENTER STATION
148TH AVE NE
150TH AVE NE
KP07
NE 36TH ST
NE 36TH WAY
CROSS SECTION LOOKING NORTH, D2AB-KX04
157TH AVE NE
156TH AVE NE
BELLEVUE REDMOND ROAD
140TH AVE NE
KP06
OVERLAKE VILLAGE STATION
KP05
CROSS SECTION LOOKING EAST, D2AB-KX03
NE 24TH ST
NORTHUP WAY
SR 520
KP04
NE 20TH ST
152ND AVE NE
140TH PL NE
116TH AVE NE
BNSF
120TH AVE NE
KP09
KP10
KP02
KP03
130TH AVE STATION AND PARK & RIDE
CROSS SECTION LOOKING EAST, D2AB-KX02
CROSS SECTION LOOKING EAST, D2AB-KX01
112TH AVE NE
I 405
KP01
NE 12TH ST
124TH AVE NE
BELLEVUE - REDMOND RD
132ND AVE NE
136TH AVE NE
140TH AVE NE
144TH AVE NE
148TH AVE NE
BNSF
NE 8TH ST
BEGIN ALTERNATIVE D2A
120TH AVE STATION
N

c:\work\sdeis\ELD_2D2ABGZ05.dwg
10/04/10 14:22 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
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FEIS CONCEPTUAL

CH2MHILL
Submitted:

Grijalva ENGINEERING
BOLIMA DRAFTING & DESIGN INC.
Date:
Approved:

SOUNDTRANSIT
Date:

Scale: NTS
Filename: ELD_2D2ABGZ05.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

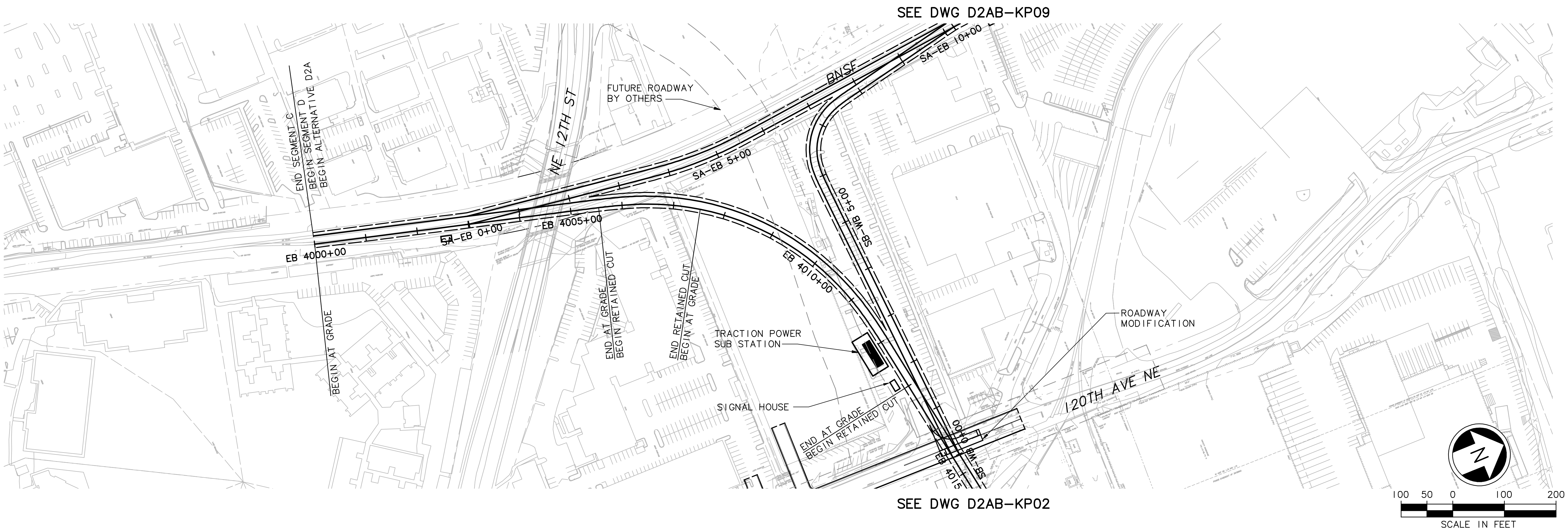
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
KEY PLAN

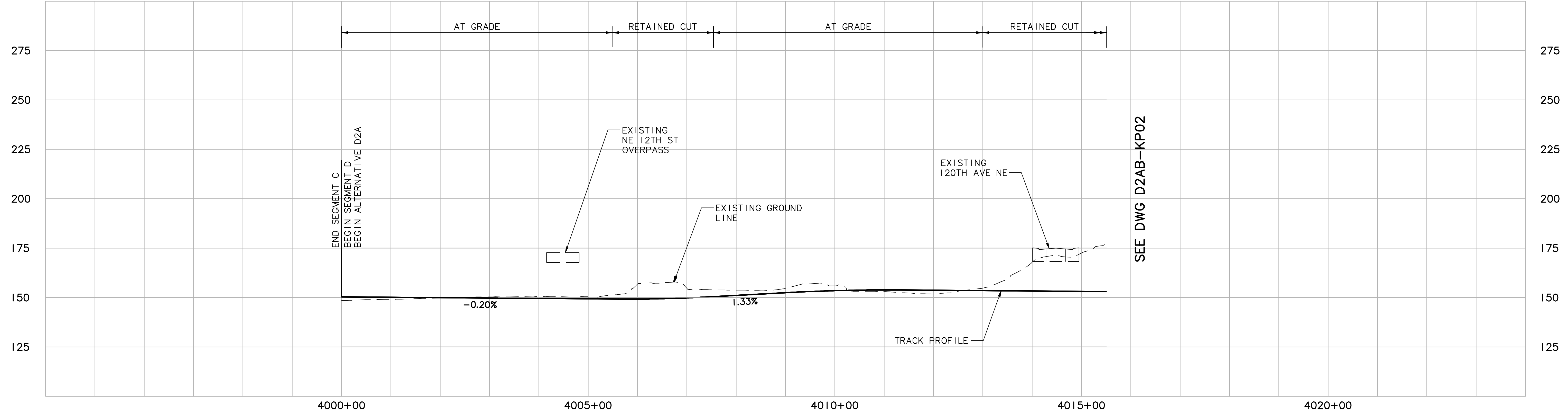
Drawing No.: D2AB-GZ05
Sheet No.: D-1
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_COB_RD
ELD_L75_CA-100
ELD_L75_CL
ELD_L75_CM-100
ELD_L75_CS
ELD_L75_JS
ELD_L75_KA-100
ELD_L75_KA_1-100
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0831rx
x0831sf
x0834rx
x0834sf
x0834vg
xChild_bldg
x1405_chan
-Unresolved:


SEE DWG D2AB-KP09
FUTURE ROADWAY BY OTHERS
BNSF
SA-EB 10+00
SA-EB 5+00
NE 12TH ST
END SEGMENT C
BEGIN SEGMENT D
BEGIN ALTERNATIVE D2A
EB 4000+00
SA-EB 0+00
EB 4005+00
BEGIN AT GRADE
END AT GRADE
BEGIN RETAINED CUT
END RETAINED CUT
BEGIN AT GRADE
EB 4010+00
SB-WB 5+00
TRACTION POWER SUB STATION
SIGNAL HOUSE
END AT GRADE
BEGIN RETAINED CUT
ROADWAY MODIFICATION
120TH AVE NE
EB 4015
SB-WB 0+00
N
SEE DWG D2AB-KP02
100 50 0 100 200
SCALE IN FEET



No. Date Dsn. Chk. App. Revisions

Designed By:
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FEIS CONCEPTUAL

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Submitted:

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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD_2D2ABKP01.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)

TRACK PLAN & PROFILE

Drawing No.:
D2AB-KP01
Sheet No.: Rev.:
D-2

c:\work\feis\segment d\ELD_2D2ABKP01.dwg
02/28/11 13:28 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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ELD_L75_CA-100
ELD_L75_CL
ELD_L75_CM-100
ELD_L75_CS
ELD_L75_JO-100
ELD_L75_KA-100
ELD_L75_US
SUB-FEIS
ZG-2234H
ZG-G10010
x0831rx
x0831sf
x0834rx
x0834sf
x1131rx
x1131sf
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x1134sf
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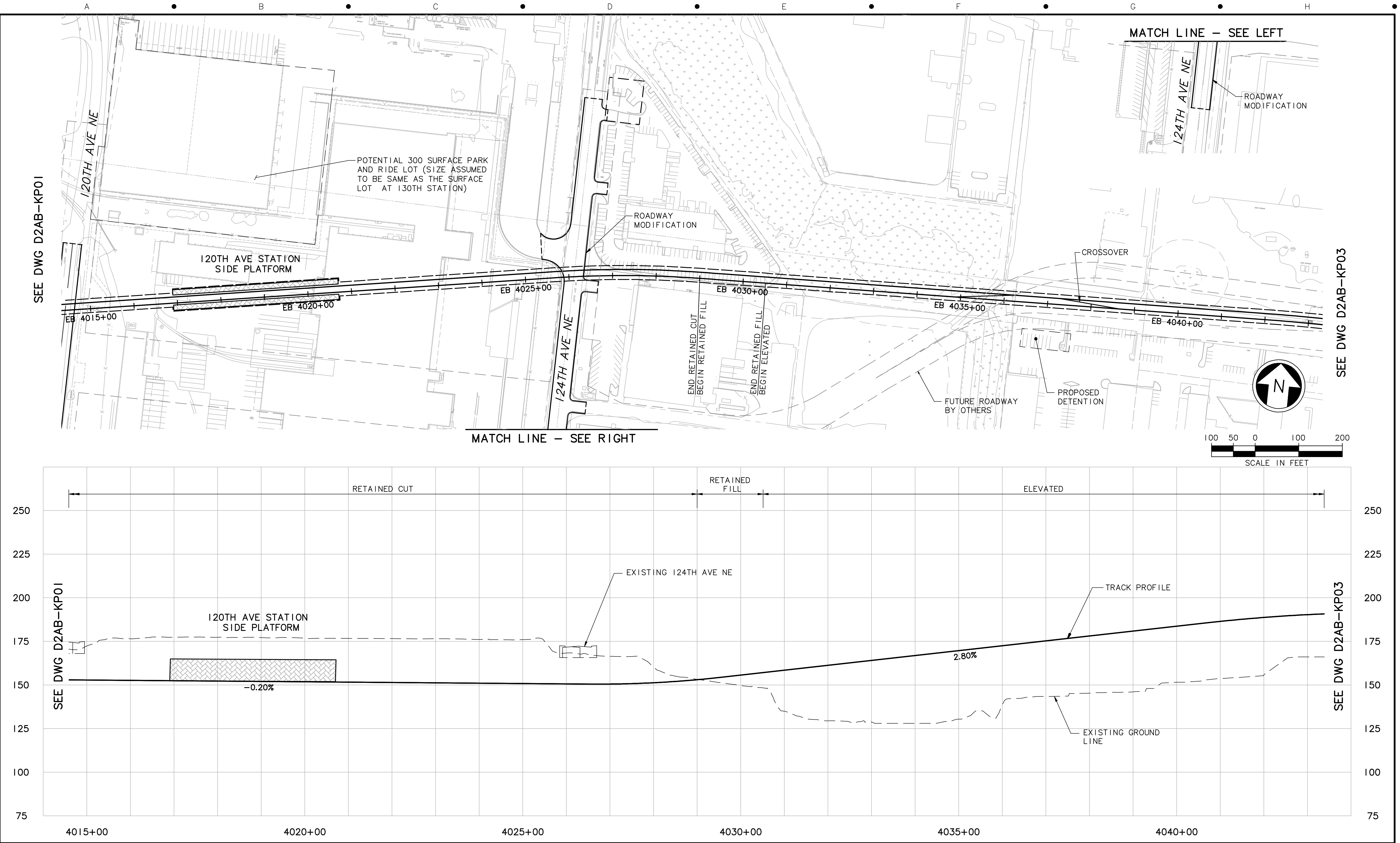
A
B
C
D
E
F
G
H
1
2
3
4
MATCH LINE - SEE LEFT
124TH AVE NE
ROADWAY MODIFICATION
120TH AVE NE
POTENTIAL 300 SURFACE PARK AND RIDE LOT (SIZE ASSUMED TO BE SAME AS THE SURFACE LOT AT 130TH STATION)
SEE DWG D2AB-KP01
ROADWAY MODIFICATION
120TH AVE STATION SIDE PLATFORM
CROSSOVER
SEE DWG D2AB-KP03
EB 4015+00
EB 4020+00
EB 4025+00
EB 4030+00
EB 4035+00
EB 4040+00
124TH AVE NE
END RETAINED CUT BEGIN RETAINED FILL
END RETAINED FILL BEGIN ELEVATED
FUTURE ROADWAY BY OTHERS
PROPOSED DETENTION
N
MATCH LINE - SEE RIGHT
100
50
0
100
200
SCALE IN FEET
RETAINED CUT
RETAINED FILL
ELEVATED
250
225
200
175
150
125
100
75
EXISTING 124TH AVE NE
TRACK PROFILE
120TH AVE STATION SIDE PLATFORM
SEE DWG D2AB-KP01
SEE DWG D2AB-KP03
2.80%
-0.20%
EXISTING GROUND LINE
4015+00
4020+00
4025+00
4030+00
4035+00
4040+00

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02/28/11 13:34 : khuum OE6585

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Filename:
ELD_2D2ABKP02.dwg

Contract No.:

Date:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)

TRACK PLAN & PROFILE

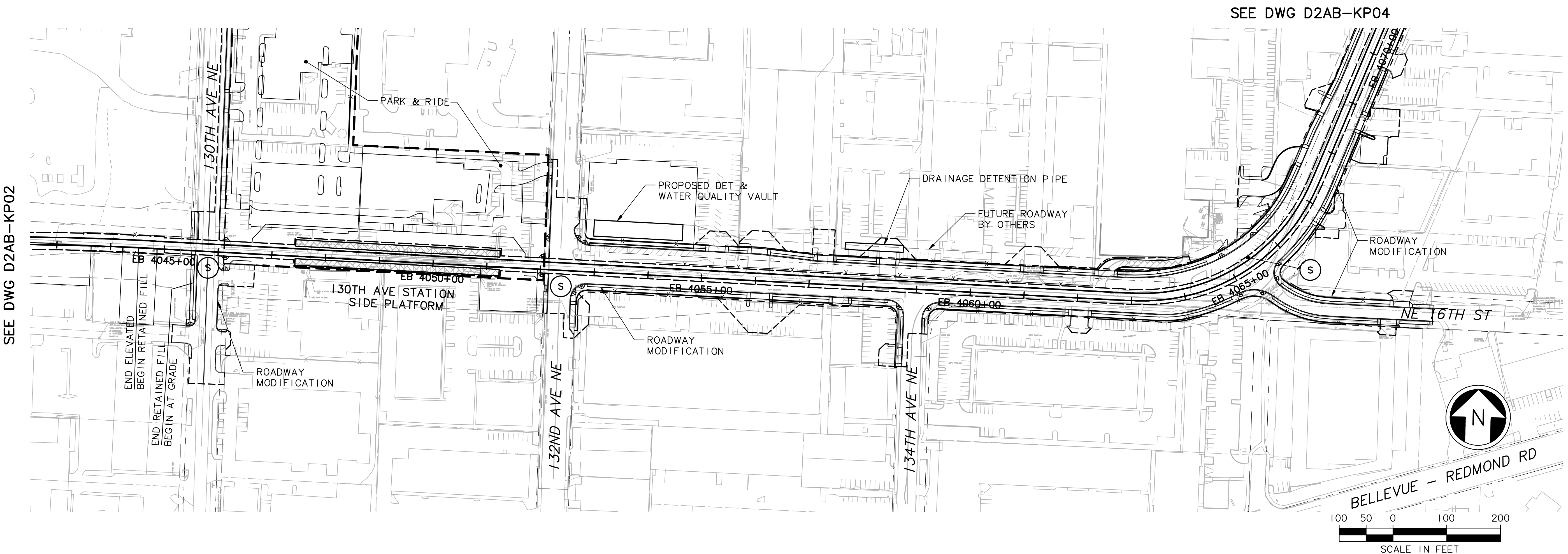
Drawing No.:
D2AB-KP02

Sheet No.: D-3
Rev.:

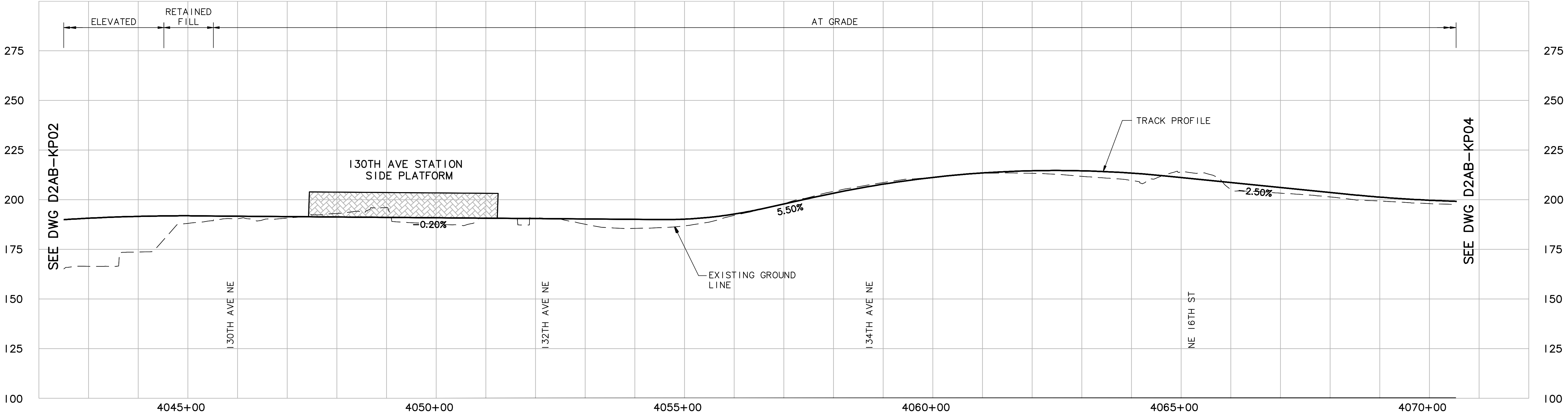
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_COB_RD
ELD_L75_CA
ELD_L75_CL
ELD_L75_CS
ELD_L75_JO-100
ELD_L75_JT
ELD_L75_KA-100
ELD_L75_RP
ZG-2234H
ZG-G10010
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
x1434rx
x1434sf
-Unresolved:
ELD_L75_CA-100
ELD_L75_CM-100
ELD_L75_US



SEE DWG D2AB-KP04
SEE DWG D2AB-KP02
130TH AVE NE
PARK & RIDE
PROPOSED DET &
WATER QUALITY VAULT
DRAINAGE DETENTION PIPE
FUTURE ROADWAY
BY OTHERS
ROADWAY
MODIFICATION
EB 4045+00
EB 4050+00
130TH AVE STATION
SIDE PLATFORM
EB 4055+00
EB 4060+00
EB 4065+00
EB 4070+00
NE 16TH ST
END ELEVATED
BEGIN RETAINED FILL
END RETAINED FILL
BEGIN AT GRADE
ROADWAY
MODIFICATION
ROADWAY
MODIFICATION
132ND AVE NE
134TH AVE NE
N
BELLEVUE - REDMOND RD
100 50 0 100 200
SCALE IN FEET



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04/18/11 09:25 : khuum OE6585

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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELD_2D2ABKP03.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)

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TRACK PLAN & PROFILE

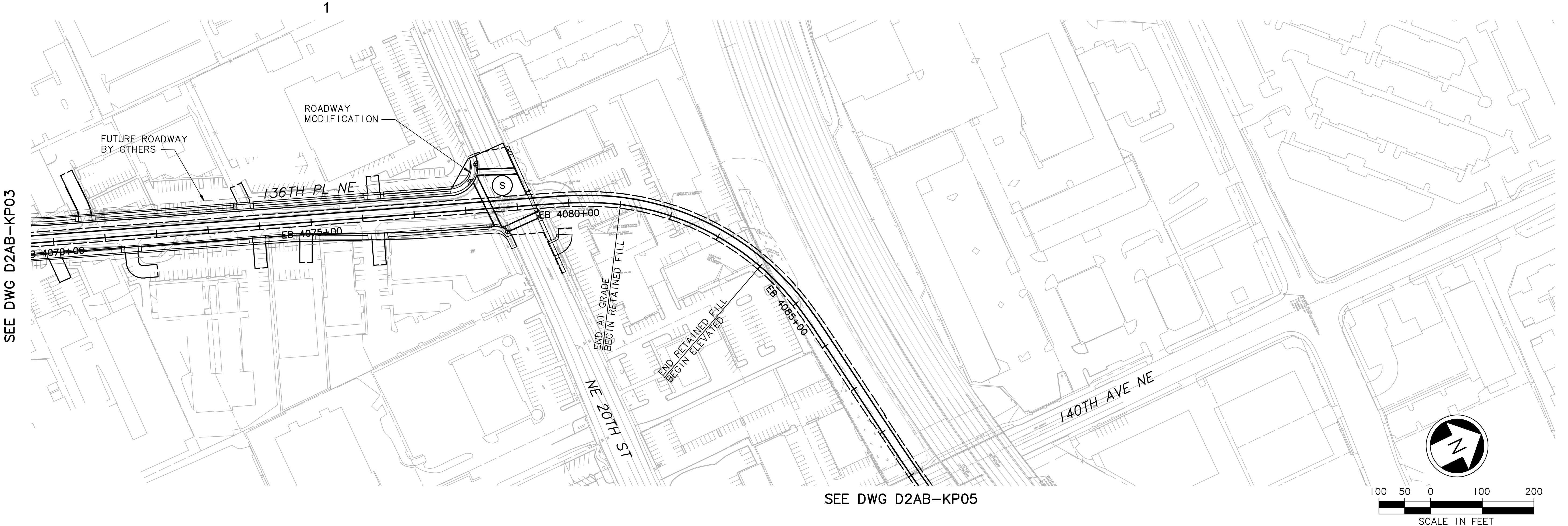
Drawing No.: D2AB-KP03

Sheet No.: D-4
Rev.:

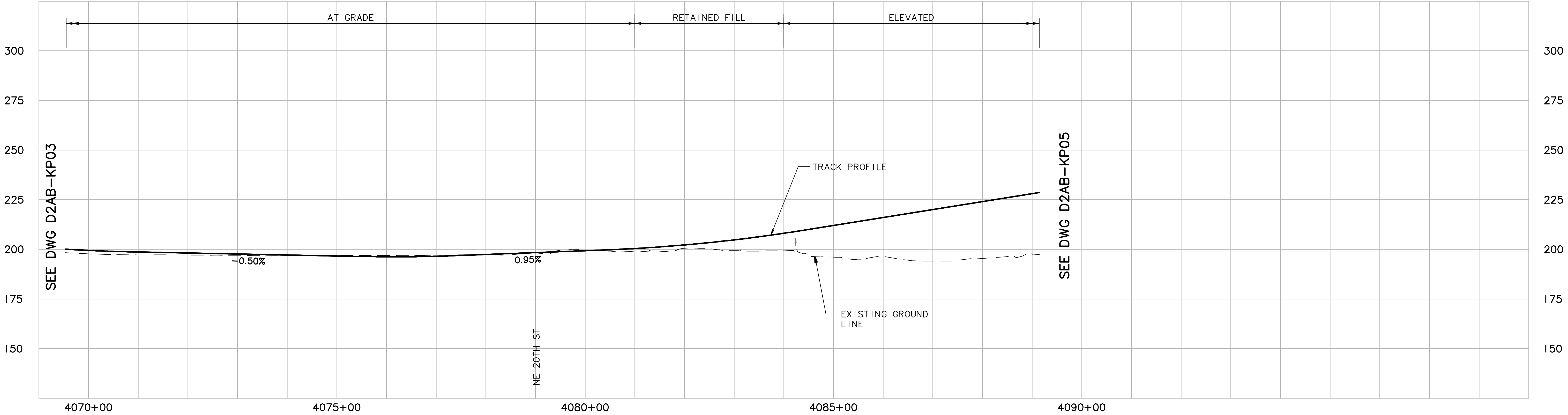
DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELD_520FUT
ELD_COB_RD
ELD_L75_CA–100
ELD_L75_CL
ELD_L75_CM–100
ELD_L75_CS
ELD_L75_KA–100
ZG–2234H
ZG–G10010
x1131rx
x1131sf
x1134rx
x1134sf
x1434rx
x1434sf
–Unresolved:
ELD_L75_JO–200
ELD_L75_RP
ELD_L75_US
xmcrsft_chan



1
ROADWAY MODIFICATION
FUTURE ROADWAY BY OTHERS
136TH PL NE
S
EB 4080+00
EB 4075+00
EB 4070+00
END AT GRADE BEGIN RETAINED FILL
END RETAINED FILL BEGIN ELEVATED
EB 4085+00
NE 20TH ST
140TH AVE NE
N
SEE DWG D2AB–KP03
SEE DWG D2AB–KP05
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment d\ELD_2D2ABKP04.dwg
06/20/11 13:58 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD_2D2ABKP04.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

TRACK PLAN & PROFILE

Drawing No.:
D2AB–KP04

Sheet No.: D-5
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_520FUT
ELD_L75_CA-100
ELD_L75_CL
ELD_L75_CM-100
ELD_L75_CS
ELD_L75_JO-100
ELD_L75_KA-100
SUB-SDE1S
XA_ELD_3Add_SF
ZG-2234H
ZG-G10010
x1434rx
x1434sf
x1734rx
x1734sf
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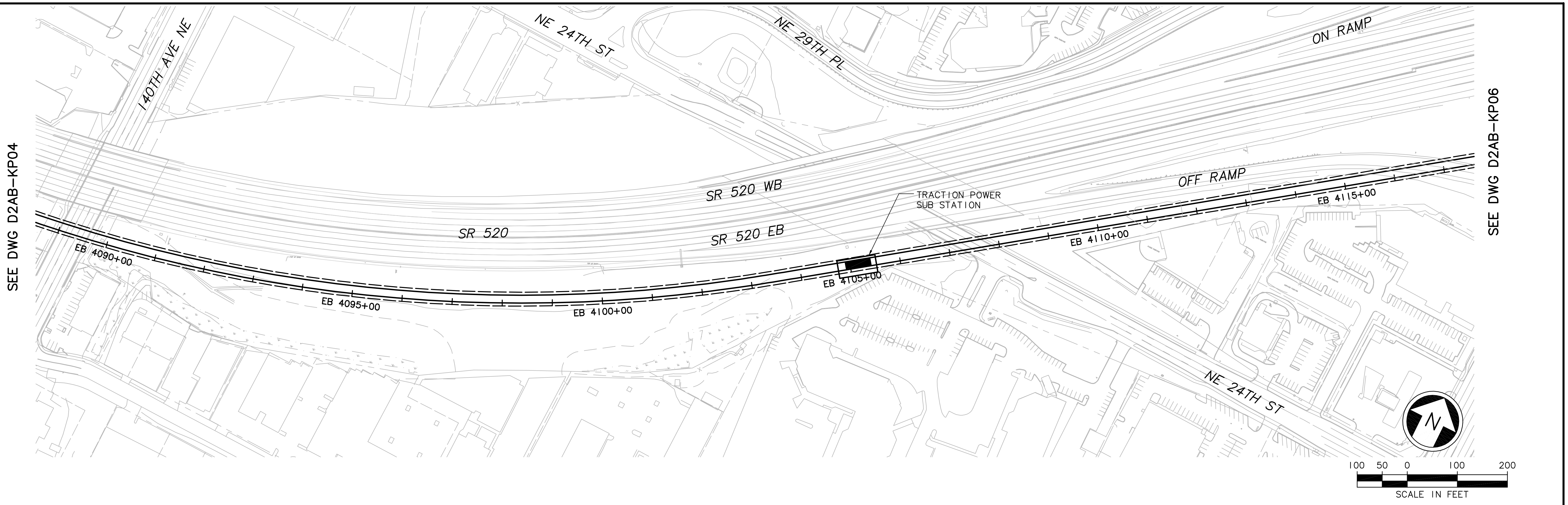
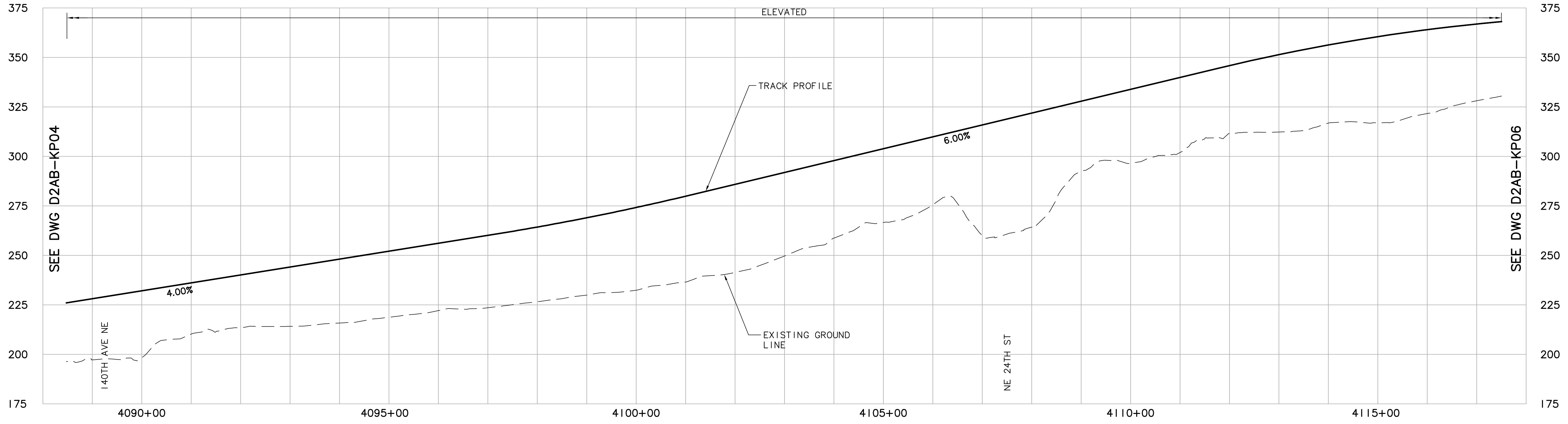
ELD_L75_JS
key_East



SEE DWG D2AB-KP04
140TH AVE NE
NE 24TH ST
NE 29TH PL
ON RAMP
SEE DWG D2AB-KP06
TRACTION POWER SUB STATION
OFF RAMP
SR 520 WB
SR 520
SR 520 EB
EB 4090+00
EB 4095+00
EB 4100+00
EB 4105+00
EB 4110+00
EB 4115+00
NE 24TH ST
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELD_2D2ABKP05.dwg
10/08/10 11:11 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:

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SOUNDTRANSIT

Submitted:

Date:

Approved:

Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELD_2D2ABKP05.dwg

Contract No.:

Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
TRACK PLAN & PROFILE

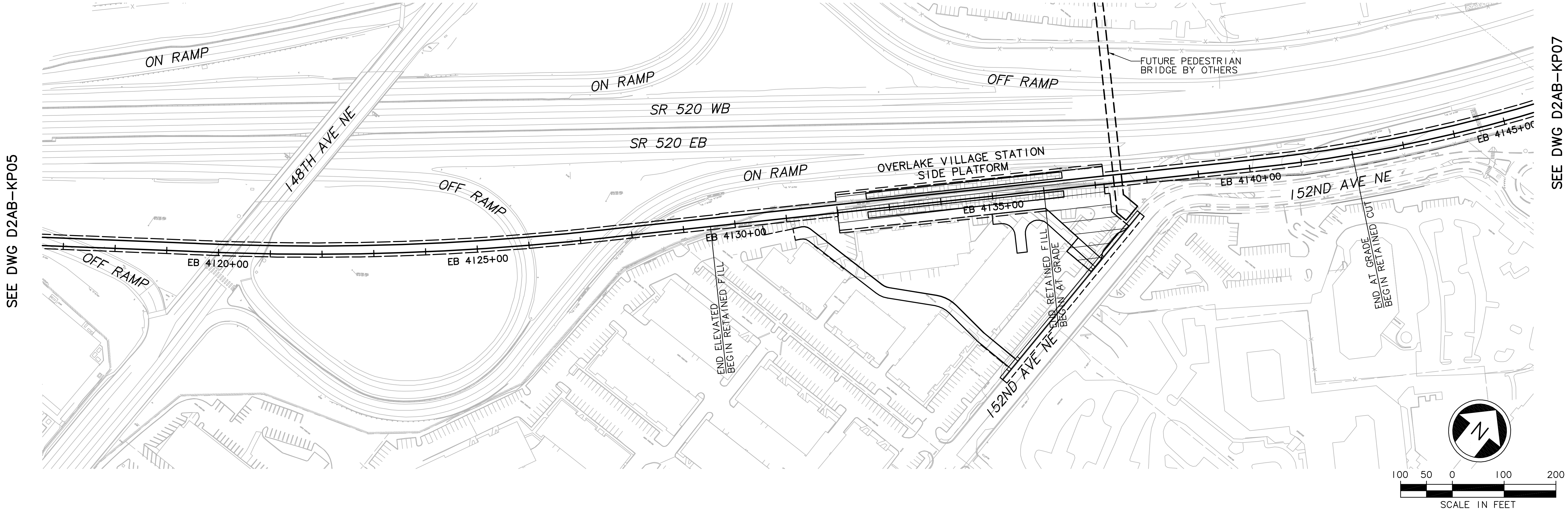
Drawing No.:
D2AB-KP05

Sheet No.: D-6
Rev.:

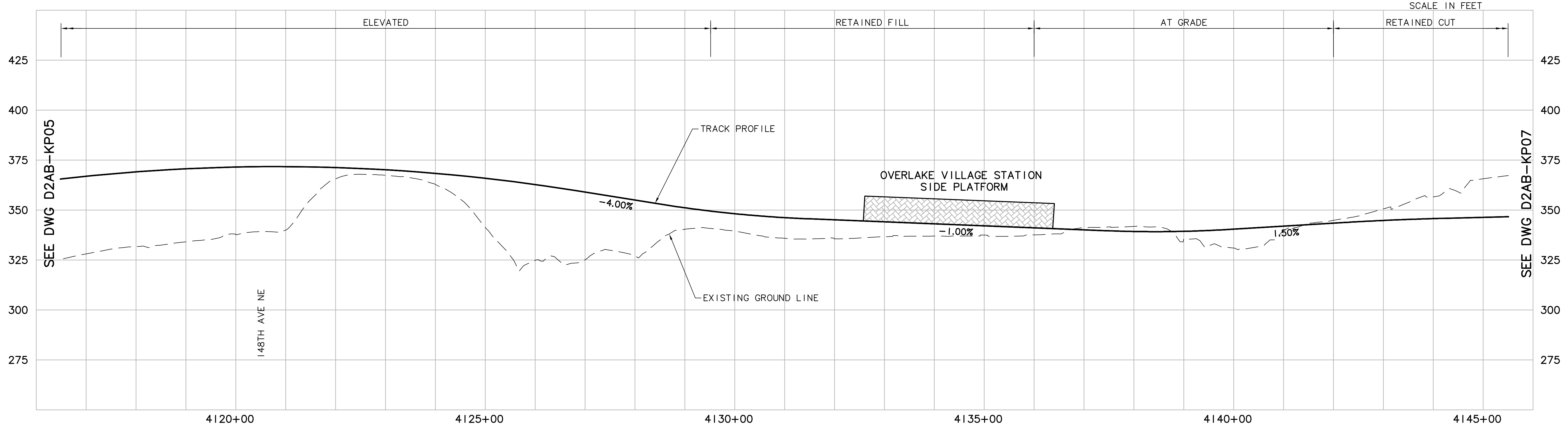
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_520FUT
ELD_L75_CA
ELD_L75_CA-100
ELD_L75_CL
ELD_L75_CS
ELD_L75_JO-100
ELD_L75_KA-100
ZG-2234H
ZG-G10010
x1734rx
x1734sf
x1737rx
x1737sf
-Unresolved:
XA_ELD_3Add_SF



SEE DWG D2AB-KP05
ON RAMP
ON RAMP
OFF RAMP
SR 520 WB
SR 520 EB
148TH AVE NE
OFF RAMP
ON RAMP
OVERLAKE VILLAGE STATION
SIDE PLATFORM
FUTURE PEDESTRIAN
BRIDGE BY OTHERS
EB 4145+00
EB 4140+00
152ND AVE NE
EB 4135+00
EB 4130+00
EB 4125+00
EB 4120+00
OFF RAMP
END ELEVATED
BEGIN RETAINED FILL
END RETAINED FILL
BEGIN AT GRADE
152ND AVE NE
END AT GRADE
BEGIN RETAINED CUT
SEE DWG D2AB-KP07
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELD_2D2ABKP06.dwg
02/22/11 15:21 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD_2D2ABKP06.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

TRACK PLAN & PROFILE

Drawing No.:
D2AB-KP06
Sheet No.: D-7
Rev.:

DWG INFO:

LTSCALE:
1=1

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x2040rx
x2040sf
-Overlay:
ELD_L75_CA-100
ELD_L75_CL
ELD_L75_CS
ELD_L75_KA-100
ZG-2234H
ZG-G10010
x1737rx
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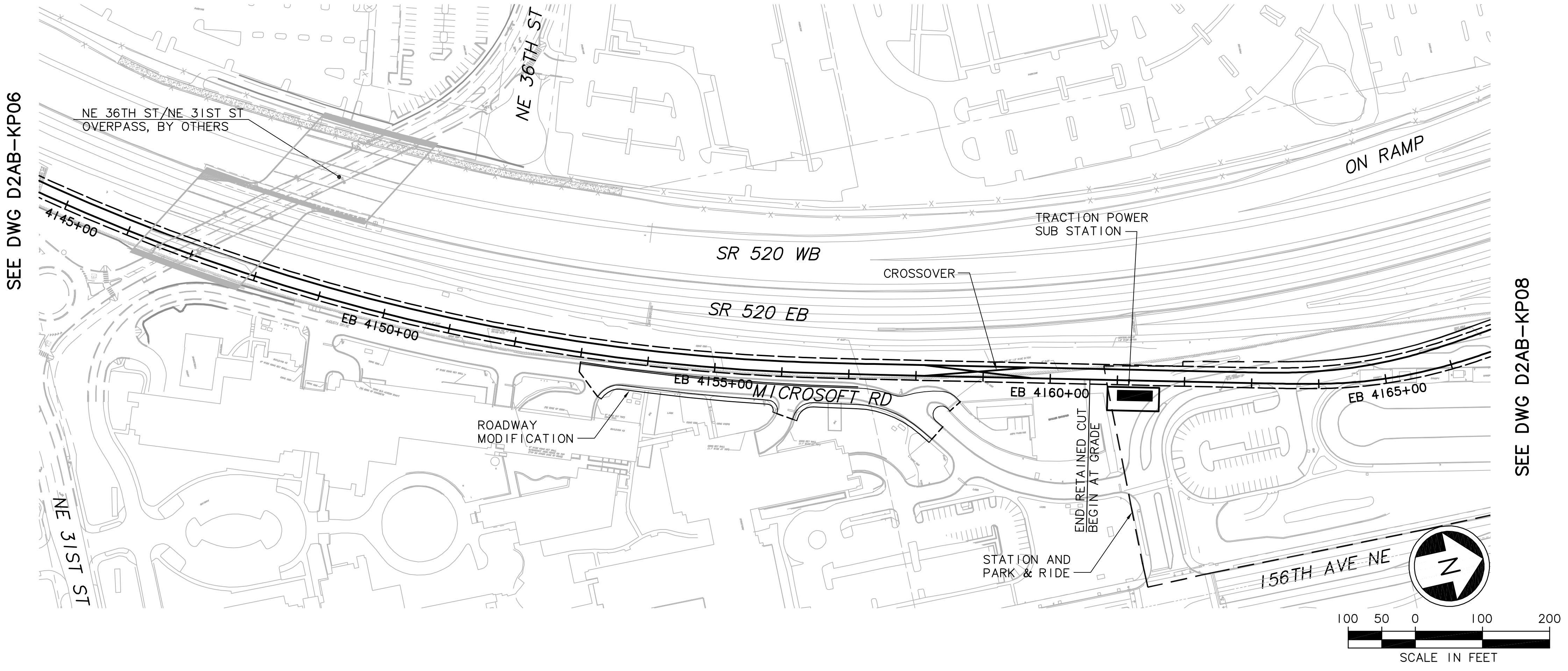
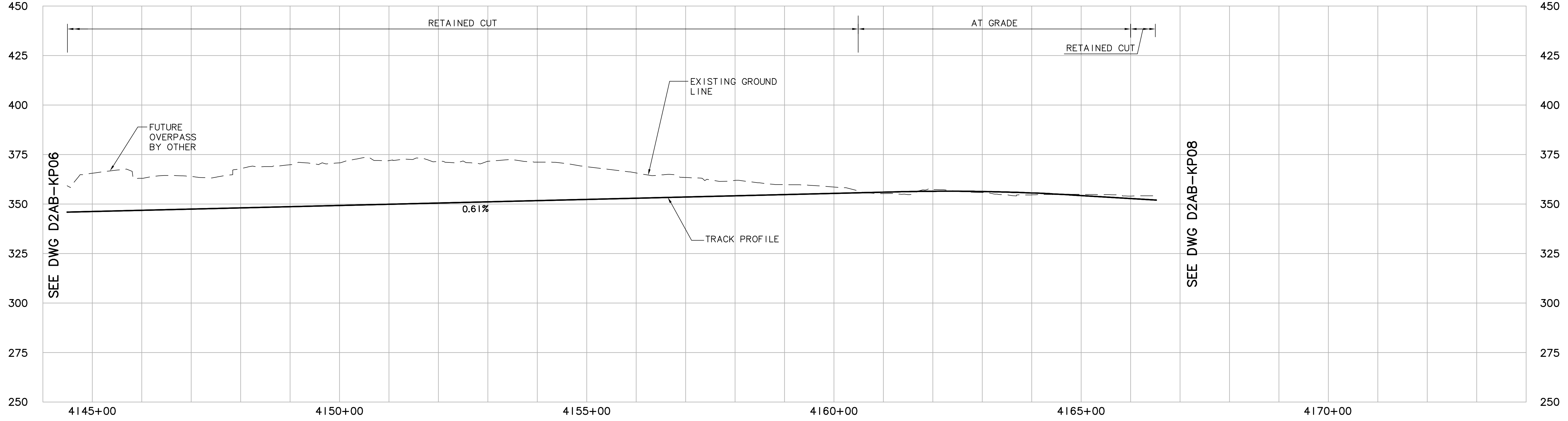
x2037sf
xL75_SF_P-PLAN-BRIDGE
-Unresolved:
ELD_L75_JO-200
ELD_L75_JS


SEE DWG D2AB-KP06
NE 36TH ST/NE 31ST ST OVERPASS, BY OTHERS
NE 36TH ST
4145+00
ON RAMP
TRACTION POWER SUB STATION
SR 520 WB
CROSSOVER
SR 520 EB
EB 4150+00
EB 4155+00
MICROSOFT RD
EB 4160+00
EB 4165+00
SEE DWG D2AB-KP08
ROADWAY MODIFICATION
END RETAINED CUT BEGIN AT GRADE
NE 31ST ST
STATION AND PARK & RIDE
156TH AVE NE
N
100 50 0 100 200
SCALE IN FEET


450
425
400
375
350
325
300
275
250
RETAINED CUT
AT GRADE
RETAINED CUT
EXISTING GROUND LINE
FUTURE OVERPASS BY OTHER
0.61%
TRACK PROFILE
SEE DWG D2AB-KP06
SEE DWG D2AB-KP08
4145+00
4150+00
4155+00
4160+00
4165+00
4170+00

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02/22/11 15:21 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELD_2D2ABKP07.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)

TRACK PLAN & PROFILE

Drawing No.: D2AB-KP07
Sheet No.: D-8
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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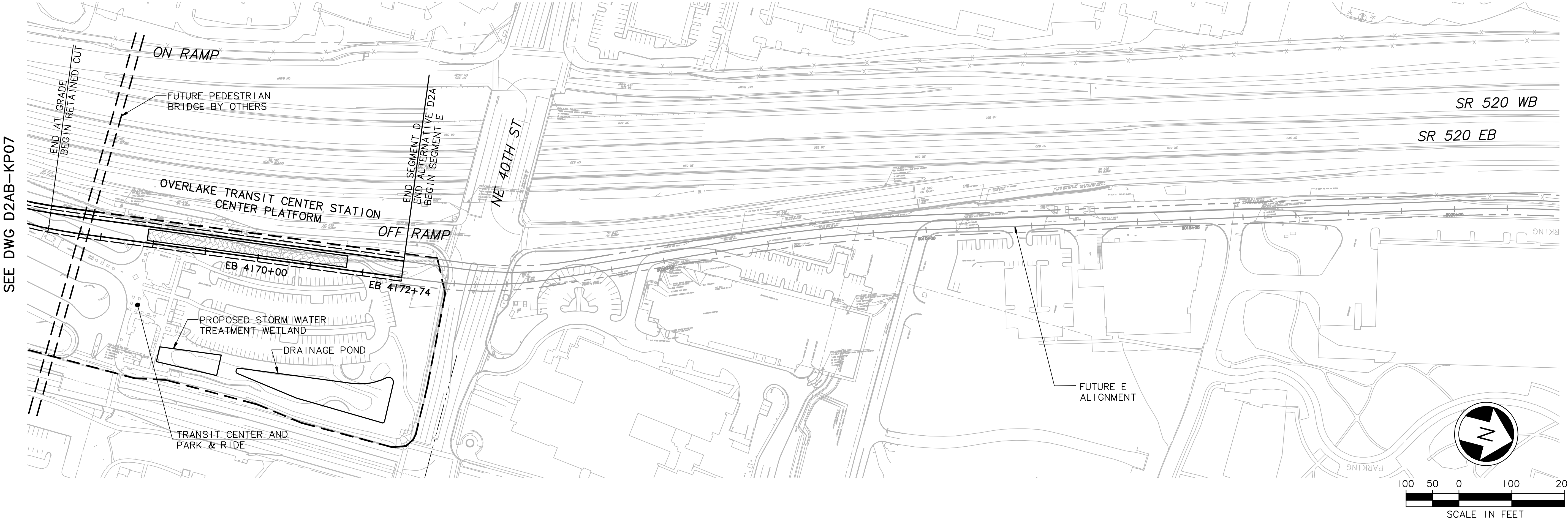
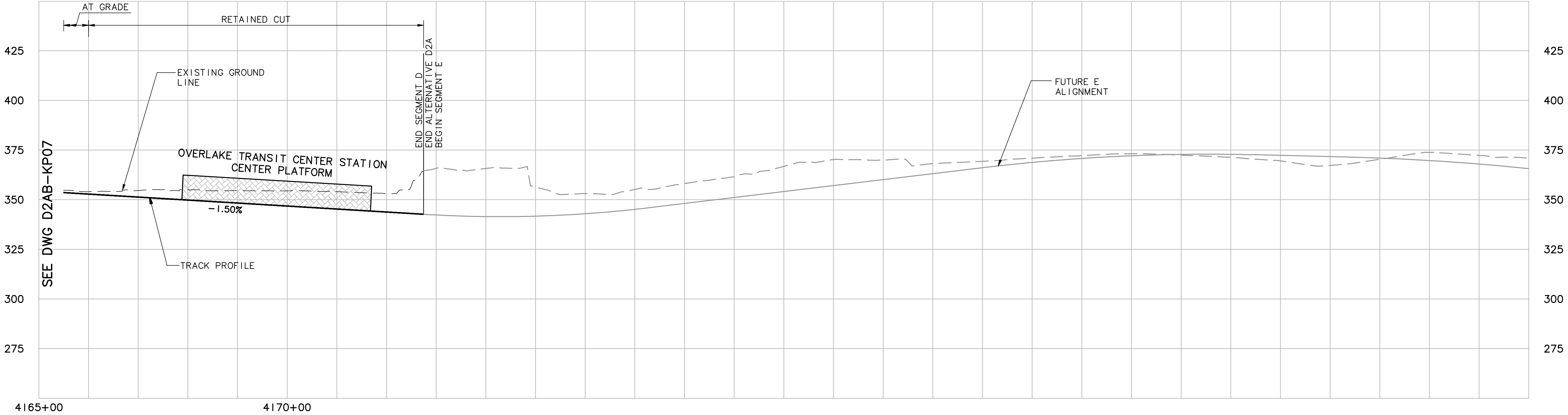
ELD_L75_CL
ELD_L75_CS
ELD_L75_JO-100
ELD_L75_KA-100
ELE_E2__KA
SUB-FEIS
ZG-2234H
ZG-G10010
key_Segment
x1737rx
x1737sf
x1740rx
x1740sf
x1743rx
x1743sf
x2037rx
x2037sf
x2040rx
x2040sf
xL75_SF_P-PLAN-BRIDGE
-Unresolved:


SEE DWG D2AB-KP07
ON RAMP
END AT GRADE
BEGIN RETAINED CUT
FUTURE PEDESTRIAN
BRIDGE BY OTHERS
END SEGMENT D
END ALTERNATIVE D2A
BEGIN SEGMENT E
NE 40TH ST
SR 520 WB
SR 520 EB
OVERLAKE TRANSIT CENTER STATION
CENTER PLATFORM
OFF RAMP
EB 4170+00
EB 4172+74
PROPOSED STORM WATER
TREATMENT WETLAND
DRAINAGE POND
TRANSIT CENTER AND
PARK & RIDE
FUTURE E
ALIGNMENT
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment d\ELD_2D2ABKP08.dwg
04/18/11 09:42 : khuum 0E6585

No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA
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Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD_2D2ABKP08.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)

TRACK PLAN & PROFILE

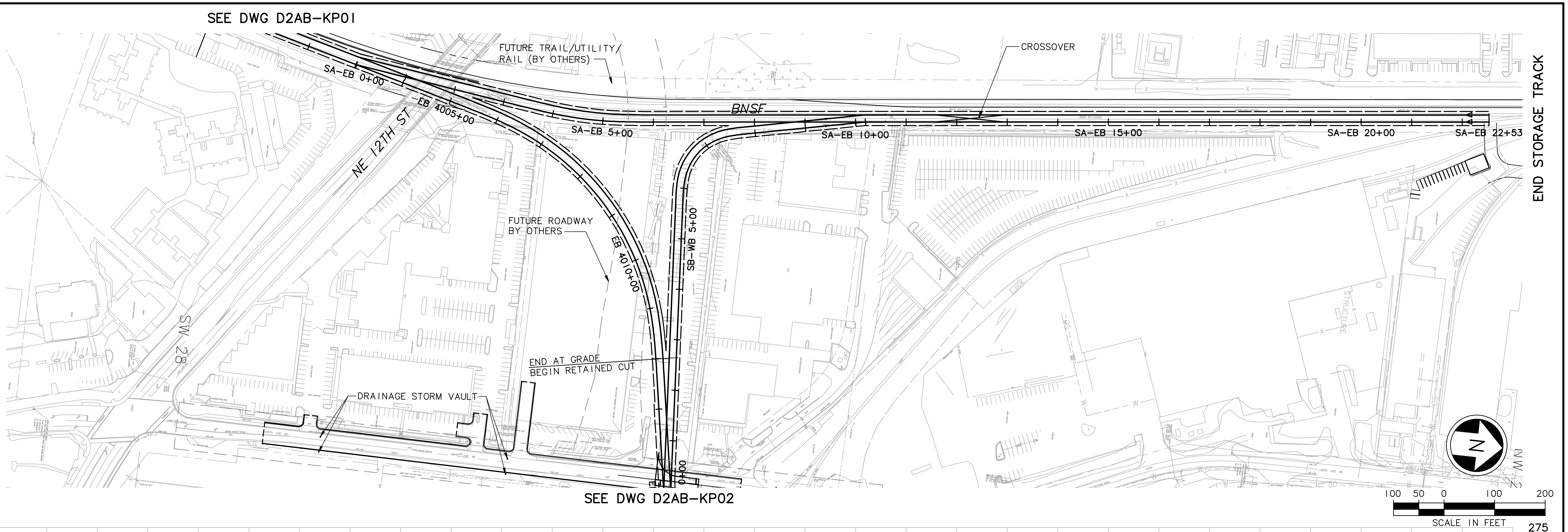
Drawing No.:
D2AB-KP08

Sheet No.:
D-9
Rev.:

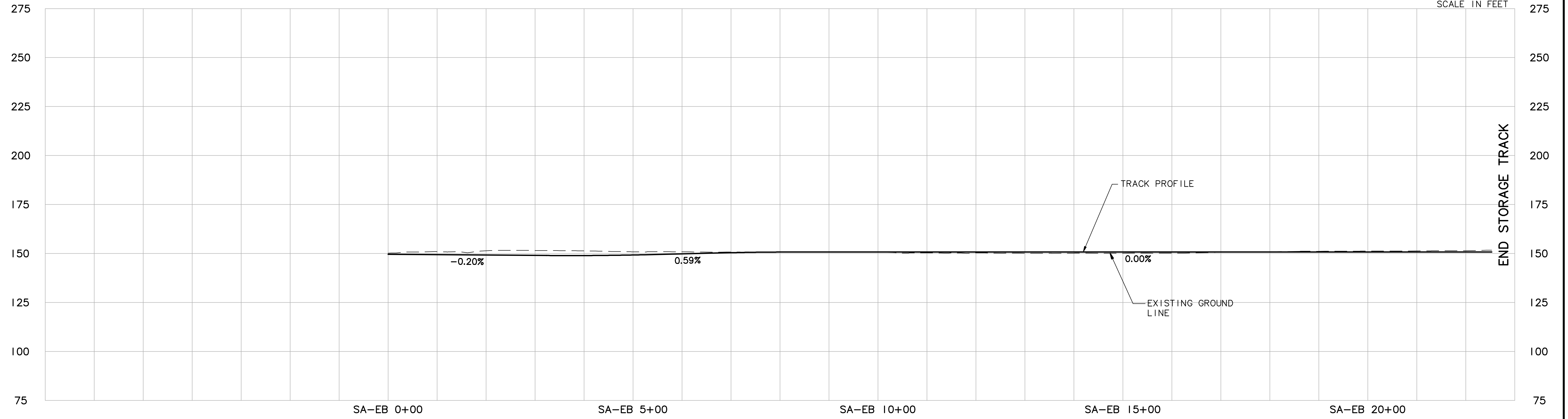
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_COB_RD
ELD_L75_CA-100
ELD_L75_CL
ELD_L75_CM-100
ELD_L75_CS
ELD_L75_JO-100
ELD_L75_KA-100
ELD_L75_KA_1-100
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0831rx
x0831sf
x0834rx
x0834sf
x0834ut
x0834vg
xChild_bldg
x1405_chan
-Unresolved:



SEE DWG D2AB-KP01
FUTURE TRAIL/UTILITY/
RAIL (BY OTHERS)
CROSSOVER
SA-EB 0+00
EB 4005+00
NE 12TH ST
BNSF
SA-EB 5+00
SA-EB 10+00
SA-EB 15+00
SA-EB 20+00
SA-EB 22+53
END STORAGE TRACK
FUTURE ROADWAY
BY OTHERS
EB 4010+00
SB-WB 5+00
SW 28
END AT GRADE
BEGIN RETAINED CUT
DRAINAGE STORM VAULT
SEE DWG D2AB-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment d\ELD_2D2ABKP09.dwg
04/18/11 10:20 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD_2D2ABKP09.dwg
Contract No.:
Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

STORAGE TRACK PLAN & PROFILE

Drawing No.:
D2AB-KP09

Sheet No.: Rev.:
D-10

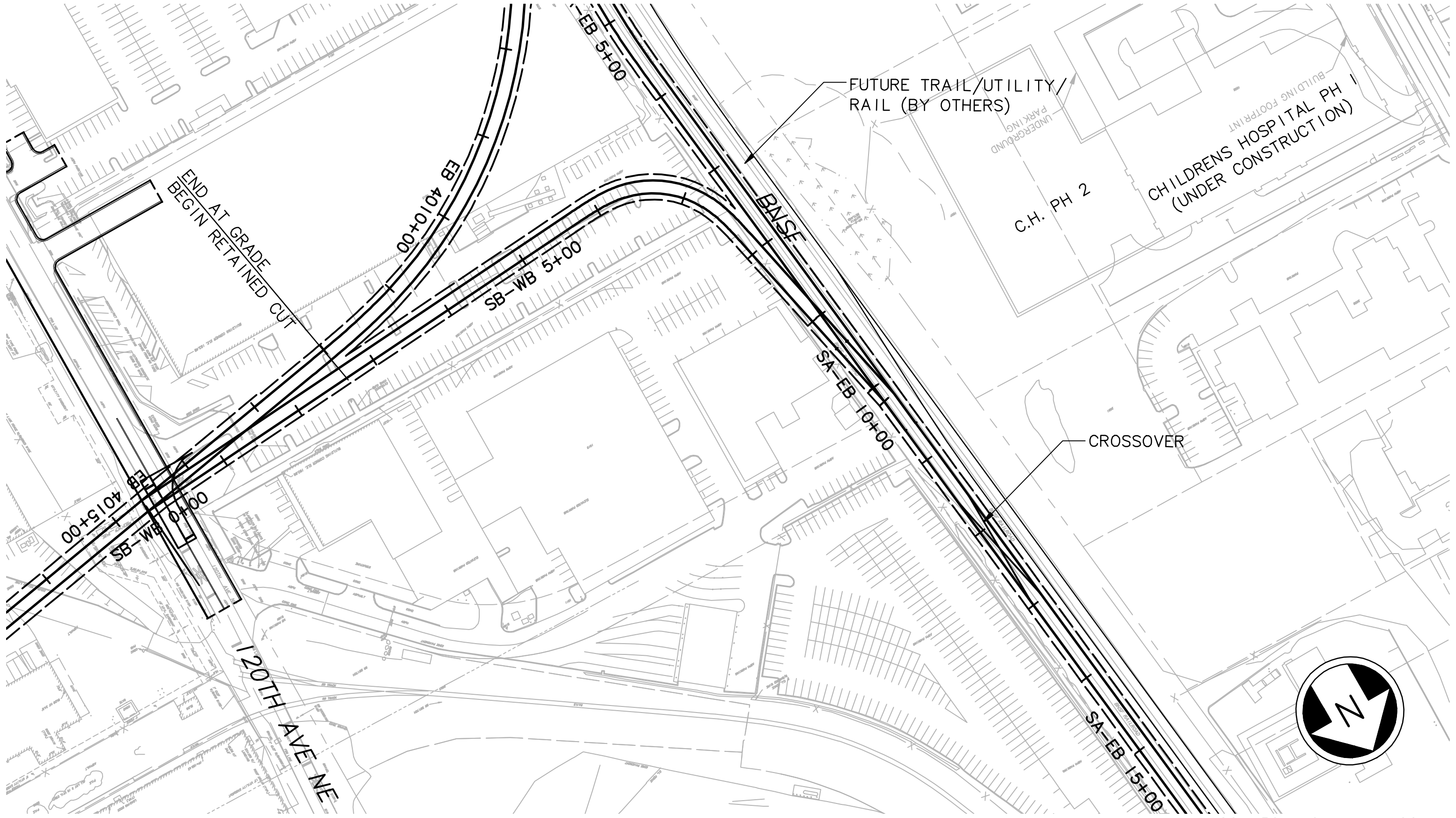
DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELD_L75_CA–100
ELD_L75_CL
ELD_L75_CM–100
ELD_L75_CS
ELD_L75_JO–100
ELD_L75_KA–100
ELD_L75_KA_1–100
ZG–2234H
ZG–G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0831rx
x0831sf
x0834rx
x0834sf
x0834ut
x0834vg
xChild_bldg
x1405_chan
–Unresolved:

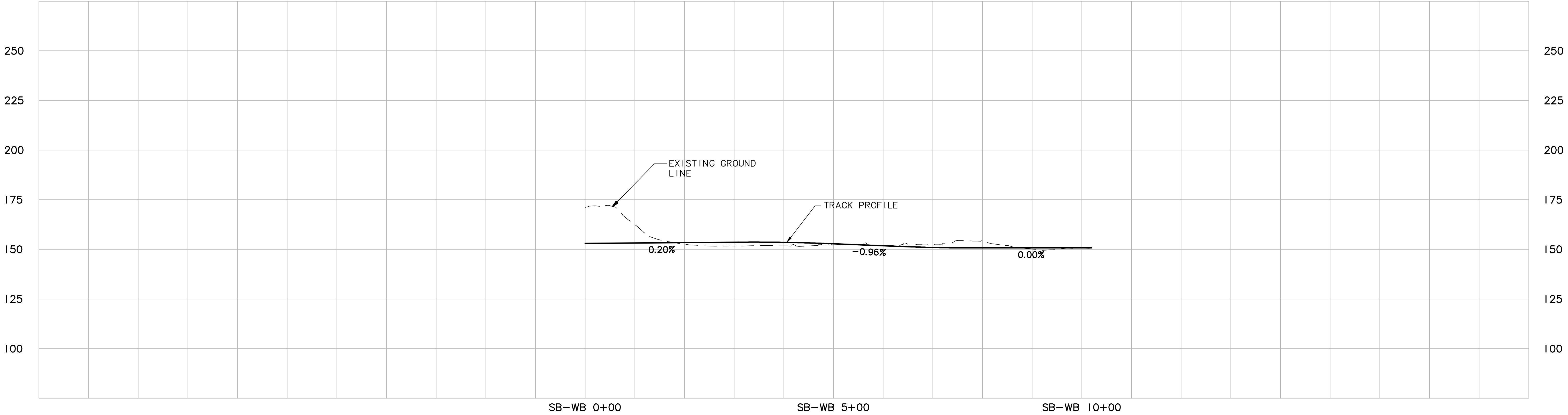
SEE DWG D2AB–KP01

SEE DWG D2AB–KP02


EB 5+00
FUTURE TRAIL/UTILITY/RAIL (BY OTHERS)
BNSF
CHILDRENS HOSPITAL PH 1 (UNDER CONSTRUCTION)
C.H. PH 2
EB 4010+00
END AT GRADE
BEGIN RETAINED CUT
SB–WB 5+00
SA–EB 10+00
CROSSOVER
EB 4015+00
SB–WB 0+00
120TH AVE NE
SA–EB 15+00
N

SEE DWG D2AB–KP09

100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELD_2D2ABKP10.dwg

Contract No.:

Date:
07/30/10

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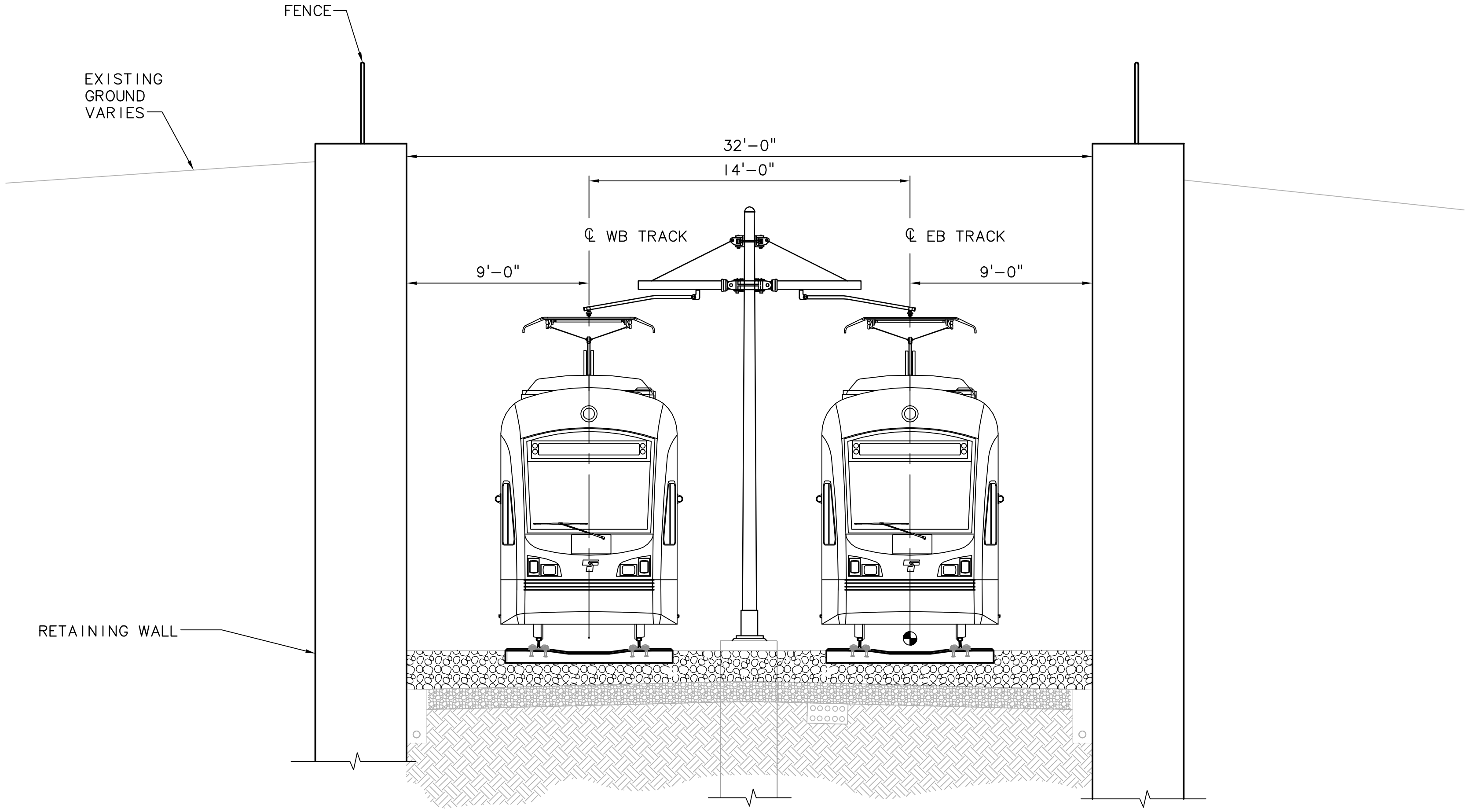
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)
STORAGE TRACK PLAN & PROFILE

Drawing No.:
D2AB–KP10

Sheet No.: D-11
Rev.:

c:\work\feis\segment d\ELD_2D2ABKP10.dwg
03/21/11 11:14 : khuum 0E6585

XREF'S
Resolved
DWG INFO:
ZG-2234H
LTSCALE:
I=I
Unresolved
XREFs:
-Attach:
-Overlay:
SUB-SDEIS
LTSCALE
ZG-2234H
-Unresolved:
I=I



FENCE
EXISTING
GROUND
VARIES
32'-0"
14'-0"
℄ WB TRACK
℄ EB TRACK
9'-0"
9'-0"
RETAINING WALL

WEST OF 120TH AVE NE PLATFORM

SCALE: NTS

c:\work\sdeis\ELD_2D2ABKX01.dwg
10/13/10 13:47 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

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BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELD_2D2ABKX01.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

THIS PRINT REDUCED HALF SCALE

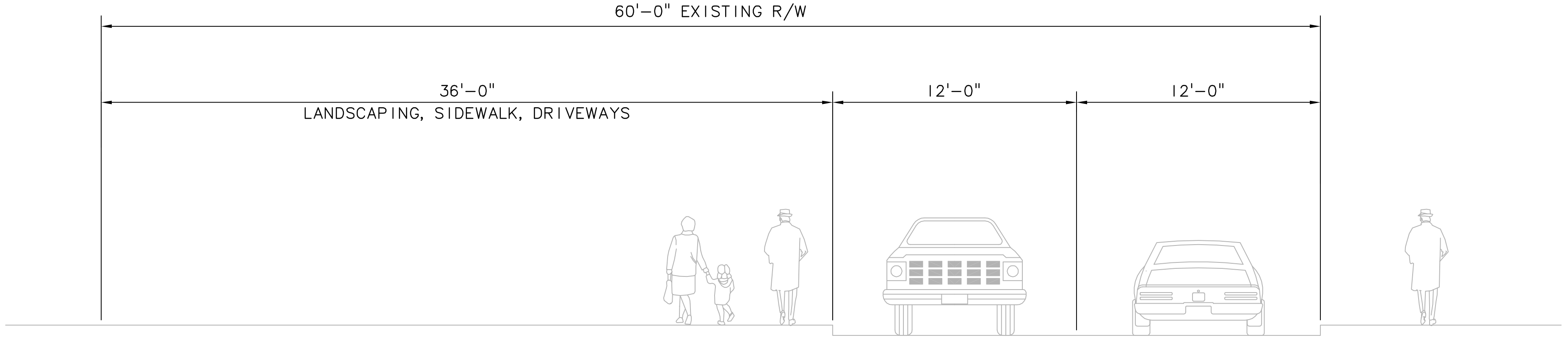
TYPICAL SECTION
SPRING DISTRICT
WEST OF NE 120TH ST PLATFORM

Drawing No.: D2AB-KX01
Sheet No.: D-12
Rev.:

DWG INFO:

LTSCALE:
1=1

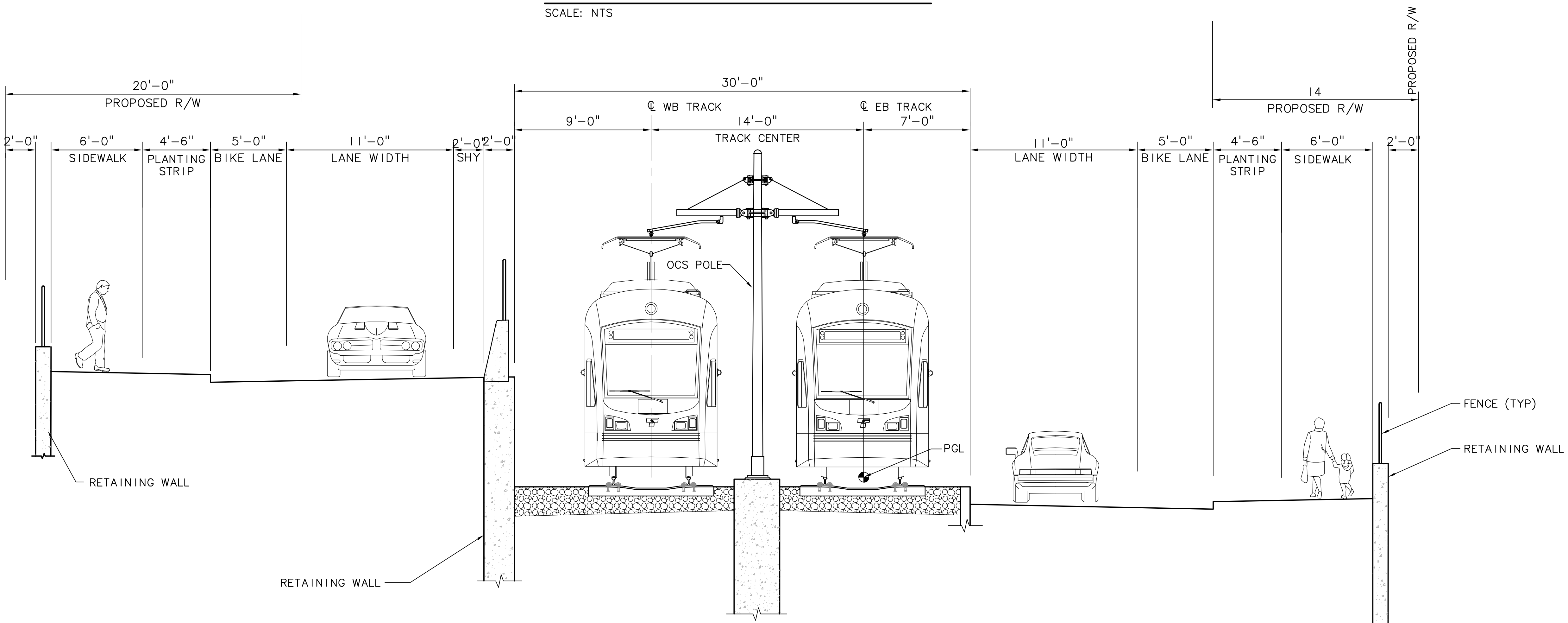
XREFs:
-Attach:
-Overlay:
SUB-SDEIS
Zg-2234h
-Unresolved:



60'-0" EXISTING R/W
36'-0"
LANDSCAPING, SIDEWALK, DRIVEWAYS
12'-0"
12'-0"

EXISTING ROADWAY SECTION – NE 16TH ST

SCALE: NTS



PROPOSED R/W
20'-0"
PROPOSED R/W
30'-0"
℄ WB TRACK
℄ EB TRACK
9'-0"
14'-0"
TRACK CENTER
7'-0"
14
PROPOSED R/W
2'-0"
6'-0"
SIDEWALK
4'-6"
PLANTING STRIP
5'-0"
BIKE LANE
11'-0"
LANE WIDTH
2'-0"
SHY
2'-0"
11'-0"
LANE WIDTH
5'-0"
BIKE LANE
4'-6"
PLANTING STRIP
6'-0"
SIDEWALK
2'-0"
OCS POLE
PGL
FENCE (TYP)
RETAINING WALL
RETAINING WALL
RETAINING WALL

PROPOSED LRT SECTION – NE 16TH ST GRADE SEPARATED ROADWAY
ALTERNATIVE: D2A
TRACK TYPE: AT-GRADE, BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\sdeis\ELD_2D2ABKX02.dwg
10/13/10 13:47 : bolimaf OE6579

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BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS

Filename: ELD_2D2ABKX02.dwg

Contract No.:

Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

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TYPICAL SECTION
NE 16TH ST

Drawing No.: D2AB-KX02

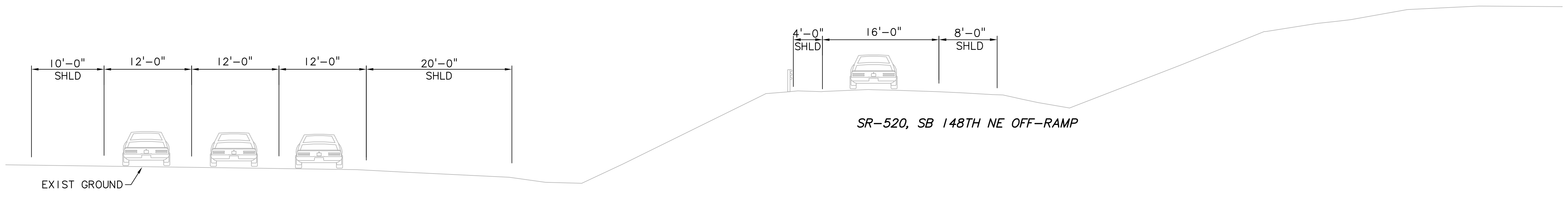
Sheet No.: D-13

Rev.:

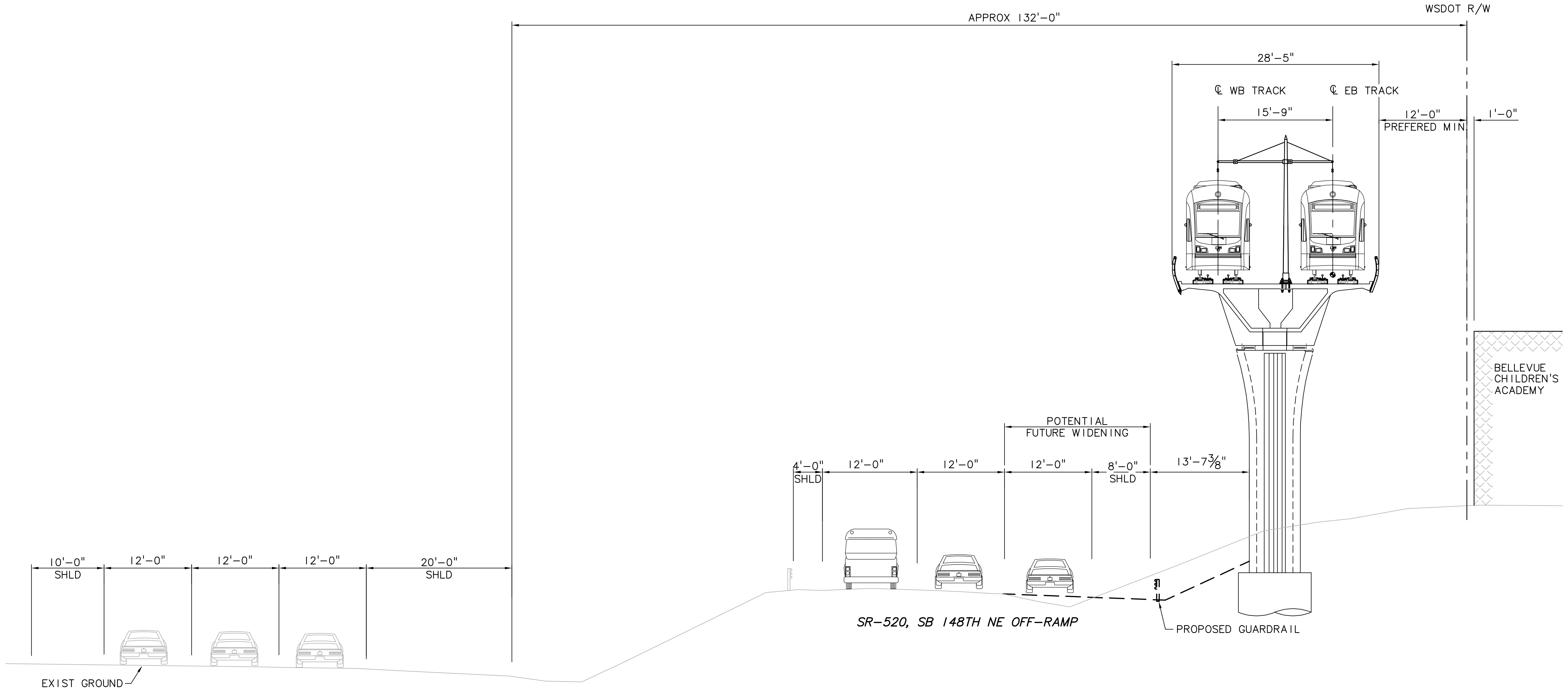
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
Zg-2234h
-Unresolved:


10'-0"
SHLD
12'-0"
12'-0"
12'-0"
20'-0"
SHLD
EXIST GROUND
SR-520 EB MAINLINE
4'-0"
SHLD
16'-0"
8'-0"
SHLD
SR-520, SB 148TH NE OFF-RAMP

EXISTING ROADWAY SECTION – SR 520 & SB 148TH AVE NE OFF-RAMP


APPROX 132'-0"
WSDOT R/W
28'-5"
℄ WB TRACK
℄ EB TRACK
15'-9"
12'-0"
PREFERED MIN.
1'-0"
BELLEVUE
CHILDREN'S
ACADEMY
POTENTIAL
FUTURE WIDENING
4'-0"
SHLD
12'-0"
12'-0"
12'-0"
8'-0"
SHLD
13'-7⅜"
SR-520, SB 148TH NE OFF-RAMP
PROPOSED GUARDRAIL
10'-0"
SHLD
12'-0"
12'-0"
12'-0"
20'-0"
SHLD
EXIST GROUND

PROPOSED LRT SECTION: SR 520 & SB 148TH AVE NE OFF-RAMP
ALTERNATIVE: D2A
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK ELEVATED GUIDEWAY
SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELD_2D2ABKX03.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)
TYPICAL SECTION
SR 520
OFF RAMP TO 148TH AVE NE

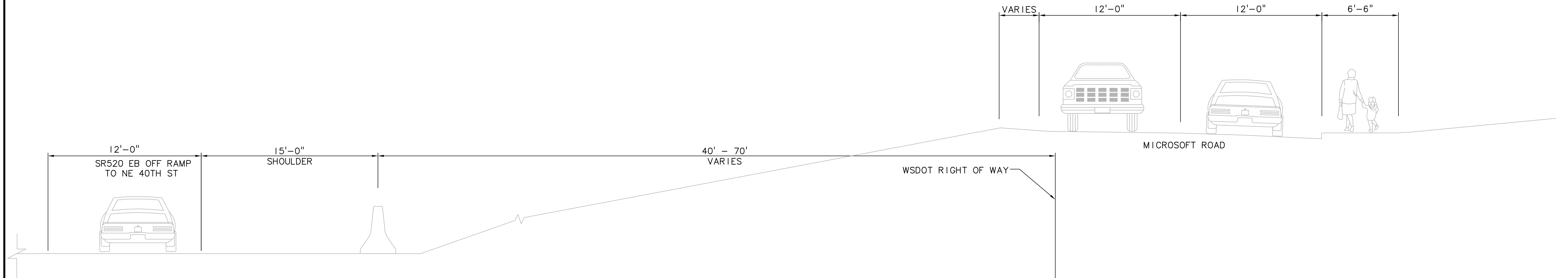
Drawing No.: D2AB-KX03
Sheet No.: D-14
Rev.:

c:\work\sdeis\ELD_2D2ABKX03.dwg
10/04/10 14:28 : bolimaf OE6579

DWG INFO:

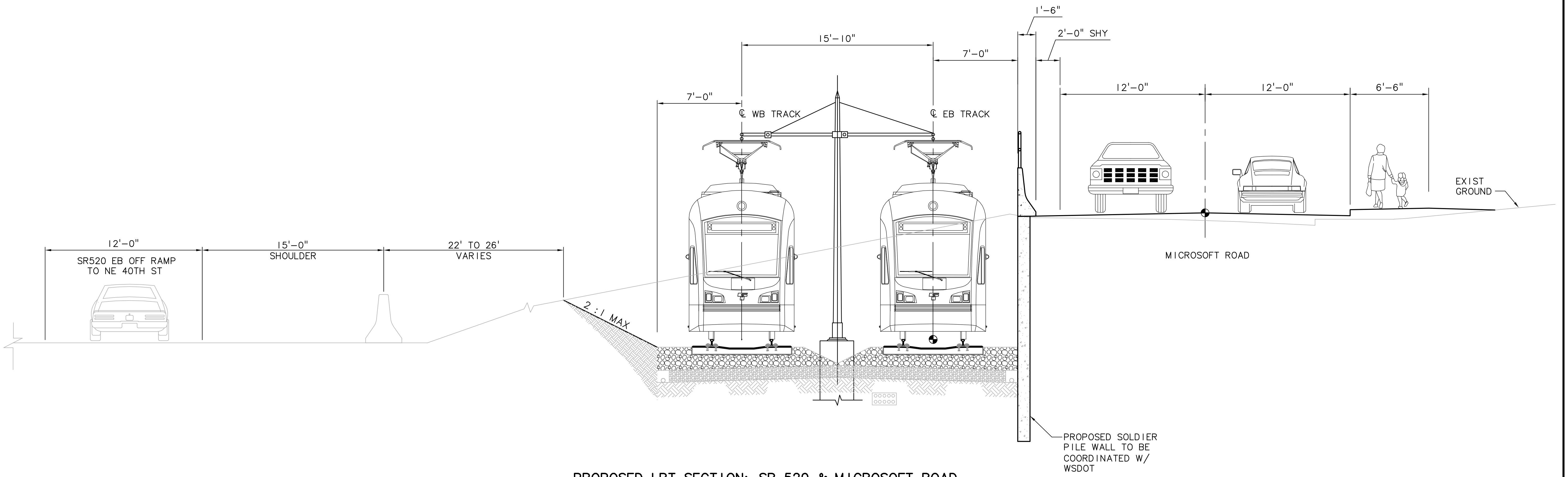
LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
SUB-SDEIS
ZG-2234H
–Unresolved:



VARIES
12'-0"
12'-0"
6'-6"
MICROSOFT ROAD
12'-0"
SR520 EB OFF RAMP
TO NE 40TH ST
15'-0"
SHOULDER
40' – 70'
VARIES
WSDOT RIGHT OF WAY

EXISTING ROADWAY: SR 520 & MICROSOFT ROAD
SCALE: NTS



1'-6"
2'-0" SHY
15'-10"
7'-0"
7'-0"
℄ WB TRACK
℄ EB TRACK
12'-0"
12'-0"
6'-6"
EXIST
GROUND
MICROSOFT ROAD
12'-0"
SR520 EB OFF RAMP
TO NE 40TH ST
15'-0"
SHOULDER
22' TO 26'
VARIES
2:1 MAX
PROPOSED SOLDIER
PILE WALL TO BE
COORDINATED W/
WSDOT

PROPOSED LRT SECTION: SR 520 & MICROSOFT ROAD
TRACK TYPE: BALLASTED DOUBLE TRACK GUIDEWAY
SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved By:

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CONCEPTUAL

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BOLIMA
DRAFTING & DESIGN INC.

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Date:
Approved:
Date:

Scale: NTS
Filename: ELD_2D2ABKX04.dwg
Contract No.:
Date: 07/30/10

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HALF
SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

TYPICAL SECTION
SR 520
AT MICROSOFT ROAD

Drawing No.: D2AB-KX04
Sheet No.: D-15
Rev.:

c:\work\sdeis\ELD_2D2ABKX04.dwg
10/04/10 14:28 : bolimaf OE6579

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
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ELD_L75_CA
ELD_L75_CM
ELD_L75_CS
ELD_L75_JS
ELD_L75_KA
ELD_L75_SP
ELD_N15_AG
ELD_N15_AS
ZG-2234H
x0831cn
x0831rx
x0831sf
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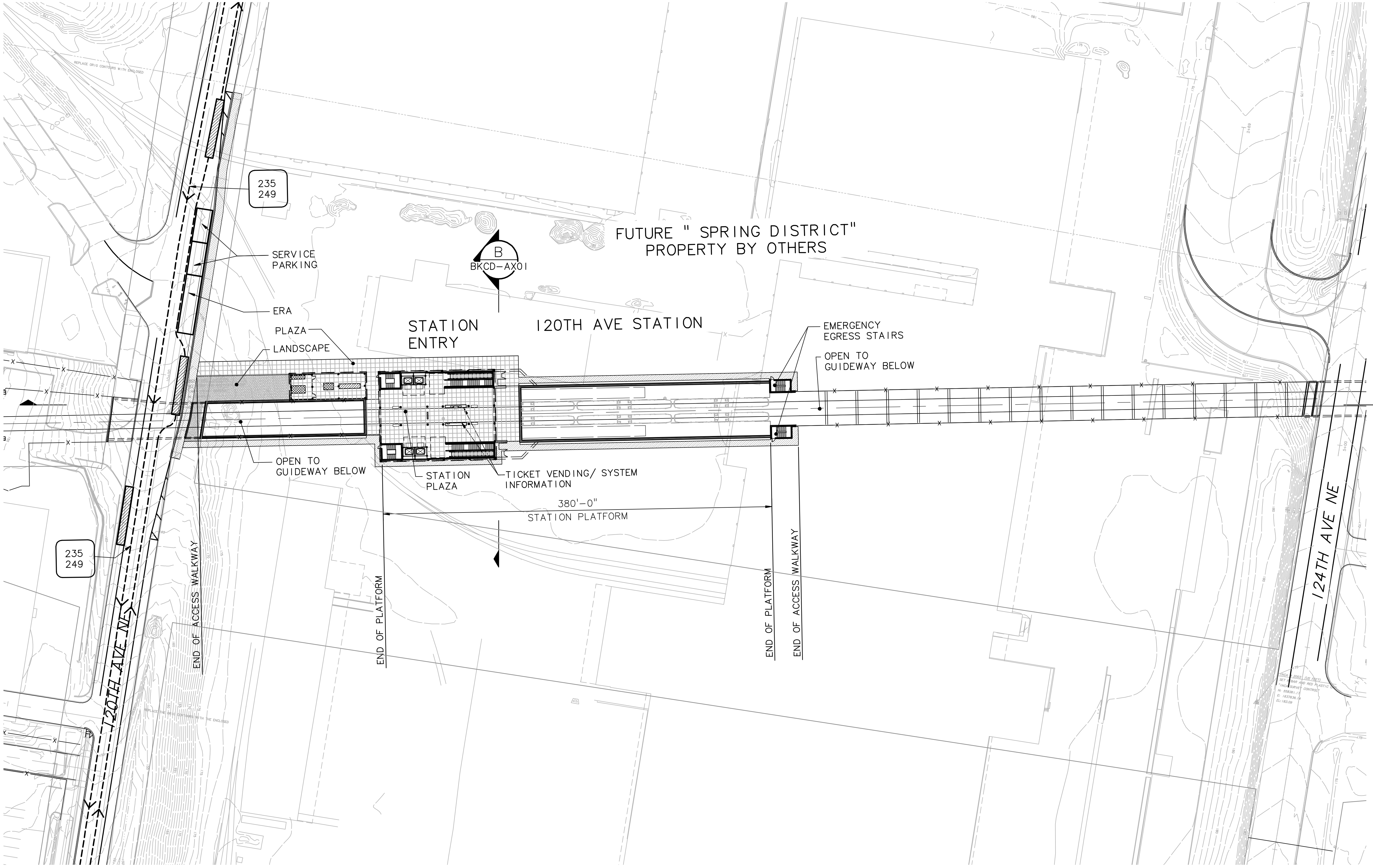
ELD_L75_LP

NOTES

1. ALIGNMENT D2A



235
249
SERVICE PARKING
ERA
PLAZA
LANDSCAPE
FUTURE " SPRING DISTRICT" PROPERTY BY OTHERS
B
BKCD-AX01
STATION ENTRY
120TH AVE STATION
EMERGENCY EGRESS STAIRS
OPEN TO GUIDEWAY BELOW
A
BKCD-AX01
OPEN TO GUIDEWAY BELOW
STATION PLAZA
TICKET VENDING/ SYSTEM INFORMATION
380'-0"
STATION PLATFORM
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
END OF ACCESS WALKWAY
235
249
120TH AVE NE
124TH AVE NE

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
- - - -	BUS ROUTE
235 249	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
░	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
—	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

c:\work\feis\segment d\ELD_IBKCDAS01.dwg
06/08/11 14:53 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: 1"=50'
Filename: ELD_IBKCDAS01.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)
120TH STATION
STATION AREA PLAN

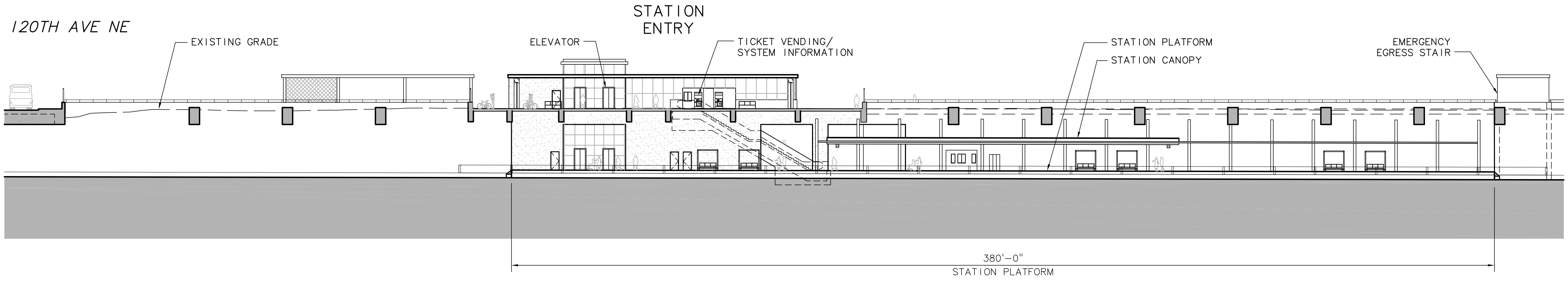
THIS PRINT REDUCED HALF SCALE

Drawing No.: BKCD-AS01
Sheet No.: D-16
Rev.:

DWG INFO:

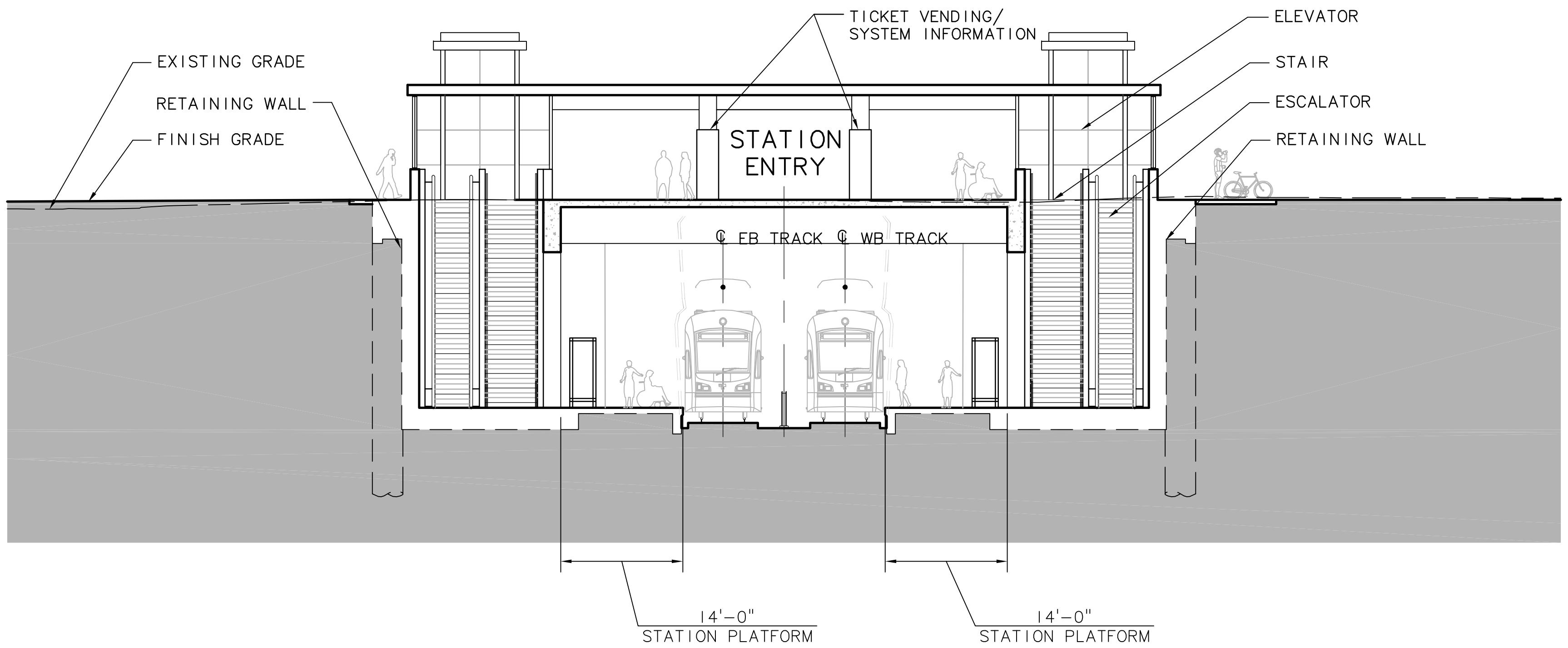
LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELD_N15_AX
ZG–2234H
–Unresolved:


120TH AVE NE
STATION ENTRY
EXISTING GRADE
ELEVATOR
TICKET VENDING/ SYSTEM INFORMATION
STATION PLATFORM
STATION CANOPY
EMERGENCY EGRESS STAIR
380'–0"
STATION PLATFORM

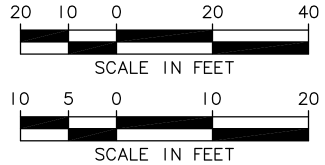
SITE SECTION A

SCALE: 1" = 20' BKCD–AX01


EXISTING GRADE
RETAINING WALL
FINISH GRADE
TICKET VENDING/ SYSTEM INFORMATION
STATION ENTRY
℄ EB TRACK ℄ WB TRACK
ELEVATOR
STAIR
ESCALATOR
RETAINING WALL
14'–0"
STATION PLATFORM
14'–0"
STATION PLATFORM

SITE SECTION B

SCALE: 1" = 10' BKCD–AX01


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

IBI GROUP
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Date:
Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELD_IBKCDAX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)
120TH STATION
SITE SECTIONS

Drawing No.: BKCD–AX01
Sheet No.: D-17
Rev.:

c:\work\sdeis\ELD_IBKCDAX01.dwg
10/13/10 13:43 : bolimaf 0E6579

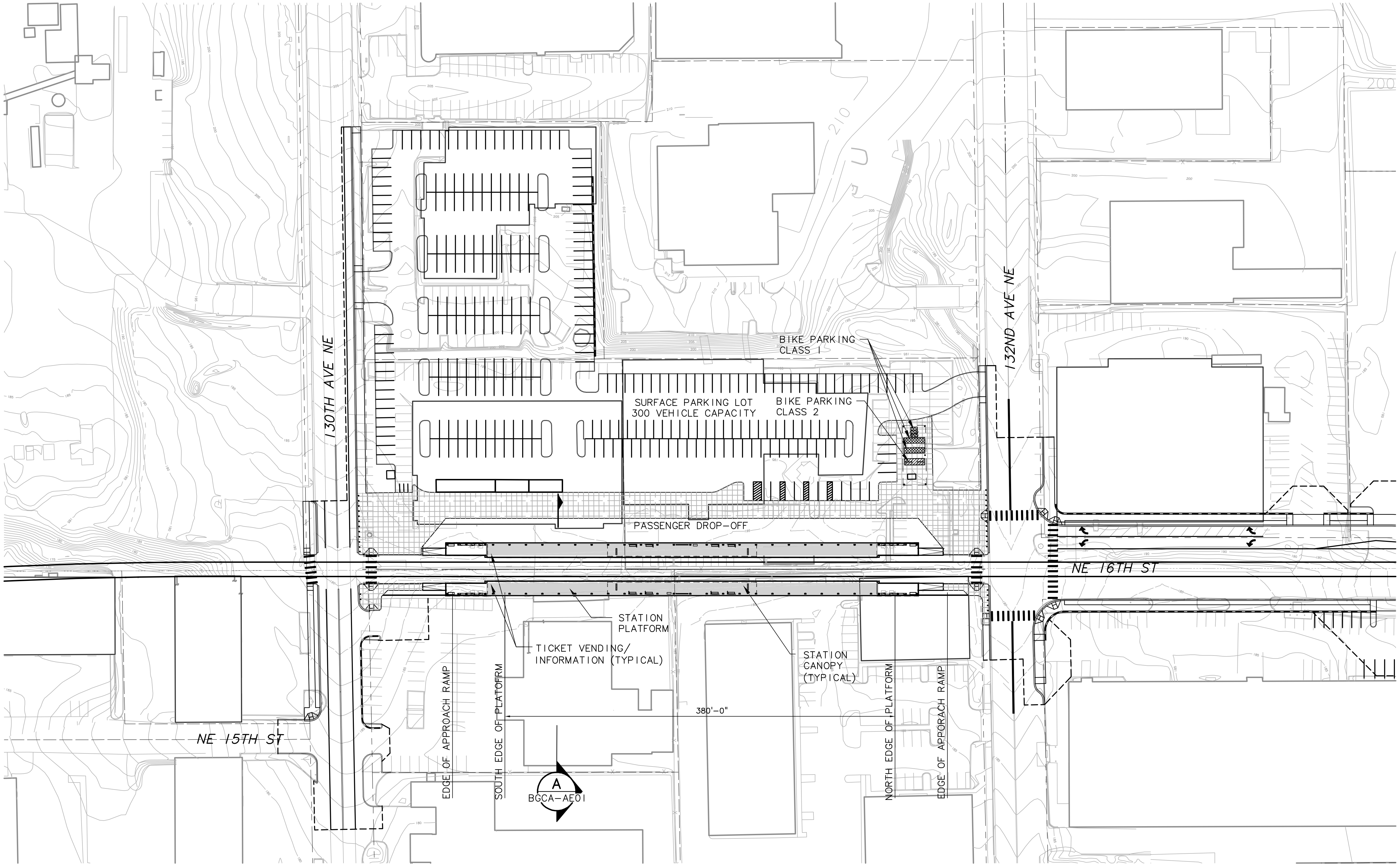
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_L75_CA
ELD_L75_CM
ELD_L75_KA
ELD_N17_AP
ELD_N17_AS
ZG-2234H
x1131cn
x1131rx
x1131sf
x1134cn
x1134rx
x1134sf
-Unresolved:

NOTES

1. ALIGNMENT D2A



130TH AVE NE
132ND AVE NE
NE 16TH ST
NE 15TH ST
BIKE PARKING CLASS 1
BIKE PARKING CLASS 2
SURFACE PARKING LOT 300 VEHICLE CAPACITY
PASSENGER DROP-OFF
STATION PLATFORM
TICKET VENDING/ INFORMATION (TYPICAL)
STATION CANOPY (TYPICAL)
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
380'-0"
A
BGCA-AE01
210
200
190
185
175

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
X	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
—·—	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:
Date:

IBI GROUP

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Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Approved:
Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELD_IBGCBAS01.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
130TH STATION
STATION AREA PLAN

Drawing No.: BGCB-AS01
Sheet No.: D-18
Rev.:

c:\work\feis\ELD_IBGCBAS01.dwg
02/22/11 15:17 : bolimaf OE6579

XREF'S

Resolved

ELD_BGCA1AE
ELD_BGCA1AX
ZG-2234H

Unresolved

LTSCALE

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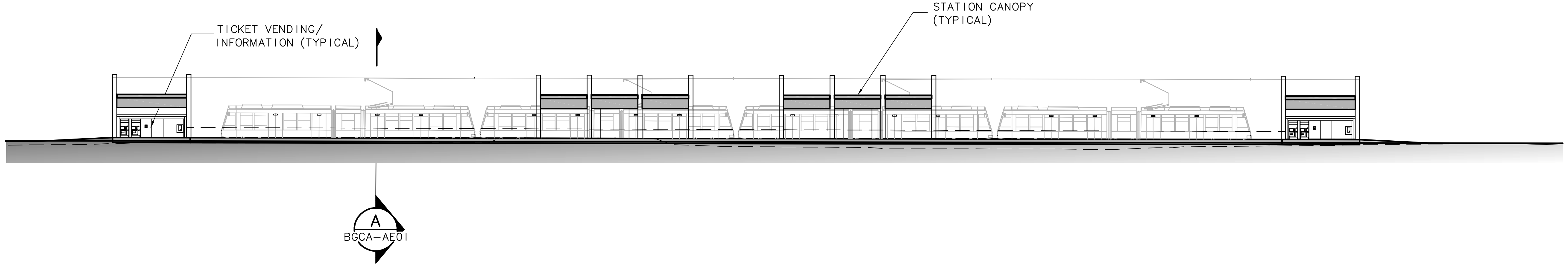
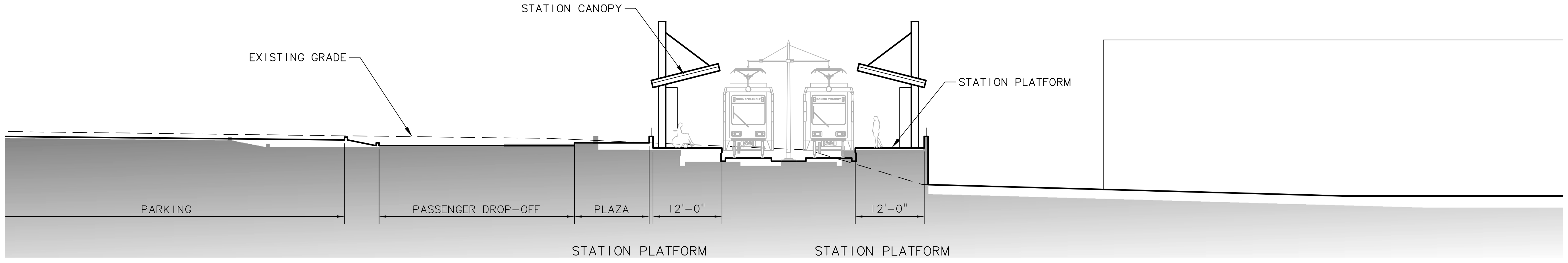

TICKET VENDING/
INFORMATION (TYPICAL)
STATION CANOPY
(TYPICAL)
A
BGCA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


STATION CANOPY
EXISTING GRADE
STATION PLATFORM
PARKING
PASSENGER DROP-OFF
PLAZA
12'-0"
12'-0"
STATION PLATFORM
STATION PLATFORM

STATION SECTION A

BGCA-AE01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\sdeis\ELD_IBGCBAX01.dwg
08/17/10 09:32 : BOLIMAF OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:

Date:

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Seattle WA 98104 1576 USA

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Approved:

Date:

SOUNDTRANSIT

Scale: AS NOTED

Filename: ELD_IBGCBAX01.dwg

Contract No.:

Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A
130TH STATION
SITE SECTIONS

Drawing No.: BGCB-AX01

Sheet No.: D-19

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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-Overlay:
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ELD_L75_CM
ELD_L75_KA
ELD_L75_LP
ELD_N19_AP
ELD_N19_AS
ZG-2234H
x1734cn
x1734rx
x1734sf
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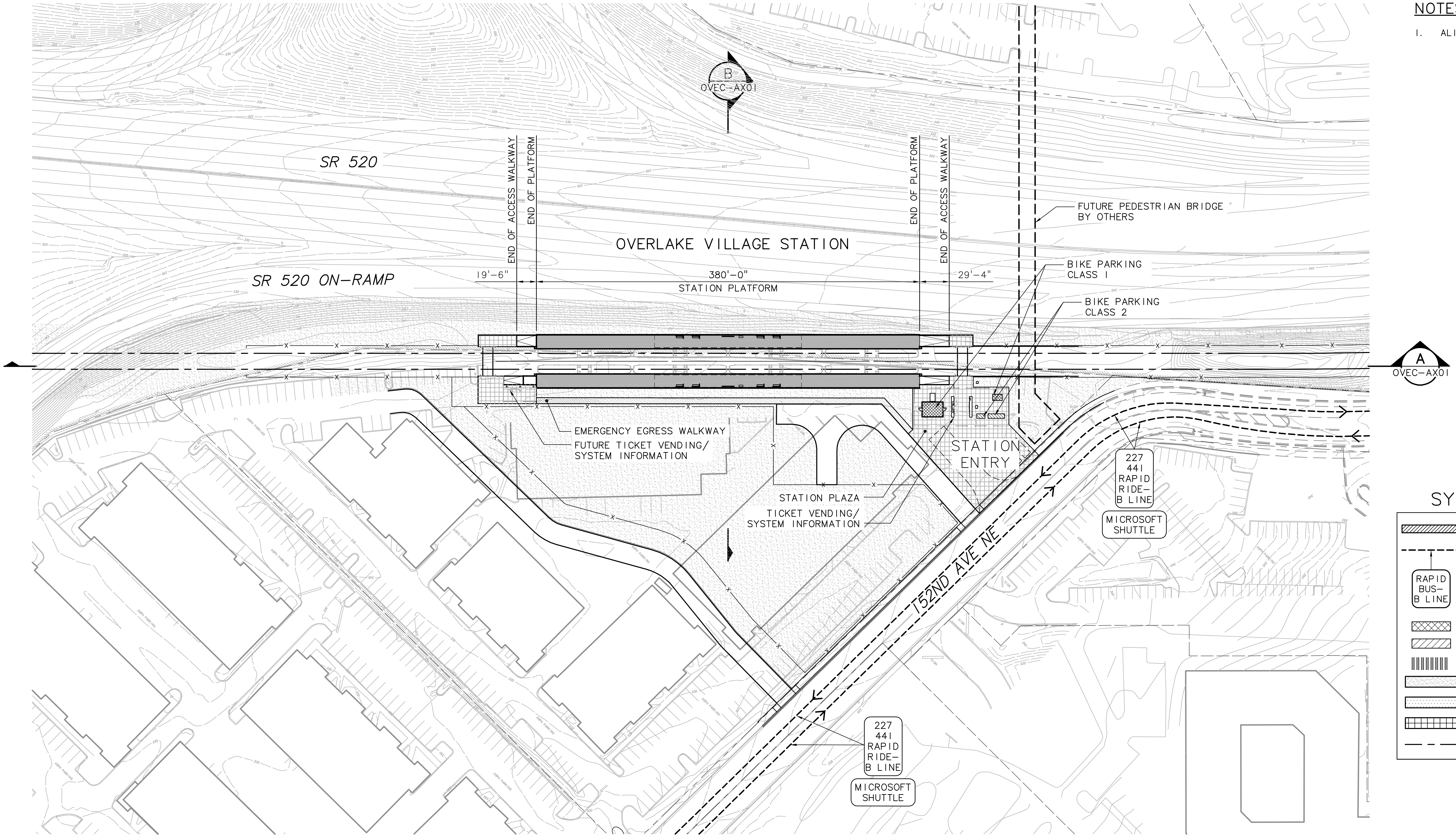
c:\work\feis\ELD_1OVECAS01.dwg
02/22/11 15:19 : bolimaf OE6579



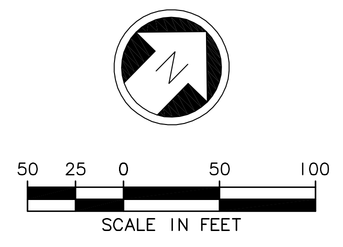
B
OVEC-AX01
SR 520
SR 520 ON-RAMP
OVERLAKE VILLAGE STATION
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
END OF ACCESS WALKWAY
19'-6"
380'-0"
STATION PLATFORM
29'-4"
FUTURE PEDESTRIAN BRIDGE BY OTHERS
BIKE PARKING CLASS 1
BIKE PARKING CLASS 2
A
OVEC-AX01
EMERGENCY EGRESS WALKWAY
FUTURE TICKET VENDING/ SYSTEM INFORMATION
STATION ENTRY
STATION PLAZA
TICKET VENDING/ SYSTEM INFORMATION
152ND AVE NE
227 441 RAPID RIDE- B LINE
MICROSOFT SHUTTLE
227 441 RAPID RIDE- B LINE
MICROSOFT SHUTTLE

NOTES

1. ALIGNMENT D2A

SYMBOLS KEY

▨	NEW BUS STOP
- - -▸	BUS ROUTE
RAPID BUS- B LINE	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
— —	TRACK



N
50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

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Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELD_1OVECAS01.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
OVERLAKE VILLAGE STATION
STATION AREA PLAN

Drawing No.: OVEC-AS01
Sheet No.: D-20
Rev.:

DWG INFO:

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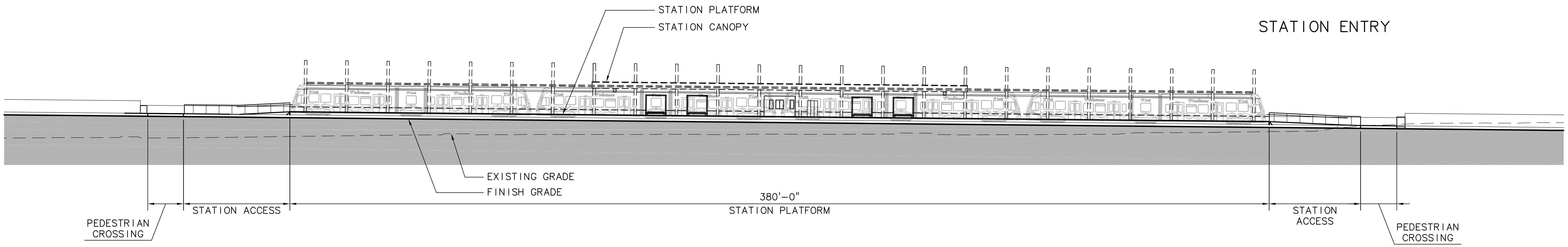
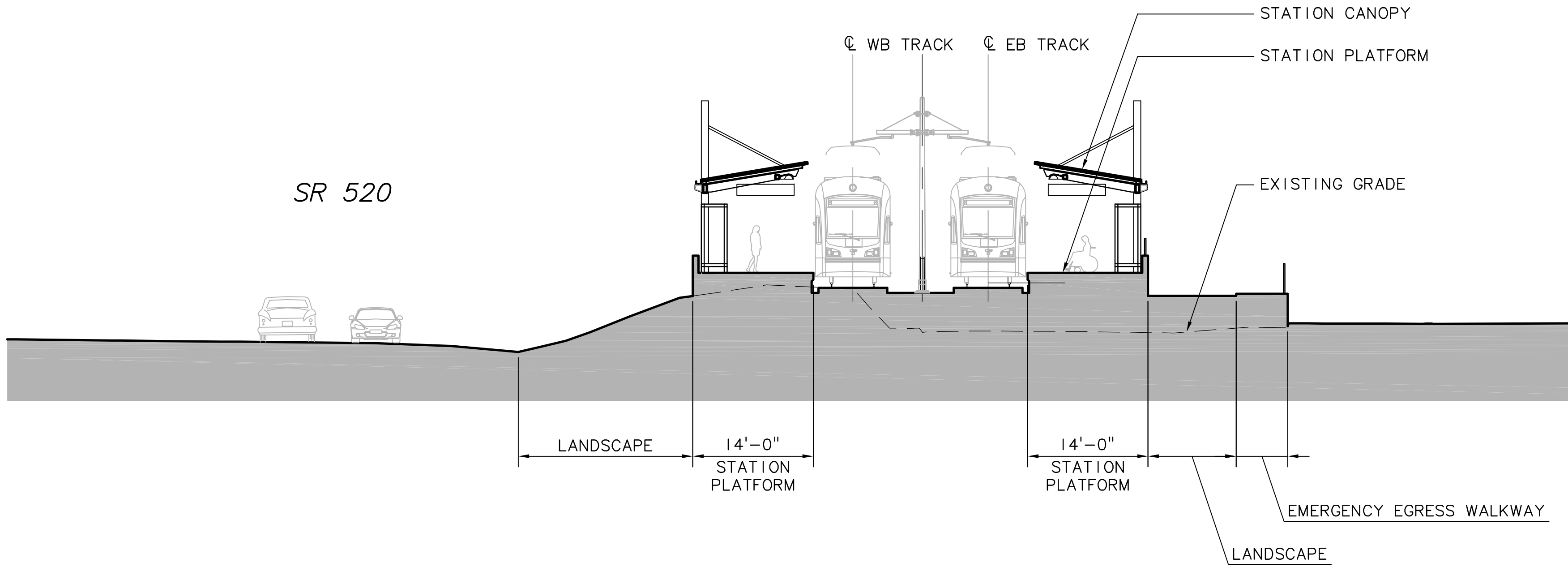
–Overlay:
ELD_N19_AX
ZG–2234H
–Unresolved:


STATION PLATFORM
STATION CANOPY
STATION ENTRY
EXISTING GRADE
FINISH GRADE
380'–0"
PEDESTRIAN CROSSING
STATION ACCESS
STATION PLATFORM
STATION ACCESS
PEDESTRIAN CROSSING

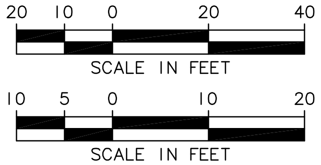
SITE SECTION A

SCALE: 1" = 20' OVEC–AX01


STATION CANOPY
℄ WB TRACK
℄ EB TRACK
STATION PLATFORM
EXISTING GRADE
SR 520
LANDSCAPE
14'–0"
STATION PLATFORM
14'–0"
STATION PLATFORM
EMERGENCY EGRESS WALKWAY
LANDSCAPE

SITE SECTION B

SCALE: 1" = 10' OVEC–AX01


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

c:\work\feis\ELD_1OVECAX01.dwg
02/22/11 15:19 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

Date:

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Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELD_1OVECAX01.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A (PREFERRED)

OVERLAKE VILLAGE STATION
STATION SECTIONS

Drawing No.: OVEC–AX01
Sheet No.: D-21
Rev.:

DWG INFO:

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ELD_L75_LP
ELD_L75_RP
ELD_N25_AP
ELD_N25_AS
ELD_P25_AG
ZG-2234H
x1737cn
x1737rx
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x2040sf
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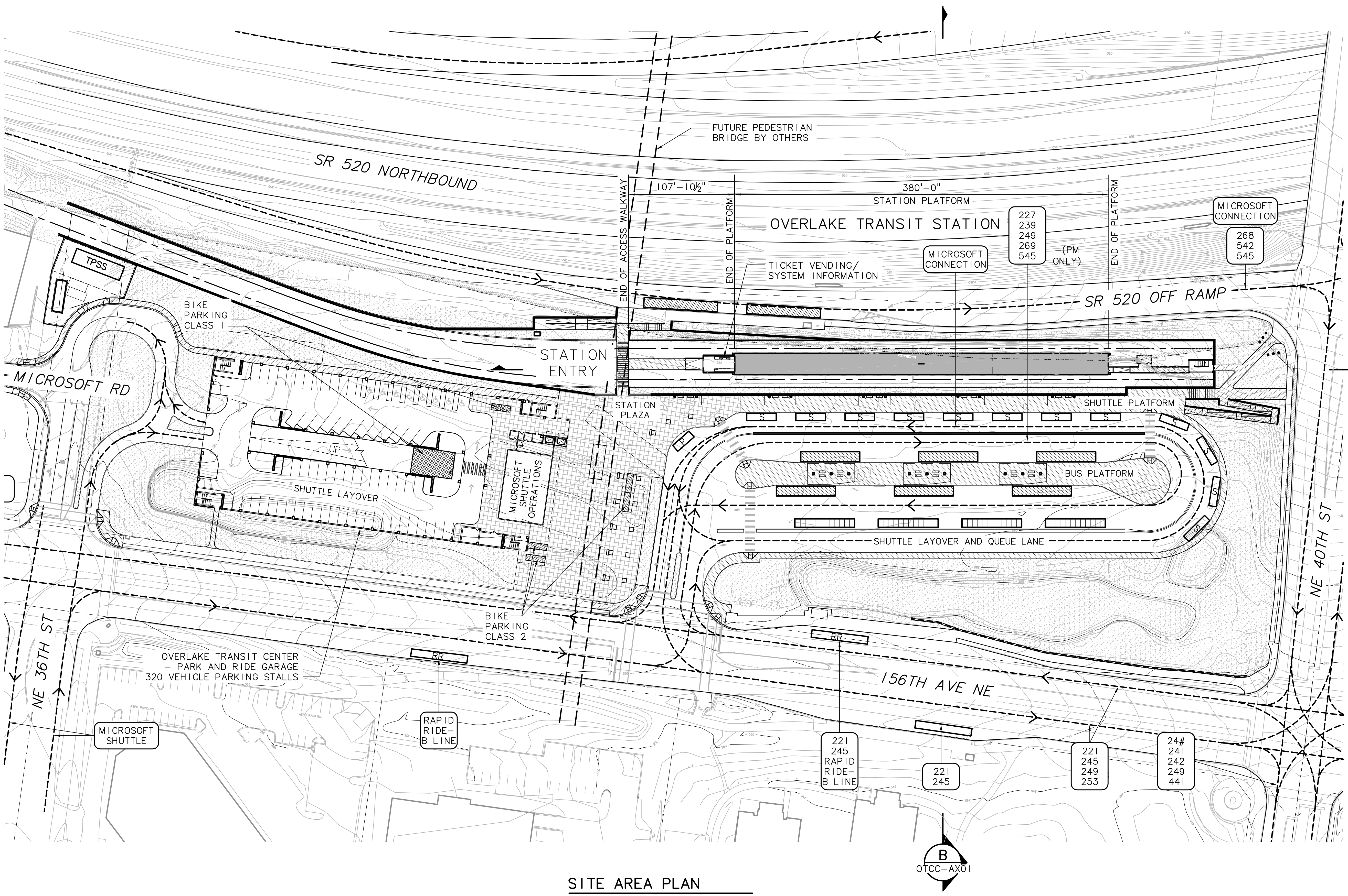
FUTURE PEDESTRIAN BRIDGE BY OTHERS
SR 520 NORTHBOUND
107'-10½"
380'-0"
STATION PLATFORM
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
OVERLAKE TRANSIT STATION
227
239
249
269
545
-(PM ONLY)
MICROSOFT CONNECTION
MICROSOFT CONNECTION
268
542
545
TICKET VENDING/ SYSTEM INFORMATION
TPSS
BIKE PARKING CLASS 1
SR 520 OFF RAMP
STATION ENTRY
A
OTCC-AX01
MICROSOFT RD
STATION PLAZA
SHUTTLE PLATFORM
S
UP
MICROSOFT SHUTTLE OPERATIONS
SHUTTLE LAYOVER
BUS PLATFORM
SHUTTLE LAYOVER AND QUEUE LANE
NE 40TH ST
BIKE PARKING CLASS 2
NE 36TH ST
OVERLAKE TRANSIT CENTER - PARK AND RIDE GARAGE 320 VEHICLE PARKING STALLS
RR
RR
156TH AVE NE
MICROSOFT SHUTTLE
RAPID RIDE- B LINE
221
245
RAPID RIDE- B LINE
221
245
221
245
249
253
24#
241
242
249
441
B
OTCC-AX01
N

SITE AREA PLAN

SCALE: 1" = 50'

NOTES

1. ALIGNMENT D2A

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▤	BUS LAYOVER
P	PARATRANSIT STOP
S	SHUTTLE
- - -	BUS ROUTE
221 245 249	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	TRACK CROSSING
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
— — —	TRACK

50 25 0 50 100
SCALE IN FEET

c:\work\feis\ELD_1OTCCAS01.dwg
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SOUNDTRANSIT

Submitted:
Date:
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Scale: 1"=50'
Filename: ELD_1OTCCAS01.dwg
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HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
OVERLAKE TRANSIT CENTER STATION
STATION AREA PLAN

Drawing No.: OTCC-AS01
Sheet No.: D-22
Rev.:

DWG INFO:

LTSCALE:
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-Overlay:
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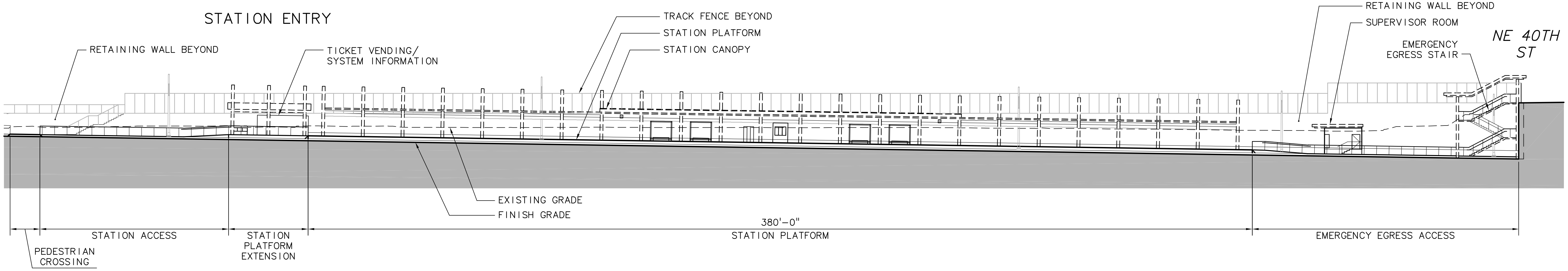
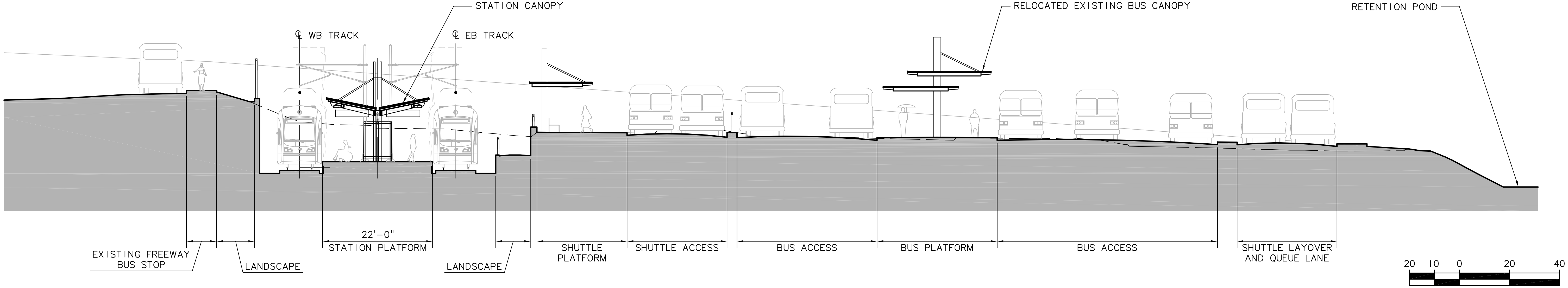

STATION ENTRY
RETAINING WALL BEYOND
TICKET VENDING/
SYSTEM INFORMATION
TRACK FENCE BEYOND
STATION PLATFORM
STATION CANOPY
RETAINING WALL BEYOND
SUPERVISOR ROOM
EMERGENCY
EGRESS STAIR
NE 40TH
ST
EXISTING GRADE
FINISH GRADE
380'-0"
STATION ACCESS
STATION
PLATFORM
EXTENSION
STATION PLATFORM
EMERGENCY EGRESS ACCESS
PEDESTRIAN
CROSSING

SITE SECTION A
SCALE: 1" = 20'
OTCC-AX01


STATION CANOPY
℄ WB TRACK
℄ EB TRACK
RELOCATED EXISTING BUS CANOPY
RETENTION POND
EXISTING FREEWAY
BUS STOP
LANDSCAPE
22'-0"
STATION PLATFORM
LANDSCAPE
SHUTTLE
PLATFORM
SHUTTLE ACCESS
BUS ACCESS
BUS PLATFORM
BUS ACCESS
SHUTTLE LAYOVER
AND QUEUE LANE

SITE SECTION B
SCALE: 1" = 10'
OTCC-AX01

20 10 0 20 40
SCALE IN FEET

10 5 0 10 20
SCALE IN FEET

c:\work\feis\ELD_1OTCCAX01.dwg
02/22/11 15:18 : bolimaf OE6579

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Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

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fax 206.521.9095

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Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELD_1OTCCAX01.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
OVERLAKE TRANSIT CENTER STATION
SITE SECTIONS

Drawing No.: OTCC-AX01
Sheet No.: D-23
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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x0231sf
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x0831rx
x0831sf
x0834rx
x0834sf
x1131rx
x1131sf
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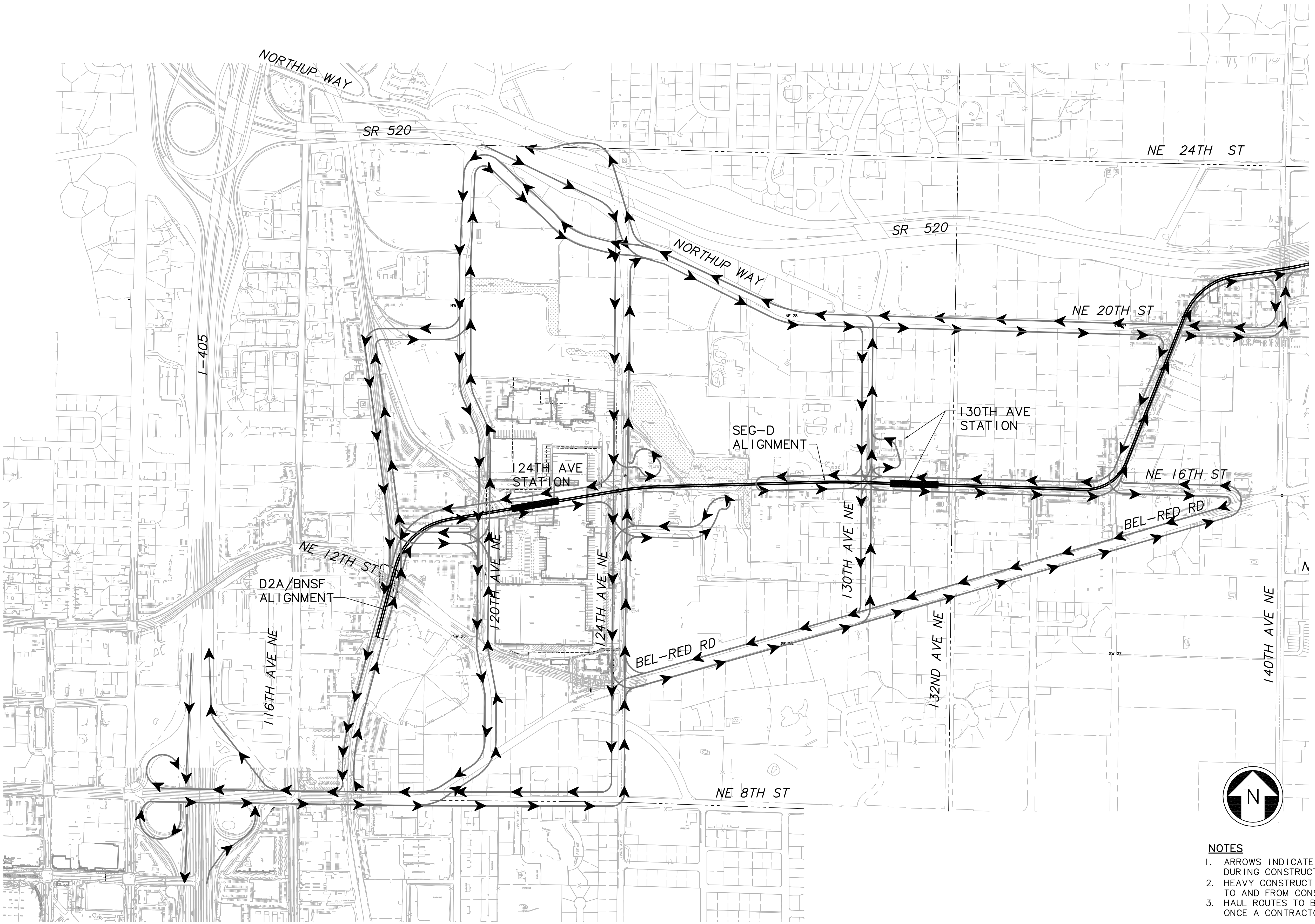

NORTHUP WAY
SR 520
NE 24TH ST
SR 520
NORTHUP WAY
SEE D2AB-CC02
NE 20TH ST
I-405
130TH AVE
STATION
SEG-D
ALIGNMENT
124TH AVE
STATION
NE 16TH ST
BEL-RED RD
NE 12TH ST
D2A/BNSF
ALIGNMENT
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
140TH AVE NE
116TH AVE NE
BEL-RED RD
NE 8TH ST
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR SR 520 TO AND FROM CONSTRUCTION SITE.
3. HAUL ROUTES TO BE REFINED IN FINAL DESIGN AND CONFIRMED ONCE A CONTRACTOR IS SELECTED.

c:\work\feis\ELD__D2ABCC01.dwg
02/22/11 15:23 : bolimaf 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Drawn By:
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FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELD__D2ABCC01.dwg
Contract No.:
Date: 02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)

THIS PRINT REDUCED HALF SCALE

CONSTRUCTION TRUCK HAUL ROUTE PLANS
1 OF 2

Drawing No.: D2AB-CC01
Sheet No.: D-24
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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x0231sf
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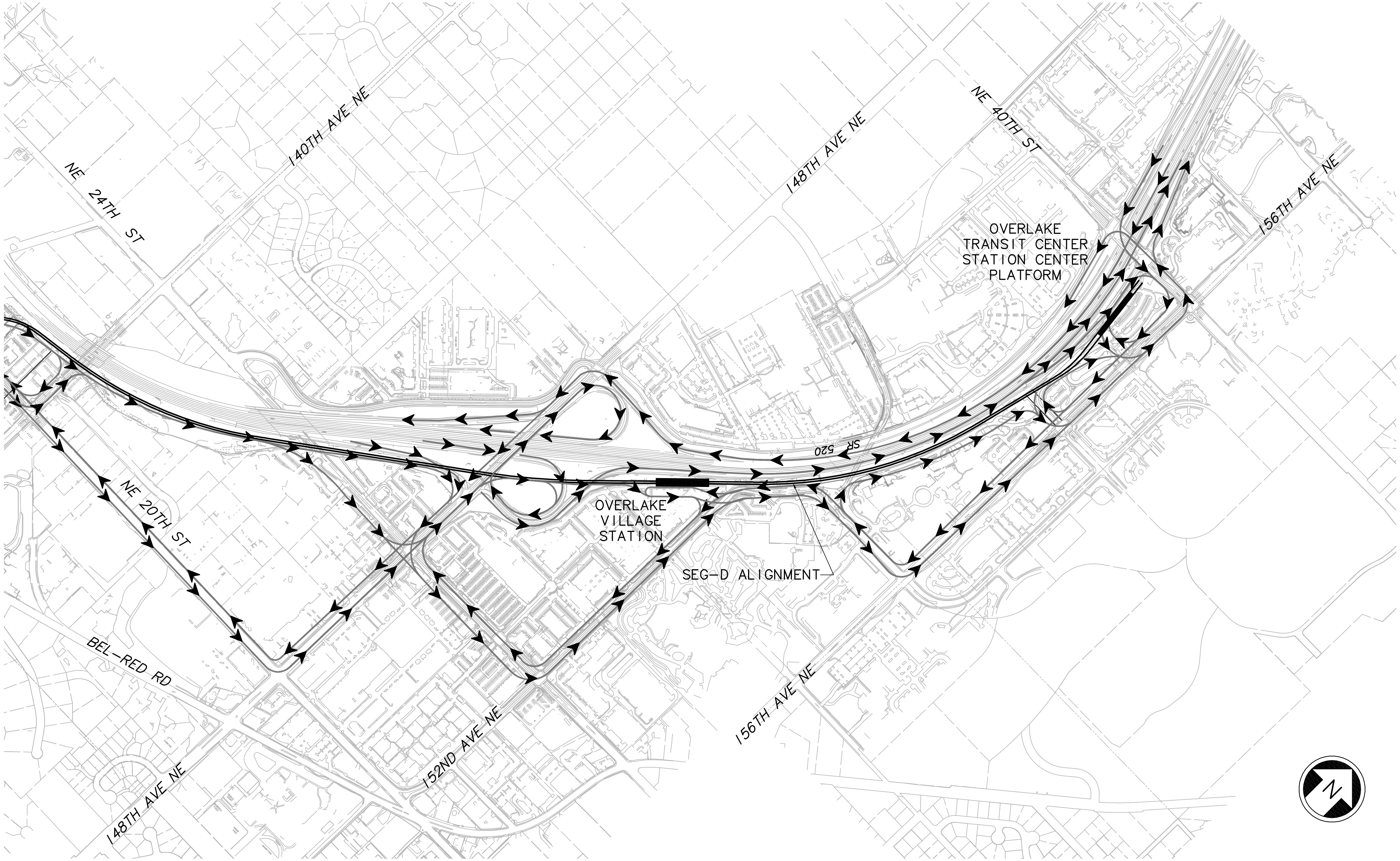
SEE DWG D2AB-CC01



140TH AVE NE
NE 24TH ST
148TH AVE NE
NE 40TH ST
156TH AVE NE
OVERLAKE TRANSIT CENTER STATION CENTER PLATFORM
SR 520
OVERLAKE VILLAGE STATION
SEG-D ALIGNMENT
NE 20TH ST
BEL-RED RD
152ND AVE NE
156TH AVE NE
148TH AVE NE
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR SR 520 TO AND FROM CONSTRUCTION SITE.
3. HAUL ROUTES TO BE REFINED IN FINAL DESIGN AND CONFIRMED ONCE A CONTRACTOR IS SELECTED.

c:\work\feis\ELD__D2ABCC02.dwg
02/22/11 15:24 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELD__D2ABCC02.dwg
Contract No.:
Date: 02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A (PREFERRED)
CONSTRUCTION TRUCK HAUL ROUTE PLANS
2 OF 2

Drawing No.: D2AB-CC02
Sheet No.: D-25
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ZG-2234H
key_Segment
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x0831rx
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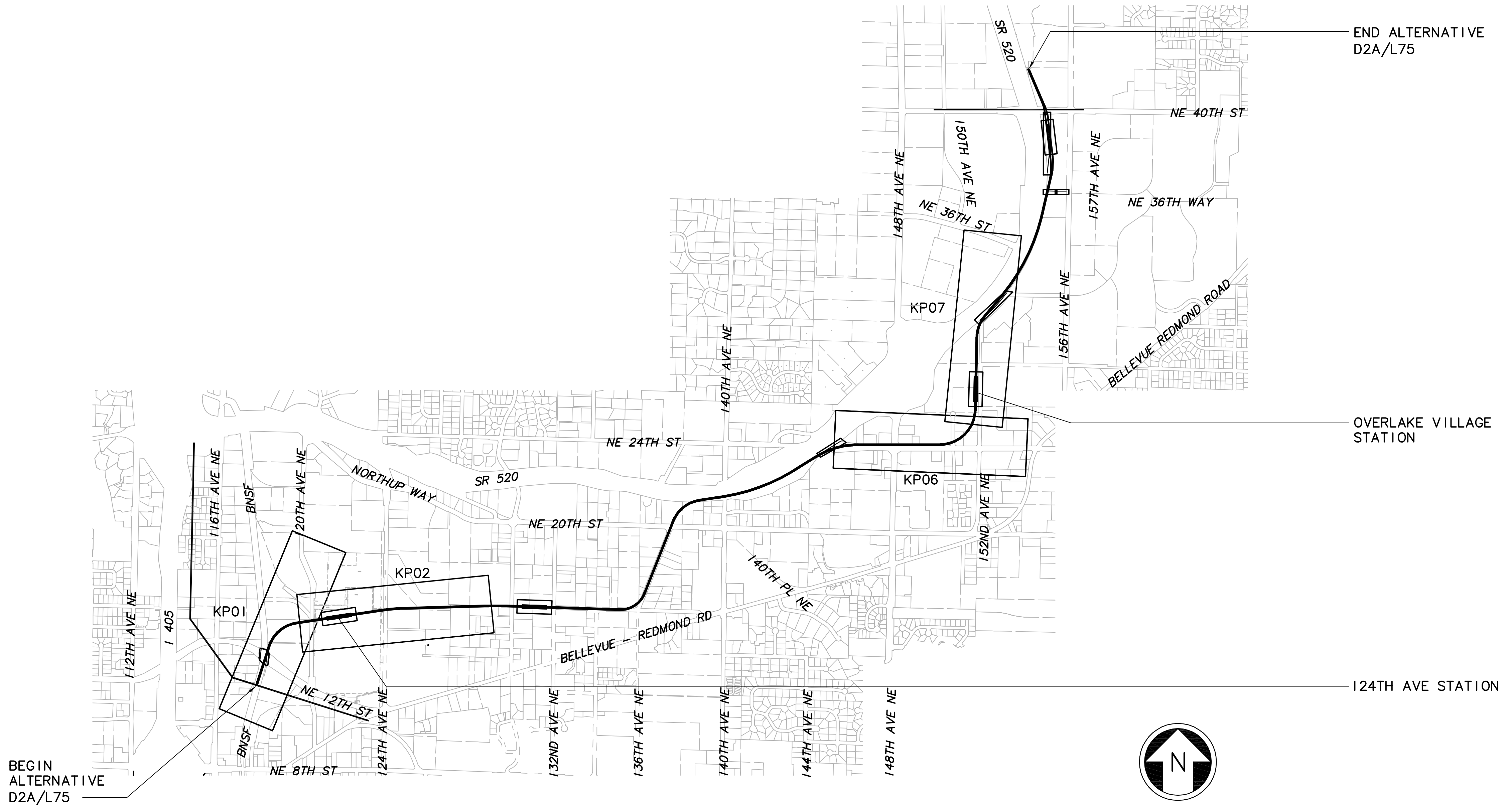

END ALTERNATIVE
D2A/L75
SR 520
NE 40TH ST
150TH AVE NE
148TH AVE NE
157TH AVE NE
NE 36TH ST
NE 36TH WAY
KP07
156TH AVE NE
BELLEVUE REDMOND ROAD
140TH AVE NE
OVERLAKE VILLAGE
STATION
NE 24TH ST
KP06
NORTHUP WAY
SR 520
152ND AVE NE
116TH AVE NE
BNSF
120TH AVE NE
NE 20TH ST
140TH PL NE
KP02
KP01
112TH AVE NE
I 405
BELLEVUE - REDMOND RD
124TH AVE STATION
NE 12TH ST
124TH AVE NE
132ND AVE NE
136TH AVE NE
140TH AVE NE
144TH AVE NE
148TH AVE NE
BNSF
NE 8TH ST
BEGIN
ALTERNATIVE
D2A/L75
N

c:\work\sdeis\ELD_ID2AAGZ05.dwg
10/08/10 09:45 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

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Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELD_ID2AAGZ05.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A

120TH STATION & NE 24TH DESIGN OPTION
KEY PLAN

Drawing No.: D2AA-GZ05
Sheet No.: D-26
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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-Overlay:
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ELD_L75_JO
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KEY_SEGMENT
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ZG-G10010
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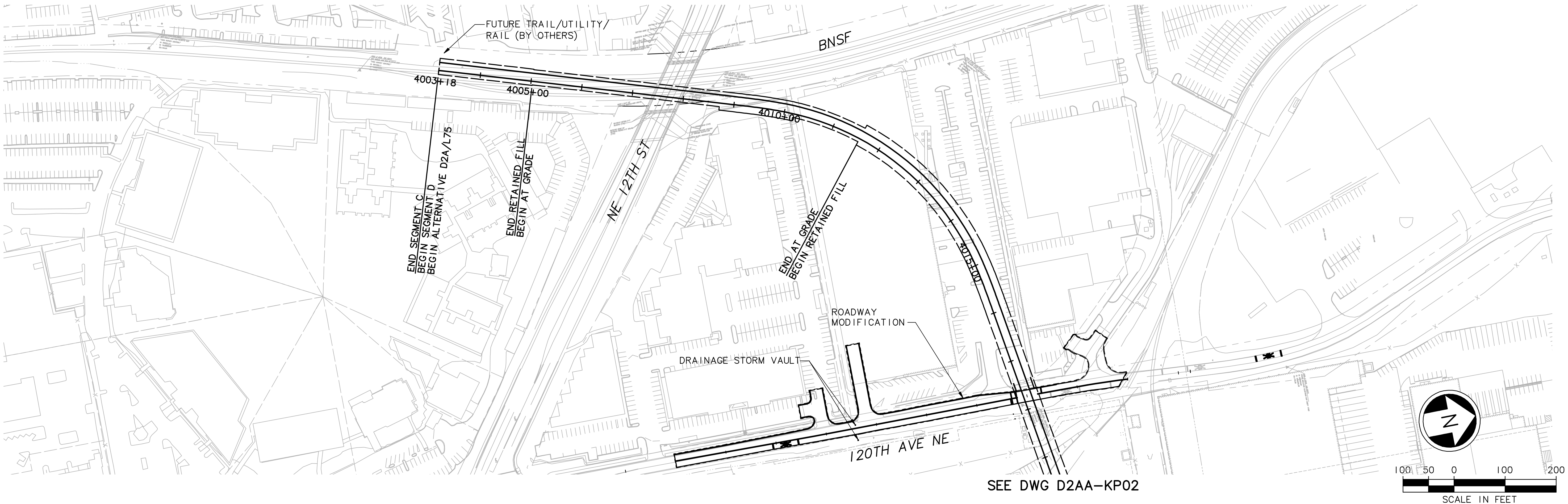
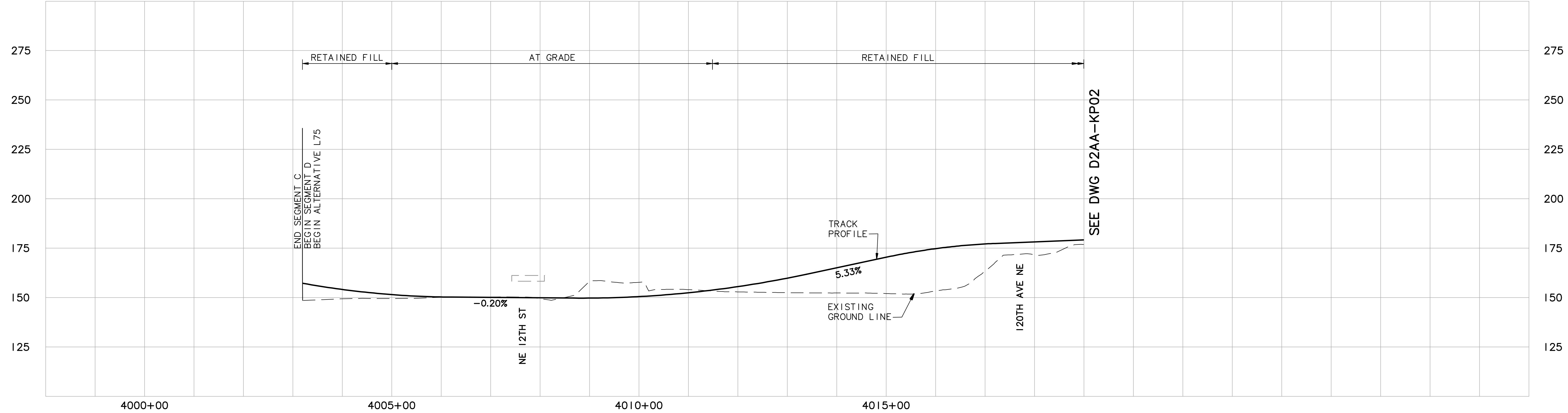


FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
BNSF
4003+18
4005+00
4010+00
4015+00
END SEGMENT C
BEGIN SEGMENT D
BEGIN ALTERNATIVE D2A/L75
END RETAINED FILL
BEGIN AT GRADE
NE 12TH ST
END AT GRADE
BEGIN RETAINED FILL
ROADWAY MODIFICATION
DRAINAGE STORM VAULT
120TH AVE NE
SEE DWG D2AA-KP02
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

FEIS CONCEPTUAL

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Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:

Date:

Approved:

Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELD_ID2AAKP01.dwg

Contract No.:

Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A
120TH STATION & NE 24TH DESIGN OPTION
TRACK PLAN & PROFILE

Drawing No.:
D2AA-KP01

Sheet No.: D-27

Rev.:

c:\work\feis\segment d\ELD_ID2AAKP01.dwg
04/18/11 10:27 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

XREFs:
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SUB-SDEIS
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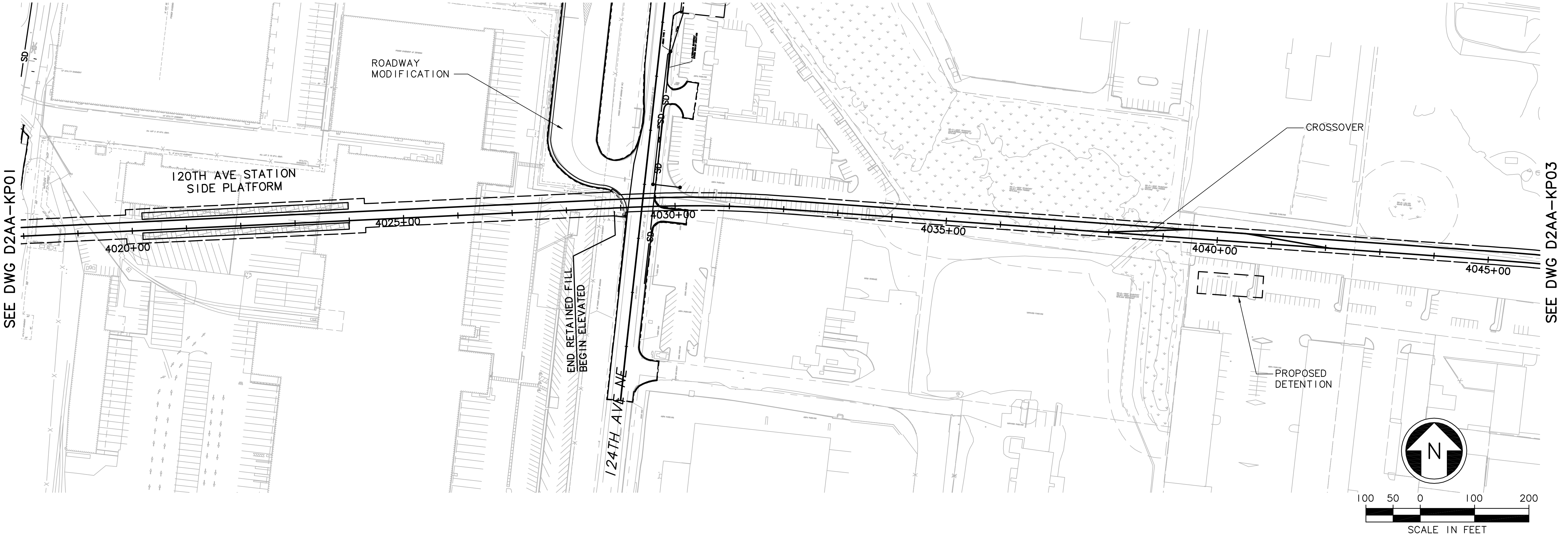
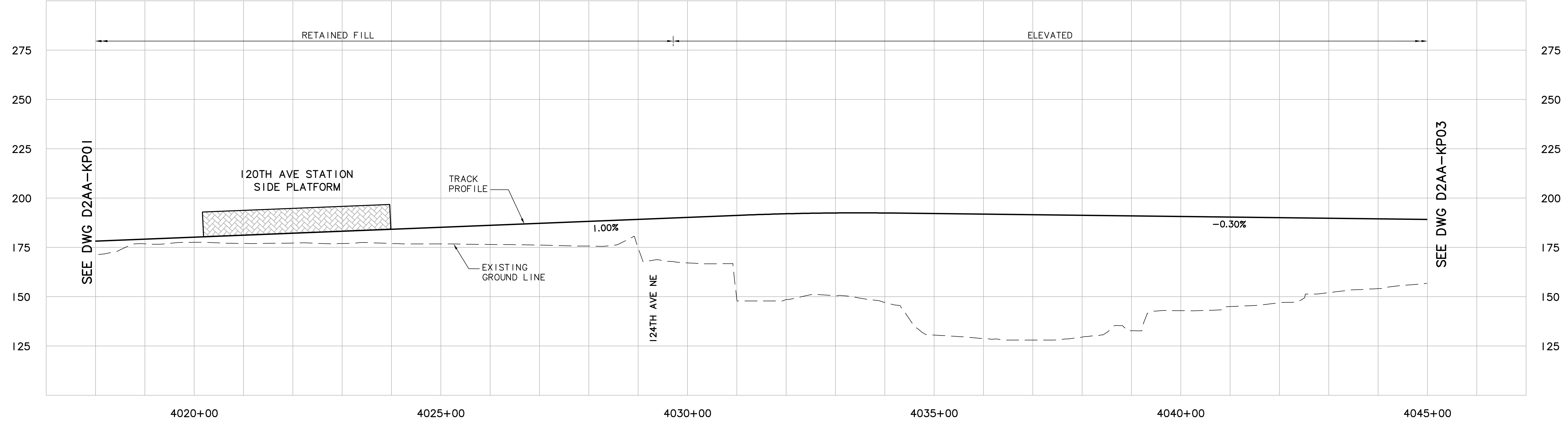


SEE DWG D2AA-KP01
SD
ROADWAY MODIFICATION
120TH AVE STATION SIDE PLATFORM
4020+00
4025+00
END RETAINED FILL BEGIN ELEVATED
124TH AVE NE
4030+00
4035+00
CROSSOVER
4040+00
4045+00
PROPOSED DETENTION
SEE DWG D2AA-KP03
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELD_ID2AAKP02.dwg
10/08/10 09:46 : bolimaf OE6579

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Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

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Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD_ID2AAKP02.dwg
Contract No.:
Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A

120TH STATION & NE 24TH DESIGN OPTION
TRACK PLAN & PROFILE

Drawing No.:
D2AA-KP02

Sheet No.: D-28
Rev.:

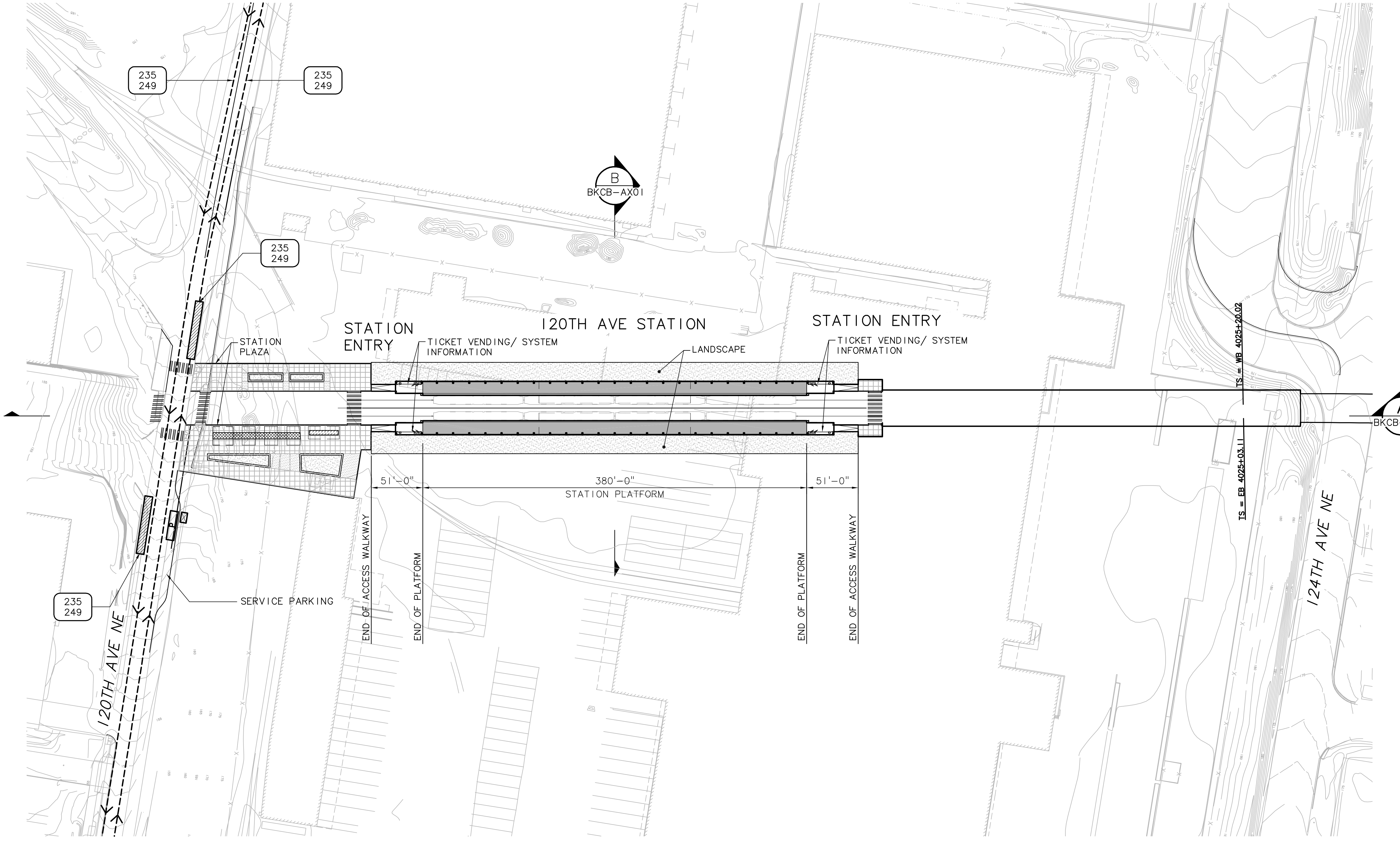
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
ELD_L75_KA
-Overlay:
ELD_L75_CA
ELD_L75_CM
ELD_L75_CS
ELD_N15_AP_2
ELD_N15_AS_2
SUB-SDEIS
ZG-2234H
x0831cn
x0831rx
x0831sf
-Unresolved:

NOTES

1. ALIGNMENT D2A



235
249
235
249
B
BKCB-AX01
235
249
STATION ENTRY
120TH AVE STATION
STATION ENTRY
STATION PLAZA
TICKET VENDING/ SYSTEM INFORMATION
LANDSCAPE
TICKET VENDING/ SYSTEM INFORMATION
TS = WB 4025+20.02
TS = EB 4025+03.11
A
BKCB-AX01
51'-0"
380'-0"
STATION PLATFORM
51'-0"
SERVICE PARKING
235
249
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
END OF ACCESS WALKWAY
120TH AVE NE
124TH AVE NE

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
235 249	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
‖‖‖‖	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
— —	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELD_IBKCBAS01.dwg
Contract No.:
Date: 07/30/10

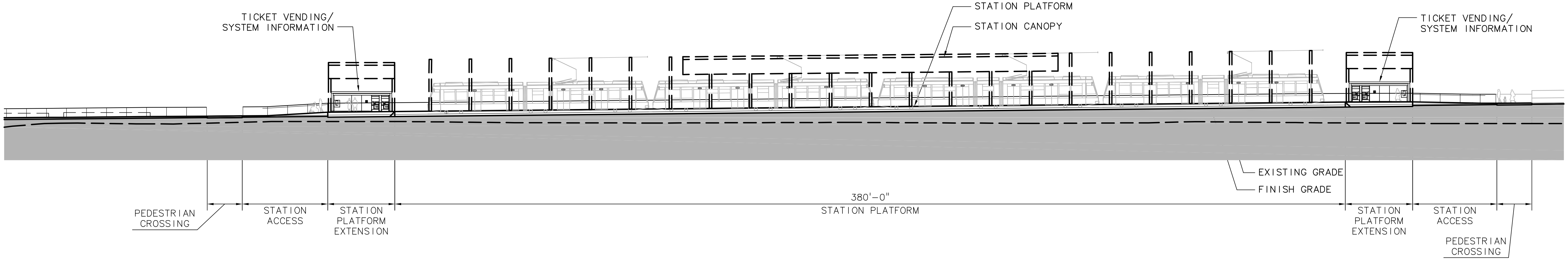
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A
120TH STATION DESIGN OPTION
STATION AREA PLAN

THIS PRINT REDUCED
HALF SCALE

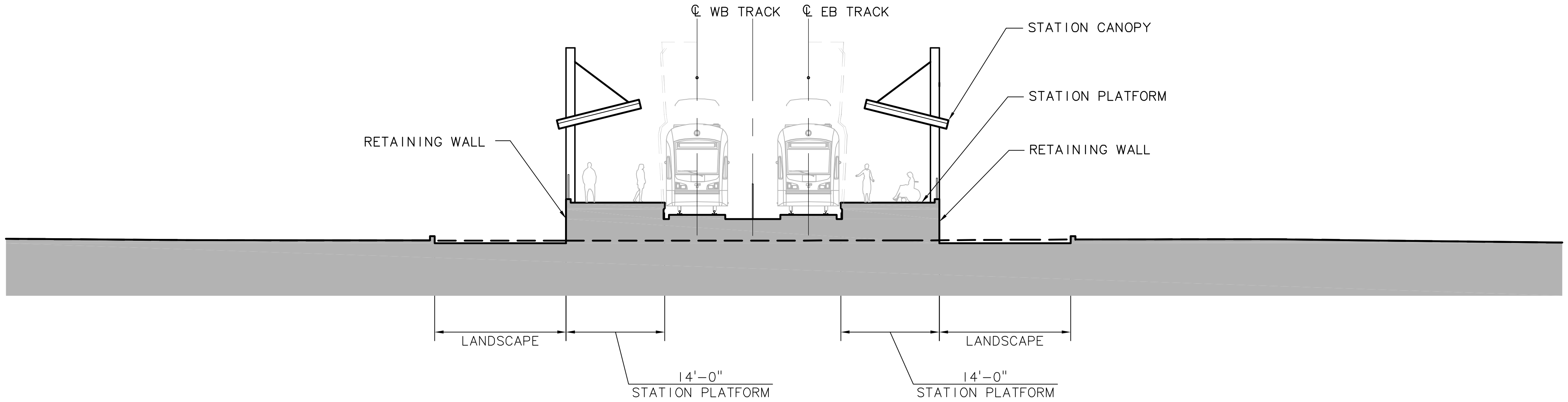
Drawing No.: BKCB-AS01
Sheet No.: D-29
Rev.:

c:\work\sdeis\ELD_IBKCBAS01.dwg
10/08/10 11:12 : bolimaf OE6579

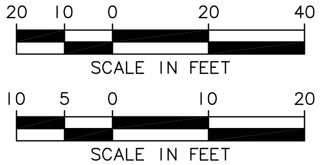
XREF'S
Resolved
ELD_N15_A_2
ZG-2234H
Unresolved
LTSCALE
1=1


TICKET VENDING/
SYSTEM INFORMATION
STATION PLATFORM
STATION CANOPY
TICKET VENDING/
SYSTEM INFORMATION
EXISTING GRADE
FINISH GRADE
PEDESTRIAN CROSSING
STATION ACCESS
STATION PLATFORM EXTENSION
380'-0"
STATION PLATFORM
STATION PLATFORM EXTENSION
STATION ACCESS
PEDESTRIAN CROSSING

SITE SECTION (A)
SCALE: 1" = 20'
BKCB-AX01


℄ WB TRACK
℄ EB TRACK
STATION CANOPY
STATION PLATFORM
RETAINING WALL
RETAINING WALL
LANDSCAPE
14'-0"
STATION PLATFORM
14'-0"
STATION PLATFORM
LANDSCAPE

SITE SECTION (B)
SCALE: 1" = 10'
BKCB-AX01


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

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Date:
Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELD_1BKCBAX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A
120TH STATION
SITE SECTIONS
DESIGN OPTION

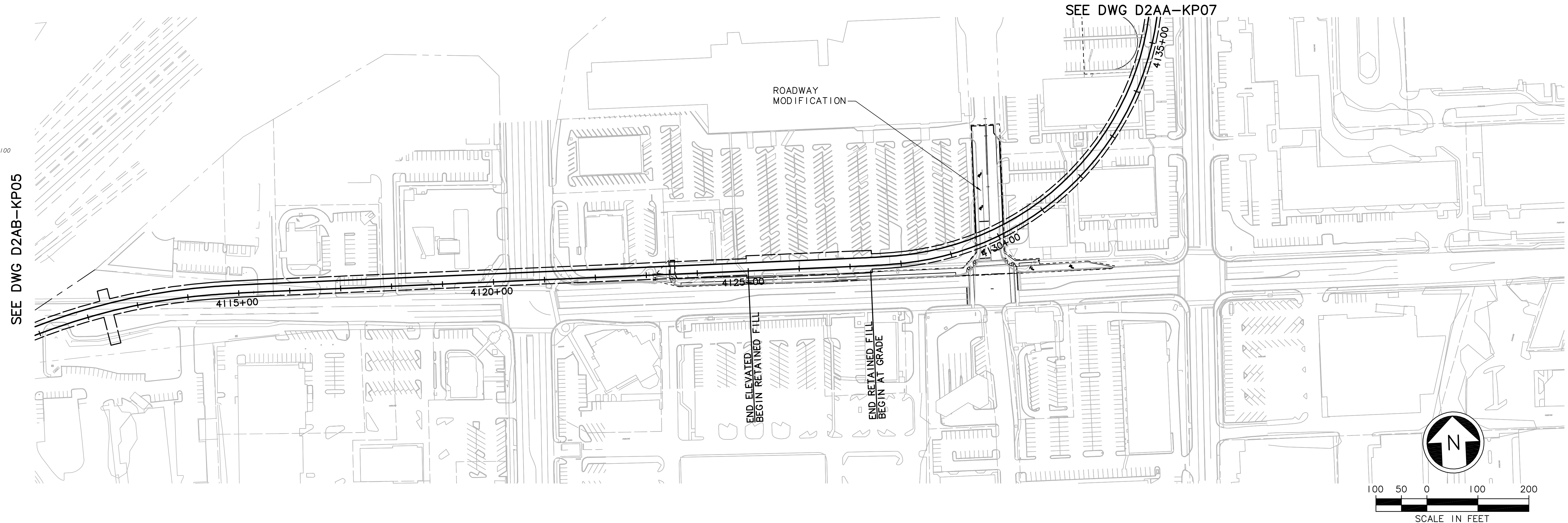
Drawing No.: BKCB-AX01
Sheet No.: D-30
Rev.:

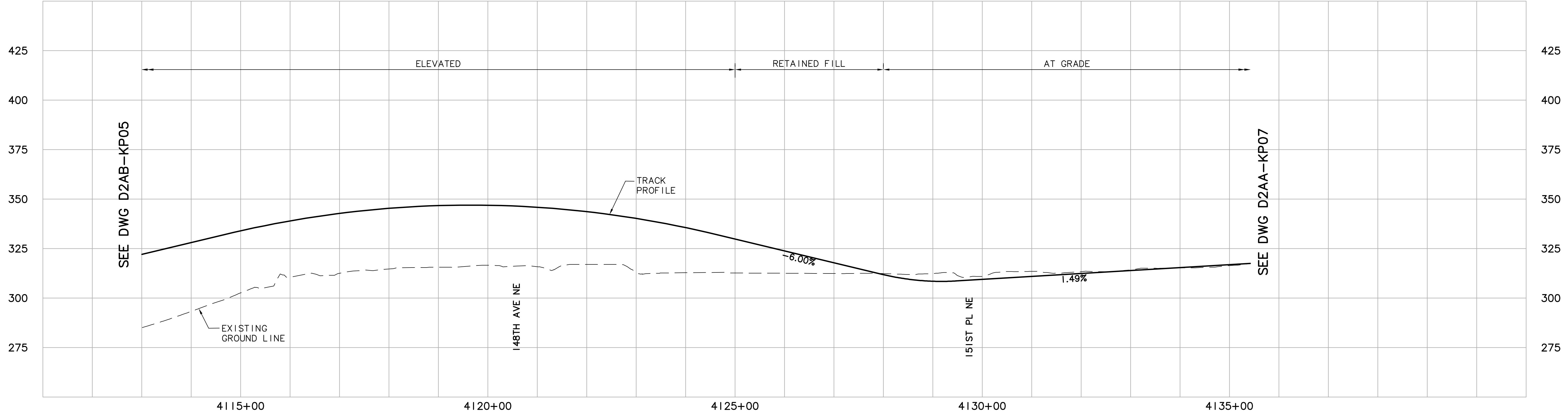
c:\work\sdeis\ELD_1BKCBAX01.dwg
08/17/10 09:33 : BOLIMAF OE6579

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_L75_CA_Interim
ELD_L75_CM
ELD_L75_CM_Interim
ELD_L75_JO
ELD_L75_KA-Interim-100
SUB-SDEIS
ZG-2234H
ZG-G10010
key_Segment
x1434rx
x1434sf
x1734rx
x1734sf
x1737rx
x1737sf
xBrCrk_sfut
xChild_bldg
x1405_chan
xwsdot_LL-LM
-Unresolved:


SEE DWG D2AA-KP07
SEE DWG D2AB-KP05
ROADWAY MODIFICATION
4115+00
4120+00
4125+00
4130+00
4135+00
END ELEVATED
BEGIN RETAINED FILL
END RETAINED FILL
BEGIN AT GRADE
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELD_ID2AAKP06.dwg
10/13/10 13:44 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

FEIS CONCEPTUAL

CH2MHILL

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:

Date:

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Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELD_ID2AAKP06.dwg

Contract No.:

Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A
120TH STATION & NE 24TH DESIGN OPTION

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D2AA-KP06

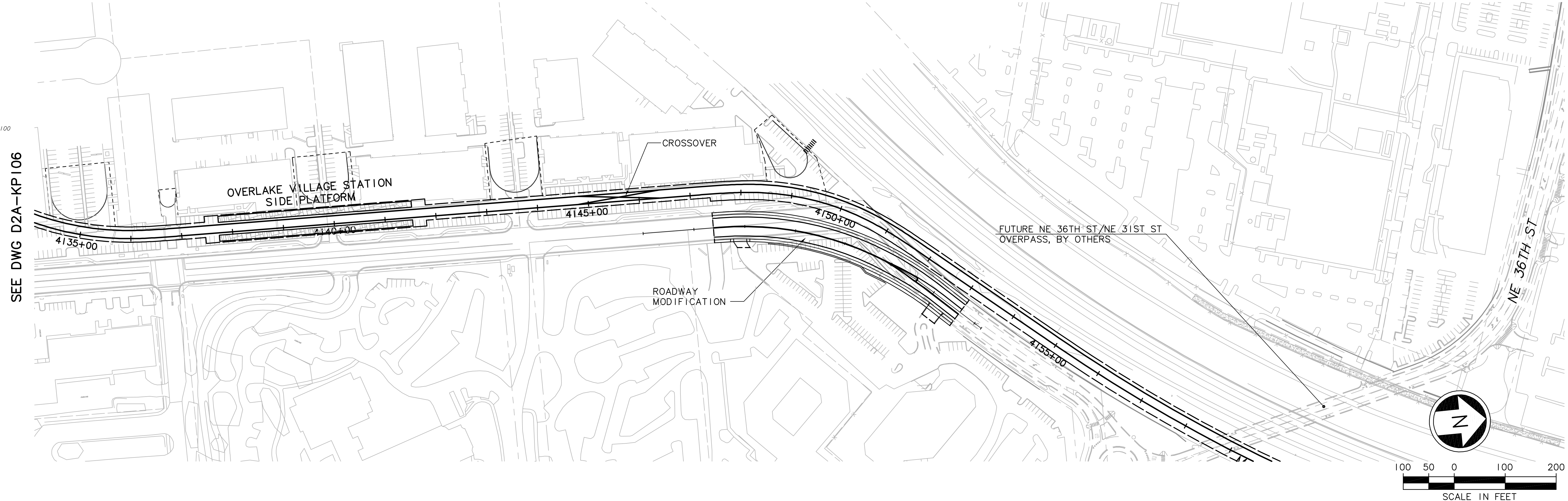
Sheet No.:
D-31

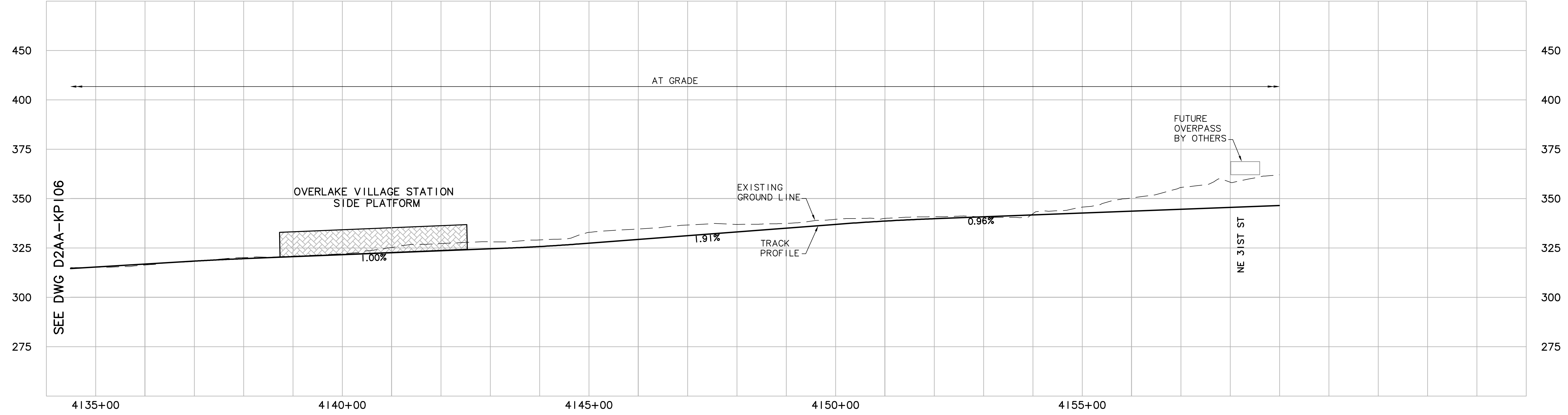
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_L75_CA_Interim
ELD_L75_CM
ELD_L75_CM_Interim
ELD_L75_JO
ELD_L75_KA-Interim-100
SUB-SDEIS
ZG-2234H
ZG-G10010
key_Segment
x1734rx
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x1743rx
x1743sf
x2037rx
x2037sf
x2040rx
x2040sf
-Unresolved:
ELD_D2A_CM
ELD_D2A_JO


SEE DWG D2A-KP106
CROSSOVER
OVERLAKE VILLAGE STATION
SIDE PLATFORM
4135+00
4140+00
4145+00
4150+00
4155+00
ROADWAY
MODIFICATION
FUTURE NE 36TH ST/NE 31ST ST
OVERPASS, BY OTHERS
NE 36TH ST
N
100 50 0 100 200
SCALE IN FEET


SEE DWG D2AA-KP106
AT GRADE
450
400
375
350
325
300
275
FUTURE
OVERPASS
BY OTHERS
OVERLAKE VILLAGE STATION
SIDE PLATFORM
EXISTING
GROUND LINE
1.00%
1.91%
0.96%
TRACK
PROFILE
NE 31ST ST
4135+00
4140+00
4145+00
4150+00
4155+00

c:\work\sdeis\ELD_ID2AAKP07.dwg
10/13/10 13:45 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELD_ID2AAKP07.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

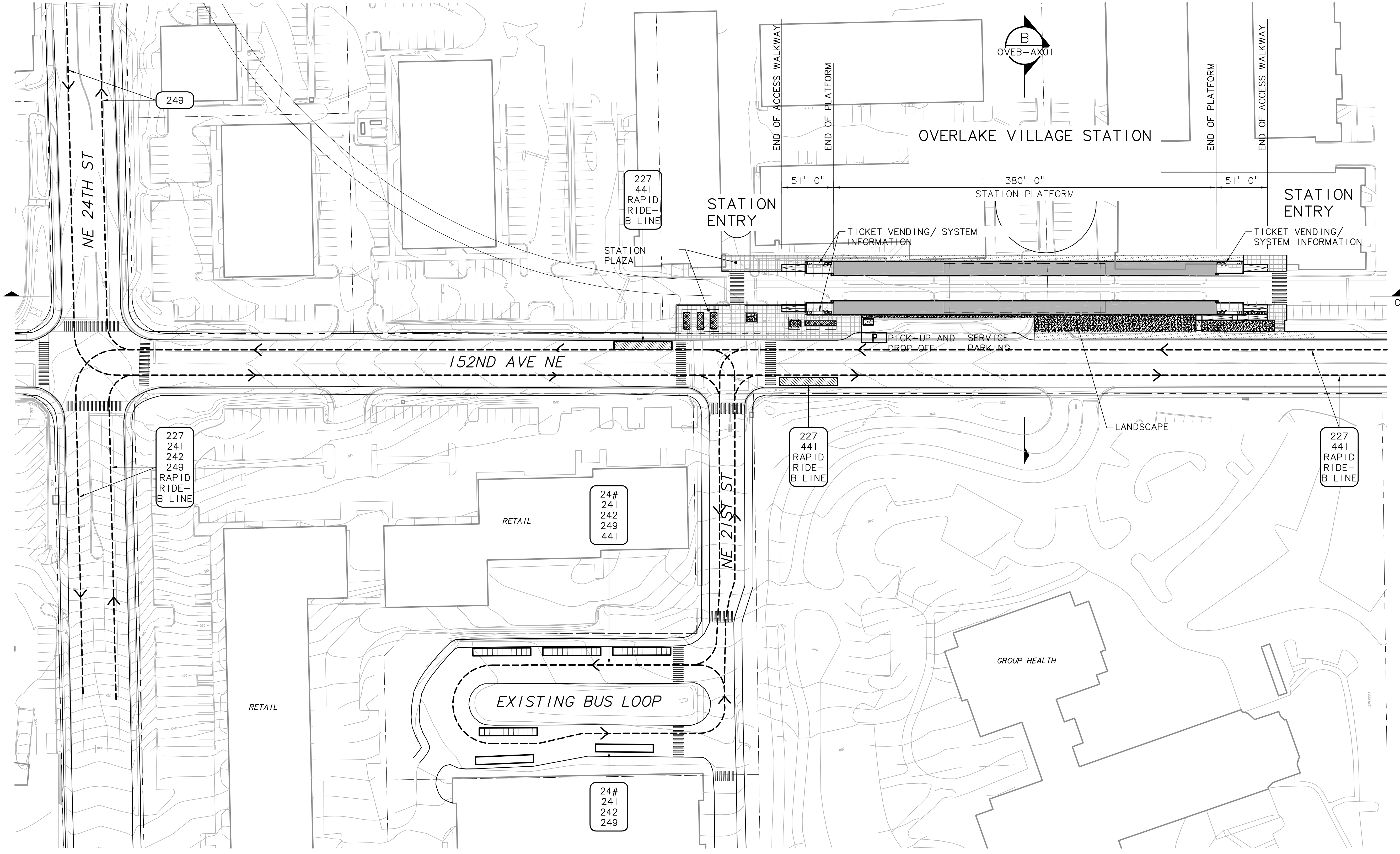
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A
120TH STATION & NE 24TH DESIGN OPTION

Drawing No.: D2AA-KP07
Sheet No.: D-32
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELD_L75_CM
ELD_L75_KA
ELD_N19_AP
ELD_N19_AS
SUB–SDEIS
ZG–2234H
x1734cn
x1734rx
x1734sf
x1737rx
x1737sf
–Unresolved:


1
2
3
4
5
249
NE 24TH ST
227
441
RAPID RIDE–B LINE
STATION PLAZA
STATION ENTRY
END OF ACCESS WALKWAY
END OF PLATFORM
OVERLAKE VILLAGE STATION
B
OVEB–AX01
51'–0"
380'–0"
STATION PLATFORM
51'–0"
STATION ENTRY
TICKET VENDING/ SYSTEM INFORMATION
TICKET VENDING/ SYSTEM INFORMATION
A
OVEB–AX01
P PICK–UP AND DROP OFF
SERVICE PARKING
152ND AVE NE
LANDSCAPE
227
241
242
249
RAPID RIDE–B LINE
227
441
RAPID RIDE–B LINE
227
441
RAPID RIDE–B LINE
24#
241
242
249
441
RETAIL
NE 21ST ST
RETAIL
EXISTING BUS LOOP
GROUP HEALTH
24#
241
242
249

NOTES

1. ALIGNMENT D2A

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
– – →	BUS ROUTE
242 249	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
▒	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
— — –	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

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Date:
Approved:

SOUNDTRANSIT

Date:

Scale: 1"=50'
Filename: ELD_1OVEBAS01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED * HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D – ALT D2A
NE 24TH DESIGN OPTION
OVERLAKE VILLAGE STATION
STATION AREA PLAN

Drawing No.: OVEB–AS01
Sheet No.: D-33
Rev.:

c:\work\sdeis\ELD_1OVEBAS01.dwg
10/08/10 09:46 : bolimaf OE6579

DWG INFO:

LTSCALE:
1=1

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-Attach:
-Overlay:
ELD_N19_AX
SUB-SDEIS
ZG-2234H
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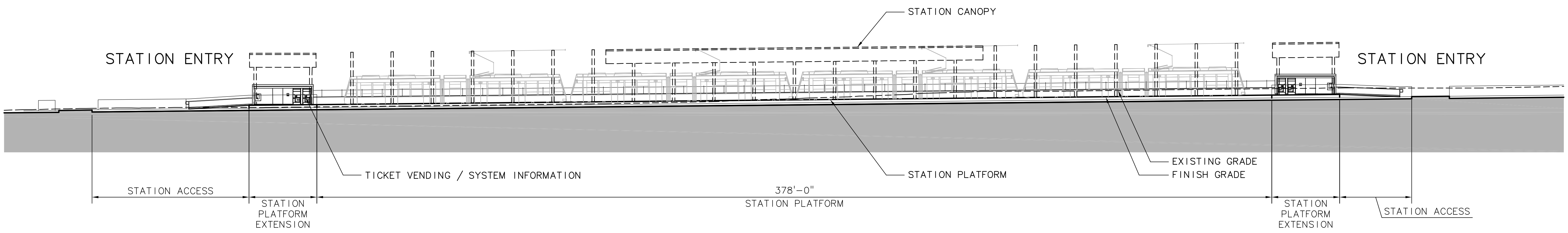
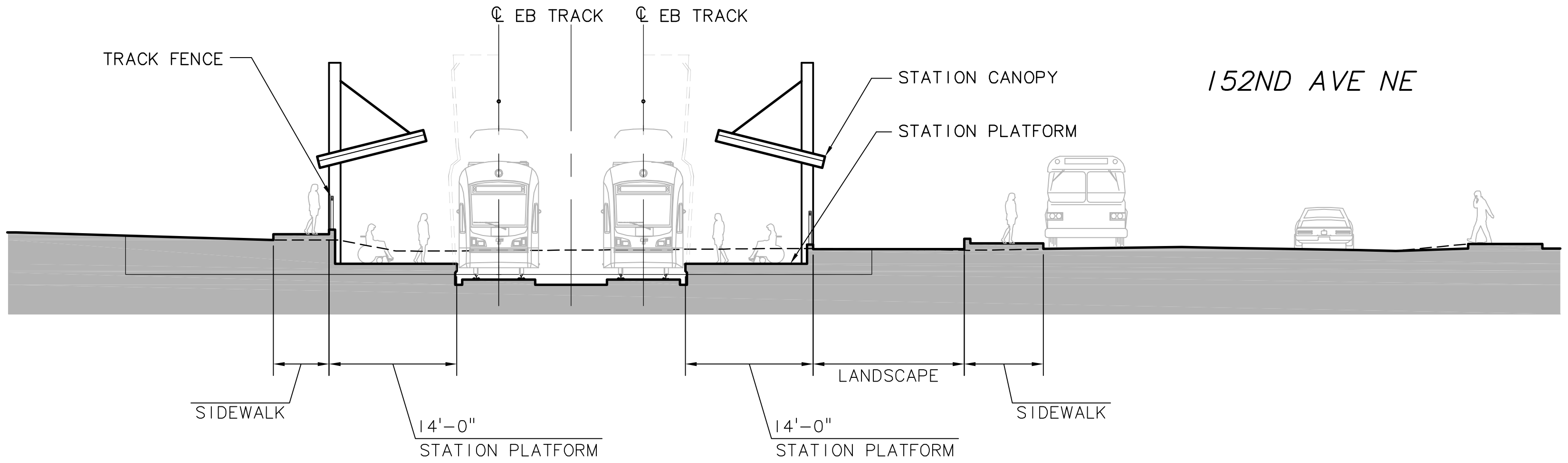


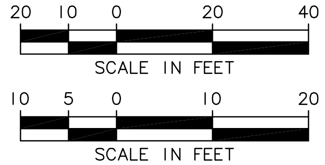
STATION CANOPY
STATION ENTRY
STATION ENTRY
EXISTING GRADE
FINISH GRADE
TICKET VENDING / SYSTEM INFORMATION
STATION PLATFORM
STATION ACCESS
STATION PLATFORM EXTENSION
378'-0"
STATION PLATFORM
STATION PLATFORM EXTENSION
STATION ACCESS

SITE SECTION A OVEB-AX01
SCALE: 1" = 20'



℄ EB TRACK
℄ EB TRACK
TRACK FENCE
STATION CANOPY
STATION PLATFORM
152ND AVE NE
LANDSCAPE
SIDEWALK
14'-0"
STATION PLATFORM
14'-0"
STATION PLATFORM
SIDEWALK

SITE SECTION B OVEB-AX01
SCALE: 1" = 10'



20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

c:\work\sdeis\ELD_1OVEBAX01.dwg
10/08/10 10:02 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

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Date:
Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELD_1OVEBAX01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT D - ALT D2A
NE 24TH DESIGN OPTION
OVERLAKE VILLAGE STATION
SITE SECTIONS

Drawing No.: OVEB-AX01
Sheet No.: D-34
Rev.:

XREF'S

Resolved

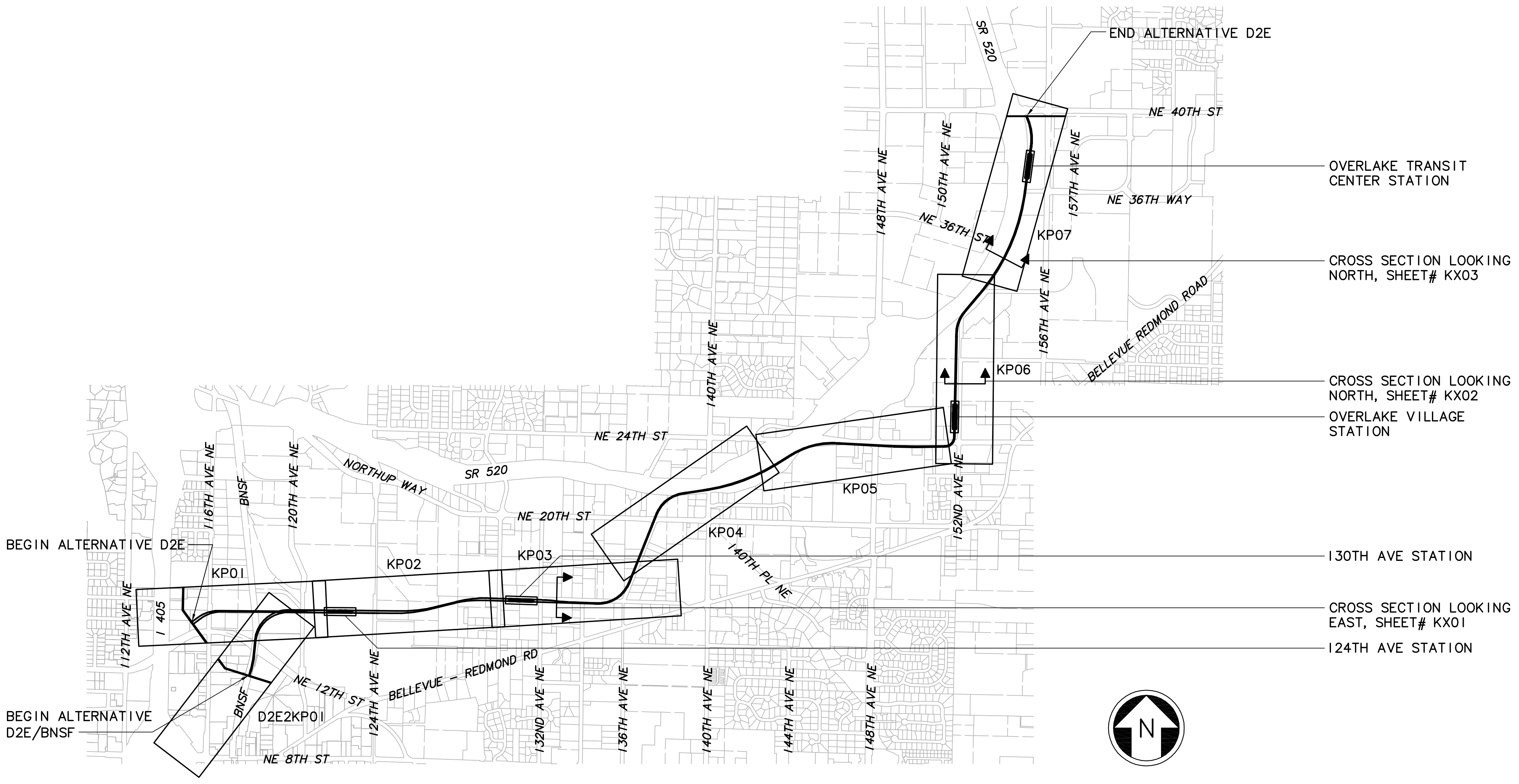
ELD_D2E_KA
REG-DCON
ZG-2234H
x0531rx
x0534rx
x0831rx
x0834rx
x1131rx
x1134rx
x1431rx
x1434rx
x1437rx
x1731rx
x1734rx
x1737rx
x1740rx
x2037rx
x2040rx

Unresolved

St_Names_E_2
key_East

LTSCALE

1=1


END ALTERNATIVE D2E
SR 520
NE 40TH ST
OVERLAKE TRANSIT CENTER STATION
150TH AVE NE
148TH AVE NE
157TH AVE NE
NE 36TH WAY
NE 36TH ST
KP07
CROSS SECTION LOOKING NORTH, SHEET# KX03
156TH AVE NE
BELLEVUE REDMOND ROAD
140TH AVE NE
KP06
CROSS SECTION LOOKING NORTH, SHEET# KX02
OVERLAKE VILLAGE STATION
NE 24TH ST
NORTHUP WAY
SR 520
KP05
152ND AVE NE
116TH AVE NE
BNSF
120TH AVE NE
NE 20TH ST
KP04
BEGIN ALTERNATIVE D2E
KP01
KP02
KP03
140TH PL NE
130TH AVE STATION
CROSS SECTION LOOKING EAST, SHEET# KX01
112TH AVE NE
I 405
124TH AVE STATION
NE 12TH ST
BELLEVUE - REDMOND RD
124TH AVE NE
132ND AVE NE
136TH AVE NE
140TH AVE NE
144TH AVE NE
148TH AVE NE
BEGIN ALTERNATIVE D2E/BNSF
BNSF
D2E2KP01
NE 8TH ST
N

c:\work\ELDID2E_GZ05.dwg
10/16/08 10:43 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted: Date: Approved: Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELDID2E_GZ05.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D2E-GZ05
Sheet No.: D-35 Rev.:

XREF'S

Resolved

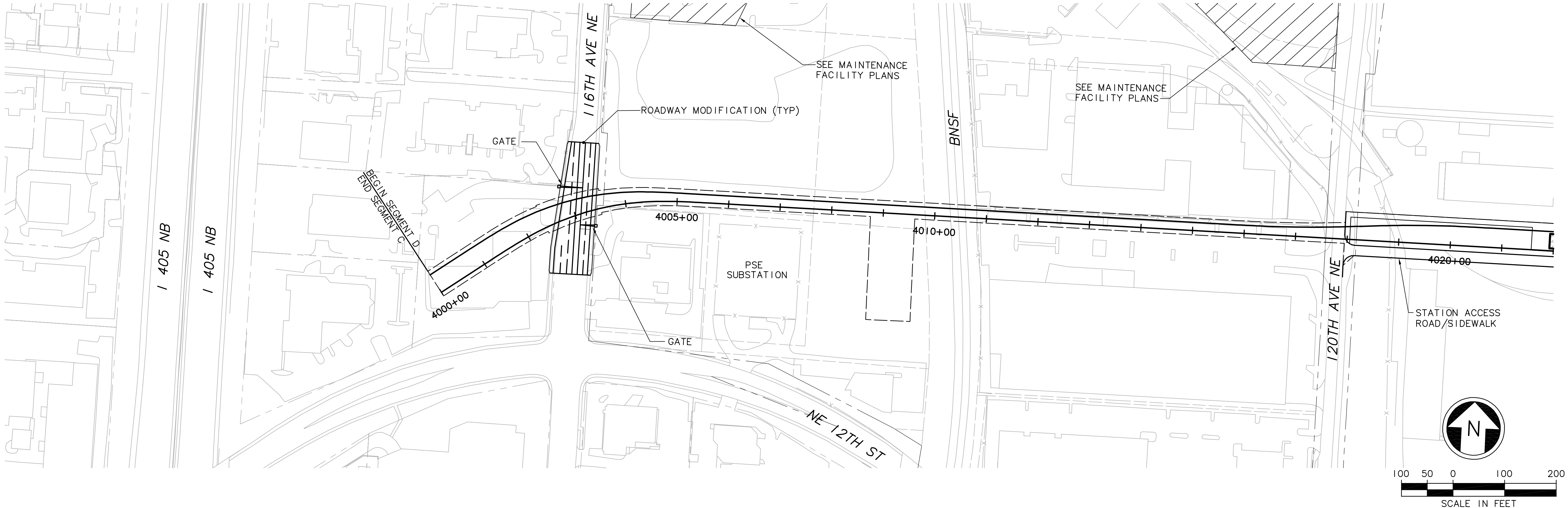
ELD_520FUT
ELD_D2E_CM
ELD_D2E_KA
REG-DCON
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0831rx
x0831sf
x0834rx
x0834sf

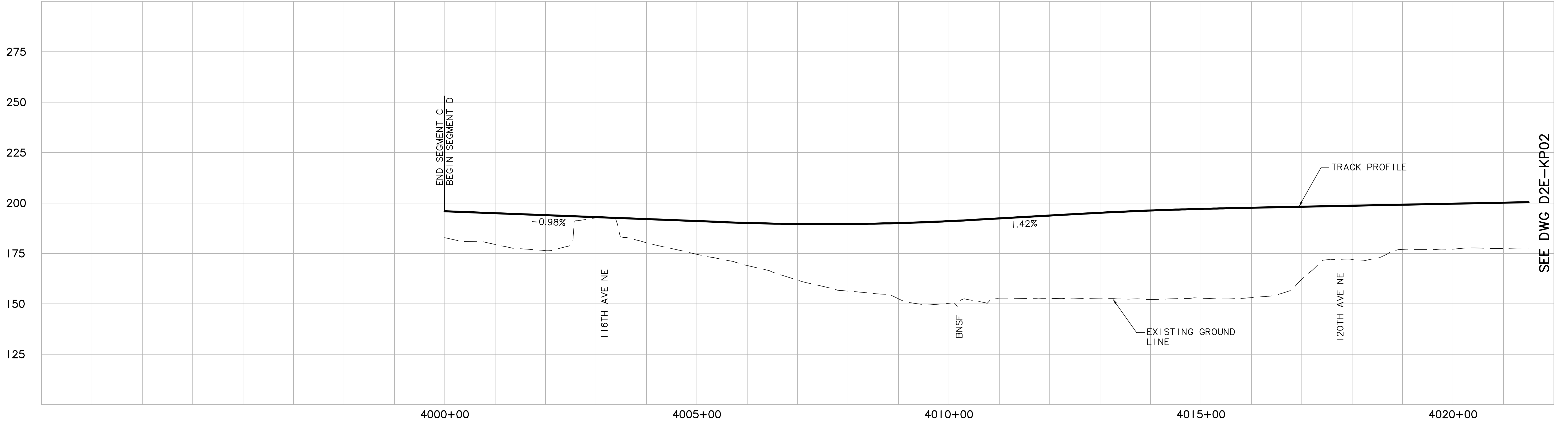
Unresolved

ELD_D2A_MS

LTSCALE

1=1


I 405 NB
I 405 NB
116TH AVE NE
GATE
ROADWAY MODIFICATION (TYP)
SEE MAINTENANCE FACILITY PLANS
BEGIN SEGMENT D
END SEGMENT C
4000+00
4005+00
4010+00
4020+00
GATE
PSE SUBSTATION
NE 12TH ST
BNSF
SEE MAINTENANCE FACILITY PLANS
120TH AVE NE
STATION ACCESS ROAD/SIDEWALK
SEE DWG D2E-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELDID2E_KP01.dwg
10/16/08 10:44 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID2E_KP01.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D2E-KP01
Sheet No.:
Rev.:
D-36

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
ZG-2234H
ZG-G10010
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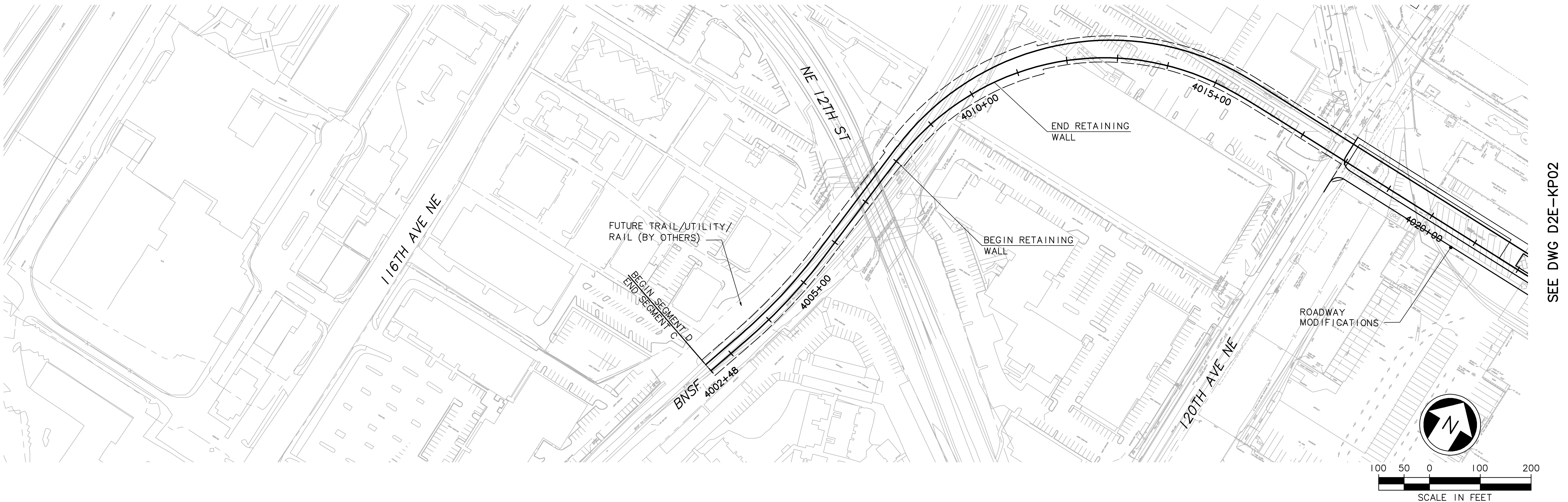
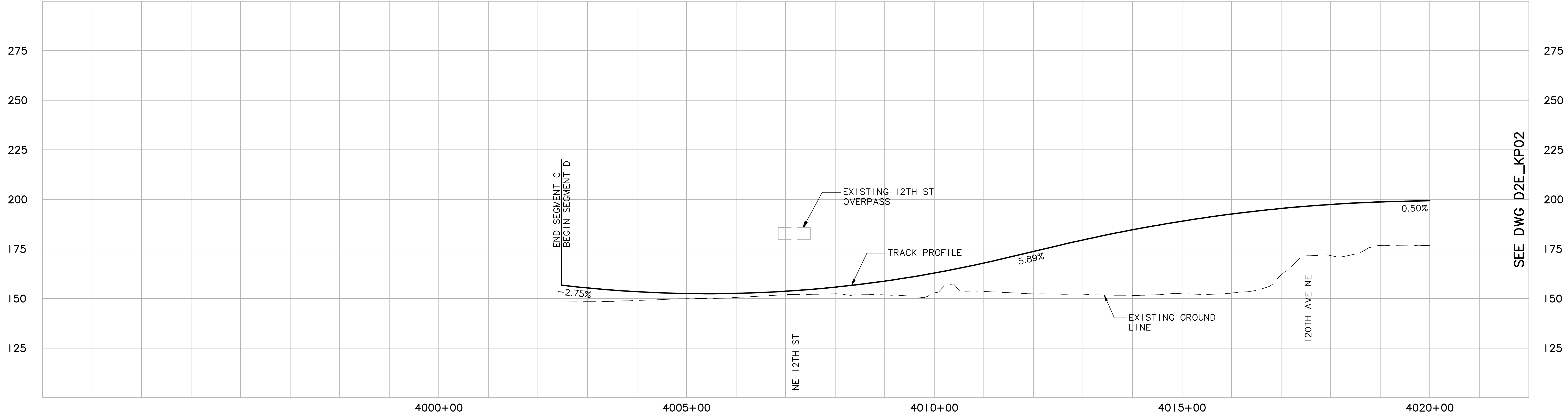
x0531sf
x0831rx
x0831sf
-Unresolved:



NE 12TH ST
116TH AVE NE
120TH AVE NE
BNSF
4002+48
4005+00
4010+00
4015+00
4020+00
FUTURE TRAIL/UTILITY/ RAIL (BY OTHERS)
BEGIN SEGMENT D
END SEGMENT C
END RETAINING WALL
BEGIN RETAINING WALL
ROADWAY MODIFICATIONS
SEE DWG D2E-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment d\ELD1D2E2KP01.dwg
03/21/11 14:47 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D2E2KP01.dwg
Contract No.:
EL SEG_D
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E/BNSF
TRACK PLAN & PROFILE

Drawing No.:
D2E2KP01
Sheet No.:
Rev.:
D-37

XREF'S

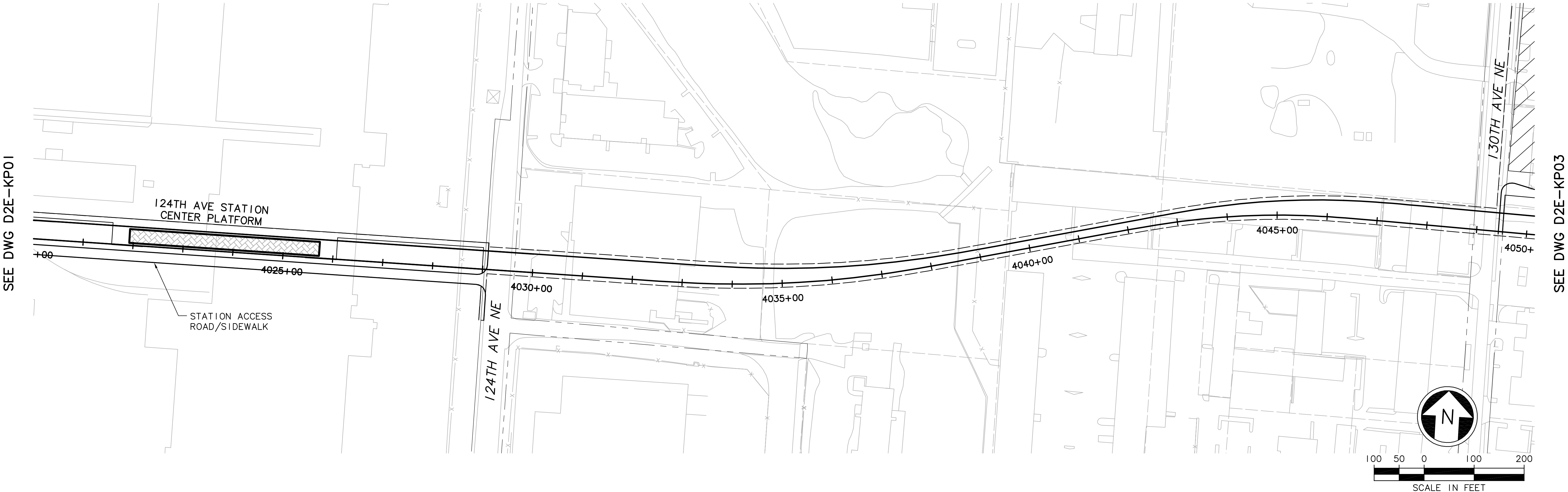
Resolved

ELD_520FUT
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
ELD_MCRSFT
KEY_SEGMENT
REG-DCON
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0831rx
x0831sf
x0834rx
x0834sf
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf

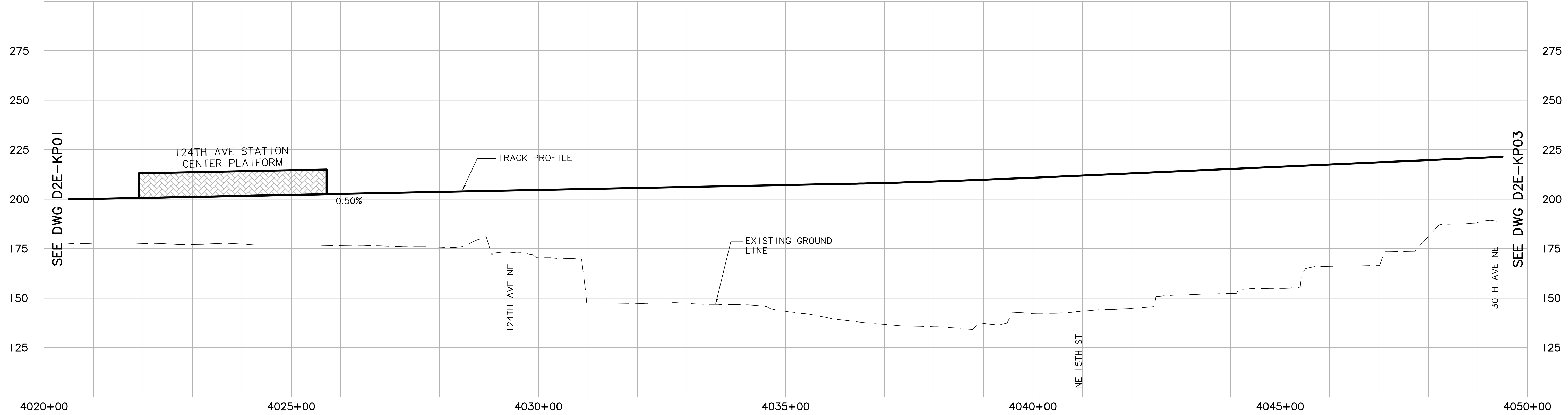
Unresolved

LTSCALE

1=1



SEE DWG D2E-KP01
124TH AVE STATION
CENTER PLATFORM
+00
4025+00
STATION ACCESS
ROAD/SIDEWALK
124TH AVE NE
4030+00
4035+00
4040+00
4045+00
4050+
130TH AVE NE
SEE DWG D2E-KP03
N
100 50 0 100 200
SCALE IN FEET



SEE DWG D2E-KP01
275
250
225
200
175
150
125
124TH AVE STATION
CENTER PLATFORM
TRACK PROFILE
0.50%
EXISTING GROUND
LINE
124TH AVE NE
NE 15TH ST
130TH AVE NE
SEE DWG D2E-KP03
4020+00
4025+00
4030+00
4035+00
4040+00
4045+00
4050+00

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID2E_KP02.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

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Drawing No.:
D2E-KP02
Sheet No.:
Rev.:
D-38

c:\work\ELDID2E_KP02.dwg
10/16/08 10:44 : eackerm OE5396

XREF'S

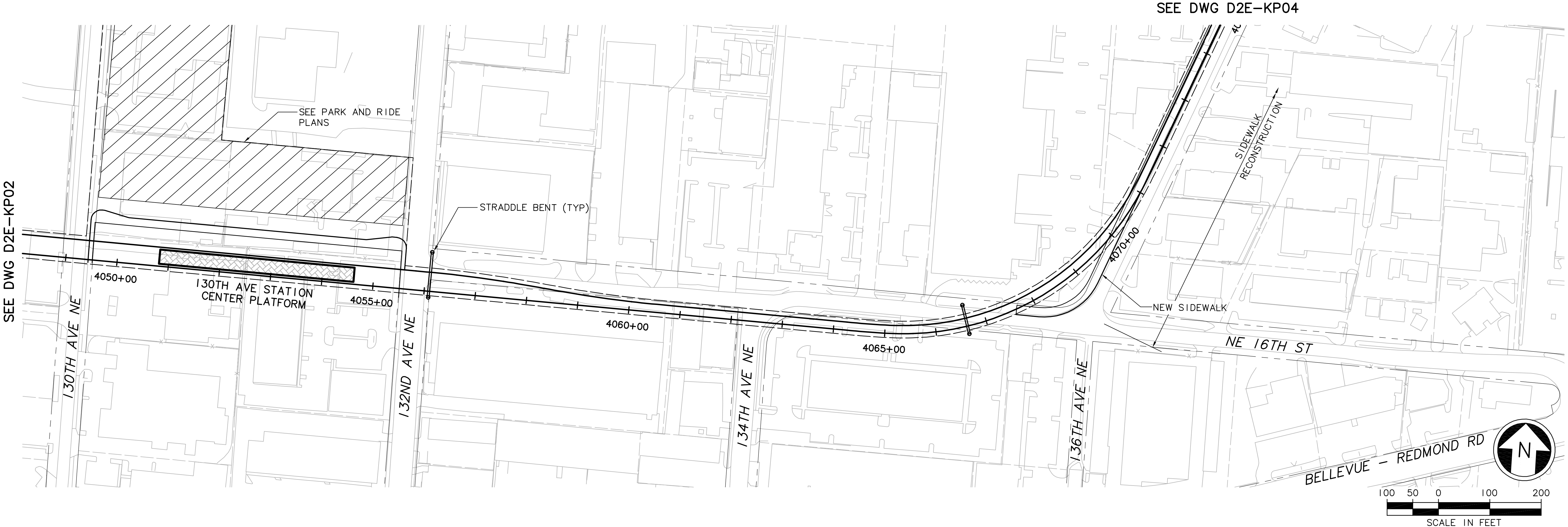
Resolved

ELD_520FUT
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
KEY_SEGMENT
REG-DCON
ZG-2234H
ZG-G1001O
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
x1434rx
x1434sf
x1437rx
x1437sf

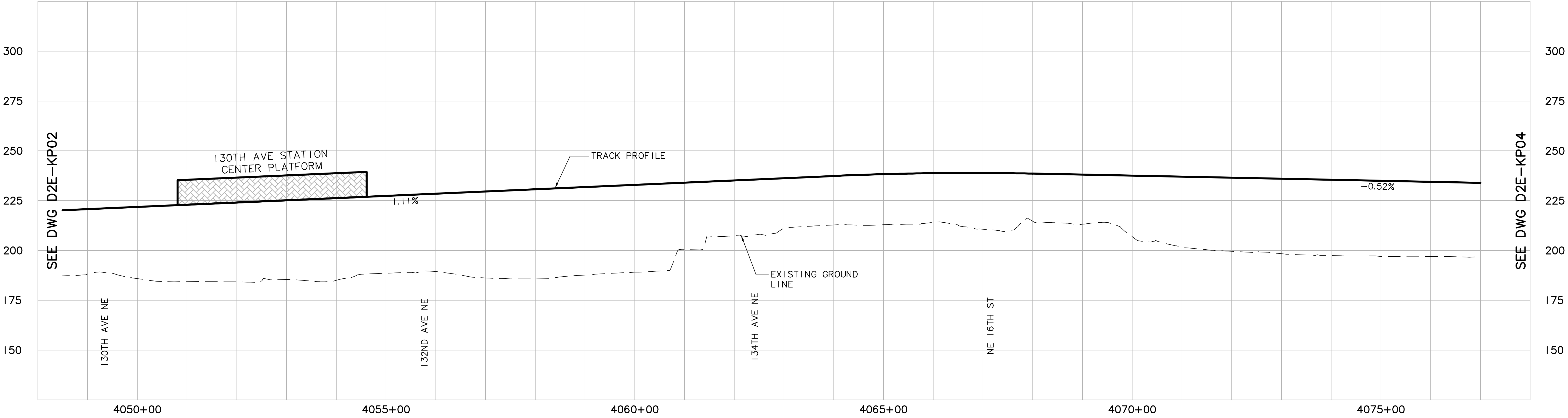
Unresolved

LTSCALE

1=1



SEE DWG D2E-KP04
SEE DWG D2E-KP02
SEE PARK AND RIDE PLANS
STRADDLE BENT (TYP)
SIDEWALK RECONSTRUCTION
NEW SIDEWALK
130TH AVE STATION CENTER PLATFORM
4050+00
4055+00
4060+00
4065+00
4070+00
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
NE 16TH ST
BELLEVUE - REDMOND RD
N
100 50 0 100 200
SCALE IN FEET



SEE DWG D2E-KP02
SEE DWG D2E-KP04
300
275
250
225
200
175
150
130TH AVE STATION CENTER PLATFORM
TRACK PROFILE
1.11%
-0.52%
EXISTING GROUND LINE
130TH AVE NE
132ND AVE NE
134TH AVE NE
NE 16TH ST
4050+00
4055+00
4060+00
4065+00
4070+00
4075+00

c:\work\ELD1D2E_KP03.dwg
10/16/08 10:44 : eackerm OE5396

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CH2MHILL
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PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

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Date:

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Filename: ELD1D2E_KP03.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

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Drawing No.: D2E-KP03
Sheet No.: D-39
Rev.:

XREF'S

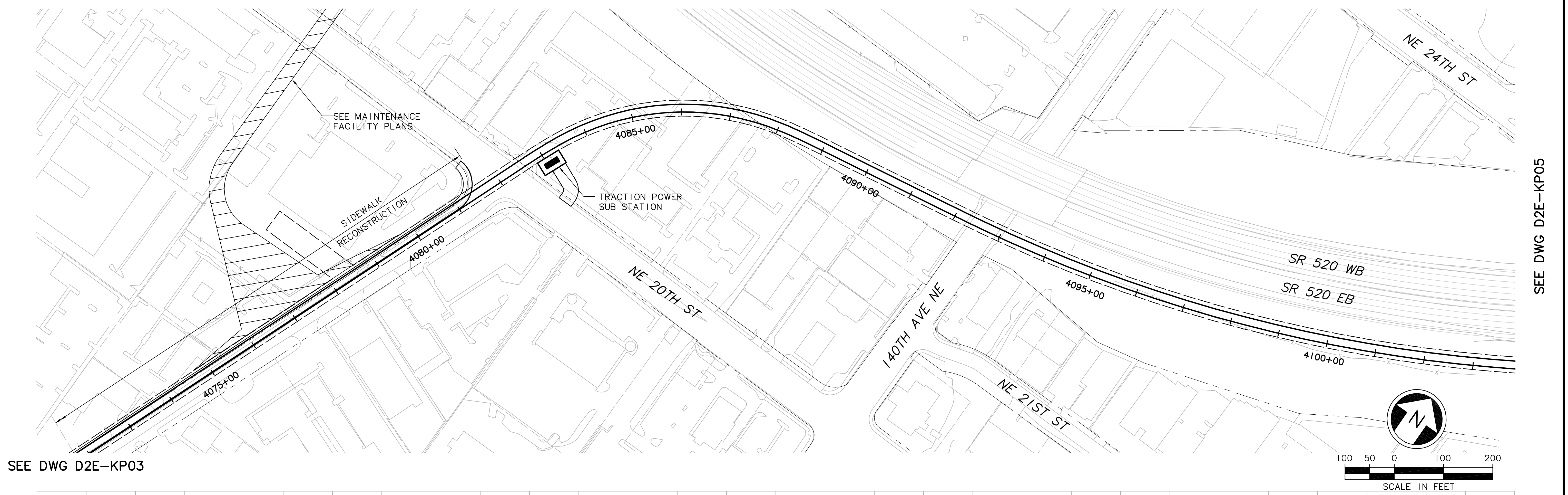
Resolved

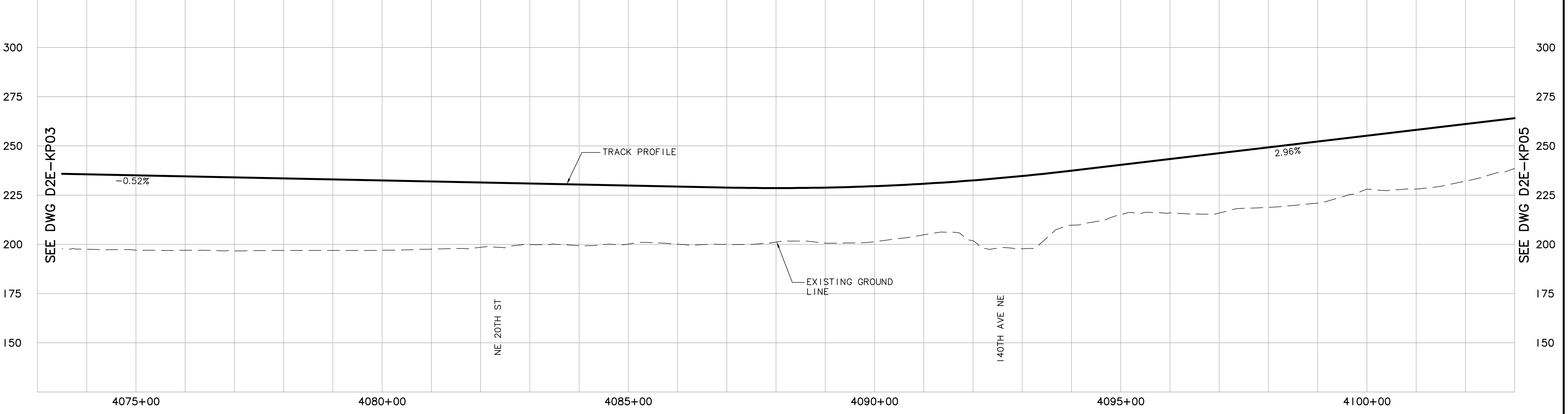
ELD_520FUT
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
REG-DCON
ZG-2234H
ZG-G10010
x1131rx
x1131sf
x1134rx
x1134sf
x1434rx
x1434sf

Unresolved
----
key_East

LTSCALE

1=1


SEE MAINTENANCE FACILITY PLANS
TRACTION POWER SUB STATION
SIDEWALK RECONSTRUCTION
NE 24TH ST
NE 20TH ST
140TH AVE NE
NE 21ST ST
SR 520 WB
SR 520 EB
4075+00
4080+00
4085+00
4090+00
4095+00
4100+00
SEE DWG D2E-KP03
SEE DWG D2E-KP05
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELD1D2E_KP04.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

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Date:

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H: 1"=100'; V: 1"=25'
Filename:
ELD1D2E_KP04.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D2E-KP04
Sheet No.:
D-40
Rev.:

XREF'S

Resolved

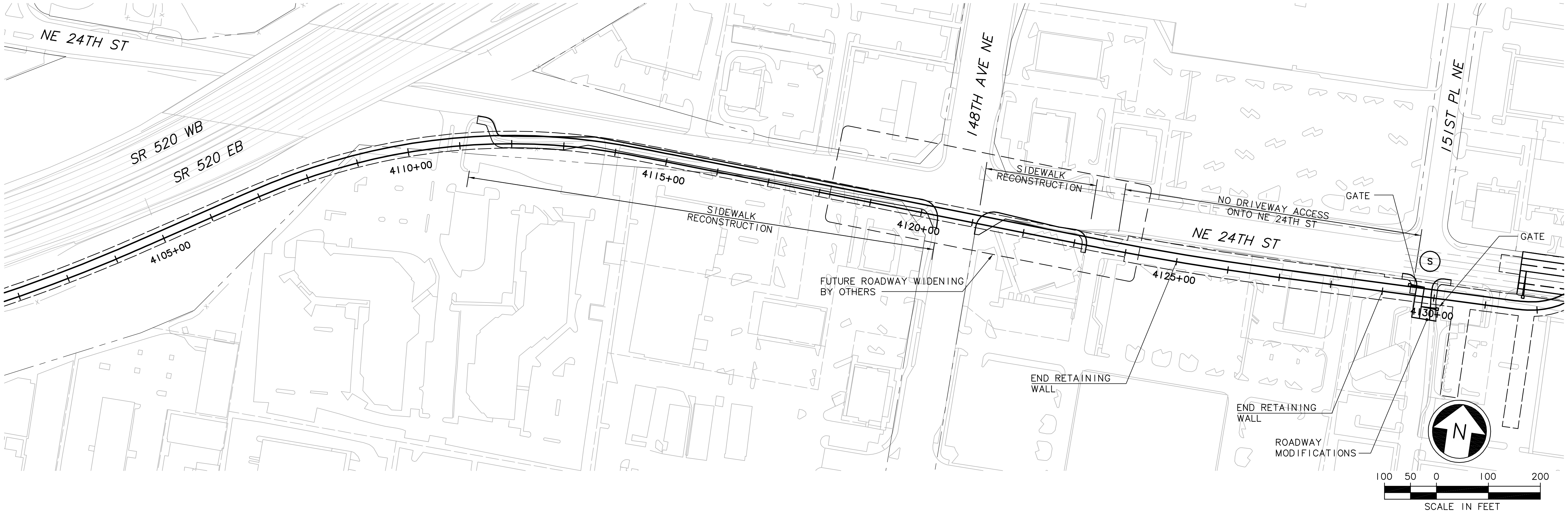
ELD_520FUT
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
KEY_SEGMENT
REG-DCON
ZG-2234H
ZG-G10010
x1434rx
x1434sf
x1734rx
x1734sf

Unresolved

LTSCALE

1=1

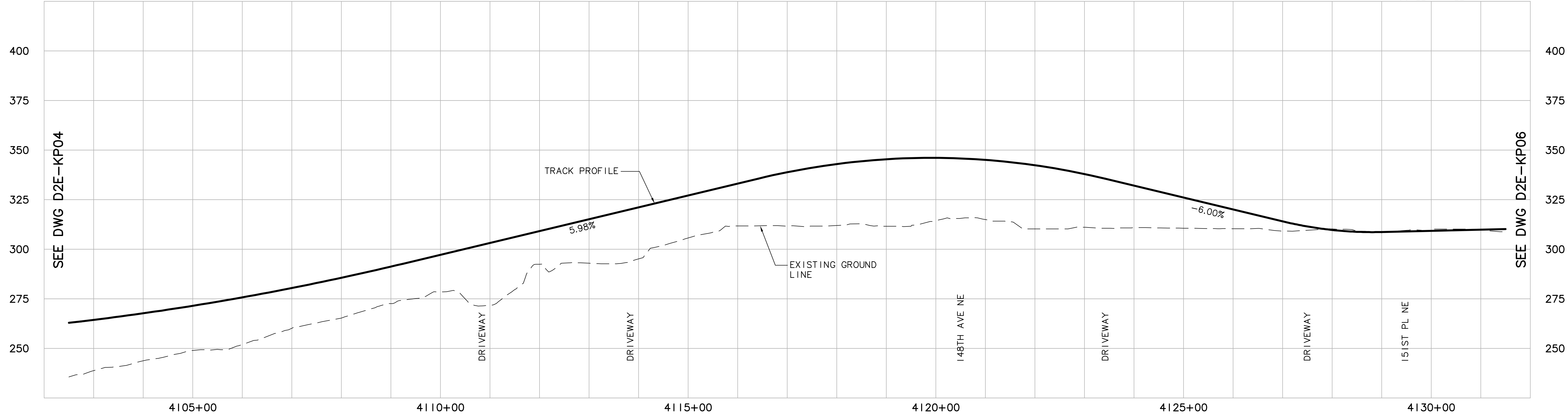
SEE DWG D2E-KP04



NE 24TH ST
SR 520 WB
SR 520 EB
148TH AVE NE
151ST PL NE
4105+00
4110+00
4115+00
4120+00
4125+00
4130+00
SIDEWALK RECONSTRUCTION
SIDEWALK RECONSTRUCTION
NO DRIVEWAY ACCESS ONTO NE 24TH ST
NE 24TH ST
GATE
GATE
S
FUTURE ROADWAY WIDENING BY OTHERS
END RETAINING WALL
END RETAINING WALL
ROADWAY MODIFICATIONS
N
100 50 0 100 200
SCALE IN FEET

SEE DWG D2E-KP06

SEE DWG D2E-KP04



SEE DWG D2E-KP06

c:\work\ELDID2E_KP05.dwg
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID2E_KP05.dwg
Contract No.:
EL SEG_D
Date:

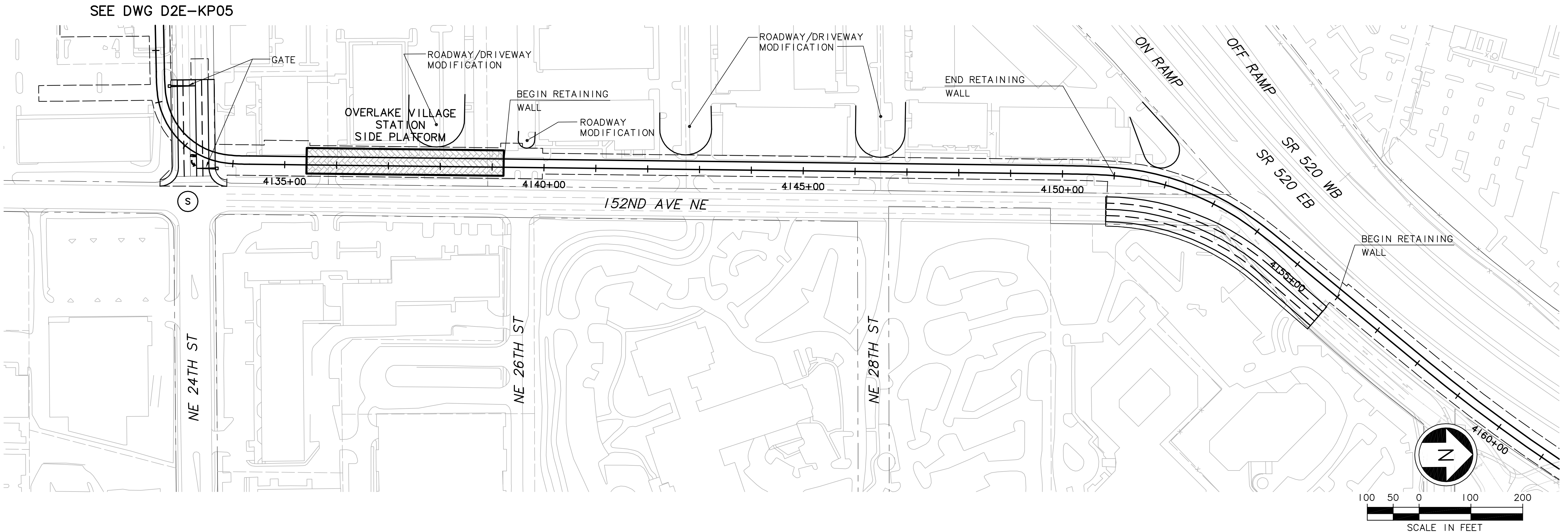
EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

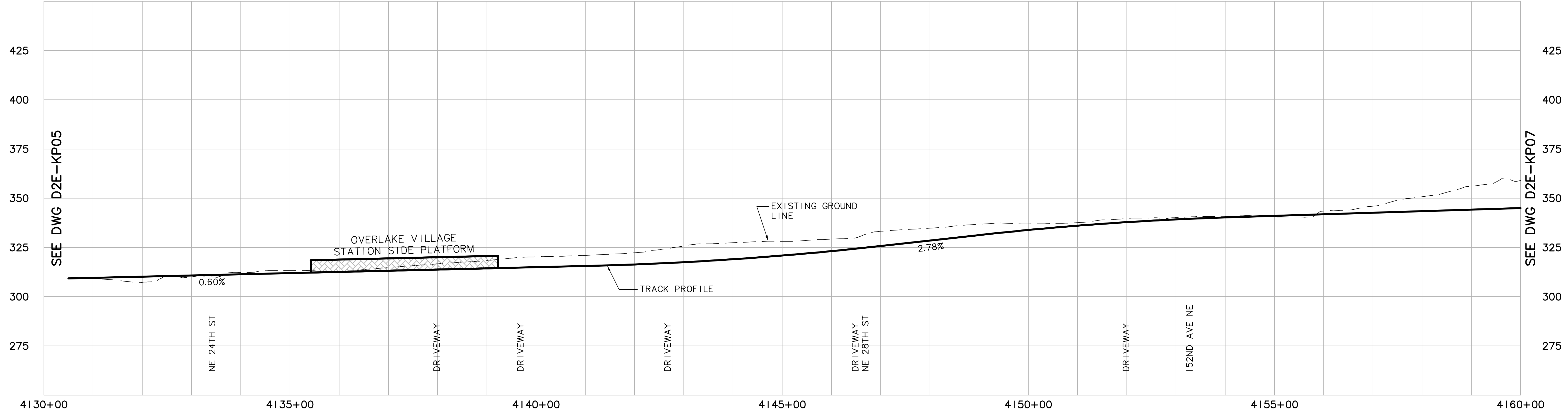
Drawing No.:
D2E-KP05
Sheet No.:
Rev.:
D-41

XREF'S
Resolved
ELD_520FUT
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
ELD_MCRSFT
KEY_SEGMENT
REG-DCON
ZG-2234H
ZG-G10010
x1734rx
x1734sf
x1737rx
x1737sf
Unresolved

LTSCALE
1=1



SEE DWG D2E-KP05
GATE
ROADWAY/DRIVEWAY MODIFICATION
OVERLAKE VILLAGE STATION SIDE PLATFORM
BEGIN RETAINING WALL
ROADWAY MODIFICATION
ROADWAY/DRIVEWAY MODIFICATION
END RETAINING WALL
ON RAMP
OFF RAMP
SR 520 WB
SR 520 EB
BEGIN RETAINING WALL
4135+00
4140+00
4145+00
4150+00
4155+00
4160+00
S
152ND AVE NE
NE 24TH ST
NE 26TH ST
NE 28TH ST
N
100 50 0 100 200
SCALE IN FEET
SEE DWG D2E-KP07



c:\work\ELD\D2E_KP06.dwg
10/16/08 10:46 :: eackerm OE5396

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Grijalva Engineering, L.L.C.

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Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID2E_KP06.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D2E-KP06
Sheet No.:
Rev.:
D-42

XREF'S

Resolved

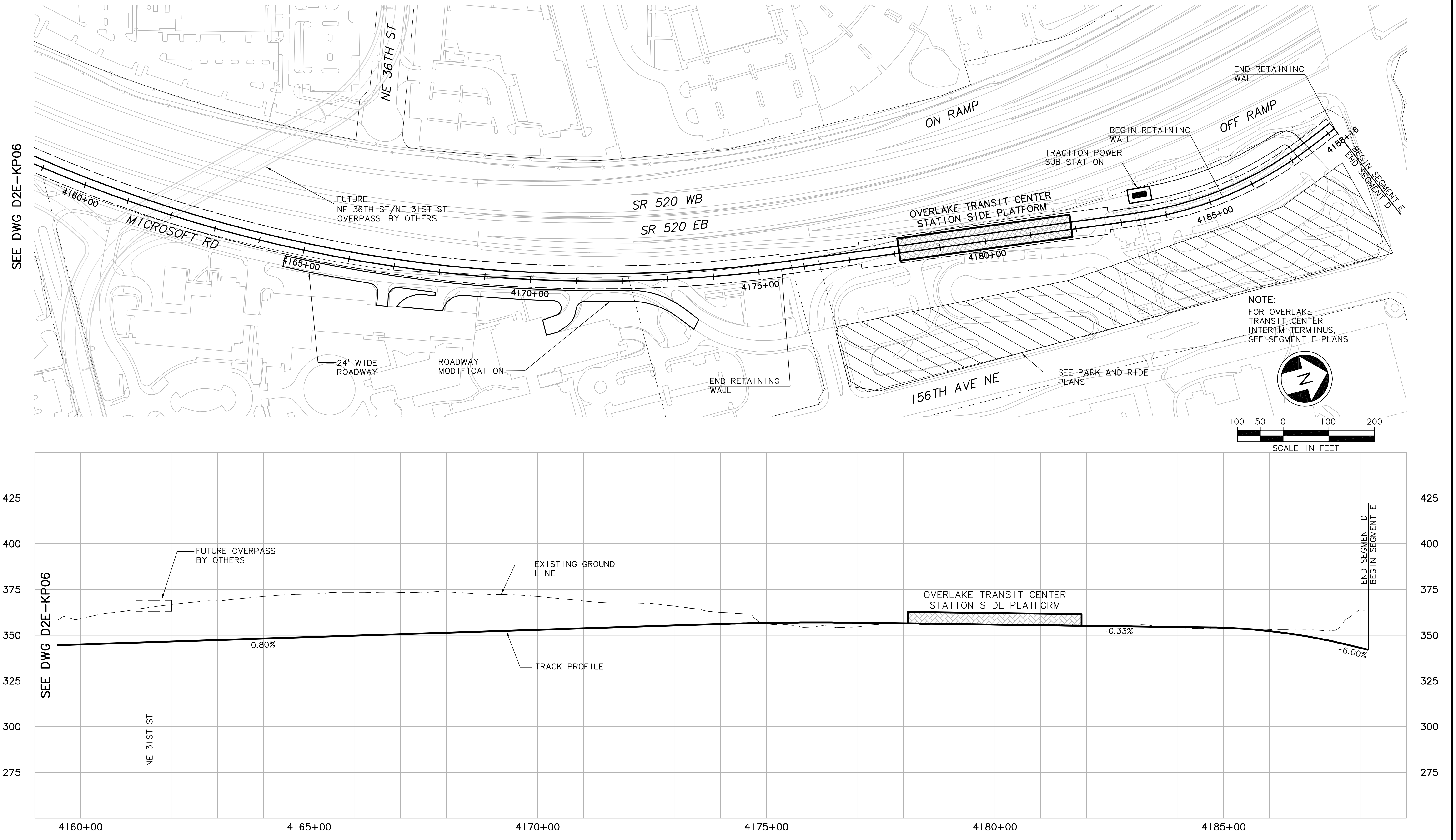
ELD_520FUT
ELD_D2E_CM
ELD_D2E_JO
ELD_D2E_KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x1737rx
x1737sf
x1740rx
x1740sf
x2037rx
x2037sf
x2040rx
x2040sf

Unresolved

St_Names_E_40
key_East

LTSCALE

1=1



SEE DWG D2E-KP06
NE 36TH ST
ON RAMP
OFF RAMP
END RETAINING WALL
BEGIN RETAINING WALL
TRACTION POWER SUB STATION
4188+16
BEGIN SEGMENT E
END SEGMENT D
FUTURE NE 36TH ST/NE 31ST ST OVERPASS, BY OTHERS
SR 520 WB
SR 520 EB
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
4160+00
MICROSOFT RD
4165+00
4170+00
4175+00
4180+00
4185+00
NOTE: FOR OVERLAKE TRANSIT CENTER INTERIM TERMINUS, SEE SEGMENT E PLANS
24' WIDE ROADWAY
ROADWAY MODIFICATION
END RETAINING WALL
SEE PARK AND RIDE PLANS
156TH AVE NE
N
100 50 0 100 200
SCALE IN FEET
425
400
375
350
325
300
275
FUTURE OVERPASS BY OTHERS
EXISTING GROUND LINE
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
END SEGMENT D
BEGIN SEGMENT E
0.80%
-0.33%
-6.00%
TRACK PROFILE
SEE DWG D2E-KP06
NE 31ST ST
4160+00
4165+00
4170+00
4175+00
4180+00
4185+00

c:\work\ELDID2E_KP07.dwg
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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

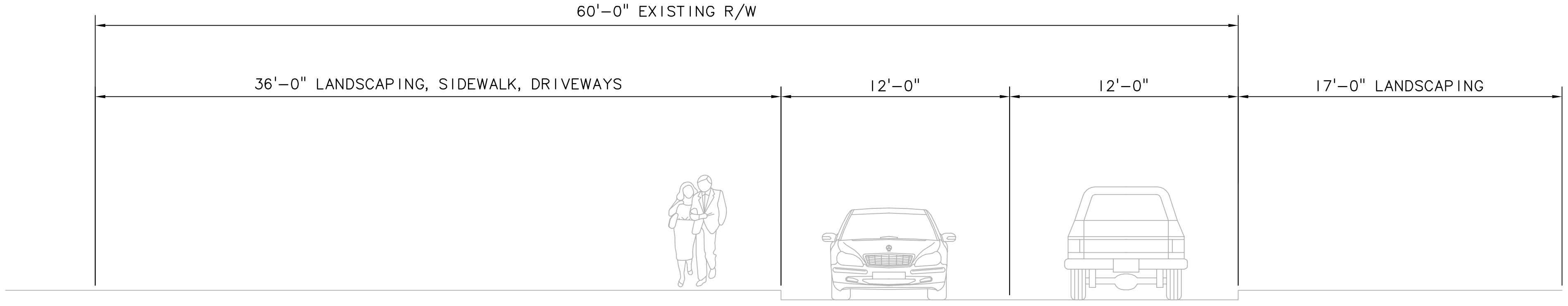
Scale: H: 1"=100'; V: 1"=25'
Filename: ELDID2E_KP07.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TRACK PLAN & PROFILE

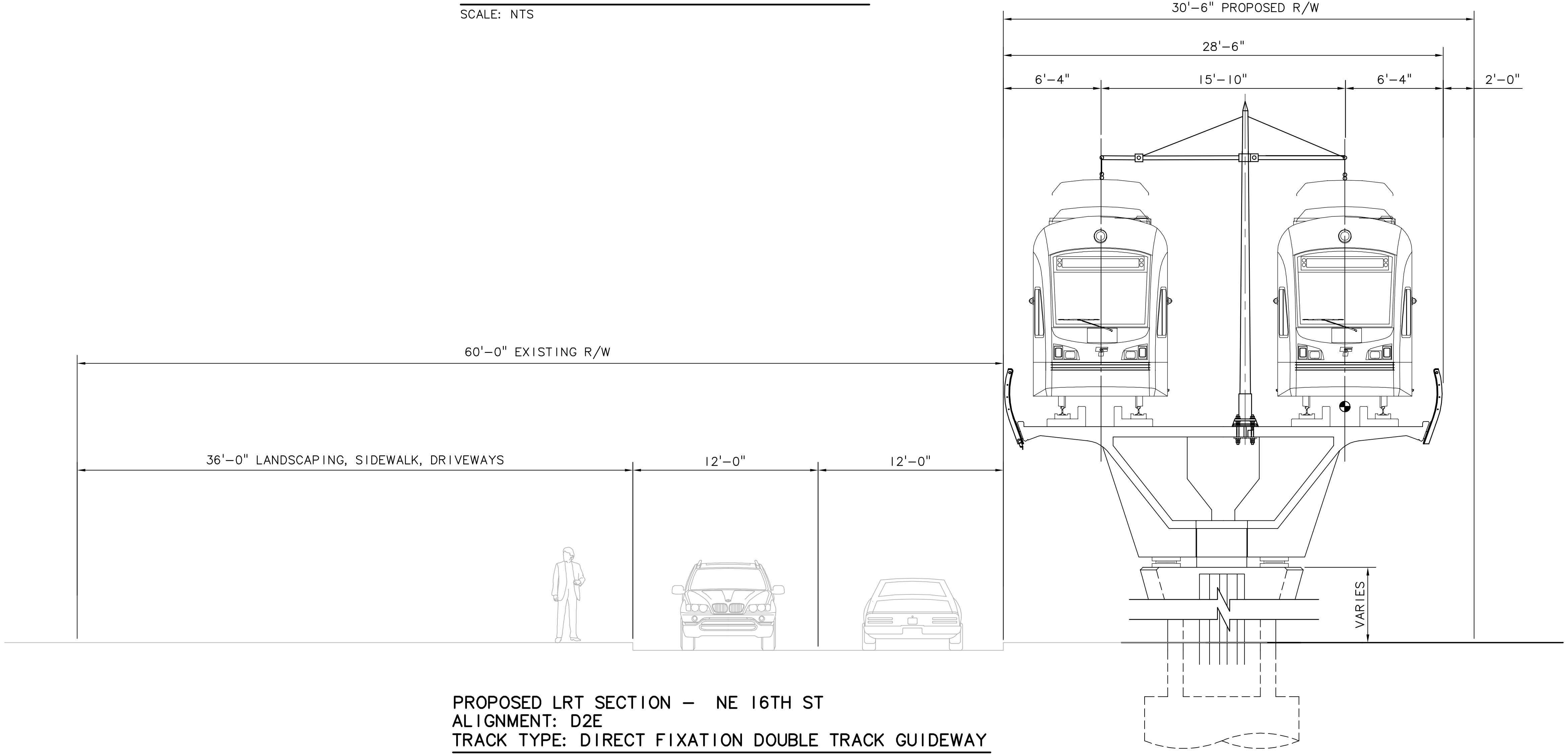
THIS PRINT REDUCED HALF SCALE

Drawing No.: D2E-KP07
Sheet No.: D-43
Rev.:

XREF'S
Resolved
REG-DCON
Zg-2234h
Unresolved
LTSCALE
1=1


60'-0" EXISTING R/W
36'-0" LANDSCAPING, SIDEWALK, DRIVEWAYS
12'-0"
12'-0"
17'-0" LANDSCAPING

EXISTING TYPICAL SECTION – NE 16TH ST
SCALE: NTS


30'-6" PROPOSED R/W
28'-6"
6'-4"
15'-10"
6'-4"
2'-0"
60'-0" EXISTING R/W
36'-0" LANDSCAPING, SIDEWALK, DRIVEWAYS
12'-0"
12'-0"
VARIES

PROPOSED LRT SECTION – NE 16TH ST
ALIGNMENT: D2E
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELD1D2E_KX01.dwg
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PARSONS & **INCA** ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: NTS
Filename: ELD1D2E_KX01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: D2E-KX01
Sheet No.: D-44
Rev.:

XREF'S

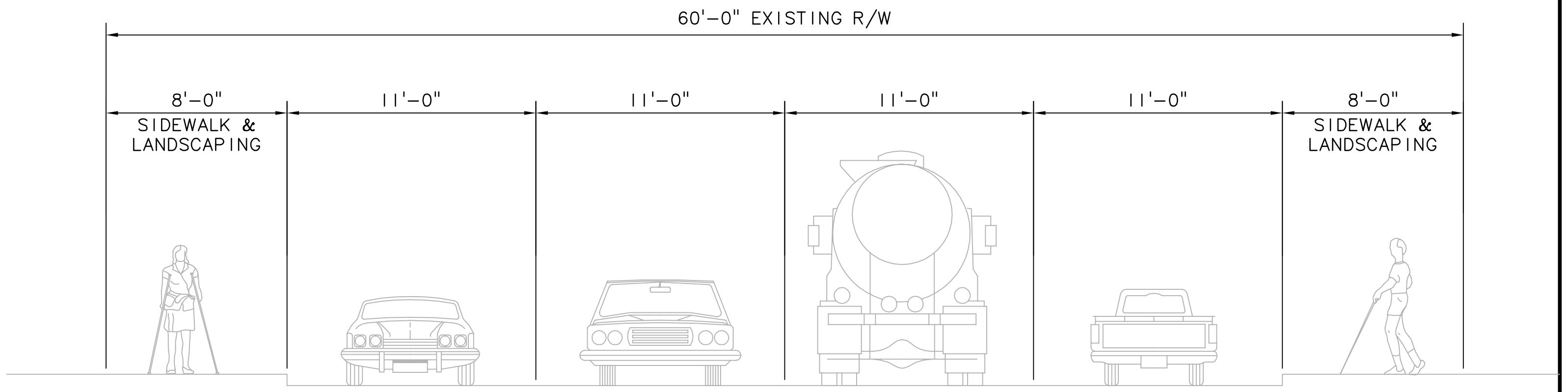
Resolved

ZG-2234H
REG-DCON

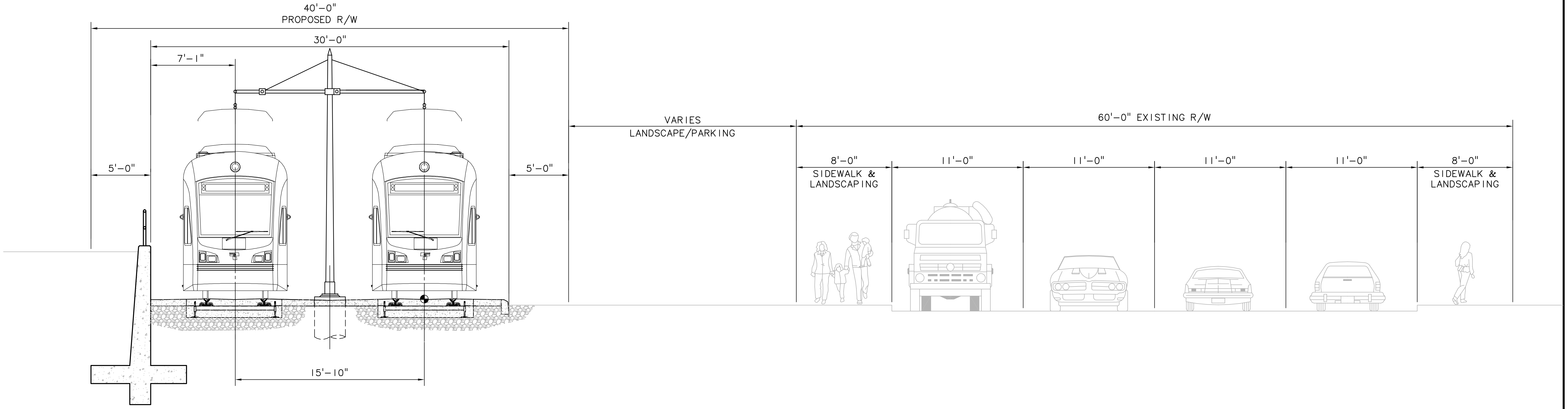
Unresolved

LTSCALE

1=1


60'-0" EXISTING R/W
8'-0"
SIDEWALK & LANDSCAPING
11'-0"
11'-0"
11'-0"
11'-0"
8'-0"
SIDEWALK & LANDSCAPING

EXISTING ROADWAY SECTION – 152ND AVE NE
SCALE: NTS


40'-0"
PROPOSED R/W
30'-0"
7'-1"
5'-0"
5'-0"
15'-10"
VARIES
LANDSCAPE/PARKING
60'-0" EXISTING R/W
8'-0"
SIDEWALK & LANDSCAPING
11'-0"
11'-0"
11'-0"
11'-0"
8'-0"
SIDEWALK & LANDSCAPING

PROPOSED LRT SECTION – 152ND AVE NE
ALIGNMENT:D2A AND D2E
TRACK TYPE: AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY
SCALE: NTS

LIMITS

STA 4140+00 TO STA 4150+00

c:\work\ELDID2E_KX02.dwg
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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELDID2E_KX02.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TYPICAL SECTION

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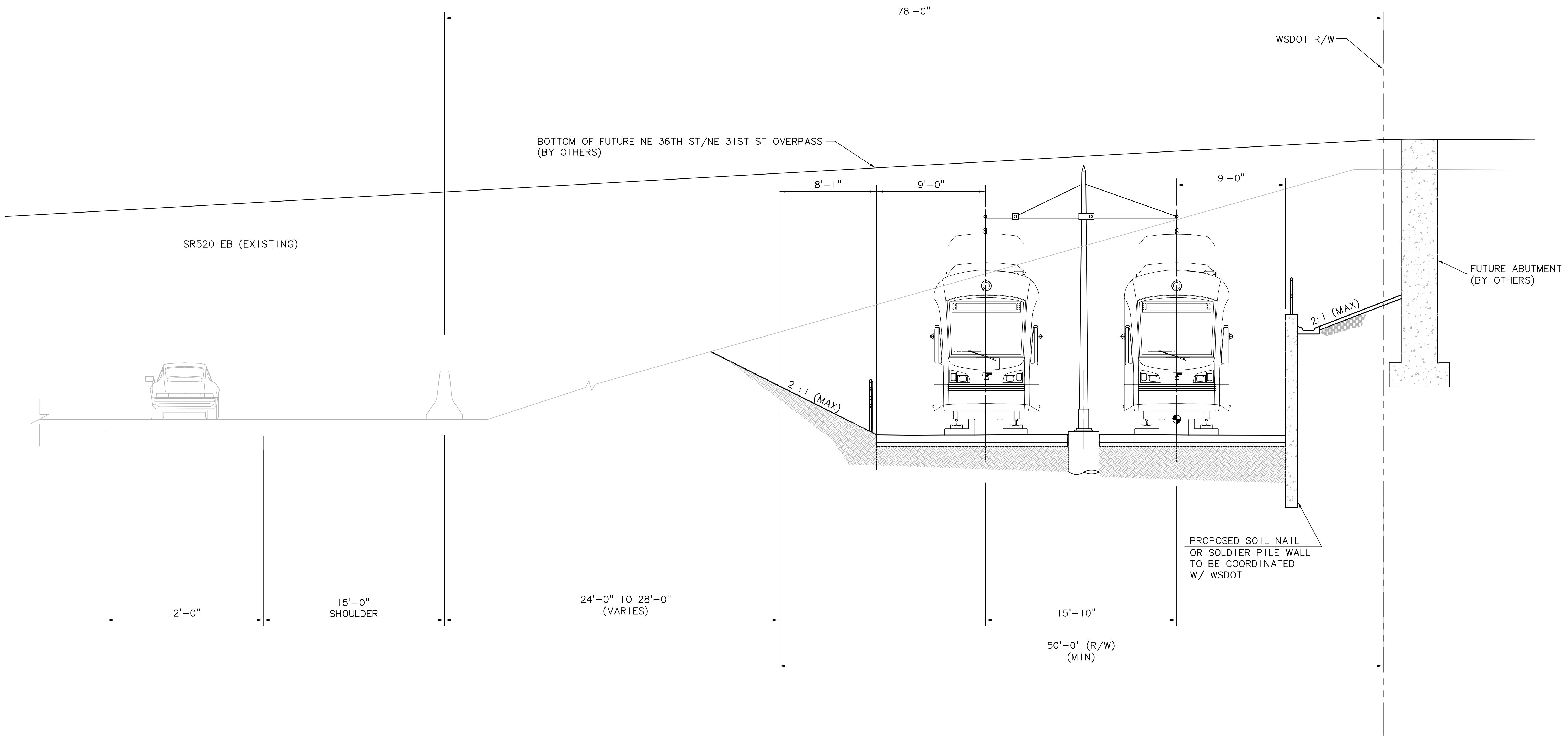
Drawing No.: D2E-KX02
Sheet No.: D-45
Rev.:

XREF'S
Resolved
Zg-2234h
REG-DCON
Unresolved
LTSCALE
1=1


78'-0"
WSDOT R/W
BOTTOM OF FUTURE NE 36TH ST/NE 31ST ST OVERPASS
(BY OTHERS)
8'-1"
9'-0"
9'-0"
SR520 EB (EXISTING)
FUTURE ABUTMENT
(BY OTHERS)
2:1 (MAX)
2:1 (MAX)
PROPOSED SOIL NAIL
OR SOLDIER PILE WALL
TO BE COORDINATED
W/ WSDOT
12'-0"
15'-0"
SHOULDER
24'-0" TO 28'-0"
(VARIES)
15'-10"
50'-0" (R/W)
(MIN)

PROPOSED LRT SECTION – AT NE 36TH ST/ NE 31ST ST OVERPASS
ALIGNMENT:D2E
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

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Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: NTS
Filename: ELD1D2E_KX03.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: D2E-KX03
Sheet No.: D-46
Rev.:

XREF'S

Resolved

ELD_D2E_KA
REG-DCON
Zg-2234h
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
x1434rx
x1434sf
x1437rx
x1437sf
x1731rx
x1731sf
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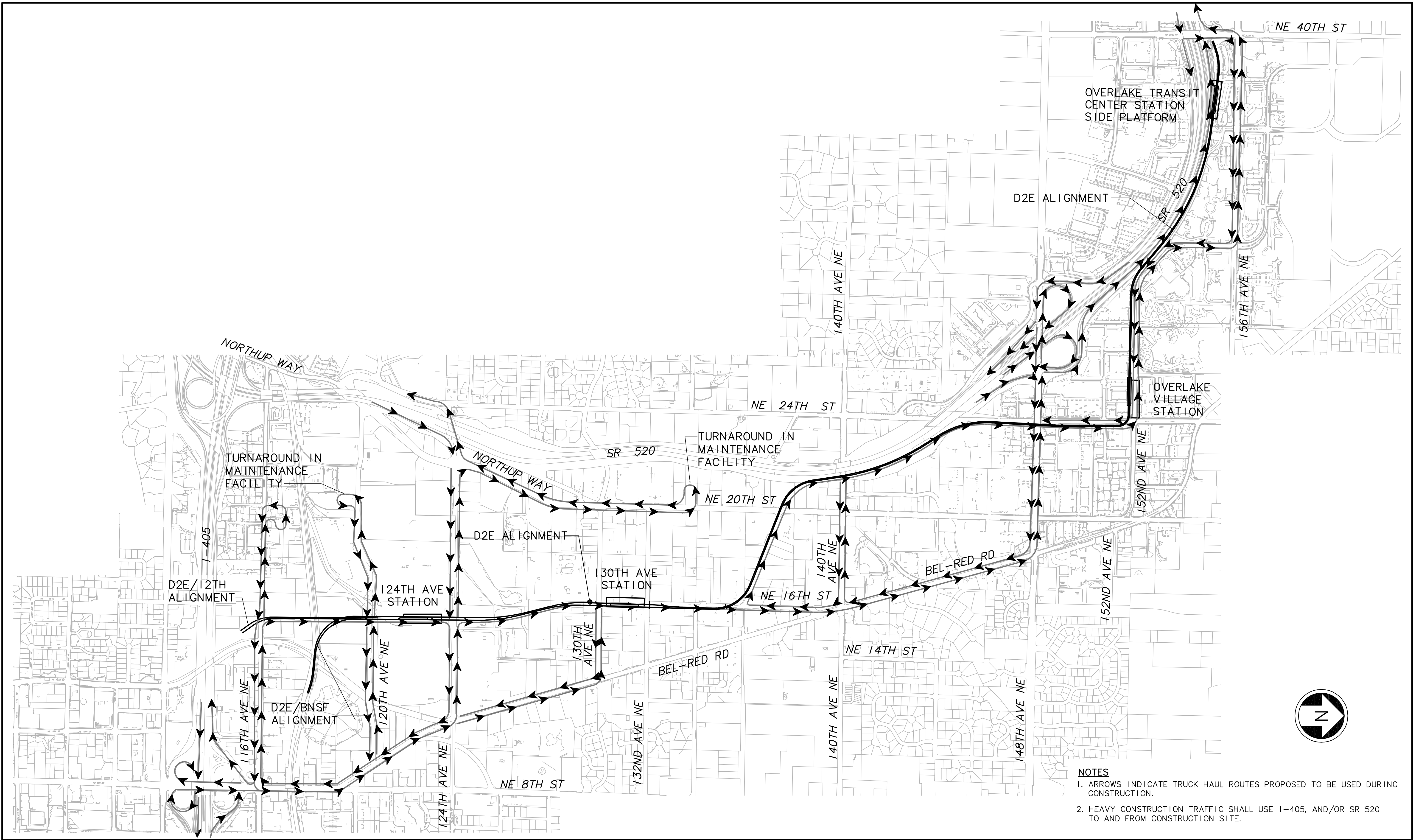
x2037sf
x2040rx
x2040sf

Unresolved

LTSCALE

1=1


NE 40TH ST
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
D2E ALIGNMENT
SR 520
156TH AVE NE
140TH AVE NE
NORTHUP WAY
NE 24TH ST
OVERLAKE VILLAGE STATION
TURNAROUND IN MAINTENANCE FACILITY
SR 520
TURNAROUND IN MAINTENANCE FACILITY
NORTHUP WAY
NE 20TH ST
152ND AVE NE
D2E ALIGNMENT
I-405
BEL-RED RD
140TH AVE NE
130TH AVE STATION
D2E/12TH ALIGNMENT
124TH AVE STATION
NE 16TH ST
152ND AVE NE
130TH AVE NE
BEL-RED RD
NE 14TH ST
D2E/BNSF ALIGNMENT
120TH AVE NE
116TH AVE NE
132ND AVE NE
140TH AVE NE
148TH AVE NE
124TH AVE NE
NE 8TH ST
N
1
2
3
4
5

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\ELD1D2E_CC01.dwg
10/16/08 10:43 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
Approved By:

FEIS CONCEPTUAL

Submitted:

CH2MHILL

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELD1D2E_CC01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D2E

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: D2E-CC01
Sheet No.: D-47
Rev.:

XREF'S

Resolved

ELD_D3__KA
REG-DCON
ZG-2234H
x0531rx
x0534rx
x0831rx
x0834rx
x1131rx
x1134rx
x1431rx
x1434rx
x1437rx
x1731rx
x1734rx
x1737rx
x1740rx
x2037rx
x2040rx

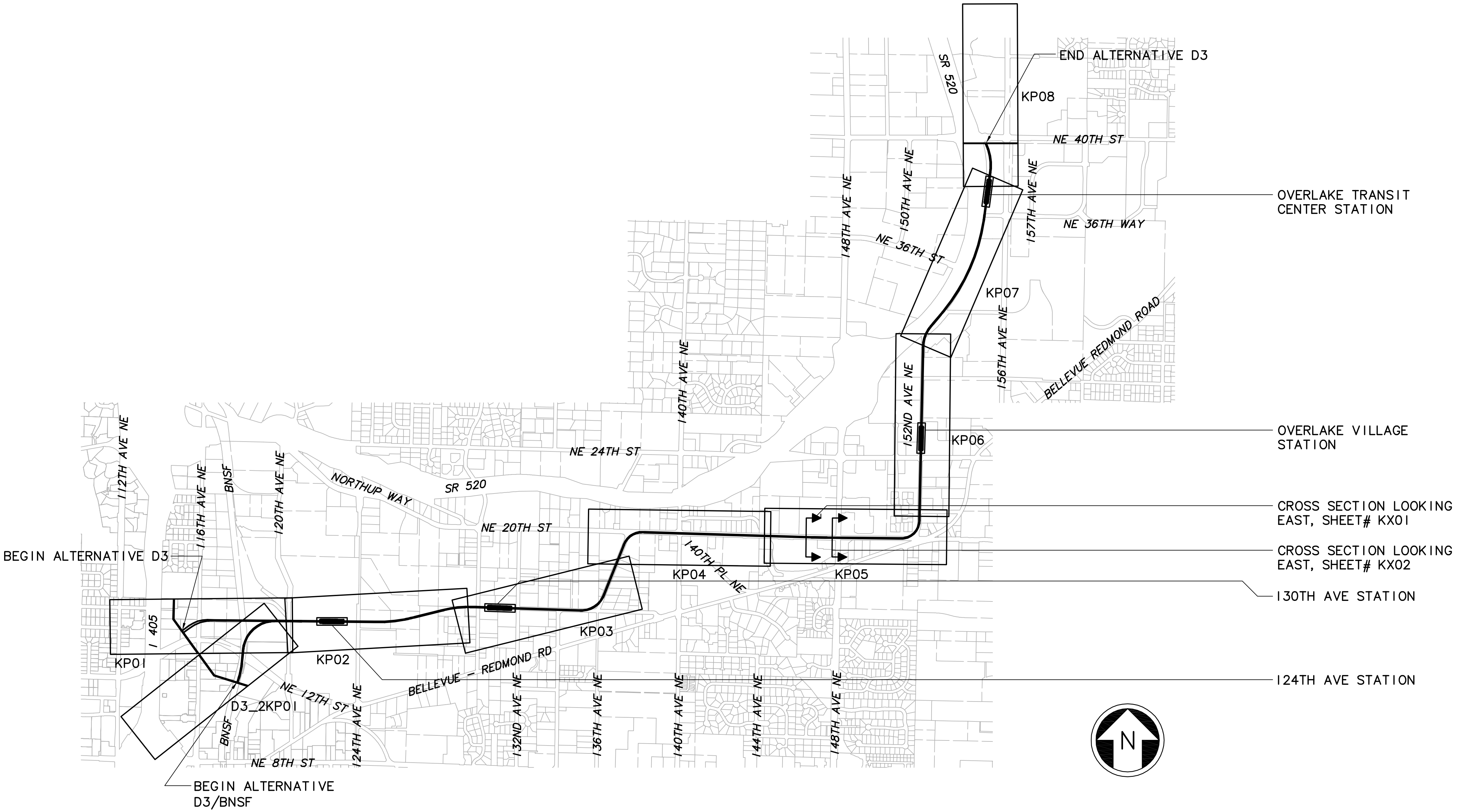
Unresolved

St_Names_E_2
St_Names_E_4
key_East

LTSCALE

1=1

c:\work\ELD1D3__GZ05.dwg
10/16/08 10:49 : eackerm OE5396


END ALTERNATIVE D3
SR 520
KP08
NE 40TH ST
OVERLAKE TRANSIT CENTER STATION
150TH AVE NE
157TH AVE NE
NE 36TH WAY
148TH AVE NE
NE 36TH ST
KP07
156TH AVE NE
BELLEVUE REDMOND ROAD
140TH AVE NE
152ND AVE NE
OVERLAKE VILLAGE STATION
KP06
NE 24TH ST
112TH AVE NE
116TH AVE NE
BNSF
120TH AVE NE
NORTHUP WAY
SR 520
NE 20TH ST
CROSS SECTION LOOKING EAST, SHEET# KX01
CROSS SECTION LOOKING EAST, SHEET# KX02
BEGIN ALTERNATIVE D3
140TH PL NE
KP04
KP05
130TH AVE STATION
I 405
KP01
KP02
KP03
BELLEVUE - REDMOND RD
124TH AVE STATION
NE 12TH ST
D3_2KP01
BNSF
124TH AVE NE
132ND AVE NE
136TH AVE NE
140TH AVE NE
144TH AVE NE
148TH AVE NE
NE 8TH ST
N
BEGIN ALTERNATIVE D3/BNSF

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELD1D3__GZ05.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D3_-GZ05
Sheet No.: D-48
Rev.:

XREF'S

Resolved

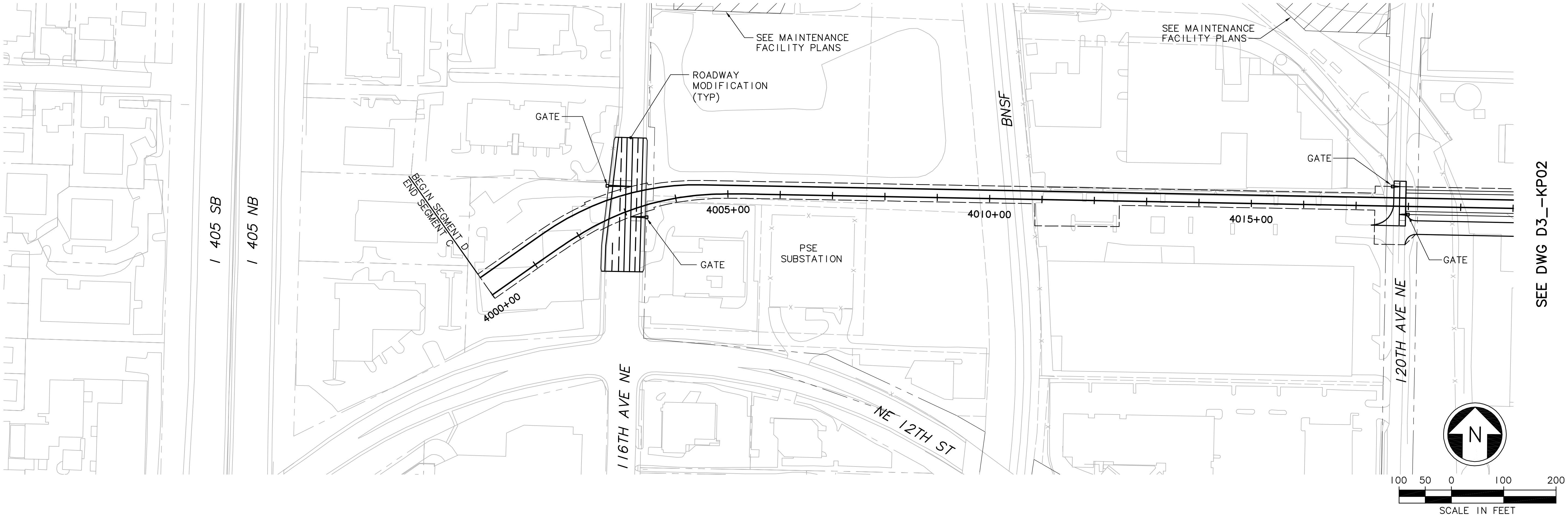
ELD_520FUT
ELD_D3__CM
ELD_D3__JO
ELD_D3__KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0831rx
x0831sf

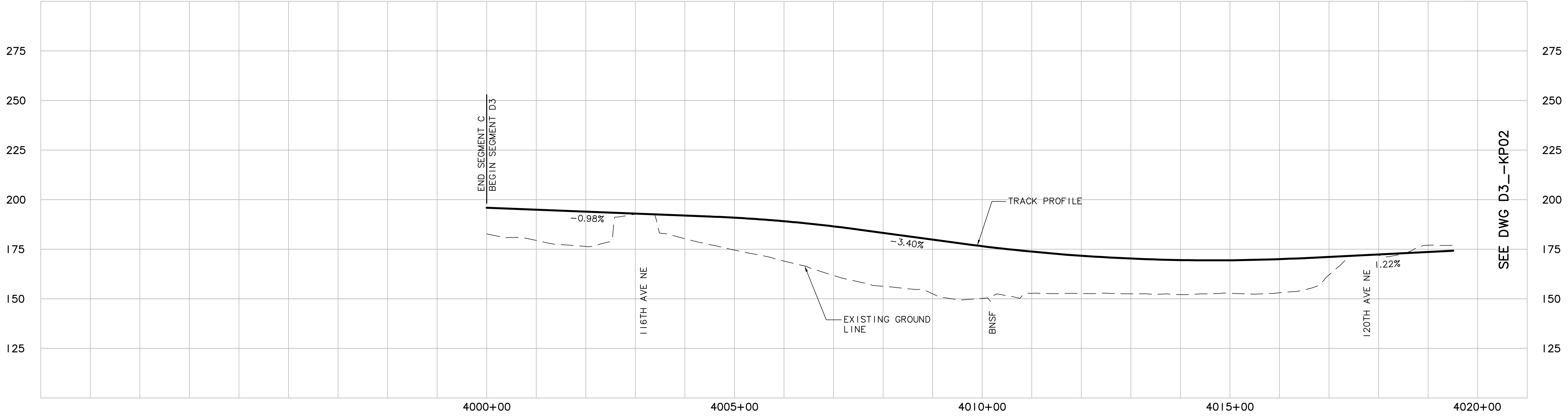
Unresolved

ELD_D0__MF_1
ELD_D0__MF_2
key_East

LTSCALE

1=1


SEE MAINTENANCE FACILITY PLANS
SEE MAINTENANCE FACILITY PLANS
ROADWAY MODIFICATION (TYP)
GATE
GATE
GATE
GATE
BNSF
BEGIN SEGMENT D
END SEGMENT C
I 405 SB
I 405 NB
4000+00
4005+00
4010+00
4015+00
PSE SUBSTATION
116TH AVE NE
NE 12TH ST
120TH AVE NE
SEE DWG D3_-KP02
N
100 50 0 100 200
SCALE IN FEET


275
250
225
200
175
150
125
END SEGMENT C
BEGIN SEGMENT D3
-0.98%
-3.40%
1.22%
TRACK PROFILE
EXISTING GROUND LINE
116TH AVE NE
BNSF
120TH AVE NE
SEE DWG D3_-KP02
4000+00
4005+00
4010+00
4015+00
4020+00

c:\work\ELD1D3__KP01.dwg
10/16/08 10:50 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D3__KP01.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

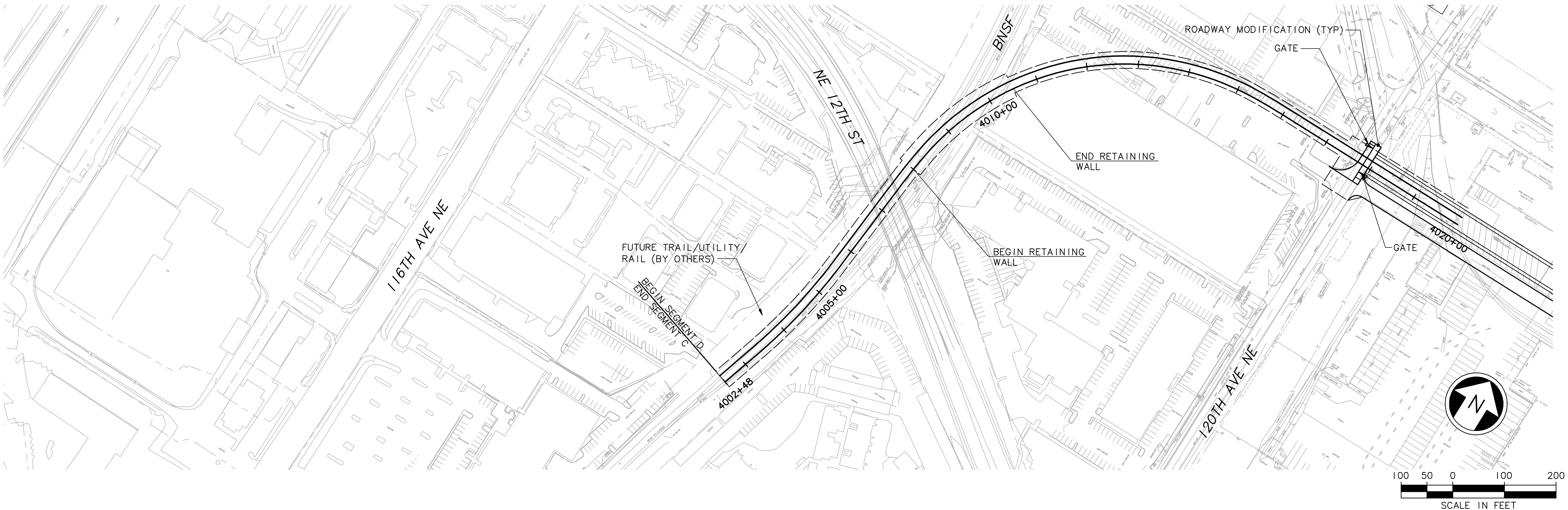
THIS PRINT REDUCED HALF SCALE

Drawing No.:
D3_-KP01
Sheet No.:
Rev.:
D-49

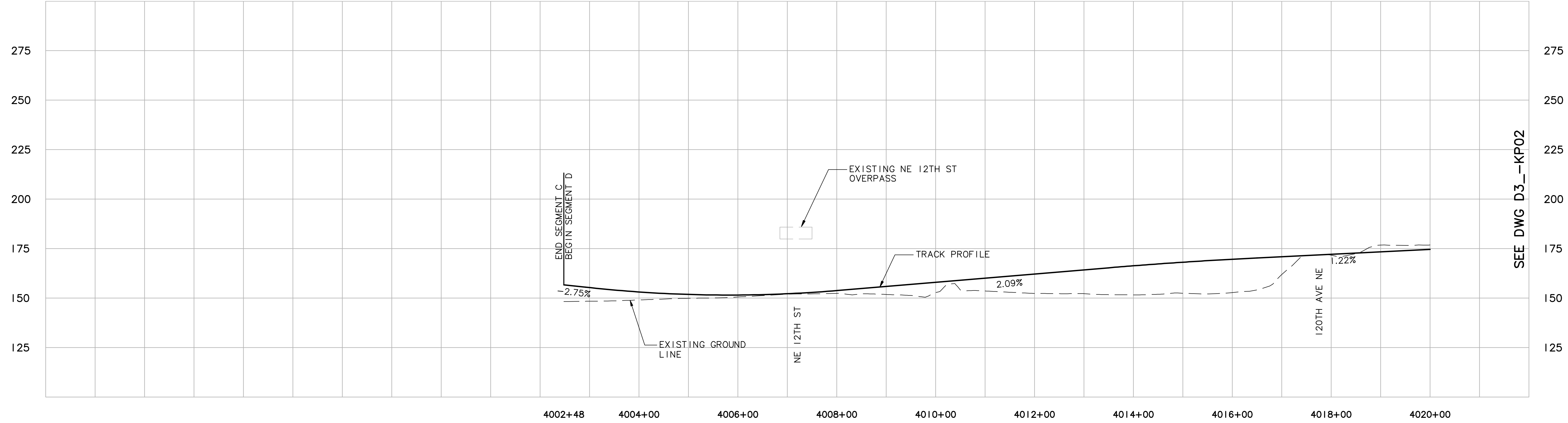
DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELD_D3__CM
ELD_D3__KA
ZG–2234H
ZG–G10010
x0531rx
x0531sf
x0831rx
x0831sf
–Unresolved:



ROADWAY MODIFICATION (TYP)
GATE
BNSF
NE 12TH ST
4010+00
END RETAINING WALL
116TH AVE NE
FUTURE TRAIL/UTILITY RAIL (BY OTHERS)
BEGIN SEGMENT D
END SEGMENT C
4005+00
BEGIN RETAINING WALL
GATE
4020+00
SEE DWG D3_-KP02
4002+48
120TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment d\ELD1D3_2KP01.dwg
03/21/11 15:15 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
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FEIS CONCEPTUAL

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D3_2KP01.dwg
Contract No.:
EL SEG_D
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3/BNSF
TRACK PLAN & PROFILE

Drawing No.:
D3_2KP01
Sheet No.: Rev.:
D-50

XREF'S

Resolved

ELD_D3__CM
ELD_D3__KA
REG-DCON
ZG-2234H
ZG-G10010
x0831rx
x0831sf
x1131rx
x1131sf

Unresolved
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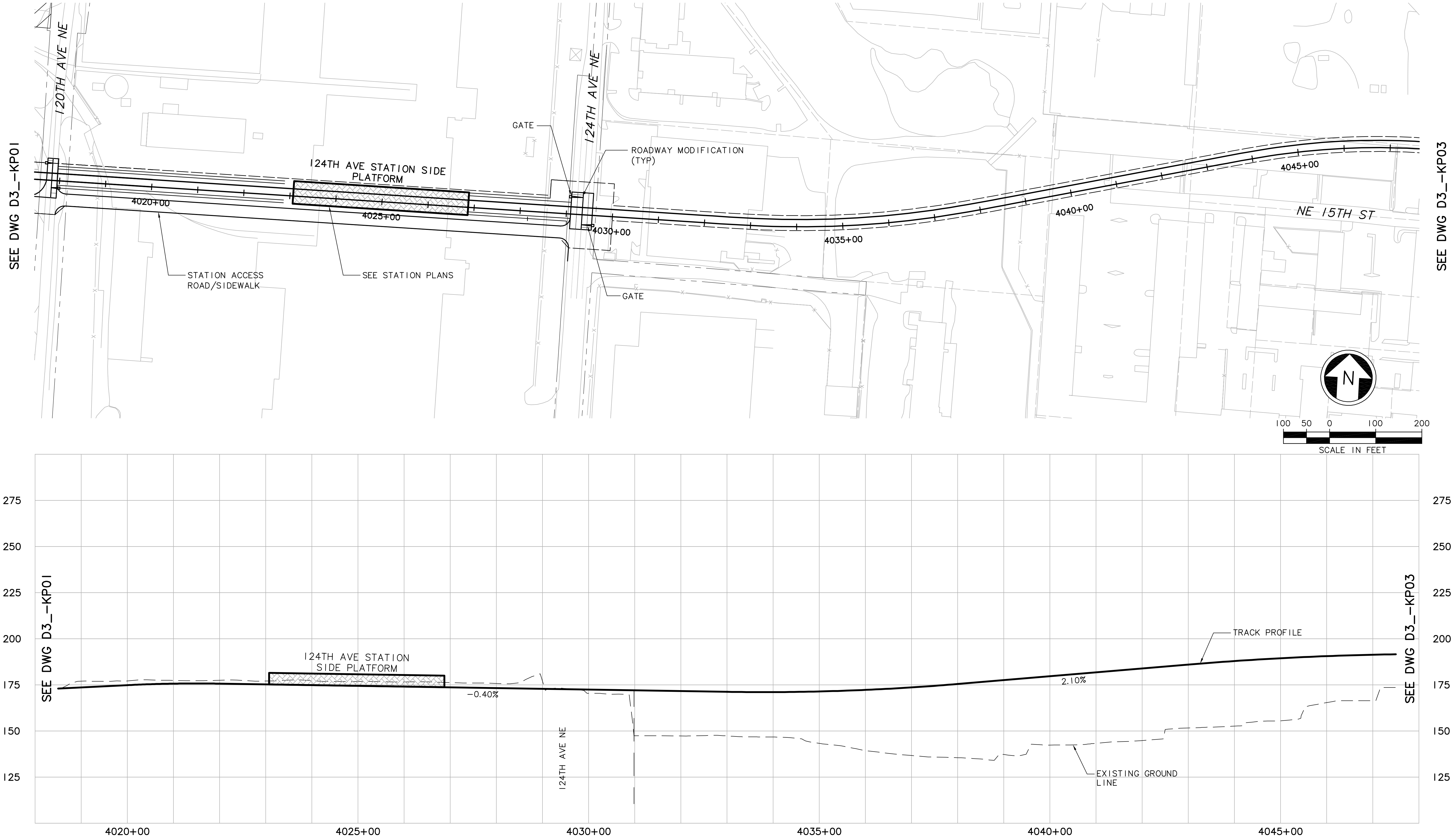
key_East

LTSCALE

1=1


120TH AVE NE
124TH AVE NE
SEE DWG D3_-KP01
SEE DWG D3_-KP03
124TH AVE STATION SIDE PLATFORM
GATE
ROADWAY MODIFICATION (TYP)
4020+00
4025+00
4030+00
4035+00
4040+00
4045+00
NE 15TH ST
STATION ACCESS ROAD/SIDEWALK
SEE STATION PLANS
GATE
N
100
50
0
100
200
SCALE IN FEET
275
250
225
200
175
150
125
SEE DWG D3_-KP01
SEE DWG D3_-KP03
124TH AVE STATION SIDE PLATFORM
-0.40%
2.10%
TRACK PROFILE
124TH AVE NE
EXISTING GROUND LINE
4020+00
4025+00
4030+00
4035+00
4040+00
4045+00

c:\work\ELD1D3__KP02.dwg
10/16/08 10:50 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D3__KP02.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

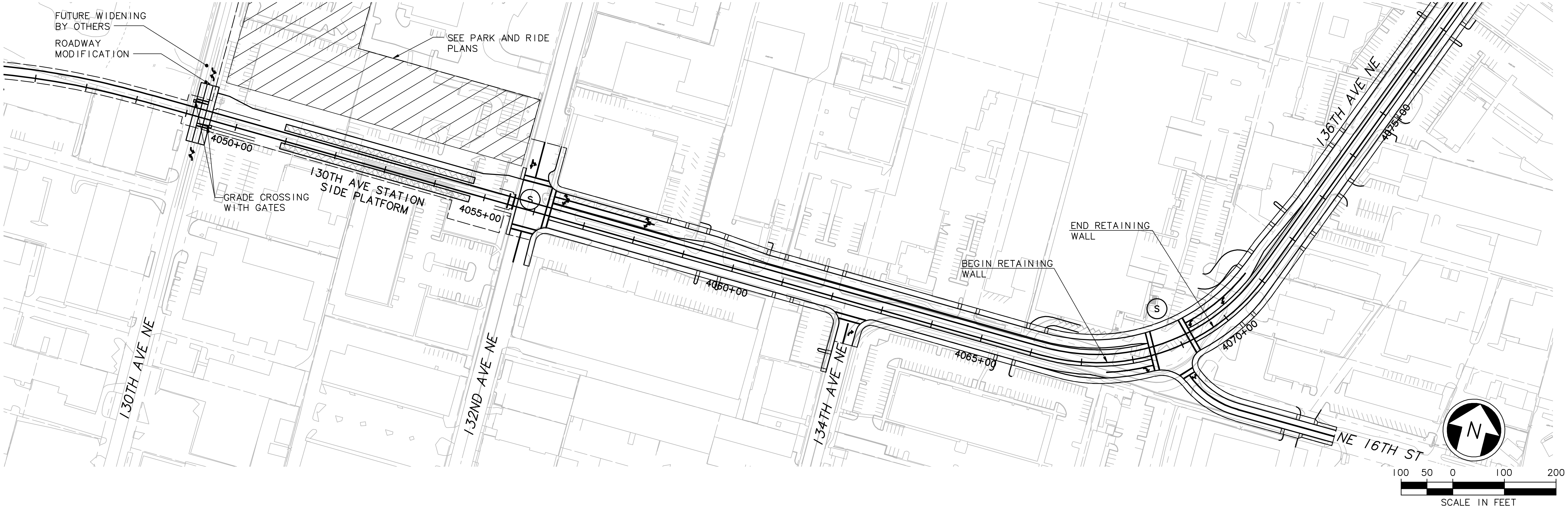
Drawing No.:
D3_-KP02
Sheet No.:
Rev.:
D-51

DWG INFO:

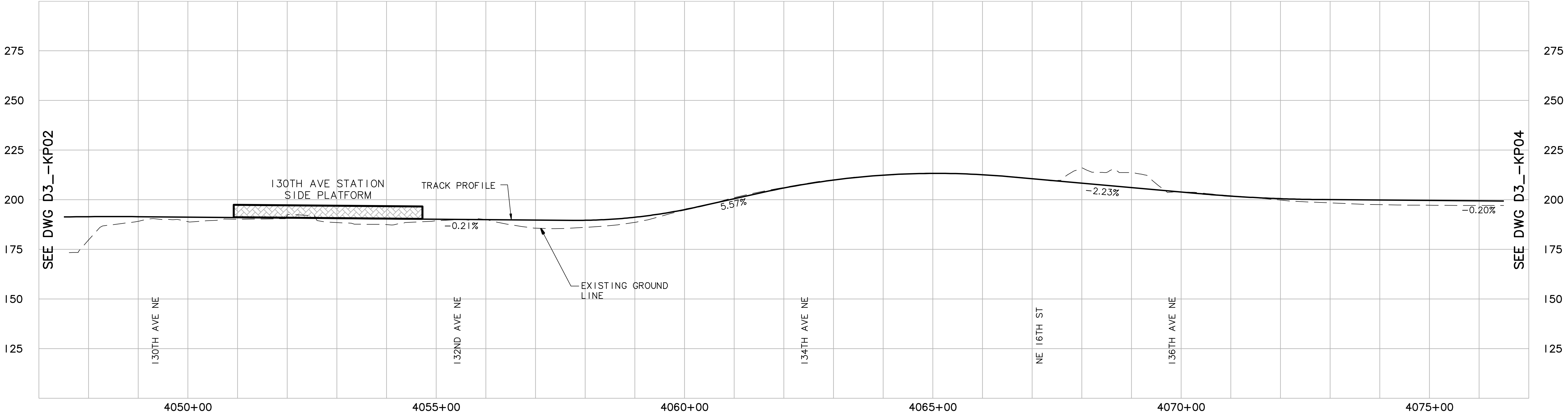
LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_520fut
ELD_D3__CM
ELD_D3__KA
ELD_MCRSFT
ZG-2234H
ZG-G10010
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
x1434rx
x1434sf
-Unresolved:

SEE DWG D3_-KP02


FUTURE WIDENING
BY OTHERS
ROADWAY
MODIFICATION
SEE PARK AND RIDE
PLANS
4050+00
130TH AVE STATION
SIDE PLATFORM
GRADE CROSSING
WITH GATES
4055+00
S
4060+00
BEGIN RETAINING
WALL
END RETAINING
WALL
4065+00
S
4070+00
4075+00
136TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
NE 16TH ST
N
100 50 0 100 200
SCALE IN FEET

SEE DWG D3_-KP04



c:\work\feis\segment d\ELDID3__KP03.dwg
04/29/11 11:37 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID3__KP03.dwg
Contract No.:
EL SEG_D
Date:

THIS PRINT REDUCED
HALF
SCALE

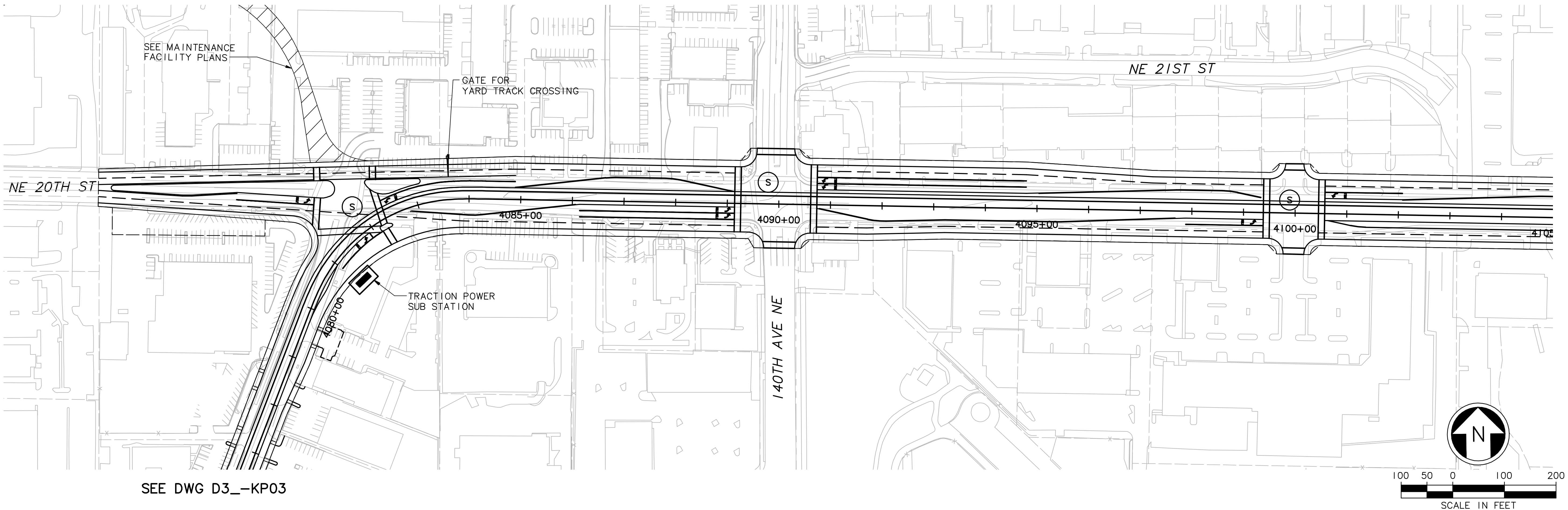
EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

Drawing No.:
D3_-KP03
Sheet No.:
D-52
Rev.:

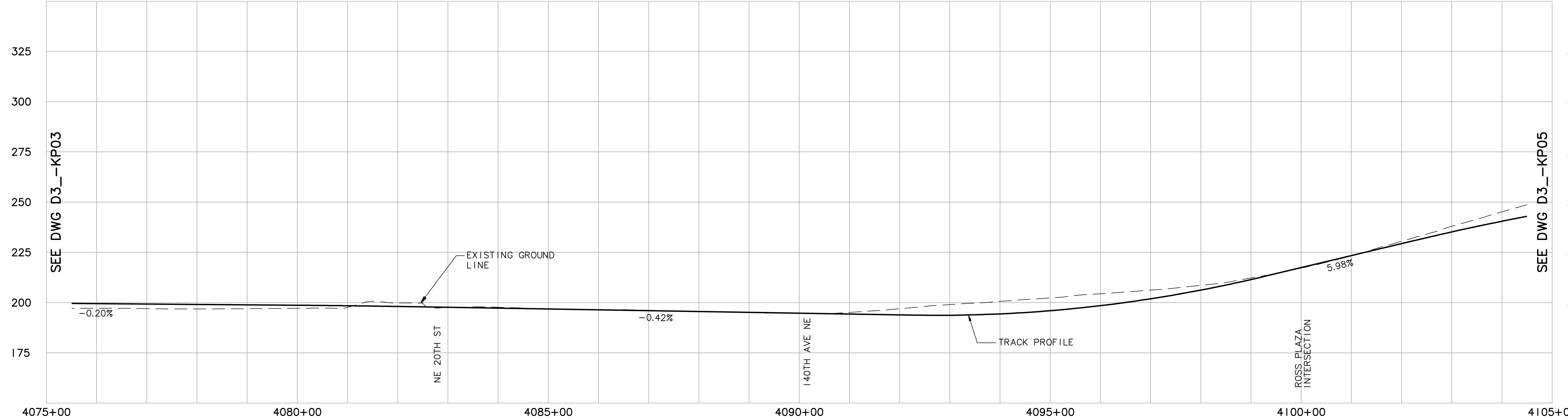
DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELD_520fut
ELD_D3__CM
ELD_D3__JO
ELD_D3__KA
ELD_MCRSFT
ZG–2234H
ZG–G10010
x1134rx
x1134sf
x1434rx
x1434sf
–Unresolved:



SEE MAINTENANCE FACILITY PLANS
GATE FOR YARD TRACK CROSSING
NE 21ST ST
NE 20TH ST
S
4085+00
4090+00
4095+00
4100+00
4105
4080+00
TRACTION POWER SUB STATION
140TH AVE NE
SEE DWG D3_–KP05
N
100 50 0 100 200
SCALE IN FEET
SEE DWG D3_–KP03



c:\work\feis\segment d\ELD1D3__KP04.dwg
04/29/11 11:39 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D3__KP04.dwg
Contract No.:
EL SEG_D
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

Drawing No.:
D3_–KP04
Sheet No.: D-53
Rev.:

XREF'S

Resolved

ELD_520FUT
ELD_D3__CM
ELD_D3__KA
ELD_MCRSFT
KEY_SEGMENT
REG-DCON
ZG-2234H
ZG-G10010
x1434rx
x1434sf
x1734rx
x1734sf

Unresolved
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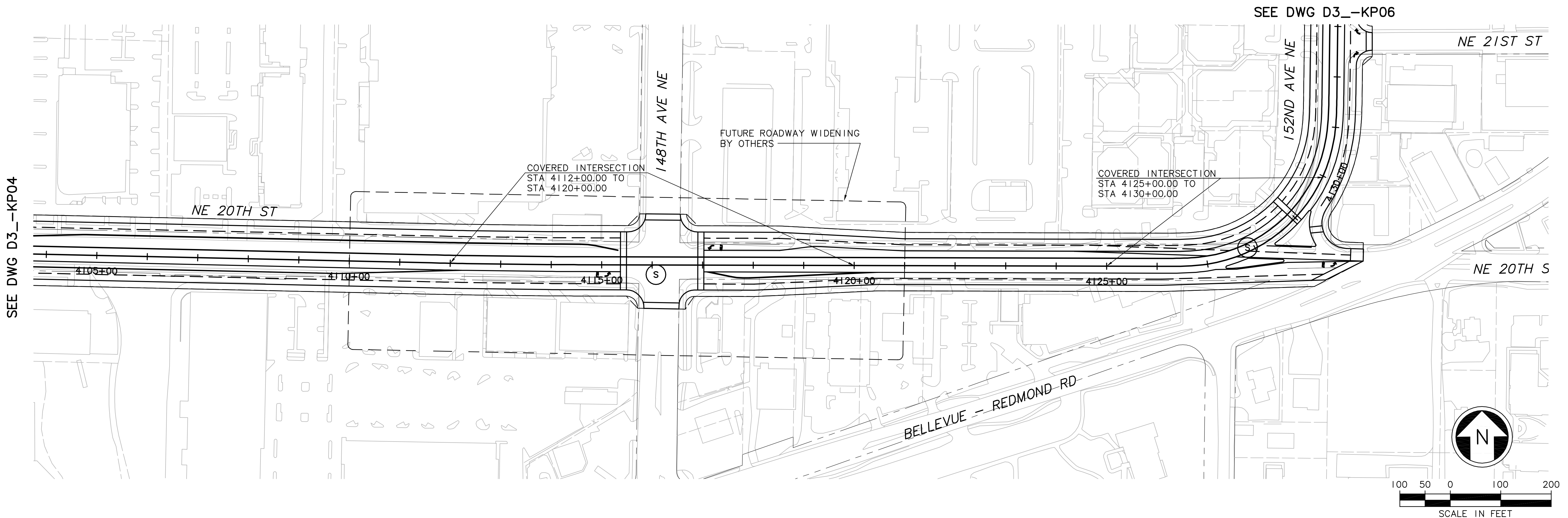
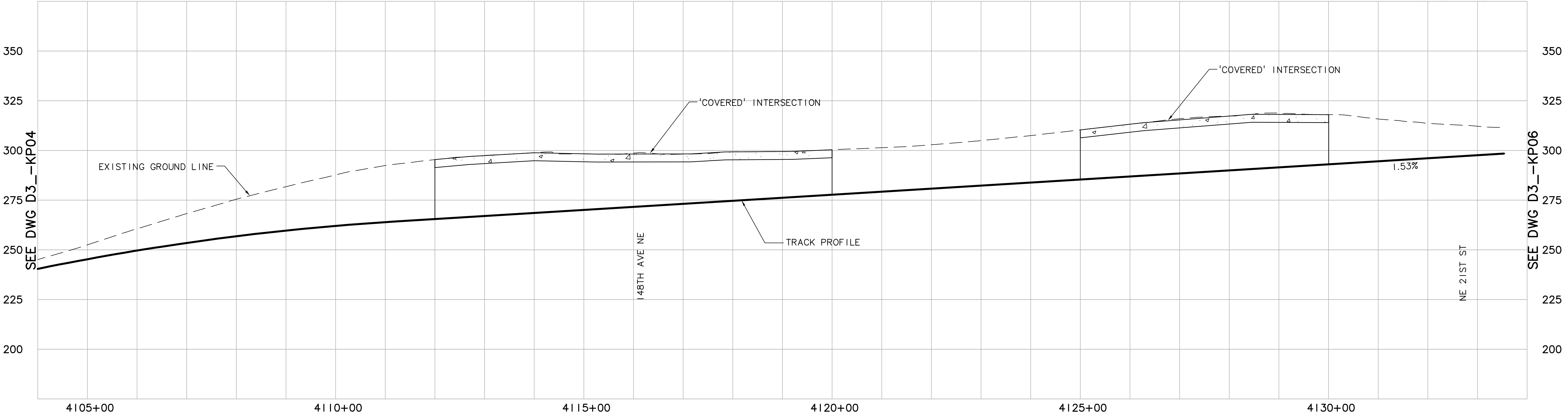
key_East

LTSCALE

1=1


SEE DWG D3_-KP06
NE 21ST ST
152ND AVE NE
148TH AVE NE
FUTURE ROADWAY WIDENING
BY OTHERS
COVERED INTERSECTION
STA 4112+00.00 TO
STA 4120+00.00
COVERED INTERSECTION
STA 4125+00.00 TO
STA 4130+00.00
4130+00
NE 20TH ST
SEE DWG D3_-KP04
4105+00
4110+00
4115+00
4120+00
4125+00
S
S
NE 20TH S
BELLEVUE - REDMOND RD
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELD1D3__KP05.dwg
10/16/08 10:51 : eackerm OE5396

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D3__KP05.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D3_-KP05
Sheet No.:
Rev.:
D-54

XREF'S

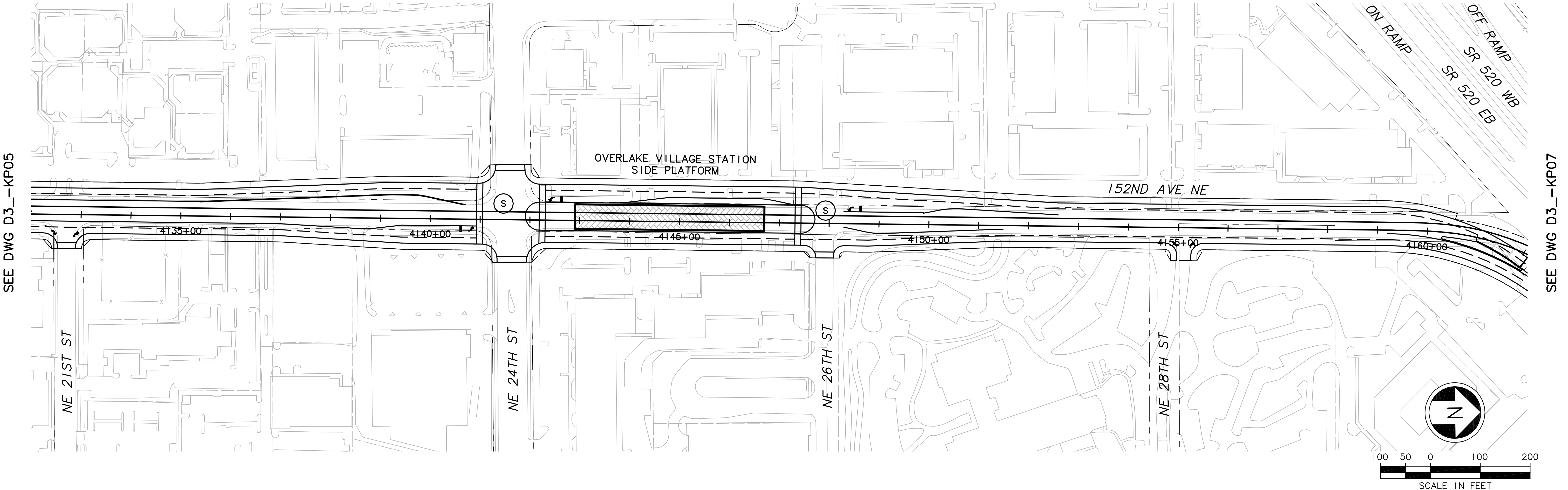
Resolved

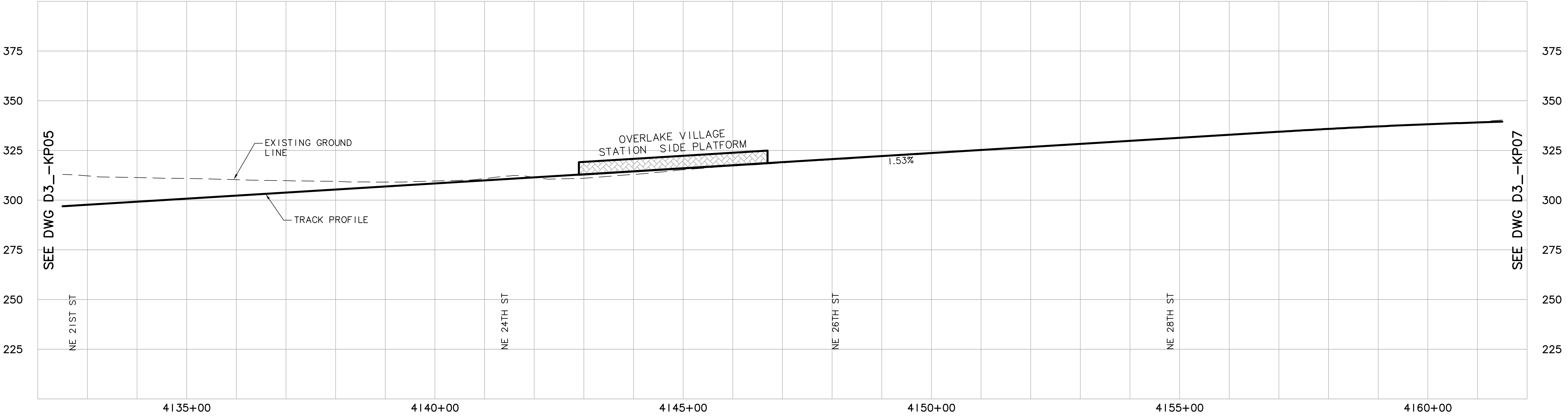
ELD_520FUT
ELD_D3__CM
ELD_D3__KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x1734rx
x1734sf
x1737rx
x1737sf

Unresolved
----
key_East

LTSCALE

1=1


SEE DWG D3_-KP05
OVERLAKE VILLAGE STATION
SIDE PLATFORM
152ND AVE NE
ON RAMP
OFF RAMP
SR 520 WB
SR 520 EB
S
S
4135+00
4140+00
4145+00
4150+00
4155+00
4160+00
NE 21ST ST
NE 24TH ST
NE 26TH ST
NE 28TH ST
N
100 50 0 100 200
SCALE IN FEET
SEE DWG D3_-KP07



c:\work\ELDID3__KP06.dwg
10/16/08 10:52 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELDID3__KP06.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: D3_-KP06
Sheet No.: D-55
Rev.:

XREF'S
Resolved
ELD_520FUT
ELD_D3__CM
ELD_D3__KA
ELD_MCRSFT
KEY_SEGMENT
REG-DCON
ZG-2234H
ZG-G10010
x1737rx
x1737sf
x1740rx
x1740sf
x2037rx
x2037sf
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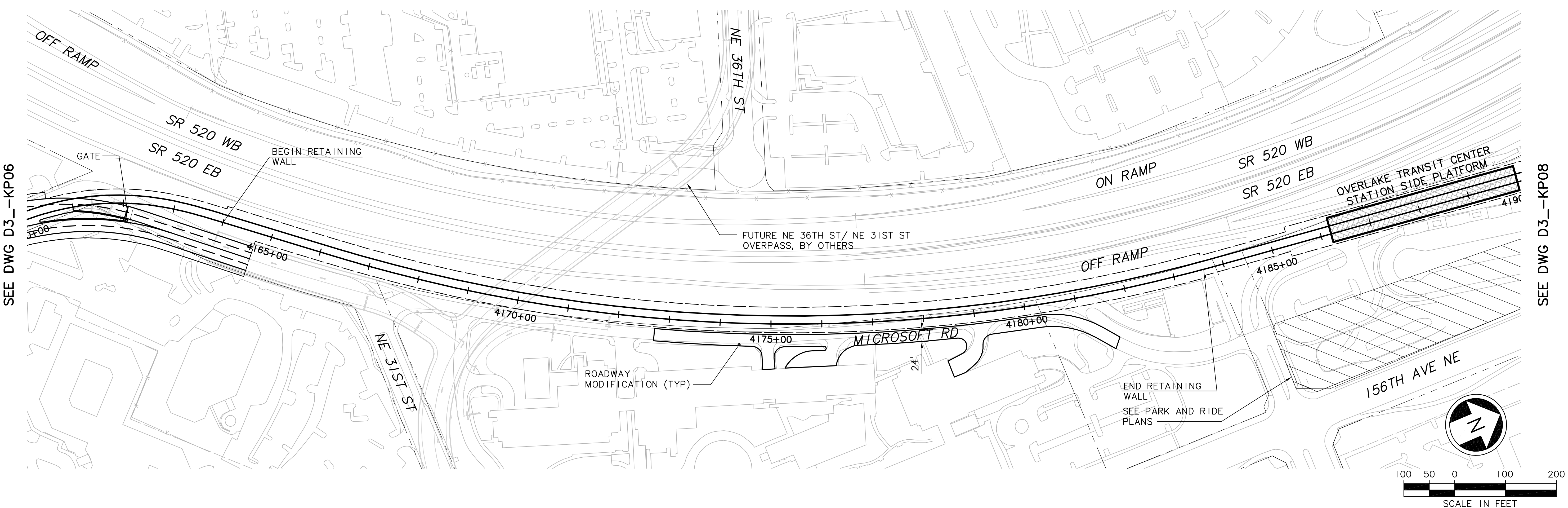
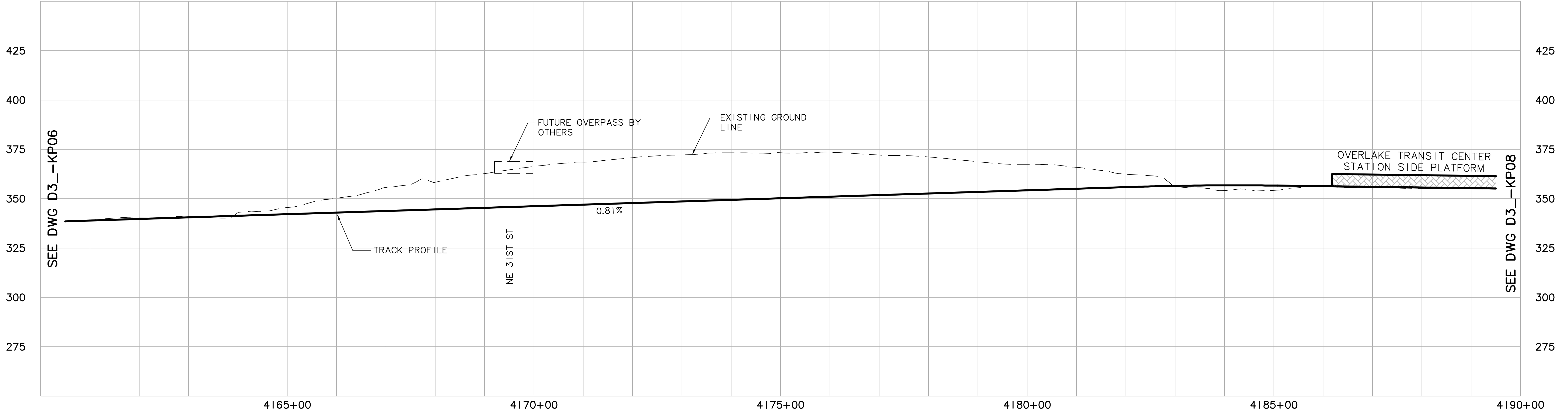
Unresolved
key_East
LTSCALE
1=1


SEE DWG D3_-KP06
OFF RAMP
SR 520 WB
SR 520 EB
NE 36TH ST
GATE
BEGIN RETAINING WALL
4165+00
4170+00
4175+00
4180+00
4185+00
4190
FUTURE NE 36TH ST/ NE 31ST ST OVERPASS, BY OTHERS
ON RAMP
SR 520 WB
SR 520 EB
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
OFF RAMP
NE 31ST ST
MICROSOFT RD
24'
ROADWAY MODIFICATION (TYP)
END RETAINING WALL
SEE PARK AND RIDE PLANS
156TH AVE NE
N
SEE DWG D3_-KP08
100 50 0 100 200
SCALE IN FEET



c:\work\ELDID3__KP07.dwg
10/16/08 10:52 : eackerm OE5396

No. Date Dsn. Chk. App. Revisions

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Drawn By:
Checked By:
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SOUNDTRANSIT

Submitted: Date: Approved: Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELDID3__KP07.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: D3_-KP07
Sheet No.: D-56
Rev.:

XREF'S

Resolved

ELD_520FUT
ELD_D3__CM
ELD_D3__JO
ELD_D3__KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x2040rx
x2040sf

Unresolved
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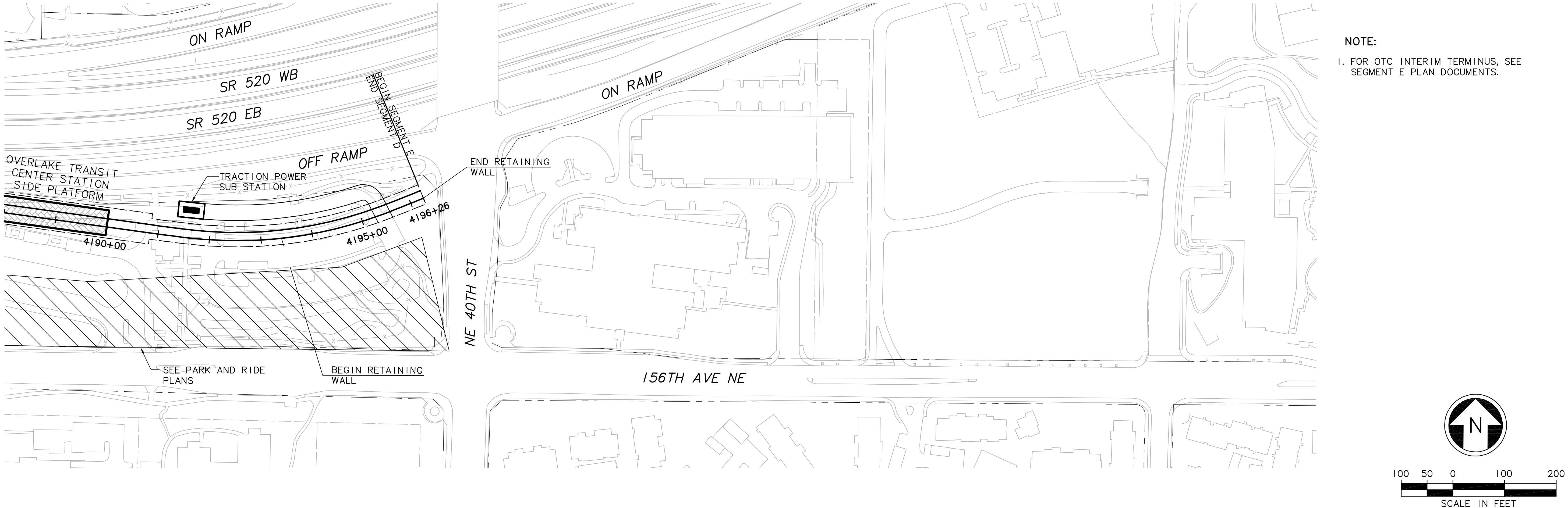
key_East

LTSCALE

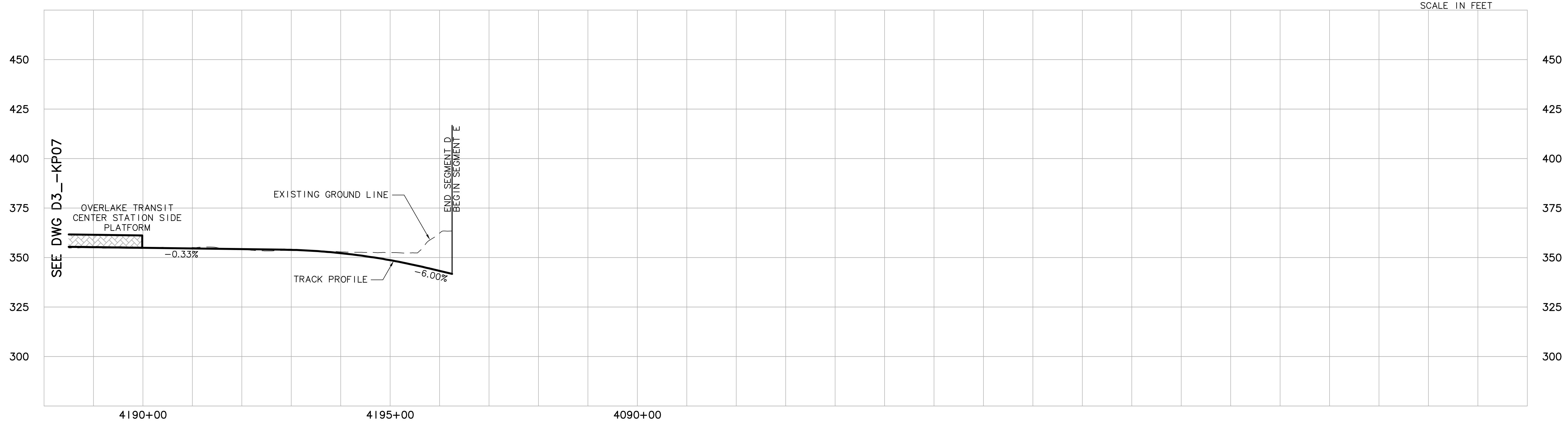
1=1



ON RAMP
SR 520 WB
SR 520 EB
OFF RAMP
ON RAMP
SEE DWG D3_-KP07
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
TRACTION POWER SUB STATION
BEGIN SEGMENT E
END SEGMENT D
END RETAINING WALL
4190+00
4195+00
4196+26
NE 40TH ST
SEE PARK AND RIDE PLANS
BEGIN RETAINING WALL
156TH AVE NE
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. FOR OTC INTERIM TERMINUS, SEE SEGMENT E PLAN DOCUMENTS.



450
425
400
375
350
325
300
SEE DWG D3_-KP07
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
EXISTING GROUND LINE
END SEGMENT D
BEGIN SEGMENT E
-0.33%
TRACK PROFILE
-6.00%
4190+00
4195+00
4090+00

c:\work\ELD1D3__KP08.dwg
10/16/08 10:52 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
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PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

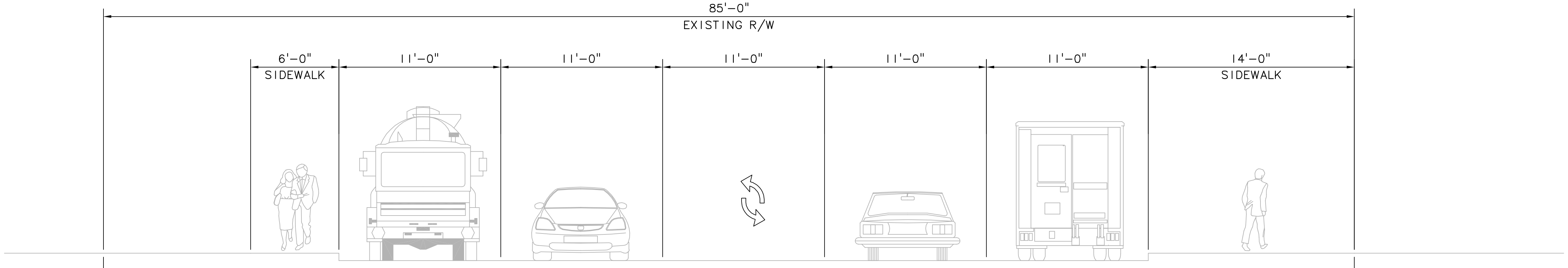
Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D3__KP08.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D3_-KP08
Sheet No.:
Rev.:
D-57

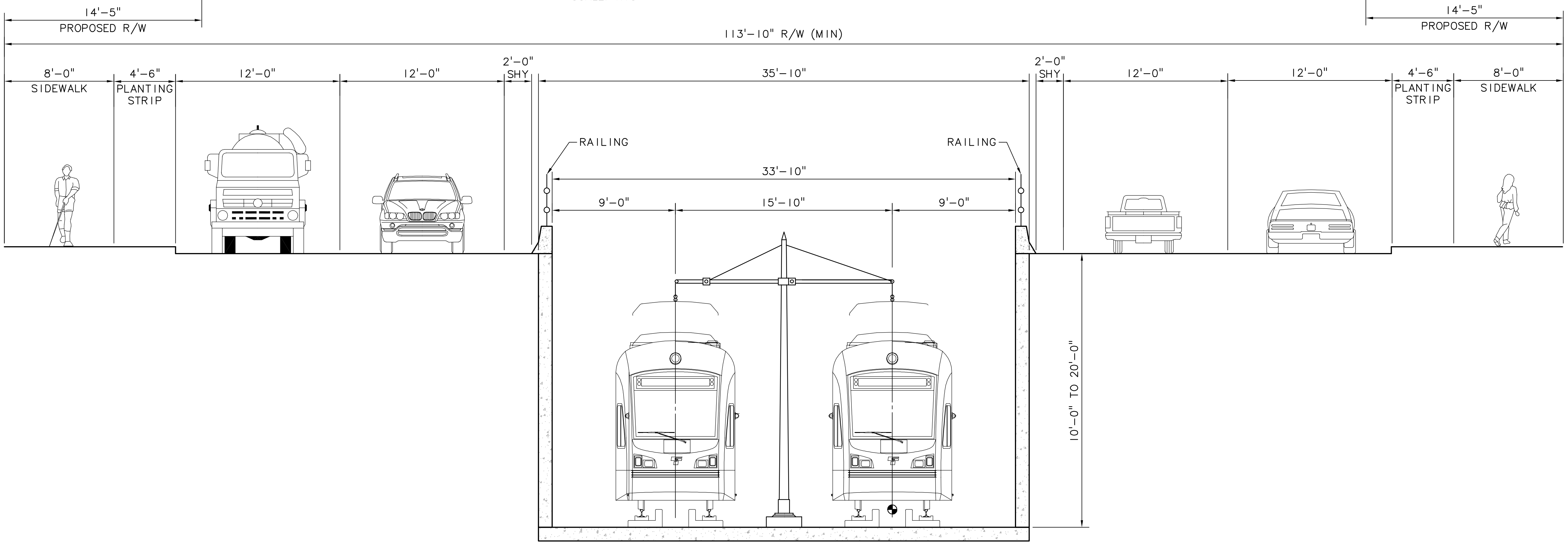
XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
1=1



85'-0"
EXISTING R/W
6'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
11'-0"
14'-0"
SIDEWALK

EXISTING ROADWAY SECTION – 20TH AVE NE

SCALE: NTS



14'-5"
PROPOSED R/W
113'-10" R/W (MIN)
14'-5"
PROPOSED R/W
8'-0"
SIDEWALK
4'-6"
PLANTING STRIP
12'-0"
12'-0"
2'-0"
SHY
35'-10"
2'-0"
SHY
12'-0"
12'-0"
4'-6"
PLANTING STRIP
8'-0"
SIDEWALK
RAILING
RAILING
33'-10"
9'-0"
15'-10"
9'-0"
10'-0" TO 20'-0"

PROPOSED ROADWAY & LRT SECTION – NE 20TH ST

SCALE: NTS

c:\work\ELDID3__KX01.dwg
10/16/08 10:53 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

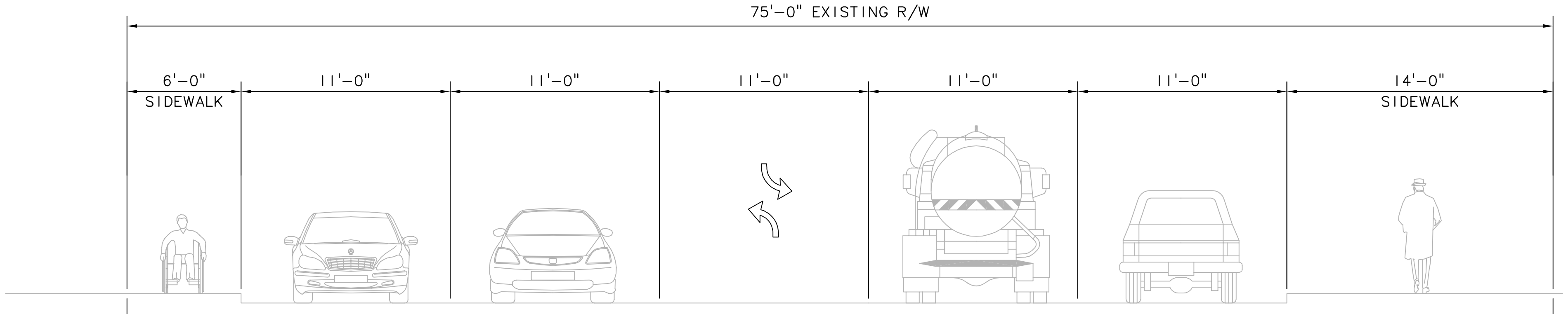
Scale: NTS
Filename: ELDID3__KX01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

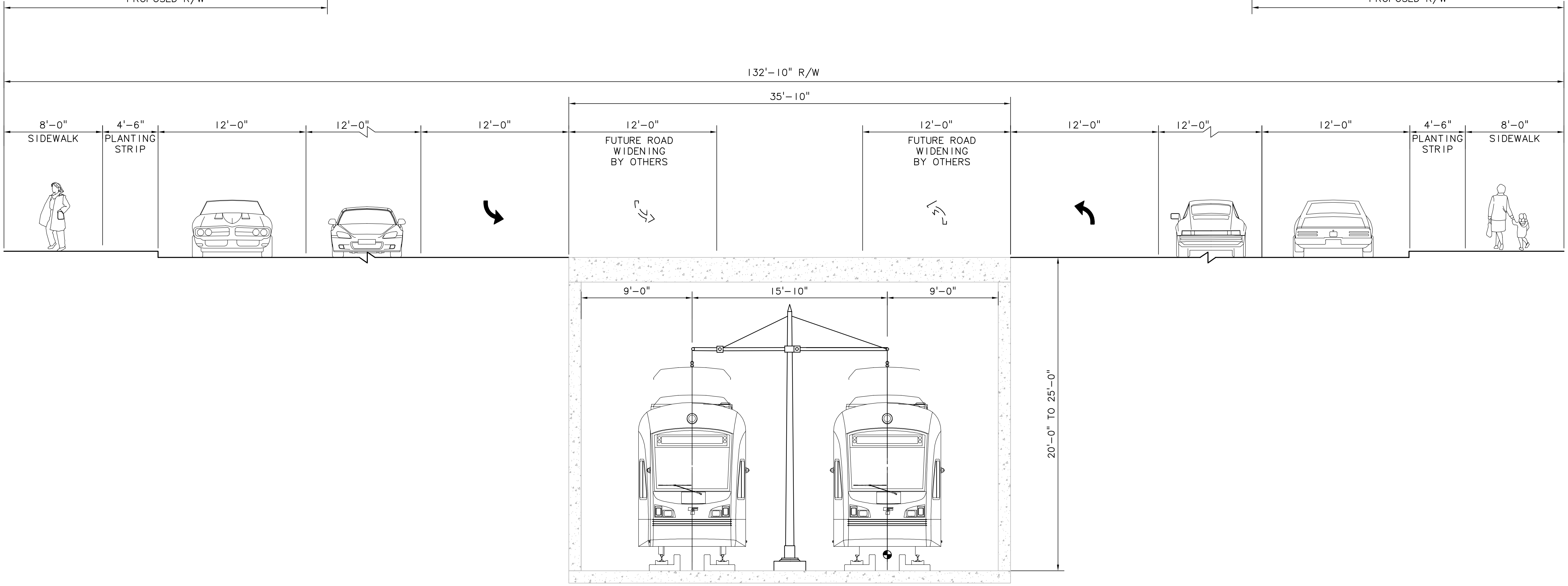
Drawing No.: D3_-KX01
Sheet No.: D-58
Rev.:

XREF'S
Resolved
Zg-2234h
REG-DCON
Unresolved
LTSCALE
1=1


75'-0" EXISTING R/W
6'-0"
SIDEWALK
11'-0"
11'-0"
11'-0"
11'-0"
11'-0"
14'-0"
SIDEWALK

EXISTING ROADWAY SECTION – 20TH ST NE/148TH AVE NE INTERSECTION

SCALE: NTS


PROPOSED R/W
PROPOSED R/W
132'-10" R/W
35'-10"
8'-0"
SIDEWALK
4'-6"
PLANTING STRIP
12'-0"
12'-0"
12'-0"
12'-0"
FUTURE ROAD WIDENING BY OTHERS
12'-0"
FUTURE ROAD WIDENING BY OTHERS
12'-0"
12'-0"
12'-0"
4'-6"
PLANTING STRIP
8'-0"
SIDEWALK
9'-0"
15'-10"
9'-0"
20'-0" TO 25'-0"

PROPOSED ROADWAY & LRT SECTION – NE 20TH ST /148TH AVE NE INTERSECTION

SCALE: NTS

c:\work\ELDID3__KX02.dwg
10/16/08 10:54 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

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Approved:
Date:

Scale: NTS
Filename: ELDID3__KX02.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: D3_-KX02
Sheet No.: D-59
Rev.:

XREF'S

Resolved

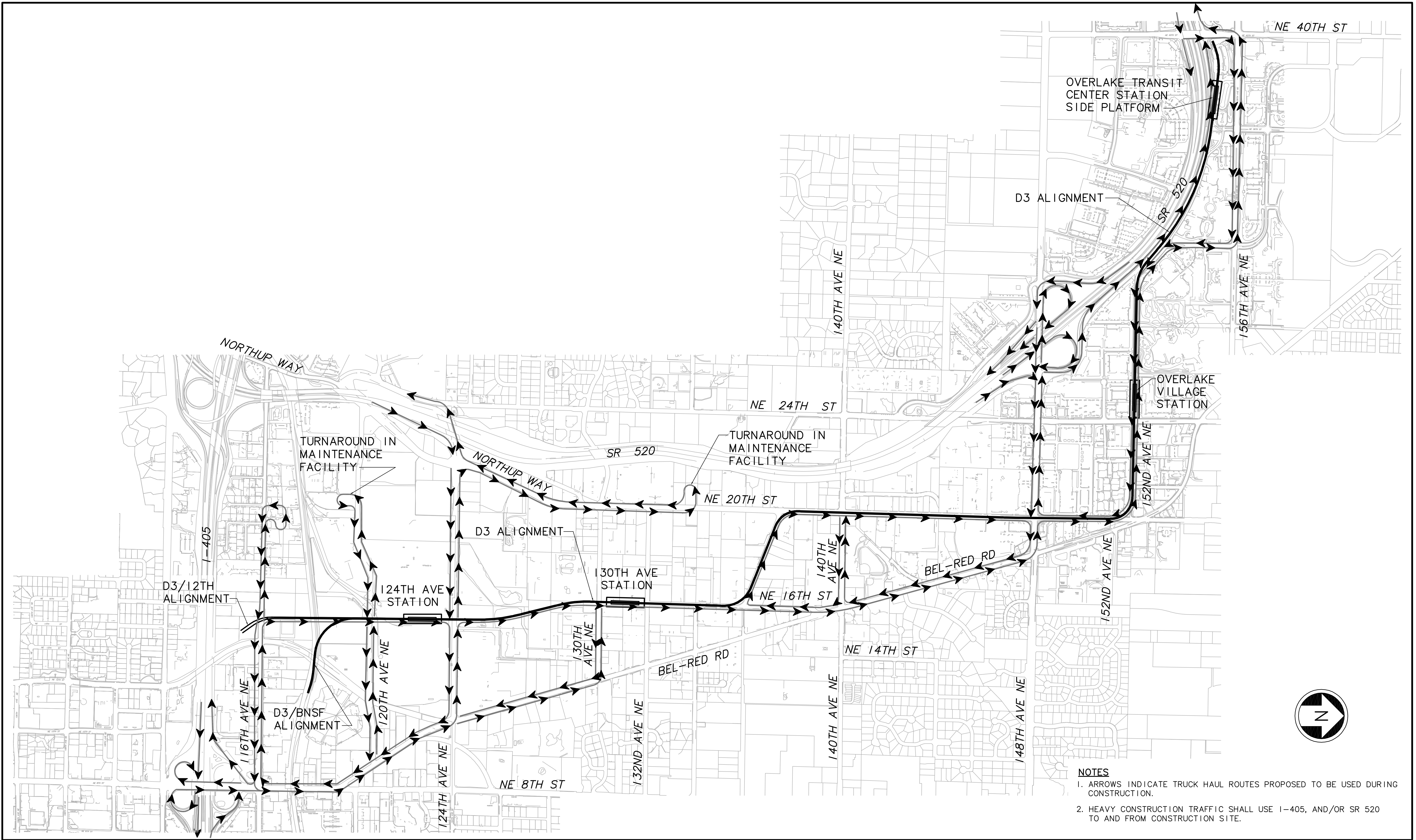
ELD_D3__KA
REG-DCON
Zg-2234h
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
x1434rx
x1434sf
x1437rx
x1437sf
x1731rx
x1731sf
x1734rx
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x2037rx
x2037sf
x2040rx
x2040sf

Unresolved

LTSCALE

1=1

c:\work\ELD1D3__CC01.dwg
10/16/08 10:49 : eackerm OE5396


NE 40TH ST
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
D3 ALIGNMENT
SR 520
156TH AVE NE
140TH AVE NE
NORTHUP WAY
OVERLAKE VILLAGE STATION
NE 24TH ST
TURNAROUND IN MAINTENANCE FACILITY
SR 520
TURNAROUND IN MAINTENANCE FACILITY
NORTHUP WAY
NE 20TH ST
152ND AVE NE
D3 ALIGNMENT
I-405
130TH AVE STATION
140TH AVE NE
BEL-RED RD
D3/12TH ALIGNMENT
124TH AVE STATION
NE 16TH ST
152ND AVE NE
130TH AVE NE
NE 14TH ST
120TH AVE NE
BEL-RED RD
D3/BNSF ALIGNMENT
116TH AVE NE
132ND AVE NE
140TH AVE NE
148TH AVE NE
N
124TH AVE NE
NE 8TH ST
1
2
3
4
5

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR SR 520 TO AND FROM CONSTRUCTION SITE.

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

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SOUND TRANSIT

Scale: NTS
Filename: ELD1D3__CC01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D3

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: D3_-CC01
Sheet No.: D-60
Rev.:

XREF'S

Resolved

ELD_D5__KA
ELD_D5__KA_1
REG-DCON
ZG-2234H
x0531rx
x0534rx
x0831rx
x0834rx
x1131rx
x1134rx
x1431rx
x1434rx
x1437rx
x1731rx
x1734rx
x1737rx
x1740rx
x2037rx
x2040rx

Unresolved
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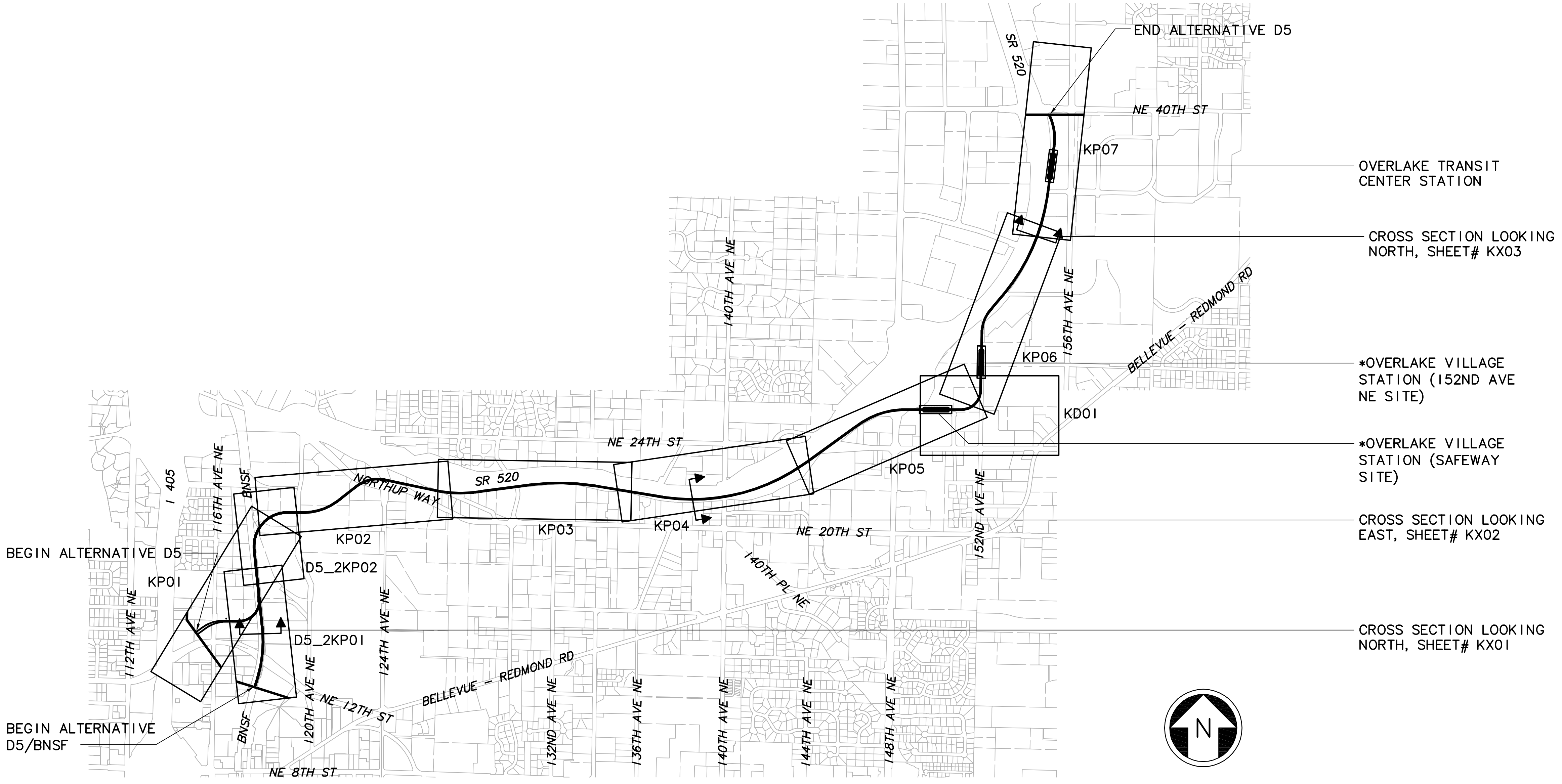
key_East

LTSCALE

1=1


END ALTERNATIVE D5
SR 520
NE 40TH ST
KP07
OVERLAKE TRANSIT CENTER STATION
CROSS SECTION LOOKING NORTH, SHEET# KX03
140TH AVE NE
156TH AVE NE
BELLEVUE - REDMOND RD
KP06
*OVERLAKE VILLAGE STATION (152ND AVE NE SITE)
KD01
NE 24TH ST
*OVERLAKE VILLAGE STATION (SAFEWAY SITE)
KP05
NORTHUP WAY
SR 520
I 405
116TH AVE NE
BNSF
KP03
KP04
CROSS SECTION LOOKING EAST, SHEET# KX02
NE 20TH ST
152ND AVE NE
KP02
BEGIN ALTERNATIVE D5
D5_2KP02
140TH PL NE
KP01
112TH AVE NE
124TH AVE NE
D5_2KP01
CROSS SECTION LOOKING NORTH, SHEET# KX01
BELLEVUE - REDMOND RD
120TH AVE NE
NE 12TH ST
132ND AVE NE
136TH AVE NE
140TH AVE NE
144TH AVE NE
148TH AVE NE
BEGIN ALTERNATIVE D5/BNSF
BNSF
NE 8TH ST
N

*OPTIONAL STATION LOCATION, ONLY ONE WILL BE CHOSEN

c:\work\ELD1D5__GZ05.dwg
10/16/08 10:56 : eackerm OE5396

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELD1D5__GZ05.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_-GZ05
Sheet No.: D-61
Rev.:

XREF'S

Resolved

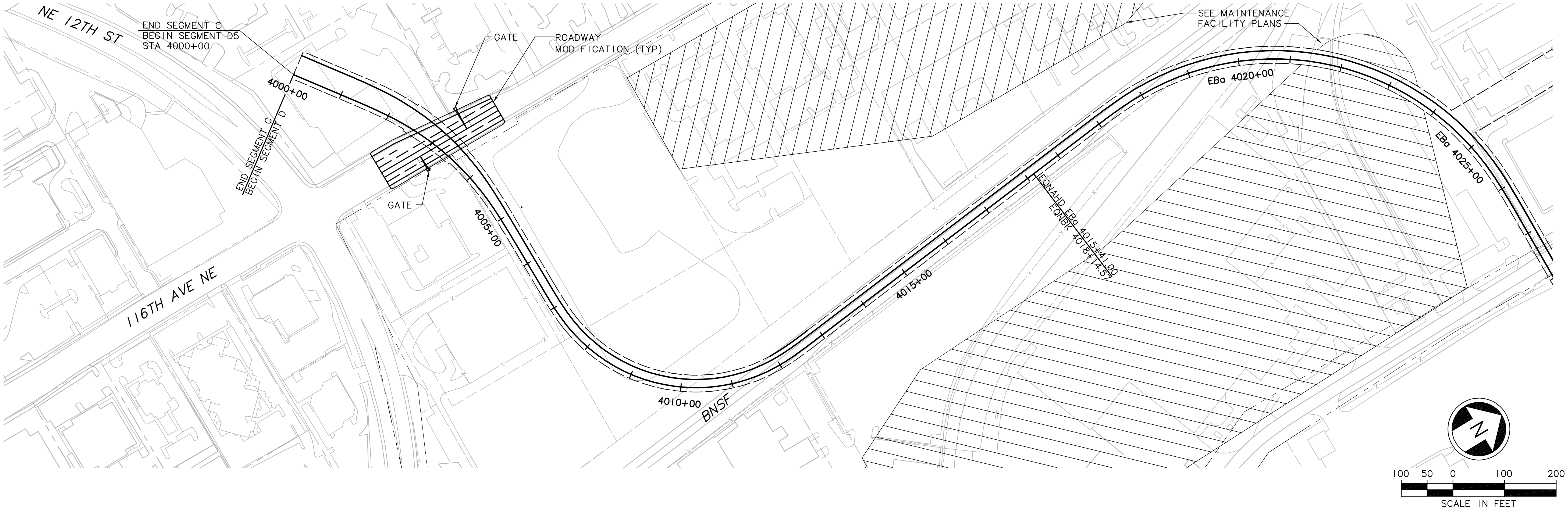
ELD_D5__CM
ELD_D5__JO
ELD_D5__KA
REG-DCON
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0834rx
x0834sf

Unresolved

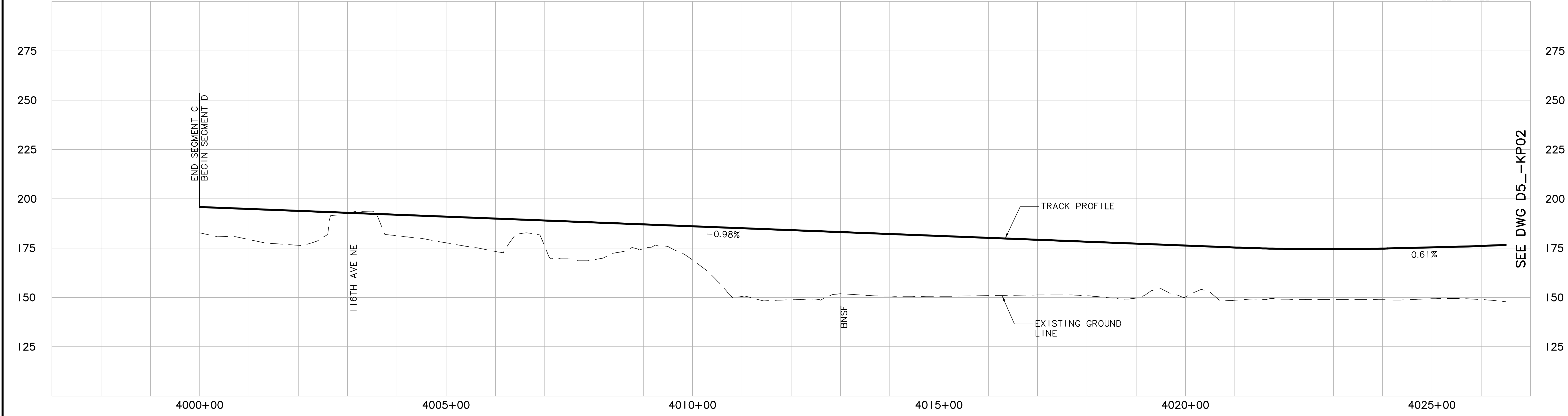
ELD_D5__MF_1
ELD_D5__MF_2
ELD_D5__MF_3
key_East

LTSCALE

1=1



NE 12TH ST
END SEGMENT C
BEGIN SEGMENT D5
STA 4000+00
GATE
ROADWAY MODIFICATION (TYP)
SEE MAINTENANCE FACILITY PLANS
4000+00
END SEGMENT C
BEGIN SEGMENT D
GATE
4005+00
116TH AVE NE
4010+00
BNSF
4015+00
EQNAHD EBa 4015+41.00
EQNBK 4018+74.51
EBa 4020+00
EBa 4025+00
SEE DWG D5_-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELD1D5__KP01.dwg
10/16/08 10:57 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D5__KP01.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

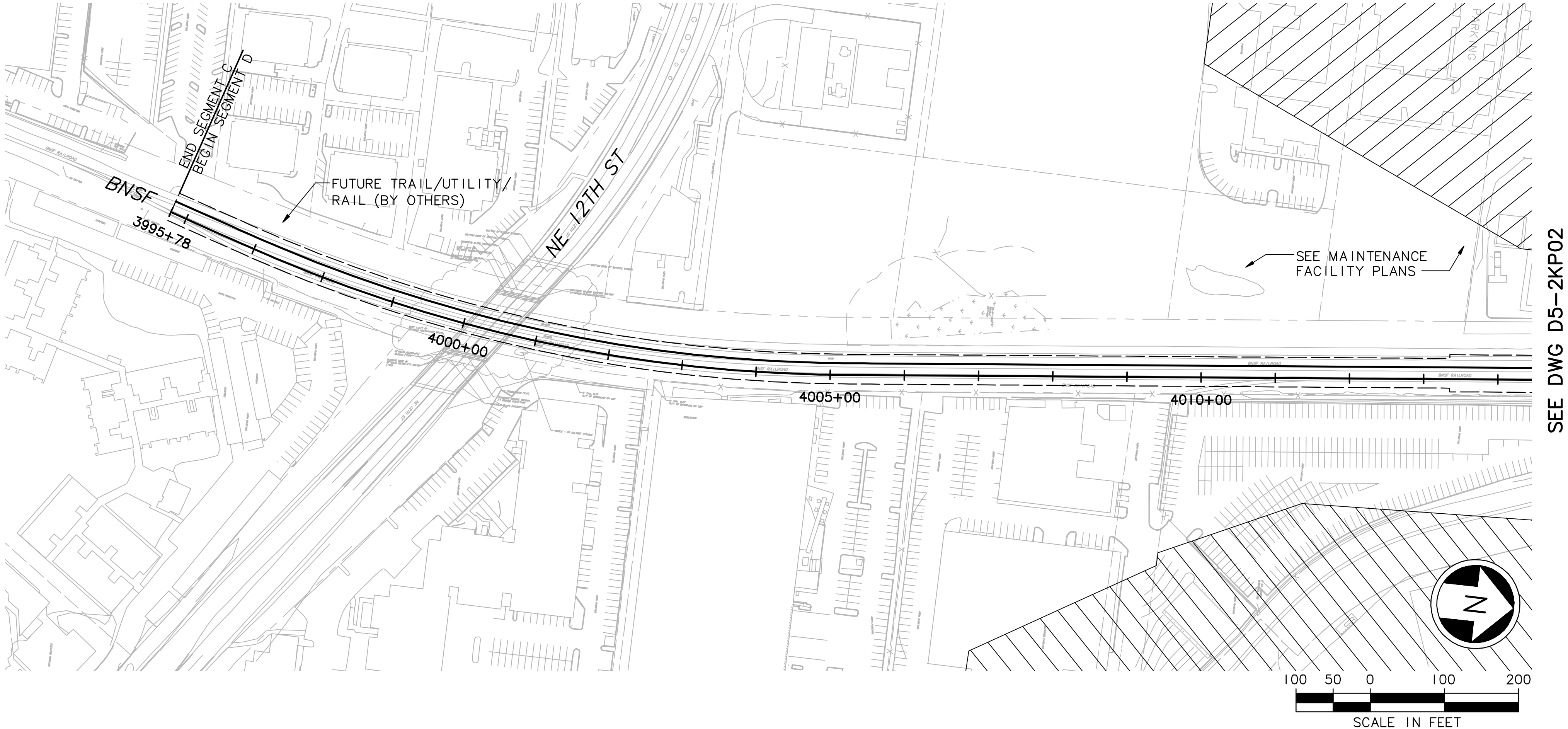
THIS PRINT REDUCED
HALF SCALE

Drawing No.:
D5_-KP01
Sheet No.:
Rev.:
D-62

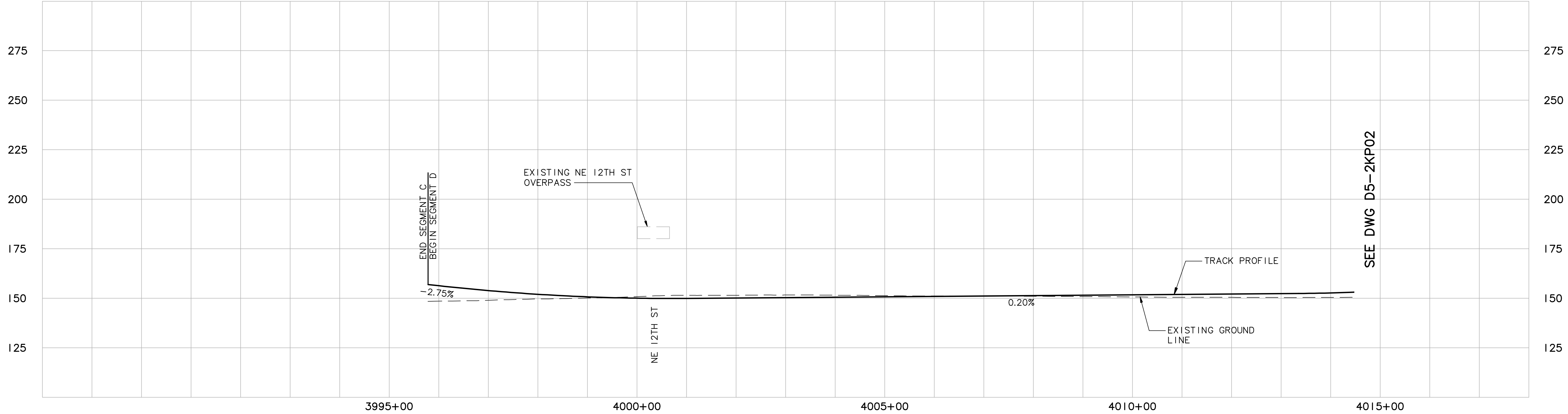
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELD_D5__CM
ELD_D5__KA_1
ZG-2234H
ZG-G10010
x0531rx
x0531sf
x0534rx
x0534sf
x0831rx
x0831sf
-Unresolved:



END SEGMENT C
BEGIN SEGMENT D
BNSF
3995+78
FUTURE TRAIL/UTILITY/
RAIL (BY OTHERS)
NE 12TH ST
4000+00
4005+00
4010+00
SEE MAINTENANCE
FACILITY PLANS
SEE DWG D5-2KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment d\ELD1D5_2KP01.dwg
03/21/11 15:54 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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IN ASSOCIATION WITH
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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D5_2KP01.dwg
Contract No.:
EL SEG_D
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5/BNSF
TRACK PLAN & PROFILE

Drawing No.:
D5_2KP01

Sheet No.: D-63
Rev.:

XREF'S

Resolved

ELD_D5__CM
ELD_D5__KA_1
REG-DCON
ZG-2234H
ZG-G10010
x0534rx
x0534sf
x0834rx
x0834sf

Unresolved
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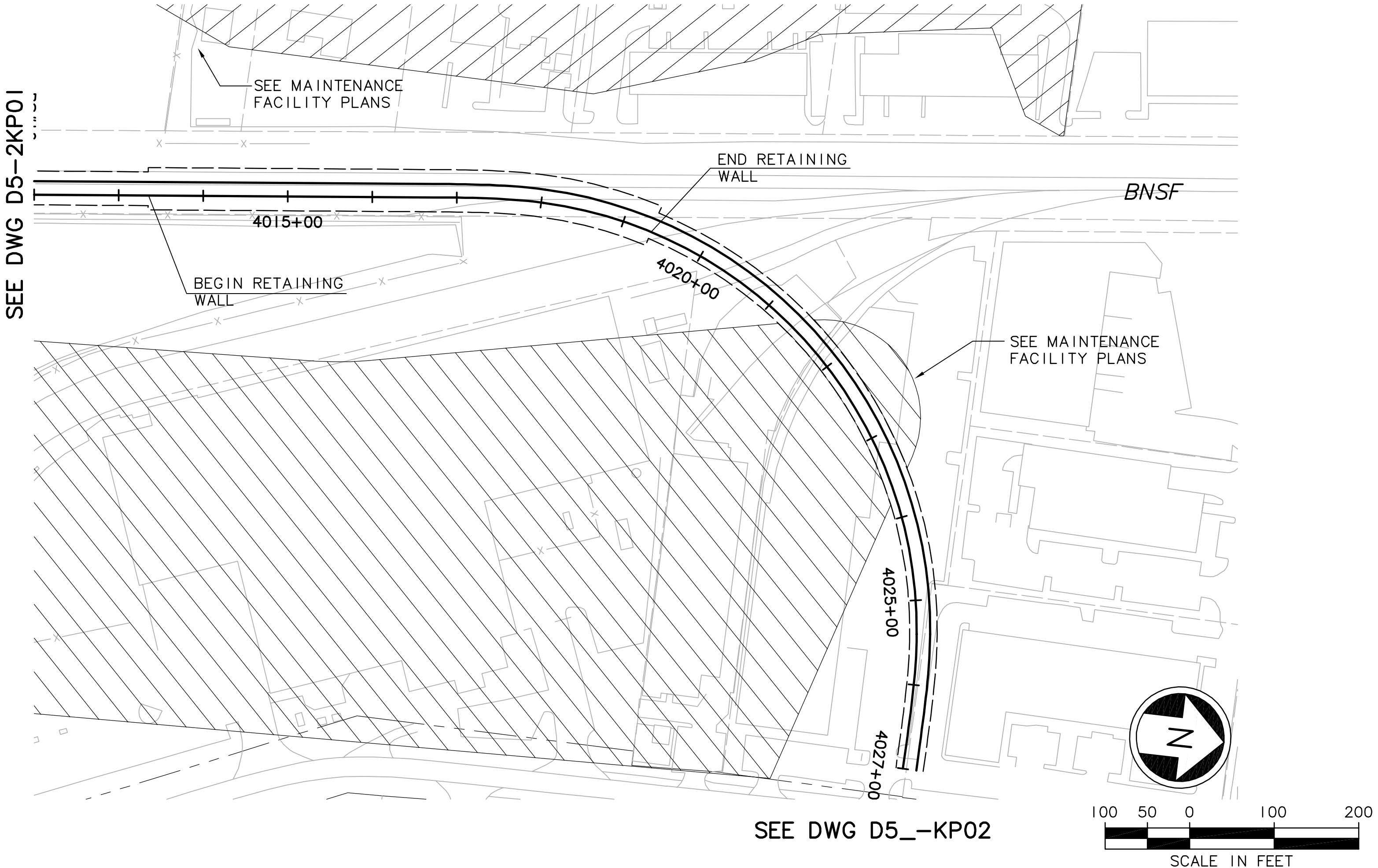
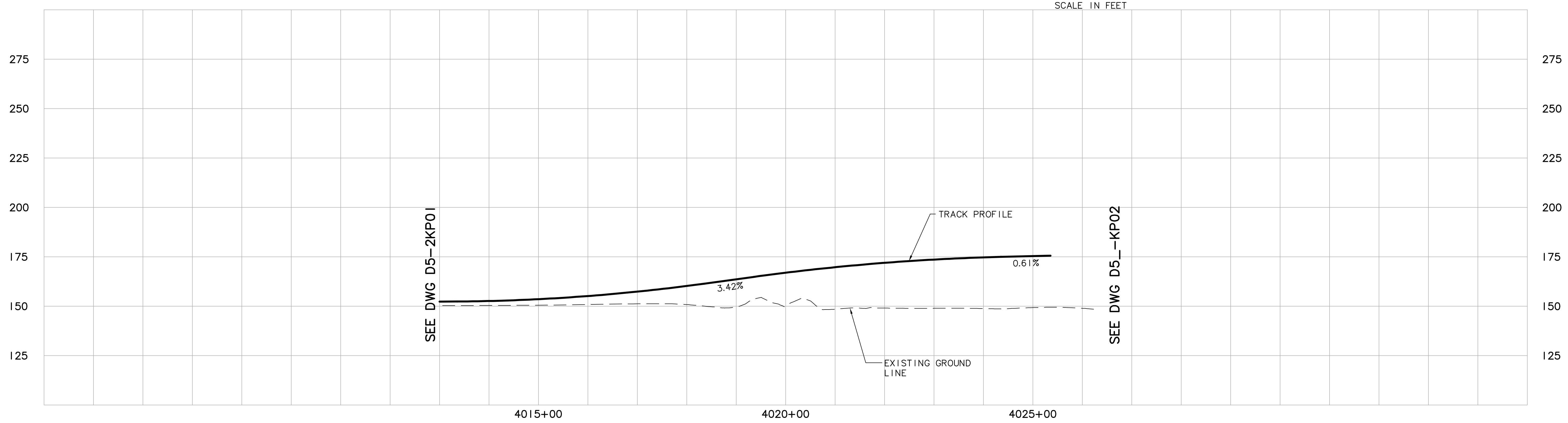
key_East

LTSCALE

1=1


SEE MAINTENANCE FACILITY PLANS
SEE DWG D5-2KP01
END RETAINING WALL
BNSF
4015+00
BEGIN RETAINING WALL
4020+00
SEE MAINTENANCE FACILITY PLANS
4025+00
4027+00
N
SEE DWG D5_-KP02
100 50 0 100 200
SCALE IN FEET



c:\work\ELD1D5_2KP02.dwg
10/16/08 10:55 : eackerm 0E5396

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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D5_2KP02.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5/BNSF
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D5_2KP02
Sheet No.:
D-64
Rev.:

XREF'S

Resolved

ELD_520fut
ELD_D5__CM
ELD_D5__KA
REG-DCON
ZG-2234H
ZG-G10010
x0534rx
x0534sf
x0834rx
x0834sf

Unresolved
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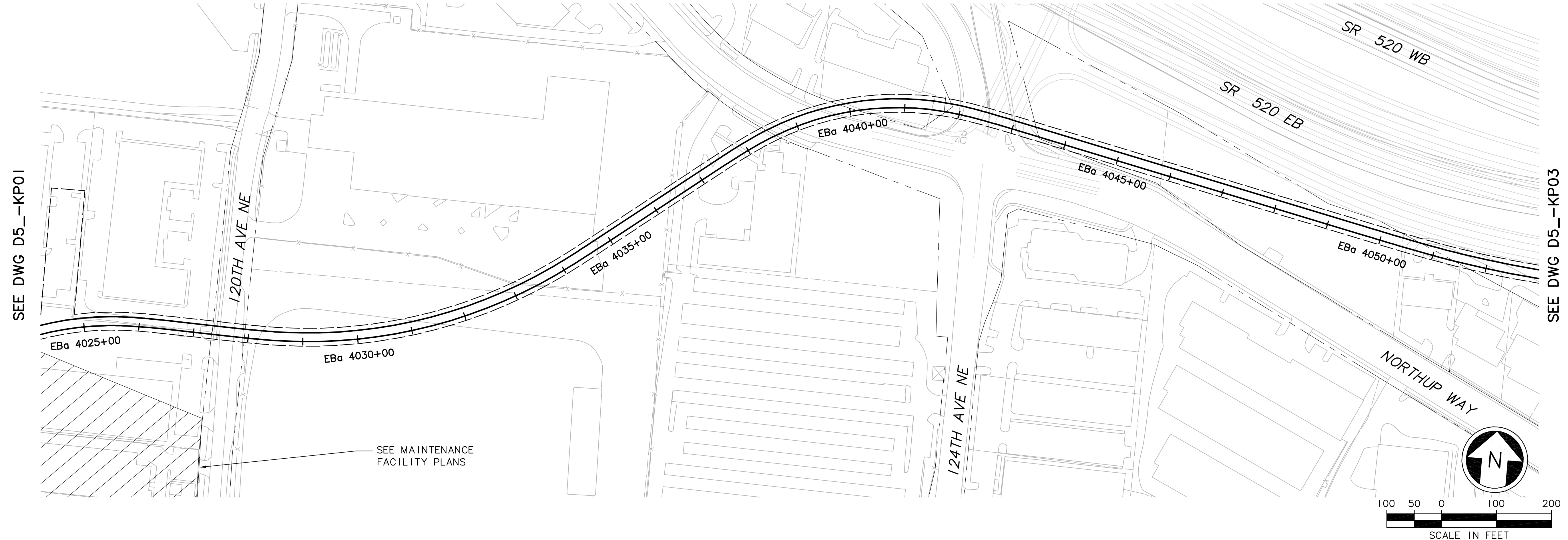
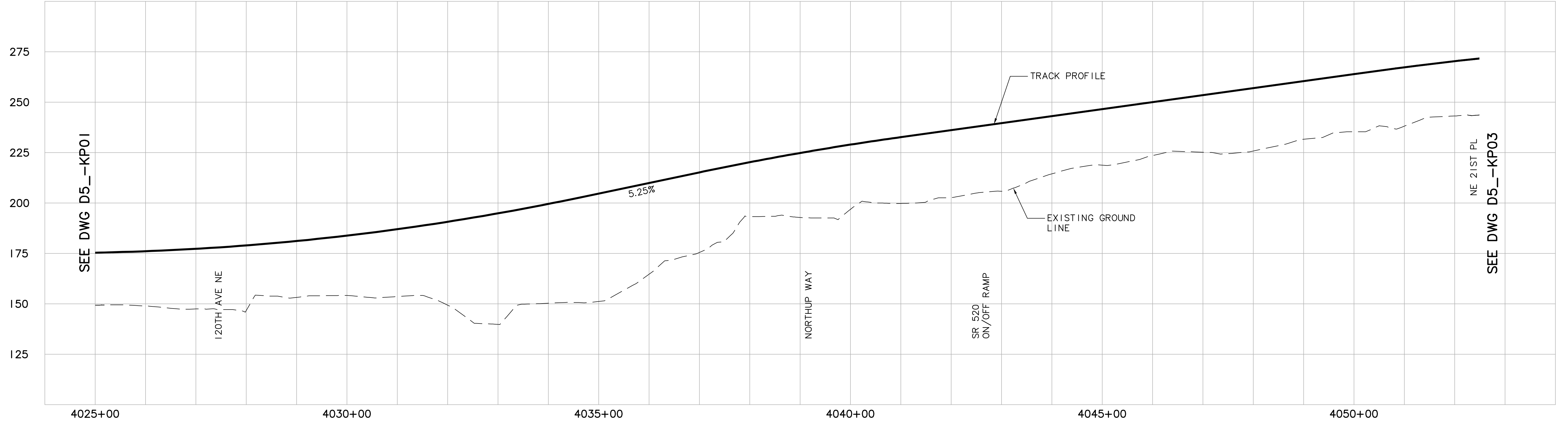
key_East

LTSCALE

1=1



SR 520 WB
SR 520 EB
SEE DWG D5_-KP01
SEE DWG D5_-KP03
120TH AVE NE
124TH AVE NE
NORTHUP WAY
EBa 4025+00
EBa 4030+00
EBa 4035+00
EBa 4040+00
EBa 4045+00
EBa 4050+00
SEE MAINTENANCE FACILITY PLANS
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELD1D5__KP02.dwg
10/16/08 10:57 : eackerm OE5396

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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D5__KP02.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D5_-KP02
Sheet No.:
D-65
Rev.:

XREF'S

Resolved

ELD_520FUT
ELD_D5__CM
ELD_D5__KA
REG-DCON
ZG-2234H
ZG-G10010
x0834rx
x0834sf
x1134rx
x1134sf

Unresolved
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key_East

LTSCALE

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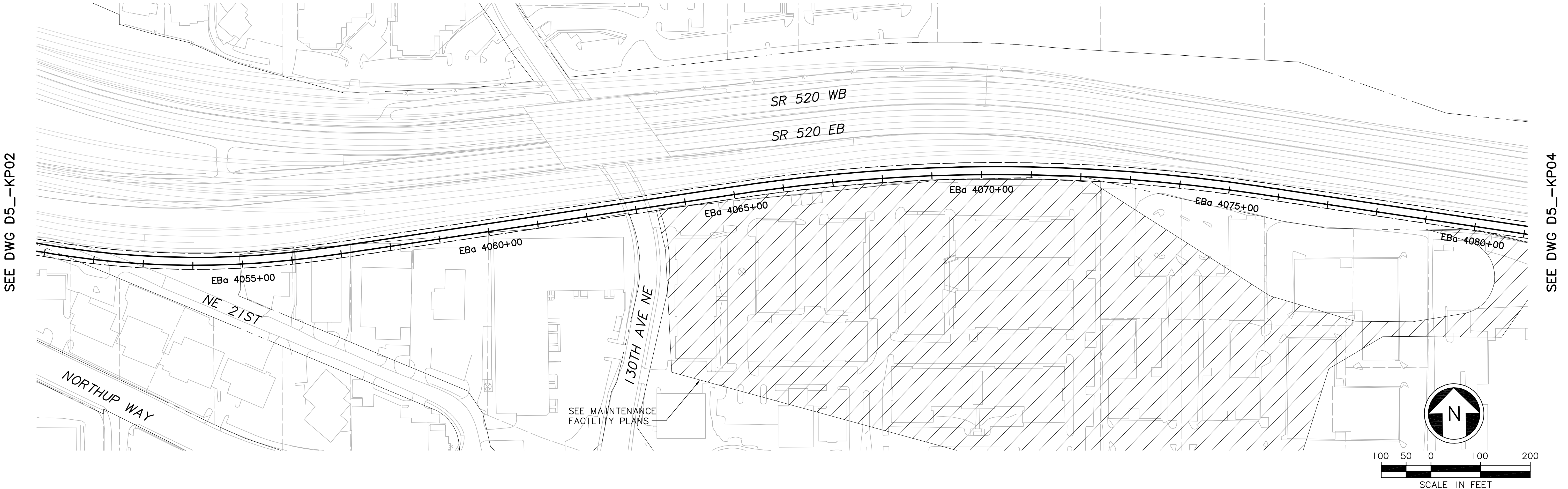
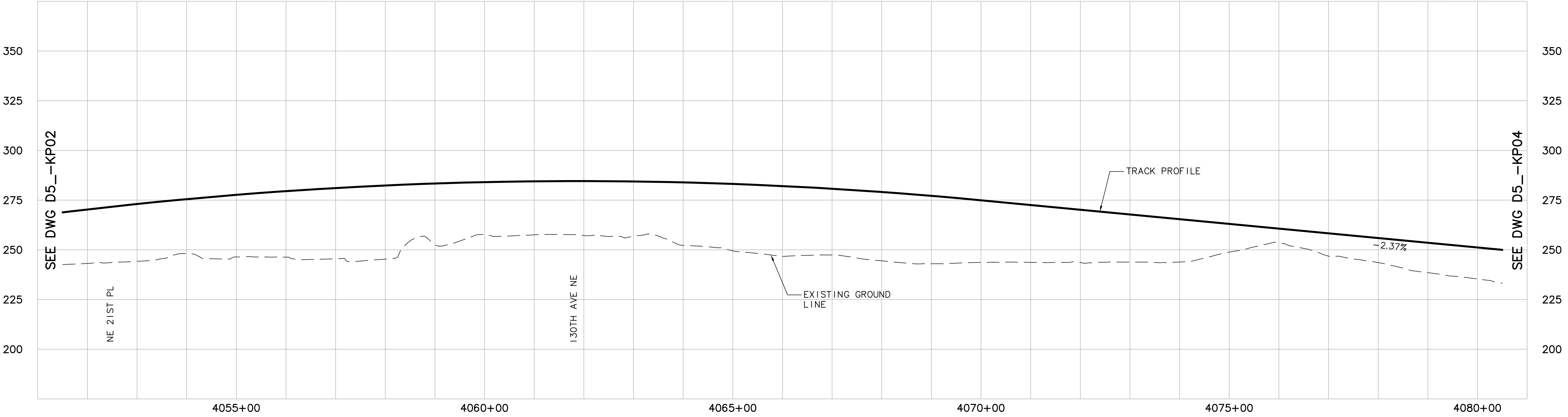

SEE DWG D5_-KP02
SEE DWG D5_-KP04
SR 520 WB
SR 520 EB
EBa 4055+00
EBa 4060+00
EBa 4065+00
EBa 4070+00
EBa 4075+00
EBa 4080+00
NE 21ST
NORTHUP WAY
130TH AVE NE
SEE MAINTENANCE FACILITY PLANS
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELDID5__KP03.dwg
10/16/08 10:58 : eackerm OE5396

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID5__KP03.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D5_-KP03
Sheet No.:
Rev.:
D-66

XREF'S

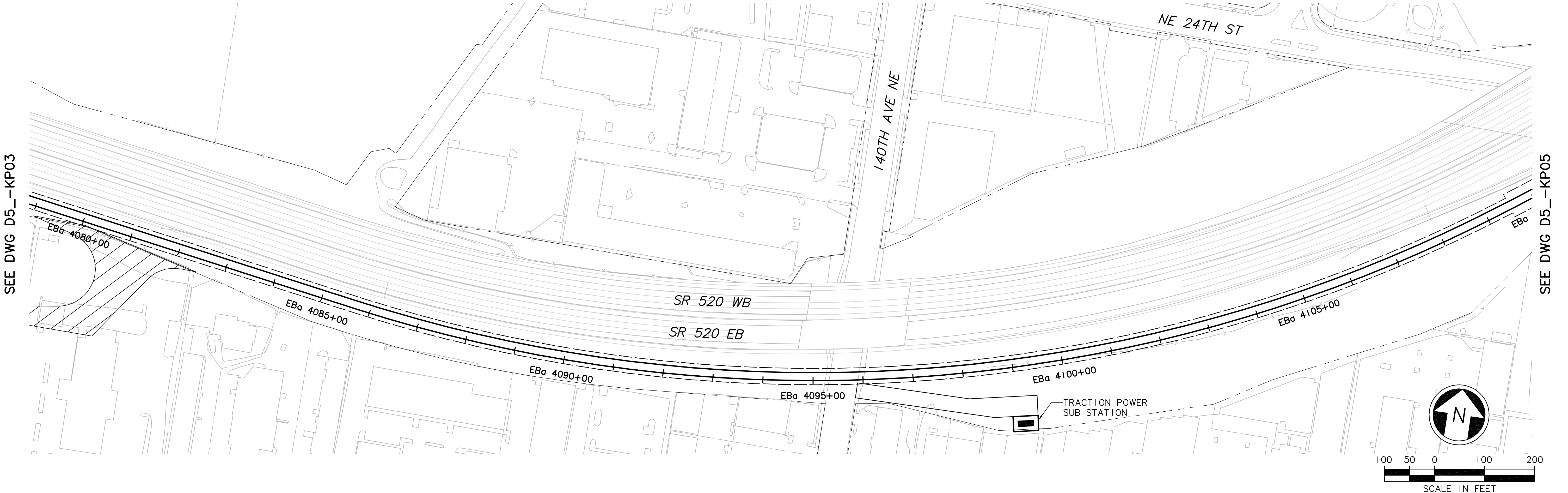
Resolved

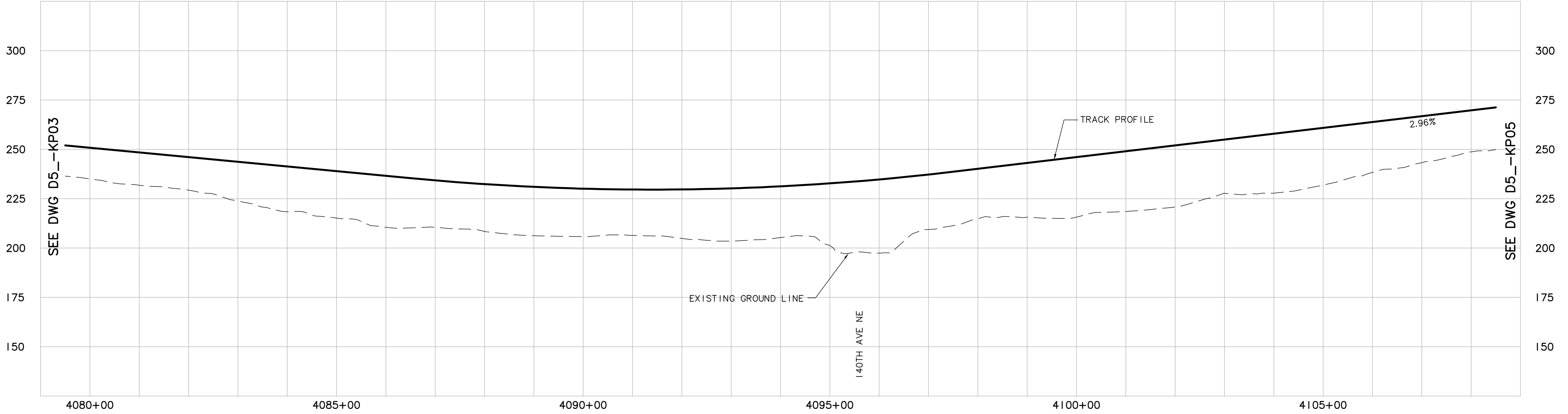
ELD_520FUT
ELD_D5__CM
ELD_D5__JO
ELD_D5__KA
REG-DCON
ZG-2234H
ZG-G10010
x1134rx
x1134sf
x1434rx
x1434sf

Unresolved
----
key_East

LTSCALE

1=1


SEE DWG D5_-KP03
NE 24TH ST
140TH AVE NE
SR 520 WB
SR 520 EB
EBa 4080+00
EBa 4085+00
EBa 4090+00
EBa 4095+00
EBa 4100+00
EBa 4105+00
EBa
TRACTION POWER
SUB STATION
N
100 50 0 100 200
SCALE IN FEET
SEE DWG D5_-KP05



c:\work\ELD1D5__KP04.dwg
10/16/08 10:58 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Submitted:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D5__KP04.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D5_-KP04
Sheet No.:
Rev.:
D-67

XREF'S

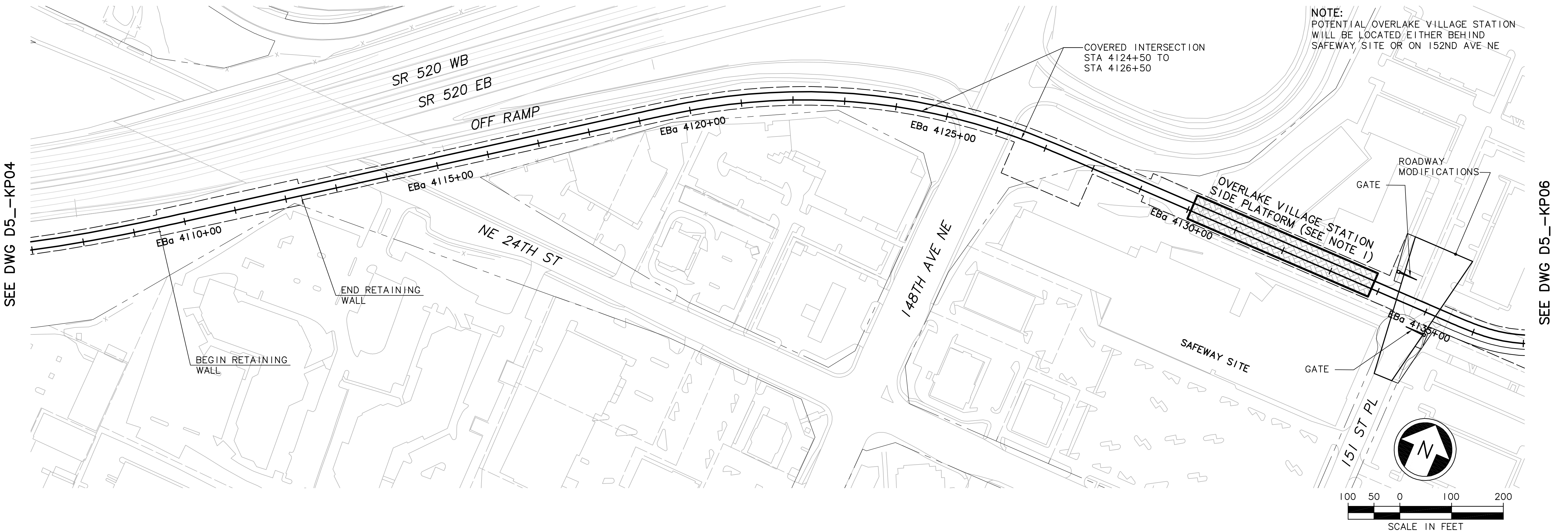
Resolved

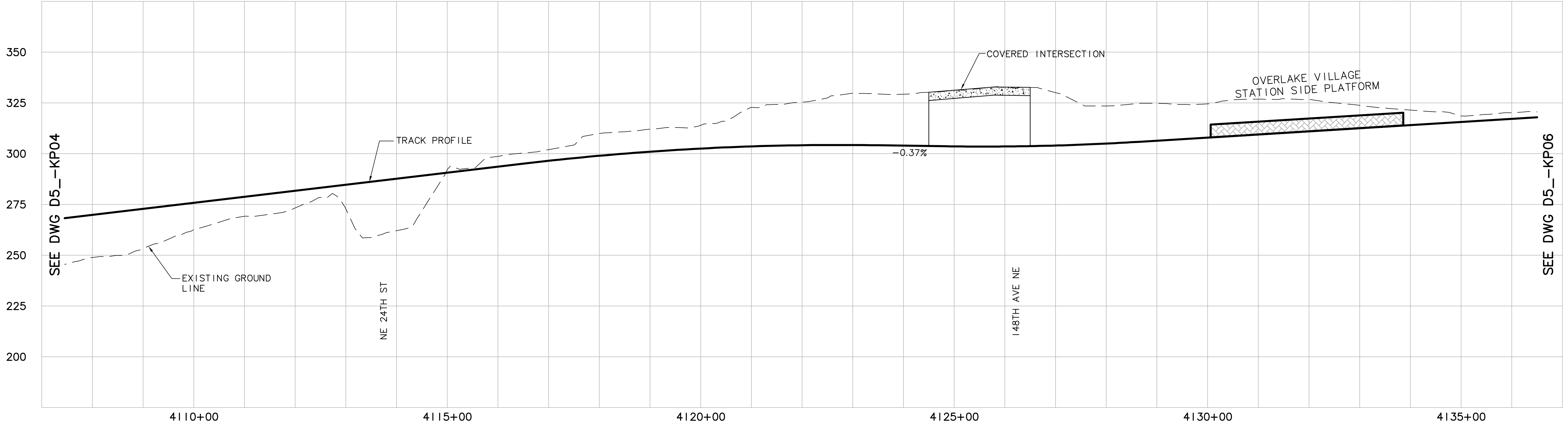
ELD_520FUT
ELD_D5__CM
ELD_D5__KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x1434rx
x1434sf
x1734rx
x1734sf
x1737rx
x1737sf

Unresolved
----
key_East

LTSCALE

1=1


NOTE:
POTENTIAL OVERLAKE VILLAGE STATION WILL BE LOCATED EITHER BEHIND SAFEWAY SITE OR ON 152ND AVE NE
SEE DWG D5_-KP04
SEE DWG D5_-KP06
SR 520 WB
SR 520 EB
OFF RAMP
COVERED INTERSECTION
STA 4124+50 TO
STA 4126+50
EBa 4110+00
EBa 4115+00
EBa 4120+00
EBa 4125+00
EBa 4130+00
EBa 4135+00
ROADWAY MODIFICATIONS
GATE
OVERLAKE VILLAGE STATION SIDE PLATFORM (SEE NOTE 1)
NE 24TH ST
END RETAINING WALL
BEGIN RETAINING WALL
148TH AVE NE
SAFEWAY SITE
GATE
151 ST PL
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD1D5__KP05.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

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HALF SCALE

Drawing No.:
D5_-KP05
Sheet No.:
Rev.:
D-68

c:\work\ELD1D5__KP05.dwg
10/16/08 10:58 : eackerm OE5396

XREF'S

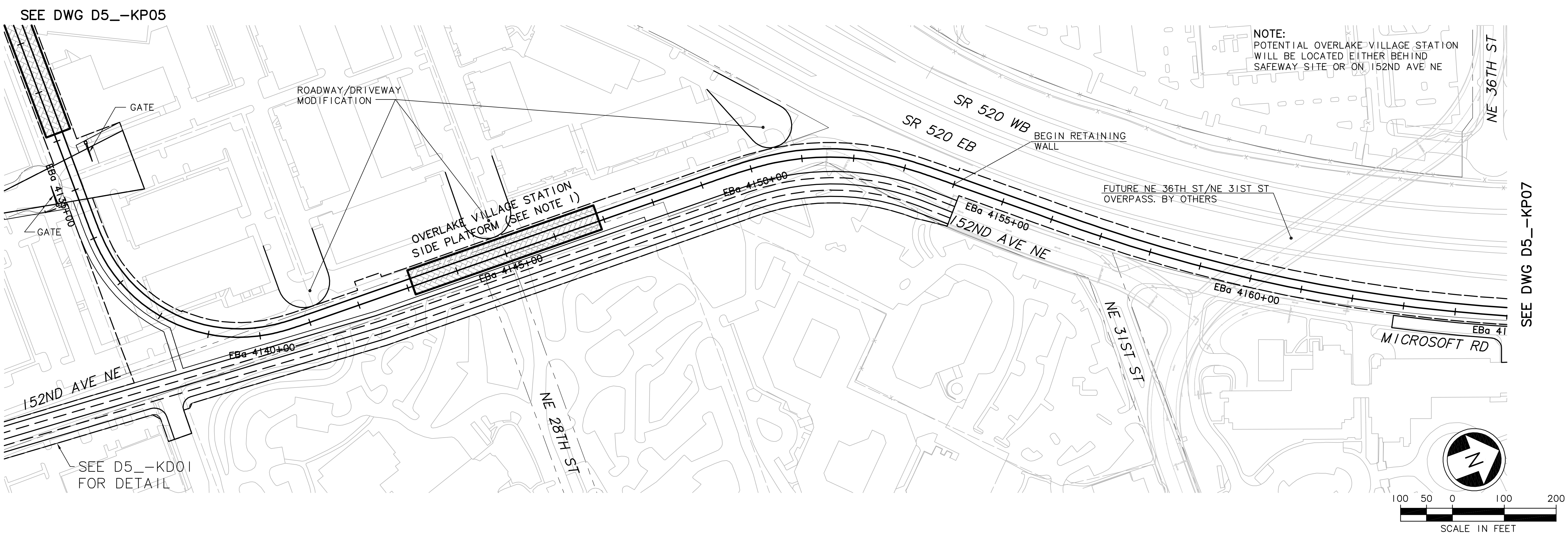
Resolved

ELD_D5__CM
ELD_D5__KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x1734rx
x1734sf
x1737rx
x1737sf
x2037rx
x2037sf

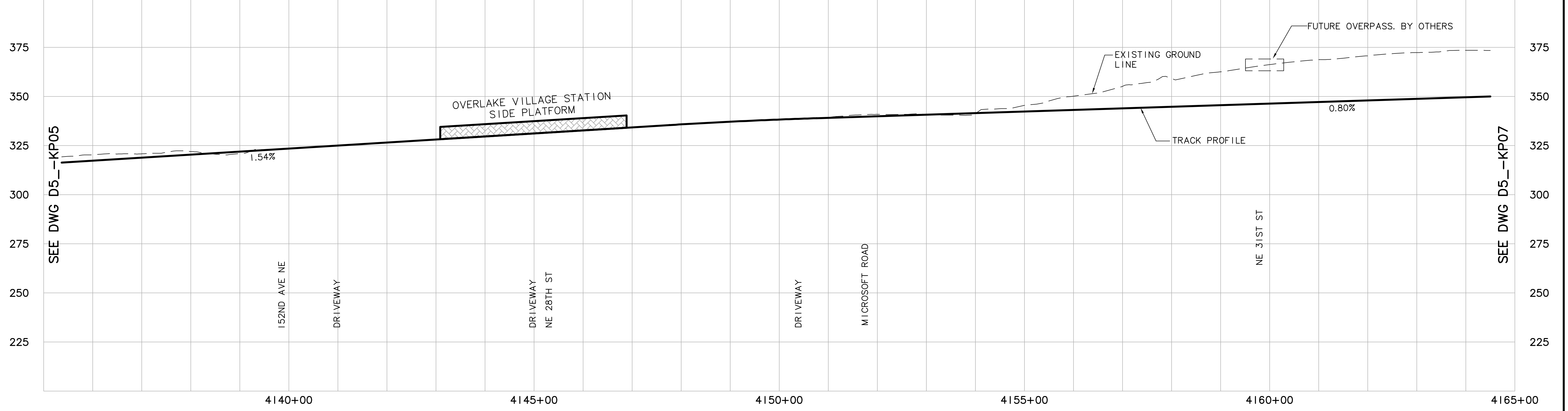
Unresolved
----
key_East

LTSCALE

1=1



SEE DWG D5_-KP05
GATE
GATE
ROADWAY/DRIVEWAY MODIFICATION
NOTE:
POTENTIAL OVERLAKE VILLAGE STATION WILL BE LOCATED EITHER BEHIND SAFEWAY SITE OR ON 152ND AVE NE
SR 520 WB
SR 520 EB
BEGIN RETAINING WALL
NE 36TH ST
FUTURE NE 36TH ST/NE 31ST ST OVERPASS. BY OTHERS
SEE DWG D5_-KP07
OVERLAKE VILLAGE STATION SIDE PLATFORM (SEE NOTE 1)
EBa 4135+00
EBa 4140+00
EBa 4145+00
EBa 4150+00
EBa 4155+00
EBa 4160+00
EBa 41
152ND AVE NE
152ND AVE NE
NE 28TH ST
NE 31ST ST
MICROSOFT RD
SEE D5_-KD01 FOR DETAIL
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELDID5__KP06.dwg
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IN ASSOCIATION WITH
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Grijalva Engineering, L.L.C.

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Scale: H: 1"=100'; V: 1"=25'
Filename: ELDID5__KP06.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

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Drawing No.: D5_-KP06
Sheet No.: D-69
Rev.:

XREF'S

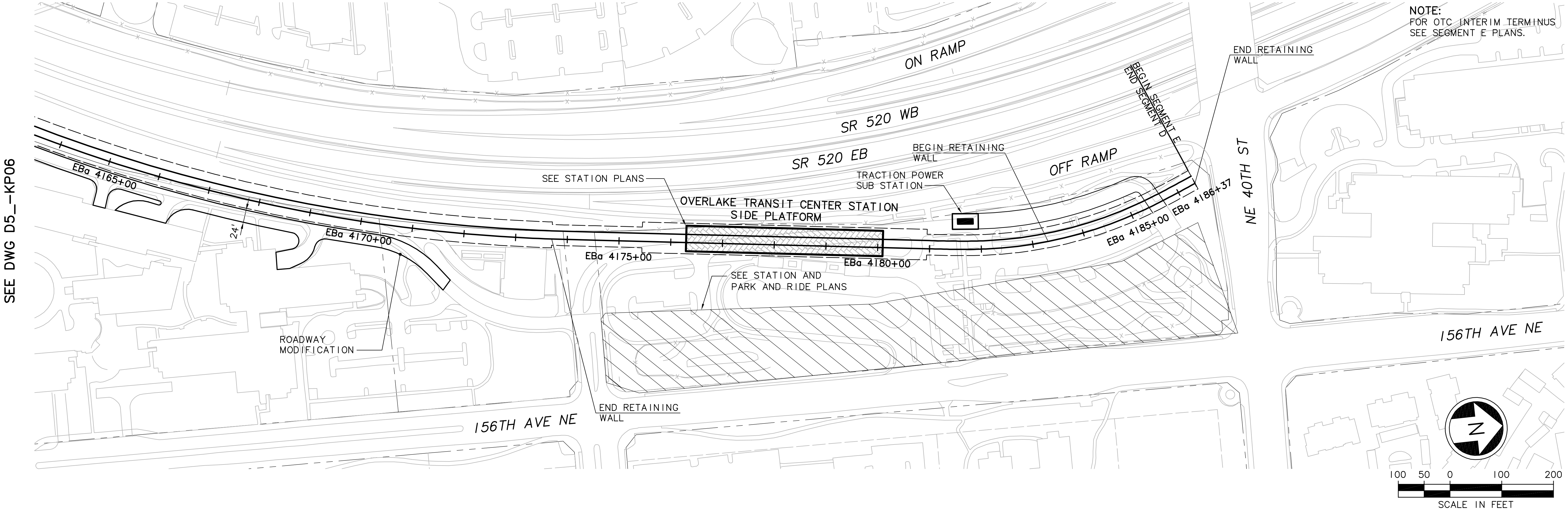
Resolved

ELD_D5__CM
ELD_D5__JO
ELD_D5__KA
ELD_MCRSFT
REG-DCON
ZG-2234H
ZG-G10010
x1737rx
x1737sf
x1740rx
x1740sf
x2037rx
x2037sf
x2040rx
x2040sf

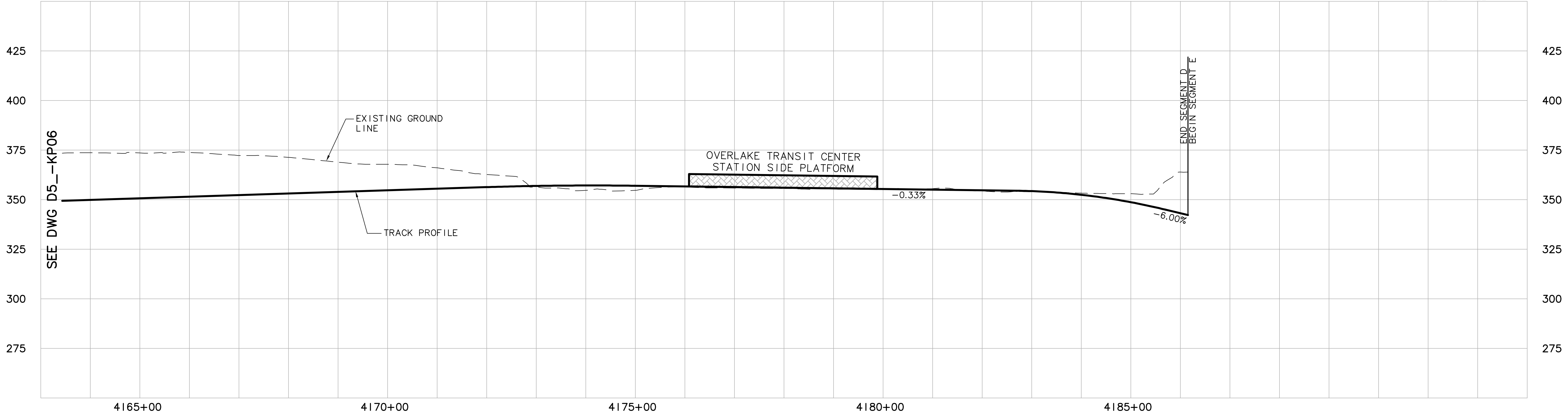
Unresolved
----
key_East

LTSCALE

1=1



NOTE:
FOR OTC INTERIM TERMINUS
SEE SEGMENT E PLANS.
SEE DWG D5_-KP06
ON RAMP
SR 520 WB
SR 520 EB
OFF RAMP
END RETAINING WALL
BEGIN SEGMENT E
END SEGMENT D
BEGIN RETAINING WALL
TRACTION POWER SUB STATION
SEE STATION PLANS
OVERLAKE TRANSIT CENTER STATION
SIDE PLATFORM
NE 40TH ST
EBa 4165+00
24'
EBa 4170+00
EBa 4175+00
EBa 4180+00
EBa 4185+00
EBa 4186+37
SEE STATION AND PARK AND RIDE PLANS
ROADWAY MODIFICATION
END RETAINING WALL
156TH AVE NE
156TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



SEE DWG D5_-KP06
425
400
375
350
325
300
275
EXISTING GROUND LINE
TRACK PROFILE
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
-0.33%
-6.00%
END SEGMENT D
BEGIN SEGMENT E
4165+00
4170+00
4175+00
4180+00
4185+00

c:\work\ELDID5__KP07.dwg : eackerm OE5396
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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELDID5__KP07.dwg
Contract No.:
EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
D5_-KP07
Sheet No.: Rev.:
D-70

XREF'S

Resolved

ELD_520FUT
ELD_D5__CM
ELD_D5__KA
ELD_D5__KA_1
ELD_MCRSFT
REG-DCON
ZG-2234H
x1434rx
x1434sf
x1734rx
x1734sf
x1737rx
x1737sf

Unresolved
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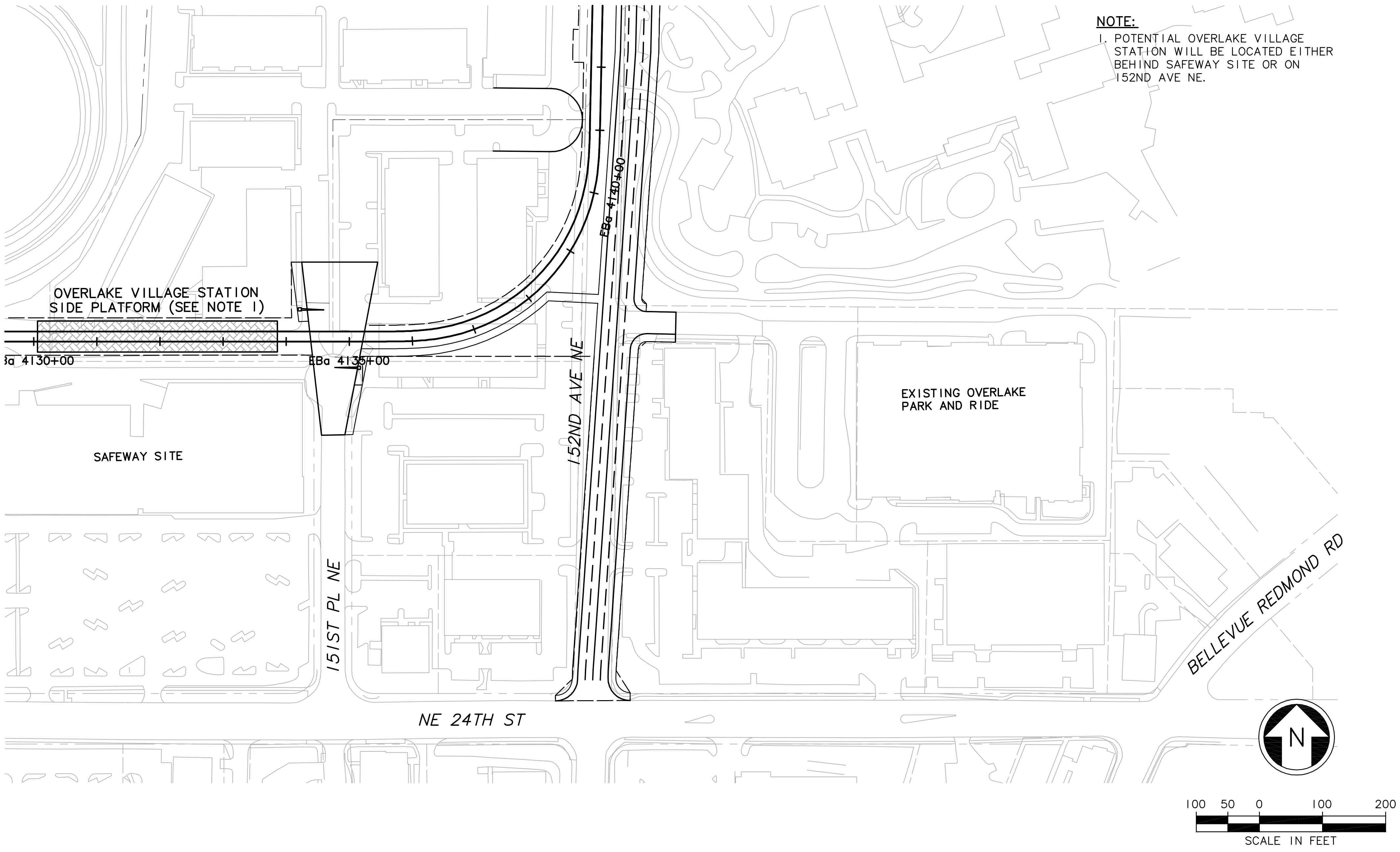
key_East

LTSCALE

1=1

SEE DWG D5_-KP06


OVERLAKE VILLAGE STATION
SIDE PLATFORM (SEE NOTE 1)
EBa 4130+00
EBa 4135+00
EBa 4140+00
152ND AVE NE
151ST PL NE
NE 24TH ST
BELLEVUE REDMOND RD
SAFEWAY SITE
EXISTING OVERLAKE
PARK AND RIDE
N
100 50 0 100 200
SCALE IN FEET

NOTE:
1. POTENTIAL OVERLAKE VILLAGE STATION WILL BE LOCATED EITHER BEHIND SAFEWAY SITE OR ON 152ND AVE NE.

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SOUNDTRANSIT

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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELD\D5__KD01.dwg
Contract No.:
EL SEG_D
Date:

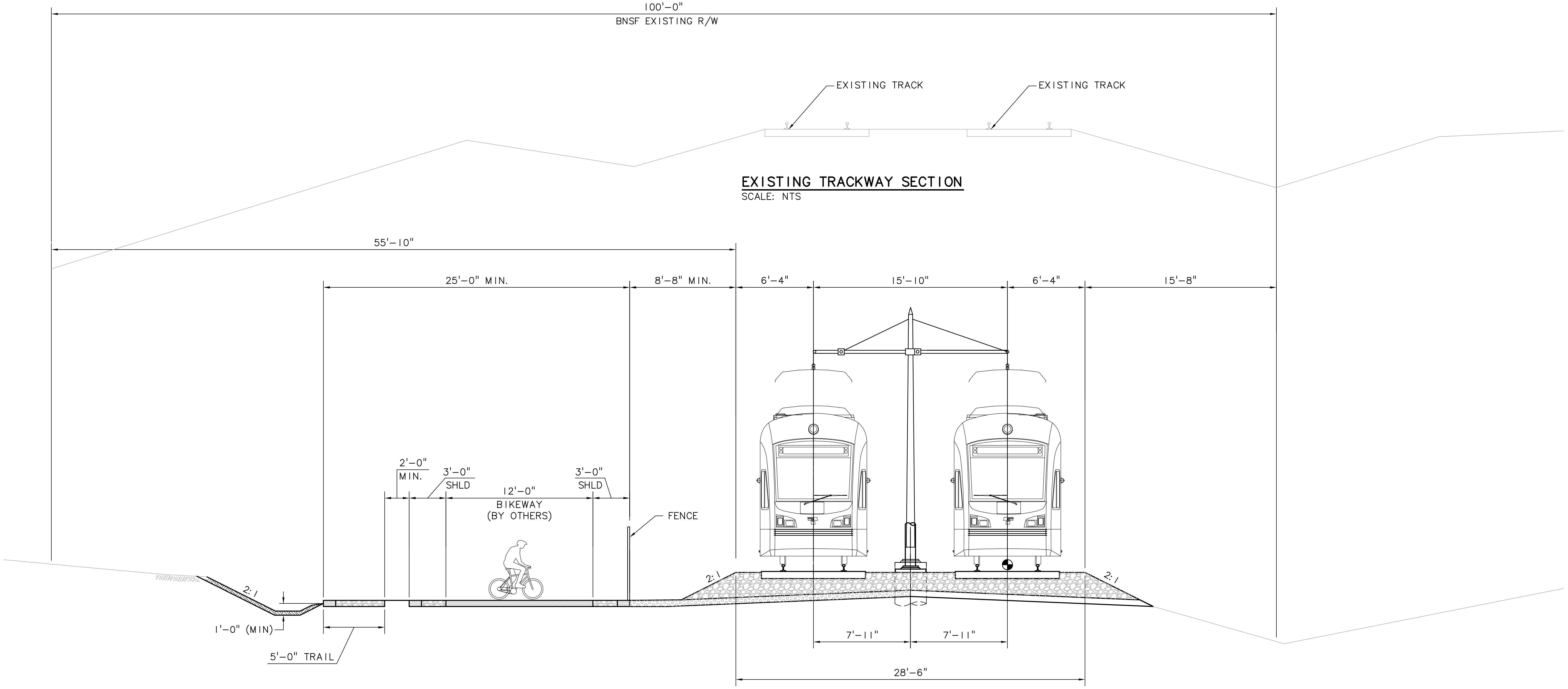
EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
ROAD MODIFICATION PLAN
152ND AVE NE

THIS PRINT REDUCED
HALF SCALE

Drawing No.:
D5_-KD01
Sheet No.:
Rev.:
D-71

c:\work\ELD\D5__KD01.dwg
10/16/08 10:57 : eackerm 0E5396

XREF'S
Resolved
ZG-2234H
REG-DCON
Unresolved
LTSCALE
1=1


100'-0"
BNSF EXISTING R/W
EXISTING TRACK
EXISTING TRACK
55'-10"
25'-0" MIN.
8'-8" MIN.
6'-4"
15'-10"
6'-4"
15'-8"
2'-0"
MIN.
3'-0"
SHLD
12'-0"
BIKEWAY
(BY OTHERS)
3'-0"
SHLD
FENCE
2:1
2:1
2:1
1'-0" (MIN)
5'-0" TRAIL
7'-11"
7'-11"
28'-6"

EXISTING TRACKWAY SECTION

SCALE: NTS

PROPOSED LRT SECTION – BNSF
ALIGNMENT: D5
AT–GRADE BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\ELDID5__KX01.dwg : eackerm OE5396
10/16/08 10:59

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Date:
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Date:

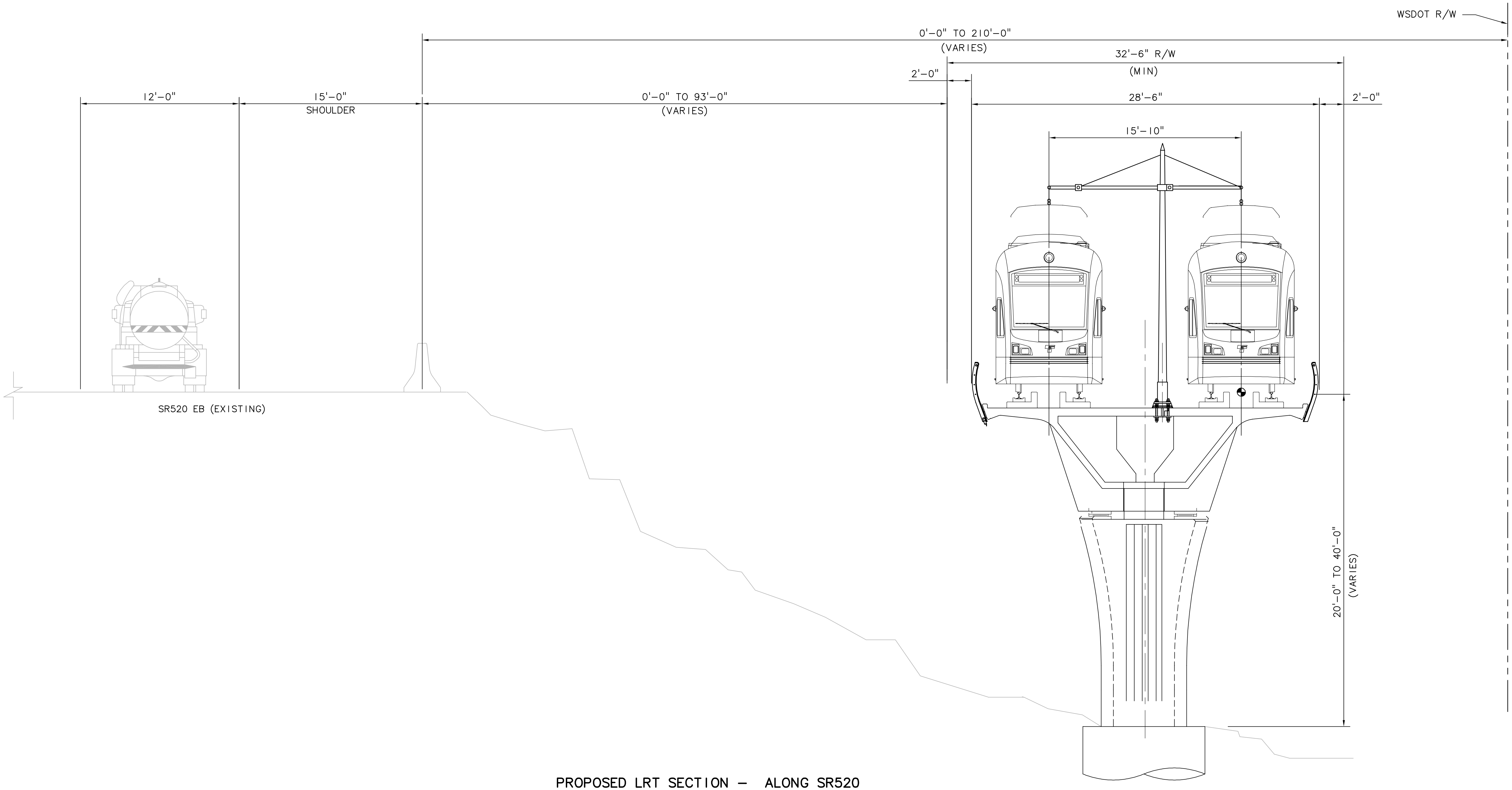
Scale: NTS
Filename: ELDID5__KX01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_–KX01
Sheet No.: D-72
Rev.:

XREF'S
Resolved
Zg-2234h
REG-DCON
Unresolved
LTSCALE
1=1



WSDOT R/W
0'-0" TO 210'-0"
(VARIES)
32'-6" R/W
(MIN)
2'-0"
12'-0"
15'-0"
SHOULDER
0'-0" TO 93'-0"
(VARIES)
28'-6"
2'-0"
15'-10"
SR520 EB (EXISTING)
20'-0" TO 40'-0"
(VARIES)

PROPOSED LRT SECTION – ALONG SR520
ALIGNMENT: D5
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELDID5__KX02.dwg
10/16/08 11:00 : eackerm 0E5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

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IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELDID5__KX02.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_-KX02
Sheet No.: D-73
Rev.:

XREF'S

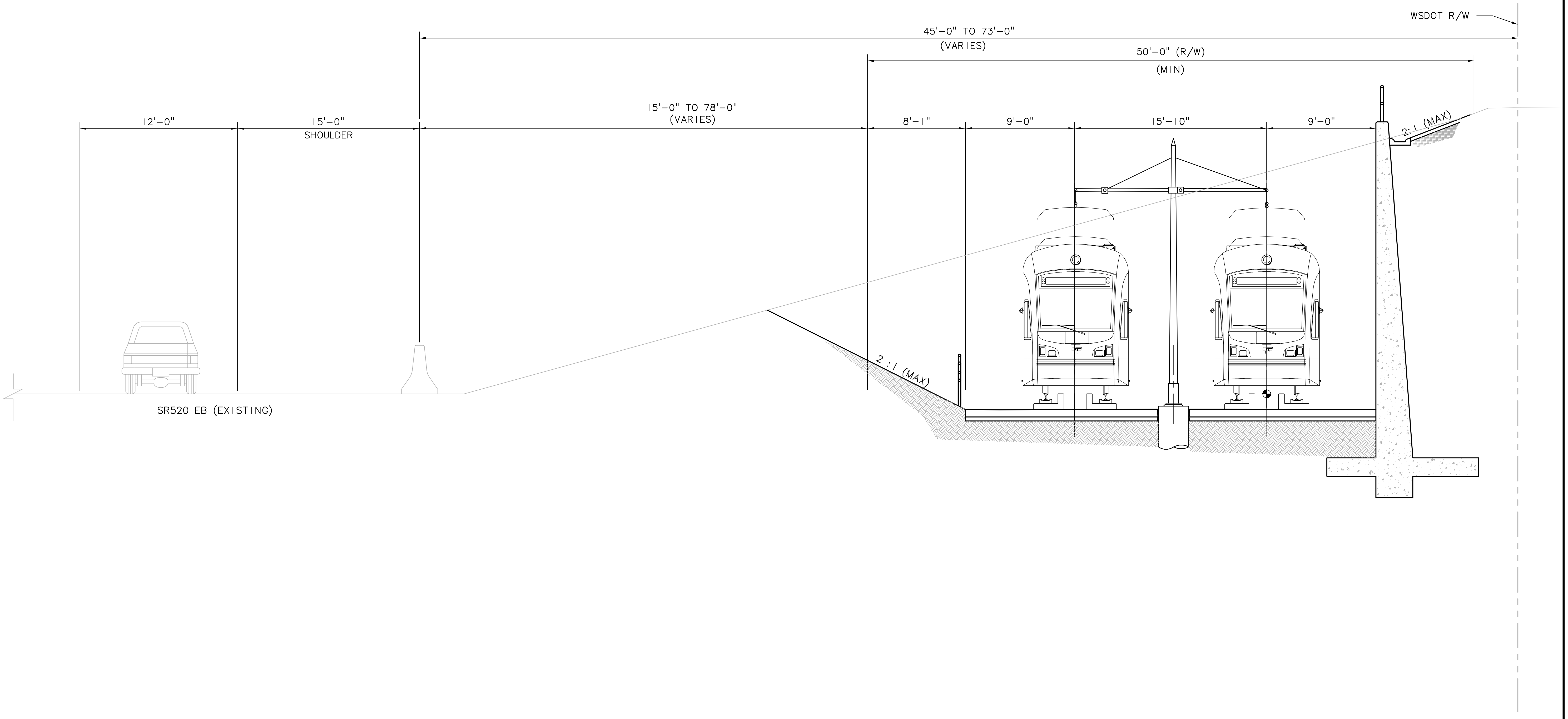
Resolved

Zg-2234h
REG-DCON

Unresolved

LTSCALE

I=I



WSDOT R/W
45'-0" TO 73'-0"
(VARIES)
50'-0" (R/W)
(MIN)
12'-0"
15'-0"
SHOULDER
15'-0" TO 78'-0"
(VARIES)
8'-1"
9'-0"
15'-10"
9'-0"
2:1 (MAX)
2:1 (MAX)
SR520 EB (EXISTING)

PROPOSED LRT SECTION - ALONG SR520
ALIGNMENT: D5
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\ELDID5__KX03.dwg
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Submitted:
Date:

Grijalva
Engineering, L.L.C.
Approved:

SOUNDTRANSIT
Date:

Scale: NTS
Filename: ELDID5__KX03.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5
TYPICAL SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: D5_-KX03
Sheet No.: Rev.:
D-74

XREF'S

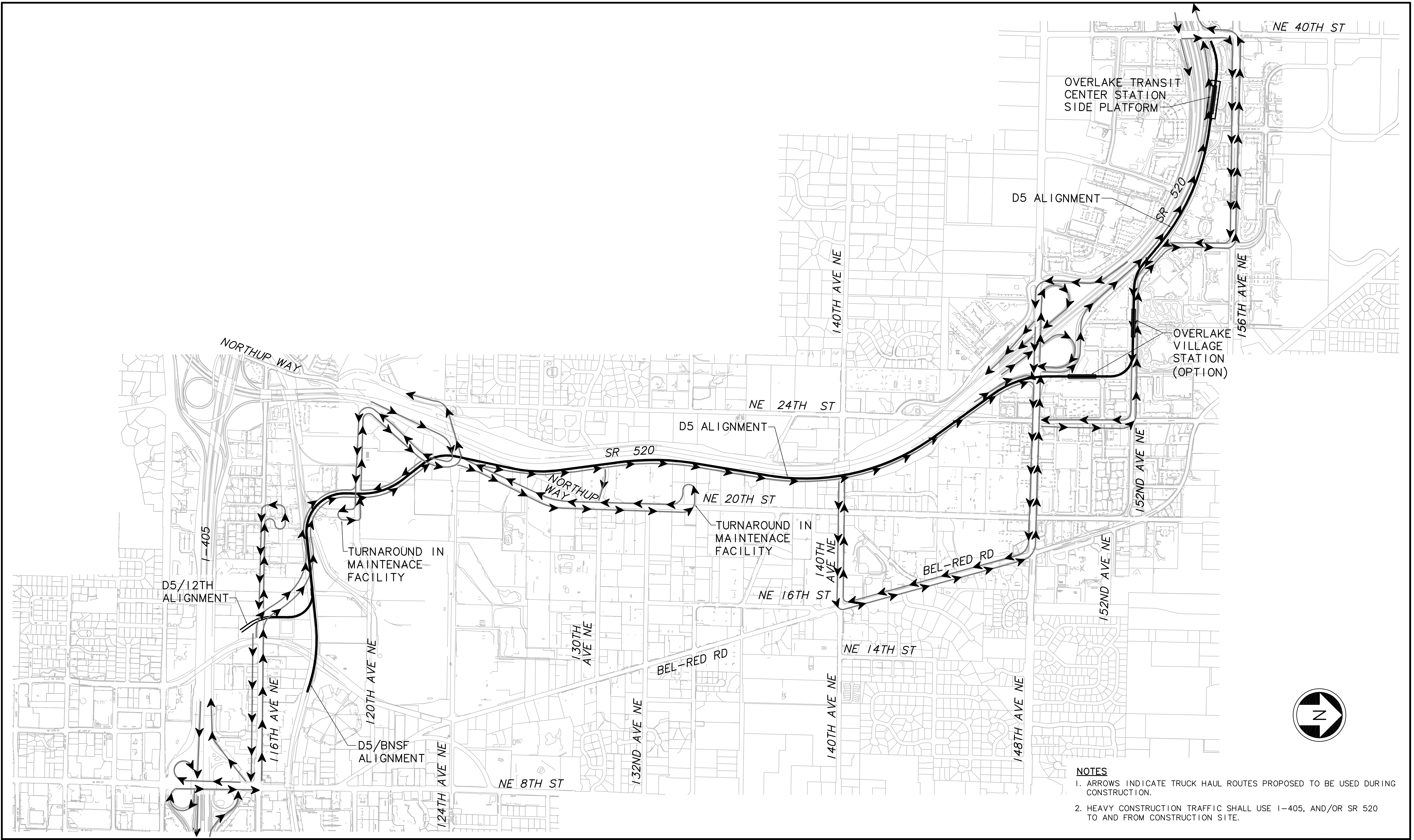
Resolved

ELD_D5__KA
ELD_D5__KA_I
REG-DCON
Zg-2234h
x0228rx
x0228sf
x0231rx
x0231sf
x0528rx
x0528sf
x0531rx
x0531sf
x0534rx
x0534sf
x0828rx
x0828sf
x0831rx
x0831sf
x0834rx
x0834sf
x1131rx
x1131sf
x1134rx
x1134sf
x1431rx
x1431sf
x1434rx
x1434sf
x1437rx
x1437sf
x1731rx
x1731sf
x1734rx
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x2037rx
x2037sf
x2040rx
x2040sf

Unresolved

LTSCALE

1=1


1
2
3
4
5
NE 40TH ST
OVERLAKE TRANSIT CENTER STATION SIDE PLATFORM
D5 ALIGNMENT
SR 520
156TH AVE NE
OVERLAKE VILLAGE STATION (OPTION)
140TH AVE NE
NORTHUP WAY
NE 24TH ST
D5 ALIGNMENT
SR 520
152ND AVE NE
NORTHUP WAY
NE 20TH ST
TURNAROUND IN MAINTENACE FACILITY
TURNAROUND IN MAINTENACE FACILITY
I-405
D5/12TH ALIGNMENT
140TH AVE NE
BEL-RED RD
NE 16TH ST
152ND AVE NE
130TH AVE NE
NE 14TH ST
BEL-RED RD
120TH AVE NE
116TH AVE NE
D5/BNSF ALIGNMENT
124TH AVE NE
132ND AVE NE
140TH AVE NE
148TH AVE NE
NE 8TH ST
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405, AND/OR SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\ELDID5__CC01.dwg
10/16/08 10:56 : eackerm OE5396

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Date:

Scale: NTS
Filename: ELDID5__CC01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D
ALTERNATIVE D5

CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: D5_-CC01
Sheet No.: D-75
Rev.:

XREF'S

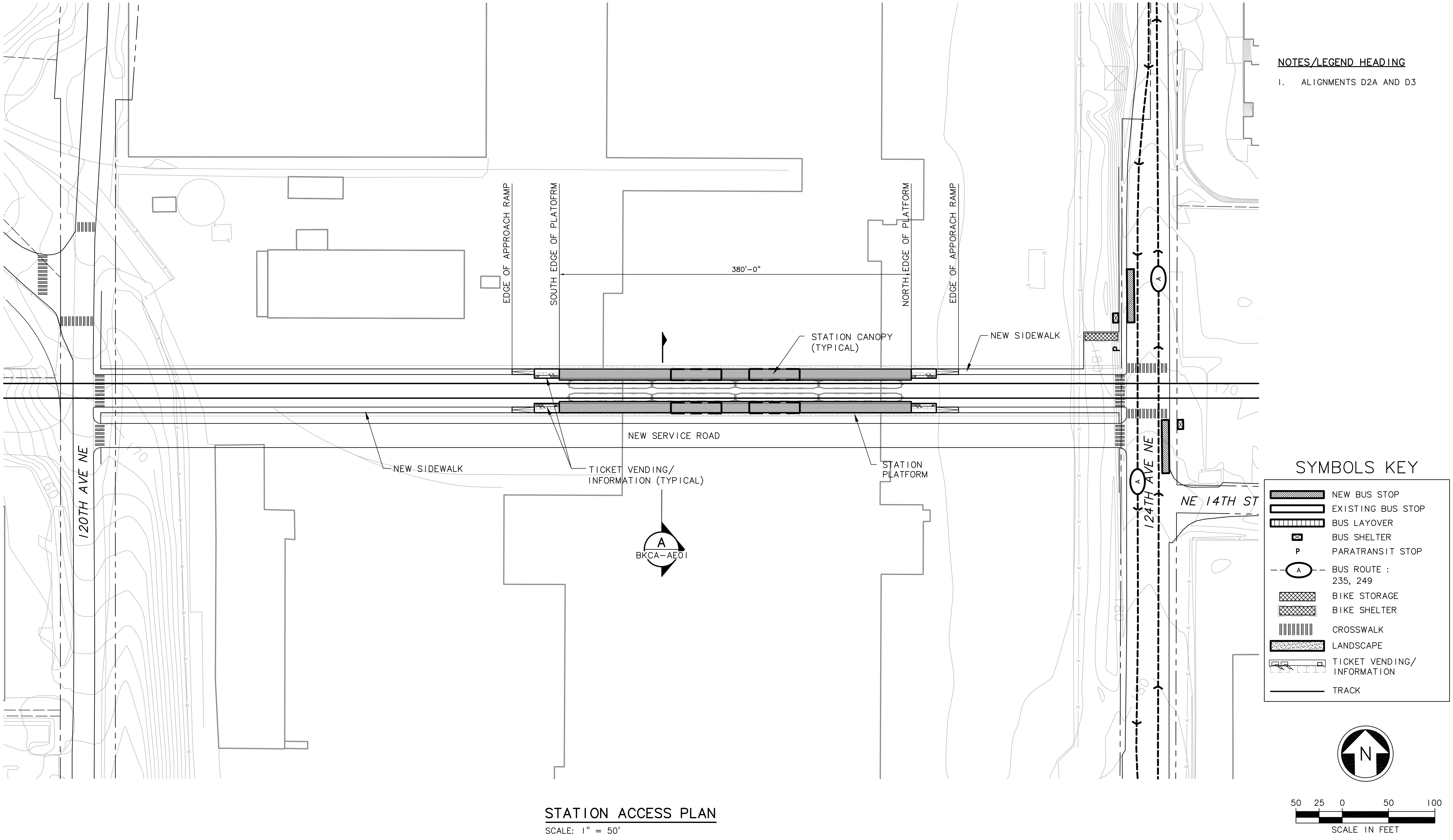
Resolved

ELD_BKCA1AS
ELD_D3__KA
REG-DCON
X0831CN
X0831SF
ZG-2234H
x0831rx

Unresolved

LTSCALE

1=1


1
2
3
4
5
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATOFRM
380'-0"
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
STATION CANOPY
(TYPICAL)
NEW SIDEWALK
P
NEW SERVICE ROAD
NEW SIDEWALK
TICKET VENDING/
INFORMATION (TYPICAL)
STATION
PLATFORM
A
BKCA-AE01
120TH AVE NE
124TH AVE NE
NE 14TH ST
170
160
180
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
BUS SHELTER
PARATRANSIT STOP
BUS ROUTE :
235, 249
BIKE STORAGE
BIKE SHELTER
CROSSWALK
LANDSCAPE
TICKET VENDING/
INFORMATION
TRACK
N
50 25 0 50 100
SCALE IN FEET

NOTES/LEGEND HEADING

1. ALIGNMENTS D2A AND D3

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELD1BKCA_AS01.dwg
11/05/08 08:24 : eackerm 0E5396

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IN ASSOCIATION WITH
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IBI GROUP

SOUNDTRANSIT

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Approved:
Date:

Scale: 1"=50'
Filename: ELD1BKCA_AS01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

120TH AVE NE STATION
AT-GRADE STATION
STATION ACCESS PLAN

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Drawing No.: BKCA-AS01
Sheet No.: D-76
Rev.:

XREF'S

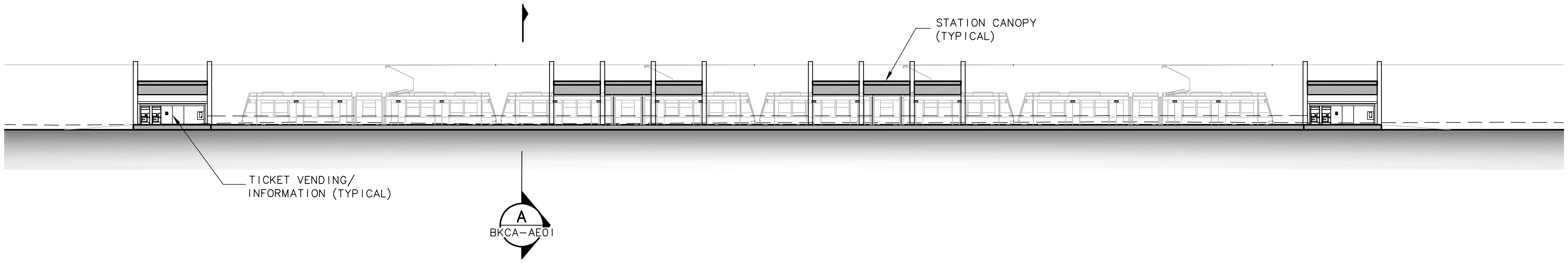
Resolved

ELD_BKCA1AX
ELD_BKCA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

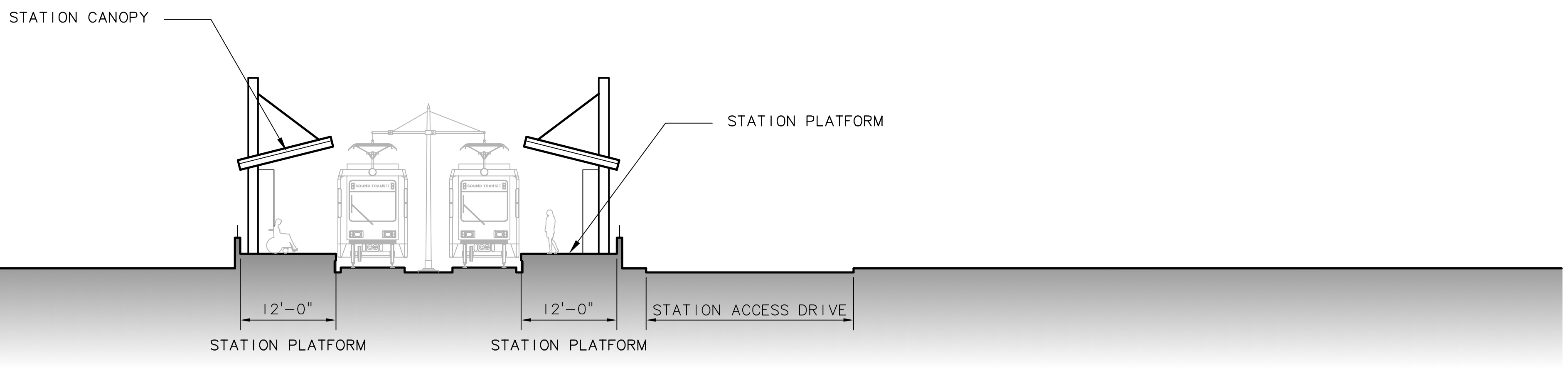
1=1


STATION CANOPY
(TYPICAL)
TICKET VENDING/
INFORMATION (TYPICAL)
A
BKCA-AE01

STATION ELEVATION

SCALE: 1" = 20'

10 5 0 10 20
SCALE IN FEET


STATION CANOPY
STATION PLATFORM
12'-0"
STATION PLATFORM
12'-0"
STATION PLATFORM
STATION ACCESS DRIVE

STATION SECTION (A) BKCA-AE01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELD1BKCA_AE01.dwg
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Date:

Scale: 1"=20'
Filename: ELD1BKCA_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

120TH AVE NE STATION
AT-GRADE STATION
STATION ACCESS PLAN

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Drawing No.: BKCA-AE01
Sheet No.: D-77
Rev.:

XREF'S

Resolved

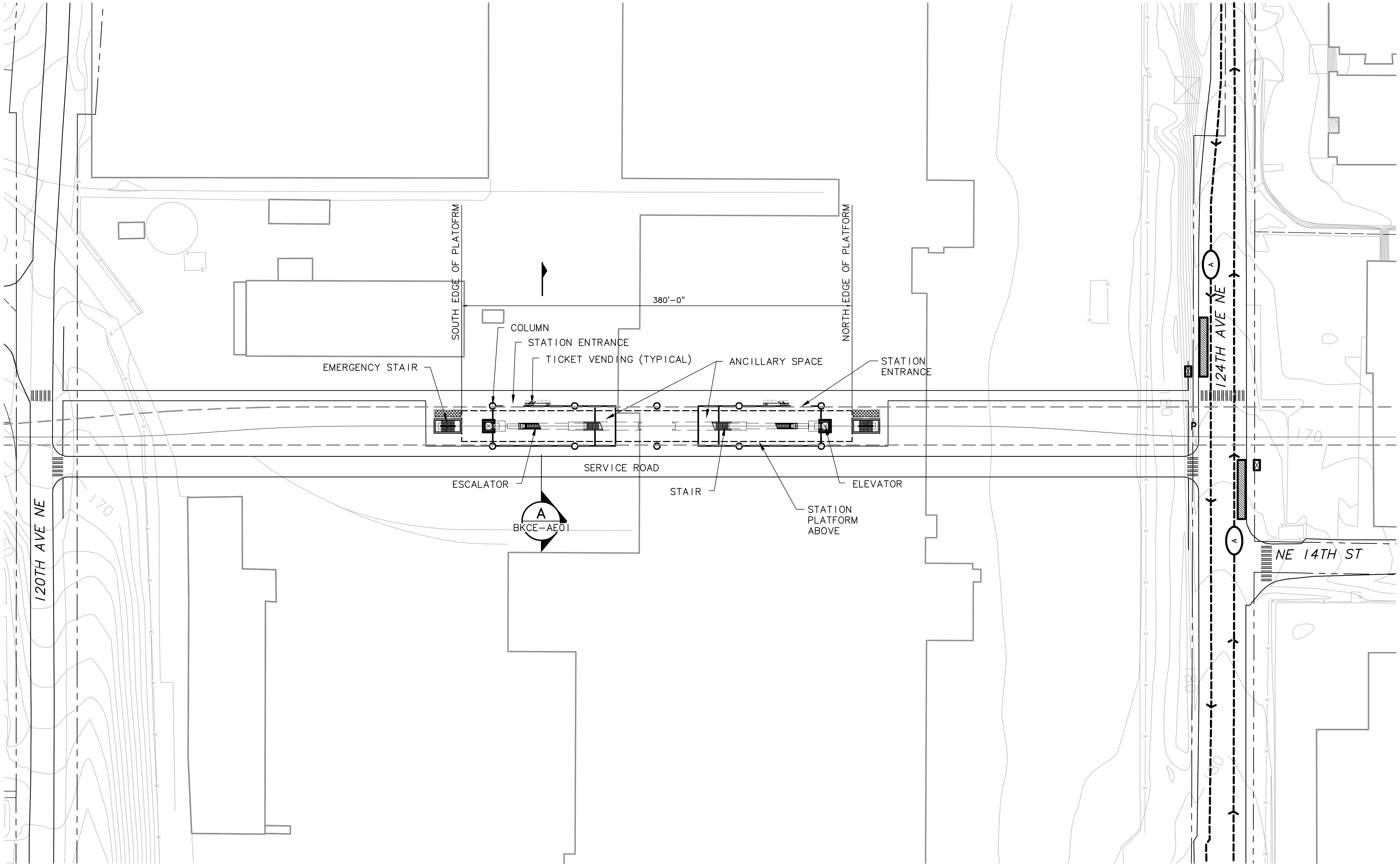
ELD_BKCE1AS
ELD_D2E_KA
REG-DCON
X0831CN
X0831SF
ZG-2234H
x0831rx

Unresolved

LTSCALE

1=1

c:\work\ELD1BKCE_AS01.dwg
11/05/08 08:24 : eackerm OE5396



1
2
3
4
5
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
380'-0"
COLUMN
STATION ENTRANCE
TICKET VENDING (TYPICAL)
ANCILLARY SPACE
STATION ENTRANCE
EMERGENCY STAIR
SERVICE ROAD
ESCALATOR
STAIR
ELEVATOR
STATION PLATFORM ABOVE
A
BKCE-AE01
120TH AVE NE
124TH AVE NE
NE 14TH ST
170
180
P
A

NOTES/LEGEND HEADING

1. ALIGNMENT D2E

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	BUS SHELTER
P	PARATRANSIT STOP
–(A)–	BUS ROUTE : 235, 249
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▒	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
- - - -	TRACK OVERHEAD

N

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

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IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:

IBI GROUP

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SOUNDTRANSIT

Date:

Scale: 1"=50'
Filename: ELD1BKCE_AS01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

120TH AVE NE STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: BKCE-AS01
Sheet No.: D-78
Rev.:

XREF'S

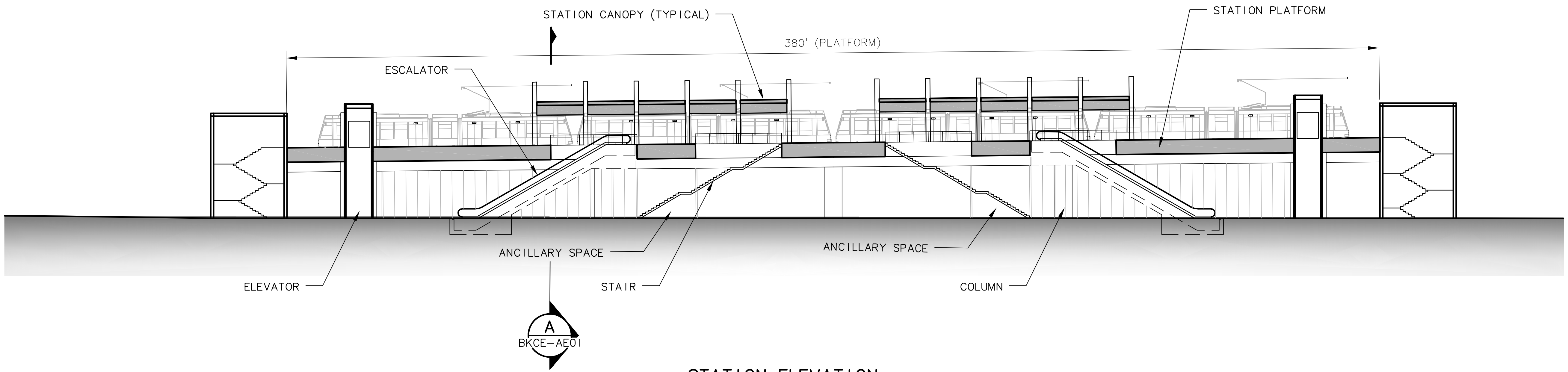
Resolved

ELD_BKCE1AE
ELD_BKCE1AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

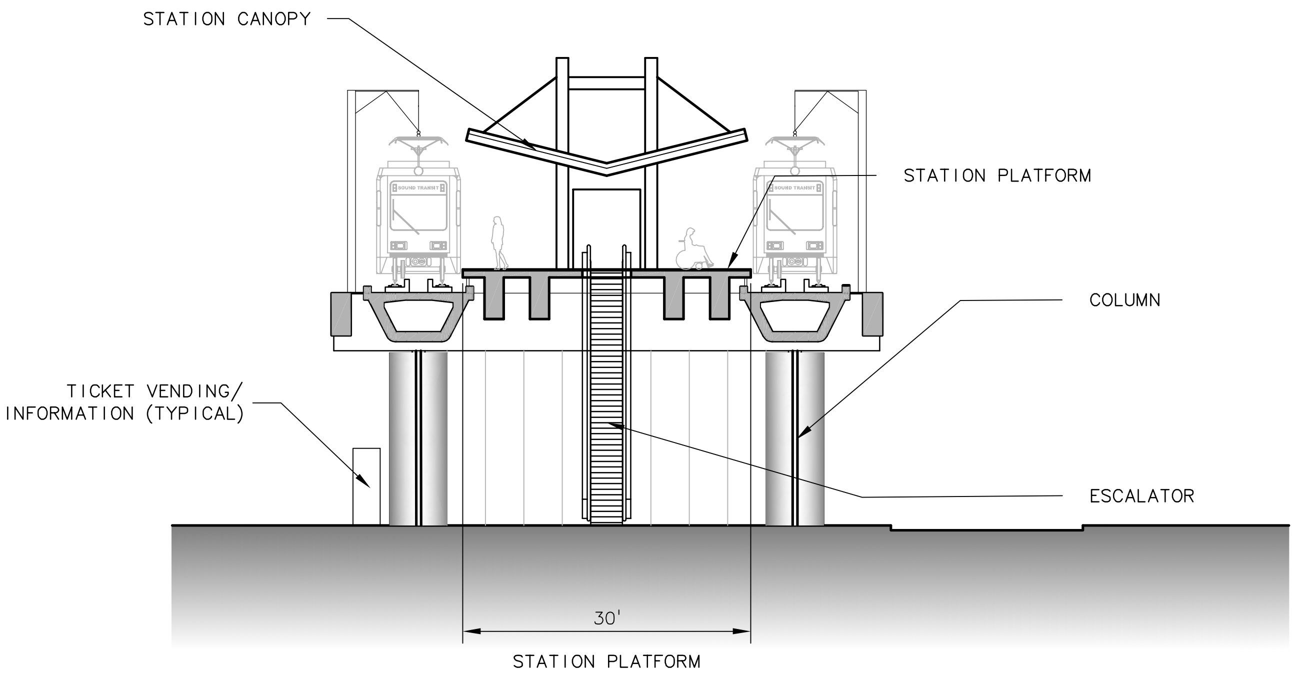
1=1


STATION CANOPY (TYPICAL)
STATION PLATFORM
380' (PLATFORM)
ESCALATOR
ANCILLARY SPACE
ANCILLARY SPACE
ELEVATOR
STAIR
COLUMN
A
BKCE-AE01

20
10
0
20
40
SCALE IN FEET

STATION ELEVATION

SCALE: 1" = 20'


STATION CANOPY
STATION PLATFORM
COLUMN
TICKET VENDING/
INFORMATION (TYPICAL)
ESCALATOR
30'
STATION PLATFORM

10
5
0
10
20
SCALE IN FEET

STATION SECTION A
BKCE-AE01

SCALE: 1" = 10'

c:\work\ELD1BKCE_AE01.dwg
10/16/08 10:34 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.
Submitted:
Date:

IBI GROUP

Approved:

SOUNDTRANSIT

Date:

Scale: 1"=20'
Filename: ELD1BKCE_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

120TH AVE NE STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BKCE-AE01
Sheet No.: D-79
Rev.:

XREF'S

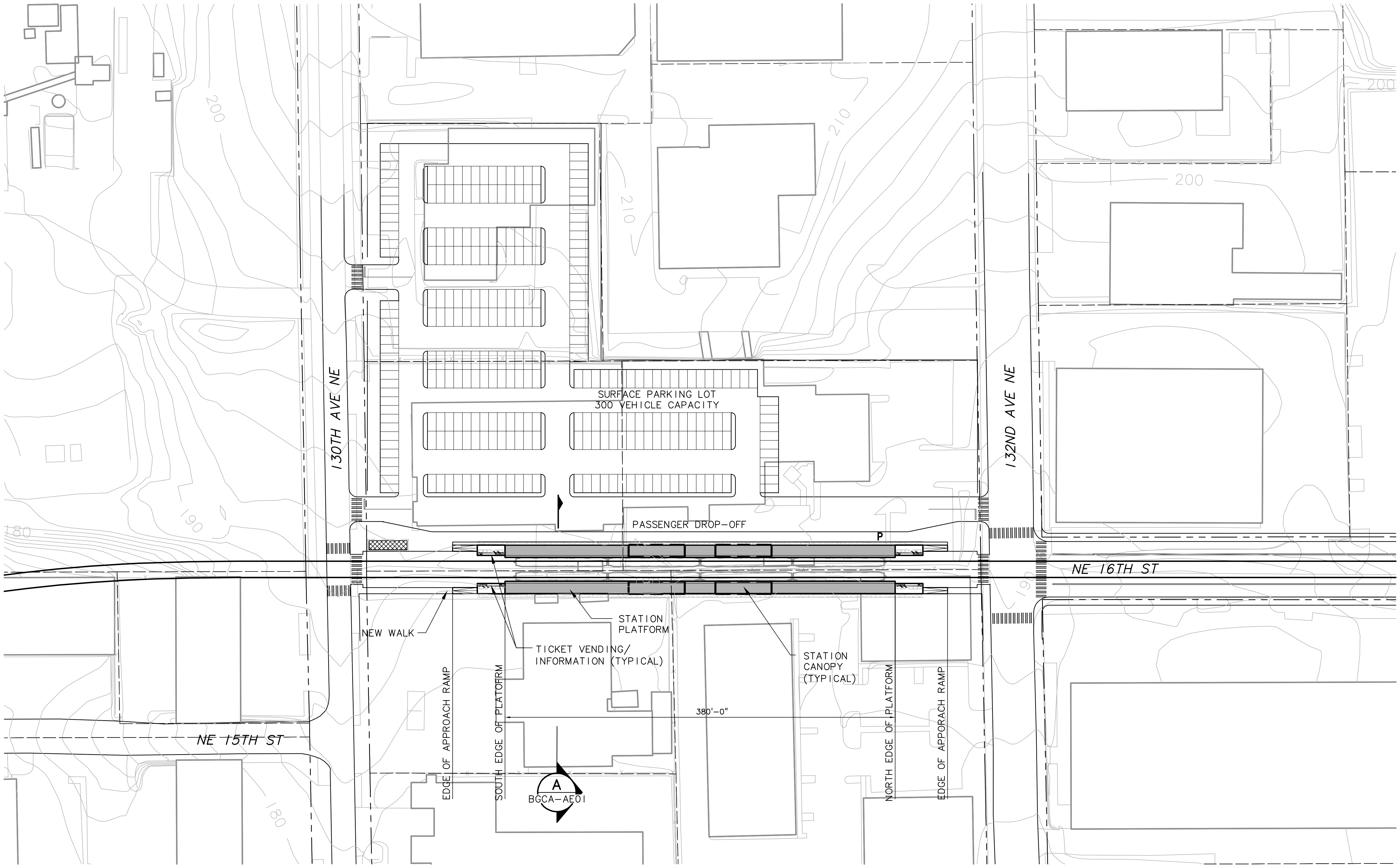
Resolved

ELD_BGCA1AS
ELD_D3__KA
REG-DCON
X1131CN
X1131SF
X1134CN
X1134SF
Zg-2234h
x1131rx
x1134rx

Unresolved

LTSCALE

1=1


1
2
3
4
5
200
210
210
200
200
180
190
190
180
130TH AVE NE
132ND AVE NE
NE 16TH ST
NE 15TH ST
SURFACE PARKING LOT
300 VEHICLE CAPACITY
PASSENGER DROP-OFF
P
STATION PLATFORM
NEW WALK
TICKET VENDING/ INFORMATION (TYPICAL)
STATION CANOPY (TYPICAL)
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
380'-0"
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
A
BGCA-AE01

NOTES/LEGEND HEADING

1. ALIGNMENTS D2A AND D3

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	BUS SHELTER
P	PARATRANSIT STOP
Ⓐ	BUS ROUTE : N/A
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▒	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELD\BGCA_AS01.dwg
11/05/08 08:23 : eackerm 0E5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELD1BGCA_AS01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

130TH AVE NE STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: BGCA-AS01
Sheet No.: D-80
Rev.:

XREF'S

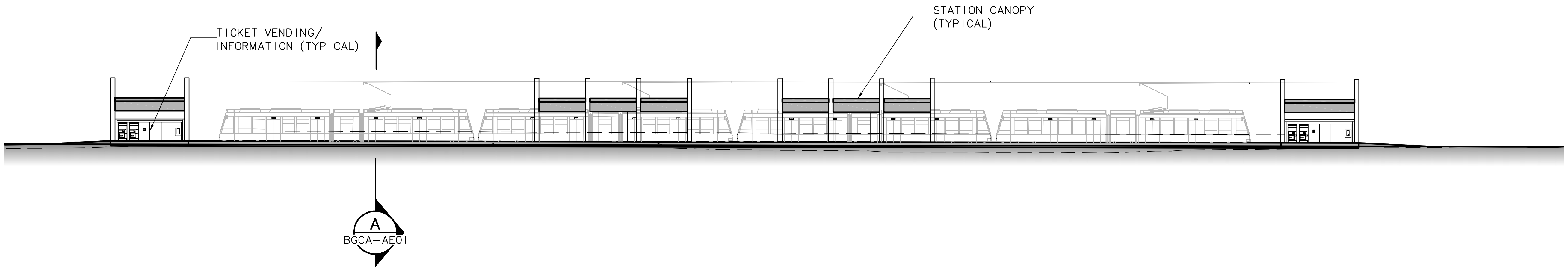
Resolved

ELD_BGCA1AX
ELD_BGCA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

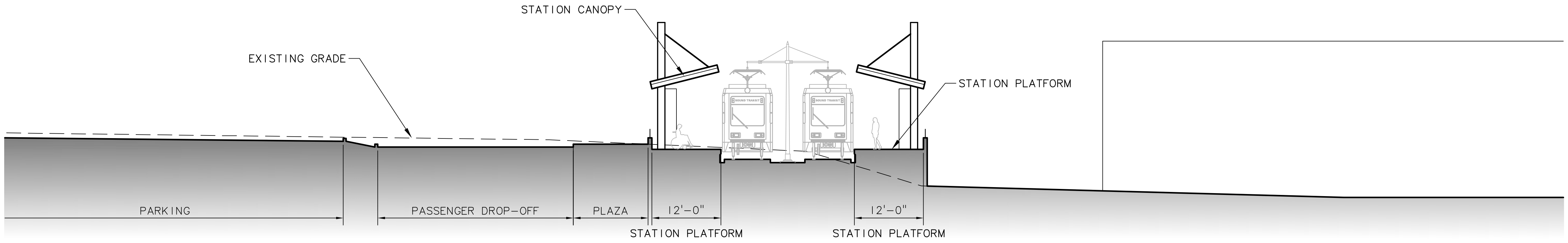
1=1


TICKET VENDING/
INFORMATION (TYPICAL)
STATION CANOPY
(TYPICAL)
A
BGCA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20
10
0
20
40
SCALE IN FEET


STATION CANOPY
EXISTING GRADE
STATION PLATFORM
PARKING
PASSENGER DROP-OFF
PLAZA
12'-0"
12'-0"
STATION PLATFORM
STATION PLATFORM

STATION SECTION A BGCA-AE01

SCALE: 1" = 10'

10
5
0
10
20
SCALE IN FEET

c:\work\ELD1BGCA_AE01.dwg
10/16/08 10:30 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELD1BGCA_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

130TH AVE NE STATION
AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: BGCA-AE01
Sheet No.: D-81
Rev.:

XREF'S

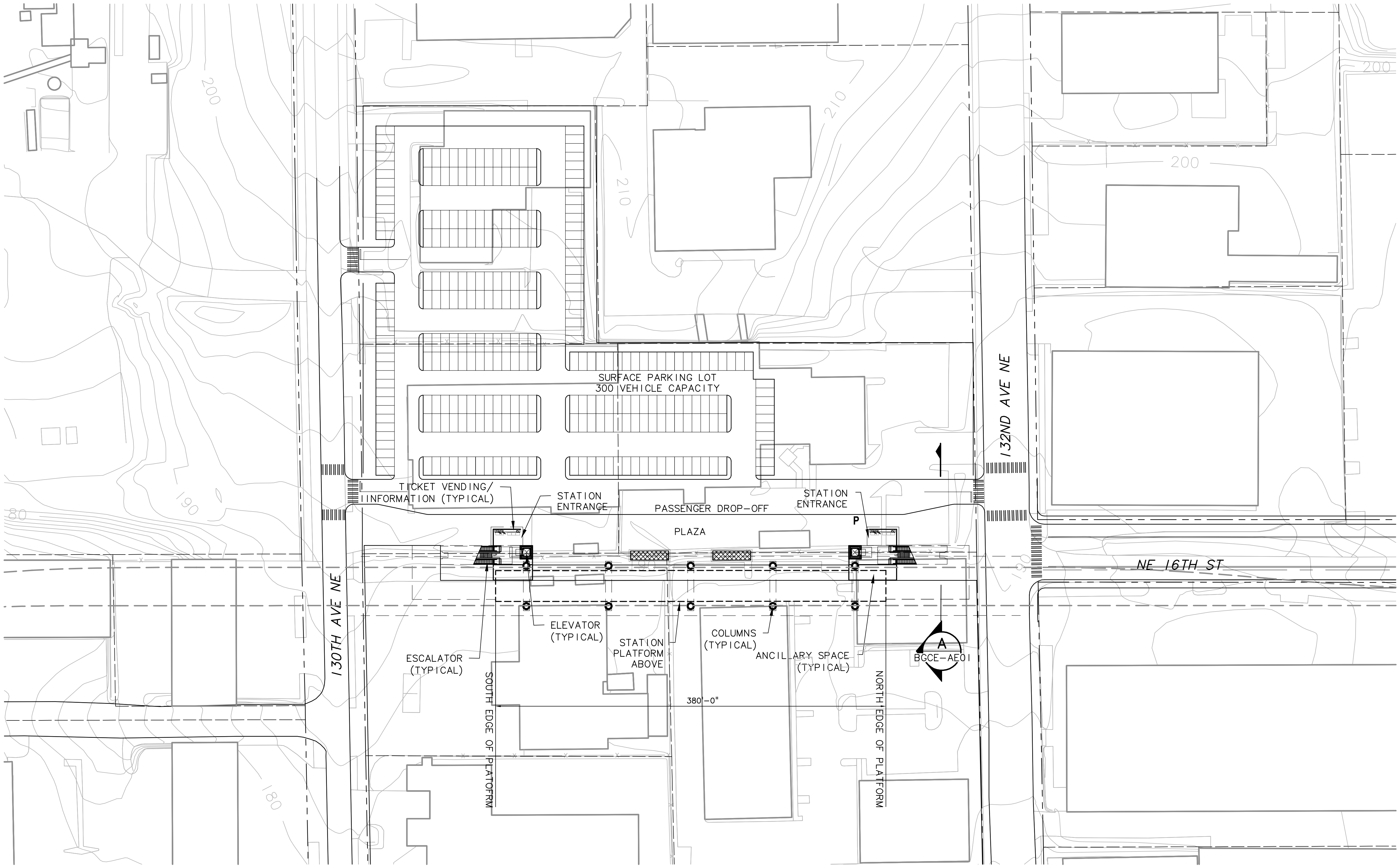
Resolved

ELD_BGCE1AS
ELD_D2E_KA
REG-DCON
X1131CN
X1131SF
X1134CN
X1134SF
ZG-2234H
x1131rx
x1134rx

Unresolved

LTSCALE

1=1


1
2
3
4
5
200
210
210
200
190
180
180
SURFACE PARKING LOT
300 VEHICLE CAPACITY
132ND AVE NE
130TH AVE NE
NE 16TH ST
TICKET VENDING/
INFORMATION (TYPICAL)
STATION
ENTRANCE
PASSENGER DROP-OFF
STATION
ENTRANCE
P
PLAZA
ELEVATOR
(TYPICAL)
STATION
PLATFORM
ABOVE
COLUMNS
(TYPICAL)
ANCILLARY SPACE
(TYPICAL)
ESCALATOR
(TYPICAL)
A
BGCE-AE01
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
380'-0"

NOTES/LEGEND HEADING

1. ALIGNMENTS D2E

SYMBOLS KEY

- ▨ NEW BUS STOP
- ▭ EXISTING BUS STOP
- ▥ BUS LAYOVER
- ☒ BUS SHELTER
- P PARATRANSIT STOP
- —(A)— BUS ROUTE: N/A
- ▩ BIKE STORAGE
- ▩ BIKE SHELTER
- ▥ CROSSWALK
- ▒ LANDSCAPE
- ▭ TICKET VENDING/ INFORMATION
- ---- TRACK OVERHEAD

N

50 25 0 50 100

SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELD1BGCE_AS01.dwg
11/05/08 08:23 : eackerm OE5396

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELD1BGCE_AS01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

130TH AVE NE STATION
ELEVATED STATION
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: BGCE-AS01
Sheet No.: D-82
Rev.:

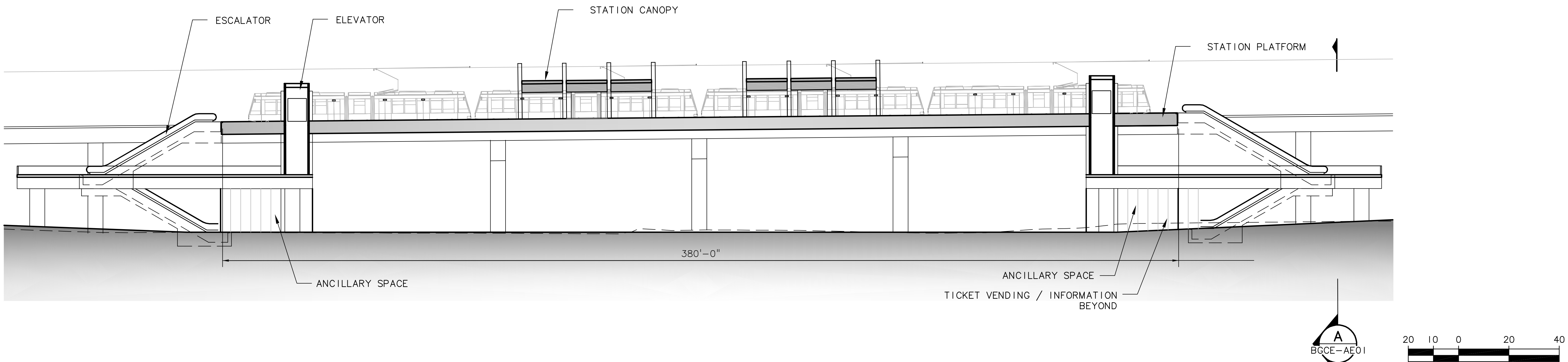
XREF'S

Resolved

ELD_BGCE1AX
ELD_BGCE1AE
REG-DCON
ZG-2234H

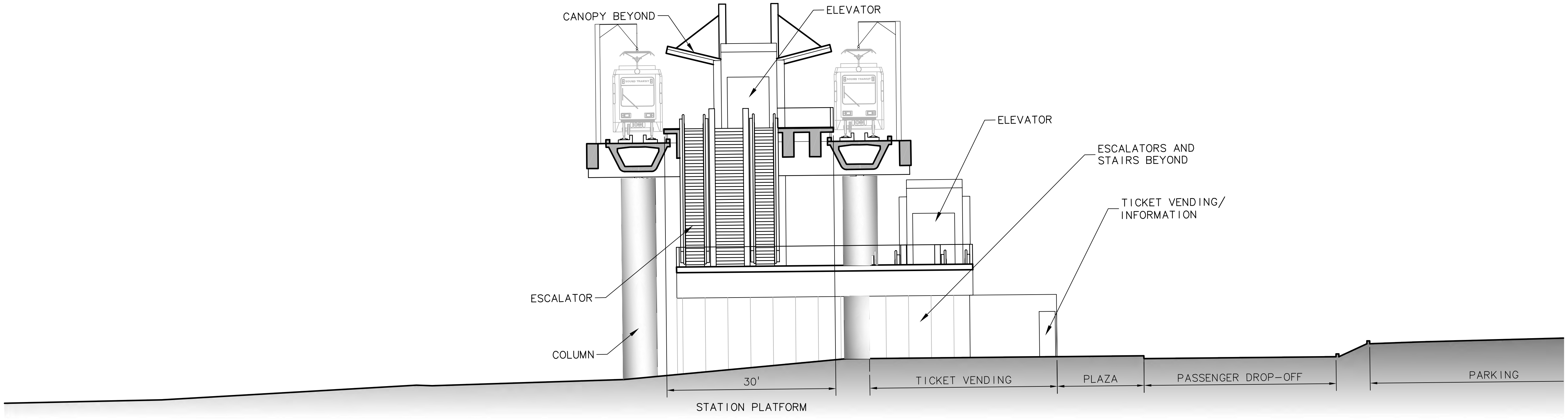
Unresolved

LTSCALE
1=1


ESCALATOR
ELEVATOR
STATION CANOPY
STATION PLATFORM
380'-0"
ANCILLARY SPACE
ANCILLARY SPACE
TICKET VENDING / INFORMATION BEYOND
A
BGCE-AE01
20 10 0 20 40
SCALE IN FEET

STATION ELEVATION

SCALE: 1" = 20'


CANOPY BEYOND
ELEVATOR
ELEVATOR
ESCALATORS AND STAIRS BEYOND
TICKET VENDING/ INFORMATION
ESCALATOR
COLUMN
30'
STATION PLATFORM
TICKET VENDING
PLAZA
PASSENGER DROP-OFF
PARKING

10 5 0 10 20
SCALE IN FEET

STATION SECTION (A)

SCALE: 1" = 10' BGCE-AE01

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No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELD1BGCE_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

130TH AVE NE STATION
ELEVATED STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: BGCE-AE01
Sheet No.: D-83
Rev.:

XREF'S

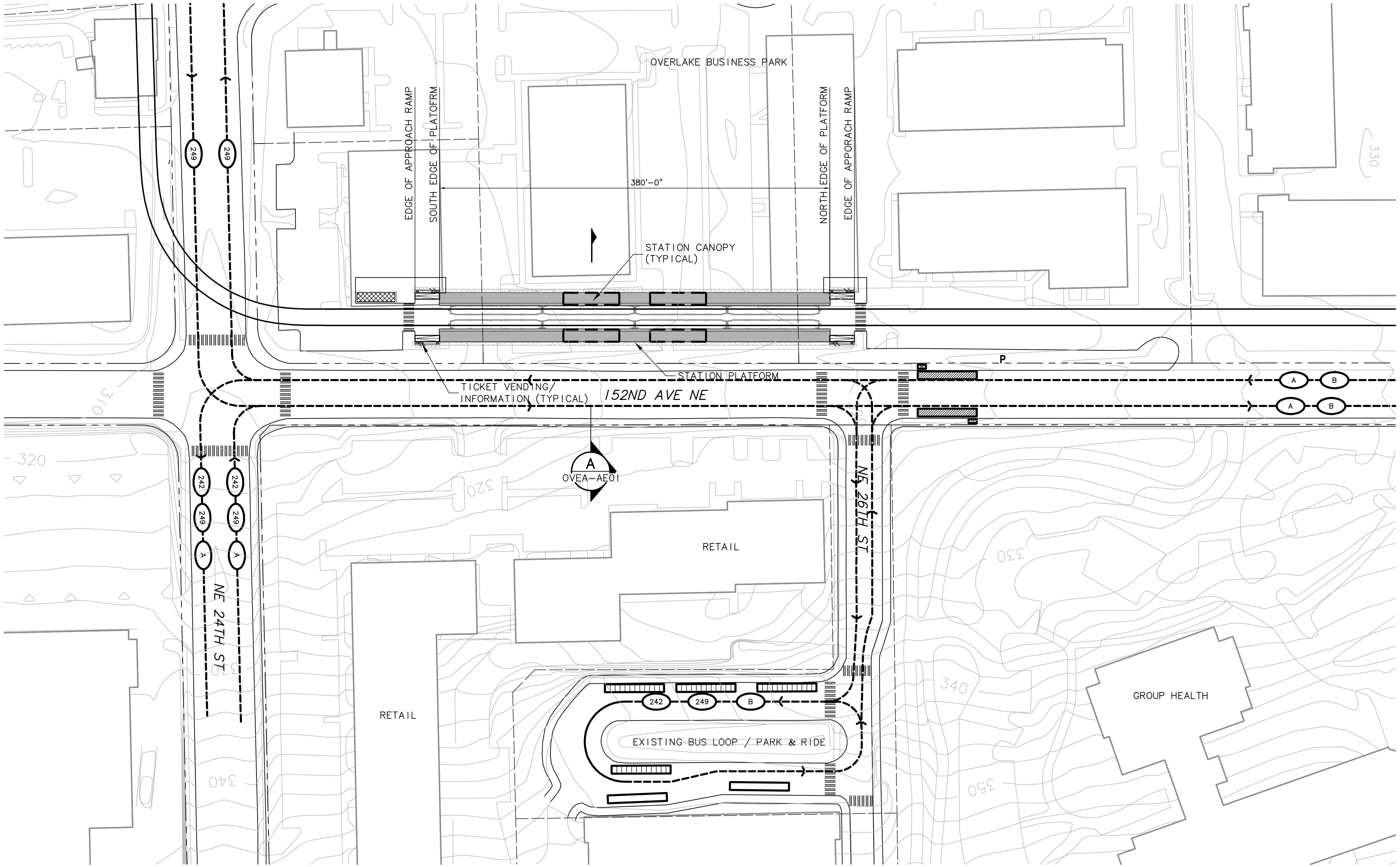
Resolved

ELD_D2A_KA
ELD_OVEA1AS
REG-DCON
X1734CN
X1734SF
X1737CN
X1737SF
ZG-2234H
x1734rx
x1737rx

Unresolved

LTSCALE

1=1



OVERLAKE BUSINESS PARK
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
380'-0"
STATION CANOPY (TYPICAL)
STATION PLATFORM
TICKET VENDING/ INFORMATION (TYPICAL)
152ND AVE NE
NE 24TH ST
NE 26TH ST
P
A
B
242
249
A OVEA-AE01
RETAIL
RETAIL
GROUP HEALTH
EXISTING BUS LOOP / PARK & RIDE
310
320
330
340
350

NOTES/LEGEND HEADING

1. ALIGNMENTS D2A AND D2E

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
⊠	BUS SHELTER
P	PARATRANSIT STOP
(249)	BUS ROUTE
(A)	BUS ROUTE : 227, 233, 245, 253
(B)	BUS ROUTE : 239, 269, 441 MICROSOFT SHUTTLE
▨	BIKE STORAGE
▨	BIKE SHELTER
▥	CROSSWALK
▨	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

N

50 25 0 50 100

SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

IN ASSOCIATION WITH

PARSONS & INCA ENGINEERS INC.

Submitted:

Date:

IBI GROUP

Approved:

SOUND TRANSIT

Date:

Scale: 1"=50'

Filename: ELD1OVEA_AS01.dwg

Contract No.: EL SEG_D

Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: OVEA-AS01

Sheet No.: D-84

Rev.:

c:\work\ELD1OVEA_AS01.dwg : eackerm OE5396
11/05/08 08:25

XREF'S

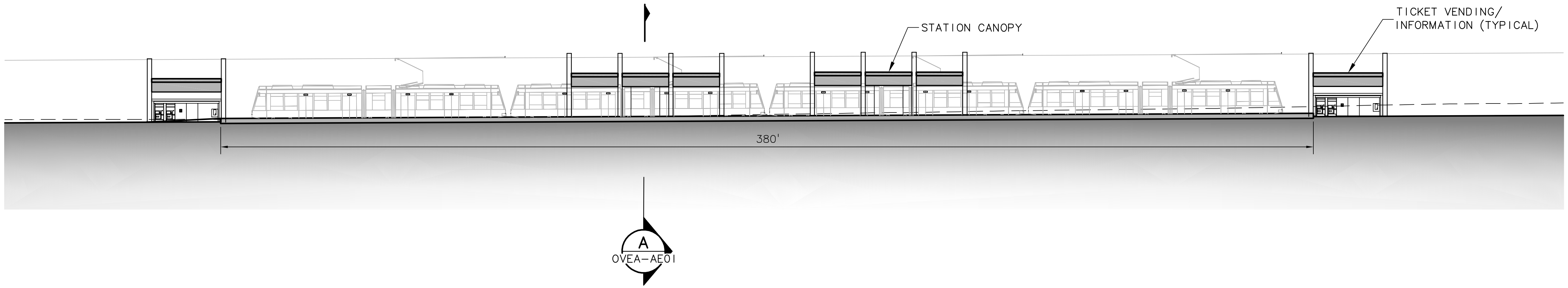
Resolved

ELD_OVEA1AX
ELD_OVEA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

1=1

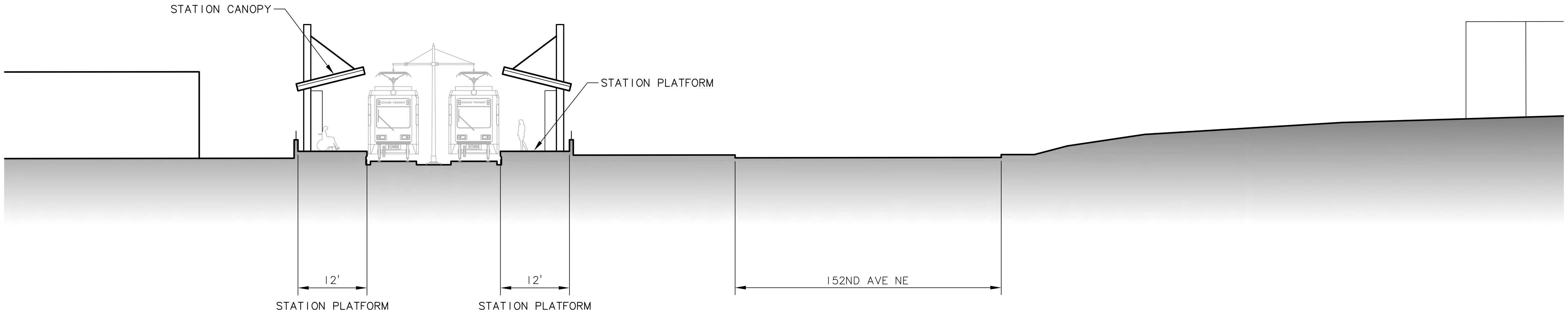


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'
A
OVEA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET



STATION CANOPY
STATION PLATFORM
12'
12'
152ND AVE NE
STATION PLATFORM
STATION PLATFORM

STATION SECTION (A) OVEA-AE01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELD1OVEA_AE01.dwg
10/16/08 11:05 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:

IBI GROUP

Approved:

SOUNDTRANSIT

Date:

Scale: 1"=20'
Filename: ELD1OVEA_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED * HALF SCALE

Drawing No.: OVEA-AE01

Sheet No.: D-85
Rev.:

XREF'S

Resolved

ELD_D3__CM
ELD_D3__KA
ELD_OVSA1AS
REG-DCON
X1734CN
X1734SF
X1737CN
X1737SF
ZG-2234H
x1734rx
x1737rx

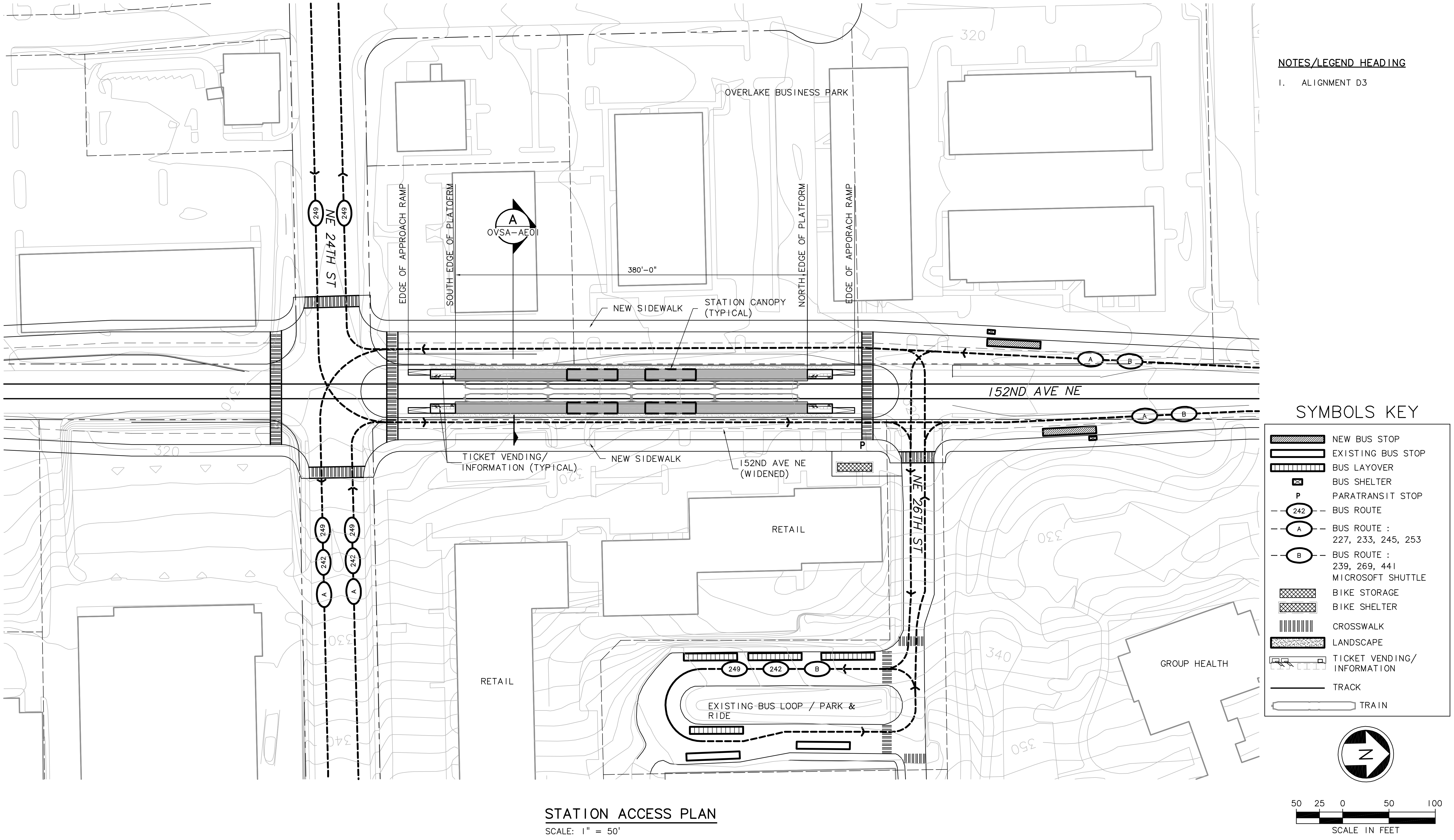
Unresolved

LTSCALE

1=1

NOTES/LEGEND HEADING

1. ALIGNMENT D3


1
2
3
4
5
OVERLAKE BUSINESS PARK
320
NE 24TH ST
249
249
A
OVSA-AE01
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
380'-0"
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
NEW SIDEWALK
STATION CANOPY (TYPICAL)
A
B
152ND AVE NE
A
B
P
TICKET VENDING/ INFORMATION (TYPICAL)
NEW SIDEWALK
152ND AVE NE (WIDENED)
320
NE 26TH ST
RETAIL
249
242
A
249
242
A
330
RETAIL
249
242
B
EXISTING BUS LOOP / PARK & RIDE
340
GROUP HEALTH
340
350
330
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
BUS SHELTER
P PARATRANSIT STOP
242 BUS ROUTE
A BUS ROUTE : 227, 233, 245, 253
B BUS ROUTE : 239, 269, 441 MICROSOFT SHUTTLE
BIKE STORAGE
BIKE SHELTER
CROSSWALK
LANDSCAPE
TICKET VENDING/ INFORMATION
TRACK
TRAIN
N
50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELD1OVSA_AS01.dwg
11/05/08 08:26 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELD1OVSA_AS01.dwg
Contract No.: EL SEG_D
Date:

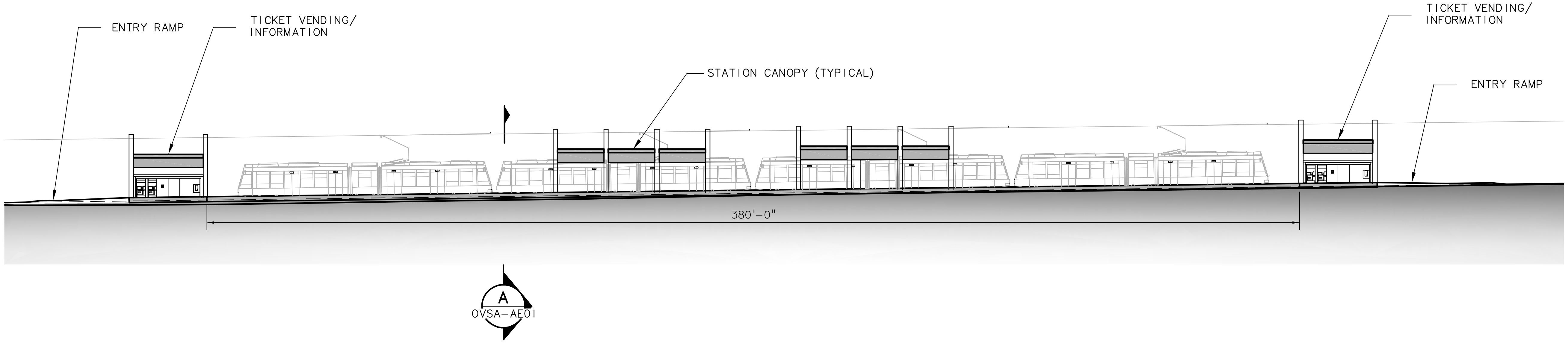
EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: OVSA-AS01
Sheet No.: D-86
Rev.:

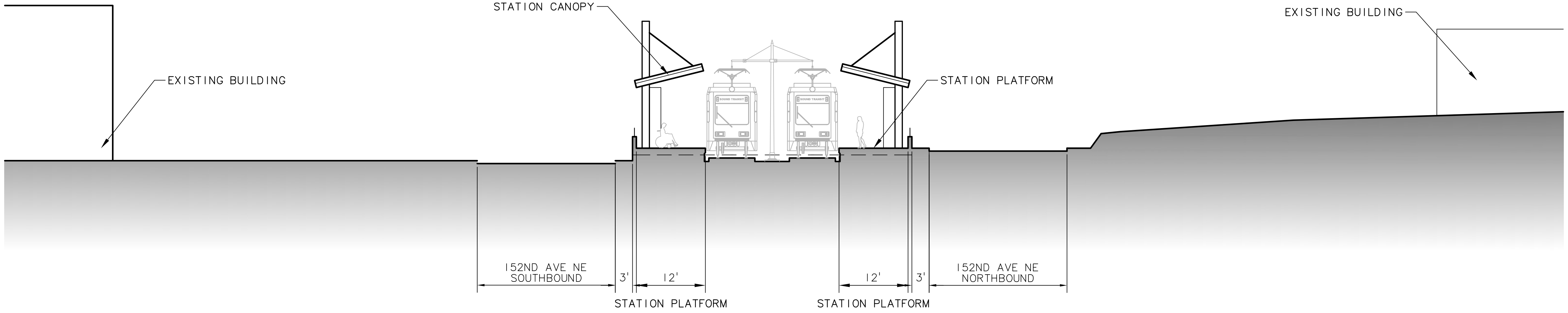
XREF'S
Resolved
ELD_OVSA1AE
ELD_OVSA1AX
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


ENTRY RAMP
TICKET VENDING/ INFORMATION
STATION CANOPY (TYPICAL)
TICKET VENDING/ INFORMATION
ENTRY RAMP
380'-0"
A
OVSA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


STATION CANOPY
EXISTING BUILDING
EXISTING BUILDING
STATION PLATFORM
152ND AVE NE SOUTHBOUND
3'
12'
STATION PLATFORM
12'
3'
152ND AVE NE NORTHBOUND
STATION PLATFORM

STATION PLATFORM PLAN (A) OVSA-AE01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELD1OVSA_AE01.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.
Submitted:
Date:

IBI GROUP
Approved:

SOUNDTRANSIT
Date:

Scale: 1"=20'
Filename: ELD1OVSA_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: OVSA-AE01
Sheet No.: D-87
Rev.:

XREF'S

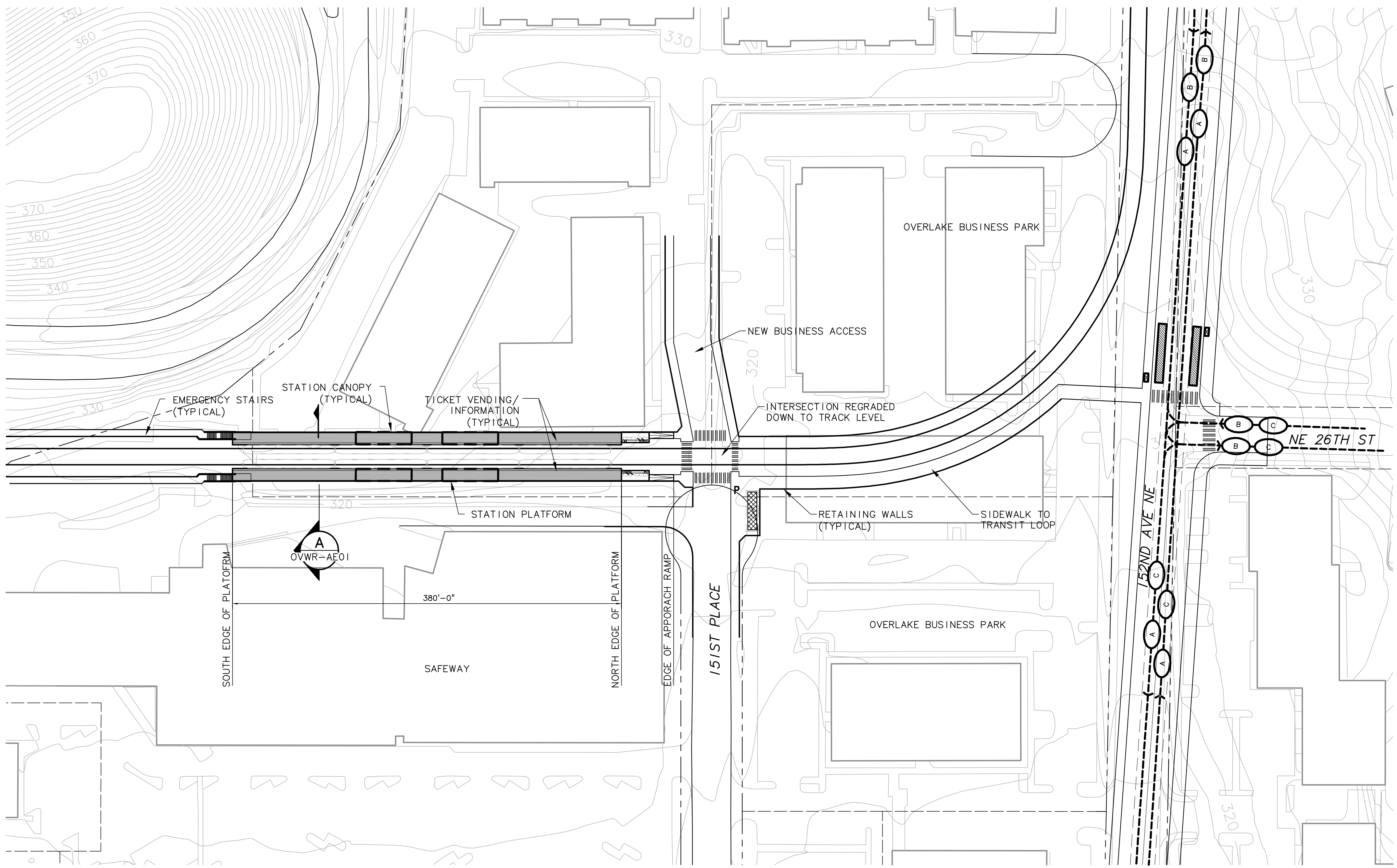
Resolved

ELD_D5__CM
ELD_D5__KA
ELD_OVWRIAS
REG-DCON
X1734CN
X1734SF
X1737CN
X1737SF
ZG-2234H
x1734rx
x1737rx

Unresolved

LTSCALE

1=1



350
360
370
370
360
350
340
330
330
320
320
330
320
OVERLAKE BUSINESS PARK
NEW BUSINESS ACCESS
EMERGENCY STAIRS (TYPICAL)
STATION CANOPY (TYPICAL)
TICKET VENDING/ INFORMATION (TYPICAL)
INTERSECTION REGRADED DOWN TO TRACK LEVEL
STATION PLATFORM
RETAINING WALLS (TYPICAL)
SIDEWALK TO TRANSIT LOOP
A
OVWR-AE01
SOUTH EDGE OF PLATFORM
380'-0"
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
151ST PLACE
SAFEWAY
OVERLAKE BUSINESS PARK
152ND AVE NE
NE 26TH ST
P
A
B
C

NOTES/LEGEND HEADING

1. ALIGNMENT D5

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	BUS SHELTER
P	PARATRANSIT STOP
A	BUS ROUTE : 235, 249
B	BUS ROUTE : 239, 269, 441 MICROSOFT SHUTTLE
C	BUS ROUTE : 242, 249
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▒	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

N

50 25 0 50 100

SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

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11/05/08 08:26 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELD1OVWR_AS01.dwg
Contract No.: EL SEG_D
Date:

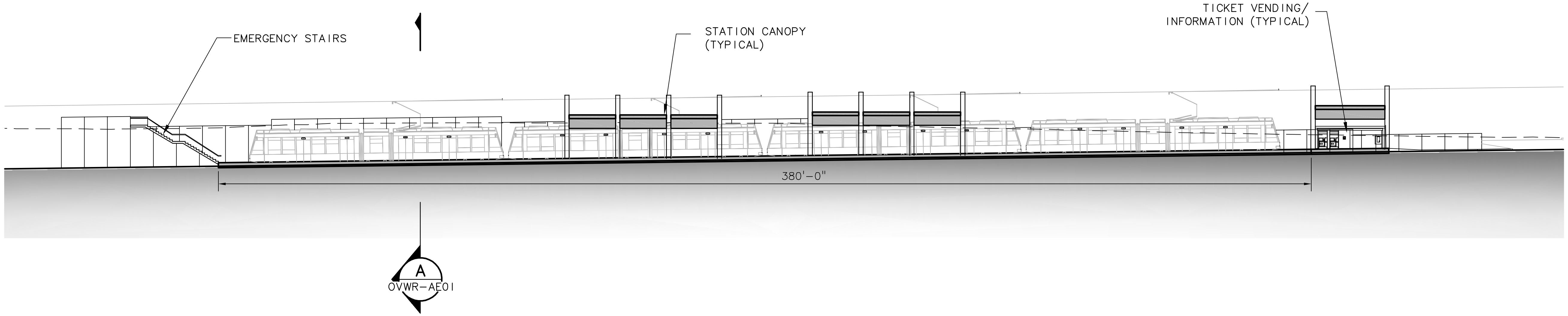
EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
151ST RETAINED CUT STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: OVWR-AS01
Sheet No.: D-88
Rev.:

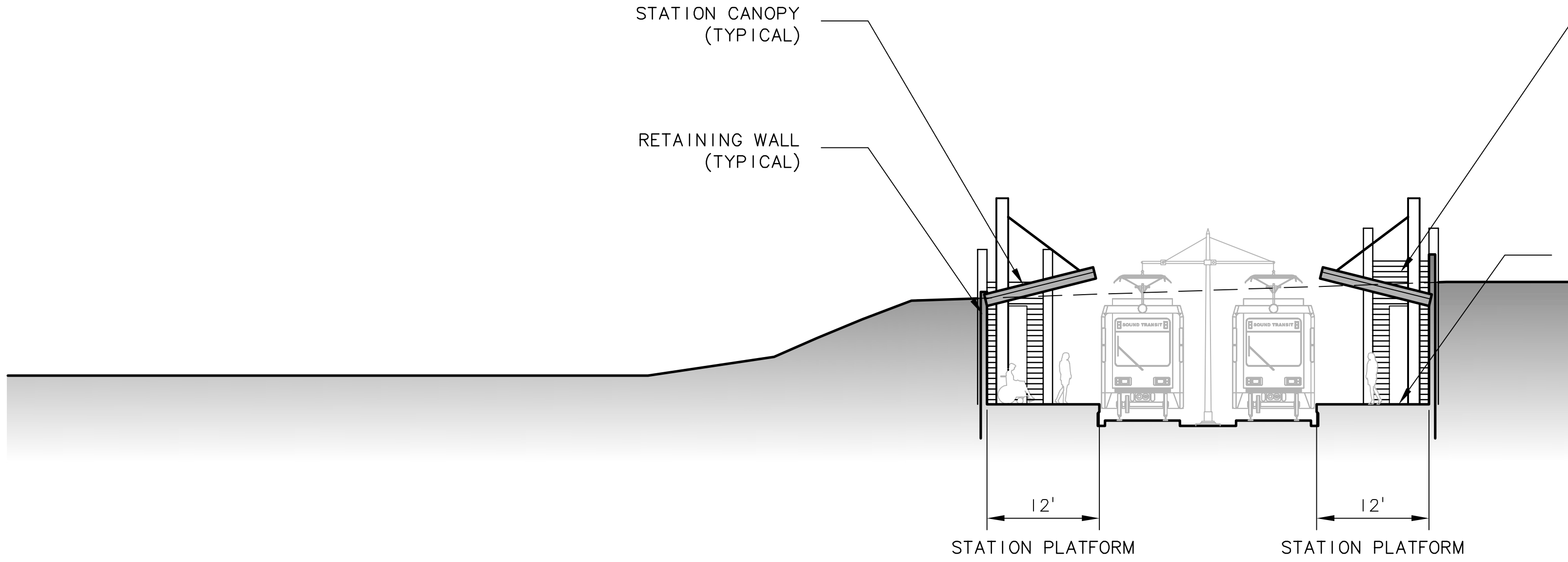
XREF'S
Resolved
EL_OVWR1AX
ELD_OVWR1AE
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


EMERGENCY STAIRS
STATION CANOPY
(TYPICAL)
TICKET VENDING/
INFORMATION (TYPICAL)
380'-0"
A
OVWR-AE01

20 10 0 20 40
SCALE IN FEET

STATION ELEVATION

SCALE: 1" = 20'


STATION CANOPY
(TYPICAL)
RETAINING WALL
(TYPICAL)
EMERGENCY STAIRS (TYPICAL)
12'
12'
STATION PLATFORM
STATION PLATFORM

10 5 0 10 20
SCALE IN FEET

STATION SECTION (A)

SCALE: 1" = 10' OVWR-AE01

c:\work\ELD1OVWR_AE01.dwg
10/16/08 11:09 : eackerm 0E5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:

IBI GROUP

Approved:

SOUNDTRANSIT

Date:

Scale: 1"=20'
Filename: ELD1OVWR_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
151ST RETAINED CUT STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: OVWR-AE01
Sheet No.: D-89
Rev.:

XREF'S

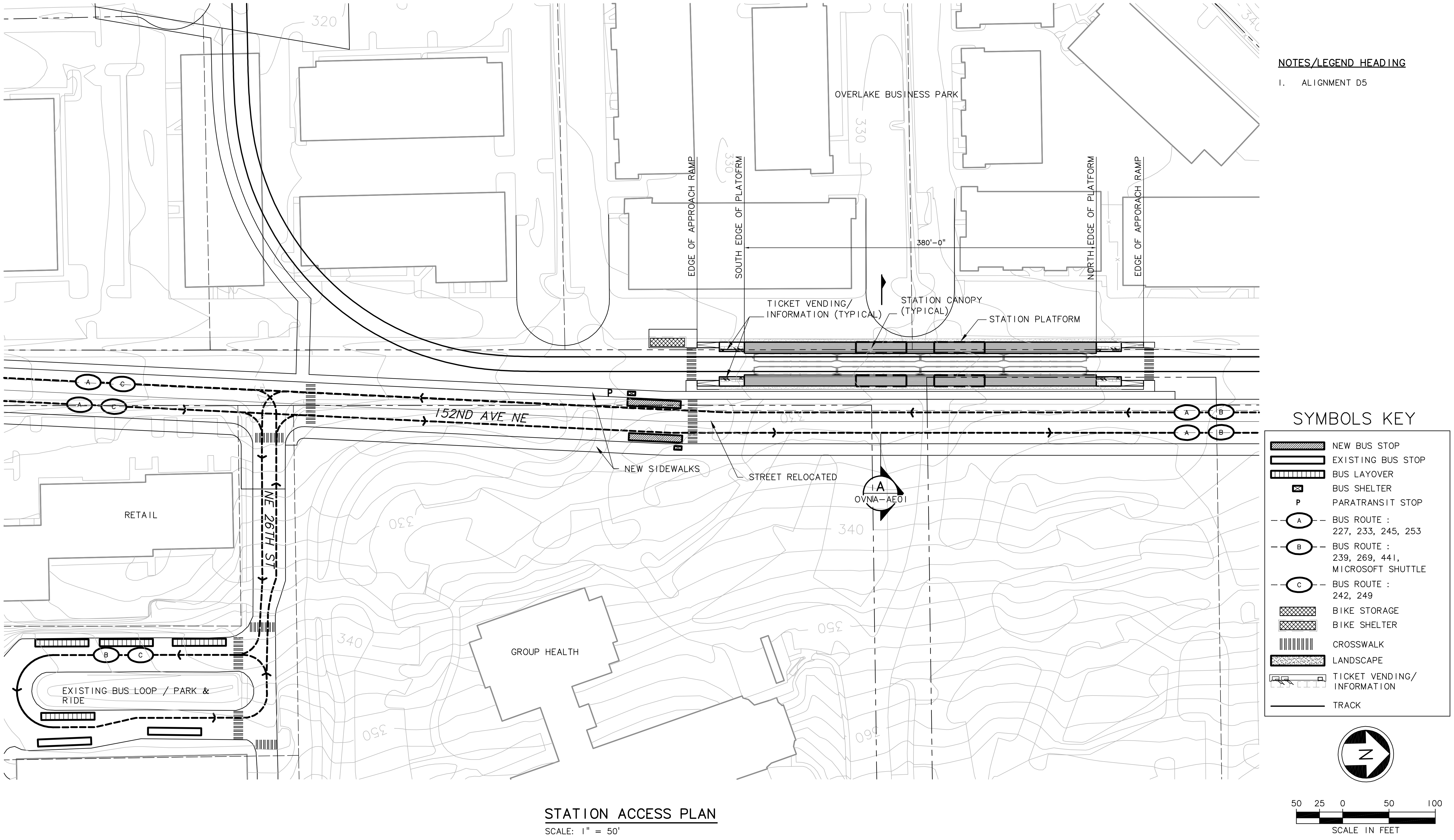
Resolved

ELD_D5__CM
ELD_D5__KA
ELD_OVNA1AS
REG-DCON
X1734CN
X1734SF
X1737CN
X1737SF
ZG-2234H
x1734rx
x1737rx

Unresolved

LTSCALE

1=1



1
2
3
4
5
320
330
340
350
360
OVERLAKE BUSINESS PARK
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATOFRM
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
380'-0"
TICKET VENDING/ INFORMATION (TYPICAL)
STATION CANOPY (TYPICAL)
STATION PLATFORM
P
152ND AVE NE
NE 26TH ST
NEW SIDEWALKS
STREET RELOCATED
A
OVNA-AE01
RETAIL
GROUP HEALTH
EXISTING BUS LOOP / PARK & RIDE
A
B
C
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
BUS SHELTER
PARATRANSIT STOP
BUS ROUTE : 227, 233, 245, 253
BUS ROUTE : 239, 269, 441, MICROSOFT SHUTTLE
BUS ROUTE : 242, 249
BIKE STORAGE
BIKE SHELTER
CROSSWALK
LANDSCAPE
TICKET VENDING/ INFORMATION
TRACK
N
50 25 0 50 100
SCALE IN FEET

NOTES/LEGEND HEADING

1. ALIGNMENT D5

STATION ACCESS PLAN

SCALE: 1" = 50'

c: \work\ELD1OVNA_AS01.dwg
11/05/08 08:25 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
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Checked By:
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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:

IBI GROUP

SOUNDTRANSIT

Approved:
Date:

Scale: 1"=50'
Filename: ELD1OVNA_AS01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: OVNA-AS01
Sheet No.: D-90
Rev.:

XREF'S

Resolved

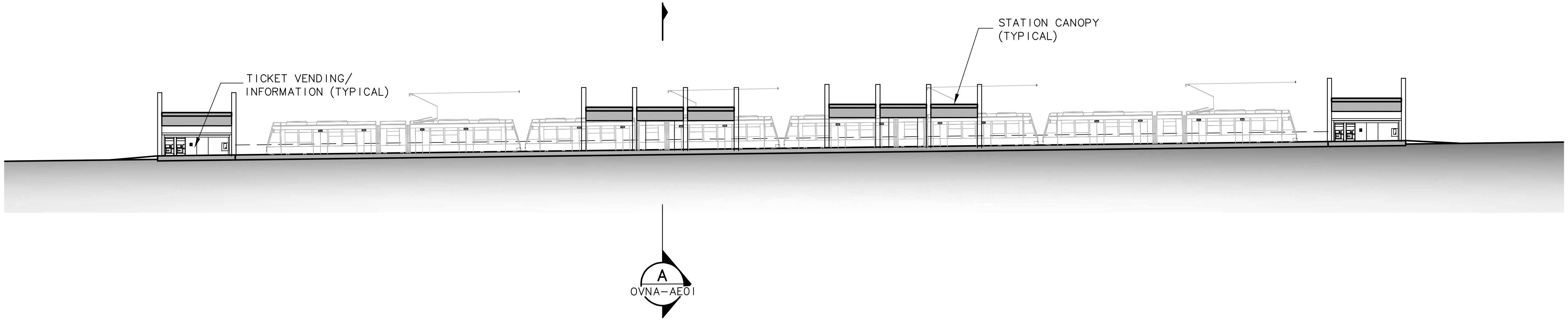
ELD_OVNA1AX
ELD_OVNA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

1=1

c:\work\ELD1OVNA_AE01.dwg
10/16/08 11:06 : eackerm OE5396

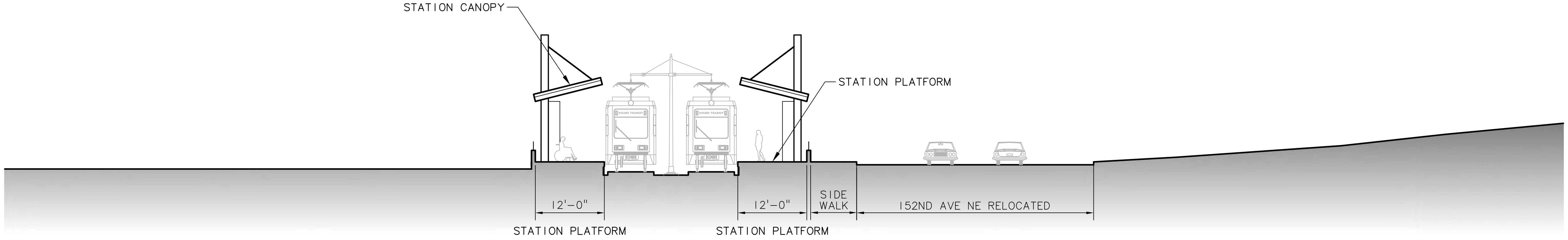


TICKET VENDING/
INFORMATION (TYPICAL)
STATION CANOPY
(TYPICAL)
A
OVNA-AE01

20 10 0 20 40
SCALE IN FEET

STATION ELEVATION

SCALE: 1" = 20'



STATION CANOPY
STATION PLATFORM
12'-0"
12'-0"
SIDE WALK
152ND AVE NE RELOCATED
STATION PLATFORM
STATION PLATFORM

10 5 0 10 20
SCALE IN FEET

STATION SECTION (A) OVNA-AE01

SCALE: 1" = 10'

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

Scale: 1"=20'
Filename: ELD1OVNA_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE VILLAGE STATION
AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: OVNA-AE01
Sheet No.: D-91
Rev.:

XREF'S

Resolved

ELD_D2A_KA
ELD_OTCA1AS
REG-DCON
X1737CN
X1737SF
X1740CN
X1740SF
ZG-2234H
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x1740rx
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x2037sf
x2040cn
x2040rx
x2040sf

Unresolved

LTSCALE

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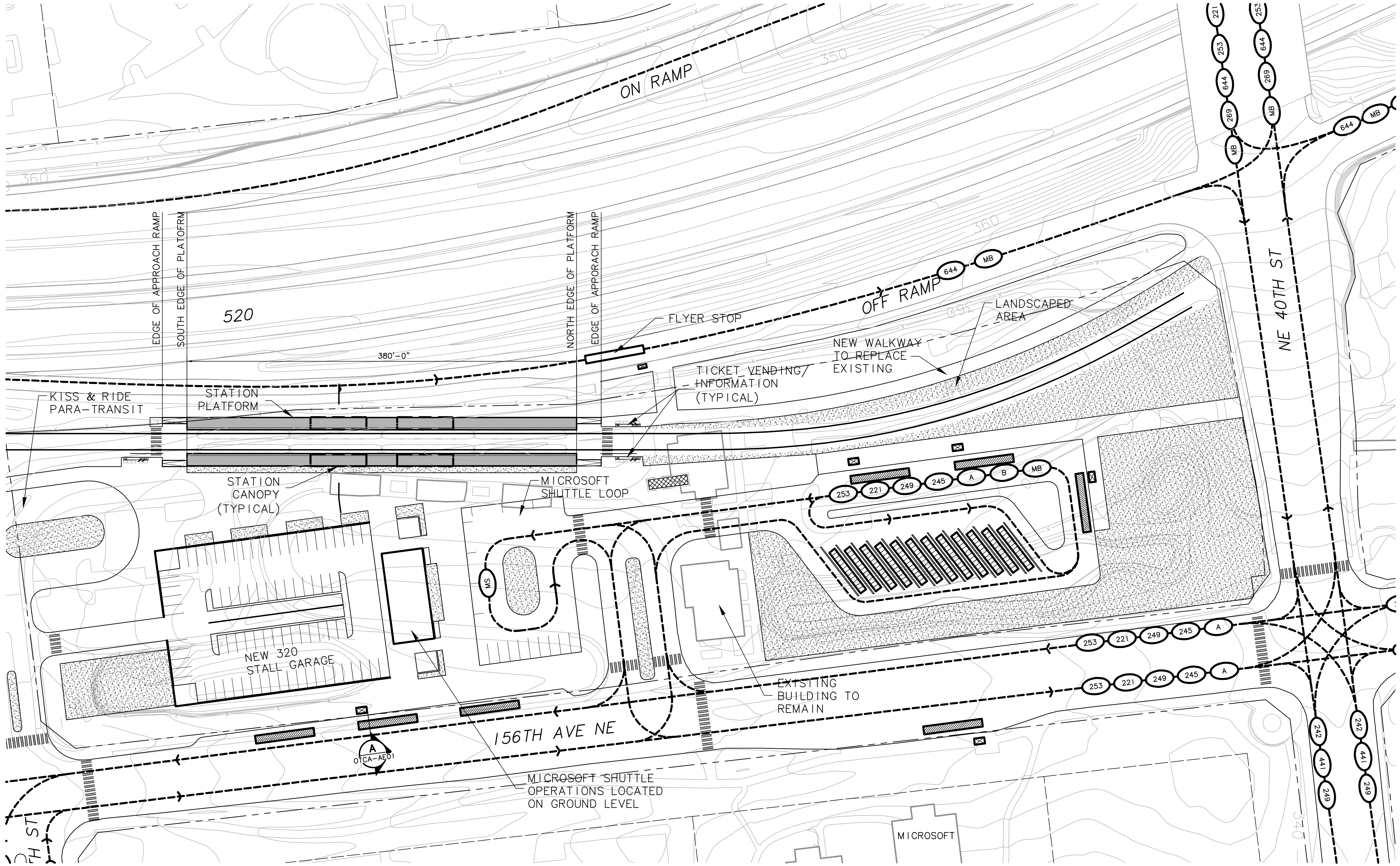

ON RAMP
350
360
520
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
380'-0"
FLYER STOP
OFF RAMP
644
MB
LANDSCAPED AREA
NEW WALKWAY TO REPLACE EXISTING
TICKET VENDING/ INFORMATION (TYPICAL)
KISS & RIDE PARA-TRANSIT
STATION PLATFORM
STATION CANOPY (TYPICAL)
MICROSOFT SHUTTLE LOOP
253
221
249
245
A
B
MS
NE 40TH ST
NEW 320 STALL GARAGE
EXISTING BUILDING TO REMAIN
156TH AVE NE
A
OTCA-AS01
MICROSOFT SHUTTLE OPERATIONS LOCATED ON GROUND LEVEL
MICROSOFT
269
242
441
340
TH ST

NOTES/LEGEND HEADING

1. ALIGNMENTS D2A, D2E, D3 AND D5

SYMBOLS KEY

▬	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
⊠	BUS SHELTER
P	PARATRANSIT STOP
(253)	BUS ROUTE
(A)	BUS ROUTE : 232, 239, 269, 545, 644
(B)	BUS ROUTE : 227, 233
(MB)	MICROSOFT BUS ROUTES
(MS)	MICROSOFT SHUTTLE ROUTE
▩	BIKE STORAGE
▩	BIKE SHELTER
‖‖‖‖	CROSSWALK
▨	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

60 30 0 60 120
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELD1OTCA_AS01.dwg
11/05/08 08:24 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

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Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELD1OTCA_AS01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE TRANSIT CENTER STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: OTCA-AS01
Sheet No.: D-92
Rev.:

XREF'S

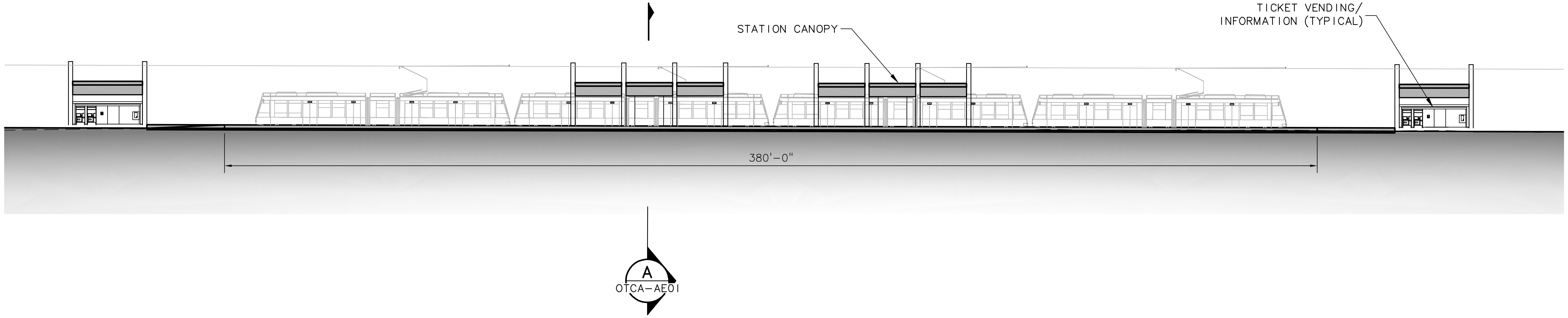
Resolved

ELD_OTCA1AX
ELD_OTCA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

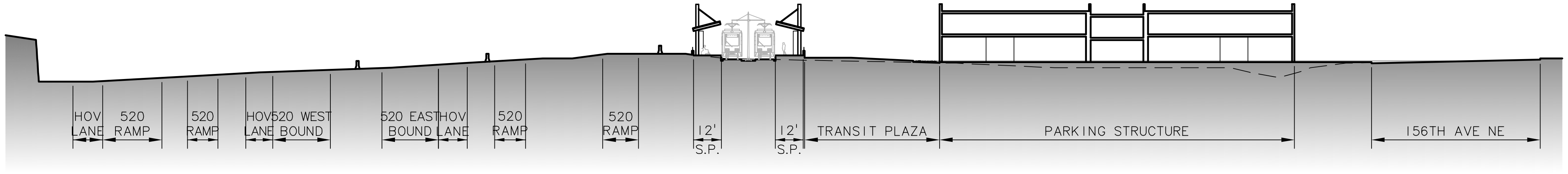
1=1


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'-0"
A
OTCA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


HOV LANE
520 RAMP
520 RAMP
HOV LANE
520 WEST BOUND
520 EAST BOUND
HOV LANE
520 RAMP
520 RAMP
12' S.P.
12' S.P.
TRANSIT PLAZA
PARKING STRUCTURE
156TH AVE NE

STATION SECTION (A)

OTCA-AE01

SCALE: 1" = 30'

30 15 0 30 60
SCALE IN FEET

c:\work\ELD1OTCA_AE01.dwg
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Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELD1OTCA_AE01.dwg
Contract No.: EL SEG_D
Date:

EAST LINK PROJECT
SEGMENT D

OVERLAKE TRANSIT CENTER STATION
AT-GRADE STATION
ELEVATION, SECTION

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HALF SCALE

Drawing No.: OTCA-AE01
Sheet No.: D-93
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Attach:
-Overlay:
ELE_E2__CM
ELE_E2__JO
ELE_E2__KA-10
SUB-SDEIS
ZG-2234H
key_Segment
x1734rx
x1740rx
x1743rx
x1746rx
x1749rx
x2037rx
x2040rx
x2043rx
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x2649rx
x2652rx
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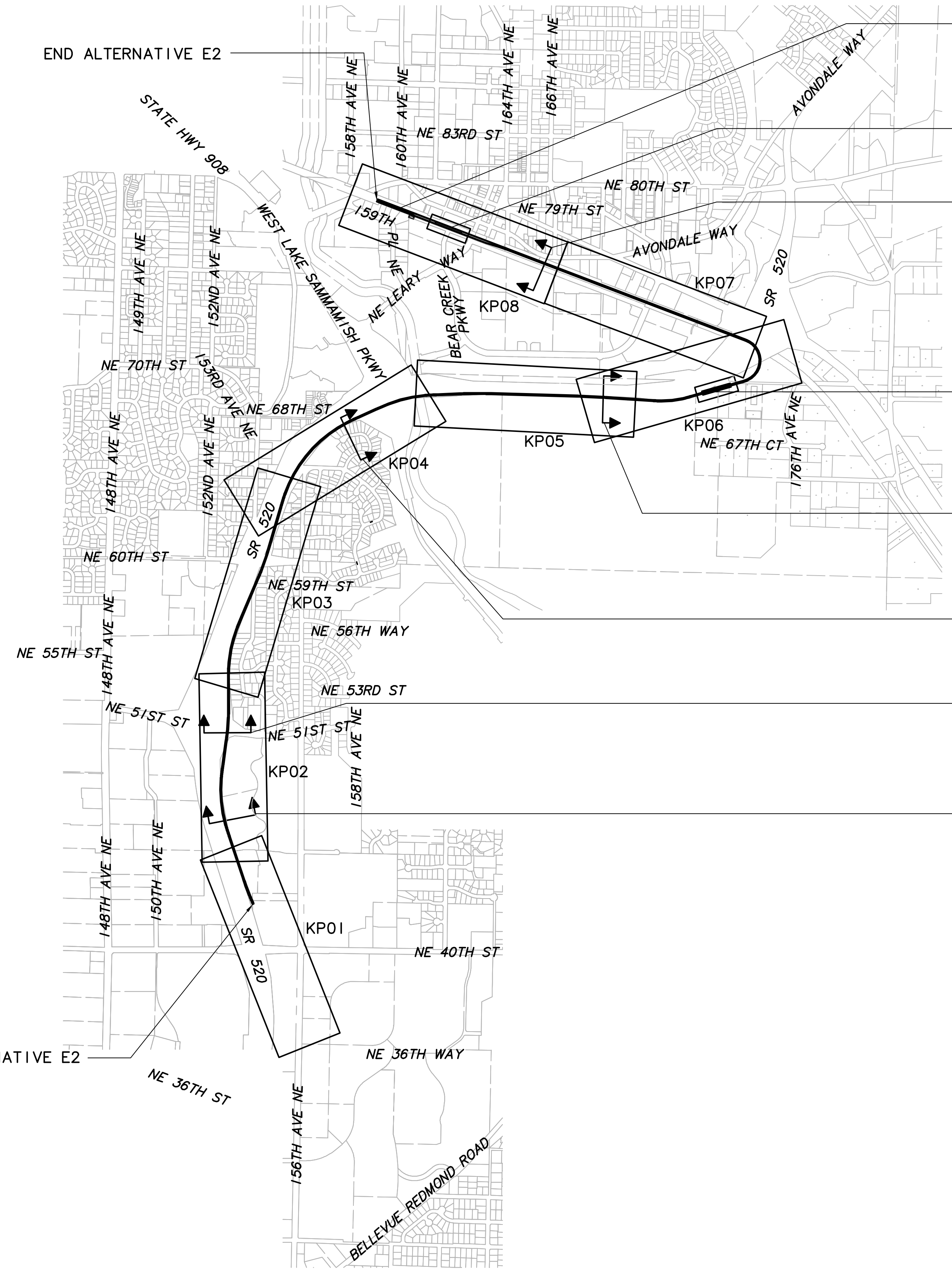
STATE HWY 908
158TH AVE NE
160TH AVE NE
164TH AVE NE
166TH AVE NE
NE 83RD ST
AVONDALE WAY
NE 80TH ST
NE 79TH ST
159TH
PL NE
WEST LAKE SAMMAMISH PKWY
NE LEARY WAY
BEAR CREEK PKWY
AVONDALE WAY
KP07
KP08
SR 520
149TH AVE NE
152ND AVE NE
NE 70TH ST
153RD AVE NE
NE 68TH ST
KP04
KP05
KP06
NE 67TH CT
176TH AVE NE
148TH AVE NE
152ND AVE NE
SR 520
NE 60TH ST
NE 59TH ST
KP03
NE 56TH WAY
NE 55TH ST
148TH AVE NE
NE 53RD ST
NE 51ST ST
NE 51ST ST
158TH AVE NE
KP02
148TH AVE NE
150TH AVE NE
KP01
SR 520
NE 40TH ST
NE 36TH WAY
NE 36TH ST
156TH AVE NE
BELLEVUE REDMOND ROAD
N

END ALTERNATIVE E2

BEGIN
ALTERNATIVE E2

TERMINUS TAIL TRACKS

DOWNTOWN REDMOND
STATION

CROSS SECTION
LOOKING EAST,
IE2_KX05

SE REDMOND STATION
AND PARK & RIDE

CROSS SECTION
LOOKING EAST,
IE2_KX04

CROSS SECTION
LOOKING EAST,
IE2_KX03

CROSS SECTION
LOOKING NORTH,
IE2_KX02

CROSS SECTION
LOOKING NORTH,
IE2_KX01

c:\work\sdeis\ELE_IE2__GZ05.dwg
10/04/10 14:28 : bolimaf OE6579

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FEIS
CONCEPTUAL

CH2MHILL

Submitted:

Grijalva
ENGINEERING

BOLIMA
DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS

Filename: ELE_IE2__GZ05.dwg

Contract No.:

Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)

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HALF
SCALE

KEY PLAN

Drawing No.: E2__-GZ05

Sheet No.: E-1

Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ELE_E2__KA-100
SUB-SDEIS
ZG-2234H
ZG-G10010
key_Segment
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x1740sf
x2040rx
x2040sf
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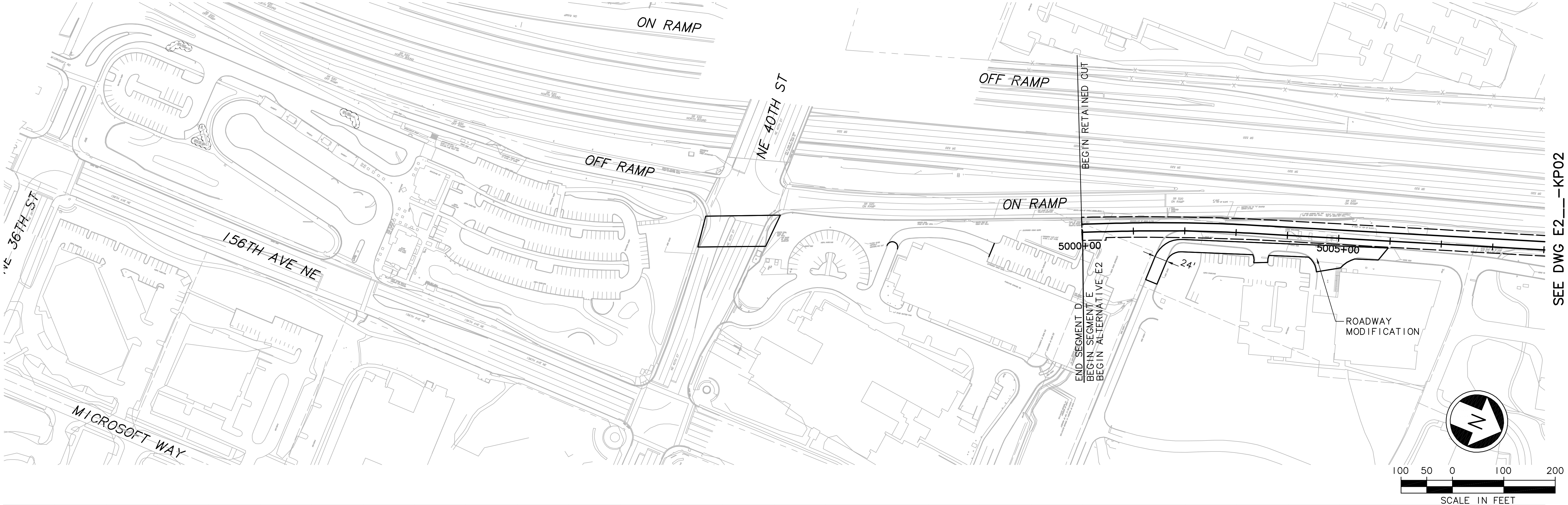
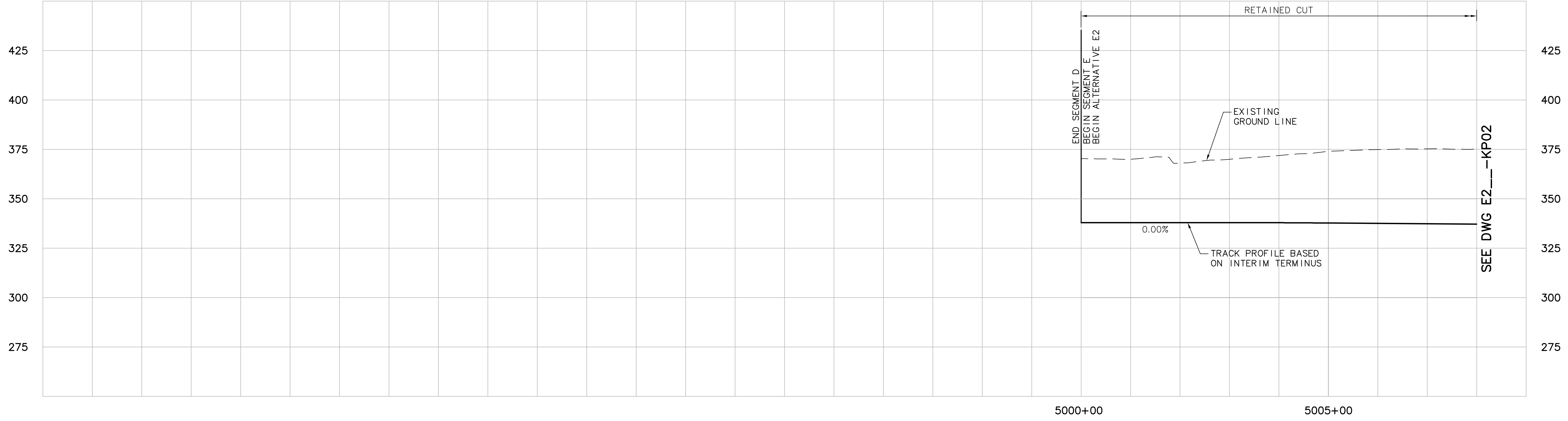
ELD_L75_KA


ON RAMP
OFF RAMP
NE 40TH ST
OFF RAMP
ON RAMP
BEGIN RETAINED CUT
NE 36TH ST
156TH AVE NE
MICROSOFT WAY
5000+00
5005+00
24'
END SEGMENT D
BEGIN SEGMENT E
BEGIN ALTERNATIVE E2
ROADWAY MODIFICATION
SEE DWG E2__-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELE_IE2__KP01.dwg
10/04/10 14:29 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL

Submitted:

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

Date:

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Date:

SOUNDTRANSIT

Scale: H: 1"=100'; V: 1"=25'
Filename: ELE_IE2__KP01.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.: E2__-KP01
Sheet No.: E-2
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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ELE_E2__JO-100
ELE_E2__KA-100
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ZG-2234H
ZG-G10010
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x1740sf
x1743rx
x1743sf
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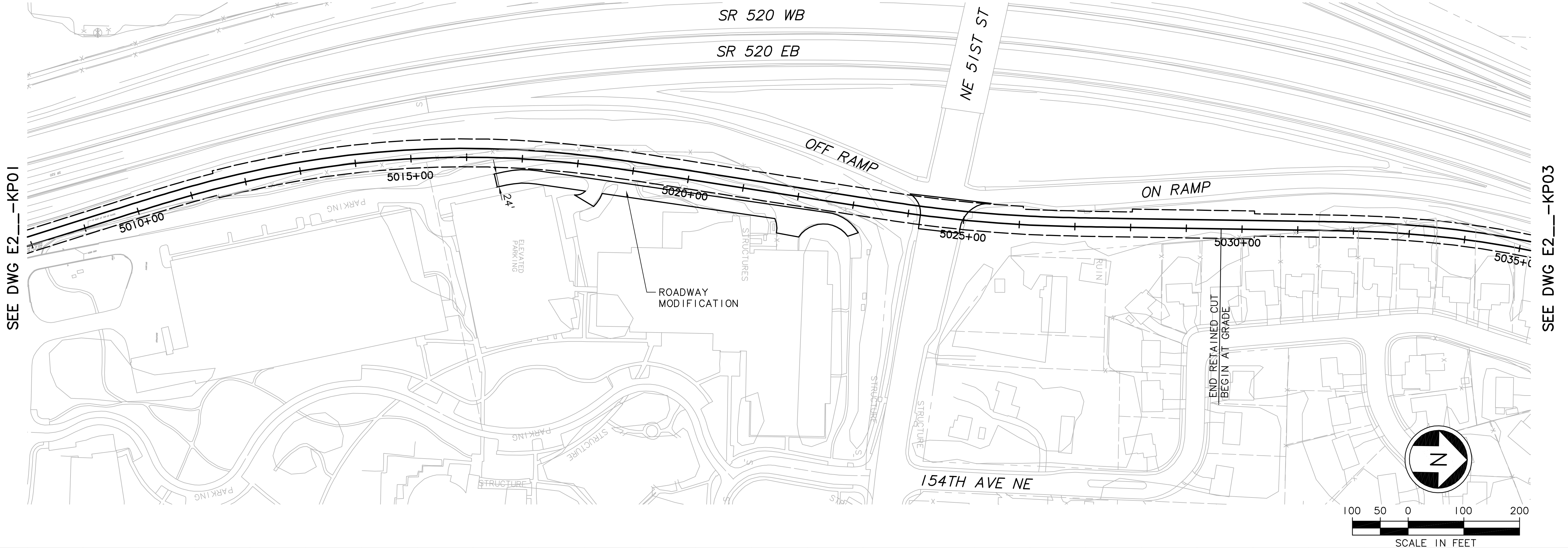
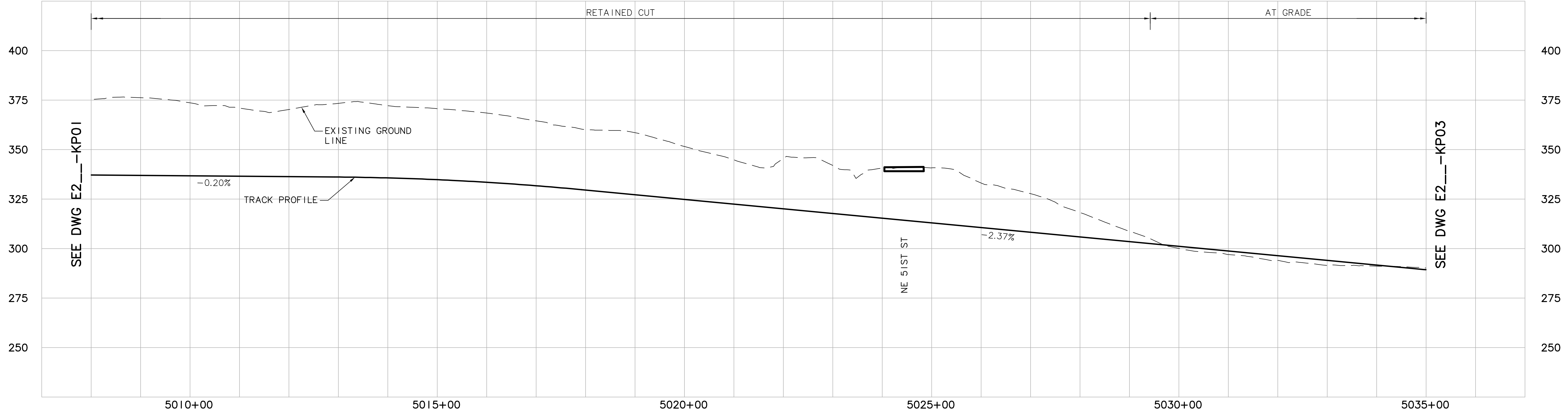

SR 520 WB
SR 520 EB
NE 51ST ST
OFF RAMP
ON RAMP
SEE DWG E2__-KP01
SEE DWG E2__-KP03
5010+00
5015+00
5020+00
5025+00
5030+00
5035+00
24'
PARKING
ELEVATED PARKING
STRUCTURES
ROADWAY MODIFICATION
STRUCTURE
RUIN
END RETAINED CUT
BEGIN AT GRADE
154TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA DRAFTING & DESIGN INC.

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Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELE_IE2__KP02.dwg

Contract No.:

Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)

THIS PRINT REDUCED HALF SCALE

TRACK PLAN & PROFILE

Drawing No.:
E2__-KP02

Sheet No.:
E-3

Rev.:

c:\work\sdeis\ELE_IE2__KP02.dwg
10/04/10 14:29 : bolimaf OE6579

DWG INFO:

LTSCALE:
1=1

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ELE_E2__JO-100
ELE_E2__KA-100
SUB-SDEIS
ZG-2234H
ZG-G10010
x1743rx
x1743sf
x1746rx
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x2046sf
x520_chan
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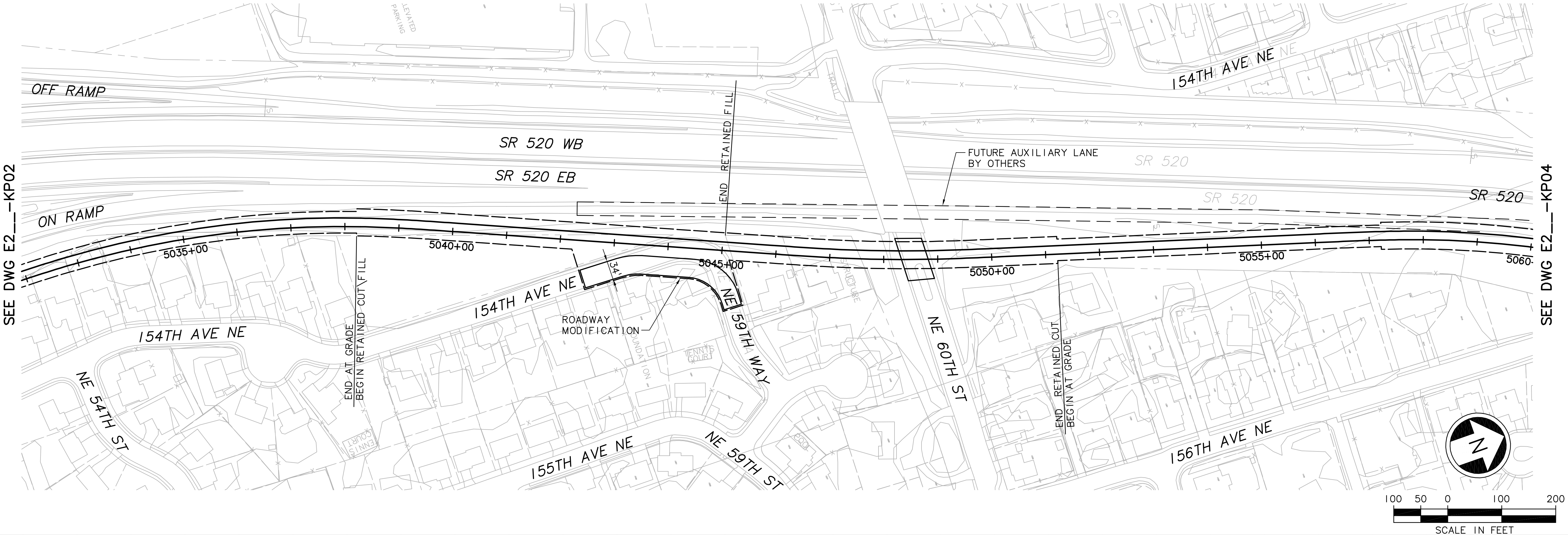
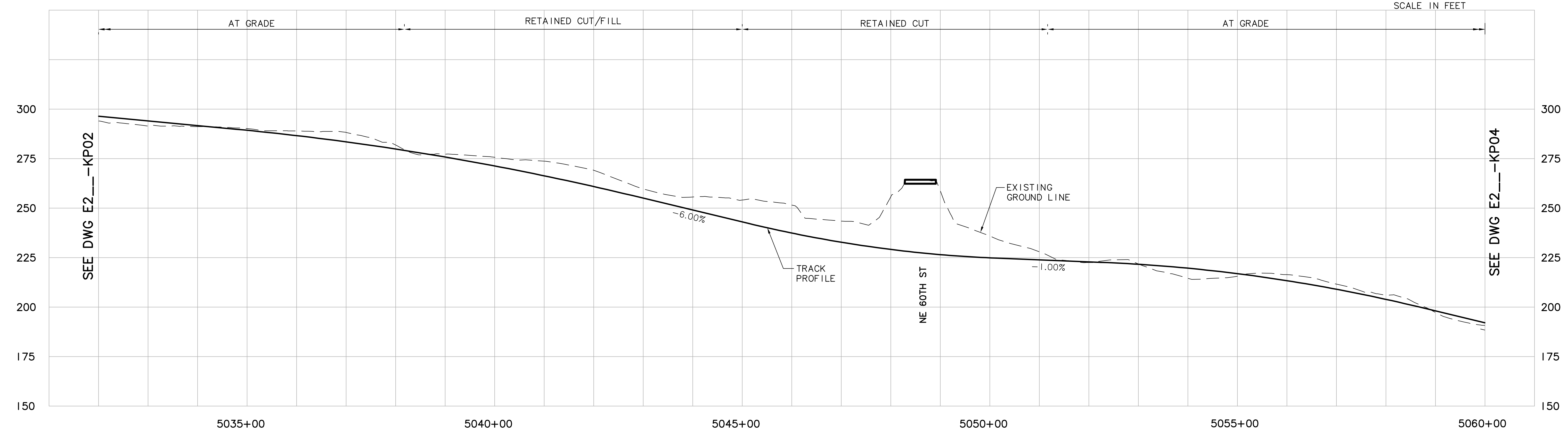
10/04/10 14:29 : bolimaf 0E6579


SEE DWG E2__-KP02
OFF RAMP
SR 520 WB
SR 520 EB
ON RAMP
END RETAINED FILL
FUTURE AUXILIARY LANE BY OTHERS
SR 520
SR 520
SR 520
154TH AVE NE
154TH AVE NE
154TH AVE NE
5035+00
5040+00
5045+00
5050+00
5055+00
5060
34'
END AT GRADE BEGIN RETAINED CUT/FILL
ROADWAY MODIFICATION
NE 59TH WAY
NE 60TH ST
END RETAINED CUT BEGIN AT GRADE
NE 54TH ST
155TH AVE NE
NE 59TH ST
156TH AVE NE
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E2__-KP04



No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_IE2__KP03.dwg
Contract No.:
Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E2__-KP03
Sheet No.:
E-4
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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ELE_E2__KA-100
ZG-2234H
ZG-G10010
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x1746sf
x2046rx
x2046sf
x2049rx
x2049sf
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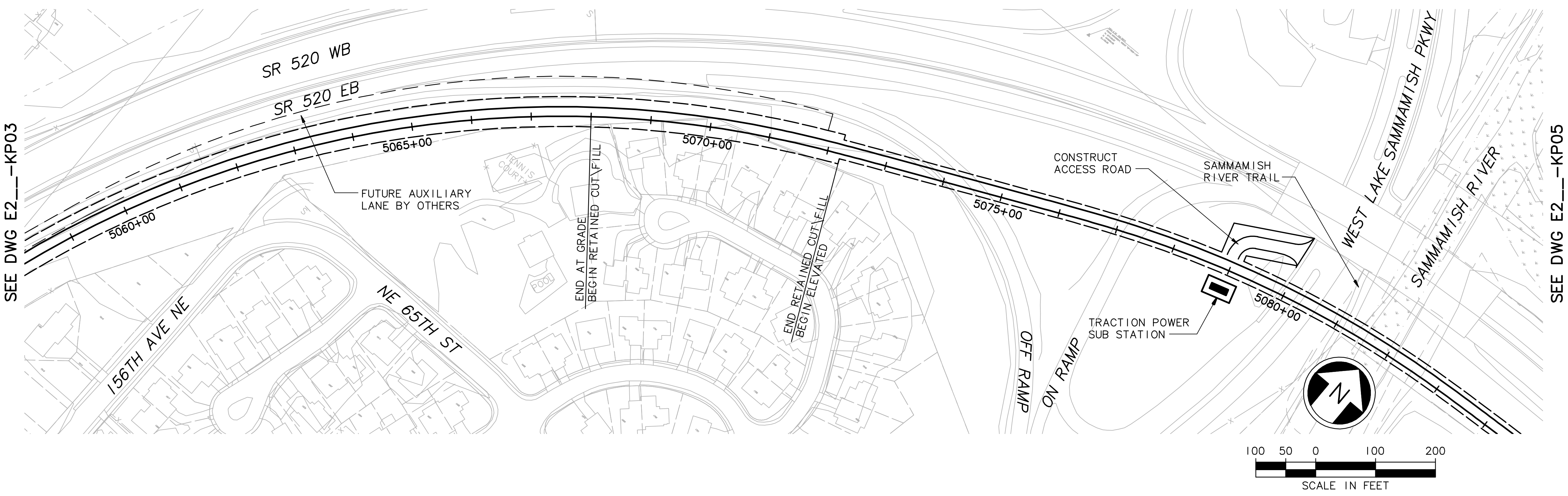
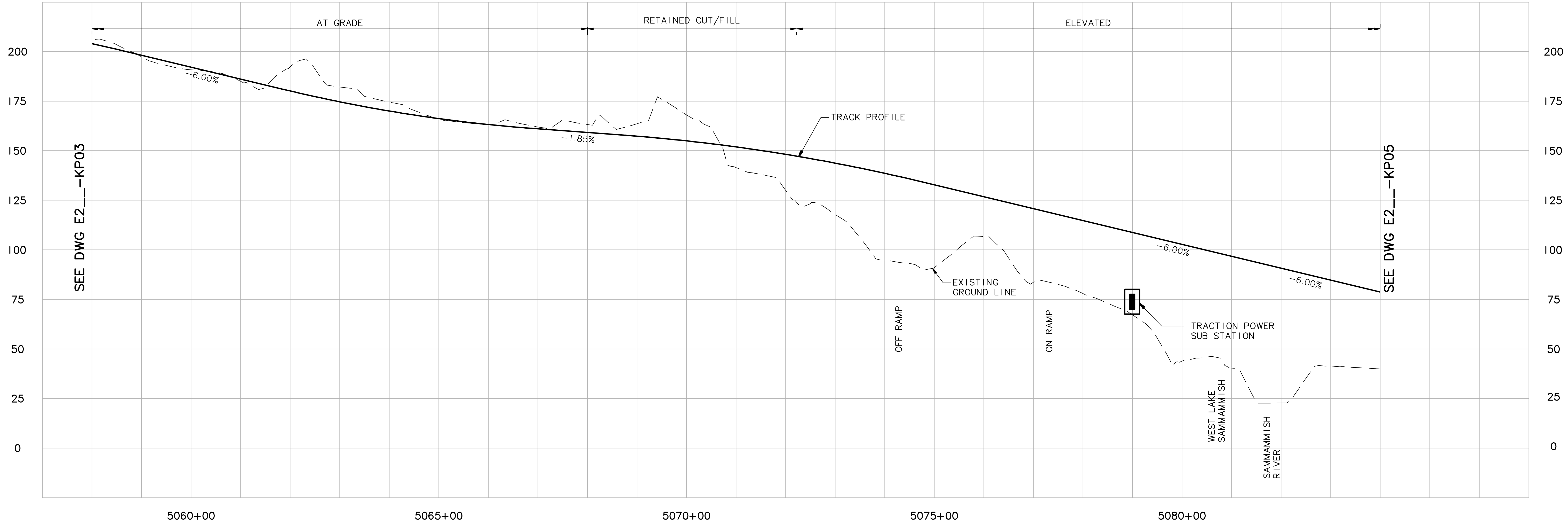
key_East
key_Segment


SR 520 WB
SR 520 EB
5060+00
5065+00
5070+00
5075+00
5080+00
FUTURE AUXILIARY LANE BY OTHERS
TENNIS COURTS
POOL
END AT GRADE BEGIN RETAINED CUT/FILL
END RETAINED CUT/FILL BEGIN ELEVATED
156TH AVE NE
NE 65TH ST
OFF RAMP
ON RAMP
CONSTRUCT ACCESS ROAD
TRACTION POWER SUB STATION
SAMMAMISH RIVER TRAIL
WEST LAKE SAMMAMISH PKWY
SAMMAMISH RIVER
N
SEE DWG E2__-KP03
SEE DWG E2__-KP05
100 50 0 100 200
SCALE IN FEET



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06/14/11 15:03 : khuum OE6585

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SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_IE2__KP04.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.:
E2__-KP04
Sheet No.:
E-5
Rev.:

DWG INFO:

LTSCALE:
1=1

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-Attach:
-Overlay:
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ELE_E2__KA-100
SUB-SDEIS
ZG-2234H
ZG-G10010
x2046rx
x2046sf
x2049rx
x2049sf
x2346rx
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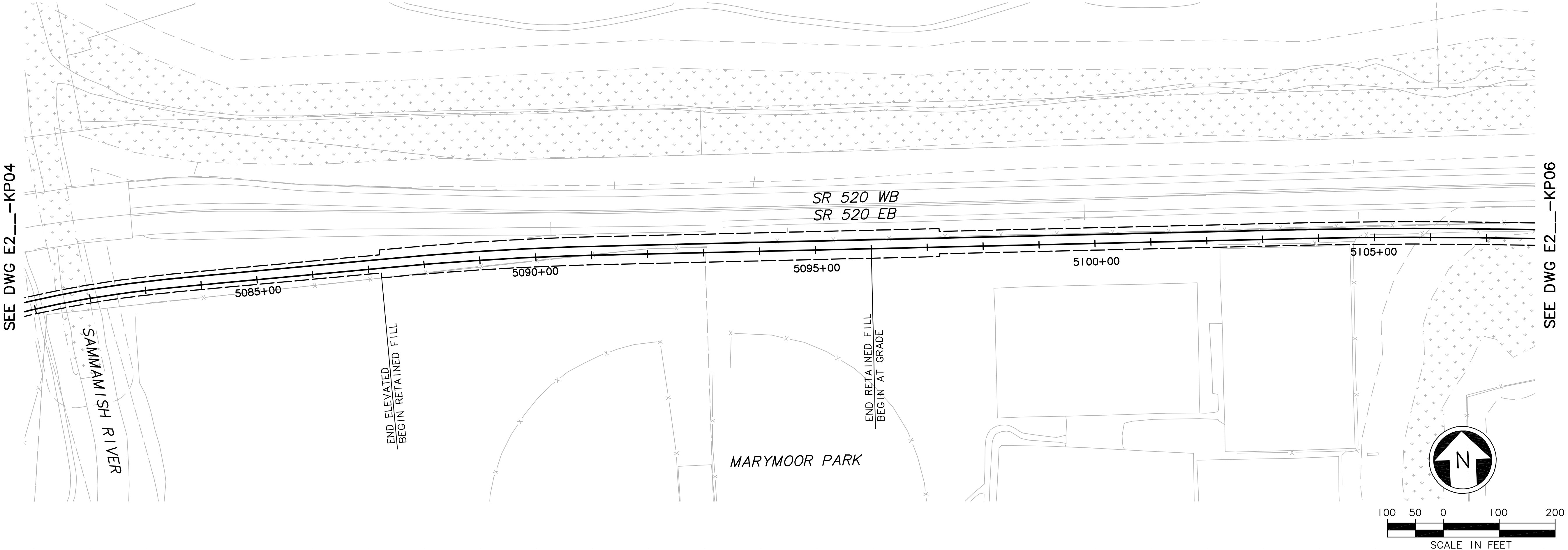
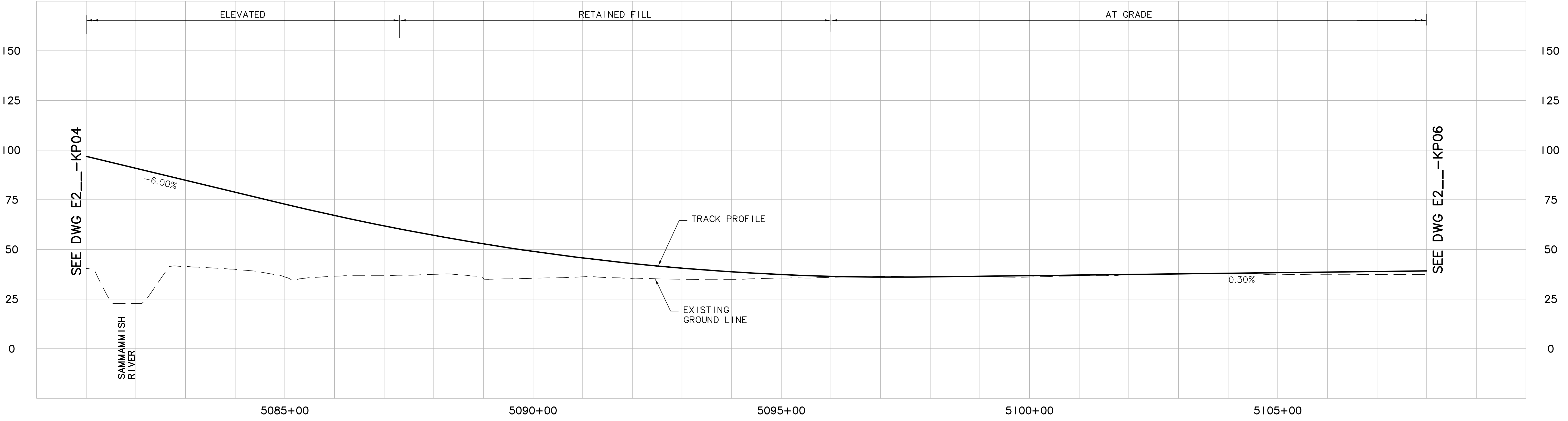
ELE_BrCrk
ELE_VPORTS
key_East
key_Segment


SEE DWG E2__-KP04
SR 520 WB
SR 520 EB
5085+00
5090+00
5095+00
5100+00
5105+00
SEE DWG E2__-KP06
SAMMAMISH RIVER
END ELEVATED
BEGIN RETAINED FILL
END RETAINED FILL
BEGIN AT GRADE
MARYMOOR PARK
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELE_IE2__KP05.dwg
10/04/10 14:30 : bolimaf OE6579

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FEIS CONCEPTUAL

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Submitted:

Date:

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

Approved:

Date:

SOUNDTRANSIT

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELE_IE2__KP05.dwg

Contract No.:

Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)

TRACK PLAN & PROFILE

Drawing No.:
E2__-KP05

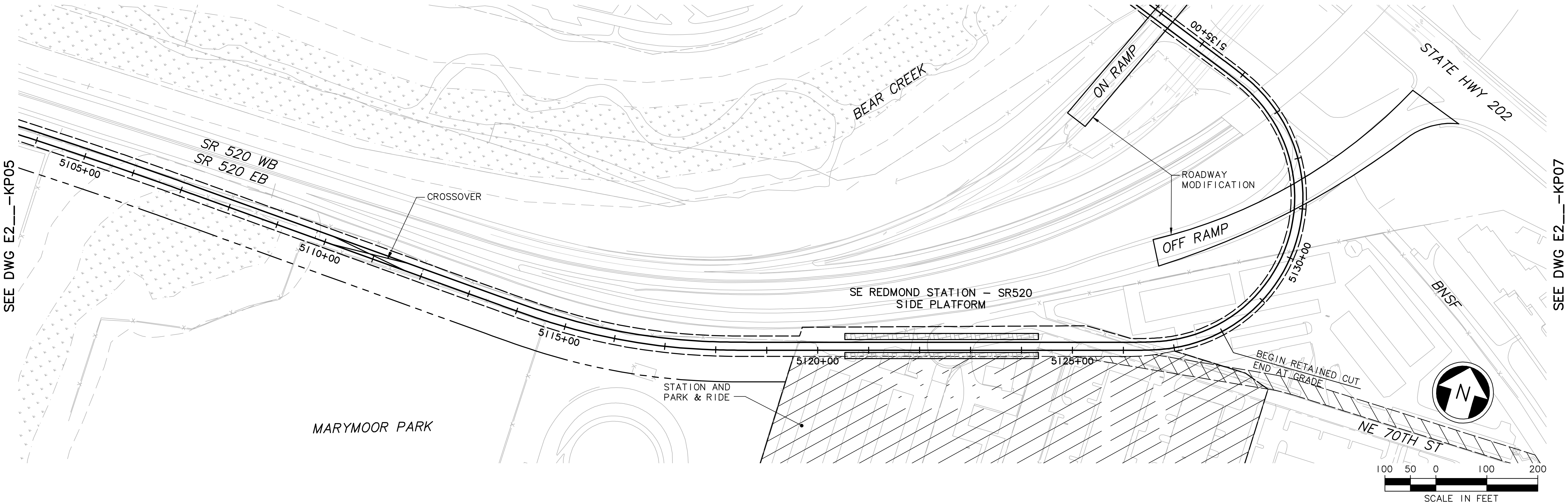
Sheet No.: E-6

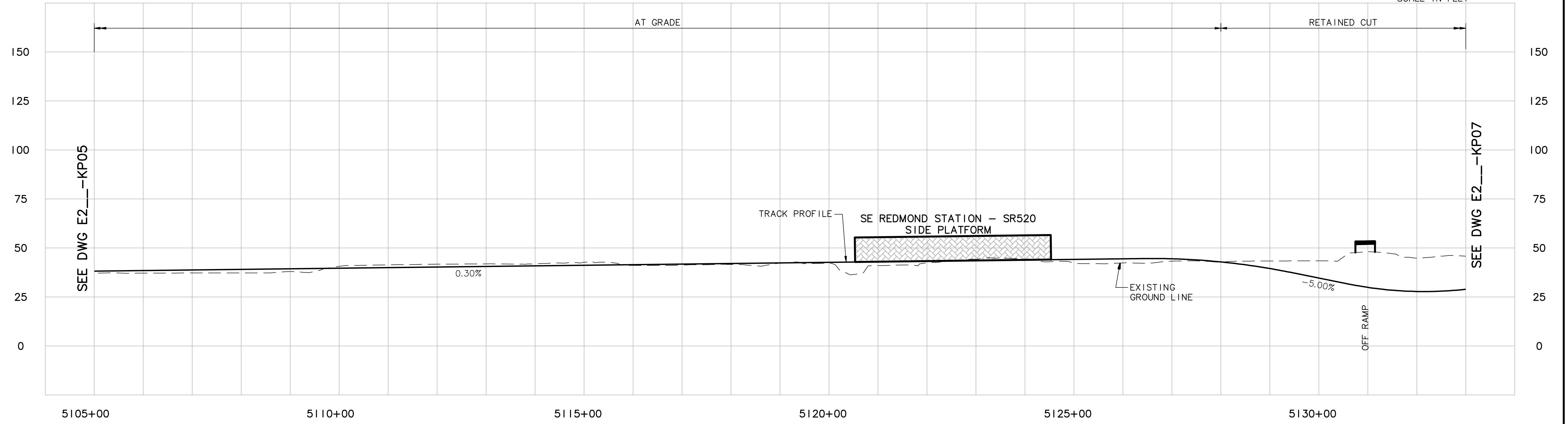
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELE_520_PLAN_2
ELE_BrCrk
ELE_E2__CM–100
ELE_E2__JO–100
ELE_E2__KA–100
ZG–2234H
ZG–G10010
x2346rx
x2346sf
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf
–Unresolved:
key_Segment


SEE DWG E2__–KP05
SR 520 WB
SR 520 EB
5105+00
CROSSOVER
5110+00
BEAR CREEK
ON RAMP
5135+00
STATE HWY 202
ROADWAY MODIFICATION
OFF RAMP
5130+00
BNSF
SE REDMOND STATION – SR520
SIDE PLATFORM
5115+00
5120+00
5125+00
BEGIN RETAINED CUT
END AT GRADE
STATION AND PARK & RIDE
MARYMOOR PARK
NE 70TH ST
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E2__–KP07


AT GRADE
RETAINED CUT
150
125
100
75
50
25
0
SEE DWG E2__–KP05
TRACK PROFILE
SE REDMOND STATION – SR520
SIDE PLATFORM
0.30%
EXISTING GROUND LINE
–5.00%
OFF RAMP
SEE DWG E2__–KP07
5105+00
5110+00
5115+00
5120+00
5125+00
5130+00

c:\work\feis\segment e\ELE_IE2__KP06.dwg
03/07/11 15:24 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
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FEIS CONCEPTUAL

CH2MHILL

Submitted:

Grijalva ENGINEERING
BOLIMA DRAFTING & DESIGN INC.

Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_IE2__KP06.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)

ALTERNATIVE E2
TRACK PLAN & PROFILE

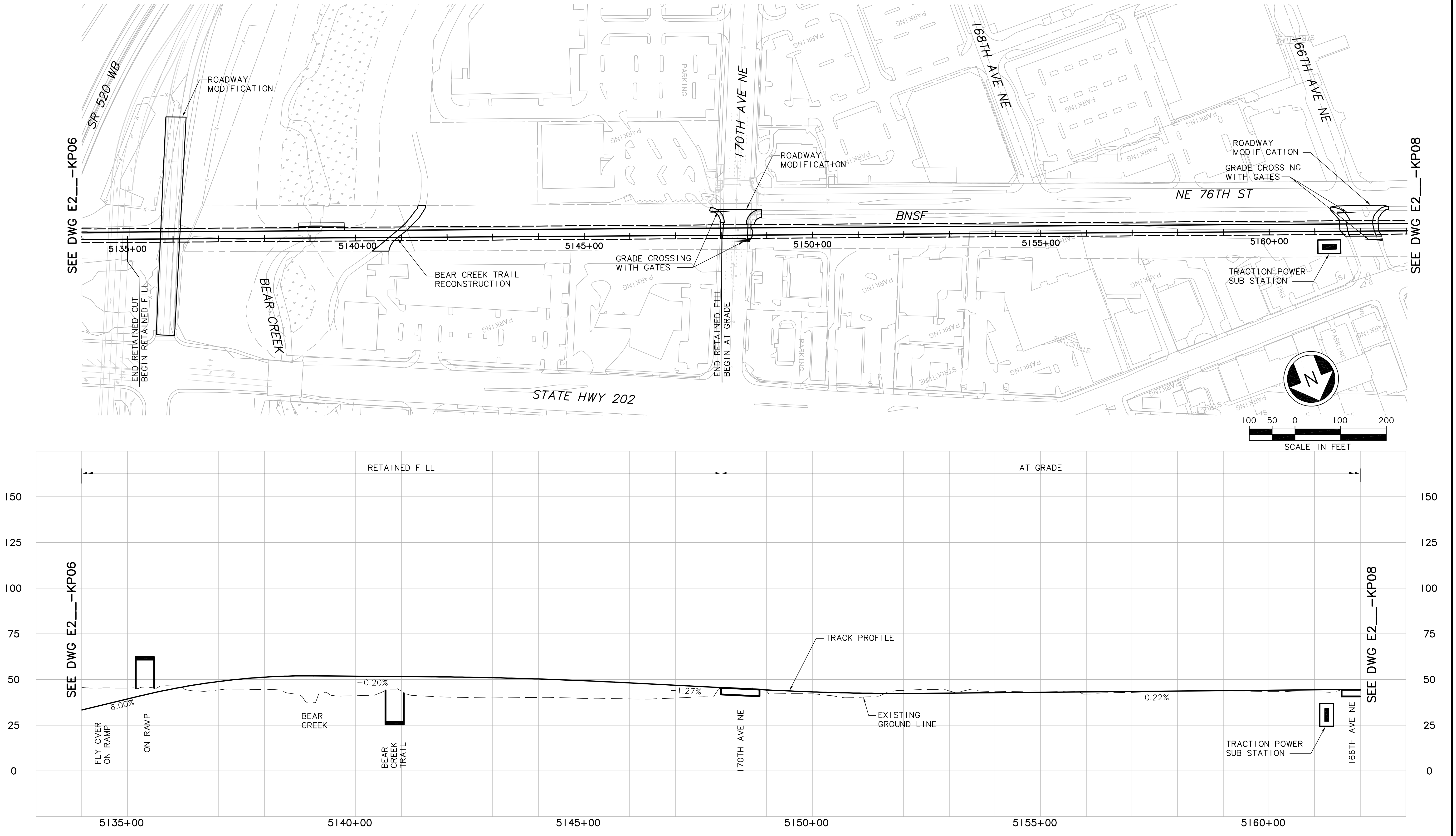
Drawing No.:
E2__–KP06

Sheet No.: E-7
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_520_PLAN_2
ELE_BrCrk
ELE_E2__CM-100
ELE_E2__JO-100
ELE_E2__KA-100
ELE_E2__US-100
ZG-2234H
ZG-G10010
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf
-Unresolved:
ELE_E2__MF
key_Segment



SR 520 WB
ROADWAY MODIFICATION
170TH AVE NE
168TH AVE NE
166TH AVE NE
ROADWAY MODIFICATION
ROADWAY MODIFICATION
GRADE CROSSING WITH GATES
NE 76TH ST
BNSF
SEE DWG E2__-KP06
SEE DWG E2__-KP08
5135+00
5140+00
5145+00
5150+00
5155+00
5160+00
GRADE CROSSING WITH GATES
BEAR CREEK TRAIL RECONSTRUCTION
TRACTION POWER SUB STATION
BEAR CREEK
END RETAINED CUT BEGIN RETAINED FILL
END RETAINED FILL BEGIN AT GRADE
PARKING
STRUCTURE
STATE HWY 202
N
100 50 0 100 200
SCALE IN FEET
RETAINED FILL
AT GRADE
150
125
100
75
50
25
0
TRACK PROFILE
6.00%
-0.20%
-1.27%
0.22%
FLY OVER ON RAMP
ON RAMP
BEAR CREEK
BEAR CREEK TRAIL
170TH AVE NE
EXISTING GROUND LINE
TRACTION POWER SUB STATION
166TH AVE NE

c:\work\feis\ELE_IE2__KP07.dwg
02/23/11 08:50 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELE_IE2__KP07.dwg

Contract No.:

Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)

ALTERNATIVE E2
TRACK PLAN & PROFILE

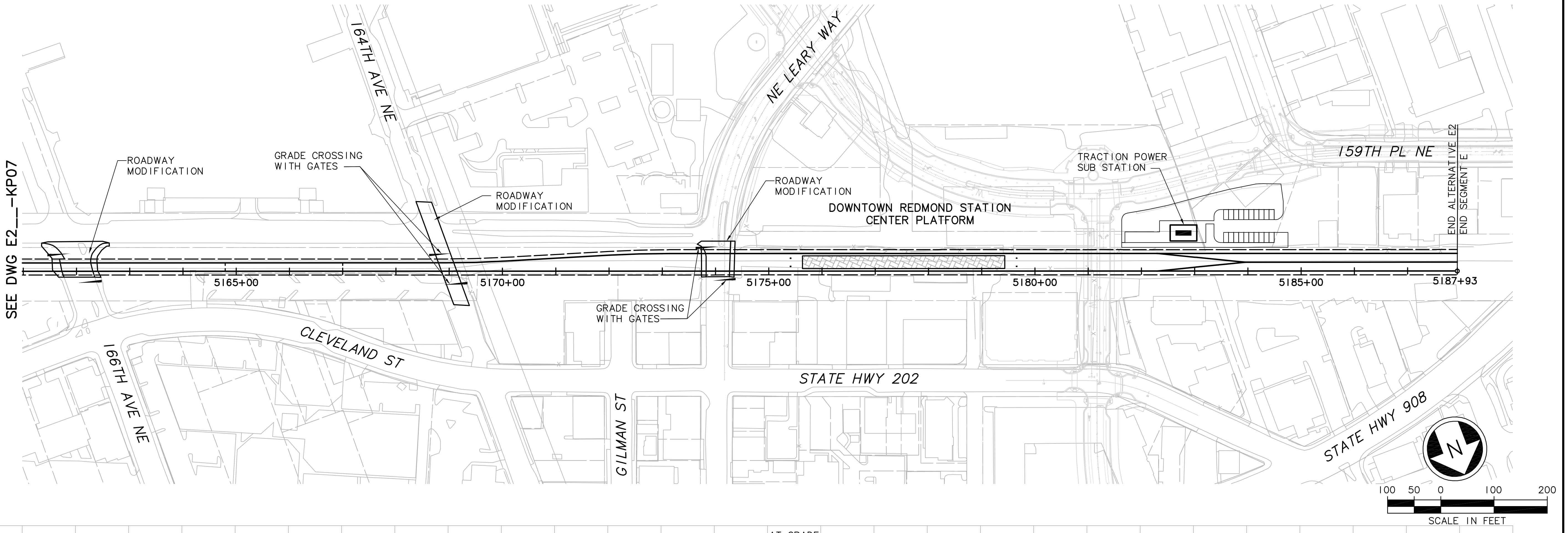
Drawing No.:
E2__-KP07

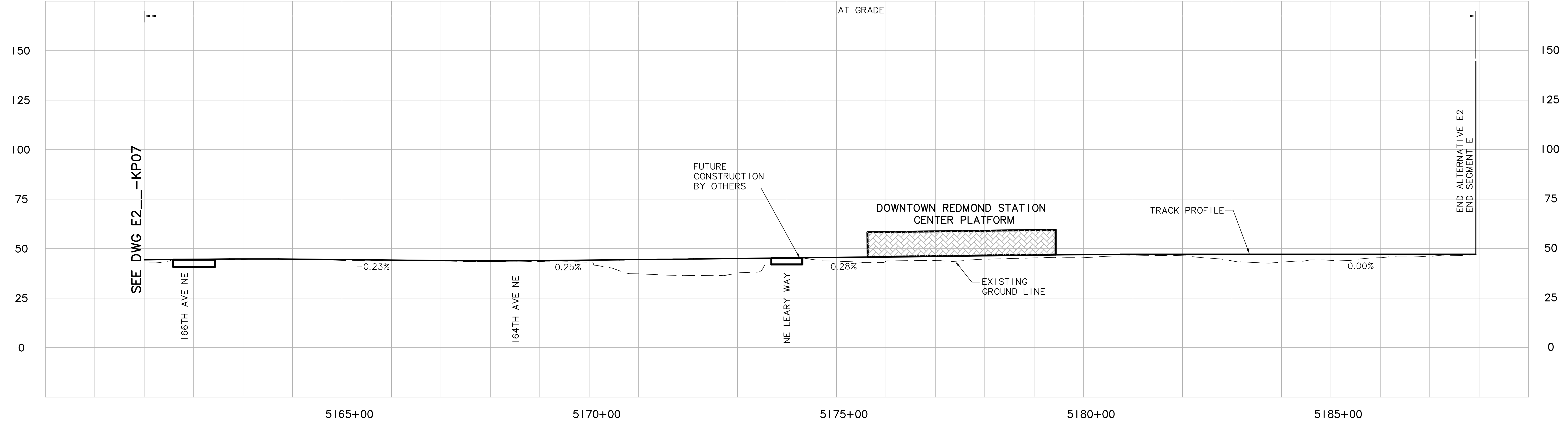
Sheet No.: E-8
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELE_520_PLAN_2
ELE_BrCrk
ELE_E2__CM–100
ELE_E2__JO–100
ELE_E2__KA–100
ELE_N29_AS_1A
ZG–2234H
ZG–G10010
x2049rx
x2049sf
x2349rx
x2349sf
–Unresolved:
key_East
key_Segment
xBrCrk_sfut–non


SEE DWG E2__–KP07
ROADWAY MODIFICATION
GRADE CROSSING WITH GATES
ROADWAY MODIFICATION
164TH AVE NE
NE LEARY WAY
ROADWAY MODIFICATION
DOWNTOWN REDMOND STATION CENTER PLATFORM
TRACTION POWER SUB STATION
159TH PL NE
END ALTERNATIVE E2
END SEGMENT E
5165+00
5170+00
5175+00
5180+00
5185+00
5187+93
GRADE CROSSING WITH GATES
CLEVELAND ST
166TH AVE NE
STATE HWY 202
GILMAN ST
STATE HWY 908
N
100 50 0 100 200
SCALE IN FEET


AT GRADE
150
125
100
75
50
25
0
SEE DWG E2__–KP07
FUTURE CONSTRUCTION BY OTHERS
DOWNTOWN REDMOND STATION CENTER PLATFORM
TRACK PROFILE
END ALTERNATIVE E2
END SEGMENT E
–0.23%
0.25%
0.28%
0.00%
EXISTING GROUND LINE
166TH AVE NE
164TH AVE NE
NE LEARY WAY
5165+00
5170+00
5175+00
5180+00
5185+00

c:\work\feis\ELE_2E2A_KP08.dwg
02/23/11 08:54 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_2E2A_KP08.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)

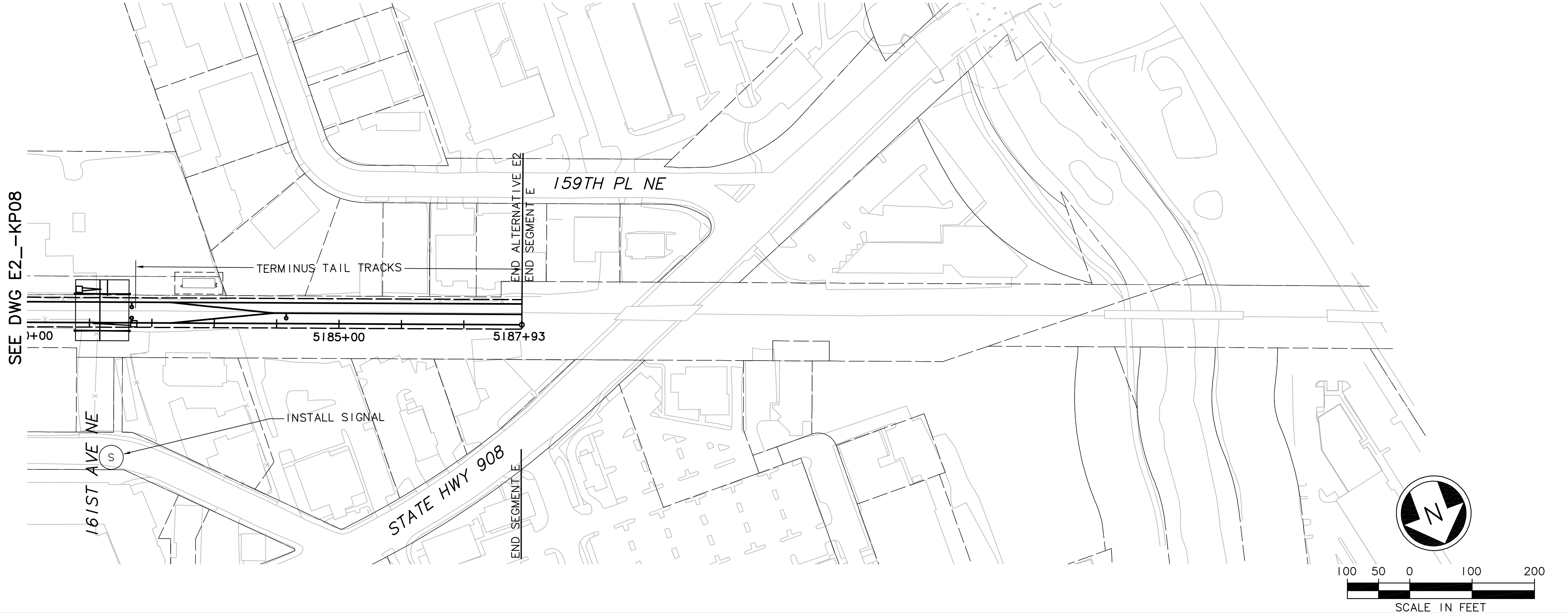
TRACK PLAN & PROFILE

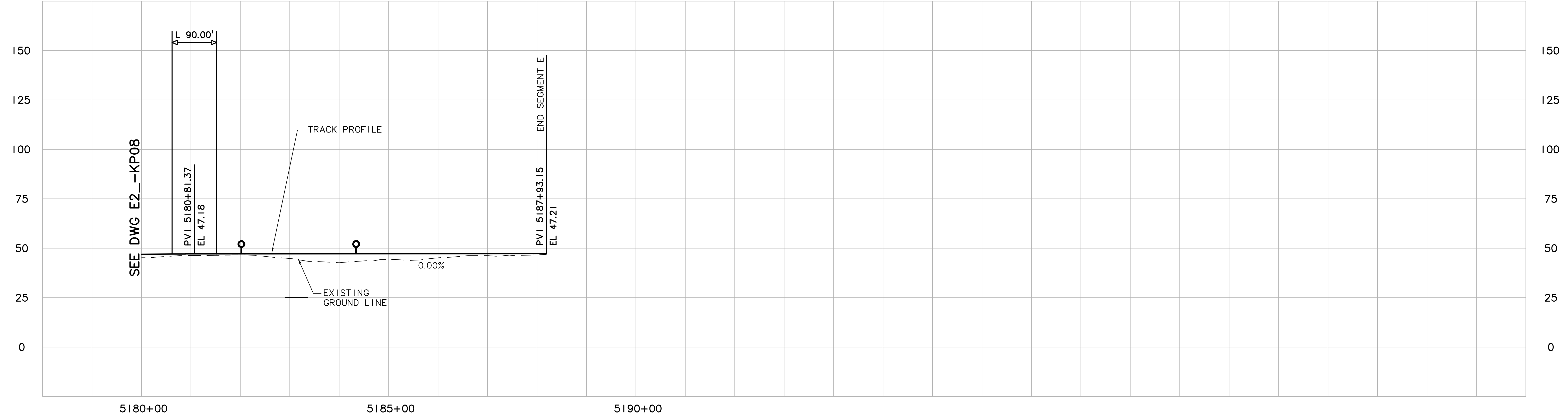
Drawing No.:
E2A_–KP08
Sheet No.: Rev.:
E-9

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_E2__CM-100
ELE_E2__JO-100
ELE_E2__KA-100
ZG-2234H
ZG-G10010
x2049rx
x2049sf
x2052rx
x2052sf
-Unresolved:
ELE_520_PLAN_2
key_East
key_Segment
xBrCrk_sfut-non


SEE DWG E2_-KP08
TERMINUS TAIL TRACKS
END ALTERNATIVE E2
END SEGMENT E
159TH PL NE
5180+00
5185+00
5187+93
INSTALL SIGNAL
S
161ST AVE NE
STATE HWY 908
END SEGMENT E
N
100 50 0 100 200
SCALE IN FEET



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FEIS CONCEPTUAL

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Submitted:

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BOLIMA DRAFTING & DESIGN INC.

Date:

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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELE_2E2A_KP09.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)
TRACK PLAN & PROFILE

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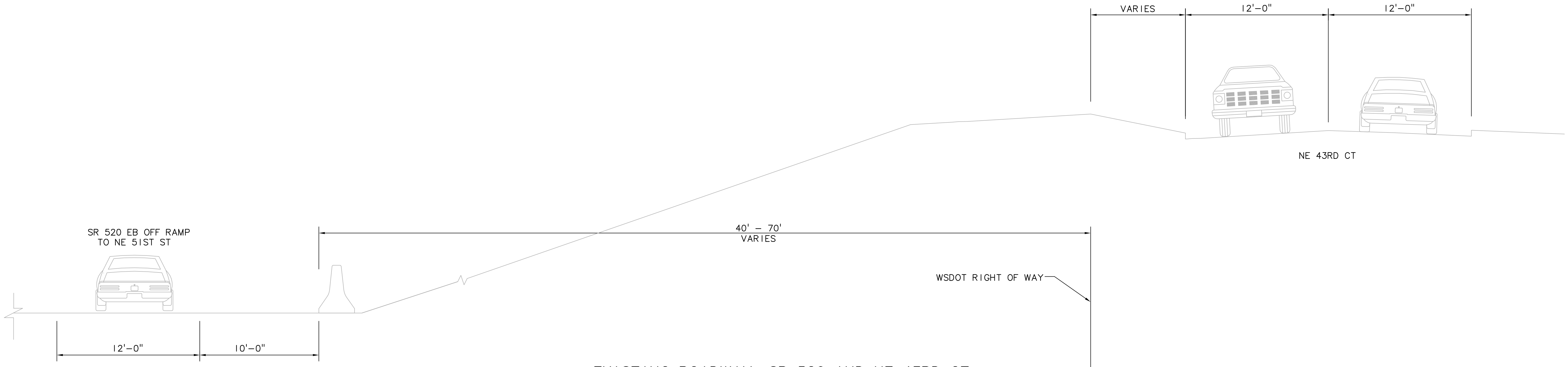
Drawing No.: E2A_-KP09
Sheet No.: E-10
Rev.:

c:\work\sdeis\ELE_2E2A_KP09.dwg
10/04/10 14:35 : bolimaf OE6579

DWG INFO:

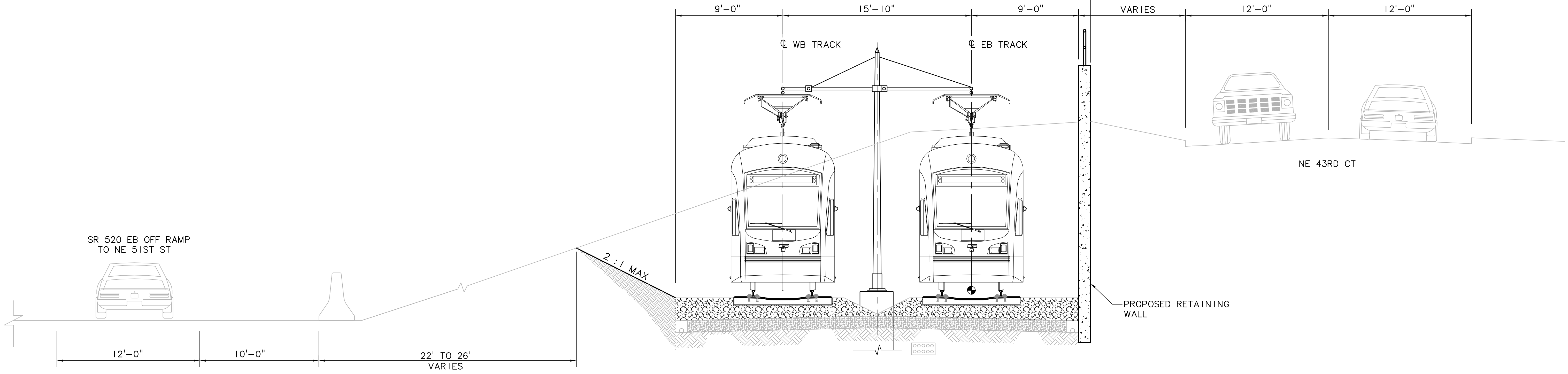
LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
SUB–SDEIS
ZG–2234H
–Unresolved:


VARIES
12'–0"
12'–0"
NE 43RD CT
SR 520 EB OFF RAMP
TO NE 51ST ST
40' – 70'
VARIES
WSDOT RIGHT OF WAY
12'–0"
10'–0"

EXISTING ROADWAY: SR 520 AND NE 43RD CT

SCALE: NTS


9'–0"
15'–10"
9'–0"
VARIES
12'–0"
12'–0"
℄ WB TRACK
℄ EB TRACK
NE 43RD CT
SR 520 EB OFF RAMP
TO NE 51ST ST
2:1 MAX
PROPOSED RETAINING
WALL
12'–0"
10'–0"
22' TO 26'
VARIES

PROPOSED LRT SECTION: SR 520 AND NE 43RD CT
ALTERNATIVE: E2
TRACK TYPE: BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

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BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELE_IE2__KX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)

TYPICAL SECTION
SR 520
AT NE 43RD CT

Drawing No.: E2__–KX01
Sheet No.: E-11
Rev.:

c:\work\sdeis\ELE_IE2__KX01.dwg
10/04/10 14:31 : bolimaf OE6579

DWG INFO:

LTSCALE:
1=1

XREFs:
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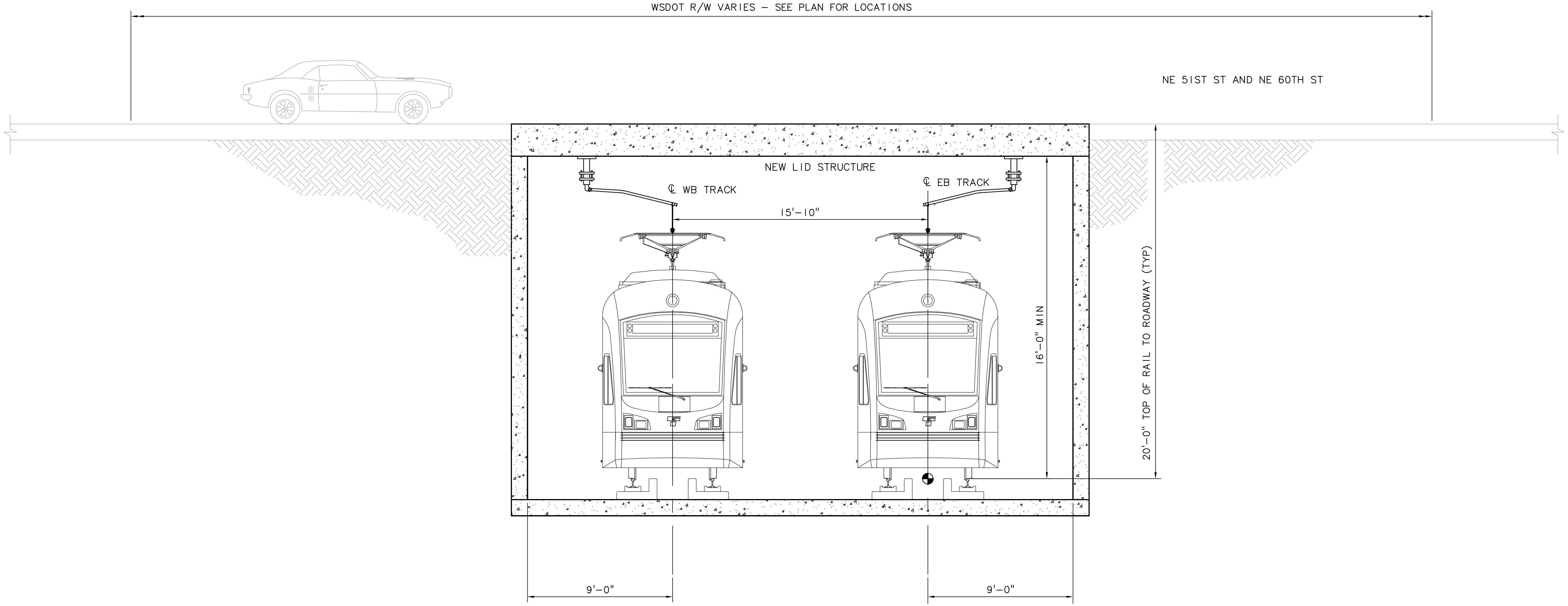
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:



WSDOT R/W VARIES – SEE PLAN FOR LOCATIONS
NE 51ST ST AND NE 60TH ST
NEW LID STRUCTURE
℄ WB TRACK
℄ EB TRACK
15'-10"
16'-0" MIN
20'-0" TOP OF RAIL TO ROADWAY (TYP)
9'-0"
9'-0"

PROPOSED LRT SECTION: UNDER NE 51ST ST AND NE 60TH ST
ALTERNATIVE: E2
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\sdeis\ELE_IE2__KX02.dwg
10/04/10 14:32 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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BOLIMA DRAFTING & DESIGN INC.

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Date:

Scale: NTS
Filename: ELE_IE2__KX02.dwg
Contract No.:
Date: 07/30/10

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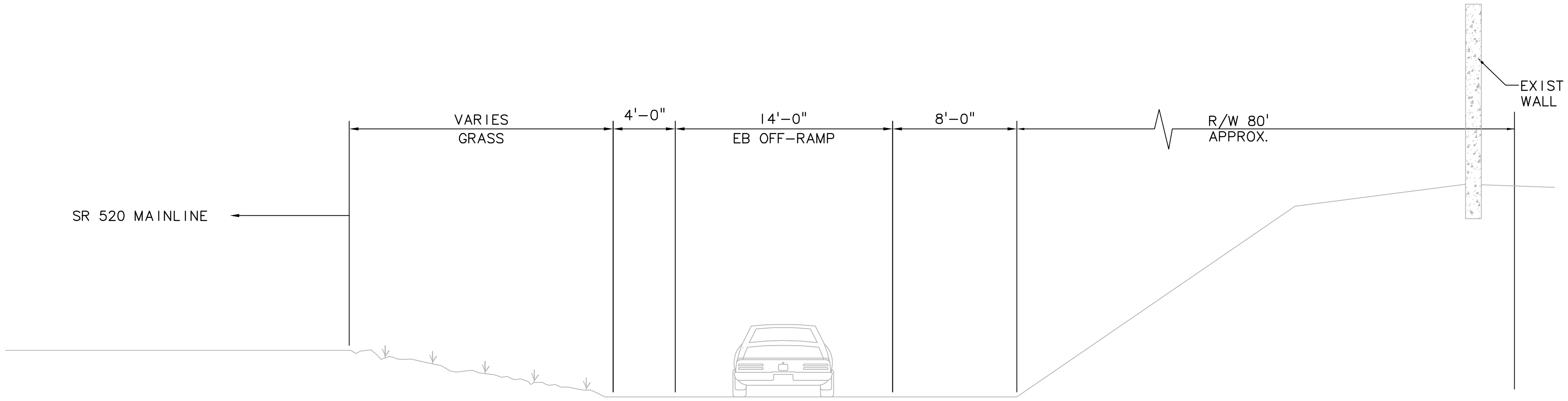
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)
TYPICAL SECTION
UNDER NE 51ST AND NE 60TH ST

Drawing No.: E2__-KX02
Sheet No.: E-12
Rev.:

DWG INFO:

LTSCALE:
1=1

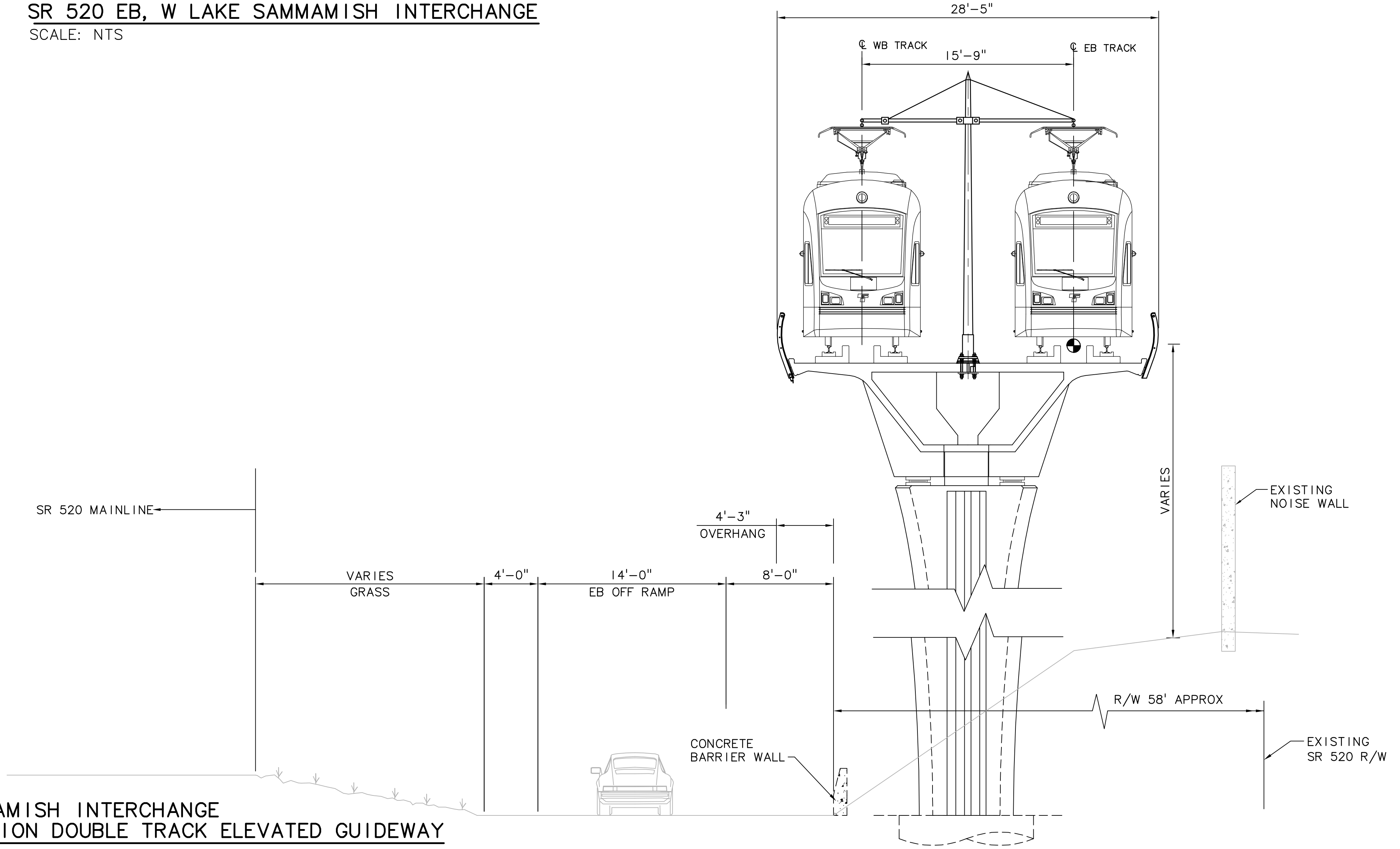
XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:



VARIES
GRASS
4'-0"
14'-0"
EB OFF-RAMP
8'-0"
R/W 80'
APPROX.
EXISTING NOISE
WALL
SR 520 MAINLINE

EXISTING ROADWAY SECTION:
SR 520 EB, W LAKE SAMMAMISH INTERCHANGE

SCALE: NTS



28'-5"
℄ WB TRACK
℄ EB TRACK
15'-9"
VARIES
EXISTING
NOISE WALL
SR 520 MAINLINE
4'-3"
OVERHANG
VARIES
GRASS
4'-0"
14'-0"
EB OFF RAMP
8'-0"
R/W 58' APPROX
CONCRETE
BARRIER WALL
EXISTING
SR 520 R/W

PROPOSED LRT SECTION:
SR 520 EB, W. LAKE SAMMAMISH INTERCHANGE
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK ELEVATED GUIDEWAY

SCALE: NTS

c:\work\sdeis\ELE_IE2__KX03.dwg
10/04/10 14:32 : bolimaf 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:
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Date:

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Scale: NTS
Filename: ELE_IE2__KX03.dwg
Contract No.:
Date: 07/30/10

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HALF SCALE

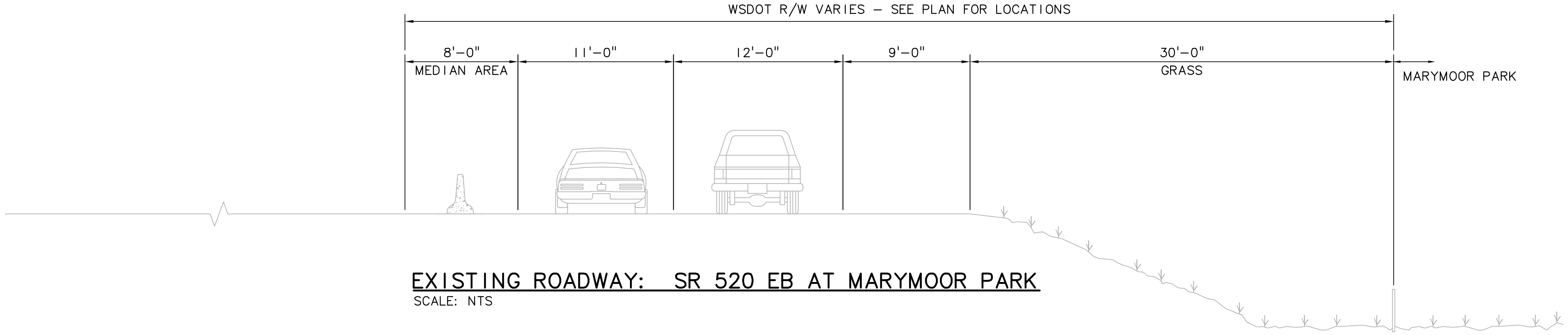
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2 (PREFERRED)
TYPICAL SECTION
SR 520
AT W. LAKE SAMMAMISH INTERCHANGE

Drawing No.: E2__-KX03
Sheet No.: E-13
Rev.:

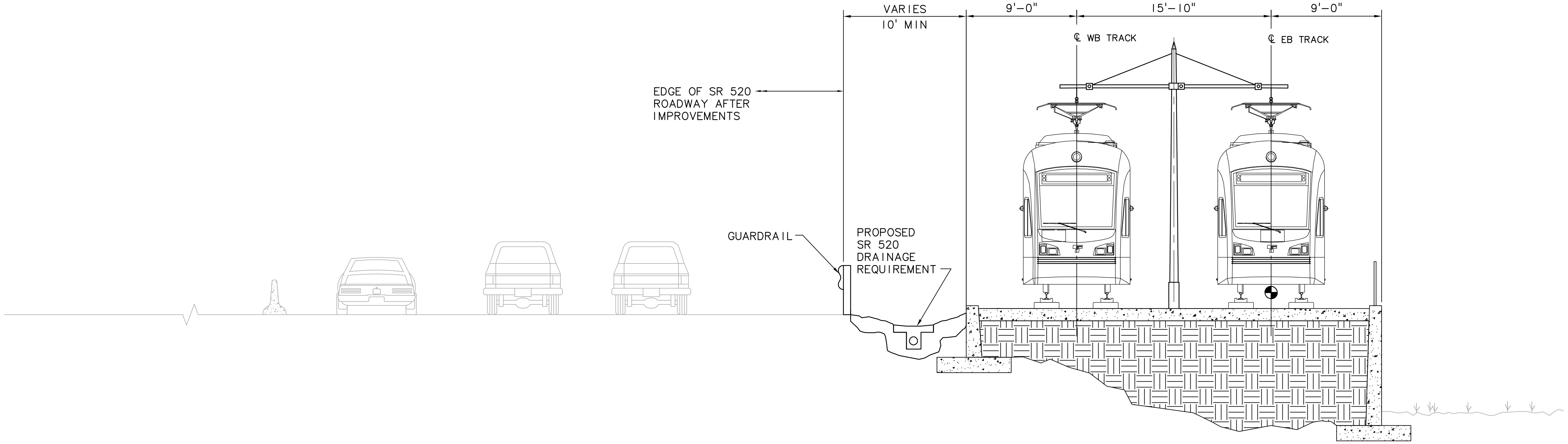
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
ZG-2234H
-Unresolved:


WSDOT R/W VARIES - SEE PLAN FOR LOCATIONS
8'-0"
MEDIAN AREA
11'-0"
12'-0"
9'-0"
30'-0"
GRASS
MARYMOOR PARK

EXISTING ROADWAY: SR 520 EB AT MARYMOOR PARK
SCALE: NTS


VARIES
10' MIN
9'-0"
15'-10"
9'-0"
℄ WB TRACK
℄ EB TRACK
EDGE OF SR 520 ROADWAY AFTER IMPROVEMENTS
GUARDRAIL
PROPOSED SR 520 DRAINAGE REQUIREMENT

PROPOSED LRT SECTION: SR 520 AT MARYMOOR PARK
ALTERNATIVE: E2
TRACK TYPE: DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

c:\work\sdeis\ELE_IE2__KX04.dwg
10/04/10 14:32 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS
Filename: ELE_IE2__KX04.dwg
Contract No.:
Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)

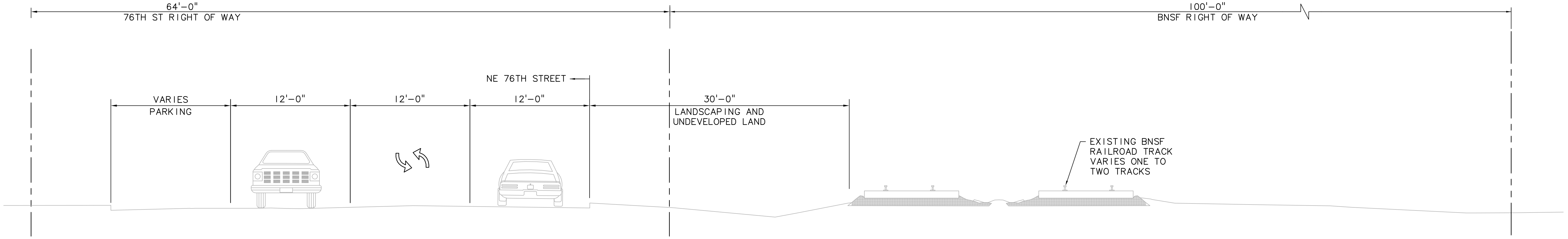
TYPICAL SECTION
SR 520
AT MARYMOOR PARK

Drawing No.: E2__-KX04
Sheet No.: E-14
Rev.:

DWG INFO:

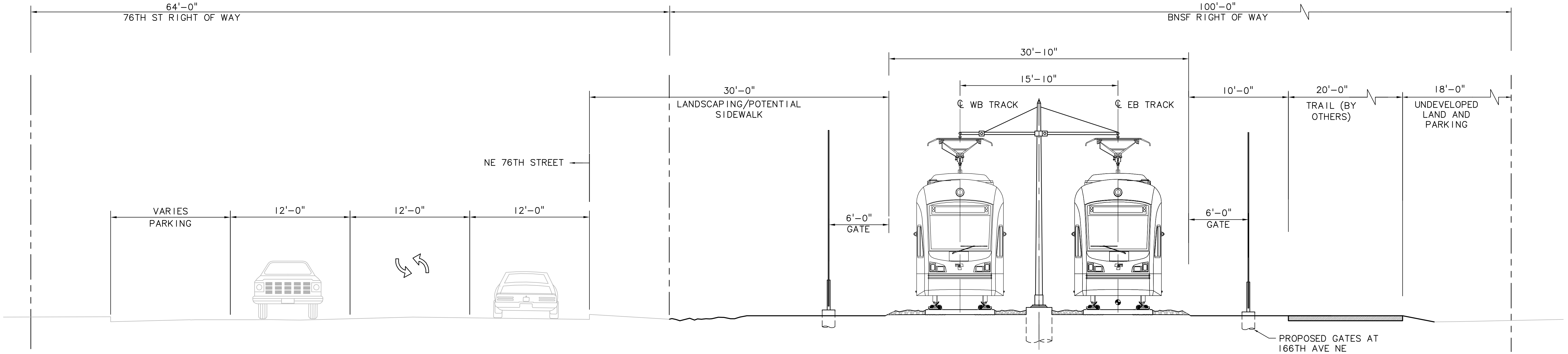
LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
SUB-SDEIS
Zg-2234h
-Unresolved:


64'-0"
76TH ST RIGHT OF WAY
100'-0"
BNSF RIGHT OF WAY
NE 76TH STREET
VARIES
PARKING
12'-0"
12'-0"
12'-0"
30'-0"
LANDSCAPING AND
UNDEVELOPED LAND
EXISTING BNSF
RAILROAD TRACK
VARIES ONE TO
TWO TRACKS

EXISTING ROADWAY: BNSF CORRIDOR AT 166TH AVE NE

SCALE: NTS


64'-0"
76TH ST RIGHT OF WAY
100'-0"
BNSF RIGHT OF WAY
30'-10"
15'-10"
30'-0"
LANDSCAPING/POTENTIAL
SIDEWALK
℄ WB TRACK
℄ EB TRACK
10'-0"
20'-0"
TRAIL (BY
OTHERS)
18'-0"
UNDEVELOPED
LAND AND
PARKING
NE 76TH STREET
VARIES
PARKING
12'-0"
12'-0"
12'-0"
6'-0"
GATE
6'-0"
GATE
PROPOSED GATES AT
166TH AVE NE

PROPOSED LRT SECTION: BNSF CORRIDOR AT 166TH AVE NE
ALTERNATIVE: E2
TRACK TYPE: BALLASTED DOUBLE TRACK GUIDEWAY

SCALE: NTS

c:\work\sdeis\ELE_1E2__KX05.dwg
10/04/10 14:33 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

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CONCEPTUAL

CH2MHILL

Submitted:

Grijalva
ENGINEERING

BOLIMA
DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: NTS

Filename: ELE_1E2__KX05.dwg

Contract No.:

Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2 (PREFERRED)

TYPICAL SECTION
BNSF CORRIDOR
AT 166TH AVE NE

Drawing No.: E2__-KX05

Sheet No.: E-15

Rev.:

XREF'S

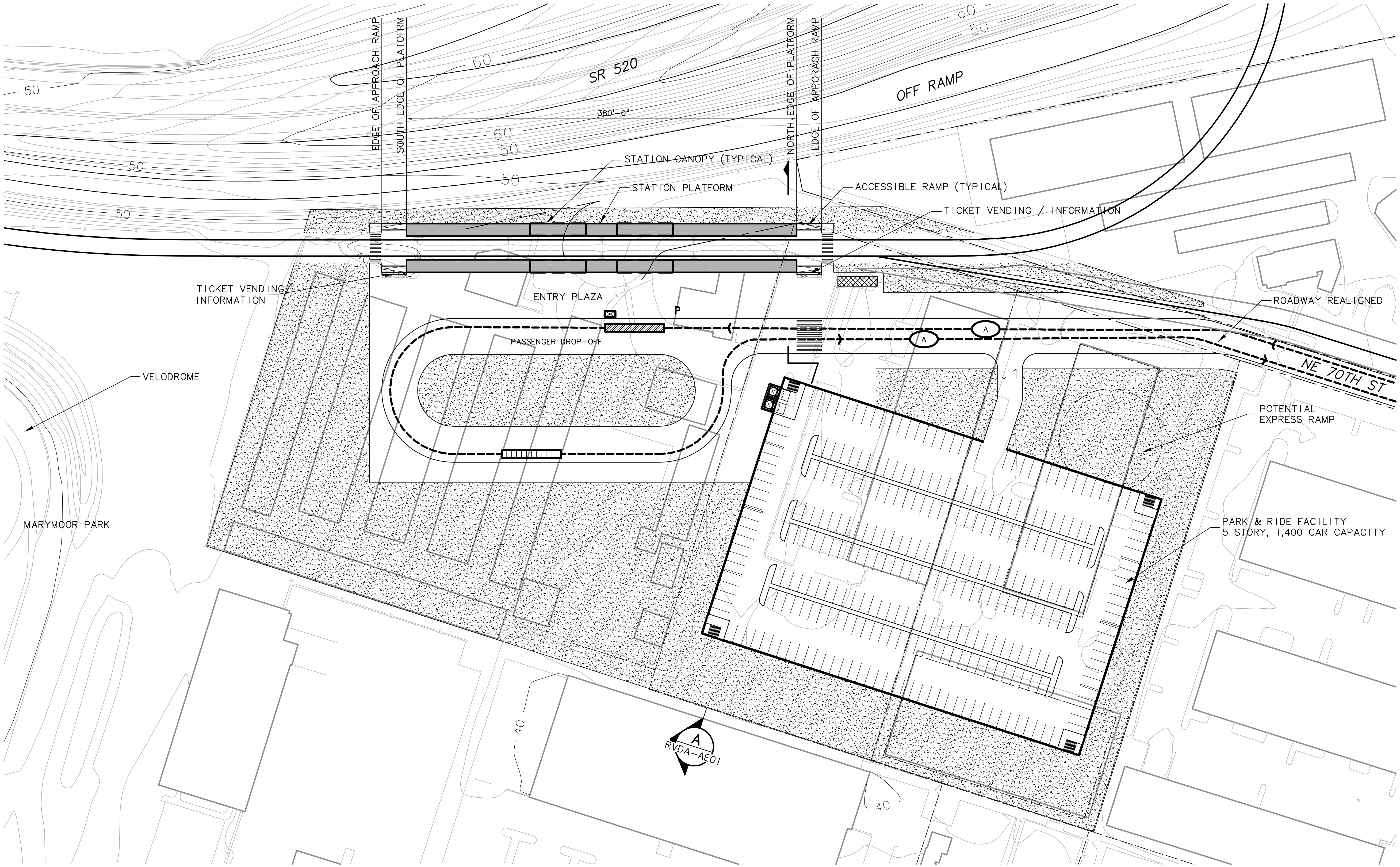
Resolved

ELE_E2__KA
ELE_RVDA1AS
REG-DCON
ZG-2234H
x2346cn
x2346rx
x2346sf
x2349cn
x2349rx
x2349sf
x2646cn
x2646rx
x2646sf
x2649cn
x2649rx
x2649sf

Unresolved

LTSCALE

1=1



EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATOFRM
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
380'-0"
SR 520
OFF RAMP
60
50
STATION CANOPY (TYPICAL)
STATION PLATFORM
ACCESSIBLE RAMP (TYPICAL)
TICKET VENDING / INFORMATION
TICKET VENDING INFORMATION
ENTRY PLAZA
P
PASSENGER DROP-OFF
A
ROADWAY REALIGNED
NE 70TH ST
VELODROME
POTENTIAL EXPRESS RAMP
MARYMOOR PARK
PARK & RIDE FACILITY
5 STORY, 1,400 CAR CAPACITY
40
A
RVDA-AE01

NOTES/LEGEND HEADING

1. ALIGNMENT E2

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
⊠	BUS SHELTER
P	PARATRANSIT STOP
—(A)—	BUS ROUTE : 269, 291
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▒	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELE1RVDA_AS01.dwg
11/05/08 08:28 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELE1RVDA_AS01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

SE REDMOND STATION
SR 520 AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: RVDA-AS01
Sheet No.: E-16
Rev.:

XREF'S

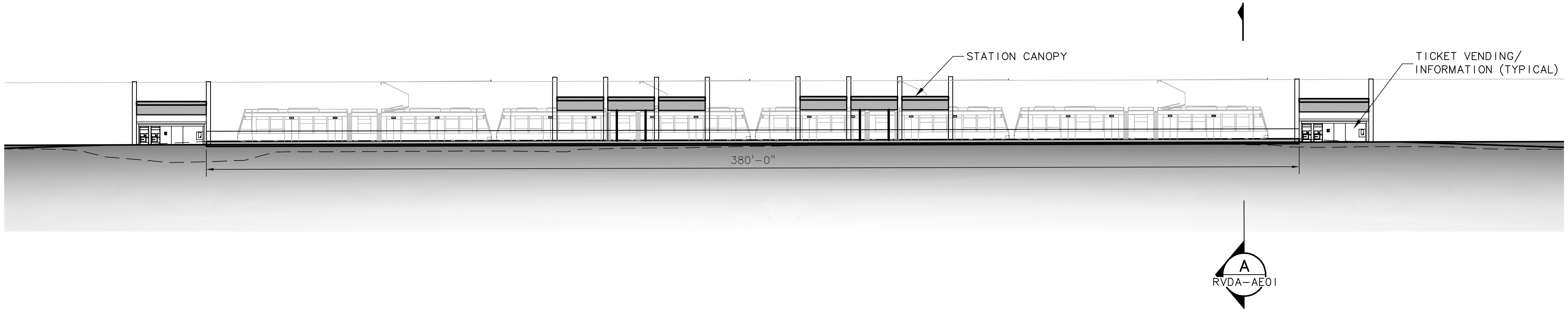
Resolved

ELE_RVDA1AX
ELE_RVDA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

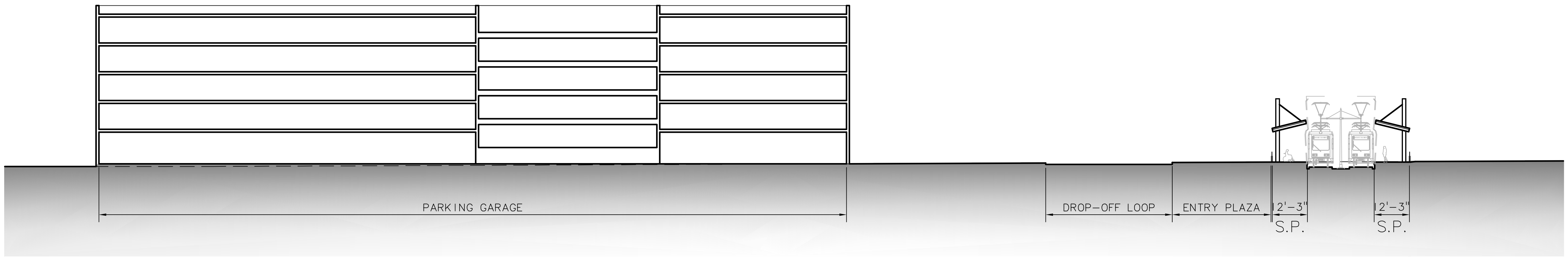
1=1


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'-0"
A
RVDA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


PARKING GARAGE
DROP-OFF LOOP
ENTRY PLAZA
12'-3"
S.P.
12'-3"
S.P.

STATION SECTION (A) RVDA-AE01

SCALE: 1' = 30'

30 15 0 30 60
SCALE IN FEET

c:\work\ELE1RVDA_AE01.dwg
10/16/08 11:37 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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IBI GROUP

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Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELE1RVDA_AE01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

SE REDMOND STATION
SR 520 AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: RVDA-AE01
Sheet No.: E-17
Rev.:

XREF'S

Resolved

ELE_N29_AS_IA
ZG-2234H
x2049sf
x2052sf
x2349sf

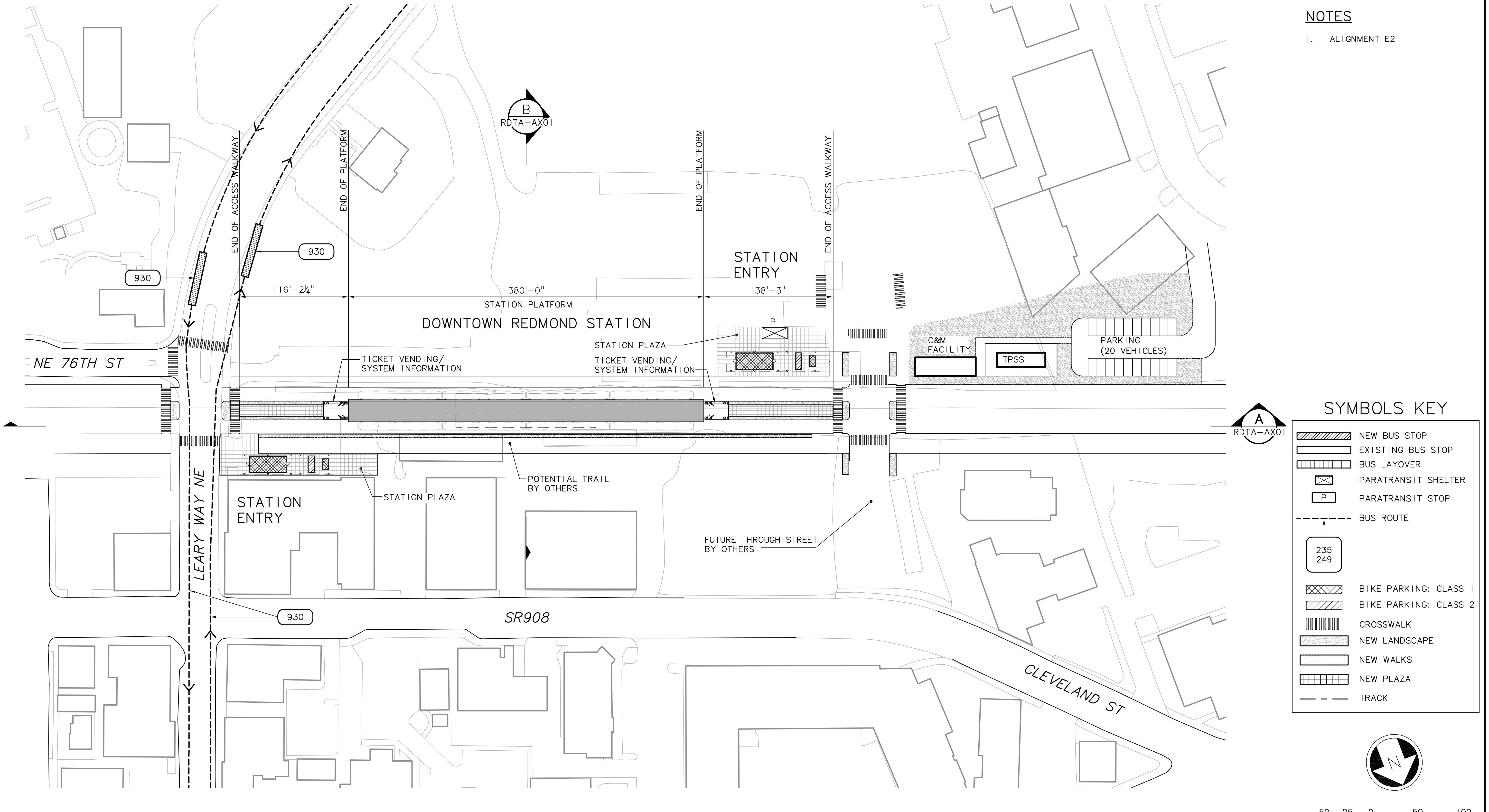
Unresolved

ELE_BrCrk
ELE_E2__KA_EOL

LTSCALE

1=1

c:\work\sdeis\ELE_IRDTAAS01.dwg
08/17/10 09:49 : BOLIMAF OE6579


1
2
3
4
5
B
RDTA-AX01
A
RDTA-AX01
930
930
930
930
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
END OF ACCESS WALKWAY
116'-2¼"
380'-0"
STATION PLATFORM
138'-3"
DOWNTOWN REDMOND STATION
STATION ENTRY
STATION PLAZA
P
TICKET VENDING/
SYSTEM INFORMATION
TICKET VENDING/
SYSTEM INFORMATION
O&M FACILITY
TPSS
PARKING
(20 VEHICLES)
NE 76TH ST
LEARY WAY NE
STATION ENTRY
STATION PLAZA
POTENTIAL TRAIL BY OTHERS
FUTURE THROUGH STREET BY OTHERS
SR908
CLEVELAND ST
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
PARATRANSIT SHELTER
P
PARATRANSIT STOP
BUS ROUTE
235
249
BIKE PARKING: CLASS 1
BIKE PARKING: CLASS 2
CROSSWALK
NEW LANDSCAPE
NEW WALKS
NEW PLAZA
TRACK
N
50 25 0 50 100
SCALE IN FEET

NOTES

1. ALIGNMENT E2

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

Date:

IBI GROUP

IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Approved:

Date:

SOUNDTRANSIT

Scale: 1"=50'
Filename: ELE_IRDTAAS01.dwg
Contract No.:
Date: 07/30/10

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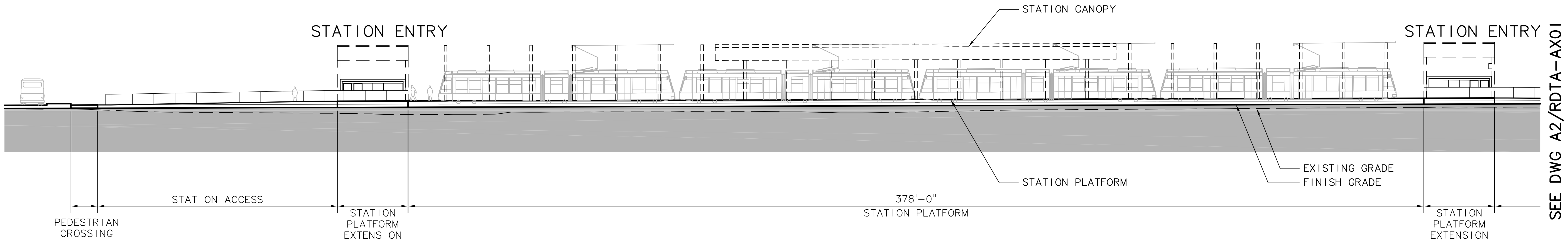
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E – ALT E2
DOWNTOWN REDMOND STATION
STATION AREA PLAN

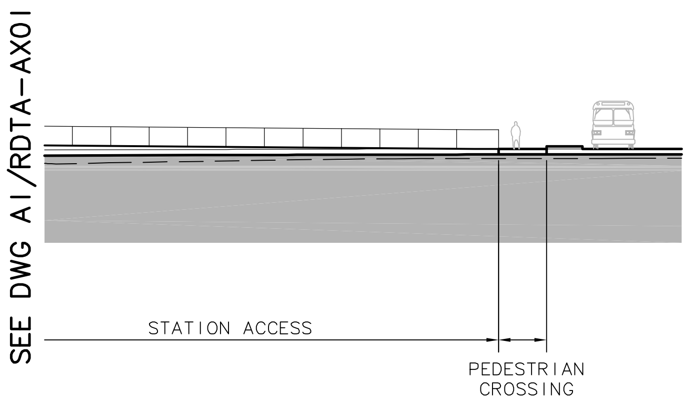
Drawing No.: RDTA-AS01
Sheet No.: E-18
Rev.:

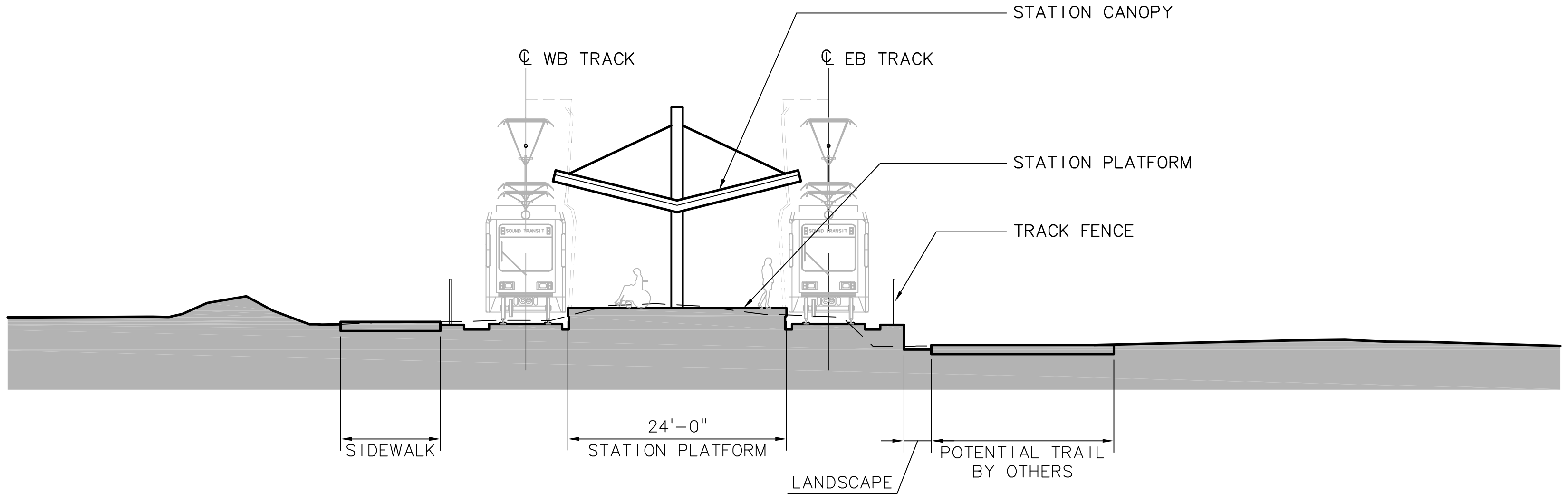
XREF'S
Resolved
ELE_N29_A...
ZG-2234H
Unresolved
LTSCALE
I=I

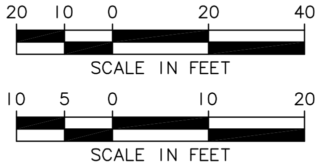

STATION CANOPY
STATION ENTRY
STATION ENTRY
SEE DWG A2/RDTA-AX01
EXISTING GRADE
FINISH GRADE
STATION PLATFORM
STATION ACCESS
378'-0"
STATION PLATFORM
PEDESTRIAN CROSSING
STATION PLATFORM EXTENSION
STATION PLATFORM EXTENSION

SITE SECTION A1 RDTA-AX01

SCALE: 1" = 20'


SEE DWG A1/RDTA-AX01
STATION ACCESS
PEDESTRIAN CROSSING


STATION CANOPY
℄ WB TRACK
℄ EB TRACK
STATION PLATFORM
TRACK FENCE
SIDEWALK
24'-0"
STATION PLATFORM
LANDSCAPE
POTENTIAL TRAIL BY OTHERS


20 10 0 20 40
SCALE IN FEET
10 5 0 10 20
SCALE IN FEET

SITE SECTION A2 RDTA-AX01

SCALE: 1" = 20'

SITE SECTION B RDTA-AX01

SCALE: 1" = 10'

c:\work\sdeis\ELE_IRDTAAX01.dwg
08/17/10 09:49 : BOLIMAF 0E6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL

Submitted:

Date:

IBI GROUP

IBI Group
801 Second Avenue - Suite 1400
Seattle WA 98104 1576 USA

tel 206.521.9091
fax 206.521.9095

Approved:

SOUNDTRANSIT

Date:

Scale: AS NOTED
Filename: ELE_IRDTAAX01.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E - ALT E2
DOWNTOWN REDMOND STATION
SITE SECTIONS

Drawing No.: RDTA-AX01
Sheet No.: E-19
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
—Attach:
—Overlay:
ELE_E2__KA
ZG-2234H
x1434sf
x1437rx
x1437sf
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x1743rx
x1743sf
x1746rx
x1746sf
x1749rx
x1749sf
x2037rx
x2037sf
x2040rx
x2040sf
x2043rx
x2043sf
x2046rx
x2046sf
x2049rx
x2049sf
x2052rx
x2052sf
x2346rx
x2346sf
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x2652rx
x2652sf
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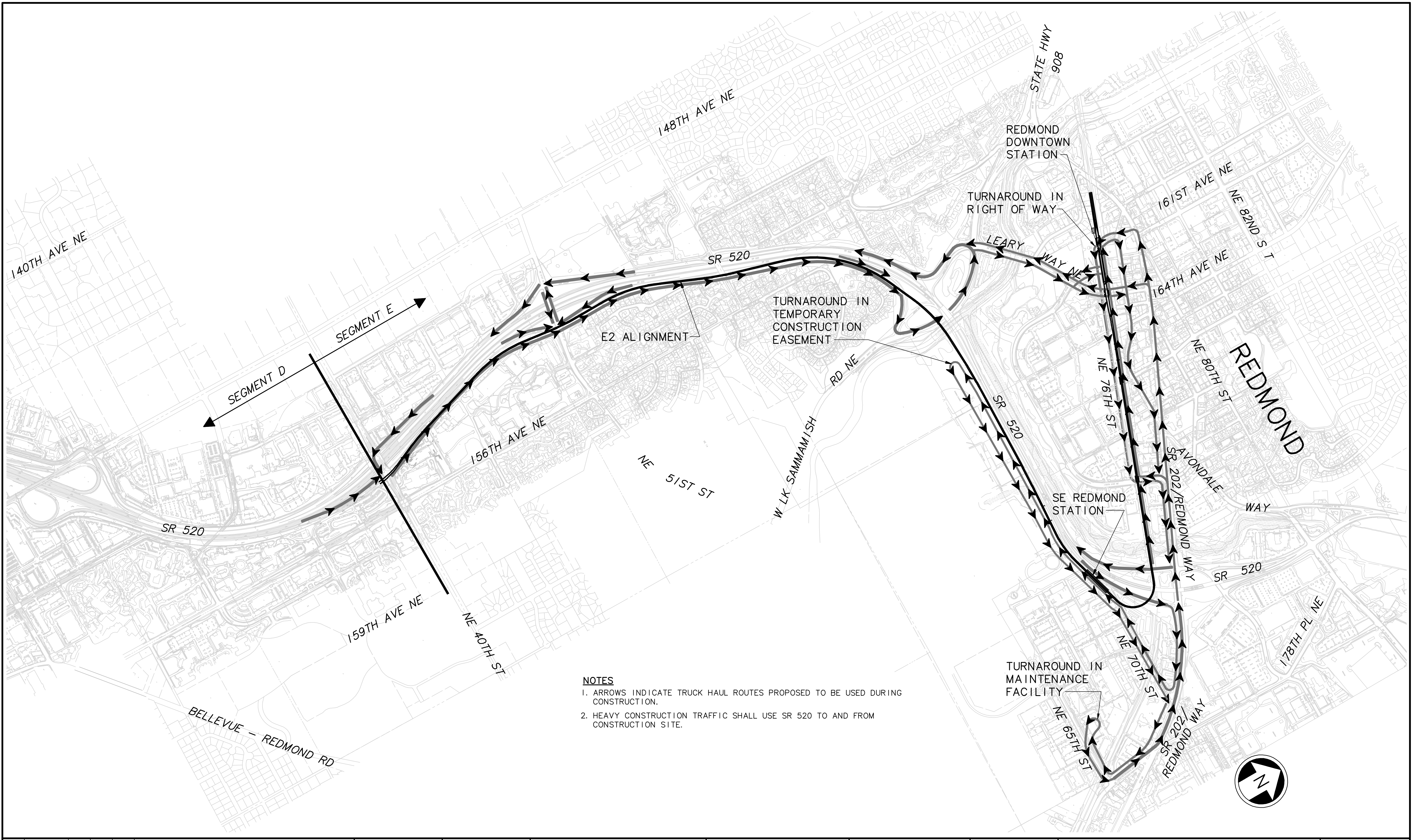
A
B
C
D
E
F
G
H
1
2
3
4
5
STATE HWY 908
148TH AVE NE
REDMOND DOWNTOWN STATION
TURNAROUND IN RIGHT OF WAY
161ST AVE NE
NE 82ND ST
LEARY WAY NE
164TH AVE NE
140TH AVE NE
SR 520
E2 ALIGNMENT
TURNAROUND IN TEMPORARY CONSTRUCTION EASEMENT
SEGMENT E
SEGMENT D
RD NE
NE 76TH ST
NE 80TH ST
REDMOND
156TH AVE NE
NE 51ST ST
W LK SAMMAMISH
SR 520
AVONDALE WAY
SR 202/REDMOND WAY
SE REDMOND STATION
SR 520
SR 520
159TH AVE NE
NE 40TH ST
178TH PL NE
NE 70TH ST
TURNAROUND IN MAINTENANCE FACILITY
NE 65TH ST
SR 202/ REDMOND WAY
BELLEVUE - REDMOND RD
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\feis\ELE_IE2__CC01.dwg
02/08/11 11:13 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:

Date:

Approved:

Date:

SOUNDTRANSIT

Scale: NTS

Filename: ELE_IE2__CC01.dwg

Contract No.:

Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E

ALTERNATIVE E2 (PREFERRED)
CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: E2__-CC01

Sheet No.: E-20

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_BrCrk
ELE_E2__CM_161s-100t
ELE_E2__JO
ELE_E2__KA_CE-100
SUB-FEIS
ZG-2234H
ZG-G10010
x2049rx
x2049sf
x2349rx
x2349sf
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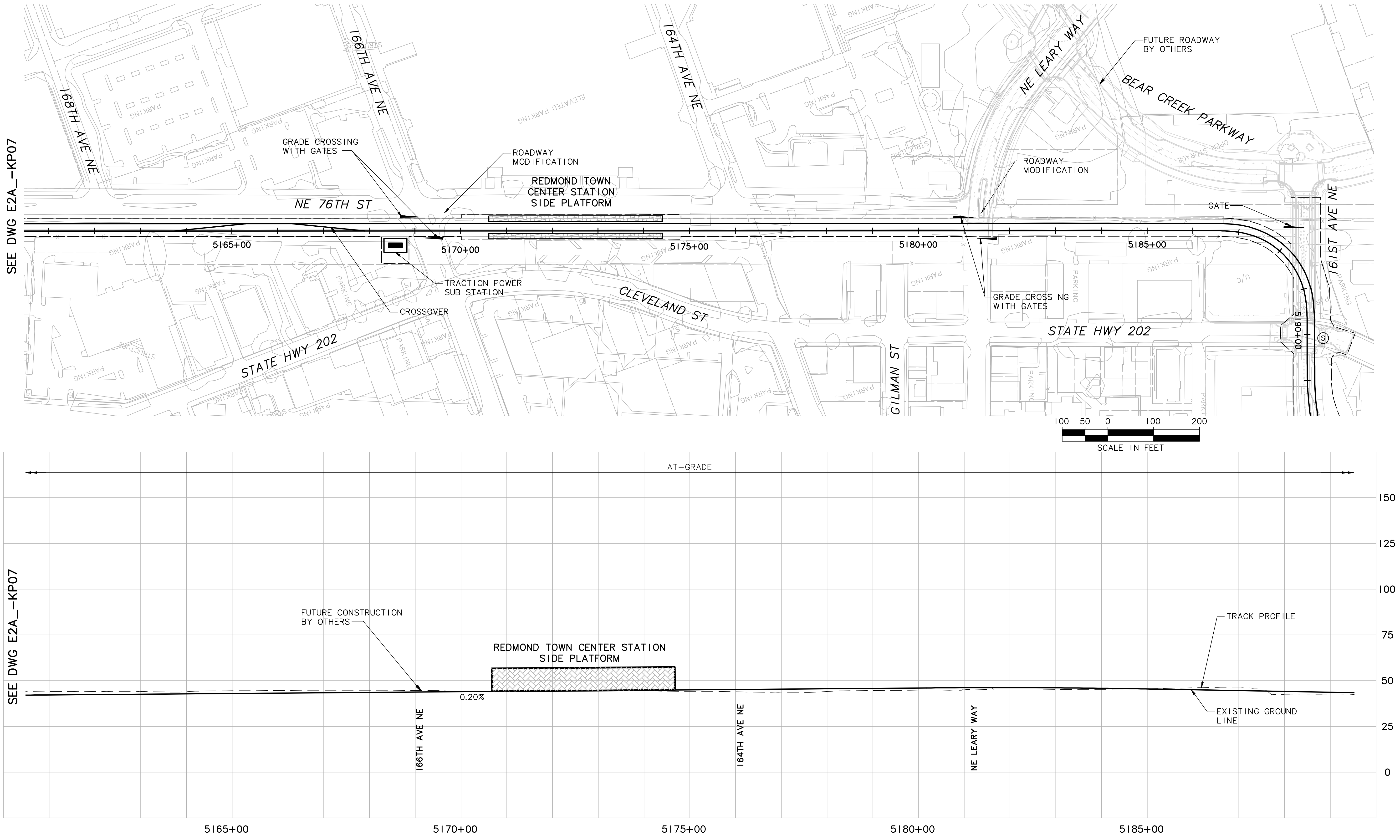
PROFILE_GRID
xBrCrk_sfut-non



SEE DWG E2A_-KP07
168TH AVE NE
166TH AVE NE
164TH AVE NE
NE LEARY WAY
FUTURE ROADWAY BY OTHERS
BEAR CREEK PARKWAY
GRADE CROSSING WITH GATES
ROADWAY MODIFICATION
REDMOND TOWN CENTER STATION SIDE PLATFORM
ROADWAY MODIFICATION
NE 76TH ST
GATE
161ST AVE NE
5165+00
5170+00
5175+00
5180+00
5185+00
5190+00
TRACTION POWER SUB STATION
CROSSOVER
GRADE CROSSING WITH GATES
CLEVELAND ST
STATE HWY 202
STATE HWY 202
GILMAN ST
PARKING
ELEVATED PARKING
STRUCTURE
OPEN STORAGE
U/C
100 50 0 100 200
SCALE IN FEET
AT-GRADE
150
125
100
75
50
25
0
SEE DWG E2A_-KP07
FUTURE CONSTRUCTION BY OTHERS
REDMOND TOWN CENTER STATION SIDE PLATFORM
0.20%
TRACK PROFILE
EXISTING GROUND LINE
166TH AVE NE
164TH AVE NE
NE LEARY WAY
5165+00
5170+00
5175+00
5180+00
5185+00

No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
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FEIS CONCEPTUAL

CH2MHILL

Grijalva ENGINEERING

BOLIMA DRAFTING & DESIGN INC.

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Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_IE2A_KP08.dwg
Contract No.:
Date:
02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E
ALTERNATIVE E2 DESIGN OPTION
TRACK PLAN & PROFILE

Drawing No.:
E2A_-KP08
Sheet No.: Rev.:
E-21

c:\work\feis\segment e\ELE_IE2A_KP08.dwg
03/02/11 17:22 : khuum OE6585

XREF'S
Resolved
ELE_520_PLAN_2
ELE_BrCrk
ELE_E2__CM
ELE_E2__JO
ELE_E2__KA
REG-DCON
ZG-2234H
ZG-G10010
x2049rx
x2049sf
x2052rx
x2052sf
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key_East
key_Segment
LTSCALE
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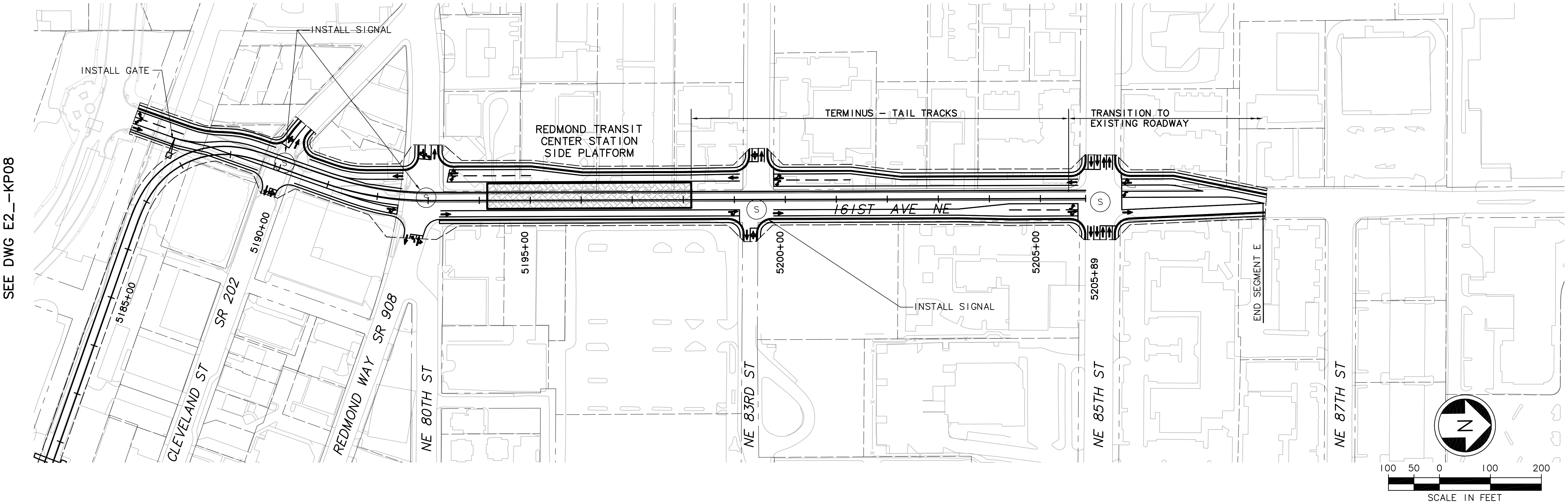
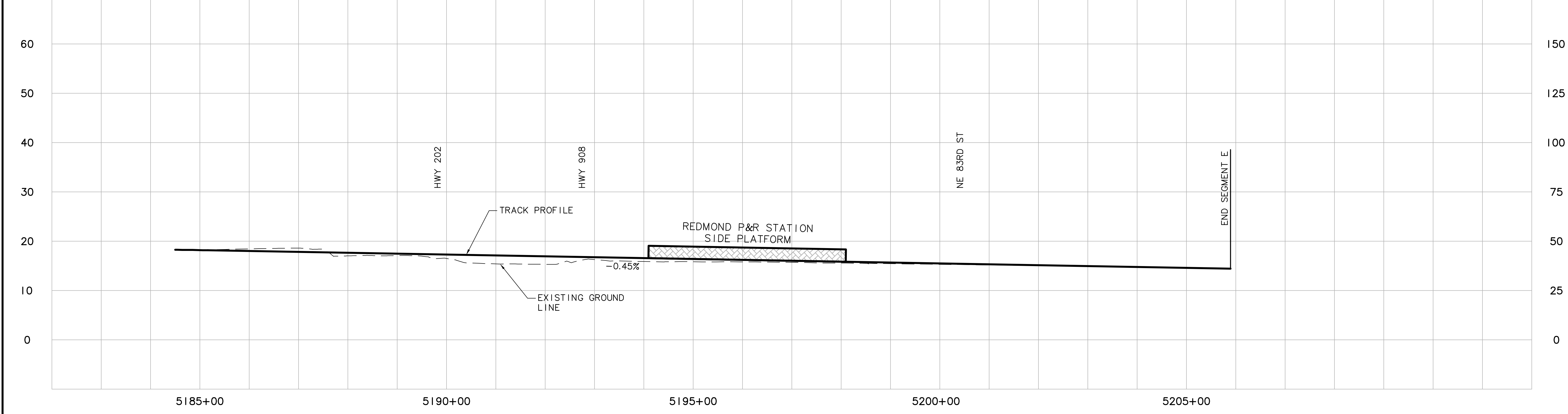

SEE DWG E2_-KP08
INSTALL GATE
INSTALL SIGNAL
REDMOND TRANSIT CENTER STATION SIDE PLATFORM
TERMINUS - TAIL TRACKS
TRANSITION TO EXISTING ROADWAY
161ST AVE NE
INSTALL SIGNAL
5185+00
5190+00
5195+00
5200+00
5205+00
5205+89
END SEGMENT E
CLEVELAND ST
SR 202
REDMOND WAY SR 908
NE 80TH ST
NE 83RD ST
NE 85TH ST
NE 87TH ST
N
100 50 0 100 200
SCALE IN FEET


60
50
40
30
20
10
0
150
125
100
75
50
25
0
HWY 202
HWY 908
NE 83RD ST
END SEGMENT E
TRACK PROFILE
REDMOND P&R STATION SIDE PLATFORM
-0.45%
EXISTING GROUND LINE
5185+00
5190+00
5195+00
5200+00
5205+00

c:\work\ELEIE2__KP09.dwg
10/16/08 11:23 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted: Date: Approved: Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELEIE2__KP09.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E2
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.: E2_-KP09
Sheet No.: E-22
Rev.:

XREF'S

Resolved

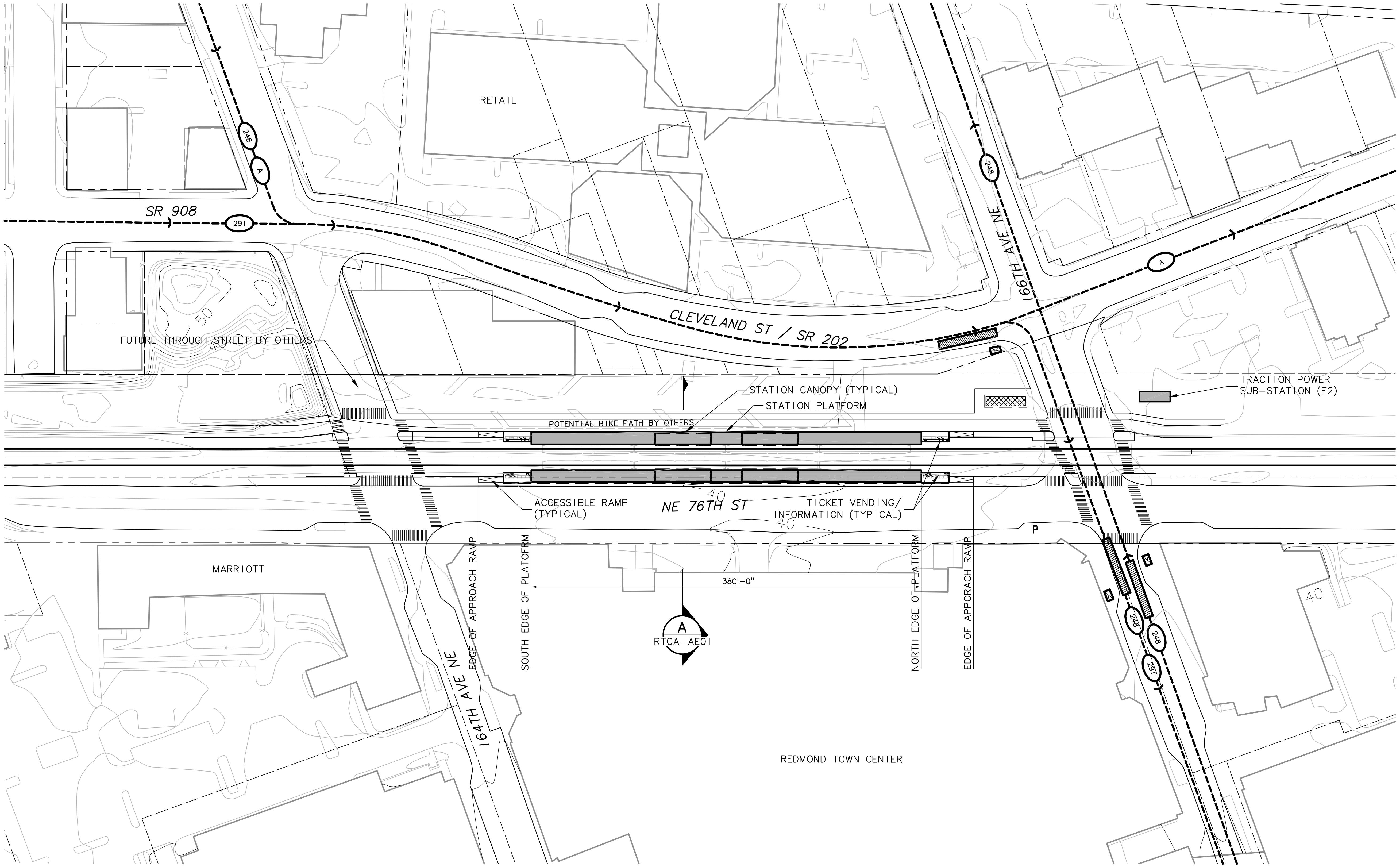
ELE_E1__KA
ELE_E2__JO
ELE_RTCA1AS
REG-DCON
ZG-2234H
x2049cn
x2049rx
x2049sf
x2349cn
x2349rx
x2349sf

Unresolved

LTSCALE

1=1

c:\work\ELE1RTCA_AS01.dwg
10/16/08 11:37 : eackerm OE5396


RETAIL
248
A
SR 908
291
CLEVELAND ST / SR 202
166TH AVE NE
248
A
50
40
FUTURE THROUGH STREET BY OTHERS
STATION CANOPY (TYPICAL)
STATION PLATFORM
POTENTIAL BIKE PATH BY OTHERS
TRACTION POWER SUB-STATION (E2)
ACCESSIBLE RAMP (TYPICAL)
NE 76TH ST
40
TICKET VENDING/ INFORMATION (TYPICAL)
40
P
MARRIOTT
380'-0"
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATOFORM
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
164TH AVE NE
A
RTCA-AE01
248
248
291
40
REDMOND TOWN CENTER

STATION ACCESS PLAN

SCALE: 1" = 50'

NOTES/LEGEND HEADING

1. ALIGNMENTS E1, E2, AND E4

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	BUS SHELTER
P	PARATRANSIT STOP
(291)	BUS ROUTE
(A)	BUS ROUTE : 232, 929
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▧	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

N

50 25 0 50 100
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
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Date:

Scale: 1"=50'
Filename: ELE1RTCA_AS01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

REDMOND TOWN CENTER STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: RTCA-AS01
Sheet No.: E-23
Rev.:

XREF'S

Resolved

ELE_RTCA1AX
ELE_RTCA1AE
REG-DCON
Zg-2234h

Unresolved

LTSCALE

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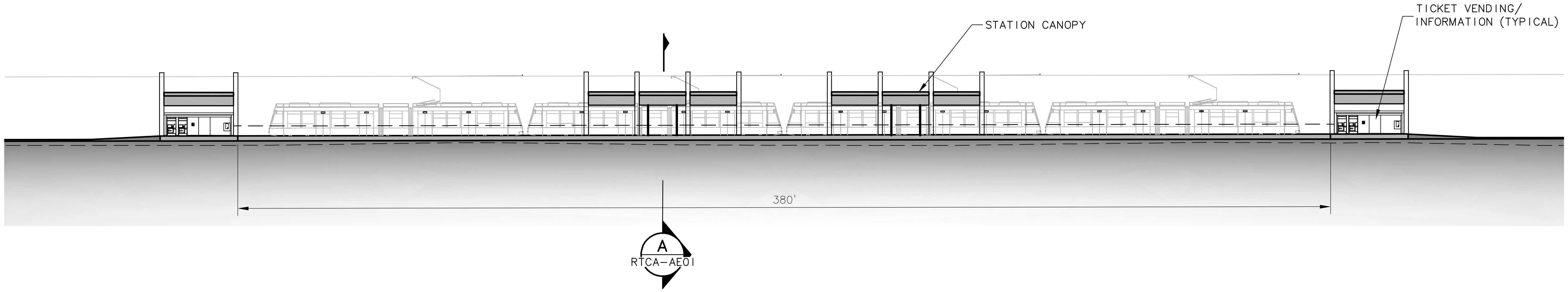
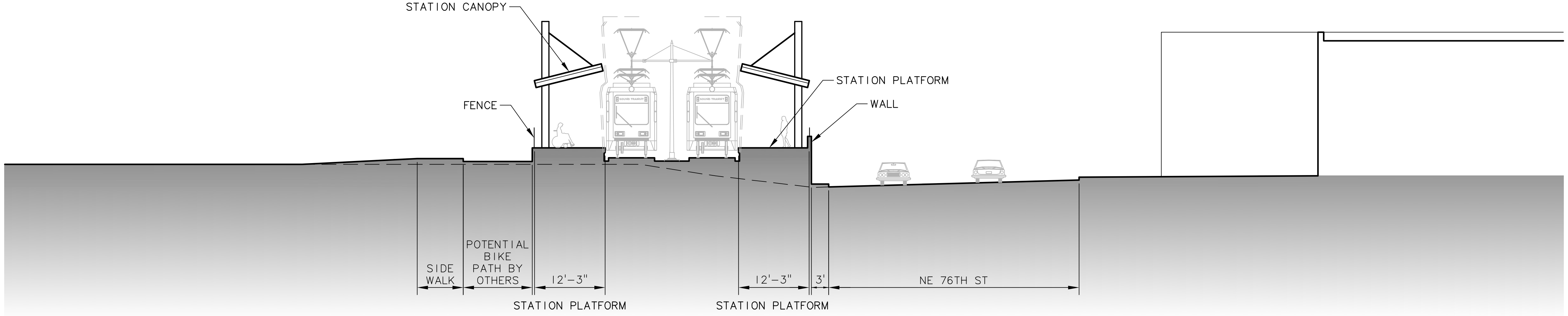

STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'
A
RTCA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


STATION CANOPY
FENCE
STATION PLATFORM
WALL
SIDE WALK
POTENTIAL BIKE PATH BY OTHERS
12'-3"
12'-3"
3'
NE 76TH ST
STATION PLATFORM
STATION PLATFORM

STATION SECTION A

RTCA-AE01

SCALE: 1' = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELE1RTCA_AE01.dwg
10/16/08 11:36 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELE1RTCA_AE01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

REDMOND TOWN CENTER STATION
AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: RTCA-AE01
Sheet No.: E-24
Rev.:

XREF'S

Resolved

ELE_E2__CM
ELE_E2__KA
ELE_RPRAIAS
REG-DCON
ZG-2234H
x2049cn
x2049rx
x2049sf
x2052cn
x2052rx
x2052sf

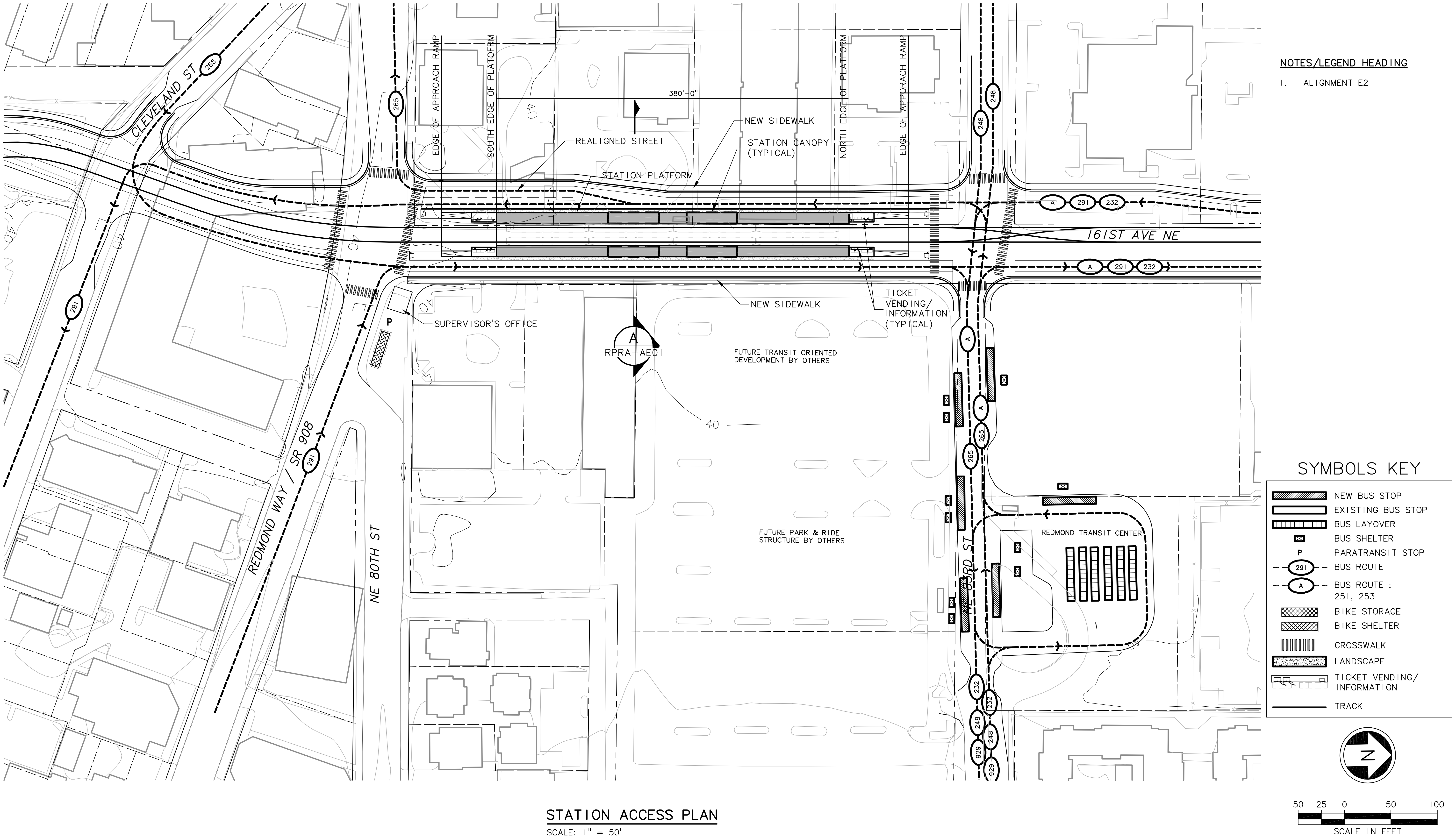
Unresolved

LTSCALE

1=1

NOTES/LEGEND HEADING

1. ALIGNMENT E2



1
2
3
4
5
CLEVELAND ST
265
380'-0"
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATOFORM
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
40
NEW SIDEWALK
REALIGNED STREET
STATION CANOPY (TYPICAL)
STATION PLATFORM
248
A
291
232
161ST AVE NE
NEW SIDEWALK
TICKET VENDING/ INFORMATION (TYPICAL)
SUPERVISOR'S OFFICE
P
A
RPRA-AE01
FUTURE TRANSIT ORIENTED DEVELOPMENT BY OTHERS
REDMOND WAY / SR 908
NE 80TH ST
FUTURE PARK & RIDE STRUCTURE BY OTHERS
REDMOND TRANSIT CENTER
NE 83RD ST
929
SYMBOLS KEY
NEW BUS STOP
EXISTING BUS STOP
BUS LAYOVER
BUS SHELTER
P PARATRANSIT STOP
291 BUS ROUTE
A BUS ROUTE : 251, 253
BIKE STORAGE
BIKE SHELTER
CROSSWALK
LANDSCAPE
TICKET VENDING/ INFORMATION
TRACK
N
50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELE1RPRA_AS01.dwg
10/16/08 11:32 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:

Approved By:

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CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

IBI GROUP

SOUNDTRANSIT

Submitted:

Date:

Approved:

Date:

Scale: 1"=50'

Filename: ELE1RPRA_AS01.dwg

Contract No.: EL SEG_E

Date:

EAST LINK PROJECT
SEGMENT E

REDMOND TRANSIT CENTER STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: RPRA-AS01

Sheet No.: E-25

Rev.:

XREF'S

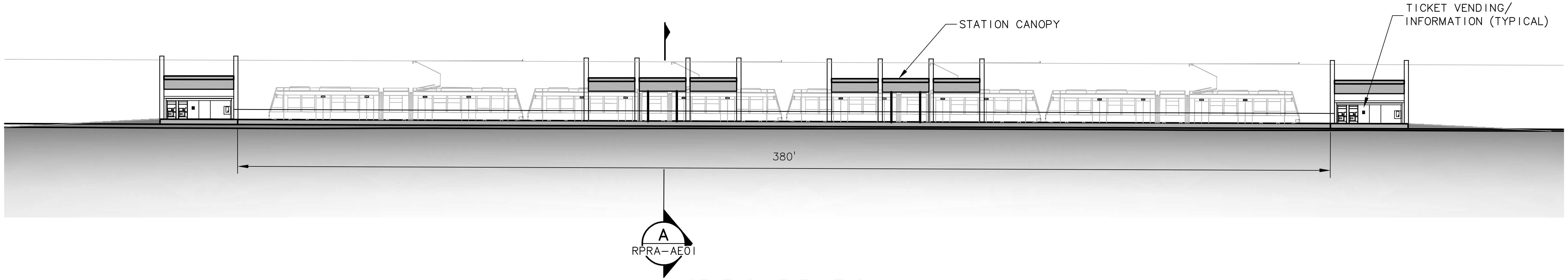
Resolved

ELE_E2__CM
ELE_E2__KA
ELE_RPRA1AE
ELE_RPRA1AX
REG-DCON
ZG-2234H

Unresolved

LTSCALE

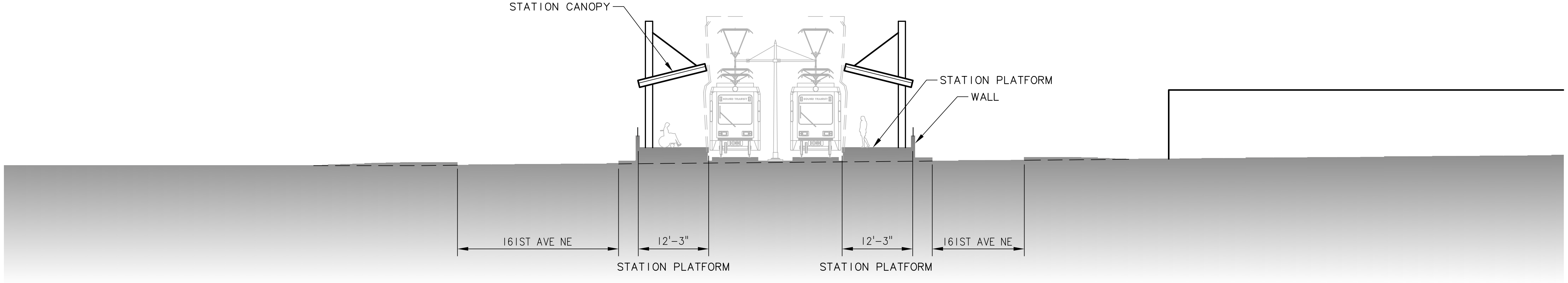
1=1


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'
A
RPRA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


STATION CANOPY
STATION PLATFORM
WALL
161ST AVE NE
12'-3"
12'-3"
161ST AVE NE
STATION PLATFORM
STATION PLATFORM

STATION SECTION

A
RPRA-AE01

SCALE: 1" = 10'

10 5 0 10 20
SCALE IN FEET

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & **INCA** ENGINEERS INC.

Submitted:
Date:

IBI GROUP

Approved:
Date:

SOUNDTRANSIT

Scale: 1"=20'
Filename: ELE1RPRA_AE01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

THIS PRINT REDUCED HALF SCALE

REDMOND TRANSIT CENTER STATION
AT-GRADE STATION
ELEVATION, SECTION

Drawing No.: RPRA-AE01

Sheet No.: E-26
Rev.:

c:\work\ELE1RPRA_AE01.dwg
11/05/08 08:26 : eackerm 0E5396

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_E2__KA
ZG-2234H
x1434sf
x1437rx
x1437sf
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x1743rx
x1743sf
x1746rx
x1746sf
x1749rx
x1749sf
x2037rx
x2037sf
x2040rx
x2040sf
x2043rx
x2043sf
x2046rx
x2046sf
x2049rx
x2049sf
x2052rx
x2052sf
x2346rx
x2346sf
x2349rx
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x2646rx
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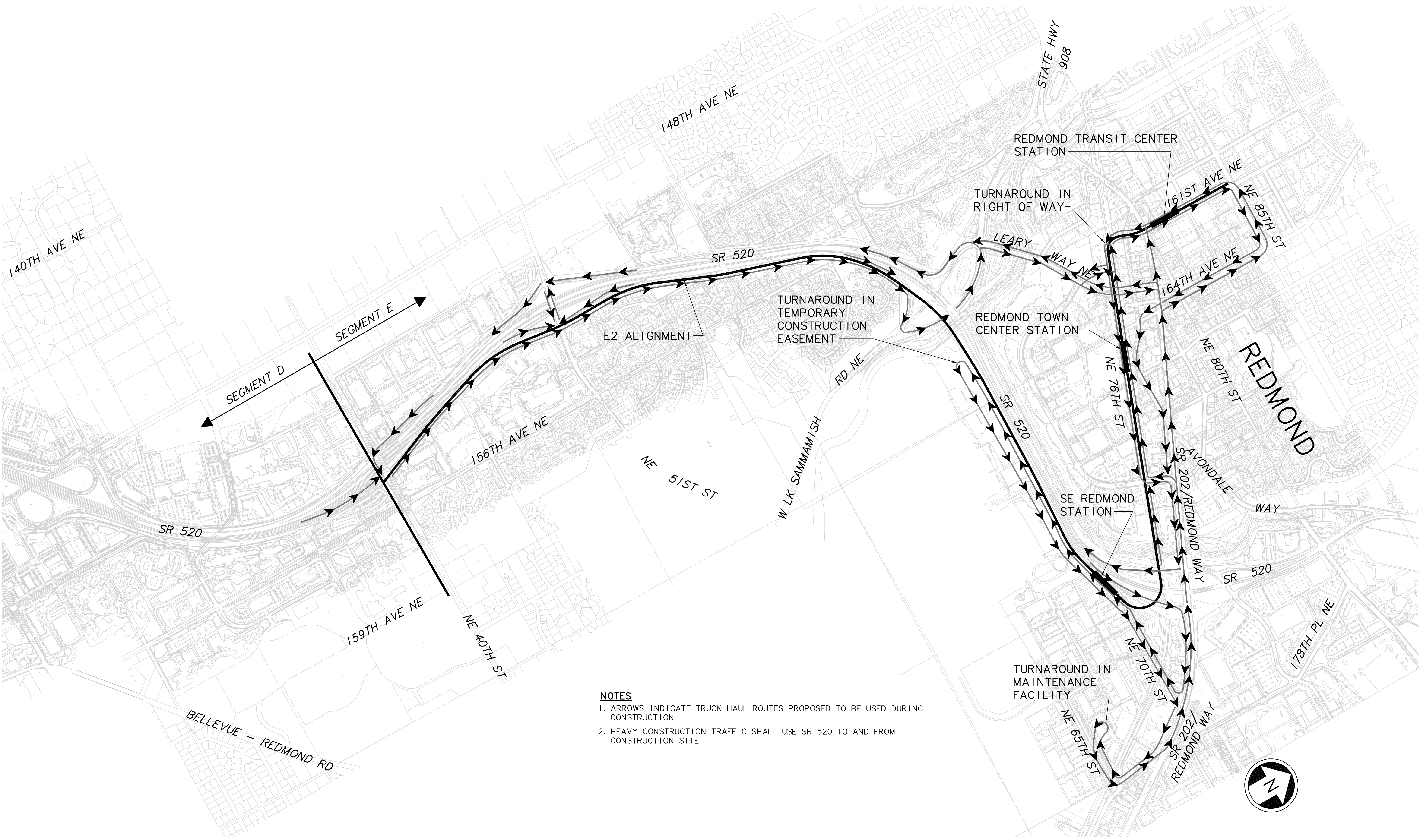
x2649sf
x2652rx
x2652sf
-Unresolved:


1
2
3
4
5
STATE HWY 908
148TH AVE NE
REDMOND TRANSIT CENTER STATION
TURNAROUND IN RIGHT OF WAY
161ST AVE NE
NE 85TH ST
LEARY WAY NE
164TH AVE NE
140TH AVE NE
SR 520
SEGMENT E
SEGMENT D
E2 ALIGNMENT
TURNAROUND IN TEMPORARY CONSTRUCTION EASEMENT
REDMOND TOWN CENTER STATION
NE 80TH ST
REDMOND
NE 76TH ST
RD NE
W LK SAMMAMISH
156TH AVE NE
NE 51ST ST
AVONDALE WAY
SR 202/REDMOND WAY
SE REDMOND STATION
SR 520
159TH AVE NE
NE 40TH ST
NE 70TH ST
178TH PL NE
TURNAROUND IN MAINTENANCE FACILITY
NE 65TH ST
SR 202/ REDMOND WAY
BELLEVUE - REDMOND RD
N

NOTES
1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\feis\ELE_IE2__CC02.dwg
02/23/11 08:49 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELE_IE2__CC02.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E
ALTERNATIVE E2
CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: E2__-CC02
Sheet No.: E-27
Rev.:

XREF'S

Resolved

ELE_E1__KA
REG-DCON
ZG-2234H
x1437rx
x1737rx
x1740rx
x1743rx
x1746rx
x1749rx
x2037rx
x2040rx
x2043rx
x2046rx
x2049rx
x2052rx
x2346rx
x2349rx
x2352rx
x2646rx
x2649rx
x2652rx

Unresolved
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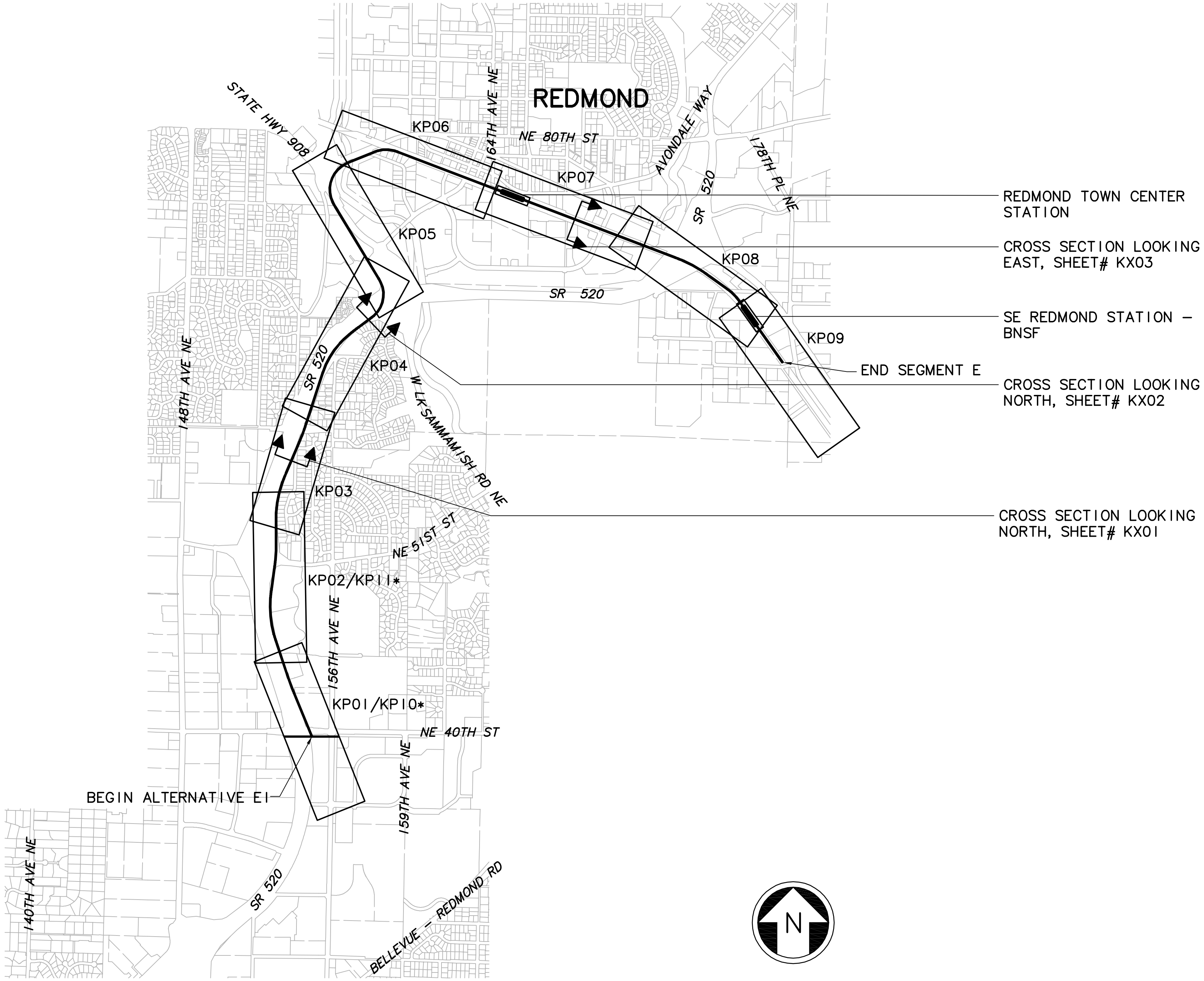
key_East

LTSCALE

1=1



REDMOND
STATE HWY 908
164TH AVE NE
NE 80TH ST
AVONDALE WAY
178TH PL NE
SR 520
KP06
KP07
KP05
KP08
KP09
KP04
KP03
KP02/KP11*
KP01/KP10*
148TH AVE NE
156TH AVE NE
W LK SAMMAMISH RD NE
NE 51ST ST
NE 40TH ST
159TH AVE NE
140TH AVE NE
BELLEVUE - REDMOND RD
REDMOND TOWN CENTER STATION
CROSS SECTION LOOKING EAST, SHEET# KX03
SE REDMOND STATION - BNSF
END SEGMENT E
CROSS SECTION LOOKING NORTH, SHEET# KX02
CROSS SECTION LOOKING NORTH, SHEET# KX01
BEGIN ALTERNATIVE E1
N

* NOTE: KP10 AND KP11 REPRESENT INTERIM TERMINUS AT THE OVERLAKE TRANSIT CENTER IN SEGMENT D.

c:\work\ELE1E1__GZ05.dwg
10/16/08 11:13 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELE1E1__GZ05.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: E1_-GZ05
Sheet No.: E-28
Rev.:

XREF'S

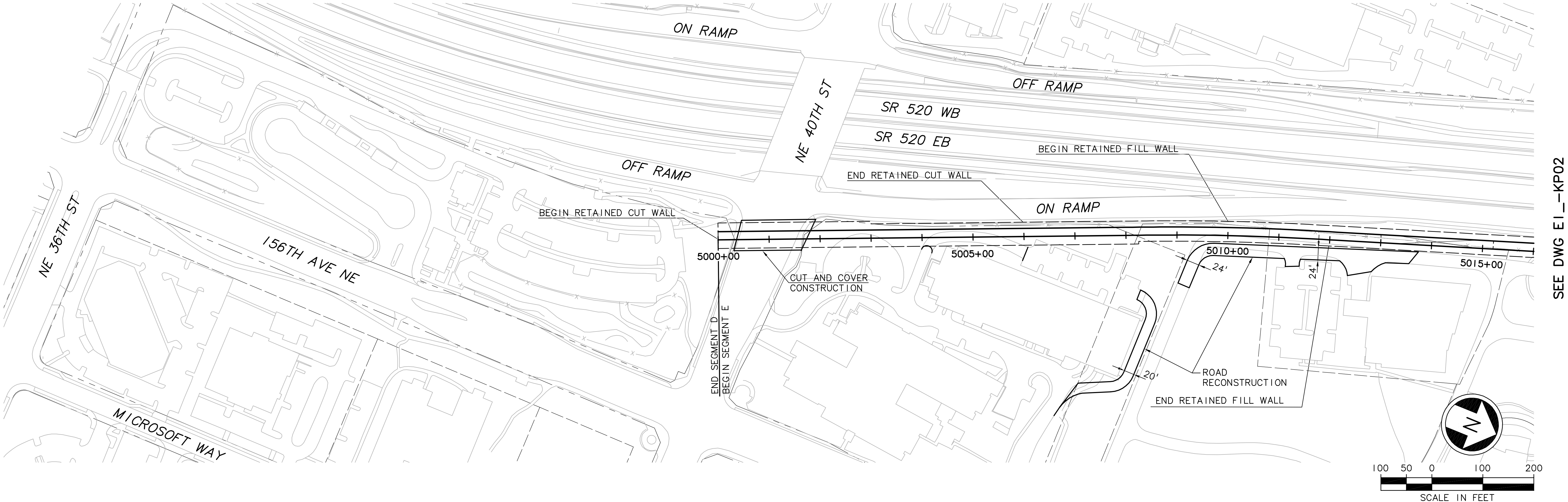
Resolved

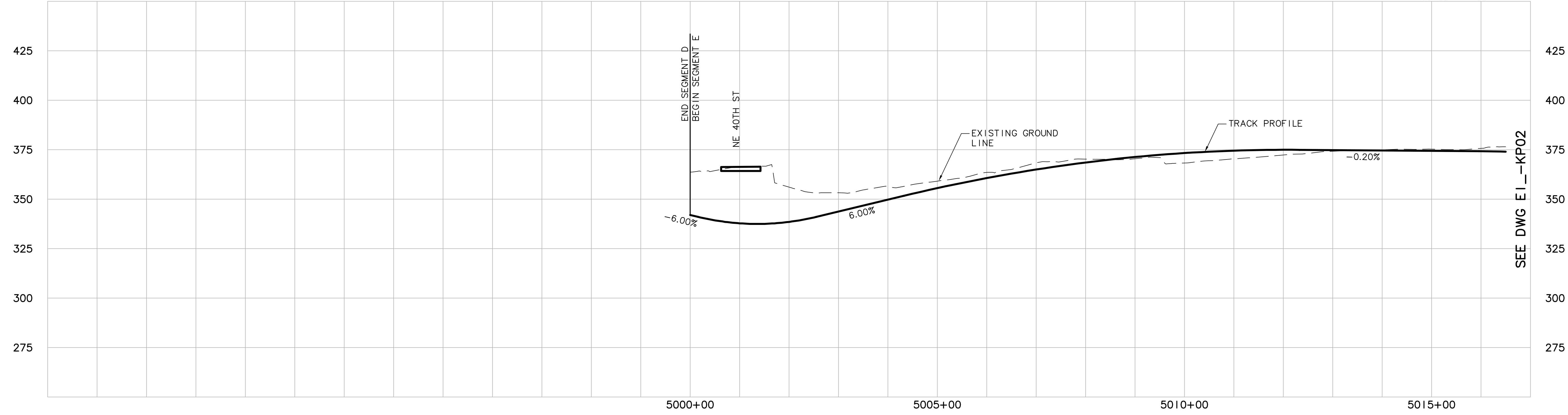
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x2040rx
x2040sf

Unresolved
----
key_East
key_Segment

LTSCALE

1=1


ON RAMP
OFF RAMP
NE 40TH ST
SR 520 WB
SR 520 EB
BEGIN RETAINED FILL WALL
END RETAINED CUT WALL
OFF RAMP
ON RAMP
BEGIN RETAINED CUT WALL
NE 36TH ST
156TH AVE NE
5000+00
5005+00
5010+00
5015+00
24'
24'
CUT AND COVER CONSTRUCTION
END SEGMENT D
BEGIN SEGMENT E
20'
ROAD RECONSTRUCTION
END RETAINED FILL WALL
MICROSOFT WAY
N
SEE DWG E1_KP02
100 50 0 100 200
SCALE IN FEET



c:\work\ELE1E1__KP01.dwg
10/16/08 11:13 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E1__KP01.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E1_KP01
Sheet No.:
E-29
Rev.:

XREF'S

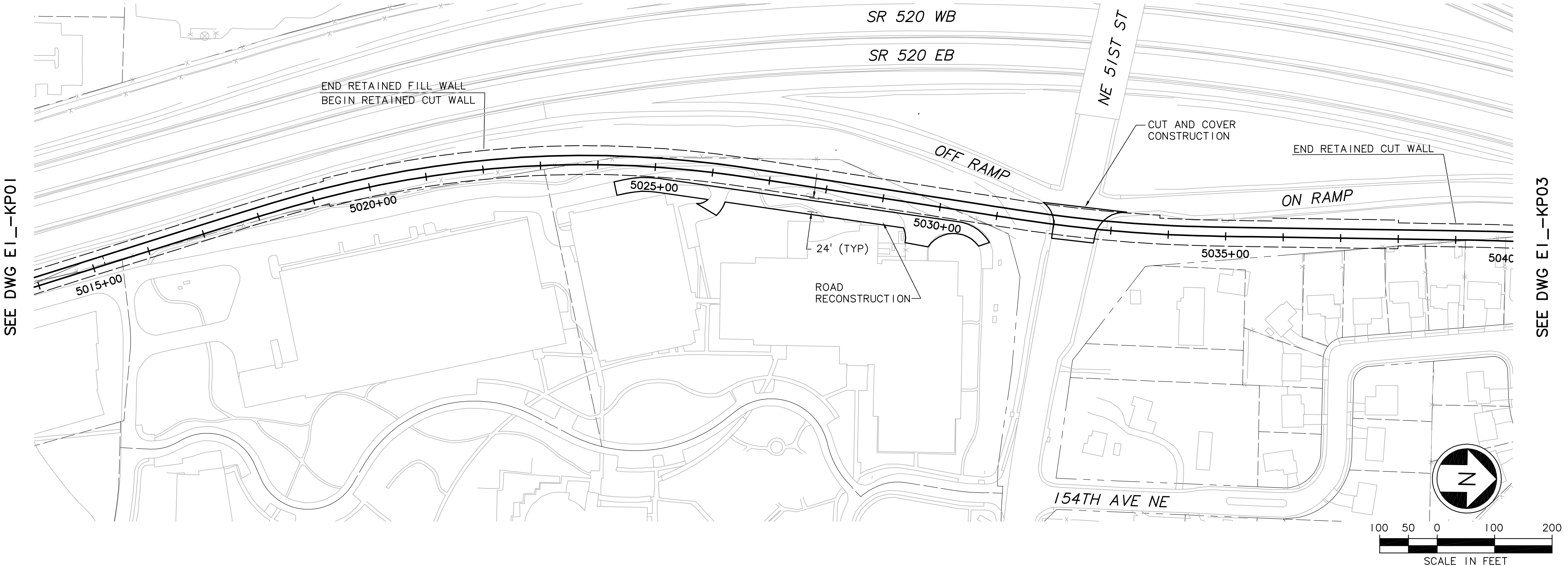
Resolved

ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x1743rx
x1743sf

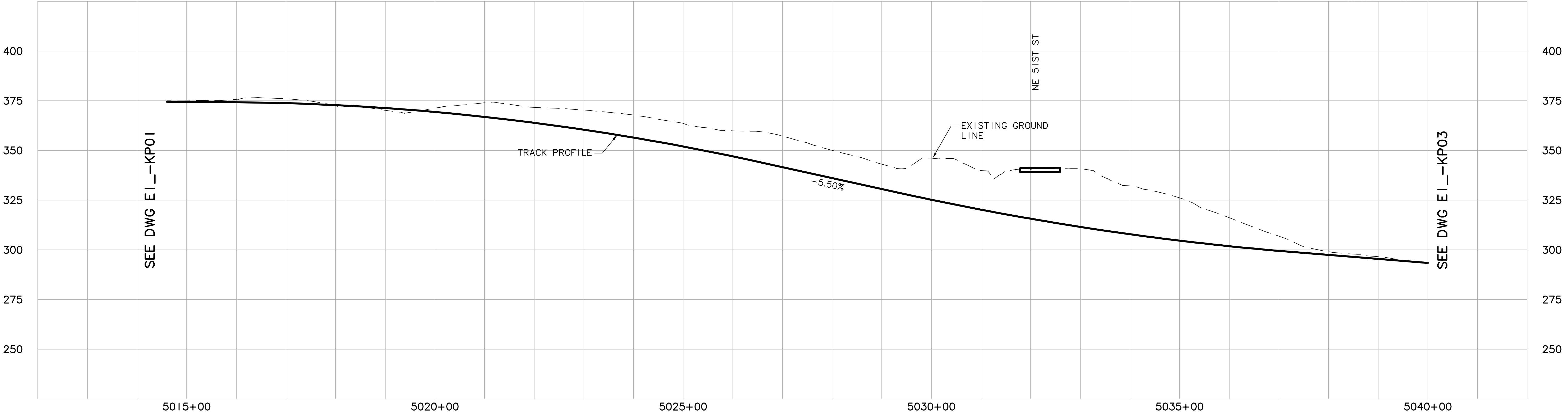
Unresolved
----
key_East
key_Segment

LTSCALE

1=1



SR 520 WB
SR 520 EB
NE 51ST ST
END RETAINED FILL WALL
BEGIN RETAINED CUT WALL
CUT AND COVER CONSTRUCTION
END RETAINED CUT WALL
OFF RAMP
ON RAMP
SEE DWG E1_-KP01
SEE DWG E1_-KP03
5015+00
5020+00
5025+00
5030+00
5035+00
5040
24' (TYP)
ROAD RECONSTRUCTION
154TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

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Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E1__KP02.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E1_-KP02
Sheet No.: Rev.:
E-30

c:\work\ELE1E1__KP02.dwg
10/16/08 11:14 : eackerm OE5396

XREF'S

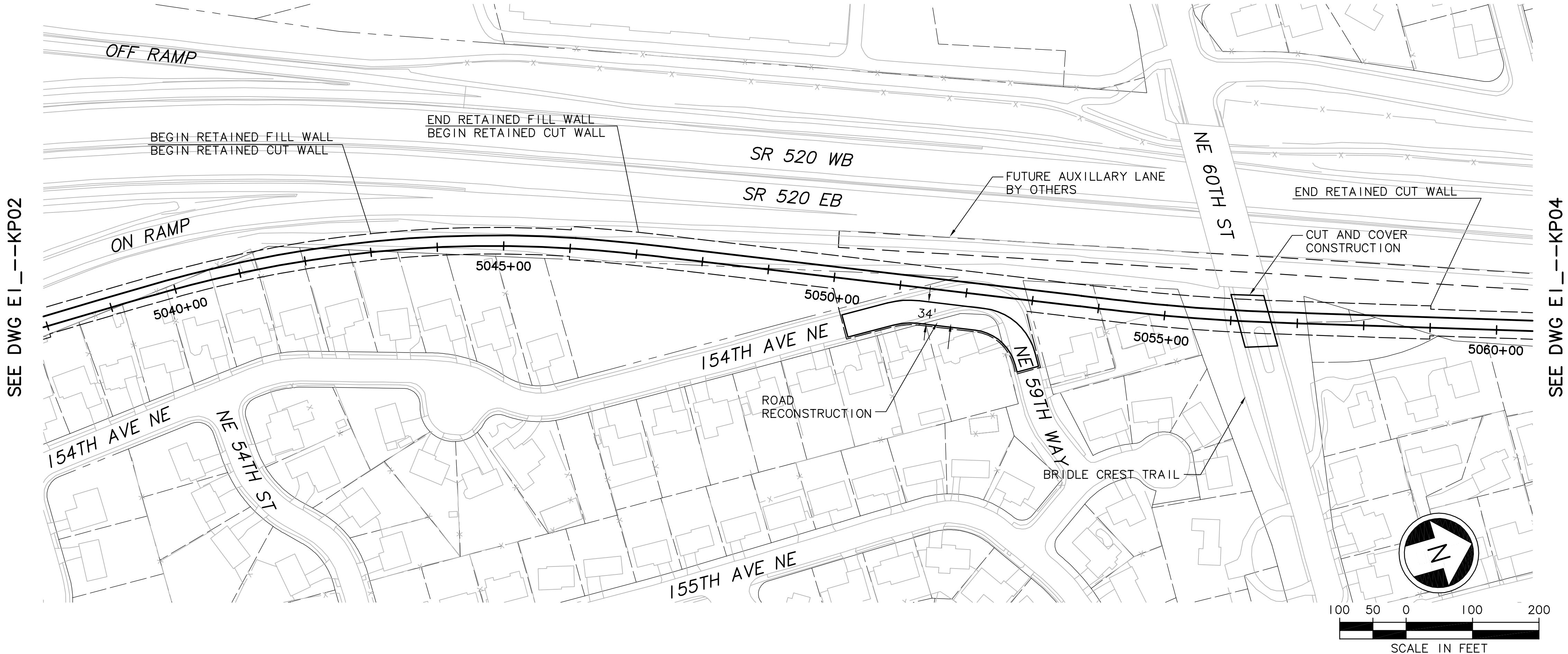
Resolved

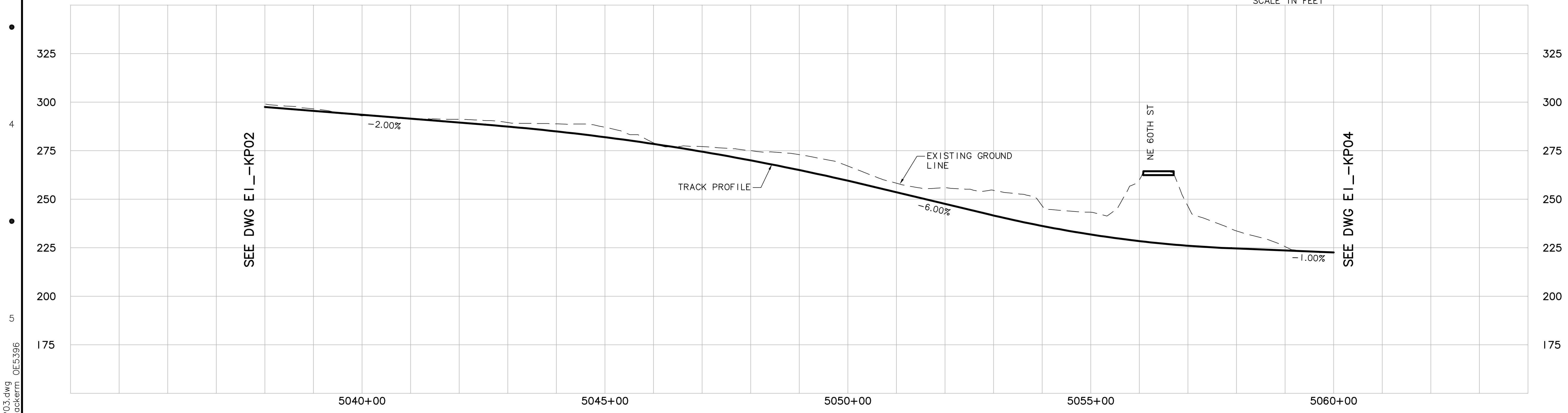
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
REG-DCON
ZG-2234H
ZG-G10010
x1743rx
x1743sf
x1746rx
x1746sf
x2046rx
x2046sf

Unresolved
----
key_East
key_Segment

LTSCALE

1=1


OFF RAMP
ON RAMP
SR 520 WB
SR 520 EB
BEGIN RETAINED FILL WALL
BEGIN RETAINED CUT WALL
END RETAINED FILL WALL
BEGIN RETAINED CUT WALL
FUTURE AUXILLARY LANE
BY OTHERS
NE 60TH ST
END RETAINED CUT WALL
CUT AND COVER
CONSTRUCTION
SEE DWG E1_-KP02
SEE DWG E1_-KP04
5040+00
5045+00
5050+00
34'
5055+00
5060+00
154TH AVE NE
154TH AVE NE
NE 54TH ST
NE 59TH WAY
ROAD
RECONSTRUCTION
BRIDLE CREST TRAIL
155TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELE1E1__KP03.dwg
10/16/08 11:14 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E1__KP03.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E1_-KP03
Sheet No.:
E-31
Rev.:

XREF'S

Resolved

ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
REG-DCON
ZG-2234H
ZG-G10010
x1746rx
x1746sf
x2046rx
x2046sf
x2049rx
x2049sf

Unresolved
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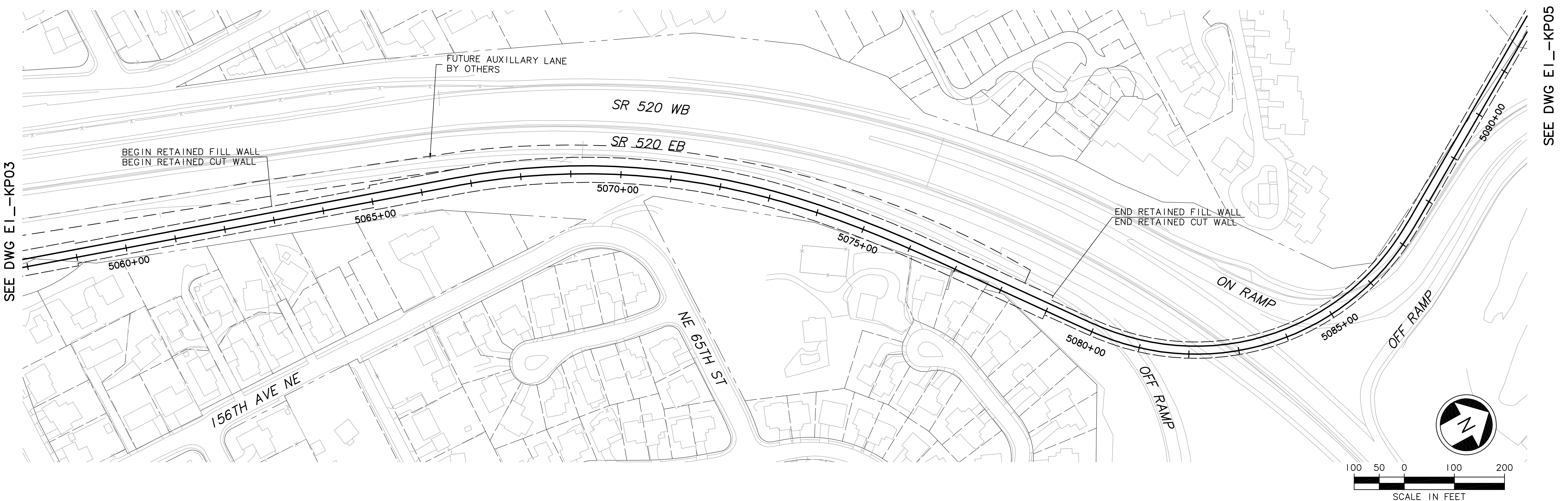
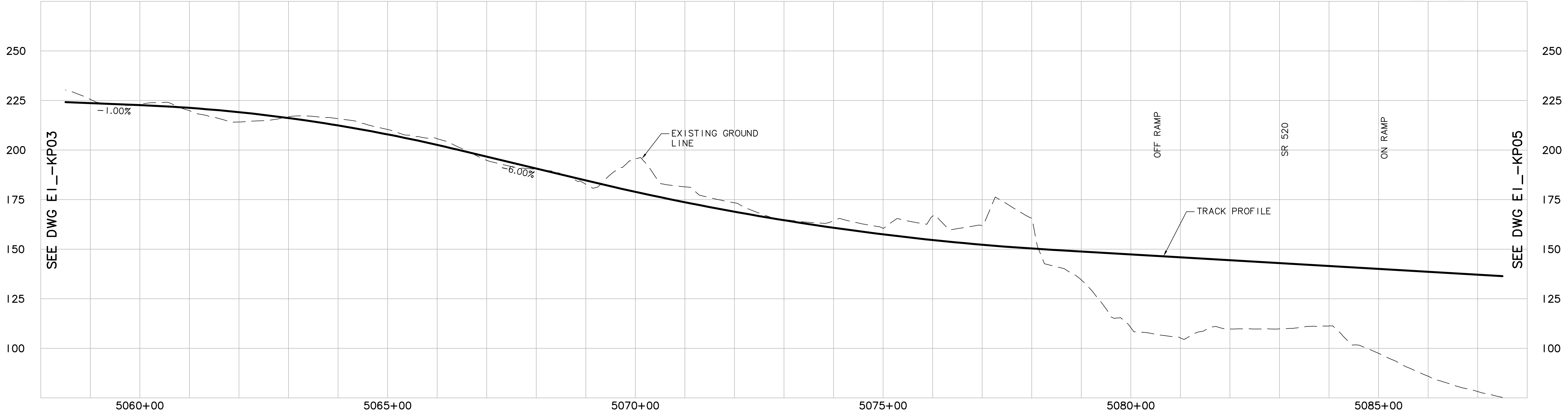
key_East
key_Segment

LTSCALE

1=1



SEE DWG E1_-KP03
FUTURE AUXILLARY LANE
BY OTHERS
SR 520 WB
SR 520 EB
BEGIN RETAINED FILL WALL
BEGIN RETAINED CUT WALL
5060+00
5065+00
5070+00
5075+00
5080+00
5085+00
5090+00
END RETAINED FILL WALL
END RETAINED CUT WALL
ON RAMP
OFF RAMP
OFF RAMP
NE 65TH ST
156TH AVE NE
N
SEE DWG E1_-KP05
100 50 0 100 200
SCALE IN FEET



c:\work\ELE1E1__KP04.dwg
10/16/08 11:14 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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IN ASSOCIATION WITH
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Grijalva
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Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E1__KP04.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E1_-KP04
Sheet No.: E-32
Rev.:

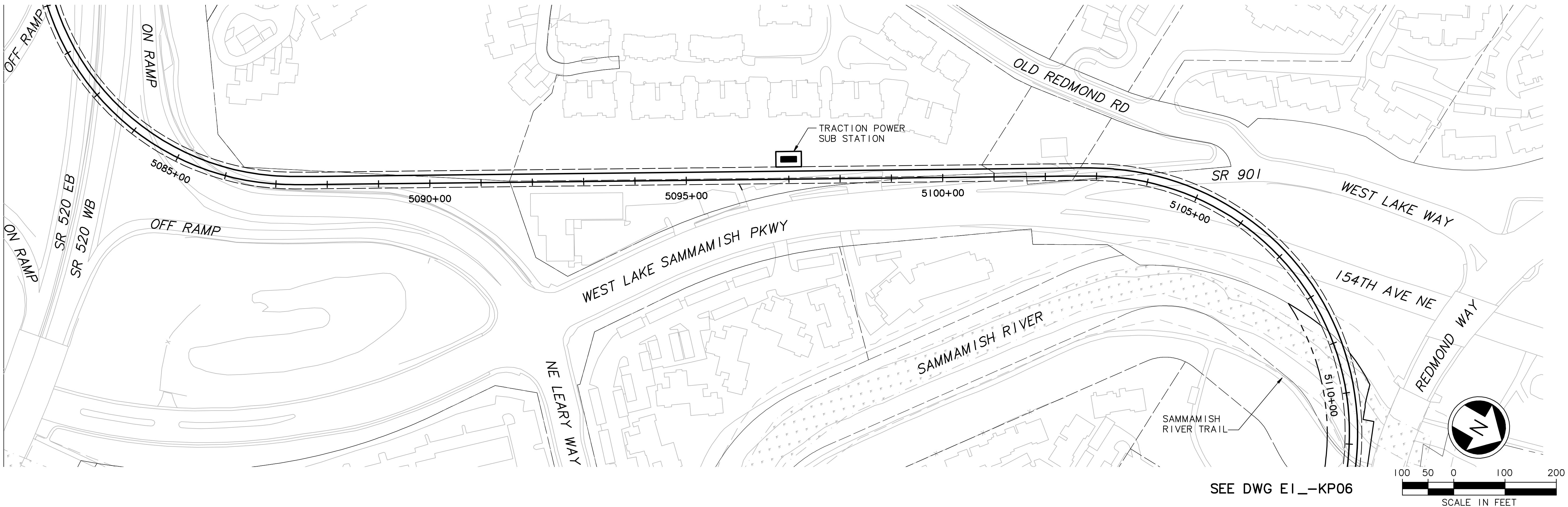
DWG INFO:

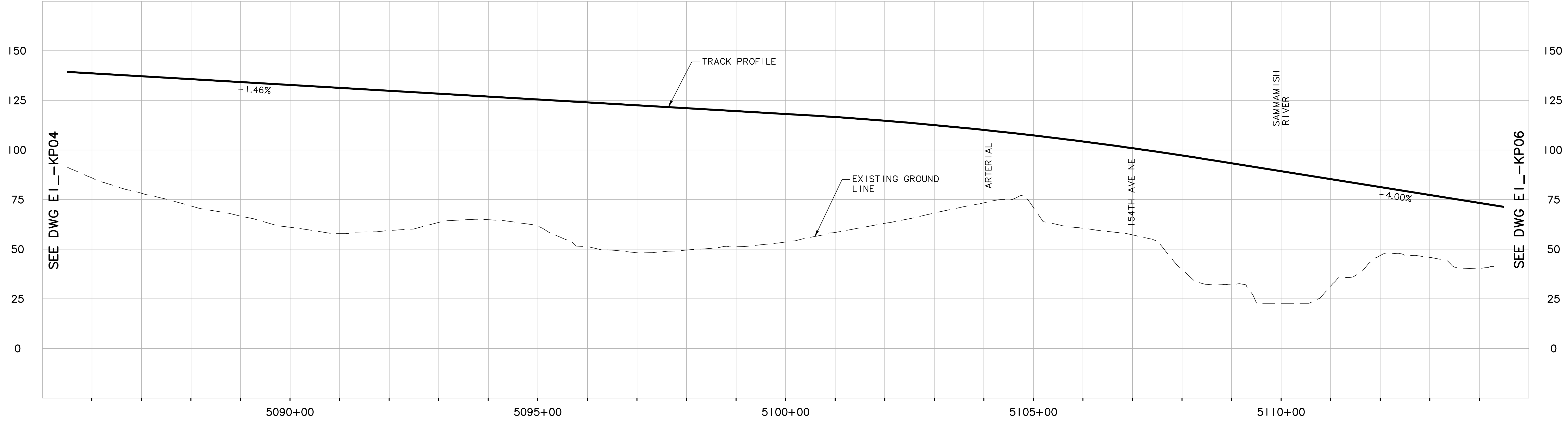
LTSCALE:
1=1

XREFs:
–Attach:
–Overlay:
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
ZG–2234H
ZG–G10010
x1749rx
x1749sf
x2046rx
x2046sf
x2049rx
x2049sf
–Unresolved:
key_East
key_Segment

c:\work\feis\segment e\ELE_1E1__KP05.dwg
06/14/11 15:25 : khuum OE6585

SEE DWG E1_-KP04


OFF RAMP
ON RAMP
SR 520 EB
SR 520 WB
ON RAMP
OFF RAMP
5085+00
5090+00
5095+00
5100+00
5105+00
5110+00
TRACTION POWER
SUB STATION
OLD REDMOND RD
SR 901
WEST LAKE WAY
WEST LAKE SAMMAMISH PKWY
154TH AVE NE
REDMOND WAY
NE LEARY WAY
SAMMAMISH RIVER
SAMMAMISH
RIVER TRAIL
N
SEE DWG E1_-KP06
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:

Drawn By:

Checked By:

Approved By:

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CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
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Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:

Date:

Approved:

Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELE_1E1__KP05.dwg

Contract No.:
EL SEG_E

Date:

THIS PRINT REDUCED
HALF
SCALE

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

Drawing No.:
E1_-KP05

Sheet No.:
E-33

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_BrCrk
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
ZG-2234H
ZG-G10010
x2049rx
x2049sf
x2052rx
x2052sf
x2349rx
x2349sf
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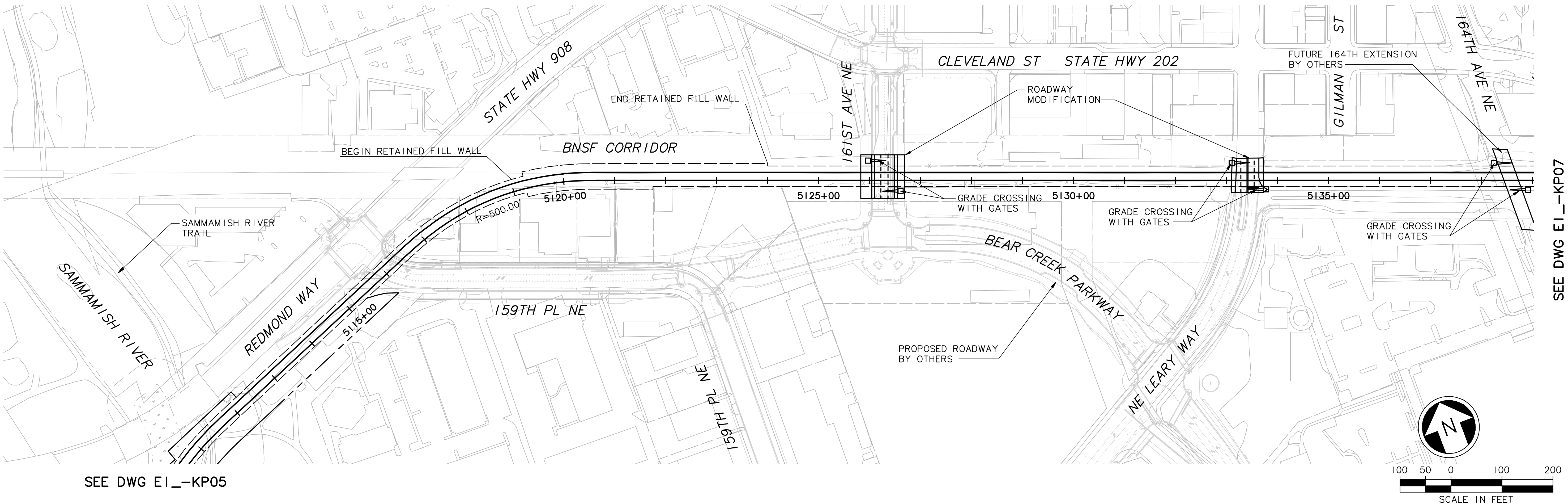
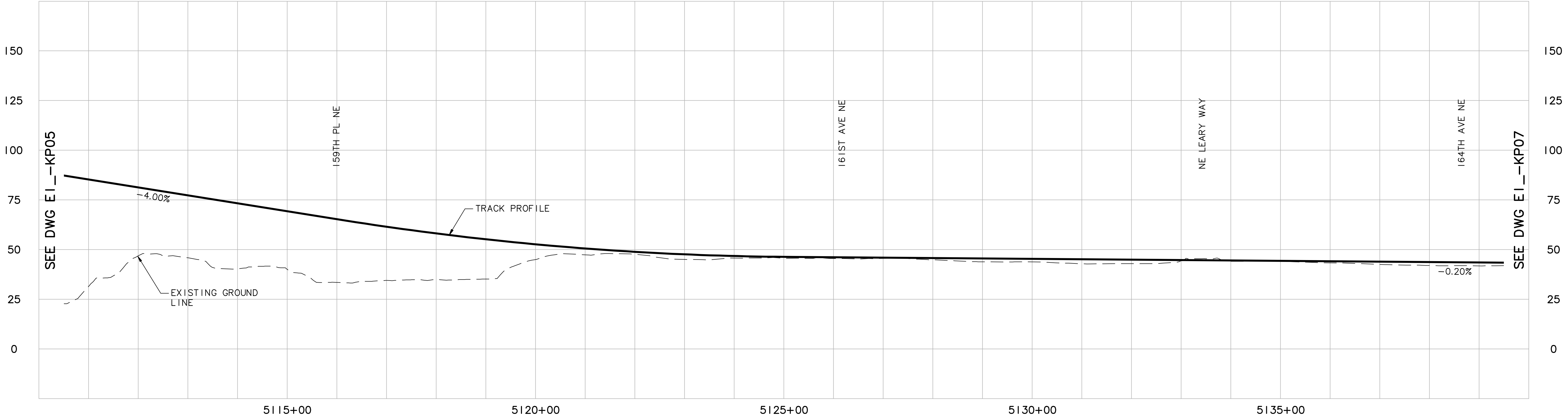

STATE HWY 908
CLEVELAND ST STATE HWY 202
161ST AVE NE
GILMAN ST
164TH AVE NE
FUTURE 164TH EXTENSION BY OTHERS
ROADWAY MODIFICATION
END RETAINED FILL WALL
BEGIN RETAINED FILL WALL
BNSF CORRIDOR
5120+00
5125+00
5130+00
5135+00
R=500.00
GRADE CROSSING WITH GATES
GRADE CROSSING WITH GATES
GRADE CROSSING WITH GATES
SAMMAMISH RIVER TRAIL
SAMMAMISH RIVER
REDMOND WAY
5115+00
159TH PL NE
BEAR CREEK PARKWAY
PROPOSED ROADWAY BY OTHERS
NE LEARY WAY
159TH PL NE
SEE DWG E1_-KP07
N
SEE DWG E1_-KP05
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELE_IEI__KP06.dwg
Contract No.: EL SEG_E
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

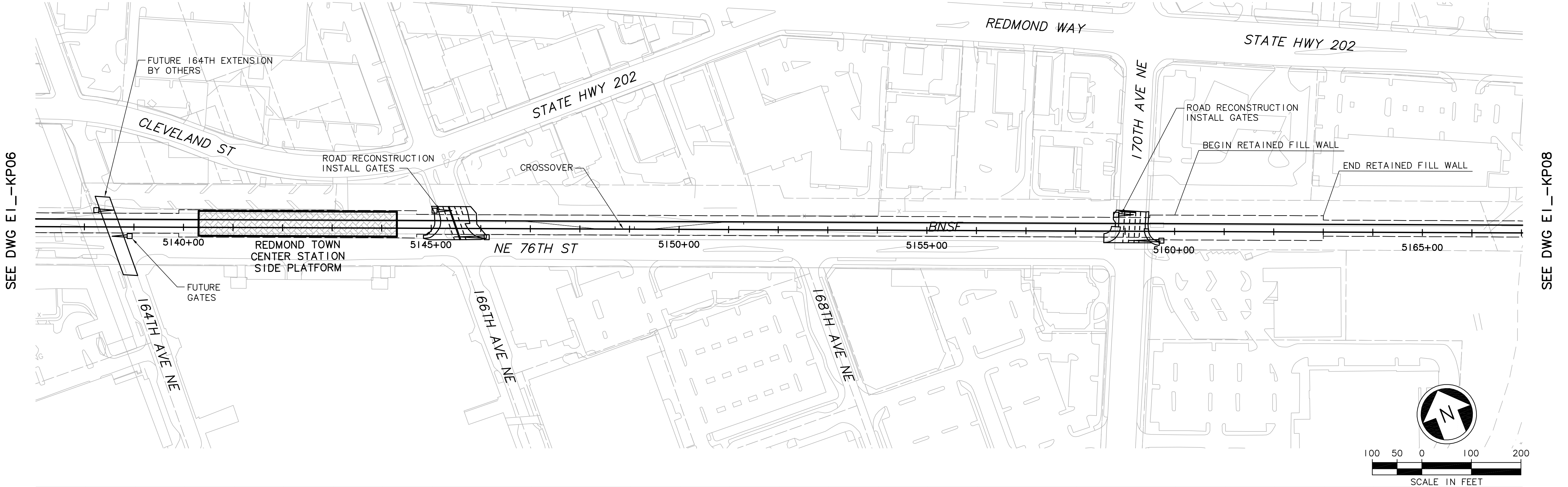
Drawing No.: E1_-KP06
Sheet No.: E-34
Rev.:

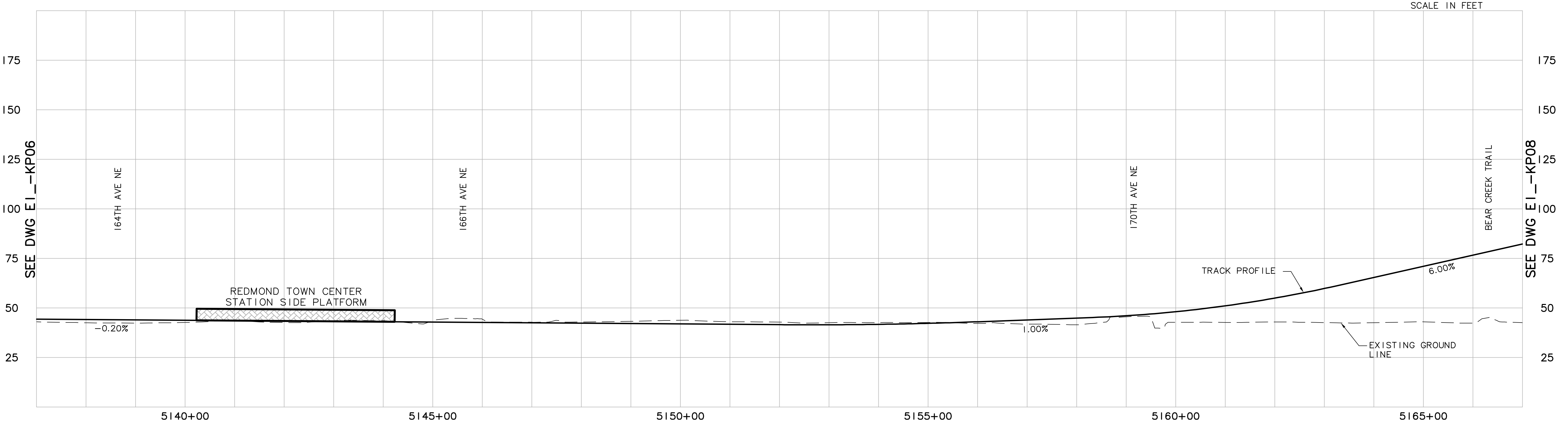
c:\work\feis\segment e\ELE_IEI__KP06.dwg
06/14/11 11:43 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_BrCrk
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
ZG-2234H
ZG-G10010
x2049rx
x2049sf
x2349rx
x2349sf
-Unresolved:
key_East
key_Segment


SEE DWG E1__-KP06
REDMOND WAY
STATE HWY 202
STATE HWY 202
CLEVELAND ST
FUTURE 164TH EXTENSION BY OTHERS
ROAD RECONSTRUCTION INSTALL GATES
CROSSOVER
170TH AVE NE
ROAD RECONSTRUCTION INSTALL GATES
BEGIN RETAINED FILL WALL
END RETAINED FILL WALL
BNSF
5140+00
REDMOND TOWN CENTER STATION SIDE PLATFORM
5145+00
NE 76TH ST
5150+00
5155+00
5160+00
5165+00
FUTURE GATES
164TH AVE NE
166TH AVE NE
168TH AVE NE
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E1__-KP08



c:\work\feis\ELE_IE1__KP07.dwg
02/11/11 15:08 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_1E1__KP07.dwg
Contract No.:
Date:
07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

Drawing No.:
E1__-KP07
Sheet No.: Rev.:
E-35

XREF'S

Resolved

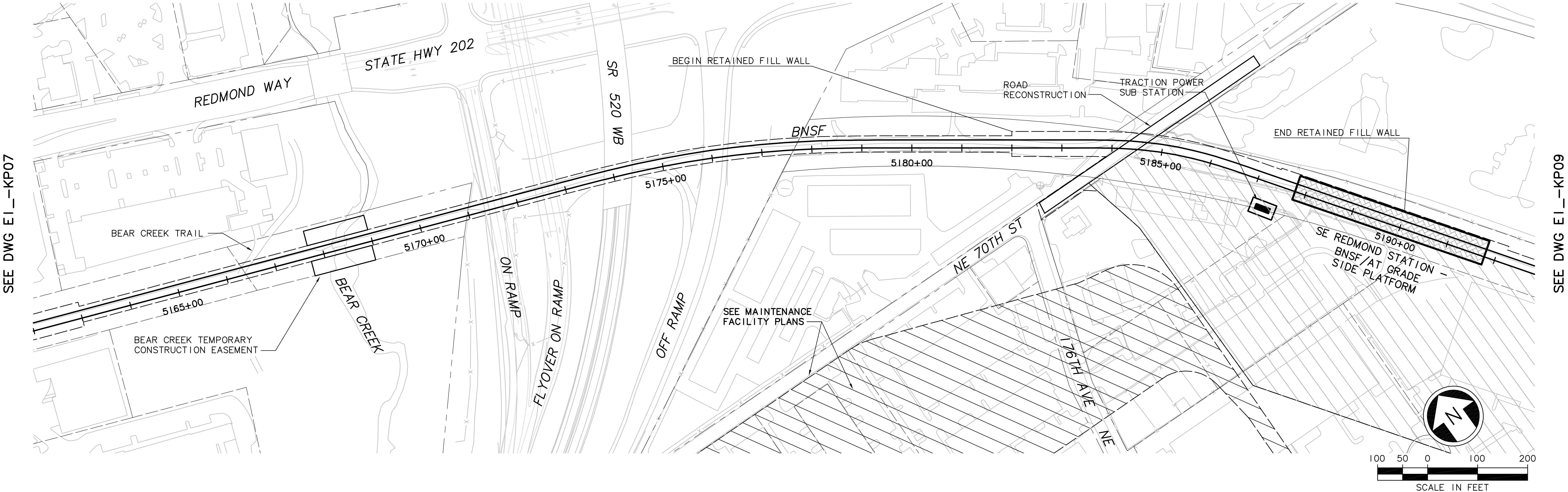
ELE_520_PLAN_2
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
REG-DCON
ZG-2234H
ZG-G10010
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf

Unresolved

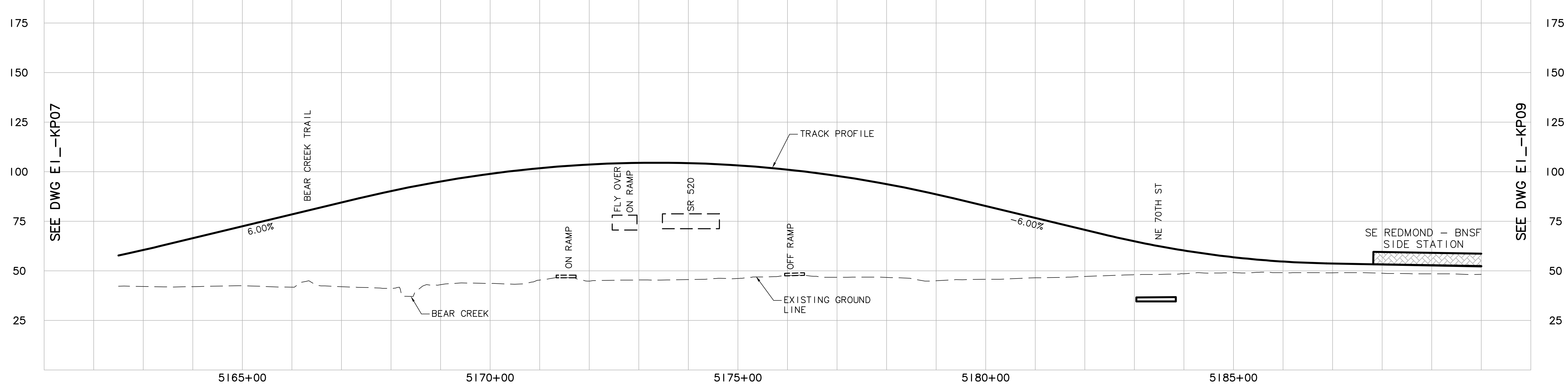
ELE_E1__MF
key_East
key_Segment

LTSCALE

1=1



SEE DWG E1_-KP07
REDMOND WAY
STATE HWY 202
SR 520 WB
BEGIN RETAINED FILL WALL
ROAD RECONSTRUCTION
TRACTION POWER SUB STATION
END RETAINED FILL WALL
BNSF
5180+00
5185+00
5175+00
5170+00
5165+00
5190+00
BEAR CREEK TRAIL
BEAR CREEK
ON RAMP
FLYOVER ON RAMP
OFF RAMP
NE 70TH ST
SEE MAINTENANCE FACILITY PLANS
176TH AVE NE
SE REDMOND STATION - BNSF/AT GRADE SIDE PLATFORM
BEAR CREEK TEMPORARY CONSTRUCTION EASEMENT
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E1_-KP09



175
150
125
100
75
50
25
SEE DWG E1_-KP07
BEAR CREEK TRAIL
TRACK PROFILE
FLY OVER ON RAMP
SR 520
ON RAMP
OFF RAMP
NE 70TH ST
6.00%
-6.00%
SE REDMOND - BNSF SIDE STATION
BEAR CREEK
EXISTING GROUND LINE
5165+00
5170+00
5175+00
5180+00
5185+00
SEE DWG E1_-KP09

c:\work\ELE1E1__KP08.dwg
10/16/08 11:16 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.
Submitted:
Date:

Grijalva Engineering, L.L.C.
Approved:

SOUNDTRANSIT
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E1__KP08.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

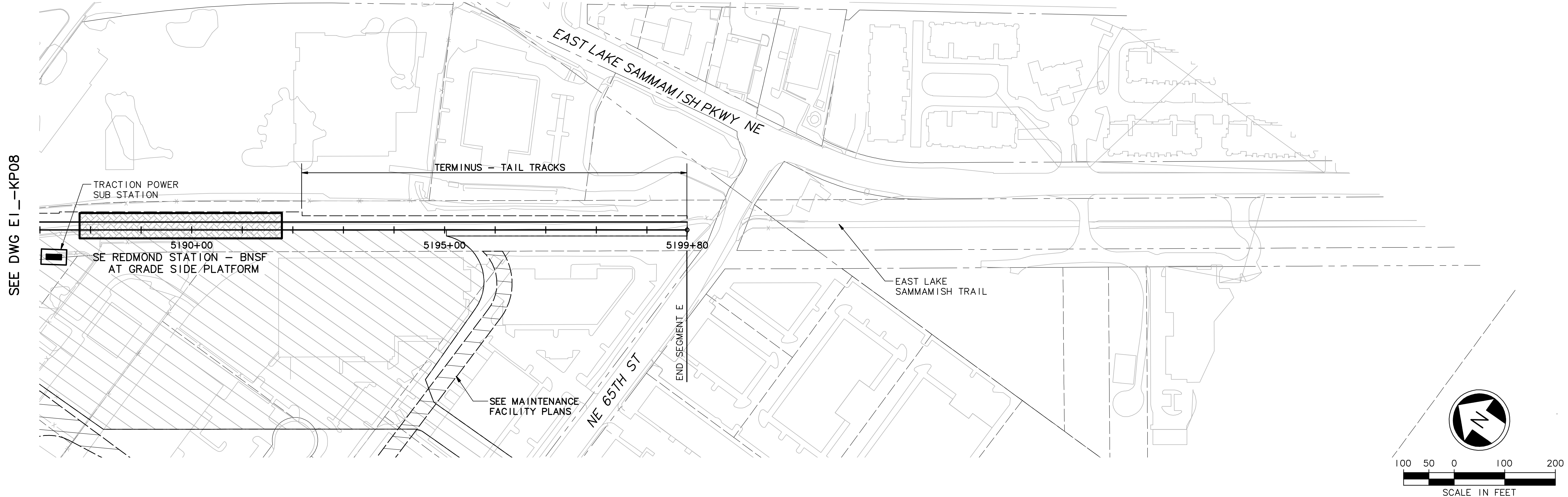
THIS PRINT REDUCED HALF SCALE

Drawing No.:
E1_-KP08
Sheet No.: E-36
Rev.:

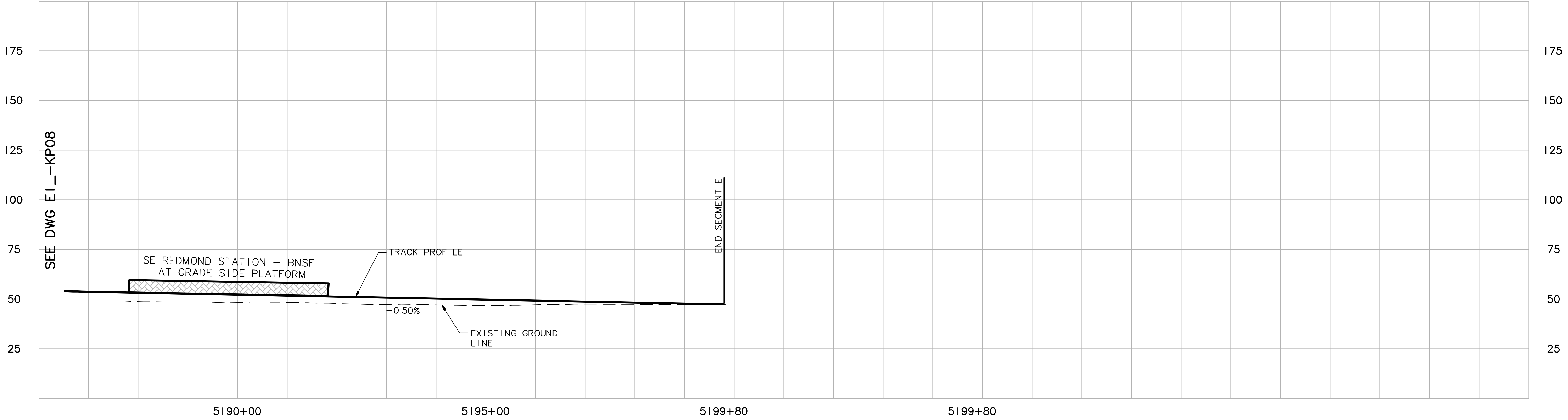
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_E1__CM
ELE_E1__JO
ELE_E1__KA
ELE_E1__MF
ZG-2234H
ZG-G10010
x2646rx
x2646sf
x2649rx
x2649sf
-Unresolved:
key_East
key_Segment



SEE DWG E1_-KP08
TRACTION POWER SUB STATION
SE REDMOND STATION - BNSF AT GRADE SIDE PLATFORM
TERMINUS - TAIL TRACKS
5190+00
5195+00
5199+80
EAST LAKE SAMMAMISH PKWY NE
EAST LAKE SAMMAMISH TRAIL
END SEGMENT E
NE 65TH ST
SEE MAINTENANCE FACILITY PLANS
N
100 50 0 100 200
SCALE IN FEET



SEE DWG E1_-KP08
175
150
125
100
75
50
25
SE REDMOND STATION - BNSF AT GRADE SIDE PLATFORM
TRACK PROFILE
-0.50%
EXISTING GROUND LINE
END SEGMENT E
5190+00
5195+00
5199+80
5199+80

c:\work\feis\segment e\ELE_1E1__KP09.dwg
06/14/11 15:56 : khuum OE6585

No.	Date	Dsn.	Chk.	App.	Revisions

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Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_1E1__KP09.dwg
Contract No.:
EL SEG_E
Date:

THIS PRINT REDUCED HALF SCALE

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE

Drawing No.:
E1_-KP09

Sheet No.: Rev.:
E-37

XREF'S

Resolved

ELE_EI__CM
ELE_EI__JO
ELE_EI__KA
ELE_EX__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x2040rx
x2040sf

Unresolved
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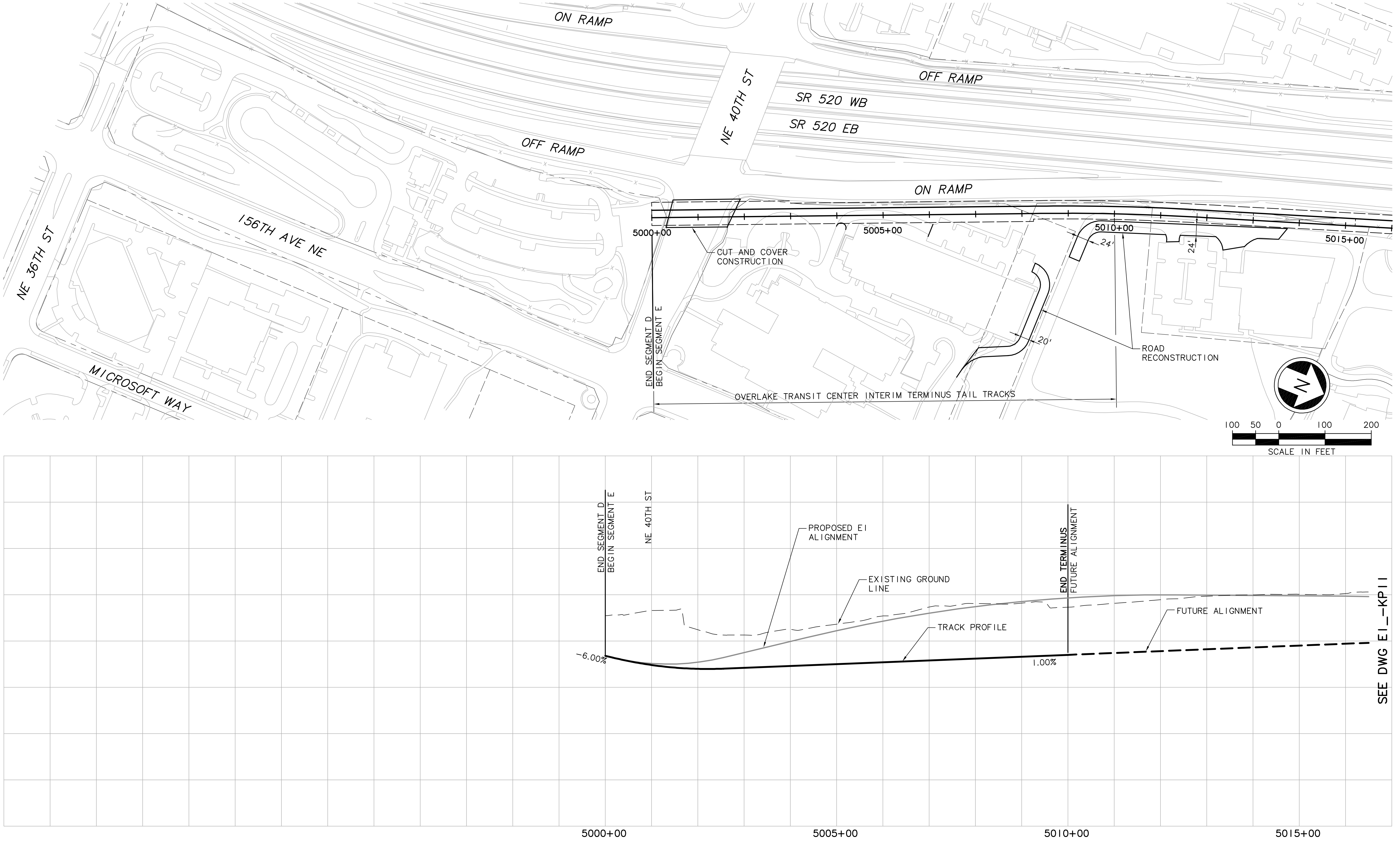
key_East
key_Segment

LTSCALE

1=1

c:\work\ELEIEI__KP10.dwg
10/16/08 11:17 : eackerm OE5396


ON RAMP
OFF RAMP
SR 520 WB
SR 520 EB
NE 40TH ST
OFF RAMP
ON RAMP
NE 36TH ST
156TH AVE NE
MICROSOFT WAY
5000+00
5005+00
5010+00
5015+00
24'
24'
20'
CUT AND COVER CONSTRUCTION
ROAD RECONSTRUCTION
END SEGMENT D
BEGIN SEGMENT E
OVERLAKE TRANSIT CENTER INTERIM TERMINUS TAIL TRACKS
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E1_-KP11
425
400
375
350
325
300
275
END SEGMENT D
BEGIN SEGMENT E
NE 40TH ST
PROPOSED E1 ALIGNMENT
EXISTING GROUND LINE
TRACK PROFILE
END TERMINUS
FUTURE ALIGNMENT
FUTURE ALIGNMENT
-6.00%
1.00%
5000+00
5005+00
5010+00
5015+00
SEE DWG E1_-KP11

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Submitted:
Date:
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Date:

Scale: 1"=100'
Filename: ELEIEI__KP10.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TRACK PLAN & PROFILE
INTERIM TERMINUS

THIS PRINT REDUCED HALF SCALE

Drawing No.: E1_-KP10
Sheet No.: E-38
Rev.:

XREF'S

Resolved

ELE_EI__CM
ELE_EI__JO
ELE_EI__KA
ELE_EX__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x1743rx
x1743sf

Unresolved
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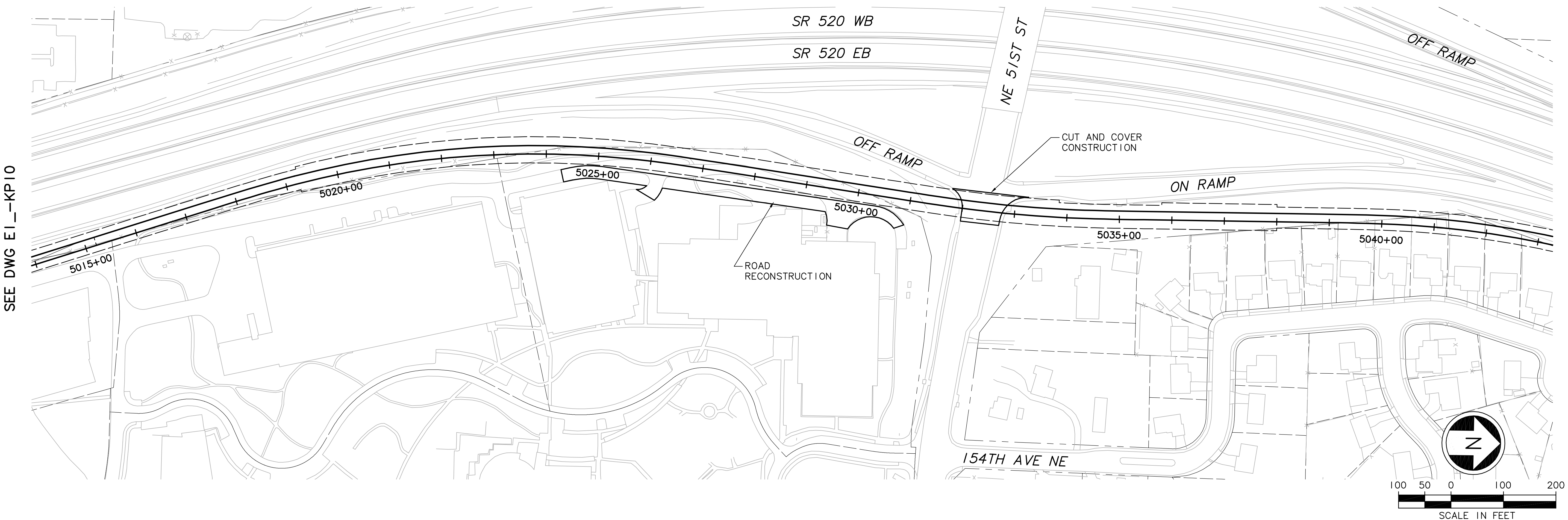
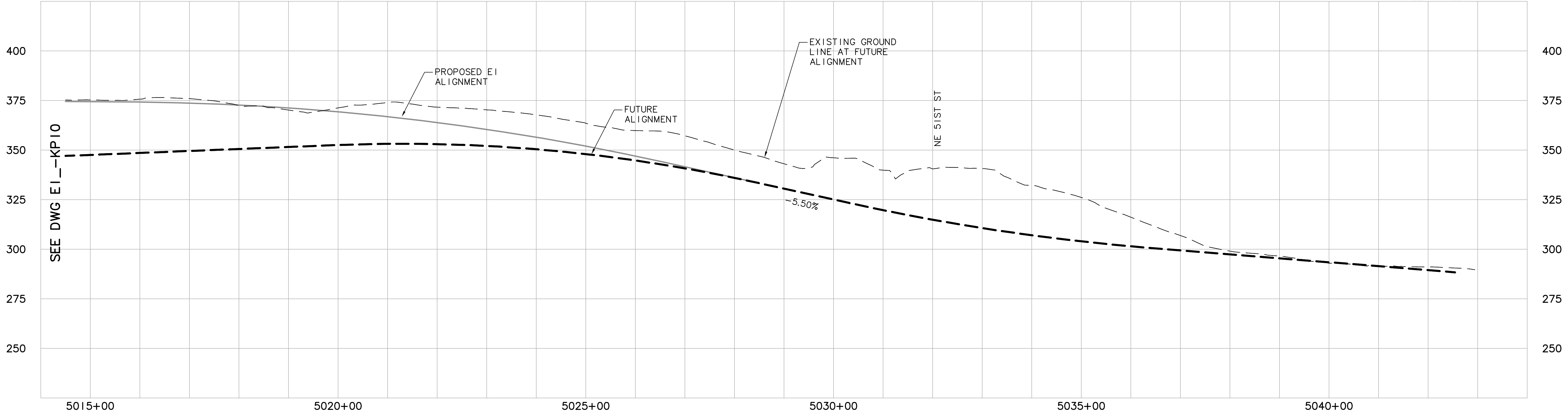
key_East
key_Segment

LTSCALE

1=1


SR 520 WB
SR 520 EB
NE 51ST ST
OFF RAMP
OFF RAMP
ON RAMP
CUT AND COVER CONSTRUCTION
ROAD RECONSTRUCTION
SEE DWG EI_-KP10
5015+00
5020+00
5025+00
5030+00
5035+00
5040+00
154TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



c:\work\ELEIEI__KP11.dwg eackerm OE5396
10/16/08 11:17 :

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Date:

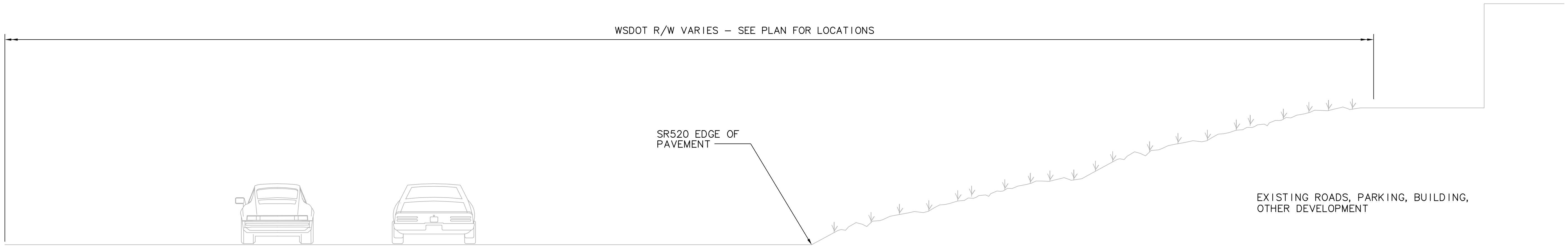
Scale: 1"=100'
Filename: ELEIEI__KP11.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE EI
TRACK PLAN & PROFILE
INTERIM TERMINUS

THIS PRINT REDUCED HALF SCALE

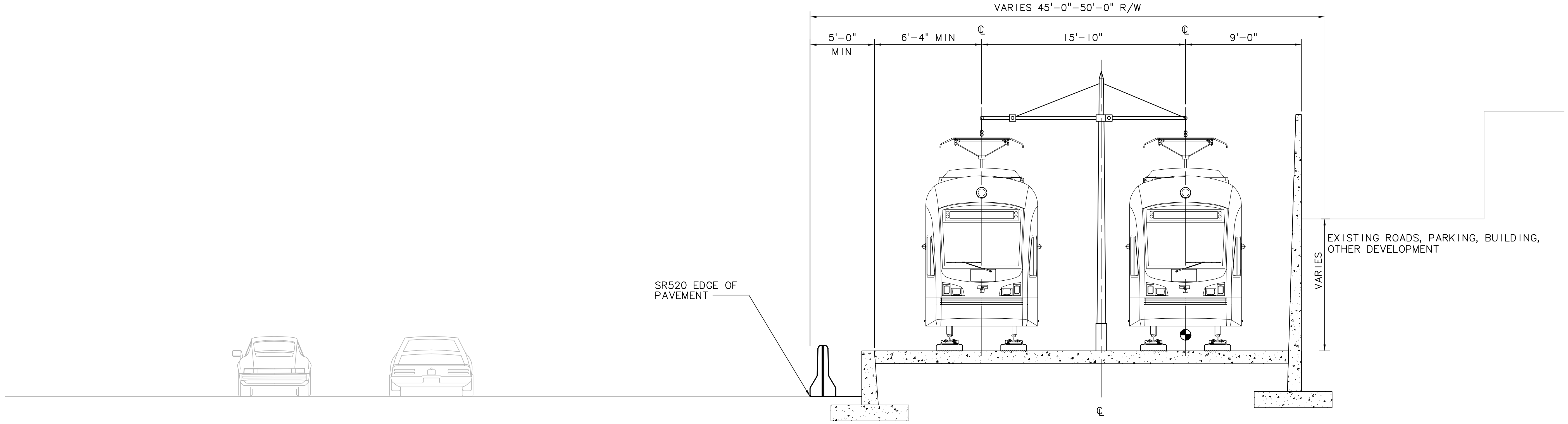
Drawing No.: EI_-KP11
Sheet No.: E-39
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


WSDOT R/W VARIES – SEE PLAN FOR LOCATIONS
SR520 EDGE OF PAVEMENT
EXISTING ROADS, PARKING, BUILDING, OTHER DEVELOPMENT

EXISTING TYPICAL SECTION, SR520 EB BETWEEN NE 40TH ST & NE 51ST ST

SCALE: NOT TO SCALE


VARIES 45'-0"-50'-0" R/W
5'-0" MIN
6'-4" MIN
℄
15'-10"
℄
9'-0"
SR520 EDGE OF PAVEMENT
EXISTING ROADS, PARKING, BUILDING, OTHER DEVELOPMENT
VARIES
℄

TYPICAL SECTION–FUTURE CONDITIONS ROADWAY SR520 BETWEEN NE 40TH & NE 51ST ST TYPICAL OF ALTERNATIVES: E1, E2, E4

SCALE: NOT TO SCALE

LIMITS
EB TRACK STA 5022+00 TO 5039+00
EB TRACK STA 5043+00 TO 5047+00
EB TRACK STA 5063+00 TO 5078+00

c:\work\ELE1E1__KX01.dwg
10/16/08 11:17 : eackerm OE5396

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Submitted:
Date:
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Date:

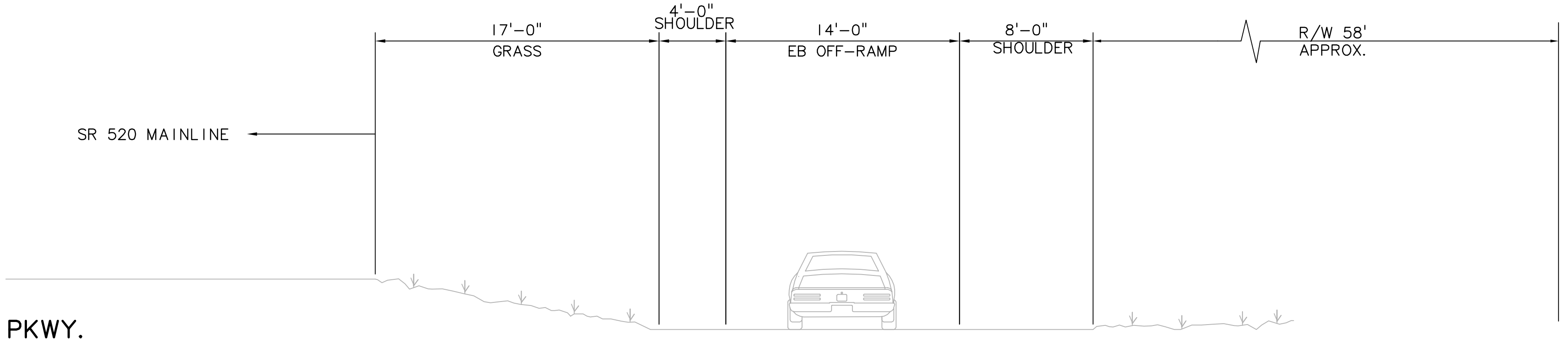
Scale: NTS
Filename: ELE1E1__KX01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TYPICAL SECTION

THIS PRINT REDUCED
HALF SCALE

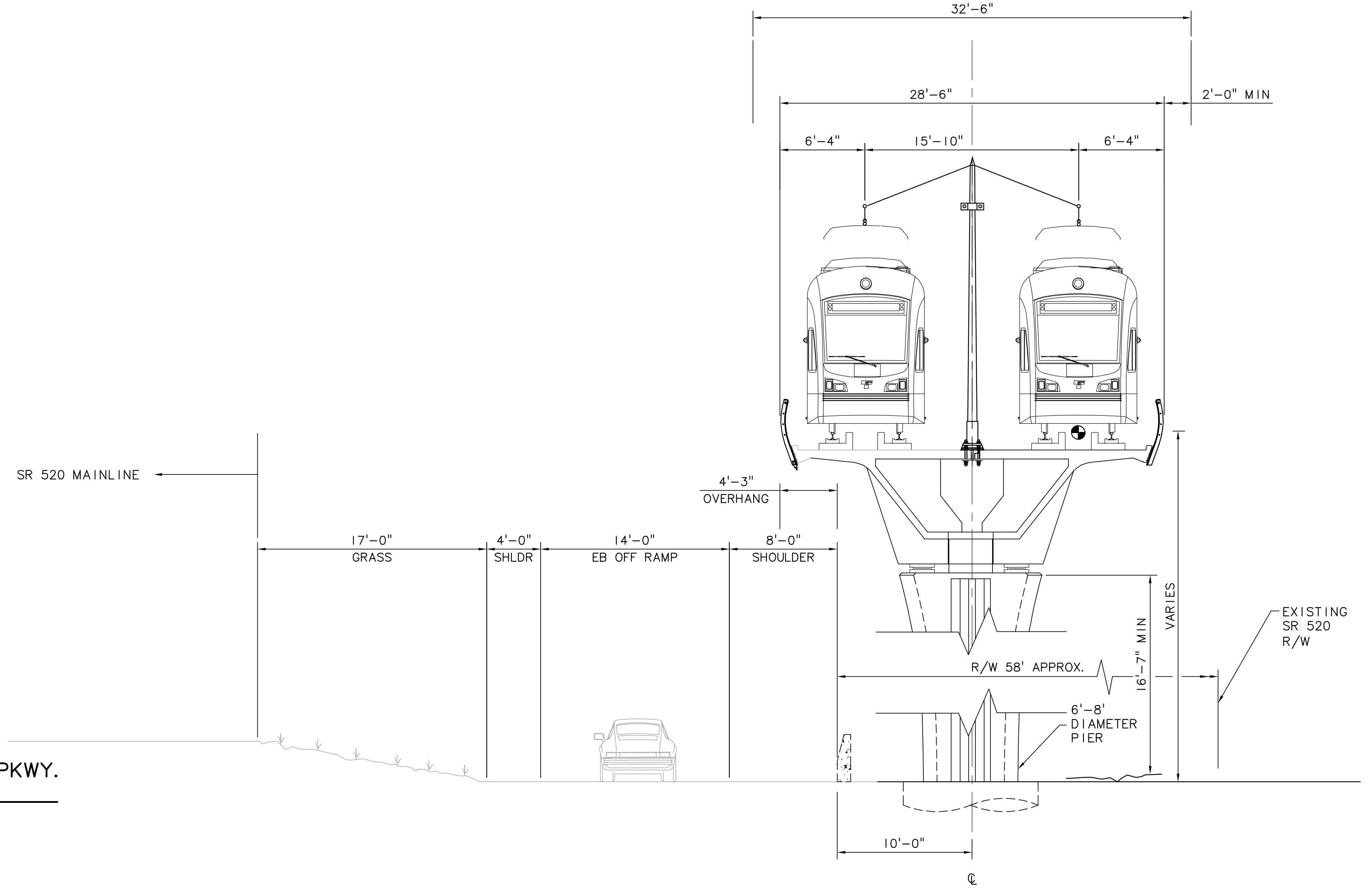
Drawing No.: E1_-KX01
Sheet No.: E-40
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


17'-0"
GRASS
4'-0"
SHOULDER
14'-0"
EB OFF-RAMP
8'-0"
SHOULDER
R/W 58'
APPROX.
SR 520 MAINLINE

SR520 NB, JUST SW OF W. LK. SAMMAMISH PKWY. TYPICAL SECTION, EXISTING CONDITIONS–

SCALE: NOT TO SCALE


32'-6"
28'-6"
2'-0" MIN
6'-4"
15'-10"
6'-4"
SR 520 MAINLINE
4'-3"
OVERHANG
17'-0"
GRASS
4'-0"
SHLDR
14'-0"
EB OFF RAMP
8'-0"
SHOULDER
VARIES
16'-7" MIN
EXISTING
SR 520
R/W
R/W 58' APPROX.
6'-8"
DIAMETER
PIER
10'-0"
℄

TYPICAL SECTION – FUTURE CONDITIONS ALONG SR520 EB, SW OF W. LK. SAMMAMISH PKWY. TYPICAL OF ALTERNATIVES: E1, E2, E4

SCALE: NOT TO SCALE

LIMITS APPROX

STA 5078+00 TO STA 5081+00

c:\work\ELE1E1__KX02.dwg
10/16/08 11:18 : eackerm OE5396

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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELE1E1__KX02.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TYPICAL SECTION

THIS PRINT REDUCED * HALF SCALE

Drawing No.: E1_-KX02
Sheet No.: E-41
Rev.:

XREF'S

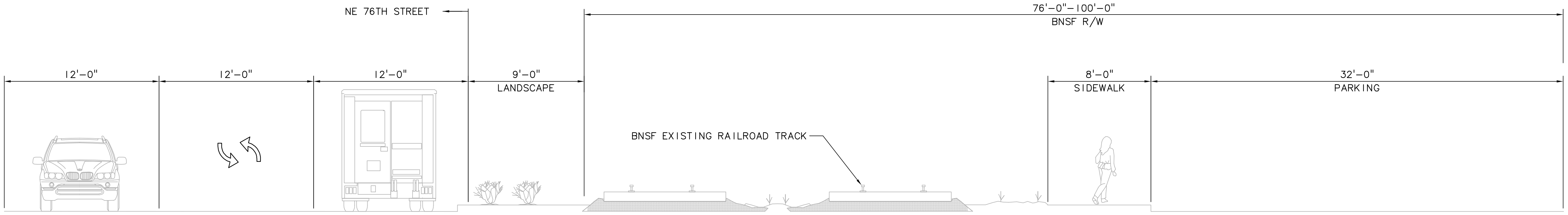
Resolved

REG-DCON
ZG-2234H

Unresolved

LTSCALE

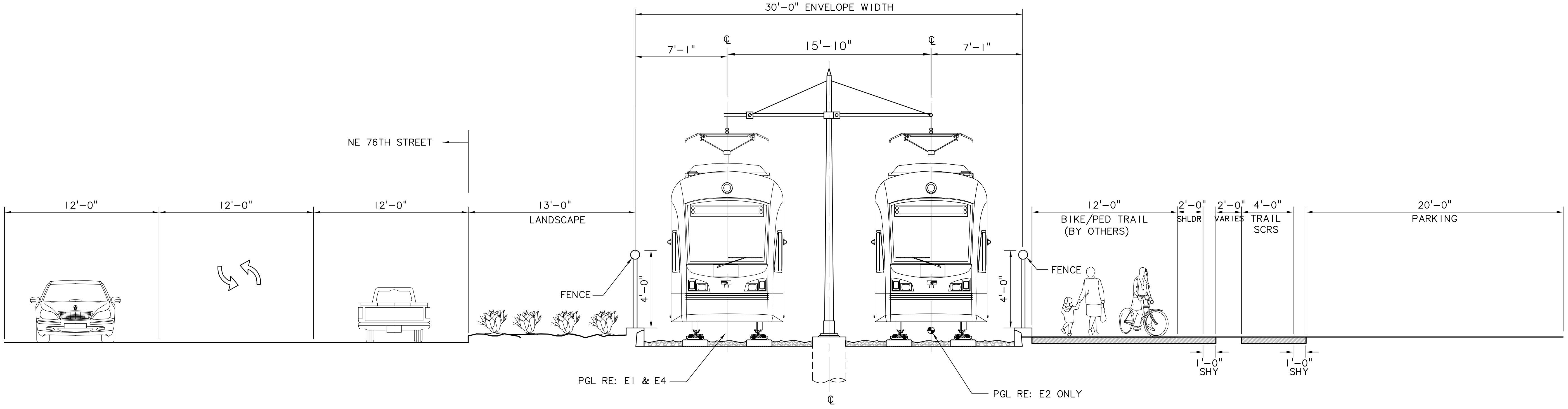
1=1



NE 76TH STREET
76'-0"-100'-0"
BNSF R/W
12'-0"
12'-0"
12'-0"
9'-0"
LANDSCAPE
8'-0"
SIDEWALK
32'-0"
PARKING
BNSF EXISTING RAILROAD TRACK

TYPICAL SECTION, EXISTING CONDITIONS–
BNSF CORRIDOR, JUST EAST OF 168TH AVE NE

SCALE: NOT TO SCALE



30'-0" ENVELOPE WIDTH
7'-1"
℄
15'-10"
℄
7'-1"
NE 76TH STREET
12'-0"
12'-0"
12'-0"
13'-0"
LANDSCAPE
FENCE
4'-0"
4'-0"
FENCE
12'-0"
BIKE/PED TRAIL
(BY OTHERS)
2'-0"
SHLDR
2'-0"
VARIES
4'-0"
TRAIL
SCRS
20'-0"
PARKING
1'-0"
SHY
1'-0"
SHY
PGL RE: E1 & E4
℄
PGL RE: E2 ONLY

TYPICAL SECTION – FUTURE CONDITIONS BNSF CORRIDOR, JUST EAST OF
168TH AVE NE TYPICAL OF ALTERNATIVES: E2, E1, E4 LOOKING WEST

SCALE: NOT TO SCALE

c:\work\ELE1E1__KX03.dwg
10/16/08 11:18 : eackerm OE5396

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PARSONS & INCA ENGINEERS INC.

Grijalva
Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELE1E1__KX03.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E1
TYPICAL SECTION

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HALF SCALE

Drawing No.: E1_-KX03
Sheet No.: E-42
Rev.:

XREF'S

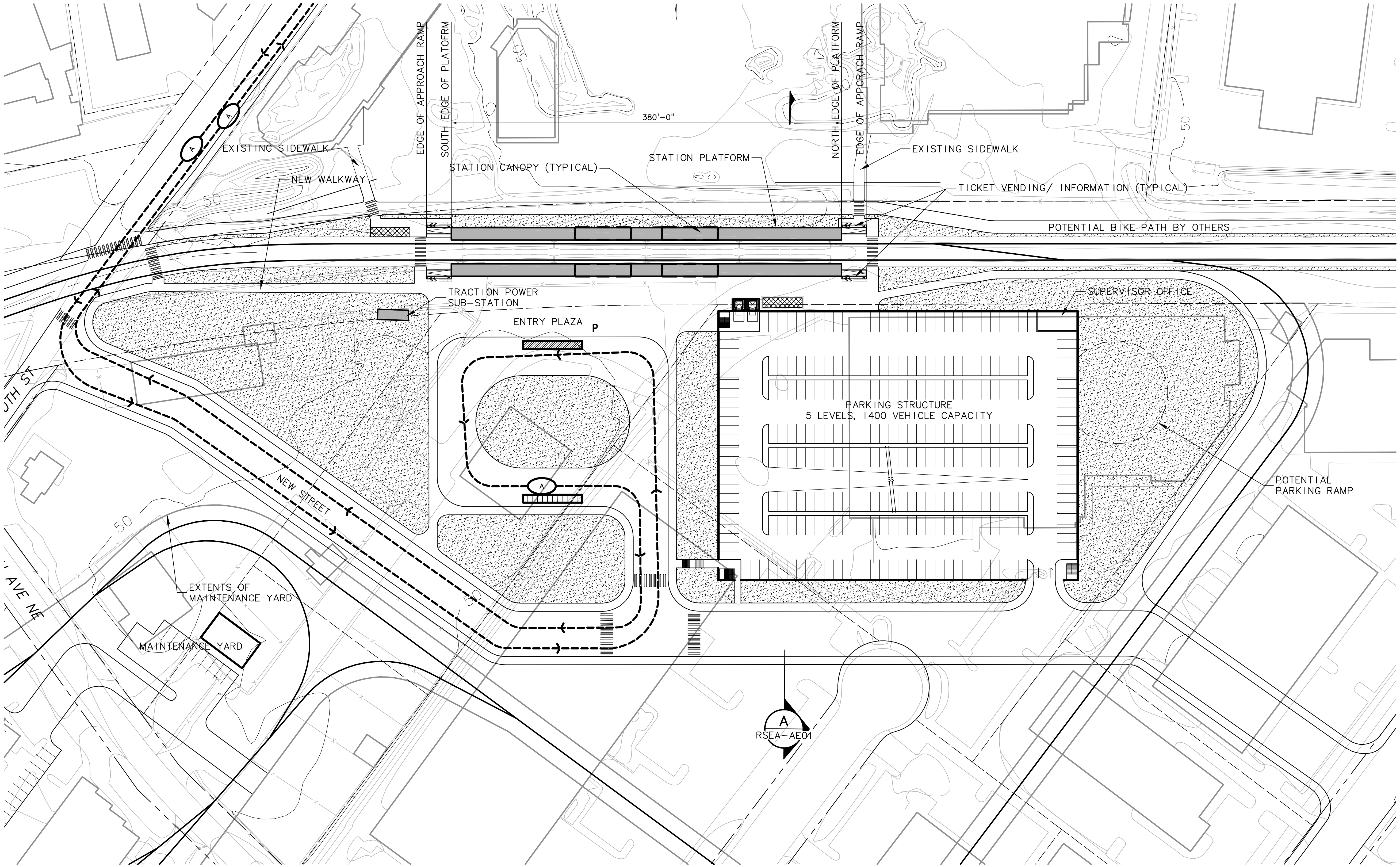
Resolved

ELE_E1__JO
ELE_E1__KA
ELE_RSEA1AS
REG-DCON
ZG-2234H
x2346cn
x2346sf
x2349cn
x2349sf
x2646cn
x2646rx
x2646sf
x2649cn
x2649rx
x2649sf

Unresolved

LTSCALE

1=1



EXISTING SIDEWALK
NEW WALKWAY
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
STATION CANOPY (TYPICAL)
380'-0"
STATION PLATFORM
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
EXISTING SIDEWALK
TICKET VENDING/ INFORMATION (TYPICAL)
POTENTIAL BIKE PATH BY OTHERS
50
TRACTION POWER SUB-STATION
ENTRY PLAZA
P
A
SUPERVISOR OFFICE
PARKING STRUCTURE
5 LEVELS, 1400 VEHICLE CAPACITY
POTENTIAL PARKING RAMP
NEW STREET
EXTENTS OF MAINTENANCE YARD
MAINTENANCE YARD
A
RSEA-AE01
TH ST
AVE NE

NOTES/LEGEND HEADING

1. ALIGNMENT E1

SYMBOLS KEY

- ▬ NEW BUS STOP
- ▭ EXISTING BUS STOP
- ▥ BUS LAYOVER
- ☒ BUS SHELTER
- P PARATRANSIT STOP
- Ⓐ BUS ROUTE : 269, 291
- ▩ BIKE STORAGE
- ▩ BIKE SHELTER
- ||||||||| CROSSWALK
- ▨ LANDSCAPE
- TICKET VENDING/ INFORMATION
- ─── TRACK

STATION ACCESS PLAN

SCALE: 1" = 50'

50 25 0 50 100
SCALE IN FEET

c:\work\ELE1RSEA_AS01.dwg
11/05/08 09:00 : eackerm OE5396

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IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=50'
Filename: ELE1RSEA_AS01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

SE REDMOND STATION
BNSF AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED
HALF SCALE

Drawing No.: RSEA-AS01
Sheet No.: E-43
Rev.:

XREF'S

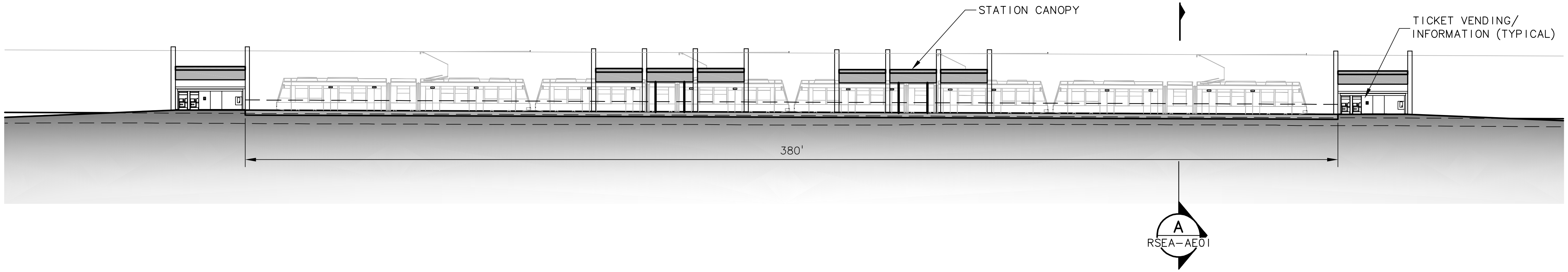
Resolved

ELE_RSEA1AX
ELE_RSEA1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

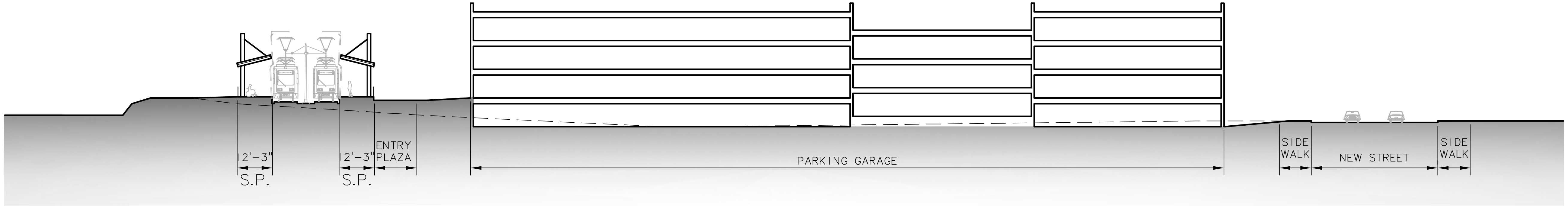
1=1


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'
A
RSEA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET


12'-3"
S.P.
12'-3"
S.P.
ENTRY
PLAZA
PARKING GARAGE
SIDE
WALK
NEW STREET
SIDE
WALK

STATION SECTION (A / RSEA-AE01)

SCALE: 1' = 30'

30 15 0 30 60
SCALE IN FEET

c:\work\ELE1RSEA_AE01.dwg
10/16/08 11:33 : eackerm OE5396

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Checked By:
Approved By:

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IBI GROUP

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELE1RSEA_AE01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

SE REDMOND STATION
BNSF AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: RSEA-AE01
Sheet No.: E-44
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_E1__KA
ZG-2234H
x1434sf
x1437rx
x1437sf
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x1743rx
x1743sf
x1746rx
x1746sf
x1749rx
x1749sf
x2037rx
x2037sf
x2040rx
x2040sf
x2043rx
x2043sf
x2046rx
x2046sf
x2049rx
x2049sf
x2052rx
x2052sf
x2346rx
x2346sf
x2349rx
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x2649sf
x2652rx
x2652sf
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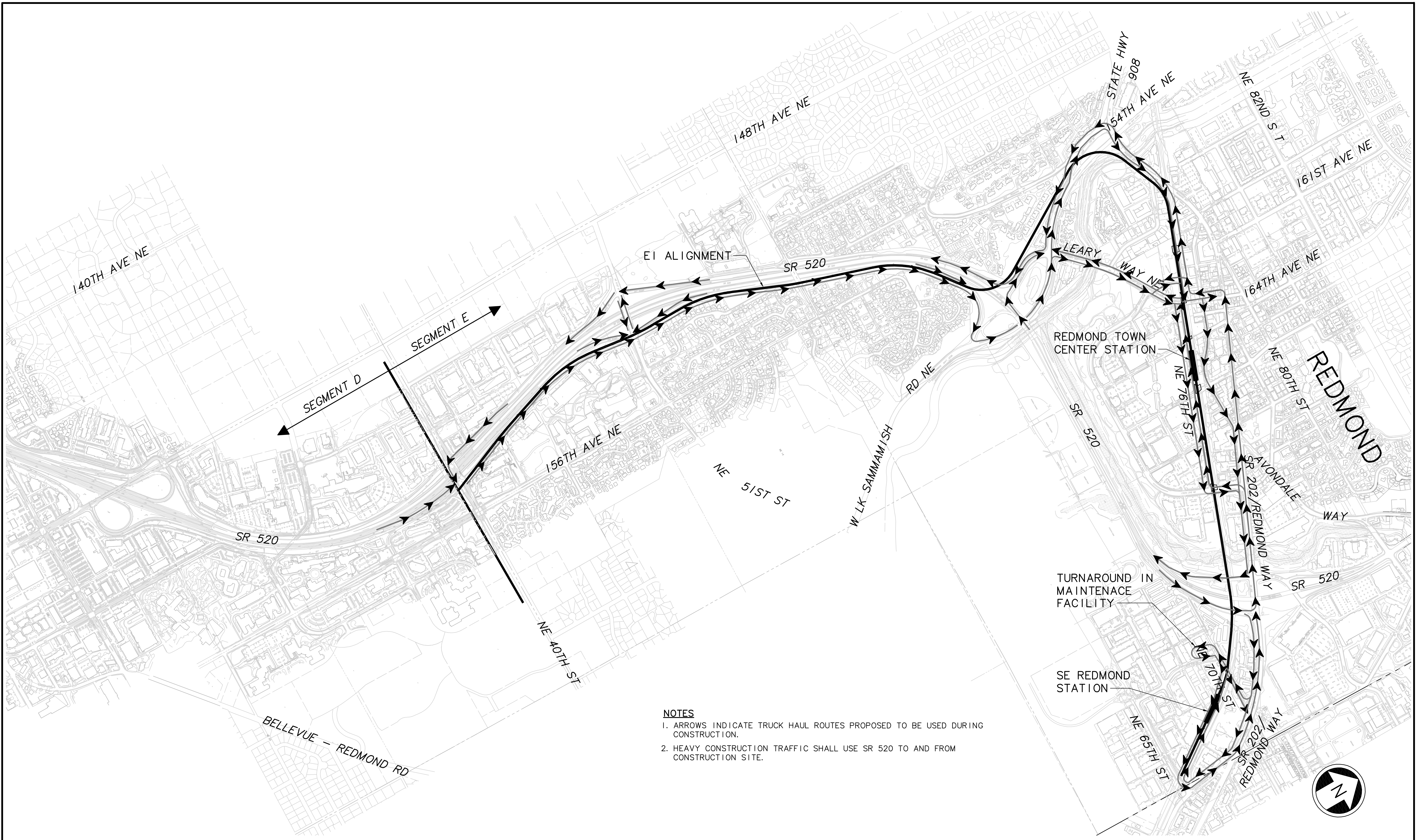
STATE HWY 908
154TH AVE NE
NE 82ND ST
161ST AVE NE
148TH AVE NE
140TH AVE NE
E1 ALIGNMENT
SR 520
LEARY WAY NE
164TH AVE NE
REDMOND TOWN CENTER STATION
NE 80TH ST
REDMOND
NE 76TH ST
SEGMENT E
SEGMENT D
RD NE
W LK SAMMAMISH
SR 520
156TH AVE NE
AVONDALE WAY
SR 202/REDMOND WAY
NE 51ST ST
SR 520
TURNAROUND IN MAINTENACE FACILITY
SR 520
NE 40TH ST
NE 70TH ST
SE REDMOND STATION
NE 65TH ST
SR 202/ REDMOND WAY
BELLEVUE - REDMOND RD
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\feis\ELE_1E1__CC01.dwg
02/15/11 14:55 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By:
Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Submitted:
Date:
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Date:

SOUND TRANSIT

Scale: NTS
Filename: ELE_1E1__CC01.dwg
Contract No.:
Date: 07/30/10

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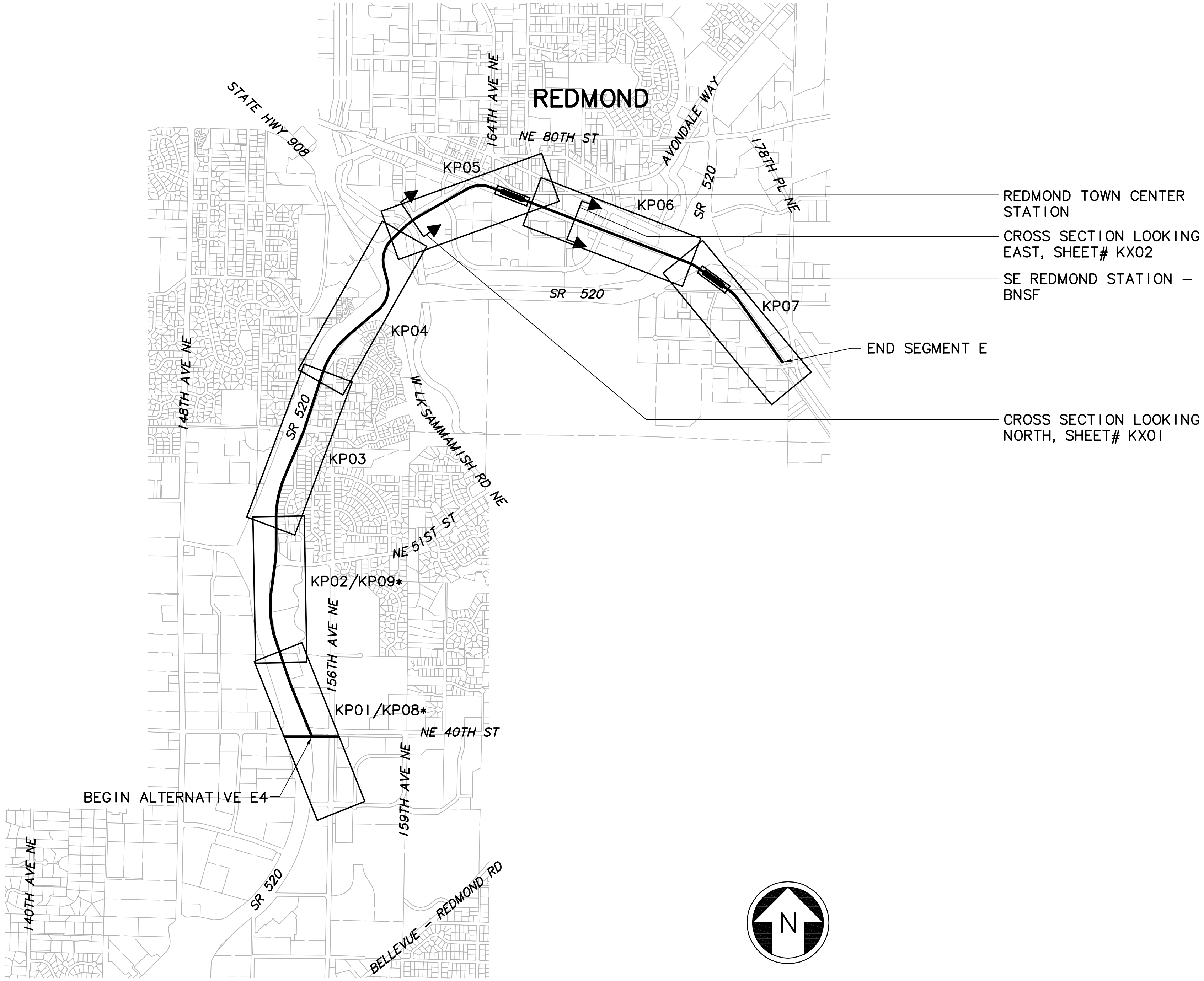
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E
ALTERNATIVE E1 CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: E1__-CC01
Sheet No.: E-45
Rev.:

XREF'S
Resolved
ELE_E4__KA
REG-DCON
ZG-2234H
x1437rx
x1737rx
x1740rx
x1743rx
x1746rx
x1749rx
x2037rx
x2040rx
x2043rx
x2046rx
x2049rx
x2052rx
x2346rx
x2349rx
x2352rx
x2646rx
x2649rx
x2652rx
Unresolved
key_East
LTSCALE
1=1


REDMOND
STATE HWY 908
164TH AVE NE
NE 80TH ST
AVONDALE WAY
SR 520
178TH PL NE
KP05
KP06
KP07
KP04
KP03
KP02/KP09*
KP01/KP08*
SR 520
148TH AVE NE
W LK SAMMAMISH RD NE
NE 51ST ST
156TH AVE NE
NE 40TH ST
159TH AVE NE
140TH AVE NE
BELLEVUE - REDMOND RD
REDMOND TOWN CENTER STATION
CROSS SECTION LOOKING EAST, SHEET# KX02
SE REDMOND STATION - BNSF
END SEGMENT E
CROSS SECTION LOOKING NORTH, SHEET# KX01
BEGIN ALTERNATIVE E4
N

* NOTE: KP08 AND KP09 REPRESENT INTERIM TERMINUS AT THE OVERLAKE TRANSIT CENTER IN SEGMENT D.

c:\work\ELE1E4__GZ05.dwg
10/16/08 11:26 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELE1E4__GZ05.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: E4_-GZ05
Sheet No.: E-46
Rev.:

XREF'S

Resolved

ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x2040rx
x2040sf

Unresolved
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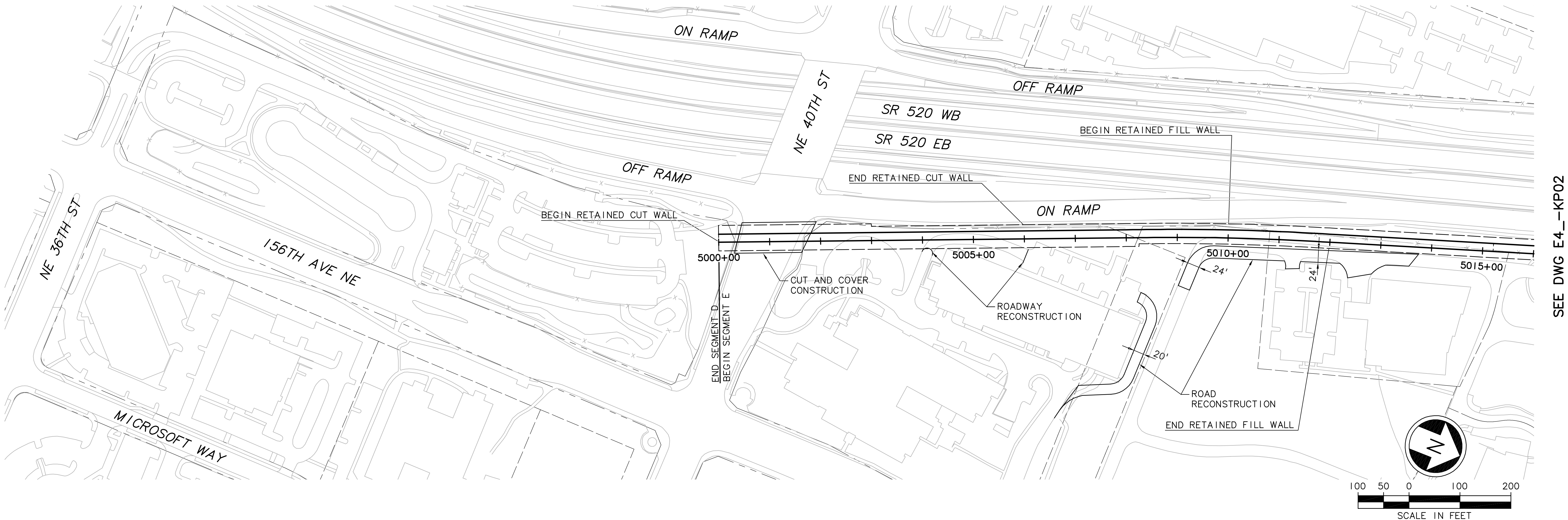
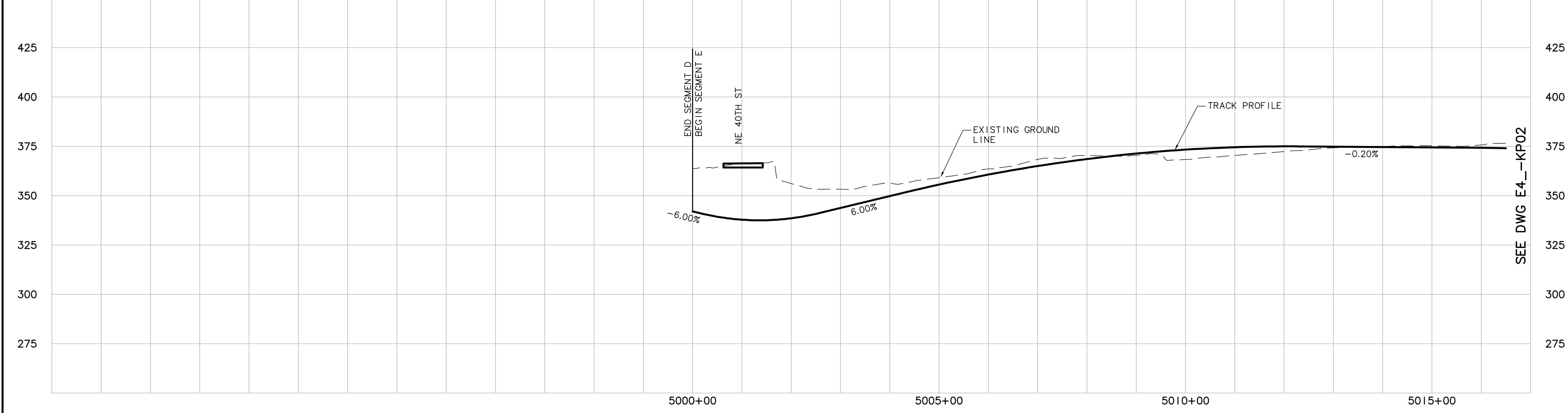
key_East
key_Segment

LTSCALE

1=1



ON RAMP
OFF RAMP
NE 40TH ST
SR 520 WB
SR 520 EB
BEGIN RETAINED FILL WALL
OFF RAMP
END RETAINED CUT WALL
ON RAMP
NE 36TH ST
BEGIN RETAINED CUT WALL
156TH AVE NE
5000+00
5005+00
5010+00
5015+00
24'
24'
CUT AND COVER CONSTRUCTION
ROADWAY RECONSTRUCTION
END SEGMENT D
BEGIN SEGMENT E
20'
ROAD RECONSTRUCTION
END RETAINED FILL WALL
MICROSOFT WAY
N
SEE DWG E4_-KP02
100 50 0 100 200
SCALE IN FEET



c:\work\ELE1E4__KP01.dwg
10/16/08 11:26 : eackerm OE5396

No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
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PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E4__KP01.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E4_-KP01
Sheet No.:
Rev.:
E-47

XREF'S

Resolved

ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x1743rx
x1743sf

Unresolved
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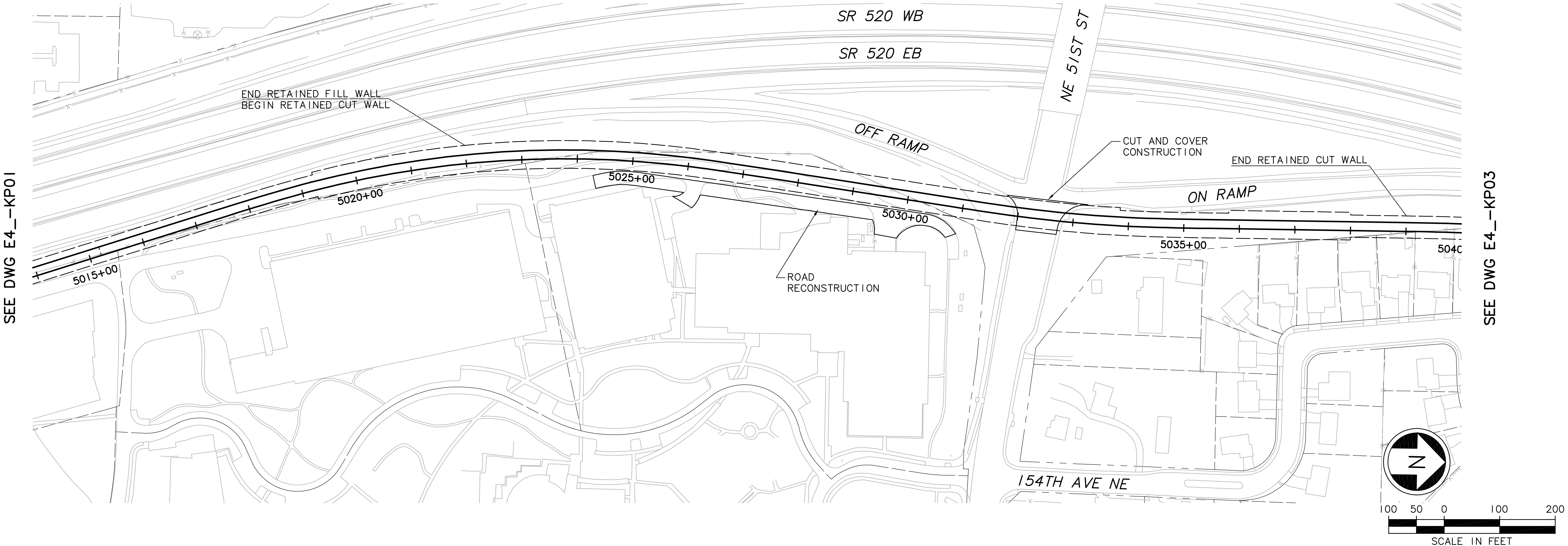
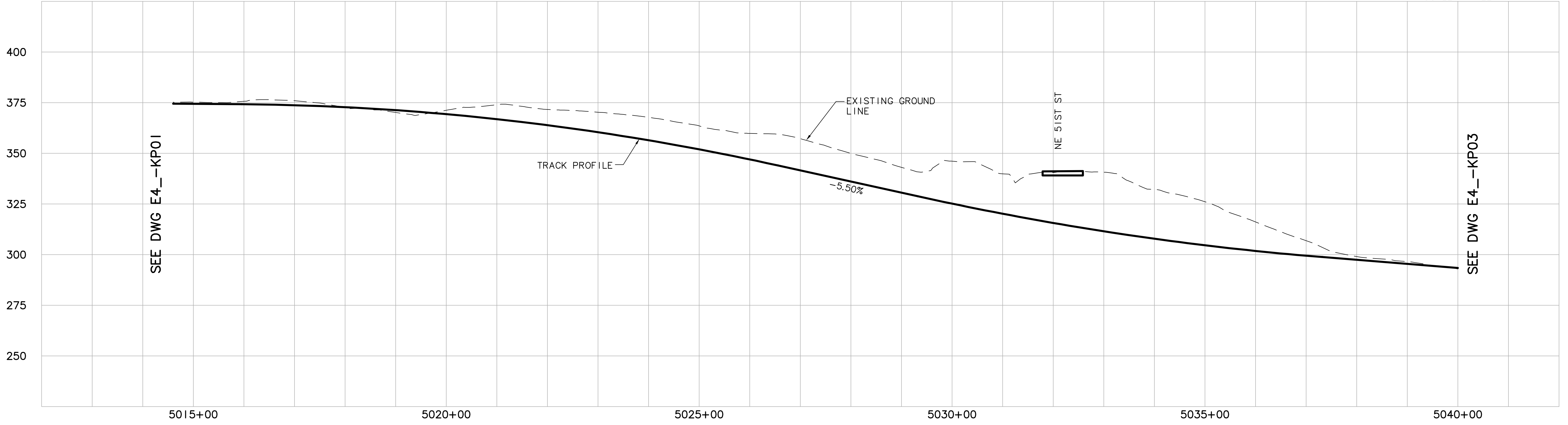
key_East
key_Segment

LTSCALE

1=1


SR 520 WB
SR 520 EB
NE 51ST ST
END RETAINED FILL WALL
BEGIN RETAINED CUT WALL
OFF RAMP
CUT AND COVER CONSTRUCTION
END RETAINED CUT WALL
ON RAMP
5015+00
5020+00
5025+00
5030+00
5035+00
5040
ROAD RECONSTRUCTION
154TH AVE NE
SEE DWG E4__KP01
SEE DWG E4__KP03
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E4__KP02.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
E4__KP02
Sheet No.:
Rev.:
E-48

c:\work\ELE1E4__KP02.dwg
10/16/08 11:27 : eackerm OE5396

XREF'S

Resolved

ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
REG-DCON
ZG-2234H
ZG-G10010
x1743rx
x1743sf
x1746rx
x1746sf
x2046rx
x2046sf

Unresolved
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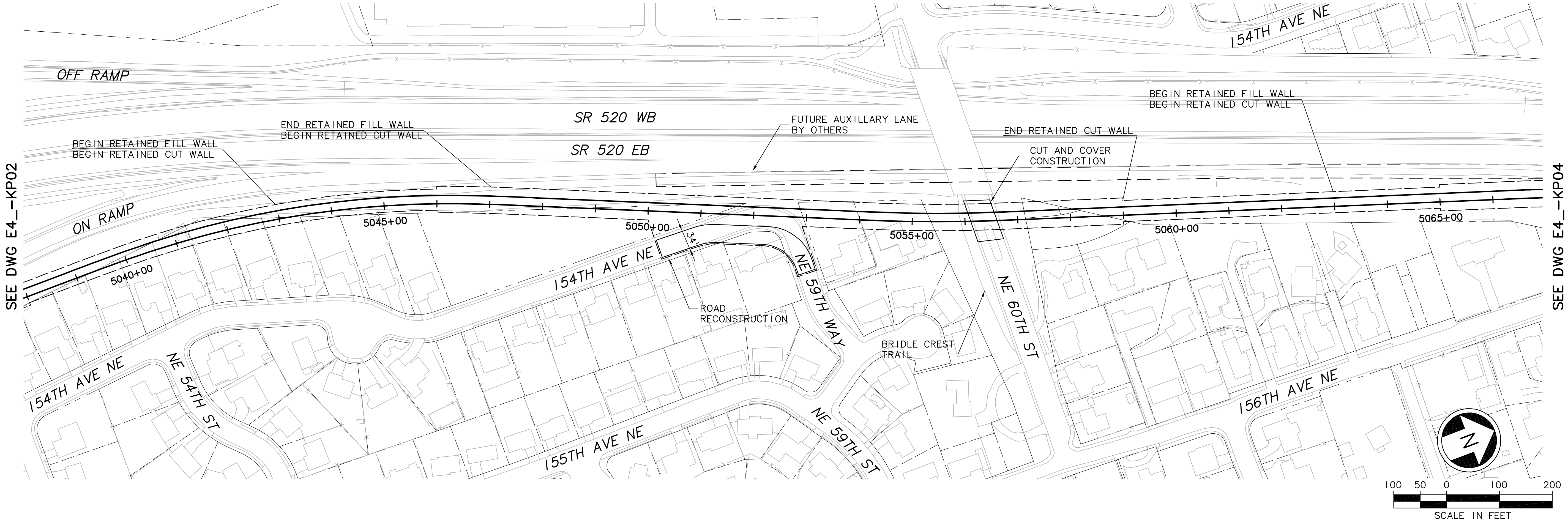
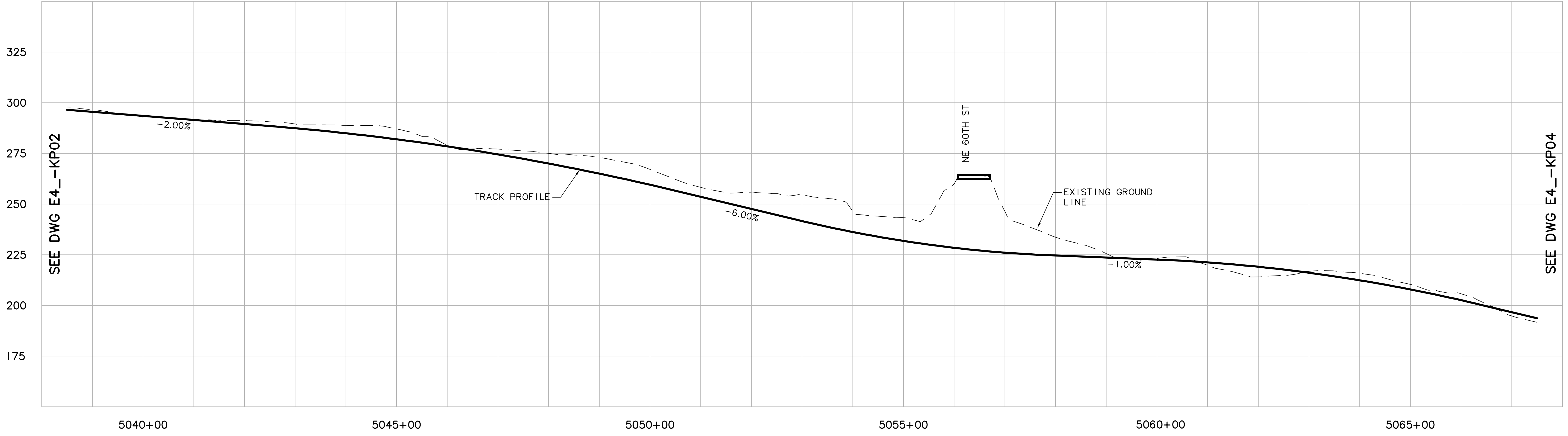
key_East
key_Segment

LTSCALE

1=1



SEE DWG E4_-KP02
OFF RAMP
ON RAMP
SR 520 WB
SR 520 EB
BEGIN RETAINED FILL WALL
BEGIN RETAINED CUT WALL
END RETAINED FILL WALL
BEGIN RETAINED CUT WALL
FUTURE AUXILLARY LANE
BY OTHERS
END RETAINED CUT WALL
CUT AND COVER
CONSTRUCTION
BEGIN RETAINED FILL WALL
BEGIN RETAINED CUT WALL
154TH AVE NE
5040+00
5045+00
5050+00
34'
5055+00
5060+00
5065+00
154TH AVE NE
NE 59TH WAY
ROAD
RECONSTRUCTION
NE 60TH ST
BRIDLE CREST
TRAIL
154TH AVE NE
NE 54TH ST
155TH AVE NE
NE 59TH ST
156TH AVE NE
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E4_-KP04



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Date:

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H: 1"=100'; V: 1"=25'
Filename:
ELE1E4__KP03.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE

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HALF
SCALE

Drawing No.:
E4_-KP03
Sheet No.:
Rev.:
E-49

c:\work\ELE1E4__KP03.dwg
10/16/08 11:27 : eackerm OE5396

XREF'S

Resolved

ELE_520_PLAN_2
ELE_BrCrk
ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
REG-DCON
ZG-2234H
ZG-G10010
x1746rx
x1746sf
x2046rx
x2046sf
x2049rx
x2049sf

Unresolved
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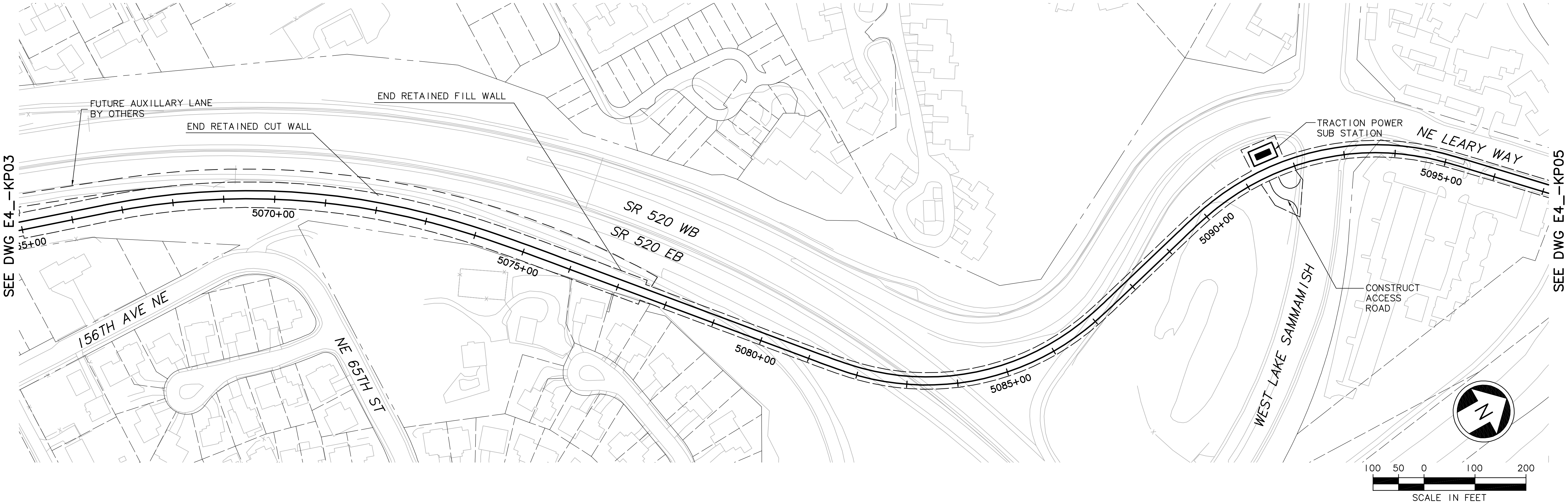
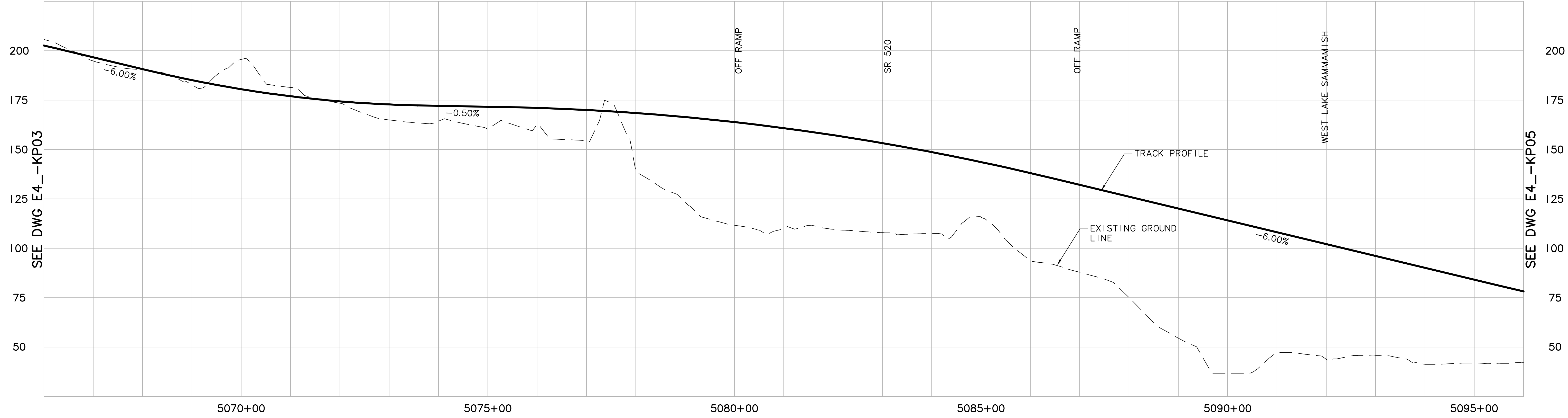
key_East
key_Segment

LTSCALE

1=1


SEE DWG E4_-KP03
FUTURE AUXILLARY LANE BY OTHERS
END RETAINED CUT WALL
END RETAINED FILL WALL
SR 520 WB
SR 520 EB
156TH AVE NE
NE 65TH ST
5070+00
5075+00
5080+00
5085+00
5090+00
5095+00
TRACTION POWER SUB STATION
NE LEARY WAY
CONSTRUCT ACCESS ROAD
WEST LAKE SAMMAMISH
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E4_-KP05



c:\work\ELE1E4__KP04.dwg
10/16/08 11:28 : eackerm OE5396

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Date:
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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELE1E4__KP04.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE

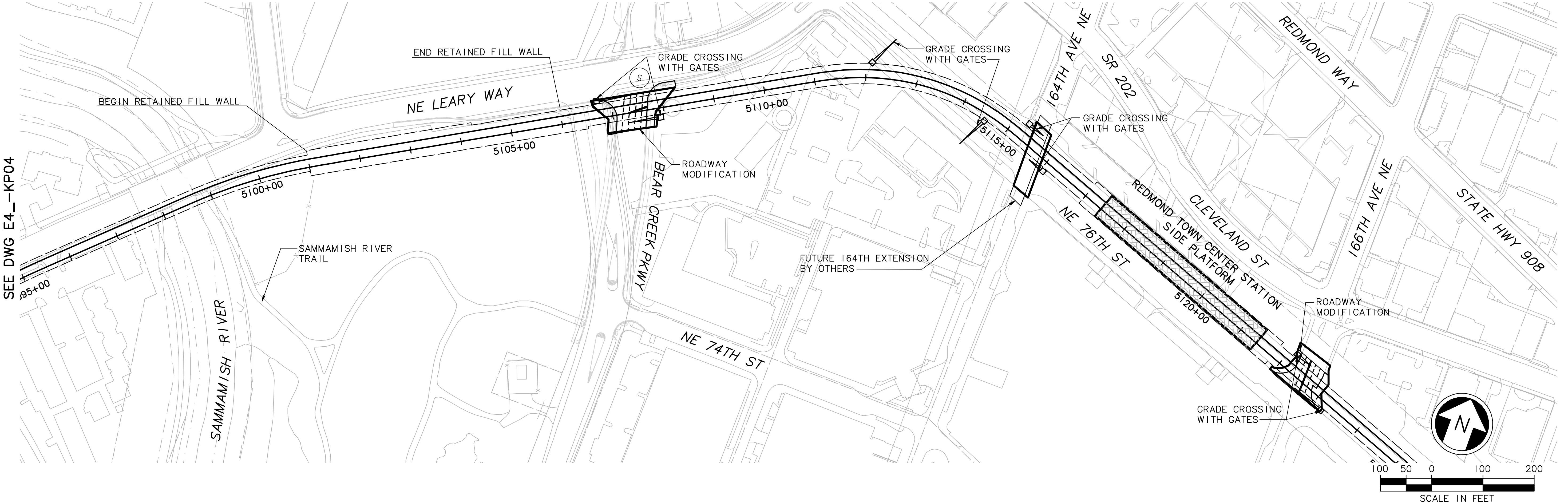
THIS PRINT REDUCED HALF SCALE

Drawing No.: E4_-KP04
Sheet No.: E-50
Rev.:

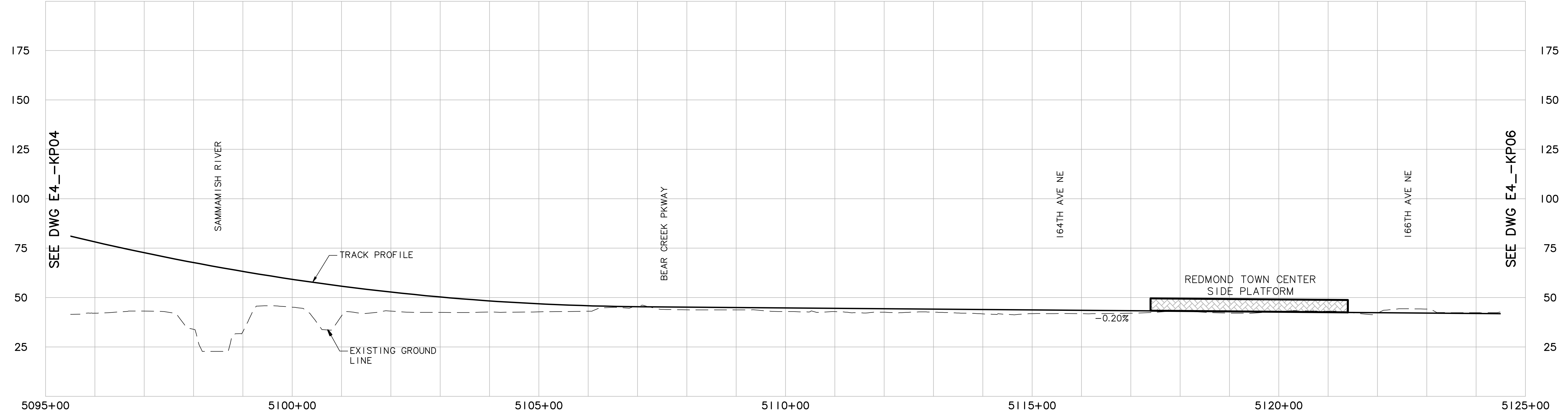
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_BrCrk
ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
SUB-FEIS
ZG-2234H
ZG-G10010
x2049rx
x2049sf
x2349rx
x2349sf
-Unresolved:
key_East
key_Segment



SEE DWG E4__KP04
END RETAINED FILL WALL
BEGIN RETAINED FILL WALL
GRADE CROSSING WITH GATES
NE LEARY WAY
5095+00
5100+00
5105+00
5110+00
5115+00
5120+00
ROADWAY MODIFICATION
BEAR CREEK PKWY
SAMMAMISH RIVER TRAIL
SAMMAMISH RIVER
NE 74TH ST
GRADE CROSSING WITH GATES
164TH AVE NE
SR 202
GRADE CROSSING WITH GATES
FUTURE 164TH EXTENSION BY OTHERS
NE 76TH ST
REDMOND TOWN CENTER STATION SIDE PLATFORM
CLEVELAND ST
REDMOND WAY
166TH AVE NE
STATE HWY 908
ROADWAY MODIFICATION
GRADE CROSSING WITH GATES
N
100 50 0 100 200
SCALE IN FEET
SEE DWG E4__KP06



c:\work\feis\segment e\ELE_IE4__KP05.dwg
06/14/11 11:51 : khuum OE6585

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE_IE4__KP05.dwg
Contract No.:
Date:
02/22/11

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E

ALTERNATIVE E4
TRACK PLAN & PROFILE

Drawing No.:
E4__-KP05
Sheet No.:
E-51
Rev.:

XREF'S

Resolved

ELE_520_PLAN_2
ELE_BrCrk
ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
REG-DCON
ZG-2234H
ZG-G10010
x2349rx
x2349sf
x2649rx
x2649sf

Unresolved
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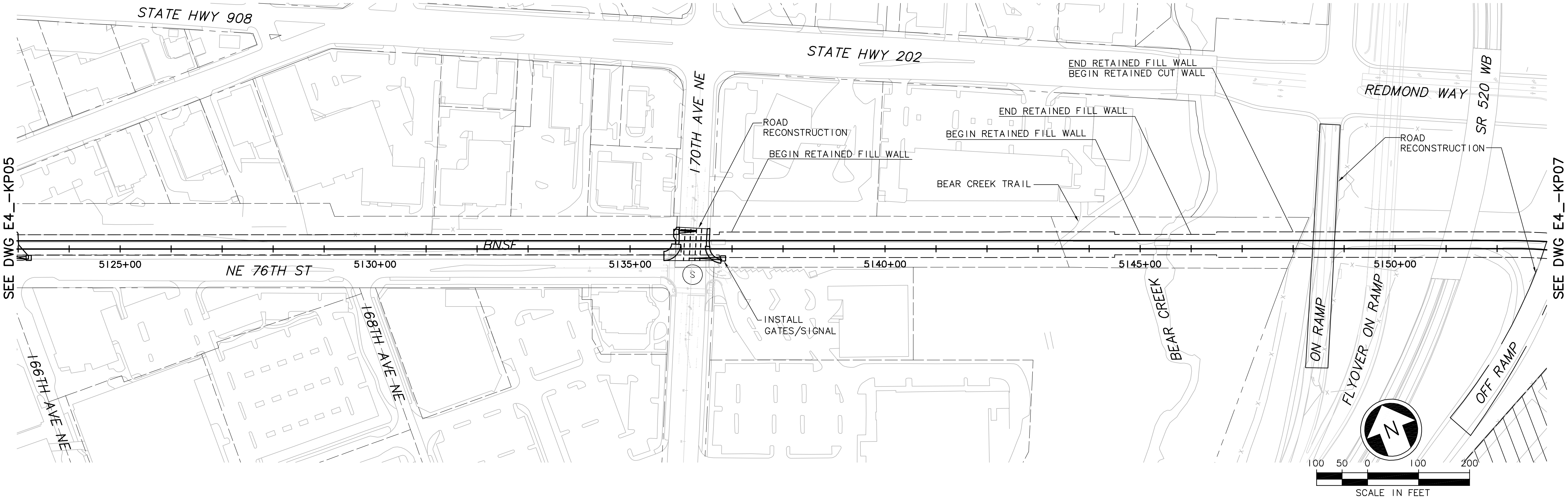
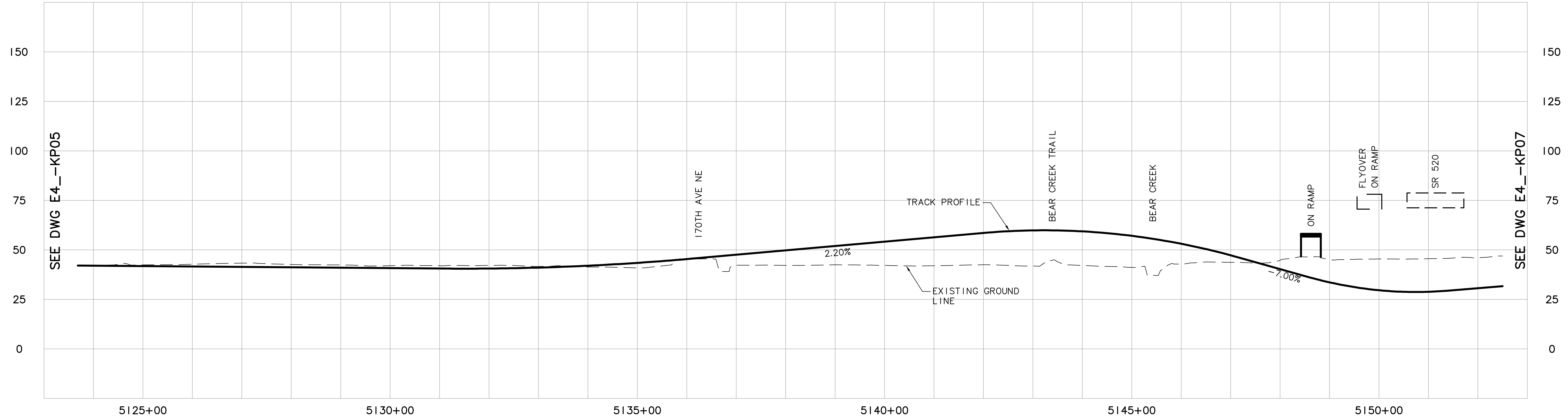
key_East
key_Segment

LTSCALE

1=1



STATE HWY 908
STATE HWY 202
REDMOND WAY
SR 520 WB
170TH AVE NE
ROAD RECONSTRUCTION
BEGIN RETAINED FILL WALL
END RETAINED FILL WALL
BEGIN RETAINED FILL WALL
END RETAINED FILL WALL
BEGIN RETAINED CUT WALL
BEAR CREEK TRAIL
ROAD RECONSTRUCTION
SEE DWG E4__KP05
SEE DWG E4__KP07
BNSF
NE 76TH ST
5125+00
5130+00
5135+00
5140+00
5145+00
5150+00
S
INSTALL GATES/SIGNAL
BEAR CREEK
ON RAMP
FLYOVER ON RAMP
OFF RAMP
166TH AVE NE
168TH AVE NE
N
100 50 0 100 200
SCALE IN FEET



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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELE1E4__KP06.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE

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Drawing No.: E4__KP06
Sheet No.: E-52
Rev.:

c:\work\ELE1E4__KP06.dwg
10/16/08 11:28 : eackerm OE5396

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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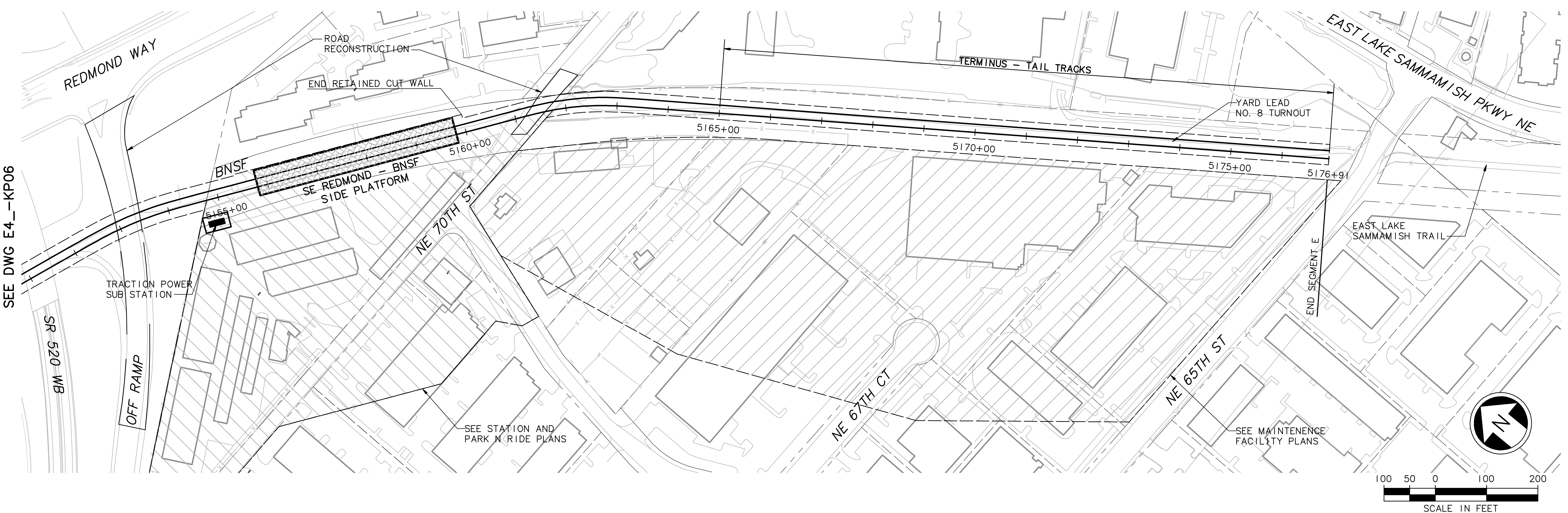
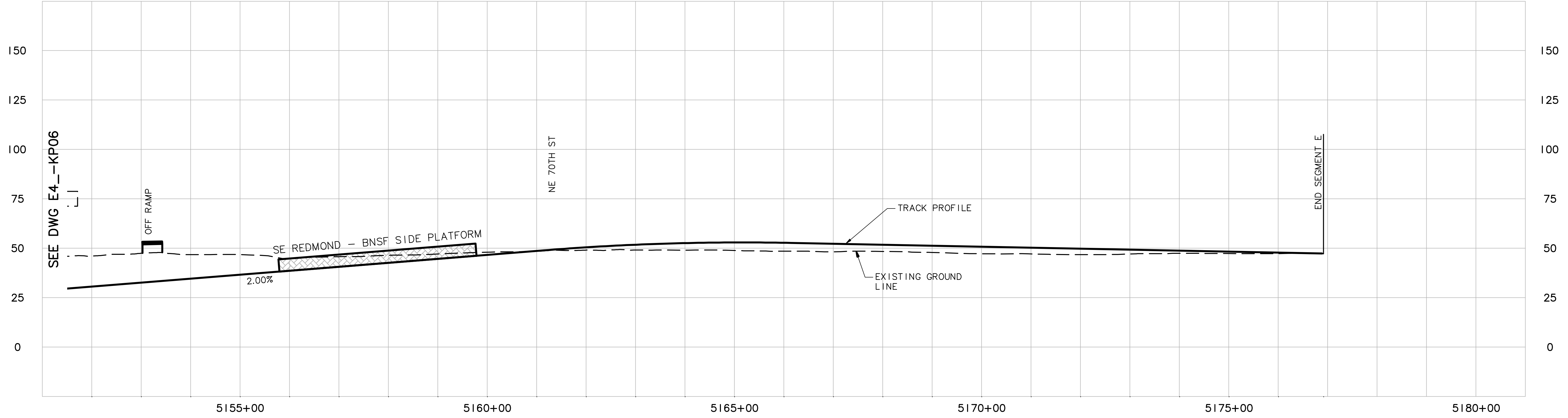
ELE_BrCrk
ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
ZG-2234H
ZG-G10010
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf
-Unresolved:
ELE_E4__MF
key_East
key_Segment


REDMOND WAY
ROAD RECONSTRUCTION
END RETAINED CUT WALL
TERMINUS - TAIL TRACKS
EAST LAKE SAMMAMISH PKWY NE
YARD LEAD NO. 8 TURNOUT
5165+00
5170+00
5175+00
5176+91
5160+00
BNSF
SE REDMOND - BNSF SIDE PLATFORM
5155+00
NE 70TH ST
EAST LAKE SAMMAMISH TRAIL
END SEGMENT E
SEE DWG E4_-KP06
TRACTION POWER SUB STATION
SR 520 WB
OFF RAMP
SEE STATION AND PARK N RIDE PLANS
NE 67TH CT
NE 65TH ST
SEE MAINTENENCE FACILITY PLANS
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

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SOUNDTRANSIT

Submitted:
Date:
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Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELE_IE4__KP07.dwg
Contract No.: EL SEG_E
Date:

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE

Drawing No.: E4_-KP07
Sheet No.: E-53
Rev.:

c:\work\feis\segment e\ELE_IE4__KP07.dwg
06/14/11 14:36 : khuum OE6585

XREF'S

Resolved

ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
ELE_EX__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x2040rx
x2040sf

Unresolved
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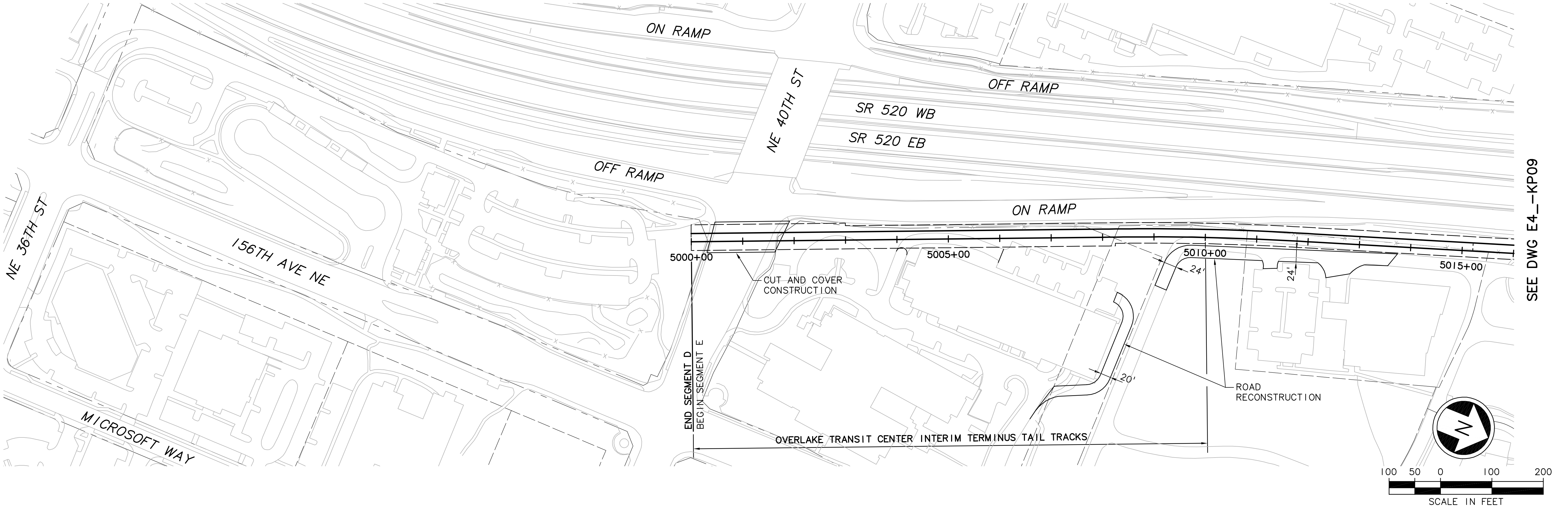
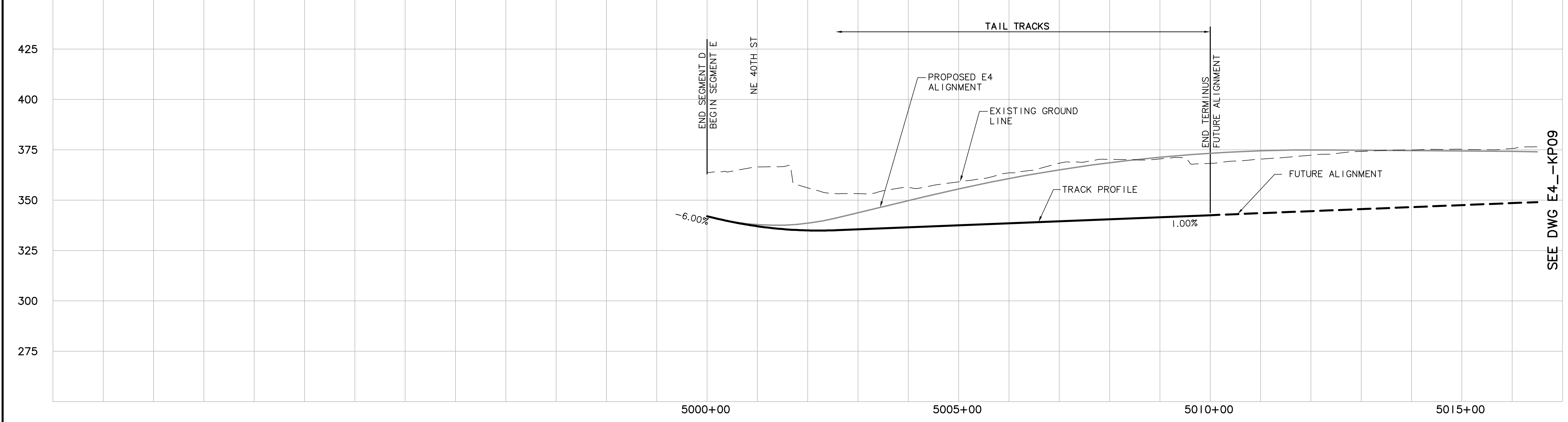
key_East
key_Segment

LTSCALE

1=1



ON RAMP
OFF RAMP
SR 520 WB
SR 520 EB
NE 40TH ST
OFF RAMP
ON RAMP
NE 36TH ST
156TH AVE NE
MICROSOFT WAY
5000+00
5005+00
5010+00
5015+00
24'
24'
20'
CUT AND COVER CONSTRUCTION
ROAD RECONSTRUCTION
END SEGMENT D
BEGIN SEGMENT E
OVERLAKE TRANSIT CENTER INTERIM TERMINUS TAIL TRACKS
SEE DWG E4_-KP09
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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FEIS CONCEPTUAL

CH2MHILL
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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELE1E4__KP08.dwg
Contract No.:
EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE
INTERIM TERMINUS

THIS PRINT REDUCED HALF SCALE

Drawing No.: E4_-KP08
Sheet No.: E-54
Rev.:

c:\work\ELE1E4__KP08.dwg
10/16/08 11:29 : eackerm OE5396

XREF'S

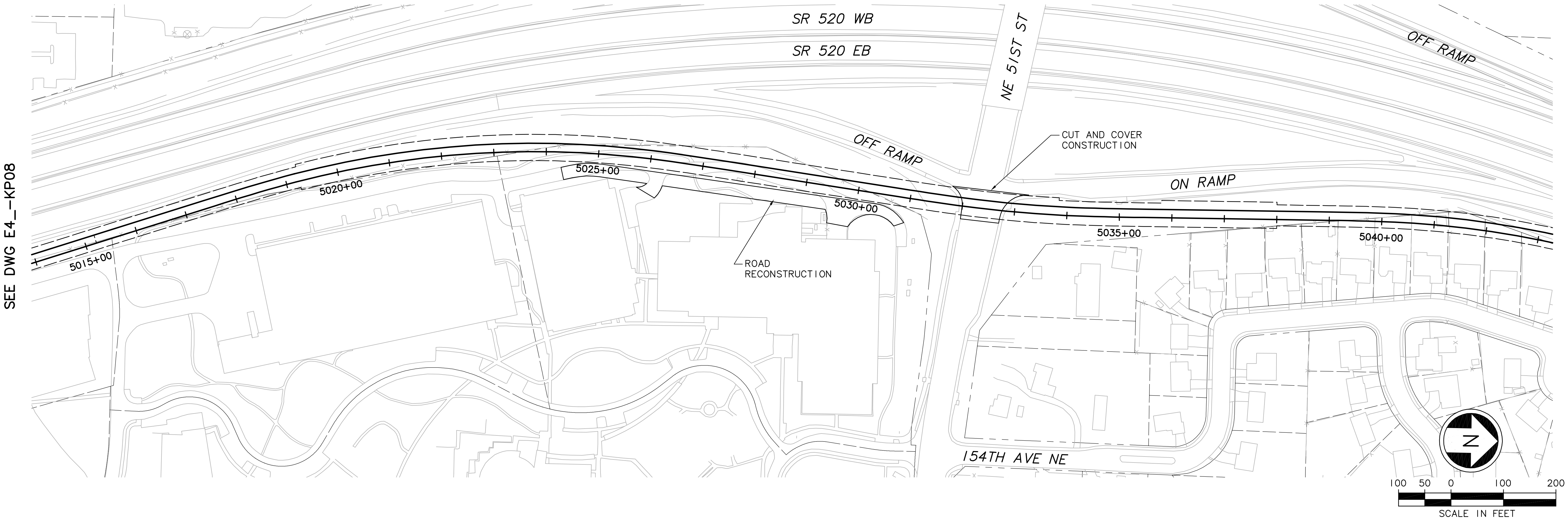
Resolved

ELE_E4__CM
ELE_E4__JO
ELE_E4__KA
ELE_EX__KA
REG-DCON
ZG-2234H
ZG-G10010
x1740rx
x1740sf
x1743rx
x1743sf

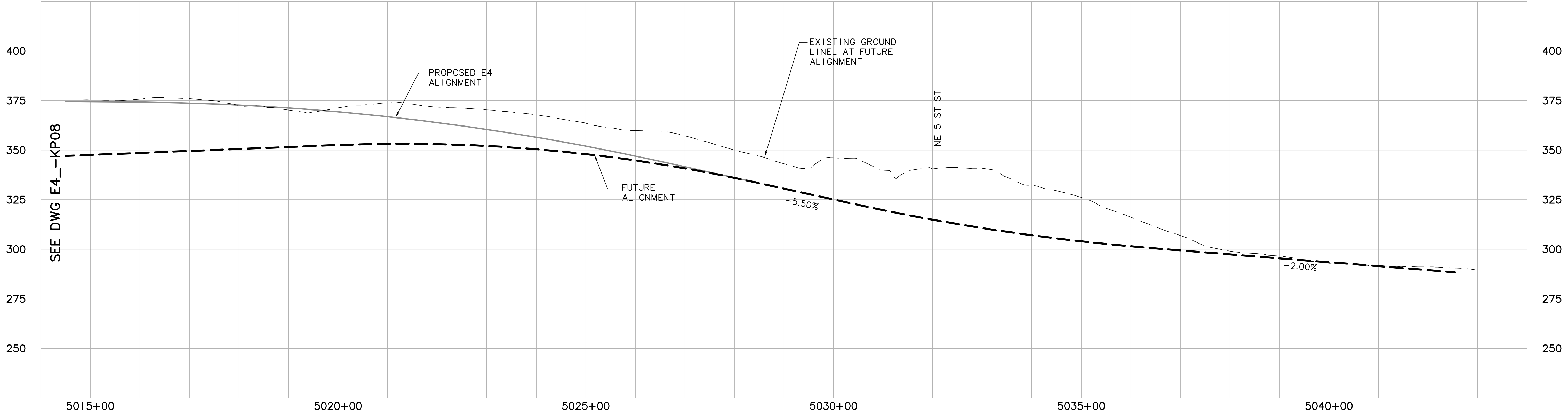
Unresolved
----
key_East
key_Segment

LTSCALE

1=1



SR 520 WB
SR 520 EB
NE 51ST ST
OFF RAMP
OFF RAMP
ON RAMP
CUT AND COVER CONSTRUCTION
ROAD RECONSTRUCTION
154TH AVE NE
SEE DWG E4__KP08
5015+00
5020+00
5025+00
5030+00
5035+00
5040+00
N
100 50 0 100 200
SCALE IN FEET



No.	Date	Dsn.	Chk.	App.	Revisions

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Grijalva Engineering, L.L.C.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=100'; V: 1"=25'
Filename: ELEIE4__KP09.dwg
Contract No.: EL SEG_E
Date:

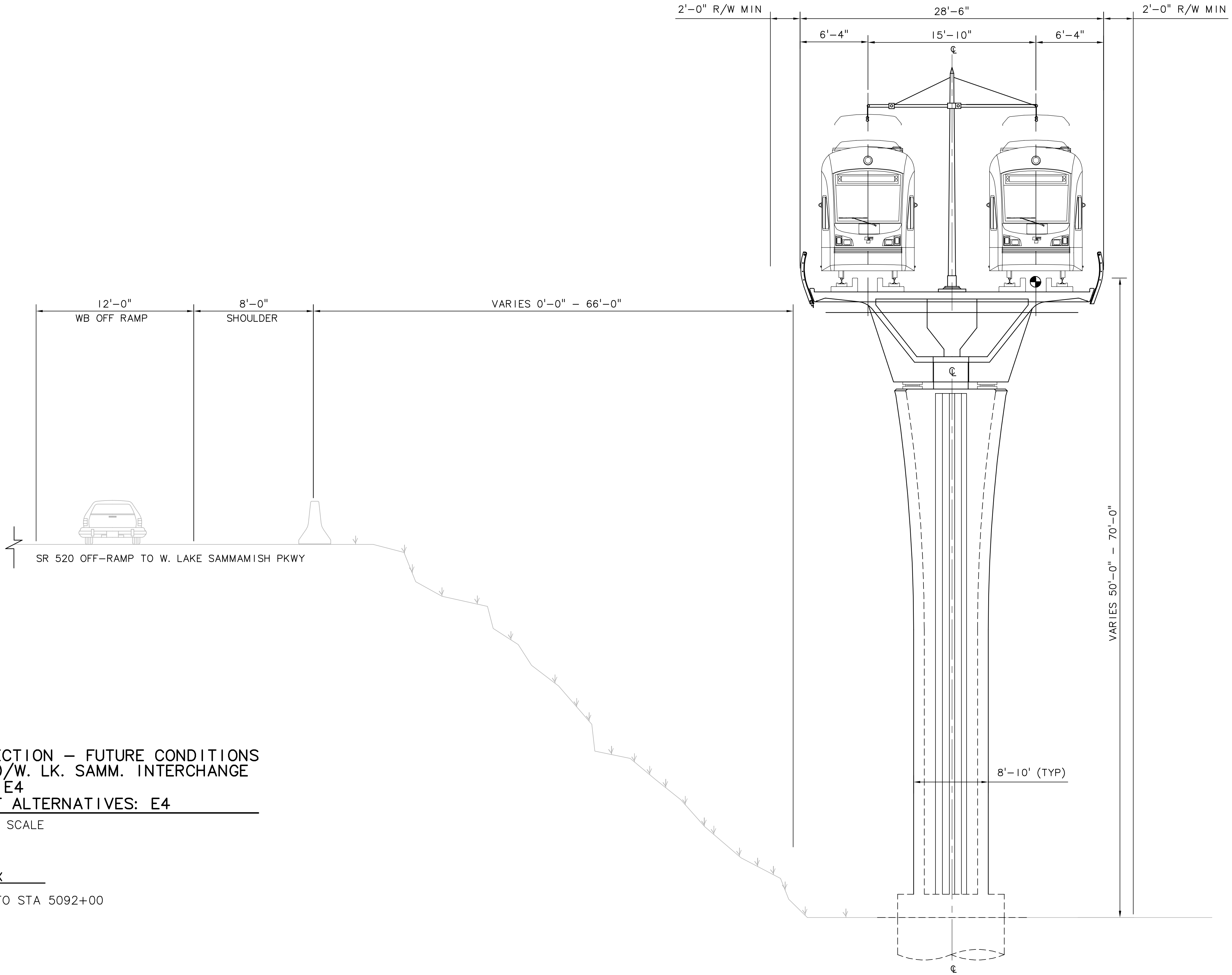
EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TRACK PLAN & PROFILE
INTERIM TERMINUS

THIS PRINT REDUCED HALF SCALE

Drawing No.: E4__KP09
Sheet No.: E-55
Rev.:

c:\work\ELEIE4__KP09.dwg
10/16/08 11:29 : eackerm OE5396

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


2'-0" R/W MIN
28'-6"
2'-0" R/W MIN
6'-4"
15'-10"
6'-4"
℄
12'-0"
WB OFF RAMP
8'-0"
SHOULDER
VARIES 0'-0" – 66'-0"
℄
SR 520 OFF-RAMP TO W. LAKE SAMMAMISH PKWY
VARIES 50'-0" – 70'-0"
8'-10' (TYP)
℄

TYPICAL SECTION – FUTURE CONDITIONS NEAR SR520/W. LK. SAMM. INTERCHANGE ALIGNMENT E4 TYPICAL OF ALTERNATIVES: E4

SCALE: NOT TO SCALE

LIMITS APPROX

STA 5088+00 TO STA 5092+00

c:\work\ELE1E4__KX01.dwg
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No.	Date	Dsn.	Chk.	App.	Revisions

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Drawn By:
Checked By:
Approved By:

FEIS CONCEPTUAL

CH2MHILL
IN ASSOCIATION WITH
PARSONS & INCA ENGINEERS INC.

Grijalva Engineering, L.L.C.

SOUNDTRANSIT

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Date:

Scale: NTS
Filename: ELE1E4__KX01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TYPICAL SECTION

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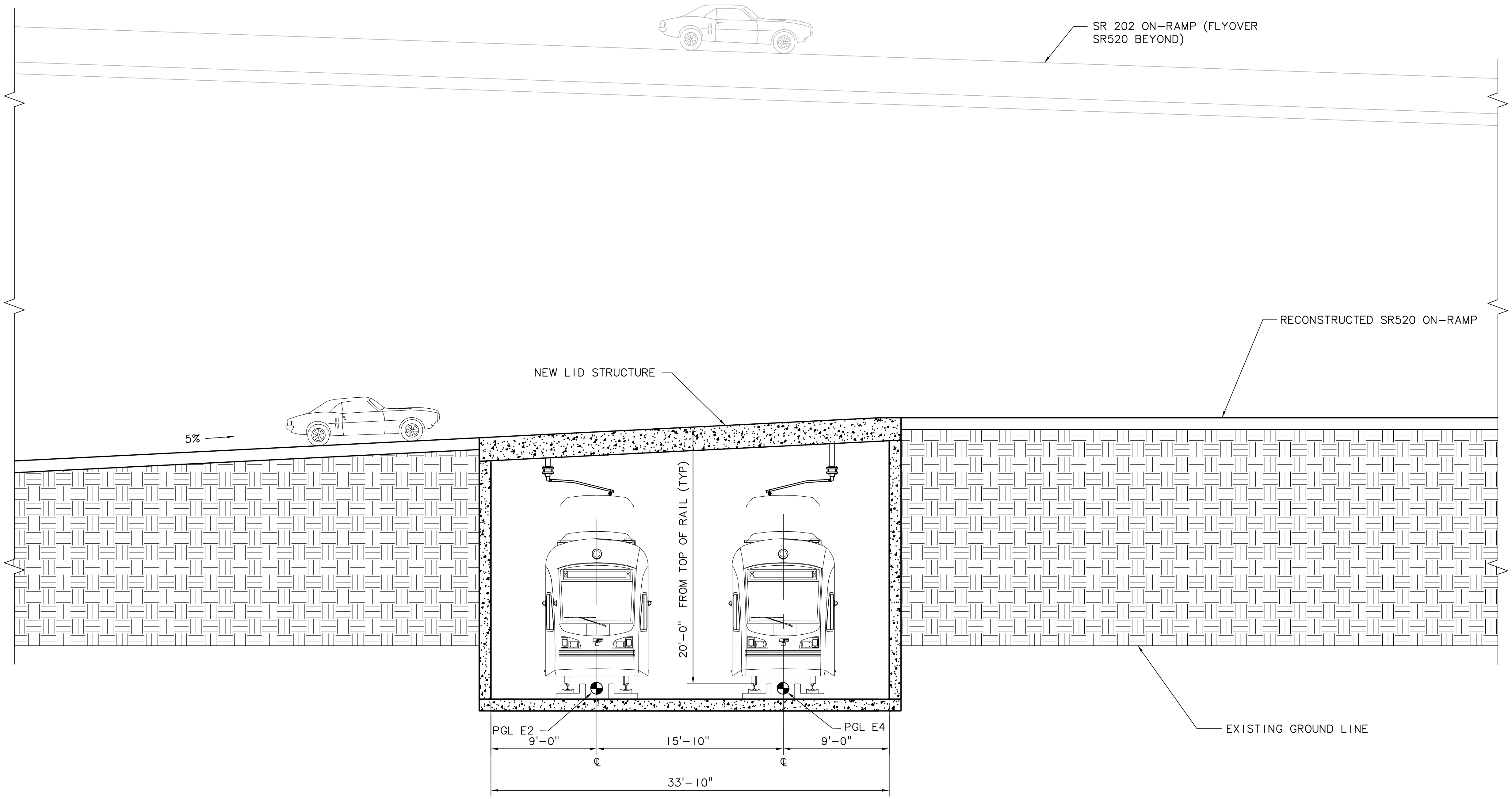
Drawing No.: E4_-KX01
Sheet No.: E-56
Rev.:

XREF'S
Resolved
REG-DCON
ZG-2234H
Unresolved
LTSCALE
1=1


SR 202 ON-RAMP (FLYOVER
SR520 BEYOND)
RECONSTRUCTED SR520 ON-RAMP
NEW LID STRUCTURE
5%
20'-0" FROM TOP OF RAIL (TYP)
PGL E2
PGL E4
9'-0"
15'-10"
9'-0"
℄
℄
33'-10"
EXISTING GROUND LINE

SECTION AT SR520 ONRAMP AT SR202 FLYOVER TYPICAL OF ALTERNATIVES E2 & E4 (LOOKING EAST)

SCALE: NOT TO SCALE

LIMITS

EB TRACK STA 5143+00 TO STA 5143+50 (E2)
EB TRACK STA 5148+40 TO STA 5148+90 (E4)

c:\work\ELE1E4__KX02.dwg
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Scale: NTS
Filename: ELE1E4__KX02.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
ALTERNATIVE E4
TYPICAL SECTION

THIS PRINT REDUCED
HALF SCALE

Drawing No.: E4_-KX02
Sheet No.: E-57
Rev.:

XREF'S

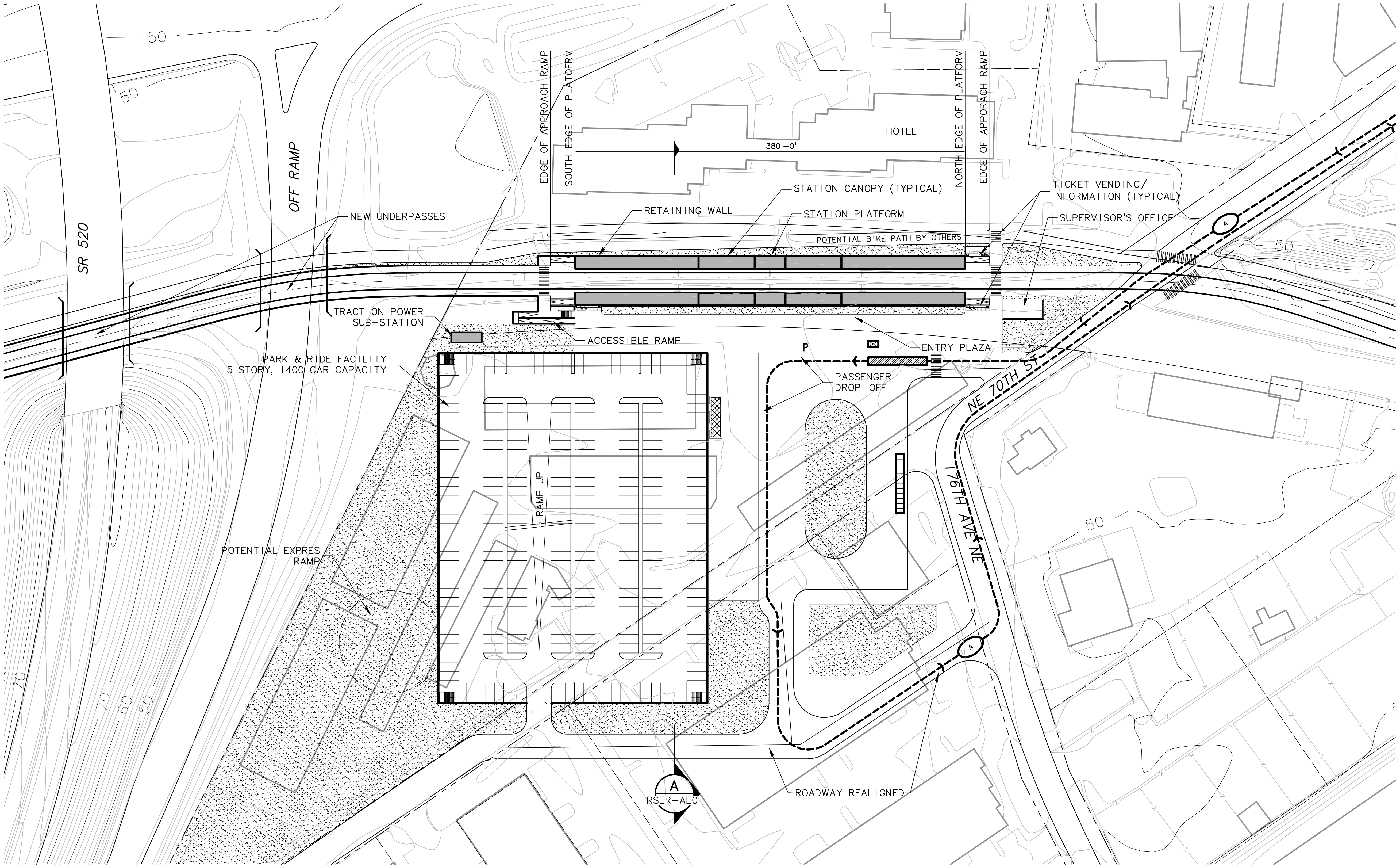
Resolved

ELE_E4__JO
ELE_E4__KA
ELE_RSERIAS
REG-DCON
ZG-2234H
x2646cn
x2646rx
x2646sf
x2649cn
x2649rx
x2649sf

Unresolved

LTSCALE

1=1



50
50
SR 520
OFF RAMP
NEW UNDERPASSES
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
380'-0"
HOTEL
NORTH EDGE OF PLATFORM
EDGE OF APPROACH RAMP
STATION CANOPY (TYPICAL)
RETAINING WALL
STATION PLATFORM
TICKET VENDING/ INFORMATION (TYPICAL)
SUPERVISOR'S OFFICE
POTENTIAL BIKE PATH BY OTHERS
A
50
TRACTION POWER SUB-STATION
ACCESSIBLE RAMP
ENTRY PLAZA
P
PARK & RIDE FACILITY 5 STORY, 1400 CAR CAPACITY
PASSENGER DROP-OFF
NE 70TH ST
RAMP UP
176TH AVE NE
50
POTENTIAL EXPRES RAMP
A
70
70
60
50
ROADWAY REALIGNED
A
RSER-AE01

NOTES/LEGEND HEADING

1. ALIGNMENT E4

SYMBOLS KEY

▬	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	BUS SHELTER
P	PARATRANSIT STOP
-Ⓐ-	BUS ROUTE : 269, 291
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▨	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

50 25 0 50 100

SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

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11/05/08 08:27 : eackerm OE5396

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IBI GROUP

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Submitted:

Date:

Approved:

Date:

Scale: 1"=50'

Filename: ELE1RSER_AS01.dwg

Contract No.: EL SEG_E

Date:

EAST LINK PROJECT
SEGMENT E

SE REDMOND STATION
BNSF RETAINED CUT STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: RSER-AS01

Sheet No.: E-58

Rev.:

XREF'S

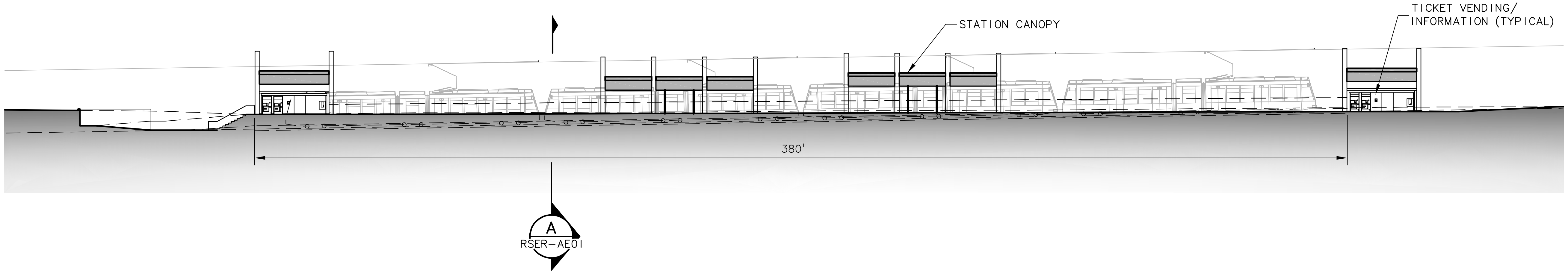
Resolved

ELE_RSER1AX
ELE_RSER1AE
REG-DCON
ZG-2234H

Unresolved

LTSCALE

1=1

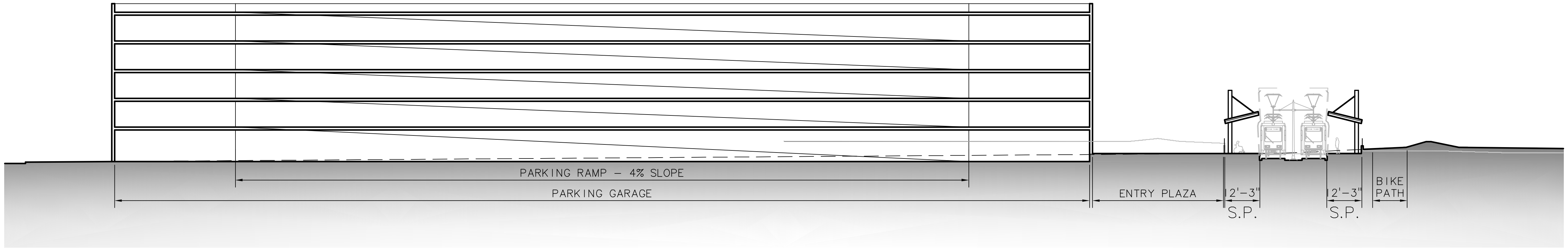


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'
A
RSER-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET



PARKING RAMP - 4% SLOPE
PARKING GARAGE
ENTRY PLAZA
12'-3"
S.P.
12'-3"
S.P.
BIKE
PATH

STATION SECTION

A
RSER-AE01

SCALE: 1' = 30'

30 15 0 30 60
SCALE IN FEET

c:\work\ELE1RSER_AE01.dwg
10/16/08 11:34 : eackerm OE5396

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Date:

Scale: 1"=20'
Filename: ELE1RSER_AE01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

SE REDMOND STATION
BNSF RETAINED CUT STATION
ELEVATION, SECTION

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HALF SCALE

Drawing No.: RSER-AE01
Sheet No.: E-59
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELE_E4__KA
ZG-2234H
x1434sf
x1437rx
x1437sf
x1734sf
x1737rx
x1737sf
x1740rx
x1740sf
x1743rx
x1743sf
x1746rx
x1746sf
x1749rx
x1749sf
x2037rx
x2037sf
x2040rx
x2040sf
x2043rx
x2043sf
x2046rx
x2046sf
x2049rx
x2049sf
x2052rx
x2052sf
x2346rx
x2346sf
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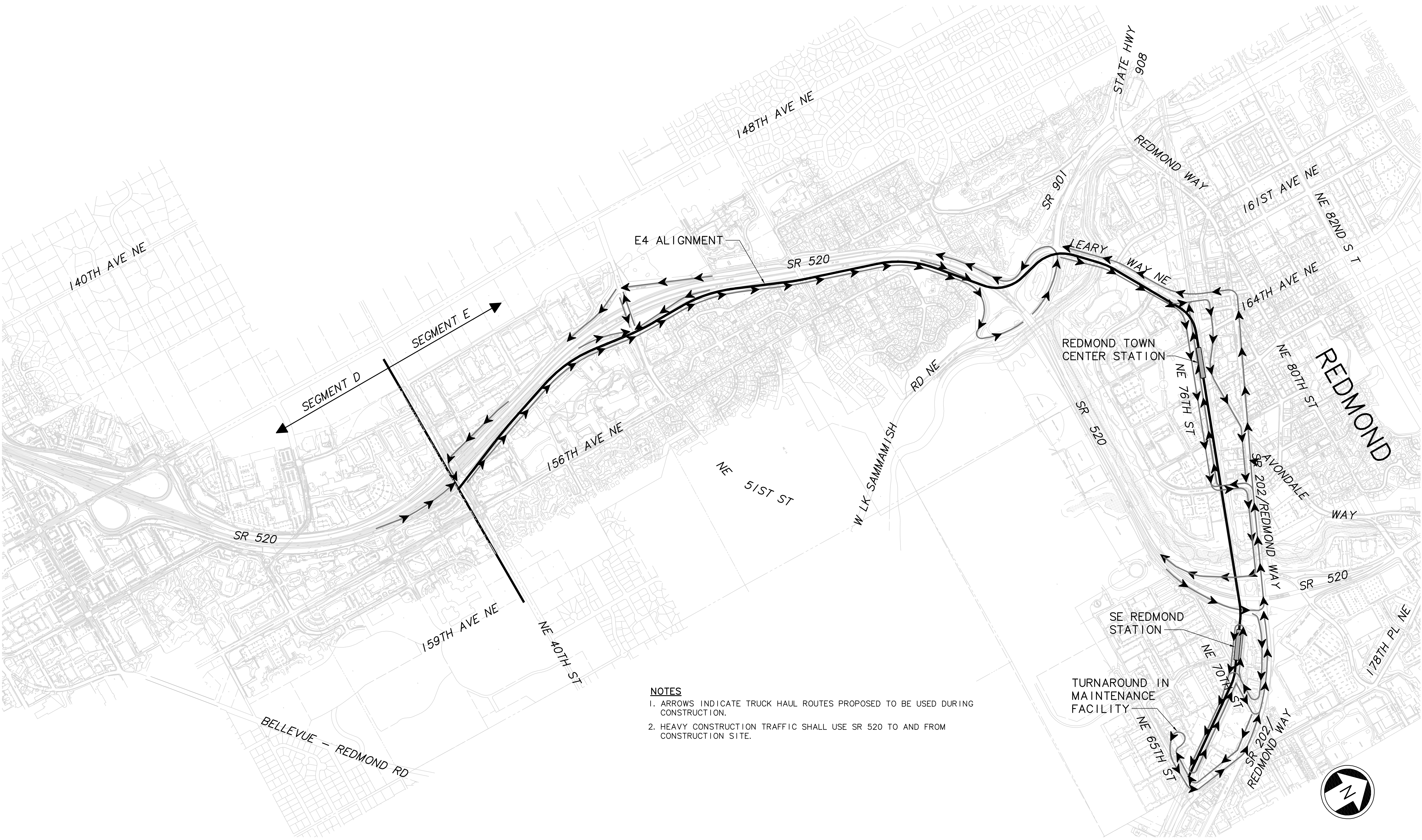
x2652rx
x2652sf
-Unresolved:


STATE HWY 908
148TH AVE NE
REDMOND WAY
SR 901
161ST AVE NE
NE 82ND ST
E4 ALIGNMENT
SR 520
LEARY WAY NE
164TH AVE NE
140TH AVE NE
SEGMENT E
SEGMENT D
REDMOND TOWN CENTER STATION
NE 76TH ST
NE 80TH ST
REDMOND
RD NE
W LK SAMMAMISH
SR 520
156TH AVE NE
NE 51ST ST
AVONDALE WAY
SR 202/REDMOND WAY
SR 520
SR 520
SE REDMOND STATION
NE 70TH ST
159TH AVE NE
NE 40TH ST
178TH PL NE
TURNAROUND IN MAINTENANCE FACILITY
NE 65TH ST
SR 202/ REDMOND WAY
BELLEVUE - REDMOND RD
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES PROPOSED TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE SR 520 TO AND FROM CONSTRUCTION SITE.

c:\work\feis\ELE_IE4__CC01.dwg
02/08/11 11:15 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

Scale: NTS
Filename: ELE_IE4__CC01.dwg
Contract No.:
Date: 07/30/10

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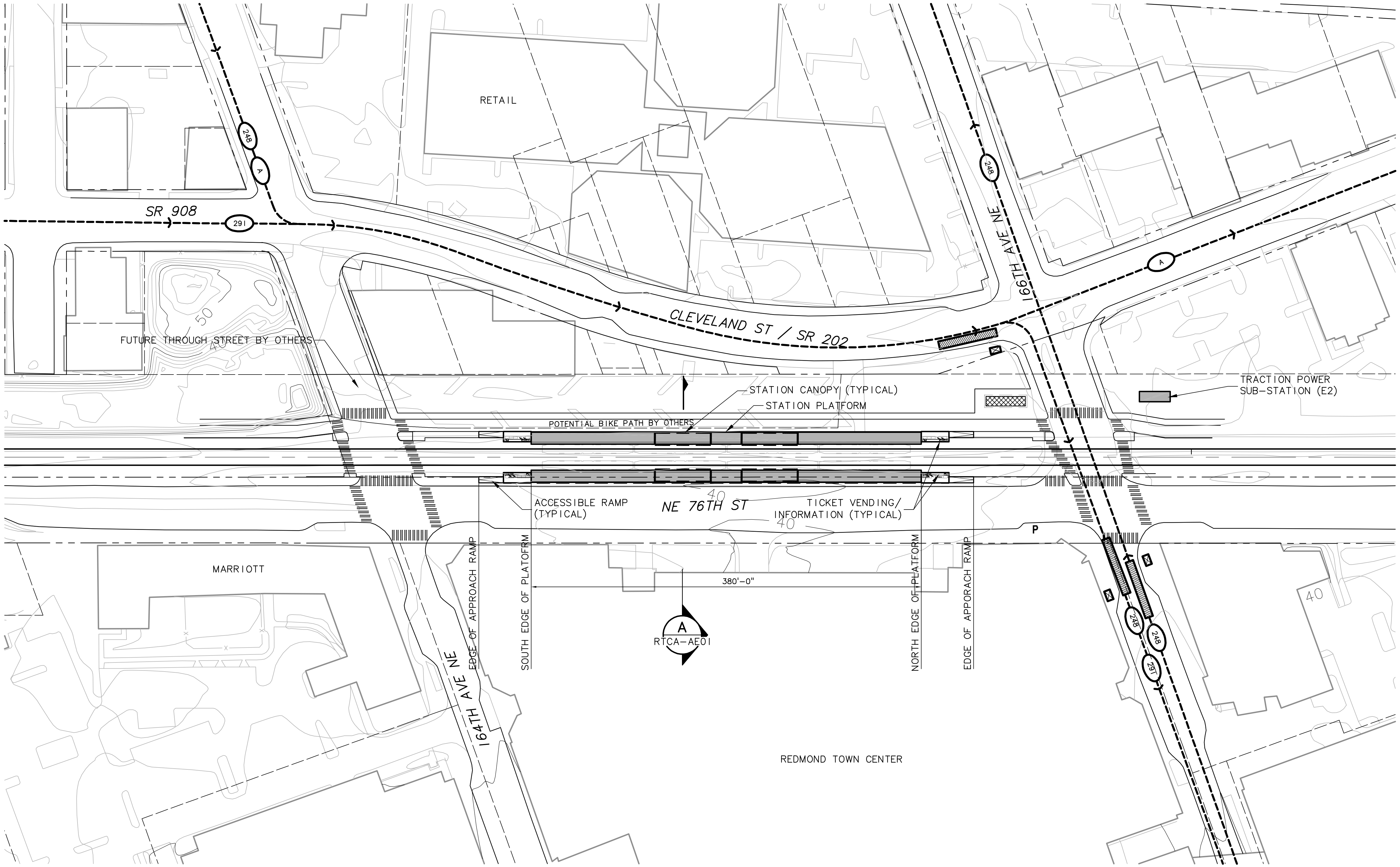
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT E
ALTERNATIVE E4
CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: E4__-CC01
Sheet No.: E-60
Rev.:

XREF'S
Resolved
ELE_E1__KA
ELE_E2__JO
ELE_RTCAIAS
REG-DCON
ZG-2234H
x2049cn
x2049rx
x2049sf
x2349cn
x2349rx
x2349sf
Unresolved
LTSCALE
1=1

NOTES/LEGEND HEADING

1. ALIGNMENTS E1, E2, AND E4



RETAIL
SR 908
291
248
A
CLEVELAND ST / SR 202
166TH AVE NE
FUTURE THROUGH STREET BY OTHERS
50
40
TRACTION POWER SUB-STATION (E2)
STATION CANOPY (TYPICAL)
STATION PLATFORM
POTENTIAL BIKE PATH BY OTHERS
ACCESSIBLE RAMP (TYPICAL)
NE 76TH ST
TICKET VENDING/ INFORMATION (TYPICAL)
P
MARRIOTT
380'-0"
EDGE OF APPROACH RAMP
SOUTH EDGE OF PLATFORM
NORTH EDGE OF PLATFORM
EDGE OF APPORACH RAMP
A
RTCA-AE01
164TH AVE NE
REDMOND TOWN CENTER

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	BUS SHELTER
P	PARATRANSIT STOP
291	BUS ROUTE
A	BUS ROUTE : 232, 929
▩	BIKE STORAGE
▩	BIKE SHELTER
▥	CROSSWALK
▨	LANDSCAPE
▭	TICKET VENDING/ INFORMATION
—	TRACK

N

50 25 0 50 100
SCALE IN FEET

STATION ACCESS PLAN

SCALE: 1" = 50'

c:\work\ELE1RTCA_AS01.dwg
10/16/08 11:37 : eackerm OE5396

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IBI GROUP

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Date:

Scale: 1"=50'
Filename: ELE1RTCA_AS01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

REDMOND TOWN CENTER STATION
AT-GRADE STATION
STATION ACCESS PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: RTCA-AS01
Sheet No.: E-61
Rev.:

XREF'S

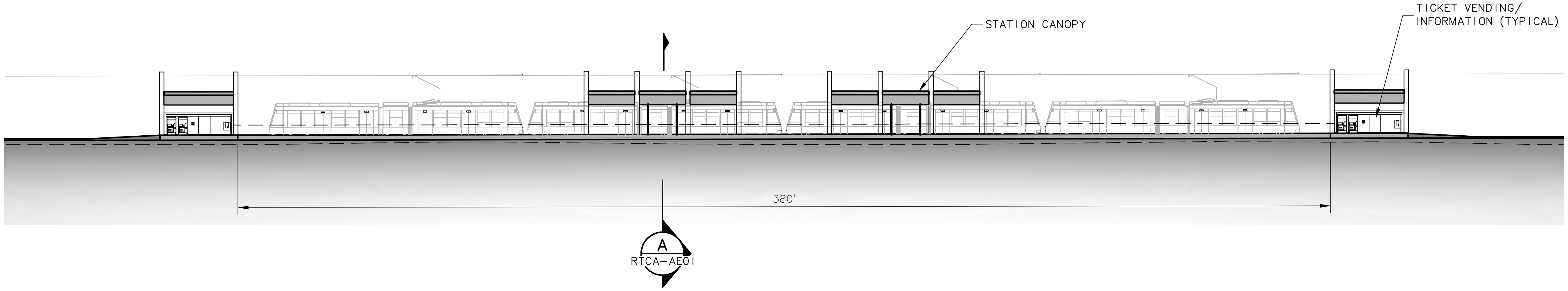
Resolved

ELE_RTCA1AX
ELE_RTCA1AE
REG-DCON
Zg-2234h

Unresolved

LTSCALE

1=1

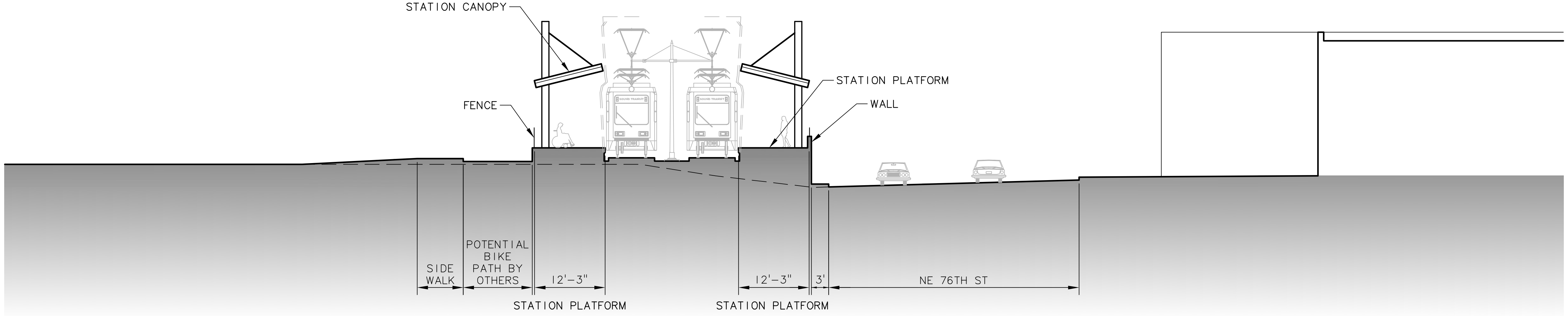


STATION CANOPY
TICKET VENDING/
INFORMATION (TYPICAL)
380'
A
RTCA-AE01

STATION ELEVATION

SCALE: 1" = 20'

20 10 0 20 40
SCALE IN FEET



STATION CANOPY
FENCE
STATION PLATFORM
WALL
SIDE WALK
POTENTIAL BIKE PATH BY OTHERS
12'-3"
12'-3"
3'
NE 76TH ST
STATION PLATFORM
STATION PLATFORM

STATION SECTION A RTCA-AE01

SCALE: 1' = 10'

10 5 0 10 20
SCALE IN FEET

c:\work\ELE1RTCA_AE01.dwg
10/16/08 11:36 : eackerm OE5396

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Date:

Scale: 1"=20'
Filename: ELE1RTCA_AE01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E

REDMOND TOWN CENTER STATION
AT-GRADE STATION
ELEVATION, SECTION

THIS PRINT REDUCED HALF SCALE

Drawing No.: RTCA-AE01
Sheet No.: E-62
Rev.:

XREF'S

Resolved
----
x2346UT
x2349UT
x2646UT
x2649UT
ELE_E1__KA
ELE_E1__MF
ELE_E1__US
REG-DCON
Zg-2234h
x2346rx
x2346sf
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf

Unresolved
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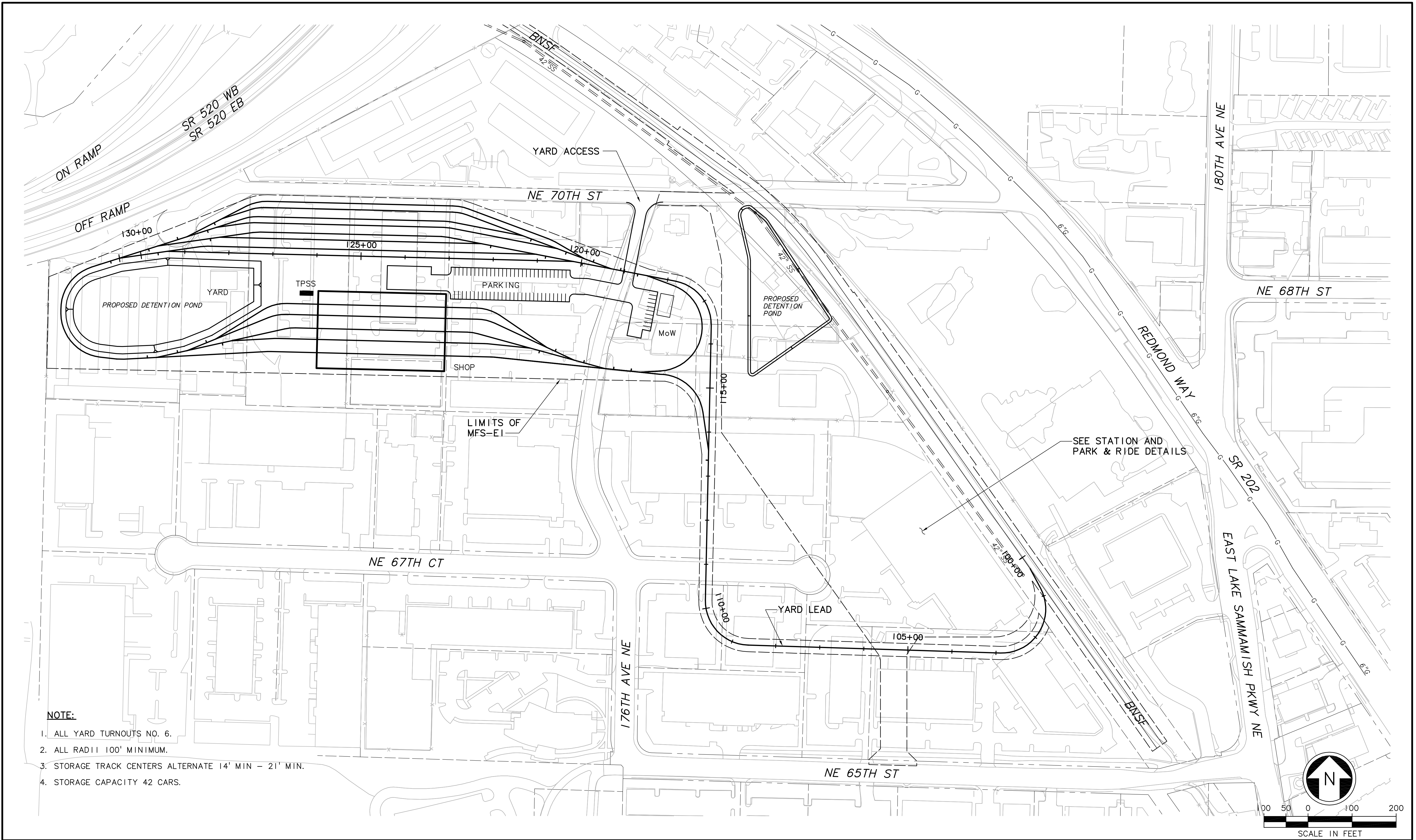
key_East
x2346cn
x2349cn
x2649cn

LTSCALE

1=1



BNSF
42" SS
SR 520 WB
SR 520 EB
ON RAMP
OFF RAMP
YARD ACCESS
NE 70TH ST
130+00
125+00
120+00
115+00
110+00
105+00
100+00
PROPOSED DETENTION POND
YARD
TPSS
PARKING
MoW
SHOP
PROPOSED DETENTION POND
LIMITS OF MFS-E1
NE 67TH CT
176TH AVE NE
YARD LEAD
NE 65TH ST
SEE STATION AND PARK & RIDE DETAILS
REDMOND WAY
SR 202
EAST LAKE SAMMAMISH PKWY NE
NE 68TH ST
180TH AVE NE
6"G
G
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 42 CARS.

c:\work\ELE1E1__MP01.dwg
10/16/08 11:18 : eackerm OE5396

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Date:

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Scale: 1"=100'
Filename: ELE1E1__MP01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
MAINTENANCE FACILITY
MF5 - E1
LAYOUT AND SITE PLAN

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Drawing No.: E1_-MP01
Sheet No.: E-63
Rev.:

XREF'S

Resolved
----
x2346UT
x2349UT
x2646UT
x2649UT
ELE_E2__KA
ELE_E2__MF
ELE_E2__US
REG-DCON
Zg-2234h
x2346rx
x2346sf
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf

Unresolved
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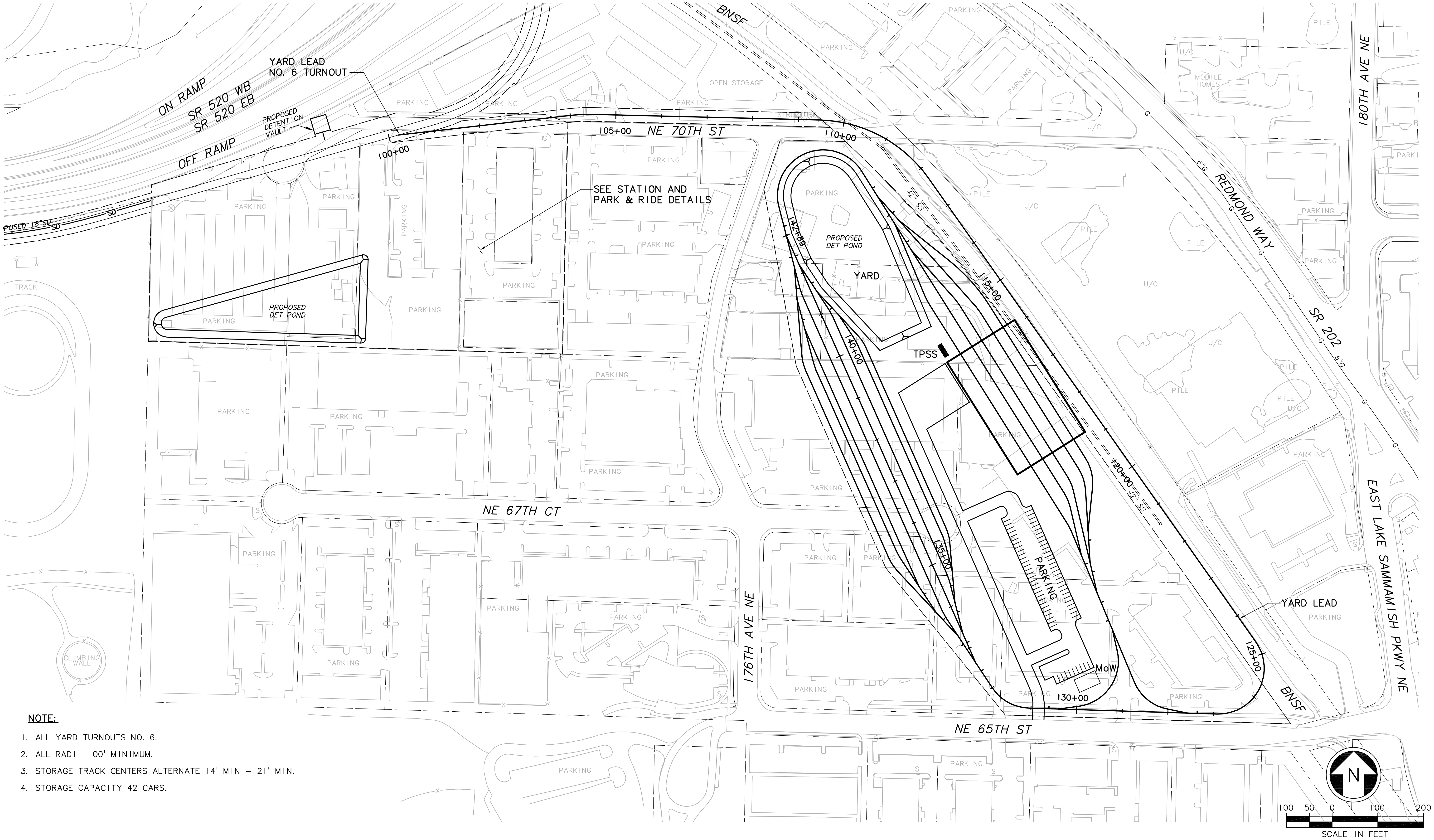
key_East
x2346cn
x2349cn
x2649cn

LTSCALE

1=1


1
2
3
4
5
YARD LEAD
NO. 6 TURNOUT
ON RAMP
SR 520 WB
SR 520 EB
OFF RAMP
PROPOSED
DETENTION
VAULT
POSED 18"SD
SD
BNSF
OPEN STORAGE
NE 70TH ST
105+00
100+00
110+00
SEE STATION AND
PARK & RIDE DETAILS
PROPOSED
DET POND
YARD
142+89
115+00
TPSS
140+00
120+00
42" SS
135+00
PARKING
MoW
130+00
125+00
YARD LEAD
REDMOND WAY
SR 202
180TH AVE NE
EAST LAKE SAMMAMISH PKWY NE
176TH AVE NE
NE 67TH CT
NE 65TH ST
TRACK
CLIMBING
WALL
MOBILE
HOMES
PILE
U/C
PARKING
N
100
50
0
100
200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN – 21' MIN.
4. STORAGE CAPACITY 42 CARS.

c:\work\ELE1E2__MP01.dwg
10/16/08 11:25 : eackerm OE5396

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Date:
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Date:

SOUNDTRANSIT

Scale: 1"=100'
Filename: ELE1E2__MP01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
MAINTENANCE FACILITY
MF5 – E2

LAYOUT AND SITE PLAN

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Drawing No.: E2_–MP01
Sheet No.: E-64
Rev.:

XREF'S

Resolved
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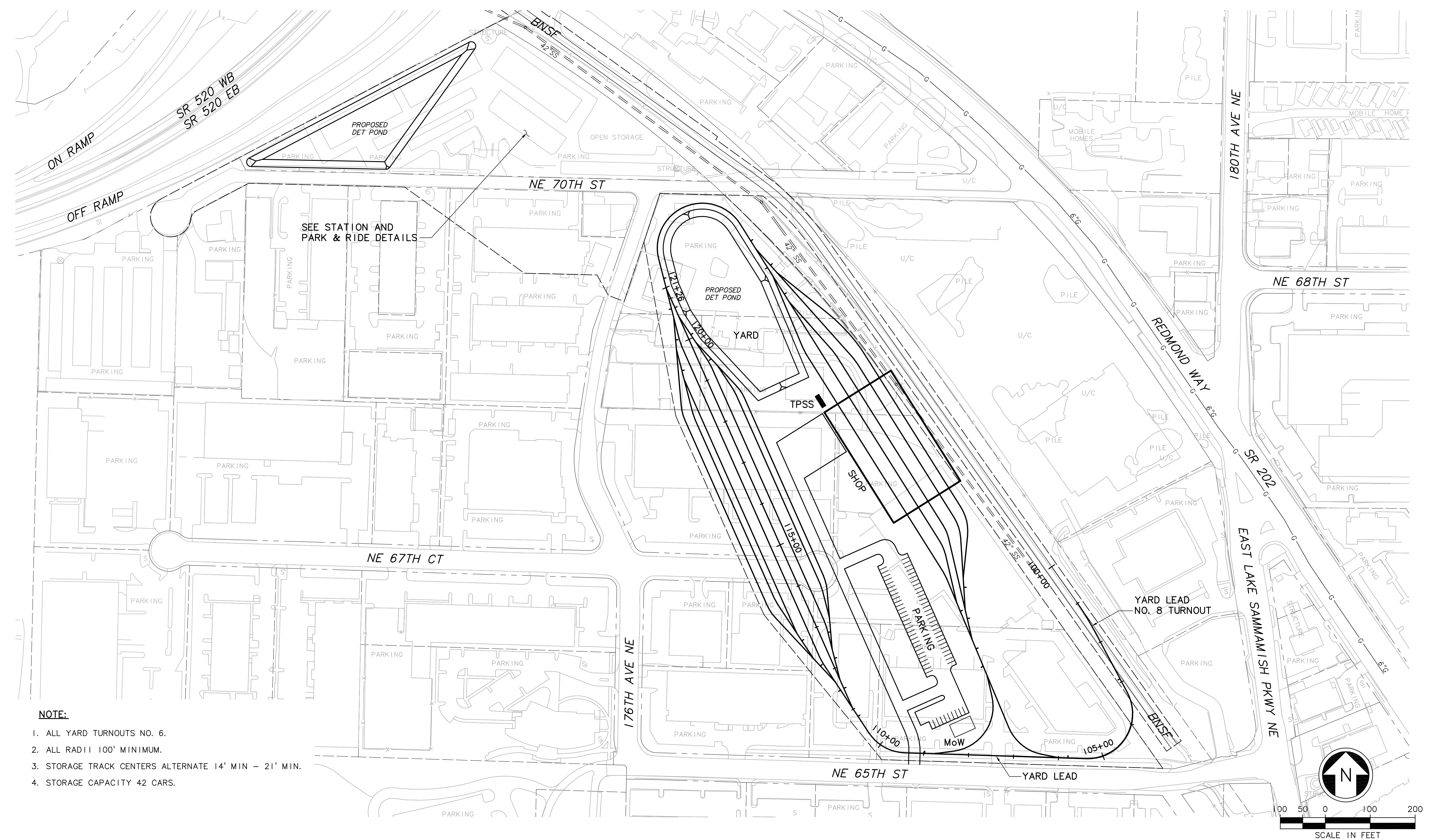
x2346UT
x2349UT
x2646UT
x2649UT
ELE_E4__KA
ELE_E4__MF
ELE_E4__US
REG-DCON
Zg-2234h
x2346rx
x2346sf
x2349rx
x2349sf
x2646rx
x2646sf
x2649rx
x2649sf

Unresolved
----
key_East
x2346cn
x2349cn
x2649cn

LTSCALE

1=1

c:\work\ELEIE4__MP01.dwg
10/16/08 11:30 : eackerm OE5396



SR 520 WB
SR 520 EB
ON RAMP
OFF RAMP
BNSF
42" SS
STRUCTURE
PROPOSED DET POND
PARKING
OPEN STORAGE
NE 70TH ST
SEE STATION AND PARK & RIDE DETAILS
PROPOSED DET POND
YARD
121+26
120+00
TPSS
SHOP
115+00
110+00
105+00
100+00
PARKING
MoW
YARD LEAD NO. 8 TURNOUT
YARD LEAD
NE 67TH CT
176TH AVE NE
NE 65TH ST
NE 68TH ST
180TH AVE NE
REDMOND WAY
SR 202
EAST LAKE SAMMAMISH PKWY NE
PILE
U/C
MOBILE HOMES
MOBILE HOME
6"G
G
N
100 50 0 100 200
SCALE IN FEET

NOTE:

1. ALL YARD TURNOUTS NO. 6.
2. ALL RADII 100' MINIMUM.
3. STORAGE TRACK CENTERS ALTERNATE 14' MIN - 21' MIN.
4. STORAGE CAPACITY 42 CARS.

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SOUNDTRANSIT

Scale: 1"=100'
Filename: ELEIE4__MP01.dwg
Contract No.: EL SEG_E
Date:

EAST LINK PROJECT
SEGMENT E
MAINTENANCE FACILITY
MF5 - E4

LAYOUT AND SITE PLAN

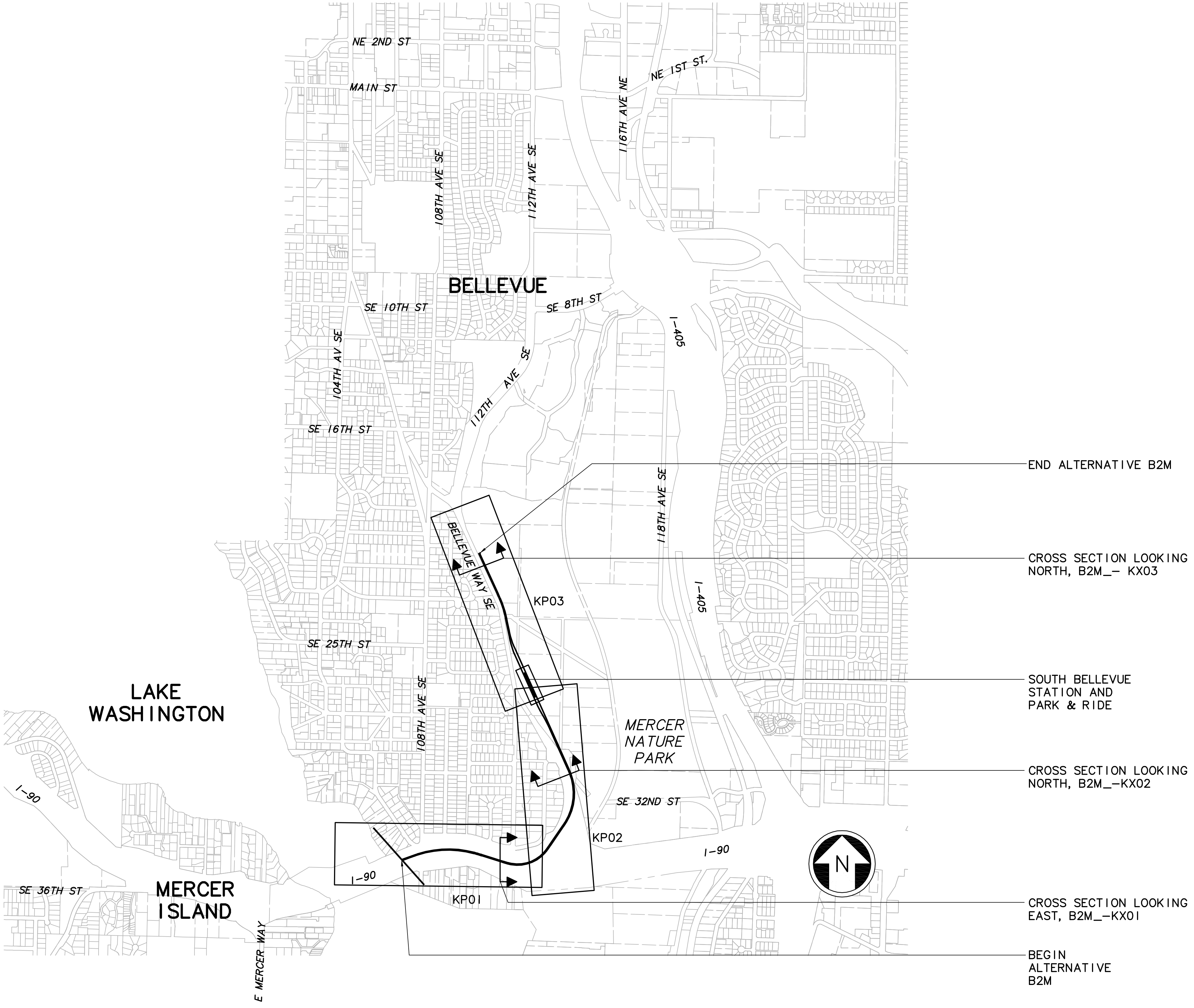
THIS PRINT REDUCED HALF SCALE

Drawing No.: E4_-MP01
Sheet No.: E-65
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELB_L65_KA-100
SUB-SDEIS
ZG-2234H
x0216rx
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
x0819rx
x0822rx
x0825rx
x0828rx
x9316rx
x9319rx
x9322rx
x9616rx
x9619rx
x9916rx
x9919rx
-Unresolved:
key_Segment


NE 2ND ST
MAIN ST
NE 1ST ST.
116TH AVE NE
108TH AVE SE
112TH AVE SE
BELLEVUE
SE 10TH ST
SE 8TH ST
I-405
104TH AV SE
112TH AVE SE
SE 16TH ST
118TH AVE SE
BELLEVUE WAY SE
KP03
I-405
SE 25TH ST
LAKE WASHINGTON
108TH AVE SE
MERCER NATURE PARK
I-90
SE 32ND ST
KP02
I-90
N
I-90
SE 36TH ST
MERCER ISLAND
KP01
E MERCER WAY
END ALTERNATIVE B2M
CROSS SECTION LOOKING NORTH, B2M_- KX03
SOUTH BELLEVUE STATION AND PARK & RIDE
CROSS SECTION LOOKING NORTH, B2M_-KX02
CROSS SECTION LOOKING EAST, B2M_-KX01
BEGIN ALTERNATIVE B2M

c:\work\sdeis\ELB_IB2M_GZ05.dwg
10/04/10 13:10 : bolimaf OE6579

No.	Date	Dsn.	Chk.	App.	Revisions

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Date:

Scale: NTS

Filename: ELB_IB2M_GZ05.dwg

Contract No.:

Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M (PREFERRED)

KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B2M_-GZ05

Sheet No.: B-2

Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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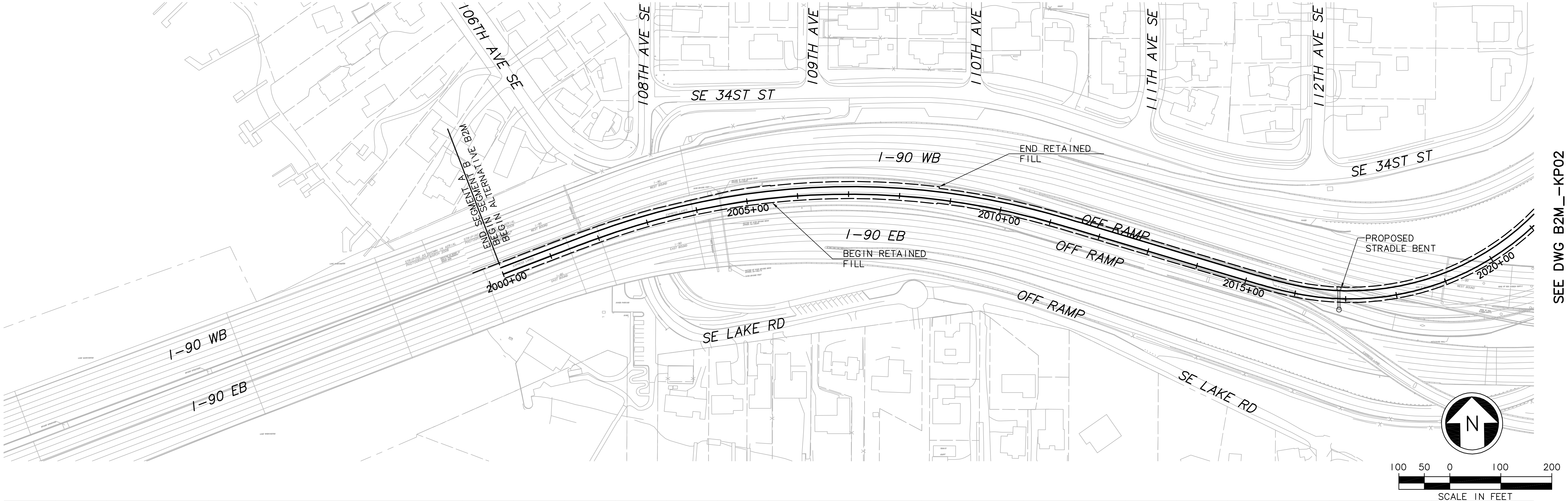
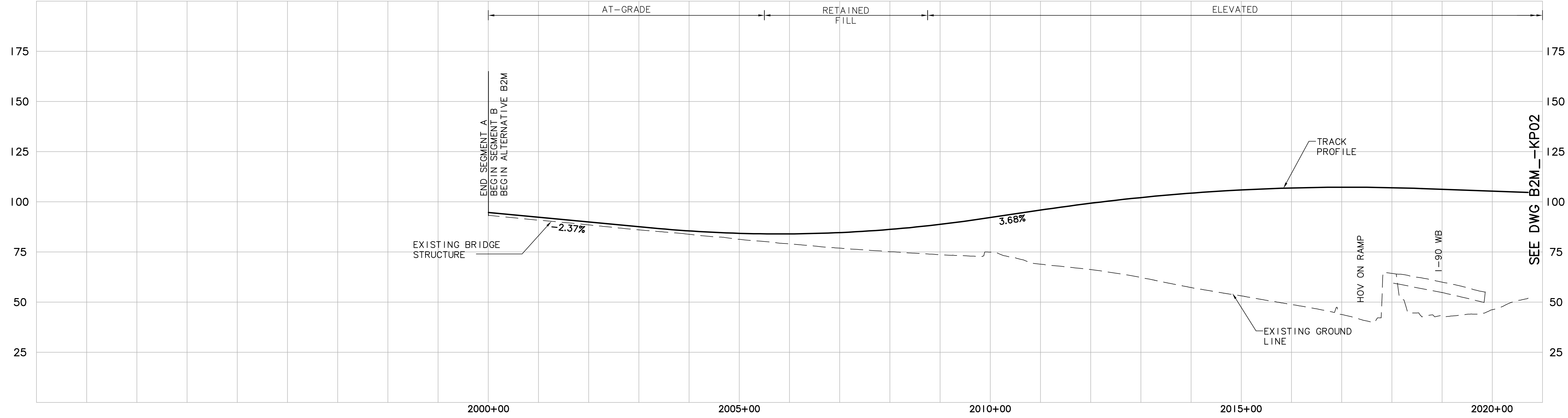
zg-2234h
zg-g10010
-Overlay:
ELB_L65_KA-100
SUB-SDEIS
x0216rx
x0216sf
x0516rx
x0516sf
-Unresolved:
ELB_L65_SP
ELB_L65_SP-100
key_East



109TH AVE SE
108TH AVE SE
109TH AVE
110TH AVE
111TH AVE SE
112TH AVE SE
SE 34ST ST
SE 34ST ST
END SEGMENT A
BEGIN SEGMENT B
BEGIN ALTERNATIVE B2M
I-90 WB
I-90 EB
END RETAINED FILL
BEGIN RETAINED FILL
2000+00
2005+00
2010+00
2015+00
2020+00
OFF RAMP
OFF RAMP
OFF RAMP
SE LAKE RD
SE LAKE RD
PROPOSED STRADLE BENT
SEE DWG B2M_-KP02
N
100 50 0 100 200
SCALE IN FEET



c:\work\sdeis\ELB_IB2M_KP01.DWG
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H: 1"=100'; V: 1"=25'

Filename:
ELB_IB2M_KP01.DWG

Contract No.:

Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M (PREFERRED)
TRACK PLAN & PROFILE

THIS PRINT REDUCED HALF SCALE

Drawing No.:
B2M_-KP01

Sheet No.: B-3
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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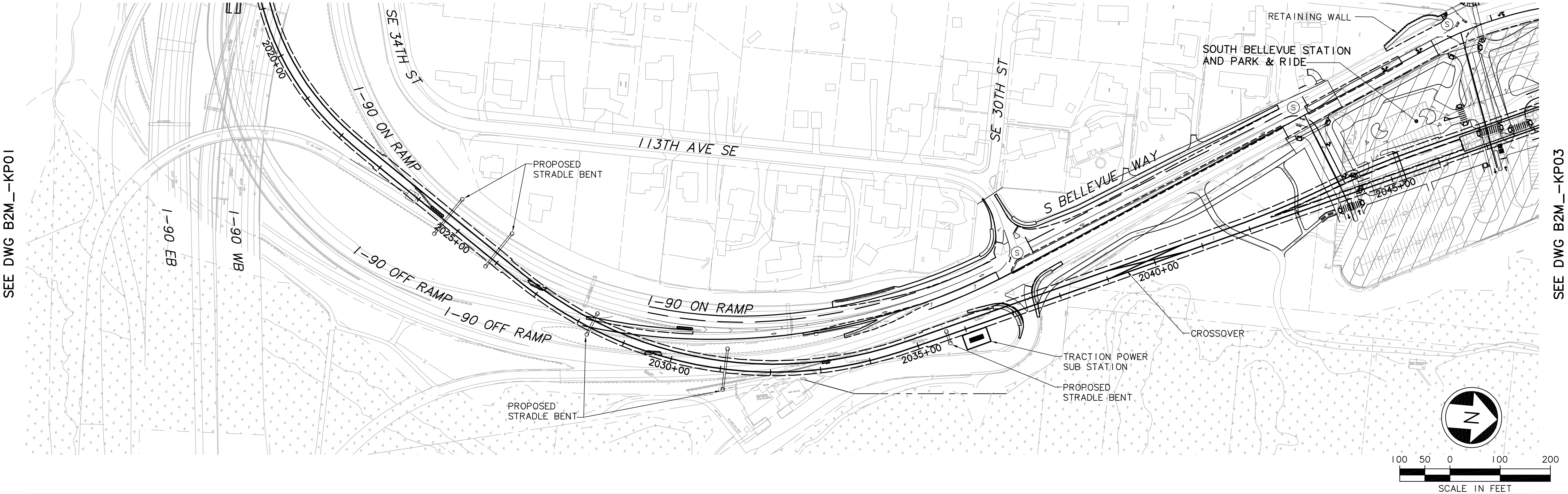
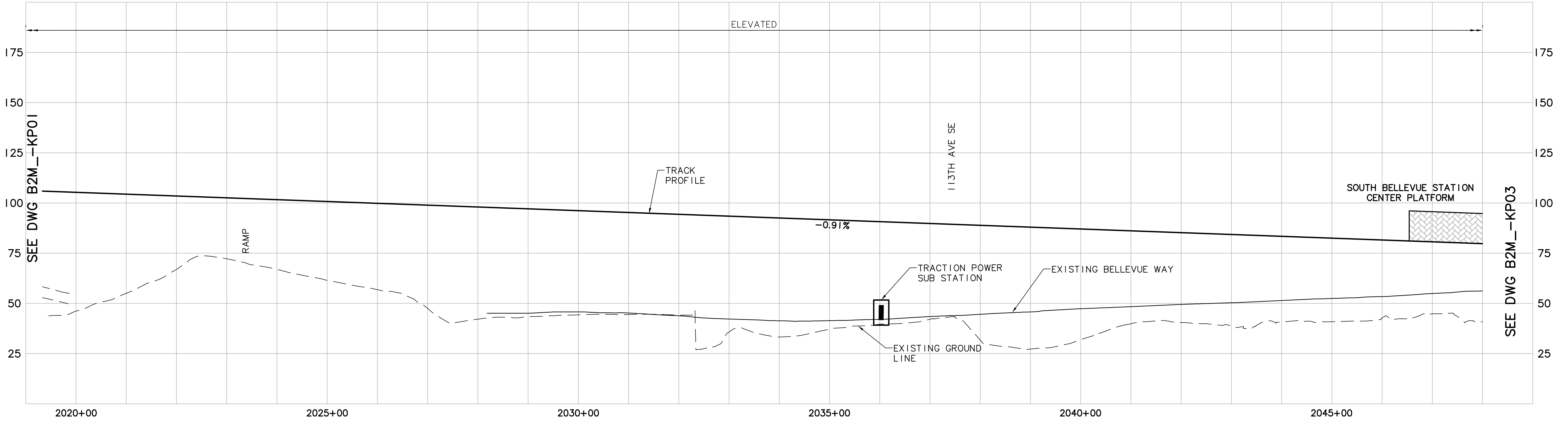
zg-g10010
-Overlay:
ELB_L65_CA-100
ELB_L65_CM-100
ELB_L65_JO-100
ELB_L65_KA-100
SUB-SDEIS
x0516rx
x0516sf
x0519rx
x0519sf
-Unresolved:
ELB_L65_SP
ELB_L65_SP-100
key_East

c:\work\sdeis\ELB_IB2M_KP02.dwg
10/04/10 13:11 : bolimaf OE6579



SEE DWG B2M_-KP01
SEE DWG B2M_-KP03
SE 34TH ST
SE 30TH ST
113TH AVE SE
S BELLEVUE WAY
I-90 ON RAMP
I-90 ON RAMP
I-90 OFF RAMP
I-90 OFF RAMP
I-90 EB
I-90 WB
RETAINING WALL
SOUTH BELLEVUE STATION AND PARK & RIDE
PROPOSED STRADLE BENT
PROPOSED STRADLE BENT
PROPOSED STRADLE BENT
TRACTION POWER SUB STATION
CROSSOVER
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00
N
100 50 0 100 200
SCALE IN FEET



ELEVATED
SEE DWG B2M_-KP01
SEE DWG B2M_-KP03
175
150
125
100
75
50
25
TRACK PROFILE
-0.91%
113TH AVE SE
RAMP
SOUTH BELLEVUE STATION CENTER PLATFORM
TRACTION POWER SUB STATION
EXISTING BELLEVUE WAY
EXISTING GROUND LINE
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00

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Checked By:
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Scale: H: 1"=100'; V: 1"=25'
Filename: ELB_IB2M_KP02.dwg
Contract No.:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)
TRACK PLAN & PROFILE

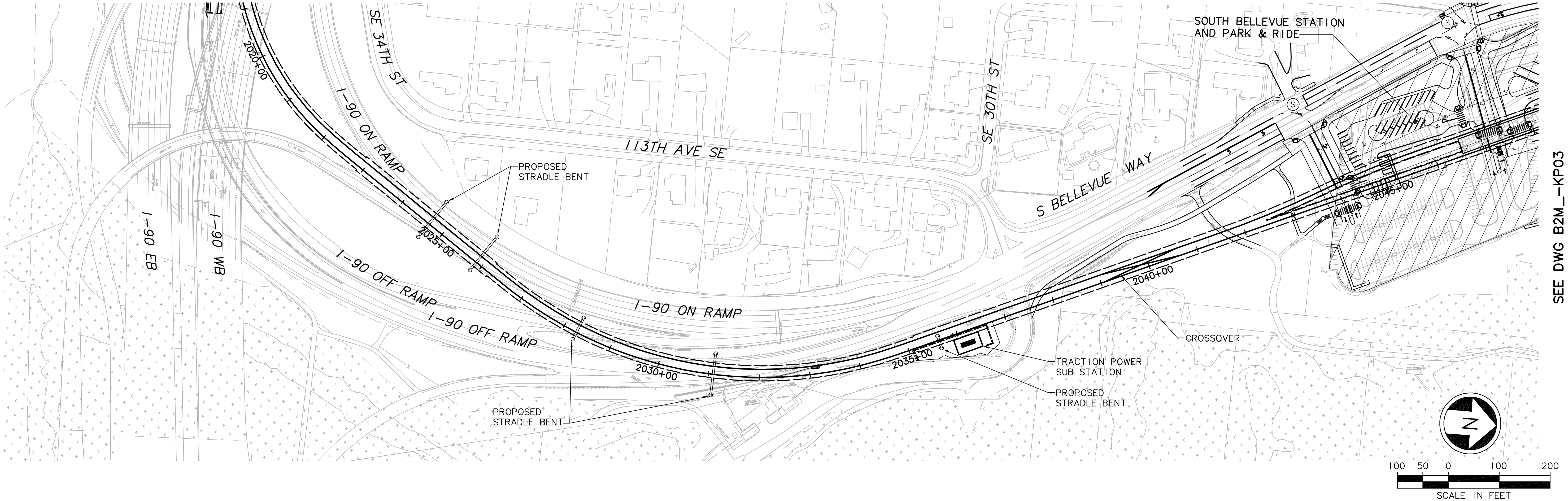
Drawing No.: B2M_-KP02
Sheet No.: B-4
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
zg–2234h
zg–g10010
–Overlay:
ELB_L65_CA–A
ELB_L65_CM–A
ELB_L65_JO–100
ELB_L65_KA–100
x0516rx
x0516sf
x0519rx
x0519sf
–Unresolved:
ELB_L65_CA–100
ELB_L65_CM–100
ELB_L65_SP
ELB_L65_SP–100
key_East

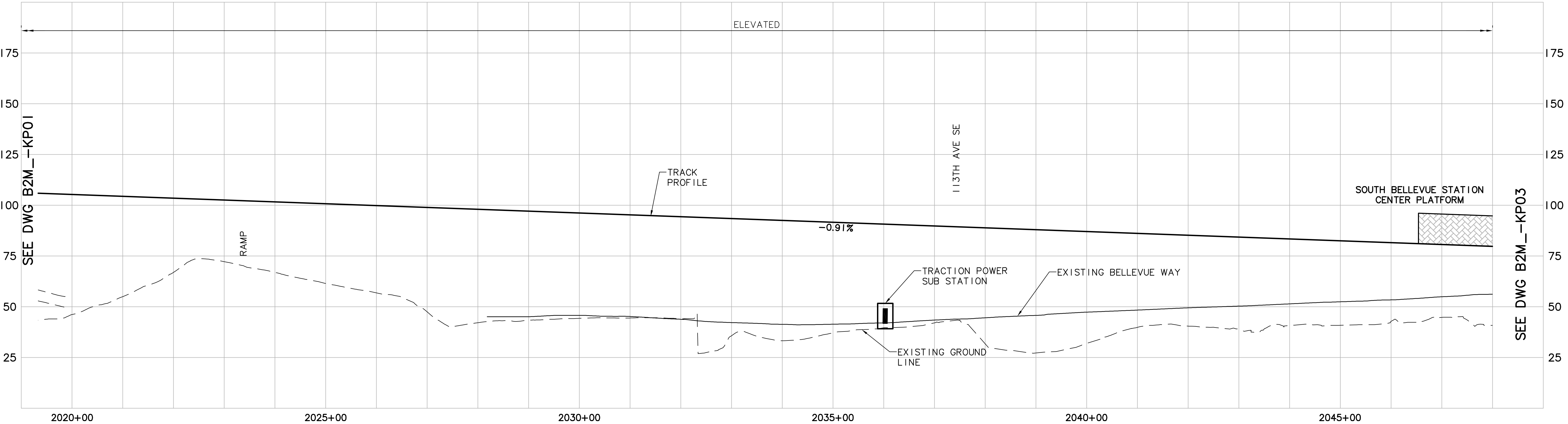
SEE DWG B2M_–KP01



SE 34TH ST
SE 30TH ST
113TH AVE SE
S BELLEVUE WAY
SOUTH BELLEVUE STATION AND PARK & RIDE
I–90 ON RAMP
I–90 ON RAMP
I–90 OFF RAMP
I–90 OFF RAMP
I–90 EB
I–90 WB
PROPOSED STRADLE BENT
PROPOSED STRADLE BENT
PROPOSED STRADLE BENT
TRACTION POWER SUB STATION
CROSSOVER
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00
N
100 50 0 100 200
SCALE IN FEET

SEE DWG B2M_–KP03

SEE DWG B2M_–KP01



ELEVATED
175
150
125
100
75
50
25
TRACK PROFILE
–0.91%
RAMP
113TH AVE SE
SOUTH BELLEVUE STATION CENTER PLATFORM
TRACTION POWER SUB STATION
EXISTING BELLEVUE WAY
EXISTING GROUND LINE
2020+00
2025+00
2030+00
2035+00
2040+00
2045+00

SEE DWG B2M_–KP03

c:\work\feis\ELB_IB2M_KP02A.dwg
02/22/11 15:51 : bolimaf OE6579

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BOLIMA DRAFTING & DESIGN INC.

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Filename:
ELB_IB2M_KP02A.dwg
Contract No.:
Date:
02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)

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TRACK PLAN & PROFILE
ALTERNATIVE CHANNELIZATION

Drawing No.:
B2M_–KP02A
Sheet No.:
B-5
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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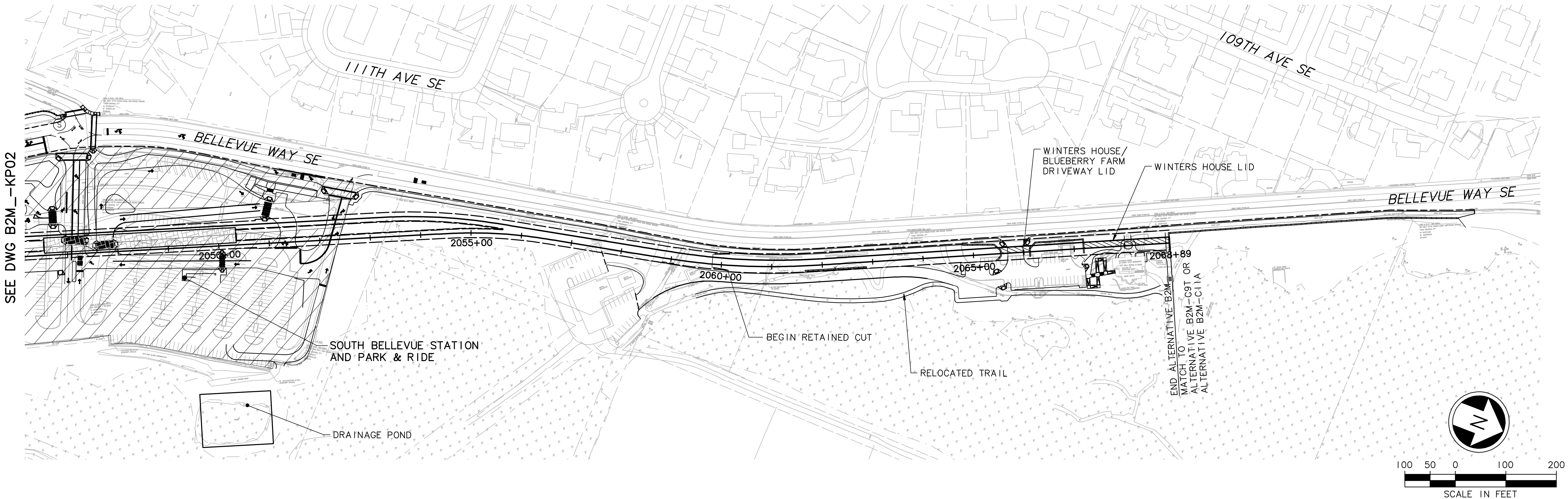
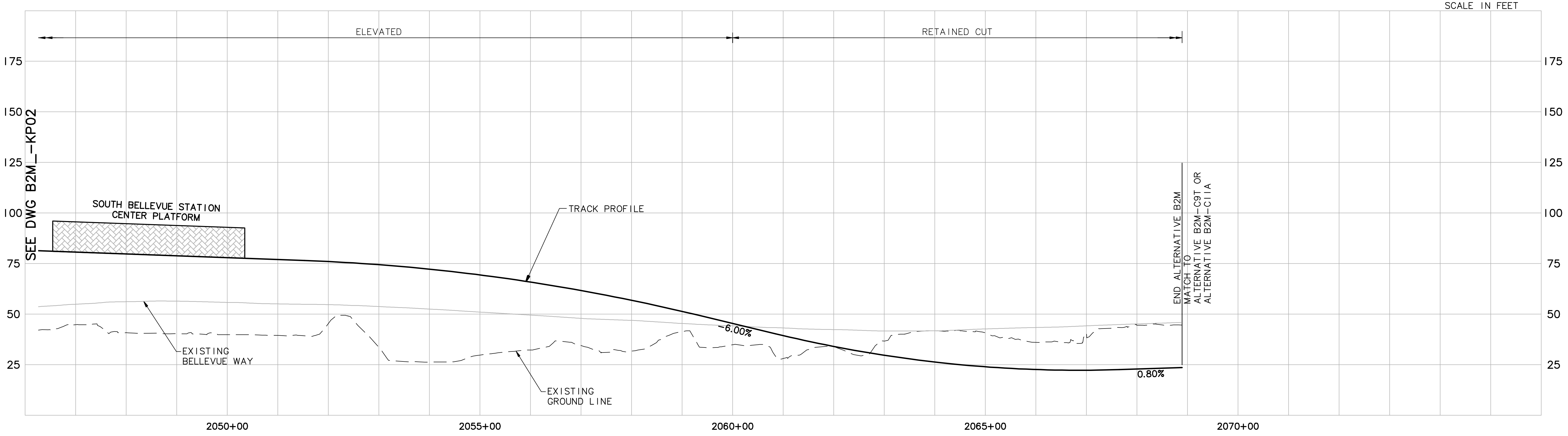
zg-g10010
-Overlay:
ELB_L65_CA-100
ELB_L65_CM-100
ELB_L65_JO-100
ELB_L65_KA-100
x0219rx
x0219sf
x0222rx
x0222sf
x0519rx
x0519sf
x0522rx
x0522sf
-Unresolved:
ELB_L65_UC
ELB_L65_US
key_East



SEE DWG B2M_-KP02
111TH AVE SE
109TH AVE SE
BELLEVUE WAY SE
BELLEVUE WAY SE
WINTERS HOUSE/ BLUEBERRY FARM DRIVEWAY LID
WINTERS HOUSE LID
2055+00
2050+00
2060+00
2065+00
2068+89
SOUTH BELLEVUE STATION AND PARK & RIDE
BEGIN RETAINED CUT
RELOCATED TRAIL
END ALTERNATIVE B2M MATCH TO ALTERNATIVE B2M-C9T OR ALTERNATIVE B2M-C11A
DRAINAGE POND
N
100 50 0 100 200
SCALE IN FEET



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Filename: ELB_IB2M_KP03.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)

TRACK PLAN & PROFILE

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Drawing No.: B2M_-KP03
Sheet No.: B-6
Rev.:

c:\work\feis\segment b\b2m\ELB_IB2M_KP03.dwg
04/14/11 09:34 : khuum OE6585

DWG INFO:

LTSCALE:
1=1

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-Overlay:
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SUB-SDEIS
ZG-2234H
x0216rx
x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
x0819rx
x0822rx
x0825rx
x0828rx
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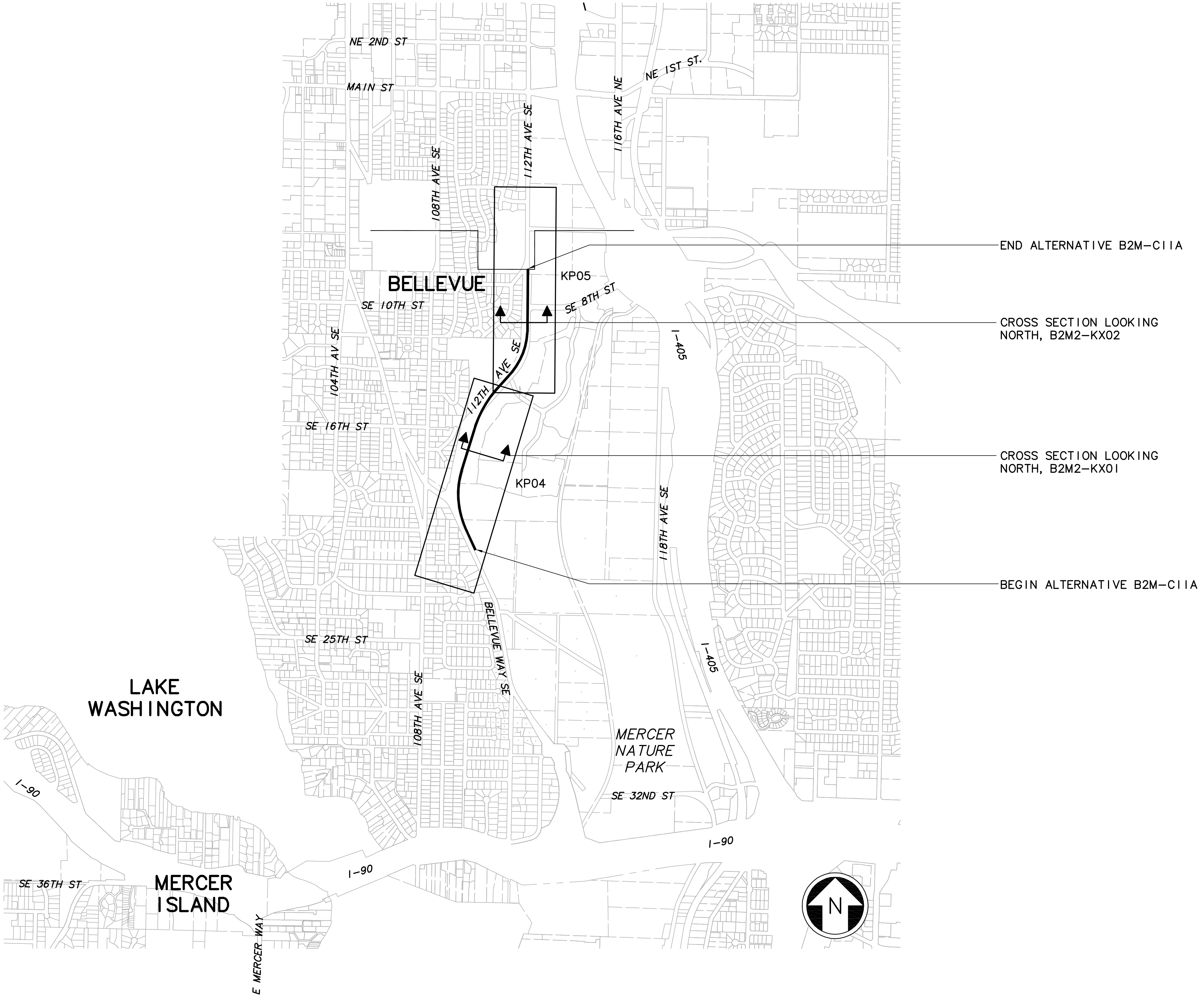
x9319rx
x9322rx
x9616rx
x9619rx
x9916rx
x9919rx
-Unresolved:
key_Segment


NE 2ND ST
MAIN ST
NE 1ST ST.
116TH AVE NE
112TH AVE SE
108TH AVE SE
BELLEVUE
KP05
SE 8TH ST
SE 10TH ST
104TH AV SE
112TH AVE SE
I-405
SE 16TH ST
KP04
118TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
LAKE WASHINGTON
108TH AVE SE
I-405
MERCER NATURE PARK
SE 32ND ST
I-90
I-90
I-90
SE 36TH ST
MERCER ISLAND
E MERCER WAY
N
END ALTERNATIVE B2M-C11A
CROSS SECTION LOOKING NORTH, B2M2-KX02
CROSS SECTION LOOKING NORTH, B2M2-KX01
BEGIN ALTERNATIVE B2M-C11A

c:\work\sdeis\ELB_3B2M2GZ05.dwg
10/04/10 13:20 : bolimaf OE6579

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Submitted:
Date:
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Date:

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Filename: ELB_3B2M2GZ05.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M-C11A (PREFERRED)
KEY PLAN

Drawing No.: B2M2-GZ05
Sheet No.: B-7
Rev.:

DWG INFO:

LTSCALE:
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XREFs:
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zg-g10010
-Overlay:
ELC_C11A_B2C_KA-100
SUB-SDEIS
x0216rx
x0216sf
x0219rx
x0219sf
x0222rx
x0222sf
x0225rx
x0225sf
x0228rx
x0228sf
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x0525sf
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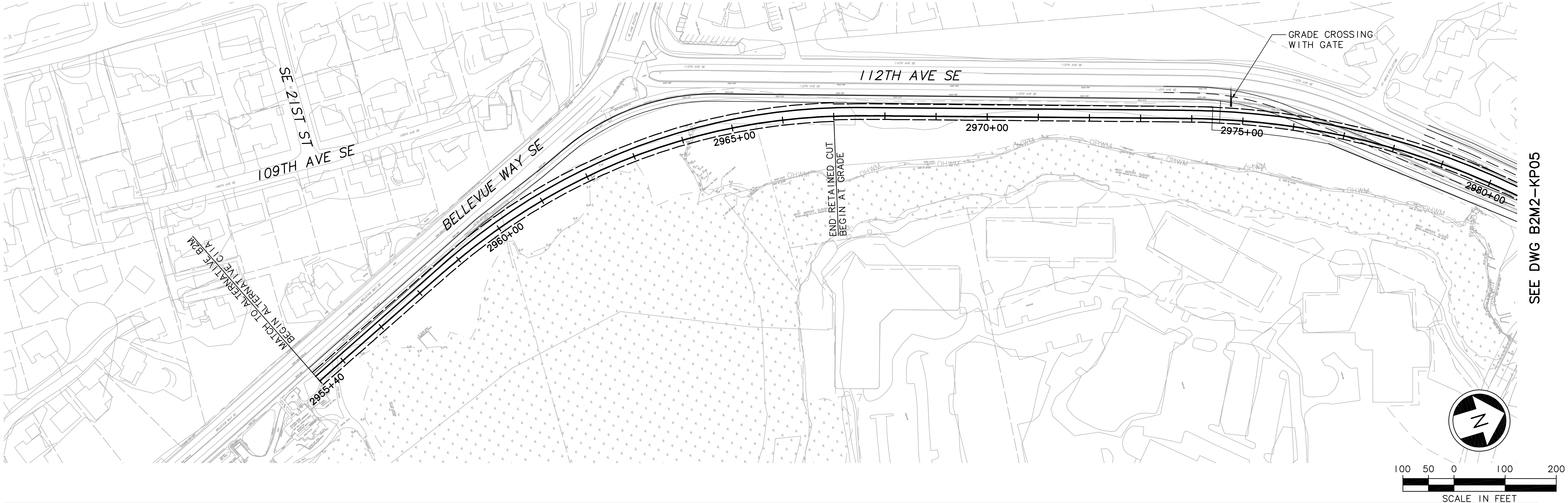
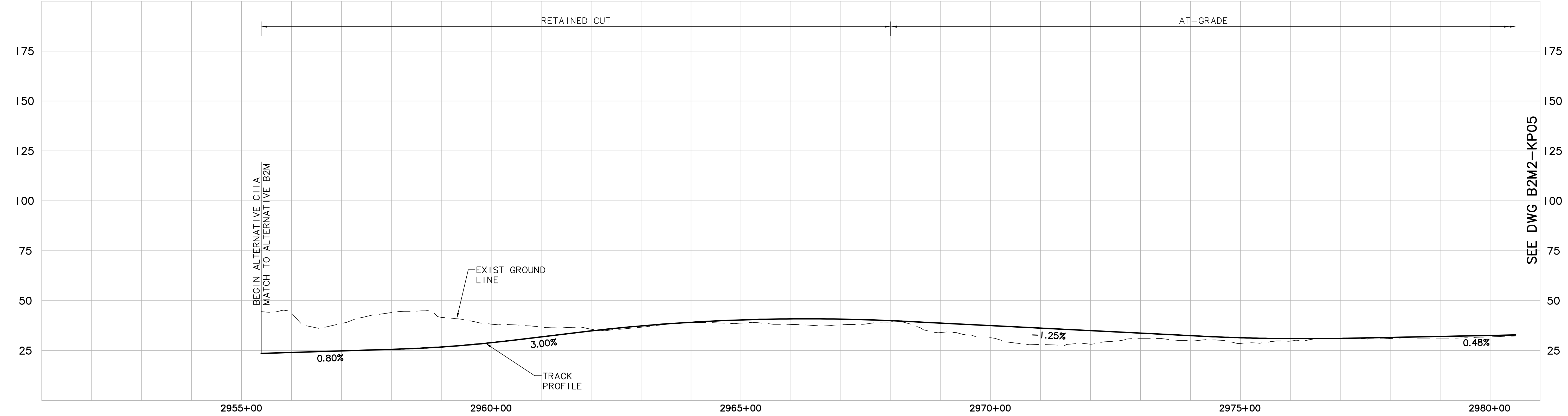
key_East



GRADE CROSSING WITH GATE
112TH AVE SE
SE 21ST ST
109TH AVE SE
BELLEVUE WAY SE
2965+00
2970+00
2975+00
2980+00
2960+00
2955+40
END RETAINED CUT BEGIN AT GRADE
MATCH TO ALTERNATIVE B2M BEGIN ALTERNATIVE C11A
SEE DWG B2M2-KP05
N
100 50 0 100 200
SCALE IN FEET



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Date:

Scale:
H: 1"=100'; V: 1"=25'

Filename:
ELB_3B2M2KP04.DWG

Contract No.:

Date:
07/30/10

LINK LIGHT RAIL PROJECT

EAST CORRIDOR
SEGMENT B - ALT B2M-C11A (PREFERRED)
TRACK PLAN & PROFILE

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Drawing No.:
B2M2-KP04

Sheet No.: B-8
Rev.:

DWG INFO:

LTSCALE:
1=1

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zg—g10010
—Overlay:
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x0219sf
x0222rx
x0222sf
x0225rx
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x0525sf
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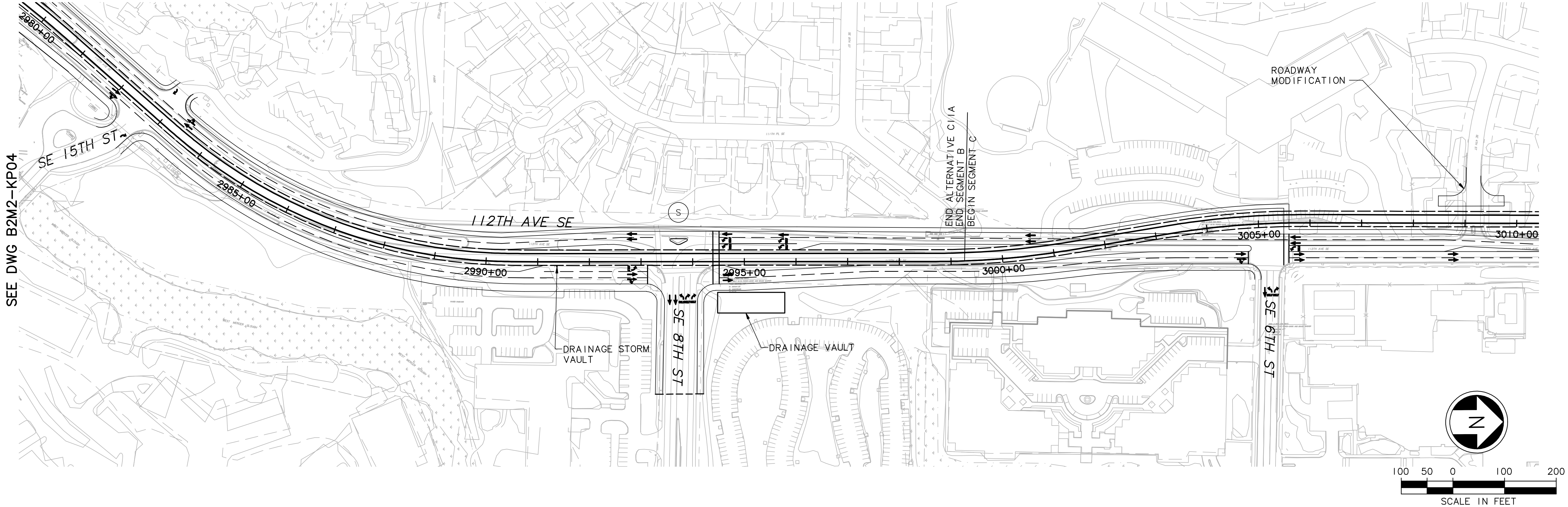
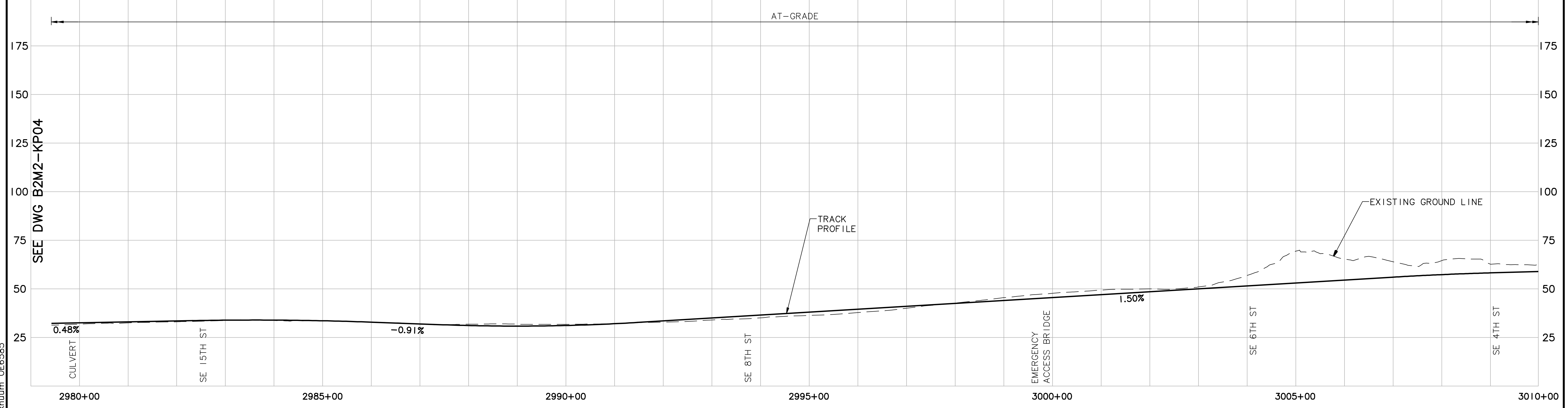

SEE DWG B2M2-KP04
2980+00
SE 15TH ST
2985+00
112TH AVE SE
2990+00
2995+00
3000+00
3005+00
3010+00
SE 8TH ST
SE 6TH ST
DRAINAGE STORM VAULT
DRAINAGE VAULT
END ALTERNATIVE C11A
END SEGMENT B
BEGIN SEGMENT C
ROADWAY MODIFICATION
N
100 50 0 100 200
SCALE IN FEET



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04/18/11 14:54 : khuum OE6585

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Submitted:
Date:
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Date:

Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB_3B2M2KP05.dwg
Contract No.:
Date:
07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B — ALT B2M—C11A (PREFERRED)
TRACK PLAN & PROFILE

Drawing No.:
B2M2—KP05
Sheet No.: B-9
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELC_C9T_MAIN_KA-100
SUB-SDEIS
ZG-2234H
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x0219rx
x0222rx
x0225rx
x0228rx
x0516rx
x0519rx
x0522rx
x0525rx
x0528rx
x0816rx
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x0825rx
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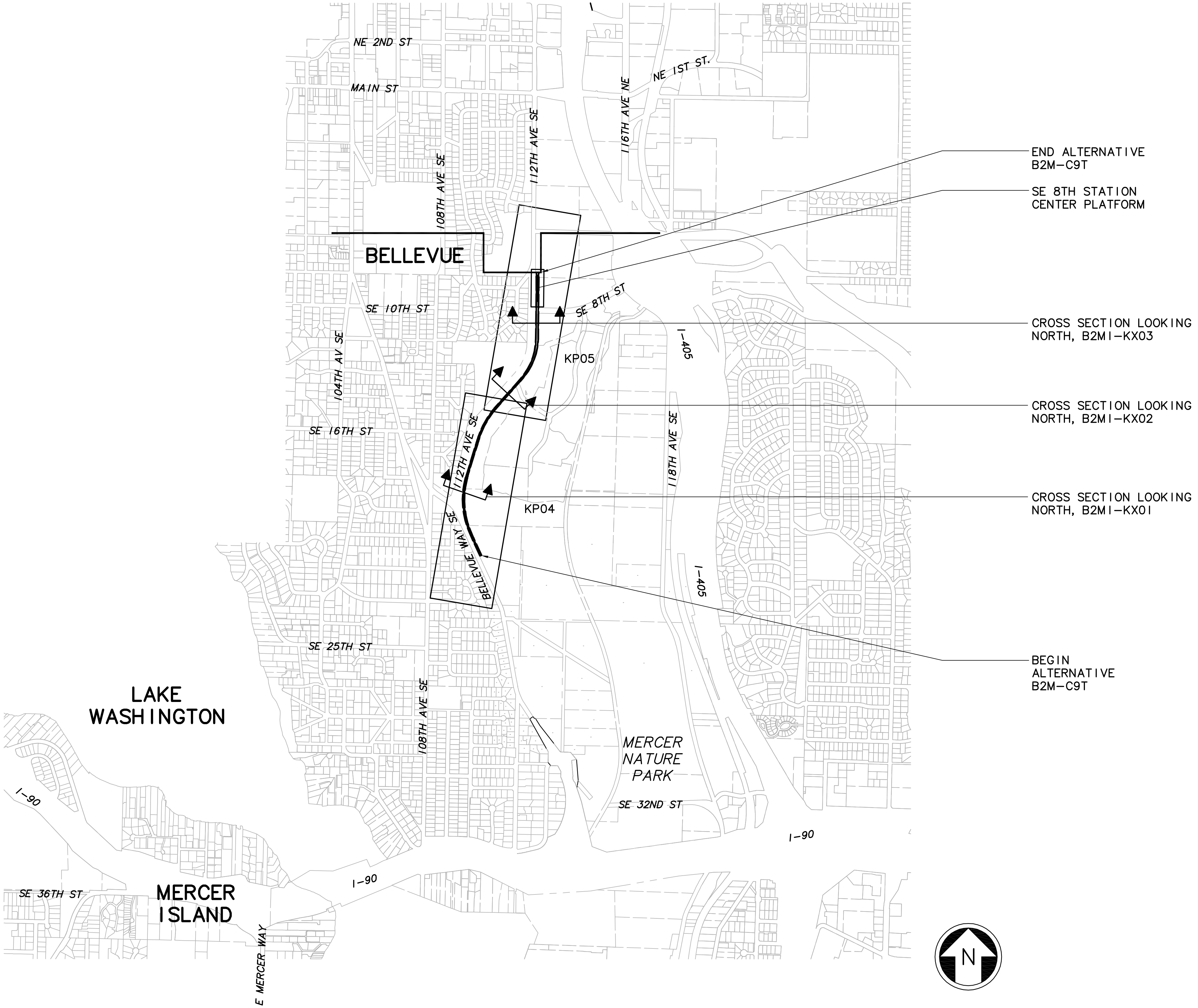
key_Segment


NE 2ND ST
MAIN ST
NE 1ST ST.
116TH AVE NE
112TH AVE SE
108TH AVE SE
BELLEVUE
SE 10TH ST
SE 8TH ST
104TH AV SE
KP05
I-405
SE 16TH ST
112TH AVE SE
118TH AVE SE
KP04
BELLEVUE WAY SE
I-405
SE 25TH ST
LAKE WASHINGTON
108TH AVE SE
MERCER NATURE PARK
I-90
SE 32ND ST
I-90
I-90
SE 36TH ST
MERCER ISLAND
E MERCER WAY
N
END ALTERNATIVE B2M-C9T
SE 8TH STATION CENTER PLATFORM
CROSS SECTION LOOKING NORTH, B2MI-KX03
CROSS SECTION LOOKING NORTH, B2MI-KX02
CROSS SECTION LOOKING NORTH, B2MI-KX01
BEGIN ALTERNATIVE B2M-C9T

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Submitted:
Date:
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Date:

Scale: NTS
Filename: ELB_2B2MIGZ05.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M-C9T (PREFERRED)
KEY PLAN

THIS PRINT REDUCED HALF SCALE

Drawing No.: B2MI-GZ05
Sheet No.: B-10
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
zg-2234h
zg-g10010
-Overlay:
ELC_C9T_MAIN_KA-100
x0216rx
x0216sf
x0219rx
x0219sf
x0222rx
x0222sf
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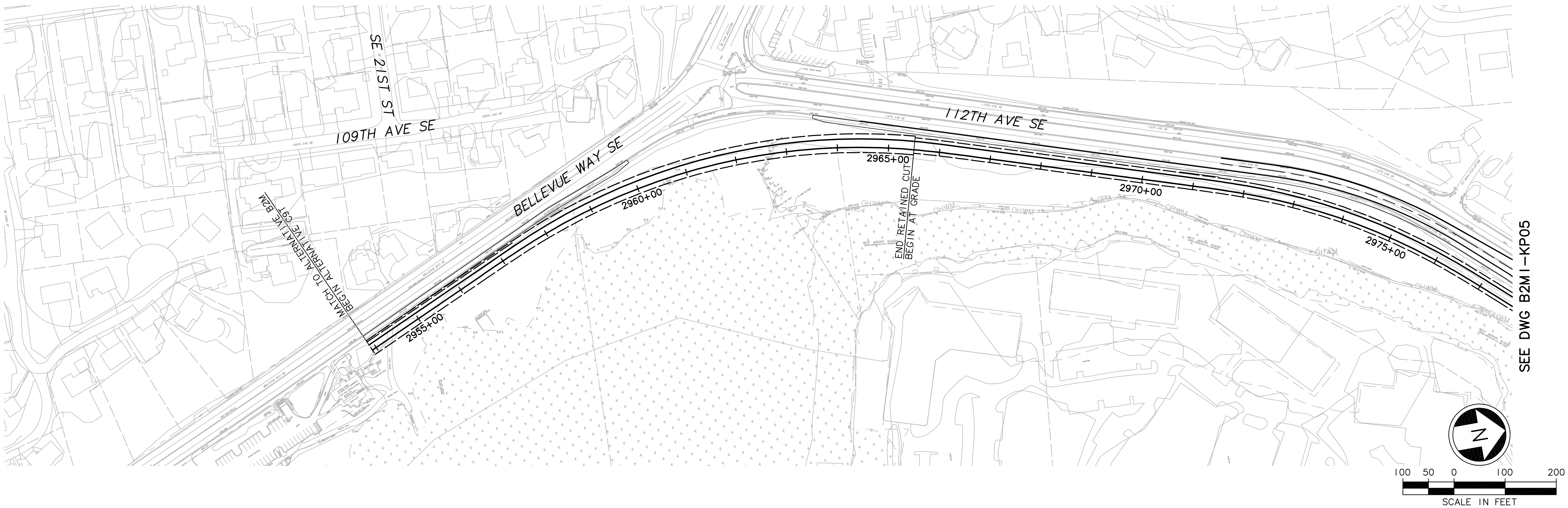
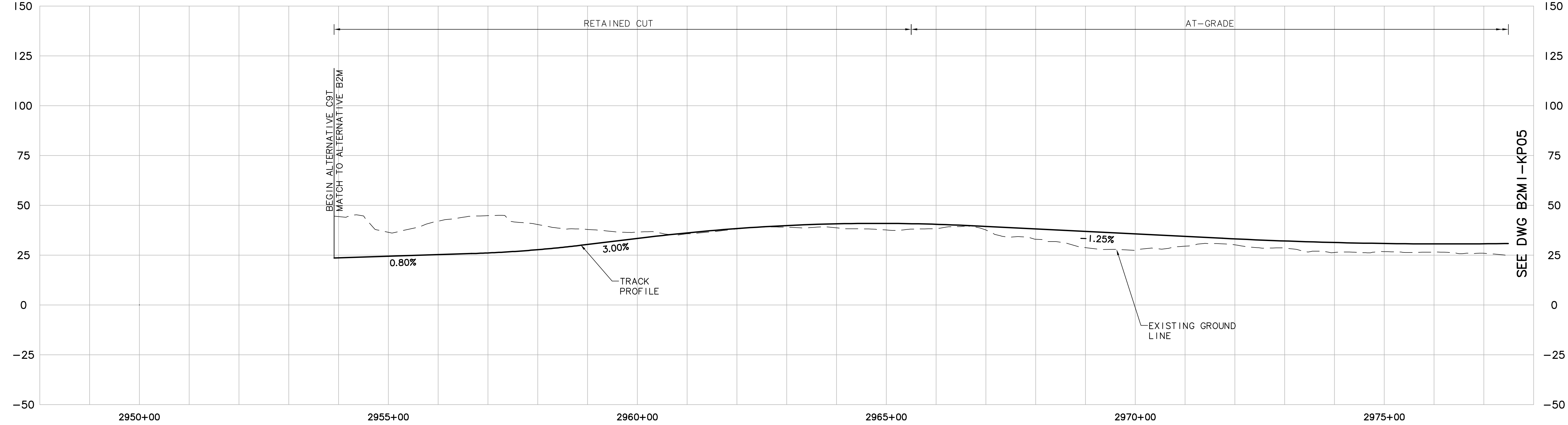
x0522rx
x0522sf
-Unresolved:
B2M-C9T-Vport
key_East


SE 21ST ST
109TH AVE SE
BELLEVUE WAY SE
112TH AVE SE
MATCH TO ALTERNATIVE B2M
BEGIN ALTERNATIVE C9T
2955+00
2960+00
2965+00
END RETAINED CUT
BEGIN AT GRADE
2970+00
2975+00
OHWM
SEE DWG B2M1-KP05
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\ELB_2B2M1KP04.DWG
02/22/11 15:37 : bolimaf OE6579

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BOLIMA DRAFTING & DESIGN INC.

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Scale: H: 1"=100'; V: 1"=25'
Filename: ELB_2B2M1KP04.DWG
Contract No.:
Date: 02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M-C9T (PREFERRED)
TRACK PLAN & PROFILE

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Drawing No.: B2M1-KP04
Sheet No.: B-11
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
–Attach:
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zg–g10010
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ELC_C9T_MAIN_KA–100
SUB–FEIS
x0216rx
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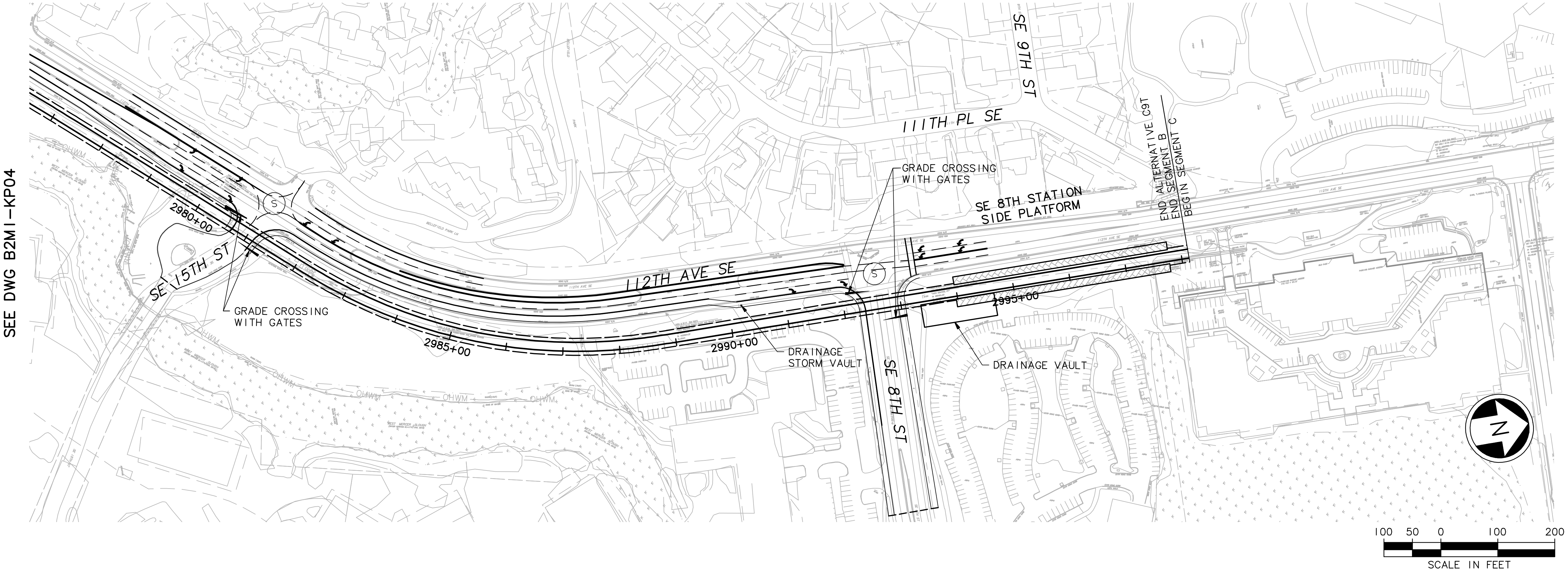
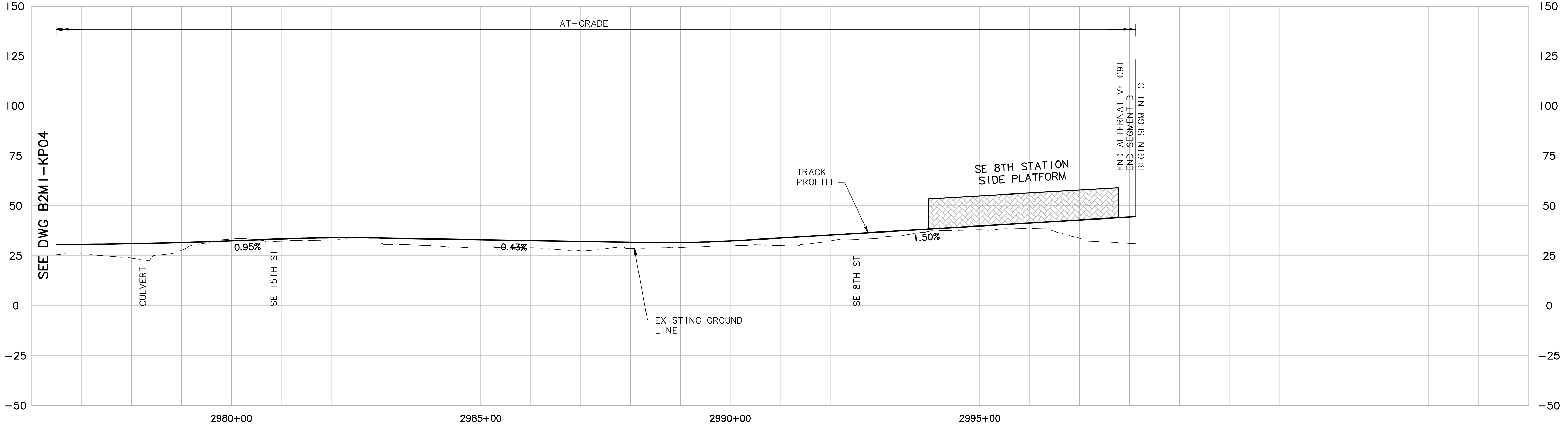

SEE DWG B2M1–KP04
SE 9TH ST
111TH PL SE
GRADE CROSSING WITH GATES
SE 8TH STATION SIDE PLATFORM
END ALTERNATIVE C9T
END SEGMENT B
BEGIN SEGMENT C
2980+00
SE 15TH ST
GRADE CROSSING WITH GATES
112TH AVE SE
2985+00
2990+00
DRAINAGE STORM VAULT
2995+00
DRAINAGE VAULT
SE 8TH ST
N
100 50 0 100 200
SCALE IN FEET



c:\work\feis\segment b\b2m–c9t\ELB_2B2M1KP05.dwg
04/18/11 15:55 : khuum OE6585

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Scale:
H: 1"=100'; V: 1"=25'
Filename:
ELB_2B2M1KP05.dwg
Contract No.:
Date:
07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)
TRACK PLAN & PROFILE

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Drawing No.:
B2M1–KP05
Sheet No.:
Rev.:
B-12

DWG INFO:
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-Overlay:
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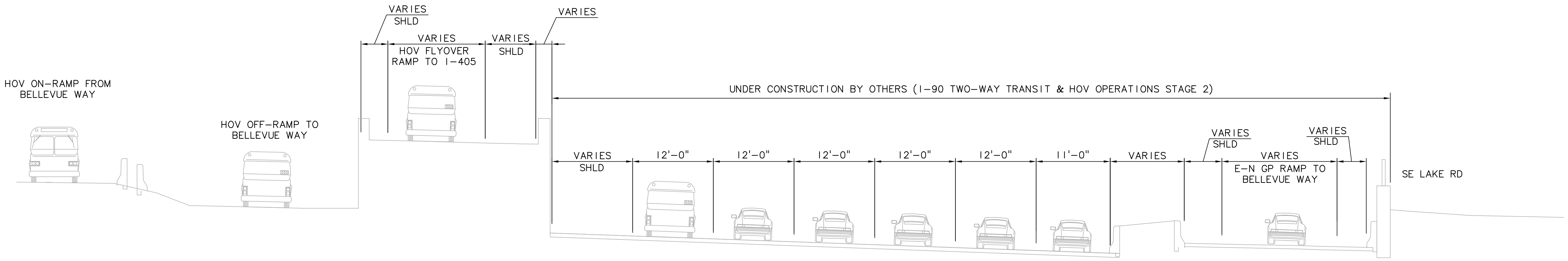
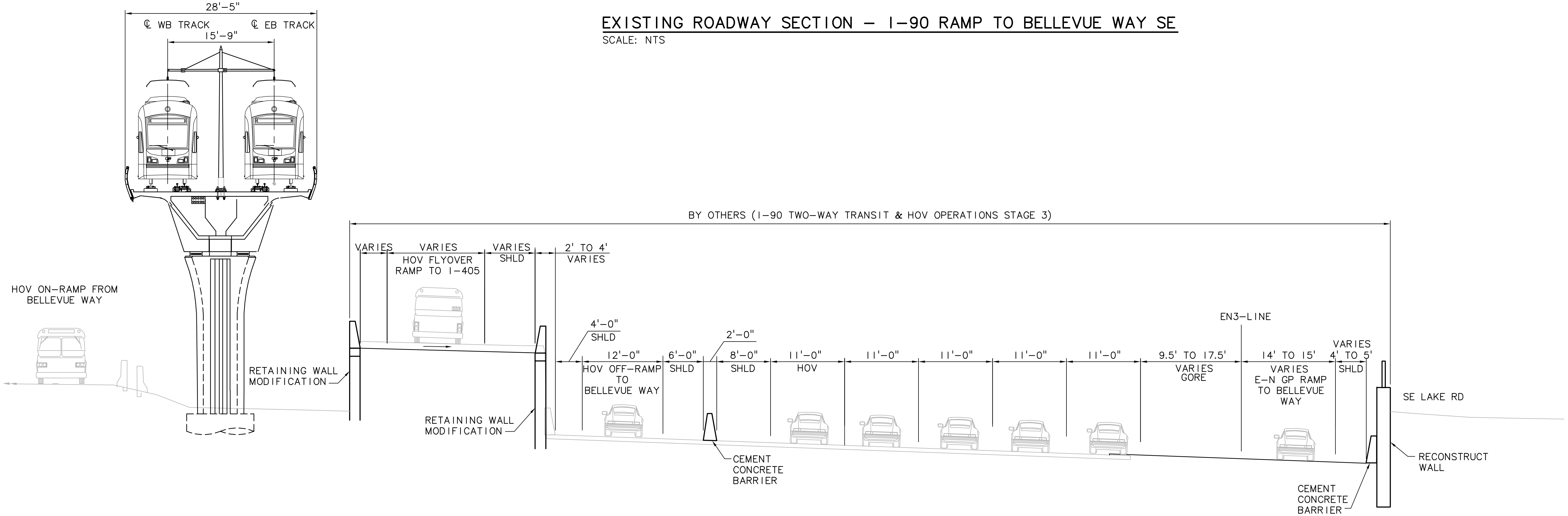


HOV ON-RAMP FROM BELLEVUE WAY
HOV OFF-RAMP TO BELLEVUE WAY
VARIES SHLD
VARIES HOV FLYOVER RAMP TO I-405
VARIES SHLD
VARIES
UNDER CONSTRUCTION BY OTHERS (I-90 TWO-WAY TRANSIT & HOV OPERATIONS STAGE 2)
VARIES SHLD
12'-0"
12'-0"
12'-0"
12'-0"
12'-0"
11'-0"
VARIES
VARIES SHLD
VARIES SHLD
VARIES E-N GP RAMP TO BELLEVUE WAY
SE LAKE RD

EXISTING ROADWAY SECTION – I-90 RAMP TO BELLEVUE WAY SE

SCALE: NTS



28'-5"
℄ WB TRACK
℄ EB TRACK
15'-9"
BY OTHERS (I-90 TWO-WAY TRANSIT & HOV OPERATIONS STAGE 3)
HOV ON-RAMP FROM BELLEVUE WAY
VARIES
VARIES HOV FLYOVER RAMP TO I-405
VARIES SHLD
2' TO 4' VARIES
RETAINING WALL MODIFICATION
RETAINING WALL MODIFICATION
4'-0" SHLD
2'-0"
12'-0" HOV OFF-RAMP TO BELLEVUE WAY
6'-0" SHLD
8'-0" SHLD
11'-0" HOV
11'-0"
11'-0"
11'-0"
11'-0"
9.5' TO 17.5' VARIES GORE
EN3-LINE
14' TO 15' VARIES E-N GP RAMP TO BELLEVUE WAY
VARIES 4' TO 5' SHLD
SE LAKE RD
CEMENT CONCRETE BARRIER
RECONSTRUCT WALL
CEMENT CONCRETE BARRIER

PROPOSED LRT SECTION I-90 RAMP TO BELLEVUE WAY SE
ALTERNATIVE: B2M (TO WINTERS HOUSE)
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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02/22/11 15:33 : bolimaf OE6579

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Scale: NTS
Filename: ELB_IB2M_KX01.dwg
Contract No.:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)
TYPICAL SECTION
I-90 RAMP TO BELLEVUE WAY

Drawing No.: B2M_-KX01
Sheet No.: B-13
Rev.:

DWG INFO:
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XREFs:
–Attach:
–Overlay:
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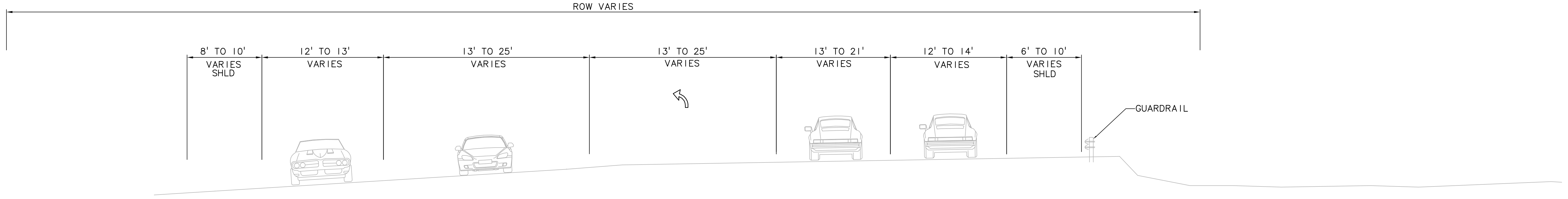
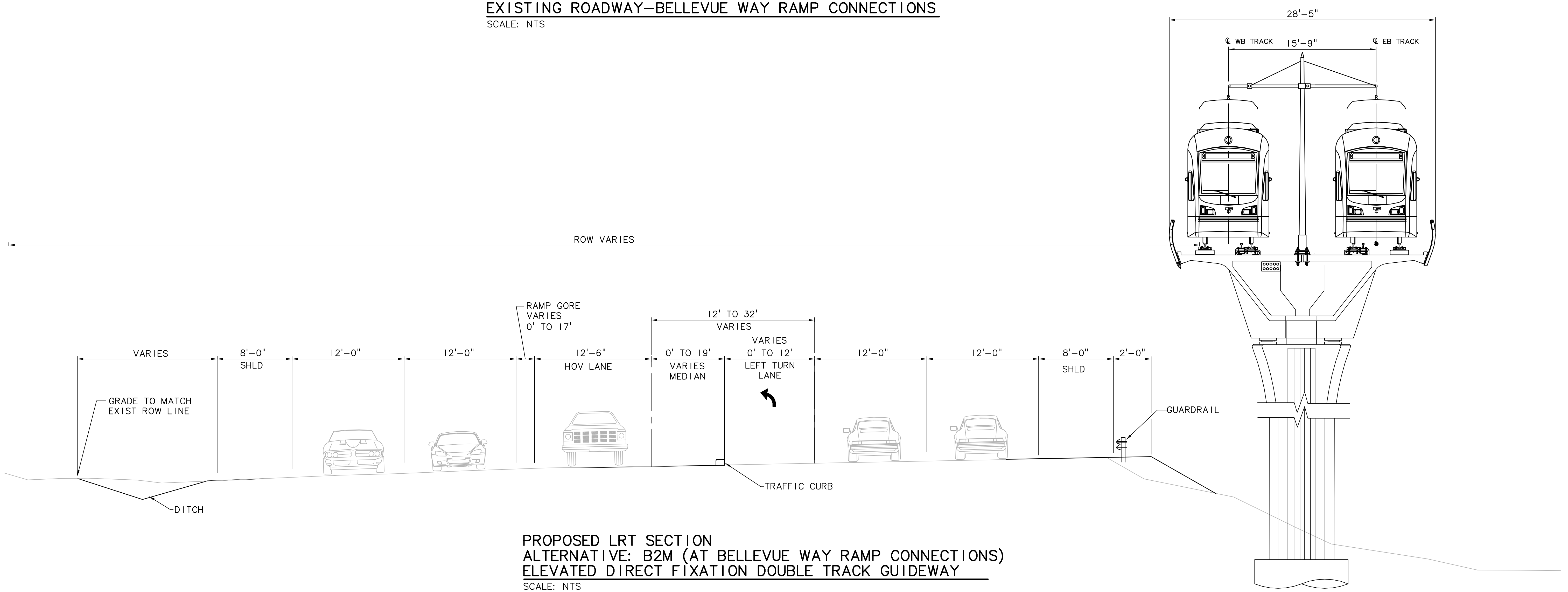

ROW VARIES
8' TO 10'
VARIES
SHLD
12' TO 13'
VARIES
13' TO 25'
VARIES
13' TO 25'
VARIES
13' TO 21'
VARIES
12' TO 14'
VARIES
6' TO 10'
VARIES
SHLD
GUARDRAIL

EXISTING ROADWAY–BELLEVUE WAY RAMP CONNECTIONS
SCALE: NTS


28'-5"
℄ WB TRACK
15'-9"
℄ EB TRACK
ROW VARIES
RAMP GORE
VARIES
0' TO 17'
12' TO 32'
VARIES
VARIES
8'-0"
SHLD
12'-0"
12'-0"
12'-6"
HOV LANE
0' TO 19'
VARIES
MEDIAN
VARIES
0' TO 12'
LEFT TURN
LANE
12'-0"
12'-0"
8'-0"
SHLD
2'-0"
GRADE TO MATCH
EXIST ROW LINE
GUARDRAIL
TRAFFIC CURB
DITCH

PROPOSED LRT SECTION
ALTERNATIVE: B2M (AT BELLEVUE WAY RAMP CONNECTIONS)
ELEVATED DIRECT FIXATION DOUBLE TRACK GUIDEWAY
SCALE: NTS

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10/04/10 13:12 : bolimaf OE6579

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Date:

Scale: NTS
Filename: ELB_IB2M_KX02.dwg
Contract No.:
Date: 07/30/10

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)

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TYPICAL SECTION
BELLEVUE WAY SE
RAMP CONNECTIONS

Drawing No.: B2M_-KX02
Sheet No.: B-14
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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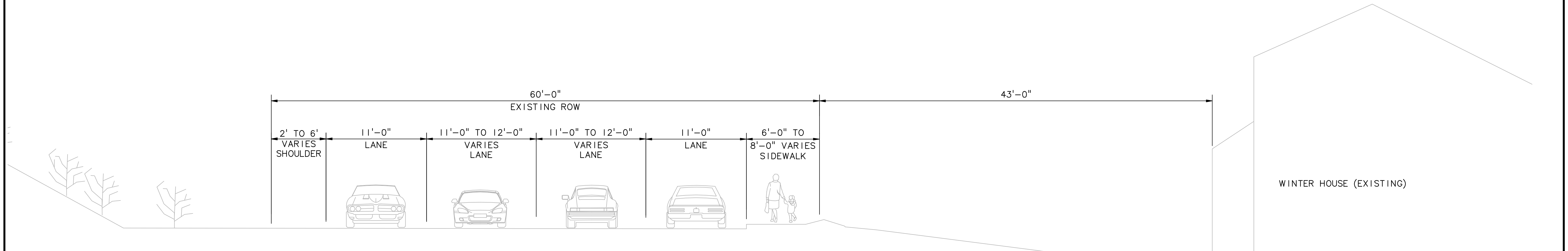
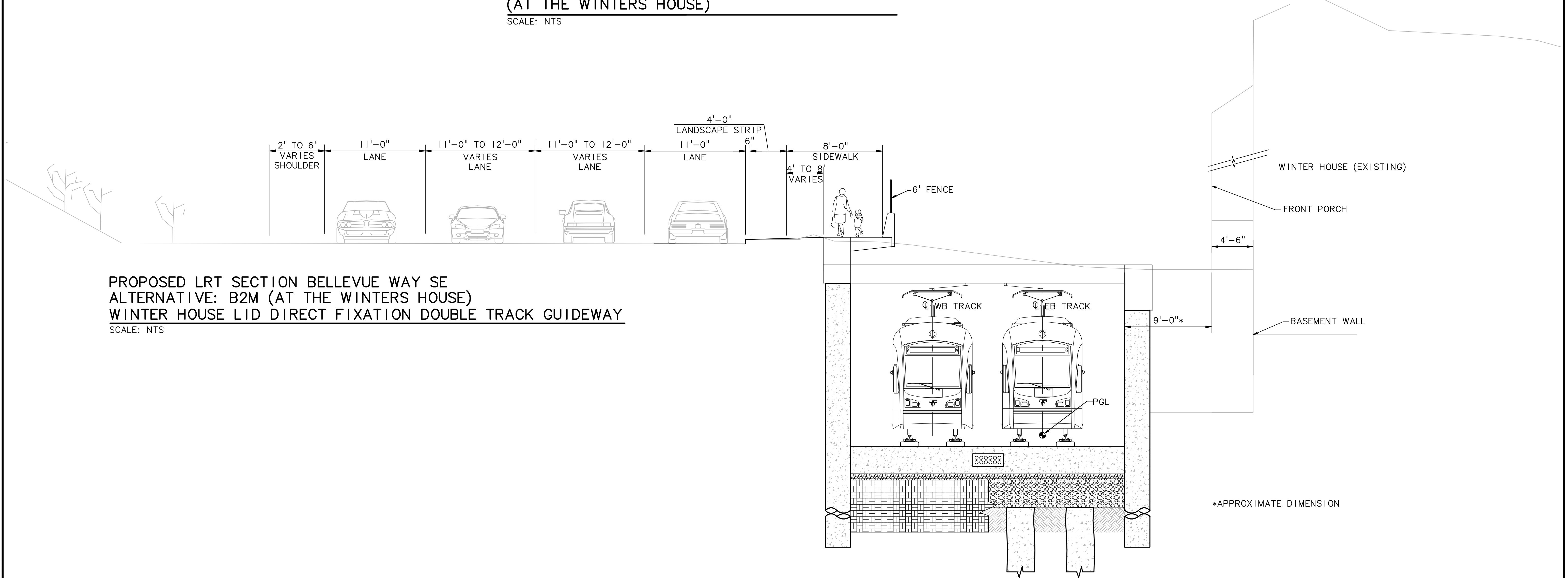


60'-0"
EXISTING ROW
43'-0"
2' TO 6' VARIES SHOULDER
11'-0" LANE
11'-0" TO 12'-0" VARIES LANE
11'-0" TO 12'-0" VARIES LANE
11'-0" LANE
6'-0" TO 8'-0" VARIES SIDEWALK
WINTER HOUSE (EXISTING)

EXISTING ROADWAY SECTION BELLEVUE WAY SE
(AT THE WINTERS HOUSE)

SCALE: NTS



4'-0"
LANDSCAPE STRIP
6"
2' TO 6' VARIES SHOULDER
11'-0" LANE
11'-0" TO 12'-0" VARIES LANE
11'-0" TO 12'-0" VARIES LANE
11'-0" LANE
8'-0" SIDEWALK
4' TO 8' VARIES
6' FENCE
WINTER HOUSE (EXISTING)
FRONT PORCH
4'-6"
℄ WB TRACK
℄ EB TRACK
9'-0"*
BASEMENT WALL
PGL

PROPOSED LRT SECTION BELLEVUE WAY SE
ALTERNATIVE: B2M (AT THE WINTERS HOUSE)
WINTER HOUSE LID DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

*APPROXIMATE DIMENSION

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06/14/11 10:54 : khuum OE6585

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Approved:

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Date:

Scale: NTS
Filename: ELB_IB2M_KX03.dwg
Contract No.:
Date: 07/30/10

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M (PREFERRED)

TYPICAL SECTION
BELLEVUE WAY SE
WINTERS HOUSE LID

Drawing No.: B2M_-KX03
Sheet No.: B-15
Rev.:

DWG INFO:

LTSCALE:
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XREFs:
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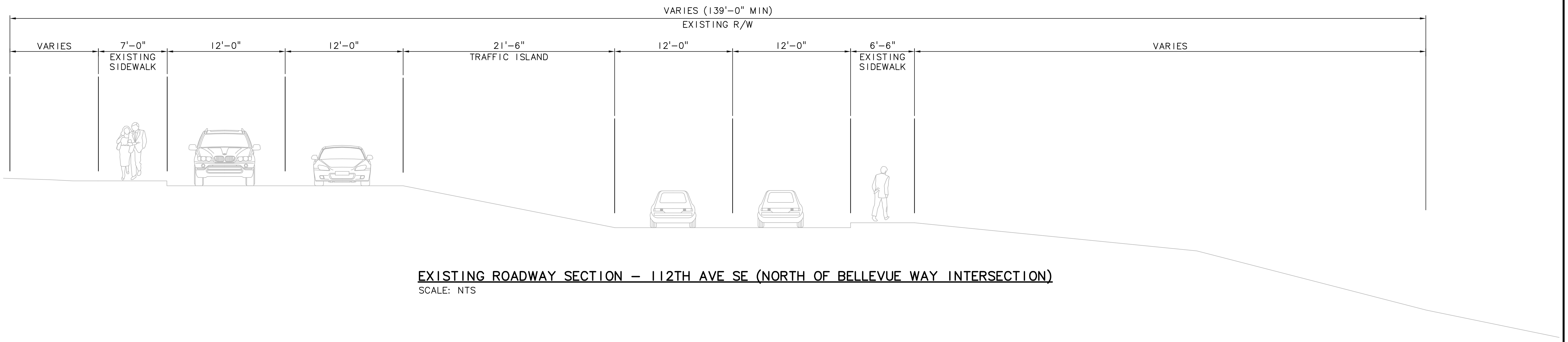
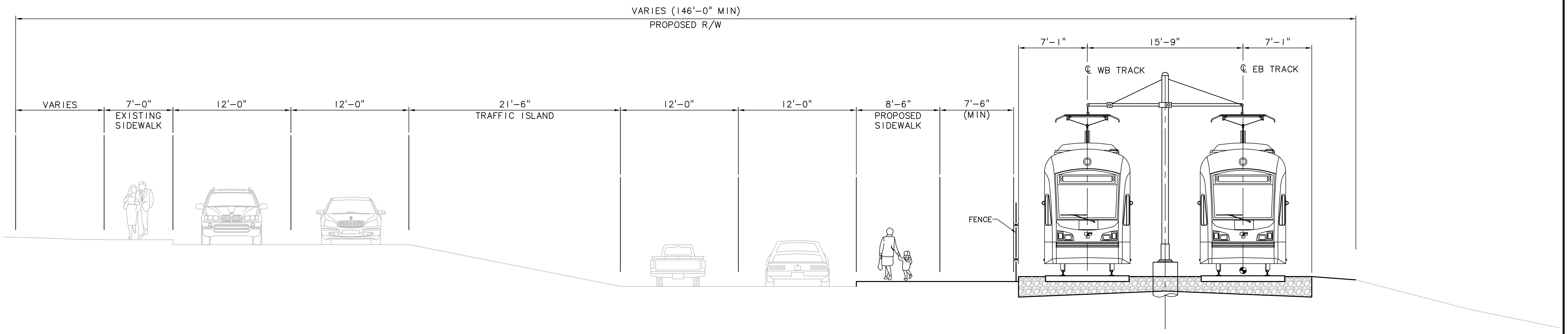

VARIES (139'-0" MIN)
EXISTING R/W
VARIES
7'-0"
EXISTING SIDEWALK
12'-0"
12'-0"
21'-6"
TRAFFIC ISLAND
12'-0"
12'-0"
6'-6"
EXISTING SIDEWALK
VARIES

EXISTING ROADWAY SECTION - 112TH AVE SE (NORTH OF BELLEVUE WAY INTERSECTION)
SCALE: NTS


VARIES (146'-0" MIN)
PROPOSED R/W
7'-1"
15'-9"
7'-1"
℄ WB TRACK
℄ EB TRACK
VARIES
7'-0"
EXISTING SIDEWALK
12'-0"
12'-0"
21'-6"
TRAFFIC ISLAND
12'-0"
12'-0"
8'-6"
PROPOSED SIDEWALK
7'-6"
(MIN)
FENCE

PROPOSED LRT SECTION - 112TH AVE SE (NORTH OF BELLEVUE WAY INTERSECTION)
ALIGNMENT: B2M-C11A
TRACK TYPE: AT-GRADE BALLASTED DOUBLE TRACK GUIDEWAY
SCALE: NTS

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Date:

Scale: NTS
Filename: ELB_3B2M2KX01.dwg
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M-C11A (PREFERRED)

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TYPICAL SECTION
112TH AVE SE
NORTH OF BELLEVUE WAY INTERSECTION

Drawing No.: B2M2-KX01
Sheet No.: B-16
Rev.:

DWG INFO:

LTSCALE:
1=1

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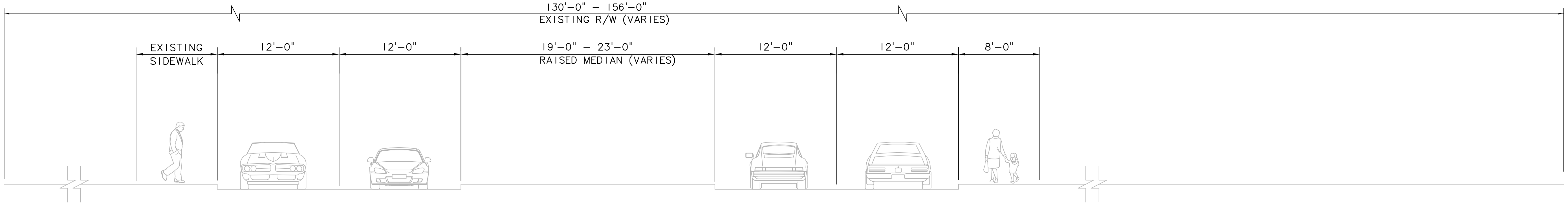
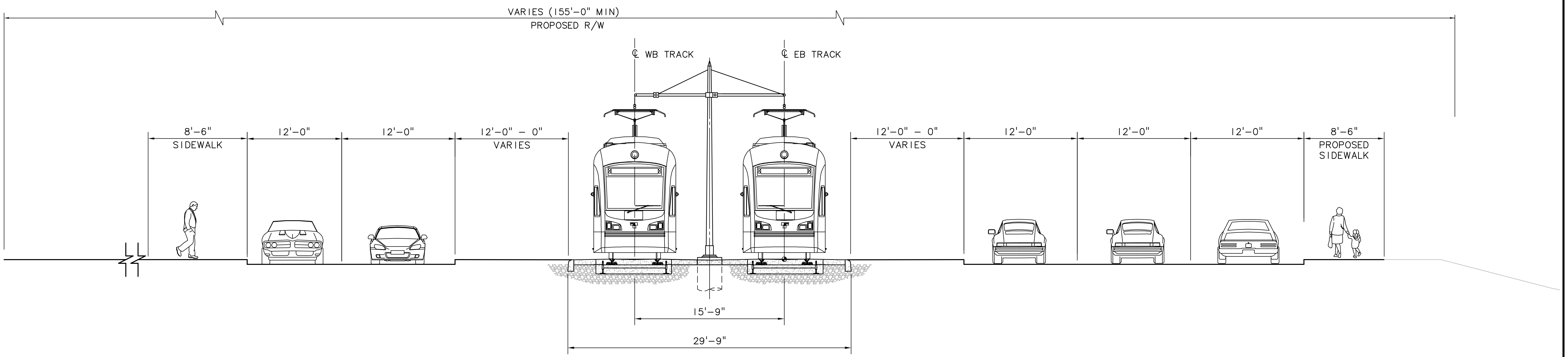

130'–0" – 156'–0"
EXISTING R/W (VARIES)
EXISTING SIDEWALK
12'–0"
12'–0"
19'–0" – 23'–0"
RAISED MEDIAN (VARIES)
12'–0"
12'–0"
8'–0"

EXISTING ROADWAY SECTION – 112TH AVE SE (SOUTH OF SE 8TH ST)

SCALE: NTS


VARIES (155'–0" MIN)
PROPOSED R/W
℄ WB TRACK
℄ EB TRACK
8'–6"
SIDEWALK
12'–0"
12'–0"
12'–0" – 0"
VARIES
12'–0" – 0"
VARIES
12'–0"
12'–0"
12'–0"
8'–6"
PROPOSED SIDEWALK
15'–9"
29'–9"

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE (SOUTH OF SE 8TH ST)
ALIGNMENT: B2M–C11A
TRACK TYPE: AT-GRADE EMBEDDED DOUBLE TRACK GUIDEWAY

SCALE: NTS

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Contract No.:
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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M–C11A (PREFERRED)

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TYPICAL SECTION
112TH AVE SE
SOUTH OF SE 8TH ST

Drawing No.: B2M2–KX02

Sheet No.: B-17
Rev.:

DWG INFO:

LTSCALE:
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XREFs:
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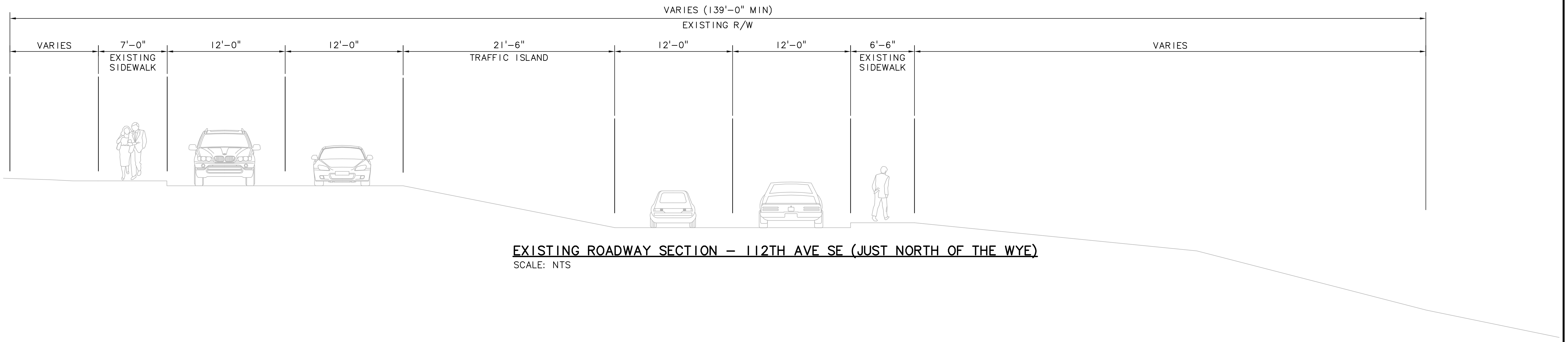
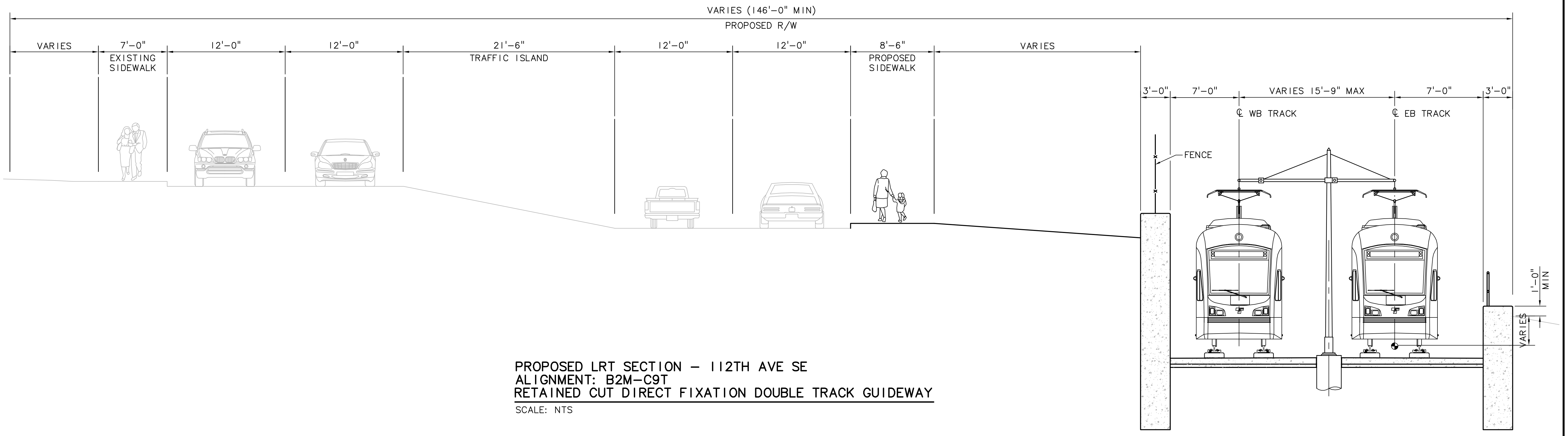


VARIES (139'-0" MIN)
EXISTING R/W
VARIES
7'-0"
EXISTING SIDEWALK
12'-0"
12'-0"
21'-6"
TRAFFIC ISLAND
12'-0"
12'-0"
6'-6"
EXISTING SIDEWALK
VARIES

EXISTING ROADWAY SECTION – 112TH AVE SE (JUST NORTH OF THE WYE)

SCALE: NTS



VARIES (146'-0" MIN)
PROPOSED R/W
VARIES
7'-0"
EXISTING SIDEWALK
12'-0"
12'-0"
21'-6"
TRAFFIC ISLAND
12'-0"
12'-0"
8'-6"
PROPOSED SIDEWALK
VARIES
3'-0"
7'-0"
VARIES 15'-9" MAX
7'-0"
3'-0"
℄ WB TRACK
℄ EB TRACK
FENCE
1'-0" MIN
VARIES

PROPOSED LRT SECTION – 112TH AVE SE
ALIGNMENT: B2M-C9T
RETAINED CUT DIRECT FIXATION DOUBLE TRACK GUIDEWAY

SCALE: NTS

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M-C9T (PREFERRED)

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TYPICAL SECTION
112TH AVE SE
NORTH OF BELLEVUE WAY INTERSECTION

Drawing No.: B2M1-KX01
Sheet No.: B-18
Rev.:

DWG INFO:
LTSCALE:
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XREFs:
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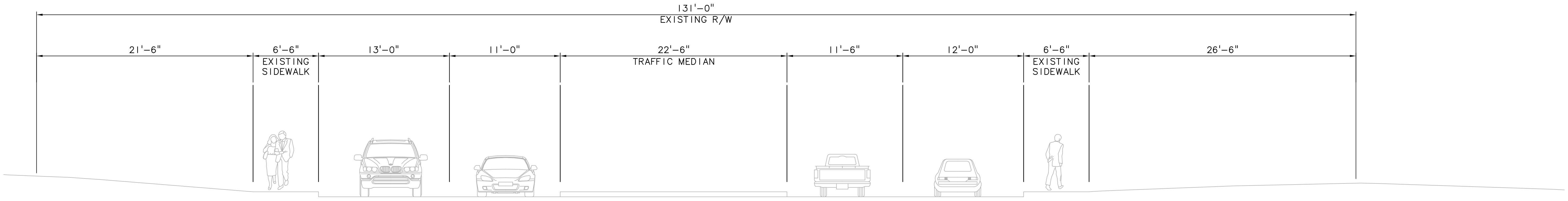
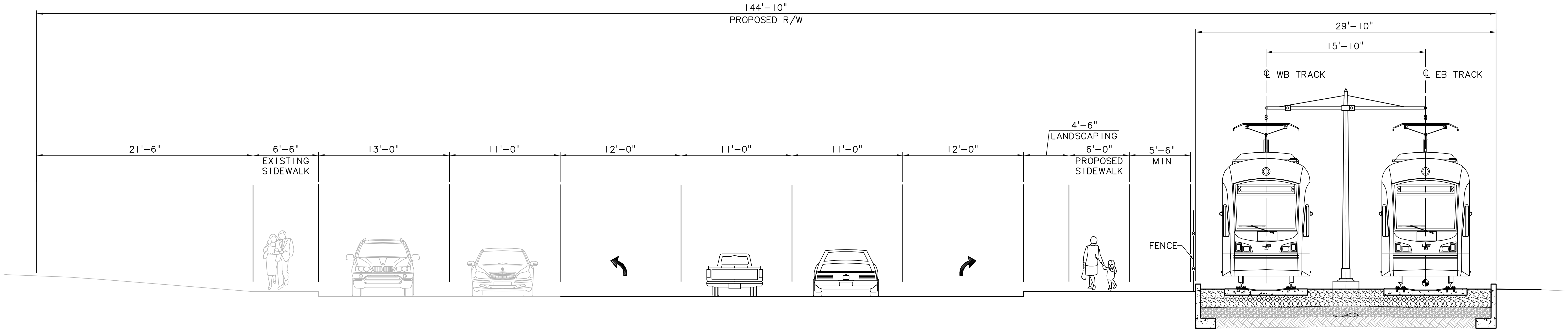

131'-0"
EXISTING R/W
21'-6"
6'-6"
EXISTING SIDEWALK
13'-0"
11'-0"
22'-6"
TRAFFIC MEDIAN
11'-6"
12'-0"
6'-6"
EXISTING SIDEWALK
26'-6"

EXISTING ROADWAY SECTION – 112TH AVE SE (SOUTH OF SE 15TH ST)

SCALE: NTS


144'-10"
PROPOSED R/W
29'-10"
15'-10"
℄ WB TRACK
℄ EB TRACK
21'-6"
6'-6"
EXISTING SIDEWALK
13'-0"
11'-0"
12'-0"
11'-0"
11'-0"
12'-0"
4'-6"
LANDSCAPING
6'-0"
PROPOSED SIDEWALK
5'-6"
MIN
FENCE

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE
ALIGNMENT: B2M-C9T
AT GRADE BALLASTED TRACK GUIDEWAY

SCALE: NTS

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M-C9T (PREFERRED)

TYPICAL SECTION
112TH AVE SE
SOUTH OF SE 15TH ST

Drawing No.: B2M1-KX02
Sheet No.: B-19
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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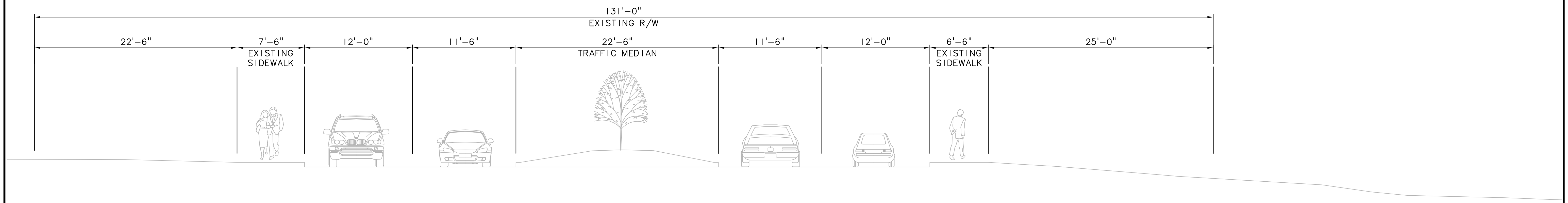
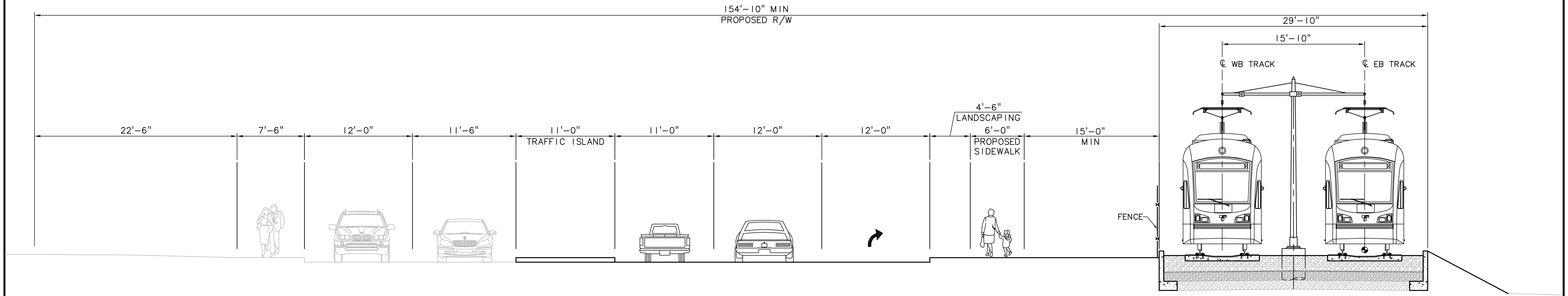

131'-0"
EXISTING R/W
22'-6"
7'-6"
EXISTING SIDEWALK
12'-0"
11'-6"
22'-6"
TRAFFIC MEDIAN
11'-6"
12'-0"
6'-6"
EXISTING SIDEWALK
25'-0"

EXISTING ROADWAY SECTION – 112TH AVE SE (SOUTH OF SE 8TH ST)

SCALE: NTS


154'-10" MIN
PROPOSED R/W
29'-10"
15'-10"
℄ WB TRACK
℄ EB TRACK
22'-6"
7'-6"
12'-0"
11'-6"
11'-0"
TRAFFIC ISLAND
11'-0"
12'-0"
12'-0"
4'-6"
LANDSCAPING
6'-0"
PROPOSED SIDEWALK
15'-0"
MIN
FENCE

PROPOSED ROADWAY & LRT SECTION – 112TH AVE SE
ALIGNMENT: B2M-C9T
AT GRADE BALLASTED TRACK GUIDEWAY

SCALE: NTS

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FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

Submitted:
Date:
Approved:
Date:

SOUNDTRANSIT

Scale: NTS
Filename: ELB_2B2M1KX03.dwg
Contract No.:
Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B – ALT B2M-C9T (PREFERRED)

TYPICAL SECTION
112TH AVE SE
SOUTH OF SE 8TH ST

Drawing No.: B2M1-KX03

Sheet No.: B-20

Rev.:

DWG INFO:

LTSCALE:
1=1

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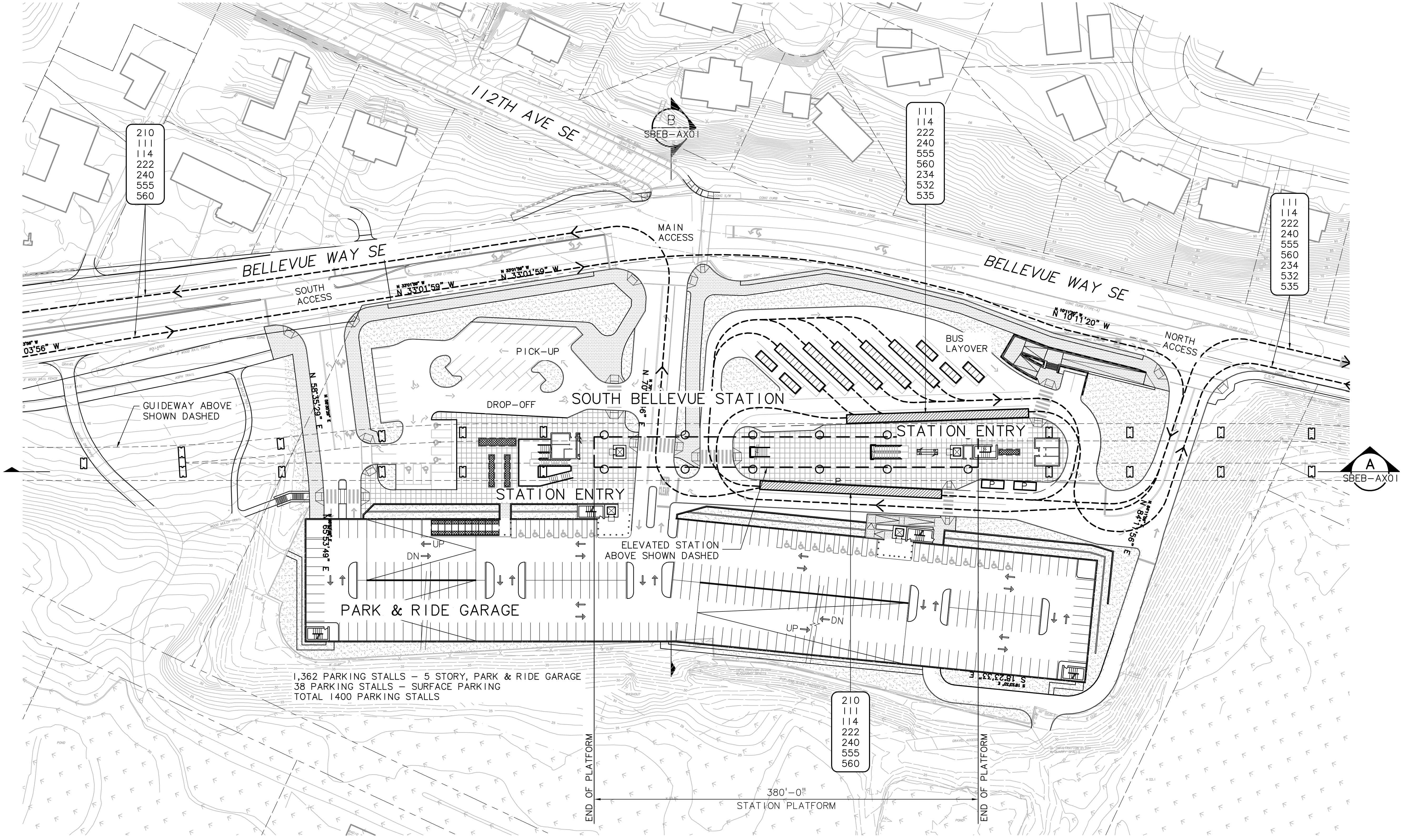
NOTES

1. ALIGNMENT B2M


112TH AVE SE
B
SBEB-AX01
BELLEVUE WAY SE
BELLEVUE WAY SE
210 111 114 222 240 555 560
111 114 222 240 555 560 234 532 535
111 114 222 240 555 560 234 532 535
210 111 114 222 240 555 560
MAIN ACCESS
SOUTH ACCESS
NORTH ACCESS
N 33°01'59" W
N 10°11'20" W
N 58°35'29" E
N 70°16" E
N 84°11'56" E
N 65°53'49" E
S 18°23'33" E
03'56" W
PICK-UP
BUS LAYOVER
DROP-OFF
SOUTH BELLEVUE STATION
STATION ENTRY
STATION ENTRY
GUIDEWAY ABOVE SHOWN DASHED
ELEVATED STATION ABOVE SHOWN DASHED
PARK & RIDE GARAGE
UP
DN
UP
DN
P
A
SBEB-AX01
1,362 PARKING STALLS – 5 STORY, PARK & RIDE GARAGE
38 PARKING STALLS – SURFACE PARKING
TOTAL 1400 PARKING STALLS
END OF PLATFORM
END OF PLATFORM
380'-0"
STATION PLATFORM

SYMBOLS KEY

▨	NEW BUS STOP
▭	EXISTING BUS STOP
▥	BUS LAYOVER
☒	PARATRANSIT SHELTER
P	PARATRANSIT STOP
- - -	BUS ROUTE
111 114 222	
▩	BIKE PARKING: CLASS 1
▨	BIKE PARKING: CLASS 2
▥	CROSSWALK
░	NEW LANDSCAPE
░	NEW WALKS
▦	NEW PLAZA
— — —	TRACK

50 25 0 50 100
SCALE IN FEET

STATION AREA PLAN

SCALE: 1" = 50'

No.	Date	Dsn.	Chk.	App.	Revisions

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SOUNDTRANSIT

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Date:

Scale: 1"=50'
Filename: ELB_2SBEBAS01.dwg
Contract No.:
Date: 07/30/10

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HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
SOUTH BELLEVUE STATION
STATION AREA PLAN

Drawing No.: SBEB-AS01
Sheet No.: B-21
Rev.:

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10/14/10 10:38 : bolimaf OE6579

DWG INFO:

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SUB-SDEIS
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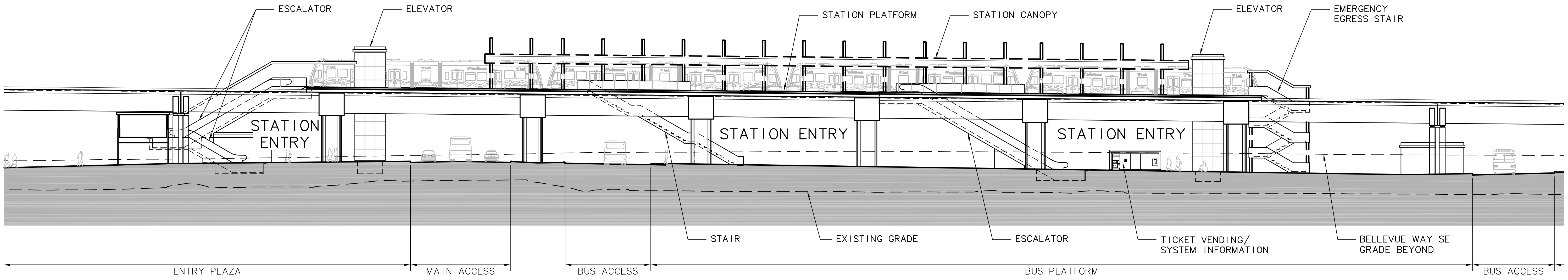
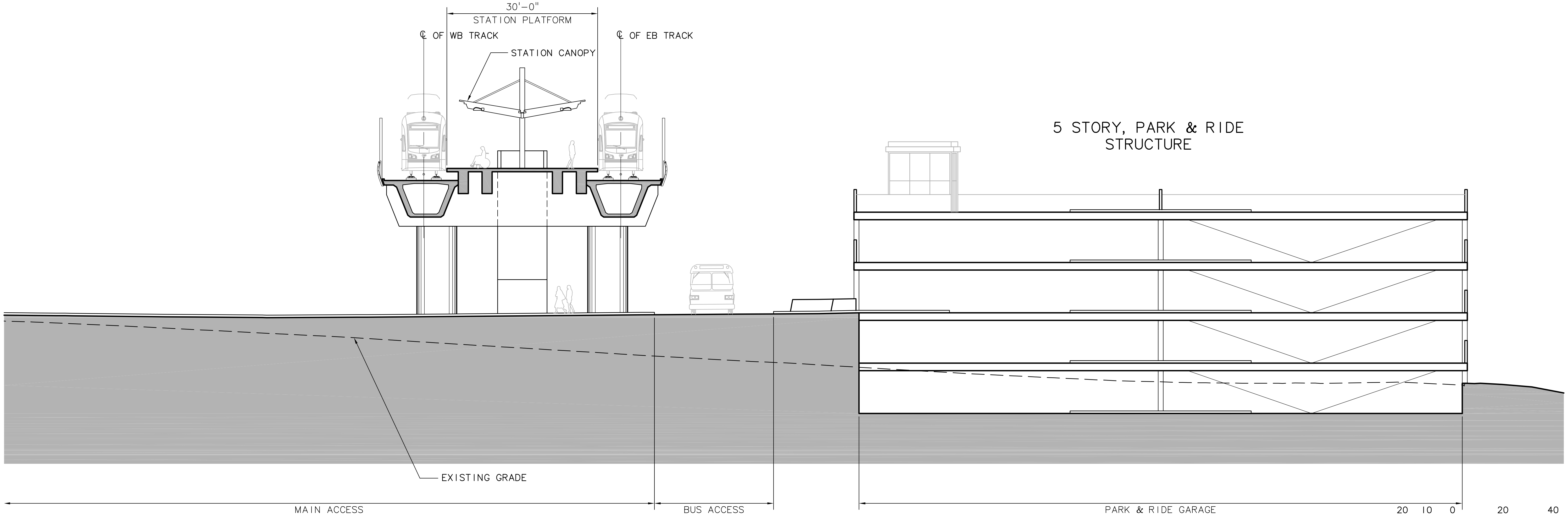

ESCALATOR
ELEVATOR
STATION PLATFORM
STATION CANOPY
ELEVATOR
EMERGENCY EGRESS STAIR
STATION ENTRY
STATION ENTRY
STATION ENTRY
STAIR
EXISTING GRADE
ESCALATOR
TICKET VENDING/ SYSTEM INFORMATION
BELLEVUE WAY SE GRADE BEYOND
ENTRY PLAZA
MAIN ACCESS
BUS ACCESS
BUS PLATFORM
BUS ACCESS

SITE SECTION (A)

SCALE: 1" = 20'

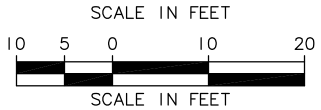
SBEB-AX01


30'-0"
STATION PLATFORM
℄ OF WB TRACK
℄ OF EB TRACK
STATION CANOPY
5 STORY, PARK & RIDE STRUCTURE
EXISTING GRADE
MAIN ACCESS
BUS ACCESS
PARK & RIDE GARAGE

SITE SECTION (B)

SCALE: 1" = 10'

SBEB-AX01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SCALE IN FEET

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10/14/10 10:37 : bolimaf OE6579

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Approved By:

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Date:

SOUNDTRANSIT

Scale: AS NOTED

Filename: ELB_2SBEBAX01.dwg

Contract No.:

Date: 07/30/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B

SOUTH BELLEVUE STATION
SITE SECTIONS

Drawing No.: SBEB-AX01

Sheet No.: B-22

Rev.:

DWG INFO:

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1=1

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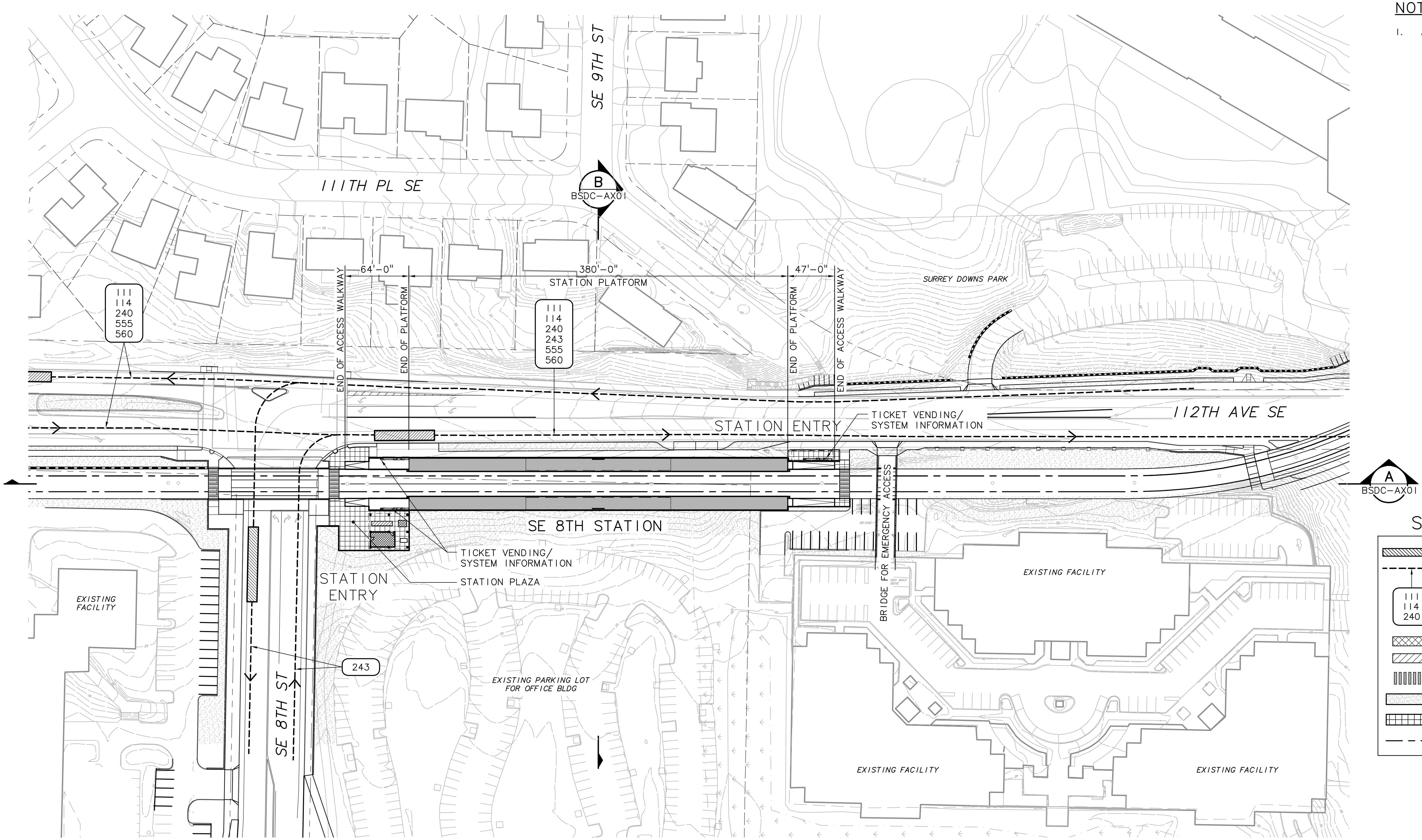

SE 9TH ST
111TH PL SE
B
BSDC-AX01
64'-0"
380'-0"
47'-0"
STATION PLATFORM
SURREY DOWNS PARK
END OF ACCESS WALKWAY
END OF PLATFORM
END OF PLATFORM
END OF ACCESS WALKWAY
111
114
240
555
560
111
114
240
243
555
560
112TH AVE SE
STATION ENTRY
TICKET VENDING/
SYSTEM INFORMATION
A
BSDC-AX01
SE 8TH STATION
TICKET VENDING/
SYSTEM INFORMATION
STATION PLAZA
STATION
ENTRY
BRIDGE FOR EMERGENCY ACCESS
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
EXISTING FACILITY
243
SE 8TH ST
EXISTING PARKING LOT
FOR OFFICE BLDG

SITE AREA PLAN

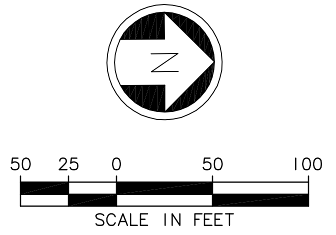
SCALE: 1" = 50'

NOTES

1. ALIGNMENT B2M-C9T

SYMBOLS KEY

▨ NEW BUS STOP
- - - BUS ROUTE
111 114 240
▩ BIKE PARKING: CLASS 1
▨ BIKE PARKING: CLASS 2
▥ TRACK CROSSING
▒ NEW LANDSCAPE
▦ NEW PLAZA
— — TRACK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02/22/11 15:40 : bolimaf OE6579

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Date:

SOUNDTRANSIT

Scale: 1"=50'

Filename: ELB_2BSDCAS01.dwg

Contract No.:

Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M-C9T

SE 8TH STATION
STATION AREA PLAN

Drawing No.: BSDC-AS01

Sheet No.: B-23

Rev.:

DWG INFO:

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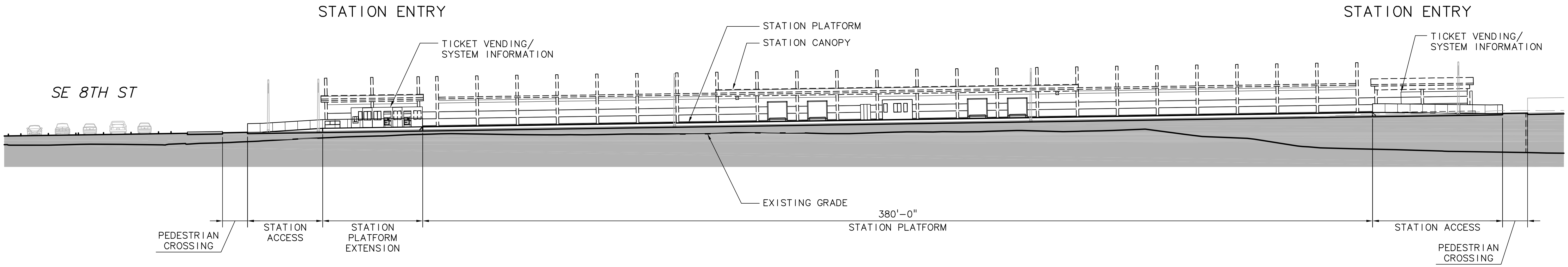
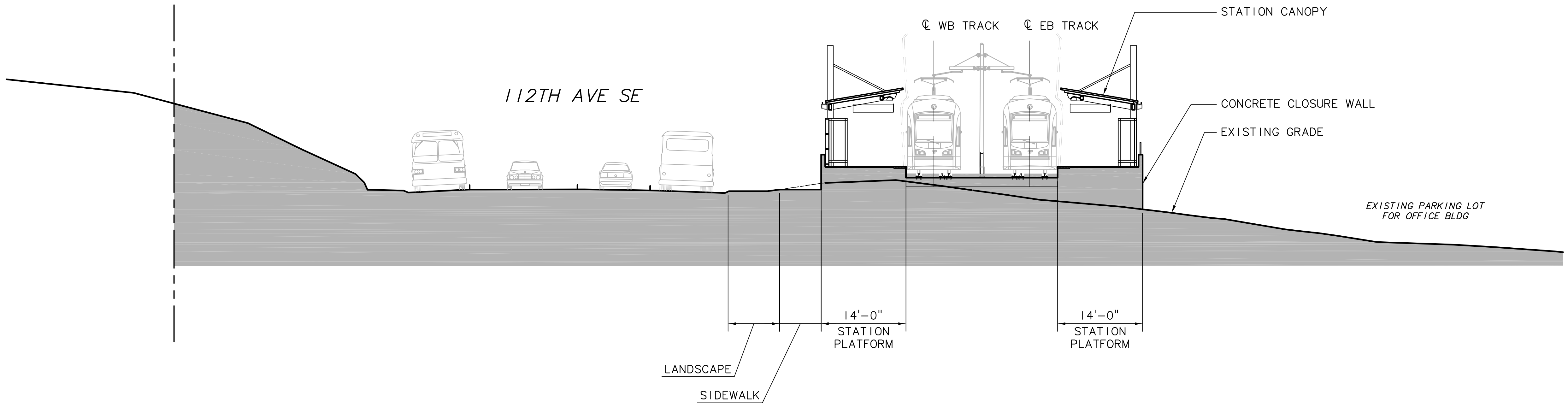

STATION ENTRY
STATION ENTRY
SE 8TH ST
TICKET VENDING/
SYSTEM INFORMATION
STATION PLATFORM
STATION CANOPY
TICKET VENDING/
SYSTEM INFORMATION
EXISTING GRADE
380'-0"
PEDESTRIAN
CROSSING
STATION
ACCESS
STATION
PLATFORM
EXTENSION
STATION PLATFORM
STATION ACCESS
PEDESTRIAN
CROSSING

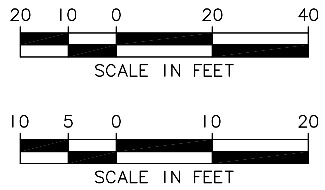
SITE SECTION (A)

SCALE: 1" = 20' BSDC-AX01


℄ WB TRACK
℄ EB TRACK
STATION CANOPY
112TH AVE SE
CONCRETE CLOSURE WALL
EXISTING GRADE
EXISTING PARKING LOT
FOR OFFICE BLDG
14'-0"
STATION
PLATFORM
14'-0"
STATION
PLATFORM
LANDSCAPE
SIDEWALK

SITE SECTION (B)

SCALE: 1" = 10' BSDC-AX01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SCALE IN FEET

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02/22/11 15:40 : bolimaf OE6579

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Date:

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Filename: ELB_2BSDCAX01.dwg

Contract No.:

Date: 02/22/11

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M-C9T

SE 8TH STATION
SITE SECTIONS

Drawing No.: BSDC-AX01

Sheet No.: B-24

Rev.:

DWG INFO:

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1=1

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-Overlay:
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SUB-FEIS
Zg-2234h
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x0219rx
x0222rx
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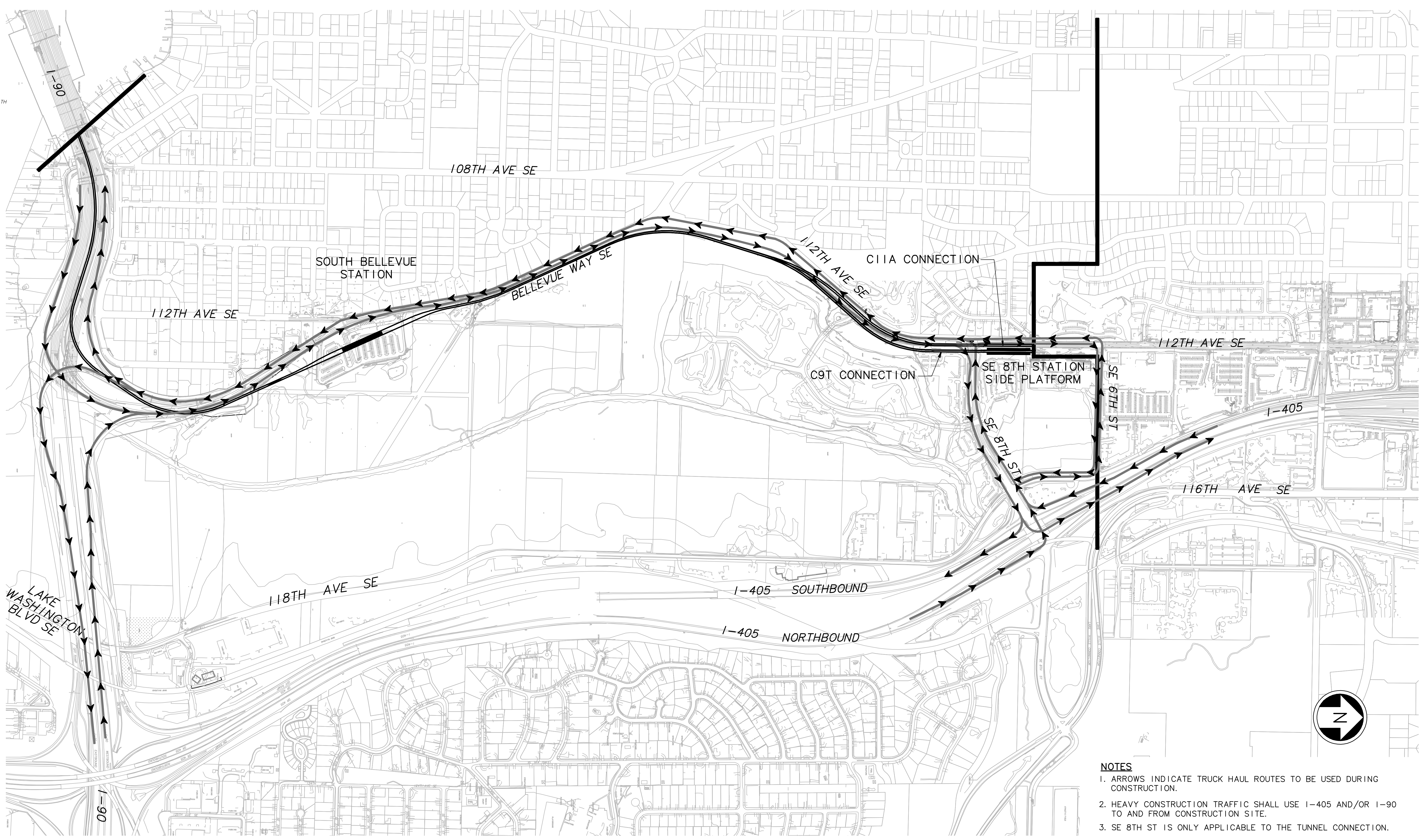

A
B
C
D
E
F
G
H
1
2
3
4
5
I-90
108TH AVE SE
SOUTH BELLEVUE STATION
112TH AVE SE
BELLEVUE WAY SE
112TH AVE SE
C11A CONNECTION
112TH AVE SE
SE 8TH STATION SIDE PLATFORM
C9T CONNECTION
SE 6TH ST
SE 8TH ST
I-405
116TH AVE SE
118TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
LAKE WASHINGTON BLVD SE
I-90
N

NOTES

1. ARROWS INDICATE TRUCK HAUL ROUTES TO BE USED DURING CONSTRUCTION.
2. HEAVY CONSTRUCTION TRAFFIC SHALL USE I-405 AND/OR I-90 TO AND FROM CONSTRUCTION SITE.
3. SE 8TH ST IS ONLY APPLICABLE TO THE TUNNEL CONNECTION.

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06/20/11 13:08 : khuum 0E6585

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FEIS CONCEPTUAL

CH2MHILL

INCA ENGINEERS INC.

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Date: 02/22/11

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B - ALT B2M (PREFERRED)

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CONSTRUCTION TRUCK HAUL ROUTE PLAN

Drawing No.: B2M_-CC01
Sheet No.: B-25
Rev.:

Appendix G2

Potentially Affected Parcels by Alternative

Appendix G2

Potentially Affected Parcels by Alternative

Building and operating the East Link light rail system would require acquiring property for right-of-way and other facilities and presumes displacing and relocating some of the existing uses. This appendix presents the likely property acquisitions based on the current conceptual designs. It is important to note that this list of acquisitions should not be interpreted as the final determination regarding property acquisition, and the list could be updated as the project design is refined. Furthermore, the estimates described in this appendix reflect the existing conditions at the time the analysis was conducted. Accordingly, the number and/or type of displacements could vary between what has been disclosed in this Final Environmental Impact Statement (EIS) and what is actually required because currently underdeveloped or vacant properties might be developed between the publication date of this EIS and the time of construction.

There are two types of property acquisitions:

- **Partial acquisitions** would acquire part of a parcel and generally would not displace the existing use. In a few instances, some of the businesses or residential limits on a parcel would be displaced.
- **Full acquisitions** would acquire the full parcel and displace the current use.

Full acquisitions include parcels that might not be fully needed for the project but would be affected to the extent that existing uses would be substantially impaired (e.g., loss of parking or access). This includes parcels that would be acquired for construction activities, although in some cases all or part of the parcels would be available for other use or for redevelopment after construction is complete.

Tables G2-1 through G2-31 in this appendix present information on the likely acquisitions by alternative, including property needed for elevated guideway easements, which are mapped on the Exhibits G2-1 through G2-54 following the tables. The tables list property mapping numbers unique to this project, parcel identification numbers, addresses, and the building or property name. When there is no building name, the general land use is provided (e.g., residential, vacant). The tables are numbered by segment and alternative.

In addition to the potential property acquisitions described, the project would also require subterranean easements, temporary construction easements, and use of public right-of-way not listed here.

G2.1 Segment B

TABLE G2-1
B2M to C11A: Potential Property Acquisitions *for Preferred 112th SE Modified Alternative (B2M)* connecting to *Preferred 108th NE At-Grade Alternative (C11A)*

Map ID	Parcel Number	Property Name	Site Address
B2061	7000100465	Single-family residence	2831 Bellevue Way SE
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2094	7000100440	Single-family residence	2809 Bellevue Way SE
B2117	7000100425	Vacant (single-family residence)	2705 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2295	0524059254	Single-family residence	2340 Bellevue Way SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B4035	066288TRC1	Mercer Slough Nature Park	East of 112th Avenue SE
B4050	0662900000	Bellefield Residential Park Condominium	1101 Bellefield Park Lane
B4051	066288TRC2	Private road right-of-way	East of 112th Avenue SE
B4061	066288TRC3	Mercer Slough Nature Park	East of 112th Avenue SE
B7000	0662880010	Great Western Building	11201 SE 8th Street
B7002	0662870010	Bellevue Gateway	11400 SE 8th Street
B7003	3225059134	Lincoln Plaza	630 112th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-2
B2M to C9T: Potential Property Acquisitions for *Preferred 112th SE Modified Alternative (B2M)* connecting to *Preferred 110th NE Tunnel Alternative (C9T)*

Map ID	Parcel Number	Property Name	Site Address
B2061	7000100465	Single-family residence	2831 Bellevue Way SE
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2094	7000100440	Single-family residence	2809 Bellevue Way SE
B2117	7000100425	Vacant (single-family residence)	2705 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2295	0524059254	Single-family residence	2340 Bellevue Way SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B4035	066288TRC1	Mercer Slough Nature Park	East of 112th Avenue SE
B4050	0662900000	Bellefield Residential Park Condominium	1101 Bellefield Park Lane
B4051	066288TRC2	Private road right-of-way	East of 112th Avenue SE
B4061	066288TRC3	Mercer Slough Nature Park	East of 112th Avenue SE
B7000	0662880010	Great Western Building	11201 SE 8th Street
B7002	0662870010	Bellevue Gateway	11400 SE 8th Street
B7003	3225059134	Lincoln Plaza	630 112th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-3
B1: Potential Property Acquisitions for Bellevue Way Alternative (B1)

Map ID	Parcel Number	Property Name	Site Address
B2030	7000100750	Single-family residence	3005 Bellevue Way SE
B2049	7000100475	Single-family residence	11230 SE 30th Street
B2061	7000100465	Single-family residence	2831 Bellevue Way SE
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2073	7000100442	Single-family residence	2811 Bellevue Way SE
B2078	7000100441	Single-family residence	2821 Bellevue Way SE
B2094	7000100440	Single-family residence	2809 Bellevue Way SE
B2117	7000100425	Vacant (single-family residential)	2705 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2160	0685400030	Single-family residence	11048 SE 27th Place
B2178	0644200035	Vacant	West of Bellevue Way SE
B2193	0644200040	Single-family residence	2548 111th Avenue SE
B2210	0644200045	Single-family residence	2532 111th Avenue SE
B2225	0644200050	Single-family residence	2522 111th Avenue SE
B2235	0644200055	Single-family residence	2508 111th Avenue SE
B2246	0644210010	Single-family residence	11038 SE 25th Street
B2252	0644210020	Single-family residence	11024 SE 25th Street
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2265	0644210100	Single-family residence	11017 SE 24th Place
B2275	0644210110	Single-family residence	11023 SE 24th Place
B2284	0644210120	Single-family residence	11022 SE 24th Place
B2288	0644210130	Single-family residence	11016 SE 24th Place
B2296	6664000090	Single-family residence	10923 SE 23rd Street
B2300	6664000100	Single-family residence	10929 SE 23rd Street
B2306	6664000110	Single-family residence	10935 SE 23rd Street
B2317	6664000120	Single-family residence	2234 109th Avenue SE
B2326	6664000130	Single-family residence	2228 109th Avenue SE
B2333	6664000140	Single-family residence	2222 109th Avenue SE
B2345	6664000150	Single-family residence	2216 109th Avenue SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2361	0524059027	Single-family residence	2128 109th Avenue SE
B2375	7324900090	Single-family residence	2113 Bellevue Way SE
B2384	7324900093	Single-family residence	2105 Bellevue Way SE
B2397	7324900095	Single-family residence	1997 Bellevue Way SE

TABLE G2-3 CONTINUED
B1: Potential Property Acquisitions for Bellevue Way Alternative (B1)

Map ID	Parcel Number	Property Name	Site Address
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B2407	7324900081	Single-family residence	1928 109th Avenue SE
B2413	7324900085	Single-family residence	1922 109th Avenue SE
B2421	0524059205	Single-family residence	1914 109th Avenue SE
B3001	0524059208	Single-family residence	1906 109th Avenue SE
B3003	0524059253	PSE Sub Station	1900 108th Avenue SE
B3008	0524059307	Vacant	1890 108th Avenue SE
B3010	0524059144	Bellefield Manor Apartments	1800 108th Avenue SE
B3083	0524059239	Triangle Swim Club	1919 108th Avenue SE
B3097	5326100095	Chevron Service Station	1649 108th Avenue SE
B3127	5326100075	Vacant	1624 Bellevue Way SE
B3133	2062600110	Dogwood Lane Condominiums	Southwest corner of 107th Avenue SE and SE 16th Street
B3150	5326100071	Dry cleaner	1614 Bellevue Way SE
B3198	0524059282	Dentist office	1540 Bellevue Way SE
B3204	0524059082	Duplex	10546 SE 16th Street
B3210	0524059164	Boulevard professional building	1530 Bellevue Way SE
B3220	0524059189	Single-family residence	1435 SE 16th Street
B3223	6054600000	Colonial Lane Condominium	1420 Bellevue Way SE
B3237	0524059081	Jack and Jill Daycare	1429 Lake Washington Boulevard SE
B3246	7196800000	Red Oak Lane Condominium	1400 Bellevue Way SE
B3252	0524059011	Single-family residence	10463 SE 14th Street
B3267	1165100000	Brownstone Condominium	1320 Bellevue Way SE
B3288	0524059176	Single-family residence	1310 Bellevue Way SE
B3300	0524059200	Duplex	1300 Bellevue Way SE
B3302	2213000075	Four-plex	1301 Bellevue Way SE
B3305	0524059213	Single-family residence	1312 Bellevue Way SE
B3319	0524059149	Single-family residence	1220 Bellevue Way SE
B3329	2213000035	Single-family residence	10450 SE 13th Street
B3339	0524059066	Single-family residence	1124 Lake Washington Boulevard SE
B3346	052405TRCT	Private road right-of-way	East of Bellevue Way SE
B3362	0524059230	Four-plex	1108 Bellevue Way SE
B3368	0524059009	First Baptist Church of Bellevue	1100 Bellevue Way SE
B3376	0685950000	Bellevue Star Condominium	1102 Bellevue Way SE
B3396	5739601650	Single-family residence	1030 Bellevue Way SE
B3403	5739601655	Single-family residence	1028 Bellevue Way SE

TABLE G2-3 CONTINUED
B1: Potential Property Acquisitions for Bellevue Way Alternative (B1)

Map ID	Parcel Number	Property Name	Site Address
B3415	5739601675	Office	1026 Bellevue Way SE
B3423	5739601625	Single-family residence	1020 Bellevue Way SE
B3432	5739601615	Single-family residence	1004 Bellevue Way SE
B3434	5739601390	Pilgrim Lutheran Church	1030 104th Avenue SE
B3447	5739601600	Single-family residence	1004 Bellevue Way SE
B3473	5739601505	Vacant	East of Bellevue Way SE
B3478	5739601450	Bellevue Nursery	842 104th Avenue SE
B3481	5739601500	Rainbow Daycare	834 Lake Washington Boulevard SE
B3486	5739601510	Single-family residence	824 Lake Washington Boulevard SE
B3493	5739601520	Single-family residence	814 Bellevue Way SE
B3503	5739601475	Fire station parking	800 Lake Washington Boulevard SE
B3544	0666000221	Duplex	10256 SE 8th Street
B3545	5223300165	Bellevue Fire Department	634 104th Avenue SE
B3561	0666000215	Single-family residence	637 104th Avenue SE
B3573	0322000010	Single-family residence	631 Bellevue Way SE
B3578	1157000000	Brookstone Condominium	624 Bellevue Way SE
B3582	0322000110	Right-of-way	West of Bellevue Way SE
B3586	032200TRCT	Private road right-of-way	West of Bellevue Way SE
B3588	0322000110	Vacant	West of Bellevue Way SE
B3597	7804000000	500 Park Terrace Condominium	600 Bellevue Way SE
B3600	0322000090	Single-family residence	611 Bellevue Way SE
B3605	0666000200	Single-family residence	10255 SE 16th Street
B9822	0524059327	Vacant (single-family residential)	North of SE 14th Street and west of Bellevue Way SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-4
B2A: Potential Property Acquisitions for 112th SE At-Grade Alternative (B2A)

Map ID	Parcel Number	Property Name	Site Address
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2295	0524059254	Single-family residence	2340 Bellevue Way SE
B2296	6664000090	Single-family residence	10923 SE 23rd Street
B2300	6664000100	Single-family residence	10929 SE 23rd Street
B2306	6664000110	Single-family residence	10935 SE 23rd Street
B2317	6664000120	Single-family residence	2234 109th Avenue SE
B2326	6664000130	Single-family residence	2228 109th Avenue SE
B2333	6664000140	Single-family residence	2222 109th Avenue SE
B2345	6664000150	Single-family residence	2216 109th Avenue SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2361	0524059027	Single-family residence	2128 109th Avenue SE
B2375	7324900090	Single-family residence	2113 Bellevue Way SE
B2384	7324900093	Single-family residence	2105 Bellevue Way SE
B2397	7324900095	Single-family residence	1997 Bellevue Way SE
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B2413	7324900085	Single-family residence	1922 109th Avenue SE
B3008	0524059307	Vacant	1890 108th Avenue SE
B3010	0524059144	Bellefield Manor Apartments	1800 108th Avenue SE
B4035	066288TRCT	Mercer Slough Nature Park	East of 112th Avenue SE
B4051	066288TRCT	Private road right-of-way	East of 112th Avenue SE
B4074	3210700060	Single-family residence	1014 111th PL SE
B4084	3210700040	Single-family residence	1006 111th PL SE
B5000	3210700030	Single-family residence	1002 112th Avenue SE
B7000	0662880010	Great Western Building	11201 SE 8th Street
B7002	0662870010	Bellevue Gateway	11400 SE 8th Street
B7003	3225059134	Lincoln Plaza	630 112th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-5
B2E: Potential Property Acquisitions for 112th SE Elevated Alternative (B2E)

Map ID	Parcel Number	Property Name	Site Address
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2225	0644200050	Single-family residence	2522 111th Avenue SE
B2235	0644200055	Single-family residence	2508 111th Avenue SE
B2246	0644210010	Single-family residence	11038 SE 25th Street
B2252	0644210020	Single-family residence	11024 SE 25th Street
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2265	0644210100	Single-family residence	11017 SE 24th Street
B2275	0644210110	Single-family residence	11023 SE 24th Street
B2284	0644210120	Single-family residence	11022 SE 24th Street
B2288	0644210130	Single-family residence	11016 SE 24th Place
B2296	6664000090	Single-family residence	10923 SE 23rd Street
B2300	6664000100	Single-family residence	10929 SE 23rd Street
B2306	6664000110	Single-family residence	10935 SE 23rd Street
B2317	6664000120	Single-family residence	2234 109th Avenue SE
B2326	6664000130	Single-family residence	2228 109th Avenue SE
B2333	6664000140	Single-family residence	2222 109th Avenue SE
B2345	6664000150	Single-family residence	2216 109th Avenue SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2361	0524059027	Single-family residence	2128 109th Avenue SE
B2375	7324900090	Single-family residence	2113 Bellevue Way SE
B2384	7324900093	Single-family residence	2105 Bellevue Way SE
B2397	7324900095	Single-family residence	1997 Bellevue Way SE
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B2413	7324900085	Single-family residence	1922 109th Avenue SE
B4061	066288TRCT	Mercer Slough Nature Park	East of 112th Avenue SE
B7000	0662880010	Great Western Building	11201 SE 8th Street
B7002	0662870010	Bellevue Gateway	11400 SE 8th Street
B7003	3225059134	Lincoln Plaza	630 112th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-6
B3: Potential Property Acquisitions for 112th SE Bypass Alternative (B3)

Map ID	Parcel Number	Property Name	Site Address
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2295	0524059254	Single-family residence	2340 Bellevue Way SE
B2296	6664000090	Single-family residence	10923 SE 23rd Street
B2300	6664000100	Single-family residence	10929 SE 23rd Street
B2306	6664000110	Single-family residence	10935 SE 23rd Street
B2317	6664000120	Single-family residence	2234 109th Avenue SE
B2326	6664000130	Single-family residence	2228 109th Avenue SE
B2333	6664000140	Single-family residence	2222 109th Avenue SE
B2345	6664000150	Single-family residence	2216 109th Avenue SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2361	0524059027	Single-family residence	2128 109th Avenue SE
B2375	7324900090	Single-family residence	2113 Bellevue Way SE
B2384	7324900093	Single-family residence	2105 Bellevue Way SE
B2397	7324900095	Single-family residence	1997 Bellevue Way SE
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B3008	0524059307	Vacant	1890 108th Avenue SE
B3010	0524059144	Bellefield Manor Apartments	1800 108th Avenue SE
B4035	066288TRCT	Mercer Slough Nature Park	N/A
B4051	066288TRCT	Private road right-of-way	N/A
B7002	0662870010	Bellevue Gateway	11400 SE 8th Street
B7003	3225059134	Lincoln Plaza	630 112th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-7
B3114th Extension design option: Potential Property Acquisitions for B3 - 114th Extension Design Option

Map ID	Parcel Number	Property Name	Site Address
B2066	7000100445	Vacant	2820 Bellevue Way SE
B2152	7000100360	South Bellevue Park-and-Ride	2500 Bellevue Way SE
B2259	0824059278	Mercer Slough Blueberry Farm and residence	2400 Bellevue Way SE
B2295	0524059254	Single-family residence	2340 Bellevue Way SE
B2296	6664000090	Single-family residence	10923 SE 23rd Street
B2300	6664000100	Single-family residence	10929 SE 23rd Street
B2306	6664000110	Single-family residence	10935 SE 23rd Street
B2317	6664000120	Single-family residence	2234 109th Avenue SE
B2326	6664000130	Single-family residence	2228 109th Avenue SE
B2333	6664000140	Single-family residence	2222 109th Avenue SE
B2345	6664000150	Single-family residence	2216 109th Avenue SE
B2358	0524059084	Winters House	2102 Bellevue Way SE
B2361	0524059027	Single-family residence	2128 109th Avenue SE
B2375	7324900090	Single-family residence	2113 Bellevue Way SE
B2384	7324900093	Single-family residence	2105 Bellevue Way SE
B2397	7324900095	Single-family residence	1997 Bellevue Way SE
B2404	0662870090	Bellefield Office Park	1575 118th Avenue SE
B3008	0524059307	Vacant	1890 108th Avenue SE
B3010	0524059144	Bellefield Manor Apartments	1800 108th Avenue SE
B4035	066288TRCT	Mercer Slough Nature Park	East of 112th Avenue SE
B4051	066288TRCT	Private road right-of-way	East of 112th Avenue SE
B4061	066288TRCT	Mercer Slough Nature Park	East of 112th Avenue SE
B6578	0662870020	Bellefield Office Park	810 114th Avenue SE
B6579	0662870030	Gateway 405	11725 SE 8th Street
B7000	0662880010	Great Western Building	11201 SE 8th Street
B7001	066288TRCT	Private road right-of-way	South of SE 8th Street
B7004	3225059069	Marriott Residence Inn	605 114th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-8
B7: Potential Property Acquisitions for BNSF Alternative (B7)

Map ID	Parcel Number	Property Name	Site Address
B6001	0924059060	Vacant	North of I-90
B6015	0924059009	Washington State Department of Transportation	3291 Lake Washington Boulevard SE
B6052	0924059130	Newport Shores Business Center	3260 118th Avenue SE
B6053	924059065	Newport Shores Business Center	3240 118th Avenue SE
B6059	924059097	Office building	11831 SE 32nd Street
B6076	924059149	Newport Shores Vista	12010 SE 32nd Street
B6394	1149000000	Brookshire Condominium	1600 118th Avenue SE
B6475	0424059010	Store-House Self Storage	1614 118th Avenue SE
B6550	0424059037	Shurguard Mini Storage	1111 118th Avenue SE
B6555	0424059073	Davey Tree and Lawn Care	1015 118th Avenue SE
B6561	0424059057	Vacant	969 118th Avenue SE
B6566	9399700820	Eastside Disposal	969 118th Avenue SE
B6569	9399700800	Greenbaum Furniture	929 118th Avenue SE
B6570	0662870050	Mercer Slough Nature Park	
B6574	0662870040	Bellevue Gateway II	915 118th Avenue SE
B7004	3225059069	Marriott Residence Inn	605 114th Avenue SE
B9832	924059264	Newport Shores Vista	12010 SE 32ND ST

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

G2.2 Segment C

TABLE G2-9
C11A: Potential Property Acquisitions for *Preferred 108th NE At-Grade Alternative (C11A)*

Map ID	Parcel Number	Property Name	Site Address
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
C5027	3225059137	Advanced Dentistry Northwest	11015 Main Street
C5035	8146100570	Office	11005 Main Street
C5041	8146100005	Law firm	69 110th Avenue SE
C5043	8146100010	Office building	10833 Main Street
C5047	8146100015	The Main Street Building	10801 Main Street
C5048	3225059020	Tully’s Coffee	10812 Main Street
C5049	3225059027	Surrey Building	10777 Main Street
C5051	0662480000	Belle Arts	111 108th Avenue NE
C6001	1047000035	Beauty salon and residence	123 108th Avenue NE
C6002	1047000030	House	129 108th Avenue NE
C6003	3225059091	Office Depot and PetSmart	100 108th Avenue NE
C6004	1047000025	Gravel parking	N/A
C6006	1047000020	Vacant	N/A
C6010	3225059214	Pawn X-Change	10825 NE 2nd Street
C6012	3699800050	Cascade Savings and Loan	200 108th Avenue NE
C6014	1544100320	Civica Office Commons	225 108th Avenue NE
C6015	2905700045	Pinnacle BellCentre Apartments	308 108th Avenue NE
C6016	1544100312	305 Building	305 108th Avenue NE
C6017	2905200005	The Summit III (garage only; office on hold)	320 108th Avenue NE
C6019	3225059220	First Mutual Center	400 108th Avenue NE
C6020	1544100254	One Bellevue Center	411 108th Avenue NE
C6021	1544100255	Office building	435 108th Avenue NE
C6022	3225059163	City Center Plaza development	555 110th Avenue NE
C6023	1544100250	Las Margaritas	437 108th Avenue NE
C6024	3225059066	City Center Bellevue	500 108th Avenue NE
C6025	1544100258	Parking	467 108th Avenue NE
C6026	1544100259	Nibbana	515 108th Avenue NE

TABLE G2-9 CONTINUED
C11A: Potential Property Acquisitions for *Preferred 108th NE At-Grade Alternative (C11A)*

Map ID	Parcel Number	Property Name	Site Address
C6027	1544100252	Office building	545 108th Avenue NE
C6028	3225059217	Vacant	N/A
C6029	1544100251	Dry cleaners and deli	555 108th Avenue NE
C6030	0685990010	Bellevue Corporate Plaza	600 108th Avenue NE
C6031	0685990020	Rider Services Building (Bellevue Transit Center)	NE 6th Street, between 108th Avenue NE and 110th Avenue NE
C8028	3225059058	City Center Plaza (City Center II)	555 110th Avenue NE
C8029	3225059017	Bellevue City Hall parking garage	1105 NE 6th Street
C8030	3225059218	Vacant	
C9002	3225059216	Vacant	11101 NE 6th Street
C9003	3225059201	Coco’s	530 112th Avenue NE
C9004	3225059003	Northwest Building	700 112th Avenue NE
C10000	3225059005	Office building	555 116th Avenue NE
C10001	3225059002	Coast Bellevue Hotel	625 116th Avenue NE
C10008	3325059124	Auto dealership (Hummer and Cadillac of Bellevue)	600 116th Avenue NE
C10011	3325059036	Auto showroom and service garage	614 116th Avenue NE
C10020	1099100496	Sunset Glass	11660 NE 8th Street
C10026	1099100490	Office building	800 118th Avenue NE
C10040	6093500000	Nine Lake Bellevue Condominium	9 Lake Bellevue Drive
Connecting from *Preferred 112th SE Modified Alternative (B2M)*			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
C4000	8146300275	Single-family residence	11131 SE 4th Street
C4002	8146300065	Single-family residence	11122 SE 4th Street
C4014	1402400000	Carriage Place Condominium	301 112th Avenue SE
C4037	1401000000	Carriage Hills Condominium	111 112th Avenue SE
C4045	8146100665	Single-family residence	11123 SE 1st Place
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5006	8146100635	Single-family residence	11118 SE 1st Place
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE

TABLE G2-9 CONTINUED
C11A: Potential Property Acquisitions for *Preferred 108th NE At-Grade Alternative (C11A)*

Map ID	Parcel Number	Property Name	Site Address
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-10
C9T: Potential Property Acquisitions *for Preferred 110th NE Tunnel Alternative (C9T)*

Map ID	Parcel Number	Property Name	Site Address
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
C5028	3225059089	Office	11000 Main Street
C5036	3225059105	Vacant	10950 Main Street
C6015	2905700045	Pinnacle BellCentre Apartments	308 108th Avenue NE
C8014	3699800080	Vacant	Southeast corner of 110th Avenue NE and NE 2nd Place
C8016	3699800030	Vacant	N/A
C8017	3699800035	Vacant	Northeast corner of 110th Avenue NE and NE 2nd Place
C8020	8087600029	Vacant	Northwest corner of 110th Avenue NE and NE 2nd Place
C8022	8087600035	Connies Third Street Studio	Northeast corner of 110th Avenue NE and NE 2nd Place
C8028	3225059058	City Center Plaza	555 110th Avenue NE
C8029	3225059017	Bellevue City Hall parking garage	1105 NE 6th Street
C9002	3225059216	Vacant	11101 NE 6th Street
C9003	3225059201	Coco’s	530 112th Avenue NE
C9004	3225059003	Northwest Building	700 112th Avenue NE
C10000	3225059005	Office building	555 116th Avenue NE
C10001	3225059002	Coast Bellevue Hotel	625 116th Avenue NE
C10008	3325059124	Auto dealership (Hummer and Cadillac of Bellevue)	600 116th Avenue NE
C10011	3325059036	Auto showroom and service garage	614 116th Avenue NE
C10017	3325059010	Auto parts (retail)	11635 NE 8th Street
C10020	1099100490	Sunset Glass	11660 NE 8th Street
C10026	6093500000	Office building	800 118th Avenue NE
C10029	2825059080	Whole Foods Market	888 116th Avenue NE
C10032	2825059083	Whole Foods parking	888 116th Avenue NE
C10037	2825059019	Design Market	1014 116TH AVE NE
C10040	6093500000	Nine Lake Bellevue Condominium	9 Lake Bellevue Drive
Connecting from *Preferred 112th SE Modified Alternative (B2M)*			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
C2001	8146300280	Single-family residence	1121 SE 4th Street
C4000	8146300275	Single-family residence	11131 SE 4th Street

TABLE G2-10 CONTINUED
C9T: Potential Property Acquisitions *for Preferred 110th NE Tunnel Alternative (C9T)*

Map ID	Parcel Number	Property Name	Site Address
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4002	8146300065	Single-family residence	11122 SE 4th Street
C4014	1402400000	Carriage Place Condominium	301 112th Avenue SE
C4037	1401000000	Carriage Hills Condominium	111 112th Avenue SE
C4045	8146100665	Single-family residence	11123 SE 1st Place
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5006	8146100635	Single-family residence	11118 SE 1st Place
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-11
C1T: Potential Property Acquisitions for Bellevue Way Tunnel Alternative (C1T)

Map ID	Parcel Number	Property Name	Site Address
C1000	7890000000	Southern Belle Condominium	10320 SE 6th Street
C1004	5223300135	Town Squire Apartments	540 104th Avenue SE
C1005	0666000190	Town and Country Apartments	545 Bellevue Way SE
C1007	2570250000	530 Bellway Condominium	530 Bellevue Way SE
C1008	0666000180	Commodore Apartments	527 Bellevue Way SE
C1009	5223300125	Coachman Apartments	520 104th Avenue SE
C1011	0662450000	Bellara	430 Bellevue Way SE
C1012	0666000175	Bellevue Gardens Apartments	433 Bellevue Way SE
C1014	2617470000	Four Twenty Bellevue Way SE Condominium	420 Bellevue Way SE
C1015	0666000170	425 Apartments	425 Bellevue Way SE
C1017	0666000165	The Townhouse Apartments	417 Bellevue Way SE
C1019	5223300100	Kilmarnock Professional Building	410 104th Avenue SE
C1020	0666000161	M&M Apartments	375 Bellevue Way SE
C1024	0666000160	Belle Ayre Apartments	333 Bellevue Way SE
C1026	1152400000	Brookside Condominium	321 Bellevue Way SE
C1029	5223300096	Vacant	SE corner of Bellevue Way SE and Wolverine Way SE
C1031	0666000150	Residential condominiums	303 Bellevue Way SE
C1037	0666000130	Bellevue Manor	143 Bellevue Way SE
C1041	0666000125	Office building	127 Bellevue Way SE
C1044	5223300065	Radio Shack & Retail	100 Bellevue Way SE
C1054	0666000110	Vacant building (formally KFC)	15 Bellevue Way SE
C1058	5223300050	Jack-In-Box Restaurant	12 104th Avenue NE
C1069	1544100353	Shopping center	30 Bellevue Way NE
C1075	1544100364	Retail and restaurant	102 104th Avenue NE
C1078	1544100365	E.E. Robbins Jeweler	10429 NE 2nd Street
C1079	1544100372	Fat Burger and Baja Fresh	120 104th Avenue NE
C1100	1544100274	Bartell Drugs	414 104th Avenue NE
C1105	4323400000	Lincoln Square Parking Garage	600 Bellevue Way NE
C5091	1544100208	Business Center Building	777 106th Avenue NE
C5092	1544100276	Commerce Building	505 106th Avenue NE
C5094	1544100214	Barnes and Noble Bookstore	606 106th Avenue NE
C5095	1544100256	Bellevue Galleria	550 106th Avenue NE
C6021	1544100255	Office building	435 108th Avenue NE
C6023	1544100250	Las Margaritas	437 108th Avenue NE
C6024	3225059066	City Center Bellevue	500 108th Avenue NE

TABLE G2-11 CONTINUED
C1T: Potential Property Acquisitions for Bellevue Way Tunnel Alternative (C1T)

Map ID	Parcel Number	Property Name	Site Address
C6025	1544100258	Parking	467 108th Avenue NE
C6026	1544100259	Nibbana	515 108th Avenue NE
C6027	1544100252	Office building	545 108th Avenue NE
C6028	3225059217	Vacant	South of NE 6th Street
C6029	1544100251	Dry cleaners and deli	555 108th Avenue NE
C6030	0685990010	Bellevue Corporate Plaza	600 108th Avenue NE
C6031	0685990020	Rider services building (Bellevue Transit Center)	NE 6th Street, between 108th and 110th Avenues NE
C6032	1544100219	Key Center	601 108th Avenue NE
C8029	3225059017	Bellevue City Hall Parking Garage	11105 NE 6th Street
C8031	1043600000	The Bravern	11111 NE 8th Street
C9002	3225059216	Vacant	11101 NE 6th Street
C9003	3225059201	Coco’s	530 112th Avenue NE
C9004	3225059003	Northwest Building	700 112th Avenue NE
C9005	3225059194	Meydenbauer Center	11100 NE 6th Street
C10001	3225059002	Coast Bellevue Hotel	625 116th Avenue NE
C10008	3325059124	Auto Dealership (Hummer and Cadillac of Bellevue)	600 116th Avenue NE
C10011	3325059036	Auto showrooms and service garage	614 116th Avenue NE
C10017	3325059010	Auto parts (retail)	11635 NE 8th Street
C10026	1099100490	Office building	800 118Th Avenue NE
C10032	2825059083	Parking	888 116th Avenue NE
C10040	6093500000	Nine Lake Bellevue Condominium	9 Lake Bellevue Drive

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-12
C2T: Potential Property Acquisitions for 106th NE Tunnel Alternative (C2T)

Map ID	Parcel Number	Property Name	Site Address
C5094	1544100214	Barnes and Noble Bookstore	606 106th Avenue NE
C5095	1544100256	Bellevue Galleria	550 106th Avenue NE
C6021	1544100255	Office building	435 108th Avenue NE
C6023	1544100250	Las Margaritas	437 108th Avenue NE
C6024	3225059066	City Center Bellevue	500 108th Avenue NE
C6025	1544100258	Parking	515 108th Avenue NE
C6026	1544100259	Nibbana	515 108th Avenue NE
C6027	1544100252	Office building	545 108th Avenue NE
C6028	3225059217	Vacant	South of NE 6th Street
C6029	1544100251	Dry cleaners and deli	555 108th Avenue NE
C6030	0685990010	Bellevue Corporate Plaza	600 108th Avenue NE
C6031	0685990020	Rider services building (Bellevue Transit Center)	NE 6th Street, between 108th and 110th Avenues NE
C6032	1544100219	Key Center	601 108th Avenue NE
C8029	3225059017	Bellevue City Hall Parking Garage	11105 NE 6th Street
C8031	1043600000	The Bravern	11111 NE 8th Street
C9002	3225059216	Vacant	11101 NE 6th Street
C9004	3225059003	Northwest Building	700 112th Avenue NE
C9005	3225059194	Meydenbauer Center	11100 NE 6th Street
C10001	3225059002	Coast Bellevue Hotel	625 116th Avenue NE
C10008	3325059124	Auto dealership (Hummer and Cadillac of Bellevue)	600 116th Avenue NE
C10011	3325059036	Auto showrooms and service garage	614 116th Avenue NE
C10017	3325059010	Auto parts (retail)	11635 NE 8th Street
C10026	1099100490	Office building	800 118th Avenue NE
C10037	2825059019	Design Market	1014 116th Avenue NE
Connecting from 112th SE At-Grade Alternative (B2A)			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
Connecting from 112th SE Elevated Alternative (B2E)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C4045	8146100665	Single-family residence	11123 SE 1st Place
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5006	8146100635	Single-family residence	11118 SE 1st Place
C5007	8146100650	Art gallery	11113 Main Street

TABLE G2-12 CONTINUED
C2T: Potential Property Acquisitions for 106th NE Tunnel Alternative (C2T)

Map ID	Parcel Number	Property Name	Site Address
C5008	8146100655	Office	11105 Main Street
C5009	8146100630	Single-family residence	11110 SE 1st Place
C5010	8146100625	Single-family residence	11102 SE 1st Place
C5011	8146100620	Single-family residence	105 111th Avenue SE
C5012	8146100660	Clinic	11041 Main Street
C5015	6729700025	Single-family residence	130 110th Place SE
C5016	6729700020	Single-family residence	124 110th Place SE
C5017	6729700015	Single-family residence	118 110th Place SE
C5018	6729700010	Single-family residence	112 110th Place SE
C5019	6729700005	Office	106 110th Place SE
C5024	3225059038	Single-family residence	115 110th Place SE
C5025	3225059145	Single-family residence	131 110th Place SE
C5026	3225059136	Single-family residence	109 110th Place SE
C5027	3225059137	Advanced Dentistry Northwest	11015 Main Street
C5035	8146100570	Office	11005 Main Street
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Office	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street

TABLE G2-12 CONTINUED
C2T: Potential Property Acquisitions for 106th NE Tunnel Alternative (C2T)

Map ID	Parcel Number	Property Name	Site Address
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-13
C3T: Potential Property Acquisitions for 108th NE Tunnel Alternative (C3T)

Map ID	Parcel Number	Property Name	Site Address
C5095	1544100256	Bellevue Galleria	550 106th Avenue NE
C6021	1544100255	Office building	435 108th Avenue NE
C6023	1544100250	Las Margaritas	437 108th Avenue NE
C6024	3225059066	City Center Bellevue	500 108th Avenue NE
C6025	1544100258	Parking	467 108th Avenue NE
C6026	1544100259	Nibbana	515 108th Avenue NE
C6027	1544100252	Office building	545 108th Avenue NE
C6028	3225059217	Vacant	South of NE 6th Street
C6029	1544100251	Cleaners and deli	555 108th Avenue NE
C6030	0685990010	Bellevue Corporate Plaza	600 108th Avenue NE
C6032	1544100219	Key Center	601 108th Avenue NE
C6033	1544100230	Vacant	601 108th Avenue NE
C6034	3225059076	Prudential Building	700 108th Avenue NE
C6066	0720000005	Museum of Doll Art	1126 108th Avenue NE
C6068	1544600101	Belletini Senior Housing	1139 108th Avenue NE
C6089	2925059238	Single-family residence	10810 NE 12th Street
C6090	2925059237	Single-family residence	10812 NE 12th Street
C6101	2925059288	Single-family residence	10842 NE 12th Street
C6102	2925059236	Single-family residence	10818 NE 12th Street
C6103	2925059138	McCormick Park	North of NE 12th Street
C8062	2925059139	Single-family residence	10856 NE 12th Street
C8063	4348800090	Single-family residence	1209 111th Avenue NE
C8070	4348800010	Single-family residence	1210 111th Avenue NE
C8080	2925059105	McCormick Park	11190 NE 12th Street
C9026	6448110030	Vacant (Overlake Hospital land)	Southeast corner of I-405 and NE 12th Street
C9030	2925059307	Washington Park West office building	1417 116th Avenue NE
C9035	2925059023	Washington Park East office building	1407 116th Avenue NE
C21539	4348800055	Single-family residence	1251 111th Avenue NE
Connecting from 112th SE At-Grade Alternative (B2A)			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
Connecting from 112th SE Elevated Alternative (B2E)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C4045	8146100665	Single-family residence	11123 SE 1st Place
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street

TABLE G2-13 CONTINUED
C3T: Potential Property Acquisitions for 108th NE Tunnel Alternative (C3T)

Map ID	Parcel Number	Property Name	Site Address
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5006	8146100635	Single-family residence	11118 SE 1st Place
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5009	8146100630	Single-family residence	11110 SE 1st Place
C5010	8146100625	Single-family residence	11102 SE 1st Place
C5011	8146100620	Single-family residence	105 111th Avenue SE
C5012	8146100660	Clinic	11041 Main Street
C5015	6729700025	Single-family residence	130 110th Place SE
C5016	6729700020	Single-family residence	124 110th Place SE
C5017	6729700015	Single-family residence	118 110th Place SE
C5018	6729700010	Single-family residence	112 110th Place SE
C5019	6729700005	Office	106 110th Place SE
C5024	3225059038	Single-family residence	115 110th Place SE
C5025	3225059145	Single-family residence	131 110th Place SE
C5026	3225059136	Single-family residence	109 110th Place SE
C5027	3225059137	Advanced Dentistry Northwest	11015 Main Street
C5035	8146100570	Office	11005 Main Street
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
C5027	3225059137	Advanced Dentistry Northwest	11015 Main Street
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5000	3225059043	Brookside Office Center	11400 SE 6th Street

TABLE G2-13 CONTINUED
C3T: Potential Property Acquisitions for 108th NE Tunnel Alternative (C3T)

Map ID	Parcel Number	Property Name	Site Address
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
C5027	3225059137	Advanced Dentistry Northwest	11015 Main Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-14
C4A: Potential Property Acquisitions for Couplet Alternative (C4A)

Map ID	Parcel Number	Property Name	Site Address
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5003	8146100640	Single-family residence	11126 SE 1st Place
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
C5026	3225059136	Single-family residence	109 110th Place SE
C5027	3225059137	Westmark Financial Services	11015 Main Street
C5028	3225059089	Office	11000 Main Street
C5034	8146100575	Single-family residence	80 110th Avenue SE
C5035	8146100570	Office	11005 Main Street
C5036	3225059105	Vacant	10950 Main Street
C5041	8146100005	Law firm	69 110th Avenue SE
C5043	8146100010	Office building	10833 Main Street
C5047	8146100015	The Main Street Building	10801 Main Street
C6021	1544100255	Office building	435 108th Avenue NE
C6023	1544100250	Las Margaritas	437 108th Avenue NE
C6024	3225059066	City Center Bellevue	500 108th Avenue NE
C6025	1544100258	Parking	467 108th Avenue NE
C6026	1544100259	Nibbana	515 108th Avenue NE
C6027	1544100252	Office building	545 108th Avenue NE
C6028	3225059217	Vacant	South of NE 6th Street
C6029	1544100251	Dry cleaners and deli	555 108th Avenue NE
C6030	0685990010	Bellevue Corporate Plaza	600 108th Avenue NE
C6039	1544600148	Office and retail store	10676 NE 8th Street
C6043	2925059357	US Bank Plaza	10800 NE 8th Street
C6051	2925059087	Northward Building Office	846 108th Avenue NE
C6053	1544600142	Washington Square	Southwest corner of 108th Avenue NE and NE 10th Street
C6054	2925059086	Limestone Court Apartments	900 108th Avenue NE
C6056	2925059149	Vacant	
C6058	1544600125	The VUE Apartments	10710 NE 10th Street
C6083	2925059140	Single-family residence	1216 108th Avenue NE

TABLE G2-14 CONTINUED
C4A: Potential Property Acquisitions for Couplet Alternative (C4A)

Map ID	Parcel Number	Property Name	Site Address
C6089	2925059238	Single-family residence	10810 NE 12th Street
C6103	2925059138	McCormick Park	North of NE 12th Street
C8001	3225059057	Toys-R-Us	103 110th Avenue NE
C8017	3699800035	Vacant	Northeast corner of 110th Avenue NE and NE 2nd Place
C8022	8087600035	Connies Third Street Studio	11009 NE 3rd Street
C8024	0012300000	Abella	300 110th Avenue NE
C8025	2905200030	The Summit Buildings A and B	10885 NE 4th Street
C8026	3225059199	Bellevue City Hall	450 110th Avenue NE
C8028	3225059058	City Center II	555 110th Avenue NE
C8029	3225059017	Bellevue City Hall Parking Garage	11105 NE 6th Street
C8030	3225059218	Vacant	
C8062	2925059139	Single-family residence	10856 NE 12th Street
C8063	4348800090	Single-family residence	1209 111th Avenue NE
C8070	4348800010	Single-family residence	1210 111th Avenue NE
C8080	2925059105	McCormick Park	11190 NE 12th Street
C9018	2925059183	Single-family residence	1209 112th Avenue NE
C9030	2925059307	Washington Park West office building	1417 116th Avenue NE
C9035	2925059023	Washington Park East office building	1407 116th Avenue NE
Connecting from 112th SE At-Grade Alternative (B2A)			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
C4000	8146300275	Single-family residence	11131 SE 4th Street
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4002	8146300065	Single-family residence	11122 SE 4th Street
C4014	1402400000	Carriage Place Condominium	301 112th Avenue SE
Connecting from 112th SE Elevated Alternative (B2E)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-15
C7E: Potential Property Acquisitions for 112th NE Elevated Alternative (C7E)

Map ID	Parcel Number	Property Name	Site Address
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C7003	3225059119	Sheraton Bellevue Hotel	100 112th Avenue NE
C7010	2543200070	Home Savings of America	200 112th Avenue NE
C7016	3225059166	222 Building	222 112th Avenue NE
C7021	3225059122	330 Building	330 112th Avenue NE
C8029	3225059017	Bellevue City Hall Parking Garage	11105 NE 6th Street
C9000	3225059004	INCA Building	400 112th Avenue NE
C9001	3225059171	520 Building	520 112th Avenue NE
C9002	3225059216	Vacant	11101 NE 6th Street
C9003	3225059201	Coco's	530 112th Avenue NE
C9004	3225059003	Northwest Building	700 112th Avenue NE
C9011	2925059339	Vacant	818 112th Avenue NE
C9016	2925059271	One Twelfth At Twelfth	1110 112th Avenue NE
C9021	2925059178	The Commons	1200 112th Avenue NE
C9030	2925059307	Washington Park West office building	1417 116th Avenue NE
C9035	2925059023	Washington Park East office building	1407 116th Avenue NE
Connecting from 112th SE At-Grade Alternative (B2A)			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
C4000	8146300275	Single-family residence	11131 SE 4th Street
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4002	8146300065	Single-family residence	11122 SE 4th Street
C4014	1402400000	Carriage Place Condominium	301 112th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
Connecting from 112th SE Elevated Alternative (B2E)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-16
C8E: Potential Property Acquisitions for 110th NE Elevated Alternative (C8E)

Map ID	Parcel Number	Property Name	Site Address
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C6028	3225059217	Vacant	South of NE 6th Street
C6030	0685990010	Bellevue Corporate Plaza	600 108th Avenue NE
C6103	2925059138	McCormick Park	North of NE 12th Street
C7003	3225059119	Sheraton Bellevue Hotel	100 112th Avenue NE
C7010	2543200070	Home Savings of America	200 112th Avenue NE
C8009	3225059184	Vacant	11090 NE 2nd Street
C8011	3699800085	Retail	11017 NE 2nd Place
C8015	3699800090	Office	11024 NE 2nd Street
C8017	3699800035	Vacant	Northeast corner of 110th Avenue NE and NE 2nd Place
C8022	8087600035	Connies Third Street Studio	11009 NE 3rd Street
C8025	2905200030	The Summit, Buildings A and B	10885 NE 4th Street
C8026	3225059199	Bellevue City Hall	450 110th Avenue NE
C8028	3225059058	City Center II	555 110th Avenue NE
C8029	3225059017	Bellevue City Hall parking garage	11105 NE 6th Street
C8030	3225059218	Vacant	450 110th Avenue NE
C8031	1043600000	The Bravern	11111 NE 8th Street
C8034	3225059080	Parking	Southwest corner of 110th Avenue NE and NE 8th Street
C8036	3225059141	Yuen Lui	10827 NE 8th Street
C8055	6162000000	Northeast 12th Park Place Condominium	11011 NE 12th Street
C8063	4348800090	Single-family residence	1209 111th Avenue NE
C8070	4348800010	Single-family residence	1210 111th Avenue NE
C8071	4348800015	Single-family residence	1216 111th Avenue NE
C8080	2925059105	McCormick Park	North of NE 12th Street
C8083	2925059293	Single-family residence	1215 112th Avenue NE
C9018	2925059183	Single-family residence	1209 112th Avenue NE
C9021	2925059178	The Commons	1200 112th Avenue NE
C9030	2925059307	Washington Park West Office Building	1417 116th Avenue NE
C9035	2925059023	Washington Park East Office Building	1407 116th Avenue NE
Connecting from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
Connecting from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C5000	3225059043	Brookside Office Center	11400 SE 6th Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-17
C9A: Potential Property Acquisitions for Alternative C9A

Map ID	Parcel Number	Property Name	Site Address
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C5004	8146100645	Westmark Financial Services	11121 Main Street
C5007	8146100650	Art gallery	11113 Main Street
C5008	8146100655	Office	11105 Main Street
C5012	8146100660	Clinic	11041 Main Street
C5019	6729700005	Office	106 110th Place SE
C5027	3225059137	Advanced Dentistry Northwest	11015 Main Street
C5028	3225059089	Office	11000 Main Street
C5036	3225059105	Vacant	10950 Main Street
C8014	3699800080	Vacant	Southeast corner of 110th Avenue NE and NE 2nd Place
C8017	3699800035	Vacant	Northeast corner of 110th Avenue NE and NE 2nd Place
C8022	8087600035	Connies Third Street Studio	11009 NE 3rd Street
C8026	3225059199	Bellevue City Hall	450 110th Avenue NE
C8029	3225059017	Bellevue City Hall parking garage	11105 NE 6th Street
C9002	3225059216	Vacant	11101 NE 6th Street
C9004	3225059003	Northwest Building	700 112th Avenue NE
C10001	3225059002	Coast Bellevue Hotel	625 116th Avenue NE
C10008	3325059124	Auto Dealership (Hummer and Cadillac of Bellevue)	600 116th Avenue NE
C10011	3325059036	Auto showrooms and service garage	614 116th Avenue NE
C10020	1099100496	Sunset Glass	11660 NE 8th Street
C10026	1099100490	Office building	800 118th Avenue NE
C10040	6093500000	Nine Lake Bellevue Condominium	9 Lake Bellevue Drive
Connection from 112th SE At-Grade Alternative (B2A)			
C2000	3225059140	Surrey Downs Park	675 112th Avenue SE
C4000	8146300275	Single-family residence	11131 SE 4th Street
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C4002	8146300065	Single-family residence	11122 SE 4th Street
C4014	1402400000	Carriage Place Condominium	301 112th Avenue SE
C5003	8146100640	Single-family residence	11126 SE 1st Place
Connection from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
C5000	3225059043	Brookside Office Center	11400 SE 6th Street

TABLE G2-17 CONTINUED
C9A: Potential Property Acquisitions for Alternative C9A

Map ID	Parcel Number	Property Name	Site Address
C5001	3225059044	Bellevue Court	405 114th Avenue SE
Connection from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C5000	3225059043	Brookside Office Center	11400 SE 6th Street
C5001	3225059044	Bellevue Court	405 114th Avenue SE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-18
C14E: Potential Property Acquisitions for Alternative C14E

Map ID	Parcel Number	Property Name	Site Address
C4020	3225059061	Hilton Hotel Bellevue	300 112th Avenue SE
C5001	3225059044	Bellevue Court	405 114th Avenue SE
C5002	3225059036	Red Lion Bellevue Inn	11211 Main Street
C7003	3225059119	Sheraton Bellevue Hotel	100 112th Avenue NE
C7006	3225059219	Vacant	
C7010	2543200070	Home Savings of America	200 112th Avenue NE
C7016	3225059166	222 Building	222 112th Avenue NE
C7019	3225059172	Parking	345 114th Avenue NE
C7020	3225059096	Office	399 114th Avenue NE
C9000	3225059004	INCA Building	400 112th Avenue NE
C9001	3225059171	520 Building	520 112th Avenue NE
C9002	3225059216	Vacant	11101 NE 6th Street
C9003	3225059201	Coco’s	530 112th Avenue NE
C9004	3225059003	Northwest Building	700 112th Avenue NE
C10001	3225059002	Coast Bellevue Hotel	625 116th Avenue NE
C10004	3225059070	Denny’s Restaurant	649 116th Avenue NE
C10011	3325059036	Auto showrooms and service garage	614 116th Avenue NE
C10013	3325059086	Used auto sales	640 116th Avenue NE
C10017	3325059010	Retail auto parts	11635 NE 8th Street
C10018	3325059033	ARCO Station and Minimarket	11611 NE 8th Street
C10020	1099100496	Sunset Glass	11660 NE 8th Street
C10026	1099100490	Office building	800 118th Avenue NE
C10040	6093500000	Nine Lake Bellevue Condominium	9 Lake Bellevue Drive
Connection from 112th SE Bypass Alternative (B3)			
C4001	3225059046	Bellevue Club	11200 SE 6th Street
Connection from BNSF Alternative (B7) and Alternative B3 - 114th Extension Design Option			
C5000	3225059043	Brookside Office Center	11400 SE 6th Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

G2.3 Segment D

TABLE G2-19
D2A: Potential Property Acquisitions *for Preferred Alternative D2A*

Map ID	Parcel Number	Property Name	Site Address
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE
D1011	1099100002	Vacant	1601 120th Avenue NE
D1012	1099100011	Barrier Audi dealership, parking, service garage, and car wash	1533 120th Avenue NE
D1013	1099100005	Sky High Sports and Clearwire	1445 120th Avenue NE
D1014	1099100001	Vacant (Teledesic)	1425 120th Avenue NE
D1015	1099100025	12th Place	1215 120th Avenue NE
D1016	1099100100	Safeway Distribution Center	
D1021	2825059204	Safeway Beverage Plant	1500 124th Avenue NE
D1022	2825059003	124 Plaza	1750 124th Avenue NE
D1027	2825059296	Vacant (industrial)	1750 124th Avenue NE
D1042	2825059193	Evans Industrial Park (Buildings 16 through 25)	12720 NE 15th Place
D1046	2825059230	Allied Waste	1600 127th Avenue NE
D1059	2825059178	Evans Industrial Park (Buildings 11,14, and 15)	12898 NE 15th Place
D1061	2825059041	Cadman Bellevue	1605 130th Avenue NE
D1070	2825059195	Evans Industrial Park (Building 10)	1501 130th Avenue NE
D1081	2825059040	Aiphone	1700 130th Avenue NE
D1082	2825059159	Aiphone	1606 130th Avenue NE
D1086	2825059058	Kelly’s Auto Body	1500 130th Avenue NE
D1097	2825059191	Arnold’s Appliance	1625 132nd Avenue NE
D1099	2825059285	Curran Business Park	1525 132nd Avenue NE
D1113	2725059198	ServiceMaster and Gray Bar	1600 132nd Avenue NE
D1119	0672100005	Seattle Boat	13203 NE 16th Street
D1124	2725059109	Thrift Supply Company	13212 NE 16th Street
D1135	0672100004	Cascade Business Forms	1545 134th Avenue NE
D1138	2725059008	North Coast Electric	13340 NE 16th Street
D1146	2725059213	North Coast Electric	13400 NE 16th Street
D1157	2725059237	North Coast Electric	13430 NE 16th Street
D1163	0672100191	Lexis Nexis	13427 NE 16th Street
D1164	2725059217	Tri-State Plumbing	13420 NE 16th Street
D1178	0672100180	Wades Gun Shop and Range	13550 NE 16th Street
D1184	2725059152	Public storage	13640 NE Bellevue-Redmond Road
D1196	2725059263	Service garage (coffee roasting plant)	13600 NE 16th Street
D1198	2725059062	Vacant (commercial)	1701 136th Place NE

TABLE G2-19 CONTINUED
D2A: Potential Property Acquisitions *for Preferred Alternative D2A*

Map ID	Parcel Number	Property Name	Site Address
D1205	2725059009	MGI Building	13434 NE 16th Street
D1207	2725059262	Service and repair garage	1620 136th Place NE
D1210	2725059067	Vacant (commercial)	1705 136th Place NE
D1215	2725059088	Service and repair garage	1630 136th Place NE
D1217	2725059240	Towne and Country Motors	1707 136th Place NE
D1221	2725059142	Rain City Fencing Center	1776 136th Place NE
D1224	2725059212	Vacant (commercial)	1645 136th Avenue NE
D1227	3862900030	136th Place Office Park	1780 136th Place NE
D1229	2725059275	The Earth Building	1805 136th Place NE
D1230	3862900020	136th Place Office Park	1800 136th Place NE
D1232	3862900010	Western Tile and Marble	1810 136th Place NE
D1234	2725059228	Bellevue BMW Auto Showroom and Dealership	13605 NE 20th Street
D1235	2725059063	Simone Plaza	1880 136th Place NE
D2004	2825059070	Parking lot	East of 116th Avenue NE, west of 120th Avenue NE
D2032	2825059213	Pella Windows and Doors, AVAD, R&R Party Rentals	2019 120th Avenue NE
D2033	2825059294	Eastside Staple and Nail	1917 120th Avenue NE
D3000	2725059148	Park Place Center	13620 NE 20th Street
D3001	2725059288	Park Place Center	13620 NE 20th Street
D3011	2725059066	Olson Mills Tack Shop	2105 140th Avenue NE
D5020	2063500100	Overlake Business Center	2801 152nd Avenue NE
D5037	2325059049	Microsoft (Buildings 42, 43, 44, and cafeteria)	15595 NE 36th Street
D5061	1099100102	Bellevue Distribution Center	1127 124th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-20
D2A - NE 24th Design Option: Potential Property Acquisitions for *Preferred Alternative D2A* with D2A - NE 24th Design Option

Map ID	Parcel Number	Property Name	Site Address
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE
D1011	1099100002	Vacant (Tract A; road access for car dealership)	1601 120th Avenue NE
D1012	1099100011	Barrier Audi Dealership, parking and service garage, car wash	1533 120th Avenue NE
D1013	1099100005	Sky High Sports, Clearwire	1445 120th Avenue NE
D1014	1099100001	Vacant (Teledesic)	1425 120th Avenue NE
D1015	1099100025	12th Place	1215 120th Avenue NE
D1016	1099100100	Safeway Distribution Center	
D1021	2825059204	Safeway Beverage Plant	1500 124th Avenue NE
D1022	2825059003	124 Plaza	1750 124th Avenue NE
D1027	2825059296	Vacant (industrial)	1750 124th Avenue NE
D1042	2825059193	Evans Industrial Park (Buildings 16 through 25)	12720 NE 15th Place
D1046	2825059230	Allied Waste	1600 127th Avenue NE
D1059	2825059178	Evans Industrial Park (Buildings 11,14, and 15)	12898 NE 15th Place
D1061	2825059041	Cadman Bellevue	1605 130th Avenue NE
D1070	2825059195	Evans Industrial Park (Building 10)	1501 130th Avenue NE
D1081	2825059040	Aiphone	1700 130th Avenue NE
D1082	2825059159	Aiphone	1606 130th Avenue NE
D1086	2825059058	Kelly’s Auto Body	1500 130th Avenue NE
D1097	2825059191	Arnold’s Appliance	1625 132nd Avenue NE
D1099	2825059285	Curran Business Park	1525 132nd Avenue NE
D1113	2725059198	ServiceMaster and Gray Bar	1600 132nd Avenue NE
D1119	0672100005	Seattle Boat	13203 NE 16th Street
D1124	2725059109	Thrift Supply Company	13212 NE 16th Street
D1135	0672100004	Cascade Business Forms	1545 134th Avenue NE
D1138	2725059008	North Coast Electric	13340 NE 16th Street
D1146	2725059213	North Coast Electric	13400 NE 16th Street
D1157	2725059237	North Coast Electric	13430 NE 16th Street
D1163	0672100191	Lexis Nexis	13427 NE 16th Street
D1164	2725059217	Tri-State Plumbing	13420 NE 16th Street
D1178	0672100180	Wades Gun Shop and Range	13550 NE 16th Street
D1184	2725059152	Public Storage	13640 NE Bellevue-Redmond Road
D1196	2725059263	Service garage (coffee roasting plant)	13600 NE 16th Street
D1198	2725059062	Vacant (commercial)	1701 136th Place NE
D1205	2725059009	MGI Building	13434 NE 16th Street

TABLE G2-20 CONTINUED
D2A - NE 24th Design Option Potential Property Acquisitions for *Preferred Alternative D2A* with D2A - NE 24th Design Option

Map ID	Parcel Number	Property Name	Site Address
D1207	2725059262	Service and repair garage	1620 136th Place NE
D1210	2725059067	Vacant (commercial)	1705 136th Place NE
D1215	2725059088	Service and repair garage	1630 136th Place NE
D1217	2725059240	Towne and Country Motors	1707 136th Place NE
D1221	2725059142	Rain City Fencing Center	1776 136th Place NE
D1224	2725059212	Vacant (commercial)	1645 136th Avenue NE
D1227	3862900030	136th Place Office Park	1780 136th Place NE
D1229	2725059275	The Earth Building	1805 136th Place NE
D1230	3862900020	136th Place Office Park	1800 136th Place NE
D1232	3862900010	Western Tile and Marble	1810 136th Place NE
D1234	2725059228	Bellevue BMW auto showroom and dealership	13605 NE 20th Street
D1235	2725059063	Simone Plaza	1880 136th Place NE
D2032	2825059213	Pella Windows and Doors, AVAD, R&R Party Rentals	2019 120th Avenue NE
D2033	2825059294	Eastside Staple and Nail	1917 120th Avenue NE
D3000	2725059148	Park Place Center	13620 NE 20th Street
D3001	2725059288	Park Place Center	13620 NE 20th Street
D3011	2725059066	Olson Mills Tack Shop	2105 140th Avenue NE
D3053	2725059103	Oakhurst Center	14335 NE 24th Street
D3097	2225059025	Children’s Academy of Bellevue	14510 NE 24th Street
D3103	2225059332	Burger King	14620 NE 24th Street
D3105	2225059085	Children’s Academy of Bellevue	14640 NE 24th Street
D3107	2225059217	Union 76 convenience store (with fuel)	2421 148th Avenue NE
D3111	2063500010	Bank of America	2400 148th Avenue NE
D3113	2063500025	Black Bear Diner	14804 NE 24th Street
D3114	2063500040	Overlake Village Shopping Center	14810 NE 24th Street
D3120	2063500050	Key Bank and Office	15110 NE 24th Street
D4244	2063500060	Line retail	15112 NE 24th Street
D5006	2063500070	Overlake Business Center	2441 152nd Avenue NE
D5011	2063500080	Overlake Business Center	2501 152nd Avenue NE
D5014	2063500090	Overlake Business Center	2601 151st Place NE
D5020	2063500100	Overlake Business Center	2801 152nd Avenue NE
D5023	0673100011	Overlake Terrace Assisted Living	2956 152nd Avenue NE
D5031	0673100010	Microsoft (Building 22)	3050 152nd Avenue NE

TABLE G2-20 CONTINUED
D2A - NE 24th Design Option Potential Property Acquisitions for *Preferred Alternative D2A* with D2A - NE 24th Design Option

Map ID	Parcel Number	Property Name	Site Address
D5037	2325059049	Microsoft (Buildings 42, 43, 44, and cafeteria)	15595 NE 36th Street
D5061	1099100102	Bellevue Distribution Center	1127 124th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-21
D2E: Potential Property Acquisitions for NE 16th Elevated Alternative (D2E)

Map ID	Parcel Number	Property Name	Site Address
D1011	1099100002	Vacant	1601 120th Avenue NE
D1012	1099100011	Barrier Audi Dealership	1533 120th Avenue NE
D1013	1099100005	Sky High Sports and Clearwire	1445 120th Avenue NE
D1021	2825059204	Safeway Beverage Plant	1500 124th Avenue NE
D1034	2825059240	Safeway	1420 124th Avenue NE
D1042	2825059193	Evans Industrial Park (Buildings 16 through 25)	12720 NE 15th Place
D1059	2825059178	Evans Industrial Park (Buildings 11, 14, and 15)	12898 NE 15th Place
D1070	2825059195	Evans Industrial Park (Building 10)	1501 130th Avenue NE
D1081	2825059040	Aiphone	1606 130th Avenue NE
D1082	2825059159	Aiphone	1606 130th Avenue NE
D1086	2825059058	Kelly’s Autobody	1500 130th Avenue NE
D1097	2825059191	Arnold’s Appliance	1625 132nd Avenue NE
D1099	2825059285	Curran Business Park	1525 132nd Avenue NE
D1119	0672100005	Seattle Boat	13203 NE 16th Street
D1135	0672100004	Cascade Business Forms	1545 134th Avenue NE
D1163	0672100191	Lexis Nexis	13427 NE 16th Street
D1198	2725059062	Vacant commercial land	1701 136th Place NE
D1205	2725059009	MGI Building	13434 NE 16th Street
D1210	2725059067	Vacant commercial land	1705 136th Place NE
D1217	2725059240	Towne and Country Motors	1707 136th Place NE
D1224	2725059212	Vacant commercial land	1645 136th Avenue NE
D1229	2725059275	The Earth Building	1805 136th Place NE
D1234	2725059228	Bellevue BMW Auto Showroom and Dealership	13605 NE 20th Street
D3000	2725059148	Park Place Center	13620 NE 20th Street
D3001	2725059288	Park Place Center	13620 NE 20th Street
D3003	2725059006	U.S. Bank	13830 NE 20th Street
D3053	2725059103	Oakhurst Center	14335 NE 24th Street
D3100	2725059229	Retail	14625 NE 24th Street
D3102	2725059205	Chuck - E - Cheese/Retail	2139 148th Avenue NE
D3106	2725059235	Music Store	2301 148th Avenue NE
D3108	2725059231	Sleep Country	2337 148th Avenue NE
D3110	2625059275	Red Robin	2390 148th Avenue NE
D3115	2625059276	Overlake Fashion Plaza	15001 NE 24th Street
D3117	3927200210	Bank of America drive-thru	15075 NE 24th Street
D3118	3927200201	Private road right-of-way	15025 NE 24th Street

TABLE G2-21 CONTINUED
D2E: Potential Property Acquisitions for NE 16th Elevated Alternative (D2E)

Map ID	Parcel Number	Property Name	Site Address
D3119	3927200220	Arbys	15115 NE 24th Street
D4142	2625059196	Sears and Overlake Fashion Plaza	2200 148th Avenue NE
D4238	3927200230	Overlake Square	15171 NE 24th Street
D4244	2063500060	Line Retail	15112 NE 24th Street
D5006	2063500070	Overlake Business Center	2441 152nd Avenue NE
D5011	2063500080	Overlake Business Center	2501 152nd Avenue NE
D5014	2063500090	Overlake Business Center	2601 151st Place NE
D5020	2063500100	Overlake Business Center N	2801 152nd Avenue NE
D5031	0673100010	Microsoft (Building 22)	3050 152nd Avenue NE
D5037	2325059049	Microsoft (Buildings 42,43,and 44 and cafeteria)	15595 NE 36th Street
D5061	1099100102	Bellevue Distribution Center	1227 124th Avenue NE
Connecting from BNSF			
D1006	2825059015	Vacant industrial land	1412 116th Avenue NE
Connecting from NE 12th Street			
D1001	2825059105	Cascade Medical Center	1414 116th Avenue NE
D1002	2825059291	Seattle Children’s Hospital: Bellevue Clinic and Surgery Center	1500 116th Avenue NE
D1003	2825059184	Vacant industrial land	1438 116th Avenue NE
D1006	2825059015	Vacant industrial land	1412 116th Avenue NE
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-22
D3: Potential Property Acquisitions for NE 20th Alternative (D3)

Map ID	Parcel Number	Property Name	Site Address
D1011	1099100002	Vacant	1601 120th Avenue NE
D1012	1099100011	Barrier Audi Dealership	1533 120th Avenue NE
D1013	1099100005	Sky High Sports and Clearwire	1445 120th Avenue NE
D1021	2825059204	Safeway Beverage Plant	1500 124th Avenue NE
D1034	2825059240	Safeway	1420 124th Avenue NE
D1042	2825059193	Evans Industrial Park (Buildings 16 through 25)	12720 NE 15th Place
D1059	2825059178	Evans Industrial Park (Buildings 11, 14, and 15)	12898 NE 15th Place
D1061	2825059041	Cadman Bellevue	1605 130th Avenue NE
D1070	2825059195	Evans Industrial Park (Building 10)	1501 130th Avenue NE
D1081	2825059040	Aiphone	1700 130th Avenue NE
D1082	2825059159	Aiphone	1606 130th Avenue NE
D1086	2825059058	Kelly’s Autobody	1500 130th Avenue NE
D1097	2825059191	Arnold’s Appliance	1625 132nd Avenue NE
D1099	2825059285	Curran Business Park	1555 132nd Avenue NE
D1113	2725059198	ServiceMaster and Gray Bar	1600 132nd Avenue NE
D1119	0672100005	Seattle Boat	13203 NE 16th Street
D1124	2725059109	Thrift Supply Co.	13212 NE 16th Street
D1135	0672100004	Cascade Business Forms	1545 134th Avenue NE
D1138	2725059008	North Coast Electric	13340 NE 16th Street
D1146	2725059213	North Coast Electric	13400 NE 16th Street
D1157	2725059237	North Coast Electric	13430 NE 16th Street
D1163	0672100191	Lexis Nexis	13427 NE 16th Street
D1164	2725059217	Tri-State Plumbing	13420 NE 16th Street
D1198	2725059062	Vacant commercial land	1701 136th Place NE
D1205	2725059009	MGI Building	13434 NE 16th Street
D1207	2725059262	Garage and service repair	1620 136th Place NE
D1210	2725059067	Vacant commercial land	1705 136th Place NE
D1215	2725059088	Garage and service repair	1630 136th Place NE
D1217	2725059240	Towne and Country Motors	1707 136th Place NE
D1221	2725059142	Rain City Fencing Center	1776 136th Place NE
D1224	2725059212	Vacant commercial land	1645 136th Avenue NE
D1227	3862900030	136th Place Office Park	1780 136th Place NE
D1229	2725059275	The Earth Building	1805 136th Place NE
D1230	3862900020	136th Place Office Park	1802 136th Place NE
D1232	3862900010	Western Tile and Marble	1810 136th Place NE

TABLE G2-22 CONTINUED
D3: Potential Property Acquisitions for NE 20th Alternative (D3)

Map ID	Parcel Number	Property Name	Site Address
D1234	2725059228	Bellevue BMW auto showroom and dealership	13605 NE 20th Street
D1235	2725059063	Simone Plaza	1880 136th Place NE
D1236	2725059110	Retail	13626 NE 20th Street
D2310	2725059329	Apple Tree Plaza	13600 NE 20th Street
D2313	2725059061	Apple Tree Plaza	13620 NE 20th Street
D3000	2725059148	Park Place Center	13620 NE 20th Street
D3001	2725059288	Park Place Center	13620 NE 20th Street
D3003	2725059006	U.S. Bank	13830 NE 20th Street
D4000	2725059319	Auto showroom (Land Rover and Jaguar)	13817 NE 20th Street
D4001	2725059209	McDonald’s parking	13831 NE 20th Street
D4002	2725059224	Fitness shop	13900 NE 20th Street
D4003	2725059010	Evergreen Village	1645 140th Avenue NE
D4004	2725059129	McDonalds	13841 NE 20th Street
D4005	2725059053	Chevron Service Station	13948 NE 20th Street
D4006	2725059204	Vacant commercial land	13841 NE 20th Street
D4008	2725059171	Bellevue Kawasaki	14004 NE 20th Street
D4009	2725059168	Jiffy Lube	14001 NE 20th Street
D4010	2725059003	Vacant land	Northeast corner of 140th Avenue NE and NE 20th Street
D4015	2725059241	Retail	14100 NE 20th Street
D4017	2725059253	Ross Plaza	14115 NE 20th Street
D4019	2725059242	Retail	14100 NE 20th Street
D4021	2725059303	Ross Plaza	14121 NE 20th Street
D4023	2725059246	Retail stores	14150 NE 20th Street
D4026	2725059301	Ross Plaza	14125 NE 20th Street
D4027	6391200010	Retail stores	14210 NE 20th Street
D4032	6391200020	Retail stores	14220 NE 20th Street
D4034	6391200030	Retail stores	14230 NE 20th Street
D4037	6391200040	Retail store	14310 NE 20th Street
D4039	2725059302	Ross Plaza	14327 NE 20th Street
D4042	6391200050	Retail store	14320 NE 20th Street
D4044	6391200060	Retail store	14326 NE 20th Street
D4047	6391200070	Retail store	14340 NE 20th Street
D4054	2725059047	Retail stores	14405 NE 20th Street

TABLE G2-22 CONTINUED
D3: Potential Property Acquisitions for NE 20th Alternative (D3)

Map ID	Parcel Number	Property Name	Site Address
D4057	2725059002	Retail store	14408 NE 20th Street
D4069	2725059157	Mountvue Place	14506 NE 20th Street
D4078	2725059039	Sternco Center	14625 NE 20th Street
D4096	2725059201	Fred Meyer	2001 148th Avenue NE
D4111	2725059038	Sternco Center	14701 NE 20th Street
D4131	2625059031	Taco Bell	1960 148th Avenue NE
D4136	2625059107	Fire Station	14822 NE Bellevue-Redmond Road
D4140	2625059217	Sherwood Travel and retail	14904 NE Bellevue-Redmond Road
D4142	2625059196	Sears Overlake Fashion Plaza	2200 148th Avenue NE
D4145	2625059208	Goodyear Tire	14923 NE 20th Street
D4157	2625059010	Highland Covenant Church	15022 NE Bellevue-Redmond Road
D4169	3927200190	Koll Commerce Center Lot 19	2001 152nd Avenue NE
D4192	3927200150	Koll Commerce Center Lot 15	2021 152nd Avenue NE
D4193	2625059160	Exotic Motors	15212 NE 20th Street
D4206	2625059235	Service garage	2040 152nd Avenue NE
D4211	2625059254	Kindercare Learning Center	2060 152nd Avenue NE
D4220	2625059256	Power Sub Station	2120 152nd Avenue NE
D4230	2625059046	Silver Cloud Inn Redmond	2122 152nd Avenue NE
D4233	105400TRCT	Private road right-of-way	East of 152nd Avenue NE
D4235	9360700000	The White Swan	2222 152nd Avenue NE
D4238	3927200230	Overlake Square	15171 NE 24th Street
D4240	2625059054	Office Depot and Tuesday Morning	15301 NE 24th Street
D4244	2063500060	Line retail	15112 NE 24th Street
D5000	6448500010	Overlake East Shopping Center	15210 NE 24th Street
D5006	2063500070	Overlake Business Center	2441 152nd Avenue NE
D5010	8944420010	Village at Overlake Station	2576 152nd Avenue NE
D5011	2063500080	Overlake Business Center	2501152nd Avenue NE
D5014	2063500090	Overlake Business Center	2601 151st Place NE
D5015	0673100050	Group Health Hospital	2464 152nd Avenue NE
D5019	0673100020	Group Health parking	2464 152nd Avenue NE
D5020	2063500100	Overlake Business Center North	2801 152nd Avenue NE
D5023	0673100011	Overlake Terrace Assisted-Living	2956 152nd Avenue NE
D5031	0673100010	Microsoft (Building 22)	3050 152nd Avenue NE
D5037	2325059049	Microsoft (Buildings 42,43,and 44 and cafeteria)	15595 NE 33RD Street
D5061	1099100102	Bellevue Distribution Center	1227 124th Avenue NE

TABLE G2-22 CONTINUED
D3: Potential Property Acquisitions for NE 20th Alternative (D3)

Map ID	Parcel Number	Property Name	Site Address
Connecting from NE 12th Street			
D1001	2825059105	Cascade Medical Center	1414 116th Avenue NE
D1002	2825059291	Seattle Children’s Hospital: Bellevue Clinic and Surgery Center	1500 116th Avenue NE
D1003	2825059184	Vacant industrial land	1438 116th Avenue NE
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-23
D5: Potential Property Acquisitions for SR 520 Alternative (D5)

Map ID	Parcel Number	Property Name	Site Address
D1011	1099100002	Vacant	1601 120TH Avenue NE
D2004	2825059070	Parking lot	west of 120th Avenue NE
D2031	2825059156	Choice Medical Supplies	2035 120th Avenue NE
D2032	2825059213	Pella Windows and Doors, AVAD, and R&R Party Rentals	2019 120th Avenue NE
D2033	2825059294	Eastside Staple and Nail	1917 120th Avenue NE
D2034	2825059307	Molecumetics	2023 120th Avenue NE
D2035	2825059026	Metro Transit Operations	1975 124th Avenue NE
D2037	2825059007	Safeway Bakery	1121 124th Avenue NE
D2042	2825059005	Shurgard Storage	12385 Northup Way
D2059	2825059279	North Park	12230 Northup Way
D2065	2825059052	Vacant	North of SR 520
D2077	2825059039	Vacant industrial land	12400 Northup Way
D2108	2825059072	Vacant industrial land	12410 Northup Way
D2132	2825059155	Hi Lan Apartment	12628 Northup Way
D2143	2825059232	Associated with Iron Gym Works	12737 Northup Way
D2164	2825059136	Eastside Towing	12816 NE 21st Place
D2166	2825059122	D E Hokanson, Inc.	12840 Northup Way
D2171	2825059138	Digital Reprographics Services, Inc.	12880 Northup Way
D2183	2825059144	Star Rentals	12900 Northup Way
D2203	2825059001	Northup Distribution Center	12950 Northup Way
D2246	2825059116	Plaza 520	13000 NE 20th Street
D2279	2725059188	Northup East Office Park	13240 NE 20th Street
D3019	2725059071	The Blind Alley	14102 NE 20th Street
D3053	2725059103	Oakhurst Center	14335 NE 24th Street
D3114	2063500040	Overlake Village Shopping Center	14810 NE 24th Street
D4244	2063500060	Line Retail	15112 NE 24th Street
D5000	6448500010	Overlake East Shopping Center	15210 NE 24th Street
D5006	2063500070	Overlake Business Center	2441 152nd Avenue NE
D5010	8944420010	Village at Overlake Station	2650 152nd Avenue NE
D5011	2063500080	Overlake Business Center	2559 152nd Avenue NE
D5014	2063500090	Overlake Business Center	2601 151st Place NE
D5015	0673100050	Group Health Hospital	2464 152nd Avenue NE
D5019	0673100020	Group Health Parking	2464 152nd Avenue NE
D5020	2063500100	Overlake Business Center North	2801 152nd Avenue NE

TABLE G2-23 CONTINUED
D5: Potential Property Acquisitions for SR 520 Alternative (D5)

Map ID	Parcel Number	Property Name	Site Address
D5023	0673100011	Overlake Terrace Assisted Living	2956 152nd Avenue NE
D5031	0673100010	Microsoft (Building 22)	3050 152nd Avenue NE
D5037	2325059049	Microsoft (Buildings 42,43,and 44 and cafeteria)	15595 NE 36th Street
Connecting from NE 12th Street			
D1002	2825059291	Seattle Children’s Hospital: Bellevue Clinic and Surgery Center	1500 116th Avenue NE
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE
D2000	2825059009	Bellevue Medical Park	1600 116th Avenue NE
D2001	2825059290	Vacant industrial land	1602 116th Avenue NE
D2003	2825059103	Vacant commercial land	1634 116th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

G2. 4 Segment E

TABLE G2-24
E2: Potential Property Acquisitions for *Preferred Marymoor Alternative (E2)*

Map ID	Parcel Number	Property Name	Site Address
E1004	1425059068	Microsoft (Building 50)	4001 156th Avenue NE
E1008	1425059125	Vacant (Microsoft)	4201 156th Avenue NE
E1012	7503110050	Vacant (Microsoft)	
E1015	7503110040	SAFECO (Columbia Building)	15319 154th Place NE
E1020	7503110030	Microsoft (Buildings 87 and Pacific)	4729 154th Place NE
E1032	7503110010	Microsoft (Building 88 and Olympic)	5069 154th Place NE
E1109	3882310110	Single-family residence	5227 154th Avenue NE
E1115	3882310100	Single-family residence	5305 154th Avenue NE
E1124	3882310090	Single-family residence	5315 154th Avenue NE
E1131	3882310080	Single-family residence	5323 154th Avenue NE
E1134	3882310070	Single-family residence	5401 154th Avenue NE
E1142	3882310060	Single-family residence	5409 154th Avenue NE
E1146	3882310050	Single-family residence	5417 154th Avenue NE
E1152	3882310040	Single-family residence	5425 154th Avenue NE
E1185	2182500050	Vacant	West of 154th Avenue NE
E1248	3882300080	Single-family residence	15405 NE 59th Way
E1267	3882300090	Single-family residence	15406 NE 59th Way
E1275	3882300100	Single-family residence	15414 NE 59th Way
E1322	9435300123	Vacant	Northeast corner of SR 520 and NE 60th Street
E1649	542256TRCT	Open space	Southwest corner of West Lake Sammamish Parkway and SR 520 interchange
E1691	5422560680	Single-family residence	15804 NE 67th Place
E1708	5422560670	Single-family residence	15810 NE 67th Place
E1718	5422560660	Single-family residence	15816 NE 67th Place
E1730	5422560650	Single-family residence	15822 NE 67th Place
E4020	1125059016	Marymoor Park	16300 NE Marymoor Way
E4026	1225059037	Marymoor Park	17630 NE Marymoor Way
E4032	1225059042	Redmond Self-Storage	17285 NE 70th Street
E4033	1225059187	Dunkin and Bush Contractors	17301 NE 70th Street
E4035	5195500140	HFI Foods	17360 NE 67th Court
E4036	1225059183	Redmond Sea Ray	17351 NE 70th Street
E4038	122505TRCT	Parking lot	17445 NE 70th St
E4039	1225059101	Eastside Collision and Sign-Pros	17443 NE 70th Street

TABLE G2-24 CONTINUED
E2: Potential Property Acquisitions for *Preferred Marymoor Alternative (E2)*

Map ID	**Parcel Number**	**Property Name**	**Site Address**
E4040	1225059260	70th Center	17445 NE 70th Street
E6000	1125059026	Vacant	Southwest corner of Leary Way and BNSF Railway right-of-way
E6023	1225059193	American Mini-Storage	17520 NE 70th Street
E6226	1225059102	Park 520	6855 176th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-25
E2-Redmond Transit Center Design Option: Potential Property Acquisitions for *Preferred Marymoor Alternative (E2)* with E2 - Redmond Transit Center Station Design Option

Map ID	Parcel Number	Property Name	Site Address
E1004	1425059068	Microsoft (Building 50)	4001 156th Avenue NE
E1008	1425059125	Vacant (Microsoft)	4201 156th Avenue NE
E1012	7503110050	Vacant (Microsoft)	
E1015	7503110040	SAFECO Columbia Building	15319 154th Place NE
E1020	7503110030	Microsoft (Buildings 87 and Pacific)	4729 154th Place NE
E1032	7503110010	Microsoft (Building 88)	5069 154th Place NE
E1109	3882310110	Single-family residence	5227 154th Avenue NE
E1115	3882310100	Single-family residence	5305 154th Avenue NE
E1124	3882310090	Single-family residence	5315 154th Avenue NE
E1131	3882310080	Single-family residence	5323 154th Avenue NE
E1134	3882310070	Single-family residence	5401 154th Avenue NE
E1142	3882310060	Single-family residence	5409 154th Avenue NE
E1146	3882310050	Single-family residence	5417 154th Avenue NE
E1152	3882310040	Single-family residence	5425 154th Avenue NE
E1185	2182500050	Vacant	West of 154th Avenue NE
E1248	3882300080	Single-family residence	15405 NE 59th Way
E1267	3882300090	Single-family residence	15406 NE 59th Way
E1275	3882300100	Single-family residence	15414 NE 59th Way
E1322	9435300123	Vacant	Northeast corner of SR 520 and NE 60th Street
E1649	542256TRCT	Open space	Southwest corner of West Lake Sammamish Parkway and SR 520 interchange
E1691	5422560680	Single-family residence	15804 NE 67th Place
E1708	5422560670	Single-family residence	15810 NE 67th Place
E1718	5422560660	Single-family residence	15816 NE 67th Place
E1730	5422560650	Single-family residence	15822 NE 67th Place
E2180	7792400065	Redmond Way East	Southwest of Cleveland Street
E4020	1125059016	Marymoor Park	16300 NE Marymoor Way
E4026	1225059037	Marymoor Park	17630 NE Marymoor Way
E4032	1225059042	Redmond Self Storage	17285 NE 70th Street
E4033	1225059187	Dunkin And Bush Contractors	17301 NE 70th Street
E4035	5195500140	HFI Foods	17360 NE 67th Court
E4036	1225059183	Redmond Sea Ray	17351 NE 70th Street
E4038	122505TRCT	Parking lot	17445 NE 70th St
E4039	1225059101	Eastside Collision, Sign Posters, and Sign Pros	17443 NE 70th Street
E4040	1225059260	70th Center	17445 NE 70th Street

TABLE G2-25 CONTINUED
E2-Redmond Transit Center Design Option: Potential Property Acquisitions for *Preferred Marymoor Alternative (E2)* with E2 - Redmond Transit Center Station Design Option

Map ID	Parcel Number	Property Name	Site Address
E5002	1624000000	The Cleveland at Redmond	16141 Cleveland Street
E5005	7792400190	Redmond Plaza	16119 NE Redmond Way
E5018	0225059103	Redmond General Insurance	16160 NE 80th Street
E5020	0225059126	Aqua Quip and US Bank	8005 161st Avenue NE
E5029	225059179	Line Retail	8040 161st Avenue NE
E5031	7198900300	Grand Peking Restaurant	8075 161st Avenue NE
E5043	7198900310	Redmond Mall	8159 161st Avenue NE
E5048	225059110	Redmond Park-and-Ride Garage	
E5055	7198900320	Doctors Plaza	8299 161st Avenue NE
E5068	7198900330	Redmond Medical Center	8301 161st Avenue NE
E5069	225059094	City Park (skate park)	15670 NE 85th Street
E5080	7198900340	Parking Lot	8301 161st Avenue NE
E5083	7198900350	Office building	8435 161st Avenue NE
E5090	225059159	Redmond Fire Department Headquarters	8450 161st Avenue NE
E5097	7198900360	Avalon Parc Square Apartments	16075 NE 85th Street
E5120	0225059115	Avalon Parc Square Apartments	16080 NE 85th Street
E5121	9200200020	Village Square	16150 NE 85th Street
E5137	225059214	Supercuts and jewelry retailer	8693 161st Avenue NE
E6000	1125059026	Vacant	Southwest corner of Leary Way and BNSF
E6023	1225059193	American Mini-Storage	17520 NE 70th Street
E6226	1225059102	Park 520	6855 176th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-26
E1: Potential Property Acquisitions for Redmond Way Alternative (E1)

Map ID	Parcel Number	Property Name	Site Address
E1004	1425059068	Microsoft (Building 50)	4001 156th Avenue NE
E1008	1425059125	Vacant (Microsoft)	4201 156th Avenue NE
E1012	7503110050	Vacant (Microsoft)	
E1015	7503110040	SAFECO -Columbia Building	15319 154th Place NE
E1020	7503110030	Microsoft (Building 87)	4729 154th Place NE
E1032	7503110010	Microsoft (Building 88)	5069 154th Place NE
E1109	3882310110	Single-family residence	5227 154th Avenue NE
E1115	3882310100	Single-family residence	5305 154th Avenue NE
E1124	3882310090	Single-family residence	5315 154th Avenue NE
E1131	3882310080	Single-family residence	5323 154th Avenue NE
E1134	3882310070	Single-family residence	5401 154th Avenue NE
E1142	3882310060	Single-family residence	5409 154th Avenue NE
E1146	3882310050	Single-family residence	5417 154th Avenue NE
E1152	3882310040	Single-family residence	5425 154th Avenue NE
E1155	3882310030	Single-family residence	5433 154th Avenue NE
E1185	2182500050	Vacant	West of 154th Avenue NE
E1248	3882300080	Single-family residence	15405 NE 59th Way
E1267	3882300090	Single-family residence	15406 NE 59th Way
E1275	3882300100	Single-family residence	15414 NE 59th Way
E1322	9435300123	Vacant	Northeast corner of SR 520 and NE 60th Street
E1649	542256TRCT	Open space	Southwest corner of West Lake Sammamish Parkway and SR 520 interchange
E1691	5422560680	Single-family residence	15804 NE 67th Place
E1708	5422560670	Single-family residence	15810 NE 67th Place
E1718	5422560660	Single-family residence	15816 NE 67th Place
E2000	5196000000	Marymoor Heights Condominium	7050 156th Place NE
E2003	1125059102	Line Retail Store	7251 West Lake Sammamish Pkwy NE
E2005	5196600000	Marymoor Trails Condominium	7250 NE Old Redmond Road
E2042	1125059050	Duplex	7505 West Lake Sammamish Parkway NE
E2065	1125059006	Vacant	Southeast Corner of NE Old Redmond Road and West Lake Sammamish Parkway
E2147	1125059068	Luke McRedmond Landing Park	15711 Redmond Way
E2154	9270700005	Kentucky Fried Chicken	7870 159th Place NE
E2158	9270700010	Redmond Signs	7848 159th Place NE
E2160	1125059021	Railroad right-of-way and Carpet Barn	16255 Cleveland Street
E2163	9270700020	Floorcraft	7842 159th Place NE

TABLE G2-26 CONTINUED
E1: Potential Property Acquisitions for Redmond Way Alternative (E1)

Map ID	Parcel Number	Property Name	Site Address
E2165	9270700025	Office-Warehouse	7840 159th Place NE
E2167	9270700030	Vacant	7760 159th Place NE
E6231	1225059229	Washington Hydraulics, Inc.	17609 NE 70th Street
E6239	1225059095	Trend Set Custom Pavers, Inc.	6820 176th Avenue NE
E6243	5195500100	Warehouse	17610 NE 67th Court
E6245	1225059041	Whole Foods and retail stores	17875 NE Redmond Way
E6257	5195500090	Firnstahl building	17760 NE 67th Court
E6261	5195500050	ASP building	17720 NE 65th Street
E6266	5195500060	Marymoor Commerce Center	17836 NE 65th Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-27
E4: Potential Property Acquisitions for Leary Way Alternative (E4)

Map ID	Parcel Number	Property Name	Site Address
E1004	1425059068	Microsoft (Building 50)	4001 156th Avenue NE
E1008	1425059125	Vacant (Microsoft)	4201 156th Avenue NE
E1012	7503110050	Vacant (Microsoft)	
E1015	7503110040	Safeco Columbia Building	15319 154th Place NE
E1020	7503110030	Microsoft (Building 87)	4729 154th Place NE
E1032	7503110010	Microsoft (Building 88)	5069 154th Place NE
E1109	3882310110	Single-family residence	5227 154th Avenue NE
E1115	3882310100	Single-family residence	5305 154th Avenue NE
E1124	3882310090	Single-family residence	5315 154th Avenue NE
E1131	3882310080	Single-family residence	5323 154th Avenue NE
E1134	3882310070	Single-family residence	5401 154th Avenue NE
E1142	3882310060	Single-family residence	5409 154th Avenue NE
E1146	3882310050	Single-family residence	5417 154th Avenue NE
E1152	3882310040	Single-family residence	5425 154th Avenue NE
E1185	2182500050	Vacant	West of 154th Avenue NE
E1248	3882300080	Single-family residence	15405 NE 59th Way
E1267	3882300090	Single-family residence	15406 NE 59th Way
E1275	3882300100	Single-family residence	15414 NE 59th Way
E1322	9435300123	Vacant	Northeast Corner of SR 520 and NE 60th Street
E1649	542256TRCT	Open space	Southwest corner of West Lake Sammamish Parkway and SR 520 interchange
E1691	5422560680	Single-family residence	15804 NE 67th Place
E1708	5422560670	Single-family residence	15810 NE 67th Place
E2160	1125059021	Railroad right-of-way and Carpet Barn	16255 Cleveland St
E3001	7349500000	Riverwalk at Redmond	7357 NE Leary Way
E3007	7202410260	Redmond Town Center Open Space	West of 162nd Avenue NE
E3012	7202410200	Saturday Market at Redmond Town Center	16325 Cleveland St
E3014	7202410210	Justice White House at Redmond Town Center	7529 Leary Way
E4032	1225059042	Redmond Self-Storage	17285 NE 70th Street
E4038	122505TRCT	Parking lot	17445 NE 70th St
E6023	1225059193	American Mini-Storage	17520 NE 70th St
E6047	7202410060	Residence Inn by Marriott	7575 164th Avenue NE
E6225	3066100020	Redmond Inn	17601 NE Redmond Way
E6226	1225059102	Park 520 (Evans Co.)	6855 176th Avenue NE
E6227	1225059194	The Button Place	17595 NE 70th Street
E6245	1225059041	Whole Foods and retail stores	17875 NE Redmond Way

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

Maintenance Facilities

TABLE G2-28
MF1: Potential Property Acquisitions for 116th Maintenance Facility (MF1)

Map ID	Parcel Number	Property Name	Site Address
D1002	2825059291	Seattle Children's Hospital: Bellevue Clinic and Surgery Center	1500 116th Avenue NE
D2000	2825059009	Bellevue Medical Park	1600 116th Avenue NE
D2002	2825059106	Overlake Medical Park	1632 116th Avenue NE
D2003	2825059103	Vacant commercial land	1634 116th Avenue NE
D2005	2825059235	Bellevue Public Safety Training Center	1640 116th Avenue NE
D2006	2825059090	UW Physicians	1700 116th Avenue NE
D2008	2825059234	Bellevue Public Safety Training Center	1812 116th Avenue NE
D2009	2825059102	1800 Professional Building	1800 116th Avenue NE
D2010	2825059091	Bellevue Public Safety Training Center	1838 116th Avenue NE
D2011	2825059148	Eastside Professional Center	1810 116th Avenue NE
D2012	5268300060	Northwest Medical Center	1900 116th Avenue NE
D2013	2825059276	Construction Industry Training Council (CITC)	1930 116th Avenue NE
D2014	5268300050	Specialty Eye Care Center	1920 116th Avenue NE
D2015	5268300040	McCarthy Park 1940 Building	1940 116th Avenue NE
D2016	5268300030	2000 Building	2000 116th Avenue NE
D2017	2825059277	Cypress Point Building	1950 116th Avenue NE
D2034	2825059307	Molecumetics	2023 120th Avenue NE
Connecting from Alternatives *Preferred NE 16th At-Grade Alternative (D2A)*, NE 16th Elevated Alternative (D2E), and NE 20th Alternative (D3) only			
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE
D1012	1099100011	Barrier Audi Dealership	1533 120th Avenue NE
D2018	5268300020	McCarthy Park 2020 Building	2020 116th Avenue NE
D2020	2825059278	Spinner Building	2050 116th Avenue NE
D2021	2825059298	Vacant industrial land	1821 120th Avenue NE
D2032	2825059213	Pella Windows and Doors	2019 120th Avenue NE
Connecting from SR 520 Alternative (D5) only			
D2004	2825059070	Parking lot	East of 116th Avenue NE, west of 120th Avenue NE
D2025	2825059218	Pacific Bag	2045 120th Avenue NE
D2031	2825059156	Choice Medical Supplies	2035 120th Avenue NE
D2033	2825059294	Eastside Staple and Nail	1917 120th Avenue NE

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-29
MF2: Potential Property Acquisitions for BNSF Maintenance Facility (MF2)

Map ID	Parcel Number	Property Name	Site Address
D1007	2825059292	Vacant commercial land	1442 116th Avenue NE
D1012	1099100011	Barrier dealership	1533 120th Avenue NE
D2004	2825059070	Parking lot	East of 116th Avenue NE - west of 120th Avenue NE
D2007	2825059182	International Paper Co.	1899 120th Avenue NE
D2032	2825059213	Pella Windows and Doors, AVAD, and R&R Party Rentals	2019 120th Avenue NE
D2033	2825059294	Eastside Staple and Nail	1917 120th Avenue NE
D2034	2825059307	Molecumetics	2023 120th Avenue NE
Connecting from Alternatives *Preferred NE 16th At-Grade Alternative (D2A)*, NE 16th Elevated Alternative (D2E), and NE 20th Alternative (D3) only			
D1002	2825059291	Seattle Children's Hospital: Bellevue Clinic and Surgery Center	1500 116th Avenue NE
D2021	2825059298	Vacant industrial land	1821 120th Avenue NE
D2031	2825059156	Medical South	2035 120th Avenue NE
Connecting from SR 520 Alternative (D5) only			
D1011	1099100002	Vacant industrial land	West of 120th Avenue NE, north of NE 12th Street
D2003	2825059103	Vacant commercial land	East of 116th Avenue NE, north of NE 12th Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-30
MF3: Potential Property Acquisitions for SR 520 Maintenance Facility (MF3)

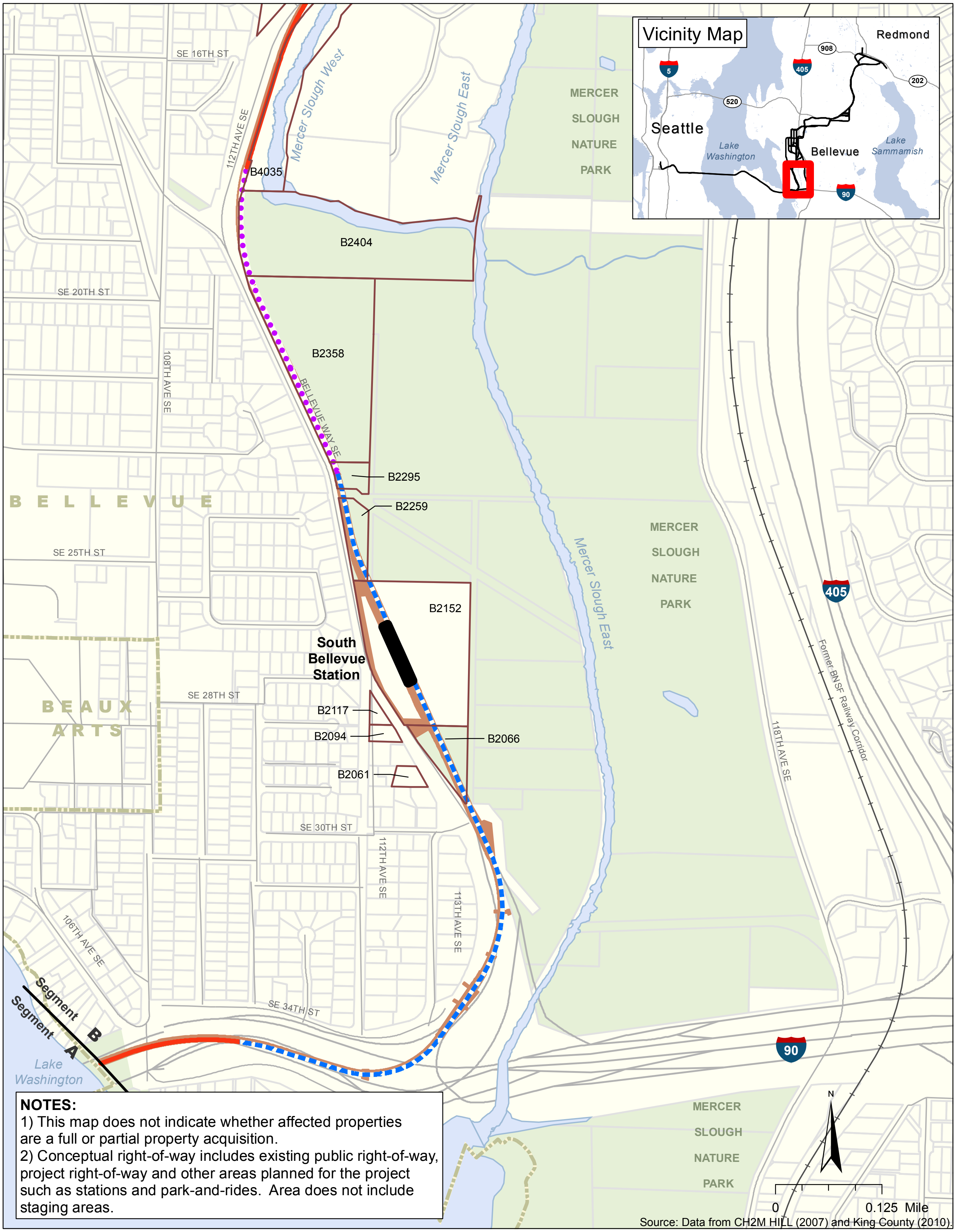
Map ID	Parcel Number	Property Name	Site Address
D2246	2825059116	Plaza 520	13000 NE 20th Street
D2279	2725059188	Northup East Office Park	13240 NE 20th Street
D2280	2725059122	Northup East Office Park	13240 NE 20th Street
D2286	2725059187	Northup East Office Park	13256 NE 20th Street
D2289	2725059007	Northup East Office Park	13240 NE 20th Street
D2295	2725059259	Northup East Office Park	13400 NE 20th Street
D2296	2725059226	Northup East Office Park	13256 NE 20th Street
D2300	2725059199	Northup East Office Park	13400 NE 20th Street
D2308	2725059191	Acura dealership and showroom	13424 NE 20th Street
Connecting from Alternatives *Preferred NE 16th At-Grade Alternative (D2A)* and NE 16th Elevated Alternative (D2E) only			
D1224	2725059212	Vacant commercial land	1645 136th Avenue NE
D1229	2725059275	The Earth Building	1805 136th Place NE
D1231	2725059234	Belle Venture Business Park	13431 NE 20th Street
D1234	2725059228	Bellevue BMW auto showroom and dealership	13605 NE 20th Street
D2310	2725059329	Apple Tree Plaza	13600 NE 20th Street
Connecting from NE 20th Alternative (D3)			
D1234	2725059228	Bellevue BMW auto showroom and dealership	13605 NE 20th Street
D2312	2725059330	Parking	West of 136th Place NE
D2313	2725059061	Apple Tree Plaza	13620 NE 20th Street
D2316	2725059328	Apple Tree Plaza	13622 NE 20th Street
D3000	2725059148	Park Place Center	13620 NE 20th Street
D3001	2725059288	Park Place Center	13620 NE 20th Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

TABLE G2-31
MF5: Potential Property Acquisitions for SE Redmond Maintenance Facility (MF5)

Map ID	Parcel Number	Property Name	Site Address
E6235	1225059152	Vacant industrial land	6900 176th Avenue NE
E6255	5195500030	Perma Chink Building	17635 NE 67th Court
E6261	5195500050	ASP Building	17720 NE 65th Street
E6266	5195500060	Marymoor Commerce Center	17836 NE 65th Street
Connecting from Redmond Way Alternative (E1)			
E4032	1225059042	Redmond Self-Storage	17285 NE 70th Street
E4033	1225059187	Dunkin And Bush Contractors	17301 NE 70th Street
E4036	1225059183	Redmond Sea Ray	17351 NE 70th Street
E4038	122505TRCT	Parking lot	17445 NE 70th St
E4039	1225059101	Eastside Collision, Sign Posters, and Sign Pros	17443 NE 70th Street
E4040	1225059260	70th Center	17445 NE 70th Street
E6226	1225059102	Park 520 (Evans Co.)	6855 176th Avenue NE
E6227	1225059194	The Button Place	17595 NE 70th Street
E6231	1225059229	Washington Hydrausis, Inc.	17609 NE 70th Street
E6239	1225059095	Trend Set Custom Pavers, Inc.	6820 176th Avenue NE
E6243	5195500100	Warehouse	17610 NE 67th Court
E6252	5195500020	Barnett Co	17619 NE 67th Court
E6257	5195500090	Firnstahl Building	17760 NE 67th Court
Connecting from *Preferred Marymoor Alternative (E2)*			
E4036	1225059183	Redmond Sea Ray	17351 NE 70th Street
E4038	122505TRCT	Parking lot	17445 NE 70th St
E6023	1225059193	American Mini-Storage	17520 NE 70th Street
E6231	1225059229	Washington Hydrausis. Inc.	17609 NE 70th Street
E6239	1225059095	Trend Set Custom Pavers, Inc.	6820 176th Avenue NE
E6243	5195500100	Warehouse	17610 NE 67th Court
E6257	5195500090	Firnstahl building	17760 NE 67th Court
E6259	5195500010	Park View building	17640 NE 65th Street
Connecting from Leary Way Alternative (E4)			
E6231	1225059229	Washington Hydrausis, Inc.	17609 NE 70th Street
E6239	1225059095	Trend Set Custom Pavers, Inc.	6820 176th Avenue NE
E6243	5195500100	Warehouse	17610 NE 67th Court
E6257	5195500090	Firnstahl Building	17760 NE 67th Court
E6259	5195500010	Park View Building	17640 NE 65th Street

Note: This table does not include public rights-of-way (city or WSDOT) or former BNSF Railway rights-of-way. Refer to the design drawings in Appendix G1 for public rights-of-way identified for the project.

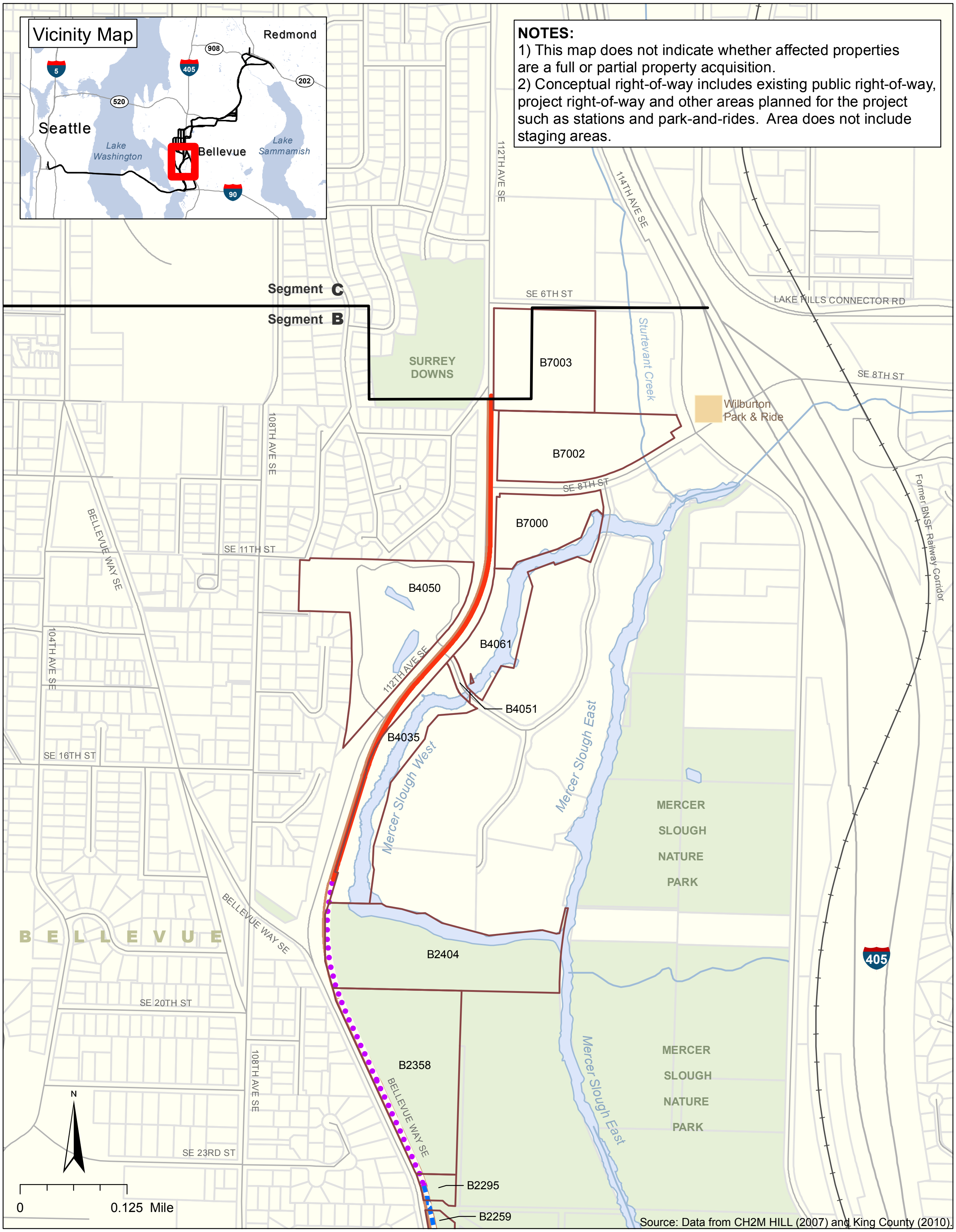

Vicinity Map
Seattle
Bellevue
Redmond
Lake Washington
Lake Sammamish
5
405
908
202
520
90
SE 16TH ST
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
B4035
B2404
SE 20TH ST
B2358
108TH AVE SE
BELLEVUE WAY SE
B2295
B2259
B E L L E V U E
SE 25TH ST
MERCER SLOUGH NATURE PARK
405
B2152
South Bellevue Station
BEAUX ARTS
SE 28TH ST
B2117
B2094
B2066
B2061
Former BNSF Railway Corridor
118TH AVE SE
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake Washington
90
MERCER SLOUGH NATURE PARK
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▨ Conceptual Right-of-Way and Areas to be Acquired
— At-Grade Route
- - - Elevated Route
• • • • Retained-Cut Route
• • • • Retained-Fill Route
— — Tunnel Route
▬ Proposed Station

Exhibit G2-1
Affected Parcels, Segment B
Preferred Alternative
B2M to C11A
East Link Project


Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
908
520
202
90
NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
112TH AVE SE
114TH AVE SE
Sturtevant Creek
SURREY DOWNS
B7003
B7002
B7000
Wilburton Park & Ride
Former BNSF Railway Corridor
108TH AVE SE
BELLEVUE WAY SE
SE 11TH ST
B4050
B4061
B4051
B4035
112TH AVE SE
104TH AVE SE
SE 16TH ST
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
B E L L E V U E
B2404
405
SE 20TH ST
B2358
108TH AVE SE
BELLEVUE WAY SE
Mercer Slough East
MERCER SLOUGH NATURE PARK
N
SE 23RD ST
B2295
B2259
0
0.125 Mile

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary

▨ Conceptual Right-of-Way and Areas to be Acquired

━ At-Grade Route

▬ ▬ ▬ Elevated Route

• • • • Retained-Cut Route

• • • • Retained-Fill Route

━ ━ Tunnel Route

▬ Proposed Station

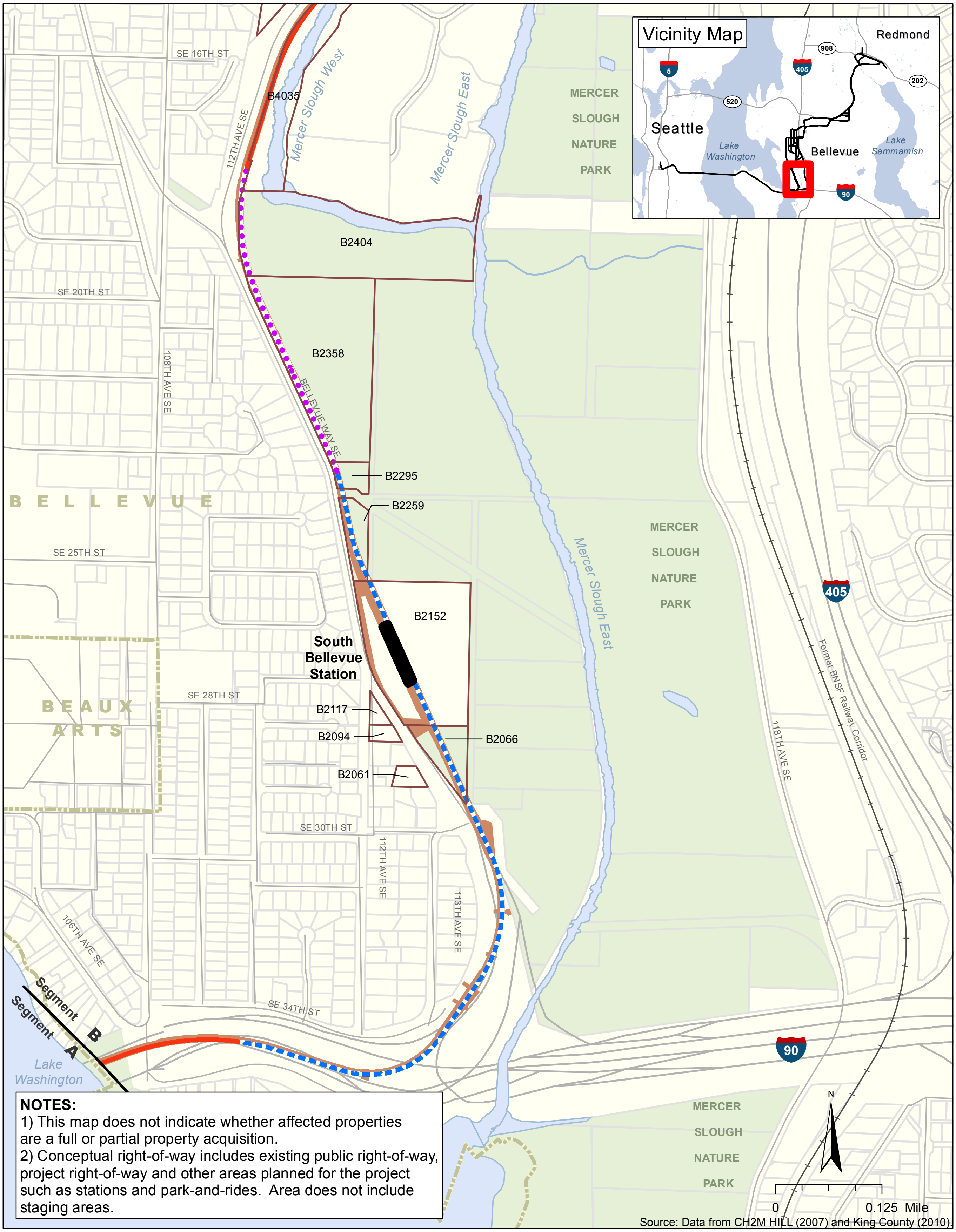
Exhibit G2-2

Affected Parcels, Segment B

Preferred Alternative

B2M to C11A

East Link Project


Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
908
202
90
SE 16TH ST
B4035
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
112TH AVE SE
B2404
SE 20TH ST
B2358
108TH AVE SE
BELLEVUE WAY SE
B2295
B2259
BELLEVUE
SE 25TH ST
MERCER SLOUGH NATURE PARK
405
B2152
South Bellevue Station
BEAUX ARTS
SE 28TH ST
B2117
B2094
B2066
B2061
Former BNSF Railway Corridor
118TH AVE SE
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
Segment B
Segment A
SE 34TH ST
Lake Washington
90
MERCER SLOUGH NATURE PARK
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

▭ 1119 Map ID & Affected Parcel Boundary
▬ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
▬ ▬ Elevated Route
• • • • Retained-Cut Route
• • • • Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-3
Affected Parcels, Segment B
Preferred Alternative
B2M to C9T
East Link Project

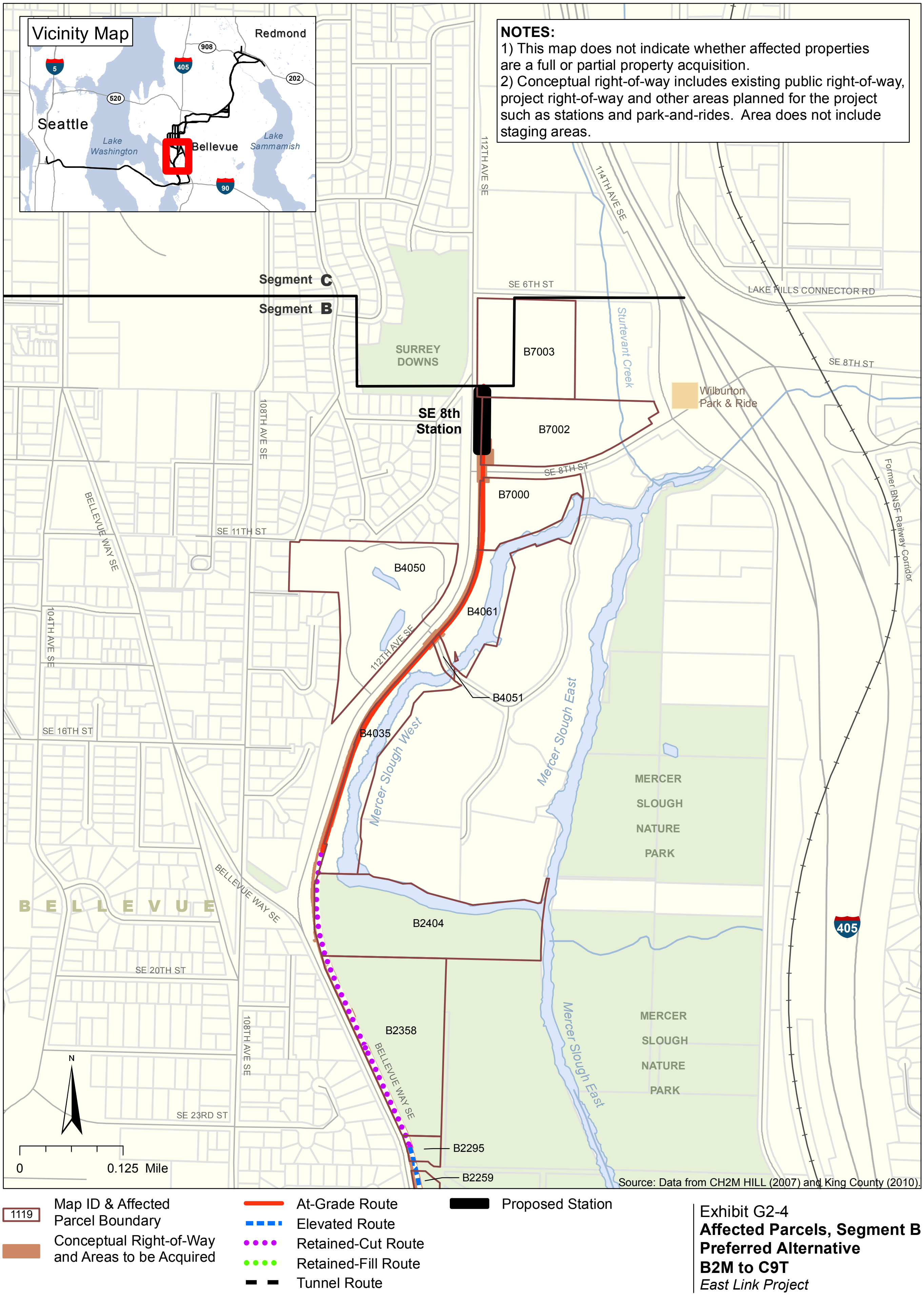
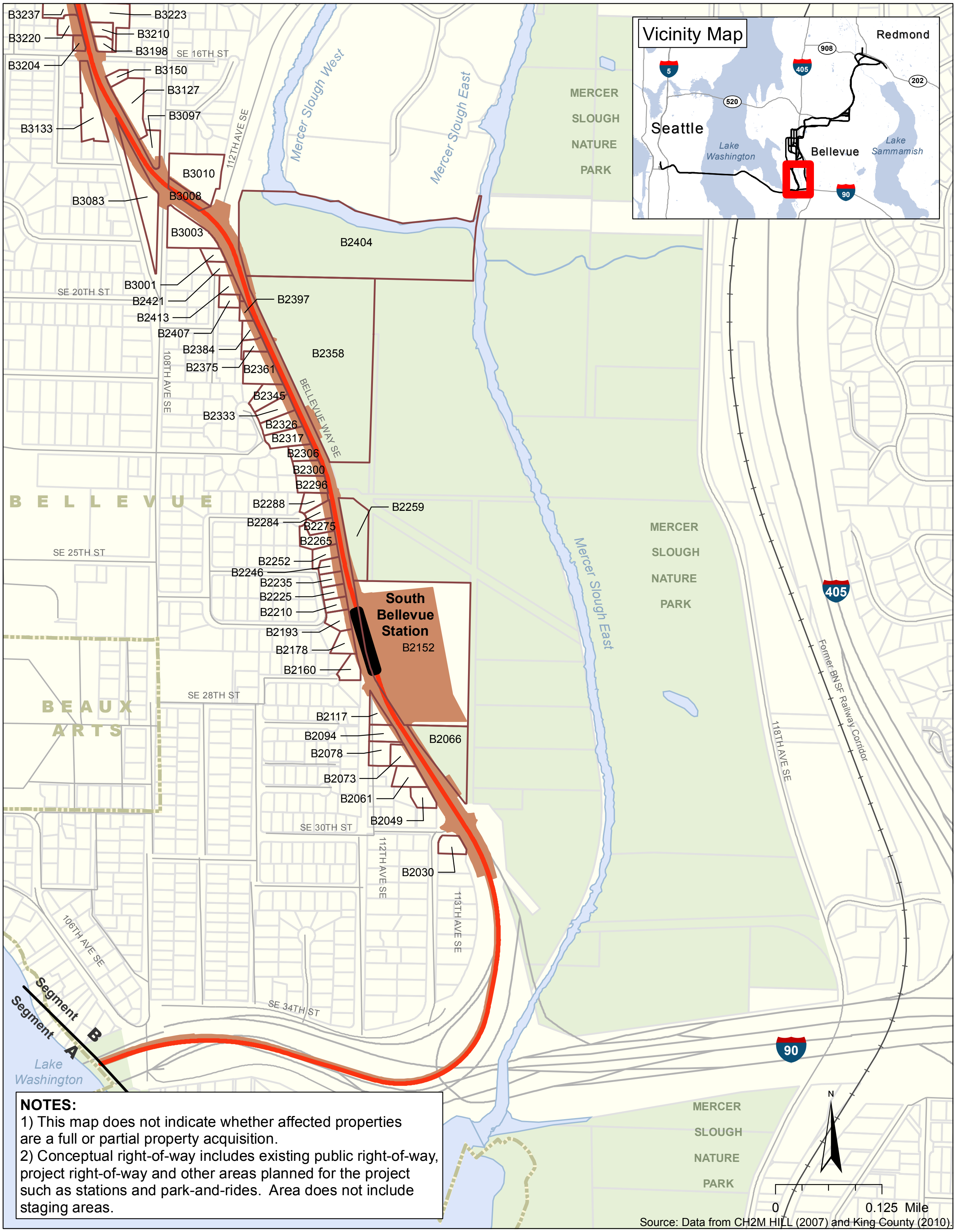

Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
908
202
520
90
NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
112TH AVE SE
114TH AVE SE
108TH AVE SE
104TH AVE SE
BELLEVUE WAY SE
SE 11TH ST
SE 16TH ST
SE 20TH ST
SE 23RD ST
Sturtevant Creek
Wilburton Park & Ride
Former BNSF Railway Corridor
SE 8th Station
B7003
B7002
B7000
B4050
B4061
B4051
B4035
B2404
B2358
B2295
B2259
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
BELLEVUE
405
N
0
0.125 Mile
Source: Data from CH2M HILL (2007) and King County (2010).
1119
Map ID & Affected Parcel Boundary
Conceptual Right-of-Way and Areas to be Acquired
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station

Exhibit G2-4

Affected Parcels, Segment B
Preferred Alternative
B2M to C9T
East Link Project

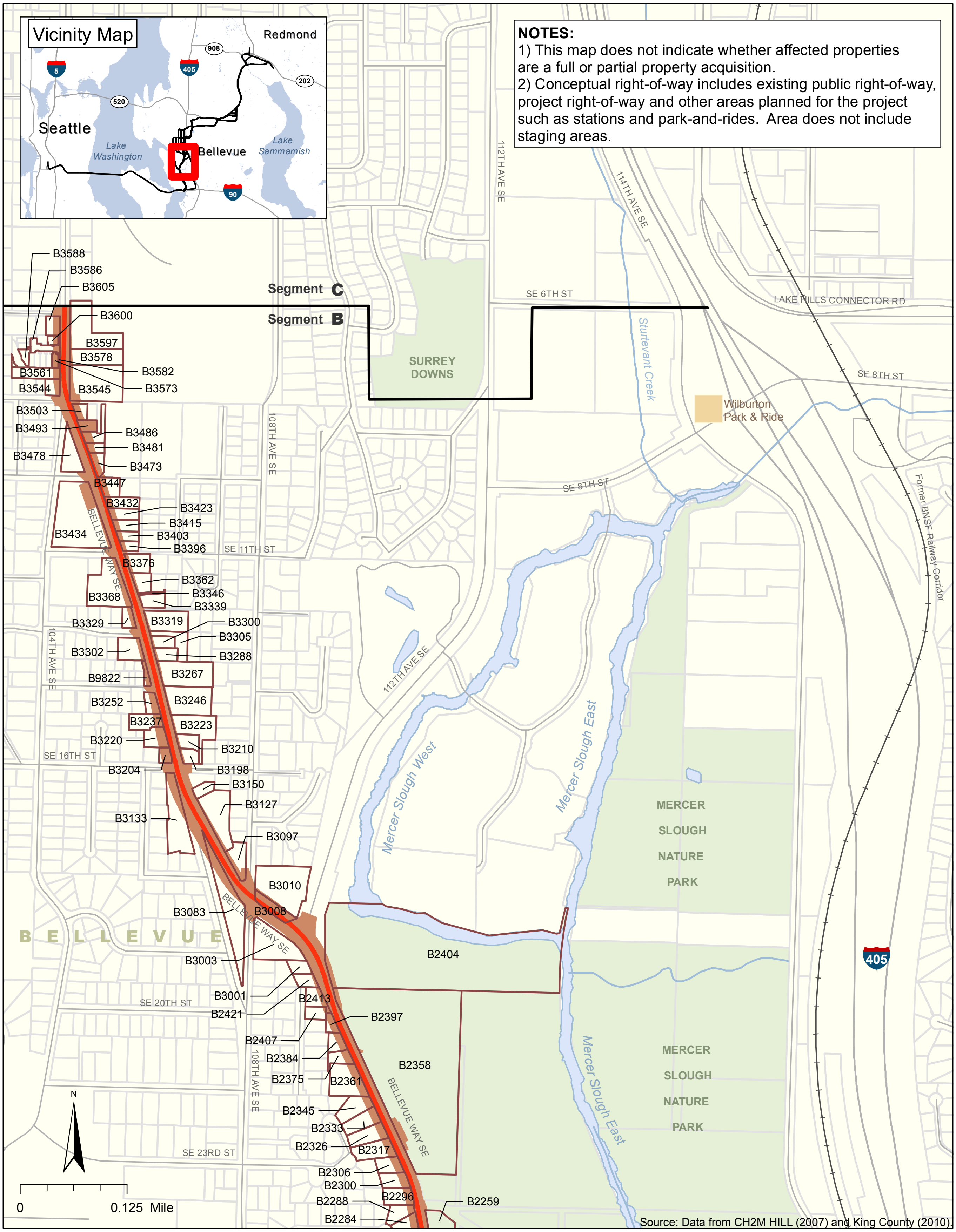

Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
908
202
520
90
B3237
B3223
B3220
B3210
B3198
SE 16TH ST
B3204
B3150
B3127
B3133
B3097
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
B3010
B3083
B3008
B3003
B2404
B3001
SE 20TH ST
B2421
B2397
B2413
B2407
B2384
B2358
B2375
B2361
108TH AVE SE
BELLEVUE WAY SE
B2345
B2333
B2326
B2317
B2306
B2300
B2296
BELLEVUE
B2288
B2259
B2284
B2275
B2265
SE 25TH ST
MERCER SLOUGH NATURE PARK
B2252
B2246
B2235
B2225
South Bellevue Station
405
B2210
B2152
B2193
Mercer Slough East
B2178
B2160
Former BNSF Railway Corridor
SE 28TH ST
BEAUX ARTS
B2117
118TH AVE SE
B2094
B2066
B2078
B2073
B2061
B2049
SE 30TH ST
112TH AVE SE
B2030
113TH AVE SE
106TH AVE SE
Segment B
Segment A
SE 34TH ST
90
Lake Washington
MERCER SLOUGH NATURE PARK
N
0
0.125 Mile

Source: Data from CH2M HILL (2007) and King County (2010).

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

▭ 1119	Map ID & Affected Parcel Boundary
▬	Conceptual Right-of-Way and Areas to be Acquired
━━	At-Grade Route
- - - -	Elevated Route
• • • •	Retained-Cut Route
• • • •	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station

Exhibit G2-5
Affected Parcels, Segment B Alternative B1
East Link Project

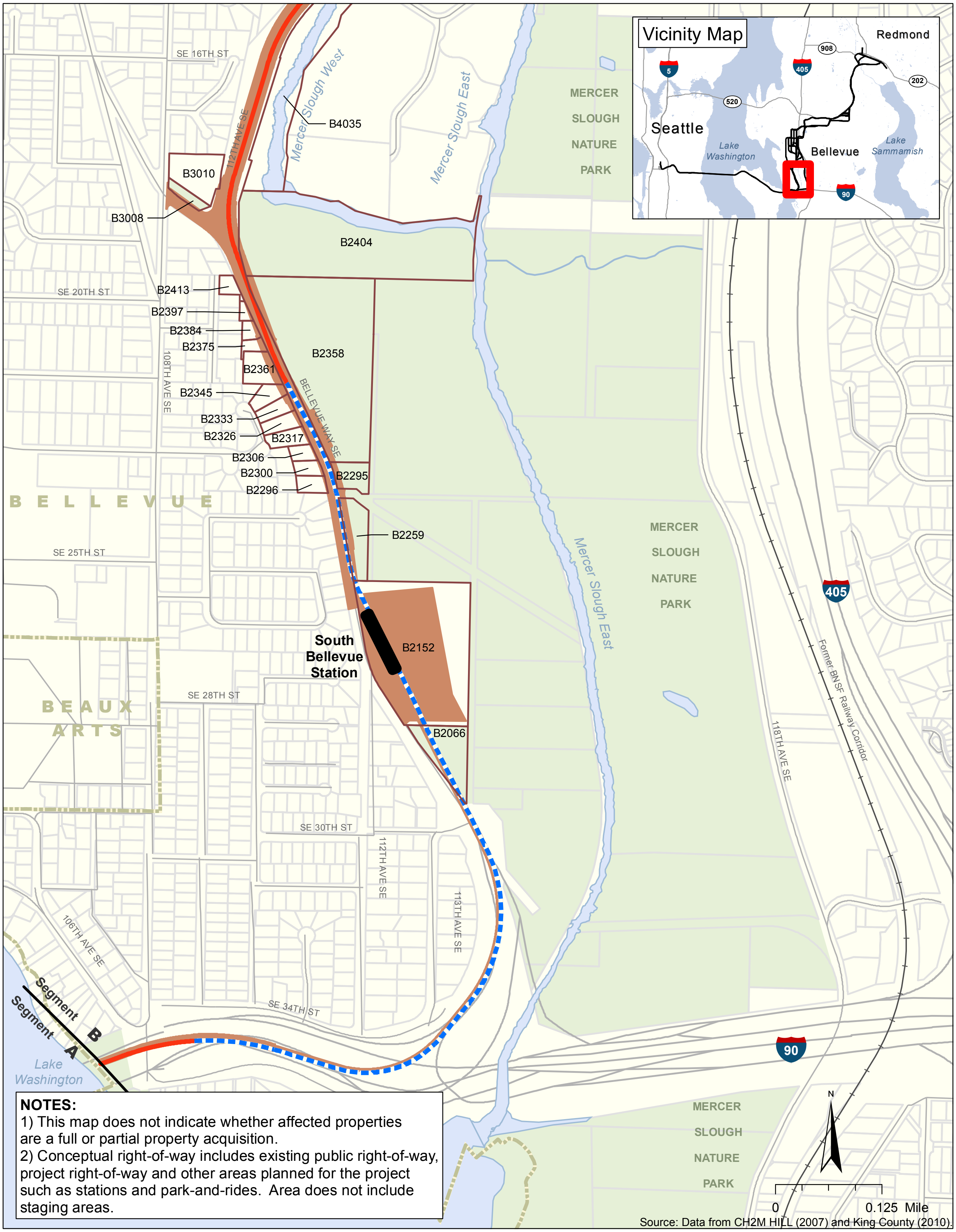

Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
908
202
520
90
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
Wilburton Park & Ride
112TH AVE SE
114TH AVE SE
108TH AVE SE
104TH AVE SE
SE 11TH ST
SE 16TH ST
SE 20TH ST
SE 23RD ST
BELLEVUE WAY SE
Sturtevant Creek
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
Former BNSF Railway Corridor
BELLEVUE
405
N
0
0.125 Mile
B3588
B3586
B3605
B3600
B3597
B3578
B3582
B3561
B3544
B3545
B3573
B3503
B3493
B3486
B3481
B3478
B3473
B3447
B3432
B3423
B3415
B3434
B3403
B3396
B3376
B3362
B3346
B3368
B3339
B3329
B3319
B3300
B3305
B3302
B3288
B3267
B9822
B3252
B3246
B3237
B3223
B3220
B3210
B3204
B3198
B3150
B3127
B3133
B3097
B3010
B3083
B3008
B3003
B2404
B3001
B2413
B2421
B2397
B2407
B2384
B2358
B2375
B2361
B2345
B2333
B2326
B2317
B2306
B2300
B2288
B2296
B2259
B2284

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
▬ ▬ ▬ Elevated Route
● ● ● ● Retained-Cut Route
● ● ● ● Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-6
Affected Parcels, Segment B Alternative B1
East Link Project


Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
908
202
520
90
SE 16TH ST
112TH AVE SE
Mercer Slough West
B4035
Mercer Slough East
MERCER SLOUGH NATURE PARK
B3010
B3008
B2404
B2413
SE 20TH ST
B2397
B2384
B2375
B2358
108TH AVE SE
B2361
B2345
BELLEVUE WAY SE
B2333
B2326
B2317
B2306
B2300
B2295
B2296
BELLEVUE
B2259
SE 25TH ST
South Bellevue Station
B2152
BEAUX ARTS
SE 28TH ST
B2066
MERCER SLOUGH NATURE PARK
405
Former BNSF Railway Corridor
118TH AVE SE
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake Washington
90
MERCER SLOUGH NATURE PARK
N
0
0.125 Mile

NOTES:

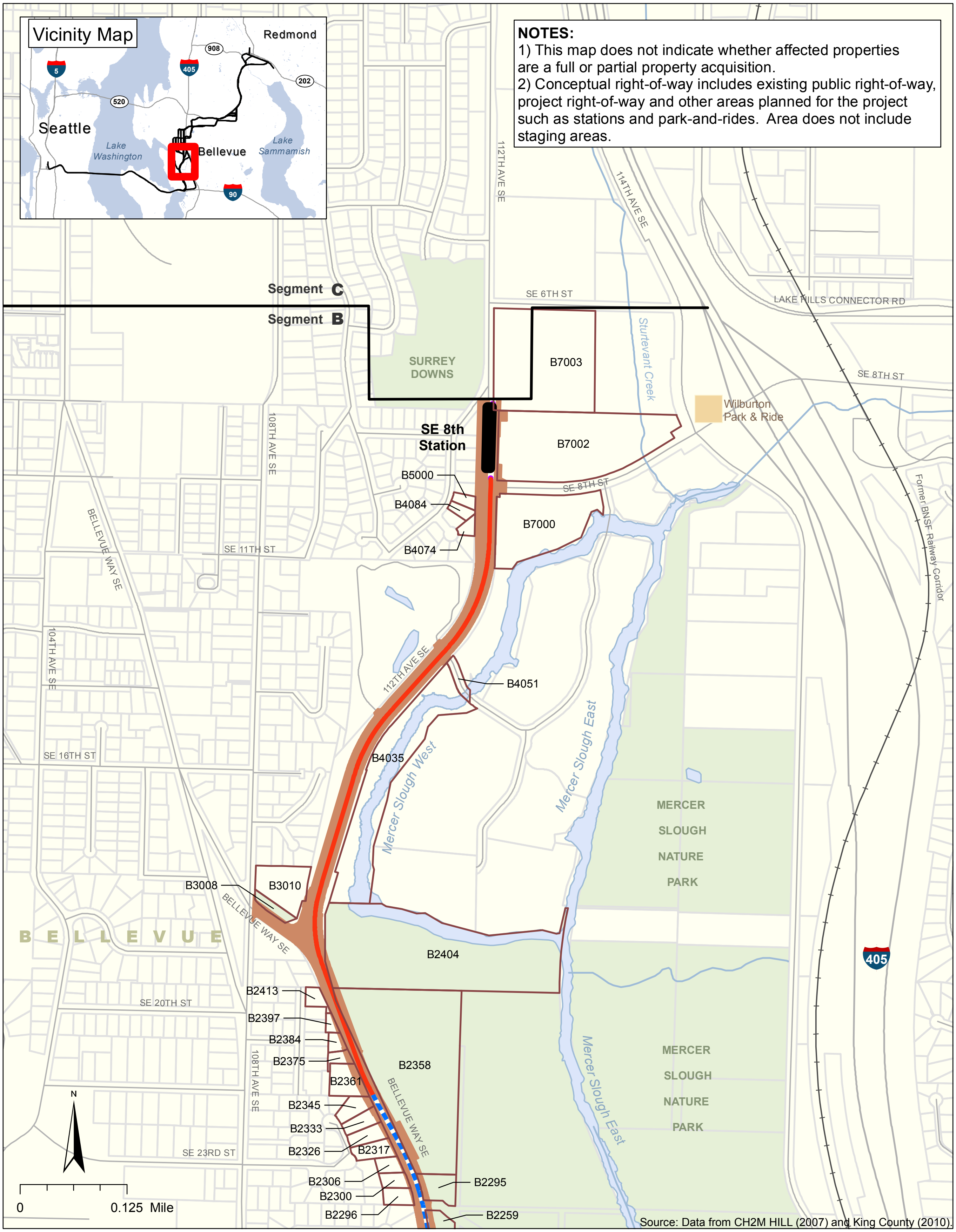
1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary	━	At-Grade Route
▬	Conceptual Right-of-Way and Areas to be Acquired	┅	Elevated Route
		••••	Retained-Cut Route
		••••	Retained-Fill Route
		▬ ▬	Tunnel Route
		▬	Proposed Station

Exhibit G2-7
Affected Parcels, Segment B Alternative B2A
East Link Project

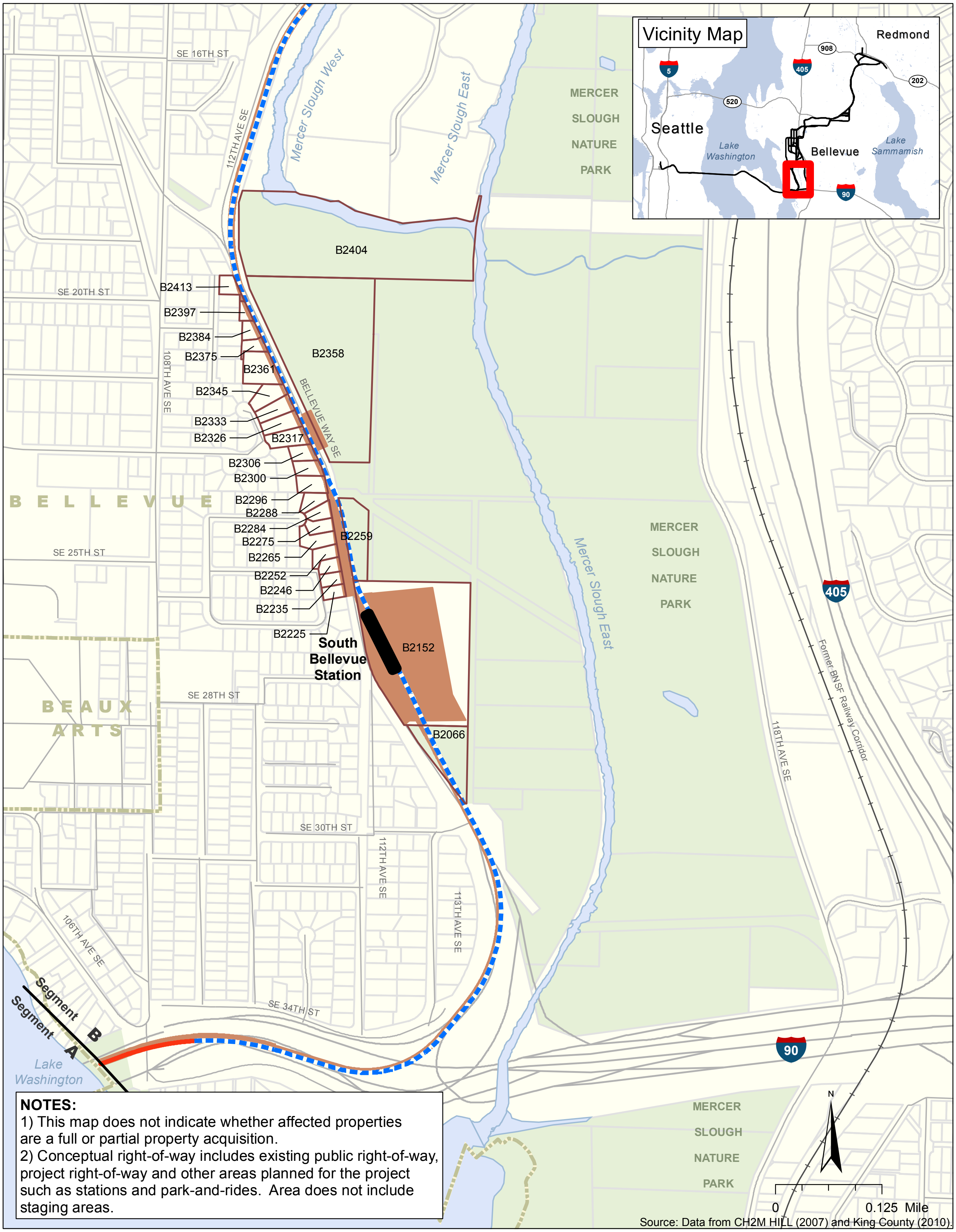

Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
908
202
520
90
Segment C
Segment B
SURREY DOWNS
SE 8th Station
SE 6TH ST
SE 8TH ST
LAKE HILLS CONNECTOR RD
112TH AVE SE
114TH AVE SE
108TH AVE SE
104TH AVE SE
BELLEVUE WAY SE
SE 11TH ST
SE 16TH ST
SE 20TH ST
SE 23RD ST
112TH AVE SE
Sturtevant Creek
Wilburton Park & Ride
Former BNSF Railway Corridor
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
BELLEVUE
405
B7003
B7002
B7000
B5000
B4084
B4074
B4051
B4035
B3008
B3010
B2404
B2413
B2397
B2384
B2375
B2358
B2361
B2345
B2333
B2326
B2317
B2306
B2300
B2296
B2295
B2259
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▨	Conceptual Right-of-Way and Areas to be Acquired
━	At-Grade Route
- - -	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station

Exhibit G2-8
Affected Parcels,
Segment B
Alternative B2A
East Link Project

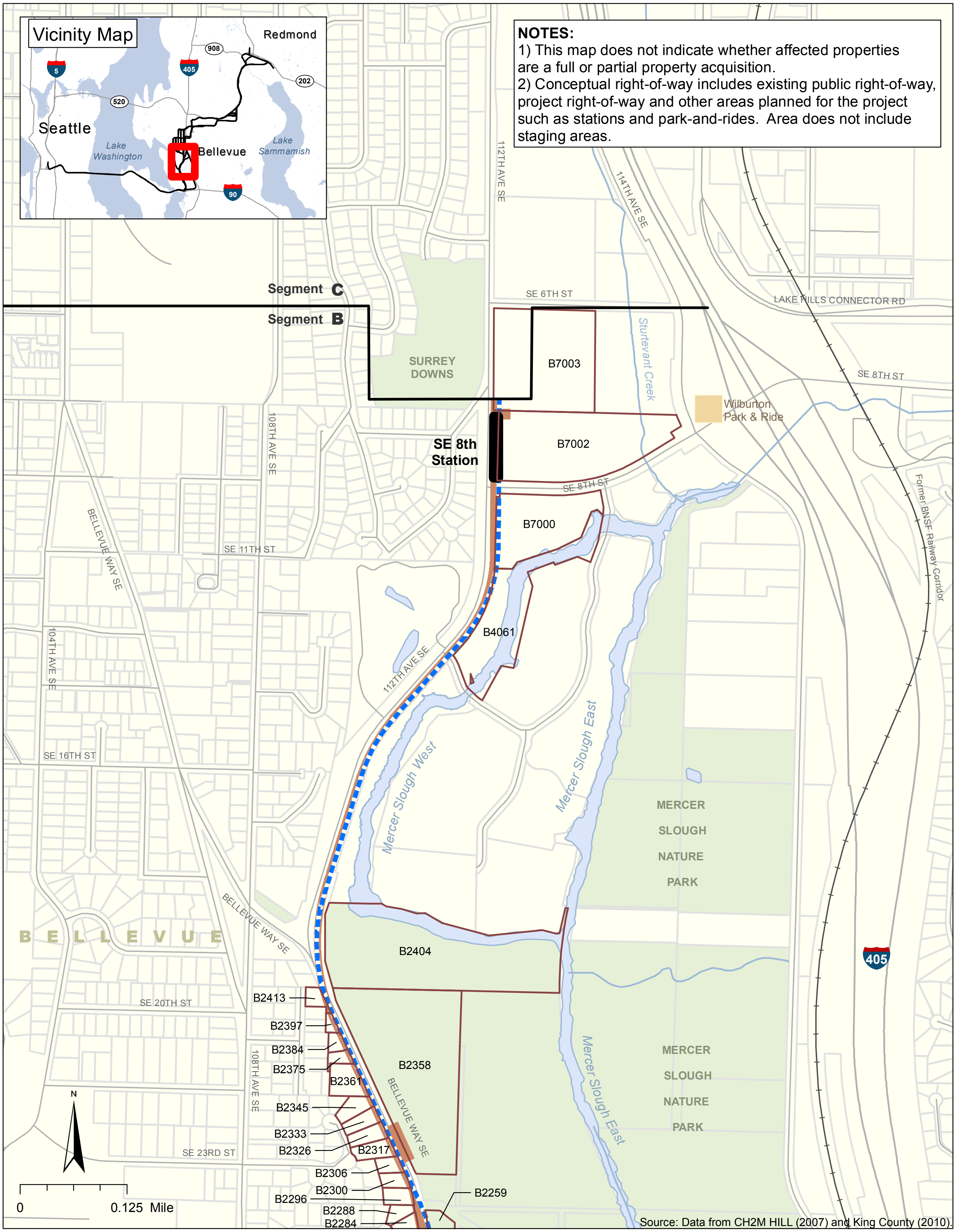

Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
520
908
202
90
SE 16TH ST
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
B2404
B2413
SE 20TH ST
B2397
B2384
B2375
B2361
B2358
108TH AVE SE
B2345
B2333
B2326
B2317
BELLEVUE WAY SE
B2306
B2300
BELLEVUE
B2296
B2288
B2284
B2275
B2259
B2265
SE 25TH ST
B2252
B2246
B2235
B2225
South Bellevue Station
B2152
BEAUX ARTS
SE 28TH ST
B2066
118TH AVE SE
Former BNSF Railway Corridor
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
Segment B
Segment A
SE 34TH ST
Lake Washington
90
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▨	Conceptual Right-of-Way and Areas to be Acquired
—	At-Grade Route
- - -	Elevated Route
• • • •	Retained-Cut Route
• • • •	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station

Exhibit G2-9
Affected Parcels, Segment B Alternative B2E
East Link Project

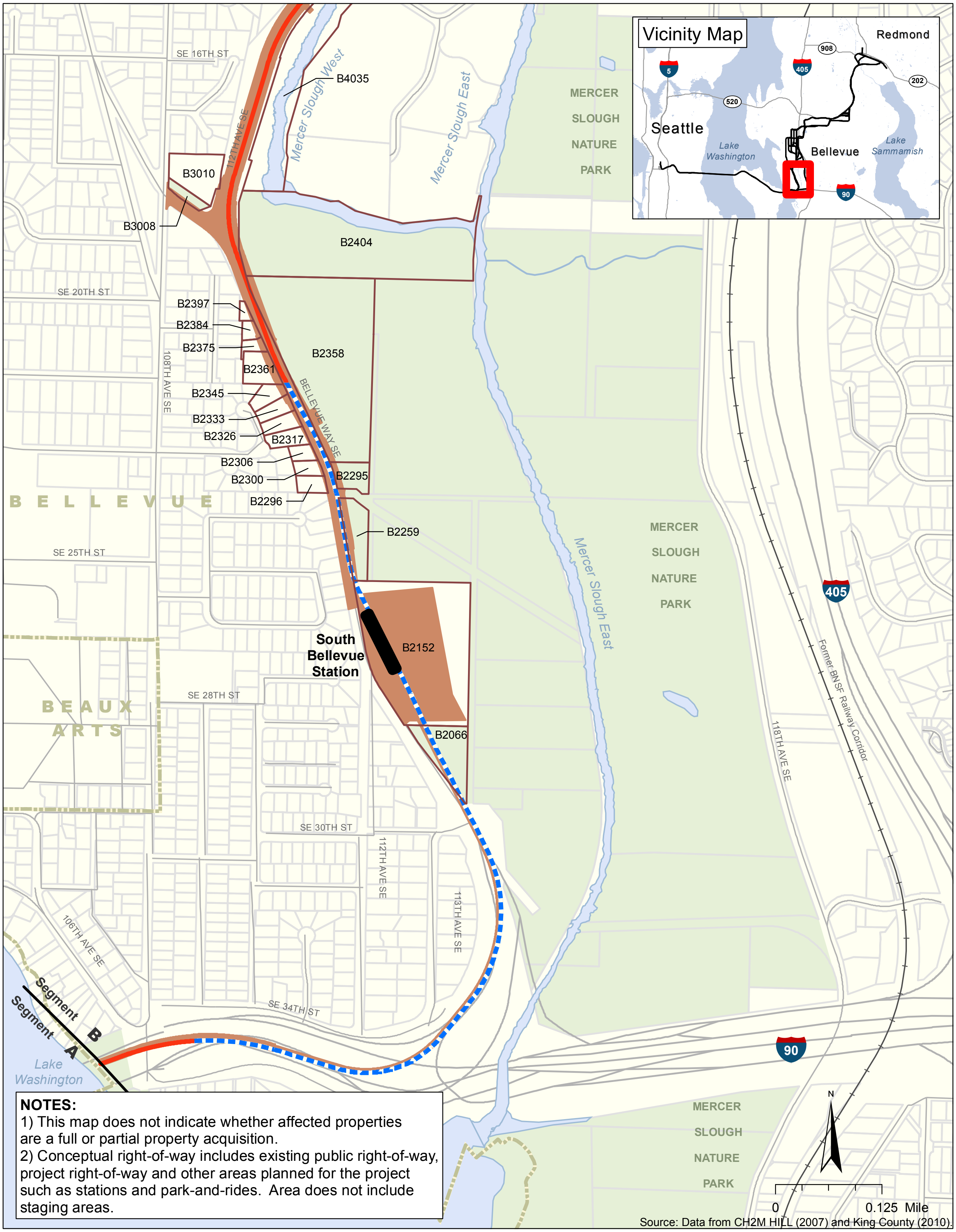

Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
112TH AVE SE
114TH AVE SE
108TH AVE SE
Sturtevant Creek
Wilburton Park & Ride
SE 8th Station
B7003
B7002
B7000
B4061
SE 11TH ST
BELLEVUE WAY SE
104TH AVE SE
SE 16TH ST
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
Former BNSF Railway Corridor
405
BELLEVUE
B2404
B2413
B2397
B2384
B2375
B2361
B2358
B2345
B2333
B2326
B2317
B2306
B2300
B2296
B2288
B2284
B2259
SE 20TH ST
SE 23RD ST
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▨	Conceptual Right-of-Way and Areas to be Acquired
━	At-Grade Route
- - -	Elevated Route
• • • •	Retained-Cut Route
• • • •	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station

Exhibit G2-10
Affected Parcels, Segment B Alternative B2E
East Link Project

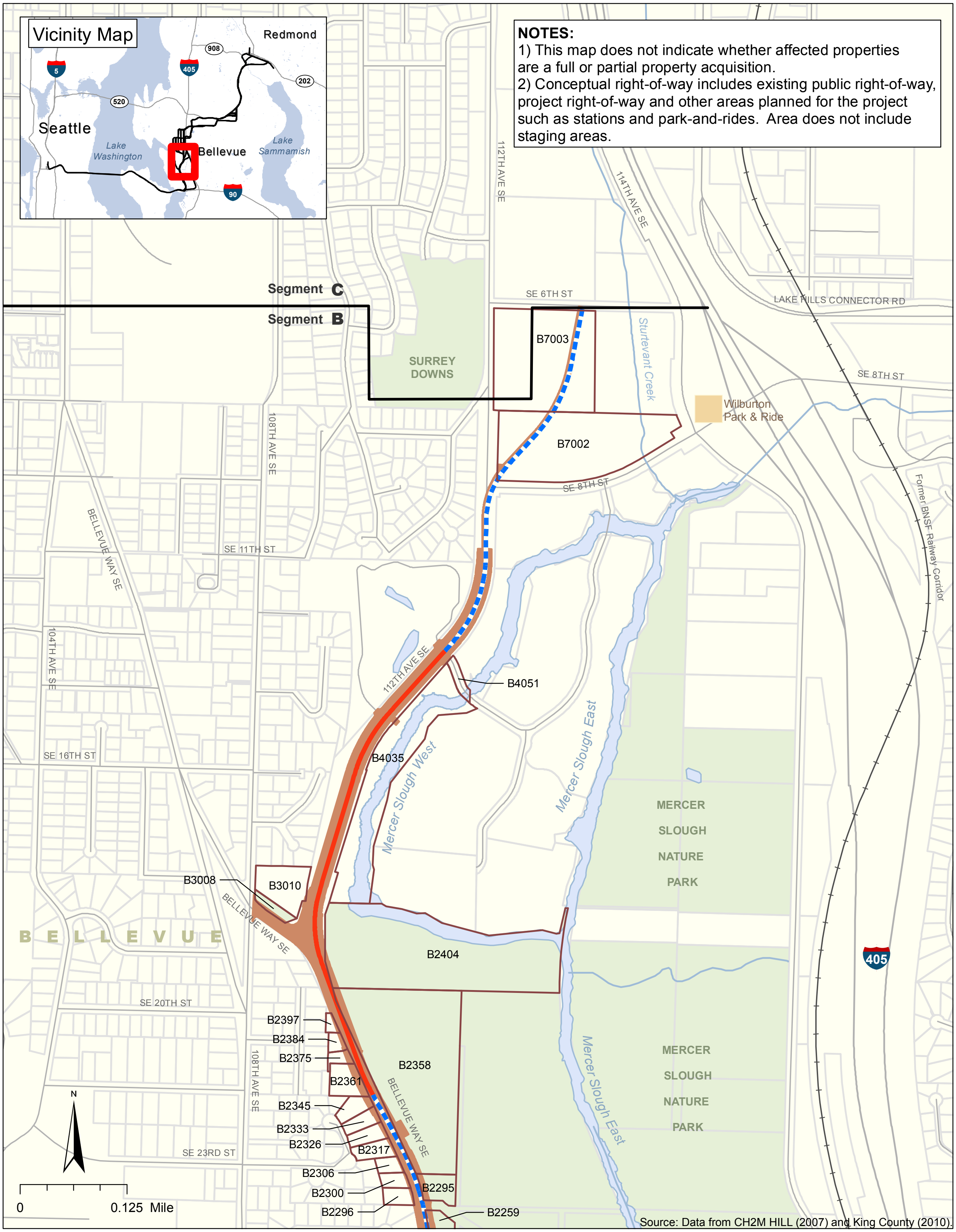

Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
908
520
202
90
SE 16TH ST
B4035
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
112TH AVE SE
B3010
B3008
B2404
SE 20TH ST
B2397
B2384
B2375
B2361
B2358
108TH AVE SE
B2345
B2333
B2326
B2317
BELLEVUE WAY SE
B2306
B2300
B2295
BELLEVUE
B2296
B2259
SE 25TH ST
South Bellevue Station
B2152
BEAUX ARTS
SE 28TH ST
B2066
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
Segment B
Segment A
SE 34TH ST
Lake Washington
118TH AVE SE
Former BNSF Railway Corridor
405
90
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
■ ■ ■ Elevated Route
● ● ● ● Retained-Cut Route
● ● ● ● Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-11
Affected Parcels, Segment B Alternative B3
East Link Project


Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
112TH AVE SE
114TH AVE SE
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
B7003
SURREY DOWNS
Sturtevant Creek
SE 8TH ST
Wilburton Park & Ride
108TH AVE SE
B7002
SE 8TH ST
Former BNSF Railway Corridor
BELLEVUE WAY SE
SE 11TH ST
104TH AVE SE
112TH AVE SE
B4051
SE 16TH ST
B4035
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
B3008
B3010
BELLEVUE WAY SE
BELLEVUE
405
B2404
SE 20TH ST
B2397
B2384
B2375
B2358
B2361
108TH AVE SE
BELLEVUE WAY SE
Mercer Slough East
MERCER SLOUGH NATURE PARK
N
B2345
B2333
B2326
B2317
SE 23RD ST
B2306
B2295
B2300
B2296
B2259
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

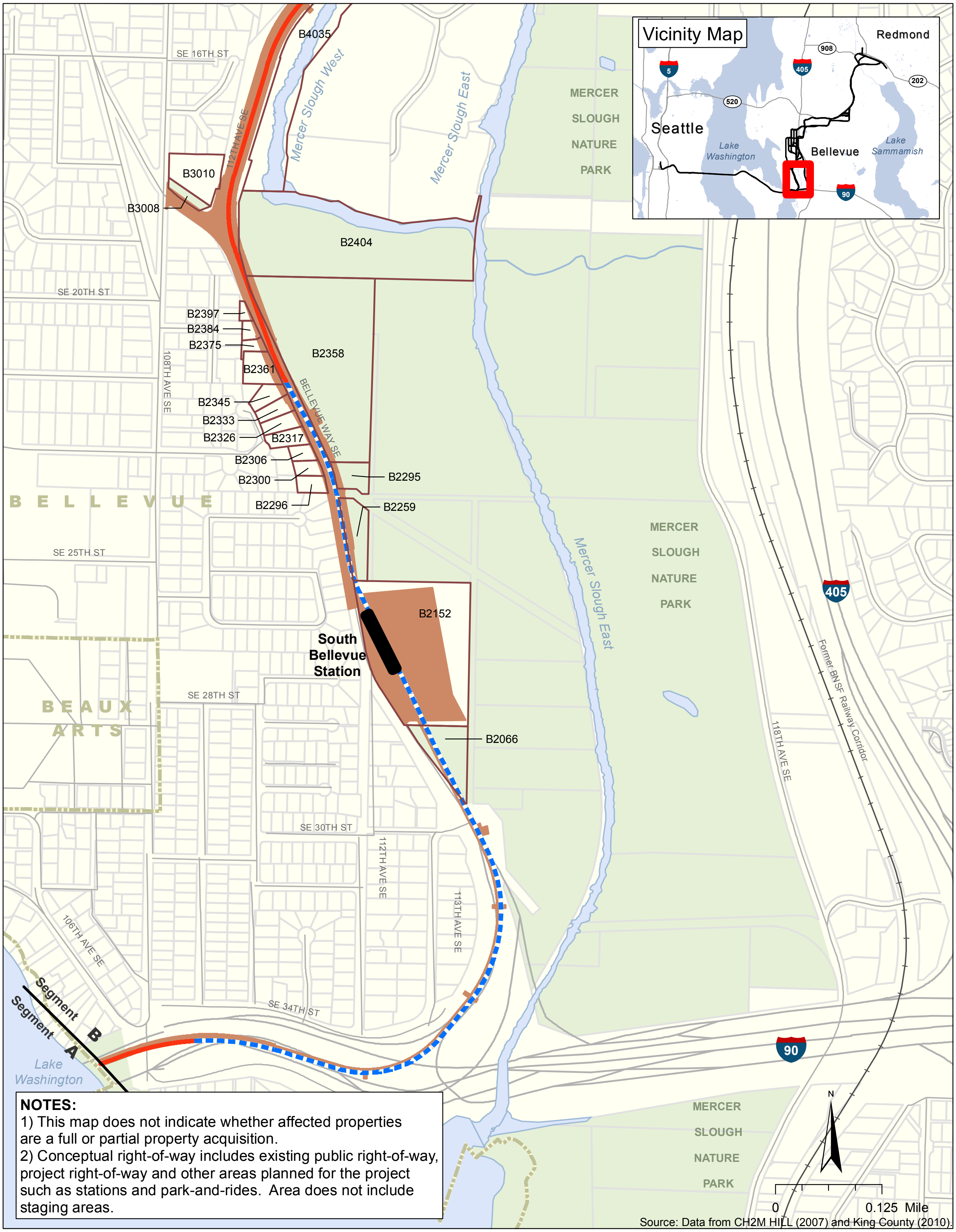
Source: Data from CH2M HILL (2007) and King County (2010).

- ▭ 1119 Map ID & Affected Parcel Boundary
- ▬ Conceptual Right-of-Way and Areas to be Acquired
- ▬ At-Grade Route
- ‒ ‒ ‒ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station

Exhibit G2-12

Affected Parcels, Segment B Alternative B3

East Link Project


B4035
SE 16TH ST
Mercer Slough West
Mercer Slough East
MERCER
SLOUGH
NATURE
PARK
112TH AVE SE
B3010
B3008
B2404
SE 20TH ST
B2397
B2384
B2375
B2361
B2358
108TH AVE SE
B2345
B2333
B2326
B2317
BELLEVUE WAY SE
B2306
B2300
B2295
B2296
B2259
BELLEVUE
SE 25TH ST
MERCER
SLOUGH
NATURE
PARK
405
B2152
South
Bellevue
Station
Mercer Slough East
BEAUX
ARTS
SE 28TH ST
B2066
Former BNSF Railway Corridor
118TH AVE SE
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake
Washington
90
MERCER
SLOUGH
NATURE
PARK
N
0
0.125 Mile
Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake
Washington
Bellevue
Lake
Sammamish
90

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

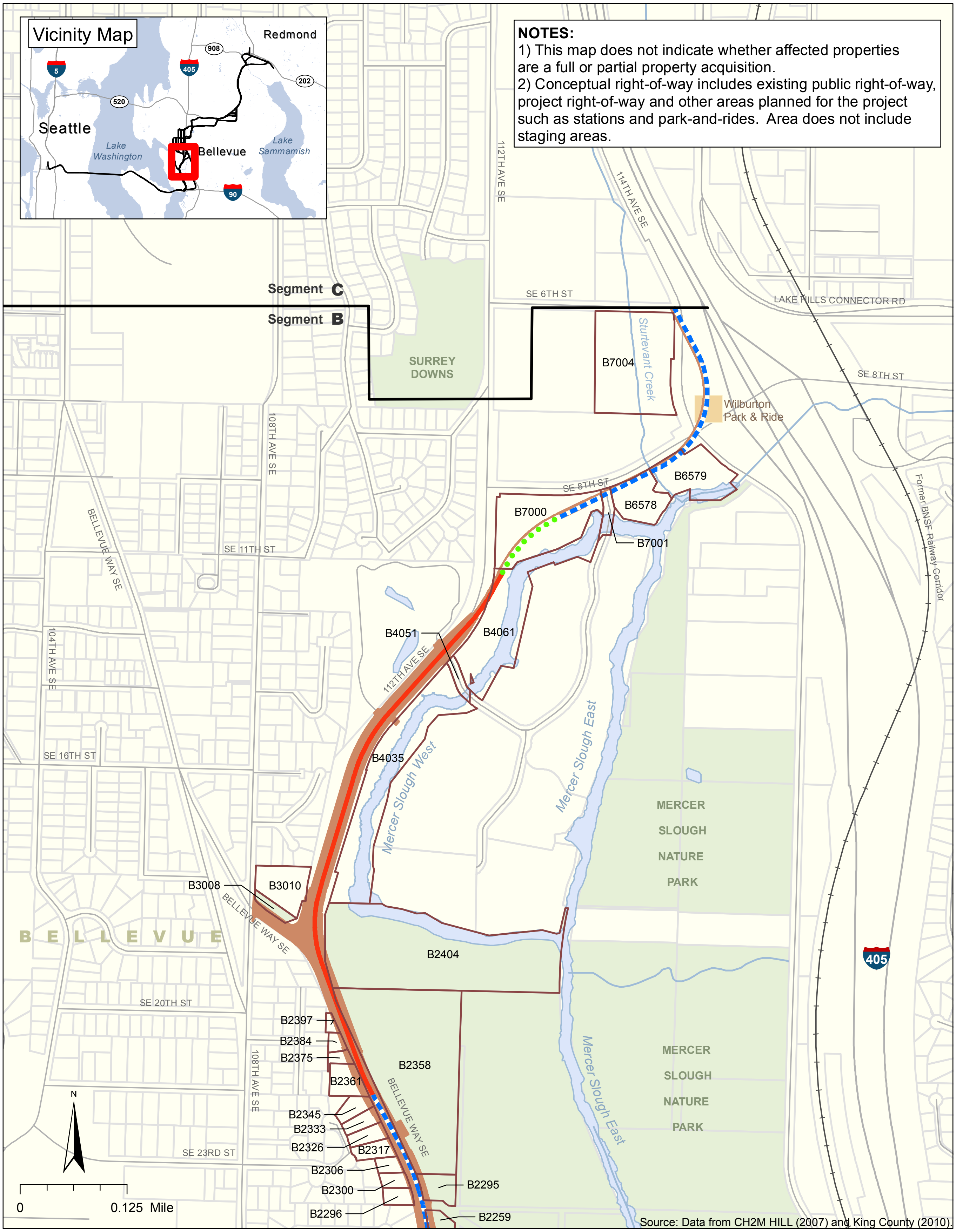
Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
🟫	Conceptual Right-of-Way and Areas to be Acquired
━	At-Grade Route
╍	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
‒ ‒	Tunnel Route
■	Proposed Station

Exhibit G2-13

Affected Parcels, Segment B
Alternative B3-114th
Extension Design Option

East Link Project


Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
112TH AVE SE
114TH AVE SE
SURREY DOWNS
B7004
Sturtevant Creek
SE 8TH ST
Wilburton Park & Ride
108TH AVE SE
B6579
SE 8TH ST
B6578
B7000
B7001
Former BNSF Railway Corridor
BELLEVUE WAY SE
SE 11TH ST
104TH AVE SE
B4051
B4061
112TH AVE SE
B4035
Mercer Slough West
Mercer Slough East
SE 16TH ST
MERCER SLOUGH NATURE PARK
B3008
B3010
BELLEVUE WAY SE
B E L L E V U E
B2404
405
SE 20TH ST
B2397
B2384
B2375
B2358
B2361
108TH AVE SE
BELLEVUE WAY SE
Mercer Slough East
MERCER SLOUGH NATURE PARK
N
B2345
B2333
B2326
B2317
SE 23RD ST
B2306
B2295
B2300
B2296
B2259
0
0.125 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

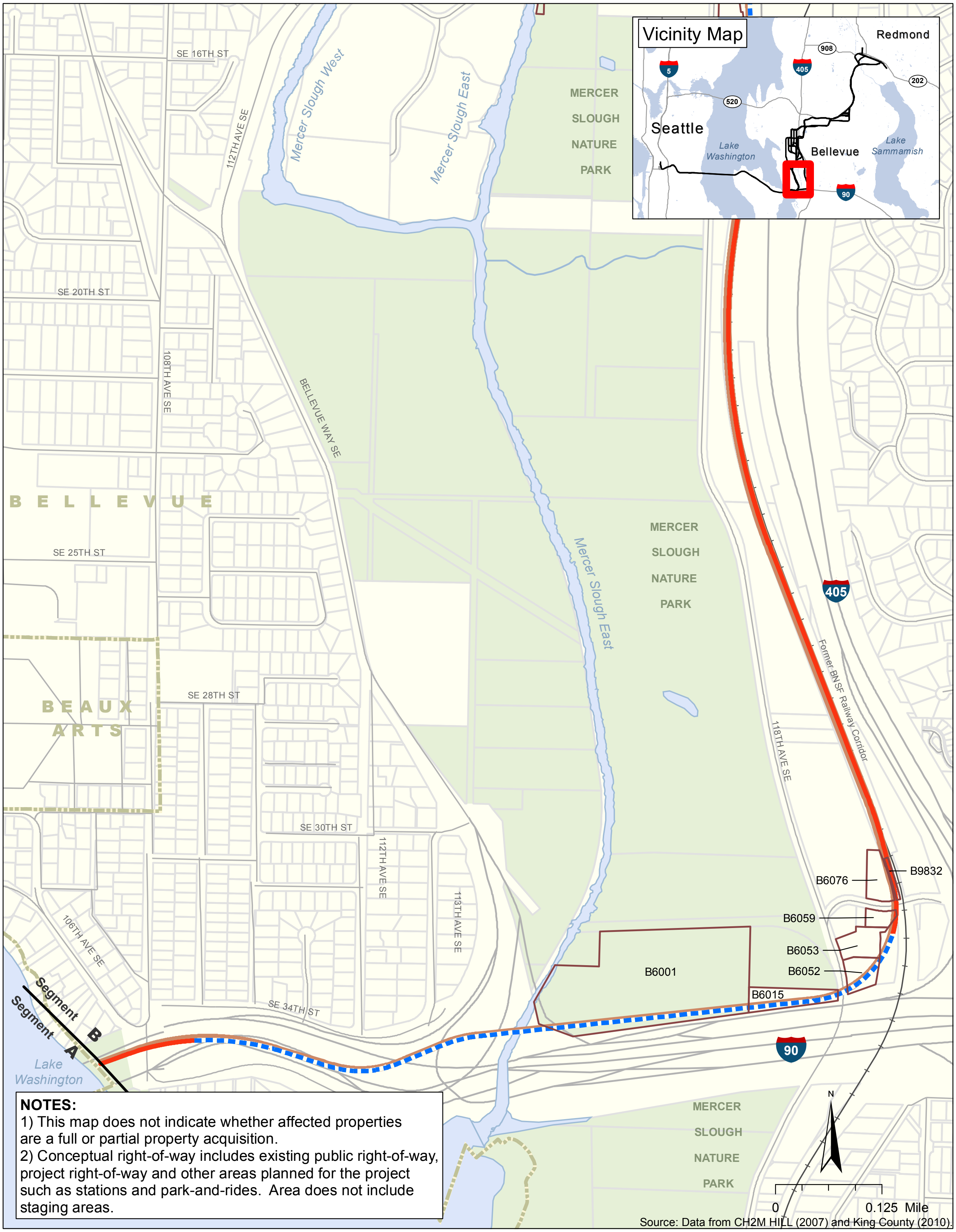
Source: Data from CH2M HILL (2007) and King County (2010).

- 1119 Map ID & Affected Parcel Boundary
- ▬ Conceptual Right-of-Way and Areas to be Acquired
- ▬ At-Grade Route
- ■ ■ ■ Elevated Route
- ● ● ● ● Retained-Cut Route
- ● ● ● ● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station

Exhibit G2-14

Affected Parcels, Segment B
Alternative B3-114th
Extension Design Option

East Link Project

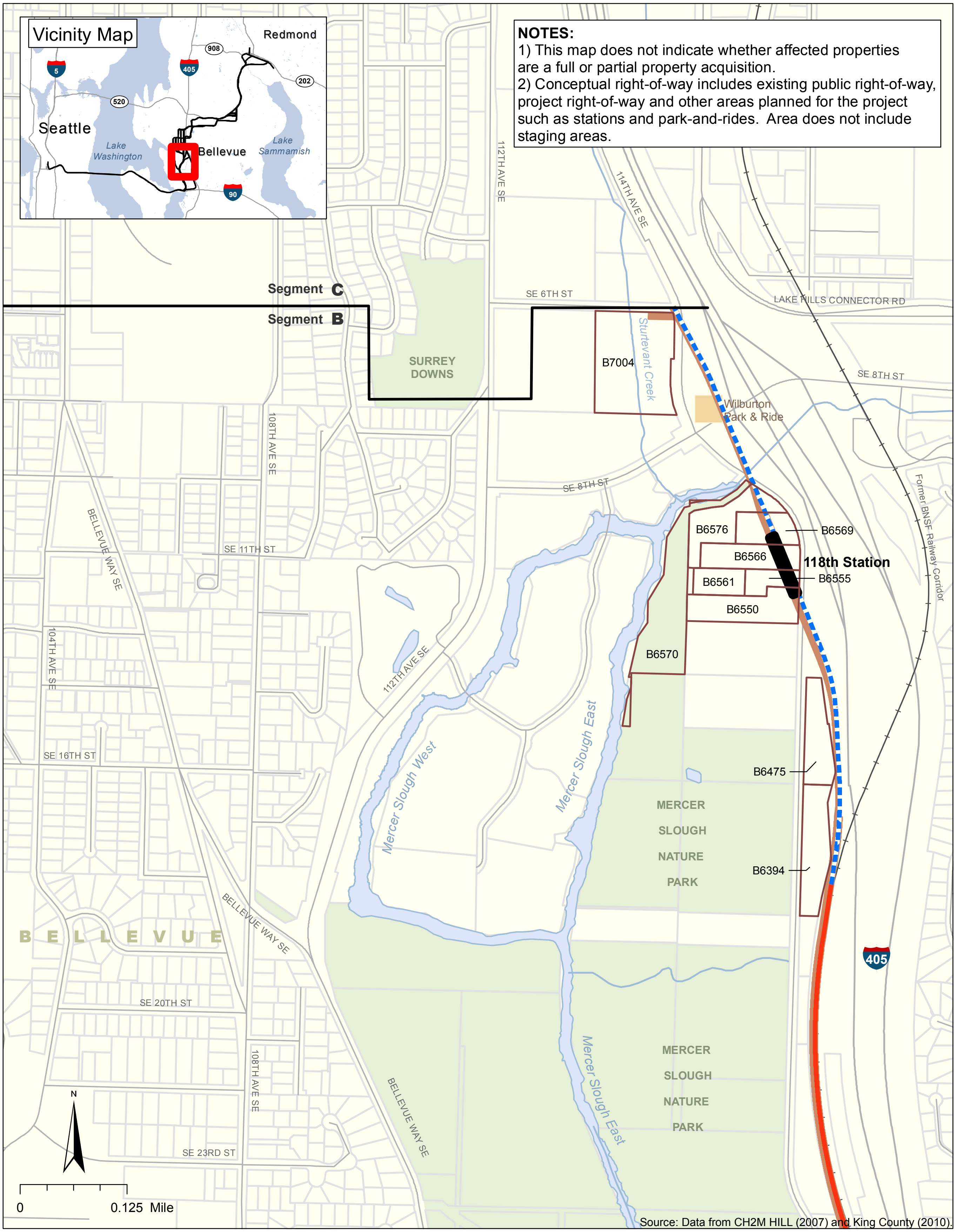

Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
SE 16TH ST
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
SE 20TH ST
108TH AVE SE
BELLEVUE WAY SE
BELLEVUE
SE 25TH ST
MERCER SLOUGH NATURE PARK
405
Former BNSF Railway Corridor
BEAUX ARTS
SE 28TH ST
118TH AVE SE
SE 30TH ST
112TH AVE SE
113TH AVE SE
106TH AVE SE
B6076
B9832
B6059
B6053
B6052
B6001
B6015
SE 34TH ST
Segment B
Segment A
Lake Washington
90
MERCER SLOUGH NATURE PARK
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
- - - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-15
Affected Parcels, Segment B Alternative B7
East Link Project


Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
112TH AVE SE
114TH AVE SE
SURREY DOWNS
B7004
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
SE 8TH ST
108TH AVE SE
BELLEVUE WAY SE
SE 11TH ST
B6576
B6569
B6566
118th Station
B6561
B6555
B6550
B6570
Former BNSF Railway Corridor
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
SE 16TH ST
B6475
MERCER SLOUGH NATURE PARK
B6394
BELLEVUE
BELLEVUE WAY SE
405
SE 20TH ST
MERCER SLOUGH NATURE PARK
Mercer Slough East
108TH AVE SE
BELLEVUE WAY SE
N
SE 23RD ST
0
0.125 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

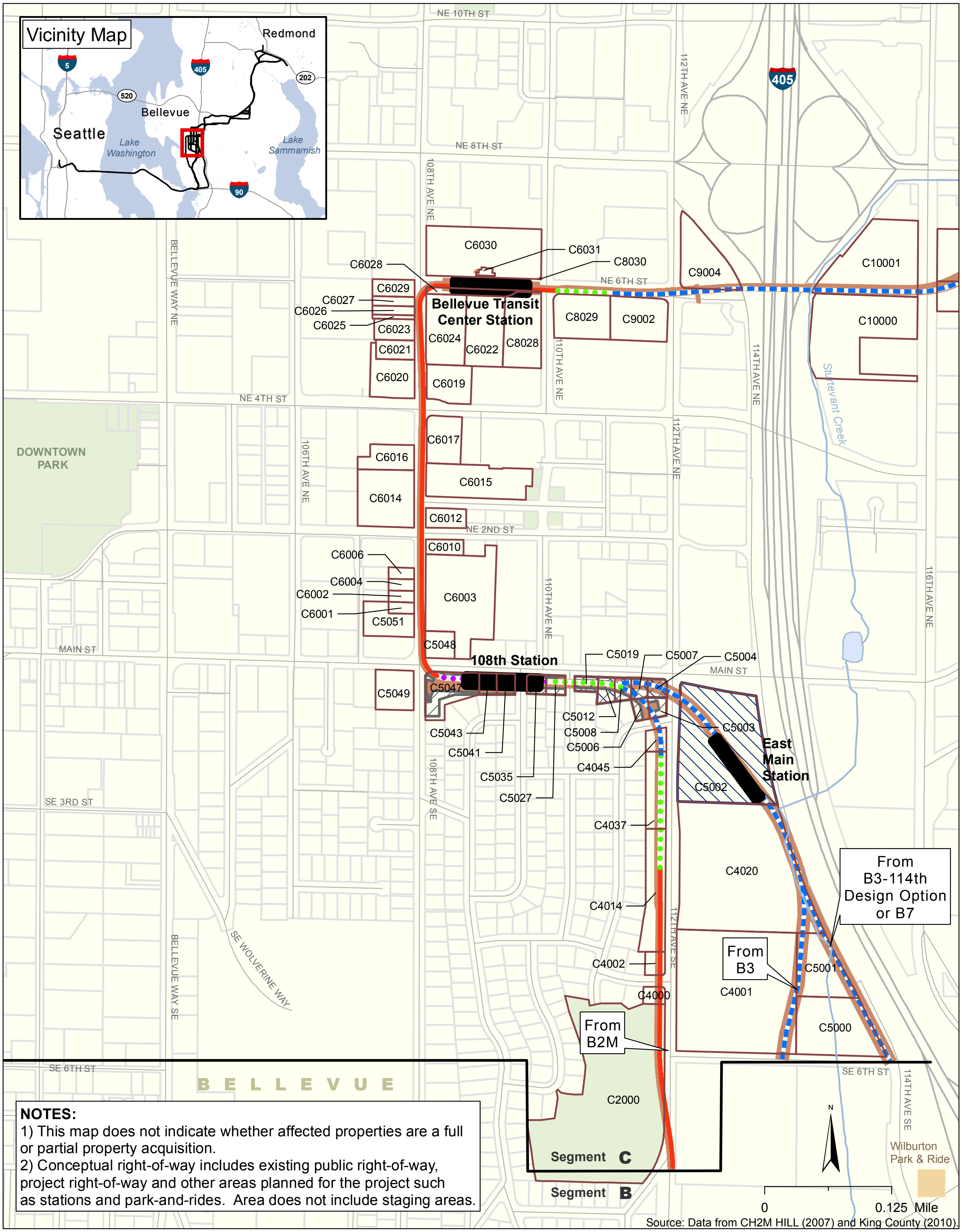
Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Conceptual Right-of-Way and Areas to be Acquired
━━	At-Grade Route
■ ■ ■	Elevated Route
● ● ● ●	Retained-Cut Route
● ● ● ●	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station

Exhibit G2-16

Affected Parcels, Segment B Alternative B7

East Link Project

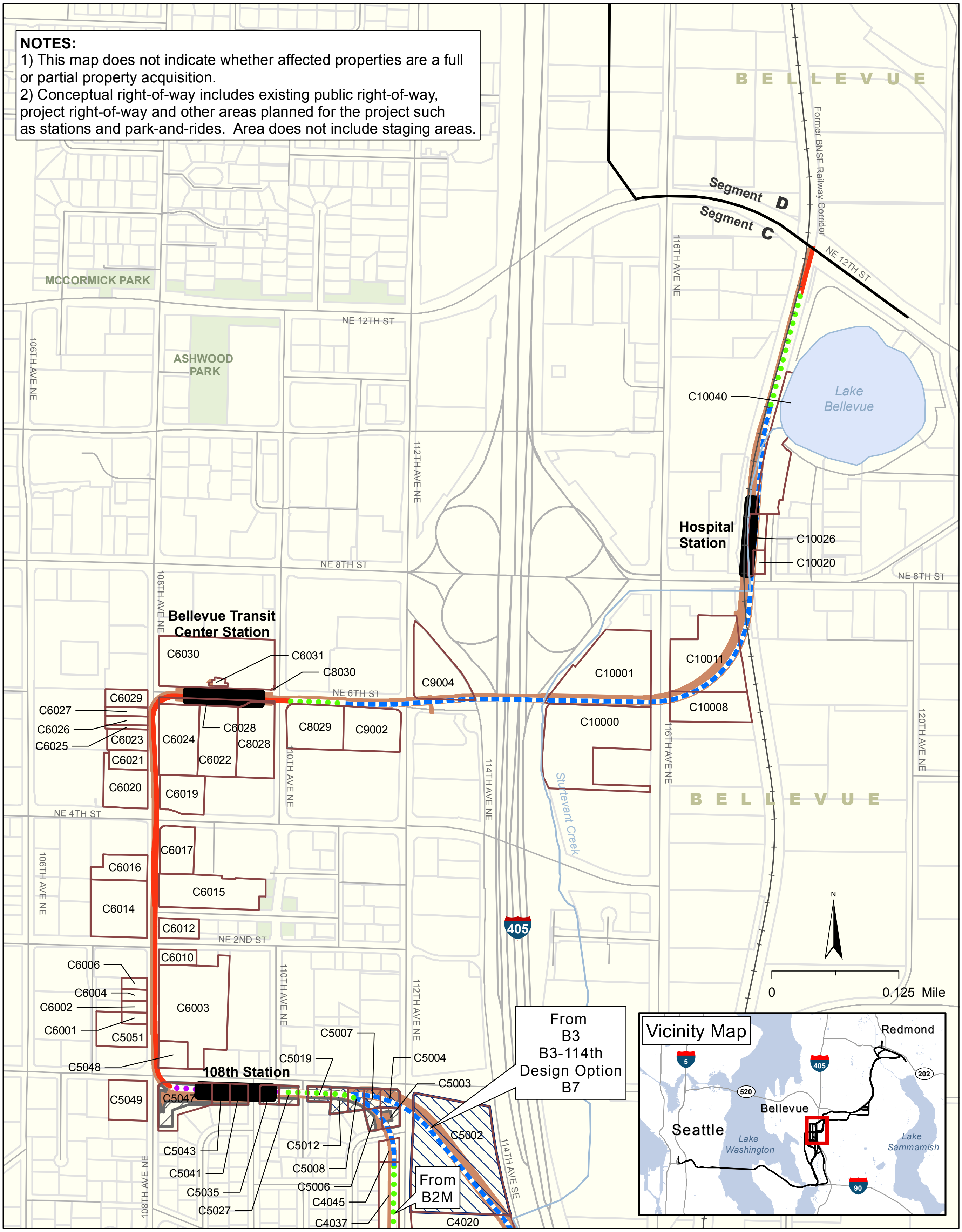

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 10TH ST
112TH AVE NE
405
NE 8TH ST
108TH AVE NE
BELLEVUE WAY NE
C6030
C6031
C8030
C6028
NE 6TH ST
C9004
C10001
C6029
C6027
C6026
C6025
Bellevue Transit Center Station
C6023
C6024
C6022
C8028
C8029
C9002
C10000
C6021
C6020
C6019
110TH AVE NE
114TH AVE NE
Sturtevant Creek
NE 4TH ST
106TH AVE NE
DOWNTOWN PARK
C6017
C6016
C6015
C6014
112TH AVE NE
C6012
NE 2ND ST
C6010
C6006
C6004
C6002
C6001
C6003
C5051
110TH AVE NE
116TH AVE NE
C5048
MAIN ST
108th Station
C5019
C5007
C5004
MAIN ST
C5049
C5047
C5012
C5008
C5006
C5003
C5043
C5041
C4045
East Main Station
C5035
C5027
C5002
108TH AVE SE
SE 3RD ST
C4037
C4020
From B3-114th Design Option or B7
C4014
SE WOLVERINE WAY
BELLEVUE WAY SE
112TH AVE SE
C4002
From B3
C5001
C4000
C4001
From B2M
C5000
SE 6TH ST
SE 6TH ST
114TH AVE SE
B E L L E V U E
C2000
N
Segment C
Wilburton Park & Ride
Segment B
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Proposed Station
▬ At-Grade Route
- - - Elevated Route
••••• Retained-Cut Route
••••• Retained-Fill Route
▬ ▬ Tunnel Route
▬ Conceptual Right-of-Way and Areas to be Acquired
▨ Construction Staging Area
▨ Construction Staging Area (From B3 & B7 Only)

Exhibit G2-17
Affected Parcels, Segment C
Preferred Alternative C11A
East Link Project

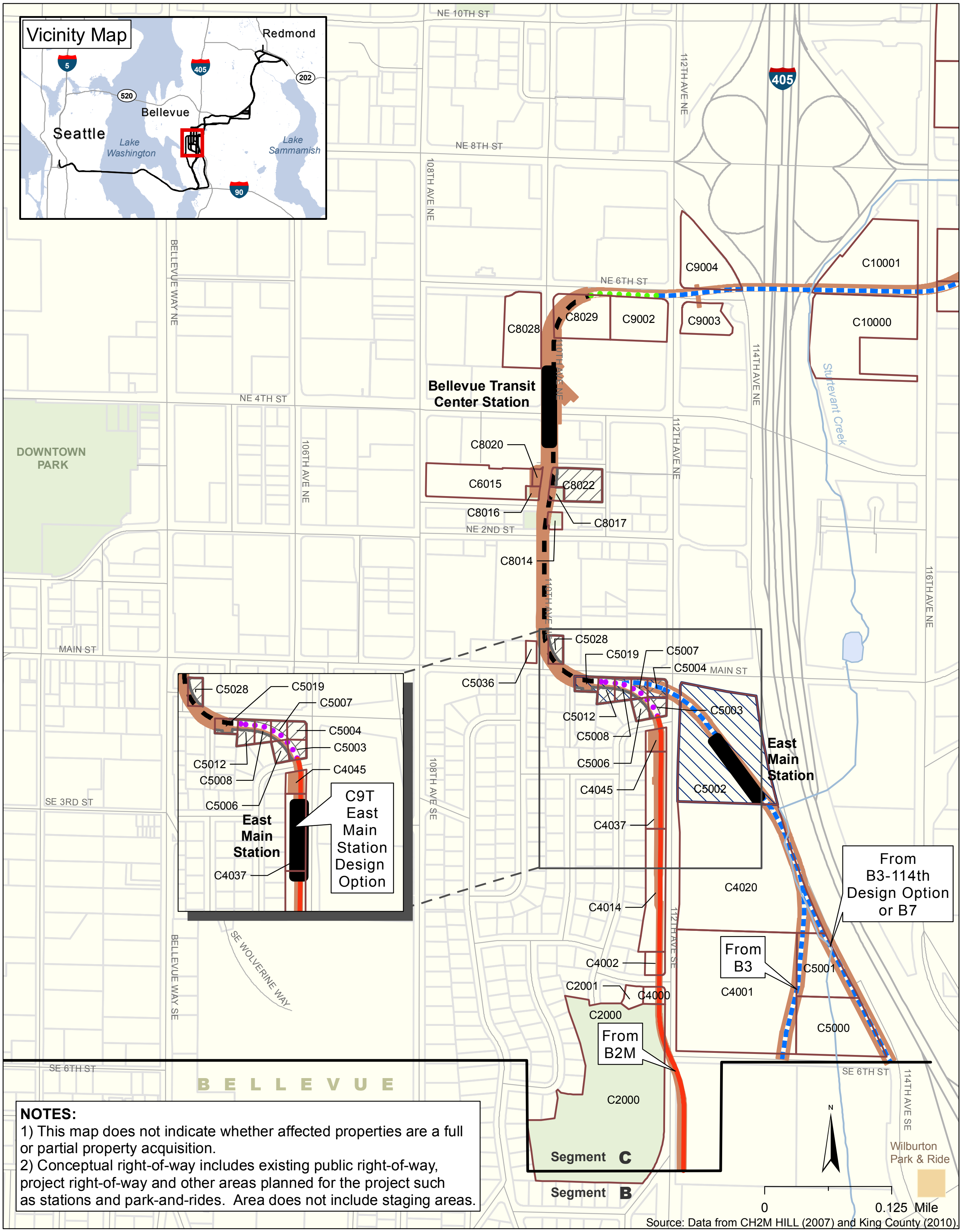

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
116TH AVE NE
MCCORMICK PARK
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
C10040
Lake Bellevue
112TH AVE NE
Hospital Station
C10026
C10020
NE 8TH ST
NE 8TH ST
108TH AVE NE
Bellevue Transit Center Station
C6030
C6031
C8030
NE 6TH ST
C9004
C10001
C10011
C10008
C6029
C6027
C6026
C6025
C6028
C8028
C6023
C6024
C6022
C6021
C8029
C9002
C10000
110TH AVE NE
114TH AVE NE
116TH AVE NE
120TH AVE NE
C6020
C6019
Sturtevant Creek
BELLEVUE
NE 4TH ST
C6017
106TH AVE NE
C6016
C6014
C6015
C6012
NE 2ND ST
405
N
0
0.125 Mile
C6010
C6006
C6004
C6002
C6003
C6001
C5051
110TH AVE NE
112TH AVE NE
C5007
From B3 B3-114th Design Option B7
C5048
C5019
C5004
108th Station
C5003
C5049
C5047
C5002
C5043
C5012
114TH AVE SE
C5041
C5008
From B2M
C5035
C5006
108TH AVE NE
C5027
C4045
C4037
C4020
Vicinity Map
Redmond
5
405
520
202
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Proposed Station
▬	At-Grade Route
▬ ▬	Elevated Route
• • •	Retained-Cut Route
• • •	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-18
Affected Parcels, Segment C
Preferred Alternative C11A
East Link Project



Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 10TH ST
112TH AVE NE
405
NE 8TH ST
108TH AVE NE
BELLEVUE WAY NE
C9004
C10001
NE 6TH ST
C8029
C9002
C9003
C10000
C8028
114TH AVE NE
Sturtevant Creek
110TH AVE NE
Bellevue Transit Center Station
NE 4TH ST
DOWNTOWN PARK
106TH AVE NE
C8020
112TH AVE NE
C6015
C8022
C8016
C8017
NE 2ND ST
C8014
110TH AVE
116TH AVE NE
MAIN ST
C5028
C5019
C5007
C5004
MAIN ST
C5036
C5012
C5003
C5008
C5006
C4045
C5002
East Main Station
C4037
C5028
C5019
C5007
C5004
C5003
C4045
C5012
C5008
C5006
East Main Station
C4037
C9T East Main Station Design Option
SE 3RD ST
108TH AVE SE
C4020
From B3-114th Design Option or B7
C4014
BELLEVUE WAY SE
SE WOLVERINE WAY
112TH AVE SE
From B3
C4002
C5001
C4001
C2001
C4000
C2000
From B2M
C5000
SE 6TH ST
SE 6TH ST
114TH AVE SE
B E L L E V U E
C2000
N
Wilburton Park & Ride
Segment C
Segment B
0
0.125 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

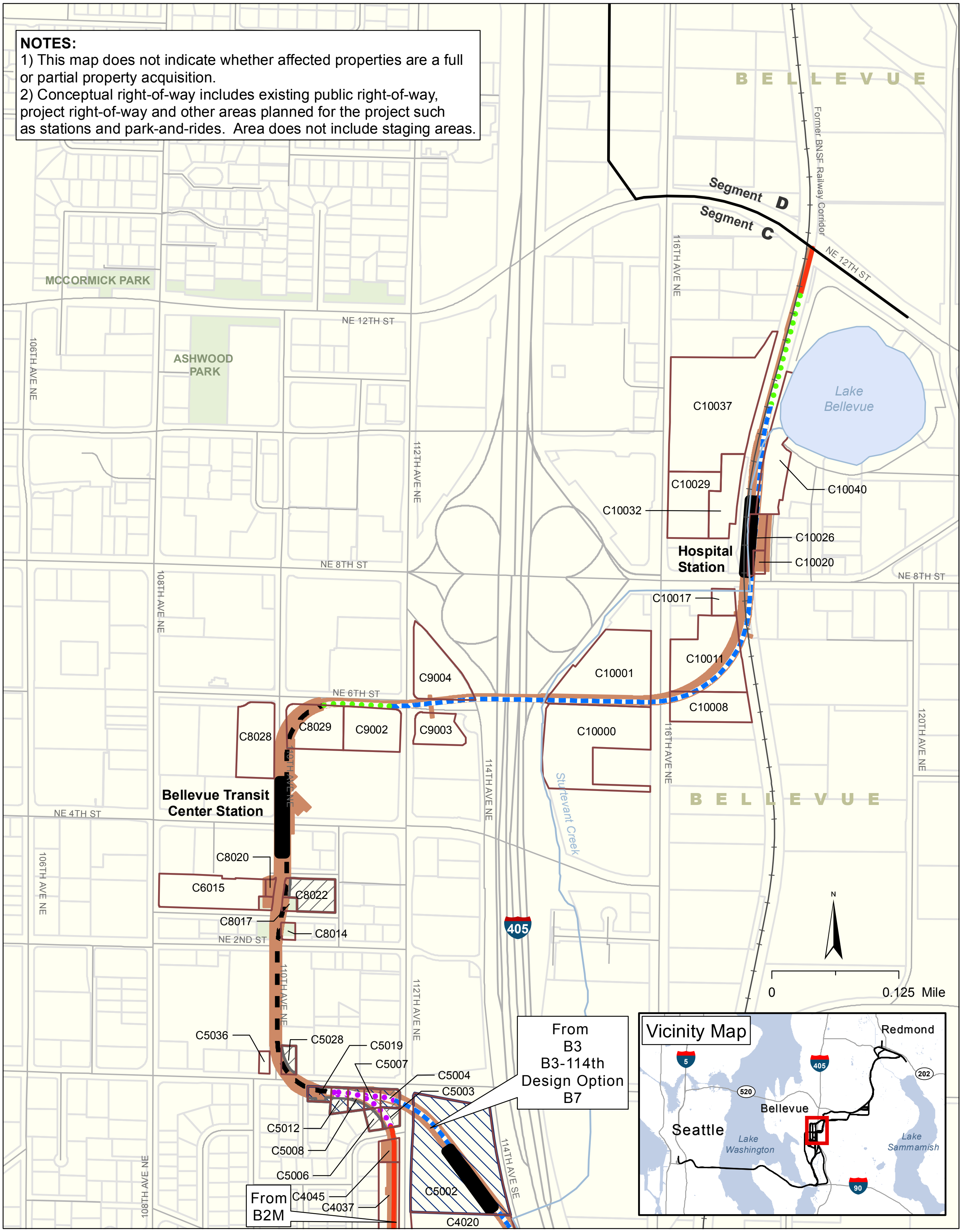
1119	Map ID & Affected Parcel Boundary
■	Proposed Station
━	At-Grade Route
▪▪▪	Elevated Route
●●●●	Retained-Cut Route
●●●●	Retained-Fill Route
▬ ▬	Tunnel Route
🟫	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-19

Affected Parcels, Segment C

Preferred Alternative C9T

East Link Project

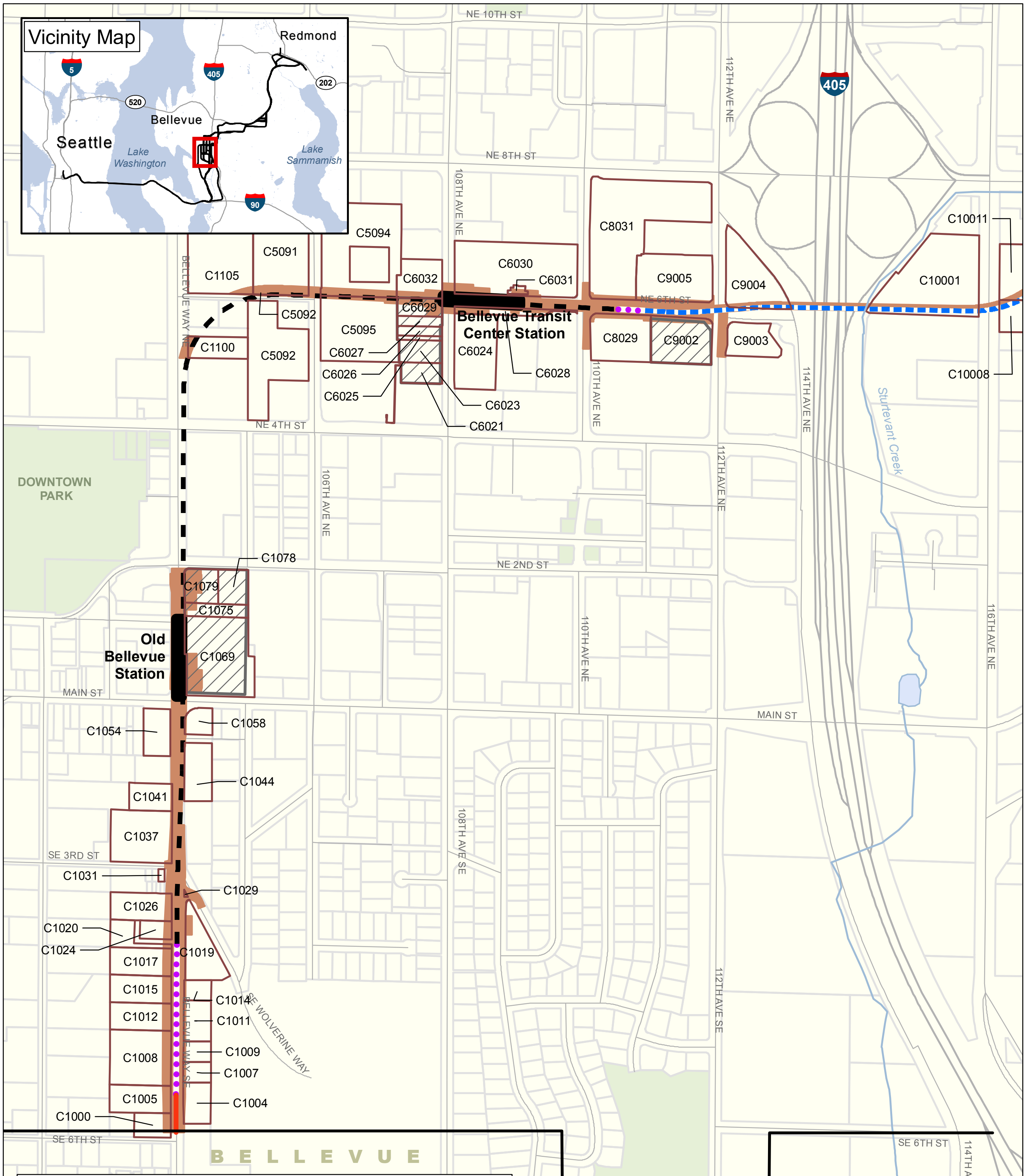

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
120TH AVE NE
114TH AVE SE
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
Lake Bellevue
Sturtevant Creek
405
C10037
C10029
C10032
C10040
C10026
C10020
Hospital Station
C10017
C10011
C10001
C10008
C10000
C9004
C9003
C9002
C8029
C8028
Bellevue Transit Center Station
C8020
C6015
C8022
C8017
C8014
C5036
C5028
C5019
C5007
C5004
C5003
C5012
C5008
C5006
C4045
C4037
C5002
C4020
From B2M
From B3 B3-114th Design Option B7
N
0
0.125 Mile
Vicinity Map
Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
5
405
520
202
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary	▬	At-Grade Route
▬	Proposed Station	▬ ▬	Elevated Route
		● ● ●	Retained-Cut Route
		● ● ●	Retained-Fill Route
		▬ ▬	Tunnel Route
▬	Conceptual Right-of-Way and Areas to be Acquired		
▨	Construction Staging Area		
▨	Construction Staging Area (From B3 & B7 Only)		

Exhibit G2-20
Affected Parcels, Segment C
Preferred Alternative C9T
East Link Project


Vicinity Map
Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
5
405
520
202
90
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
106TH AVE NE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
SE WOLVERINE WAY
Sturtevant Creek
DOWNTOWN PARK
Bellevue Transit Center Station
Old Bellevue Station
BELLEVUE
C5094
C5091
C1105
C5092
C1100
C5095
C6032
C6029
C6027
C6026
C6025
C6030
C6031
C6024
C6028
C6023
C6021
C8031
C9005
C9004
C8029
C9002
C9003
C10011
C10001
C10008
C1078
C1079
C1075
C1069
C1054
C1058
C1044
C1041
C1037
C1031
C1029
C1026
C1020
C1024
C1019
C1017
C1015
C1014
C1012
C1011
C1008
C1009
C1007
C1005
C1004
C1000
Segment C
Segment B
N
Wilburton Park & Ride
0
0.125 Mile

NOTES:

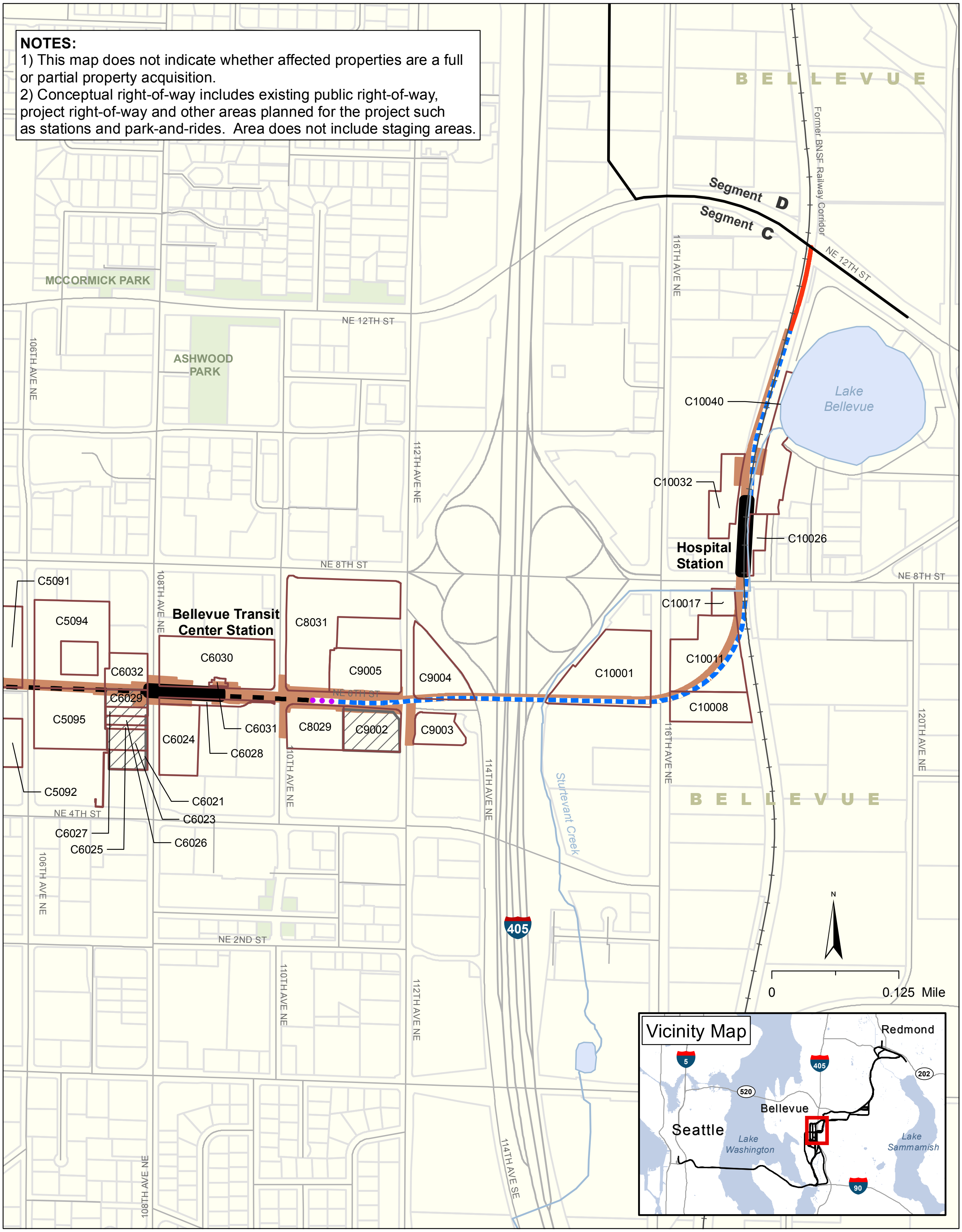
1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary	▬	At-Grade Route	▬	Conceptual Right-of-Way and Areas to be Acquired
▬	Proposed Station	▪▪▪	Elevated Route	▨	Construction Staging Area
		●●●●	Retained-Cut Route	▨	Construction Staging Area (From B3 & B7 Only)
		●●●●	Retained-Fill Route		
		▬ ▬	Tunnel Route		

Exhibit G2-21
Affected Parcels, Segment C
Alternative C1T
East Link Project

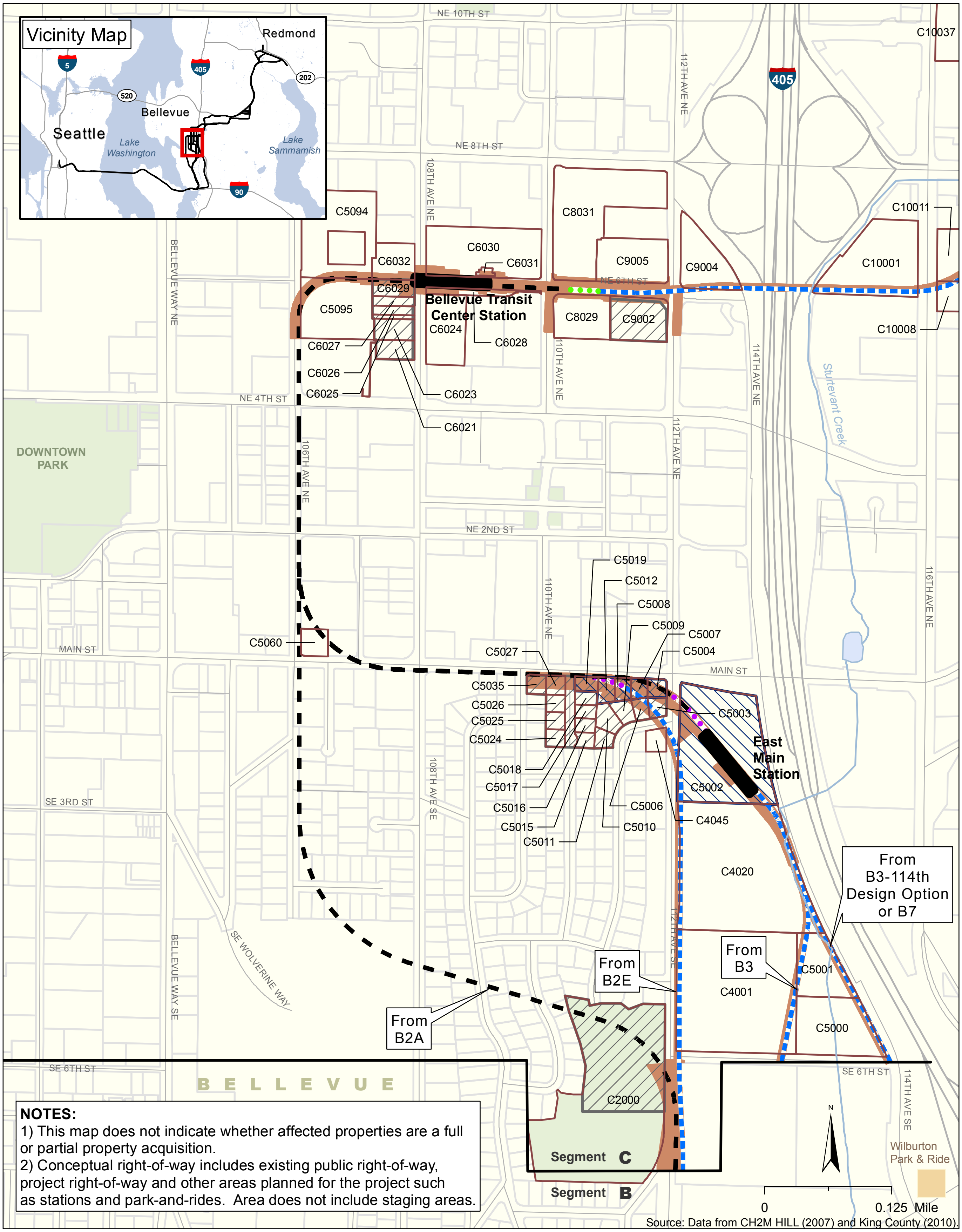

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
NE 12TH ST
106TH AVE NE
116TH AVE NE
112TH AVE NE
Lake Bellevue
C10040
C10032
C10026
Hospital Station
NE 8TH ST
NE 8TH ST
C5091
C5094
108TH AVE NE
Bellevue Transit Center Station
C8031
C6030
C9005
C9004
C10017
C10001
C10011
C10008
C6032
C6029
NE 6TH ST
C5095
C6031
C8029
C9002
C9003
C6024
C6028
110TH AVE NE
114TH AVE NE
116TH AVE NE
120TH AVE NE
Sturtevant Creek
BELLEVUE
C5092
C6021
C6023
NE 4TH ST
C6027
C6025
C6026
106TH AVE NE
405
NE 2ND ST
110TH AVE NE
112TH AVE NE
N
0
0.125 Mile
108TH AVE NE
114TH AVE SE
Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary	At-Grade Route	Conceptual Right-of-Way and Areas to be Acquired
Proposed Station	Elevated Route	▨ Construction Staging Area
	Retained-Cut Route	▨ Construction Staging Area (From B3 & B7 Only)
	Retained-Fill Route	
	Tunnel Route	

Exhibit G2-22
Affected Parcels, Segment C
Alternative C1T
East Link Project


Vicinity Map
Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
5
405
520
202
90
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
106TH AVE NE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
SE WOLVERINE WAY
Sturtevant Creek
DOWNTOWN PARK
BELLEVUE
Wilburton Park & Ride
C10037
C5094
C8031
C10011
C6030
C6032
C6031
C9005
C9004
C10001
C6029
Bellevue Transit Center Station
C5095
C6024
C8029
C9002
C10008
C6027
C6028
C6026
C6025
C6023
C6021
C5019
C5012
C5008
C5009
C5007
C5004
C5060
C5027
C5035
C5003
C5026
C5025
C5024
East Main Station
C5018
C5017
C5002
C5016
C5006
C5015
C5010
C4045
C5011
C4020
From B3-114th Design Option or B7
From B3
From B2E
C5001
C4001
From B2A
C5000
C2000
Segment C
Segment B
N
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

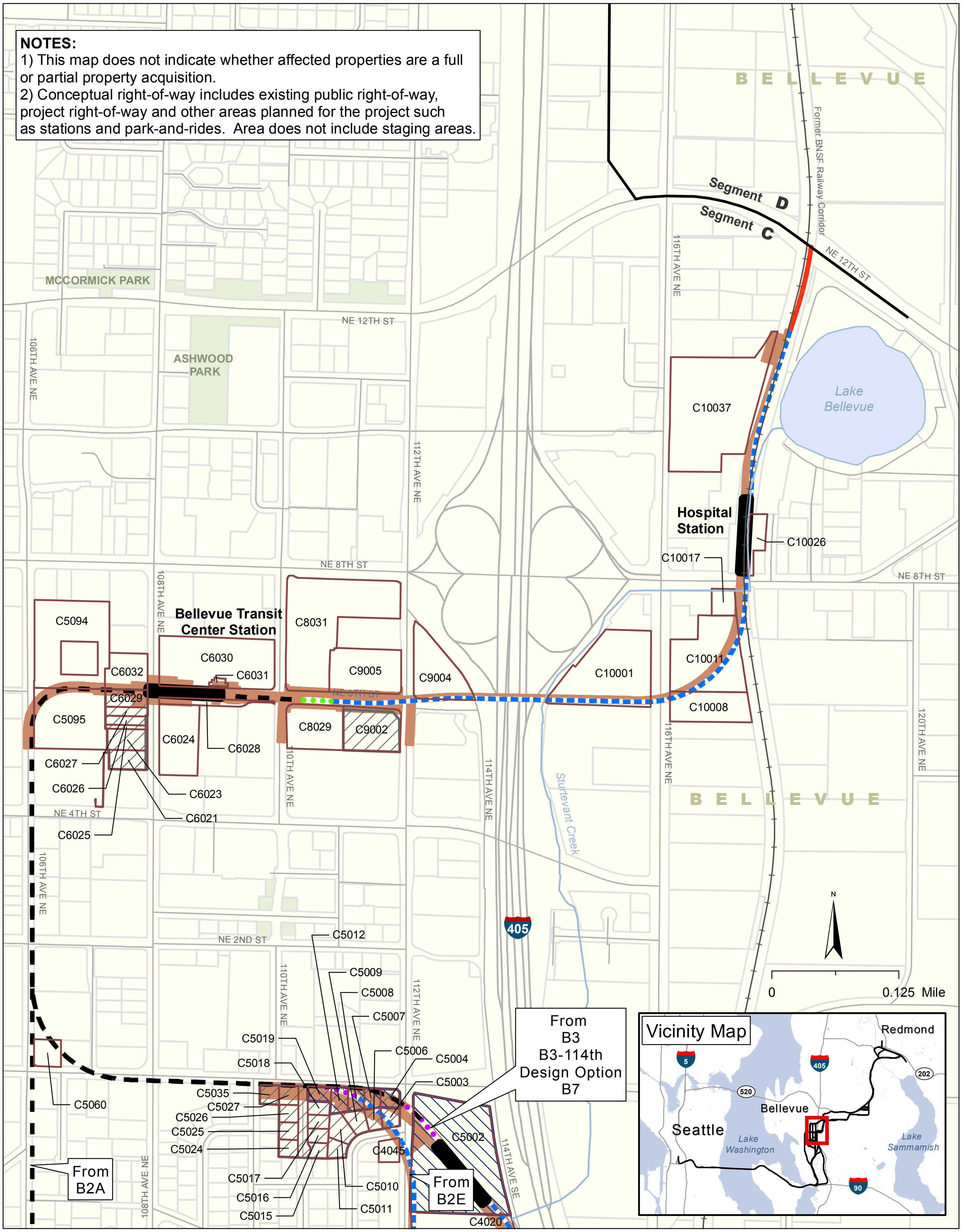
1119 Map ID & Affected Parcel Boundary
■ Proposed Station
— At-Grade Route
- - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
- - Tunnel Route
■ Conceptual Right-of-Way and Areas to be Acquired
▨ Construction Staging Area
▨ Construction Staging Area (From B3 & B7 Only)

Exhibit G2-23

Affected Parcels, Segment C

Alternative C2T

East Link Project

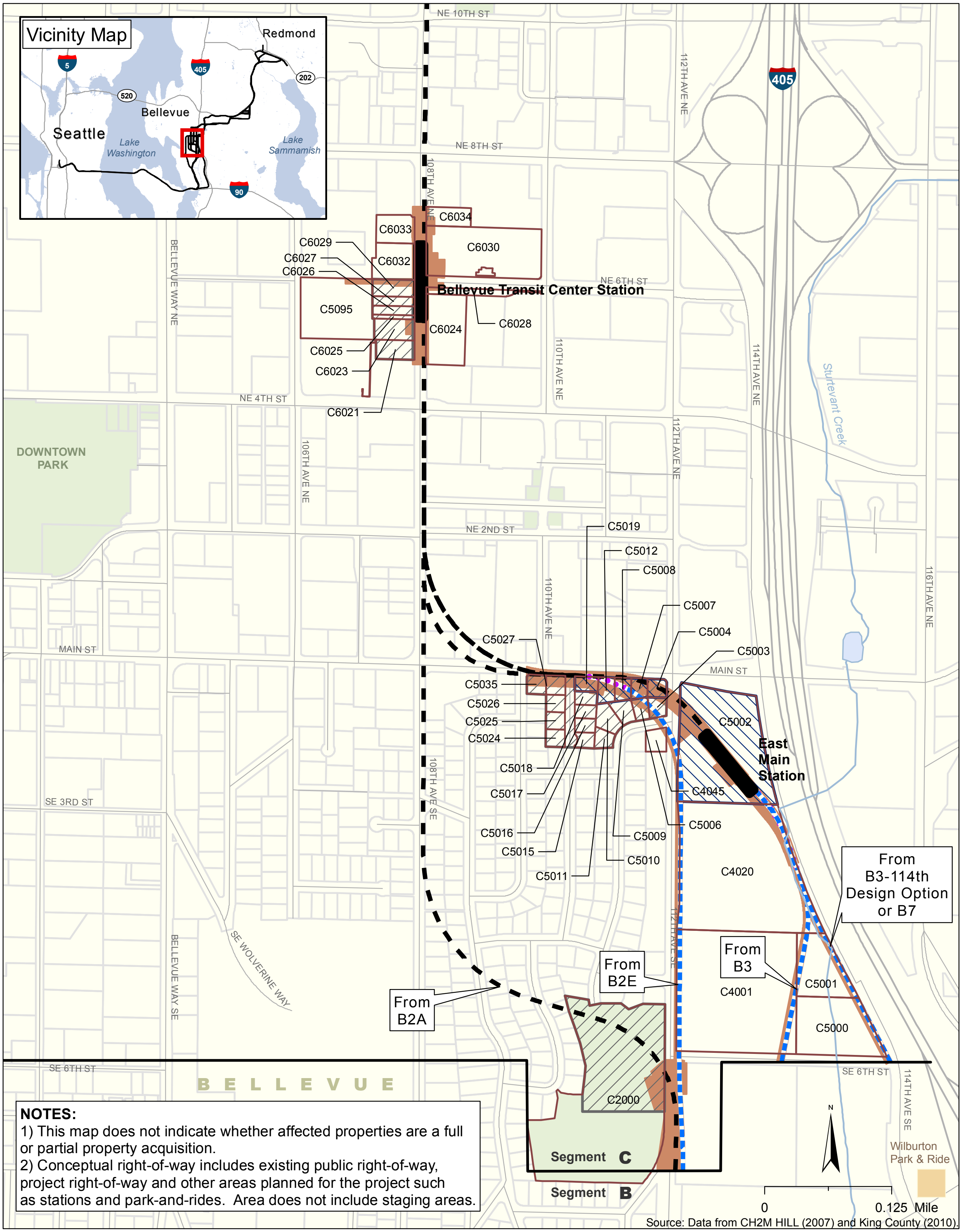

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
116TH AVE NE
MCCORMICK PARK
ASHWOOD PARK
NE 12TH ST
106TH AVE NE
Lake Bellevue
C10037
112TH AVE NE
Hospital Station
C10026
C10017
NE 8TH ST
NE 8TH ST
108TH AVE NE
Bellevue Transit Center Station
C5094
C8031
C6030
C6031
C6032
C9005
C9004
C10001
C10011
C6029
NE 6TH ST
C10008
C5095
C8029
C9002
C6024
C6028
116TH AVE NE
120TH AVE NE
110TH AVE NE
114TH AVE NE
C6027
C6026
C6023
Sturtevant Creek
BELLEVUE
NE 4TH ST
C6021
C6025
106TH AVE NE
405
NE 2ND ST
C5012
N
C5009
0
0.125 Mile
C5008
110TH AVE NE
112TH AVE NE
C5007
From B3 B3-114th Design Option B7
C5019
C5006
C5004
C5018
C5003
C5035
C5060
C5027
C5026
C5002
C5025
C5024
C4045
From B2A
C5017
C5010
From B2E
C5016
114TH AVE SE
108TH AVE NE
C5015
C5011
C4020
Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Proposed Station
▬	At-Grade Route
- - -	Elevated Route
•••	Retained-Cut Route
•••	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-24
Affected Parcels, Segment C
Alternative C2T
East Link Project

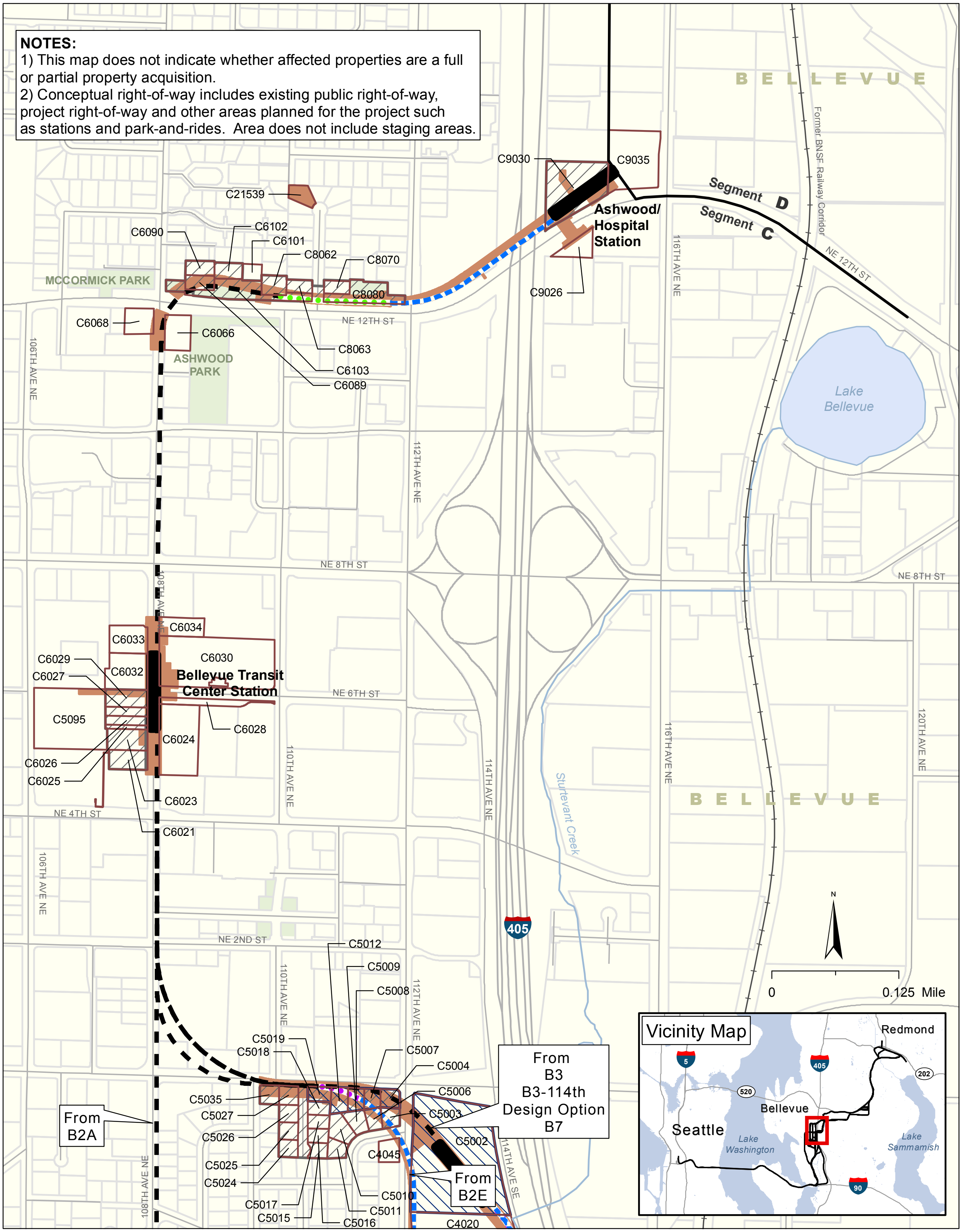

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 10TH ST
112TH AVE NE
405
NE 8TH ST
108TH AVE NE
C6034
C6033
C6030
C6029
C6027
C6032
C6026
NE 6TH ST
Bellevue Transit Center Station
C5095
C6028
C6024
C6025
C6023
C6021
NE 4TH ST
BELLEVUE WAY NE
110TH AVE NE
114TH AVE NE
Sturtevant Creek
DOWNTOWN PARK
106TH AVE NE
112TH AVE NE
NE 2ND ST
C5019
C5012
C5008
C5007
C5004
C5003
116TH AVE NE
C5027
110TH AVE NE
MAIN ST
MAIN ST
C5035
C5026
C5025
C5024
C5002
East Main Station
C4045
C5018
C5017
C5016
C5015
C5011
C5009
C5010
C5006
C4020
SE 3RD ST
108TH AVE SE
From B3-114th Design Option or B7
From B3
From B2E
112TH AVE SE
C4001
C5001
C5000
From B2A
BELLEVUE WAY SE
SE WOLVERINE WAY
SE 6TH ST
BELLEVUE
C2000
SE 6TH ST
114TH AVE SE
N
Wilburton Park & Ride
Segment C
Segment B
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Proposed Station
▬ At-Grade Route
- - - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
- - Tunnel Route
▬ Conceptual Right-of-Way and Areas to be Acquired
▨ Construction Staging Area
▨ Construction Staging Area (From B3 & B7 Only)

Exhibit G2-25
Affected Parcels, Segment C
Alternative C3T
East Link Project



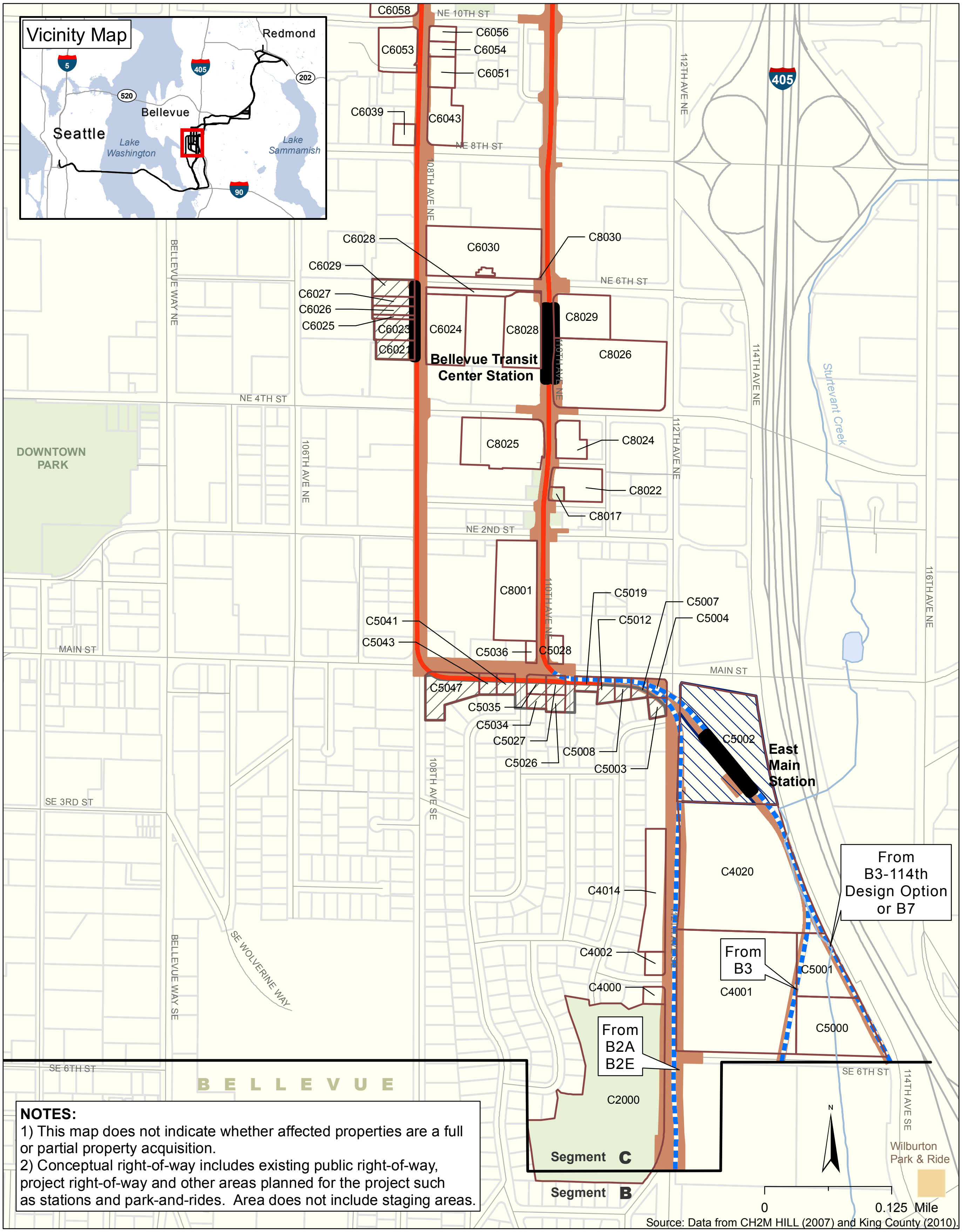
NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
C9030
C9035
Ashwood/ Hospital Station
C9026
116TH AVE NE
C21539
C6090
C6102
C6101
C8062
C8070
C8080
MCCORMICK PARK
C6068
C6066
ASHWOOD PARK
C8063
C6103
C6089
106TH AVE NE
Lake Bellevue
112TH AVE NE
NE 8TH ST
NE 8TH ST
108TH AVE NE
C6034
C6033
C6030
C6029
C6027
C6032
Bellevue Transit Center Station
NE 6TH ST
C5095
C6028
C6024
C6026
C6025
C6023
NE 4TH ST
C6021
110TH AVE NE
114TH AVE NE
116TH AVE NE
120TH AVE NE
Sturtevant Creek
BELLEVUE
106TH AVE NE
405
NE 2ND ST
N
0
0.125 Mile
C5012
C5009
110TH AVE NE
C5008
112TH AVE NE
C5019
C5018
C5007
C5004
From B3 B3-114th Design Option B7
C5006
C5035
C5003
C5027
C5002
C5026
C4045
From B2A
C5025
C5024
From B2E
C5010
C5017
C5011
C5015
C5016
C4020
114TH AVE SE
108TH AVE NE
Vicinity Map
Redmond
5
405
520
202
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary	▬	At-Grade Route	▬	Conceptual Right-of-Way and Areas to be Acquired
▬	Proposed Station	┅	Elevated Route	▨	Construction Staging Area
		⋯	Retained-Cut Route	▨	Construction Staging Area (From B3 & B7 Only)
		⋯	Retained-Fill Route		
		╍	Tunnel Route		

Exhibit G2-26
Affected Parcels, Segment C
Alternative C3T
East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
C6058
NE 10TH ST
C6056
C6053
C6054
C6051
405
112TH AVE NE
C6039
C6043
NE 8TH ST
108TH AVE NE
C6028
C6030
C8030
C6029
NE 6TH ST
C6027
C6026
C6025
C6023
C6024
C8028
C8029
C6021
C8026
Bellevue Transit Center Station
110TH AVE NE
114TH AVE NE
Sturtevant Creek
BELLEVUE WAY NE
NE 4TH ST
DOWNTOWN PARK
106TH AVE NE
C8025
C8024
112TH AVE NE
C8022
C8017
NE 2ND ST
C8001
C5019
C5007
C5012
C5004
C5041
C5043
C5036
C5028
MAIN ST
MAIN ST
C5047
C5035
C5034
C5027
C5026
C5008
C5003
C5002
East Main Station
116TH AVE NE
SE 3RD ST
108TH AVE SE
C4020
From B3-114th Design Option or B7
C4014
SE WOLVERINE WAY
BELLEVUE WAY SE
C4002
From B3
C5001
C4001
C4000
From B2A B2E
C5000
SE 6TH ST
SE 6TH ST
114TH AVE SE
B E L L E V U E
C2000
N
Wilburton Park & Ride
Segment C
Segment B
0
0.125 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

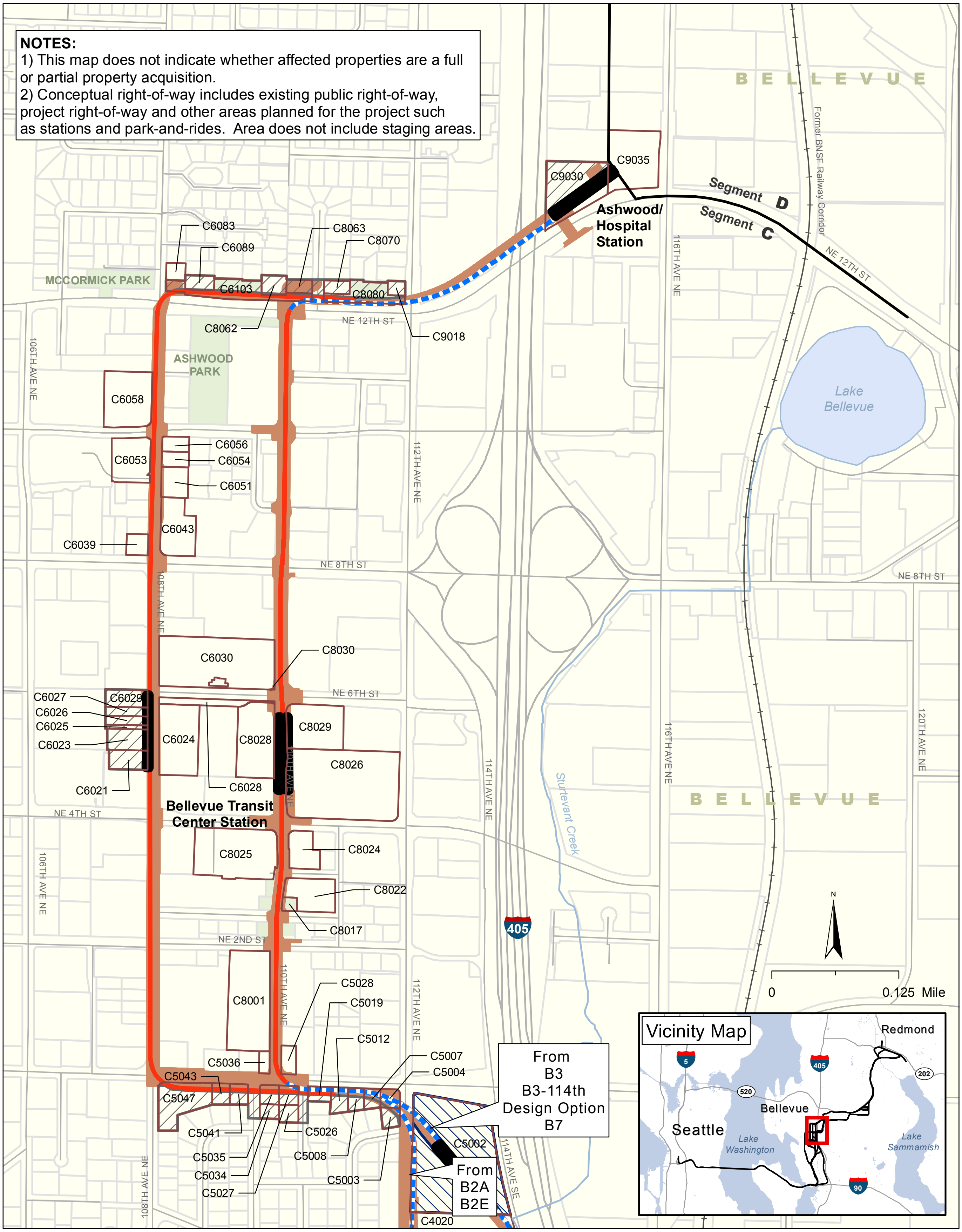
▭ 1119	Map ID & Affected Parcel Boundary	━	At-Grade Route
▬	Proposed Station	╍	Elevated Route
		●●●●●	Retained-Cut Route
		●●●●●	Retained-Fill Route
		▬ ▬	Tunnel Route
■	Conceptual Right-of-Way and Areas to be Acquired		
▨	Construction Staging Area		
▨	Construction Staging Area (From B3 & B7 Only)		

Exhibit G2-27

Affected Parcels, Segment C

Alternative C4A

East Link Project

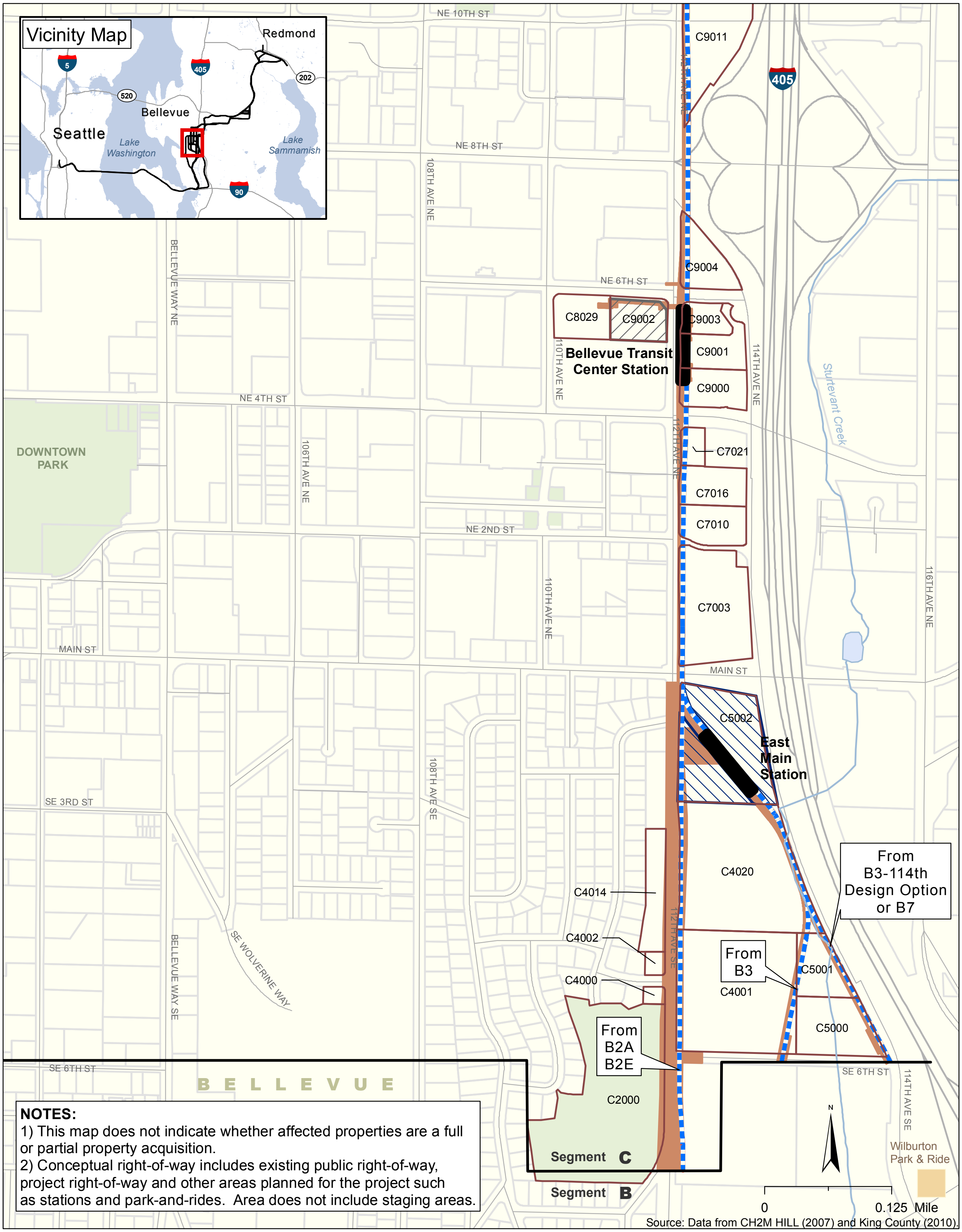

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
C9035
C9030
Ashwood/ Hospital Station
116TH AVE NE
C6083
C6089
C8063
C8070
MCCORMICK PARK
C6103
C8080
C9018
C8062
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
Lake Bellevue
C6058
C6056
C6054
C6053
C6051
112TH AVE NE
C6043
C6039
NE 8TH ST
NE 8TH ST
108TH AVE NE
C6030
C8030
NE 6TH ST
C6027
C6029
C6026
C6025
C6023
C6024
C8028
C8029
C8026
C6021
C6028
110TH AVE NE
114TH AVE NE
116TH AVE NE
120TH AVE NE
Sturtevant Creek
BELLEVUE
NE 4TH ST
Bellevue Transit Center Station
C8025
C8024
106TH AVE NE
C8022
C8017
NE 2ND ST
405
N
0
0.125 Mile
C8001
C5028
C5019
110TH AVE NE
112TH AVE NE
C5012
C5036
C5007
C5004
C5043
C5047
From B3 B3-114th Design Option B7
C5041
C5026
C5002
C5035
C5008
C5034
C5003
C5027
108TH AVE NE
114TH AVE SE
From B2A B2E
C4020
Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Proposed Station
🟥	At-Grade Route
▪▪▪	Elevated Route
●●●●	Retained-Cut Route
●●●●	Retained-Fill Route
▬ ▬	Tunnel Route
🟫	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-28
Affected Parcels, Segment C
Alternative C4A
East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 10TH ST
C9011
405
NE 8TH ST
108TH AVE NE
BELLEVUE WAY NE
C9004
NE 6TH ST
C8029
C9002
C9003
C9001
C9000
Bellevue Transit Center Station
110TH AVE NE
114TH AVE NE
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
106TH AVE NE
112TH AVE NE
C7021
C7016
C7010
NE 2ND ST
110TH AVE NE
C7003
116TH AVE NE
MAIN ST
MAIN ST
C5002
East Main Station
108TH AVE SE
SE 3RD ST
C4020
From B3-114th Design Option or B7
C4014
C4002
SE WOLVERINE WAY
BELLEVUE WAY SE
112TH AVE SE
From B3
C5001
C4001
C4000
C5000
From B2A B2E
SE 6TH ST
SE 6TH ST
BELLEVUE
C2000
114TH AVE SE
N
Wilburton Park & Ride
Segment C
Segment B
0
0.125 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

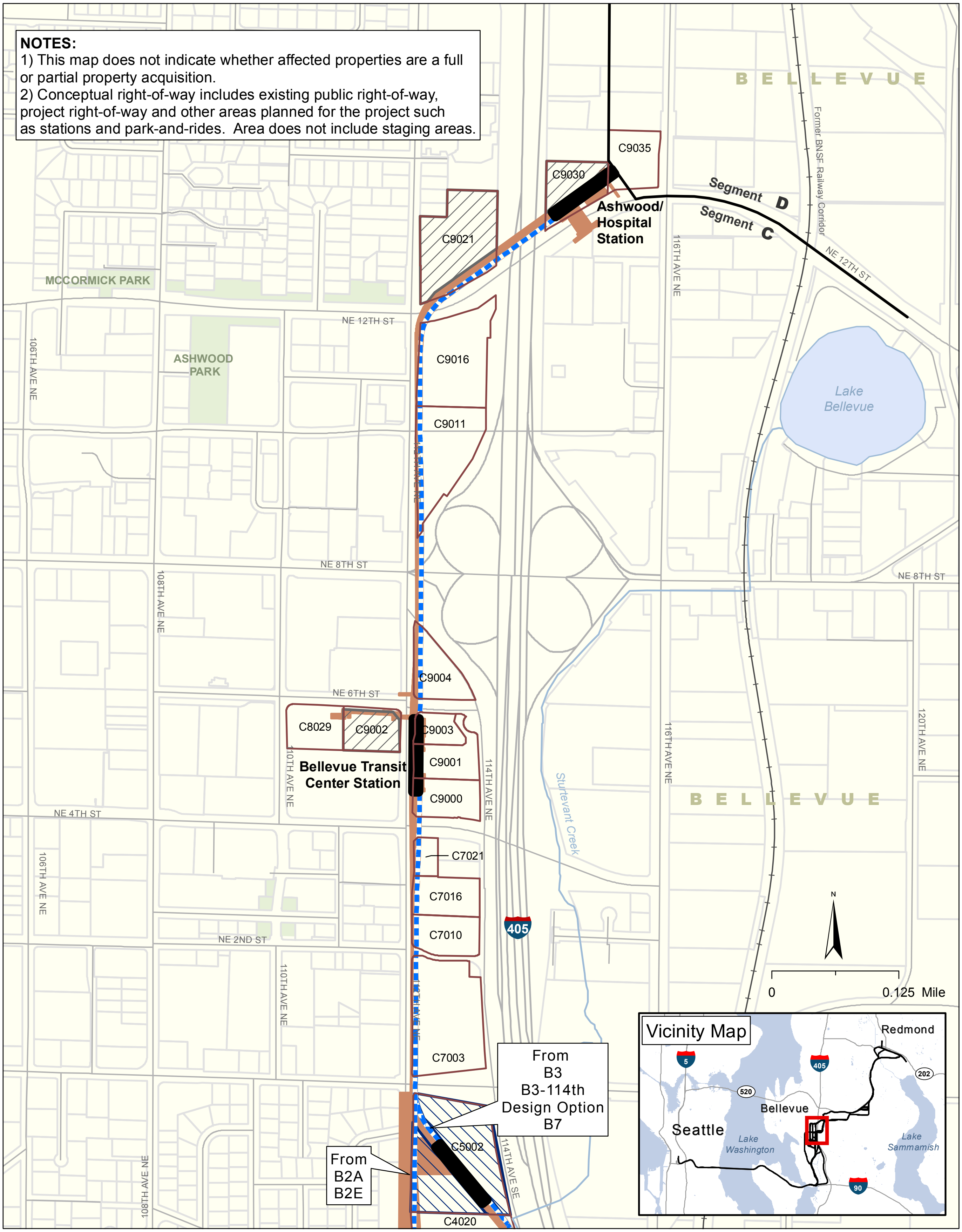
1119 Map ID & Affected Parcel Boundary	At-Grade Route	Conceptual Right-of-Way and Areas to be Acquired
Proposed Station	Elevated Route	▨ Construction Staging Area
	Retained-Cut Route	▨ Construction Staging Area (From B3 & B7 Only)
	Retained-Fill Route	
	Tunnel Route	

Exhibit G2-29

Affected Parcels, Segment C

Alternative C7E

East Link Project

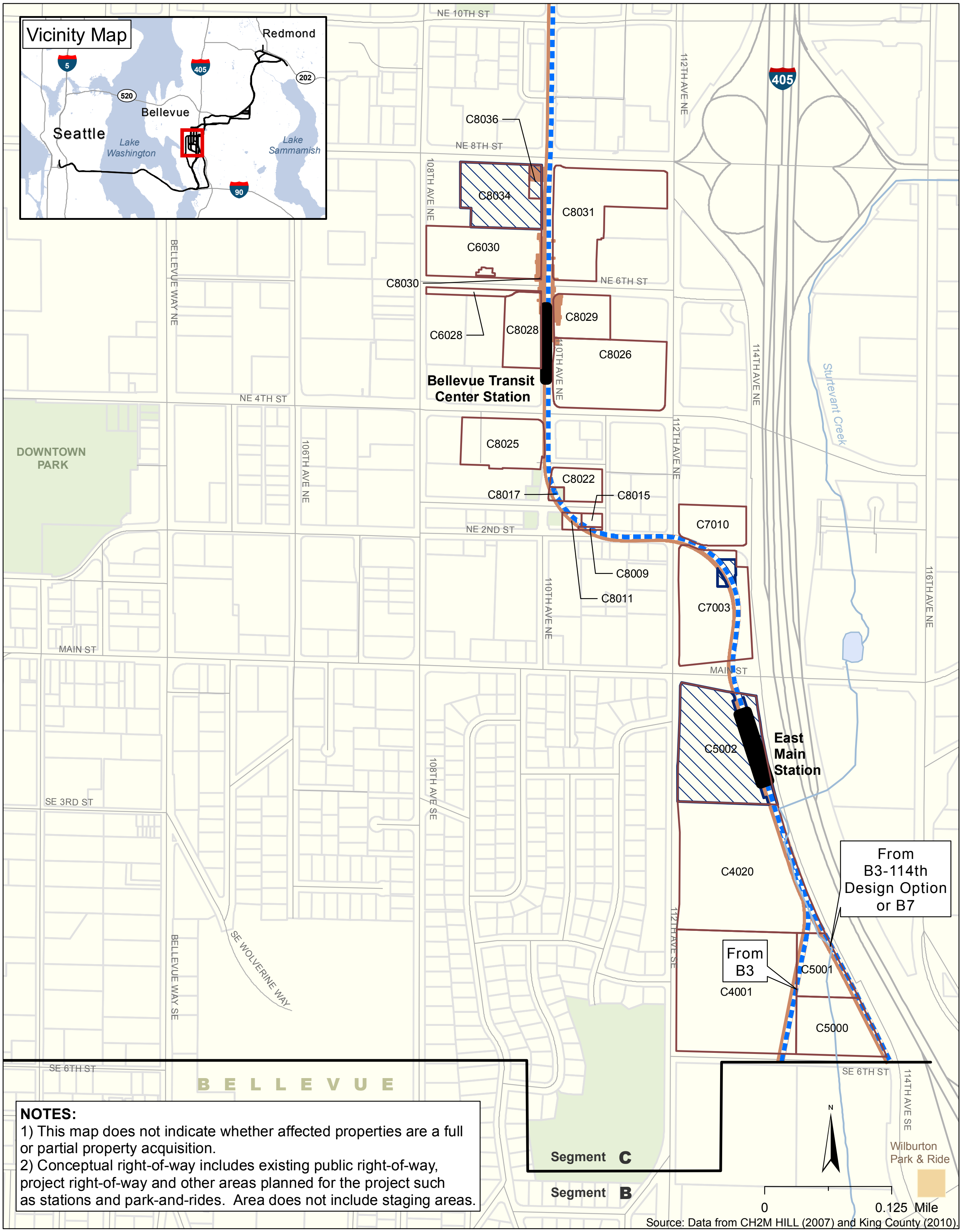

BELLEVUE
Former BNSF Railway Corridor
C9035
C9030
Segment D
Segment C
Ashwood/
Hospital
Station
C9021
116TH AVE NE
NE 12TH ST
MCCORMICK PARK
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
C9016
Lake Bellevue
C9011
112TH AVE NE
NE 8TH ST
108TH AVE NE
NE 8TH ST
C9004
NE 6TH ST
C8029
C9002
C9003
C9001
Bellevue Transit
Center Station
110TH AVE NE
114TH AVE NE
C9000
116TH AVE NE
Sturtevant Creek
BELLEVUE
120TH AVE NE
NE 4TH ST
C7021
106TH AVE NE
C7016
C7010
405
NE 2ND ST
110TH AVE NE
N
0
0.125 Mile
112TH AVE NE
C7003
From
B3
B3-114th
Design Option
B7
C5002
From
B2A
B2E
114TH AVE SE
108TH AVE NE
C4020
Vicinity Map
Redmond
5
405
520
202
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

▭ 1119	Map ID & Affected Parcel Boundary	▬	At-Grade Route	🟫	Conceptual Right-of-Way and Areas to be Acquired
▬	Proposed Station	▪▪▪	Elevated Route	▨	Construction Staging Area
		●●●●	Retained-Cut Route	▨	Construction Staging Area (From B3 & B7 Only)
		●●●●	Retained-Fill Route		
		▬ ▬	Tunnel Route		

Exhibit G2-30
Affected Parcels, Segment C
Alternative C7E
East Link Project

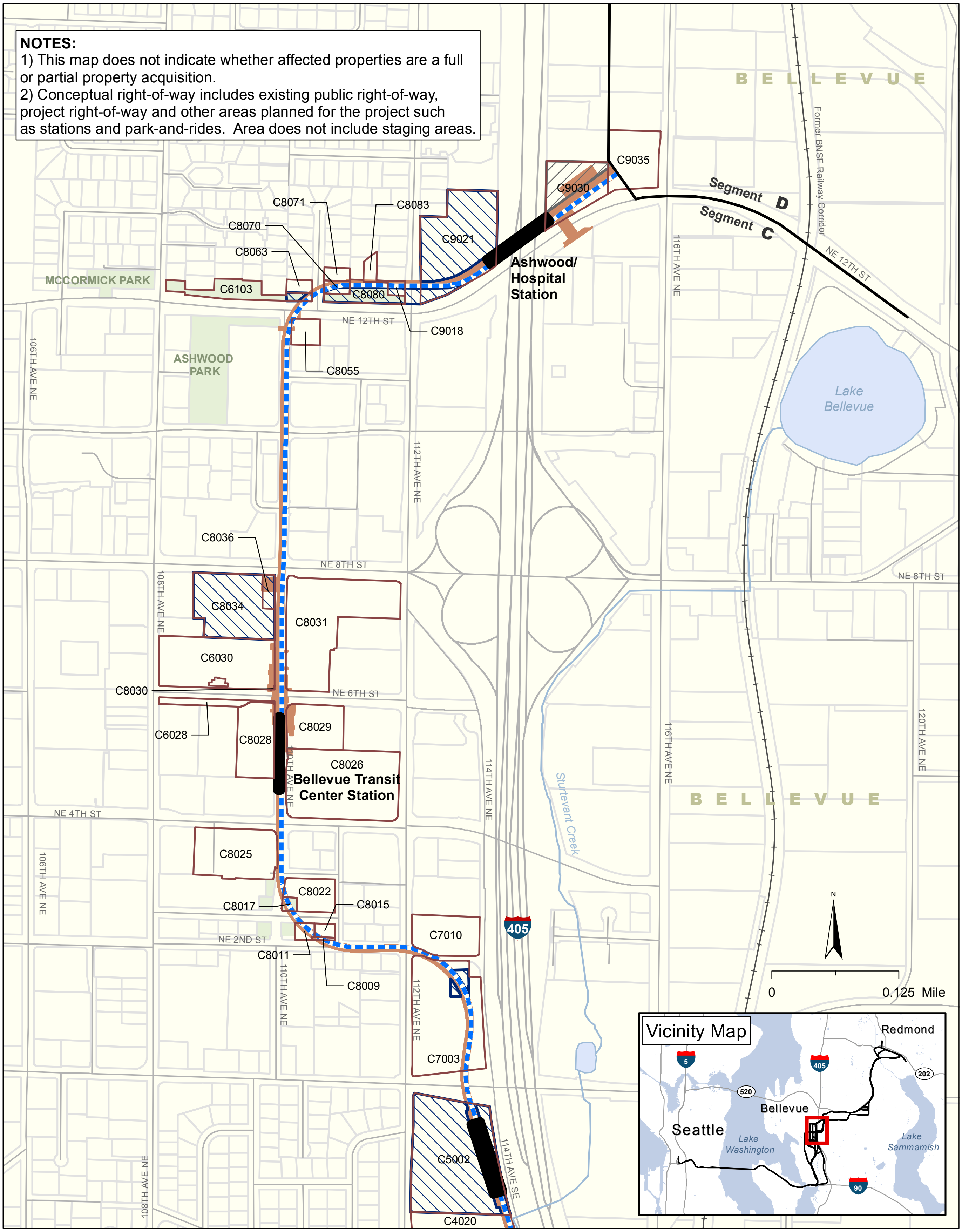

Vicinity Map
Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
5
405
520
202
90
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
106TH AVE NE
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE SE
112TH AVE SE
114TH AVE SE
SE WOLVERINE WAY
Sturtevant Creek
DOWNTOWN PARK
C8036
C8034
C8031
C6030
C8030
C6028
C8028
C8029
C8026
Bellevue Transit Center Station
C8025
C8022
C8017
C8015
C7010
C8009
C8011
C7003
C5002
East Main Station
C4020
C4001
C5001
C5000
From B3-114th Design Option or B7
From B3
BELLEVUE
Segment C
Segment B
N
Wilburton Park & Ride
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Proposed Station
▬ At-Grade Route
▪▪▪ Elevated Route
••••• Retained-Cut Route
••••• Retained-Fill Route
▬ ▬ Tunnel Route
▬ Conceptual Right-of-Way and Areas to be Acquired
▨ Construction Staging Area
▨ Construction Staging Area (From B3 & B7 Only)

Exhibit G2-31
Affected Parcels, Segment C
Alternative C8E
East Link Project

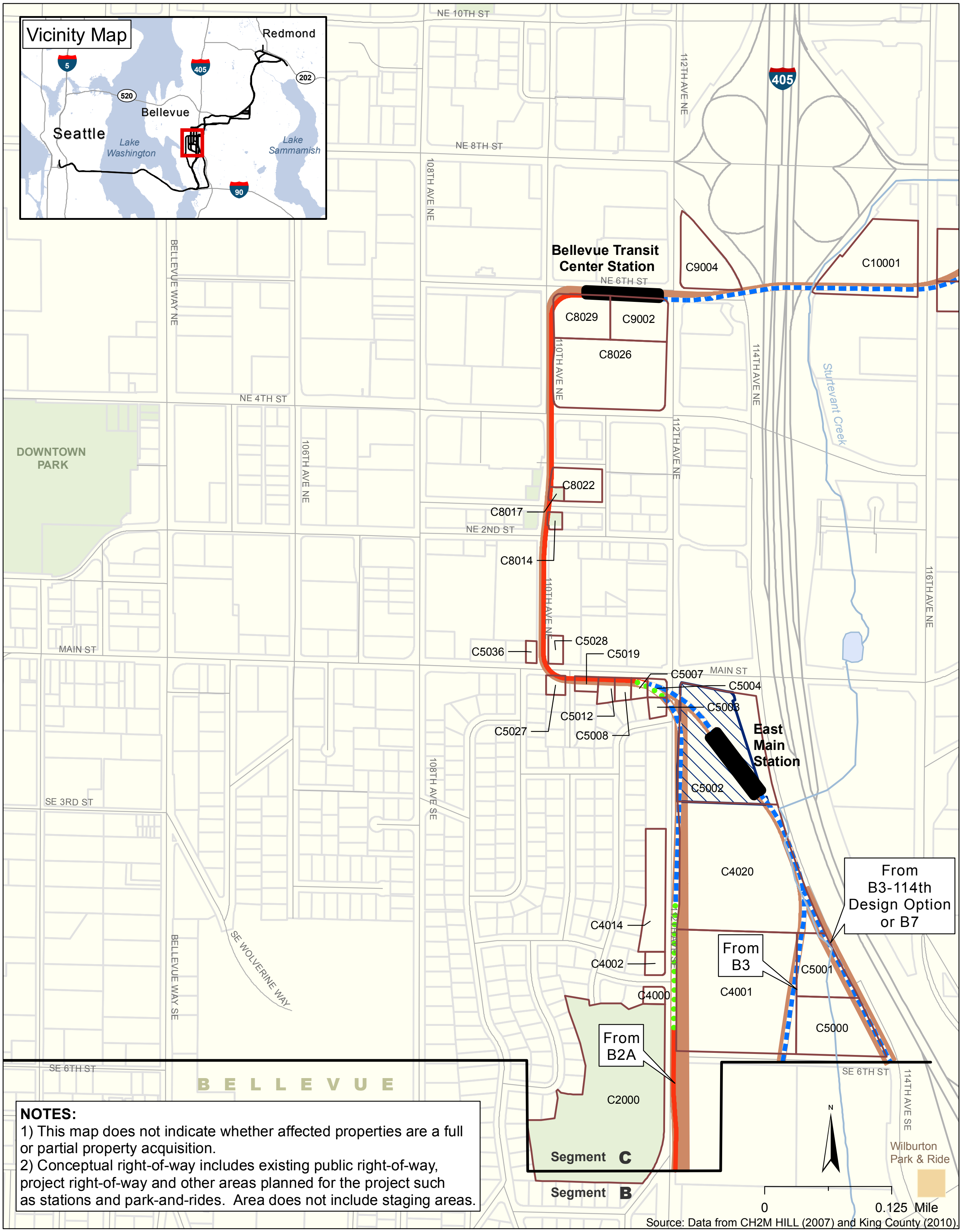

BELLEVUE
Former BNSF Railway Corridor
C9035
C9030
Segment D
Segment C
NE 12TH ST
C8071
C8083
C8070
C9021
C8063
Ashwood/
Hospital
Station
MCCORMICK PARK
C6103
C8080
NE 12TH ST
C9018
116TH AVE NE
106TH AVE NE
ASHWOOD
PARK
C8055
Lake
Bellevue
112TH AVE NE
C8036
NE 8TH ST
NE 8TH ST
108TH AVE NE
C8034
C8031
C6030
C8030
NE 6TH ST
C6028
C8028
C8029
C8026
Bellevue Transit
Center Station
110TH AVE NE
114TH AVE NE
Sturtevant Creek
116TH AVE NE
120TH AVE NE
BELLEVUE
NE 4TH ST
106TH AVE NE
C8025
C8022
C8017
C8015
405
N
NE 2ND ST
C7010
C8011
C8009
0
0.125 Mile
110TH AVE NE
112TH AVE NE
C7003
Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake
Washington
Lake
Sammamish
90
C5002
114TH AVE SE
108TH AVE NE
C4020

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Proposed Station
▬	At-Grade Route
- - -	Elevated Route
• • • •	Retained-Cut Route
• • • •	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-32
Affected Parcels, Segment C
Alternative C8E
East Link Project

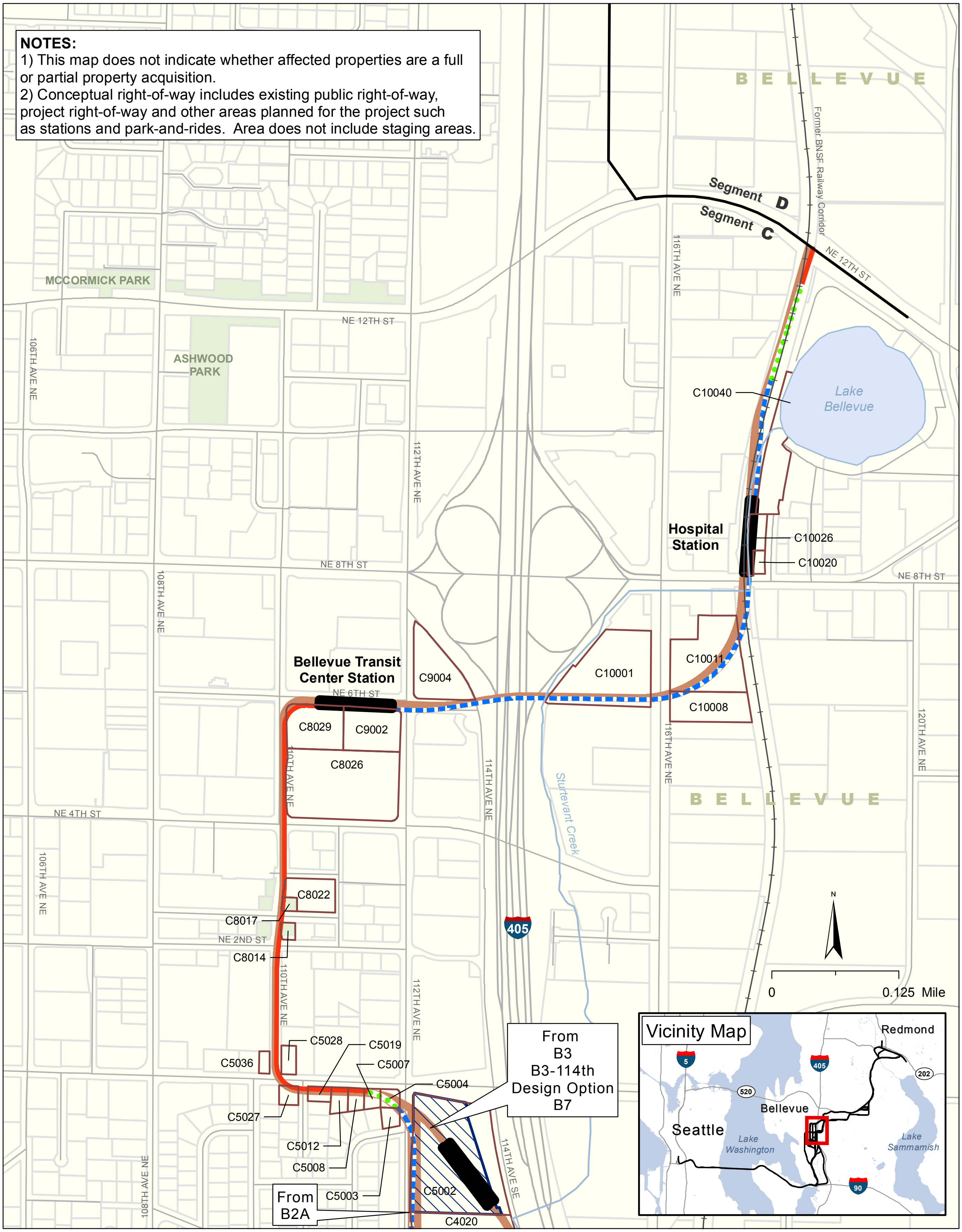

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 10TH ST
405
112TH AVE NE
NE 8TH ST
108TH AVE NE
BELLEVUE WAY NE
Bellevue Transit Center Station
NE 6TH ST
C9004
C10001
C8029
C9002
C8026
110TH AVE NE
114TH AVE NE
Sturtevant Creek
NE 4TH ST
106TH AVE NE
DOWNTOWN PARK
112TH AVE NE
C8022
C8017
NE 2ND ST
C8014
110TH AVE NE
116TH AVE NE
C5028
C5036
C5019
MAIN ST
MAIN ST
C5007
C5004
C5003
C5012
C5027
C5008
East Main Station
108TH AVE SE
SE 3RD ST
C5002
C4020
From B3-114th Design Option or B7
C4014
SE WOLVERINE WAY
BELLEVUE WAY SE
C4002
From B3
C5001
C4000
C4001
C5000
From B2A
SE 6TH ST
SE 6TH ST
114TH AVE SE
B E L L E V U E
C2000
N
Segment C
Segment B
Wilburton Park & Ride
0
0.125 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Proposed Station
▬	At-Grade Route
▬ ▬ ▬	Elevated Route
● ● ● ● ●	Retained-Cut Route
● ● ● ● ●	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-33
Affected Parcels, Segment C
Alternative C9A
East Link Project



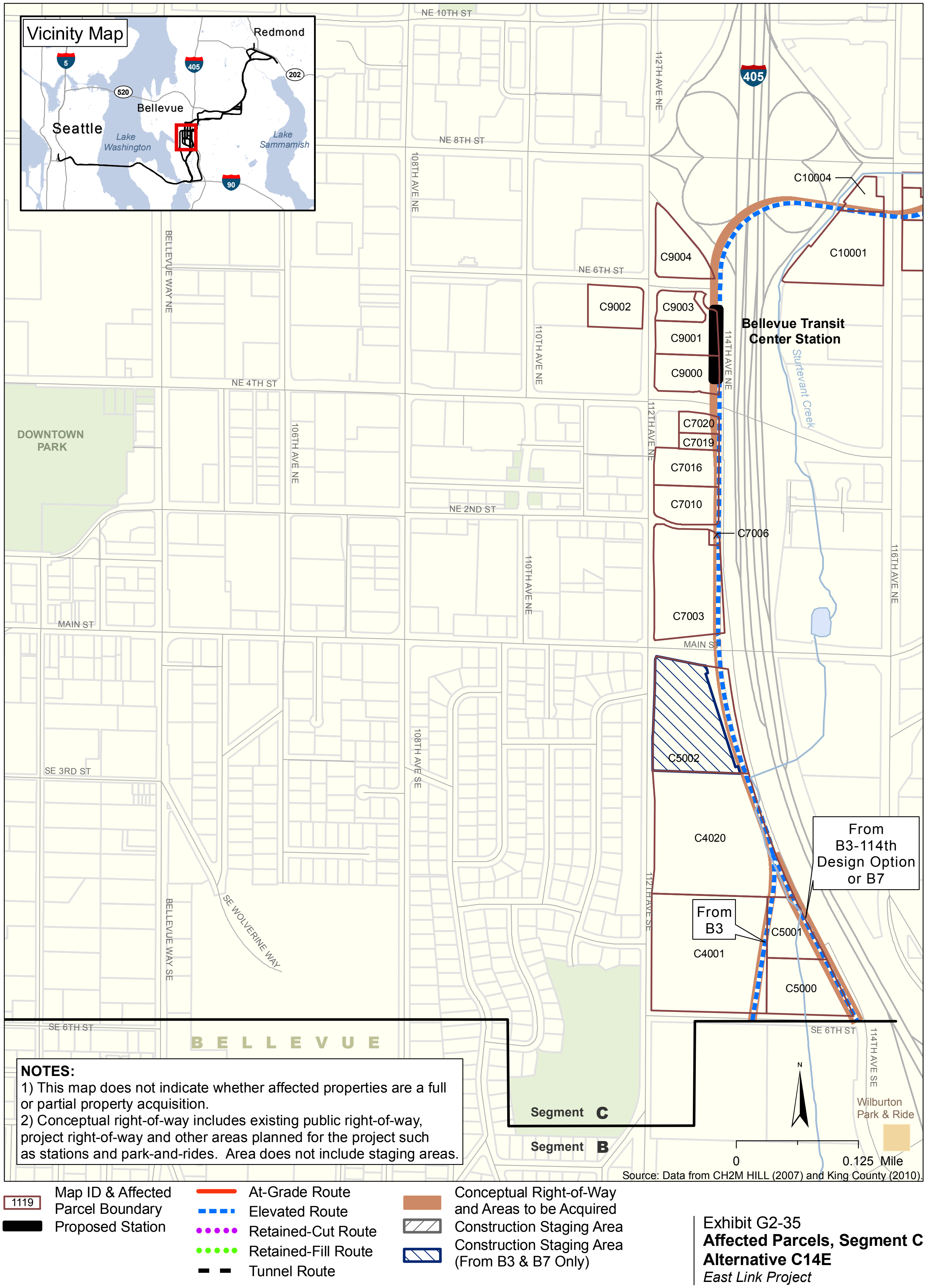
NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
C10040
Lake Bellevue
112TH AVE NE
Hospital Station
C10026
C10020
NE 8TH ST
108TH AVE NE
Bellevue Transit Center Station
NE 6TH ST
C9004
C10001
C10011
C10008
C8029
C9002
C8026
110TH AVE NE
114TH AVE NE
Sturtevant Creek
BELLEVUE
120TH AVE NE
NE 4TH ST
C8022
C8017
NE 2ND ST
C8014
405
N
0
0.125 Mile
C5028
C5019
C5036
C5007
C5004
C5027
C5012
C5008
C5003
C5002
C4020
From B2A
From B3 B3-114th Design Option B7
114TH AVE SE
Vicinity Map
Redmond
5
405
520
202
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary	━	At-Grade Route	▬	Conceptual Right-of-Way and Areas to be Acquired
▬	Proposed Station	▪▪▪	Elevated Route	▨	Construction Staging Area
		•••	Retained-Cut Route	▨	Construction Staging Area (From B3 & B7 Only)
		•••	Retained-Fill Route		
		━ ━	Tunnel Route		

Exhibit G2-34
Affected Parcels, Segment C
Alternative C9A
East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 10TH ST
405
112TH AVE NE
NE 8TH ST
108TH AVE NE
BELLEVUE WAY NE
C10004
C10001
C9004
NE 6TH ST
C9002
C9003
C9001
C9000
Bellevue Transit Center Station
114TH AVE NE
Sturtevant Creek
110TH AVE NE
NE 4TH ST
DOWNTOWN PARK
106TH AVE NE
112TH AVE NE
C7020
C7019
C7016
C7010
NE 2ND ST
C7006
110TH AVE NE
116TH AVE NE
C7003
MAIN ST
MAIN ST
C5002
SE 3RD ST
108TH AVE SE
C4020
From B3-114th Design Option or B7
112TH AVE SE
BELLEVUE WAY SE
SE WOLVERINE WAY
From B3
C5001
C4001
C5000
SE 6TH ST
SE 6TH ST
114TH AVE SE
BELLEVUE
N
Segment C
Segment B
Wilburton Park & Ride
0
0.125 Mile
1119
Map ID & Affected Parcel Boundary
Proposed Station
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Conceptual Right-of-Way and Areas to be Acquired
Construction Staging Area
Construction Staging Area (From B3 & B7 Only)

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

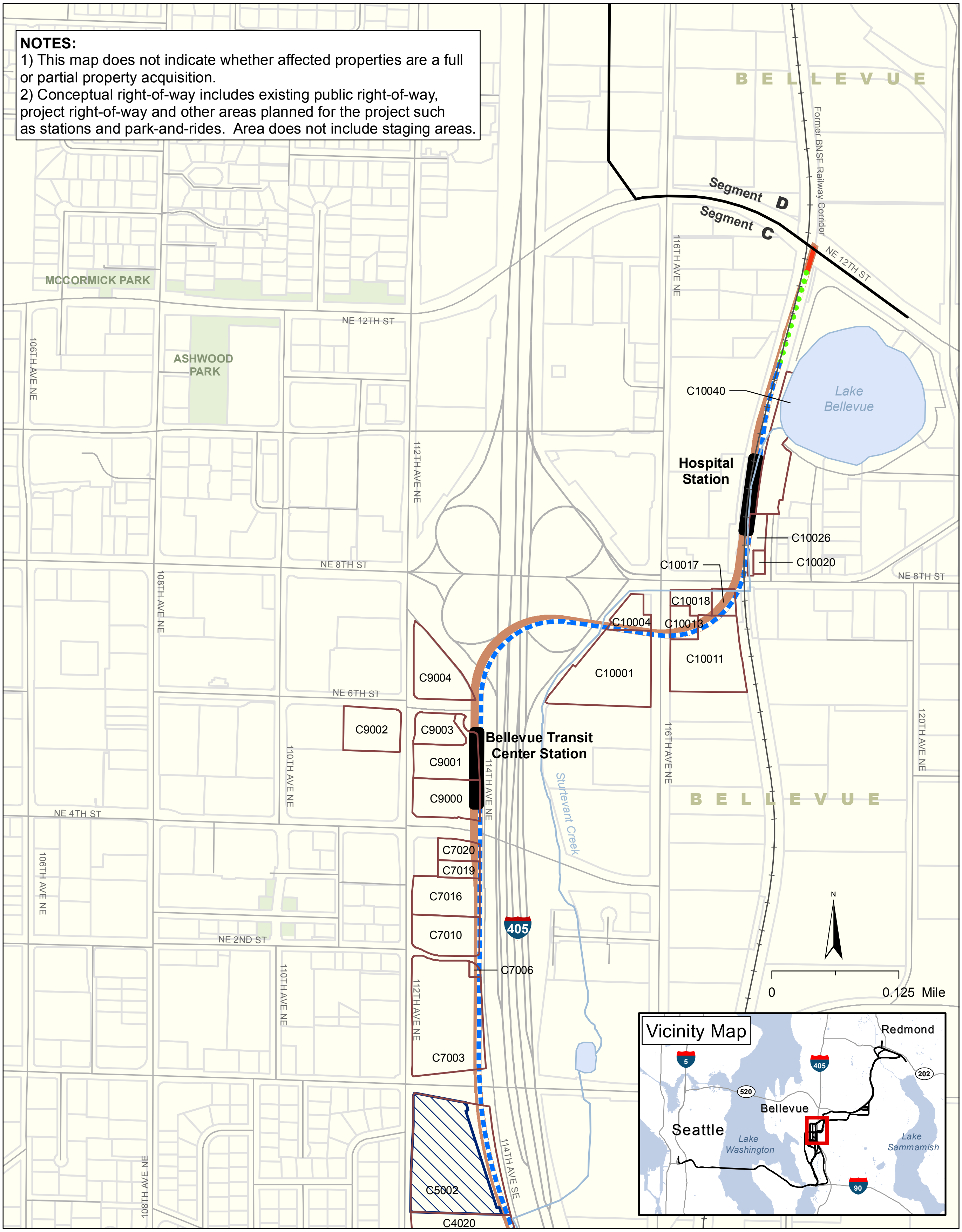
Source: Data from CH2M HILL (2007) and King County (2010).

Exhibit G2-35

Affected Parcels, Segment C

Alternative C14E

East Link Project

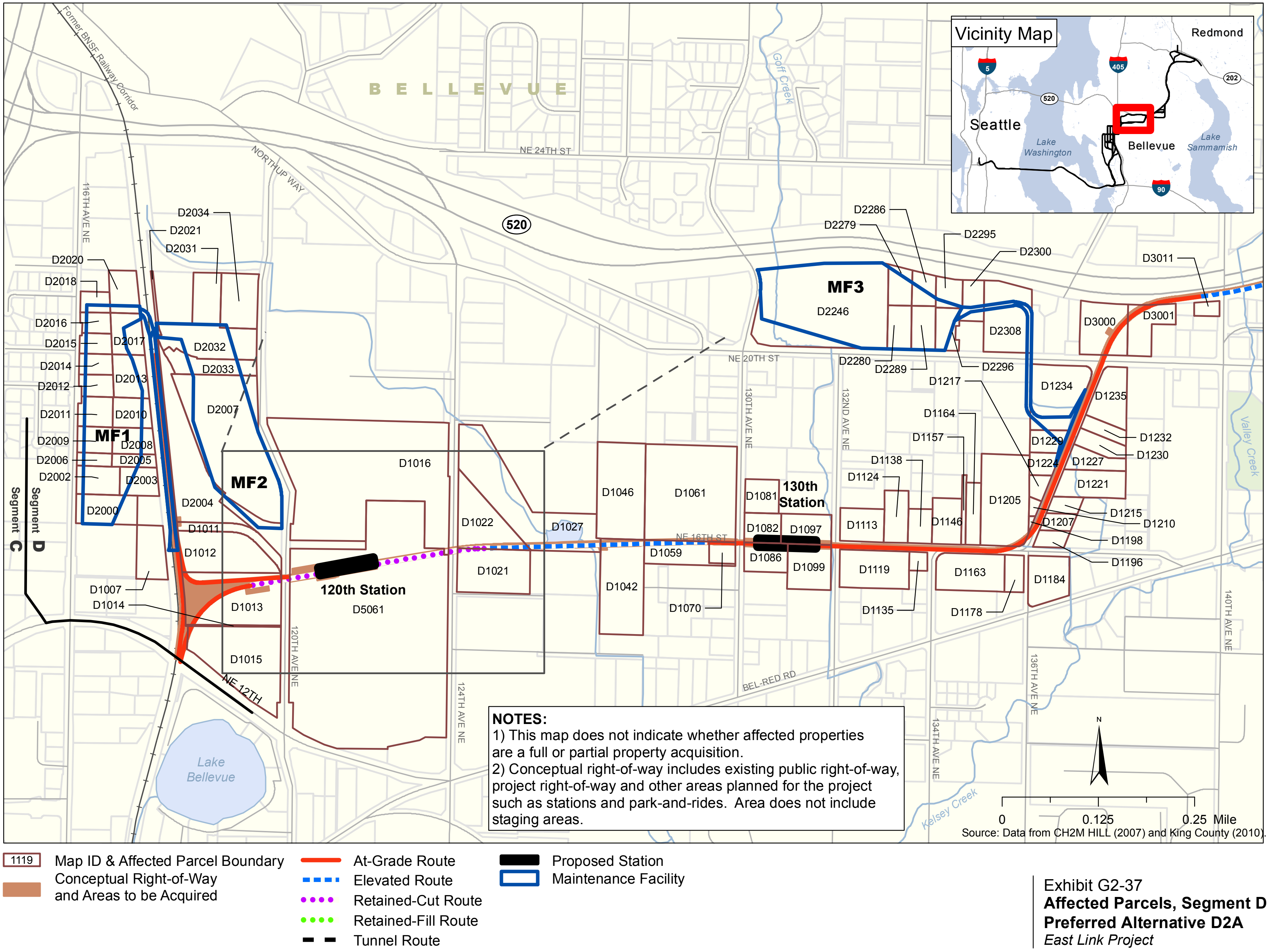

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

BELLEVUE
Former BNSF Railway Corridor
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
112TH AVE NE
C10040
Lake Bellevue
Hospital Station
C10026
C10020
C10017
NE 8TH ST
108TH AVE NE
C10018
C10004
C10013
C10011
C10001
C9004
NE 6TH ST
C9002
C9003
Bellevue Transit Center Station
C9001
C9000
114TH AVE NE
110TH AVE NE
Sturtevant Creek
BELLEVUE
120TH AVE NE
NE 4TH ST
C7020
C7019
C7016
C7010
405
NE 2ND ST
C7006
N
0
0.125 Mile
C7003
C5002
114TH AVE SE
C4020
Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

Source: Data from CH2M HILL (2007) and King County (2010).

▭ 1119	Map ID & Affected Parcel Boundary
▬	Proposed Station
━	At-Grade Route
╍	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Conceptual Right-of-Way and Areas to be Acquired
▨	Construction Staging Area
▨	Construction Staging Area (From B3 & B7 Only)

Exhibit G2-36
Affected Parcels, Segment C
Alternative C14E
East Link Project



Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
520
202
90
B E L L E V U E
Former BNSF Railway Corridor
NORTHUP WAY
NE 24TH ST
520
Goff Creek
NE 20TH ST
NE 16TH ST
NE 12TH
BEL-RED RD
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
140TH AVE NE
Valley Creek
Kelsey Creek
Lake Bellevue
Segment C
Segment D
MF1
MF2
MF3
120th Station
130th Station
D5061
D2034
D2021
D2031
D2020
D2018
D2016
D2015
D2014
D2012
D2011
D2009
D2006
D2002
D2017
D2013
D2010
D2008
D2005
D2003
D2000
D2032
D2033
D2007
D2004
D1011
D1012
D1007
D1014
D1013
D1015
D1016
D1022
D1021
D1027
D1046
D1061
D1042
D1059
D1070
D1081
D1082
D1097
D1086
D1099
D2286
D2279
D2295
D2300
D2246
D2308
D2280
D2289
D2296
D1217
D1164
D1157
D1138
D1124
D1113
D1146
D1119
D1135
D1205
D1163
D1178
D1184
D1234
D1235
D1229
D1224
D1227
D1221
D1232
D1230
D1215
D1210
D1207
D1198
D1196
D3011
D3000
D3001
N
0
0.125
0.25 Mile
1119
Map ID & Affected Parcel Boundary
Conceptual Right-of-Way and Areas to be Acquired
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
Maintenance Facility

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

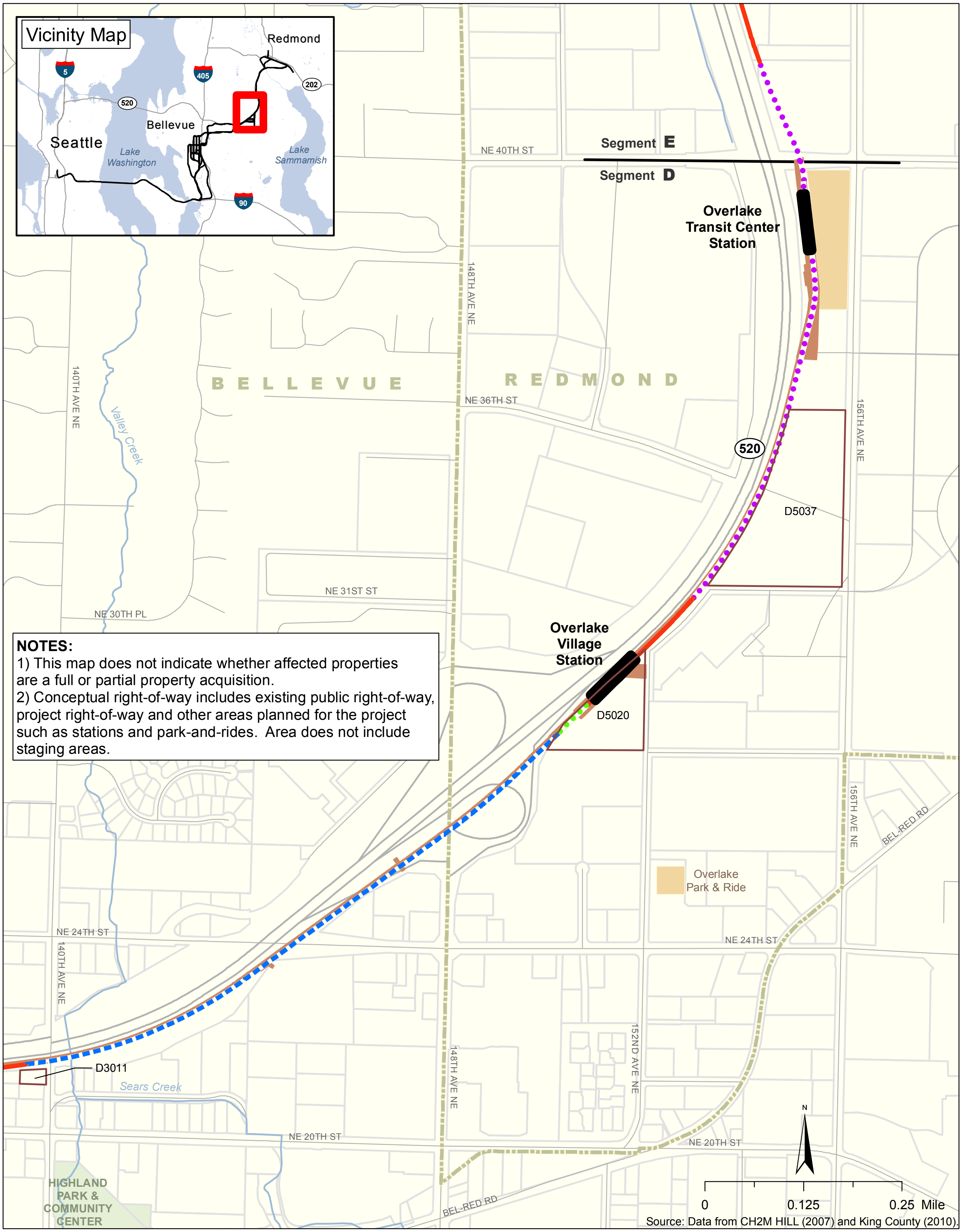
Source: Data from CH2M HILL (2007) and King County (2010).

Exhibit G2-37

Affected Parcels, Segment D

Preferred Alternative D2A

East Link Project

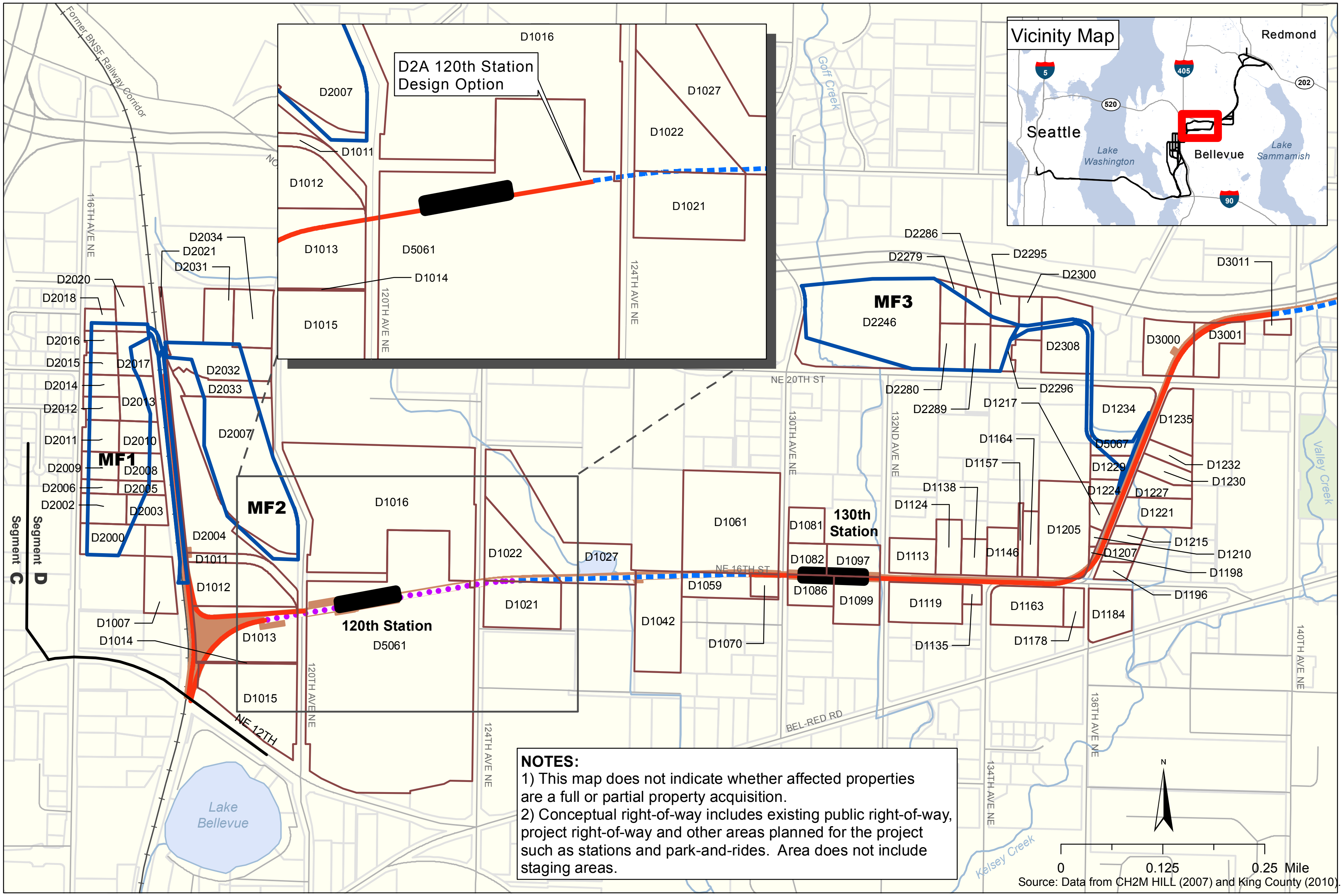

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 40TH ST
Segment E
Segment D
Overlake Transit Center Station
148TH AVE NE
BELLEVUE
REDMOND
NE 36TH ST
140TH AVE NE
Valley Creek
520
156TH AVE NE
D5037
NE 31ST ST
NE 30TH PL
Overlake Village Station
D5020
156TH AVE NE
BEL-RED RD
Overlake Park & Ride
NE 24TH ST
NE 24TH ST
140TH AVE NE
152ND AVE NE
148TH AVE NE
D3011
Sears Creek
NE 20TH ST
NE 20TH ST
N
HIGHLAND PARK & COMMUNITY CENTER
BEL-RED RD
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

- 1119 Map ID & Affected Parcel Boundary
- 🟫 Conceptual Right-of-Way and Areas to be Acquired
- ▬ At-Grade Route
- - - - Elevated Route
- ● ● ● ● Retained-Cut Route
- ● ● ● ● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station

Exhibit G2-38
Affected Parcels, Segment D
Preferred Alternative D2A
East Link Project


Former BNSF Railway Corridor
D2A 120th Station Design Option
D1016
D2007
D1027
D1022
D1011
D1012
D1021
D1013
D5061
D1014
D1015
120TH AVE NE
124TH AVE NE
Vicinity Map
Redmond
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
Goff Creek
116TH AVE NE
D2034
D2021
D2031
D2020
D2018
D2016
D2015
D2014
D2012
D2011
D2009
D2006
D2002
D2000
D2017
D2013
D2010
D2008
D2005
D2003
MF1
D2032
D2033
D2007
MF2
D2004
D1011
D1012
D1007
D1014
D1013
D1015
Segment C
Segment D
NE 12TH
120th Station
D5061
D1016
D1022
D1021
D1027
D1061
D1042
D1059
D1070
NE 16TH ST
D1081
130th Station
D1082
D1097
D1086
D1099
D1113
D1119
D1135
D1138
D1124
D1146
D1157
D1164
D1163
D1178
D1184
D1205
D1217
D1234
D1235
D5067
D1229
D1224
D1227
D1221
D1232
D1230
D1215
D1210
D1207
D1198
D1196
MF3
D2246
D2286
D2279
D2295
D2300
D2308
D2296
D2280
D2289
D3011
D3000
D3001
NE 20TH ST
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
140TH AVE NE
124TH AVE NE
120TH AVE NE
BEL-RED RD
Valley Creek
Kelsey Creek
Lake Bellevue
N
0
0.125
0.25 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

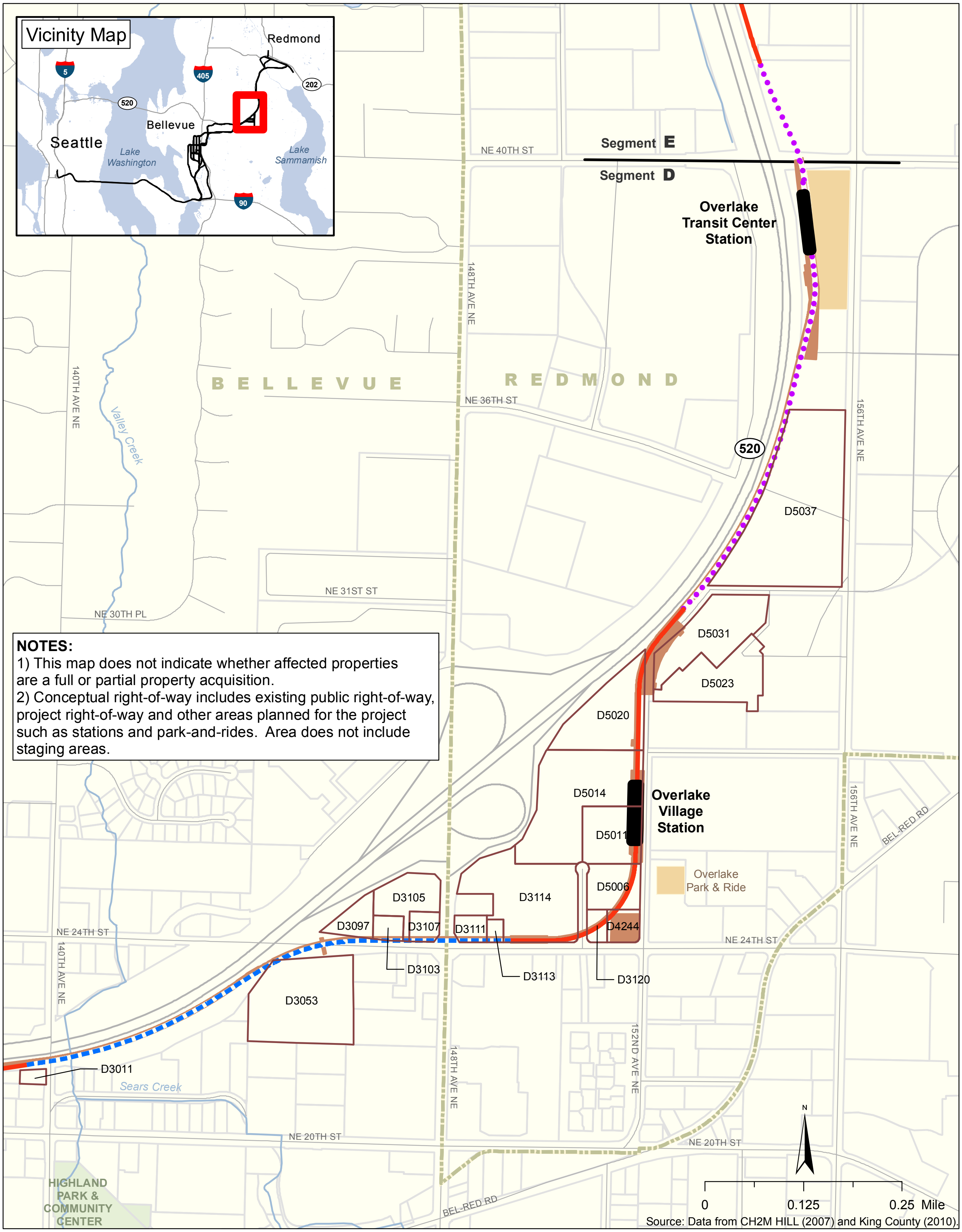
Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▨	Conceptual Right-of-Way and Areas to be Acquired
━	At-Grade Route
‐ ‐ ‐	Elevated Route
● ● ●	Retained-Cut Route
● ● ●	Retained-Fill Route
‐ ‐	Tunnel Route
■	Proposed Station
☐	Maintenance Facility

Exhibit G2-39

Affected Parcels, Segment D
Preferred Alternative D2A
with NE 24th Design Option

East Link Project

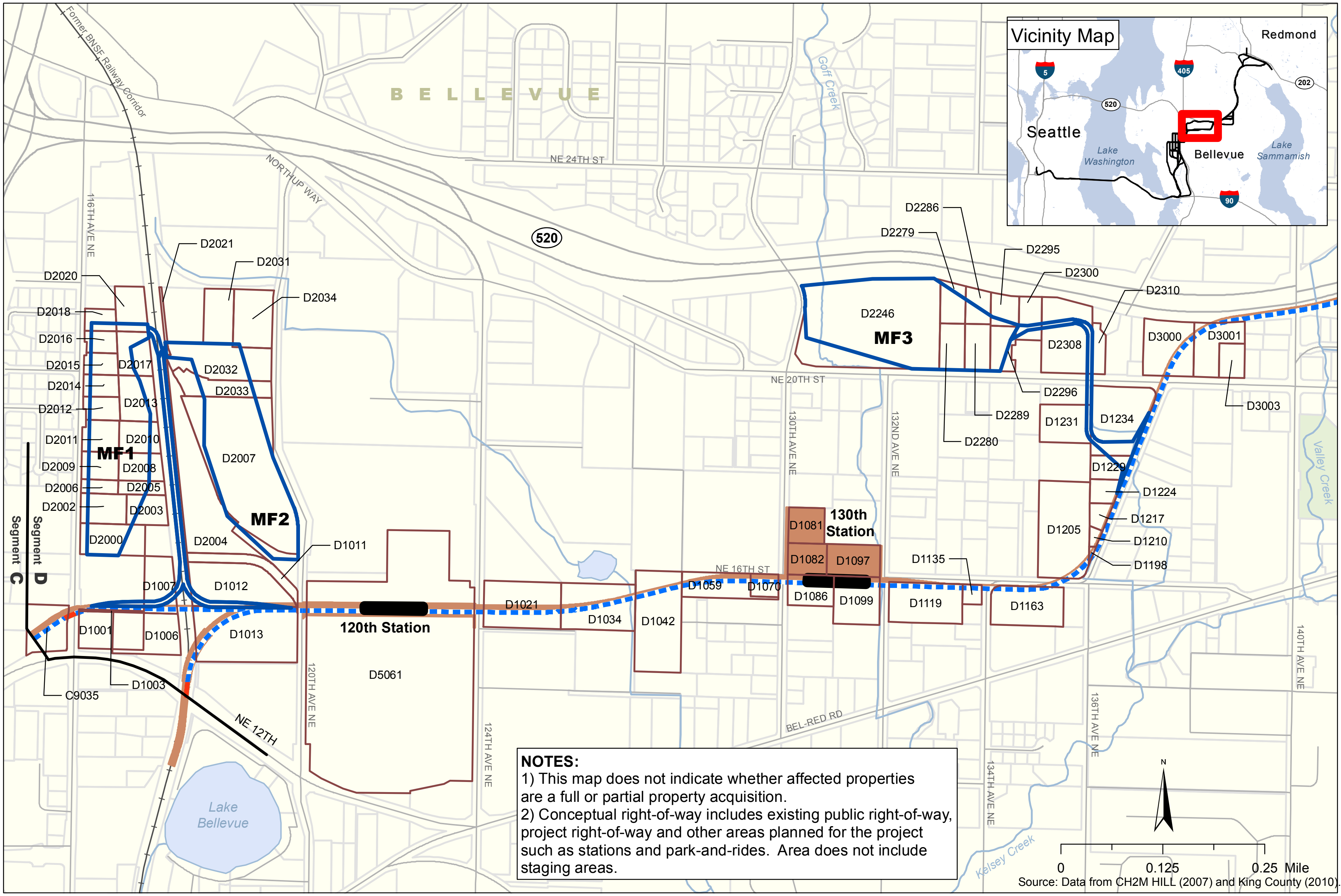

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
148TH AVE NE
140TH AVE NE
Valley Creek
B E L L E V U E
R E D M O N D
NE 36TH ST
520
156TH AVE NE
D5037
NE 31ST ST
NE 30TH PL
D5031
D5023
D5020
D5014
Overlake Village Station
D5011
D5006
Overlake Park & Ride
BEL-RED RD
D3105
D3114
D3097
D3107
D3111
D4244
NE 24TH ST
D3103
D3113
D3120
D3053
D3011
Sears Creek
152ND AVE NE
NE 20TH ST
N
HIGHLAND PARK & COMMUNITY CENTER
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
- - - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-40
Affected Parcels, Segment D
Preferred Alternative D2A
with NE 24th Design Option
East Link Project

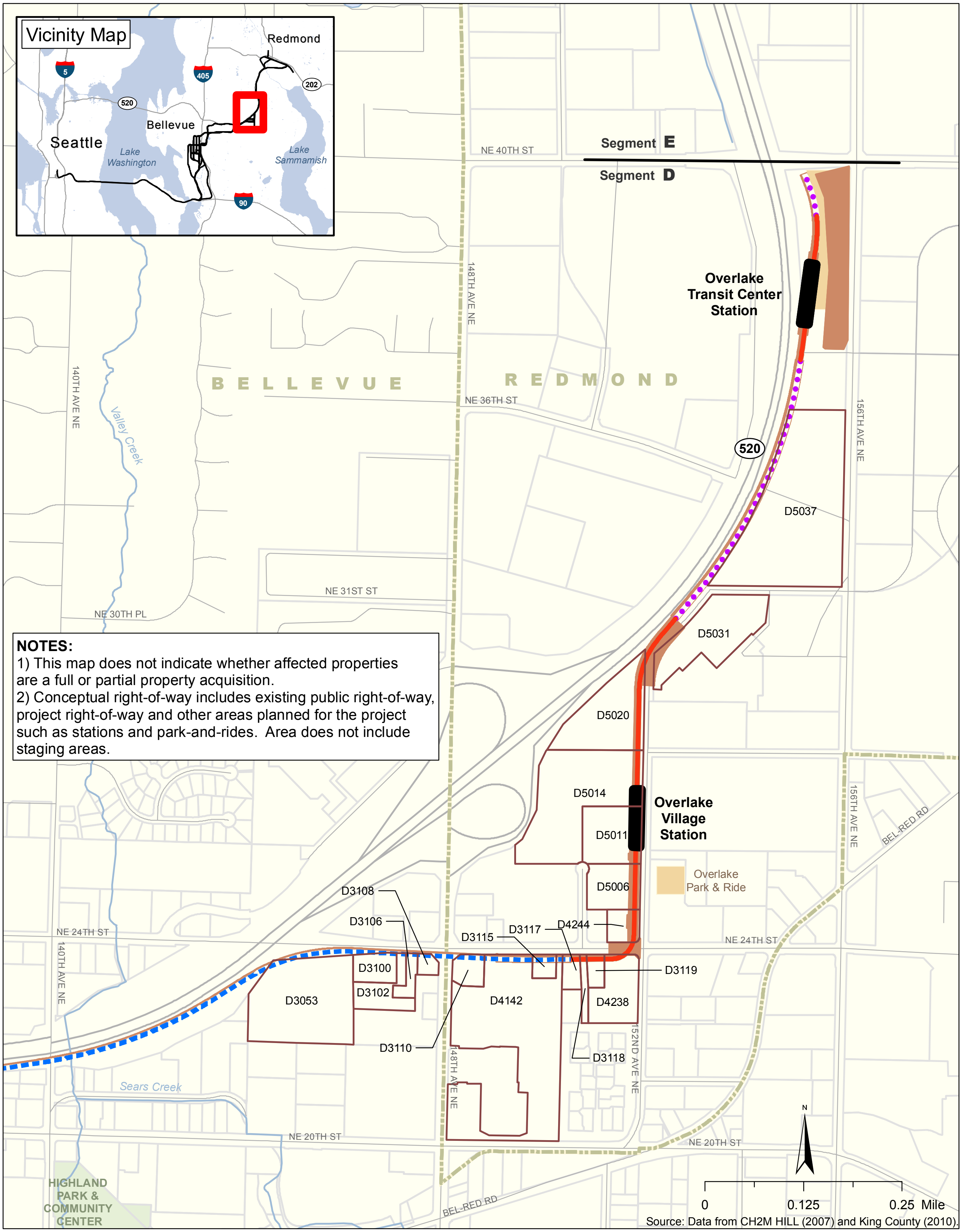

Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
202
90
B E L L E V U E
Former BNSF Railway Corridor
NORTHUP WAY
NE 24TH ST
520
Goff Creek
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
140TH AVE NE
NE 20TH ST
NE 16TH ST
NE 12TH
BEL-RED RD
Valley Creek
Kelsey Creek
Lake Bellevue
Segment C
Segment D
MF1
MF2
MF3
120th Station
130th Station
D2020
D2018
D2016
D2015
D2014
D2012
D2011
D2009
D2006
D2002
D2000
D2017
D2013
D2010
D2008
D2005
D2003
D2021
D2031
D2034
D2032
D2033
D2007
D2004
D1011
D1007
D1012
D1001
D1006
D1003
C9035
D1013
D5061
D1021
D1034
D1042
D1059
D1070
D1081
D1082
D1097
D1086
D1099
D1119
D1135
D1163
D1205
D1198
D1210
D1217
D1224
D1229
D1231
D1234
D2246
D2279
D2280
D2286
D2289
D2295
D2296
D2300
D2308
D2310
D3000
D3001
D3003
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
🟫	Conceptual Right-of-Way and Areas to be Acquired
━	At-Grade Route
┅	Elevated Route
●●●●	Retained-Cut Route
●●●●	Retained-Fill Route
━ ━	Tunnel Route
■	Proposed Station
☐	Maintenance Facility

Exhibit G2-41
Affected Parcels, Segment D
Alternative D2E
East Link Project

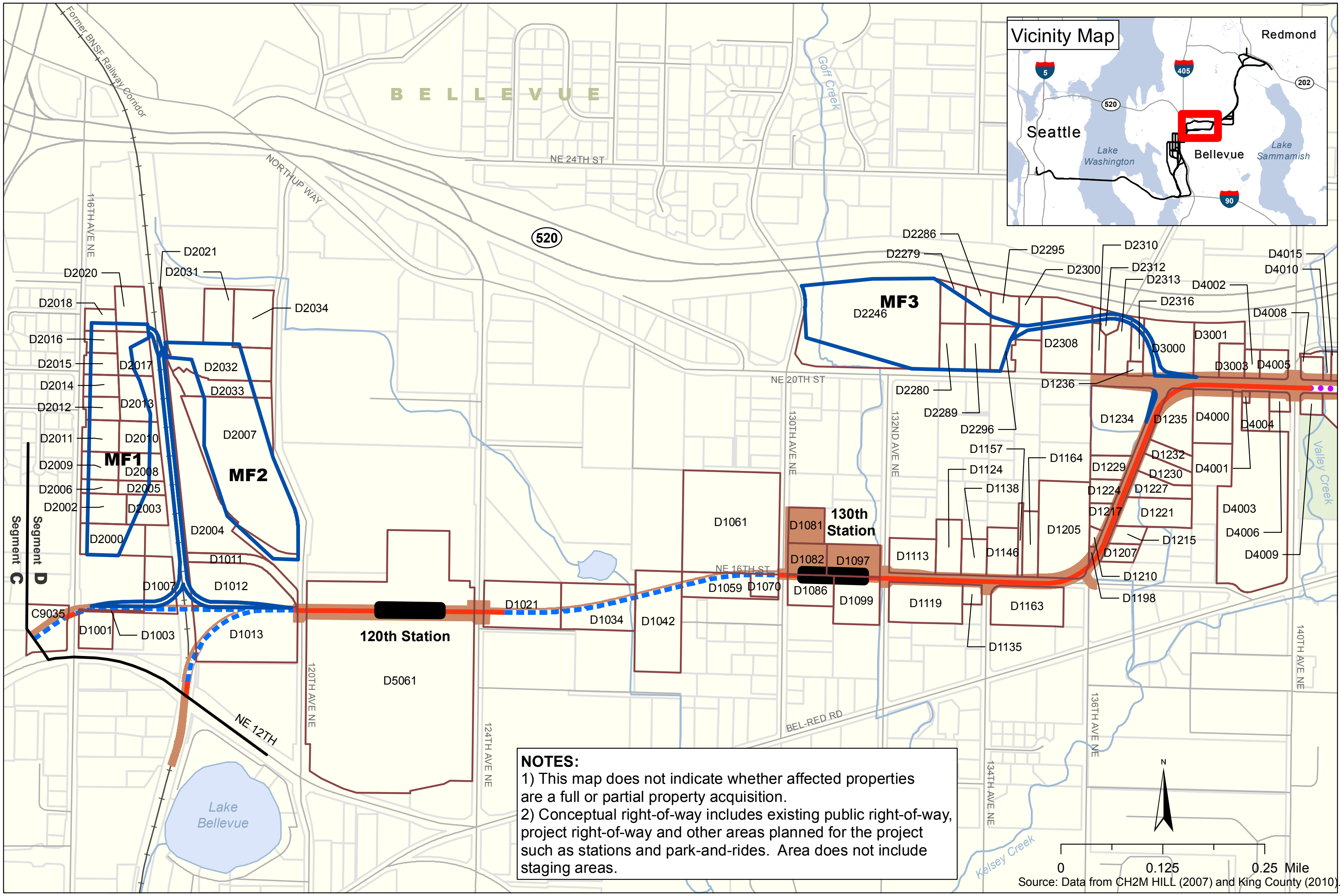

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 40TH ST
Segment E
Segment D
148TH AVE NE
Overlake Transit Center Station
140TH AVE NE
Valley Creek
B E L L E V U E
R E D M O N D
NE 36TH ST
520
156TH AVE NE
D5037
NE 31ST ST
NE 30TH PL
D5031
D5020
D5014
Overlake Village Station
D5011
Overlake Park & Ride
D5006
BEL-RED RD
D3108
D3106
D3117
D4244
NE 24TH ST
D3115
D3100
D3119
D3102
D3053
D4142
D4238
D3110
D3118
152ND AVE NE
Sears Creek
NE 20TH ST
HIGHLAND PARK & COMMUNITY CENTER
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▨ Conceptual Right-of-Way and Areas to be Acquired
━ At-Grade Route
▪▪▪ Elevated Route
●●●● Retained-Cut Route
●●●● Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-42
Affected Parcels, Segment D
Alternative D2E
East Link Project

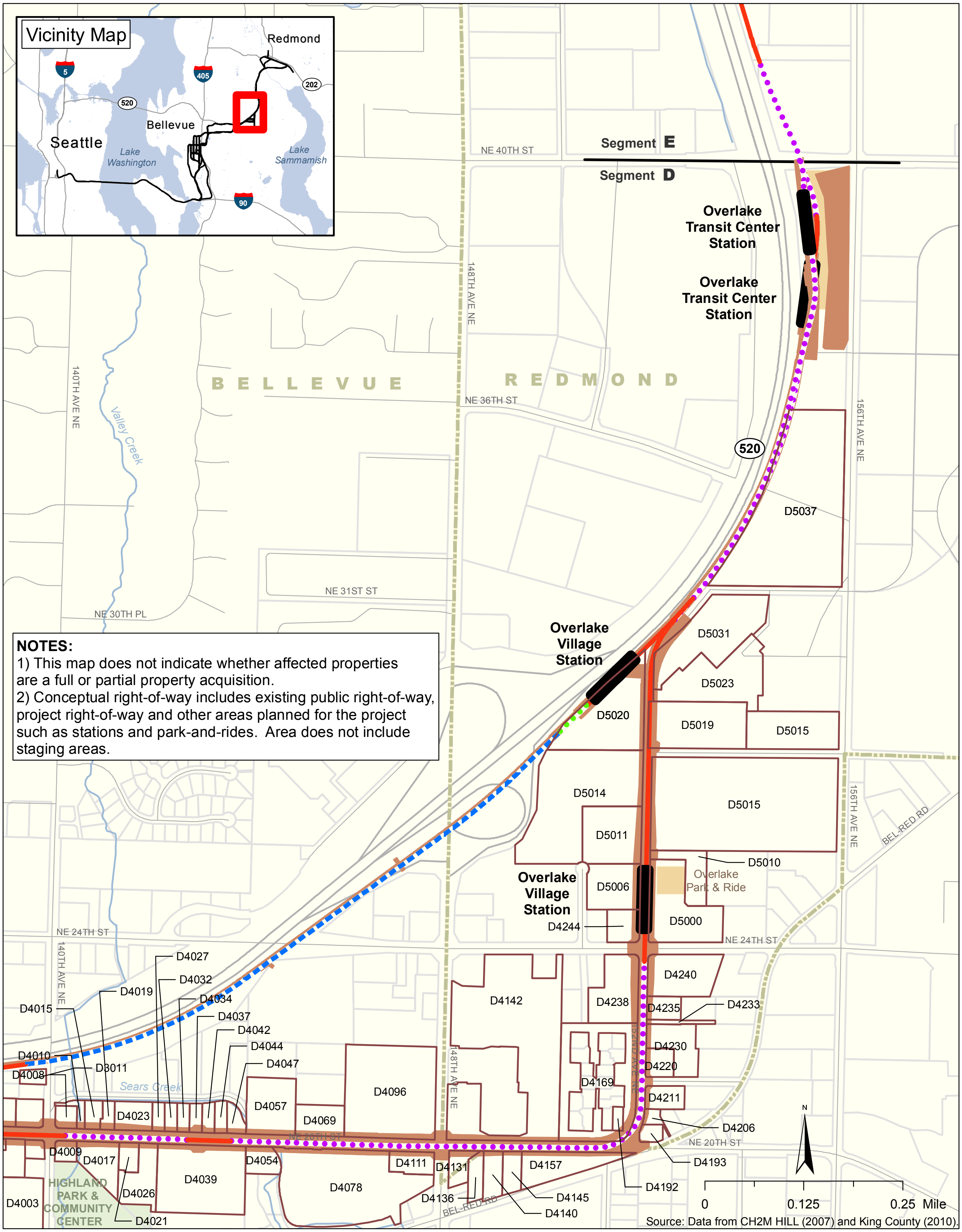

Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
202
90
BELLEVUE
Former BNSF Railway Corridor
NORTHUP WAY
NE 24TH ST
520
Goff Creek
NE 20TH ST
NE 16TH ST
NE 12TH
BEL-RED RD
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
140TH AVE NE
Valley Creek
Kelsey Creek
Lake Bellevue
Segment C
Segment D
MF1
MF2
MF3
120th Station
130th Station
D2021
D2020
D2031
D2034
D2018
D2016
D2015
D2017
D2032
D2014
D2033
D2012
D2013
D2011
D2010
D2007
D2009
D2008
D2006
D2005
D2002
D2003
D2004
D2000
D1011
D1007
D1012
C9035
D1001
D1003
D1013
D5061
D1021
D1034
D1042
D1061
D1059
D1070
D1081
D1082
D1097
D1086
D1099
D1113
D1119
D1146
D1135
D1163
D2286
D2279
D2246
D2295
D2300
D2310
D2312
D2313
D2316
D2308
D3000
D3001
D3003
D4002
D4015
D4010
D4008
D4005
D2280
D1236
D2289
D2296
D1234
D1235
D4000
D4004
D1157
D1164
D1124
D1232
D1229
D1230
D4001
D1138
D1224
D1227
D1217
D1221
D4003
D1205
D4006
D1215
D1207
D4009
D1210
D1198
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

▭ 1119	Map ID & Affected Parcel Boundary
▬	Conceptual Right-of-Way and Areas to be Acquired
▬	At-Grade Route
▪ ▪ ▪	Elevated Route
● ● ● ●	Retained-Cut Route
● ● ● ●	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station
▭	Maintenance Facility

Exhibit G2-43
Affected Parcels, Segment D
Alternative D3
East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
NE 40TH ST
Segment E
Segment D
Overlake Transit Center Station
Overlake Transit Center Station
148TH AVE NE
140TH AVE NE
Valley Creek
BELLEVUE
REDMOND
NE 36TH ST
520
156TH AVE NE
D5037
NE 31ST ST
NE 30TH PL
Overlake Village Station
D5031
D5023
D5020
D5019
D5015
D5014
D5015
D5011
156TH AVE NE
BEL-RED RD
D5010
Overlake Park & Ride
Overlake Village Station
D5006
D5000
D4244
NE 24TH ST
NE 24TH ST
140TH AVE NE
D4027
D4032
D4019
D4034
D4015
D4037
D4042
D4044
D4010
D4047
D3011
D4008
Sears Creek
D4023
D4057
D4096
D4069
NE 20TH ST
D4142
D4238
D4240
D4235
D4233
D4230
D4220
D4169
152ND AVE NE
D4211
D4206
NE 20TH ST
D4193
D4192
D4009
D4017
D4039
D4054
D4111
D4131
D4157
D4078
D4145
D4136
D4140
BEL-RED RD
HIGHLAND PARK & COMMUNITY CENTER
D4026
D4003
D4021
N
0
0.125
0.25 Mile

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

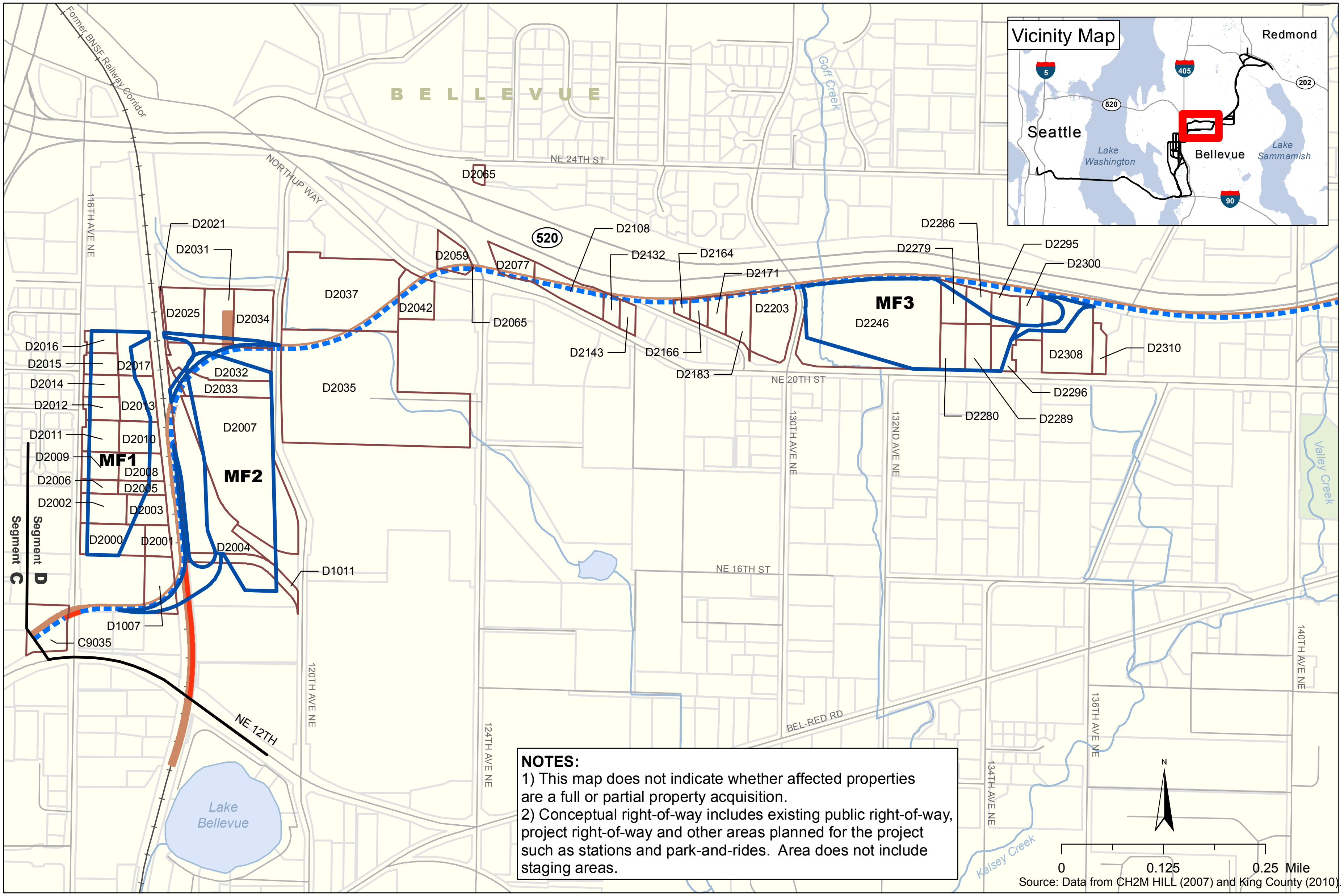
Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Conceptual Right-of-Way and Areas to be Acquired
▬	At-Grade Route
▬ ▬ ▬	Elevated Route
● ● ●	Retained-Cut Route
● ● ●	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station

Exhibit G2-44

Affected Parcels, Segment D Alternative D3

East Link Project

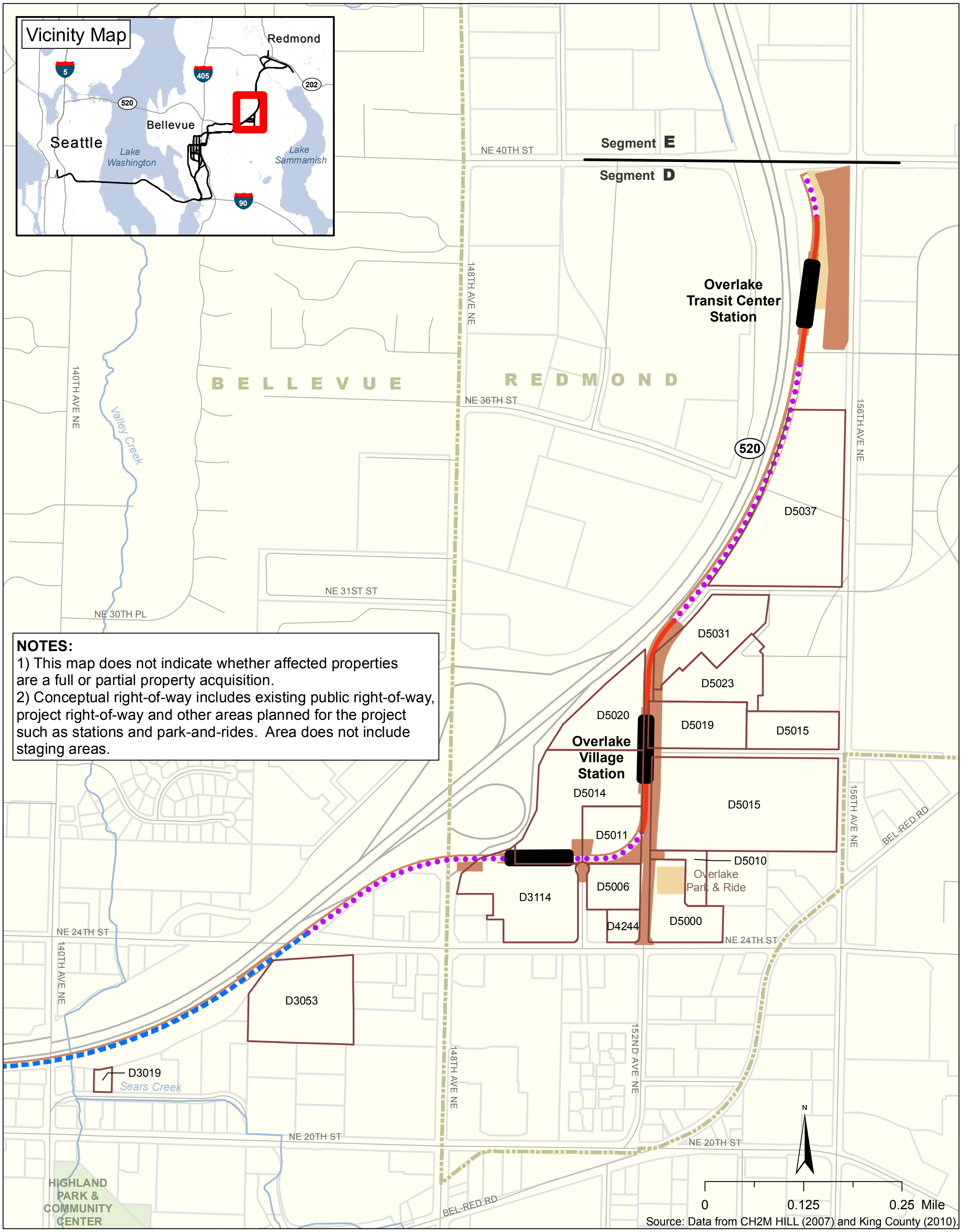

Vicinity Map
Redmond
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
405
520
202
90
B E L L E V U E
Former BNSF Railway Corridor
NORTHUP WAY
NE 24TH ST
520
Goff Creek
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
140TH AVE NE
NE 20TH ST
NE 16TH ST
NE 12TH
BEL-RED RD
Valley Creek
Kelsey Creek
Lake Bellevue
Segment C
Segment D
MF1
MF2
MF3
D2065
D2021
D2031
D2025
D2034
D2037
D2059
D2077
D2042
D2065
D2108
D2132
D2164
D2171
D2203
D2143
D2166
D2183
D2286
D2279
D2295
D2300
D2246
D2308
D2310
D2296
D2280
D2289
D2016
D2015
D2014
D2012
D2011
D2009
D2006
D2002
D2017
D2013
D2010
D2008
D2005
D2003
D2000
D2001
D2032
D2033
D2035
D2007
D2004
D1011
D1007
C9035
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary	🟥	At-Grade Route	■	Proposed Station
🟫	Conceptual Right-of-Way and Areas to be Acquired	- - -	Elevated Route	☐	Maintenance Facility
		• • • •	Retained-Cut Route		
		• • • •	Retained-Fill Route		
		▬ ▬	Tunnel Route		

Exhibit G2-45
Affected Parcels, Segment D
Alternative D5
East Link Project

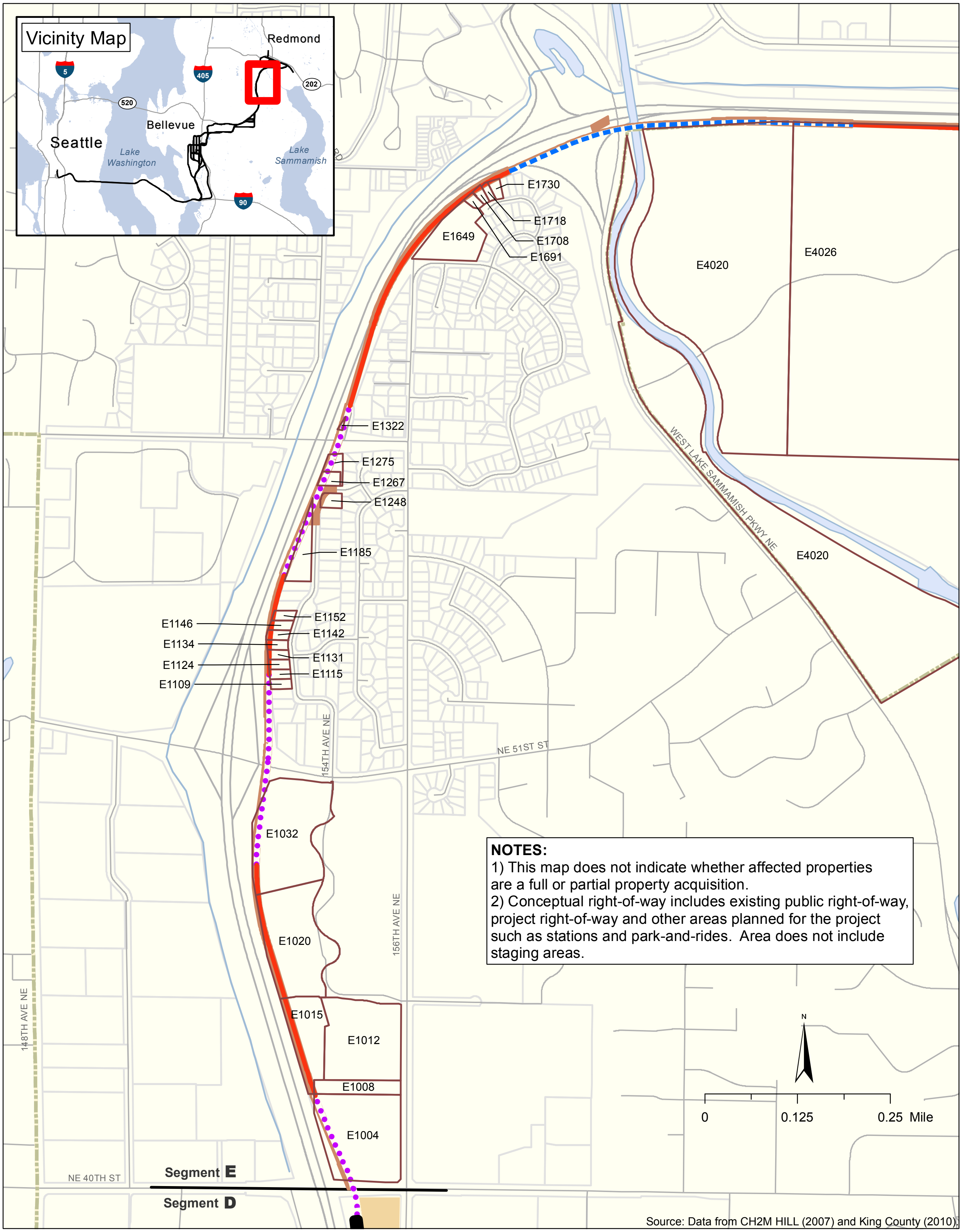

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
Segment E
Segment D
NE 40TH ST
148TH AVE NE
Overlake Transit Center Station
B E L L E V U E
R E D M O N D
NE 36TH ST
140TH AVE NE
Valley Creek
520
156TH AVE NE
D5037
NE 31ST ST
NE 30TH PL
D5031
D5023
D5020
D5019
D5015
Overlake Village Station
D5014
D5015
D5011
D5010
Overlake Park & Ride
D5006
D3114
D4244
D5000
156TH AVE NE
BEL-RED RD
NE 24TH ST
NE 24TH ST
140TH AVE NE
D3053
D3019
Sears Creek
148TH AVE NE
152ND AVE NE
NE 20TH ST
NE 20TH ST
HIGHLAND PARK & COMMUNITY CENTER
BEL-RED RD
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▬ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
- - - Elevated Route
••• Retained-Cut Route
••• Retained-Fill Route
- - Tunnel Route
▬ Proposed Station

Exhibit G2-46
Affected Parcels, Segment D
Alternative D5
East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
RD
E1730
E1718
E1708
E1691
E1649
E4020
E4026
E1322
E1275
E1267
E1248
E1185
E1152
E1142
E1146
E1134
E1131
E1124
E1115
E1109
WEST LAKE SAMMAMISH PKWY NE
E4020
NE 51ST ST
154TH AVE NE
E1032
E1020
156TH AVE NE
E1015
E1012
E1008
E1004
148TH AVE NE
N
0
0.125
0.25 Mile
NE 40TH ST
Segment E
Segment D

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary

▨ Conceptual Right-of-Way and Areas to be Acquired

━ At-Grade Route

▬ ▬ Elevated Route

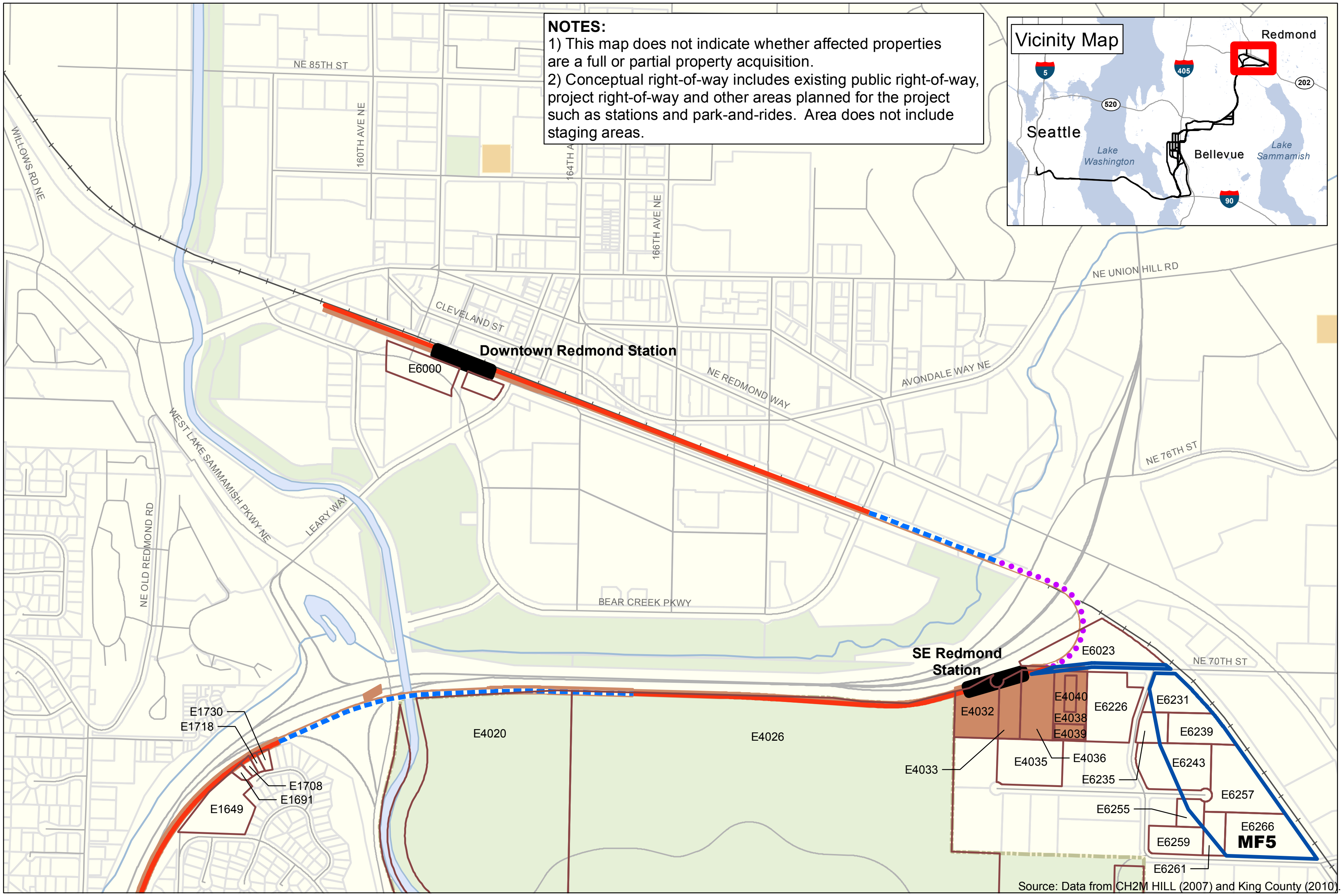
● ● ● Retained-Cut Route

● ● ● Retained-Fill Route

▬ ▬ Tunnel Route

▬ Proposed Station

Exhibit G2-47
Affected Parcels, Segment E
Preferred Alternative E2
East Link Project


Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
202
90
NE 85TH ST
160TH AVE NE
164TH A
166TH AVE NE
WILLOWS RD NE
CLEVELAND ST
Downtown Redmond Station
E6000
NE REDMOND WAY
AVONDALE WAY NE
NE UNION HILL RD
NE 76TH ST
WEST LAKE SAMMAMISH PKWY NE
LEARY WAY
NE OLD REDMOND RD
BEAR CREEK PKWY
SE Redmond Station
NE 70TH ST
E6023
E4040
E4038
E4039
E4032
E6226
E6231
E6239
E6243
E4035
E4036
E6235
E4033
E6257
E6255
E6266
MF5
E6259
E6261
E4020
E4026
E1730
E1718
E1708
E1691
E1649

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▬	Conceptual Right-of-Way and Areas to be Acquired
▬	At-Grade Route
‒ ‒ ‒	Elevated Route
• • •	Retained-Cut Route
• • •	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station
☐	Maintenance Facility

N

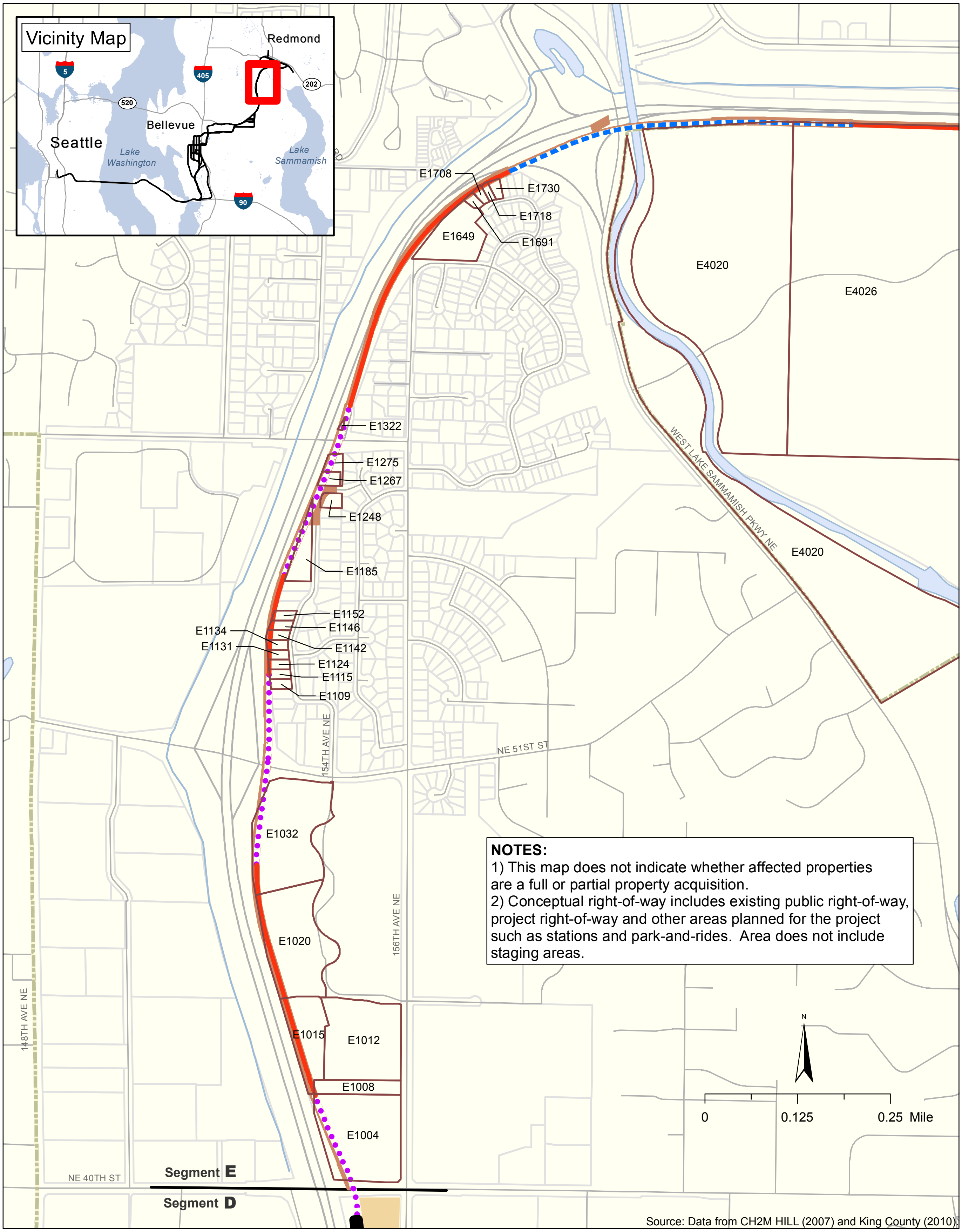
0 0.125 0.25 Mile

Exhibit G2-48

Affected Parcels, Segment E

Preferred Alternative E2

East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
E1708
E1730
E1718
E1649
E1691
E4020
E4026
E1322
E1275
E1267
E1248
E1185
E1152
E1146
E1134
E1131
E1142
E1124
E1115
E1109
WEST LAKE SAMMAMISH PKWY NE
E4020
154TH AVE NE
NE 51ST ST
E1032
E1020
156TH AVE NE
148TH AVE NE
E1015
E1012
E1008
E1004
N
0
0.125
0.25 Mile
NE 40TH ST
Segment E
Segment D

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

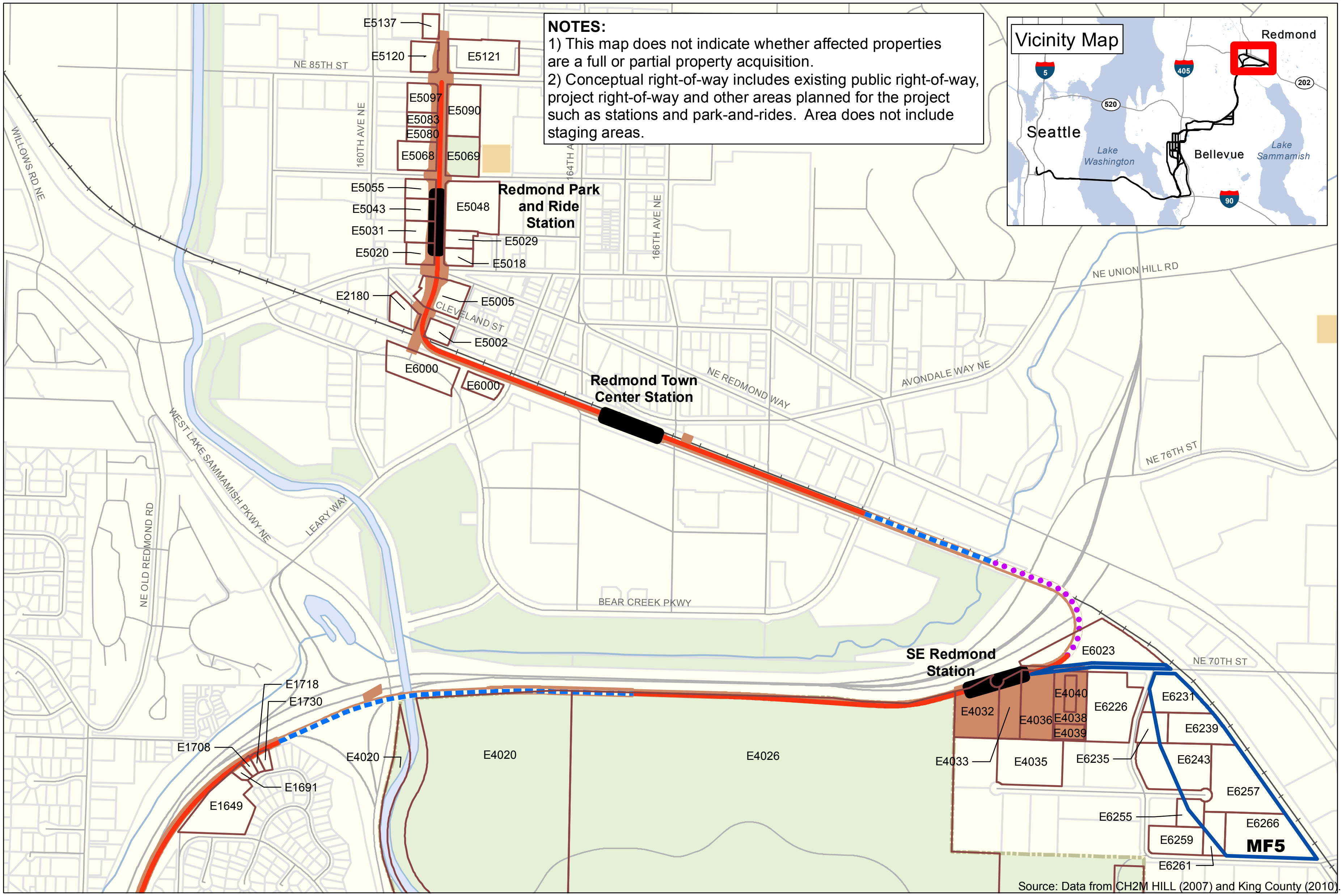
Source: Data from CH2M HILL (2007) and King County (2010).

- 1119 Map ID & Affected Parcel Boundary
- 🟫 Conceptual Right-of-Way and Areas to be Acquired
- 🟥 At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- ⬛ Proposed Station

Exhibit G2-49

Affected Parcels, Segment E
Preferred Alternative E2 with
Redmond Transit Design Option

East Link Project


E5137
E5120
E5121
NE 85TH ST
E5097
E5090
E5083
E5080
160TH AVE NE
E5068
E5069
164TH A
E5055
E5043
E5031
E5020
E5048
Redmond Park and Ride Station
E5029
E5018
166TH AVE NE
WILLOWS RD NE
E2180
E5005
CLEVELAND ST
E5002
E6000
E6000
Redmond Town Center Station
NE REDMOND WAY
AVONDALE WAY NE
NE UNION HILL RD
NE 76TH ST
WEST LAKE SAMMAMISH PKWY NE
LEARY WAY
NE OLD REDMOND RD
BEAR CREEK PKWY
SE Redmond Station
E6023
NE 70TH ST
E1718
E1730
E1708
E1691
E1649
E4020
E4020
E4026
E4032
E4040
E6226
E4036
E4038
E4039
E6231
E6239
E4033
E4035
E6235
E6243
E6257
E6255
E6266
E6259
MF5
E6261
Vicinity Map
Redmond
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

▭ 1119	Map ID & Affected Parcel Boundary
▬	Conceptual Right-of-Way and Areas to be Acquired
▬	At-Grade Route
- - -	Elevated Route
• • • •	Retained-Cut Route
• • • •	Retained-Fill Route
▬ ▬	Tunnel Route
■	Proposed Station
▭	Maintenance Facility

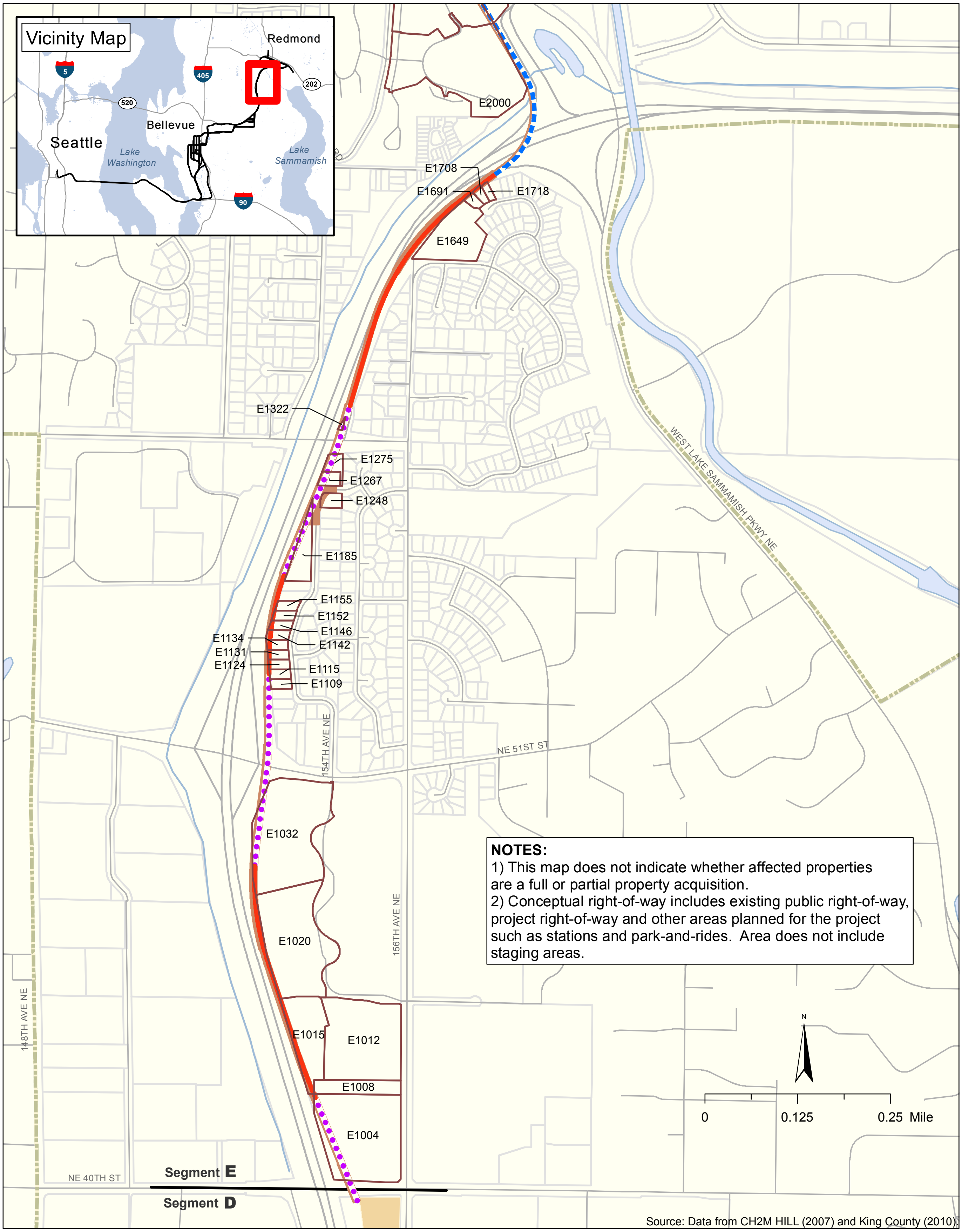
N

0 0.125 0.25 Mile

Exhibit G2-50

Affected Parcels, Segment E
Preferred Alternative E2 with
Redmond Transit Design Option

East Link Project


Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
E2000
E1708
E1691
E1718
E1649
E1322
E1275
E1267
E1248
E1185
E1155
E1152
E1146
E1142
E1134
E1131
E1124
E1115
E1109
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
154TH AVE NE
156TH AVE NE
148TH AVE NE
E1032
E1020
E1015
E1012
E1008
E1004
NE 40TH ST
Segment E
Segment D
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
Conceptual Right-of-Way and Areas to be Acquired
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station

Exhibit G2-51

Affected Parcels, Segment E

Alternative E1

East Link Project

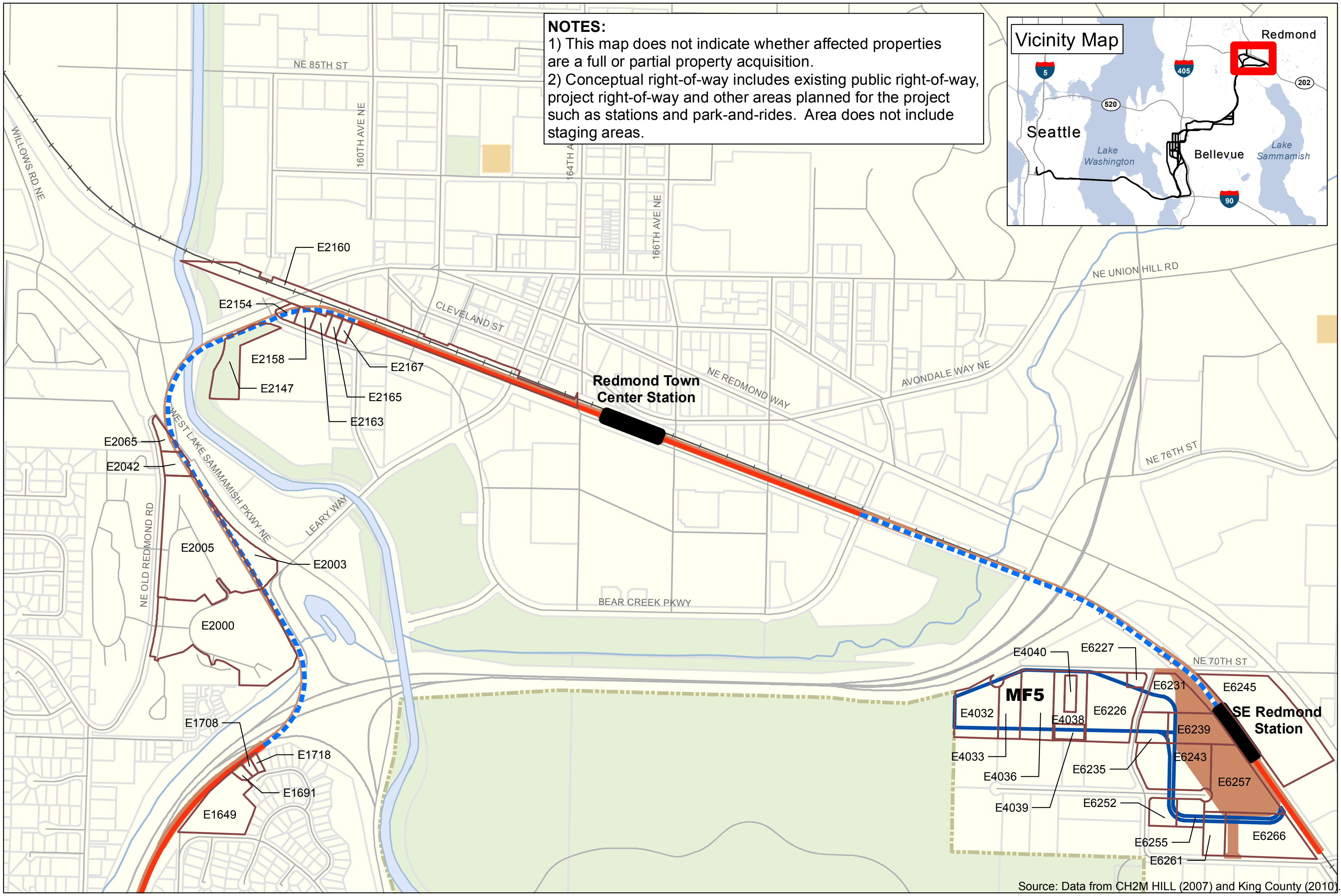
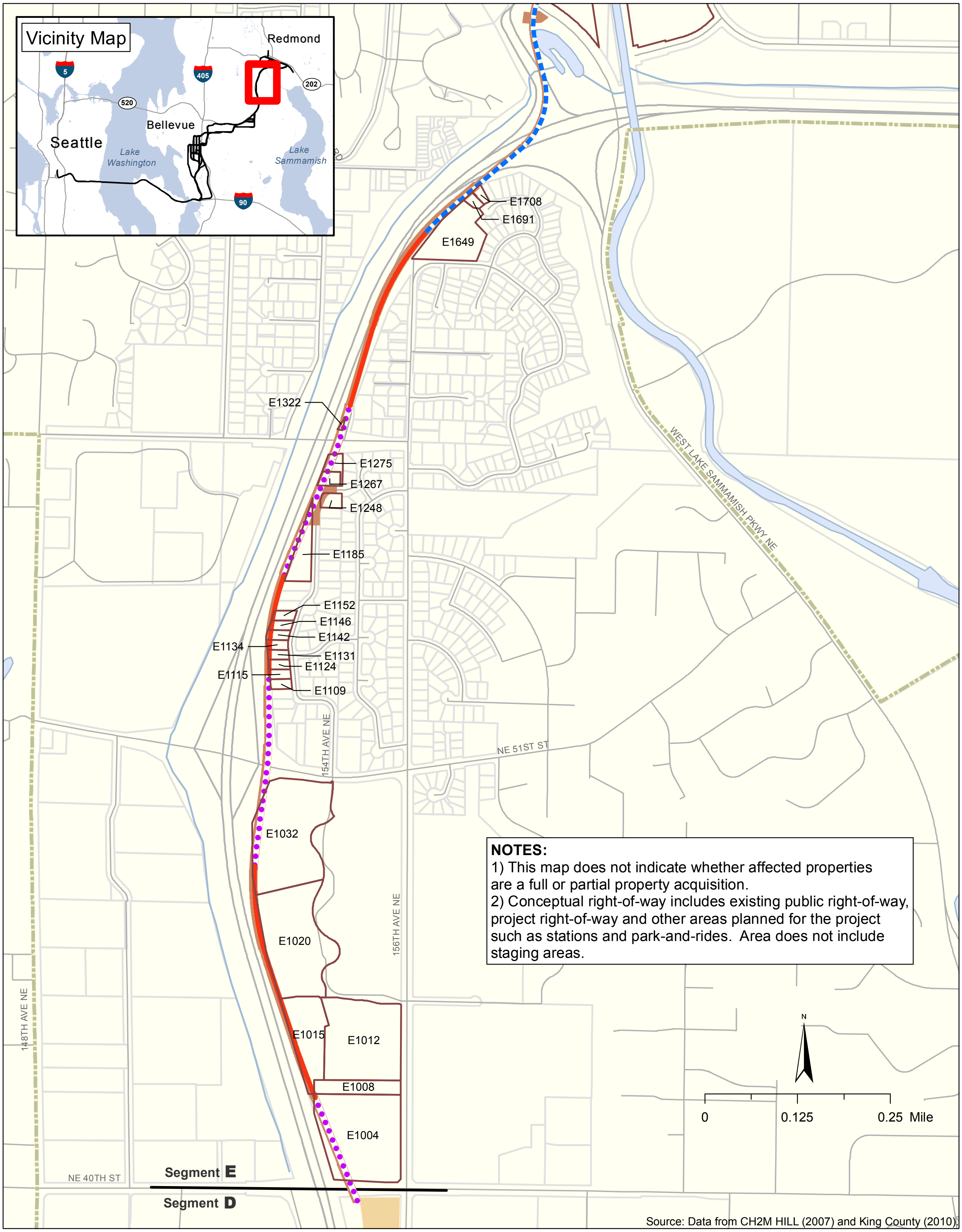

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.
Vicinity Map
Redmond
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
NE 85TH ST
160TH AVE NE
164TH A
166TH AVE NE
WILLOWS RD NE
CLEVELAND ST
NE REDMOND WAY
AVONDALE WAY NE
NE UNION HILL RD
NE 76TH ST
NE 70TH ST
LEARY WAY
WEST LAKE SAMMAMISH PKWY NE
NE OLD REDMOND RD
BEAR CREEK PKWY
Redmond Town Center Station
SE Redmond Station
MF5
E2160
E2154
E2158
E2167
E2147
E2165
E2163
E2065
E2042
E2005
E2003
E2000
E1708
E1718
E1691
E1649
E4040
E6227
E6231
E6245
E4032
E4038
E6226
E6239
E4033
E6243
E4036
E6235
E6257
E4039
E6252
E6255
E6266
E6261
Source: Data from CH2M HILL (2007) and King County (2010).
1119 Map ID & Affected Parcel Boundary
Conceptual Right-of-Way and Areas to be Acquired
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
Maintenance Facility
N
0
0.125
0.25 Mile

Exhibit G2-52

Affected Parcels, Segment E

Alternative E1

East Link Project

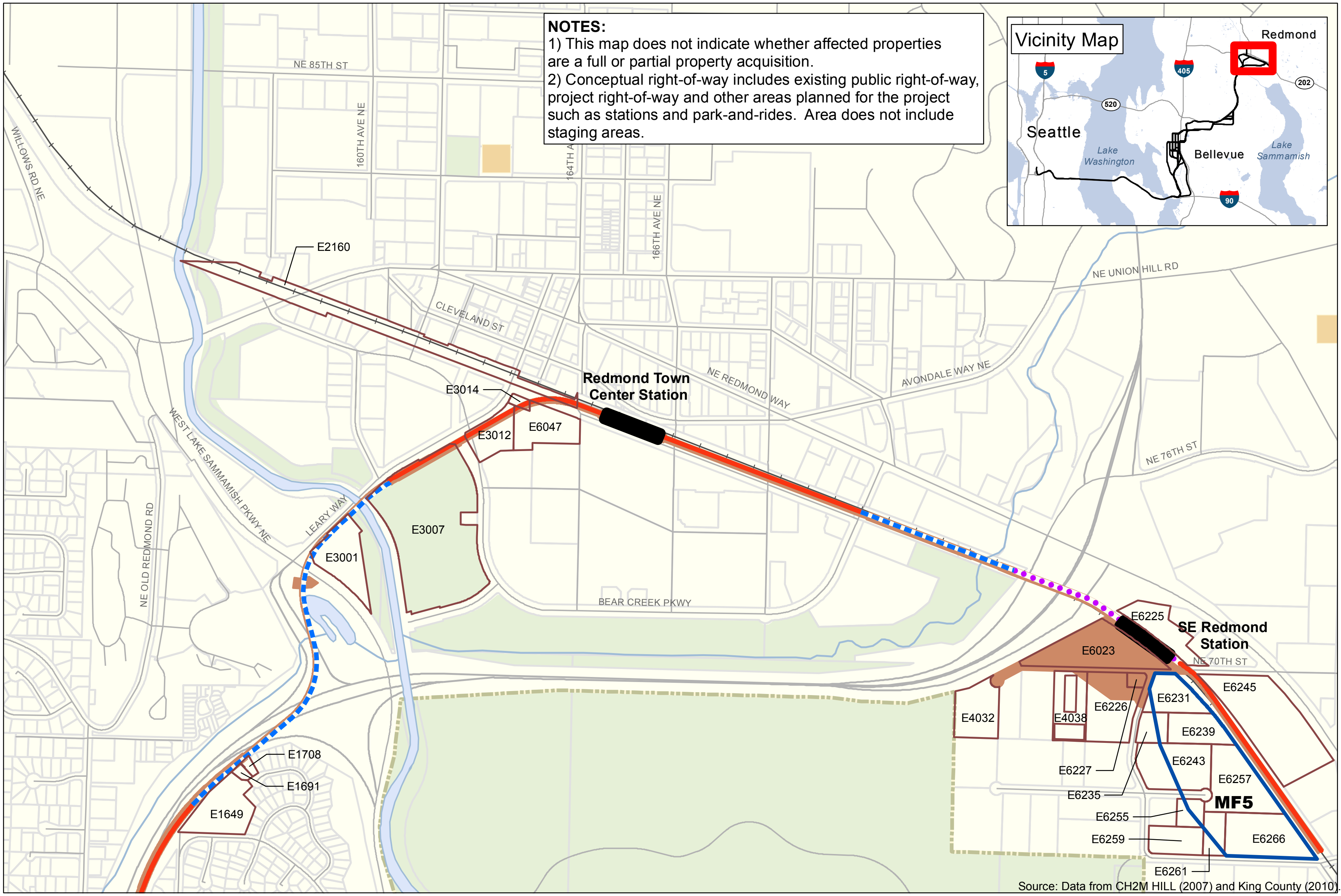

Vicinity Map
Redmond
5
405
202
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90
E1708
E1691
E1649
E1322
E1275
E1267
E1248
E1185
E1152
E1146
E1142
E1134
E1131
E1124
E1115
E1109
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
154TH AVE NE
156TH AVE NE
148TH AVE NE
E1032
E1020
E1015
E1012
E1008
E1004
NE 40TH ST
Segment E
Segment D
N
0
0.125
0.25 Mile

NOTES:
1) This map does not indicate whether affected properties are a full or partial property acquisition.
2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119 Map ID & Affected Parcel Boundary
▨ Conceptual Right-of-Way and Areas to be Acquired
▬ At-Grade Route
▬ ▬ Elevated Route
● ● ● ● Retained-Cut Route
● ● ● ● Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station

Exhibit G2-53
Affected Parcels, Segment E
Alternative E4
East Link Project



NE 85TH ST
160TH AVE NE
164TH A
166TH AVE NE
WILLOWS RD NE
E2160
CLEVELAND ST
NE REDMOND WAY
AVONDALE WAY NE
NE UNION HILL RD
NE 76TH ST
E3014
Redmond Town Center Station
E6047
E3012
WEST LAKE SAMMAMISH PKWY NE
LEARY WAY
E3007
E3001
NE OLD REDMOND RD
BEAR CREEK PKWY
E6225
SE Redmond Station
E6023
NE 70TH ST
E6245
E6231
E4032
E4038
E6226
E6239
E6243
E6227
E6257
E6235
MF5
E6255
E6259
E6266
E6261
E1708
E1691
E1649
Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
202
90

NOTES:

1) This map does not indicate whether affected properties are a full or partial property acquisition.

2) Conceptual right-of-way includes existing public right-of-way, project right-of-way and other areas planned for the project such as stations and park-and-rides. Area does not include staging areas.

Source: Data from CH2M HILL (2007) and King County (2010).

1119	Map ID & Affected Parcel Boundary
▨	Conceptual Right-of-Way and Areas to be Acquired
—	At-Grade Route
···	Elevated Route
●●●	Retained-Cut Route
●●●	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station
☐	Maintenance Facility

N

0 0.125 0.25 Mile

Exhibit G2-54

Affected Parcels, Segment E

Alternative E4

East Link Project

Appendix G3

Hazardous Material Sites

TABLE G3-1
Hazardous Materials Databases Searched and Number of Sites Identified within 660 Feet of Each Segment

			Segment				
Database	**Abbreviation**	**Definition**	**A**	**B**	**C**	**D**	**E**
National Priorities List	NPL	Hazardous waste sites for priority cleanup under the federal Superfund Program (a subset of CERCLIS)	0	0	0	0	0
Comprehensive Environmental Response, Compensation, and Liability Information System	CERCLIS	Data on potentially hazardous waste sites that have been reported to EPA	0	0	0	0	1
CERCLIS – No Further Remedial Action Planned	CERCLIS-NFRAP	Sites removed from CERCLIS where no contamination was found or where contamination was removed quickly	0	1	0	1	0
Resource Conservation and Recovery Act Corrective Action Sites	RCRA-CORRACTS	Hazardous waste handlers with corrective action (cleanup) activity	0	0	0	0	0
Resource Conservation and Recovery Information System	RCRA-TSD	Sites that treat, store, or dispose of hazardous waste	0	0	0	0	0
RCRA large-quantity generators	RCRA-LQG	Facilities that generate more than 1,000 kilograms (kg) of hazardous waste or more than 1 kg of acutely hazardous waste per month; hazardous waste generation indicates commercial or industrial activity that stores and uses hazardous materials.	1	0	3	2	5
RCRA small-quantity generators	RCRA-SQG	Facilities that generate between 100 and 1,000 kg of hazardous waste per month (generators do not store, treat, or dispose hazardous waste); hazardous waste generation indicates commercial or industrial activity that stores and uses hazardous materials	45	6	51	108	46
Emergency Response Notification System	ERNS	Information about reported releases of oil and hazardous substances	3	3	2	4	1
Brownfields Sites Listing	BROWNFIELDS	Brownfields properties addressed by Cooperative Agreement Recipients and Brownfields properties addressed by Targeted Brownfields Assessments	1	1	1	0	2
Toxic Chemical Release Inventory System	TRIS	Facilities that release toxic chemicals to the air, water, and land in reportable quantities under Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313	0	0	0	1	0
Federal Insecticide, Fungicide, and Rodenticide Act/Toxic Substances Control Act)	FTTS	Administrative cases, pesticide enforcement actions, and compliance activities related to FIFRA, TSCA, and the Emergency Planning and Community Right-to-Know Act (EPCRA) over the previous 5 years	1	0	3	3	0

TABLE G3-1 CONTINUED
Hazardous Materials Databases Searched and Number of Sites Identified within 660 Feet of Each Segment

			Segment				
Database	**Abbreviation**	**Definition**	**A**	**B**	**C**	**D**	**E**
State Confirmed or Suspected Contaminated Sites List	HWS (CSCSL)	Washington State equivalent to CERCLIS; sites with confirmed or suspected presence of contaminated soil, groundwater, surface water, sediment, or air	10	3	12	5	9
State Hazardous Sites List/ Model Toxics Control Act Cleanup Program Sites Register	HSL	Contaminated sites that have been assessed and ranked using the Washington State Ranking Method. HSL is a subset of the CSCSL	0	0	0	0	0
Confirmed and Suspected Contaminated Sites – No Further Action	CSCSL NFA	Information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received an NFA determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed; instead, an NFA code is entered based upon the type of NFA determination the site received.	7	2	12	10	8
State Landfill or Solid Waste Site Lists	LF	Inventory of solid waste disposal facilities or landfills in Washington State	5	1	3	3	2
State Leaking Underground Storage Tank List	LUST	Reported leaking underground storage tank (LUST) incidents in Washington State	23	8	20	19	5
State Registered Underground Storage Tank List	UST	Underground storage tanks (USTs) registered in Washington State; registration is not required for residential heating oil USTs	39	11	35	48	19
Reported Spills	SPILLS	Active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites	11	8	15	12	12
Sites with Institutional Controls	INST CONTROL	Sites that have institutional controls	0	0	2	0	0
Voluntary Cleanup Program Sites	VCP	Sites that have entered either the Washington State Department of Ecology (Ecology) VCP or its predecessor Independent Remedial Action Program	10	1	15	8	9
State Independent Cleanup Reports List	ICR	Cleanup action reports received by Ecology for review and approval; cleanup actions are done without Ecology oversight	20	5	27	24	7
Dry Cleaner List	DRYCLEANERS	Registered drycleaners who registered with Ecology (using the Standard Industrial Classification [SIC] code of 7215 and 7216) as hazardous waste generators	2	0	1	0	0
Water Quality Permit System Data	NPDES	Permitted wastewater facilities	8	2	14	10	7
Inactive Dry Cleaners	INACTIVE DRYCLEANERS	Inactive dry cleaner facility locations	0	0	4	5	1

TABLE G3-2
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
A	N203	4	--	4TH AVENUE SOUTH/SOUTH JACKSON STREET	SPILLS
A	N205	4	BUSH HOTEL LIMITED PARTNERSHIP	621 SOUTH JACKSON STREET	FINDS, MANIFEST, RCRIS-SQG
A	N206	4	--	303 SOUTH JACKSON STREET	SPILLS
A	N216	4	WATERMARK PRESS, INC.	1407 SOUTH DEARBORN STREET	FINDS
A	N230	4	901 POPLAR PLACE SOUTH	901 POPLAR PLACE SOUTH	NPDES
A	N235	4	UNKNOWN	4TH AVENUE SOUTH/SOUTH ROYAL BROUGHAM WAY	SPILLS
A	N248	4	I-90 BETWEEN SEATTLE AND I-405	I-90 BETWEEN SEATTLE AND I-405	NPDES
A	N255	4	PRIVETT ACADEMY	2448 76TH AVENUE SE	FINDS
A	N261	4	7700 CENTRAL	2630 77TH AVENUE SE	NPDES
A	N264	3	NATURE	8602 NORTH MERCER WAY	SPILLS
A	N272A	4	CITY OF MERCER ISLAND	9611 SE 36TH STREET	FINDS, NPDES
A	N272B	4	CITY OF MERCER ISLAND, SPRING SPECIAL COLLECTION EV	MERCER ISLAND CITY HALL	LF
A	272C	4	CITY OF MERCER ISLAND, FALL RECYCLING COLLECTION EV	MERCER ISLAND CITY HALL	LF
A	394	4	TRUCK CENTER CORPORATION	600 5TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	405A	4	5TH AVENUE SOUTH/THOMAS STREET	5TH AVENUE SOUTH/THOMAS STREET	ERNS
A	405B	4	5TH AVENUE SOUTH/VIRGINIA STREET	5TH AVENUE SOUTH/VIRGINIA STREET	ERNS
A	408	3	GOODWILL INDUSTRIES	1400 SOUTH LANE STREET	FINDS, LF, RCRIS-SQG, SPILLS, UST
A	409A	4	LC JERGENS PAINTING COMPANY	900 RAINIER AVENUE SOUTH	FINDS, RCRIS-SQG
A	409B	3	RECYCLING DEPOT, INC.	851 RAINIER AVENUE SOUTH	FINDS, LF, NPDES
A	409C	3	TEXACO 632320271	852 RAINIER AVENUE SOUTH	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
A	410	4	SEATTLE CITY AIRPORT WAY BRIDGE	830 4TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	415A	4	POPICH SIGN COMPANY	831 AIRPORT WAY SOUTH	FINDS, RCRIS-SQG
A	415B	3	UWAGIMAYA VILLAGE	514 SOUTH DEARBORN STREET	CSCSL NFA, FINDS, ICR, UST, VCP
A	415C	3	SHELL NO. 64819; TEXACO NO. 632320366	511 SOUTH DEARBORN STREET	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
A	415D	4	IMMIGRATION NATIONAL SERVICE	815 AIRPORT WAY SOUTH	FINDS, RCRIS-SQG, UST
A	416	4	SQUARE D COMPANY	830 CORWIN PLACE SOUTH	FINDS, RCRIS-SQG

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
A	417	4	AT&T WIRELESS, DEARBORN	1200 SOUTH DEARBORN STREET	FINDS
A	419	3	HERZOG GLASS, INC.	1300 SOUTH DEARBORN STREET	FINDS, ICR, LUST, UST
A	420	3	PACIFIC FISH COMPANY	617 SOUTH DEARBORN STREET	FINDS, LUST, UST
A	422A	4	COLORGRAPHICS, INC.	1421 SOUTH DEAN STREET	FINDS, MANIFEST, NPDES, RCRIS-SQG
A	422B	3	RALPHS CONCRETE	800 POPLAR PLACE SOUTH	FINDS, HWS, NPDES (2009)
A	422C	4	RALPHS CONCRETE PUMPING SEATTLE	816 POPLAR PLACE SOUTH	FINDS
A	422D	4	BAUGH CONSTRUCTION STORAGE YARD	826 POPLAR PLACE SOUTH	FINDS, RCRIS-SQG
A	422E	3	MODEL AND INSTRUMENT DEVELOPMENT	836 POPLAR PLACE SOUTH	FINDS, ICR, RCRIS-SQG
A	422F	3	SIGNAL EQUIPMENT, INC.	838 POPLAR PLACE SOUTH	FINDS, HWS, ICR, LUST, UST, VCP
A	422G	3	MODEL AND INSTRUMENT WORKS	861 POPLAR PLACE SOUTH	FINDS, LUST, RCRIS-SQG, UST
A	424	4	KIEWIT PACIFIC COMPANY	SOUTH DEARBORN STREET/I-5	FINDS, RCRIS-SQG
A	425	3	WASHINGTON STATE FOOTBALL SOCCER STADIUM AND EXPOSITION CENTER	FORMER KINGDOME SITE	CSCSL NFA
A	427	3	WSDOT, CORWIN PLACE SOUTH	CORWIN PLACE SOUTH/I-90 NEAR SOUTH DEARBORN STREET	LUST, RCRIS-SQG
A	428	3	THE SALVATION ARMY A.R.C.	1000 4TH AVENUE SOUTH	FINDS, ICR, LUST, RCRIS-SQG, UST
A	429	3	CITY OF SEATTLE	805 SOUTH CHARLES STREET	FINDS, LUST, MANIFEST, RCRIS-SQG, SPILLS
A	430	3	SEATTLE CITY HEALTH DEPARTMENT	705 SOUTH CHARLES STREET	FINDS, ICR, LUST, RCRIS-SQG, UST
A	432A	3	UNKNOWN	630 SOUTH CHARLES STREET	SPILLS
A	432B	3	TRIANGLE PROPERTY	901 MAYNARD AVENUE SOUTH	FINDS, LUST, UST
A	436A	4	FRYE ART MUSUEM	1061 6TH AVENUE SOUTH	FINDS, ICIS
A	436B	4	POPICH SIGN COMPANY, INC.	1045 6TH AVENUE SOUTH	FINDS, MANIFEST, RCRIS-SQG
A	436C	4	JAMES G. MURPHY COMPANY	1001 6TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	436D	4	ALLIED BATTERY COMPANY, INC.	1031 6TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	439A	4	SEATTLE CITY PUBLIC UTILITIES	707 SOUTH PLUMMER STREET	FINDS, RCRIS-SQG
A	439B	3	KEN STATION	1030 7TH AVENUE SOUTH	LUST, UST

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
A	440	4	SEATTLE CITY TRANSPORTATION DEPARTMENT	1010 8TH AVENUE SOUTH	FINDS, MANIFEST, RCRIS-SQG
A	442	4	BAUGH CONSTRUCTION COMPANY	900 POPLAR PLACE SOUTH	FINDS, UST
A	443	4	ROMAC INDUSTRIES, INC.	1064 4TH AVENUE SOUTH	FINDS, FTTS, RCRIS-LQG
A	445	3	ROMAINE ELECTRIC CORPORATION	1101 AIRPORT WAY SOUTH	CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST, VCP
A	447	4	KINGDOME SOUTH PARKING LOT	SEATTLE TIDE LANDS	UST
A	448A	4	SPENCER PRODUCTS COMPANY	1134 POPLAR PLACE SOUTH	FINDS, RCRIS-SQG
A	448B	3	WSDOT SEATTLE I-90 TIME OIL	SOUTH NORMAN STREET/POPLAR PLACE SOUTH	CSCSL NFA, FINDS, VCP
A	451A	4	MANUS DIRECT	1130 RAINIER AVENUE SOUTH	FINDS, RCRIS-SQG
A	451B	4	M&R INVESTMENTS	1121 RAINIER AVENUE SOUTH	FINDS, UST
A	456	4	ATKINSON DILLINGHAM	500 ROYAL BROUGHAM WAY	FINDS, RCRIS-SQG
A	457A	3	METRO KING COUNTY DOT TRANSIT DIVISION, RYERSON	1220 4TH AVENUE SOUTH	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
A	457B	4	SAYBOLT, INC.	1225 4TH AVENUE SOUTH, SUITE I	FINDS, RCRIS-SQG
A	457C	3	WSDOT	1213 4TH AVENUE SOUTH	FINDS, ICR, LUST, UST
A	459A	4	PRINCETON PACKAGING, INC.	1263 6TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	459B	4	KING COUNTY METRO TRANSIT	1260 6TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	459C	3	LEAVITT SHAY INDUSTRIAL BUILDING	1217 6TH AVENUE SOUTH	FINDS, ICR, LUST, UST
A	459D	4	LOWE PARKER CORPORATION	1234 6TH AVENUE SOUTH	FINDS, RCRIS-SQG
A	459E	4	WSDOT	1205 6TH AVENUE SOUTH	UST
A	459F	4	E. J. BARTELLS	1212 6TH AVENUE SOUTH	FINDS, UST
A	460	3	TOYOSHIMA PROPERTY	1309 35TH AVENUE SOUTH	SPILLS
A	461	4	I-90 MERCER ISLAND LID	2101 72ND AVENUE SE	FINDS, UST
A	463	3	METRO CENTRAL OPERATING BASE	1333 AIRPORT WAY SOUTH	FINDS, HWS
A	465	3	2040 FABAN DRIVE	2040 FABAN DRIVE	SPILLS
A	466	3	NORTH MERCER PUMP STATION	7631 SE 22ND STREET	FINDS, LUST, UST
A	467	4	GUY F. ATKINSON CONSTRUCTION COMPANY	2721 SOUTH IRVING STREET	FINDS, UST
A	468	4	THURGOOD MARSHALL	2401 SOUTH IRVING STREET	FINDS
A	470	3	76TH STREET/22ND AVENUE	76TH STREET/22ND AVENUE	SPILLS
A	471	4	SEATTLE I-90 TUNNEL AND L10	1411 YAKIMA AVENUE SOUTH	FINDS, UST

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
A	472A	4	WSDOT CONTRACTORS WORK AREA, SEATTLE	1360 LAKESIDE AVENUE SOUTH	FINDS, RCRIS-SQG
A	472B	3	1318 LAKESIDE AVENUE SOUTH	1318 LAKESIDE AVENUE SOUTH	CSCSL NFA, VCP
A	479A	3	WSDOT BRADNER PLACE APARTMENTS	1366 31ST AVENUE SOUTH	ICR, LUST, UST
A	479B	3	TEXACO DOWNSTREAM 211558	1366 31ST AVENUE SOUTH	FINDS, HWS, MANIFEST, RCRIS-SQG, VCP
A	482	3	WSDOT I-90 AND RAINIER AVENUE SOUTH	I-90 AND RAINIER AVENUE SOUTH	LUST, UST
A	484	3	WSDOT I-90	LACEY MURROW BRIDGE	ICR
A	489	4	23RD ATLANTIC CHEMICAL	23RD AVENUE SOUTH/SOUTH ATLANTIC STREET	FINDS, RCRIS-SQG
A	491	3	SWANSON PROPERTY	1526 21ST AVENUE SOUTH	FINDS, HWS
A	492	4	MERCER ISLAND TOLL PLAZA SITE	I-90 EASTEND LACEY MURROW BRIDGE	UST
A	493	4	WSDOT MERCER ISLAND 60TH AVENUE SE	60TH AVENUE SE UNDER I-90	FINDS, RCRIS-SQG
A	494A	4	TRUGREEN LP	2441 76TH AVENUE SE	FINDS, RCRIS-SQG
A	494B	3	PACIFIC FIRST BANK	2476 76TH AVENUE SE	ICR
A	494C	3	CONOCOPHILLIPS 30663	2411 76TH STREET SE	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
A	495A	3	RALPHS CONCRETE PUMPING	1517 RAINIER AVENUE SOUTH	BROWNFIELDS, FINDS, HWS, SPILLS
A	495B	4	VALLEY GEAR AND TRANSMISSION	1543 RAINIER AVENUE SOUTH	ERNS, FINDS, UST
A	510	3	TEXACO NO. 632320494	7655 SUNSET HIGHWAY	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
A	512	3	CHEVRON NO. 92736	7725 SUNSET HIGHWAY	FINDS, HWS, ICR, LUST, MANIFEST, RCRIS-SQG, UST, V
A	520A	2	FOUR SEASONS DRY CLEANERS MERCER ISLAND	7800 SE 27TH AVENUE	DRYCLEANERS, FINDS, HWS
A	520B	3	I&M ASSOCIATES	7810 SE 27TH AVENUE	FINDS, ICR, LUST, UST
A	533	4	MERCER ISLAND SERVICE CENTER, INC.	2728 80TH AVENUE SE	FINDS, UST
A	539A	4	UNOCAL NO. 5097	2831 ISLAND CREST WAY	FINDS, UST
A	539B	3	CHEVRON NO. 93659	2800 ISLAND CREST WAY	CSCSL NFA, FINDS, UST, VCP
A	553	4	COVENANT SHORES	9150 NORTH MERCER WAY	FINDS, RCRIS-SQG
A	559	4	SHOREWOOD HEIGHTS APARTMENTS	3209 SHOREWOOD DRIVE	FINDS, RCRIS-SQG, UST, NPDES (2009)

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
A	567A	4	AT&T WIRELESS EAST CHANNEL	9655 SE 36TH STREET, SUITE 207	FINDS
A	567B	3	HONEYWELL	9555 SE 36TH STREET	FINDS, HWS, VCP
A	567C	3	CITY OF MERCER ISLAND	9601 SE 36TH STREET	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
A	569	4	MERCER WAY DRUM	I-90 E MERCER WAY ON-RAMP EASTBOUND	FINDS, RCRIS-SQG
B	N198	1	PLANNED SE 8TH STREET RESTORATION PROJECT	BETWEEN 112TH AVENUE SE AND LAKE WASHINGTON BOULEVARD	FINDS; HWS; CSCSL,
B	N199	4	PERFECT BLEND, LLC	11400 SE 8TH STREET	FINDS,
B	N201	4	MILLICAN	940 104TH AVENUE NE	SPILLS
B	N257	4	2530 121ST AVENUE SE	2530 121ST AVENUE SE	ERNS, SPILLS
B	328	3	BELLEVUE CITY FIRE DISTRICT NO. 7	11900 SE 8TH STREET	FINDS, ICR, LUST, UST
B	330	4	BELLEVUE CITY FIRE STATION NO. 1	766 BELLEVUE WAY SE	FINDS, RCRIS-SQG, UST
B	335	4	BELLEVUE SQUARE MANAGERS BSM	727 104TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
B	343A	1	EASTSIDE DISPOSAL	969 118TH AVENUE SE	FINDS, ICR, LUST, MANIFEST, NPDES, RCRIS-SQG, UST
B	343C	1	SOUND OIL COMPANY; DAVY TREE	1021 118TH AVENUE SE	FINDS, LUST, UST
B	351	4	AT&T BELLEFIELD	11400 SE 8TH STREET	FINDS
B	352	1	BELLEFIELD OFFICE PARK	11201 SE 8TH STREET	CERCLIS-NFRAP, VCP, FINDS; Restrictive Covenant, R
B	353	4	ADJACENT TO 1111 118 AVENUE SE	ADJACENT TO 1111 118 AVENUE SE	ERNS
B	366	4	AT&T WIRELESS MEYDENBAUER BAY	1212 104TH AVENUE SE	FINDS
B	412A	1	KEVIK CLEANERS	1614 BELLEVUE WAY SE	BROWNFIELDS, FINDS, HWS
B	412B	1	UNOCAL NO. 4384	1624 BELLEVUE WAY SE	FINDS, HWS, ICR, LUST, RCRIS-SQG, UST
B	413	2	RICHARD S. EVANS	1614 118TH AVENUE SE	FINDS, ICR, LUST, UST
B	431	2	BARNEY & AL’S CHEVRON SERVICE	1649 BELLEVUE WAY	FINDS, ICR, LUST, RCRIS-SQG, UST
B	444	4	DOOLITTLE CONSTRUCTION COMPANY, INC.	1900 118TH AVENUE SE	FINDS, UST
B	452	2	ATC VANCOM (VEOLIA TRANSPORTATION SERVICES, INC. (2009)	2000 118TH AVENUE SE	CSCSL NFA, FINDS, LUST, MANIFEST, NPDES, RCRIS-SQG

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
B	469	4	MADDEN CONSTRUCTION, INC.	2200 118TH AVENUE SE	FINDS, UST
B	514	3	TREE SERVICE	2690 118TH AVENUE NE	SPILLS
B	547	3	3100 BELLEVUE WAY SE	3100 BELLEVUE WAY SE	SPILLS
B	555	4	EVERGREEN SERVICES CORPORATION	12010 SE 32ND STREET	FINDS, UST
B	557	3	UNKNOWN	118TH AVENUE AND 32ND STREET, TWO BLOCKS EAST OF LAKE CITY	SPILLS
B	562	4	3251 106 AVENUE SE (DOCK SOOUTH OF ADDRESS)	3251 106 AVENUE SE	ERNS
B	564	3	BOAT OWNER (MILLER LOCK 2009)	10849 SE LAKE ROAD	SPILLS
C	N131A	4	VUE TOWER	10710 10TH AVENUE NE	NPDES
C	N131B	4	1020 TOWER SITE	1020 108TH AVENUE NE	FINDS, VCP CSCSL-NFA
C	N132	4	PUGET SOUND BLOOD CENTER, BELLEVUE DONOR	1021 112TH AVENUE NE	FINDS
C	N134A	4	BV HOLDINGS, LLC, BELLEVUE	833 108TH AVENUE NE	FINDS, MANIFEST, RCRIS-NON GENERATOR
C	N134B	4	BELCARA SAMMAMISH	846 108TH AVENUE NE	NPDES
C	N137	4	WSDOT FORMER PARAGON HOTEL	818 112TH AVENUE NE	FINDS, RCRIS-LQG
C	N144	2	MIDLAKES PROPERTY	11807, 11811, AND 11815 NE 8TH STREET	FINDS; HWS
C	N149	4	SWANSON	110TH AVENUE NE AND NE 6TH STREET	SPILLS
C	N155	4	BROOKS CHEVROLET, INC.	430 116TH AVENUE NE	LUST, SPILLS
C	N160	4	PUGET SOUND POWER AND LIGHT CO BELLEVUE	10608 NE 4TH STREET	FINDS, FIFRA/TSCA
C	N168	4	METRO 112	317 112TH AVENUE NE	FINDS, CSCSL-NFA
C	N171	4	BELLEVUE MARRIOTT HOTEL	200 110TH AVENUE NE	NPDES
C	N175	4	BELLEVUE PLAZA	139 106TH AVENUE NE	NPDES
C	N176	4	FRANCISCO CARDOSA DBA FLOORS 2000	103 110TH AVENUE NE	FINDS, SPILLS
C	N177	4	FEDEX KINKOS BELLEVUE WAY	40 BELLEVUE WAY NE	FINDS
C	N184	4	BELLEVUE CITY OF	11511 MAIN STREET AND 450 110TH AVENUE NE	NPDES
C	N191	4	NORTHWEST AQUATIC ECOSYSTEMS-BAYSHORE	410 BELLEVUE WAY SE, NO. 230	NPDES
C	N192	4	VACANT PRPERTY	609 112TH STREET SE	FINDS, MANIFEST, RCRA - NON GENERATOR
C	230	4	EASTSIDE MEDICAL LABORATORY, BELLEVUE	1199 116TH AVENUE NE	HAZNET

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
C	236	4	OVERLAKE MEDICAL TOWER, LLC	1135 116TH AVENUE NE	FINDS, RCRIS-SQG
C	245A	3	USF REDDAWAY TRUCKING	1034 116TH AVENUE NE	FINDS, UST
C	245B	2	APPLEGREEN CENTER	1024 116TH AVENUE NE	SPILLS
C	245C	3	OVERLAKE HOSPITAL MEDICAL CENTER	1035 116TH AVENUE NE	FINDS, ICR, LUST, UST
C	248	4	BELLEVUE HINES DEVELOPMENT, LLC	1110 112TH AVENUE NE, SUITE 130	FINDS, FTTS, LUST, MANIFEST, NPDES, RCRIS-SQG, UST
C	254A	3	2 LAKE BELLEVUE DRIVE	2 LAKE BELLEVUE DRIVE	FINDS, RCRIS-SQG
C	254B	3	UNKNOWN	1 LAKE BELLEVUE DRIVE	SPILLS
C	255	4	GROUP HEALTH COOPERATIVE	925 116TH AVENUE NE	SPILLS
C	257	4	PACIFIC REGENT CONDOMINIUM ASSOCIATIONS	919 109TH AVENUE NE	NPDES
C	260	4	TRANSITION PROGRAM	833 108TH AVENUE NE	FINDS, UST
C	262	4	NORTHWEST RAINIER A WASHINGTON GENERAL	12400 SE 38TH STREET/P.O. BOX 5727	FINDS
C	263A	2	UNOCALNO. 4511	10605 NE 8TH STREET	UST
C	263B	4	PACCAR BUILDING	777 106TH AVENUE NE	FINDS, ICR, LUST, RCRIS-SQG, UST
C	263C	1	FORMER THINKER TOYS	10610 NE 8TH STREET	FINDS, RCRIS-SQG
C	263D	4	WASHINGTON SQUARE RESIDENTIAL CONDOMINIUM	10620 NE 8TH STREET	FINDS, HWS, MANIFEST
C	265	4	BRAVERN	11055 NE 8TH STREET	NPDES
C	267A	4	HC AUTO CARE, INC.	11807 AND 11817 NE 8TH STREET	NPDES
C	267B	2	EASTSIDE RENTAL AND EQUIPMENT	11830 NE 8TH STREET	FINDS, RCRIS-SQG
C	267C	2	DOLLAR RENT-A-CAR (TWO REPORTS)	11839 NE 8TH STREET	FINDS, HWS, ICR, LUST, RCRIS-SQG, UST, VCP
C	267D	2	TIKI CAR WASH	11909 NE 8TH STREET	FINDS, ICR, LUST, UST
C	267E	2	BAKKER'S FINE DRY CLEANING, INC.	11855 NE 8TH STREET	FINANCIAL ASSURANCE, FINDS, HWS, ICR, INST CONTROL
C	267F	4	BELLEVUE ALFA ROMEO	11919 NE 8TH STREET	FINDS, LUST, UST
C	267G	4	OLYMPIC CLEANERS	800 118TH AVENUE NE	FINDS, RCRIS-SQG
C	267H	2	TEXACO STAR MART NO. 3611	12001 NE 8TH STREET	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG
C	267I	4	ACCUTRAN TRANSMISSIONS, INC.	11811 NE 8TH STREET	ERNS, FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, SPILL

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
C	268A	2	THE WAGON SHOP	11635 NE 8TH STREET	FINDS, UST, LF (2009)
C	268B	2	CHEVRON USA, INC.	11606 NE 8TH STREET	LF
C	268C	2	ARCO NO. 0836	11611 NE 8TH STREET	CSCSL NFA, FINDS, ICR, MANIFEST, RCRIS-SQG, UST, V
C	269	4	RAINIER PLAZA BELLEVUE	777 108TH AVENUE NE, SUITE 2050	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, SPILLS, UST
C	271	2	BELLEVUE SQUARE MANAGERS	731 BELLEVUE WAY NE	FINDS, RCRIS-SQG
C	273	3	PUGET POWER AND LIGHT COMPANY ELECTRICAL SWITCH	700 108TH AVENUE NE	ICR, UST
C	275	2	TEXACO	615 112TH AVENUE NE	ICR
C	276	2	DITTY PROPERTY	604 BELLEVUE WAY NE	FINDS, ICR, LUST, RCRIS-SQG, UST
C	277	3	KC METRO TRANSIT	NE 6TH STREET AND 108TH AVENUE NE	FINDS, ICR, UST, VCP
C	278A	4	AGFA GEVAERT, INC.	555 116TH AVENUE NE	SPILLS
C	278B	4	PUGET SOUND POWER AND LIGHT COMPANY	600 116TH AVENUE NE	FINDS, RCRIS-SQG
C	278C	4	EXOTIC MOTORS AUTO REBUILD, INC.	638 116TH AVENUE NE	FINDS, RCRIS-SQG
C	278D	4	DEALERS CHOICE AUTOMOTIVE, INC.	638 B 116TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
C	278E	4	EXOTIC MOTORS DBA BELLEVUE ISUZU	614 116TH AVENUE NE	FINDS, RCRIS-SQG
C	278F	2	BELLEVUE PONTIAC GMC TRUCK	620 116TH AVENUE NE	FINDS, RCRIS-SQG
C	279	4	MUTUAL MATERIALS COMPANY	605 119TH AVENUE NE	CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST, VCP
C	281A	4	SHELL OIL COMPANY	510 BELLEVUE WAY NE	FINDS, RCRIS-SQG, VCP (2009)
C	281B	2	BELLEVUE ART MUSEUM	510 BELLEVUE WAY NE	FINDS, RCRIS-SQG
C	281C	2	MARSTON ENTERPRISES, INC.	510 BELLEVUE WAY NE	ICR
C	282	4	AGFA DIV BAYER CORPORATION	505 106TH AVENUE NE	LUST, UST
C	283	4	CITY CENTER BELLEVUE	500 108TH AVENUE NE, SUITE 1620	FINDS, RCRIS-SQG
C	284	4	RESIDENCE INN BY MARRIOTT	605 114TH AVENUE SE	FINDS, UST
C	285	2	QWEST CORPORATION (W00621)	450 110TH AVENUE NE	NPDES
C	287A	4	BARTELLS NO. 13	424 BELLEVUE WAY NE	CSCSL NFA, FINDS, MANIFEST, RCRIS-SQG, UST, VCP
C	287B	4	BON MARCHE BELLEVUE	400 BELLEVUE SQUARE	FINDS, RCRIS-SQG

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
C	287C	2	J. C. PENNEY COMPANY, INC. NO. 2109-7	300 BELLEVUE SQUARE	FINDS, RCRIS-SQG
C	288	2	PSE GENERAL OFFICE	10608 NE 4TH STREET	LUST, UST
C	289	3	CITY OF BELLEVUE (?)	112TH AVENUE NE AND NE 4TH STREET	SPILLS
C	290A	4	AT&T BELLEVUE DOWNTOWN	10655 NE 4TH STREET	FINDS
C	290B	3	FEDERAL EXPRESS	10655 NE 4TH STREET	SPILLS
C	291A	4	BELLEVUE ALFA ROMEO	225 105TH AVENUE NE	FINDS, RCRIS-SQG
C	291B	4	TRIAD SVCS AKA TRIAD PRESS, INC.	224 105TH AVENUE NE	FINDS, RCRIS-SQG
C	291C	2	TOWN AND COUNTRY CLEANERS	310 105TH AVENUE NE	CSCSL NFA, FINDS, ICR, INACTIVE DRYCLEANERS, RCRIS
C	291D	4	FOSSUM PAINT CENTER	345 106TH AVENUE NE	FINDS, UST
C	294A	4	AVALON MEYDENBAUER	250 BELLEVUE WAY NE	NPDES
C	294B	4	BELLEVUE PROPERTIES	298 BELLEVUE WAY NE	FINDS, MANIFEST, RCRIS-SQG, UST
C	294C	1	CAPRI PROPERTY	315 BELLEVUE WAY NE	FINDS, HWS, MANIFEST, RCRIS-SQG
C	294D	4	ALVIN GOLDFARB JEWELERS	305 BELLEVUE WAY NE	FINDS
C	294E	2	MERCEDES SPECIALIST PROPERTY	340 BELLEVUE WAY NE	LUST, UST,VCP(2009), HWS (2009)
C	295A	4	SUMMIT BUILDING	320 108TH AVENUE NE	FINDS, RCRIS-SQG
C	295B	2	E&H PROPERTIES	327 108TH AVENUE NE	CSCSL NFA, FINDS, ICR, INST CONTROL, UST, VCP
C	297A	3	211 112TH AVENUE NE	211 112TH AVENUE NE	SPILLS
C	297B	4	ENVIROS CORPORATION	225 112TH AVENUE NE	FINDS, RCRIS-SQG
C	298A	2	BELLEVUE PACIFIC CENTER	166 106TH AVENUE NE	CSCSL NFA, FINDS
C	298B	4	JOHN L. SCOTT REAL ESTATE, BELLEVUE	188 106TH AVENUE NE NO. 600	FINDS, FTTS
C	298C	3	TACO TIME PROPOSED	201 106TH AVENUE NE	CSCSL NFA, FINDS, ICR, VCP
C	299	4	BELLEVUE PARKS DEPARTMENT, EASTSIDE C	225 102ND AVENUE NE	FINDS, RCRIS-SQG
C	301A	4	NORTHWEST COPY BELLEVUE	105 BELLEVUE WAY NE	FINDS, RCRIS-SQG
C	301B	1	BELLEVUE WAY DRY CLEANERS	103 BELLEVUE WAY NE, SUITE 4	BROWNFIELDS, DRYCLEANERS, FINDS, HWS, MANIFEST, RC
C	302	3	BUDGET RENT-A-CAR	111 108TH AVENUE NE	CSCSL NFA, FINDS, ICR, UST, VCP

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
C	304A	3	10237 MAIN STREET	10237 MAIN STREET	CSCSL NFA, FINDS, VCP
C	304B	1	EV11 LLC	10335 MAIN STREET	HWS
C	304C	4	VANDER HOEK PARTNERSHIP	10246 MAIN STREET	FINDS, UST
C	304D	1	SAFEWAY PROPERTY	10301 MAIN STREET	FINDS, HWS, VCP
C	304E	3	BORGATA ASSOCIATES APARTMENTS	NE 1ST STREET AND 103RD AVENUE NE	CSCSL NFA, FINDS, VCP
C	304F	3	10245 MAIN STREET	10245 MAIN STREET	SPILLS
C	304G	4	SUPERIOR AUTOMOTIVE, INC.	17 1/2 102ND AVENUE NE	FINDS, RCRIS-SQG
C	304H	4	CHRISTMAS HOUSE	10220 NE 1ST PLACE	FINDS, RCRIS-SQG, UST
C	305A	4	BELLEVUE WAY AND MAIN SOUTH	15 BELLEVUE WAY SE	FINDS, RCRIS-SQG
C	305B	1	UNOCAL NO. 0587	5 BELLEVUE WAY NE	FINDS, HWS, ICR, LUST, MANIFEST, RCRIS-SQG, UST, V
C	305C	4	ELWELL CASE	31 BELLEVUE WAY	FINDS, RCRIS-SQG
C	305D	2	ERNST HOME CENTER, BELLEVUE WAY	44 BELLEVUE WAY NE	FINDS, ICR, LUST, UST
C	306A	2	CHEVRON NO. 92581	10812 MAIN STREET	FINDS, ICR, LUST, UST
C	306B	4	PLATEAU GOLF, LLC	10838 MAIN STREET	FINDS
C	306C	1	BENENSON CAPITAL	110 108TH AVENUE NE	FINDS, HWS, ICR, RCRIS-LQG, VCP
C	308A	4	MYERS QUALI QUIK, INC.	10622 MAIN STREET	FINDS, RCRIS-SQG
C	308B	3	BUDGET RENT-A-TRUCK	10708 MAIN STREET	LUST, UST (2009)
C	308C	4	MICHAEL'S FINE DRY CLEANING	10711 MAIN STREET	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG
C	309A	4	JIFFY LUBE STORE NO. 1109	10510 MAIN STREET	FINDS, RCRIS-SQG
C	309B	4	PRESTIGE STATIONS NO. 733	10530 MAIN STREET	FINDS, UST
C	310	3	PUGET SOUND ENERGY	11030 MAIN STREET	SPILLS
C	311A	2	WESTMARK FINANCIAL SERVICES	11121 MAIN STREET	ICR
C	311B	4	LEXUS OF BELLEVUE	11058 MAIN STREET	FINDS, MANIFEST, RCRIS-SQG
C	315	4	AT&T WIRELESS OLD TOWN	136 102ND AVENUE SE	FINDS
C	316	4	MICHALES CLEANERS	10711 MAIN STREET	ERNS
C	317A	4	ARTHURS FINE DRY CLEANERS (BELLA CLEANERS (2009)	102 BELLEVUE WAY SE	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG
C	317B	3	GOODYEAR AUTO SERVICE CENTER	117 BELLEVUE WAY SE	FINDS, HWS, ICR, RCRIS-SQG, UST, VCP
C	319	3	GRACE RENTAL, RESIDENTIAL	324 105TH AVENUE SE	ICR

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
C	320A	4	BELLEVUE RENTALS, INC.	326 116TH AVENUE SE	FINDS
C	320B	4	BODYWORKS AUTO REBUILD	330 116TH AVENUE SE	FINDS, RCRIS-SQG
C	321	4	BELLEVUE SCHOOL DISTRICT, BELLEVUE HIGHSCHOOL	10416 SE KILMARNOCK	FINDS, MANIFEST, RCRIS-SQG
C	322	2	BELLEVUE RED LION	300 112TH AVENUE SE	FINDS, ICR, LUST, RCRIS-SQG, UST
C	323	4	FV NORTHERN AURORA	410 BELLEVUE WAY SE	NPDES, FINDS (2009)
C	325A	4	KING COUNTY DISTRICT COURT	585 112TH AVENUE SE	FINDS, ICIS, PADS, MANIFEST (2009), RCRIS- NONGENE
C	325B	4	SURRYDOWNS CHILDRENS CENTER	609 112TH AVENUE SE	FINDS, ICIS (2009)
C	326	3	VALUE VILLAGE	11400 SE 6TH STREET, SUITE 220	LF
D	N55	4		14840 NE 31ST CIRCLE	SPILLS
D	N58	4	SR 520 CONNECTING NE 31ST CIRCLE AND NE 36TH STREET	NE 31ST CIRCLE AND NE 36TH STREET, SR 520 MILE POST 9.3	NPDES
D	N63	4	ALLENWOOD PUD	12401 NE 24TH SOUTH	NPDES
D	N70	4	7-ELEVEN STORE NO. 23559	2353 140TH AVENUE NE	UIC
D	N71	4	UNKNOWN	12101 NORTHUP WAY	SPILLS, ERNS
D	N73	4	DERMATOPATHOLOGY NORTHWEST, PLLC	2330 130TH AVENUE NE, SUITE 201	FINDS, MANIFEST, RCRIS-SQG
D	N74	4	MONDAVI LOT 71	2222 152ND AVENUE NE	FINDS
D	N78	4	PUBLIC STORAGE BELLEVUE	12385 NORTHUP WAY	FINDS, MANIFEST, RCRIS-LQG
D	N91A	4	UNKNOWN	14001 NE 20TH STREET	SPILLS
D	N91B	4	PC RECYCLE	14150 NE 20TH STREET, SUITE E	LF
D	N92	4	BELLEVUE BMW NEW BUILDING	13605 NE 20TH STREET	NPDES
D	N108	4	SRO CAMPUS OFFICE PARK	1601, 1603, AND 1611 116TH AVENUE NE	NPDES
D	N110A	4	DERMATOPATHOLOGY NORTHWEST, PLLC	1515 116TH AVENUE NE	FINDS, RCRIS-SQG, MANIFEST
D	N110B	4	CHILDREN'S HOSPITAL AND AMBULATORY SURRGERY	1500 116TH AVENUE NE	NPDES
D	N112	2	UNKNOWN	13201 NE 16TH STREET	SPILLS
D	N117A	4	PRINTEX PRESS	1600 124TH AVENUE NE SUITE E	FINDS
D	N117B	4	SAFEWAY, INC.	1747 124TH AVENUE NE	TRIS
D	118	4	HN INTERNATIONAL	3825 154TH AVENUE NE	FINDS, RCRIS-SQG, UST
D	120	4	SERCEL INDUSTRIES CORPORATION	3661 154TH AVENUE NE	FINDS, RCRIS-SQG

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	124	4	EDDIE BAUER	3601 154TH AVENUE NE	UST
D	N125	4	OVERLAKE MOB	1232 116TH AVENUE NE	NPDES
D	N128	4	UNKNOWN	120TH AVENUE NE AND NE 12 STREET	SPILLS
D	132	4	ECOVA CORPORATION	15555 NE 33RD STREET	FINDS, RCRIS-SQG
D	133A	4	ON-SITE ENVIRONMENTAL, INC.	14924 NE 31ST CIRCLE	FINDS, RCRIS-SQG
D	133B	4	PUGET SOUND HOME THERAPEUTICS	14960 NE 31ST CIRCLE	FINDS, RCRIS-SQG
D	134A	4	PROCYTE CORPORATION	2893 152ND AVENUE NE	FINDS, RCRIS-SQG
D	134B	4	ON-SITE ENVIRONMENTAL, INC.	2859 152ND AVENUE NE	FINDS, RCRIS-SQG
D	135	4	SEARS NO. 8209	2803 152ND AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	136A	4	CYNDI MARSH FINE CUS	2707 152ND AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	136B	2	GROUP HEALTH EASTSIDE HOSPITAL	2700 152ND AVENUE NE	FINDS, LUST, MANIFEST, RCRIS-SQG, UST
D	136C	4	DATACOPY, INC.	2723 152ND AVENUE NE, BUILDING 6	FINDS, RCRIS-SQG
D	137	4	MARRIOTT FAIRFIELD INN	14595 NE 29TH PLACE	FINDS, RCRIS-SQG
D	138A	4	YETT MANAGEMENT NORTHWEST, INC.	2525 152ND AVENUE NE	FINDS, RCRIS-SQG
D	138B	4	HOME NUTRITIONAL SERVICES, INC.	2519 152ND AVENUE NE	FINDS, RCRIS-SQG
D	142	4	PROTOTRON CIRCUITS, INC.	2653 151ST PLACE NE	FINDS, RCRIS-SQG
D	146A	2	UNION 76 BELLEVUE	2421 148TH AVENUE NE	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST
D	146B	4	CITY OF BELLEVUE ROBINSWOOD PARK	2432 148TH AVENUE SE	FINDS, RCRIS-SQG
D	146C	1	SATO CORPORATION	14820 NE 24TH STREET	FINDS, HWS, MANIFEST, RCRIS-SQG, VCP
D	146D	4	RITE AID NO. 5200	14880 NE 24TH STREET	FINDS, MANIFEST, RCRIS-SQG
D	147	2	SUN DRY CLEANERS	15230 NE 24TH STREET	CSCSL NFA, FINDS, VCP
D	151A	4	STANDARD BRANDS PAINT 59	14625 NE 24TH STREET	FINDS, RCRIS-SQG, UST
D	151B	4	BARRIER MOTORS, INCORPORATED	14600 NE 24TH STREET	FINDS, RCRIS-SQG
D	151C	2	INTERLAKE AUTOMOBILE CORPORATION	14640 NE 24TH STREET	FINDS, ICR, LUST, RCRIS-SQG, UST
D	153A	4	BOSLEY PET FOOD MART	15155 NE 24TH STREET	FINDS, FTTS

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	153B	4	OVERLAKE CLEANERS, REDMOND	15129 NE 24TH STREET	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG
D	155	4	LEASE CRUTCHER LEWIS, BELLEVUE	2335 130TH AVENUE NE	FINDS, RCRIS-SQG
D	157	4	ROBERTS SERVICE COMPANY	12121 NE NORTHUP WAY, SUITE 112C	FINDS, RCRIS-SQG
D	158	4	BFS RETAIL & COMMERCIAL OPERATIONS LLC	2299 140TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	159	3	WASTE MANAGEMENT	2260 152ND AVENUE NE	SPILLS
D	161	4	SMITH & HAWKEN	12200 NORTHUP WAY	FINDS, RCRIS-SQG
D	164	4	EASTSIDE MEDICAL LABORATORY, REDMOND	2205 152ND AVENUE NE	FINDS, RCRIS-SQG
D	165	4	PINE TREE CLEANERS	2209 140TH AVENUE NE	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG
D	166A	4	BUD'S TOPSOILS, INC.	2033 120TH AVENUE NE	FINDS, UST
D	166B	4	SAFEWAY BAKERY PLANT	2100 120TH AVENUE NE	FINDS, UST
D	166C	4	MOLECUMETICS LIMITED	2023 120TH AVENUE NE, SUITE 400	FINDS, MANIFEST, RCRIS-SQG
D	167	3	STORAGE	12465 NORTHUP WAY	SPILLS
D	168	4	DDF&S, INC.	2139 148TH AVENUE NE	FINDS, RCRIS-SQG
D	169	4	SPECTRA LUX CORPORATION	12840 NE 21ST PLACE	FINDS, RCRIS-SQG
D	170	3	LL NORTHUP CENTER	12611 NORTHUP WAY	FINDS, ICR, LUST, RCRIS-SQG, UST
D	171A	4	BELLEVUE AUTO ELECTRIC, INC.	14320 NE 21ST STREET, SUITE 5	FINDS, RCRIS-SQG
D	171B	2	PND CORPORATION	14320 NE 21ST STREET, SUITE6	LF
D	172	4	STRICTLY BMW INDEPENDENT SERVICE, INC.	2111 140TH AVENUE NE	FINDS, RCRIS-SQG
D	173A	4	SHERWIN WILLIAMS FINISHES BELLEVUE 9831	2021 130TH AVENUE NE, SUITE H	FINDS, MANIFEST, RCRIS-SQG
D	173B	4	PARAMETRIX, INC.	13020 NORTHUP WAY	FINDS, RCRIS-SQG
D	173C	4	TCJ ORGANO BORANES	13029 NORTHUP WAY 103	FINDS, RCRIS-SQG
D	174A	4	WEYERHAEUSER COMPANY	1899 120TH AVENUE NE	FINDS, NPDES, RCRIS-SQG
D	174B	1	WILLAMETTE INDUSTRIES, INC.	1899 120TH AVENUE NE	ICR, LUST, UST
D	175A	4	BELLEVUE MOTOR WORKS	2040 152ND AVENUE NE	FINDS, RCRIS-SQG
D	175B	2	EXOTIC MOTORS (TWO REPORTS)	2040 152ND AVENUE NE	ICR, LUST, UST
D	176A	4	BELLEVUE ISUZU	15260 BELLEVUE-REDMOND ROAD	FINDS, RCRIS-SQG

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	176B	1	BAKKERS FINE DRY CLEANING	15260 NE 20TH STREET	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG, VCP
D	176C	1	BEL-RED ROAD RETAIL LLC	15260 NE 20TH STREET	HWS
D	176D	4	SALES AND SERVICES ENTERPRISES, INC.	15238 NE 20TH STREET	FINDS, UST
D	176E	3	BROWN BEAR CAR WASH	15248 BELLEVUE-REDMOND ROAD	CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST
D	177A	4	VN GRAPHICS INCORPORATED	2020 124TH AVENUE NE, BUILDING C	FINDS, RCRIS-SQG
D	177B	4	2001 124TH NE BELLEVUE	2001 124TH AVENUE NE	FINDS, RCRIS-SQG
D	177C	4	METRO EAST OPERATING BASE	1975 124TH AVENUE NE	NPDES
D	178A	4	TOP AUTO, INC., BELLEVUE	2011 148TH AVENUE NE	FINDS, RCRIS-SQG
D	178B	2	SEARS ROEBUCK AND COMPANY	2200 148TH AVENUE NE	CSCSL NFA, FINDS, ICR, MANIFEST, RCRIS-SQG, UST, V
D	178C	2	FRED MEYER	2041 148TH AVENUE NE	ICR, LUST, UST
D	179A	3	CHEVRON	13948 NE 20TH STREET	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, SPILLS, UST
D	179B	3	ORI RESTAURANT	14339 NE 20TH STREET	SPILLS
D	179C	2	GERMAN AUTO TECH (SCOTTS QUALITY AUTO REPAIR, 2009)	13910 NE 20TH STREET	CSCSL NFA, FINDS
D	179D	4	GAIS NORTHWEST BAKERIES	13823 NE 20TH STREET	FINDS, UST
D	179E	4	MELCO LABS	14408 NE 20TH STREET	FINDS, RCRIS-SQG
D	179F	4	SCOTTS QUALITY AUTO REPAIR	13910 NE 20TH STREET	FINDS, RCRIS-SQG
D	179G	2	NORTHWEST CLEANERS BELLEVUE	14125 NE 20TH STREET	FINDS, HWS, ICR, INACTIVE DRYCLEANERS, RCRIS-SQG
D	179H	4	FIVE-STAR CLEANERS	14100 NE 20TH STREET	FINDS, INACTIVE DRYCLEANERS, RCRIS-SQG
D	179I	4	CAMERAS WEST NO. 1033	14309 NE 20TH STREET	FINDS, MANIFEST, RCRIS-SQG
D	179J	2	MINIT-LUBE NO. 1103	14001 NE 20TH STREET	LUST, UST, ICR
D	179K	2	PHILLIPS 66 COMPANY NO. 071792	140TH AND 20TH NE STREET	ICR, SPILLS, UST
D	179L	4	BELLEVUE KAWASAKI, INC.	14001 NE 20TH STREET	UST
D	179M	4	MCDONALDS OF NORTHUP	13841 NE 20TH STREET	FINDS, UST
D	179N	2	UNOCAL NO. 5759	13837 NE 20TH STREET	FINDS, LUST, UST
D	179O	2	BELLEVUE NISSAN	13817 NE 20TH STREET	ICR, LUST, UST
D	180A	4	BODYWORKS AUTO REBUILD, INC.	12882 NORTHRUP WAY	FINDS, MANIFEST, RCRIS-SQG

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	180B	4	130TH AVENUE NE AND NORTHRUP WAY	130TH AVENUE NE AND NORTHRUP WAY	ERNS
D	180C	4	SUMMIT RESCUE, INC.	12880 NORTHRUP WAY	FINDS, RCRIS-SQG
D	180D	3	STAR RENTALS, INC.	12900 NORTHRUP WAY	FINDS, ICR, LUST, UST
D	180E	2	ARCO NO. 6217	12903 NE 20TH STREET	FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, UST,
D	181A	4	KEY DATA, INC.	13400 NORTHRUP WAY, SUITE 47B	FINDS, RCRIS-SQG
D	181B	4	AA RENTALS OF BELLEVUE	13285 NE 20TH STREET	FINDS, UST
D	181C	4	AT&T WIRELESS, LAKE BELLEVUE WOS1	13240 NORTHUP WAY 24	FINDS
D	181D	4	INTEGRATED CIRCUITS, INC.	13256 NORTHUP WAY	FINDS, RCRIS-SQG
D	182A	4	NEW IMAGE AUTOBODY, INC.	13427 NE 20TH STREET, SUITE K	FINDS, RCRIS-SQG
D	182B	4	PRECISION COLLISION	13411 NORTHRUP WAY	FINDS, RCRIS-SQG
D	182C	4	ACURA OF BELLEVUE	13424 NE 20TH STREET	FINDS, RCRIS-SQG
D	182D	4	BNS ENTERPRISES, INC.	13424 NE 20TH STREET	UST
D	182E	4	PRECISION TUNE OVERLAKE	13421 NE 20TH STREET	FINDS, RCRIS-SQG, UST
D	182F	4	EVANS TIRE SERVICE CENTERS NO. 060	13421 NE 20TH STREET, SUITE F	FINDS, RCRIS-SQG
D	182G	4	SUNSHINE TRADING COMPANY	13419 NE 20TH STREET	FINDS, UST
D	183A	4	BMW OF BELLEVUE	13617 NORTHUP WAY NE	FINDS, RCRIS-SQG
D	183B	4	STAR AUTO SERVICE, INC.	13622 NE 20TH STREET, SUITE H	FINDS, RCRIS-SQG
D	184	4	PARK PLACE LIMITED	13710 NORTHUP WAY	FINDS, RCRIS-SQG
D	185	4	AMIRA PARTNERSHIP ISAAC BARUCH	15212 NE 20TH STREET	FINDS, MANIFEST (2009), RCRIS-SQG (2009)
D	187	2	OVERLAKE GOODYEAR, BELLEVUE, NO. 8836	14923 NE 20TH STREET	FINDS, HWS, LUST, MANIFEST, RCRIS-SQG, UST, VCP, C
D	188	1	BP EXPLORATION OIL, INC., NO. 03102	1960 148TH AVENUE NE	FINDS, ICR, LUST, RCRIS-SQG, UST
D	189	3	HIGHLAND MIDDLE SCHOOL (TRANSITION PROGRAM, 20090)	15027 BELLEVUE REDMOND ROAD	FINDS, ICR
D	193	4	LES SCHWAB	2011 148TH AVENUE NE	UST
D	195	4	OLD BELLEVUE STATION NO. 3	14822 BELLEVUE-REDMOND ROAD	FINDS, UST
D	196	4	PHARMACEUTICAL WASTE SERVICES, INC.	1409 140TH PLACE NE	FINDS, RCRIS-SQG
D	199A	4	SEA-BIRD ELECTRONICS, INC.	1808 136TH PLACE NE	SSTS, FINDS (2009)

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	199B	4	WESTERN TILE AND MARBLE CONTRACTORS, INC.	1810 136TH PLACE NE	FINDS, RCRIS-SQG
D	202	4	WA-UW EASTSIDE CLINIC	1700 116TH AVENUE NE	FINDS, FTTS, HWS, ICR, LUST, RCRIS-SQG, UST, VCP,
D	204A	4	PURUS TECHNOLOGIES, INC.	1720 130TH AVENUE NE, SUITE 105	FTTS, ICIS
D	204B	4	PURUS TECHNOLOGIES, INC.	1720 130TH AVENUE NE, SUITE 105	FINDS
D	204C	4	ALPHARMA NW, INC.	1720 130TH AVENUE NE, SUITE 101 AND 103	FINDS, RCRIS-SQG
D	204D	2	CADMAN BELLEVUE	1701 130TH AVENUE NE	CSCSL NFA, FINDS, ICR, NPDES, RCRIS-SQG, VCP
D	205A	3	JOURNAL AMERICAN	1705 132ND AVENUE NE	CSCSL NFA, FINDS, ICR
D	205B	4	LONGVIEW PUBLISHING COMPANY	1705 132ND AVENUE NE	FINDS, UST
D	206	4	SERVICE MASTER OF SEATTLE	1600 132ND AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	208	4	CARLSEN, HISTOPATH	1515 116TH AVENUE NE, SUITE 300	FINDS
D	209	2	CADMAN PREMIX COMPANY, INC.	1605 130TH AVENUE NE	FINDS, HWS
D	210A	4	LAKESIDE AUTO REBUILD	13242 NE 16TH STREET	FINDS, RCRIS-SQG
D	210B	4	EASTSIDE JOURNAL (KING COUNTY JOURNAL, 2009)	1625 132ND AVENUE NE	FINDS, RCRIS-SQG
D	210C	4	VANIER BUSINESS FORMS CASCADE DIVISION	13223 NE 16TH STREET	FINDS, RCRIS-SQG
D	211A	4	B&H BODY SHOPS, INC.	13640 NE 16TH STREET	FINDS, RCRIS-SQG
D	211B	4	B&M MOTORCARS	13640 NE 16TH STREET	UST
D	211C	4	AUTOMOTIVE MACHINE SPECIALIST AMS	1630 136TH PLACE NE	FINDS, MANIFEST, RCRIS-SQG
D	211D	4	LENS AUTOMOTIVE, INC.	1620 136TH PLACE NE	FINDS, MANIFEST, RCRIS-SQG, UST
D	212	4	BALDOR	13340 NE 16TH STREET	FINDS, UST
D	213A	4	ACE NOVELTY COMPANY, INC.	13434 NE 16TH STREET	FINDS, RCRIS-LQG
D	213B	4	SPECIALTY MANUFACTURING DIVISION OF ARROW INTERNATIONAL, INC.	13430 NE 16TH STREET	FINDS, RCRIS-SQG
D	213C	4	MCCARTHY	13420 NE 16TH STREET, SUITE D	FINDS, RCRIS-SQG
D	213D	4	T-MOBILE USA, INC.	13410 NE 16TH STREET	FINDS
D	213E	4	DAVID A. MOWAT COMPANY	13400 NE 16TH STREET	FINDS, RCRIS-SQG, UST

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	213F	4	T&A SUPPLY COMPANY	13420 NE 16TH STREET, SUITE B	FINDS, RCRIS-SQG
D	213G	4	B. MAYERS INVESTMENTS	13434 NE 16TH STREET	UST
D	214	2	FIBRES INTERNATIONAL, INC.	1533 120TH AVENUE NE	FINDS, ICR, LUST, RCRIS-SQG, UST
D	217	4	THE EVANS COMPANY	EVANS INDUSTRIAL PARK	UST
D	218A	2	BELLEVUE PLATING COMPANY, INC.	1513 128TH PLACE NE	CSCSL NFA, FINDS
D	218B	4	RADIATOR EXCHANGE SERVICES	12824 NE 14TH PLACE	FINDS, RCRIS-SQG
D	218C	4	CITY OF BELLEVUE PARKS AND RECREATION, KELSEY CREEK	13204 SE 8TH PLACE	FINDS, RCRIS-SQG
D	218D	4	KLASSIC AUTO REFINISHING, INC.	1514 128TH PLACE NE	FINDS, RCRIS-SQG
D	218E	4	BELLEVUE POLISHING	1511 128TH PLACE NE	FINDS, RCRIS-SQG
D	218F	4	GARDEN WORKS	12724 NE 15TH PLACE	FINDS
D	218G	4	NEW LOOK AUTO BODY	12809 NE 14TH PLACE	FINDS, RCRIS-SQG
D	218H	4	RNR AUTOMOTIVE REFINISHING, INC., 128TH PLACE NE	1508 128TH PLACE NE	FINDS, RCRIS-SQG
D	218I	4	LAITALA PREFINISH COMPANY, INC.	12870 NE 15TH PLACE	FINDS, RCRIS-SQG
D	218J	4	PROTO DESIGN, INC.	12831 NE 14TH PLACE	FINDS, RCRIS-SQG
D	218K	2	BELLEVUE POLISHING, INC.	1513 128TH PLACE NE	CERCLIS-NFRAP
D	219A	4	CHRISS GERMAN AUTO SERVICE	1503 130TH AVENUE NE	FINDS, RCRIS-SQG
D	219B	4	KELLYS EASTSIDE WHEEL AND FRAME, INC.	1500 130TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG, UST
D	221A	4	SAFEWAY, INC.	1500 124TH AVENUE NE	FINDS, RCRIS-SQG
D	221B	4	SAFEWAY, INC., MILK DEPARTMENT	1469 124TH AVENUE NE	ERNS, FINDS, HMIRS, MANIFEST, RCRIS-SQG
D	221C	1	SAFEWAY WAREHOUSE, INC., DISTRIBUTION CENTER	1227 124TH AVENUE NE (1633 124TH AVENUE NE, 2009)	ERNS, FINDS, FTTS, ICR, LUST, MANIFEST, NPDES, RCR
D	222	2	CURRAN BUSINESS PARK AND MOBILE OIL COMPANY	1525-55-75 132ND AVENUE NE	ICR
D	223A	4	GARDEN WORKS	1551 127TH PLACE NE	FINDS
D	223B	4	BYS AUTOMOTIVE, INC.	1557 127TH PLACE NE	FINDS, RCRIS-SQG
D	223C	4	GARDEN WORKS	1515 127TH PLACE NE	FINDS
D	223D	4	AAA ELETROSTATIC REFINISHING	1555 127TH PLACE NE	FINDS, RCRIS-SQG
D	223E	4	MACHINE DESIGN AND ESTIMATES, INC.	1454 127TH PLACE NE	FINDS, RCRIS-SQG
D	223F	3	ZEROREX CARPET CLEANING	1488 127TH PLACE NE	SPILLS

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
D	226A	4	BELLEVUE AUTO REBUILD, INC.	1424 130TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	226B	4	RNR AUTOMOTIVE REFINISHING, INC.	1408 130TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	226C	4	PSE HYDRO WEST GROUP, INC.	1422 130TH AVENUE NE	FINDS, RCRIS-SQG
D	226D	4	BEL-RED AUTO REBUILD	1406 130TH AVENUE NE	FINDS, MANIFEST, RCRIS-SQG
D	226E	4	SAFEWAY STORES, INC.	1400 130TH AVENUE NE	FINDS, UST
D	226F	3	SAFEWAY MID-MOUNTAIN ANNEX	1430 130TH AVENUE NE	FINDS, LUST, UST
D	226G	3	OVERLAKE PHOTO COOMPANY, INC.	1423 130TH AVENUE NE	FINDS, ICR, LUST, RCRIS-SQG, UST
D	227	2	K&L DISTRICT, NORTH BELLEVUE FACILITY	1445 120TH AVENUE NE	CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST, VCP
D	229	4	DOUGLAS E. CHEW	1515 134TH AVENUE NE	FINDS, UST
E	N1	4	AT&T WIRELESS, REDMOND ATHLETIC CLUB	8709 161ST AVENUE NE	FINDS
E	N4A	4	DR, PLAZA	8299 161ST AVENUE NE	UIC
E	N4B	4	REDMOND SKATE PARK	NE 83RD STREET/161 AVENUE NE	UIC
E	N6	4	ALEXAN REDMOND	8102 161ST AVENUE NE	NPDES
E	N7	4	BOB BEEBE SENIOR APARTMENTS.	16221 NE 81ST STREET	UIC
E	N9A	4		15940 REDMOND WY	SPILLS
E	N9B	4	REDMOND WAY FORMER CLEVELAND STREET WEST	15955 REDMOND WAY	NPDES
E	N10A	4	UNKNOWN	15740 REDMOND WAY	SPILLS
E	N10B	4	REDMOND CENTER	15738 REDMOND WAY	NPDES
E	12	4	CITY OF REDMOND FIRE DEPARTMENT	8450 161TH AVENUE NE	FINDS, UST
E	N12A	4	NELSON	7870 159TH PLACE NE	SPILLS
E	N12B	4	RIVER PARK	REDMOND WAY AND 159TH PLACE NE INTERSECTION	NPDES
E	N14	4	BEAR CREEK PARKWAY WEST	BEAR CREEK PARKWAY EXTENSION	NPDES
E	15	4	REDMOND TRANSIT CENTER	16160 NE 83RD STREET	NPDES
E	N15	4	SAMMAMISH SLOUGH TRUCK ACCIDENT	WEST LAKE SAMMAMISH PKWAY NE	CERCLIS
E	16	3	METRO	8178 161ST AVENUE NE	SPILLS
E	18	4	ECHO CLEANERS	8084 160TH AVENUE NE	FINDS, RCRIS- NON GENERATOR (2009)
E	N19A	4	REDMOND CITY 168TH AVE NE	7802 168TH AVENUE NE	FINDS

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
E	N19B	4	ANDERSON PARK WELLS 1 AND 2	7802 168TH AVENUE NE	UIC
E	N20A	4	19-21 TRANSITION ACADEMY	16642 CLEVELAND STREET	FINDS
E	N20B	4	COMPUTER SURPLUS OF REDMOND	16715 CLEAVELAND STREET, UNIT B	LF
E	N21A	4		16803 REDMOND WY	SPILLS
E	N21B	4	BEAR CREEK VILLAGE SHOPPING CENTER	AVONDALE WAY AND REDMOND WAY	UIC
E	22	2	BOB’S CHEVRON SERVICE, INC.	16000 REDMOND WAY	FINDS, HWS LUST, MANIFEST, RCRIS-SQG, UST, VCP
E	N22	1	T&D FEEDS	CLEVELAND STREET AND 164TH AVENUE NE	FINDS, VCP, BROWNFIELDS
E	N23	4	ACCURATE SERVICES, LSC	7440 159TH PLACE NE	LF
E	27	1	CLEANING CENTER OF REDMOND	15796 REDMOND WAY	BROWNFIELDS, FINDS, HWS, RCRIS-SQG, VCP
E	29A	4	EXXON NO. 7-9068	16311 REDMOND WAY	UST
E	29B	2	PREMIUM TUNE-N-LUBE REDMOND	16311 REDMOND WAY	FINDS, HWS, RCRIS-SQG
E	30A	4	EASTSIDE COLLISION CENTER	7929 159TH PLACE NE	FINDS, MANIFEST, RCRIS-SQG
E	30B	3	UNKNOWN	7925 159TH PLACE NE	SPILLS
E	30C	4	EASTSIDE IMPORT AUTO REBUILD	7927 159TH PLACE NE	FINDS, RCRIS-SQG
E	30D	3	REDMOND WAY AND 159TH PLACE NE	REDMOND WAY AND 159TH PLACE NE	SPILLS
E	N33	4	WSDOT SR 520 TO SR 202 HOV AND INTERCHANGE 3	SR 520 AND 202 BETWEEN MILE POST 11.4 AND 12.83	NPDES
E	33A	3	KELLEY REALTY, INC.	16450 REDMOND WAY	FINDS, ICR, LUST, RCRIS-SQG, UST
E	33B	4	PHILLIPS 66 COMPANY NO. 071842	16401 REDMOND WAY	FINDS, UST
E	33C	3	GODFATHER`S PIZZA	16505 REDMOND WAY	SPILLS
E	34A	4	CREATIVE LABEL, INC.	7829 159TH PLACE NE	FINDS, RCRIS-SQG
E	34B	4	FLOORCRAFT, INC.	7842 159TH PLACE NE	FINDS, RCRIS-SQG
E	34C	4	CIRTEC CORPORATION	7841 159TH PLACE NE	FINDS, RCRIS-SQG
E	N35	4	PARK 520	6855 176TH AVENUE NE	UIC
E	35A	4	REDMOND AAA RADIATOR, INC.	7740 159TH PLACE NE	FINDS, RCRIS-SQG
E	35B	4	JM NEY COMPANY	7680 159TH PLACE NE	FINDS, RCRIS-SQG
E	35C	4	ACCURATE AUTO BODY	7662 159TH PLACE NE	FINDS, RCRIS-SQG
E	35D	2	JACKPOT COUNTRY STORE NO. 304	7725 159TH PLACE NE	CSCSL NFA, FINDS, LUST, UST, VCP
E	35E	4	A&G LEASING	7740 159TH PLACE NE	UST

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
E	N36	4	STI FLEET SERVICES	6709 176TH AVENUE NE	UIC
E	37	4	T&D FEEDS	16355 CLEVELAND STREET	FINDS
E	38/N17	1	KING COUNTY MATERIALS LABORATORY; CITY OF REDMOND; LEARY WAY SHOP SITE BUILDING 1-9	7733 LEARY WAY NE	CSCSL, FINDS, HWS, ICR, LUST, RCRIS-SQG,UST, CSCSL
E	N38A	3	TTM TECHNOLOGIES, INC.	17550 NE 67TH COURT	UIC, HWSb (2010), VCPb (2010)
E	N38B	4	PERMA-CHINK SYSTEMS	17635 NE 67TH COURT	UIC
E	40A	4	KIM TAILOR AND DRY CLEANING	16720 REDMOND WAY	FINDS, INACTIVE DRYCLEANERS, RCIS-SQG
E	N40A	4	KINDERCARE	6543 EAST LAKE SAMMAMISH PARKWAY NE	UIC
E	40B	4	MAX D. NICHOLLS	16717 REDMOND WAY	FINDS, UST
E	N40B	4	LES SCHWAB TIRE CENTERS, REDMOND, WASHINGTON NO. 394	6651 EAST LAKE SAMMAMISH PARKWAY	UIC
E	41A	4	LUCKS FOOD MART NO. 305	16757 REDMOND WAY	FINDS, UST
E	41B	2	GARY'S CHEVRON SERVICE	16760 REDMOND WAY	CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST, VCP
E	42	2	UNOCAL REDMOND BULK PLANT	16631 CLEVELAND STREET	CSCSL NFA, FINDS, ICR, VCP
E	N42A	4	EVANS BUSINESS PARK	17725 NE 65TH STREET	UIC
E	N42B	4	EVANS BUSINESS PARK	17735 NE 65TH STREET	UIC
E	N42C	4	ASP, INC	17720 NE 65TH STREET	UIC
E	N43A	4	KORR, LLC	17965 NE 65TH STREET	UIC
E	N43B	4	PAN PACIFIC ELECTRONICS, INC.	17985 NE 65TH STREET	UIC
E	N43C	4	THREE LITTLE BEARS, LLC	17935 NE 65TH STREET	UIC
E	N43D	4	OAKRIDGE BUILDING	17945 NE 65TH STREET	UIC
E	N45	4	CLASSIC CLEANERS, EAST LAKE SAMMAMISH PARKWAY	6255 EAST LAKE SAMMAMISH PARKWAY NE	FINDS, UST
E	46A	4	VINTAGE RACING MOTORS, INC.	7509 159TH PLACE NE	FINDS, RCRIS-SQG, UST
E	46B	4	CREATIVE COLOR SERVICE CORPORATION	7495 159TH PLACE NE	FINDS, RCRIS-SQG
E	46C	4	QUEEN CITY AUTO REBUILD, INC	7502 159TH PLACE NE	FINDS, MANIFEST, RCRIS-SQG
E	46D	4	STERLING AUTOBODY PAINT, INC.	7520 159TH PLACE NE	FINDS, RCRIS-SQG
E	47	2	REDMOND UNION 76	16909 REDMOND WAY	CSCSL NFA, FINDS, ICR, RCRIS-SQG, SPILLS, UST

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
E	50A	4	DAN LAUR CORPORATION, DBA RP AUTO SERVICE	7430 159TH PLACE NE	FINDS, RCRIS-SQG
E	50B	2	SAMMAMISH WATERWAYS CONDOMINIUM COMPLEX	15858 LEARY WAY	ICR
E	51A	3	SAFEWAY	17246 REDMOND WAY	SPILLS
E	51B	4	RITE AID NO. 5199	17220 REDMOND WAY	FINDS, MANIFEST, RCRIS-SQG
E	51C	4	BEAR CREEK VILLAGE SHOPPING CENTER	17210 REDMOND WAY	FINDS, MANIFEST, RCRIS-SQG
E	51D	2	BEAR CREEK CLEANERS	17260 REDMOND WAY	CSCSL NFA, FINDS, VCP
E	51E	4	KITS CAMERAS NO. 1007	17166 REDMOND WAY	FINDS, MANIFEST, RCRIS-SQG
E	51F	3	CONTRACTOR AT	17220 REDMOND WAY	SPILLS
E	52	4	CONTRACTUAL SCHOOL (LWSD PROGRAM AT SITE 88, 2009)	16250 NE 74TH STREET	FINDS
E	56	4	GUARANTEED AUTO REBUILD	17657 1/2 REDMOND WAY	FINDS, RCRIS-SQG
E	59A	1	DUNKIN AND BUSH, INC.	17301 NE 70TH STREET	CSCSL NFA, FINDS, MANIFEST, RCRIS-LQG, UIC (2009)
E	59B	4	NORVAC SERVICES, INC.	17301 NE 70TH STREET	FINDS, RCRIS-SQG
E	60A	4	REDMOND AUTOMOTIVE	18130 REDMOND-FALL CITY ROAD	FINDS, RCRIS-SQG
E	60B	4	KEN’S REDMOND AUTO BODY, INC.	18138 REDMOND-FALL CITY ROAD	FINDS, MANIFEST, RCRIS-SQG
E	60C	2	CIRCLE K STORE NO. 5507, BP OIL	17809 REDMOND-FALL CITY ROAD	CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST, VCP
E	60D	4	LUMBERMEN’S BUILDING CENTER	17875 REDMOND WAY	FINDS, UST
E	60E	2	TWIN PEAKS EQUIPMENT (SUNBELT RENTALS (2009)	17950 REDMOND WAY	FINDS, LUST, RCRIS-SQG, UST, UIC
E	61A	4	SIGN PROS	17425 NE 70TH STREET	FINDS, RCRIS-SQG
E	61B	4	COAST PAINTING, INC.	17443 NE 70TH STREET	FINDS, RCRIS-SQG
E	61C	4	FINAL PHASE FINISHING	17445 NE 70TH STREET	FINDS, RCRIS-SQG
E	61D	4	EASTSIDE COLLISION CENTER ASG	17443 NE 70TH STREET, BUILDING A	FINDS, RCRIS-SQG
E	62	4	WASHINGTON DIESEL SERVICE, INC.	17611 NE 70TH STREET	FINDS, RCRIS-LQG
E	63	4	JIM ROGERS	17520 NE 70TH STREET	FINDS, RCRIS-SQG
E	68	4	ALL GREEN CORPORATION	6855 176TH AVENUE NE, SUITE 200	FINDS, RCRIS-SQG
E	71	4	SANTANA TRUCKING AND EXCAVATING, INC.	18666 REDMOND-FALL CITY ROAD	UST

TABLE G3-2 CONTINUED
Hazardous Materials Sites Identified

Segment	EDR Map Label ID	Risk Ranking[a]	Site Name	Address	Database
E	78	4	GENIE INDUSTRIES	17760 NE 67TH COURT	FINDS, RCRIS-LQG, (ICIS, 2009)
E	84A	4	NOW IMPRESSIONS	17985 NE 65TH STREET	FINDS, RCRIS-SQG
E	84B	3	UNKNOWN	17935 NE 65TH STREET	SPILLS
E	85	4	PAC SERVICES	17735 NE 65TH STREET	FINDS, RCRIS-SQG
E	86A	4	PROTO DESIGN, INC.	17824 NE 65TH STREET	FINDS, RCRIS-LQG
E	86B	4	KASCO CORPORATION	17830 NE 65TH STREET	FINDS, RCRIS-SQG
E	86C	4	REDMOND TRANSMISSION, INC.	17825 NE 65TH STREET, SUITE 110	FINDS, RCRIS-SQG
E	92	4	ALBERTSON PAINTING, INC.	15614 NE 59TH WAY	FINDS, RCRIS-SQG
E	96	4	SAFECO LIFE INSURANCE COMPANY	5069 154TH PLACE NE	FINDS, RCRIS-SQG
E	98	2	SAFECO LIFE INSURANCE COMPANY	4854 154TH PLACE NE	CSCSL NFA, FINDS, VCP
E	103	4	SAFECO INSURANCE COMPANY OF AMERICA	15319 NE 45TH STREET	FINDS, MANIFEST,
E	112/N49	1	MICROSOFT/FORT JAMES CORPORATION	4001 156TH AVENUE NE/4111 156TH AVENUE NE	FINDS, HWS, RCRA-LQG, VCP
E	115A	4	H&N, INC.	15305 NE 40TH STREET	FINDS, UST
E	115B	4	EASTSIDE MEDICAL LABORATORY 40	15305 NE 40TH STREET, SUITE 200	FINDS, RCRIS-SQG
E	115C	4	ROCKWELL PUBLISHING COMPANY	15305 NE 40TH STREET, SUITE 310 SITE	FINDS, RCRIS-SQG
E	115D	4	WESCAN COLOR CORPORATION	15305 NE 40TH STREET, SUITE 100	FINDS, RCRIS-SQG

Note: A copy of the EDR report can be obtained by contacting Sound Transit.

[a] Risk levels:

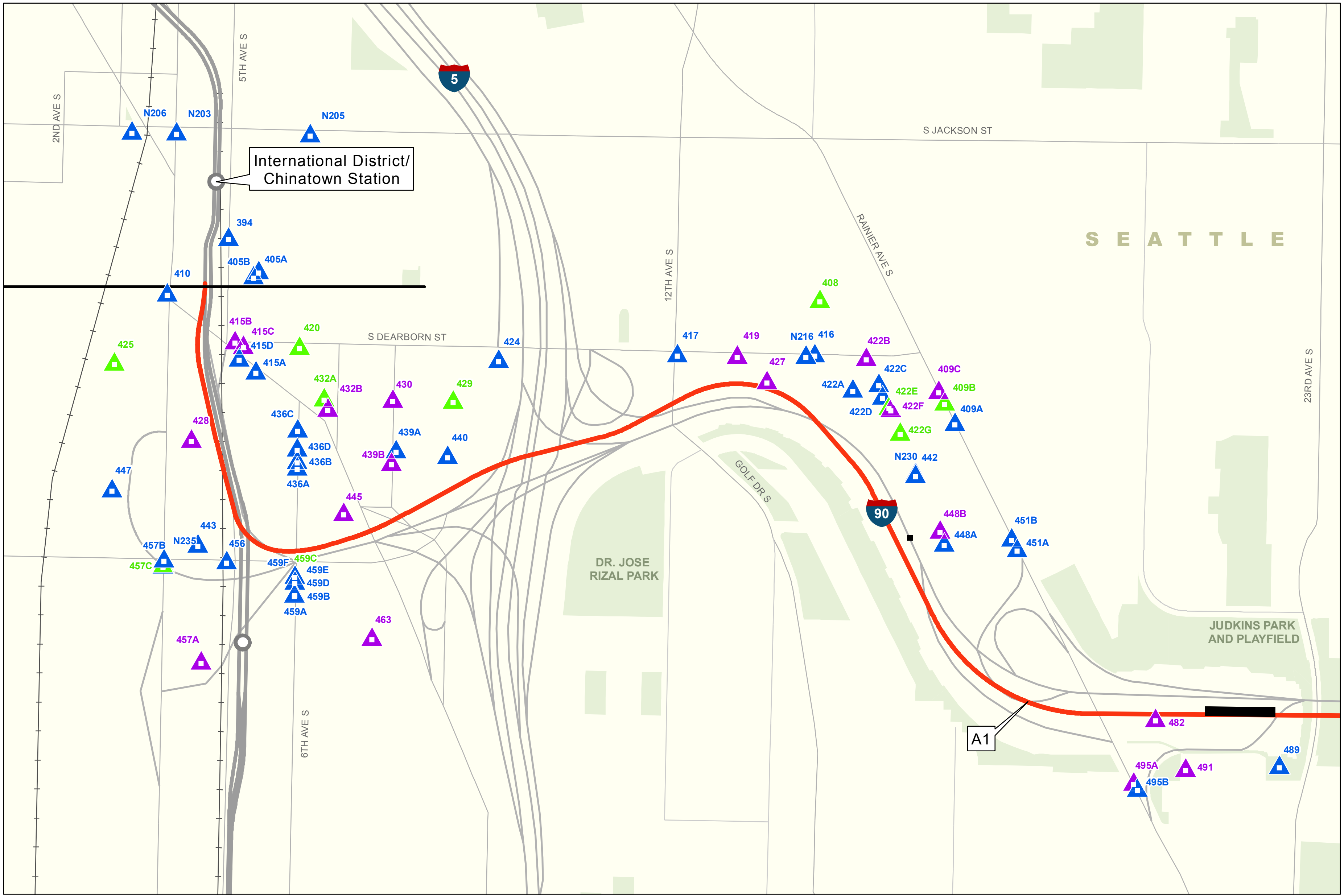
1. High. Sites that might be substantially contaminated and might create liability for Sound Transit either due to construction activities or by virtue of acquiring all or a portion of the site, such as for a maintenance facility.

2. Medium. Sites where the nature of potential contamination is known based on existing investigation data, the potential contaminants are not extremely toxic or difficult to treat, and probable remediation approaches are straightforward.

3. Low. Sites where the nature of potential contamination is known based on existing investigation data, and the sites are not expected to have noticeable impacts on the project due to their location.

4. Sites where the following has occurred: (a) used hazardous materials but for which no releases have been reported, (b) are listed as having regulatory interactions unrelated to potential releases of hazardous materials to the soil or groundwater, or (c) had a spill of less than 10 gallons that is reported to be cleaned up.

[b] HWS (CSCSL) and VCP entries based on EDR Radius Map Report Inquiry for TTM Technologies, 17460 NE 67th Court, Redmond, WA 98052, No. 2676460.2s, January 12, 2010.


5
90
2ND AVE S
5TH AVE S
6TH AVE S
12TH AVE S
23RD AVE S
S JACKSON ST
S DEARBORN ST
RAINIER AVE S
GOLF DR S
International District/
Chinatown Station
S E A T T L E
DR. JOSE
RIZAL PARK
JUDKINS PARK
AND PLAYFIELD
A1
N206
N203
N205
394
405B
405A
410
408
415B
415C
415D
415A
420
425
424
417
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N216
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422B
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422C
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422D
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432B
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436A
439A
439B
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428
447
445
N230
442
448B
448A
451B
451A
443
457B
N235
456
457C
459F
459C
459E
459D
459B
459A
463
457A
482
489
495A
491
495B

Source: Data from Environmental Data Resources (2009), City of Seattle (2002), and King County (2006).

Hazardous Material Site Risk Levels

- ▲ High-Risk Site
- ▲ Medium-Risk Site
- ▲ Low-Risk Site
- ▲ Site with no Previous Release

- ━━ At-Grade Route
- - - - Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

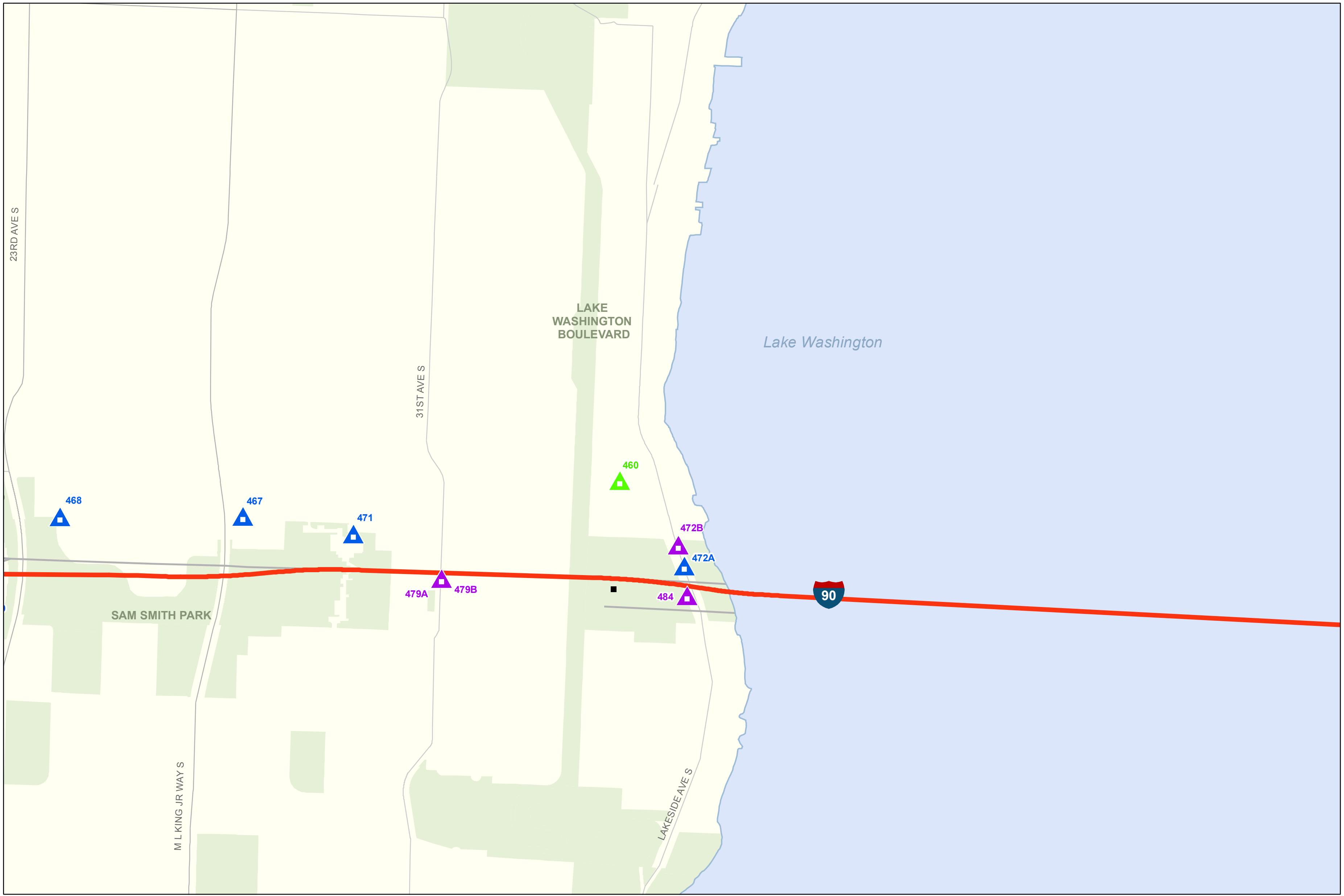
- ▪ Traction Power Substation
- ▬ Proposed Station
- ▭ City Limits

N

0 0.1 0.2 Miles

Exhibit G3-1
Hazardous Material Sites Within 1/8 Mile of Alternatives
Segment A - Seattle

East Link Project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LAKE WASHINGTON BOULEVARD
Lake Washington
31ST AVE S
460
468
467
471
472B
472A
479A
479B
484
90
SAM SMITH PARK
M L KING JR WAY S
LAKESIDE AVE S

Source: Data from Environmental Data Resources (2009), City of Seattle (2002), and King County (2006).

Hazardous Material Site Risk Levels

- 🔺 High-Risk Site
- △ Medium-Risk Site
- △ Low-Risk Site
- △ Site with no Previous Release

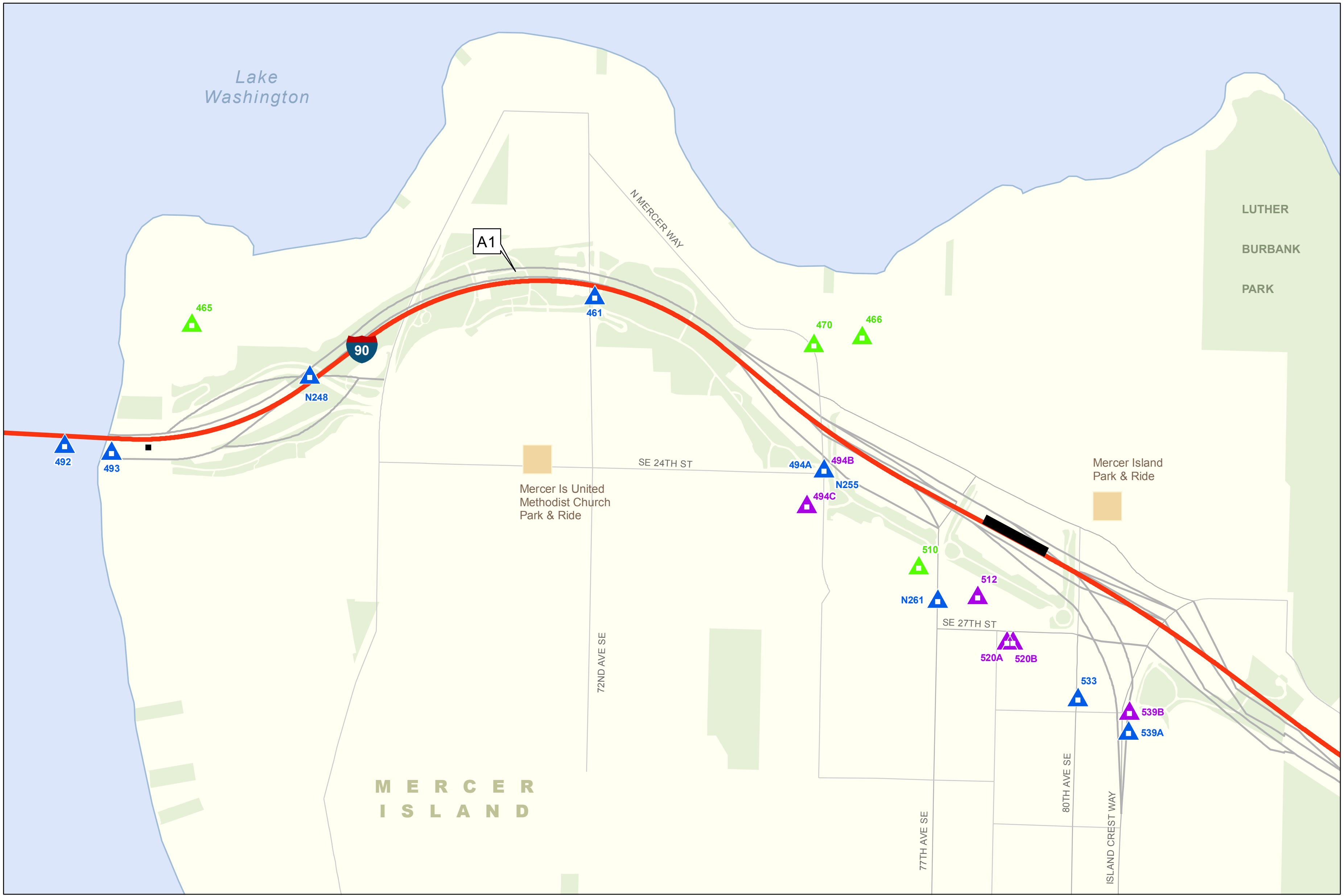
- ▬ At-Grade Route
- ‐ ‐ ‐ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ‐ ‐ Tunnel Route

- ■ Traction Power Substation
- ▬ Proposed Station
- ▨ City Limits

N

0 0.1 0.2 Miles

Exhibit G3-2
Hazardous Material Sites
Within 1/8 Mile of Alternatives
Segment A - Seattle
East Link Project


Lake Washington
LUTHER BURBANK PARK
A1
90
N MERCER WAY
465
470
466
461
N248
492
493
SE 24TH ST
494A
494B
N255
494C
Mercer Is United Methodist Church Park & Ride
Mercer Island Park & Ride
510
512
N261
SE 27TH ST
520A
520B
533
539B
539A
72ND AVE SE
77TH AVE SE
80TH AVE SE
ISLAND CREST WAY
MERCER ISLAND

Hazardous Material Site Risk Levels

- △ High-Risk Site
- △ Medium-Risk Site
- △ Low-Risk Site
- △ Site with no Previous Release

- ━ At-Grade Route
- ╍ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

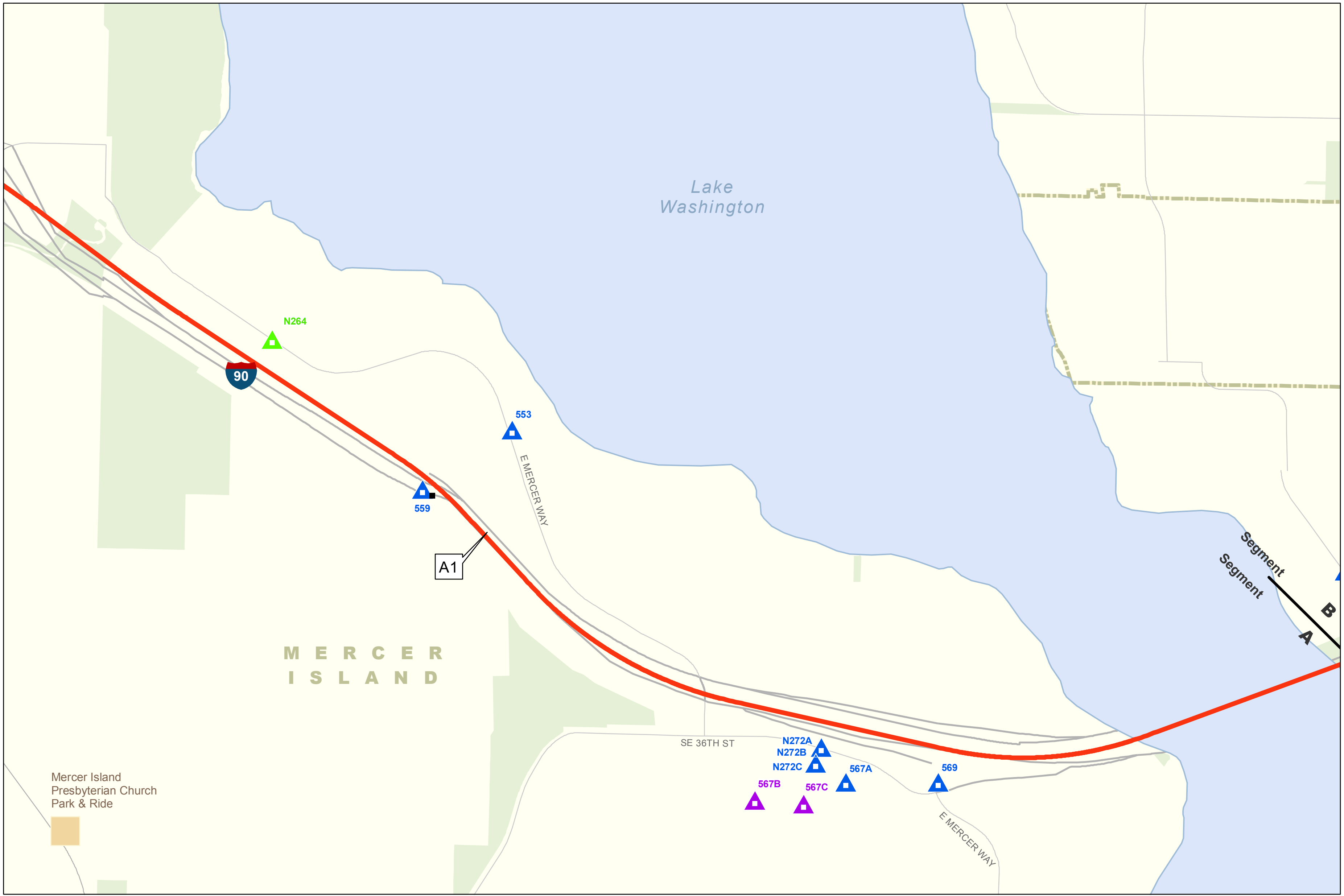
- ▪ Traction Power Substation
- ▬ Proposed Station
- ▭ City Limits

N

0 0.1 0.2 Miles

Source: Data from Environmental Data Resources (2009) and King County (2006).

Exhibit G3-3
Hazardous Material Sites
Within 1/8 Mile of Alternatives
Segment A - Mercer Island
East Link Project


Lake Washington
N264
90
553
E MERCER WAY
559
A1
MERCER ISLAND
Mercer Island Presbyterian Church Park & Ride
SE 36TH ST
N272A
N272B
N272C
567A
569
567B
567C
E MERCER WAY
Segment B
Segment A

Source: Data from Environmental Data Resources (2009) and King County (2006).

Hazardous Material Site Risk Levels

- △ High-Risk Site
- △ Medium-Risk Site
- △ Low-Risk Site
- △ Site with no Previous Release

- ━ At-Grade Route
- ╍ Elevated Route
- ••• Retained-Cut Route
- ••• Retained-Fill Route
- ╍ Tunnel Route

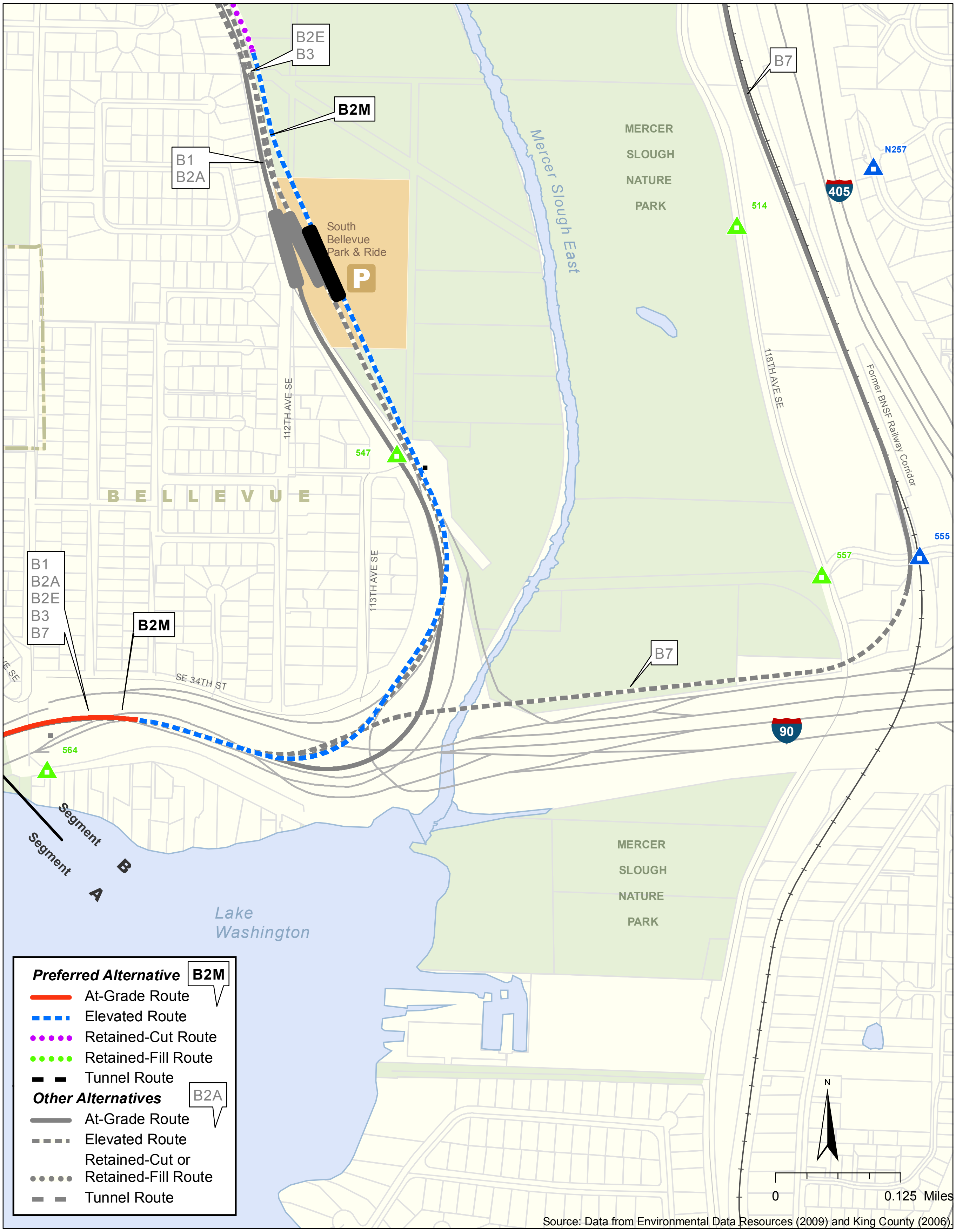
- ▪ Traction Power Substation
- ▬ Proposed Station
- ╍ City Limits

N

0 0.1 0.2 Miles

Exhibit G3-4
Hazardous Material Sites Within 1/8 Mile of Alternatives
Segment A - Mercer Island

East Link Project


B2E
B3
B2M
B1
B2A
B7
MERCER
SLOUGH
NATURE
PARK
Mercer Slough East
N257
405
514
South
Bellevue
Park & Ride
P
118TH AVE SE
Former BNSF Railway Corridor
112TH AVE SE
547
B E L L E V U E
555
557
113TH AVE SE
B1
B2A
B2E
B3
B7
B2M
B7
SE 34TH ST
90
564
Segment B
Segment A
Lake
Washington
MERCER
SLOUGH
NATURE
PARK
N
0
0.125 Miles
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or
Retained-Fill Route
Tunnel Route

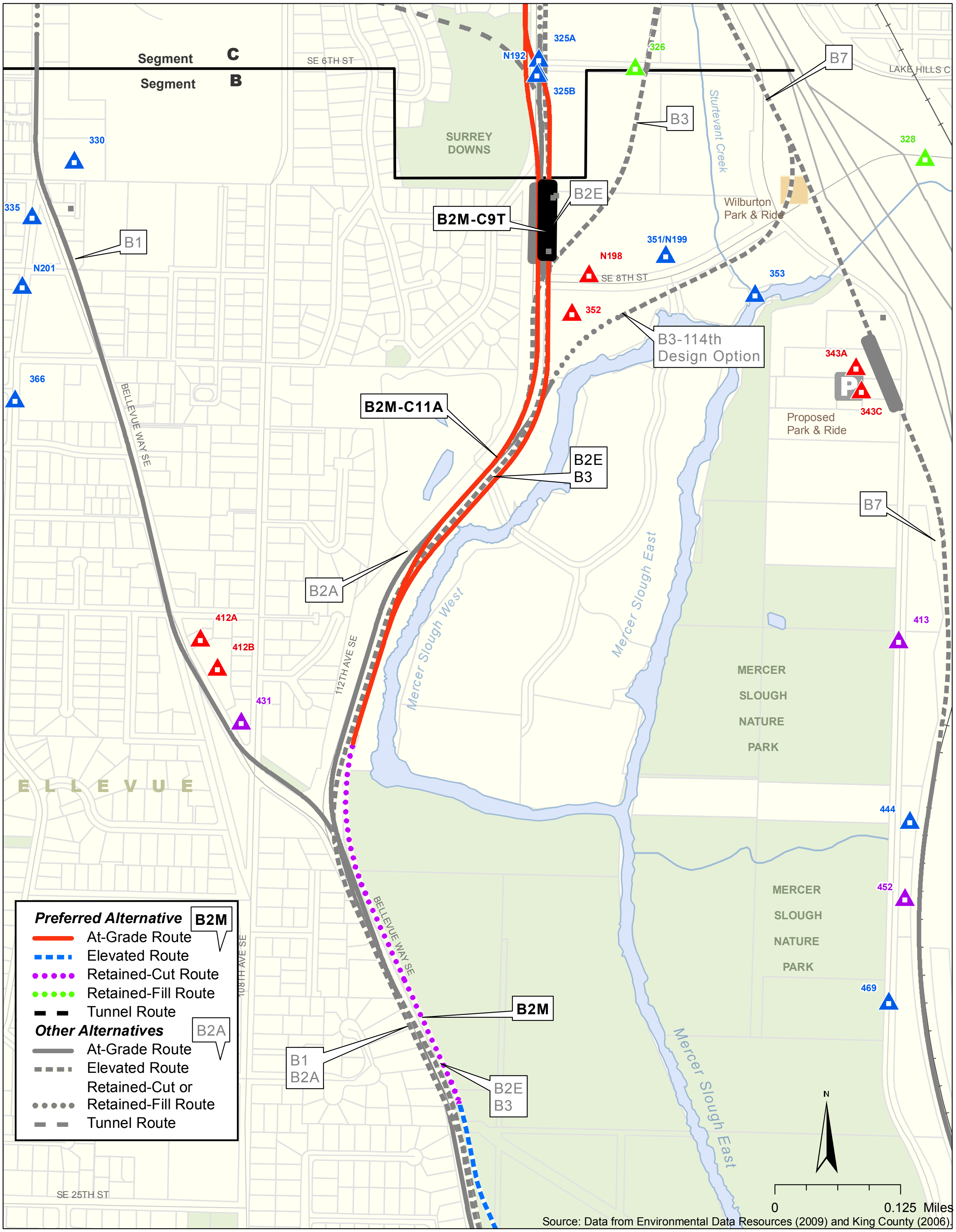
Source: Data from Environmental Data Resources (2009) and King County (2006).

Hazardous Material Site Risk Levels

- 🔺 High-Risk Site
- 🔺 Medium-Risk Site
- 🔺 Low-Risk Site
- 🔺 Site with no Previous Release

- ■ Traction Power Substation
- ▬ Proposed Station
- ▭ City Limits

Exhibit G3-5
Hazardous Material Sites
Within 1/8 Mile of Alternatives
Segment B
East Link Project


Segment C
Segment B
SE 6TH ST
SURREY DOWNS
LAKE HILLS C
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
B3-114th Design Option
Proposed Park & Ride
B2M-C9T
B2M-C11A
B2E
B3
B7
B1
B2A
B2M
BELLEVUE WAY SE
112TH AVE SE
108TH AVE SE
SE 25TH ST
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
BELLEVUE
325A
325B
N192
326
328
330
335
N201
366
N198
351/N199
353
352
343A
343C
412A
412B
431
413
444
452
469
N
0
0.125 Miles
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

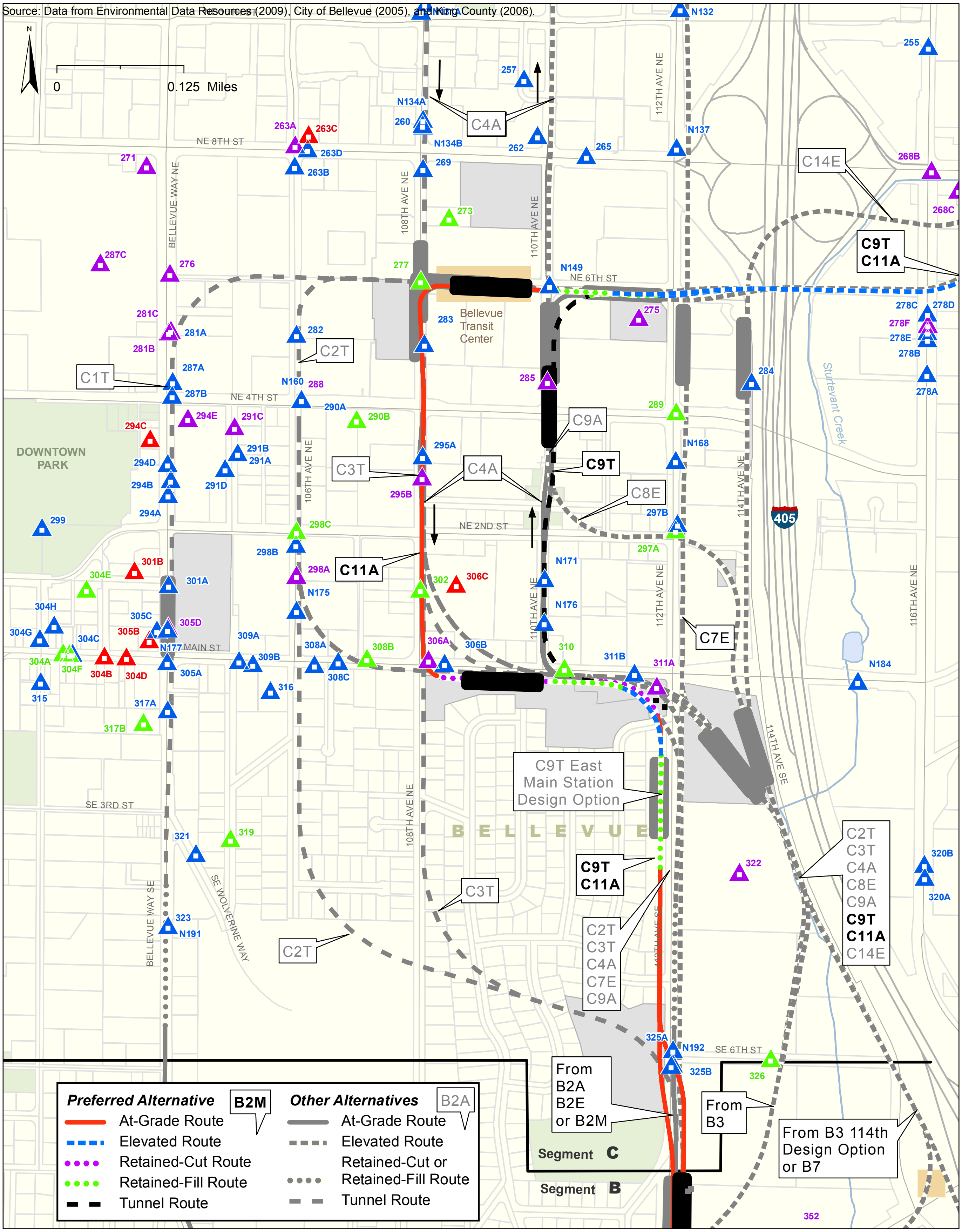
Source: Data from Environmental Data Resources (2009) and King County (2006).

Hazardous Material Site Risk Levels

🔺 High-Risk Site
🔺 Medium-Risk Site
🔺 Low-Risk Site
🔺 Site with no Previous Release

■ Traction Power Substation
▬ Proposed Station
▬ City Limits

Exhibit G3-6
Hazardous Material Sites Within 1/8 Mile of Alternatives Segment B
East Link Project


Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).
N
0
0.125 Miles
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
114TH AVE SE
116TH AVE NE
SE WOLVERINE WAY
DOWNTOWN PARK
Bellevue Transit Center
Sturtevant Creek
405
B E L L E V U E
C1T
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
C9T C11A
C9T East Main Station Design Option
C2T C3T C4A C7E C9A
C2T C3T C4A C8E C9A C9T C11A C14E
From B2A B2E or B2M
From B3
From B3 114th Design Option or B7
Segment C
Segment B
255
257
260
262
263A
263B
263C
263D
265
268B
268C
269
271
273
275
276
277
278A
278B
278C
278D
278E
278F
281A
281B
281C
282
283
284
285
287A
287B
287C
288
289
290A
290B
291A
291B
291C
291D
294A
294B
294C
294D
294E
295A
295B
297A
297B
298A
298B
298C
299
301A
301B
302
304A
304B
304C
304D
304E
304F
304G
304H
305A
305B
305C
305D
306A
306B
306C
308A
308B
308C
309A
309B
310
311A
311B
315
316
317A
317B
319
320A
320B
321
322
323
325A
325B
326
352
N132
N134A
N134B
N137
N149
N160
N168
N171
N175
N176
N177
N184
N191
N192
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

Hazardous Material Site Risk Levels

🔺 High-Risk Site

🔺 Medium-Risk Site

🔺 Low-Risk Site

🔺 Site with no Previous Release

▪ Traction Power Substation

▬ Proposed Station

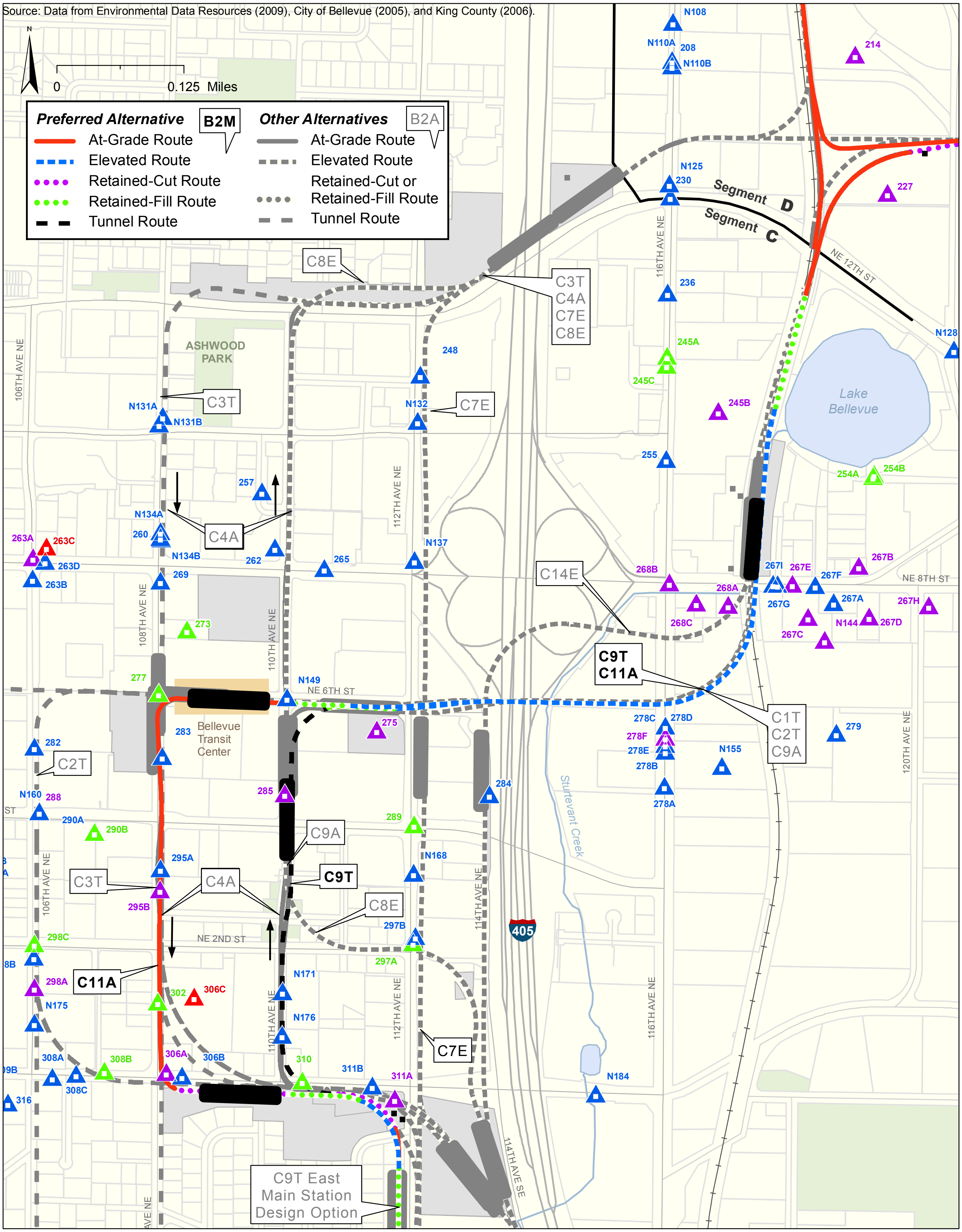
▭ Tunnel Staging Area

▭ City Limits

Exhibit G3-7
Hazardous Material Sites Within 1/8 Mile of Alternatives
Segment C

East Link Project

Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).


N
0
0.125 Miles
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Segment D
Segment C
NE 12TH ST
NE 8TH ST
NE 6TH ST
NE 2ND ST
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
114TH AVE SE
116TH AVE NE
120TH AVE NE
ASHWOOD PARK
Lake Bellevue
Bellevue Transit Center
Sturtevant Creek
405
C8E
C3T
C4A
C7E
C14E
C9T
C11A
C1T
C2T
C9A
C9T East Main Station Design Option
N108
N110A
208
N110B
214
N125
230
227
236
N128
245A
245C
245B
248
N132
N131A
N131B
255
254A
254B
257
N134A
260
N134B
262
263A
263C
263D
263B
265
N137
268B
267I
267E
267F
267B
267G
268A
267A
267H
268C
N144
267D
267C
269
273
277
N149
275
278C
278D
278F
278E
278B
N155
279
282
283
284
278A
N160
288
285
290A
290B
289
N168
295A
295B
297B
297A
298C
298A
N171
302
306C
N175
N176
308A
308B
306A
306B
310
311B
311A
308C
316
N184

Hazardous Material Site Risk Levels

▲ High-Risk Site

▲ Medium-Risk Site

▲ Low-Risk Site

▲ Site with no Previous Release

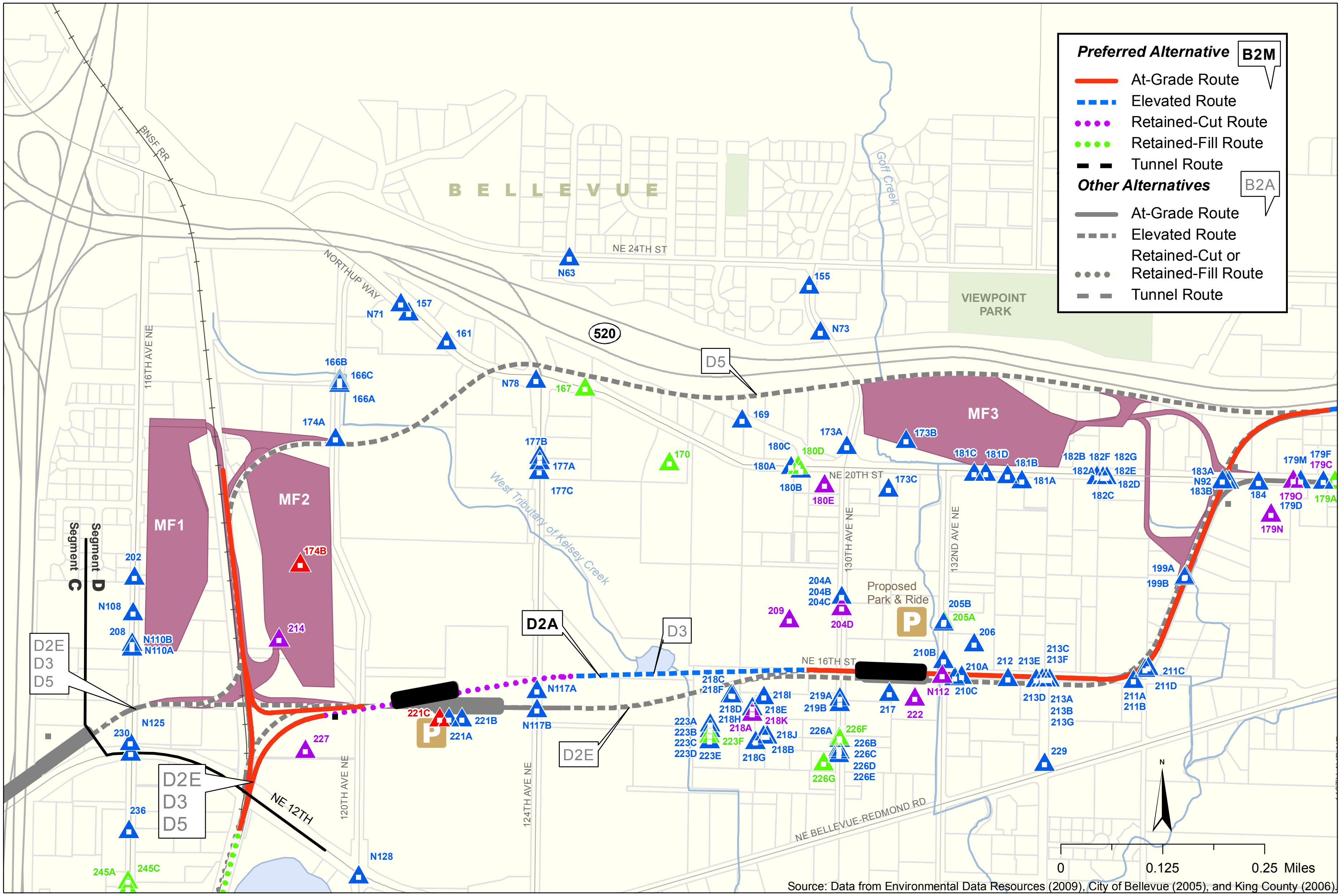
■ Traction Power Substation

▬ Proposed Station

▭ Tunnel Staging Area

▭ City Limits

Exhibit G3-8
Hazardous Material Sites
Within 1/8 Mile of Alternatives
Segment C
East Link Project


Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
BELLEVUE
VIEWPOINT PARK
NE 24TH ST
NORTHUP WAY
BNSF RR
520
Goff Creek
West Tributary of Kelsey Creek
NE 20TH ST
NE 16TH ST
NE 12TH
NE BELLEVUE-REDMOND RD
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
MF1
MF2
MF3
Segment C
Segment D
D2A
D3
D5
D2E
D2E D3 D5
Proposed Park & Ride
N63
155
N73
N71
157
161
166B
166C
166A
174A
N78
167
169
173A
173B
177B
177A
177C
170
180C
180D
180A
180B
180E
173C
181C
181D
181B
181A
182B
182F
182G
182A
182E
182D
182C
183A
N92
183B
184
179M
179F
179C
179O
179D
179A
179N
199A
199B
202
N108
208
N110B
N110A
174B
214
209
204A
204B
204C
204D
205B
205A
206
210B
210A
210C
N112
212
213E
213C
213F
213D
213A
213B
213G
211C
211D
211A
211B
N117A
N117B
221C
221B
221A
227
218C
218F
218D
218H
218A
218I
218E
218K
218J
218G
218B
219A
219B
217
222
223A
223B
223C
223D
223E
223F
226A
226F
226B
226C
226D
226E
226G
229
N125
230
236
245A
245C
N128
N
0
0.125
0.25 Miles

Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).

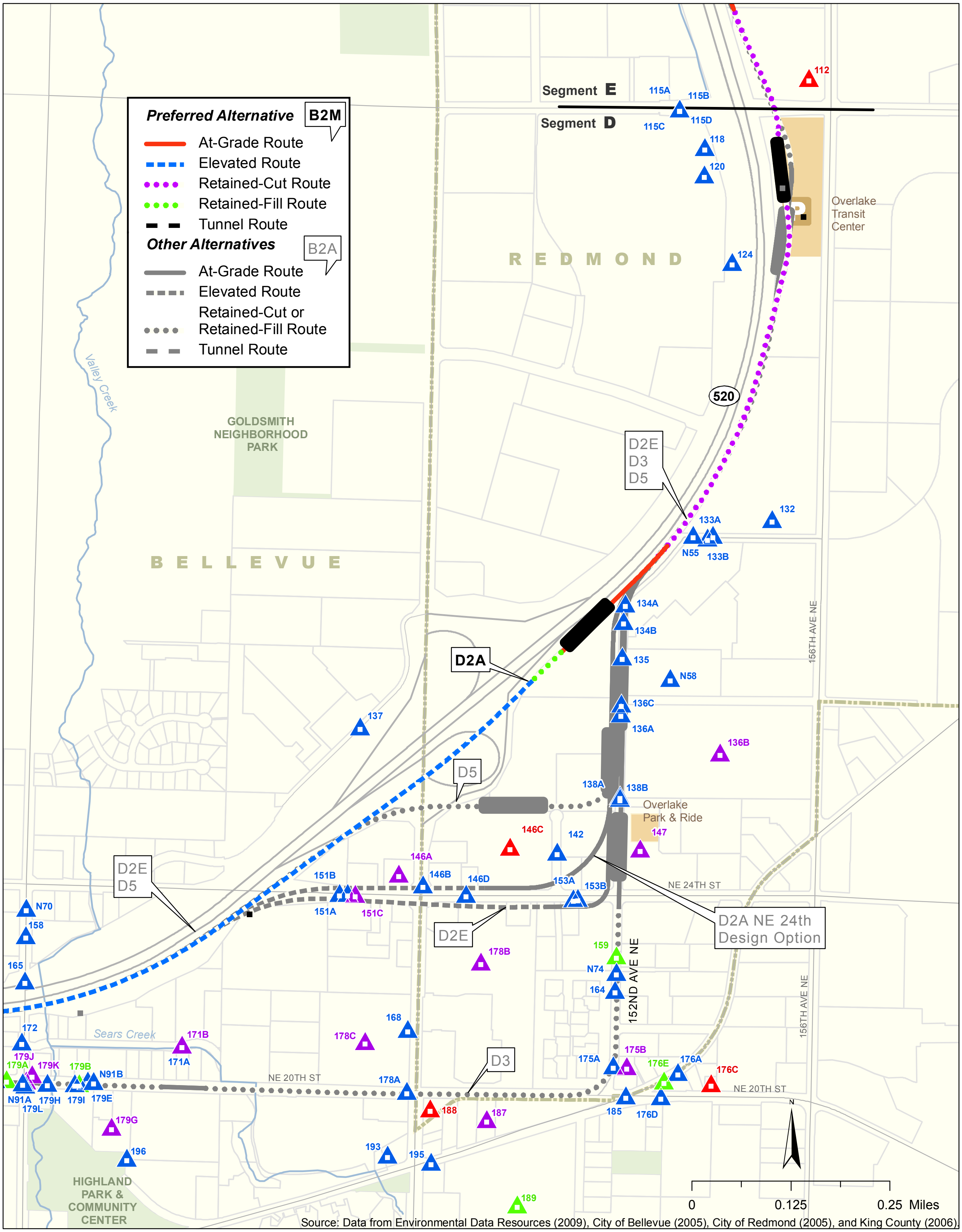
Hazardous Material Site Risk Levels

- ▲ High-Risk Site
- ▲ Medium-Risk Site
- ▲ Low-Risk Site
- ▲ Site with no Previous Release

- ▪ Traction Power Substation
- ▬ Proposed Station
- ▬ Maintenance Facility
- ▭ City Limits

Exhibit G3-9
Hazardous Material Sites Within 1/8 Mile of Alternatives
Segment D

East Link Project


Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or
Retained-Fill Route
Tunnel Route
Segment E
Segment D
115A
115B
115C
115D
112
118
120
124
Overlake
Transit
Center
R E D M O N D
520
GOLDSMITH
NEIGHBORHOOD
PARK
Valley Creek
B E L L E V U E
D2E
D3
D5
132
133A
N55
133B
134A
134B
135
N58
156TH AVE NE
D2A
137
136C
136A
136B
D5
138A
138B
Overlake
Park & Ride
147
146C
142
146A
151B
146B
146D
153A
153B
NE 24TH ST
151A
151C
D2E
D5
D2E
D2A NE 24th
Design Option
N70
158
165
178B
159
N74
164
152ND AVE NE
156TH AVE NE
172
Sears Creek
171B
171A
178C
168
175A
175B
176E
176A
176C
179J
179A
179K
179B
N91B
N91A
179L
179H
179I
179E
NE 20TH ST
178A
D3
NE 20TH ST
188
187
185
176D
179G
196
193
195
189
HIGHLAND
PARK &
COMMUNITY
CENTER
N
0
0.125
0.25 Miles

Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), City of Redmond (2005), and King County (2006).

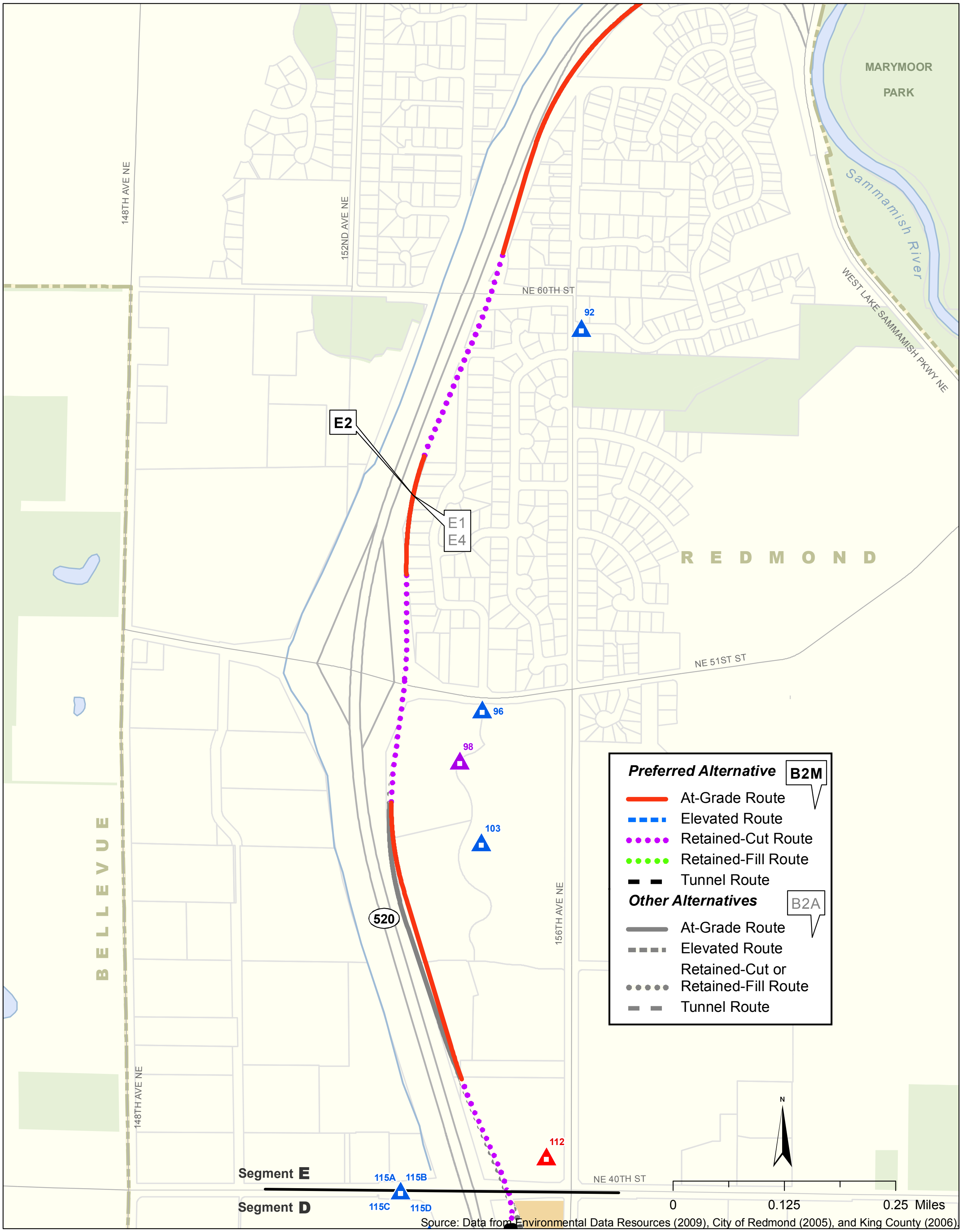
Hazardous Material Site Risk Levels

🔺	High-Risk Site
🔺	Medium-Risk Site
🔺	Low-Risk Site
🔺	Site with no Previous Release

▪	Traction Power Substation
▬	Proposed Station
▬	Maintenance Facility
▬	City Limits

Exhibit G3-10
Hazardous Material Sites Within 1/8 Mile of Alternatives
Segment D

East Link Project


MARYMOOR
PARK
Sammamish River
WEST LAKE SAMMAMISH PKWY NE
148TH AVE NE
152ND AVE NE
NE 60TH ST
92
E2
E1
E4
R E D M O N D
NE 51ST ST
96
98
103
520
156TH AVE NE
B E L L E V U E
148TH AVE NE
112
Segment E
115A
115B
115C
115D
Segment D
NE 40TH ST
N
0
0.125
0.25 Miles
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or
Retained-Fill Route
Tunnel Route

Source: Data from Environmental Data Resources (2009), City of Redmond (2005), and King County (2006).

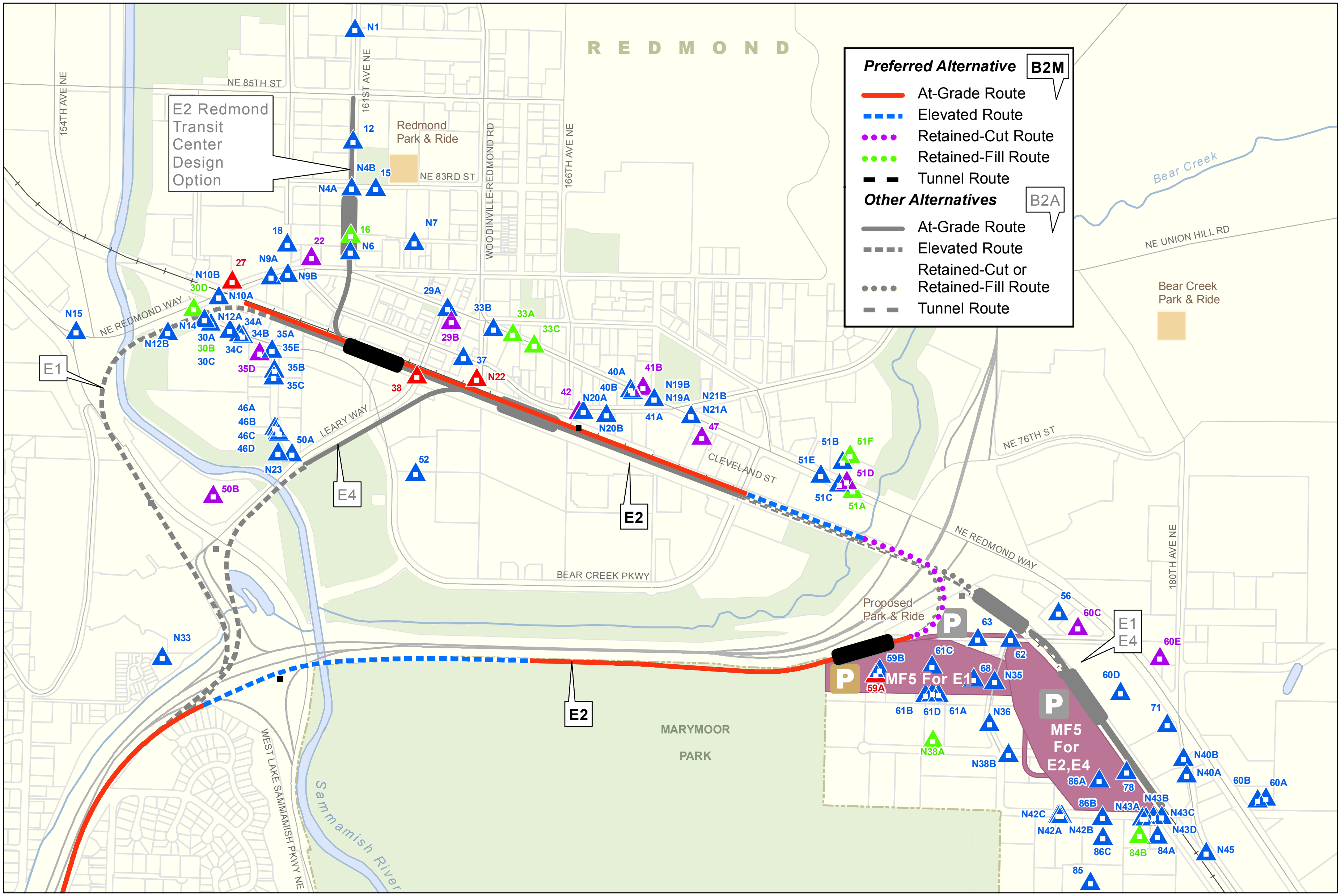
Hazardous Material Site Risk Levels

- △ High-Risk Site
- △ Medium-Risk Site
- △ Low-Risk Site
- △ Site with no Previous Release

- ▪ Traction Power Substation
- ▬ Proposed Station
- ▬ Maintenance Facility
- ▭ City Limits

Exhibit G3-11
Hazardous Material Sites Within 1/8 Mile of Alternatives
Segment E

East Link Project


R E D M O N D
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
E2 Redmond Transit Center Design Option
NE 85TH ST
154TH AVE NE
161ST AVE NE
NE 83RD ST
WOODINVILLE-REDMOND RD
166TH AVE NE
Redmond Park & Ride
NE REDMOND WAY
LEARY WAY
CLEVELAND ST
NE 76TH ST
NE UNION HILL RD
Bear Creek
Bear Creek Park & Ride
BEAR CREEK PKWY
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
180TH AVE NE
MARYMOOR PARK
Proposed Park & Ride
MF5 For E1
MF5 For E2,E4
P
E1
E2
E4
E1 E4
N1
12
N4B
15
N4A
N7
16
N6
18
22
N9A
N9B
27
N10B
30D
N10A
N15
N14
N12A
34A
34B
35A
N12B
30A
30B
30C
34C
35E
35D
35B
35C
29A
29B
33B
33A
33C
37
38
N22
40A
40B
41B
N19B
N19A
41A
42
N20A
N20B
N21B
N21A
47
46A
46B
46C
46D
50A
N23
52
50B
51B
51F
51E
51D
51C
51A
N33
56
60C
60E
63
61C
62
68
59B
59A
N35
60D
61B
61D
61A
N36
71
N38A
N38B
N40B
N40A
60B
60A
86A
78
N43B
86B
N43A
N43C
N42C
N42A
N42B
N43D
84B
84A
86C
N45
85

Hazardous Material Site Risk Levels

- ▲ High-Risk Site
- ▲ Medium-Risk Site
- ▲ Low-Risk Site
- ▲ Site with no Previous Release

- ■ Traction Power Substation
- ▬ Proposed Station
- ▬ Maintenance Facility
- ▬ City Limits

Source: Data from Environmental Data Resources (2009), City of Redmond (2005), and King County (2006).

N

0 0.125 0.25 Miles

Exhibit G3-12
Hazardous Material Sites
Within 1/8 Mile of Alternatives
Segment E
East Link Project

Appendix A
Transportation Methodology and Assumptions Report

Transportation Methods and Assumptions Report

Sound Transit East Link Project

Prepared by CH2M HILL Team

August 2009

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Attachment 1 – No-Build Project List
Attachment 2 – Alternative and Study Intersection Maps
Attachment 3 – Summary of Sound Transit Ridership Forecasting Model
Attachment 4 – Intersection and Freeway Level of Service Definitions
Attachment 5 – Puget Sound Regional Council Land Use letter; May 21st, 2009
Attachment 6 – SR 520 Tolling Assumptions

Transportation Methods and Assumptions Report

1.0 Introduction

This transportation methodology and assumptions report updates the methods and assumptions for analyzing the local, corridor and region wide transportation impacts associated with Sound Transit's East Link project for the Final Environmental Impact Statement (FEIS). As part of the Draft EIS, a transportation methodology and assumptions report was prepared and reviewed by the affected federal, state and local agencies. This report is included in the Appendix H1 of the East Link Draft EIS; December 2008.

An Interchange Justification Report (IJR), required by FHWA, will be prepared in parallel to the EIS analysis focusing on the I-90 corridor and using the same analysis methodology described in this report. The analysis of local transportation impacts will identify and evaluate the impacts of the light rail alternatives on the following:

- Year of opening and design year traffic service levels at key intersections affected by light rail alternatives;
- Year of opening and design year traffic analysis along I-90;
- Short-term impacts to vehicular, bicycle and pedestrian traffic resulting from construction activities;
- Parking near stations and at park-and-ride lots along the light rail alignments;
- Property access and local traffic flow changes caused by street closures and/or rail alignment;
- Safety;
- Freight movement within the corridor including trucking and freight rail;
- Bicycle and pedestrian circulation; and
- Transit service and the integration of transit service plans.

2.0 Agency Guidelines and Regulations

Relevant laws and regulations that govern or influence the local and region-wide transportation impact analysis include the following:

- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. (SAFETEA-LU, Public Law 109-59)
- CFR 23 Part 450 (implementing United States Code [USC] 23 Section 111; requiring the U.S. Secretary of Transportation to approve access revisions to the Interstate System)
- Washington State Growth Management Act RCW 36,70A.070; and
- King County and Cities of Seattle, Mercer Island, Bellevue and Redmond's Comprehensive and/or Transportation Plans and Concurrency Management Systems and applicable city and development codes require the preparation of a transportation impact study and consideration of mitigation strategies for development generating peak-hour traffic delays above a specified threshold.

In addition to the laws and regulations identified above, analysis of local transportation impacts will be guided by the policy direction established in the numerous plans or policy documents adopted within the East Link corridor. These include, but are not limited to:

- Sound Transit Long-Range Plan; adopted July 7, 2005
- WSDOT Transportation Plan 2007-2026 (WSDOT November, 2006)
- WSDOT Design Manual
- WSDOT Development Service Manual. M.3007.00
- Puget Sound Regional Council (PSRC)'s Destination 2030 Plan

- Comprehensive and/or Transportation Plans for the Cities of Seattle, Mercer Island, Bellevue, Redmond and King County
- 6-Year Capital Improvement Program for the Cities of Seattle, Mercer Island, Bellevue, Redmond and King County.

3.0 Transportation Analysis Methodology

The analysis of transportation impacts will be based on a full-length East Link system from the International District/Chinatown Station in Seattle to downtown Redmond and shorter length systems with interim termini at the Ashwood/Hospital (or Hospital) Station and all proposed stations east of Overlake Hospital prior to downtown Redmond (124th Ave NE, 130th Ave NE, Overlake Village, Overlake Transit Center, SE Redmond, and Redmond Town Center stations). The analysis described in the subsequent sections of this report is focused on three areas:

a) Regional transportation impact analysis (including data such as project-wide ridership and daily vehicle miles and hours of travel)
b) Corridor and operational transportation impact analysis includes a comparison of screenline transportation impacts (such as ridership, volume to capacity, and mode split) and an operational and safety analysis of the local streets, freeway system and intermodal network(s).
c) Construction impact analysis includes an analysis of the arterials and an operational assessment of I-90 when the center reversible roadway is closed for construction of light rail.

The various transportation networks and modes will be analyzed strategically to assess the overall transportation conditions. Analysis of various transportation modes is generally categorized by three assessment levels which are supported by various measures listed in Table 1. These measures will vary among the transportation modes being analyzed. The purpose of categorizing assessment levels is to determine the appropriate data/information used in analyzing the transportation impacts.

3.1 Transportation Analysis Years

Based on the project's schedule and available traffic forecasting data, the transportation analysis will focus on four distinct periods:

- 2007: Existing
- 2020: Year of Opening. This year has been identified as an appropriate year to provide a conservative opening year analysis.
- 2030: Design Year. This year has been identified as the design year for analysis as it is consistent with the future planning horizon used by PSRC and local agencies. This design year has been agreed to by the local agencies and FTA, WSDOT and FHWA.
- A 2020 construction period assessment.

3.2 Regional Transportation Analysis

While the Puget Sound Regional Council (PSRC), Sound Transit (ST) and the Bellevue-Kirkland-Redmond (BKR) demand forecast models will be used to produce forecasts for the transportation operational-level impact analysis (refer to Section 6.2) output only from the PSRC travel demand and ST ridership models will be used as the data source for the regional-level analysis. Daily project-wide boardings, vehicle miles and hours of travel for the project study area will be provided to gauge the impact of light rail on the region:

- Project-wide daily boardings – Daily ridership throughout the entire East Link study area
- Vehicle Miles of Travel (VMT) - Trip table matrices will be multiplied by trip distance to determine the number of total vehicle miles on the highway system.
- Vehicle Hours of Travel (VHT) - Matrices of vehicle trips and travel time per trip will be used to quantify vehicle hours traveled (VHT).

TABLE 1
East Link Transportation Assessment/Measures

Assessment Level	Analysis Type	Measure/Assessment
Regional Level	Ridership	- Project-wide daily boardings
	VMT/VHT	- VMT/VHT
Corridor Level	Screenline Analysis	- Transit ridership
		- Volumes/Capacity (V/C ratios)
		- Mode share
Operational Level	Intersection Analysis	- LOS and associated vehicle delay
		- Vehicle queue length
		- accident rates
	Freeway Analysis	- LOS/density
		- Person and vehicle carrying throughput
		- Travel Times (GP, HOV, transit [bus and light rail] and trucks)
		- Access modifications
	Ridership	- Station ridership
	Freeway Safety	- Predictive assessment with reversible center roadway conversion
	Alignment Safety	- Predictive assessment of at-grade or elevated alignments within or adjacent to surface streets
	Transit LOS	- Service frequency, hours of service, passenger loads, reliability, travel times and transfer rates
	Non-Motorized	- Station area pedestrian LOS
		- Sidewalk, trail and bike inventory, access and circulation
	Parking	- On-street supply/demand - Direct alternative impacts

Information from the PSRC travel demand model will be used to generate both the No-Build and Build condition VMT/VHT data. Included in the Build condition travel demand modeling will be the Sound Transit Board's preferred light rail alternative to reflect its mode share. This preferred light rail alternative reflects the alignment generally following A1-B3-C4A-D2A-E2. Sound Transit uses an incremental model to isolate outside influences (i.e. population growth, highway congestion, parking costs) and transit service influences on transit ridership. For a summary of Sound Transit's ridership model, see Attachment 3. The change between the No-Build and Build condition VMT/VHT data will be created through a post-processing exercise related to the number of new transit riders and average trip length (derived from the Sound Transit model) with the East Link project. Furthermore VMT/VHT for the East Link alternatives that forecast the highest and lowest project-wide daily ridership will be bracketed to document the potential range of VMT/VHT change with the East Link project.

3.3 Corridor and Operational Transportation Analysis

The corridor analysis will focus on two sets of analyses:

1. A screenline analysis to provide a snapshot of vehicle and person information
2. A local street and freeway traffic analysis

This analysis will provide detailed information on ridership and traffic operations along the light rail alternatives and operations surrounding the proposed stations.

Screenline Analysis

The analysis of transportation impacts in various segments of the corridor will involve comparing ridership forecasts and projected traffic volumes on the highway and local street system at selected screenlines between the No-Build and the Build alternative. A map and table will be used to present Daily and PM peak-hour vehicle trips at the six identified screenline locations. Refer to Attachment 2 for a graphic representation of these screenlines. The screenlines are:

1. City of Seattle Screenline: A north-south screenline south of South Jackson Street that extends between and includes Alaskan Way and 5th Avenue South and also includes the Downtown Seattle Transit Tunnel);
2. Lake Washington (including SR 520 and I-90): An east-west screenline between the I-90 Mount Baker Tunnel and Mercer Island and north to include SR 520 floating bridge;
3. Interstate-90: An east-west screenline between Bellevue Way and I-405 Interchanges;
4. South Bellevue: A north-south screenline that extends between and includes Bellevue Way, 118th Avenue SE and I-405;
5. 140th Avenue: An east-west screenline that extends between and includes SR 520 and NE 8th Street in the City of Bellevue; and
6. Grasslawn: A north-south screenline that includes 140th Avenue NE and extends to Marymoor Park (City of Redmond #6 screenline in the Redmond Transportation Master Plan)

These screenlines provide a snapshot of ridership, traffic operations and traffic shifts/modal splits along the corridor. Information from the PSRC and Sound Transit forecasting models that will be presented for each screenline includes:

- Volume-to-capacity (V/C) ratio
- Mode share

Local Street System and Freeway Transportation Analysis

The methodology proposed for the local street and freeway analysis is intended to be applied as consistently as possible throughout the corridor. The local street system focuses on intersection level of service operations and safety analysis while the freeway analysis will include measures such as vehicle density, travel time, person and vehicle-throughput and safety. Impacts to parking, non-motorized facilities, transit and freight movement will also be addressed. The methodologies proposed to analyze the local street system and freeway impacts are described in detail following this section.

3.4 Construction Analysis

A qualitative assessment will be performed of short-term construction impacts for all alternatives on local traffic circulation. A quantitative traffic assessment will be performed for the Sound Transit Board's preferred alternative (see Section 4.0) and alternatives with longer-term construction impacts to roadway capacity; such as tunnel alternatives with cut-and-cover construction in downtown Bellevue. The methodologies to be used for this analysis are discussed more fully in Section 7.8. Along I-90, a quantitative operational analysis of the construction period will be performed and is further discussed in Section 7.10. This analysis will assess the I-90 outer roadway operations with the closure of the inside roadway for light rail construction.

4.0 Alternative Definitions

Within the EIS, the No-Build and light rail (Build) alternatives will be evaluated to document the change in transportation conditions and operations within the affected study area. Table 2 provides a summary of the alternatives that will be analyzed for the EIS. While only one No-Build alternative will be analyzed for the majority of the study area; along I-90 two No-Build alternatives will be analyzed. This is to reflect an I-90 No-Build condition with and without Stage 3 of the I-90 Two Way Transit and HOV Operations Project (commonly known as Alternative R-8A).

For the Build alternative, full-length and interim termini station alternatives will be analyzed. The full-length Build alternative assumes light rail is provided between Seattle to downtown Redmond. The Build analysis will also evaluate interim termini at the proposed Ashwood/Hospital Station and all station locations east to downtown Redmond. The interim termini analysis will focus on the local traffic impacts near interim termini stations with a substantial change in ridership. The construction period, while identified to occur between 2013 and 2020/2021, will be analyzed based on a conservative 2020 horizon year.

TABLE 2
Alternative Conditions

Alternatives	Horizon Years		Comments
	2020	2030	
No-Build[a]	X	X	Includes the projects listed in Table 3 and Attachment 1
Build – Seattle to downtown Redmond Alternative	X	X	
Build – Seattle to Interim Station Termini	X	X	Interim station termini are located between Overlake Hospital Station and downtown Redmond including 124th, 130th, Overlake Village, Overlake Transit Center, SE Redmond, and Redmond Town Center stations)
Construction	X		Assumes I-90 R-8A Stages 1 through 3 are constructed.

[a]Two separate 2020 and 2030 No-Build forecasts and operational analysis will be performed along I-90 with and without Stage 3 of the I-90 Two-Way Transit and HOV Operations project.

4.1 No-Build Alternative

The No-Build alternative includes a variety of projects, funding packages and proposals in the Central Puget Sound Region. The projects primarily consist of funded or committed actions by the State, regional and local agencies combined with other projects that are considered to be reasonably foreseeable by the year of opening (2020) or design year (2030). Separate No-Build project lists are prepared for the 2020 and 2030 conditions. Attachment 1 provides the list of assumed regional and local projects as part of the No-Build alternative. The following sections define the basic components of the regional and local roadway and transit projects within the No-Build alternative. Table 3 summarizes the appropriate time horizon for each of these components.

Roadway

The roadway component of the No Build Alternative includes projects funded through the 2003 Transportation Nickel Package, 2005 Transportation Partnership Account (TPA) package, American Recovery and Reinvestment Act (ARRA) and selected projects included in the PSRC's Destination 2030 plan. Within King County these funding packages include major regional projects such as the Alaska Way Viaduct and Seawall Replacement Project, SR 520 Bridge Replacement (refer to Attachment 6 for SR 520 tolling assumptions) and HOV Project and I-405 Corridor Program.

A component of the No-Build alternative is the I-90 Two Way Transit and HOV Operations Project. This joint Sound Transit/WSDOT project would add HOV lanes to the I-90 outer roadway between Seattle and Bellevue. This project also includes new I-90 HOV on and off-ramps on Mercer Island and improving the I-90 HOV access at the Bellevue Way interchange. Two separate 2020 and 2030 No-Build forecasts and operational analysis will be performed along I-90 that would either include or not include Stage 3 of the I-90 Two-Way Transit and HOV Operations Project. Stage 3 is the construction of new HOV lanes on the outer roadway between Mercer Island and Seattle. The two No-Build conditions are proposed due to the uncertainty of when Stage 3 would be constructed as it has not been determined whether Stage 3 will operate for some period of time in conjunction with vehicular traffic in the reversible center roadway, or if the reversible center roadway would close for light rail construction immediately after completion of Stage 3.

In addition to the programs and packages discussed above are roadway projects listed in the State and local agency comprehensive plan lists. For the most part, the 2020 local agency lists only include adopted CIP projects (6-year funding programs), while the 2030 list includes unfunded projects that are part of the agencies'

Transportation Plans which cover a 15-20 year time frame. The exceptions are the City of Redmond's 2022 Transportation Facilities Plan and City of Bellevue's 2009-2020 Transportation Facilities Plan. These projects have been included as part of the 2020 list given the close proximity of the two horizon years.

Table 3 indicates the 2020 No-Build list would only include projects that are considered to be fully funded within the 2020 time-frame. The 2030 No-Build list expands the list to include the State, Regional, and Local projects that are anticipated to be funded within the 2030 timeframe. Finally, some projects are included that are part of the PSRC's Destination 2030 program. These projects may not be currently fully funded but have been reviewed through an environmental process and would likely influence the travel patterns and operations along the study corridors.

TABLE 3
No-Build Alternative Components

Projects/Programs	Horizon Years		Comments
	2020	2030	
Roadway			
Nickel Package	X	X	Approved 2003
Transportation Partnership Account	X	X	Approved 2005
I-90 Two Way Transit and HOV Project	X	X	Stage 1 through 3 and also without Stage 3
Local Agencies			
Capital Improvement Programs/Transportation Facilities Plans	X	X	Typically 6-year (or near term) funding commitments
Comprehensive/Transportation Plans	X	X	Typically 15 to 20-year list of funded and unfunded projects. Funded projects included as part of CIP/TFP lists.
Puget Sound Regional Council			
Destination 2030		X	Selected projects included (refer to Attachment 1)
Transit			
Sound Transit			
Sound Move Program	X	X	Approved 1996
ST2 Program	X[a]	X	Approved November 2008.
King County Metro			
6-year Service Implementation Plans	X	X	
Transit Service Integration Plan	X	X	Prepared for East Link project
Transit Now Plan	X	X	Approved 2006

[a] Not all projects identified in these programs are expected to be built by 2020. Refer to Attachment 1 for the project list by horizon year.

Transit

The transit No-Build component follows similar guidelines to those used to select the roadway projects. The main component for future transit service is the approved Sound Transit 2 program (also known as ST2) and the joint effort by King County Metro and Sound Transit to develop a Transit Service Integration Plan for both 2020 and 2030 No-Build conditions. The draft plans provide a snapshot of how bus service would look without the project. The transit integration plan identified future transit routes and included changes to current bus headways and operating hours to attempt to meet future demand. Included as part of the No-Build integration plans will be the currently adopted transit service plans by Sound Transit and King County Metro. This will include the completion of the Sound Move program and King County's 'Transit Now' plan, an initiative to expand Metro Transit service approved by King County voters in the general election in November 2006. Only a portion of the transit components of the ST2 program will be included in the 2020 No-Build integration plan since some of the ST2 projects will not be fully implemented until after 2020. An exception will be the East Link project of ST2 program. This project will be analyzed as the Build alternative. The Transit Integration Plan will be reflected in Sound Transit's transit ridership model to forecast bus and rail riders in both 2020 and 2030 No-Build conditions.

4.2 Build Alternative: East Link Light Rail Alternatives

The Build alternative consists of the light rail alternatives identified by Sound Transit for study in the East Link EIS including the Sound Transit Board's preferred alternative. Refer to Chapter 2 of the EIS for a description of the light rail alternatives. For the Build alternative, full-length and interim terminus station alternatives will be analyzed. The full-length Build alternative assumes light rail is provided from Seattle to downtown Redmond. The Build alternative will also evaluate interim termini which are located at the proposed Ashwood/Hospital (or Hospital) Station and other stations east prior to downtown Redmond (124th, 130th, Overlake Village, Overlake Transit Center, SE Redmond, and Redmond Town Center stations). The interim station terminus alternatives assume the East Link light rail connections in Seattle remain unchanged.

All the projects, programs and packages listed in Table 3 and Attachment 1 as part of the No-Build alternative are also assumed in the Build alternative. A light rail operations plan for the East Link project is being prepared and assumes up to 7 minute peak and 10 minute off-peak headways by year 2030. In addition to the light rail alternatives, King County Metro and Sound Transit will develop a 2020 and 2030 Transit Service Integration Plan to reflect potential changes in transit service for each East Link alternative. The plan identified future transit routes and included changes to current bus headways. Although the service plans would not be finalized until close to system operation, the draft plans provide a snapshot of how bus service would look with the project. The Transit Integration Plan will be reflected in Sound Transit's transit ridership model to forecast bus and rail riders in both 2020 and 2030 No-Build and Build conditions.

5.0 Definition of Study Area

A list of intersections has been identified for analysis. These intersections are those potentially impacted by the light rail alternatives. Intersections directly impacted, such as a change in the channelization or signal control, will be analyzed. Additionally intersections that are indirectly affected, such as a significant change in volume, will be analyzed. Refer to Section 5.1 for the screening procedures. These locations also include intersections surrounding park-and-ride lots and station areas. This list reflects public and/or agency comments received during the EIS process.

5.1 Intersection Screening Procedures

Screening procedures were applied in the DEIS to improve the efficiency of the traffic impact analysis to minimize the number of analysis iterations on a previously analyzed intersection. This procedure will be conducted again for the FEIS. The existing conditions at all study area intersections identified in Section 5.2 will be evaluated using traffic data collected at the outset of the project. Additionally, the 2020 and 2030 PM peak-hour analysis for the No-Build alternative will be developed for the same set of study area intersections. For the Build alternative, a screening process will be applied to each of the study area intersections, using threshold values, to pinpoint conditions that could result in a change in the level of service at the intersection. Additional intersections or revision of the study area will be reviewed once future 2020 and 2030 forecasts have been developed. At that time, it will be determined where changes in volume demand and patterns occur within the Build alternative to warrant a change in the study area limits. If impacts to intersection operations occur at the limits of the identified study area, the study area could be potentially expand. No further analysis beyond the No-Build conditions will be conducted at study area intersections where changes in traffic volumes or other conditions in the Build alternatives are expected to be below the threshold values identified in Table 4. The methodology is to conduct the Build alternative intersection analysis for only the worst-case traffic impact condition. Any light rail alignment that has direct (physical) geometry impacts to an intersection will also be analyzed.

TABLE 4
Intersection Analysis Screening Process

Parameter	Threshold Value	Description
Critical Volumes	5%	Forecasts indicate that a critical volume comparison between a Build and No-Build alternative would exceed the threshold value.
Change in Intersection Geometry	Changes in the physical geometry of the intersection.	Changes in intersection geometry resulting from the project.
Change in Intersection Control	Traffic Signal Installation	The addition of a traffic control device such as a signal would affect the capacity for some traffic movements, and could change the overall level of service.
Crosswalk Lengths Across Major Streets	Increased crossing distance	Side street green time would be extended and pedestrian clearances would be longer.
Intersection Level of Service	If the intersection operates with a delay value within 10 percent of the agency's LOS threshold.	Locations meeting the threshold criterion with the No-Build Alternative would likely require further analysis. For example: if an intersection operates at LOS E/75 seconds in No-Build and the LOS threshold is LOS E (80 seconds) the intersection is then included in the Build analysis.

City of Seattle (11)

- Rainier Avenue South & South Dearborn Street
- Rainier Avenue South & South Massachusetts Street
- Rainier Avenue South & 23rd Avenue South
- Rainier Avenue South & I-90 EB Off-Ramp
- Dearborn Street & I-5 Southbound Ramp
- Dearborn Street & I-5 Northbound Ramp
- I-90 & 4th Avenue South
- South Royal Brougham Way & 4th Avenue South
- Airport Way South & 4th Avenue South
- I-90 HOV Access & South Dearborn Street
- SR 519 & I-90 EB On-Ramp

City of Mercer Island (17)

- West Mercer Way & I-90 Ramps
- West Mercer Way & 24th Avenue SE
- 80th Avenue SE & SE 27th Street
- 80th Avenue SE & I-90 EB Express Lanes Ramp
- 80th Avenue SE & North Mercer Way
- 77th Avenue SE & Sunset Highway
- 77th Avenue SE & I-90 WB Express Lanes Ramp
- 77th Avenue SE & I-90 EB Off-Ramp
- 77th Avenue SE & North Mercer Way
- 77th Avenue SE & 27th Street
- 76th Avenue SE/North Mercer Way & I-90 WB On-Ramp
- 76th Avenue SE & 24th Avenue SE
- Island Crest Way & I-90 EB On-Ramp
- Island Crest Way & I-90 WB Off-Ramp
- East Mercer Way & I-90 EB Off-Ramp
- East Mercer Way & I-90 EB On-Ramp
- East Mercer Way & I-90 WB Ramps

Freeway System

For the EIS, I-90 between the SR 519/I-90 terminus and the Interstate 5 ramps to and from the east and the I-405 ramps to and from the west will be analyzed. This analysis will include the I-90 mainline and merge/diverge areas between the study area endpoints. The analysis will also include:

- The I-90 reversible center roadway;
- The ramps to and from the express lanes located at Rainier Avenue, Mercer Island and Bellevue Way;
- The D2 roadway between Airport Way/5th Avenue and Rainer Avenue; and
- The I-90 collector-distributor system between the Bellevue Way and I-405 interchanges.

I-405 and I-5 mainline and merge/diverge areas will not be analyzed since there are no direct modifications or impacts expected with the project.

5.2 Segment B

Within Segment B, 19 intersections are identified for analysis as they either are along the proposed alternatives or expected to experience a change in operating conditions through either change in intersection control, geometry or traffic volume; such as near a station. Five intersections within Bellevue's Mobility Management Area #7 will be analyzed. Refer to Attachment 2 for a map of these intersections.

City of Bellevue (19)

- 112th Avenue SE & Bellevue Way SE (MMA #7)
- 112th Avenue SE & SE 8th Street (MMA #7)
- 118th Avenue SE & SE 8th Street (MMA #7)
- 1-405 NB Ramps & SE 8th Street (MMA #7)
- I-405 SB Ramps & SE 8th Street (MMA #7)
- Bellevue Way SE & SE 30th Street
- Bellevue Way SE & South Bellevue P&R
- 114th Avenue SE & SE 6th Street
- SE 8th Street & 114th Avenue SE (Bellefield Business Park)
- Bellevue Way SE & 108th Avenue SE
- Bellevue Way SE & SE 16th Street
- Bellevue Way SE & 104th Avenue SE
- Bellevue Way SE & SE 10th Street
- 112th Avenue SE & SE 15th Street
- 118th Avenue SE & 118th Station Entrance (only for Alternative B7)
- 118th Avenue SE/Coal Creek Parkway SE & I-405 SB Ramps
- Coal Creek Parkway SE & I-405 NB Ramps
- 119th Avenue SE & Coal Creek Parkway SE
- Bellevue Way SE & North driveway of South Bellevue Park-and-Ride
- Bellevue Way SE & South driveway of South Bellevue Park-and-Ride

5.3 Segment C

Within Segment C, 40 intersections are identified for analysis as they either are along the proposed alternatives or expected to experience a change in operating conditions through either change in intersection control, geometry or traffic volume; such as near a station. Nine of the thirteen intersections within Bellevue's Mobility Management Area #3, two of the five intersections within Bellevue's Mobility Management Area #4 and one of the fifteen intersections within Bellevue's Mobility management Area #12 will be analyzed. Refer to Attachment 2 for a map of these intersections.

City of Bellevue (40)

- Bellevue Way SE & SE Wolverine Way
- Bellevue Way & Main Street (MMA #3)
- Bellevue Way NE & NE 2nd Street
- 112th Avenue NE & NE 12th Street (MMA #3)

- 112th Avenue NE & NE 10th Street
- 112th Avenue NE & NE 8th Street/I-405 SB Ramp (MMA #3)
- 112th Avenue NE & NE 6th Street
- 112th Avenue NE & NE 4th Street (MMA #3)
- 112th Avenue NE & NE 2nd Street
- 112th Avenue & Main Street (MMA #3)
- 112th Avenue SE & SE 6th Street
- 110th Avenue NE & NE 12th Street
- 110th Avenue NE & NE 10th Street
- 110th Avenue NE & NE 8th Street
- 110th Avenue NE & NE 6th Street
- 110th Avenue NE & NE 4th Street
- 110th Avenue NE & NE 2nd Street
- 110th Avenue & Main Street
- 108th Avenue NE & NE 12th Street (MMA #3)
- 108th Avenue NE & NE 10th Street
- 108th Avenue NE & NE 8th Street (MMA #3)
- 108th Avenue NE & NE 6th Street
- 108th Avenue NE & NE 4th Street (MMA #3)
- 108th Avenue NE & NE 2nd Street
- 108th Avenue & Main Street (MMA #3)
- 106th Avenue NE & NE 12th Street
- 106th Avenue NE & NE 10th Street
- 106th Avenue NE & NE 8th Street
- 106th Avenue NE & NE 6th Street
- 106th Avenue NE & NE 4th Street
- 106th Avenue NE & NE 2nd Street
- 106th Avenue NE & Main Street
- NE 4th Street & I-405 SB Ramp
- NE 4th Street & I-405 NB Ramp
- NE 10th Street & I-405 NB Ramp (future interchange ramp)
- 116th Avenue NE & NE 12th Street (MMA #12)
- 116th Avenue NE & NE 10th Street (future signal)
- 116th Avenue NE & NE 8th Street (MMA #4)
- 116th Avenue NE & NE 4th Street (MMA #4)
- 116th Avenue NE & Felix Terry Swistak Drive (signal north of the NE 10th Street overcrossing)

5.4 Segment D

Within Segment D, 30 intersections in the Cities of Bellevue and Redmond are identified for analysis as they either are along the proposed alignments or expected to experience a change in operating conditions through either change in intersection control, geometry or traffic volume; such as near a station. Six of the fifteen intersections within the City of Bellevue's Mobility Management Area #12 will be analyzed. Some intersections in this segment are also within the City of Redmond's jurisdiction and therefore they would be classified within Redmond's Transportation Management District (TMD) #5 – Overlake area. The access locations to the proposed maintenance bases within Segment D will also be analyzed. These locations are not included in the list below as they have not been identified. Refer to Attachment 2 for a map of these intersections.

City of Bellevue (16)

- 120th Avenue NE & NE 16th Street (future road extension)
- 120th Avenue NE & NE 12th Street (MMA #12)
- 124th Avenue NE & Northup Way (MMA #12)
- 124th Avenue NE & NE 16th Street (future road extension)
- 124th Avenue NE & Bel-Red Road (MMA #12)

- 130th Avenue NE & Bel-Red Road (MMA #12)
- 130th Avenue NE & NE 16th Street (future road extension)
- 130th Avenue NE & 130th Station P&R Entrance
- 130th Avenue NE & NE 20th Street (MMA #12)
- 132nd Avenue NE & Bel-Red Road
- 132nd Avenue NE & NE 16th Street
- 132nd Avenue NE & NE 20th Street
- 136th Avenue NE & NE 16th Street
- 136th Avenue NE & NE 20th Street
- 140th Avenue NE & NE 20th Street (MMA #12)
- NE 20th Street & Mall Entrance

City of Redmond (14)

- 148th Avenue NE & SR 520 WB Ramps
- 148th Avenue NE & SR 520 EB Ramps
- NE 24th Street & 148th Avenue NE
- NE 24th Street & 151st Avenue NE
- NE 24th Street & 152nd Avenue NE
- NE 24th Street & Bel-Red Road
- NE 40th Street & 148th Avenue NE
- NE 40th Street & SR 520 WB Ramps
- NE 40th Street & SR 520 EB Ramps
- NE 40th Street & 156th Avenue NE
- Overlake P&R Entrance & 156th Avenue NE
- NE 36th Street & 156th Avenue NE
- NE 31st Street & 156th Avenue NE
- 148th Avenue NE & NE 20th Street

5.5 Segment E

Within Segment E, 26 intersections are identified for analysis as they either are along the proposed alignments or expected to experience a change in operating conditions through either change in intersection control, geometry or traffic volume; such as near a station. Intersections in this segment are within the City of Redmond's jurisdiction and therefore they are classified within Redmond's Transportation Management Districts (TMD) #1 – Downtown Redmond and #7 – SE Redmond area. The access locations to the proposed maintenance bases within Segment E will also be analyzed. These locations are not included in the list below as they have not been identified. Refer to Attachment 2 for a map of these intersections.

City of Redmond (26)

- Leary Way NE & West Lake Sammamish Parkway NE
- Leary Way NE & 159th Place NE
- Leary Way NE & Bear Creek Parkway
- Leary Way NE & NE 76th Street
- Redmond Way at 161st Avenue NE
- NE 83rd Street at 161st Avenue NE
- 164th Avenue NE & SR 202
- 164th Avenue NE& NE 76th Street
- 166th Avenue NE & SR 202
- 166th Avenue NE & NE 76th Street
- NE 76th Street & Bear Creek Parkway
- SR 202 & SR 520 WB Ramps
- SR 202 & SR 520 EB Ramps
- SR 202 & NE 70th Street
- NE 70th Street & 176th Avenue NE

- Cleveland Street & 161st Avenue NE (Future Intersection)
- NE 85th Street & 161st Avenue NE
- 164th Avenue NE and NE Cleveland Street
- 164th Avenue NE & NE 80th Street
- 164th Avenue NE & NE 85th Street
- 166th Avenue NE & Cleveland Street
- 166th Avenue NE & 80th Street
- 178th Place NE & NE Union Hill Road
- Avondale Road NE & NE Union Hill Road
- East Lake Sammamish Parkway NE & NE 65th Street
- SR 202 & East Lake Sammamish Parkway NE (180th Avenue NE)

6.0 Assessment Methods

The intent of the intersection analyses is to identify the potential local traffic operational impacts and to identify potential improvements to mitigate any identified impacts. The *Highway Capacity Manual* (HCM) methodologies will be followed for analysis of the surface streets and the I-90 freeway system. The intersection analysis will be limited to PM peak-hour conditions as the PM peak hour is typically the “worst case” for surface street operations in urbanized areas. A review of traffic volumes on key high volume arterials determined the PM peak hour captures the highest volume condition and therefore no AM peak-hour traffic analysis is conducted on the local street system, except at five intersections near the Overlake Transit Center due to the nature of the land uses surrounding the transit center. Along the I-90 corridor AM peak-hour analysis will also be conducted along the freeway and in Mercer Island and Seattle. The methodology that will be used to conduct the AM peak hour traffic analysis will be similar to the methodology used to conduct the PM peak hour traffic analysis.

For the analysis along I-90, the reported intersection results will be for one hour of analysis, but the reported freeway analysis will be created based on a 2.5 hour duration to better simulate peak period conditions.

6.1 Data Collection

A variety of data was collected and assembled to analyze the local and freeway system for the DEIS. A majority of the data collected for the DEIS will continue to be utilized for the FEIS analysis. It is noted below where the data supporting the DEIS analysis will be reviewed or where new information is planned to be collected for the FEIS.

- Existing peak-hour turning movement counts at the intersections identified in Section 5.2. These counts will be collected from the local and state agencies (Cities of Seattle, Mercer Island, Bellevue and Redmond and WSDOT). For I-90, volume data from WSDOT’s loop counters will be used to generate existing mainline and ramp volumes. New counts will be taken for a two-hour period during the PM peak hour, if 2005-2007 turning movement counts are not available from the listed agencies above. The new counts will include autos, trucks classified by light, medium and heavy types, buses, pedestrians, and bicyclists. All peak-hour turning movement counts and I-90 mainline and ramp volumes will be factored to a common base analysis year (2007) based on available historical data trends.
    - FEIS data collection: PM peak hour turning movement counts will only be collected for any new intersections analyzed in the FEIS and for intersections that have been improved by others (local, regional, state agencies) since the DEIS analysis.
- Physical characteristics of the existing street system including functional use, lane geometry, traffic signal timing and phasing patterns, and other parameters necessary to conduct traffic operations analysis (such as the proximity of bus stops, speed limits, presence of on-street parking, etc.). Where available, this data will be obtained from the local agencies (such as paint line sketches developed by the City of Seattle). This data will be field checked as appropriate.
    - FEIS data collection: Physical characteristics will only be collected for any new intersections analyzed in the FEIS and for intersections that have been improved by others (local, regional, state agencies) since the DEIS analysis. Otherwise the physical characteristics collected as part of the DEIS will be utilized for the FEIS analysis.

- On- and off-street public parking supply and peak weekday parking utilization survey data will be collected within a 0.25-mile walking distance radius of each station as well as documenting any on- and off-street parking potentially removed by East Link alternatives. In general, data will be obtained from the local agencies, and augmented by field visits where appropriate. Private parking will not be collected and only described qualitatively with supplementary information, as available, by the cities, Chamber of Commerce or Downtown Association groups.
  - FEIS data collection: On- and off-street public parking supply and utilization survey data collected as part of the DEIS will be utilized for the FEIS analysis.
- Park and Ride supply and demand will be collected at either proposed stations or locations within a 0.25-mile walking distance radius of each station. Park and Ride information and utilization rates will be gathered from existing information from King County Metro. If unavailable, data will be facilitated by field visits.
  - FEIS data collection: Park and Ride supply and demand data collected as part of the DEIS will be utilized for the FEIS analysis.
- Short duration (15 to 30 minute) driveway counts for locations where access into and out of driveways would be affected will be collected. This includes locations were driveways would be removed/consolidated, movements would be restricted or where the light rail alignment would interact with the driveway operations.
  - FEIS data collection: Driveway counts that were already collected for alternatives in Segments B, D and E in the DEIS will be utilized for the FEIS analysis. Driveway count data will be collected in Segment C for alternatives that modify driveway access.
- Pedestrian volumes will be collected in areas with high pedestrian activity, such as the I-90 multi-use trail across Mercer Island, and where existing counts have been conducted by local jurisdictions. This data collection effort will be limited to the pedestrian volume data collected for each of the intersections identified in Section 5.2. If pedestrian and bicycle volume data is available from the agencies for major non-motorized facilities near proposed station areas, such as the Sammamish River Trail in Redmond, this will be also included.
  - FEIS data collection: Pedestrian volume data collected as part of the DEIS will be utilized for the FEIS analysis. Pedestrian volume information will be collected at new intersections analyzed in the FEIS as part of the peak hour turning movement counts (refer to the first bullet of this section).
- Existing transit route information along the proposed light rail alternatives will be obtained from local transit agencies and compiled. This will include information on selected routes that serve the East Link corridor. The bus route information that will be collected includes service areas, hours of service (including schedule/frequency), reliability and passenger load. Passenger load information will be collected at the six screenline locations. Transit reliability information will be collected at selected transit centers and park-and-ride facilities in the study area.
  - FEIS data collection: Existing transit route information used for the DEIS analysis will be utilized for the FEIS analysis.
- Accident data for the most recent three-year period will be obtained for the study area intersections (signalized and unsignalized) and I-90 between I-5 and I-405. Accident data for roadways (between intersections) will be collected only where there are at-grade or elevated light rail alternatives running within or immediately adjacent to a roadway. Accident data will not be collected if the light rail alignment would not directly affect a roadway or access to it such as along SR 520 in the Bel-Red area.
  - FEIS data collection: Accident data collected as part of the DEIS will be utilized for the FEIS analysis.
- Existing and planned pedestrian and bicycle facilities within an approximate 0.5-mile radius of each station area (1.0 mile for bicycle facilities) will be inventoried by either field visits or available information from agencies (such as GIS). This will include identification of school walk routes and any barriers to pedestrian or bicycle travel within each station area. The general sidewalk condition will be assessed qualitatively immediately surrounding station areas.

  - FEIS data collection: Existing and planned pedestrian and bicycle facilities documented in the DEIS will be reviewed and updated, if needed, for the FEIS analysis

- Existing truck corridors/routes and any truck weight or height restrictions will be identified.
  - FEIS data collection: Existing truck corridors/routes information collected as part of the DEIS will be reviewed and updated, if needed, for the FEIS analysis.
- Local, regional and State agency *Six-Year Transportation Improvement Plans/Capital Improvement Programs or Transportation Facilities Plans* among other planned improvements in close proximity to a light rail alternative will be reviewed and summarized. This will include identification of all "committed" improvements assumed for the No-Build Alternative.
  - FEIS data collection: Local, regional, and state TIP/CIP and long-range plans collected as part of the DEIS will be reviewed and updated, if needed, for the FEIS analysis.
- Vehicle occupancy data along I-90 will be collected by lane type (general purpose, HOV, reversible center roadway) for use in I-90 person throughput calculations. Vehicle occupancy data will be obtained from WSDOT for the most recent year available.
  - FEIS data collection: I-90 vehicle occupancy data collected as part of the DEIS will be reviewed and updated, if needed, for the FEIS analysis.

6.2 Travel Demand Forecasting

The study area comprises the jurisdictions of Seattle, Mercer Island, Bellevue and Redmond. As a result, the analysis will require the integration of model output from three different models. Figure 1 shows the overall process of the travel demand methodology. The analysis will utilize two regional models: (1) Sound Transit's (ST) model which provides future transit ridership estimates, and (2) Puget Sound Regional Council (PSRC) model (Version 1.0b) to provide future year modal demand information. The methodology for forecasting transit ridership with ST ridership model is discussed in Attachment 3. Subsequently, the local traffic impact analyses in Bellevue and Redmond will be developed using the Bellevue-Kirkland-Redmond (BKR) model with its higher network resolution within the study area. The PSRC model will be used to develop the regional traffic analysis measures, screenline information, travel demands across I-90 for use in the freeway analysis and for forecasting intersection volumes on Mercer Island and Seattle. The assumptions in the latest PSRC model regarding capacities, parking costs, tolling, etc. will be assumed for this project unless otherwise noted throughout this document.

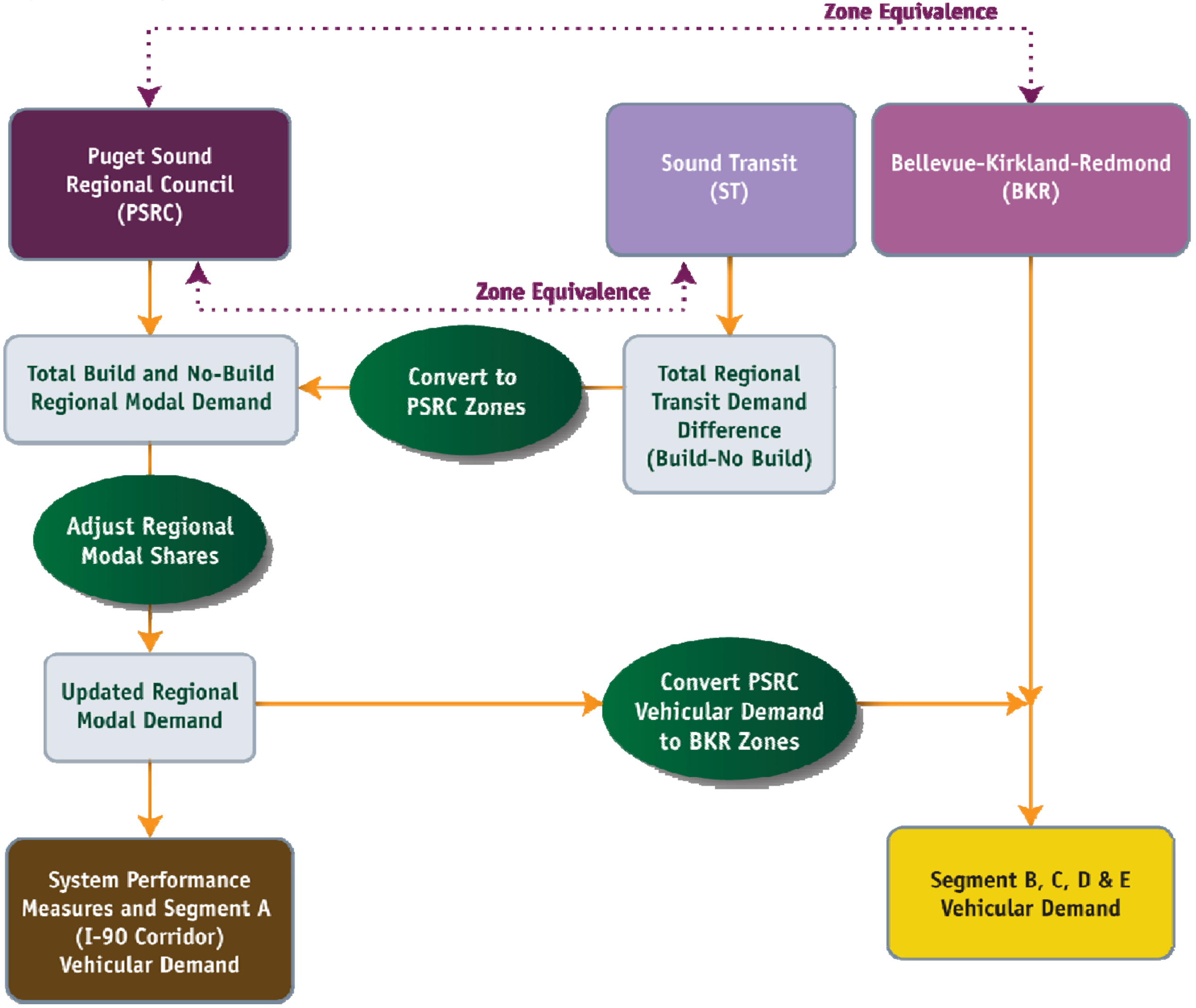
Base Year Model

The model's base year will be 2005. The year 2005 land use estimates developed by the PSRC are based on the most recent verified housing and employment data available. Zonal equivalencies will be established for the model structures; Sound Transit to PSRC and PSRC to BKR.

The next step will be to check the consistency in network definition and attributes found in the models. The BKR model contains the highest resolution of network detail. For regional comparisons, we will run the PSRC model using the enhanced network developed for the I-405 corridor program. This network provides a higher network resolution within the study area than the standard PSRC networks. While the BKR model will generally be used for trip assignments in the local areas, to ensure a high-level consistency between the PSRC and BKR models, quantitative performance measures will be compared between both models to ensure a level of consistency between the PSRC and BKR demand models. Potential measures will include cross lake vehicular demand, mode choice and person trip distribution.

The base year link auto volumes from the BKR model will be validated using 2005-2007 counts in the study area for PM peak hour or period. The PSRC estimated auto link demand will be validated for the Seattle, I-90 and Mercer Island study area. Along I-90 and within Mercer Island and Seattle areas, the PSRC model will be used to forecast mainline and ramp volumes and intersection turn movement volumes.

FIGURE 1
Integration of Multiple Travel Demand Models


Zone Equivalence
Puget Sound Regional Council (PSRC)
Sound Transit (ST)
Bellevue-Kirkland-Redmond (BKR)
Zone Equivalence
Total Build and No-Build Regional Modal Demand
Convert to PSRC Zones
Total Regional Transit Demand Difference (Build-No Build)
Adjust Regional Modal Shares
Updated Regional Modal Demand
Convert PSRC Vehicular Demand to BKR Zones
System Performance Measures and Segment A (I-90 Corridor) Vehicular Demand
Segment B, C, D & E Vehicular Demand

Future Year No-Build Forecasts

Future year analysis will be performed for the years 2020 and 2030 based on the PSRC's current population and land uses forecasts, which will incorporate reasonable proposed adjustments given the comprehensive plan changes that have been adopted by Bellevue and Redmond (see attachment 5). The PSRC's available 2020 and 2030 networks include light rail to the Eastside and other highway and transit enhancements that will not be part of the No-Build alternative. The higher resolution I-405 and I-90 regional networks (from the I-405 Study and I-90 HOV Two-Way Transit and HOV study) will be used in the PSRC model to develop the regional and screenline performance measures (described in Section 3.2 and 3.3) as they are consistent with the assumed No-Build facility improvements. Both the BKR and PSRC model networks will be modified to reflect the agreed upon No-Build network assumptions.

Each model will be run for each future year to develop demand estimates and performance measures. The PSRC-based 2020 and 2030 No-Build models outputs will serve as the basis to perform the modeling scenarios described earlier. Peak period vehicular assignments will be run using the PSRC and BKR models to generate vehicle information for the No-Build alternative intersection and freeway analysis.

Two separate 2020 and 2030 No-Build demand forecasts will be performed along I-90 that would reflect with and without Stage 3 of the I-90 Two-Way Transit and HOV Operations project (also known as Alternative R-8A). Stage 3 is the construction of new HOV lanes on the outer roadway between Mercer Island and Seattle.

Future Year Build Alternatives Forecasts

Two methods will be used to forecast the Build condition future vehicular demand based on the sub areas. Method 1 focuses on the impacts of station area demand in the South Bellevue (Segment B), Bel-Red (Segment D) and Redmond (Segment E) areas. Method 2 will be applied to regional and corridor-level assessments, I-90 mainline and ramps, Seattle, Mercer Island (all Segment A), and downtown Bellevue intersections (Segment C).

Method 1: Station Area Volumes

2020 and 2030 transit station trip generation information will be developed from Sound Transit's transit ridership model and will be assigned to various modes of travel based on the Portland *Banfield LRT Station Mode of Access Survey*, or updated information as available. The *Banfield* methodology was a mode of access and egress survey of Portland light rail riders. This survey characterizes the different modes people choose to use to access and egress the stations; such as walk, drive alone, drive with others, drop off, transit transfer or other. This information is presented by each station type; which is based on what station facilities are provided and the surrounding land uses.

The vehicle and pedestrian trips associated with the light rail station ridership forecasts for the alternative that generates the highest ridership at this specific station will be assigned to the pedestrian and vehicular networks around the station using a spreadsheet or simple trip assignment approach based on existing and/or forecasted travel patterns. The auto traffic volumes associated with the station will be added to the future 2020 and 2030 No-Build auto forecasts from the PSRC/BKR models to produce the Build alternative forecasts surrounding that specific station area. This approach yields a conservative forecast for the Build alternative as it does not reflect the shift to transit as people replace their vehicle trip and use light rail.

The same methodology will also be used for generating volumes at each interim terminus station. The traffic forecasts and subsequent traffic analysis (Section 7.1) of the interim station alternatives will only be for the local station impacts surrounding that terminus location. Similar to the full-length Build alternative analysis, the vehicle and pedestrian trips associated with the interim terminus station will only be analyzed for the highest ridership alternative at that specific interim terminus station.

Method 2: Regional and Corridor-Level Assessments, I-90 Corridor and Downtown Bellevue Volumes

The second method used to generate Build alternative forecasts is derived from the travel demand models as shown in Figure 1. The steps to produce the Build forecasts using this approach are as follows:

1. The No-Build vehicle table estimates from the PSRC model will be modified to reflect Build vehicle tables by applying the change in transit ridership between No-Build and Build conditions. The transit trip differences are developed through Sound Transit's transit ridership model (refer to Figure 1). To reflect East Link's transit demand, the Sound Transit model includes the preferred East Link alternative and bus service modifications, developed by King County and Sound Transit. The bus service modifications are further described in Section 4.0. In addition, Sound Transit will further study the ridership changes resulting from joint or exclusive use of the I-90 D2 roadway based on the bus and light rail travel times along I-90.
2. The PSRC vehicle trip tables will then be modified accordingly, based on the change in transit demand, to forecast auto volumes for the Build condition,
3. The vehicle trip tables will then be converted into the BKR zone system and assigned within the BKR model. The vehicle trip tables developed for the BKR model will be consistent with the vehicle demand distribution found in the future year BKR model and consistent with regional estimates.

As indicated in the bottom of Figure 1, model output from Method 2's Build alternative forecasts will consist of:

a. Using the PSRC model to estimate regional and screenline changes in mode shares and traffic volumes,

b. Using the PSRC model to develop changes in the I-90 vehicular demand at the freeway mainline and ramps with the project. These volume adjustments will be post-processed to produce AM and PM three-hour peak period trip tables for I-90 mainline, ramp and ramp terminals. The vehicle demand forecasting for the construction and Build alternative conditions along I-90 include the full construction of I-90 Alternative R-8A (Stage 1 through 3). Along the I-90 corridor, VISSIM origin/destination matrices will be developed for the analysis in Section 7.3.

c. For downtown Bellevue, the changes in the vehicular demand tables will be forecasted using the PSRC model. These changes in vehicular demand will be assigned through the BKR model to forecast intersection and street segment volumes within downtown Bellevue. These forecasts will be post-processed to produce Build traffic volumes at the downtown Bellevue study area intersections listed in Section 5.2.

Future Year Construction Analysis Forecasts

For the construction analysis performed for this project, an additional PSRC travel demand forecast will be performed to generate vehicle demand on I-90 during light rail construction. This condition assumes no general/public vehicle access to and from the reversible center roadway system as it is closed during construction. As part of this condition is it assumed that all three stages of the I-90 Alternative R-8A project are constructed and operating.

Construction analysis of local street operations will be performed for the Sound Transit Board's preferred alternative that would substantially reduce the number of roadway lanes during construction as well as alternatives with construction conditions that have the potential for substantial construction-related traffic impacts; such as cut-and-cover construction within downtown Bellevue as further described in Section 7.11. Travel demand forecasts will be performed to understand trip diversion and changes in demand on the affected roadway due to construction conditions.

Post-Processing

Standard methodologies from NCHRP 255 will be used to post-process the intersection and link volumes. The difference in the count and the base model volumes will be used along with the growth between the base and the future year model runs. These procedures will be carried out in a spreadsheet model and applied to all of the intersection turning movements and freeway segment volumes. For I-90 area, post-processing at intersections will be done for both AM and PM peak. For all other areas, it will be done for PM only.

6.3 Intersection and Freeway Level-Of-Service (LOS) Standards

As part of each agency's comprehensive planning efforts, agency transportation goals and LOS standards are developed. While each agency accepts different levels of congestion; a delay-based intersection LOS analysis has been preliminary accepted by each agency. Delay is expressed in terms of average delay per vehicle, in seconds, experienced due to the intersection operations. LOS definitions for signalized and unsignalized intersections and the freeway mainline, merge/diverge, and weave areas are included in Attachment 4. Overall, if the intersection operations are better than the agency's LOS standard in the Build alternative that intersection is considered to meet the agency's standard and does not require any mitigation. Potential mitigation will be evaluated to improve intersection operations to the agency's LOS standard when:

- Intersection operations in the Build condition are worse than the LOS standard when the intersection operations meet the LOS standard in the No-Build condition, or
- Intersection operations in the No Build condition are worse than the LOS standard and the Build condition exacerbates that situation. In this situation, the Build condition is only obligated to bring the operating conditions back to the No-Build condition.

Further definition of this approach and the LOS standard(s) for each agency is noted below:

Washington State Department of Transportation

To assess intersection operations, the operating threshold is LOS E. For freeway operations, the operating threshold in urban areas is LOS D.

City of Seattle

The City of Seattle's goal is to maintain intersection operations at LOS D or better.

City of Mercer Island

To assess intersection operations, the operating threshold is LOS C.

City of Bellevue

The City of Bellevue defines its LOS standard through fourteen sub areas; called Mobility Management Areas (MMA). The sub areas that overlap the East Link corridors are listed with their LOS standards in Table 5. All study intersections within each MMA will be individually compared to that MMA's LOS standard listed in Table 5.

TABLE 5
City of Bellevue LOS Standard

MMA No.	MMA	LOS Standard
3	Downtown	LOS E
4	Bel-Red Northup	LOS D
7	South Bellevue	LOS D
12	Overlake	LOS E

City of Redmond

The City of Redmond has yet to formally adopt revised LOS standards. Based on conversations with City staff, a two-tiered methodology is proposed that will examine overall intersection and individual lane group LOS. An overall intersection and lane group LOS standard of LOS E will be used as the LOS standard. Between the No-Build and Build alternatives, intersections that operate better then LOS E and do not degrade to conditions worse than LOS E in the Build alternative are considered to meet standards as long as no lane group LOS degrades to LOS F conditions. For example, an intersection that degrades from LOS C to D and no lane groups' LOS operates at LOS F, the intersection will not be considered for any improvements other than signal timing adjustments. Although if a lane group degrades from LOS D to LOS F, improvements will be considered to improve that specific LOS. If an intersection or lane group already operates at LOS F in the No-Build alternative, the Build alternative will maintain a similar operating condition where the delay does not significantly degrade.

7.0 Surface Street and Freeway Traffic Analysis

As noted in previous sections, the locations selected for surface street impact analysis are those determined to have the greatest potential for being impacted by light rail. Refer to Section 5.0 for the preliminary intersection and freeway study area. Key parameters will be considered in the determination of impacts to the surface street system; such as reductions in street capacity, changes in vehicular delay and traffic queue lengths at intersections or grade crossings.

7.1 Signalized and Unsignalized Intersection Analysis

Synchro, version 7, software will be used to determine levels of service at signalized and unsignalized intersections. Determining if an intersection meets the agency LOS standards will be based on the conditions at each individual intersection and not by a sub area weighted average. The HCM report from *Synchro* software will be used to summarize average intersection delay, LOS, and critical queue lengths. The level of service at signalized intersections will be defined in terms of average intersection delay. Likewise, the level of service at an unsignalized intersection is also defined in terms of delay, but only for the approach that is stop-controlled, typically the minor-street. For unsignalized intersections that are stop-controlled on each approach, the average intersection delay is reported. LOS definitions for signalized and unsignalized intersections are contained in Attachment 4.

Where actual values are not available assumed existing and future intersection parameters/values for the intersection analysis are developed and listed in Table 6. These include assumptions with respect to saturation flow rates, geometry, traffic, and signalization conditions.

7.2 Surface Street Microsimulation Analysis

The *VISSIM* software, version 5.1-08, will be used to assess the downtown Bellevue street system within the study area of Bellevue Way, I-405 ramps, Main Street and NE 12th Street. This VISSIM analysis will be conducted for the 2030 PM peak hour No-Build and Build conditions. The Build condition VISSIM analysis will be conducted for the C4A Alternative. This future year analysis will be based upon the existing calibrated network already completed as a prior effort.

Transportation data (i.e. future transportation projects, vehicle and pedestrian counts, signal timings, transit routes, driveway access and volumes) that is described in this document will be used for this analysis as well as applicable intersection parameters described in Table 6 of Section 7.1. Identified roadway and/or driveway access modifications as part of the C4A alternative will be included in the VISSIM analysis. This analysis will be based on the light rail operating plan documented in the FEIS. This plan includes the identification of planned train lengths and headway. Different signal priorities may be analyzed to gauge various levels of disturbances to the street system.

Transportation data that will be used to assess the street and light rail operations will be intersection level of service and vehicle delay, vehicle throughput, vehicle travel times along key corridors, key vehicle queue lengths and the light rail travel time. Other transportation data may be presented depending on the criteria developed for the decision-making process with stakeholders.

TABLE 6
Synchro Parameters/Assumptions

Arterial Intersection Parameters	**Condition**		
	Existing	**2020 - Year of Opening**	**2030 - Design Year**
Peak-Hour Factor	From count and by each approach, default provided 0.90	If existing PHF is between 0.70 and 0.85 use 0.90 If existing PHF is > 0.85 ≤ 0.95 use 0.95 If existing PHF is > 0.95 use existing PHF. If existing PHF < 0.70 then increase factor by 0.10	0.95 for all intersections except where existing PHF is greater than 0.95 or less than 0.70. Use existing PHF in the cases were the PHF is greater than 0.95. If existing PHF < 0.70 then increase factor by 0.20
Conflicting Bikes and Pedestrian per Hour	From traffic count, otherwise assume 10 peds/bikes in both AM and PM periods. In Downtown Bellevue assume 50 peds/bikes per approach.	Same as existing in No-Build. For the Build condition, add the number of pedestrians based on the station ridership and Banfield mode of access survey.	Same as existing in No-Build except for Downtown Bellevue; assume 100 peds in both AM and PM periods per approach unless currently higher. If so keep same as existing count. For the Build condition, add the number of pedestrians based on the station ridership and Banfield mode of access survey.
Pedestrian Crossing Time	From agency signal phasing sheets or existing Synchro model.	Same as existing for intersections with no geometric changes. Where intersection geometry is modified a minimum of 5 second walking time. Flashing don’t walk based on MUTCD (2003 Edition, Section 4E.10)	Same as existing for intersections with no geometric changes. Where intersection geometry is modified a minimum of 5 second walking time. Flashing don’t walk based on MUTCD (2003 Edition, Section 4E.10)
Area Type	“Other” for all areas except Downtown Bellevue which will use CBD.	Same as existing	Same as existing
Ideal Saturation Flow (for all mvmts)	1900	1900	1900
Lane Utilization	Default software assumptions unless data/engineering	Default software assumptions unless data/engineering judgment suggests	Default software assumptions unless data/engineering judgment

TABLE 6
Synchro Parameters/Assumptions

Arterial Intersection Parameters	Condition		
	Existing	2020 - Year of Opening	2030 - Design Year
	judgment suggests otherwise	otherwise	suggests otherwise
Lane Width	From field sheets, agency in-house Synchro files or paint line drawings (i.e. SDOT)	Same as existing, unless improvements proposed then use agency standards/plans.	Same as existing, unless improvements proposed then use agency standards/plans.
Percent Heavy Vehicles	From count, otherwise 2%	From count, otherwise 2%	From count, otherwise 2%
Percent Grade[a]	From as-builts, agency in-house Synchro file or field sheets	Same as existing	Same as existing
Parking Maneuvers per Hour	Based on parking regulations. For less than 15 min. parking, assume 4 maneuvers per hour; otherwise assume 1 maneuver per hour, unless data/information gathered or provided from agencies suggest otherwise.	Same as existing. For new parking, assume existing assumptions for maneuvers based on parking durations.	Same as existing. For new parking, assume existing assumptions for maneuvers based on parking durations.
Bus Blockages	Headway information provided by transit agencies	Use future service assumptions developed by Metro and ST as part of the Transit Service Integration Plan.	Use future service assumptions developed by Metro and ST as part of the Transit Service Integration Plan.
Intersection signal phasing and coordination	From agency signal phasing sheets or their existing analysis files.	Same as existing For timing adjustments: Left-turns, if permissive in existing, will be examined for a protected phase based on LOS, access/geometry, safety and agency guidance For Build: any left-turn conflict with at-grade light rail will include a separate lane and have protected phasing. Left-turns will be restricted (or protected with a gate or similar treatment) at unsignalized intersections. For elevated light rail, mid-block left turns will be restricted.	Same as existing For timing adjustments: Left-turns, if permissive in existing, will be examined for a protected phase based on LOS, access/geometry, safety and agency guidance For Build: any left-turn conflict with at-grade light rail will include a separate lane and have protected phasing. Left-turns will be restricted (or protected with a gate or similar treatment) at unsignalized intersections. For elevated light rail, mid-block left turns will be restricted.
Light Rail Signal Phasing	N/A	Train operations are assumed to occur during the parallel through movement signal phase. If this phase is not available then a new signal phase will be coded only for light rail movement. In some instances the train may remove an intersection from being coordinated. In these conditions, the intersection may operate uncoordinated. Crossing times will be based on assumed speed, acceleration and deceleration rates of a light rail train.	same as 2020 conditions
Intersection signal timing optimization limits	N/A	Between 60 to 120 seconds for all areas except for downtown Bellevue and Redmond. Assume 60 up to 150 seconds for downtown Bellevue & Redmond signals (some in Bellevue may reach up to 180 sec.).	Same as 2020 assumptions
Minimum Green Phase time	From agency signal phasing sheets or existing Synchro	Same as existing if intersection remains unchanged.	Same as existing if intersection remains unchanged.

TABLE 6
Synchro Parameters/Assumptions

Arterial Intersection Parameters	Condition		
	Existing	2020 - Year of Opening	2030 - Design Year
	model.	If modified in No-Build or Build condition: - If pedestrian crossing: based on pedestrian times (see Pedestrian Crossing Time). - If no pedestrian crossing: a minimum of 5 sec.	If modified in No-Build or Build condition: - If pedestrian crossing: based on pedestrian times (see Pedestrian Crossing Time). - If no pedestrian crossing: a minimum of 5 sec.
Yellow and all-red time		New signals: (Y) = 4 seconds and (R) = 1 second	New signals: (Y) = 4 seconds and (R) = 1 second
Right Turn on Red	Allow	Allow	Allow
Right Turn Overlaps	signal timing plans	Identify if used	Identify if used
50th and 95th percentile vehicle queues	Based on 25 feet per vehicle	Based on 25 feet per vehicle	Based on 25 feet per vehicle

[a]Percent grade assumed for at grade intersections only.
Delay-based LOS results will be reported from Synchro's HCM Reports

7.3 Freeway and Ramp Analysis

The *VISSIM* software, version 4.3, will be used to assess the I-90 freeway operations for the mainline/merge and diverge freeway areas as well as the ramp terminals between I-5 and I-405. Refer to Section 6.0 for the proposed I-90 analysis periods and Section 5.2 for a description of the freeway study area. The extent of the study area will create a comprehensive connected system to better simulate travel patterns and fluctuations. Control devices; such as ramp meters on the on-ramps will also be included in the *VISSIM* network to portray operating conditions onto and from I-90. If joint transit/rail operation on the I-90 D2 roadway is carried into the EIS analysis, this operating plan will be reflected in *VISSIM* network.

The network coding within *VISSIM* software will be built from the *WSDOT I-90 Center Roadway Study* or found on as-built plan sheets or aerial photos. For any design changes as part of the Build alternative, they will be coded based upon the preliminary engineering drawings made available from the engineering team. Table 7 identifies some of *VISSIM's* additional inputs and assumptions that will be incorporated into the analysis. While the ramp terminals and ramp control devices will be coded into *VISSIM*, the intersection results (including ramp terminals) will be from the analysis conducted with the *Synchro* software as this software program is more effective in testing and optimizing traffic signals on an arterial network.

TABLE 7
VISSIM Freeway Parameter Methods/Assumptions

Freeway Parameter	Existing	2020 Year of Opening	2030 Design Year
Deceleration Lane Length	From as-builts or aerial	Same as existing or from design plans	Same as existing or from design plans
Acceleration Lane Length	From as-builts or aerial	Same as existing or from design plans	Same as existing or from design plans
Grade	From as-builts, if not assume 0%	Same as existing	Same as existing
Superelevation	Assume 0%	Same as existing	Same as existing

TABLE 7
VISSIM Freeway Parameter Methods/Assumptions

Freeway Parameter	Existing	2020 Year of Opening	2030 Design Year
Pavement Type	Assume dry concrete	Assume dry concrete	Assume dry concrete
Desired Free-Flow Speed	70 mph	Same as existing	Same as existing
Car Following Sensitivity Factor[a]	Variable	Same as existing	Same as existing
Truck %	From traffic data	Same as existing	Same as existing
I-90 Carpool/HOV Person Designation	2+ with access for Mercer Island residents in the I-90 reversible center roadway	No-Build based on PSRC's assumption; for Build include Mercer Island residents[b]	No-Build based on PSRC's assumption; for Build include Mercer Island residents[b]
Carpool / HOV %	From field data	From demand modeling information	From demand modeling information
Origin-Destination Patterns	From WSDOT I-90 Study; if not, from calibrated 2005 PSRC demand model	From demand modeling information	From demand modeling information
Lane Distribution (for entering links)	Assume even distribution over all entering lanes	Assume even distribution over all entering lanes	Assume even distribution over all entering lanes
Vehicle Type Specifications	Assume default vehicle type specifications	Same as existing	Same as existing
Warning Sign Distance (for on-ramps) [b]	From as-builts, variable depending on freeway conditions and geometry	Same as existing	Same as existing
Warning Sign Distance (for off-ramps)[b]	From as-builts, variable depending on freeway conditions and geometry	Same as existing	Same as existing
Ramp Metering	Will be coded as fixed-timed	Will be coded as fixed-timed	Will be coded as fixed-timed
VISSIM Output *(pcphpl - per car; per hour; per lane)*	Segment density (in terms of pcphpl) and corridor travel time	Segment density (in terms of pcphpl) and corridor travel time	Segment density (in terms of pcphpl) and corridor travel time
Number of Simulations	Up to 5 simulations	Same as existing	Same as existing

[a] CFSF and Warning Sign Distances are key inputs and will be used as a calibration technique to match field conditions.
[b] Per the December 22nd, 2006 WSDOT letter to the City of Mercer Island.

Detailed vehicle data along I-90 will be post-processed and presented to identify four mobility measures for the I-90 freeway corridor. These measures described below will be used to identify the potential benefits and impacts of the light rail alternative on I-90. These four mobility measures are:

1. ***Number of access locations.*** The number of access points to and from I-90 will be identified. This will include any access changes or conversions with the Build alternative.

2. ***AM and PM Level of Service (LOS).*** The Highway Capacity Manual defines the freeway LOS in terms of density to quantify the operating conditions on a freeway facility. Density, and its corresponding LOS, for each mainline, merge/diverge and weaving segment will be provided. Density is measured by the number of passenger cars, per hour, per lane (pcphpl). Attachment 3 provides LOS definitions for freeway segments.

3. ***AM and PM Peak Hour Travel Time.*** Eastbound and Westbound No-Build travel times for the outer roadway general purpose (GP) and HOV (including transit) lanes along with the reversible center roadway express lanes on I-90 will be provided for four vehicle classes (GP, HOV, Trucks & Transit) between four locations; I-5, 77th Avenue SE/Island Crest Way, Bellevue Way and I-405.

   For the Build alternative, the No-Build alternative center lane travel times will be replaced with the travel time for light-rail between Seattle and the Mercer Island station. The GP and HOV travel times for the outer roadway will also be provided for four vehicle classes (GP, HOV, Trucks & Transit) for the Build alternative. Table 8 provides a list of the travel times and their corresponding endpoints.

4. ***AM and PM Peak Hour Person and Vehicle-Throughput.*** Person and vehicle throughput will be determined at the two screenlines locations on I-90 (Section 3.3):

   a. west of Mercer Island on the mid-span of the floating bridge, and
   b. between the Bellevue Way and I-405 Interchanges.

   Throughput is a function of the operating condition; therefore vehicle data from *VISSIM* will be post-processed with the latest PSRC occupancy survey data to generate SOV and HOV person-throughput. Transit ridership data from the Sound Transit model will be included as a component of the No-Build and Build alternative person-throughput.

   Person and vehicle-throughput statistics will be provided for a range of light rail alternatives through post-processing transit ridership and service information. This assumes GP and HOV vehicles along I-90 will remain constant between the light rail alternatives as unserved demand in the peak period will replace any mode shift to transit.

TABLE 8
I-90 Travel Time Endpoints

Mode/Facility	No-Build Alternative	Build Alternative
Outer Roadway GP and HOV lanes	1. I-5 to Bellevue Way (EB) 2. I-5 to I-405 (WB) 3. I-405 to I-5 (EB) 4. Bellevue Way to I-5 (EB) 5. I-5 to Island Crest Way (EB) 6. Island Crest Way to I-5 (WB)	1. I-5 to Bellevue Way (EB) 2. I-5 to I-405 (EB) 3. I-405 to I-5 (WB) 4. Bellevue Way to I-5 (WB) 5. I-5 to Island Crest Way (EB) 6. Island Crest Way to I-5 (WB)
Reversible center roadway	7. I-5 to 77th Avenue SE (EB) 8. 77th Avenue SE to I-5 (WB)	7 & 8. Light rail between the IDS, Mercer Island and South Bellevue Stations (EB & WB)

7.4 Local Street and Freeway Safety Analysis

A safety (accident/crash) analysis will be used to assess the type, cause, and frequency of accidents currently occurring within the project limits. Accident data from the latest three years will be completed and summarized to identify any current safety deficiencies. Unique accident patterns (e.g. high frequency of a specific pattern) will be noted. The accident data will be collected for the directly affected local intersections, roadways and I-90 mainline and ramps. Only where the light rail alternatives are proposed to be either at-grade in semi-exclusive right-of-way or elevated within or immediately adjacent to the road right-of-way will an intersection and roadway safety analysis be conducted. Along the local streets, a qualitative discussion of how the project may affect accident type and frequency will be provided.

Along I-90, a predictive assessment of how accidents may change in the future related to volume/congestion level changes will be developed using current hourly corridor data. By relating various accident quantities to congestion levels, future accident rates or quantities can be applied to future volume predictions for both Build and No-Build alternatives. Current accident patterns/rates determined in the DEIS suggest a similar accident history when the safety analysis was conducted for the *I-90 Two-Way Transit and HOV Operations EIS and IJR*. Therefore, the future predictive analysis for that project will be used as the baseline condition for the I-90 outer roadways. This includes the crash reduction measures proposed in these studies and approved by WSDOT. The benefit of converting the reversible center roadway to light rail will also be accounted for in the safety analysis. No accident analysis or safety conclusions for alternatives proposed to operate outside the roadway right-of-way (exclusive right-of-way) will be conducted. An example of this type of alignment is the light rail alternative that is proposed adjacent to the SR 520 corridor.

7.5 Light Rail Stations/Park-and-Ride

Using the analysis methodology described in previous sections, key access points to the light rail stations and park-and-ride lots will be analyzed to determine the traffic impacts associated with each light rail alternative. The current and/or proposed South Bellevue, 118th, 130th, Overlake Village and SE Redmond Park and Rides and Bellevue, Mercer Island, Overlake and Redmond Transit Centers are located at or nearby potential light rail alternatives; therefore, the evaluation of traffic impacts due to the East Link alignments will be based on the projected net change in park-and-ride demand for all transit users in each station's vicinity due to the introduction of light rail service or any expansions in park-and-ride capacity. Other issues to be addressed in the assessment of park-and-ride lot and other transit station impacts will include drop-off needs, pedestrian and bicycle circulation and access, and a qualitative evaluation of the potential for spillover parking within adjacent commercial or residential neighborhoods (hide-and-ride as described in Section 7.6).

Characteristics and locations of proposed transit stations and park-and-ride lots will be provided as part of the definition of each light rail alternative. Light rail ridership data at each station, consisting of average weekday park-and-ride, bus transfer, and walking/bicycle patron volumes, will be obtained from the ridership forecasting described in Section 6.2. Park-and-ride trip generation and peaking characteristics for each type of access mode, including both parked vehicles and passenger pick-up/drop-off trips, will be estimated based on information provided in the *Banfield LRT Station Mode of Access Survey* (Tri-Met 1996) for stations in the Portland area that have similar characteristics to proposed Link stations. Parking trip generation will also be sensitive to the project and location-specific characteristics that affect each park-and-ride such as driveway locations.

Traffic impacts at light rail stations will be evaluated using *HCM* methodologies at adjacent key intersections and at the proposed station or parking lot driveway intersections as discussed in Section 7.1. To provide a conservative evaluation of potential traffic impacts, park-and-ride lots will be assumed to be operating at full capacity with all light rail alternatives. Beyond the vehicle trip generation and subsequent intersection traffic analysis associated with the development of light rail stations and park-and-ride lots, a qualitative assessment will be conducted to assess the likelihood of or potential for other traffic impacts associated with these facilities. These impacts could include:

- Discussion of the potential for off-site and/or commuter parking in the vicinity of each station on local streets or in privately-owned parking lots (this differs from the quantitative impact of physical parking loss or reconfiguration discussed in Section 7.5);
- Estimation of the potential for residential neighborhood traffic intrusion; and
- Identification of existing or potential future barriers to bicycle and pedestrian circulation in the vicinity of light rail stations or caused by light rail trackway development.

Table 9 summarizes the criteria used to assess non-quantifiable station-area traffic impacts as described above. These criteria include definitions for the determination of impact magnitude. Variations in transit station ridership forecasts associated with interim terminus alternatives and station deferrals may also be considered in the assessment of station area traffic impacts.

7.6 Parking

Parking supply and costs vary throughout the corridor; large supplies of free private parking are available in both Bellevue and Redmond areas. Many private parking garages are also located in the Bellevue downtown area. Demand for parking spaces also varies depending upon location throughout the corridor, with relatively high demand in downtown Bellevue, more moderate demand in Bellevue-Redmond and Overlake areas and relatively low demand in other locations; such as South Bellevue. Analysis of the impacts of light rail on existing on and off-street public parking will focus on the loss or reconfiguration of this parking due to light rail station and trackway development.

TABLE 9
Criteria for Evaluation of Station-Area Traffic Impacts

Impact	Factors Considered	Impact Assessment
Potential for Off-site Station Area Parking Impacts (Hide-and-Ride)	• Availability of unrestricted parking within a reasonable walking distance. • Convenient access between parking areas and the station. • Compatible land uses. • Perception of security. • Proximity to other light rail station with available parking.	• Low – Station surrounded by restricted parking, inconvenient station access, land uses incompatible, security questionable. • Moderate - Parking both restricted and unrestricted, land uses compatible with all day parking, reasonably secure. • High - parking generally unrestricted and convenient access to station. Station may be an access point to large travel shed.
Potential for Residential Neighborhood Traffic Intrusion	• Existence of through street connections • Character of surrounding land use (is it residential?). • Existence of or lack of traffic calming devices. • Spatial relationship of access routes to residential area.	• Close correlation with potential for off-site parking impacts.
Pedestrian/ Bicycle Traffic	• Existing facilities available and/or proposed through local agency plans. • Volume of traffic on adjacent roadways. • Topography and/or gradient differences.	• Qualitative assessment related directly to provision or lack of facilities and/or presence of existing or potential physical barriers.

[a] Restricted parking not available to light rail riders will include on-street parking with meters, residential parking zone (RPZ) signs, or time limit signs, and private off-street parking not available for general public use.

Inventory of Parking Supply and Utilization

The analysis of each light rail alternative’s impact to the number of on- and off-street parking spaces will be documented. Refer to Section 6.1 for the parking data collection parameters. At station areas, parking inventory and utilization surveys will be conducted within a 0.25-mile radius of each station. Within this area, an inventory of existing on and off-street public parking spaces will be developed. Inventory data will be stratified by type of parking (i.e., time limited parking, free parking, loading zone, etc.) and location (i.e., block face or other distinguishing feature). Where available, data from the local agencies will be used to initiate the inventories near the station locations. Where data is not available from the local agencies, data will be collected through field surveys. Analysis will focus on locations that may be specifically impacted by the light rail alignments including both available parking and internal site circulation. Data will include a space occupancy count by block face taken once during mid-morning or mid-afternoon hours on a weekday. This time period represents typical conditions for parking demand. Private off-street parking utilization data will not be collected as part of this project and, only if available by the local agencies or civic groups, will the private parking supply and utilization be documented.

Assessment of Parking Impacts

The assessment of public parking impacts will be based on review of the inventory of parking supply and demand coupled with an evaluation of the conceptual drawings for each light rail alternative. The conceptual drawings will assist in identifying specific locations where changes would be made to the existing parking supply. Comparison between existing demand and the supply remaining after construction of each light rail alternative will form the basis for identification of parking loss associated with the project. The loss of existing public parking spaces will be stratified by both location and type. Private off-street parking will only be analyzed qualitatively since quantitative private parking data will not be collected.

7.7 Non-Motorized Facilities/Modes

A qualitative assessment of the light rail alignments on existing and future proposed pedestrian and bicycle facilities will be performed. Specific issues to be discussed include the following:

- Pedestrian access and circulation in the vicinity of the proposed station, in relationship to the forecasted ridership.
- Identification of non-motorized facilities present at stations.
- Identification of direct (physical) effects on pedestrian and bicycle facilities along each light rail alignment.
- Barriers created to non-motorized (pedestrian and bicycle) traffic movement.
- Intersection crossing issues associated with station layout and connections to major pedestrian routes and destinations.
- Missing sidewalk sections for arterial classified streets within a half-mile radius of the proposed light rail stations.
- Impacts to recommended school walk routes.
- Existing regional bike paths, routes and deficiencies within a 1.0-mile radius of the proposed light rail stations with a general qualification of how major multi-use trails/paths are used (i.e. by commuters or recreational use).

A pedestrian LOS analysis will also be conducted for sidewalks at intersections within one block or 300 ft of each proposed station entrance for both the No-Build and Build conditions to document an impacts created to the pedestrian environment. The *Transit Capacity and Quality of Service Manual* (TCQSM) and *Highway Capacity Manual* (HCM) methodology for determining sidewalk LOS will be used for this analysis. Additional factors such as station layout, adjacent land uses, connections to nearby pedestrian routes and destinations, and potential queue locations will be considered and qualitatively discussed as part of the sidewalk analysis.

7.8 Property Access/Local Circulation

Beyond the analysis of intersection level of service and delay impacts, a qualitative assessment will be made of traffic impacts on local circulation. This assessment will include such factors as:

- Effect of potential street closures on localized traffic movement,
- Potential for neighborhood traffic intrusion associated with either light rail stations or trackway,
- Loss of left-turn access to and from driveways for at-grade and elevated light rail alternatives,
- Changes in property access,
- Other factors.

7.9 Freight

A qualitative assessment will be made of the light rail alignments' impact on freight movements. This assessment will focus on truck movement, truck routing impacts and impacts to the BNSF freight rail corridor. The freight assessment will focus on potential impacts to major truck routes (including I-90) and the BNSF rail corridor, truck service areas, access to major industrial areas, and modifications of truck access to local businesses. Along I-90 a quantitative assessment of truck operations will be documented. This will include the number of trucks able to cross Lake Washington in the 2020 and 2030 AM and PM peak periods for the No-Build and Build conditions and the truck travel time associated with each condition. For a further description of this information refer to Section 7.3.

7.10 Transit

To ensure transit is appropriately evaluated the level of service analysis documented in Transit Cooperative Research Program, Report 100, 2nd Edition *The Transit Capacity and Quality of Service Manual* (TCQSM) will be used as a guideline for measuring and comparing transit in the Existing, No-Build, and Build conditions. The transit LOS measures will be evaluated for each of the East Link project service areas, project screenline locations and at the stations. The transit service integration plan will provide the necessary information to analyze the future No-Build and Build conditions. The measures to be considered include:

- Service Frequency – Transit schedules and headways will be reviewed at the regional transit centers and park-and-ride locations to determine the number of times an hour a user has access to the transit mode. Special attention will be focused on transit routes that would serve comparable destinations as light rail.
- Hours of Service – Also known as "service span," is simply the number of hours during the day when transit service is provided along a route, a segment of a route, or between two locations.
- Passenger Loads – Reflect the passenger's comfort level of the on-board vehicle portion of a transit trip, both in terms of being able to find a seat and overall crowding levels within the vehicle. This will be a quantitative comparison at the screenline locations between the No-Build and Build conditions.
- Reliability (On-Time Performance and Headway Adherence) – This measure would rely on actual field information from King County's Metro and Sound Transit's Automatic Vehicle Location (AVL) data for an assessment of existing conditions at transit centers and park-and-ride lots. Observations will be made at selected potential station locations to assess the reliability of existing bus routes. Future No-Build and light rail alternatives would be assessed in a qualitative fashion.
- Travel Time– Will be compared for No-Build and Build conditions. Average door-to-door travel times determined based on Sound Transit's forecasting model will be compared for the alternatives being considered.
- Transfers - Will be compared for No-Build and Build conditions. Average number of transit boardings per transit trip will be reported.

Bus and Vanshare layover needs will also be reviewed for each proposed station location. The primary source of information for the future Build alternative will be the light rail alternatives' ridership forecasting effort which is expected to provide the network design, service level inputs, and ridership and travel time outputs. Coordination with King County Metro, and possibly Community Transit will be required. The methodology for analysis of I-90 transit operations (i.e. travel time changes with the project) is provided in section 7.3.

7.11 Construction

A qualitative analysis will be conducted for all alternatives in the FEIS. A more detailed quantitative traffic analysis will be conducted for the Sound Transit Board's preferred alternative as well as alternatives with construction conditions that have the potential for substantial construction traffic impacts (such as cut-and-cover construction in downtown Bellevue). This traffic analysis will be conducted as outlined in section 7.1 and will include key intersections within the construction area that would likely either have additional traffic due to recirculation or reduced number of travel lanes due to construction closures..

Two primary sources of construction impacts to local traffic will be considered from a generally qualitative standpoint:

1. Impacts to traffic operations related to potential road, sidewalk, bicycle, or other transportation facility closures during construction; and
2. Impacts of construction-related traffic.

The primary source of quantitative construction impacts to local traffic will focus on:

1. Impacts to roadways with (or adjacent to) key long-term lane closures by performing traffic forecasts, identifying travel pattern changes and performing subsequent intersection analysis.

Overall, the assessment of construction traffic impacts will focus primarily on principal and minor arterials or on streets that could be directly affected by project construction. As the construction duration along I-90 will cause the closure of the reversible center roadway a quantitative traffic analysis will also be prepared to document and assess construction impacts incurred by the light rail construction along I-90. This process and technical analysis will be prepared similar to the information presented in Sections 6.0 and 7.2. As part of this analysis it is assumed that Stage 3 of the I-90 Two-Way Transit and HOV project (Alternative R-8A) will be constructed and operating to alleviate congestion caused by the reversible center roadway closure. The construction of Alternative R-8A will not be included in this analysis as its construction staging and assessments are documented in the approved *I-90 Two-Way Transit and HOV Operations EIS and IJR*.

Overall the construction qualitative analysis will consider the following:

- Identification of changes in roadway capacity including potential lane closure requirements, parking restrictions, pedestrian or bicycle facility/routes impacts, alignment shifts, areas of construction activity adjacent to travel lanes, or other reductions to capacity due to transit facility and associated utility construction activity;
- Impacts to transit and emergency services;
- Impacts of construction-related activity on on-street parking supply;
- Identification of potential construction staging areas; including access and impact to roadway operations;
- Identification of potential construction access and truck routes and the impact of construction-related traffic on these routes;
- Estimation of construction truck traffic;
- Identification of areas that would require construction coordination between Sound Transit and other governmental agencies; and
- Development of measures that could mitigate traffic impacts from project construction.

The analysis will be summarized in a tabular format to identify the following:

- Impact location(s).
- Street characteristics.
- Type of construction activity including likely duration of impact (short-term versus long-term).
- Level of construction traffic (This may be characterized as high, moderate, or low). High truck traffic is associated with major fill, excavation, and concrete work such as with tunneling. Moderate truck traffic generally refers to activities not associated with major fill or excavation work. Low truck traffic occurs when none of the construction activities associated with moderate or high truck traffic occurs).
- Full or partial road closures.
- Availability of detour routes.
- Potential for detoured traffic to impact a residential neighborhood. (This is characterized as high, medium or low and is related to both potential for road closure and options for traffic detour.)
- Loss of on-street parking. (This may be characterized as “yes” for parking loss and “no” for no parking loss. Additionally, there may be some temporary loss of off-street parking due to the location and operation of construction staging.)
- The parking demand and supply data discussed in Section 7.5 will be used to determine the level of potential impact that construction worker parking could have on parking supply during construction activities.
- General comments highlighting key issues for each location related to construction traffic activity that do not fall into one of the foregoing categories.
  a. Identify capacity issues, impact on parking/access
  b. Identify construction routes/staging areas

7.12 Mitigation

Potential mitigation measures will be described to address potential transportation impacts associated with the light rail alternatives. Based on the 2020 and 2030 traffic analysis, opportunities for mitigation of long-term impacts will be identified where:

- Intersection operations in the Build condition are worse than the LOS standard when the intersection operations meets the LOS standard in the No-Build condition, or
- Intersection operations in the No Build condition are worse than the LOS standard and the Build condition exacerbates that situation.

These measures might include operational changes such as signal phasing or timing or physical modification such as added lanes. For intersections that do not meet the established LOS standards in the No-Build condition, the light rail alternatives are only obligated to bring the operating conditions back to the No-Build condition. Determining if an intersection meets the agency LOS standards will be based on the conditions at each individual intersection and not by a subarea weighted average.

Areas for potential parking mitigation will be identified by considering the potential for hide-and-ride in the neighborhoods surrounding transit stations. Areas with a high potential for this type of parking activity will be identified with potential mitigation strategies to reduce the likelihood of this activity. Potential mitigation for individual properties where impacts have been determined, such as driveway closure, will also be identified. Where impacts to transit operations are identified appropriate mitigation will be proposed.

Mitigation measures aimed at addressing the construction traffic impacts identified above will be developed and reviewed. As appropriate, this will include a review of measures proposed and/or used for the Central Link light rail construction. Mitigation measures identified to address local construction traffic impacts will also be reviewed for their relevancy in addressing regional and/or corridor level construction traffic issues.

8.0 Documentation

A Transportation Technical Report will be prepared documenting the technical analysis discussed in this report. A summary of the Transportation Technical Report will be incorporated into the FEIS's relevant sections and the Transportation Chapter.

Attachment 1
No-Build Project List

NO-BUILD TRANSPORTATION PROJECTS
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
King County Interstate and State Routes				
I-405	1 lane each direction from I-5 to SR 181	X	X	Nickel Package
	1 lane NB from SR 181 to SR 167	X	X	Nickel Package
	1 lane SB from SR 169 to SR 167	X	X	Nickel Package
	1 lane NB from SR 167 to SR 169	X	X	TPA
	SR 515 half-diamond interchange (Talbot Rd)	X	X	TPA
	1 GP lane NB from 112th Ave SE to SE 8th	X	X	Nickel Package
	1 GP lane and one outside HOV SB from I-90 to SE 8th	X	X	Nickel Package
	NE 10th overcrossing	X	X	TPA
	NB Braided crossing from NE 8th to SR 520	X	X	TPA
	1 lane NB from NE 70th to NE 124th	*X*	*X*	*Nickel Package*
	1 lane NB from NE 124th to NE 160th	X	X	TPA
	1 lane SB from SR 522 to SR 520	X	X	Nickel Package
	2 NB lanes Braided Crossing from NE 160th to SR 522	X	X	TPA
	NE 132nd St Interchange	X	X	TPA
	Totem Lake Freeway Station NE 128th	*X*	*X*	*Sound Transit*
	Totem Lake Transit Center	*X*	*X*	*Sound Transit*
	NB/SB SR 167 to I-405 HOV Direct Connect		X	Destination 2030
	1 lane each direction SR 169 to SR 900 (Sunset Blvd)		X	Destination 2030
	2 lanes both directions Sunset to Park Drive		X	Destination 2030
	HOV Direct Access N 8th		X	ST/Destination 2030
	3 lanes both directions from Park Dr to NE 30th		X	Destination 2030
	2 lane NB NE 30th to SE 52nd Ave SE		X	Destination 2030
	3 lanes SB from Coal Creek to NE 30th		X	Destination 2030
	3 lanes both directions from Coal Creek to I-90 (Braids for I-90 to I-405)		X	Destination 2030
I-90	Two-way Transit/HOV from Seattle to Mercer Island (Stage 1, 2, and 3)	X	X	TPA (Only Stages 1 and 2) , ST/WSDOT Stage 3.
	Eastgate Access / 142nd Ave SE	*X*	*X*	*Sound Transit*
SR 519	New ramp at South Atlantic Street and grade separated crossing over Royal South Royal Brougham Way	X	X	Nickel Package
SR 520	Widen to 8 lane including auxiliary and HOV lanes from W Lake Sammamish to SR 202	X	X	Nickel Package
	6 lane (2 GP, 1 HOV) facility Between I-405 and Mountlake Blvd (This assumes the Eastside Transit and HOV Project and the tolling strategies documented in the EIS.)	X	X	Destination 2030

NO-BUILD TRANSPORTATION PROJECTS

(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
SR 167	1 SB lane from I-405 to SW 41st	X	X	TPA
	1 HOV lane SB from 15th NW to 15th SW	X	X	Nickel Package
	Add HOV both directions from 15th St SW to Pierce Co. Line	X	X	TPA
	Extend HOV lane from 8th St SW to 15th Street NW – HOV	X	X	Nickel Package
I-5	*1 NB lane NE 175th to NE 205th*	*X*	*X*	*Nickel Package*
	Complete HOV from Pierce Co. Line to Tukwila	*X*	*X*	*Nickel Package*
SR 509	Phase 1: 180th to I-5		X	Destination 2030
SR 900	Add 1 lane both directions from SE 78th to I-90	X	X	Nickel Package
	Add HOV lanes both directions from park-and-ride lot to I-90	X	X	Nickel Package
SR 522	Business/Transit Lane (Bothell-Kenmore areas)	X	X	Various sources
	UWBCC campus access: new interchange	X	X	Nickel Package
SR 518	*Add 1 EB GP lane from airport access to I-5*	*X*	*X*	*TPA*
SR 161	*Widen to 5 Lanes from Jovita Blvd to S 360th St*	*X*	*X*	*Nickel Package*
SR 99	Aurora Ave N Corridor Transit/HOV Lanes (N 105th to N 200th)	X	X	Nickel Package
	Replace viaduct	X	X	Destination 2030
SR 18	*1 lane both directions Maple Valley to Issaquah Hobart Rd*	*X*	*X*	*Nickel Package*
	1 lane both directions Issaquah Hobart Rd to I-90		X	Destination 2030
Snohomish County Interstate and State Routes				
I-5	*HOV lanes from SR 526 to US 2*	*X*	*X*	*Nickel Package/TPA*
	New ramp SB I-5 to WB SR 525	X	X	TPA
SR 522	4-lane widening from Snohomish River to US 2	X	X	Nickel Package
SR 9	Stages 1 and 2 from SR 522 to 176th St SE	X	X	Nickel Package
I-405	1 lane NB NE 195th to SR 527	X	X	TPA
SR 527	Additional lanes from 164th SE to 112th SE	X	X	Nickel Package
Pierce County Interstate and State Routes				
I-5	HOV lanes from S 48th (Tacoma) to King/Pierce Co. Line	X	X	Nickel Package
SR 161	Corridor improvements from 176th to 234th	X	X	Nickel Package
	Additional lanes from 36th to Jovita	X	X	Nickel Package
SR 16	*HOV Improvements from Olympic View Dr to I-5*	*X*	*X*	*Nickel Package*
	Tacoma Narrows Bridge: new bridge and approaches. Toll on bridge (EB only)	*X*	*X*	*Bond/Toll*
SR 410	Additional lanes from 214th to 234th	X	X	Nickel Package/TPA
Bellevue Arterials				
150th Ave SE	*Widen to 7 lanes from SE 36th to Newport Way; add turn lanes*	*X*	*X*	*TFP-011*

NO-BUILD TRANSPORTATION PROJECTS
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
Northup Way	*1 EB lane from 120th to 124th Avenues NE, intersection improvements at Northup Way and 124th*	*X*	*X*	*TFP-091, TFP-106*
Northup Way	Provide sidewalks and bike lanes on both sides and a two-way center turn lane between Bellevue Way and NE 24th Street.		X	TFP-079
110th Ave NE	Widen to 5 lanes between NE 4th and NE 8th	X	X	TFP-110
NE 10th St	*Extend from 112th Ave NE across I-405 and through the OHMC campus to connect with 116th Ave NE*	*X*	*X*	*TFP-189*
NE 8th Street/106th Avenue NE	*Add westbound lane from 106th to 108th Ave NE becoming right turn lane at 106th Ave NE.* Realign the roadway to the south to better utilize the new westbound travel lane (between 108th and 106th Avenues NE; funded in CIP) and preserve the existing large sequoia tree.	X	X	*TFP-184* TFP-219
NE 12th Street	Widen bridge across I-405 to five lanes. Provide additional turn pockets at 112th and 116th intersections	X	X	Bel-Red Corridor FEIS
NE 10th St at I-405	Add on-ramp to the north connecting to SR 520.	X	X	TFP-193
NE 2nd St	Widen the existing roadway from 3 lanes with parking and turn pockets to 5 lanes from Bellevue Way to 112th Ave NE		X	TFP-190
148th/150th Ave SE	Widen by extending the third SB lane from the ramp to WB I-90 to south of Eastgate Way at the I-90 WB off Ramp		X	TFP-154
129th Ave SE	Extend 129th Ave SE from SE 38th St to Newport Way		X	TFP-103
NE 4th Street Extension	Extend 4th Street to 120th Avenue NE will consist of 5 vehicle lanes, bike lanes, sidewalks and will require construction of a sunken roadway and bridge(s) for BNSF RR tracks and Pedestrian over crossings. 120th Avenue widened between NE 4th and NE 8th streets.	X	X	TFP-207
120th Avenue NE	Widen to five lanes with sidewalks and bike lanes. Extend/realign roadway between NE 8th and Old Bel-Red Rd.		X	TFP-208
NE 15th/16th Street (Phase I)	Construct a five lane roadway from 116th Avenue NE to 124th Avenue NE.	X	X	TFP-209
124th Avenue NE/Proposed NE 15th/16th Street Extension to Northup Way	Widen to five lanes with sidewalks. Key intersections at NE 15th/16th Street and Northup Way.		X	TFP-210
124th Avenue NE	Widen to 5 lanes with sidewalks between Bel-Red Road to planned NE 15th/16th Street Extension.		X	TFP-213
NE 15th/16th Street (Phase II)	Extend five lane roadway from 124th Avenue NE to 136th Place NE with a key intersection at 130th Avenue NE. Widen 136th Place NE five to three-lanes between NE 16th Street and NE 20th Street (reduction occurs at the intersection); add a double westbound left turn on NE 20th Street.		X	TFP-215
130th Avenue NE	Construct turn lanes, shared bike lanes, on-street parking and sidewalks between NE 16th and NE 20th Streets and widen to three lanes with shared bike lanes and sidewalks between NE 16th Street and Bel-Red Road.		X	TFP-218/TFP-039
Bel-Red Corridor Preferred Alt.	Land use changes included in the preferred alternative from the Bel-Red Corridor Project will be included in the FEIS. The land uses were approved by PSRC and the City of Bellevue.	X	X	City of Bellevue

NO-BUILD TRANSPORTATION PROJECTS
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
Redmond Arterials				
Novelty Hill Road	Road improvements to Union Hill Road in the vicinity of 196th Avenue NE, 196th/195th Ave NE from Union Hill Road NE to Novelty Hill Road and Novelty Hill Road at 196th Ave NE. Work includes the replacement of the Evans Creek Bridge. Redmond is a partner with King County	X	X	RED-CIP-C26
164th Avenue NE	Rechannelize street to one through lane in each direction, two-way left-turn lane and bike lanes.	X	X	RED-TIP-S34
166th Avenue NE	Rechannelize to a cross section that includes 1 though lane in each direction, a center two-way left-turn lane and bike lanes.	X	X	RED-TIP-S41
Union Hill Road	Widen Union Hill Rd from Avondale Rd to 178th Pl NE. Improvements include 2 through lanes and 1 right turn lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power and utility pole relocation.	X	X	RED-TFP- 049a
Union Hill Road	Widen Union Hill Rd from 178th Pl NE to 188th Ave NE. Improvements include 2 through lanes in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power and utility pole relocation, right-of-way and easement acquisition. Construct permanent signal at 178th Place NE/Union Hill.	X	X	RED-TFP-049b
Union Hill Road	Widen Union Hill Rd from 188th Pl NE to east City Limits. Improvements include 2 through lanes in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power and utility pole relocation, right-of-way and easement acquisition.	X	X	RED-TFP-049c
162nd Avenue NE (Bear Creek Parkway Extension, west)	*Construct new arterial from 159th Pl NE to Leary Way. Improvements include 1 through lane in each direction, left turn lanes, curb, gutter, sidewalks, street lights, storm drainage, and right-of-way.*	*X*	*X*	*RED-TFP-050a*
Redmond Way	Widen Redmond Way from SR 520 to 187th Ave NE. Improvements include 6-7 lanes from SR 520 to East Lake Sammamish Pkwy (ELSP) and 4-5 lanes from ELSP to 187th Ave NE, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power.	X	X	RED-TFP-065
160th Avenue NE	Construct new 160th arterial from current terminus at approximately NE 99th St north to the intersection with Red-Wood Rd and modify existing 160th arterial from NE 90th St north to current terminus. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, right of way and easement acquisition.	X	X	RED-TFP-072a
NE 116th Street	Widen NE 116th St from Red-Wood Rd to Avondale Rd. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, equestrian trail, street lights, storm drainage, underground power, right-of-way and easement acquisition. Project also includes construction of roundabout at 172nd Ave NE.	X	X	RED-TFP-105
188th Avenue NE	Construct new 188th Ave NE arterial from NE 68th Street to Union Hill Rd. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, right-of-way and easement acquisition.	X	X	RED-CIP-C52
188th Avenue NE	Complete 188th Ave NE arterial from Redmond Way to NE 68th Street. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, right-of-way and easement acquisition.		X	RED-TFP-117
185th Ave NE	Construct new 185th Ave NE arterial from NE 80th St to Union Hill Rd. Improvements include 1 through lane in each direction, left turn lanes, sidewalks, street lights, storm drainage, right-of-way, easements and traffic signal at Union Hill Rd.	X	X	RED-TFP-118

NO-BUILD TRANSPORTATION PROJECTS
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
161st Ave NE	Construct new 161st Ave NE from Bear Creek Pkwy Extension to Redmond Way. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, parking, sidewalks, street lights, storm drainage, right-of-way, easements and traffic signals at Cleveland St and Bear Creek Pkwy.	X	X	RED-TMP-001
164th Ave NE	Construct new 164th Ave NE from NE 76th St to Cleveland St. Improvements include 1 through lane in each direction, bike lanes, parking, sidewalks, street lights, storm drainage, right-of-way and easements.	X	X	RED-TMP-002
NE 36th St/NE 31st St	Construct new NE 36th St and bridge over SR 520 in the vicinity of NE 36th St and NE 31st St. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, sidewalks, street lights, storm drainage, right-of-way and easements.	X	X	RED-TMP-004
172nd Ave NE	Construct new 172nd Ave NE from NE 122nd St to NE 124th St. Improvements include 1 through lane in each direction, sidewalks, street lights, traffic calming, storm drainage and easements.	X	X	RED-TMP-007
NE 85th St	Reconfigure NE 85th St from 154th Ave NE to 164th Ave NE to 1 through lane in each direction, center left turn lane, bike lanes, parallel parking and pedestrian amenities.	X	X	RED-TMP-009
164th Ave NE	Reconfigure 164th Ave NE from Redmond Way to NE 87th St to 1 through lane in each direction, center left turn lane, bike lanes and pedestrian amenities.	X	X	RED-TMP-010
Old Redmond Rd	Widen Old Redmond Road to three lanes from 132nd Ave NE to 136th Ave NE and rechannelize from 136th Ave NE to 140th Ave NE. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, curb, gutter, sidewalks, street lights, storm drainage, underground power, right-of-way and easement acquisition.	X	X	RED-TMP-016
152nd Avenue NE, North	Implement a multi-modal pedestrian corridor concept on 152nd Avenue NE from NE 24th Street to NE 31st Street to create a lively and active signature street in the Overlake Village. Pending the results of the 152nd Ave NE Corridor Study, the proposed cross section for the improvements would include 1 through lane in each direction, accommodations for bus-based transit and its connections to light rail transit (LRT), left turn lanes, planted medians, bike lanes, parking, pedestrian supportive sidewalks, street lights, pedestrian amenities, storm drainage, right-of-way and easements. This corridor will also include the LRT line and an LRT station.	X	X	RED-OV-065a
Redmond Way and Cleveland Street	Convert Redmond Way from 160th Ave NE to Avondale Way to 1 through lane in each direction and center turn lane with west end having two westbound starting at 161st Ave NE and east end having two eastbound lanes starting at 168th Ave NE. Convert Cleveland St to 1 through lane in each direction. Improvements include curb extensions, widened sidewalks, pedestrian amenities, gateway treatments and realignment of street at eastern and western ends to improve traffic flow.	X	X	RED-TMP-079
Redmond Way	Widen Redmond Way bridge at Bear Creek. Improvements would include 2 through lanes in each direction, 2 eastbound left turn lanes to NE 76th St, 1 eastbound right turn lane to westbound SR 520 onramp, sidewalks, Bear Creek and E Lake Sammamish Trail connections, street lights, storm drainage, right-of-way and easements.		X	RED-TMP-013
166th Ave NE	Reconfigure 166th Ave NE from NE 85th St to NE 104th St to 1 through lane in each direction, center left turn lane and bike lanes.	X	X	RED-TMP-019
NE 83rd Street	Widen NE 83rd St from 160th Ave NE to 161st Ave NE. Improvements include widened sidewalks, increased parking, street lights, pedestrian amenities and intersection modifications.	X	X	RED-TMP-061

NO-BUILD TRANSPORTATION PROJECTS
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
NE 70th Street	Construct new NE 70th St from Redmond Way to 180th Ave NE. Includes 1 through lane in each direction, left-turn lanes and sidewalks.	X	X	RED-TMP-029
NE 73rd St Extension	Construct new NE 73rd St for neighborhood access and circulation from 185th Ave NE to 188th Ave NE. Improvements include 1 through lane in each direction, left turn lanes, sidewalks, street lights, traffic control, storm drainage, right-of-way and easements.	X	X	RED-TIP-C51
	Extend improvements (from RED-TIP-C51) to 192nd Ave NE		X	RED-TMP-070
NE 76th St Extension	Construct new NE 76th St from 185th Ave NE to 188th Avenue NE. Improvements include 1 through lane in each direction, left turn lanes, bike lanes, sidewalks, street lights, traffic control, storm drainage, right-of-way and easements.	X	X	RED-TIP-50
	Extend improvements (from RED-TIP-50) to 192nd Ave NE		X	RED-TMP-071
192nd Ave NE Extension	Construct new 192nd Ave NE for local access and circulation from NE 68th St to Union Hill Rd. Improvements include 1 through lane in each direction, left turn lanes, sidewalks, street lights, traffic control, storm drainage, right-of-way and easements.		X	RED-TMP-072
NE 40th Street, Transit Center SR 520 Pedestrian Crossing	Provide a new direct pedestrian connection over SR 520 between the Overlake Transit Center and the Microsoft west campus (in the vicinity of the NE 38thStreet alignment).		X	RED-OV-032
148th Avenue NE	Create third northbound through lane on 148th Ave NE from NE 22nd St to SR 520 westbound on-ramp using primarily existing right turn lanes and modify SR 520 westbound on-ramp to allow HOV access. At NE 24th St and 148th Ave NE intersection add second left turn lane on the eastbound and westbound approaches, add right turn lane on northbound approach, and extend right turn lane on westbound approach.	X	X	RED-TMP-078
Overlake Neighborhood Preferred Alt.	Land use changes included in the preferred alternative from the Overlake Neighborhood Plan will be included in the FEIS analysis. The land uses were approved by PSRC and the City of Redmond.	X	X	City of Redmond
Kirkland Arterials				
NE 120 St	Construct new 3-lane roadway with ped/bike facilities from Slater Ave to 124 Ave NE	X	X	R-21
Seattle Arterials				
Lander St	Overcrossing of BNSF railroad	X	X	Seattle
Spokane St	Addition of freeway ramps to 4th Avenue	X	X	Seattle
Alaskan Way Viaduct	New ramp connections at S Atlantic, South Royal Brougham, and King St		X	Destination 2030/Seattle
King County Arterials				
Military Road	From S 272nd to S 304th, widen to 4/5 lanes	X	X	CP-5
Issaquah Bypass	New facility		X	CP-7
Issaquah Hobart Rd	From Issaquah to SR 18, widen to 4 lanes	X	X	CP-6
Carr Road	Widen from SR 167 to Benson Road	X	X	CP-8

NO-BUILD TRANSPORTATION PROJECTS
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Source
SE 212th/SE 208th	From SR 167 to SR 515 widen to 6 lanes (transit HOV priority lanes)	X	X	CP-14
Woodinville-Duvall Rd	Widen between 171st Ave NE and Avondale Road	X	X	CP-12
Avondale Road NE	From NE 155th to NE 168th, widen to 3 lanes	X	X	CP-13
Transit Assumptions				
Central Link	2020) Northgate to Stadium: 4-minute peak and 6-minute off peak. Stadium to S 200th 8 minute peak and 12 minute off peak 2030) Lynnwood to Stadium 3.5 minute peak and 5 minute off peak. Stadium to Redondo/Star Lake (272nd) 7 minute peak and 10 minute off peak	X	X	Sound Move
ST Express	2009 SIP	X	X	Sound Move
Sounder	Everett to Seattle (4 peak period trips add Mukilteo Station), Tacoma to Seattle (9 peak period trips add S. Tacoma and Lakewood Station)	X	X	Sound Move
Street Car	Waterfront Street Car	X	X	King County Metro
	S. Lake Union street car	X	X	Seattle
	First Hill Streetcar	X	X	Sound Transit
Transit Service	Regional and local bus services operated by Sound Transit, King County Metro, Community Transit, Everett Transit and Pierce Transit. Sound Transit and King County Metro will be provide transit service integration plans for both No-Build and Build alternatives for 2020 and 2030 horizon years. The PSRC model assumes service provide by Kitsap Transit and the Washington State Ferries as well.	X	X	Agency service plans

ST2 PROJECTS BY CORRIDOR

Project ID	Mode	Project Detail	2020	2030
North Corridor				
N06	Link	University of Washington Station - Northgate (Seattle) - S 200th Street	X	X
N07a	Streetcar	Downtown Seattle - Capitol Hill via First Hill	X	X
N22	Sounder	Joint development of a Parking Garage at Mukilteo Station	X	X
N23a	Sounder	New Permanent station at Edmonds Crossing	X	X
N28	Link	Northgate - Jackson Park		X
N29	Link	Jackson Park - Shoreline		X
N30	Link	Shoreline - Mountlake Terrace		X
N31T2	Link	Mountlake Terrace - Lynnwood Transit Center (Terminal)		X
East Corridor				
E20	Express Bus	Transit Center and parking garage in Bothell	X	X
E25b	Express Bus	N 8th Street parking garage in Renton	X	X
South Corridor				
S17	Sounder	Permanent station at Tukwila	X	X
S18b	Sounder	Parking garage at Auburn Station (Alternative)	X	X
S20	Sounder	Parking garage and pedestrian bridge at Sumner Station	X	X
S21	Sounder	Parking garage and pedestrian bridge at Puyallup Station	X	X
S25	Sounder	Track and structure upgrade, Tacoma Dome Station - Reservation Junction		X
S27	Link	Sea-Tac Airport - S 200th St	X	X
S28	Link	S 200th St - Kent-Des Moines Rd via SR 99		X
S29a	Link	Kent-Des Moines Rd - S 272nd St via SR 99		X

Abbreviations:

CP	Capital Improvement Plan
DT	Downtown Plan
GP	general purpose
NA	not applicable
NB	northbound
OHMC	Overlake Hospital Medical Center
R	Roadway
TMP	Transportation Master Plan
SB	southbound
SIP	Service Implementation Plan
TPA	Transportation Partnership Account
TFP	Transportation Facilities Plan
UWBCC	University of Washington Bellevue Community College

NO-BUILD INTERSECTION PROJECTS[a]

(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Notes
Bellevue Intersections				
Bel-Red Road at NE 30th Street	*Will add a new traffic signal at the intersection.*	*X*	*X*	*TFP-024, I-70*
112th Avenue SE at SE 6th Street	*Will install a new traffic signal at the intersection.*	*X*	*X*	*TFP-030, I-88*
SE 16th Street/145th Place SE to 148th Avenue SE	*Construct a new westbound right-turn lane at 145th Place NE and upgrade the traffic signal at the intersection.*	*X*	*X*	*TFP-043, R-118*
116th Avenue NE at NE 12th Street	Construct a northbound right-turn lane, extend eastbound left-turn lane.	X	X	TFP-090
Northup Way/120th Avenue NE to 124th Avenue NE	Widen Northup Way/124th Avenue NE intersection to provide a northbound right-turn lane and a second eastbound left-turn lane to the SR 520 ramp.	X	X	TFP-091, TFP-106, R-133
148th Avenue NE at Bel-Red Road	Construct eastbound right and second left-turn lanes and a second westbound left-turn lane.		X	TFP-094, I-76, RED-OV-088
156th Avenue NE at Bel-Red Road	Construct a southbound right-turn lane. (Microsoft to construct)	X	X	TFP-095, TIP-53
148th Avenue NE at NE 20th Street	Construct second eastbound and westbound left turn lanes.		X	TFP-101, I-78
Bel-Red Road at NE 24th Street	Construct southbound right-turn and northbound left-turn lanes.		X	TFP-102
129th Avenue SE/SE 38th Street to Newport Way	Extend 129th Place SE north to SE 38th Street. Consider signalization and channelization improvements if warranted.		X	TFP-103
Factoria Boulevard at Newport Way	Construct back-to-back double left-turn pockets northbound at the Newport High School entrance and southbound at Newport Way.	X	X	TFP-120
148th Avenue NE at NE 36th Street	Construct a second southbound left turn lane and second westbound left turn lane.	X	X	TFP-128
Lakemont Boulevard at Village Park Drive	*Install new signal and crosswalks.*	*X*	*X*	*TFP-155, I-89*
NE 24th Street at 148th Avenue NE	Lengthen the westbound right-turn lane on NE 24th Street and provide a second westbound left-turn lane.		X	TFP-157
145th Place SE	Construct center medians and left-turn pockets where needed from SE 8th to SE 24th.	X	X	TFP-160, NIS-1
156th Avenue SE at SE Eastgate Way (I-90 westbound off-ramp)	Widen the I-90 westbound off-ramp to provide two dedicated left-turn lanes and a shared through/right-lane with a channelized right turn.	X	X	TFP-162
NE 8th Street at 148th Avenue NE	Construct 2nd eastbound and westbound left-turn lanes on NE 8th Street.	X	X	TFP-168
148th Avenue SE at Lake Hills Boulevard	*Lengthen the westbound left-turn lane from Lake Hills Blvd to 148th Avenue SE from 75 feet to approximately 250 feet and/or convert the existing through/right-turn lane to a left/through/right-turn lane.*	*X*	*X*	*TFP-188, I-90*
Lakemont Blvd (Phase 1) Cougar Mountain Way to Lewis Creek Park	Install signal and turn lanes at Cougar Mtn. Way/ Lakemont Blvd.; construct northbound left turn lane on Lakemont Blvd. at SE 62nd Street. Add sidewalk and bike lanes.		X	TFP-192
150th Avenue SE/SE 37th Street/I-90 off-ramp	Widen I-90 off-ramp 300 feet west of 150th Avenue SE and add a right-turn lane. Widen SE 37th Street 500 feet to the east of 150th Avenue SE to allow for a bypass lane on the right side of the street.	X	X	TFP-195
NE 20th Street/Bel-Red Road to 156th Avenue NE	Construct an east-to-west U-turn on NE 20th Street at 156th Avenue NE; with access management along NE 20th Street.	X	X	TFP-196,TIP-61
Bel-Red Road at NE 20th Place	Install signal, eastbound left-turn pocket, and pedestrian crossing.		X	TFP-198

NO-BUILD INTERSECTION PROJECTS[a]
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Notes
Lakemont Blvd (Phase 2)/Lewis Creek Park to 164th Ave SE	Install signal at 164th Ave SE/Lakemont Blvd; construct sidewalk and bike lane on east side; add planted medians where feasible.	X	X	TFP-205
SE 40th Lane/Factoria Boulevard	Lengthen the southbound to eastbound left turn lane and lengthen the westbound left turn lane.		X	TFP-220
NE 10th at I-405	Add on-ramp to the north connecting to SR 520.	X	X	TFP-189, TFP-193, R-149
Bellevue Way/NE 4th Street	Add a southbound right turn lane and a westbound right turn lane. Dual westbound left turn lanes.		X	TFP-222
Bellevue Way/NE 8th Street	Add southbound right turn lane.		X	TFP-223
Bellevue Way/NE 2nd Street	Add a northbound right turn lane and a second southbound left turn lanes.		X	TFP-225
NE 24th Street/156th Avenue NE	Construct an eastbound right turn lane.	X	X	TFP-239
Redmond Intersections				
124th Ave NE/Red-Wood Road	Construct eastbound through/right turn lane, a second northbound left-turn lane, and second westbound lane on the east leg of the intersection. Add sidewalk and bike lane on east leg.	X	X	RED-TIP-C41
NE 51st St/148th Ave NE	Improve traffic flow through intersection modifications and widening.	X	X	RED-TIP-C46
NE 31st St/156th Ave NE	Provide additional westbound left-turn lane.	X	X	RED-TIP-C47
NE 24th St/162nd Pl NE	Install traffic signal and add left-turn lanes on 124th Ave NE.	X	X	RED-TIP-S40
NE 90th St/151st Ave NE	Install traffic signal.	X	X	RED-TIP-S42
NE 76th St/185th Ave NE	Install traffic signal.	X	X	RED-TIP-S44
156th Avenue NE/Bel-Red Road	Add southbound right-turn lane on 156th Ave NE.	X	X	JOINT-BROTS-22.3
148th Ave NE/NE 29th Place	Add southbound through and second westbound left-turn lanes; channelize yield for westbound right-turn lane; convert eastbound right-turn lane to shared right-turn/left-turn lane.	X	X	JOINT-BROTS-28
148th Ave NE/NE 20th St	Add second eastbound left-turn and second westbound left-turn lanes.		X	JOINT-BROTS-50.1
Bel-Red Road/NE 20th Street	Add southbound right-turn lane; convert westbound lanes to provide left turn, left-turn/through and through/right-turn lanes.		X	JOINT-BROTS-52
Bel-Red Road/NE 24th Street	Add southbound right-turn and northbound left-turn lanes.		X	JOINT-BROTS-53.1
148th Avenue NE/NE 36th Street	Add second southbound left-turn lane and second westbound left-turn lane.	X	X	JOINT-BROTS-79
159th Ave NE/NE 40th St	Revise lanes to provide northbound left-turn and shared northbound left-turn/right-turn lanes.	X	X	RED-BROTS-004.1
148th Ave NE/Old Redmond Rd	Extend the northbound left-turn lane by increasing length and channelization.	X	X	RED-BROTS-005.4
150th Ave NE/NE 40th St	Add northbound right-turn lane.	X	X	RED-BROTS-008.1
W Lk Sam Pkwy NE/NE 51st St	Add southbound lane from NE 51st St to NE 50th St and then taper two southbound through lanes to one. Convert existing southbound right-turn only lane at NE 51st St to right/through lane.	X	X	RED-BROTS-011.1
W Lk Samm Pkwy NE/Bel-Red Rd	Removing exiting traffic signal. Install 2-lane roundabout at Bel-Red Road, West Lake Sammamish intersection and improve pedestrian facilities.	X	X	RED-BROTS-031/RED-TIP-C48

NO-BUILD INTERSECTION PROJECTS[a]

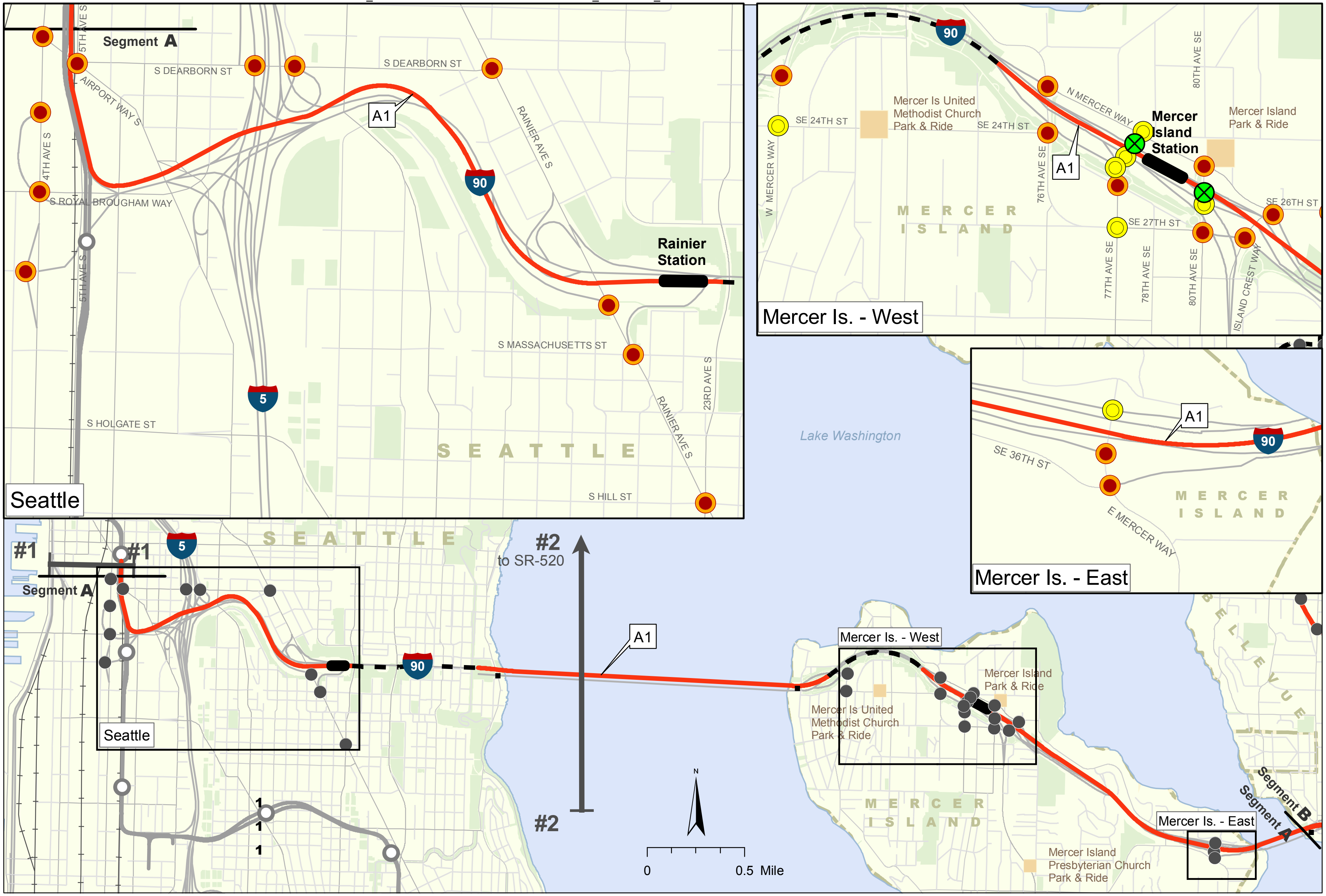
(Note: Italicized projects indicate they have been completed.)

Facility	Project Detail	2020	2030	Notes
140th Ave NE/Redmond Way	Add second northbound left-turn lanes.	X	X	RED-BROTS-033
140th Ave NE/Redmond Way	Add eastbound right-turn lane.	X	X	RED-BROTS-033c
Willows Rd/Redmond Way	Convert southbound lanes to provide left-turn and left-turn/through/right-turn lanes; add westbound right turn lane.	X	X	RED-BROTS-034.1
150th Ave NE/NE 51st St	Add north leg to intersection. Provide two southbound left-turn lanes.	X	X	RED-BROTS-085
NE 83rd Street at 161st Avenue NE	Install new traffic signal and make intersection improvements at NE 83rd St and 161st Ave NE.	X	X	RED-TFP-801-19
NE 51st Street at 150th Ave NE	Install new traffic signal at intersection of NE 51st St and 150th Ave NE.	X	X	RED-TFP-805-04
Redmond Way/East Lake Sammamish Parkway at 180th Avenue NE	Reconstruct intersection of Redmond Way at East Lake Sammamish Pkwy and 180th Ave NE.	X	X	RED-TFP-807-02
Redmond Way at 187th Avenue NE	Install new traffic signal at intersection of Redmond Way and 187th Ave NE.	X	X	RED-TFP-807-03
Union Hill Road at 188th Avenue NE	Reconstruct horizontal curve and install new traffic signal at intersection of Union Hill Rd and 188th Ave NE.	X	X	RED-TFP-807-05
Union Hill Road at Avondale Road	Intersection modification. Reconstruct intersection pavement and add one northbound free right-turn lane, one southbound left-turn lane, one southbound right-turn lane, one eastbound right-turn lane and one westbound left-turn lane.	X	X	RED-TFP-807-06
East Lake Sammamish Pkwy at 187th Ave NE	Install new traffic signal. Improvements include southbound left-turn lane and reconstruct grade separated trail crossing.	X	X	RED-TMP-020
Old Redmond Rd at West Lake Sammamish Way	Install new traffic signal. Improvements include modifications to better accommodate nonmotorized uses.	X	X	RED-TMP-042
148th Avenue NE/SR 520 Interchange	Modify channelization and signals, and provide wide multi-use trail that is separated from the roadway on the east side of 148th Ave NE from the westbound SR 520 ramps to the SR 520 Trail at the eastbound SR 520 ramps (148th Ave NE bridge over SR 520).	X	X	RED-TMP-081/RED-TIP-C27
Bel-Red Road and 148th Avenue NE	Work with the City of Bellevue to add eastbound and westbound left turn lanes and an eastbound right-turn lane.		X	RED-OV-088, BEL TFP-094
Redmond Way at NE 76th Street	Modify intersection. Add a southbound right turn lane on NE 76th St and add dual lefts on eastbound Redmond Way.	X	X	RED-TMP-062
Mercer Island Intersections				
27th & 77th and 27th & 78th	Install traffic signals	X	X	TIP 2009-2014 – Section B, project 3

[a] Only the Cities of Bellevue and Redmond no-build intersection projects are presented in this table. Other jurisdictions do not have intersection improvements within the project study area.

Attachment 2
Alternative and Study Intersection Maps

\\SIMBA\PROJ\SOUNDTRANSIT\341526\GIS\MAPDOCUMENTS\2009_MISC\TRANSPORTATION\INTERSECTION_SEGMENT_A.MXD DMORIN1 8/3/2009


Seattle
Segment A
S DEARBORN ST
S DEARBORN ST
5TH AVE S
AIRPORT WAY S
4TH AVE S
S ROYAL BROUGHAM WAY
5TH AVE S
A1
RAINIER AVE S
90
Rainier Station
S MASSACHUSETTS ST
5
23RD AVE S
RAINIER AVE S
S HOLGATE ST
S E A T T L E
S HILL ST
Mercer Is. - West
90
SE 24TH ST
Mercer Is United Methodist Church Park & Ride
SE 24TH ST
N MERCER WAY
Mercer Island Station
80TH AVE SE
Mercer Island Park & Ride
W MERCER WAY
76TH AVE SE
A1
SE 26TH ST
M E R C E R I S L A N D
SE 27TH ST
77TH AVE SE
78TH AVE SE
80TH AVE SE
ISLAND CREST WAY
Lake Washington
Mercer Is. - East
A1
90
SE 36TH ST
M E R C E R I S L A N D
E MERCER WAY
#1
#1
Segment A
5
S E A T T L E
#2
to SR-520
A1
90
Seattle
Mercer Is. - West
Mercer Island Park & Ride
Mercer Is United Methodist Church Park & Ride
1
1
1
#2
N
0
0.5 Mile
M E R C E R I S L A N D
B E L L E V U E
Segment B
Segment A
Mercer Is. - East
Mercer Island Presbyterian Church Park & Ride

Source: Data from King County (2006) modified by CH2M HILL.

Existing Intersection Control

● Signalized

○ Non-signalized

⊗ Future Intersection

● Study Intersection

← Screenline

At-Grade Route

Elevated Route

Retained-Cut Route

Tunnel Route

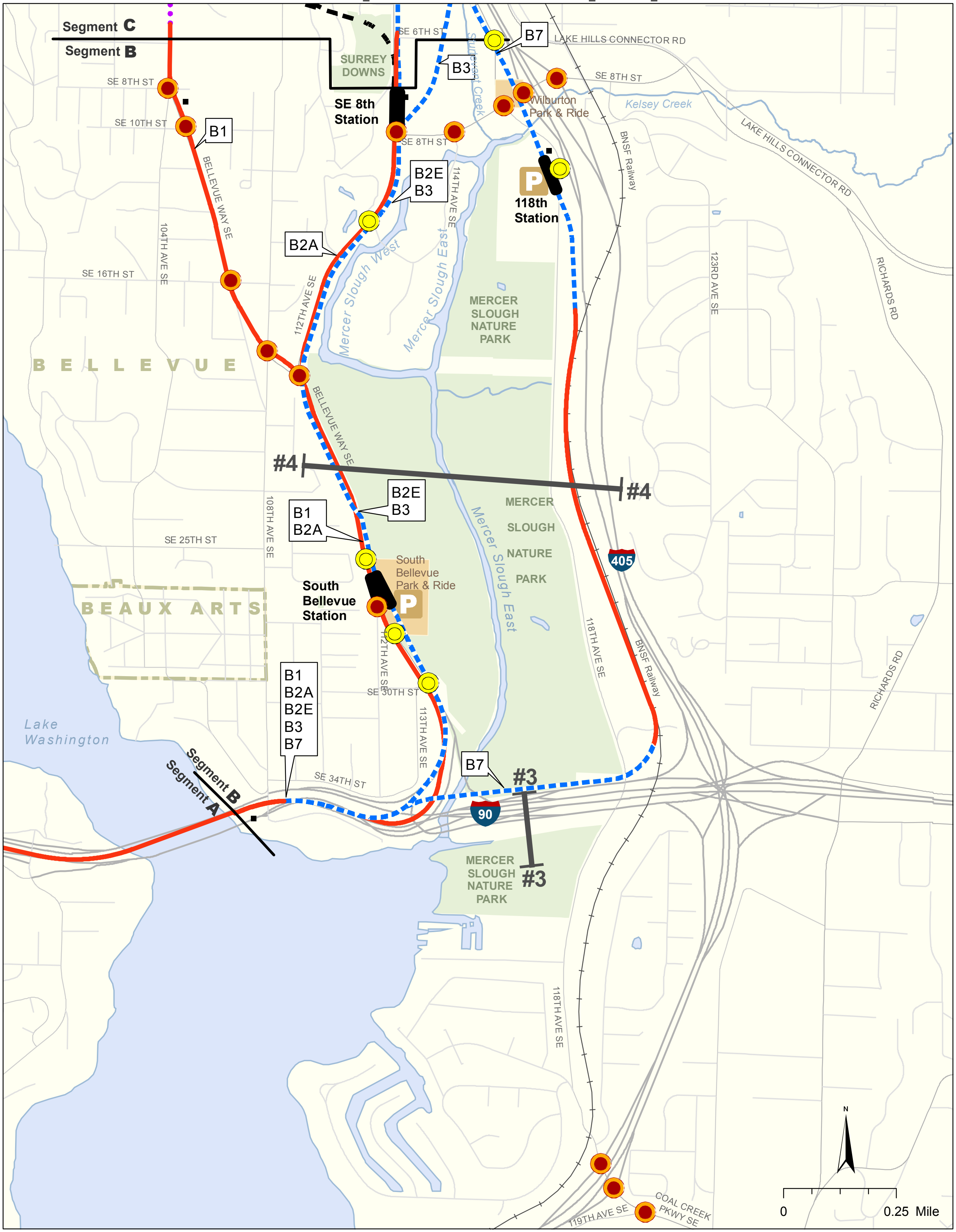
▪ Traction Power Substation

Proposed Station

Central Link Alignment and Station

Segment A
Study Intersections and Screenlines
East Link Project

\\SIMBA\PROJ\SOUNDTRANSIT\341526\GIS\MAPDOCUMENTS\2009_MISC\TRANSPORTATION\INTERSECTION_SEGMENT_B.MXD DMORIN1 9/25/2009


Segment C
Segment B
SE 8TH ST
SE 10TH ST
B1
SURREY DOWNS
SE 6TH ST
B3
B7
LAKE HILLS CONNECTOR RD
SE 8th Station
SE 8TH ST
Wilburton Park & Ride
Kelsey Creek
Sturtevant Creek
BNSF Railway
LAKE HILLS CONNECTOR RD
B2E
B3
114TH AVE SE
118th Station
B2A
BELLEVUE WAY SE
104TH AVE SE
SE 16TH ST
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
RICHARDS RD
B E L L E V U E
BELLEVUE WAY SE
#4
#4
B2E
B3
B1
B2A
108TH AVE SE
SE 25TH ST
MERCER SLOUGH NATURE PARK
Mercer Slough East
405
South Bellevue Park & Ride
South Bellevue Station
B E A U X A R T S
118TH AVE SE
BNSF Railway
RICHARDS RD
112TH AVE SE
SE 30TH ST
113TH AVE SE
B1
B2A
B2E
B3
B7
Lake Washington
Segment B
Segment A
SE 34TH ST
B7
#3
90
#3
MERCER SLOUGH NATURE PARK
118TH AVE SE
N
0
0.25 Mile
119TH AVE SE
COAL CREEK PKWY SE

Source: Data from King County (2006) modified by CH2M HILL.

Existing Intersection Control

- ● Signalized
- ○ Non-signalized
- Screenline
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route
- ■ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Segment B

Study Intersections and Screenlines

East Link Project

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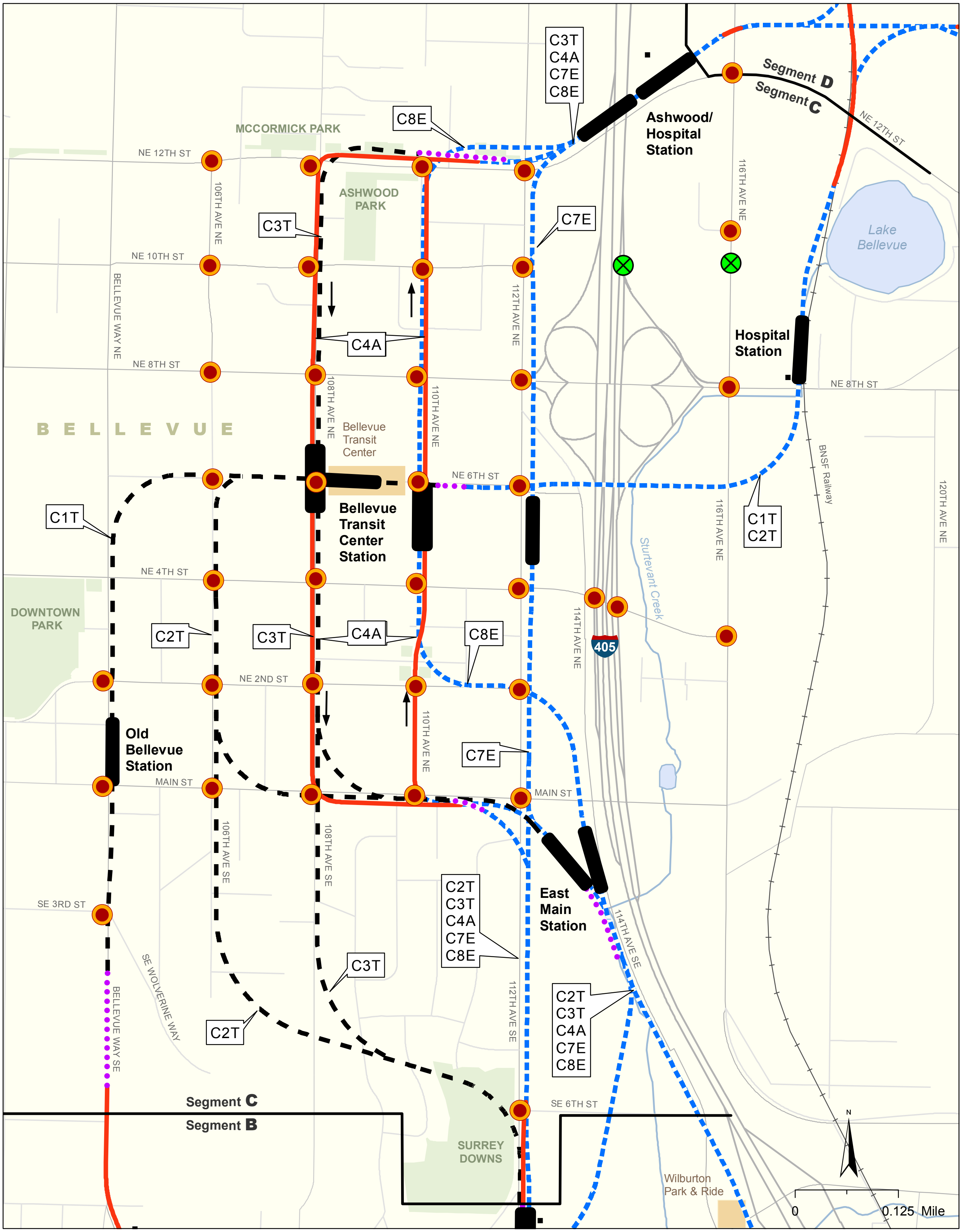

C3T
C4A
C7E
C8E
Segment D
Segment C
NE 12TH ST
C8E
MCCORMICK PARK
NE 12TH ST
Ashwood/
Hospital
Station
ASHWOOD
PARK
106TH AVE NE
116TH AVE NE
C3T
C7E
Lake
Bellevue
NE 10TH ST
BELLEVUE WAY NE
112TH AVE NE
C4A
Hospital
Station
NE 8TH ST
NE 8TH ST
108TH AVE NE
110TH AVE NE
BELLEVUE
Bellevue
Transit
Center
BNSF Railway
NE 6TH ST
C1T
Bellevue
Transit
Center
Station
116TH AVE NE
C1T
C2T
120TH AVE NE
NE 4TH ST
Sturtevant Creek
DOWNTOWN
PARK
C2T
C3T
C4A
C8E
405
114TH AVE NE
NE 2ND ST
110TH AVE NE
C7E
Old
Bellevue
Station
MAIN ST
MAIN ST
106TH AVE SE
108TH AVE SE
C2T
C3T
C4A
C7E
C8E
East
Main
Station
SE 3RD ST
114TH AVE SE
SE WOLVERINE WAY
C3T
BELLEVUE WAY SE
C2T
112TH AVE SE
C2T
C3T
C4A
C7E
C8E
Segment C
Segment B
SE 6TH ST
SURREY
DOWNS
N
Wilburton
Park & Ride
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Existing Intersection Control

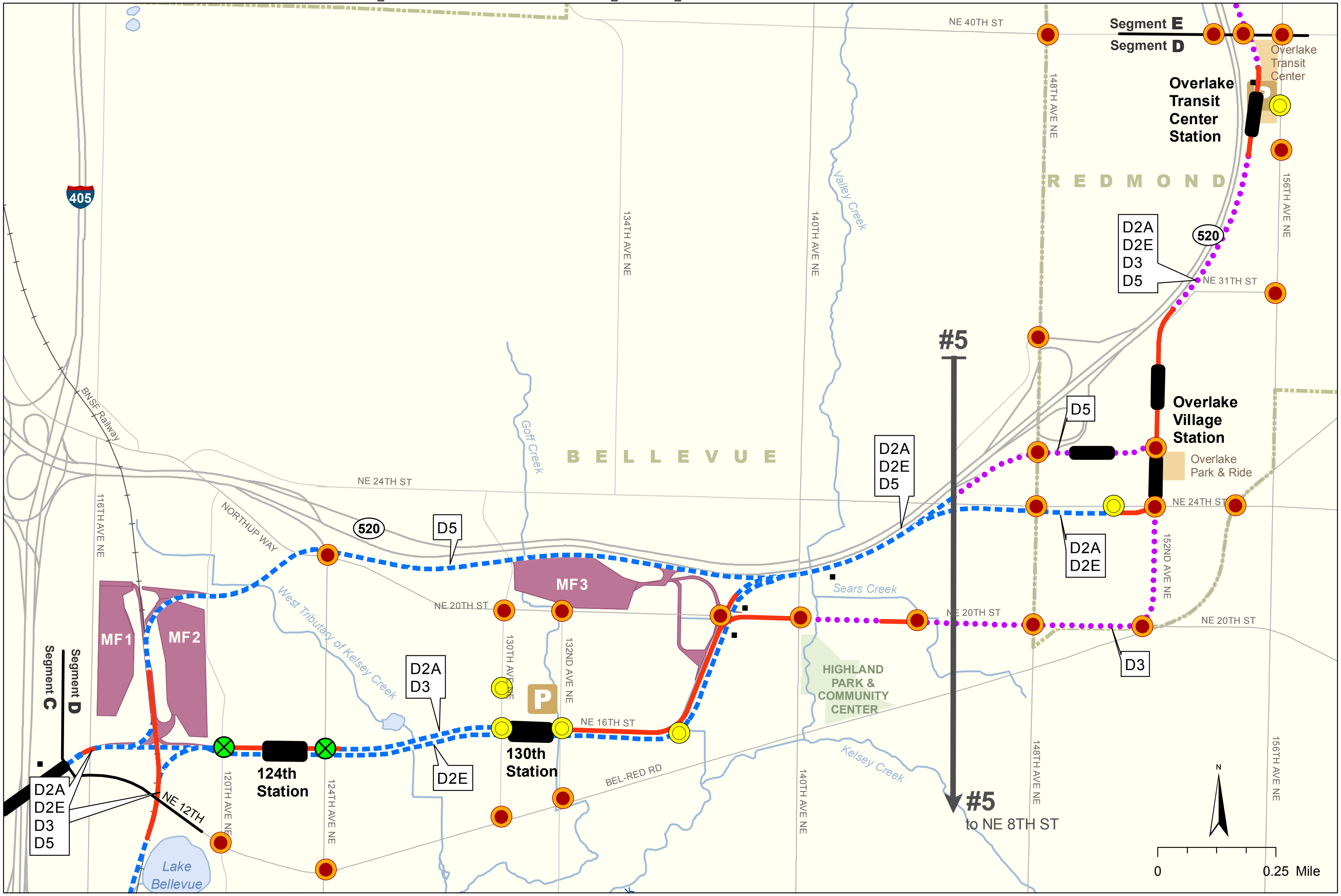
●	Signalized
⊗	Future Intersection
▬	At-Grade Route
- - -	Elevated Route
•••	Retained-Cut Route
▬ ▬	Tunnel Route
▪	Traction Power Substation
▬	Proposed Station
P	New and/or Expanded Park-and-Ride Lot

Segment C

Study Intersections

East Link Project

\\SIMBA\PROJ\SOUNDTRANSIT\341526\GIS\MAPDOCUMENTS\2009_MISC\TRANSPORTATION\INTERSECTION_SEGMENT_D.MXD DMORIN1 8/3/2009



Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
R E D M O N D
NE 40TH ST
148TH AVE NE
156TH AVE NE
134TH AVE NE
140TH AVE NE
Valley Creek
405
520
D2A
D2E
D3
D5
NE 31TH ST
#5
Overlake Village Station
Overlake Park & Ride
NE 24TH ST
152ND AVE NE
D5
D2A
D2E
D5
D2A
D2E
B E L L E V U E
Goff Creek
BNSF Railway
116TH AVE NE
NORTHUP WAY
520
D5
MF3
MF1
MF2
NE 20TH ST
Sears Creek
NE 20TH ST
NE 20TH ST
D3
West Tributary of Kelsey Creek
HIGHLAND PARK & COMMUNITY CENTER
130TH AVE NE
132ND AVE NE
D2A
D3
P
NE 16TH ST
130th Station
124th Station
D2E
Segment C
Segment D
D2A
D2E
D3
D5
NE 12TH
120TH AVE NE
124TH AVE NE
BEL-RED RD
Kelsey Creek
140TH AVE NE
148TH AVE NE
156TH AVE NE
#5
to NE 8TH ST
N
0
0.25 Mile
Lake Bellevue

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006) modified by CH2M HILL.

Existing Intersection Control

● Signalized

○ Non-signalized

⊗ Future Intersection

← Screenline

▪ Traction Power Substation

🟥 At-Grade Route

🟦 Elevated Route

••• Retained-Cut Route

– – Tunnel Route

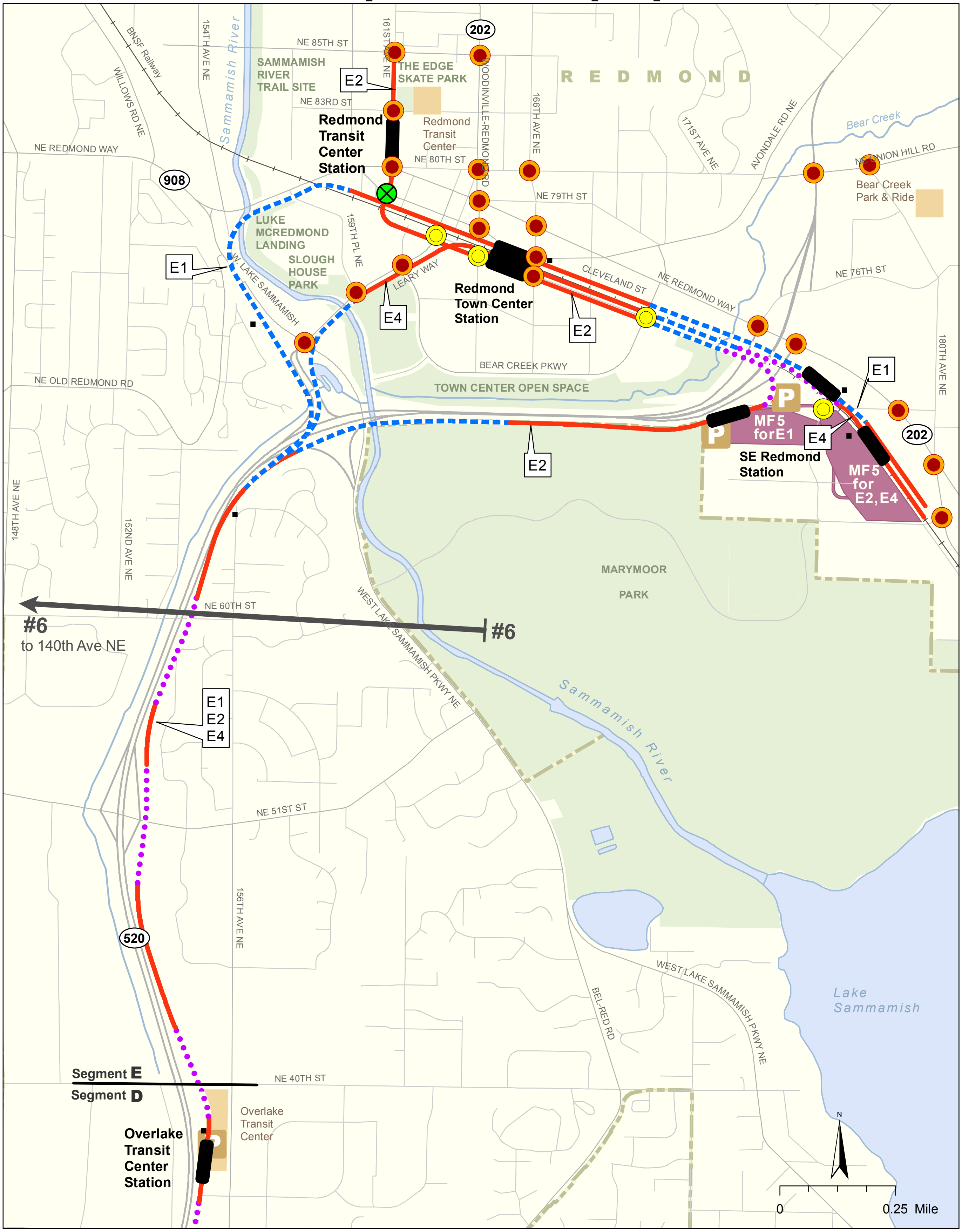
▬ Proposed Station

▨ Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Segment D
Study Intersections and Screenlines
East Link Project

\\SIMBA\PROJ\SOUNDTRANSIT\341526\GIS\MAPDOCUMENTS\2009_MISC\TRANSPORTATION\INTERSECTION_SEGMENT_E.MXD DMORIN1 8/3/2009


REDMOND
202
908
520
202
NE 85TH ST
NE 83RD ST
NE 80TH ST
NE 79TH ST
NE 76TH ST
NE REDMOND WAY
NE OLD REDMOND RD
NE 60TH ST
NE 51ST ST
NE 40TH ST
NE UNION HILL RD
BNSF Railway
WILLOWS RD NE
154TH AVE NE
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
180TH AVE NE
159TH PL NE
LEARY WAY
CLEVELAND ST
BEAR CREEK PKWY
W LAKE SAMMAMISH
WEST LAKE SAMMAMISH PKWY NE
148TH AVE NE
152ND AVE NE
156TH AVE NE
BEL-RED RD
Sammamish River
Bear Creek
Lake Sammamish
SAMMAMISH RIVER TRAIL SITE
THE EDGE SKATE PARK
Redmond Transit Center
Redmond Transit Center Station
LUKE MCREDMOND LANDING
SLOUGH HOUSE PARK
Redmond Town Center Station
TOWN CENTER OPEN SPACE
Bear Creek Park & Ride
MARYMOOR PARK
SE Redmond Station
MF5 forE1
MF5 for E2,E4
E1
E2
E4
E1 E2 E4
#6
to 140th Ave NE
#6
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
N
0
0.25 Mile

Existing Intersection Control

● Signalized

○ Non-signalized

← Screenline

⊗ Future Intersection

At-Grade Route

Elevated Route

Retained-Cut Route

Tunnel Route

▪ Traction Power Substation

Proposed Station

Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Redmond (2005) and King County (2006) modified by CH2M HILL.

Segment E
Study Intersections and Screenlines
East Link Project

Attachment 3
Summary of Sound Transit Ridership Forecasting Model

Summary of Sound Transit Ridership Forecasting Model

To forecast transit ridership, Sound Transit uses an incremental model that was developed in the early 1990s. The model is structured so that transit ridership results are based on observed origins and destinations of transit users, observed transit line volumes, and a realistic simulation of observed transit service characteristics. External changes in demographics, highway travel time, and costs are distinctly incorporated into the process in phases, prior to estimating the impacts of incremental changes in transit service. The Sound Transit model relies on the Puget Sound Regional Council (PSRC) model for data on external changes. For East Link analysis, Sound Transit will be using the most recent data from PSRC.

In the first stage of ridership forecasting analysis, changes in demographics are taken into consideration. In the second stage, other external changes in highway travel time (congestion) and costs (including parking costs), transit fares, and household income are taken into consideration.

Using results from the first two stages of analysis, a forecast of zone-to-zone transit trips within and to/from the RTA district boundaries is developed. In the third and final stage, incremental changes in the transit level-of-service (i.e., access, wait, and ride travel times) are taken into consideration. Finally, transit trips are assigned to the future year transit network (2020 or 2030 for East Link).

The estimated transit volumes assigned to each transit route (i.e., bus or rail) depend on the service characteristics offered on each transit route or alignment, including potential markets served and accessibility of transit stops or stations to potential riders. For example, a light rail route through a more populated area within a corridor will probably attract more passengers than an alternative route that serves a less populated area within the same corridor. The model assigns more trips to a more frequent and faster transit route than to a less frequent and slower route between two locations.

Transit service changes are incorporated into the model through an East Link transit integration planning process. For the no-build alternative analysis, Sound Transit and its partner transit agencies provide a list of expected changes for the forecast years (2020 and 2030) for the transit network. These changes include span of service, frequency, new routes and deleted routes. These changes are incorporated into the model's transit network for the no-build alternative.

For the build alternatives, Sound Transit and its partner transit agencies use a representative light rail alignment to determine the changes in transit service. Some routes are modified to serve light rail stations along the representative alignment. These changes are incorporated into the transit network for the build alternatives.

The incremental model is more effective for transit planning analysis because it:

- Uses *observed* transit travel patterns, rather than estimated
- Concentrates efforts on transit network analysis
- Separates the evaluation of population and employment changes, highway congestion and cost, and transit services through the three stages of the forecasting process
- Focuses on direct comparisons rather than complete simulations of travel behavior

Like all travel forecasting models, the Sound Transit model has some limitations. It uses average daily traffic, so does not assess the effects of special events. Also, it is not well suited for analyzing structural changes in regional land use beyond those already included in PSRC demographic forecasts, or to forecasting in outlying areas of the three-county region where there is minimal existing transit service. Finally, the model does not explicitly take into account differences in safety, comfort, or reliability of bus or rail transit service.

Attachment 4
General Intersection and Freeway Level of Service Definitions

General Intersection and Freeway Level of Service Definitions

The quality of traffic operations on roadway facilities is described in terms of level of service (LOS), a measure of operational conditions and their perception by motorists. As described in Table 1, intersection LOS ratings range from "A" to "F" based on the amount of control delay seconds per vehicle. LOS A represents the best operation and LOS F the poorest operation.

TABLE 1
Level of Service Definitions for Signalized and Unsignalized Intersections

	Average Control Delay (seconds per vehicle)		
LOS	**Signalized Intersection**	**Unsignalized Intersection**	**Traffic Flow Characteristics**
A	≤ 10	≤ 10	Virtually free flow; completely unimpeded.
B	> 10 and ≤ 20	> 10 and ≤ 15	Stable flow with slight delays; less freedom to maneuver.
C	> 20 and ≤ 35	> 15 and ≤ 25	Stable flow with delays; less freedom to maneuver.
D	> 35 and ≤ 55	> 25 and ≤ 35	High density but stable flow.
E	> 55 and ≤ 80	> 35 and ≤ 50	Operating conditions at or near capacity; unstable flow.
F	> 80	> 50	Forced flow; breakdown conditions.

Note: For TWSC intersections the delay and LOS for the approach with the highest delay is reported. Source: Transportation Research Board (TRB), Highway Capacity Manual (HCM), 2000.

Table 2 identifies the freeway LOS ratings. These ratings are defined by density, which is expressed in passenger cars per mile per lane (pcpmpl). Freeway densities are created for each segment of freeway analyzed. Three segment types are used in freeway analyses: mainline, merge/diverge, and weaving areas.

TABLE 2
Level of Service Definitions for Freeways

Level of Service	**Basic Mainline Density**	**Merge/Diverge Density**	**Weave Density**	**Traffic Flow Characteristics**
A	< 11	< 10	< 10	Free flows operation, vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. Unrestricted operation, smooth merging, diverging and weaving.
B	> 11 - < 18	> 10 - < 20	> 10 - < 20	Reasonably free flow, vehicles maneuver within the traffic stream is only slightly restricted. Merging, diverging and weaving maneuvers become noticeable to through drivers.
C	> 18 - < 26	> 20 - < 28	> 20 - < 28	Freedom to maneuver within the traffic stream is noticeably restricted. Both ramp and freeway vehicles begin to adjust their speeds to accomplish smooth transitions.
D	> 26 - < 35	> 28 - < 35	> 28 - < 35	Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort level. Virtually all vehicles slow to accommodate merging, diverging and weaving.

TABLE 2
Level of Service Definitions for Freeways

Level of Service	Basic Mainline Density	Merge/Diverge Density	Weave Density	Traffic Flow Characteristics
E	> 35 - < 45	> 35	> 35 - < 43	Vehicles are closely spaced, leaving little room to maneuver within the traffic stream at speed that still exceeds 49 mph. Flow levels approach capacity, and small changes in demand or disruptions within the traffic stream can cause both ramp and freeway queues to form.
F	> 45	Demand exceeds capacity	> 43	Breakdowns in vehicular flow.

Source: TRB, 2000

Density: passenger car per mile per lane (pcpmpl)

Attachment 5
Puget Sound Regional Council Land Use Letter

Puget Sound Regional Council
PSRC

May 21, 2009

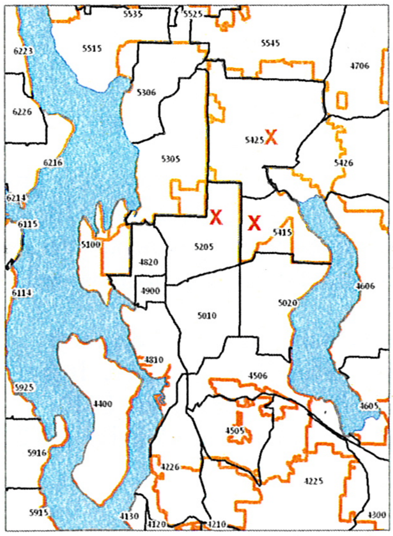
Brant Lyerla
Project Development Coordinator
Sound Transit, Link Light Rail
206.398.5404
brant.lyerla@soundtransit.org

Dear Mr. Lyerla;

Following a series of e-mails and telephone calls over the past couple of weeks, this letter reviews the suggested adjustments to the current Puget Sound Regional Council forecast data in the Sound Transit East Link Light Rail study corridor.

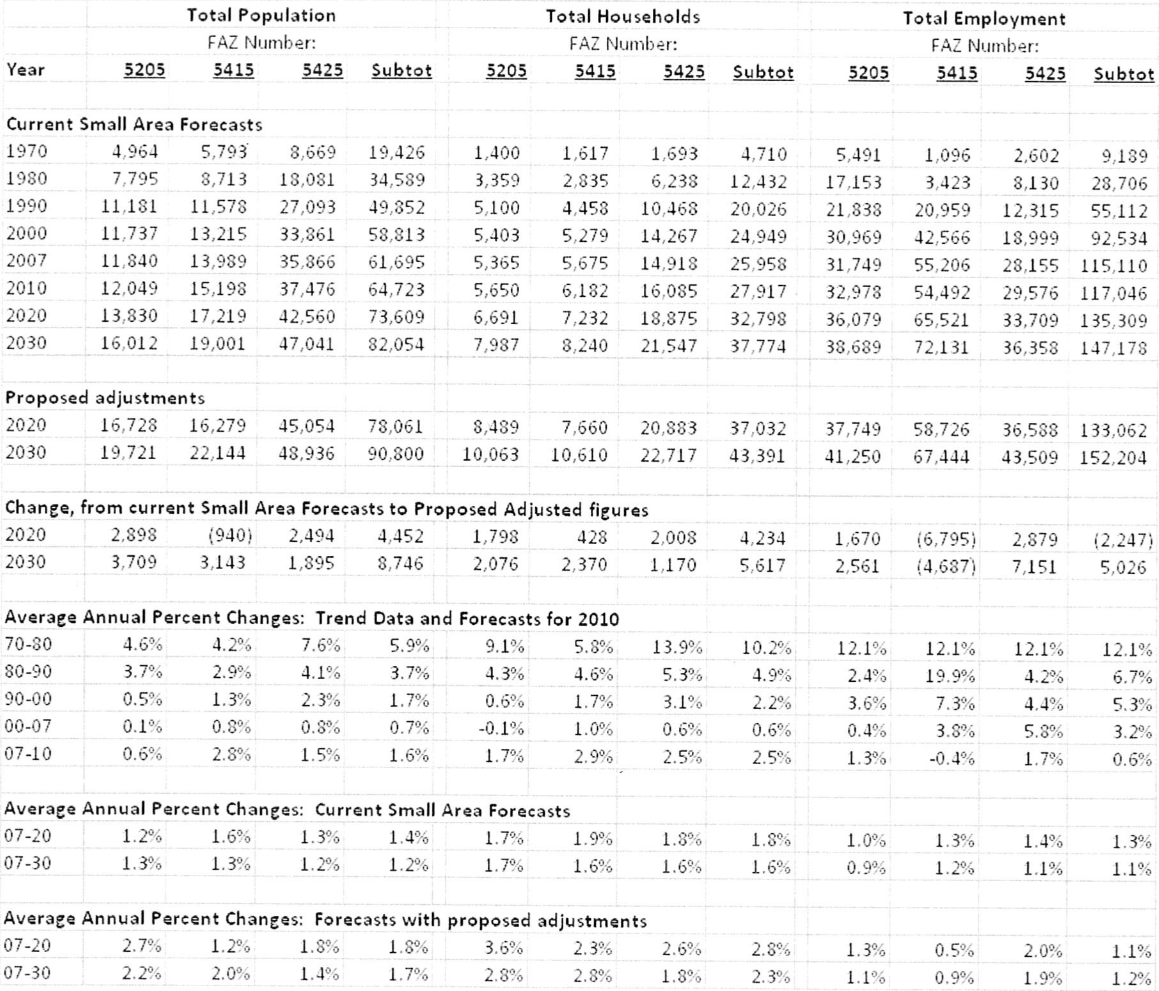
The Regional Council last released forecasts for the region, commonly referred to as the Small Area Forecasts, back in 2006. Staff from the City of Bellevue and City of Redmond participated in the review of those forecasts, and at the time noted that there were several planning efforts underway that could potentially result in changes to future year land use designations and development potential in several of the zones the Regional Council used for its forecasting work, called Forecast Analysis Zones (FAZs). With the completion of the Bel-Red Subarea and the Overlake Neighborhood Plan projects, staff from Bellevue and Redmond have contacted the Regional Council with information on the changes in assumptions that should be considered for the next regional forecast product, scheduled to be produced in either late 2009 or early 2010. The FAZs in question are shown in Figure 1, below:

Figure 1: Forecast Analysis Zones


5535
5525
6223
5515
5545
4706
5306
6226
5425
X
5305
5426
6216
6214
X
X
6115
5415
5100
5205
4820
6114
4900
4606
5020
5010
4810
4506
5925
4400
4605
4505
5916
4226
4225
5915
4130
4120
4210
4300

For each FAZ, city staff submitted recommended changes to the forecast amount of population, households, and employment, estimated from the change in development capacity generated by the comprehensive plan updates. These are summarized in Figure 2 – adjustments from the Bel-Red Subarea study are found in the information for FAZ 5205, while the Overlake Neighborhood Study adjustments are in FAZs 5415 and 5425. Overall, the net impact on the forecasts would be an increase of 8,700 people, 5,600 households, and 5,000 jobs in the study area by 2030.

Figure 2 – Summary of proposed adjustments to FAZ-level forecasts



	Total Population				Total Households				Total Employment			
	FAZ Number:				FAZ Number:				FAZ Number:			
Year	5205	5415	5425	Subtot	5205	5415	5425	Subtot	5205	5415	5425	Subtot
Current Small Area Forecasts												
1970	4,964	5,793	8,669	19,426	1,400	1,617	1,693	4,710	5,491	1,096	2,602	9,189
1980	7,795	8,713	18,081	34,589	3,359	2,835	6,238	12,432	17,153	3,423	8,130	28,706
1990	11,181	11,578	27,093	49,852	5,100	4,458	10,468	20,026	21,838	20,959	12,315	55,112
2000	11,737	13,215	33,861	58,813	5,403	5,279	14,267	24,949	30,969	42,566	18,999	92,534
2007	11,840	13,989	35,866	61,695	5,365	5,675	14,918	25,958	31,749	55,206	28,155	115,110
2010	12,049	15,198	37,476	64,723	5,650	6,182	16,085	27,917	32,978	54,492	29,576	117,046
2020	13,830	17,219	42,560	73,609	6,691	7,232	18,875	32,798	36,079	65,521	33,709	135,309
2030	16,012	19,001	47,041	82,054	7,987	8,240	21,547	37,774	38,689	72,131	36,358	147,178
Proposed adjustments												
2020	16,728	16,279	45,054	78,061	8,489	7,660	20,883	37,032	37,749	58,726	36,588	133,062
2030	19,721	22,144	48,936	90,800	10,063	10,610	22,717	43,391	41,250	67,444	43,509	152,204
Change, from current Small Area Forecasts to Proposed Adjusted figures												
2020	2,898	(940)	2,494	4,452	1,798	428	2,008	4,234	1,670	(6,795)	2,879	(2,247)
2030	3,709	3,143	1,895	8,746	2,076	2,370	1,170	5,617	2,561	(4,687)	7,151	5,026
Average Annual Percent Changes: Trend Data and Forecasts for 2010												
70-80	4.6%	4.2%	7.6%	5.9%	9.1%	5.8%	13.9%	10.2%	12.1%	12.1%	12.1%	12.1%
80-90	3.7%	2.9%	4.1%	3.7%	4.3%	4.6%	5.3%	4.9%	2.4%	19.9%	4.2%	6.7%
90-00	0.5%	1.3%	2.3%	1.7%	0.6%	1.7%	3.1%	2.2%	3.6%	7.3%	4.4%	5.3%
00-07	0.1%	0.8%	0.8%	0.7%	-0.1%	1.0%	0.6%	0.6%	0.4%	3.8%	5.8%	3.2%
07-10	0.6%	2.8%	1.5%	1.6%	1.7%	2.9%	2.5%	2.5%	1.3%	-0.4%	1.7%	0.6%
Average Annual Percent Changes: Current Small Area Forecasts												
07-20	1.2%	1.6%	1.3%	1.4%	1.7%	1.9%	1.8%	1.8%	1.0%	1.3%	1.4%	1.3%
07-30	1.3%	1.3%	1.2%	1.2%	1.7%	1.6%	1.6%	1.6%	0.9%	1.2%	1.1%	1.1%
Average Annual Percent Changes: Forecasts with proposed adjustments												
07-20	2.7%	1.2%	1.8%	1.8%	3.6%	2.3%	2.6%	2.8%	1.3%	0.5%	2.0%	1.1%
07-30	2.2%	2.0%	1.4%	1.7%	2.8%	2.8%	1.8%	2.3%	1.1%	0.9%	1.9%	1.2%

After reviewing this information, Regional Council staff believes the proposed adjustments are reasonable given the comprehensive plan changes that have been adopted by Bellevue and Redmond. Since the updated forecasts are not scheduled to be developed until later in the year or early next, incorporating these adjustments into a sub-regional analysis is warranted, given the forecast update will use as an input the modified comp plans as well.

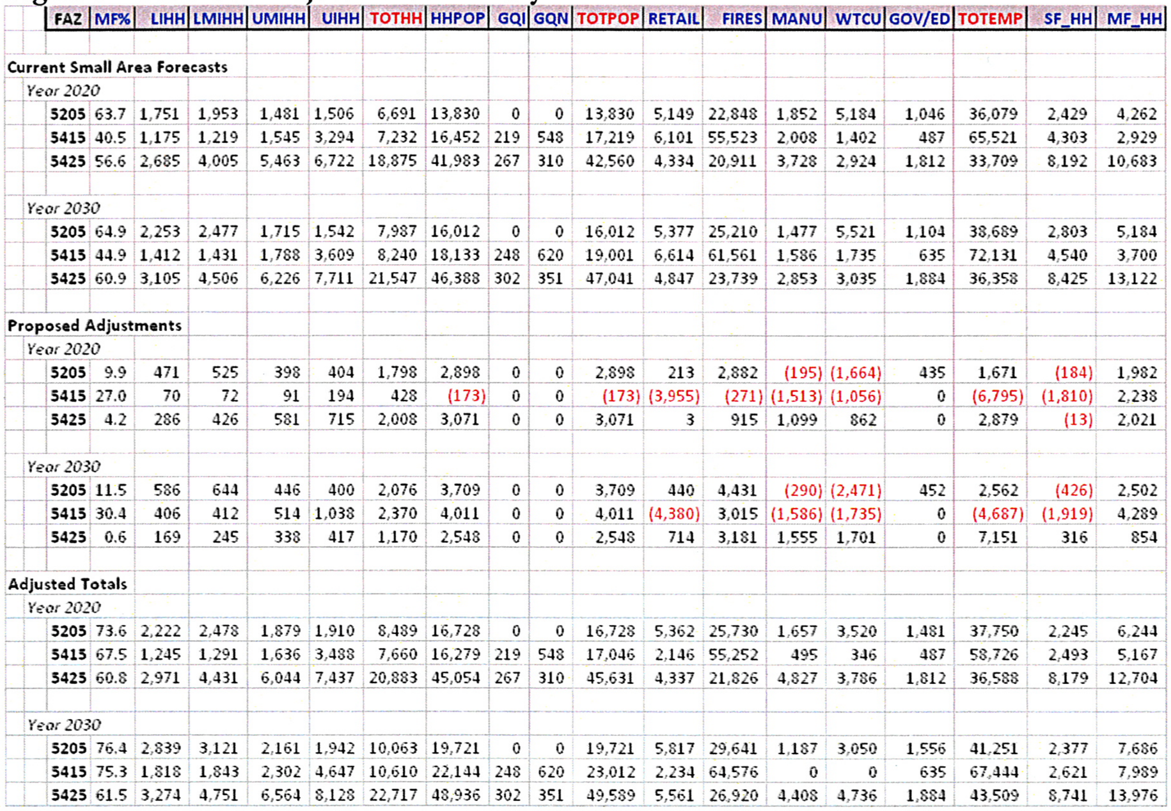
It should also be noted while reviewing the proposed adjustments, the estimated actual year 2007 data was compared to the 2010 forecasts for a broader list of FAZs that comprise the Bellevue-Redmond area. It is recognized that Sound Transit's need is for year 2020 and 2030 forecast results, but if at some point 2010 forecasts are required, then some additional analysis, and possibly adjustments, should be considered to the 2010 data[1].

---

[1] Initial indications are that the 2010 employment numbers in at least two FAZs – 4900 (Bellevue CBD) and 5305 (Kirkland – Houghland area) would likely be realized several years after 2010, unless either stronger than anticipated employment growth occurred / occurs in 2008 and 2009 - unlikely given the current economic climate.

Presented below is Figure 3, which summarizes the proposed FAZ-level adjustments by each forecast variable, for your use in developing the TAZ-level travel model inputs.

Figure 3 – FAZ-level Adjustment Summary



FAZ	MF%	LIHH	LMIHH	UMIHH	UIHH	TOTHH	HHPOP	GQI	GQN	TOTPOP	RETAIL	FIRES	MANU	WTCU	GOV/ED	TOTEMP	SF_HH	MF_HH
Current Small Area Forecasts																		
Year 2020																		
5205	63.7	1,751	1,953	1,481	1,506	6,691	13,830	0	0	13,830	5,149	22,848	1,852	5,184	1,046	36,079	2,429	4,262
5415	40.5	1,175	1,219	1,545	3,294	7,232	16,452	219	548	17,219	6,101	55,523	2,008	1,402	487	65,521	4,303	2,929
5425	56.6	2,685	4,005	5,463	6,722	18,875	41,983	267	310	42,560	4,334	20,911	3,728	2,924	1,812	33,709	8,192	10,683
Year 2030																		
5205	64.9	2,253	2,477	1,715	1,542	7,987	16,012	0	0	16,012	5,377	25,210	1,477	5,521	1,104	38,689	2,803	5,184
5415	44.9	1,412	1,431	1,788	3,609	8,240	18,133	248	620	19,001	6,614	61,561	1,586	1,735	635	72,131	4,540	3,700
5425	60.9	3,105	4,506	6,226	7,711	21,547	46,388	302	351	47,041	4,847	23,739	2,853	3,035	1,884	36,358	8,425	13,122
Proposed Adjustments																		
Year 2020																		
5205	9.9	471	525	398	404	1,798	2,898	0	0	2,898	213	2,882	(195)	(1,664)	435	1,671	(184)	1,982
5415	27.0	70	72	91	194	428	(173)	0	0	(173)	(3,955)	(271)	(1,513)	(1,056)	0	(6,795)	(1,810)	2,238
5425	4.2	286	426	581	715	2,008	3,071	0	0	3,071	3	915	1,099	862	0	2,879	(13)	2,021
Year 2030																		
5205	11.5	586	644	446	400	2,076	3,709	0	0	3,709	440	4,431	(290)	(2,471)	452	2,562	(426)	2,502
5415	30.4	406	412	514	1,038	2,370	4,011	0	0	4,011	(4,380)	3,015	(1,586)	(1,735)	0	(4,687)	(1,919)	4,289
5425	0.6	169	245	338	417	1,170	2,548	0	0	2,548	714	3,181	1,555	1,701	0	7,151	316	854
Adjusted Totals																		
Year 2020																		
5205	73.6	2,222	2,478	1,879	1,910	8,489	16,728	0	0	16,728	5,362	25,730	1,657	3,520	1,481	37,750	2,245	6,244
5415	67.5	1,245	1,291	1,636	3,488	7,660	16,279	219	548	17,046	2,146	55,252	495	346	487	58,726	2,493	5,167
5425	60.8	2,971	4,431	6,044	7,437	20,883	45,054	267	310	45,631	4,337	21,826	4,827	3,786	1,812	36,588	8,179	12,704
Year 2030																		
5205	76.4	2,839	3,121	2,161	1,942	10,063	19,721	0	0	19,721	5,817	29,641	1,187	3,050	1,556	41,251	2,377	7,686
5415	75.3	1,818	1,843	2,302	4,647	10,610	22,144	248	620	23,012	2,234	64,576	0	0	635	67,444	2,621	7,989
5425	61.5	3,274	4,751	6,564	8,128	22,717	48,936	302	351	49,589	5,561	26,920	4,408	4,736	1,884	43,509	8,741	13,976

Please feel free to follow-up if there are additional issues with information related to these proposed adjustments, or other forecast-related questions in the study area corridor, and best of luck with the remainder of the project.

Sincerely,

Mark Simonson
Principle Planner
Puget Sound Regional Council

Attachment 6
SR 520 Tolling Assumptions

Assumptions on SR 520 Tolling – August 20, 2009

For East Link FEIS - PSRC Vehicle Forecasts

The East Link DEIS used the same toll rates and method of application in the model as used in the SR 520 DEIS (August 18th, 2006). In the PSRC model (Version 1.0b) used for the East Link FEIS, as for the SR 520 Finance Plan, toll rates are entered as 2000 dollar values, then converted to a minutes penalty by a value-of-time factor developed by the PSRC. This value-of-time factor varies by income group for Home-Based Work trips, but is constant for other trip purposes.

For the East Link DEIS, the toll rates used in year 2000 dollars were as follows:

Peak periods: $3.14 per crossing for both the a.m. and p.m. peak rates. Off-peak periods: $1.65 per crossing, for each of three off-peak time periods — midday, evening, and night.

For East Link, both the traffic modeling and the transit ridership modeling assumed that vehicles with three or more people (HOV 3+) are not tolled. They also assumed that an average occupancy of 1.3 for non-carpools, reflecting the inclusion of two-person vehicles with non-carpools.

Also:

Assumed tolls on SR 520 only, assumed no tolls on I-90.

- Assumed single-point toll collection on 520 bridge only, with no tolls on any portions of the road east or west of the bridge deck.
- Assumed constant tolls within specified time periods, no dynamic variable rate tolls or congestion-dependent tolls.

For the East Link FEIS, the revised tolling rates developed as part of the 2007 SR 520 Finance Plan will be used for the vehicle forecasts from the PSRC model. Based on direction from WSDOT staff, toll rates associated with Scenario 4 (bridge toll emphasis of revenue/traffic balance) are recommended to be used for both year 2020 and 2030. The tolls are shown in Table 1.

TABLE 1
SR 520 Toll Assumptions by Time of Day ($2000)

Time of Day	Toll
AM	$2.57
Midday	$1.77
PM	$3.21
Evening	$1.64
Night	$0.77

Appendix B

Level of Service Definitions Used for East Link Analysis

TABLE B-1
LOS Definitions for Service Frequency (Urban Schedule Transit Service)

LOS	Headway (min.)	Comments
A	<10	Passengers don not need schedules
B	10-14	Frequent service, passengers consult schedules
C	15-20	Maximum desirable time to wait if bus/train missed
D	21-30	Service unattractive to choice riders
E	31-60	Transit service is available
F	>60	Service unattractive to all riders

Source: Transit Capacity and Quality Service Manual, Transportation Research Board (TRB), 2003.

TABLE B-2
LOS Definitions for Hours of Service

LOS	Hours of Service	Comments
A	19-24	Night or owl service provided
B	17-18	Late evening service provided
C	14-16	Early evening service provided
D	12-13	Daytime service provided
E	4-11	Peak hour service/limited midday service
F	0-3	Very limited or no service

Source: Transit Capacity and Quality Service Manual, TRB, 2003.

TABLE B-3
LOS Definition for Bus Passenger Load

LOS	passenger/seat	Comments
A	0.00-0.50	No passengers need sit next to another
B	0.51-0.75	Passengers can choose where to sit
C	0.76-1.00	All passengers can sit
D	1.01-1.25	Comfortable standee load for design
E	1.26-1.50	Maximum schedule load
F	>1.5	Crush load

Source: Transit Capacity and Quality Service Manual, TRB, 2003.

TABLE B-4
LOS Definition for Rail Passenger Load

LOS	ft2/passenger	Comments
A	>10.8[a]	At most some passengers must stand
B	8.2-10.8	No Passengers need to stand next to another
C	5.5-8.1	Passengers can choose where to stand
D	3.9-5.4	Comfortable standee load for design
E	2.2-3.8	Maximum schedule load
F	<2.2	Crush load

[a] This includes the potential for some cars to not have any standing passengers.

Source: Adapted from Transit Capacity and Quality Service Manual, TRB, 2003.

TABLE B-5
LOS Definitions for Reliability (On-Time Performance)

LOS	On-Time Percentage[a]	Description
A	95.0% - 100%	1 late transit vehicle every 2 weeks (no transfer)
B	90.0% - 94.9%	1 late transit vehicle every week (no transfer)
C	85.0% - 89.9%	3 late transit vehicles every 2 weeks (no transfer)
D	80.0% - 84.9%	2 late transit vehicles every week (no transfer)
E	75.0% - 79.9%	1 late transit vehicle every day (with a transfer)
F	<75.0%	1 late transit vehicle at least daily (with a transfer)

[a] "On time" is 0 to 5 minutes late; early departures are not considered on time.

Source: Transit Capacity and Quality Service Manual, TRB, 2003.

TABLE B-6
LOS Definitions for Reliability (Headway Adherence)

LOS	Coefficient of Variation	Description
A	0.00-0.21	Service provided like clockwork
B	0.22-0.30	Vehicles slightly off headway
C	0.31-0.39	Vehicles often off headway
D	0.40-0.52	Irregular headways, with some bunching
E	0.53-0.74	Frequent bunching
F	>0.75	Most vehicles bunched

[a] Coefficient of variation is the deviation in actual departing headways over the scheduled headway. A high coefficient of variation signifies a large difference between the actual and scheduled departure time, resulting in a poor reliability LOS.

Note: Headway Adherence LOS applies only to transit routes with headways of 10 minutes or less.

Source: Transit Capacity and Quality Service Manual, TRB, 2003.

TABLE B-7
LOS Definitions for Intersections

Level of Service	Average Delay (seconds per vehicle)	Traffic Flow Characteristics
Signalized Intersections		
A	< 10	Most vehicles arrive during the green phase and do not stop at all.
B	> 10 - < 20	More vehicles stop, causing higher delay.
C	> 20 - < 35	Vehicles stopping is significant, but many still pass through the intersection without stopping.
D	> 35 - < 55	Many vehicles stop, and the influence of congestion becomes more noticeable.
E	> 55 - < 80	Very few vehicles pass through without stopping.
F	> 80	Considered unacceptable to most drivers. Intersection is not necessarily over capacity, even though arrivals exceed capacity of lane groups.
Unsignalized Intersections		
A	≤ 10	Little or no traffic delays
B	> 10 - ≤ 15	Short traffic delays
C	> 15 - ≤ 25	Average traffic delays
D	> 25 - ≤ 35	Long traffic delays
E	> 35 - ≤ 50	Very long traffic delays
F	> 50	Queuing on minor approaches and not enough gaps of suitable size to allow safe crossing of major streets. Signalization should be investigated at this point, but warrants must be satisfied before implementation.

Source: Highway Capacity Manual, TRB, 2000.

TABLE B-8
LOS Definitions for Freeways

Level of Service	Density (passenger car/mile/lane)	Traffic Flow Characteristics
Basic Freeway Segment		
A	≤ 11	Free flows operation, vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.
B	> 11 - ≤ 18	Reasonably free flow, vehicles maneuver within the traffic stream is only slightly restricted.
C	> 18 - ≤ 26	Freedom to maneuver within the traffic stream is noticeably restricted.
D	> 26 - ≤ 35	Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort level.
E	> 35 - ≤ 45	Vehicles are closely spaced, leaving little room to maneuver within the traffic stream at speed that still exceed 49 mph.
F	> 45	Breakdowns in vehicular flow.
Merging and Diverging Area		
A	≤ 10	Unrestricted operation, smooth merging and diverging.
B	> 10 - ≤ 20	Merging and diverging maneuvers become noticeable to through drivers.
C	> 20 - ≤ 28	Both ramp and freeway vehicles begin to adjust their speeds to accomplish smooth transitions.
D	> 28 - ≤ 35	Virtually all vehicles slow to accommodate merging and diverging.
E	> 35	Flow levels approach capacity, and small changes in demand or disruptions within the traffic stream can cause both ramp and freeway queues to form.
F	Demand exceeds capacity	
Weaving Area		
A	≤ 10	Unrestricted operation, smooth weaving movements.
B	> 10 - ≤ 20	Weaving maneuvers become noticeable to through drivers.
C	> 20 - ≤ 28	Both ramp and freeway vehicles begin to adjust their speeds to accomplish smooth transitions.
D	> 28 - ≤ 35	Virtually all vehicles slow to accommodate weaving movements.
E	> 35 - ≤ 43	Flow levels approach capacity, and small changes in demand or disruptions within the traffic stream can cause both ramp and freeway queues to form.
F	> 43	

Source: Highway Capacity Manual, TRB, 2000.

TABLE B-9
LOS Definitions for Platoon-Adjusted Criteria for Walkways and Sidewalks

LOS	Flow Rate (p/min/ft)	Description
A	< 0.5	Walking speeds freely selected; conflicts with other pedestrians unlikely.
B	> 0.5-3	Walking speeds freely selected; pedestrians respond to presence of others.
C	> 3-6	Walking speeds freely selected; passing is possible in unidirectional streams; minor conflicts for reverse or cross movement.
D	> 6-11	Freedom to select walking speed and pass others is restricted; high probability of conflicts for reverse or cross movements.
E	> 11-18	Walking speeds and passing ability are restricted for all pedestrians; forward movement is possible only by shuffling; reverse or cross movements are possible only with extreme difficulty; volumes approach limit of walking capacity.
F	> 18	Walking speeds are severely restricted; frequent, unavoidable contact with others; reverse or cross movements are virtually impossible; flow is sporadic and unstable.

Note: Flow rates in the table represent average flow rates over a 5-6 minute period.

Source: Highway Capacity Manual, TRB, 2000.

Appendix C
Existing and Future Transit Routes and Level of Service

TABLE C-1
Existing, No-Build, and Build Transit Routes in East Link Study Area

Route No.	Stop Locations in Project Area (Existing)	Service Area (Existing)	Stop Locations in Study Area (No Build)	Service Area (No Build)	Stop Location in Study Area (Build)	Service Area (Build)
KCM 111	I-90	Downtown Seattle, I-90 & Rainier, Newport Hills P&R, Kennydale, Renton Highlands P&R, Renton Highlands, Maplewood Heights, Lake Kathleen	Same as Existing	Same as Existing	I-90, South Bellevue, Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue
KCM 114	I-90	Downtown Seattle, I-90 & Rainier, Newport Hills P&R, Kennydale, Renton Highlands P&R, Renton Highlands, Maplewood Heights, Lake Kathleen	Same as Existing	Same as Existing	I-90, South Bellevue, Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue, Lake Kathleen
KCM 202	North Mercer Island	Downtown Seattle, North Mercer Island, South Mercer Island	Deleted	Deleted	Deleted	Deleted
KCM 205	North Mercer Island	University District, Montlake, First Hill Seattle, North Mercer Island, South Mercer Island	Deleted	Deleted	Deleted	Deleted
KCM 210	I-90 & Rainier Avenue	Downtown Seattle, I-90 & Rainier, Factoria, Eastgate, Issaquah Transfer Point	Same as Existing	Same as Existing	South Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue
KCM 212	I-90 & Rainier Avenue, South Bellevue	Downtown Seattle, I-90 & Rainier, Factoria, Eastgate I-90 Freeway Station, Eastgate P&R	Same as Existing	Same as Existing	Same as No Build	Same as No Build
KCM 214	I-90 & Rainier Avenue	Downtown Seattle, I-90 & Rainier, Issaquah Transfer Point, Issaquah, Preston, Fall City, Snoqualmie Falls, Snoqualmie, North Bend, Factory Stores of North Bend	Same as Existing	- Snoqualmie Falls, Snoqualmie, North Bend, Factory Stores of North Bend	Same as No Build	Same as No Build
KCM 214.5	Route Does Not Exist	Route Does Not Exist	I-90 & Rainier Avenue	Downtown Seattle, I-90 & Rainier, North Bend	Same as No Build	Same as No Build
KCM 216	I-90 & Rainier Avenue, North Mercer Island, Redmond	Downtown Seattle, I-90 & Rainier, North Mercer Island, Pine Lake, South Sammamish P&R, Redmond, Bear Creek P&R	Same as Existing	Same as Existing	Same as No Build	Same as No Build
KCM 217	I-90 & Rainier Avenue, North Mercer Island	Downtown Seattle, I-90 & Rainier, Factoria, Eastgate P&R, Eastgate, North Issaquah	Deleted	Deleted	Deleted	Deleted
KCM 218	I-90 & Rainier Avenue	Issaquah Highlands P&R, Eastgate I-90 Freeway Station, I-90 & Rainier, Downtown Seattle	Same as Existing	Same as Existing	Same as No Build	Same as No Build
KCM 220	Bellevue, Redmond	Redmond P&R, Redmond Town Centre, Rose Hill, South Kirkland P&R, Bellevue	Deleted	Deleted	Deleted	Deleted

TABLE C-1
Existing, No-Build, and Build Transit Routes in East Link Study Area

Route No.	Stop Locations in Project Area (Existing)	Service Area (Existing)	Stop Locations in Study Area (No Build)	Service Area (No Build)	Stop Location in Study Area (Build)	Service Area (Build)
KCM 225	I-90 & Rainier Avenue, South Bellevue, Bellevue, Redmond	Downtown Seattle, I-90 & Rainier, Eastgate I-90 Freeway Station, Eastgate P&R, Phantom Lake, Overlake, Overlake Transit Center	Deleted	Deleted	Deleted	Deleted
KCM 229	I-90 & Rainier Avenue, South Bellevue, Bellevue, Redmond	Overlake Transit Center, Overlake, Crossroads, Phantom Lake, Eastgate P&R, Eastgate I-90 Freeway Station, I-90 & Rainier, Downtown Seattle	Deleted	Deleted	Deleted	Deleted
KCM 230	Bellevue, Overlake	Kingsgate P&R, Totem Lake Mall, Rose Hill, 124th Ave NE, NE 85th St, Kirkland Transit Center, Lake Washington Blvd., South Kirkland P&R, Bellevue Way NE, Bellevue Transit Center, NE 8th St, Crossroads, Overlake, Microsoft, 156th Ave NE, SR-520, Redmond	Deleted	Deleted	Deleted	Deleted
KCM 232	Bellevue, Overlake, Redmond	Duvall, Cottage Lake, English Hill, Redmond, SR-520, I-405, Bellevue, Bellevue Transit Center	Same as Existing	- English Hill	Overlake, Redmond	- Bellevue, Bellevue Transit Center
KCM 233	Bellevue, Overlake, Redmond	Avondale Rd NE & Avondale Pl NE, Bear Creek P&R, 148th Ave NE, 156th Ave NE, Microsoft, Overlake, Bell-Red Rd, Bellevue Transit Center	Bellevue, Overlake	- Avondale Rd NE & Avondale Pl NE, Bear Creek P&R, 148th Ave NE	Same as No Build	Same as No Build
KCM 234	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	South Bellevue, Bellevue, Overlake	Kenmore, Finn Hill, Juanita, Kirkland Transit Center, Northwest College, S. Kirkland P&R, 116th Ave NE, Bellevue Transit Center, South Bellevue P&R	Same as No Build	Same as No Build
KCM 239	Route Does Not Exist	Route Does Not Exist	Overlake, Redmond	Redmond Ridge, Redmond, Overlake Transit Center	Same as No Build	Same as No Build
KCM 249	Bellevue, Overlake	Redmond P&R, West Lake Sammamish Pkwy, Sammamish Viewpoint Park, Overlake, Overlake P&R, NE 20th St, 116th Ave. NE, Bellevue Transit Center	Same as Existing	Same as Existing	Bellevue, 122nd, Overlake	Same as No Build
KCM 253	Bellevue, Overlake	Bear Creek P&R, Redmond P&R, Redmond Civic Center, 148th Ave NE, Overlake, Overlake P&R, Crossroads, Bellevue Transit Center	Deleted	Deleted	Deleted	Deleted
KCM 268	Overlake, Redmond	Downtown Seattle, Montlake, SR-520 Stops, Overlake Transit Center, Bear Creek P&R, 185th Ave NE & Redmond-Fall City Rd	Same as Existing	Same as Existing	Deleted	Deleted

TABLE C-1
Existing, No-Build, and Build Transit Routes in East Link Study Area

Route No.	Stop Locations in Project Area (Existing)	Service Area (Existing)	Stop Locations in Study Area (No Build)	Service Area (No Build)	Stop Location in Study Area (Build)	Service Area (Build)
KCM 269	Overlake, Redmond	Issaquah Transfer Point, Issaquah Highlands P&R, Issaquah-Pine Lake Rd, South Sammamish P&R, 228th Ave NE, Sahalee Way NE, Redmond-Fall City Rd, Bear Creek P&R, Overlake, Overlake P&R	Same as Existing	Same as Existing	Same as No Build	- Overlake P&R
KCM 271	Bellevue	Issaquah, Issaquah Transfer Point, Eastgate, Eastgate P&R, Bellevue Community College, Bellevue Transit Center, Medina, University District	Bellevue	- Issaquah, Issaquah Transfer Point, Eastgate, Eastgate P&R, Bellevue Community College	Same as No Build	Same as No Build
KCM RapidRide	Route Does Not Exist	Route Does Not Exist	Bellevue, Overlake, Redmond	Redmond Transit Center, 148th Ave, NE, Overlake, Overlake P&R, 156th Ave NE, NE 8th Street, Bellevue Transit Center	Same as No Build	Same as No Build
ST 532	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	South Bellevue, Bellevue	Everett, Everett Station, Eastmont P&R, Lynnwood, Canyon Park P&R, Brickyard Freeway Station, Totem Lake Freeway Station, Bellevue, South Bellevue
ST 535	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	Route Does Not Cross Any Screenlines	South Bellevue, Bellevue	Lynnwood Transit Center, Lynnwood, Canyon Park P&R, UW Bothell, Bothell P&R, Brickyard Freeway Station, Totem Lake Freeway Station, Bellevue, South Bellevue
ST 542	Route Does Not Exist	Route Does Not Exist	Overlake, Redmond	Bear Creek P&R, Redmond P&R, Redmond City Hall, Overlake P&R, University District	Same as No Build	Same as No Build
ST 545	Overlake, Redmond	Bear Creek P&R, Redmond P&R, Redmond City Hall, Overlake P&R, Downtown Seattle	Same as Existing	Same as Existing	Same as Existing	Same as Existing
ST 550	Bellevue, South Bellevue, North Mercer Island, I-90 & Rainier Avenue	Bellevue Square, Bellevue Transit Center, South Bellevue P&R, North Mercer Island, I-90 & Rainier, Downtown Seattle	Same as Existing	Same as Existing	Deleted	Deleted

TABLE C-1
Existing, No-Build, and Build Transit Routes in East Link Study Area

Route No.	Stop Locations in Project Area (Existing)	Service Area (Existing)	Stop Locations in Study Area (No Build)	Service Area (No Build)	Stop Location in Study Area (Build)	Service Area (Build)
ST 554	North Mercer Island, I-90 & Rainier Avenue	South Sammamish P&R, Issaquah Highlands P&R, Downtown Issaquah, Issaquah Transfer Point, Bellevue Community College, Eastgate P&R, Eastgate I-90 Freeway Station, North Mercer Island, I-90 & Rainier, Downtown Seattle	Same as Existing	Same as Existing	North Mercer Island	- I-90 & Rainier, Downtown Seattle
ST 555	Bellevue	Issaquah Highlands P&R, Issaquah Transfer Point, Bellevue Community College, Eastgate P&R, Factoria, Bellevue Transit Center, SR-520 Freeway Stations, Northgate Transit Center	Same as Existing	Same as Existing	Same as No Build	- SR-520 Freeway Stations, Northgate Transit Center
ST 556	Bellevue	Issaquah Highlands P&R, Issaquah Transfer Point, Bellevue Community College, Eastgate P&R, Bellevue Transit Center, SR-520 Freeway Stations, University District, Northgate Transit Center	Same as Existing	Same as Existing	Deleted	Deleted
ST 564	Bellevue, Overlake	South Hill Mall Transit Center, South Hill P&R, Sumner Station, Auburn Station, Kent Station, Renton Transit Center, Renton Boeing, Bellevue Transit Center, Overlake Transit Center	Same as Existing	Same as Existing	Bellevue	- Overlake Transit Center
ST 565	Bellevue, Overlake	Federal Way Transit Center, Auburn Station, Kent Station, Renton Transit Center, Renton Boeing, Bellevue Transit Center, Overlake Transit Center	Same as Existing	Same as Existing	Bellevue	- Overlake Transit Center

Notes: Transit routes and park-and-ride stalls from fall 2007.

All transit routes listed have crossed the screenline in both directions.

TABLE C-2
Direct Transit Routes Evaluated For Existing, 2020 and 2030 No-Build and Build

		To								
From	**Condition**	**Northgate**	**U District**	**Downtown Seattle**	**Mercer Island**	**South Bellevue**	**Downtown Bellevue**	**Bel-Red**	**Overlake**	**Downtown Redmond**
Northgate	Existing:	▨	▨	▨	No Direct Routes	No Direct Routes	2 EXP	No Direct Routes	No Direct Routes	No Direct Routes
	No Build:				Same As Existing	Same As Existing	Same As Existing	Same As Existing	Same As Existing	Same As Existing
	Build:				East Link	East Link	East Link	East Link	East Link	East Link
U District	Existing:	▨	▨	▨	1 Local	No Direct Routes	1 Local, 1 EXP	No Direct Routes	No Direct Routes	No Direct Routes
	No Build:				No Direct Routes	Same As Existing	Same As Existing	Same As Existing	1 EXP	1 EXP
	Build:				East Link	East Link	East Link	East Link	East Link	East Link
Downtown Seattle	Existing:	▨	▨	▨	2 Local, 2 EXP	1 EXP	1 EXP	No Direct Routes	1 Local, 1 EXP	1 EXP
	No Build:				1 Local, 2, EXP	Same As Existing	Same As Existing	Same As Existing	Same As Existing	Same As Existing
	Build:				East Link	East Link	East Link	East Link	East Link	East Link
Mercer Island	Existing:	No Direct Routes	1 Local	2 Local, 2 EXP	▨	1 EXP	1 EXP	No Direct Routes	No Direct Routes	No Direct Routes
	No Build:	Same As Existing	No Direct Routes	1 Local, 2 EXP		Same As Existing	Same As Existing	Same As Existing	Same As Existing	Same As Existing
	Build:	East Link	East Link	East Link		East Link	East Link	East Link	East Link	East Link
South Bellevue	Existing:	No Direct Routes	No Direct Routes	1 EXP	1 EXP	▨	1 EXP	No Direct Routes	No Direct Routes	No Direct Routes
	No Build:	Same As Existing	Same As Existing	Same As Existing	Same As Existing		1 Local, 1 EXP	Same As Existing	Same As Existing	Same As Existing
	Build:	East Link	East Link	East Link	East Link		East Link	East Link	East Link	East Link
Downtown Bellevue	Existing:	2 EXP	1 Local, 1 EXP	1 EXP	1 EXP	1 EXP	▨	3 Local	5 Local, 2 EXP	5 Local
	No Build:	Same As Existing	Same As Existing	Same As Existing	Same As Existing	1 Local, 1 EXP		2 Local	3 Local, 1 RR, 2 EXP	1 Local, 1 RR
	Build:	East Link	East Link	East Link	East Link	East Link		East Link	East Link	East Link
Bel-Red	Existing:	No Direct Routes	No Direct Routes	No Direct Routes	No Direct Routes	No Direct Routes	3 Local	▨	2 Local	2 Local
	No Build:	Same As Existing	Same As Existing	Same As Existing	Same As Existing	Same As Existing	2 Local		Same As Existing	No Direct Routes
	Build:	East Link	East Link	East Link	East Link	East Link	East Link		East Link	East Link
Overlake	Existing:	No Direct Routes	No Direct Routes	1 Local, 1 EXP	No Direct Routes	No Direct Routes	5 Local, 2 EXP	2 Local	▨	4 Local, 1 EXP
	No Build:	Same As Existing	1 EXP	Same As Existing	Same As Existing	Same As Existing	3 Local, 1 RR, 2 EXP	Same As Existing		1 Local, 1 RR, 1 EXP
	Build:	East Link	East Link	East Link	East Link	East Link	East Link	East Link		East Link
Downtown Redmond	Existing:	No Direct Routes	No Direct Routes	1 EXP	No Direct Routes	No Direct Routes	5 Local	2 Local	4 Local, 1 EXP	▨
	No Build:	Same As Existing	1 EXP	Same As Existing	Same As Existing	Same As Existing	1 Local, 1 RR	No Direct Routes	1 Local, 1 RR, 1 EXP	
	Build:	East Link	East Link	East Link	East Link	East Link	East Link	East Link	East Link	

Notes: ▨ Not Evaluated or Not Applicable

Existing and No Build include only bus. Build includes only light rail.

No Build applies to both 2020 and 2030 years.

Build applies to both 2020 and 2030 years.

RR is a RapidRide route.

EXP is an Express route.

TABLE C-3
PM Peak Period Transit Frequency LOS for Existing, 2020 and 2030 No Build and Build

		To								
From	**Condition**	**Northgate**	**U District**	**Downtown Seattle**	**Mercer Island**	**South Bellevue**	**Downtown Bellevue**	**Bel-Red**	**Overlake**	**Downtown Redmond**
Northgate	Existing: No Build: Build 2020: Build 2030:	▨	▨	▨	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	30/D Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A
U District	Existing: No Build: Build 2020: Build 2030:	▨	▨	▨	100/F No Direct Service 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	12/B 10/B Same as No Build 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A
Downtown Seattle	Existing: No Build: Build 2020: Build 2030:	▨	▨	▨	4/A Same as Existing 10/B 9/A	7/A 8/A 10/B 9/A	7/A 8/A 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	8/A 7/A 10/B 9/A	11/B 8/A 10/B 9/A
Mercer Island	Existing: No Build: Build 2020: Build 2030:	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	8/A 6/A 10/B 9/A	▨	7/A 8/A 10/B 9/A	7/A 8/A 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A
South Bellevue	Existing: No Build: Build 2020: Build 2030:	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	10/B 8/A 10/B 9/A	10/B 8/A 10/B 9/A	▨	7/A 6/5/A* 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A
Downtown Bellevue	Existing: No Build: Build 2020: Build 2030:	30/D Same as Existing 10/B 9/A	25/D 15/C 10/B 9/A	10/B 8/A 10/B 9/A	10/B 8/A 10/B 9/A	10/B 6/5/A* 10/B 9/A	▨	10/B 15/C 10/B 9/A	5/A 3/A 10/B 9/A	5/A 10/B 10/B 9/A
Bel-Red	Existing: No Build: Build 2020: Build 2030:	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	10/B 15/C 10/B 9/A	▨	15/C Same as Existing 10/B 9/A	15/C No Direct Service 10/B 9/A
Overlake	Existing: No Build: Build 2020: Build 2030:	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	15/C 8/A 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	4/A 3/A 10/B 9/A	15/C Same as Existing 10/B 9/A	▨	4/A 3/A 10/B 9/A
Downtown Redmond	Existing: No Build: Build 2020: Build 2030:	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	15/C 8/A 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	No Direct Service Same as Existing 10/B 9/A	5/A Same as Existing 10/B 9/A	15/C No Direct Service 10/B 9/A	5/A 3/A 10/B 9/A	▨

Notes: ▨ Not Evaluated or Not Applicable

Existing and No Build include only bus. Build includes only light rail.

No Build applies to both 2020 and 2030 years unless otherwise indicated.

9 / A = Frequency (in minutes) / Level of Service

*No Build 2020 Frequency (in minutes) / No Build 2030 Frequency (in minutes) / Level of Service

TABLE C-4
Transit Hours of Service and LOS for Existing, 2020 and 2030 No Build and Build

		To								
From	**Condition**	**Northgate**	**U District**	**Downtown Seattle**	**Mercer Island**	**South Bellevue**	**Downtown Bellevue**	**Bel-Red**	**Overlake**	**Downtown Redmond**
Northgate	Existing:	▨	▨	▨	No Direct Service	No Direct Service	6:49/E	No Direct Service	No Direct Service	No Direct Service
	No Build:				Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing
	Build:				20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A
U District	Existing:	▨	▨	▨	3:07/F	No Direct Service	17:34/B	No Direct Service	No Direct Service	No Direct Service
	No Build:				No Direct Service	Same as Existing	Same as Existing	Same as Existing	19:21/A	19:21/A
	Build:				20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A
Downtown Seattle	Existing:	▨	▨	▨	19:12/A	19:12/A	19:12/A	No Direct Service	19:21/A	19:21/A
	No Build:				Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing
	Build:				20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A
Mercer Island	Existing:	No Direct Service	2:55/F	19:53/A	▨	19:12/A	19:12/A	No Direct Service	No Direct Service	No Direct Service
	No Build:	Same as Existing	No Direct Service	Same as Existing		Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing
	Build:	20:00/A	20:00/A	20:00/A		20:00/A	20:00/A	20:00/A	20:00/A	20:00/A
South Bellevue	Existing:	No Direct Service	No Direct Service	19:53/A	19:53/A	▨	19:12/A	No Direct Service	No Direct Service	No Direct Service
	No Build:	Same as Existing	Same as Existing	Same as Existing	Same as Existing		Same as Existing	Same as Existing	Same as Existing	Same as Existing
	Build:	20:00/A	20:00/A	20:00/A	20:00/A		20:00/A	20:00/A	20:00/A	20:00/A
Downtown Bellevue	Existing:	7:13/E	17:05/B	19:53/A	19:53/A	19:53/A	▨	14:25/C	19:14/A	19:14/A
	No Build:	Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing		Same as Existing	20:30/A	20:30/A
	Build:	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A		20:00/A	20:00/A	20:00/A
Bel-Red	Existing:	No Direct Service	No Direct Service	No Direct Service	No Direct Service	No Direct Service	14:28/C	▨	13:40/D	13:30/D
	No Build:	Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing	Same as Existing		Same as Existing	No Direct Service
	Build:	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A		20:00/A	20:00/A
Overlake	Existing:	No Direct Service	No Direct Service	18:31/B	No Direct Service	No Direct Service	20:05/A	14:28/C	▨	19:21/A
	No Build:	Same as Existing	18:31/B	Same as Existing	Same as Existing	Same as Existing	20:30/A	Same as Existing		20:30/A
	Build:	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A		20:00/A
Downtown Redmond	Existing:	No Direct Service	No Direct Service	18:31/B	No Direct Service	No Direct Service	20:05/A	12:29/D	20:05/A	▨
	No Build:	Same as Existing	18:31/B	Same as Existing	Same as Existing	Same as Existing	20:30/A	No Direct Service	20:30/A	
	Build:	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	20:00/A	

Notes: ▨ Not Evaluated or Not Applicable

Existing and No Build include only bus. Build includes only light rail.

No Build applies to both 2020 and 2030 years.

Build applies to both 2020 and 2030 years.

12:00 / A = Hours of Service / Level of Service

TABLE C-5
Existing, No Build, and Build PM Peak-Hour Passenger Load

					Existing		**2020 No Build**		**2020 Build**				**2030 No Build**		**2030 Build**			
					Bus		**Bus**		**Bus**		**Light Rail**		**Bus**		**Bus**		**Light Rail**	
Screen-line	**Existing Routes**	**No Build Routes**	**Build Routes**	**Direction**	**Average seated passenger/ seat**	**LOS**	**Average seated passenger/ seat**	**LOS**	**Average seated passenger/ seat**	**LOS**	**ft^2 / standing passenger**	**LOS**	**Average seated passenger /seat**	**LOS**	**Average seated passenger/ seat**	**LOS**	**ft^2 / standing passenger**	**LOS**
1	11 local, 2 express	8 local, 2 express	5 local, light rail	SB	0.45	A	0.69	B	0.23	A	9.22	B	0.72	B	0.26	A	9.63	B
				NB	0.49	A	0.48	A	0.30	A	NSP	A	0.64	B	0.37	A	NSP	A
2	14 local, 5 express	10 local, 5 express	6 local, light rail	EB	0.52	B	0.87	C	0.34	A	11.71	A	0.96	C	0.36	A	11.76	B
				WB	0.57	B	0.63	B	0.27	A	NSP	A	0.89	C	0.34	A	NSP	A
3	10 local, 1 express	8 local, 1 express	8 local, 1 express, light rail	EB	0.49	A	0.49	A	0.31	A	N/A	N/A	0.54	B	0.34	A	N/A	N/A
				WB	0.33	A	0.58	B	0.35	A	N/A	N/A	0.75	B	0.43	A	N/A	N/A
4	0 local, 3 express	1 local, 3 express	3 local, 4 express, light rail	NB	0.23	A	0.25	A	0.12	A	NSP	A	0.28	A	0.14	A	NSP	A
				SB	0.50	B	0.46	A	0.20	A	NSP	A	0.57	B	0.23	A	NSP	A
5	7 local, 3 express	4 local, 1 RapidRide, 4 express	2 local, 1 RapidRide, 2 express, light rail	EB	0.43	A	0.60	B	0.18	A	NSP	A	0.77	C	0.21	A	NSP	A
				WB	0.40	A	0.46	A	0.27	A	NSP	A	0.61	B	0.34	A	NSP	A
6	8 local, 1 express	4 local, 1 RapidRide, 2 express	3 local, 1 RapidRide, 2 express light rail	NB	0.29	A	0.26	A	0.07	A	NSP	A	0.29	A	0.08	A	NSP	A
				SB	0.16	A	0.19	A	0.09	A	NSP	A	0.24	A	0.11	A	NSP	A

TABLE C-6
Existing Bus and Light Rail PM Peak-Hour Reliability LOS

Station Location	Route Number	Direction	Existing Headway[a] (minutes)	Existing Bus[a]			Light Rail[b]	
				% On-time Performance	Coefficient of Variation	LOS	Coefficient of Variation	LOS
International District/ Chinatown Station	KCM 210	Eastbound	25	41.7%	-	F		
	KCM 212	Eastbound	8.7	-	0.56	E		
	KCM 214	Eastbound	13	49.2%	-	F		
	KCM 216	Eastbound	26	40.7%	-	F		
	KCM 218	Eastbound	9.6	-	0.53	E		
	KCM 225	Eastbound	>60	59.4%	-	F		
	KCM 229	Eastbound	>60	44.8%	-	F		
	ST 550	Eastbound	6.6	-	0.68	E		
	ST 554	Eastbound	35	51.7%	-	F		
	KCM 111	Southbound	20	66.0%	-	F		
	KCM 114	Southbound	27	56.3%	-	F		
	KCM 202	Southbound	30	43.1%	-	F		
	KCM 212	Westbound	30	46.0%	-	F		
	ST 550	Westbound	10.1	30.3%	-	F		
	ST 554	Westbound	30	56.9%	-	F		
	Light Rail	N/A	N/A				0.16	A
Average				48.8%	0.59	F/E	0.16	A
Mercer Island	ST 550	Eastbound	6.5	-	1.02	F		
	ST 554	Eastbound	35	52.8%	-	F		
	KCM 202	Southbound	11	50.6%	-	F		
	KCM 216	Southbound	33	34.0%	-	F		
	KCM 202	Westbound	32	71.4%	-	F		
	KCM 203	Westbound	32	36.5%	-	F		
	ST 550	Westbound	10.2	50.0%	-	F		
	ST 554	Westbound	30	70.0%	-	F		
	Light Rail	N/A	N/A				0.16	A
Average				52.2%	1.02	F/F	0.16	A
Bellevue Transit Center	KCM 233	Eastbound	30	91.0%	-	B		
	KCM 249	Eastbound	30	84.8%	-	D		
	KCM 271	Eastbound	15	66.2%	-	F		
	ST 550	Eastbound	6	-	0.68	E		
	ST 556	Eastbound	37	55.9%	-	F		
	ST 564	Northbound	30	39.0%	-	F		
	ST 565	Northbound	60	3.3%	-	F		
	ST 564	Southbound	30	39.0%	-	F		
	ST 565	Southbound	30	23.8%	-	F		
	KCM 233	Westbound	30	48.3%	-	F		
	KCM 249	Westbound	30	41.3%	-	F		
	KCM 253	Westbound	30	38.2%	-	F		
	KCM 271	Westbound	22	71.0%	-	F		
	ST 550	Westbound	11.25	82.4%	-	D		
	ST 555	Westbound	39	71.0%	-	F		
	KCM 230	N/A	14.5	59.5%	-	F		

TABLE C-6
Existing Bus and Light Rail PM Peak-Hour Reliability LOS

Station Location	Route Number	Direction	Existing Headway[a] (minutes)	Existing Bus[a]			Light Rail[b]	
				% On-time Performance	Coefficient of Variation	LOS	Coefficient of Variation	LOS
	KCM 230	N/A	30	61.8%	-	F		
	KCM 232	N/A	23.5	29.3%	-	F		
	Light Rail	N/A	N/A				0.16	A
Average				53.3%	0.68	F/E	0.16	A
Overlake Transit Center	KCM 232	Eastbound	17	35.8%	-	F		
	KCM 268	Eastbound	36	34.0%	-	F		
	ST 545	Eastbound	10	-	0.39	C		
	KCM 230	Eastbound	29	74.6%	-	E		
	ST 564	Northbound	60	21.9%	-	F		
	ST 565	Northbound	60	13.3%	-	F		
	ST 564	Northbound	60	47.8%	-	F		
	ST 565	Northbound	60	17.4%	-	F		
	KCM 245	Northbound	29	87.5%	-	C		
	ST 564	Southbound	30	77.8%	-	E		
	ST 565	Southbound	30	89.5%	-	C		
	KCM 245	Southbound	30	84.8%	-	D		
	ST 545	Westbound	10	-	0.31	C		
	KCM 230	Westbound	32	75.0%	-	E		
	KCM 232	Westbound	30	50.0%	-	F		
	ST 545	Westbound	10	-	0.30	D		
	KCM 247	N/A	31	21.5%	-	F		
	KCM 225	N/A	31	46.7%	-	F		
	KCM 229	N/A	36	33.3%	-	F		
	KCM 256	N/A	28	95.2%	-	A		
	KCM 249	N/A	22	36.6%	-	F		
	Light Rail	N/A	N/A				0.16	A
Average				52.4%	0.33	F/C	0.16	A
Redmond Transit Center	KCM 230	N/A	31	32.3%	-	F		
	KCM 232	Eastbound	20.5	26.3%	-	F		
	KCM 253	Eastbound	30	40.0%	-	F		
	KCM 545	Eastbound	10.8	27.8%	-	F		
	KCM 220	Eastbound	29	18.0%	-	F		
	KCM 220	Westbound	25	100.0%	-	A		
	KCM 250	N/A	44	29.2%	-	F		
	KCM 253	Westbound	25	88.7%	-	C		
	ST 545	Westbound	10	-	0.48	D		
	Light Rail	N/A	N/A				0.16	A
Average				45.3%	0.48	F/D	0.16	A

[a] Future transit reliability trends are assumed to remain similar to existing conditions because King County Metro and Sound Transit continually adjust their transit service according to the demand levels. Existing routes and headways do not necessarily reflect the future service planned by King County Metro and Sound Transit.

[b] Future light rail reliability performance was projected using the St. Louis light rail data. See Table C-7.

N/A - transit route does not provide service in one particular direction

TABLE C-7
Saint Louis Light Rail Reliability

			Minutes Arrived Early or Late (-)						
Station	**Headway (Minutes)**	**Scheduled Arrival**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Standard Deviation**	**Cv**
Union Station									
	5							0.70	0.14
		16:27	-0.18	-0.55	0.98	-0.58	-0.07		
		17:35	1.10	-1.07	-0.25	-0.28	0.48		
Kiel Station									
	5							0.91	0.18
		16:26	0.10	-0.30	1.20	-0.25	0.25		
		17:36	0.98	-1.43	-1.22	-1.27	-0.45		
Busch Stadium									
	5							0.80	0.16
		16:24	0.12	-0.25	1.02	-0.10	0.25		
		17:38	0.22	-1.48	-1.22	-1.27	-0.45		
Grand									
	5							0.66	0.13
		16:31	-0.85	-0.70	0.22	-1.20	-1.27		
		17:31	0.60	-1.22	-0.08	-0.72	-0.03		
Average Downtown								0.79	0.16
Calculation: Cv=Stdev/headway									

Appendix D
Existing and Future
Intersection Level of Service Results

Existing Conditions

TABLE D-1
Existing 2007 AM and PM Peak-Hour Intersection LOS – Segment A

Intersection	Jurisdiction	Control Type	Existing			
			AM		PM	
			LOS	Delay	LOS	Delay
City of Seattle						
Rainier Avenue South & South Dearborn	Seattle	Signal	D	41	F	94
Rainier Avenue South & South Massachusetts St.	Seattle	Signal	C	26	B	17
Rainier Avenue South & 23rd Avenue South	Seattle	Signal	C	28	D	40
Rainier Avenue South & I-90 EB Off-Ramp	WSDOT	Signal	B	12	B	19
Dearborn Street & I-5 Southbound Ramp	WSDOT	Signal	A	7	A	7
Dearborn Street & I-5 Northbound Ramp	WSDOT	Signal	B	16	B	18
I-90 & 4th Avenue South	Seattle	Signal	C	28	E	65
South Royal Brougham Way & 4th Avenue South	Seattle	Signal	D	49	F	118
Airport Way South & 4th Avenue South	Seattle	Signal	C	27	D	37
Airport Way S & S Dearborn Street	WSDOT	Signal	D	39	D	40
4th Ave NB off Ramp & Edgar Martinez Dr S.	WSDOT	Signal	B	15	E	73
City of Mercer Island						
West Mercer Way & I-90 Ramps	WSDOT	TWSC	B	10	B	11
West Mercer Way & 24th Avenue SE	Mercer Island	AWSC	B	10	B	12
80th Avenue SE & SE 27th Street	Mercer Island	AWSC	B	13	C	23
80th Avenue SE & I-90 EB HOV On Ramp	WSDOT	TWSC	N/A	N/A	N/A	N/A
80th Avenue SE & I-90 WB HOV Off Ramp	WSDOT	TWSC	N/A	N/A	N/A	N/A
80th Avenue SE & I-90 Express Lanes Ramp	WSDOT	TWSC	B	11	A	2
80th Avenue SE & North Mercer Way	WSDOT	Signal	B	12	B	12
77th Avenue SE & Sunset Highway	Mercer Island	TWSC	C	16	C	16
77th Avenue SE & I-90 Express Lanes Ramp	WSDOT	TWSC	A	8	C	19
77th Avenue SE & I-90 EB HOV Off Ramp	WSDOT	TWSC	N/A	N/A	N/A	N/A
77th Avenue SE & I-90 EB Off-Ramp	WSDOT	TWSC	B	11	B	12
77th Avenue SE & North Mercer Way	Mercer Island	TWSC	D	25	C	20
77th Avenue SE & 27th Street	Mercer Island	AWSC	C	19	E	44
76th Avenue SE/North Mercer Way & I-90 WB On-Ramp	WSDOT	AWSC	B	11	C	17
76th Avenue SE & 24th Avenue SE	Mercer Island	AWSC	B	10	B	12
Island Crest Way & I-90 EB On-Ramp	Mercer Island	Signal	B	16	B	18
Island Crest Way & I-90 WB Off-Ramp	WSDOT	Signal	B	17	B	13
East Mercer Way & I-90 EB Off-Ramp	WSDOT	Signal	A	7	A	6
East Mercer Way & I-90 EB On-Ramp	WSDOT	Signal	B	10	B	10
East Mercer Way & I-90 WB Ramps	WSDOT	AWSC	D	28	F	65

Notes: Bold type text indicates where intersections fail to meet agency LOS standards: Mercer Island is LOS C, Seattle is LOS D, and WSDOT is LOS E.

Delay is measured by average seconds of delay per vehicle.

AWSC – All-way stop controlled intersection, TWSC – Two-way stop controlled intersection.

TABLE D-2
Existing 2007 PM Peak-Hour Intersection LOS - Segment B

Intersection	Jurisdiction	Control Type	Existing	
			LOS	**Delay**
112th Avenue SE & Bellevue Way SE	Bellevue	Signal	C	34
112th Avenue SE & SE 8th Street	Bellevue	Signal	B	14
118th Avenue SE & SE 8th Street	WSDOT	Signal	**F**	**>150**
1-405 NB Ramps & SE 8th Street	WSDOT	Signal	C	26
I-405 SB Ramps & SE 8th Street	WSDOT	Signal	C	23
Bellevue Way SE & SE 30th Street[a]	Bellevue	TWSC	**F / F**	**119 / >150**
Bellevue Way SE and South Bellevue Park-and-Ride (S)	Bellevue	TWSC	D	27
Bellevue Way SE and South Bellevue Park-and-Ride (N)	Bellevue	TWSC	B	11
114th Avenue SE & SE 6th Street	Bellevue	TWSC	D	33
SE 8th Street & 114th Avenue SE (Bellefield Business Park)	Bellevue	Signal	B	12
Bellevue Way SE & 108th Avenue SE	Bellevue	Signal	C	24
Bellevue Way SE & SE 16th Street	Bellevue	Signal	A	7
Bellevue Way SE & 104th Avenue SE	Bellevue	Signal	A	5
Bellevue Way SE & SE 10th Street	Bellevue	Signal	A	6
Bellevue Way SE & 112th Avenue SE/South Bellevue Park-and-Ride[a]	Bellevue	Signal	C / **F**	26 / **110**
112th Avenue SE and SE 15th Street	Bellevue	TWSC	F	139
I-405 northbound ramps and Coal Creek Parkway SE	WSDOT	Signal	D	40
I-405 southbound ramps and Coal Creek Parkway SE	WSDOT	Signal	E	75
119th Avenue SE and Coal Creek Parkway SE	WSDOT	Signal	C	27

Notes:

[a] Bellevue Way SE & SE 30th Street and Bellevue Way SE & South Bellevue P&R intersection results are report for both AM and PM peak hours (AM / PM LOS and AM / PM Delay).

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue is LOS D and WSDOT is LOS E.

Delay is measured by average seconds of delay per vehicle.

N/A – intersection is not evaluated in this condition.

AWSC – All-way stop controlled intersection, TWSC – Two-way stop controlled intersection.

TABLE D-3
Existing 2007 PM Peak-Hour Intersection LOS – Segment C

Intersection	Jurisdiction	Control Type	Existing	
			LOS	**Delay**
112th Venue SE & SE 6th Street	Bellevue	Signal	A	8
Bellevue Way SE & SE Wolverine Way	Bellevue	Signal	B	16
Bellevue Way & Main Street	Bellevue	Signal	E	62
Bellevue Way NE & NE 2nd Street	Bellevue	Signal	C	25
Bellevue Way NE and NE 4th Street	Bellevue	Signal	E	61
Bellevue Way NE and NE 6th Street	Bellevue	Signal	A	5
Bellevue Way NE and NE 8th Street	Bellevue	Signal	E	65
Bellevue Way NE and NE 10th Street	Bellevue	Signal	C	20
Bellevue Way NE and NE 12th Street	Bellevue	Signal	D	55
112th Avenue NE & NE 12th Street	Bellevue	Signal	D	53
112th Avenue NE & NE 10th Street	Bellevue	Signal	B	11
112th Avenue NE & NE 8th Street/I-405 SB Ramp	WSDOT	Signal	**F**	**106**
112th Avenue NE & NE 6th Street	WSDOT	Signal	B	10
112th Avenue NE & NE 4th Street	WSDOT	Signal	D	36
112th Avenue NE & NE 2nd Street	Bellevue	Signal	B	16
112th Avenue & Main Street	Bellevue	Signal	E	74
110th Avenue NE & NE 12th Street	Bellevue	Signal	A	8
110th Avenue NE & NE 10th Street	Bellevue	Signal	B	11
110th Avenue NE & NE 8th Street	Bellevue	Signal	C	27
110th Avenue NE & NE 6th Street	Bellevue	Signal	C	24
110th Avenue NE & NE 4th Street	Bellevue	Signal	C	33
110th Avenue NE & NE 2nd Street	Bellevue	Signal	B	18
110th Avenue & Main Street	Bellevue	Signal	B	11
108th Avenue NE & NE 12th Street	Bellevue	Signal	B	18
108th Avenue NE & NE 10th Street	Bellevue	Signal	B	12
108th Avenue NE & NE 8th Street	Bellevue	Signal	D	45
108th Avenue NE & NE 6th Street	Bellevue	Signal	D	36
108th Avenue NE & NE 4th Street	Bellevue	Signal	D	53
108th Avenue NE & NE 2nd Street	Bellevue	Signal	B	17
108th Avenue & Main Street	Bellevue	Signal	A	8
106th Avenue NE & NE 12th Street	Bellevue	Signal	A	9
106th Avenue NE & NE 10th Street	Bellevue	Signal	A	10
106th Avenue NE & NE 8th Street	Bellevue	Signal	D	44
106th Avenue NE & NE 6th Street	Bellevue	Signal	A	5
106th Avenue NE & NE 4th Street	Bellevue	Signal	D	36
106th Avenue NE & NE 2nd Street	Bellevue	Signal	B	16
106th Avenue NE & Main Street	Bellevue	Signal	A	9
NE 4th Street & I-405 SB Ramp	WSDOT	Signal	C	24
NE 4th Street & I-405 NB Ramp	WSDOT	Signal	C	28
116th Avenue NE & NE 12th Street	Bellevue	Signal	D	42
116th Avenue NE & NE 10th Street	Bellevue	Signal	B	12
116th Avenue NE & NE 8th Street	WSDOT	Signal	E	62
116th Avenue NE & NE 4th Street	WSDOT	Signal	C	27

TABLE D-3
Existing 2007 PM Peak-Hour Intersection LOS – Segment C

Intersection	Jurisdiction	Control Type	Existing	
			LOS	Delay

Notes: Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

AWSC – All-way stop controlled intersection, TWSC – Two-way stop controlled intersection.

TABLE D-4
Existing 2007 PM Peak-Hour Intersection LOS – Segment D

Intersection	Jurisdiction	Control Type	Existing	
			LOS	Delay
City of Bellevue				
120th Avenue NE & NE 12th Street	Bellevue	Signal	C	25
124th Avenue NE & Northup Way	WSDOT	Signal	C	33
124th Avenue NE & Bel-Red Road	Bellevue	Signal	D	42
130th Avenue NE & Bel-Red Road	Bellevue	Signal	C	24
130th Avenue NE & NE 20th Street	Bellevue	Signal	C	26
132nd Avenue NE & Bel-Red Road	Bellevue	Signal	B	16
132nd Avenue NE & NE 16th Street	Bellevue	TWSC	B	14
132nd Avenue NE & NE 20th Street	Bellevue	Signal	B	16
136th Avenue NE & NE 16th Street	Bellevue	TWSC	B	12
136th Avenue NE & NE 20th Street	Bellevue	Signal	B	10
140th Avenue NE & 20th Avenue	Bellevue	Signal	D	48
NE 20th Street & Mall Entrance	Bellevue	Signal	B	12
City of Redmond				
148th Avenue NE & SR 520 WB Ramps	WSDOT	Signal	E	59
148th Avenue NE & SR 520 EB Ramps	WSDOT	Signal	C	28
NE 24th Street & 148th Avenue NE	Redmond	Signal	E	75
NE 24th Street & 151st Avenue NE	Redmond	Signal	B	18
NE 20th Street & 152nd Avenue NE	Redmond	TWSC	C	20
NE 24th Street & 152nd Avenue NE	Redmond	Signal	C	21
NE 26th Street & 152nd Avenue NE	Redmond	Signal	A	4
NE 24th Street & Bel-Red Road	Redmond	Signal	C	31
NE 40th Street & 148th Avenue NE	Redmond	Signal	C	30
NE 40th Street & SR 520 WB Ramps	WSDOT	Signal	C	29
NE 40th Street & SR 520 EB Ramps	WSDOT	Signal	B	19
NE 40th Street & 156th Avenue NE	Redmond	Signal	D	49
Overlake P&R Entrance & 156th Avenue NE	Redmond	Signal	A	8
NE 36th Street & 156th Avenue NE	Redmond	Signal	D	43
NE 31st Street & 156th Avenue NE	Redmond	Signal	C	33
148th Avenue NE & 20th Avenue	Redmond	Signal	E	79

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue, Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

AWSC – All-way stop controlled intersection, TWSC – Two-way stop controlled intersection.

TABLE D-5
Existing 2007 PM Peak-Hour Intersection LOS – Segment E

Intersection	**Jurisdiction**	**Control Type**	**Existing**	
			LOS	**Delay**
NE Leary Way & West Lake Sammamish Pkwy.	WSDOT	Signal	F	80
NE Leary Way & 159th Place NE	Redmond	Signal	B	14
NE Leary Way & Bear Creek Parkway	Redmond	Signal	B	12
NE Leary Way & NE 76th Street	Redmond	TWSC	A	10
Redmond Way & 161st Avenue NE	Redmond	Signal	C	26
NE 83rd Street & 161st Avenue NE	Redmond	Signal	B	12
NE 85th Street & 161st Avenue NE	Redmond	Signal	C	27
164th Avenue NE & SR 202	Redmond	Signal	B	14
164th Avenue NE& NE 76th Street	Redmond	TWSC	B	10
164th Avenue NE& Cleveland Street	Redmond	Signal	B	16
164th Avenue NE& NE 80th Street	Redmond	Signal	C	25
164th Avenue NE& NE 85th Street	Redmond	Signal	D	37
166th Avenue NE & SR 202	Redmond	Signal	B	18
166th Avenue NE & NE 76th Street	Redmond	TWSC	C	17
166th Avenue NE & NE Cleveland Street	Redmond	Signal	B	14
166th Avenue NE & NE 80th Street	Redmond	Signal	B	14
NE 76th Street & Bear Creek Parkway	Redmond	TWSC	D	34
SR 202 & SR 520 WB Ramps	WSDOT	Signal	E	70
SR 202 & SR 520 EB Ramps	WSDOT	Signal	C	30
SR 202 & NE 70th Street	Redmond	Signal	C	22
NE 70th Street & 176th Avenue NE	Redmond	TWSC	B	11
178th Place NE & Union Hill Road	Redmond	Signal	B	16
Avondale Road NE & Union Hill Road	Redmond	Signal	F	147
E Lake Sammamish Parkway & NE 65th Street	Redmond	Signal	C	29
SR 202 & E Lake Sammamish Parkway (180th Avenue NE)	Redmond	Signal	F	85

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

AWSC – All-way stop controlled intersection, TWSC – Two-way stop controlled intersection.

Future 2020 and 2030 Intersection LOS Results

TABLE D-6
Existing 2007, 2020, and 2030 No-Build and Build AM Peak-Hour Intersection LOS – Segment A

	Existing		2020 AM								2030 AM							
	AM		No-Build		Build[a]		Build[b]		Build[c]		No-Build		Build[a]		Build[b]		Build[c]	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Seattle																		
Rainier Avenue South & South Dearborn	D	41	D	38	D	42	D	42	D	42	D	43	D	48	D	48	D	48
Rainier Avenue South & South Massachusetts St.	C	26	C	27	D	38	D	38	D	38	C	33	D	48	D	48	D	48
Rainier Avenue South & 23rd Avenue South	C	28	C	26	C	28	C	28	C	28	C	32	C	31	C	31	C	31
Rainier Avenue South & I-90 EB Off-Ramp	B	12	B	10	B	11	B	11	B	11	B	12	B	13	B	13	B	13
Dearborn Street & I-5 Southbound Ramp	A	7	A	7	A	7	A	7	A	7	A	7	A	7	A	7	A	7
Dearborn Street & I-5 Northbound Ramp	B	16	B	12	B	12	B	12	B	12	B	13	B	13	B	13	B	13
I-90 & 4th Avenue South	C	28	C	22	C	24	C	24	C	24	B	18	C	21	C	21	C	21
South Royal Brougham Way & 4th Avenue South	D	49	C	25	C	25	C	25	C	25	D	36	C	35	C	35	C	35
Airport Way South & 4th Avenue South	C	27	C	27	C	28	C	28	C	28	C	34	D	37	D	37	D	37
Airport Way S & S Dearborn Street	D	39	D	39	C	26	C	26	C	26	D	50	C	30	C	30	C	30
4th Ave NB off Ramp & Edgar Martinez Dr S.	B	15	B	13	B	15	B	15	B	15	B	10	B	11	B	11	B	11
Mercer Island																		
West Mercer Way & I-90 Ramps	B	10	B	11	B	12	B	11	B	12	B	11	B	12	B	12	B	13
West Mercer Way & 24th Avenue SE	B	10	B	14	B	14	B	13	B	14	B	14	B	14	B	14	B	15
80th Avenue SE & SE 27th Street	B	13	C	18	C	18	C	18	C	18	C	20	C	20	C	21	C	20
80th Avenue SE & I-90 EB HOV On Ramp	--	--	A	1	A	1	A	1	A	1	A	1	A	1	A	1	A	1
80th Avenue SE & I-90 WB HOV Off Ramp	--	--	B	14	B	14	B	14	B	14	B	14	B	15	B	15	B	15
80th Avenue SE & I-90 Express Lanes Ramp	B	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
80th Avenue SE & North Mercer Way	B	12	B	13	B	11	B	11	B	11	B	13	B	12	B	12	B	12
77th Avenue SE & Sunset Highway	C	16	C	23	C	20	**D**	**25**	C	23	C	24	C	20	**D**	**25**	C	23
77th Avenue SE & I-90 Express Lanes Ramp	A	8	A	7	--	--	--	--	--	--	A	7	--	--	--	--	--	--

TABLE D-6
Existing 2007, 2020, and 2030 No-Build and Build AM Peak-Hour Intersection LOS – Segment A

	Existing		2020 AM								2030 AM							
	AM		No-Build		Build[a]		Build[b]		Build[c]		No-Build		Build[a]		Build[b]		Build[c]	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
77th Avenue SE & I-90 EB HOV Off Ramp	**--**	**--**	B	12	--	--	B	13	**--**	**--**	B	12	--	--	B	14	**--**	**--**
77th Avenue SE & I-90 EB Off-Ramp	B	11	C	16	B	13	C	15	B	14	C	16	B	13	C	16	B	14
77th Avenue SE & North Mercer Way	**D**	**25**	C	21	C	20	C	20	C	21	C	23	C	22	C	21	C	24
77th Avenue SE & 27th Street	C	19	A	9	A	9	B	10	B	10	A	9	A	9	B	11	B	10
76th Avenue SE/North Mercer Way & I-90 WB On-Ramp	B	11	B	11	C	16	C	16	C	16	B	12	C	18	C	18	C	19
76th Avenue SE & 24th Avenue SE	B	10	B	11	B	12	B	12	B	13	B	11	B	13	B	13	B	13
Island Crest Way & I-90 EB On-Ramp	B	16	B	19	B	17	B	17	B	17	C	20	C	21	C	21	C	21
Island Crest Way & I-90 WB Off-Ramp	B	17	B	18	B	18	B	18	B	18	C	20	C	20	C	20	C	20
East Mercer Way & I-90 EB Off-Ramp	A	7	A	5	A	5	A	5	A	5	A	5	A	6	A	6	A	6
East Mercer Way & I-90 EB On-Ramp	B	10	B	15	B	14	B	14	B	14	B	15	B	17	B	16	B	17
East Mercer Way & I-90 WB Ramps	D	28	C	23	C	22	C	22	C	22	C	23	C	27	C	26	C	27

Notes:

-- Intersection is not provided in this condition.

Bold type text indicates where intersections fail to meet agency LOS standards: Mercer Island is LOS C, Seattle is LOS D, and WSDOT is LOS E.

Delay is measured by average seconds of delay per vehicle.

[a] Build condition - results for *Preferred Alternative A1* which provides an eastbound HOV direct-access off-ramp at Island Crest Way.

[b] Build condition - results for the design option to provide an eastbound HOV direct-access off-ramp at 77th Avenue SE.

[c] Build condition - results for the design option to provide no eastbound HOV direct-access ramp on Mercer Island.

TABLE D-7
Existing 2007, 2020, and 2030 No-Build and Build PM Peak-Hour Intersection LOS – Segment A

Intersection	Existing		2020 PM								2030 PM							
	PM		No-Build		Build[a]		Build[b]		Build[c]		No-Build		Build[a]		Build[b]		Build[c]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Seattle																		
Rainier Avenue South & South Dearborn	**F**	**94**	**F**	**83**	**F**	**82**	**F**	**82**	**F**	**82**	**F**	**94**	**F**	**95**	**F**	**95**	**F**	**95**
Rainier Avenue South & South Massachusetts St.	B	17	B	19	C	21	C	21	C	21	B	19	C	24	C	24	C	24
Rainier Avenue South & 23rd Avenue South	D	40	**E**	**57**	**E**	**61**	**E**	**61**	**E**	**61**	**F**	**85**	**F**	**88**	**F**	**88**	**F**	**88**
Rainier Avenue South & I-90 EB Off-Ramp	B	19	B	14	C	20	C	20	C	20	C	20	C	21	C	21	C	21
Dearborn Street & I-5 Southbound Ramp	A	7	A	7	A	8	A	8	A	8	A	9	A	9	A	9	A	9
Dearborn Street & I-5 Northbound Ramp	B	18	C	23	B	15	B	15	B	15	C	24	C	24	C	24	C	24
I-90 & 4th Avenue South	**E**	**65**	B	14	B	17	B	17	B	17	B	17	B	18	B	18	B	18
South Royal Brougham Way & 4th Avenue South	**F**	**118**	D	49	D	47	D	47	D	47	**F**	**119**	**F**	**118**	**F**	**118**	**F**	**118**
Airport Way South & 4th Avenue South	D	37	C	32	C	34	C	34	C	34	C	33	D	38	D	38	D	38
Airport Way S & S Dearborn Street	D	40	D	53	C	35	C	35	C	35	**F**	**83**	D	37	D	37	D	37
4th Ave NB off Ramp & Edgar Martinez Dr S.	E	73	B	18	C	21	C	21	C	21	B	19	B	19	B	19	B	19
Mercer Island																		
West Mercer Way & I-90 Ramps	B	11	B	13	C	16	C	15	C	16	B	13	C	17	C	15	C	17
West Mercer Way & 24th Avenue SE	B	12	C	19	**E**	**40**	**E**	**36**	**E**	**43**	C	23	**E**	**48**	**E**	**44**	**E**	**51**
80th Avenue SE & SE 27th Street	C	23	**D**	**28**	**D**	**32**	**D**	**34**	**D**	**32**	**E**	**38**	**E**	**47**	**E**	**50**	**E**	**47**
80th Avenue SE & I-90 EB HOV On Ramp	--	--	A	2	A	2	A	2	A	2	A	2	A	2	A	2	A	2
80th Avenue SE & I-90 WB HOV Off Ramp	--	--	C	19	C	24	C	24	C	24	C	24	E	35	E	36	D	32
80th Avenue SE & I-90 Express Lanes Ramp	A	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
80th Avenue SE & North Mercer Way	B	12	B	14	B	14	B	14	B	14	B	15	B	17	B	16	B	17
77th Avenue SE & Sunset Highway	C	16	C	19	C	18	C	25	C	20	C	21	C	22	**D**	**34**	C	24
77th Avenue SE & I-90 Express Lanes Ramp	C	19	C	21	--	--	--	--	--	--	C	22	--	--	--	--	--	--
77th Avenue SE & I-90 EB HOV Off Ramp	--	--	B	14	--	--	**F**	**62**	--	--	B	15	--	--	**F**	**89**	--	--

TABLE D-7
Existing 2007, 2020, and 2030 No-Build and Build PM Peak-Hour Intersection LOS – Segment A

	Existing		**2020 PM**								**2030 PM**							
	PM		**No-Build**		**Build[a]**		**Build[b]**		**Build[c]**		**No-Build**		**Build[a]**		**Build[b]**		**Build[c]**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
77th Avenue SE & I-90 EB Off-Ramp	B	12	B	14	C	16	C	20	C	17	B	15	C	19	C	22	C	20
77th Avenue SE & North Mercer Way	C	20	**E**	**37**	**E**	**43**	**E**	**43**	**E**	**43**	**E**	**49**	**F**	**74**	**F**	**74**	**F**	**74**
77th Avenue SE & 27th Street	**E**	**44**	B	10	A	9	B	12	B	11	B	11	B	11	B	13	B	12
76th Avenue SE/North Mercer Way & I-90 WB On-Ramp	C	17	E	46	E	49	E	49	E	49	**F**	**51**	**F**	**60**	**F**	**60**	**F**	**60**
76th Avenue SE & 24th Avenue SE	B	12	B	14	C	15	C	15	C	15	B	15	C	16	C	16	C	16
Island Crest Way & I-90 EB On-Ramp	B	18	B	18	C	23	C	23	C	23	C	24	C	25	C	23	C	25
Island Crest Way & I-90 WB Off-Ramp	B	13	D	40	D	44	D	44	D	44	E	77	E	79	E	79	E	79
East Mercer Way & I-90 EB Off-Ramp	A	6	A	6	A	7	A	7	A	7	A	7	A	6	A	8	A	6
East Mercer Way & I-90 EB On-Ramp	B	10	B	19	B	18	B	18	B	18	C	21	B	18	B	22	B	18
East Mercer Way & I-90 WB Ramps	**F**	**65**	C	24	C	25	C	25	C	25	C	26	C	35	C	39	C	35

Notes:

-- Intersection is not provided in this condition.

Bold type text indicates where intersections fail to meet agency LOS standards: Mercer Island is LOS C, Seattle is LOS D, and WSDOT is LOS E.

Delay is measured by average seconds of delay per vehicle.

[a] Build condition - results for *Preferred Alternative A1* which provides an eastbound HOV direct-access off-ramp at Island Crest Way.

[b] Build condition - results for the design option to provide an eastbound HOV direct-access off-ramp at 77th Avenue SE.

[c] Build condition - results for the design option to provide no eastbound HOV direct-access ramp on Mercer Island.

TABLE D-8
Future 2020 PM Peak-Hour Intersection LOS – Segment B

	2020															
	No-Build		***B2M-C9T***		***B2M-C11A***		**B1**		**B2A**		**B2E**		**B3**		**B7**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
ue SE & Bellevue Way SE	C	24	C	28	C	30	**E**	**78**	**E**	**75**	C	28	**E**	**74**	C	25
ue SE & SE 8th Street	C	22	C	22	C	28	B	19	C	29	B	18	C	33	C	25
ue SE & SE 8th Street	**F**	**138**	**F**	**144**	**F**	**142**	**F**	**142**	**F**	**141**	**F**	**139**	**F**	**139**	**F**	**224**
amps & SE 8th Street	C	23	C	22	C	22	C	24	C	28	C	29	C	22	C	30
amps & SE 8th Street	C	28	C	26	C	26	C	27	C	26	C	25	C	29	C	25
ay SE & SE 30th Street*	**F**	**>300**	A	7	A	7	**F**	**65**	A	7	A	7	A	7	**F**	**>300**
ay SE & South Bellevue P&R	C	26	C	29	C	29	D	48	C	29	C	29	C	29	C	26
ay SE & South Bellevue P&R	B	10	B	12	B	12	B	14	B	12	B	12	B	12	B	10
ue SE & SE 6th Street	D	34	D	35	D	35	D	35	D	35	D	35	D	35	D	34
et & 114th Avenue SE Business Park)	C	20	C	22	C	26	C	23	C	24	C	20	C	23	B	19
ay SE & 108th Avenue SE	B	14	B	16	B	16	C	22	B	18	B	16	B	18	B	15
ay SE & SE 16th Street	A	4	A	4	A	4	B	14	A	3	A	4	A	3	A	4
ay SE & 104th Avenue SE	A	4	A	4	A	4	B	19	A	3	A	4	A	3	A	4
ay SE & SE 10th Street	A	8	A	8	A	8	B	15	A	8	A	8	A	8	A	8
ay SE and 112th Avenue ellevue Park-and-Ride	D	47	D	43	D	43	D	48	D	42	D	43	D	42	D	47
ue SE and SE 15th Street	**F**	**151**	B	14	B	15	**F**	**195**	B	15	**F**	**195**	B	15	**F**	**167**
bound ramps and Coal Creek E	D	39	D	37	D	36	D	39	D	39	D	39	D	39	D	38
bound ramps and Coal Creek E	E	60	E	59	E	60	E	59	E	60	E	59	E	60	E	69
ue SE and Coal Creek E	D	38	D	38	D	38	D	39	D	38	D	39	D	38	D	46

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue is LOS D, and WSDOT is LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-9
Future 2030 PM Peak-Hour Intersection LOS – Segment B

	2030															
	No-Build		***B2M-C9T***		***B2M-C11A***		**B1**		**B2A**		**B2E**		**B3**		**B7**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
ue SE & Bellevue Way SE	C	26	C	31	C	31	**F**	**85**	**F**	**87**	C	30	**F**	**84**	C	26
ue SE & SE 8th Street	C	22	C	25	C	33	C	21	C	32	B	20	C	34	C	24
ue SE & SE 8th Street	**F**	**190**	**F**	**190**	**F**	**191**	**F**	**196**	**F**	**195**	**F**	**198**	**F**	**192**	**F**	**271**
amps & SE 8th Street	C	24	C	24	C	23	C	24	C	24	C	24	C	24	C	33
mps & SE 8th Street	C	27	C	27	C	27	C	28	C	28	C	28	C	30	C	23
ay SE & SE 30th Street*	**F**	**>300**	A	7	A	7	**F**	**57**	A	7	A	7	A	7	**F**	**>300**
ay SE & South Bellevue P&R	C	28	D	41	D	42	D	52	D	43	D	42	D	43	C	28
ay SE & South Bellevue P&R	B	10	B	12	B	12	B	17	B	12	B	12	B	12	B	10
ue SE & SE 6th Street	**F**	**106**	**F**	**110**	**F**	**111**	**F**	**106**	**F**	**114**	**F**	**110**	**F**	**111**	**F**	**106**
et & 114th Avenue SE usiness Park)	B	19	C	20	C	28	C	21	C	28	C	22	C	21	B	18
ay SE & 108th Avenue SE	B	18	B	20	B	20	C	26	C	21	B	20	C	21	B	19
ay SE & SE 16th Street	A	4	A	5	A	5	B	18	A	4	A	5	A	4	A	4
ay SE & 104th Avenue SE	A	4	A	4	A	4	C	21	A	4	A	4	A	4	A	4
ay SE & SE 10th Street	A	8	A	8	A	8	B	16	A	8	A	8	A	8	A	8
ay SE and 112th Avenue ellevue Park-and-Ride	D	55	D	51	D	50	D	54	D	52	D	51	D	52	D	55
ue SE and SE 15th Street	**F**	**135**	B	12	C	15	**F**	**178**	C	15	**F**	**178**	C	15	**F**	**148**
ound ramps and Coal Creek	D	51	D	51	D	51	D	51	D	51	D	51	D	51	E	57
bound ramps and Coal Creek	**F**	**102**	**F**	**102**	**F**	**102**	**F**	**102**	**F**	**102**	**F**	**102**	**F**	**102**	**F**	**115**
ue SE and Coal Creek	D	45	D	45	D	45	D	45	D	45	D	45	D	45	D	51

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue is LOS D, and WSDOT is LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-10
Future 2020 PM Peak-Hour Intersection LOS – Segment C

	2020																					
	No-Build		***C9T***		***C11A***		**C1T**		**C2T**		**C3T**		**C4A**		**C7E**		**C8E**		**C9A**		**C14E**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
112th Avenue SE & SE 6th Street	A	9	A	10	B	13	A	9	A	10	A	10	A	9	A	9	A	9	A	10	A	10
Bellevue Way SE & SE Wolverine Way	B	11	B	11	B	11	B	13	B	11	B	11	B	11	B	11	B	11	B	11	B	11
Bellevue Way & Main Street	**F**	**99**	**F**	**105**	**F**	**107**	**F**	**108**	**F**	**108**	**F**	**108**	**F**	**104**	**F**	**108**	**F**	**108**	**F**	**105**	**F**	**103**
Bellevue Way NE & NE 2nd Street	C	30	C	31	C	30	C	29	C	31	C	31	C	31	C	33	C	30	C	33	C	34
Bellevue Way NE and NE 4th Street	**F**	**86**	**F**	**91**	**F**	**96**	**F**	**92**	**F**	**95**	**F**	**94**	**F**	**84**	**F**	**93**	**F**	**92**	**F**	**94**	**F**	**86**
Bellevue Way NE and NE 6th Street	A	1	A	1	A	1	A	2	A	2	A	2	A	2	A	2	A	2	A	1	A	1
Bellevue Way NE and NE 8th Street	E	64	E	72	E	76	E	76	E	76	E	75	E	73	E	75	E	76	E	75	E	71
Bellevue Way NE and NE 10th Street	D	36	D	37	D	36	D	36	D	36	D	37	D	44	D	36	D	36	D	37	D	37
Bellevue Way NE and NE 12th Street	E	67	E	67	E	68	E	68	E	68	E	68	E	58	E	71	E	69	E	67	E	68
112th Avenue NE & NE 12th Street	E	72	E	71	E	70	E	71	E	71	E	77	E	73	E	78	E	80	E	71	E	71
112th Avenue NE & NE 10th Street	D	48	D	46	D	48	D	46	D	46	D	45	D	54	D	47	D	49	D	47	D	49
112th Avenue NE & NE 8th Street/I-405 SB Ramp	**F**	**89**	**F**	**89**	**F**	**92**	**F**	**89**	**F**	**87**	**F**	**90**	**F**	**102**	**F**	**91**	**F**	**103**	**F**	**91**	**F**	**87**
112th Avenue NE & NE 6th Street	C	23	C	31	C	28	C	25	C	25	C	24	B	20	C	23	C	27	C	34	C	22
112th Avenue NE & NE 4th Street	D	48	D	47	D	52	D	46	D	48	D	44	D	54	D	45	D	54	D	50	D	49
112th Avenue NE & NE 2nd Street	C	34	D	35	D	43	D	35	C	35	D	35	D	38	D	36	D	40	D	36	D	43
112th Avenue & Main Street	**F**	**117**	**F**	**116**	**F**	**125**	**F**	**111**	**F**	**115**	**F**	**114**	**F**	**116**	**F**	**113**	**F**	**139**	**F**	**111**	**F**	**119**
110th Avenue NE & NE 12th Street	C	21	C	21	C	21	C	21	C	21	C	21	C	26	C	22	B	16	C	20	C	22
110th Avenue NE & NE 10th Street	C	33	C	32	C	34	C	31	C	32	D	36	B	19	C	35	C	30	D	36	C	33
110th Avenue NE & NE 8th Street	E	72	E	72	E	76	E	74	E	73	E	74	E	80	E	75	**F**	**108**	E	75	E	77
110th Avenue NE & NE 6th Street	B	18	C	34	C	23	C	30	C	30	B	19	D	45	B	18	C	32	E	75	B	19
110th Avenue NE & NE 4th Street	E	57	E	58	E	58	E	59	E	58	E	60	D	52	E	60	E	59	E	76	E	57
110th Avenue NE & NE 2nd Street	E	62	E	62	E	65	E	63	E	63	E	61	D	35	E	60	E	63	E	58	E	58
110th Avenue & Main Street	B	16	B	17	B	16	B	14	B	13	B	12	C	21	B	13	B	13	C	33	B	17
108th Avenue NE & NE 12th Street	C	30	C	29	C	31	C	29	C	29	C	29	**F**	**87**	C	30	C	30	C	30	C	29
108th Avenue NE & NE 10th Street	C	26	C	25	C	26	C	25	C	25	C	25	C	24	C	26	C	23	C	25	C	26
108th Avenue NE & NE 8th Street	D	38	D	42	D	45	D	46	D	47	D	45	D	39	D	43	D	47	D	45	D	40
108th Avenue NE & NE 6th Street	C	23	C	23	C	23	C	25	C	25	C	25	A	10	C	22	C	32	C	27	C	23

TABLE D-10
Future 2020 PM Peak-Hour Intersection LOS – Segment C

Intersection	2020																					
	No-Build		***C9T***		***C11A***		**C1T**		**C2T**		**C3T**		**C4A**		**C7E**		**C8E**		**C9A**		**C14E**	
	LOS	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
108th Avenue NE & NE 4th Street	E	68	E	72	**F**	**85**	E	71	E	71	E	69	D	43	E	68	E	73	E	75	E	77
108th Avenue NE & NE 2nd Street	C	32	C	32	D	42	C	35	C	33	D	35	C	25	C	32	C	32	C	32	C	34
108th Avenue & Main Street	C	24	C	23	E	65	C	22	C	24	C	24	C	31	C	23	C	25	C	27	C	22
106th Avenue NE & NE 12th Street	C	20	C	20	B	17	C	21	B	20	C	21	C	23	B	19	C	21	C	20	B	19
106th Avenue NE & NE 10th Street	C	23	C	23	C	23	C	23	C	23	C	23	C	26	C	22	C	23	C	23	C	23
106th Avenue NE & NE 8th Street	D	46	D	46	D	46	D	46	D	46	D	45	D	47	D	46	D	45	D	45	D	46
106th Avenue NE & NE 6th Street	C	21	C	22	C	21	C	24	C	21	C	23	D	49	C	21	C	23	C	23	C	21
106th Avenue NE & NE 4th Street	D	54	D	53	D	54	D	53	D	54	D	54	D	50	D	55	D	53	D	55	D	54
106th Avenue NE & NE 2nd Street	C	22	C	23	C	22	C	23	C	23	C	20	C	32	C	22	C	23	C	22	C	25
106th Avenue NE & Main Street	C	30	C	31	C	33	C	33	C	31	C	30	D	36	C	29	C	30	C	32	C	31
NE 4th Street & I-405 SB Ramp	C	30	C	30	C	32	C	31	C	30	C	32	C	34	C	31	C	31	C	30	C	33
NE 4th Street & I-405 NB Ramp	C	35	D	35	C	35	C	35	C	34	D	35	C	35	C	35	C	35	C	34	D	35
116th Avenue NE & NE 12th Street	D	41	D	41	D	41	D	41	D	41	D	44	D	44	D	44	D	44	D	41	D	41
116th Avenue NE & NE 10th Street	B	12	B	12	B	12	B	12	B	12	B	13	B	13	B	13	B	13	B	12	B	12
116th Avenue NE & NE 8th Street	D	49	D	51	D	52	D	51	D	51	D	49	D	47	D	49	D	46	D	51	D	51
116th Avenue NE & NE 4th Street	D	54	D	53	D	55	D	53	D	53	D	53	D	52	D	53	D	53	D	53	D	53
116th Avenue NE & NE 10th Street	B	12	B	12	B	12	B	12	B	12	B	13	B	13	B	13	B	13	B	12	B	12
116th Avenue NE & Overlake Hospital & Medical Center	B	13	B	13	B	13	B	12	B	12	B	12	B	13	B	12	B	13	B	13	B	13

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-11
Future 2030 PM Peak-Hour Intersection LOS – Segment C

	2030																					
	No-Build		***C9T***		***C11A***		**C1T**		**C2T**		**C3T**		**C4A**		**C7E**		**C8E**		**C9A**		**C14E**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
112th Avenue SE & SE 6th Street	C	29	C	34	C	21	C	30	C	34	C	34	D	36	C	30	C	32	C	34	C	33
Bellevue Way SE & SE Wolverine Way	B	14	B	13	B	12	B	15	B	12	B	12	B	15	B	12	B	13	B	13	B	12
Bellevue Way & Main Street	**F**	**118**	**F**	**122**	**F**	**123**	**F**	**128**	**F**	**122**	**F**	**122**	**F**	**122**	**F**	**125**	**F**	**123**	**F**	**122**	**F**	**120**
Bellevue Way NE & NE 2nd Street	C	30	C	30	C	30	C	25	C	30	C	30	C	27	C	29	C	29	C	30	C	30
Bellevue Way NE and NE 4th Street	**F**	**82**	**F**	**85**	**F**	**80**	**F**	**89**	**F**	**86**	**F**	**86**	**F**	**83**	**F**	**82**	**F**	**84**	**F**	**86**	**F**	**87**
Bellevue Way NE and NE 6th Street	A	3	A	1	A	1	A	1	A	1	A	1	A	1	A	1	A	1	A	1	A	1
Bellevue Way NE and NE 8th Street	E	69	E	76	E	76	E	78	E	76	E	76	E	79	E	74	E	78	E	77	E	71
Bellevue Way NE and NE 10th Street	D	45	D	43	D	45	D	43	D	43	D	44	D	46	D	42	D	41	D	44	D	43
Bellevue Way NE and NE 12th Street	**F**	**101**	**F**	**100**	**F**	**101**	**F**	**100**	**F**	**100**	**F**	**99**	**F**	**81**	**F**	**103**	**F**	**101**	**F**	**100**	**F**	**102**
112th Avenue NE & NE 12th Street	**F**	**102**	**F**	**101**	**F**	**101**	**F**	**101**	**F**	**101**	**F**	**111**	**F**	**104**	**F**	**111**	**F**	**115**	**F**	**102**	**F**	**104**
112th Avenue NE & NE 10th Street	D	43	D	44	E	58	D	45	D	45	D	45	E	68	D	50	D	53	D	47	D	50
112th Avenue NE & NE 8th Street/I-405 SB Ramp	**F**	**119**	**F**	**119**	**F**	**121**	**F**	**118**	**F**	**118**	**F**	**119**	**F**	**128**	**F**	**118**	**F**	**136**	**F**	**115**	**F**	**117**
112th Avenue NE & NE 6th Street	C	27	C	35	D	42	C	33	C	34	C	27	C	21	C	32	C	23	C	33	C	24
112th Avenue NE & NE 4th Street	E	58	E	55	E	63	E	56	E	57	E	56	E	73	E	60	E	66	E	59	E	60
112th Avenue NE & NE 2nd Street	C	32	C	32	D	42	C	32	C	32	C	32	D	41	D	39	D	36	C	35	D	39
112th Avenue & Main Street	**F**	**187**	**F**	**189**	**F**	**196**	**F**	**185**	**F**	**189**	**F**	**189**	**F**	**183**	**F**	**176**	**F**	193	**F**	**1191**	**F**	**176**
110th Avenue NE & NE 12th Street	C	20	C	20	B	20	C	20	C	20	C	21	E	76	C	22	B	19	C	21	C	22
110th Avenue NE & NE 10th Street	D	43	D	46	E	60	D	46	D	46	D	46	C	30	D	45	C	34	D	43	D	45
110th Avenue NE & NE 8th Street	**F**	**120**	**F**	**124**	**F**	**125**	**F**	**118**	**F**	**118**	**F**	**121**	**F**	**177**	**F**	**125**	**F**	**196**	**F**	**129**	**F**	**12**6
110th Avenue NE & NE 6th Street	C	29	E	79	D	44	D	55	D	53	C	24	C	27	B	20	**D**	**38**	**F**	**104**	D	51
110th Avenue NE & NE 4th Street	E	63	E	59	E	67	E	57	E	57	E	59	E	79	E	61	E	64	E	71	E	64
110th Avenue NE & NE 2nd Street	C	25	C	24	C	27	C	24	C	24	C	24	D	40	C	25	C	25	C	30	C	27
110th Avenue & Main Street	B	18	B	19	D	44	B	19	B	19	B	19	E	74	C	22	C	22	D	36	C	22
108th Avenue NE & NE 12th Street	C	29	C	32	C	32	C	32	C	32	C	33	**F**	**149**	C	31	C	31	C	32	C	32
108th Avenue NE & NE 10th Street	C	32	C	27	C	28	C	27	C	27	C	27	C	29	C	27	C	28	C	27	C	27

TABLE D-11
Future 2030 PM Peak-Hour Intersection LOS – Segment C

Intersection	**2030**																					
	No-Build		***C9T***		***C11A***		**C1T**		**C2T**		**C3T**		**C4A**		**C7E**		**C8E**		**C9A**		**C14E**	
	LOS	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
108th Avenue NE & NE 8th Street	E	66	E	80	E	70	E	79	E	79	E	79	D	39	E	71	E	79	E	79	E	70
108th Avenue NE & NE 6th Street	C	24	C	24	B	19	C	25	C	25	C	26	B	11	C	23	C	32	C	28	C	24
108th Avenue NE & NE 4th Street	**F**	**96**	**F**	**104**	**F**	**128**	**F**	**109**	**F**	**109**	**F**	**109**	**F**	**96**	**F**	**103**	**F**	**108**	**F**	**109**	**F**	**101**
108th Avenue NE & NE 2nd Street	B	15	B	15	C	21	B	15	B	15	B	15	C	22	B	17	B	18	B	18	B	17
108th Avenue & Main Street	C	32	C	34	**F**	**86**	D	37	C	35	C	35	E	57	C	32	D	40	D	36	D	35
106th Avenue NE & NE 12th Street	D	38	D	37	D	38	D	37	D	37	D	38	D	54	D	37	D	37	D	37	D	37
106th Avenue NE & NE 10th Street	C	28	C	26	C	27	C	26	C	26	C	25	C	27	C	25	C	25	C	24	C	25
106th Avenue NE & NE 8th Street	D	51	D	54	D	55	D	54	D	54	D	54	E	56	D	53	D	53	D	55	D	53
106th Avenue NE & NE 6th Street	B	14	B	16	B	16	B	16	B	16	B	16	B	17	B	16	B	16	B	16	B	17
106th Avenue NE & NE 4th Street	D	55	D	53	E	56	D	53	D	54	D	53	E	63	D	55	D	50	D	52	D	55
106th Avenue NE & NE 2nd Street	C	30	C	29	C	27	C	30	C	29	C	29	C	29	C	29	C	29	C	29	C	29
106th Avenue NE & Main Street	D	43	D	46	D	55	D	52	D	46	D	46	E	79	D	43	D	43	D	49	D	42
NE 4th Street & I-405 SB Ramp	D	46	D	43	D	47	D	43	D	43	D	43	D	48	D	43	D	46	D	42	D	42
NE 4th Street & I-405 NB Ramp	C	33	C	33	C	33	C	33	C	33	C	33	C	33	C	33	C	33	C	33	C	33
116th Avenue NE & NE 12th Street	E	56	E	56	E	56	E	56	E	56	E	59	E	59	E	59	E	59	E	56	E	56
116th Avenue NE & NE 10th Street	B	15	B	15	B	15	B	16	B	16	B	16	B	16	B	16	B	16	B	15	B	15
116th Avenue NE & NE 8th Street	D	52	D	54	D	54	D	54	D	54	D	51	D	51	D	51	D	51	D	55	D	54
116th Avenue NE & NE 4th Street	E	61	E	64	E	63	E	64	E	64	E	61	E	61	E	61	E	60	E	62	E	64
116th Avenue NE & NE 10th Street	B	16	B	16	B	16	B	16	B	16	B	17	B	17	B	17	B	17	B	16	B	16
116th Avenue NE & Overlake Hospital & Medical Center	B	15	B	16	B	16	B	15	B	16	B	16	B	15	B	15	B	15	B	15	B	15

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-12
2020 and 2030 PM Peak-Hour Intersection LOS at Hospital Interim Terminus

	2020				**2030**			
	Build		**Interim Terminus**		**Build**		**Interim Terminus**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
116th Avenue NE & NE 10th Street	B	12	B	12	B	15	B	15
116th Avenue NE & NE 8th Street	D	49	D	55	D	52	D	54
116th Avenue NE & NE 4th Street	D	54	D	54	E	63	E	62

Notes:

All project alternatives affected by the interim terminus would operate at the same LOS and delay.

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue, Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-13
Future 2020 PM Peak-Hour Intersection LOS – Segment D

	2020											
	No-Build		***D2A***		**D2A 120th and 24th Design Options**		**D2E**		**D3**		**D5**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
120th Avenue NE & NE 12th Street	C	34	D	36	C	35	C	35	D	36	C	34
120th Avenue NE & NE 16th Street	B	15	C	23	**F**	**108**	C	26	C	26	C	26
124th Avenue NE & Northup Way	D	49	D	50	D	50	D	50	D	50	D	48
124th Avenue NE & NE 16th Street	C	24	C	25	C	27	C	28	C	22	C	23
124th Avenue NE & Bel-Red Road	C	33	C	32	C	32	C	32	C	32	C	32
130th Avenue NE & NE 20th Street	C	26	C	28	C	28	C	29	C	29	C	27
130th Avenue NE & NE 16th Street	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
130th Avenue NE & Bel-Red Road	B	12	B	14	B	14	B	14	B	14	B	14
132nd Avenue NE & NE 20th Street	B	12	B	14	B	14	B	12	B	14	B	11
132nd Avenue NE & NE 16th Street	B	19	C	25	C	24	C	21	C	28	B	19
132nd Avenue NE & Bel-Red Road	B	16	C	20	C	20	B	17	C	20	B	16
136th Avenue NE & NE 20th Street	B	13	B	17	B	20	B	18	B	14	B	10
136th Avenue NE & NE 16th Street	B	14	C	28	C	32	B	14	C	25	B	14
140th Avenue NE & 20th Avenue	**F**	**82**	**F**	**88**	**F**	**88**	**F**	**87**	**F**	**89**	**F**	**84**
NE 20th Street & Mall Entrance	B	14	B	14	B	14	B	14	B	19	B	13
148th Avenue NE & SR 520 WB Ramps	D	36	D	35	D	35	D	35	D	35	C	35
148th Avenue NE & SR 520 EB Ramps	C	25	C	23	C	23	C	23	C	23	C	21
NE 24th Street & 148th Avenue NE	**F**	**142**	**F**	**142**	**F**	**142**	**F**	**142**	**F**	**142**	**F**	**142**
NE 24th Street & 151st Avenue NE	C	24	C	24	E	60	**F**	**171**	C	31	C	24
NE 20th Street & 152nd Avenue NE	D	40	D	40	D	40	D	40	C	30	D	40
NE 24th Street & 152nd Avenue NE	D	46	D	51	E	58	E	66	D	49	D	54
NE 26th Street & 152nd Avenue NE	B	10	B	16	B	15	B	16	B	14	B	15
NE 24th Street & Bel-Red Road	C	31	C	31	C	31	C	32	C	34	C	31
NE 40th Street & 148th Avenue NE	D	46	D	49	D	49	D	49	D	49	D	49
NE 40th Street & SR 520 WB Ramps	C	27	C	27	C	27	C	27	C	27	C	27
NE 40th Street & SR 520 EB Ramps	C	27	C	28	C	28	C	28	C	28	C	28
NE 40th Street & 156th Avenue NE	E	76	E	77	E	77	E	77	E	77	E	77
Overlake P&R Entrance & 156th Avenue NE	B	17	B	15	B	15	B	15	B	15	B	15
NE 36th Street & 156th Avenue NE	E	71	E	66	E	66	E	66	E	66	E	66
NE 31st Street & 156th Avenue NE	D	43	D	42	D	42	D	42	D	42	D	41
148th Avenue NE & 20th Avenue	**F**	**91**	**F**	**90**	**F**	**90**	**F**	**91**	**F**	**114**	**F**	**88**

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue, Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-14
Future 2030 PM Peak-Hour Intersection LOS – Segment D

	2030											
	No-Build		*D2A*		D2A - 120th and 24th Design Options		D2E		D3		D5	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
120th Avenue NE & NE 12th Street	D	37	D	37	D	39	D	37	D	40	D	39
120th Avenue NE & NE 16th Street	C	27	C	29	D	43	C	29	D	38	C	25
124th Avenue NE & Northup Way	D	44	D	47	D	47	D	47	D	48	D	44
124th Avenue NE & NE 16th Street	C	23	C	26	C	28	C	26	C	33	C	27
124th Avenue NE & Bel-Red Road	C	29	C	31	C	32	C	31	D	36	C	31
130th Avenue NE & Bel-Red Road	B	12	A	10	A	10	B	15	A	9	B	11
130th Avenue NE & NE 16th Street	C	31	D	47	D	47	D	42	D	44	D	37
130th Avenue NE & NE 20th Street	C	29	C	30	C	30	C	31	C	31	C	32
132nd Avenue NE & Bel-Red Road	C	22	C	26	C	26	C	26	C	24	C	22
132nd Avenue NE & NE 16th Street	C	33	D	46	D	46	D	45	D	47	D	39
132nd Avenue NE & NE 20th Street	B	14	B	18	B	18	B	17	B	17	B	14
136th Avenue NE & NE 16th Street	C	20	C	26	C	25	B	17	C	21	C	26
136th Avenue NE & NE 20th Street	B	19	D	36	D	36	B	18	C	27	B	18
140th Avenue NE & 20th Avenue	**F**	**132**	**F**	**129**	**F**	**129**	**F**	**127**	**F**	**131**	**F**	**129**
NE 20th Street & Mall Entrance	B	14	B	14	B	14	B	14	B	18	B	14
148th Avenue NE & SR 520 WB Ramps	D	39	D	39	D	39	D	39	D	39	D	39
148th Avenue NE & SR 520 EB Ramps	C	28	C	30	C	30	C	30	C	29	C	29
NE 24th Street & 148th Avenue NE	**F**	**152**	**F**	**153**	**F**	**152**	**F**	**153**	**F**	**153**	**F**	**153**
NE 24th Street & 151st Avenue NE	C	27	C	32	E	79	**F**	**205**	C	32	C	29
NE 20th Street & 152nd Avenue NE	A	9	B	12	B	12	B	12	B	17	B	18
NE 24th Street & 152nd Avenue NE	**F**	**83**	**F**	**99**	**F**	**108**	**F**	**109**	E	63	**F**	**90**
NE 26th Street & 152nd Avenue NE	B	10	B	16	B	16	B	16	B	14	B	16
NE 24th Street & Bel-Red Road	C	35	C	31	C	32	C	34	C	33	C	26
NE 40th Street & 148th Avenue NE	**F**	**87**	**F**	**86**	**F**	**86**	**F**	**86**	**F**	**86**	**F**	**86**
NE 40th Street & SR 520 WB Ramps	C	29	C	29	C	29	C	29	C	29	C	29
NE 40th Street & SR 520 EB Ramps	D	42	D	42	D	42	D	42	D	42	D	42
NE 40th Street & 156th Avenue NE	**F**	**110**	**F**	**114**	**F**	**114**	**F**	**114**	**F**	**114**	**F**	**114**
Overlake P&R Entrance & 156th Avenue NE	B	17	B	17	B	17	B	17	B	17	B	17
NE 36th Street & 156th Avenue NE	**F**	**104**	**F**	**91**	**F**	**91**	**F**	**91**	**F**	**91**	**F**	**91**
NE 31st Street & 156th Avenue NE	D	50	D	53	D	53	D	53	D	52	D	52
148th Avenue NE & 20th Avenue	E	78	E	79	E	79	E	79	E	79	E	79

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue, Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-15
2020 and 2030 AM Peak-Hour Intersection LOS Near Overlake Transit Center Station

	2007		2020				2030			
	Existing		No Build		Build		No Build		Build	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
NE 40th Street and SR 520 WB Ramps	C	27	C	22	C	22	C	25	C	25
NE 40th Street and SR 520 EB Ramps	D	46	C	22	C	21	C	23	C	24
NE 40th Street and 156th Avenue NE	D	54	D	40	D	44	D	48	D	52
NE 38th Street and 156th Avenue NE	B	12	B	13	B	13	B	11	B	13
NE 36th Street and 156th Avenue NE	C	30	C	21	C	22	C	23	C	22

Notes:

All project alternatives affected by the interim terminus would operate at the same LOS and delay.

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue, Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-16
2020 and 2030 PM Peak-Hour Intersection LOS at Overlake Village Interim Terminus

	2020				2030			
	Build		Interim Terminus		Build		Interim Terminus	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
156th Avenue NE & NE 31st Street	D	43	D	42	D	50	D	55
152nd Avenue NE & NE 26th Street	B	10	B	19	B	10	B	20
152nd Avenue NE & NE 24th Street	D	45	D	53	**F**	**83**	**F**	**98**
151st Avenue NE & NE 24th Street	C	24	C	24	C	27	C	31
NE 24th Street & Bel-Red Road	C	31	C	31	C	35	C	33

Notes:

All project alternatives affected by the interim terminus would operate at the same LOS and delay.

Bold type text indicates where intersections fail to meet agency LOS standards: Bellevue, Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-17
Future 2020 and 2030 PM Peak-Hour Intersection LOS – Segment E

	2020										2030									
	No-Build		***E2***		**E1**		**E2**		**E4**		**No-Build**		***E2***		**E1**		**E2**		**E4**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
NE Leary Way & West Lake Sammamish Pkwy.	**F**	**135**	**F**	**135**	**F**	**136**	**F**	**136**	**F**	**136**	**F**	**172**	**F**	**172**	**F**	**174**	**F**	**174**	**F**	**174**
NE Leary Way & 159th Place NE	A	6	A	6	A	6	A	6	A	6	B	14	A	7	A	7	A	7	A	8
NE Leary Way & Bear Creek Parkway	C	28	C	27	C	27	C	27	C	28	C	31	C	31	C	31	C	31	D	40
NE Leary Way & NE 76th Street	A	10	B	12	B	12	B	12	B	12	B	10	C	22	D	28	D	28	D	28
Redmond Way & 161st Avenue NE	C	23	C	26	C	23	D	55	C	23	D	37	D	47	D	38	**F**	**174**	D	38
Cleveland Street & 161st Avenue NE	C	23	C	23	C	23	C	22	C	23	C	25	C	23	C	23	E	78	C	23
NE 83rd Street & 161st Avenue NE	B	19	B	18	B	19	C	20	B	19	C	21	C	20	C	20	C	21	C	20
NE 85th Street & 161st Avenue NE	C	22	C	24	C	22	C	22	C	22	C	26	C	27	C	25	C	26	C	25
164th Avenue NE & SR 202	B	17	B	18	B	19	B	19	B	19	C	24	C	21	C	22	C	22	C	22
164th Avenue NE & NE 76th Street	C	17	C	21	C	21	C	21	C	21	C	22	D	32	D	32	D	32	D	32
164th Avenue NE & NE Cleveland Street	D	36	D	43	D	49	D	51	D	51	D	38	D	51	D	55	D	55	D	55
164th Avenue NE & NE 80th Street	C	29	C	29	C	29	C	29	C	29	C	33	C	33	C	34	C	34	C	34
164th Avenue NE & NE 85th Street	D	52	E	58	E	57	E	59	E	57	**F**	**84**	**F**	**88**	**F**	**87**	**F**	**89**	**F**	**87**
166th Avenue NE & SR 202	B	15	B	18	B	19	B	19	B	19	C	22	C	27	C	28	C	28	C	28
166th Avenue NE & NE 76th Street	C	20	C	24	D	27	D	27	D	27	C	26	E	42	E	47	E	47	E	47
166th Avenue NE & Cleveland Street	B	12	B	13	B	15	B	15	B	15	B	13	B	17	B	20	B	20	B	20
166th Avenue NE & 80th Street	B	12	B	12	B	12	B	13	B	12	B	13	B	14	B	14	B	14	B	14
NE 76th Street & 170th Avenue NE	**F**	**91**	**F**	**93**	**F**	**93**	**F**	**93**	**F**	**93**	**F**	**301**	**F**	**340**	**F**	**340**	**F**	**340**	**F**	**340**
SR 202 & SR 520 WB Ramps	C	21	C	25	C	25	C	25	C	25	C	27	C	33	C	33	C	33	C	33
SR 202 & SR 520 EB Ramps	C	30	C	31	C	31	C	31	C	31	E	55	E	58	E	58	E	58	E	58
SR 202 & NE 70th Street	C	27	D	55	D	55	D	55	D	55	D	52	**F**	**87**	**F**	**87**	**F**	**87**	**F**	**87**

TABLE D-17
Future 2020 and 2030 PM Peak-Hour Intersection LOS – Segment E

	2020										**2030**									
	No-Build		***E2***		**E1**		**E2**		**E4**		**No-Build**		***E2***		**E1**		**E2**		**E4**	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
NE 70th Street & 176th Avenue NE	B	11	**F**	**128**	B	13	**F**	**106**	B	13	B	11	**F**	**114**	B	13	**F**	**93**	B	13
178th Place NE & Union Hill Road	B	20	C	21	C	21	C	21	C	21	C	23	C	25	C	25	C	25	C	25
Avondale Road NE & Union Hill Road	E	62	E	68	E	68	E	68	E	68	**F**	**82**	**F**	**90**	**F**	**90**	**F**	**90**	**F**	**90**
E Lake Sammamish Parkway & NE 65th Street	D	51	D	51	D	51	D	51	D	51	E	59	E	71	E	71	E	71	E	71
SR 202 & E Lake Sammamish Parkway (180th Avenue NE)	**F**	**93**	**F**	**113**	**F**	**113**	**F**	**113**	**F**	**113**	**F**	**122**	**F**	**146**	**F**	**146**	**F**	**146**	**F**	**146**

Notes:

Bold type text indicates where intersections fail to meet agency LOS standards: Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-18
2020 and 2030 PM Peak-Hour Intersection LOS at Redmond Town Center Interim Terminus

	2020				2030			
	Build		Interim Terminus		Build		Interim Terminus	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
164th Avenue NE & Redmond Way	B	17	B	19	C	24	C	25
164th Avenue NE & Cleveland Street	D	36	D	51	D	38	D	54
164th Avenue NE & NE 76th Street	B	17	C	21	C	22	D	32
166th Avenue NE & NE Redmond Way	B	15	C	20	C	22	C	32
166th Avenue NE & NE Cleveland Street	B	12	B	17	B	13	B	23
166th Avenue NE & NE 76th Street	C	20	D	27	C	26	E	47

Notes:

All project alternatives affected by the interim terminus would operate at the same LOS and delay.

Bold type text indicates where intersections fail to meet agency LOS standards: Redmond and WSDOT are LOS E.

Delay is measured by average seconds of delay per vehicle.

TABLE D-19
2020 and 2030 AM Peak-Hour Mitigated Intersection LOS – Segment A

Intersection	Jurisdiction	2020													
		No-Build		***Preferred Alternative A1***		***Preferred Alternative A1* Mitigated**		**77th Ave. SE EB HOV Off-Ramp Design Option**		**77th Ave. SE EB HOV Off-Ramp Design Option Mitigated**		**No EB HOV Ramps Design Option**		**No EB HOV Ramps Design Option Mitigated**	
		LOS	**LOS**	**Delay**	**LOS**	**Delay**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
I-90 EB HOV Off & 77th Ave SE	WSDOT	B	12	N/A	N/A	N/A	N/A	B	13	B	12	N/A	N/A	N/A	N/A
Sunset Hwy & 77th Ave SE	MI	C	23	C	20	N/A	N/A	**D**	**25**	A	6	C	23	N/A	N/A
N Mercer Way & 77th Ave SE	MI	C	21	C	20	B	12	C	20	B	12	C	21	B	13
SE 24th St & W Mercer Way	MI	B	14	B	14	B	13	B	13	B	13	B	14	B	13
SE 27th St & 80th Ave SE	MI	C	18	C	18	B	11	C	18	B	11	C	18	B	13
I-90 WB On Ramp & 76th Ave SE	WSDOT	B	11	C	16	B	12	C	16	B	11	C	16	B	12
I-90 EB Off Ramp & 77th Ave SE	WSDOT	C	16	B	13	B	13	C	15	N/A	N/A	B	14	B	14
Intersection	**Jurisdiction**	**2030**													
		No-Build		***Preferred Alternative A1***		***Preferred Alternative A1* Mitigated**		**77th Ave. SE EB HOV Off-Ramp Design Option**		**77th Ave. SE EB HOV Off-Ramp Design Option Mitigated**		**No EB HOV Ramps Design Option**		**No EB HOV Ramps Design Option Mitigated**	
		LOS	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
I-90 EB HOV Off & 77th Ave SE	WSDOT	B	12	N/A	N/A	N/A	N/A	B	14	B	13	N/A	N/A	N/A	N/A
Sunset Hwy & 77th Ave SE	MI	C	24	C	20	N/A	N/A	**F**	**51**	A	6	C	23	N/A	N/A
N Mercer Way & 77th Ave SE	MI	C	23	C	22	B	16	C	21	B	16	C	24	B	16
SE 24th St & W Mercer Way	MI	B	14	B	14	B	13	B	14	B	13	B	15	B	14
SE 27th St & 80th Ave SE	MI	C	20	C	20	B	14	C	21	B	14	C	20	B	14
I-90 WB On Ramp & 76th Ave SE	WSDOT	B	12	C	18	B	12	C	18	B	12	C	19	B	12
I-90 EB Off Ramp & 77th Ave SE	WSDOT	C	16	B	13	B	14	C	16	N/A	N/A	B	14	B	14

Notes:

Preferred Alternative A1 provides an EB HOV off-ramp at Island Crest Way.
Bold type text indicates where intersections fail to meet agency LOS standards: Mercer Island is LOS C, WSDOT is LOS E.
Delay is measured by average seconds of delay per vehicle.
N/A – mitigation is not required with this option

TABLE D-20
2020 and 2030 PM Peak-Hour Mitigated Intersection LOS – Segment A

		2020													
		No-Build		***Preferred Alternative A1***		***Preferred Alternative A1*** **Mitigated**		**77th Ave. SE EB HOV Off-Ramp Design Option**		**77th Ave. SE EB HOV Off-Ramp Design Option Mitigated**		**No EB HOV Ramps Design Option**		**No EB HOV Ramps Design Option Mitigated**	
Intersection	**Jurisdiction**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
I-90 EB HOV Off & 77th Ave SE	WSDOT	B	14	N/A	N/A	N/A	N/A	**F**	**62**	B	24	N/A	N/A	N/A	N/A
Sunset Hwy & 77th Ave SE	Mercer Island	C	19	C	18	N/A	N/A	C	25	A	6	C	20	N/A	N/A
N Mercer Way & 77th Ave SE	Mercer Island	**E**	**37**	**E**	**43**	B	13	**E**	**43**	B	14	**E**	**43**	B	13
SE 24th St & W Mercer Way	Mercer Island	C	19	**E**	**40**	C	16	**E**	**36**	C	16	**E**	**43**	C	16
SE 27th St & 80th Ave SE	Mercer Island	**D**	**28**	**D**	**32**	B	15	**D**	**34**	B	16	**D**	**32**	B	14
I-90 WB On Ramp & 76th Ave SE	WSDOT	E	46	E	49	D	26	E	49	D	26	E	49	D	26
I-90 EB Off Ramp & 77th Ave SE	WSDOT	B	14	C	16	B	17	C	20	N/A	N/A	C	17	B	17
		2030													
		No-Build		***Preferred Alternative A1***		***Preferred Alternative A1*** **Mitigated**		**77th Ave. SE EB HOV Off-Ramp Design Option**		**77th Ave. SE EB HOV Off-Ramp Design Option Mitigated**		**No EB HOV Ramps Design Option**		**No EB HOV Ramps Design Option Mitigated**	
Intersection	**Jurisdiction**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
I-90 EB HOV Off & 77th Ave SE	WSDOT	B	15	N/A	N/A	N/A	N/A	**F**	**89**	C	24	N/A	N/A	N/A	N/A
Sunset Hwy & 77th Ave SE	Mercer Island	C	21	C	22	N/A	N/A	**D**	**34**	A	6	C	24	N/A	N/A
N Mercer Way & 77th Ave SE	Mercer Island	**E**	**49**	**F**	**74**	B	13	**F**	**74**	B	13	**F**	**74**	B	13
SE 24th St & W Mercer Way	Mercer Island	C	23	**E**	**48**	C	17	**E**	**44**	C	17	**F**	**51**	C	18
SE 27th St & 80th Ave SE	Mercer Island	**E**	**38**	**E**	**47**	B	16	**E**	**50**	B	15	**E**	**47**	B	17
I-90 WB On Ramp & 76th Ave SE	WSDOT	**F**	**51**	**F**	**60**	D	34	**F**	**60**	D	34	**F**	**60**	D	34
I-90 EB Off Ramp & 77th Ave SE	WSDOT	B	15	C	19	B	17	C	22	N/A	N/A	C	20	B	17

Notes:
Preferred Alternative A1 provides an EB HOV off-ramp at Island Crest Way.
Bold type text indicates where intersections fail to meet agency LOS standards: Mercer Island is LOS C, WSDOT is LOS E.
Delay is measured by average seconds of delay per vehicle.
N/A – mitigation is not required with this option

TABLE D-21
Future 2020 and 2030 PM Mitigated Intersection LOS – Segments B, C, D and E

Intersection	2020 PM						2030 PM					
	No-Build		Build[a]		Build Mitigated*		No-Build		Build[a]		Build Mitigated*	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Segment B												
112th Ave SE & Bellevue Way SE (B1, B2A, B3)	C	24	**E**	**78**	D	40	C	26	**F**	**87**	D	44
112th Ave SE & SE 15th St (B1, B2E, B7)	**F**	**151**	**F**	**195**	B	14	**F**	**135**	**F**	**178**	B	11
I-405 southbound ramps & Coal Creek Parkway SE (B7)	E	60	E	69	D	44	**F**	**102**	**F**	**115**	E	63
118th Ave SE & SE 8th Street (B7)	**F**	**138**	**F**	**224**	**F**	**163**	**F**	**190**	**F**	**271**	**F**	**189**
Segment C												
Bellevue Way & Main St (C1T)	**F**	**99**	**F**	**108**	**F**	**99**	**F**	**118**	**F**	**128**	**F**	**112**
112th Ave NE & NE 12th St (C3T, C7E, C8E)	E	72	E	79	E	71	**F**	**102**	**F**	**115**	**F**	**99**
112th Ave NE & NE 8th St (C8E, C4A)	**F**	**89**	**F**	**103**	N/A	N/A	**F**	**119**	**F**	**136**	N/A	N/A
112th Ave NE & Main St (*C11A*)	**F**	**117**	**F**	**125**	E	77	**F**	**187**	**F**	**196**	**F**	**129**
110th Ave NE & NE 8th St (C4A, C8E, C9A)	E	72	**F**	**108**	**F**	**90**	**F**	**120**	**F**	**196**	**F**	**144**
110th Ave NE & NE 6th St (C9A)	**B**	**18**	E	75	N/A	N/A	C	29	**F**	**104**	N/A	N/A
108th Ave NE & NE 12th St (C4A)	C	30	**F**	**87**	D	48	C	29	**F**	**108**	E	79
108th Ave NE & NE 4th St (*C9T*, *C11A*, C1T, C2T, C3T, C8E, C9A)	E	68	**F**	**85**	N/A	N/A	**F**	**96**	**F**	**128**	N/A	N/A
108th Ave NE & Main St (*C11A*)	C	24	E	70	N/A	N/A	C	32	**F**	**86**	N/A	N/A
Segment D												
120th Ave NE & NE 16th St (D2A DO)	B	15	**F**	**88**	E	60	C	27	D	43	D	43
151st Ave NE & NE 24th St. (D2E)	C	24	**F**	**171**	N/A	N/A	C	27	**F**	**205**	N/A	N/A
152nd Ave NE & NE 24th St. (*D2A*, D2A DO, D2E, D5)	D	46	E	66	D	46	**F**	**83**	**F**	**109**	E	65
148th Ave NE and NE 20th St (D3)	**F**	**91**	**F**	**114**	E	72	E	78	E	79	E	79
Segment E												
NE 76th St & 170th Avenue NE (*E2*, E2 DO, E1, E4)	**F**	**91**	**F**	**93**	A	6	**F**	**301**	**F**	**340**	A	7
Redmond Way & 161st Ave NE (E2 DO)	C	23	D	54	C	24	D	37	**F**	**180**	E	76
SR 202 & NE 70th St. (*E2*, E2 DO, E1, E4)	C	27	D	55	D	46	D	52	**F**	**87**	E	67
NE 70th St & 176th Ave NE (*E2*, E2 DO)	B	11	**F**	**128**	C	27	B	11	**F**	**114**	B	13
SR 202 & E Lake Sammamish Parkway (*E2*, E2 DO, E1, E4)	**F**	**93**	**F**	**113**	**F**	**88**	**F**	**122**	**F**	**147**	**F**	**123**

Notes:

[a] The results presented in this table represent the alternative with the worst LOS and delay. Refer to Tables D-7 through D-12 for alternative-by-alternative intersection LOS results without improvements.

* Build mitigated results are for the alternative that has the worst mitigated LOS and delay.

Bold type text indicates where intersections fail to meet agency LOS standards.

Delay is measured by average seconds of delay per vehicle.

Appendix E
National Research Safety Statistics on Light Rail

Appendix E

National Research Safety Statistics on Light Rail

As part of the qualitative safety analysis performed for the East Link light rail alternatives, the guidance in following Federal Transit Administration (FTA) publications and Sound Transit Central Link collision data was used to generate many of the conclusions regarding the safety of the alternatives:

- Transit Cooperative Research Program (TCRP) Report 17, Integration of Light Rail Transit into City Streets, 1996
- TCRP Report 69, Light Rail Service Pedestrian and Vehicular Safety, 2001.

This appendix summarizes findings from these reports that apply to the track designs proposed for the East Link Project.

E.1 At-Grade Side-Running within Right-of-Way but Outside Vehicle Travel Way, and At-Grade Median-Running with Curb and Fencing

This design has distinct advantages in fewer accidents between trains and pedestrians or vehicles because of the separation between train traffic from vehicular and pedestrian traffic. This can be seen in the findings from TCRP Report 17, which showed that only 8 percent of accidents occurred along these types of facilities despite the fact that these designs accounted for 62 percent of mainline track miles. Furthermore, TCRP Report 17 reported an overall average of 1.11 accidents per year per mainline track mile for the light rail systems surveyed. For designs with less train separation, the average was 3.7 accidents per year per mainline.

The findings are also backed by TCRP Report 69, in which the survey of current systems found that 77 percent of light rail track miles fit into this design category, but only 13 percent of annual accidents occurred on these track miles. Furthermore, the average number of accidents per crossing was 0.17 accidents per crossing-year, compared to 0.54 accidents per crossing-year for the category with less train separation.

However, this design does exhibit safety problems in terms of crash severity. Because the more exclusive right-of-way allows for higher travel speeds, collisions tend to be more severe. TRCP Report 69 reported that, for this design, 19 percent of vehicle-train accidents resulted in a fatality, and 29 percent of pedestrian-train accidents resulted in a fatality. In comparison to the less exclusive designs, fatal accidents accounted for 1 percent and 18 percent, respectively.

E.2 At-Grade Median-Running with Curb or Striping, and Nonexclusive Designs

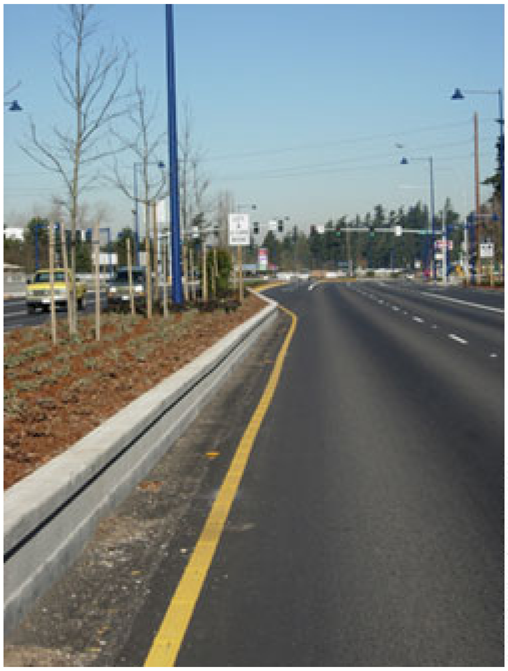
These designs are use lower speeds for the trains, and the trains mix with vehicle and pedestrian traffic in the same right-of-way with little or no physical separation. The general experience is that these designs have more accidents because of the increased interaction between the trains and pedestrians or vehicles. This is supported by TCRP Report 17, which found that 92 percent of accidents were along these types of routes despite the fact that only 38 percent of mainline track miles were of this design. TRCP Report 69 revealed similar patterns, because the average crossing had 0.54 accidents per crossing-year, compared to 0.17 accidents per crossing-year for the more exclusive design type.

From a traffic safety perspective, this design performed better in accident severity. Fatal accidents represented a far smaller percentage for both vehicle-train and pedestrian-train accidents. The lower light rail travel speeds with this design appear to provide some protection to pedestrians and motorists.

In addition to the national research conducted, relevant local data is available along Martin Luther King, Jr. Way in the City of Seattle. The light rail train system along Martin Luther King Jr. Way operates along four miles of track at-grade in the center median similar to many East Link alignment profiles. Since the opening of the Central Link system in July 2009, seven light rail train and vehicle accidents and one light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6% of the total number of accidents along the corridor and the corridor total reduced by close to 60% once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents were considered life-threatening and all of the LRT-vehicle accidents involved vehicles illegally turning.

E.3 Elevated Median-Running, and Retained-Cut Median-Running

Both designs separate transit and vehicle operations, one with an elevated track and the other with a retained cut. Because the trains and motorists operate in separate travelways, there is no ability for a vehicle-train accident to happen or for a train to collide with a pedestrian or bicyclist. Furthermore, the designs provide additional safety by separating opposite directions of travel, limiting mid-block turning movements, and even converting some intersections into right-in/right-out (RI/RO) design. These will effectively eliminate mid-block accidents that involve left-turning traffic. However, it is possible that some of the mid-block accidents could redistribute to nearby intersections because motorists would have to choose different routes in order to complete their trips, such as a U-turn at a signal followed by a right turn instead of a direct left turn.



City of Des Moines, WA

Likely the largest traffic safety issue is vehicle accidents with the center pier of an elevated track or the concrete wall protecting a trench track. However, the expectation is that these accidents would happen at low vehicle speeds (≤35 miles per hour [mph]) and would likely result in property damage only. Furthermore, increased median widths to provide greater offset distances could be used for either design. In addition, for the elevated track design, alternative curb designs that provide more protection could be used instead of the traditional 6-inch curb. Such alternative designs may include taller 9-inch curbs or a low-profile median barrier used in the City of Des Moines, Washington, as shown in the photo above (FTA, *Public Roads,* "Preventing Roadway Departures," July/August 2005. http://www.tfhrc.gov/pubrds/05jul/03.htm*).*

E.4 One-Way Couplets with At-Grade Tracks within Street Travelway

Numerous cities in the United States, such as Denver, Colorado, have designed and built light rail systems that operate on one-way streets in the opposite direction. In general, the conversion of two-way streets to one-way couplets with light rail can have both positive and negative impacts for motor vehicle, pedestrian, and bicycle traffic. For example, one-way streets have fewer conflict points at intersections, which can reduce vehicle collisions. However, higher travel speeds that can accompany one-way streets can create additional safety problems for pedestrians and bicyclists.

Specifically regarding the East Link Couplet Alternative (C4A), the light rail train would travel southbound on 108th Avenue NE along the west side of the street in an exclusive lane. Auto traffic would travel one-way northbound in up to three lanes to the east. This would obey United States driving conditions with oncoming traffic (light rail) to the left. The advantage of light rail traveling in the opposite direction from automobiles is that drivers can see the light rail train coming towards them, particularly as they turn left. If the train traveled the same direction as the cars, drivers would be turning right across the track with a train potentially coming from behind, out of their vision. In the downtown environment, the proposed configuration (light rail train opposite cars) also represents a typical street for pedestrians and cross-traffic with the curbside lane/track coming from the left. Finally, buses require a contra-flow lane on the one-way streets adjacent to the Bellevue Transit Center to maintain their routing and provide full access, so with the proposed roadway configuration, they would be able to share the track with the train between NE 8th and NE 4th streets in a joint-use operation.

Along 110th Avenue NE, light rail and vehicle operations would operate in the opposite directions as 108th Avenue NE but the same conclusions for 108th Avenue NE apply.

Appendix F
Existing and Future
Pedestrian Sidewalk Level of Service

TABLE F-1
Existing and 2020 PM Peak-Hour Pedestrian LOS – Segment A

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2020 No Build			2020 Build		
			No. of Pedestrians	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**
A1	Rainier	Rainier / I-90 EB off ramp	21	0.28	A	27	0.36	A	104	1.39	B
		Rainier / Massachusetts	8	0.11	A	10	0.14	A	44	0.59	B
		23rd / Rainier Station Crossing	N/A	N/A	N/A	N/A	N/A	N/A	86	1.15	B
	Mercer Island	80th Ave SE / North Mercer Way	114	0.63	B	146	0.81	B	176	0.98	B
		77th Ave SE / Sunset Highway	7	0.04	A	9	0.05	A	10	0.06	A
		80th Ave SE / SE 27th St	4	0.02	A	5	0.03	A	15	0.08	A
		77th Ave SE / North Mercer Way	4	0.02	A	5	0.03	A	10	0.06	A

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Mercer Island standard sidewalk width: 12 feet. City of Seattle standard sidewalk width: 5 feet.

TABLE F-2
Existing and 2030 PM Peak-Hour Pedestrian LOS – Segment A

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2030 No Build			2030 Build		
			No. of Pedestrians	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ ft)**	**LOS**
A1	Rainier	Rainier / I-90 EB off ramp	21	0.28	A	29	0.39	A	125	1.66	B
		Rainier / Massachusetts	8	0.11	A	11	0.15	A	54	0.72	B
		23rd / Rainier Station Crossing	N/A	N/A	N/A	N/A	N/A	N/A	105	1.40	B
	Mercer Island	80th Ave SE / North Mercer Way	114	0.63	B	160	0.89	B	211	1.17	B
		77th Ave SE / Sunset Highway	7	0.04	A	10	0.13	A	11	0.06	A
		80th Ave SE / SE 27th St	4	0.02	A	6	0.03	A	19	0.11	A
		77th Ave SE / North Mercer Way	4	0.02	A	6	0.03	A	12	0.07	A

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Mercer Island standard sidewalk width: 12 feet. City of Seattle standard sidewalk width: 5 feet.

TABLE F-3
Existing and 2020 PM Peak Hour Pedestrian LOS – Segment B

			Existing			2020 No-Build			2020 Build		
Alignment Option	**Station**	**Intersection Approach (Crosswalk)**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**
B1, B2A, B2E, B2M, B3-DO, B3	South Bellevue	Bellevue Way/S Bellevue P&R	7	0.06	A	8	0.06	A	38	0.32	A
B2A, B2E, B2M	SE 8th	112th Ave SE/SE 6th St	4	0.03	A	4	0.04	A	5	0.04	A
		112th Ave SE/SE 8th St	4	0.03	A	4	0.04	A	65	0.54	B
		114th Ave SE/SE 8th St	2	0.02	A	2	0.02	A	15	0.13	A
B7	118th	118th Ave SE/SE 8th St*	3	0.03	A	3	0.03	A	10	0.08	A
		SE 8th St/I-405 SB On/Off Ramps*	2	0.02	A	2	0.02	A	5	0.04	A

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Bellevue standard sidewalk width: 8 feet.

*Nearest intersection(s) location greater than 300 feet from station entrance.

TABLE F-4
Existing and 2030 PM Peak Hour Pedestrian LOS – Segment B

			Existing			**2030 No-Build**			**2030 Build**		
Alignment Option	**Station**	**Intersection Approach (Crosswalk)**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**
B1, B2A, B2E, B2M, B3-DO, B3	South Bellevue	Bellevue Way/S Bellevue P&R	7	0.06	A	8	0.07	A	40	0.34	A
B2A, B2E, B2M	SE 8th	112th Ave SE/SE 6th St	4	0.03	A	5	0.04	A	10	0.08	A
		112th Ave SE/SE 8th St	4	0.03	A	5	0.04	A	70	0.58	B
		114th Ave SE/SE 8th St	2	0.02	A	2	0.02	A	20	0.17	A
B7	118th	118th Ave SE/SE 8th St*	3	0.03	A	4	0.03	A	10	0.08	A
		SE 8th St/I-405 SB On/Off Ramps*	2	0.02	A	2	0.02	A	5	0.04	A

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Bellevue standard sidewalk width: 8 feet.

*Nearest intersection(s) location greater than 300 feet from station entrance.

TABLE F-5
Existing and 2020 PM Peak Hour Pedestrian LOS – Segment C

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2020 No-Build			2020 Build		
			No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A	East Main	112th Ave NE/Main Street	10	0.08	A	11	0.09	A	250	2.08	B
C1T, C2T, C3T, C4A, C8E, C9A, C9T, C11A	BTC	108th Ave NE/NE 4th Street	50	0.42	A	57	0.47	A	82	0.68	B
		108th Ave NE/NE 6th Street	289	2.41	B	329	2.74	B	469	3.91	C
		108th Ave NE/NE 8th Street	94	0.78	B	107	0.89	B	112	0.93	B
		110th Ave NE/NE 4th Street	16	0.13	A	18	0.15	A	80	0.67	B
		110th Ave NE/NE 6th Street	50	0.42	A	57	0.47	A	225	1.88	B
		110th Ave NE/NE 8th Street	10	0.08	A	11	0.09	A	86	0.71	B
C7E, C14E	BTC	112th Ave NE/NE 4th Street	50	0.42	A	57	0.47	A	80	0.67	B
		112th Ave NE/NE 6th Street	9	0.08	A	10	0.09	A	60	0.50	A
C11A	108th	108th Ave NE/Main Street	12	0.10	A	14	0.11	A	125	1.04	B
		108th Ave NE/NE 2nd Street	39	0.33	A	44	0.37	A	50	0.78	A
		110th Ave NE/Main Street	18	0.15	A	20	0.17	A	125	1.04	B
C3T, C4A, C7E, C8E	Ashwood Hospital	112th Ave NE/NE 12th Street	3	0.03	A	3	0.03	A	43	0.36	A
		116th Ave NE/NE 12th Street	9	0.08	A	10	0.09	A	69	0.58	B
C1T, C2T, C9A, C11A, C14E	Hospital	116th Ave NE/OHMC Driveway	9	0.08	A	10	0.09	A	15	0.13	A
		NE 8th Street/116th Ave NE	10	0.08	A	11	0.09	A	66	0.55	B
C1T	Old Bellevue	Bellevue Way/Main Street	50	0.42	A	57	0.47	A	72	0.60	B

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Bellevue standard sidewalk width: 8 feet.

TABLE F-6
Existing and 2030 PM Peak Hour Pedestrian LOS – Segment C

			Existing			2030 No-Build			2030 Build		
Alignment Option	**Station**	**Intersection Approach (Crosswalk)**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**	**No. of Pedestrians**	**Flow Rate (ped/min/ft)**	**LOS**
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A	East Main	112th Ave NE/Main Street	10	0.08	A	14	0.12	A	325	2.71	B
C1T, C2T, C3T, C4A, C8E, C9A, C9T, C11A	BTC	108th Ave NE/NE 4th Street	50	0.42	A	70	0.58	B	120	1.00	B
		108th Ave NE/NE 6th Street	289	2.41	B	405	3.37	C	455	3.79	C
		108th Ave NE/NE 8th Street	94	0.78	B	132	1.10	B	142	1.18	B
		110th Ave NE/NE 4th Street	16	0.13	A	22	0.19	A	150	1.25	B
		110th Ave NE/NE 6th Street	50	0.42	A	70	0.58	A	375	3.13	C
		110th Ave NE/NE 8th Street	10	0.08	A	14	0.12	A	132	1.10	B
C7E, C14E	BTC	112th Ave NE/NE 4th Street	50	0.42	A	70	0.58	B	150	1.25	B
		112th Ave NE/NE 6th Street	9	0.08	A	13	0.11	A	73	0.61	B
C11A	108th	108th Ave NE/Main Street	12	0.10	A	17	0.14	A	155	1.29	B
		108th Ave NE/NE 2nd Street	39	0.33	A	55	0.46	A	71	0.60	B
		110th Ave NE/Main Street	18	0.15	A	25	0.21	A	150	1.25	B
C3T, C4A, C7E, C8E	Ashwood Hospital	112th Ave NE/NE 12th Street	3	0.03	A	4	0.04	A	44	0.37	A
		116th Ave NE/NE 12th Street	9	0.08	A	13	0.11	A	73	0.61	B
C1T, C2T, C9A, C11A, C14E	Hospital	116th Ave NE/OHMC Driveway	9	0.08	A	13	0.11	A	25	0.21	A
		NE 8th Street/116th Ave NE	10	0.08	A	14	0.12	A	100	0.83	B
C1T	Old Bellevue	Bellevue Way/Main Street	50	0.42	A	70	0.58	B	75	0.63	B

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Bellevue standard sidewalk width: 8 feet.

TABLE F-7
Existing and 2020 PM Peak Hour Pedestrian LOS – Segment D

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2020 No Build			2020 Build		
			No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS
D2A, D2A-DO, D2E, D3	124th	124th Ave NE/NE 16th St**	N/A	N/A	N/A	51	0.43	A	116	0.97	B
		124th Ave NE/Bel-Red Rd	9	0.08	A	12	0.10	A	13	0.10	A
	130th	130th Ave NE/NE 16th St**	N/A	N/A	N/A	51	0.43	A	81	0.68	B
		132nd Ave NE/NE 16th St	1	0.01	A	1	0.01	A	45	0.38	A
		130th Ave NE/Bel-Red Rd	2	0.02	A	3	0.02	A	15	0.13	A
		132nd Ave NE/Bel-Red Rd	2	0.02	A	3	0.02	A	15	0.13	A
D2A, D2A-DO, D2E, D3, D5	Overlake Village	NE 26th St/152nd Ave NE	0	0.00	A	0	0.00	A	30	0.25	A
		NE 24th St/151st Ave NE	14	0.12	A	17	0.14	A	20	0.17	A
		NE 24th St/152nd Ave NE	11	0.09	A	13	0.11	A	30	0.25	A
D2A, D2A-DO, D2E, D3, D5	Overlake Transit Center	156th Ave NE/NE 40th St	7	0.06	A	8	0.07	A	20	0.17	A
		156th Ave NE/Overlake TC	72	0.60	B	87	0.73	B	190	1.58	B
		156th Ave NE/NE 36th St	14	0.12	A	17	0.14	A	110	0.92	B
		NE 40th St/SR520 WB On-Ramp*	19	0.16	A	23	0.19	A	25	0.21	A
		NE 40th St/SR520 EB On-Ramp*	19	0.16	A	23	0.19	A	25	0.21	A

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Bellevue standard sidewalk width: 8 feet, City of Redmond standard sidewalk width: 8 feet.

*Nearest intersections located greater than 300 feet from station entrance.

** Intersection does not exist under existing conditions and no build.

TABLE F-8
Existing and 2030 PM Peak Hour Pedestrian LOS – Segment D

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2030 No Build			2030 Build		
			No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS
D2A, D2A-DO, D2E, D3	124th	124th Ave NE/NE 16th St**	N/A	N/A	N/A	63	0..53	A	138	1.15	B
		124th Ave NE/Bel-Red Rd	9	0.08	A	13	0.11	A	63	0.53	A
	130th	130th Ave NE/NE 16th St**	N/A	N/A	N/A	63	0.53	A	138	1.15	B
		132nd Ave NE/NE 16th St	1	0.01	A	1	0.01	A	85	0.71	B
		130th Ave NE/Bel-Red Rd	2	0.02	A	3	0.02	A	15	0.13	A
		132nd Ave NE/Bel-Red Rd	2	0.02	A	3	0.02	A	15	0.13	A
D2A, D2A-DO, D2E, D3, D5	Overlake Village	NE 26th St/152nd Ave NE	0	0.00	A	0	0.00	A	65	0.54	B
		NE 24th St/151st Ave NE	14	0.12	A	19	0.16	A	50	0.42	A
		NE 24th St/152nd Ave NE	11	0.09	A	15	0.12	A	60	0.50	B
D2A, D2A-DO, D2E, D3, D5	Overlake Transit Center	156th Ave NE/NE 40th St	7	0.06	A	9	0.08	A	20	0.17	A
		156th Ave NE/Overlake TC	72	0.60	B	97	0.81	B	310	2.58	B
		156th Ave NE/NE 36th St	14	0.12	A	19	0.16	A	160	1.33	B
		NE 40th St/SR520 WB On-Ramp*	19	0.16	A	26	0.21	A	40	0.33	A
		NE 40th St/SR520 EB On-Ramp*	19	0.16	A	26	0.21	A	40	0.33	A

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Bellevue standard sidewalk width: 8 feet, City of Redmond standard sidewalk width: 8 feet.

*Nearest intersections located greater than 300 feet from station entrance.

** Intersection does not exist under existing conditions and no build.

TABLE F-9
Existing and 2020 PM Peak Hour Pedestrian LOS – Segment E

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2020 No Build			2020 Build		
			No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS
E1, E2-DO, E4	Redmond Town Center	166th Ave NE/NE 76th St	18	0.15	A	18	0.15	A	44	0.37	A
		164th Ave NE/NE 76th St	20	0.17	A	20	0.17	A	35	0.29	A
		164th Ave NE/Redmond Way	9	0.08	A	9	0.08	A	29	0.24	A
		166th Ave NE/Redmond Way	9	0.08	A	9	0.08	A	25	0.21	A
E2-DO	Redmond Transit Center	161st Ave NE/NE 83rd St	10	0.08	A	10	0.08	A	16	0.13	A
		161st Ave NE/NE 85th St	0	0.00	A	0	0.00	A	15	0.13	A
E1, E2, E2-DO, E4	SE Redmond	176th Ave NE/NE 70th St	1	0.01	A	1	0.01	A	11	0.09	A
		Redmond Way/NE 70th St	4	0.03	A	4	0.04	A	12	0.10	A
E2	Downtown Redmond	Brown St/Cleveland St	2	0.02	A	2	0.02	A	25	0.21	A
		Leary Way/Cleveland St	2	0.02	A	2	0.02	A	80	0.67	B

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Redmond standard sidewalk width: 8 feet.

TABLE F-10
Existing and 2030 PM Peak Hour Pedestrian LOS – Segment E

Alignment Option	Station	Intersection Approach (Crosswalk)	Existing			2030 No Build			2030 Build		
			No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS	No. of Pedestrians	Flow Rate (ped/min/ft)	LOS
E1, E2-DO, E4	Redmond Town Center	166th Ave NE/NE 76th St	18	0.15	A	19	0.16	A	74	0.62	B
		164th Ave NE/NE 76th St	20	0.17	A	21	0.18	A	67	0.56	B
		164th Ave NE/Redmond Way	9	0.08	A	9	0.08	A	50	0.42	A
		166th Ave NE/Redmond Way	9	0.08	A	9	0.08	A	40	0.33	A
E2-DO	Redmond Transit Center	161st Ave NE/NE 83rd St	10	0.08	A	10	0.08	A	22	0.18	A
		161st Ave NE/NE 85th St	0	0.00	A	0	0.00	A	30	0.25	A
E1, E2, E2-DO, E4	SE Redmond	176th Ave NE/NE 70th St	1	0.01	A	1	0.01	A	22	0.19	A
		Redmond Way/NE 70th St	4	0.03	A	4	0.04	A	20	0.17	A
E2	Downtown Redmond	Brown St/Cleveland St	2	0.02	A	2	0.02	A	40	0.33	A
		Leary Way/Cleveland St	2	0.02	A	2	0.02	A	100	0.83	B

Notes:

Pedestrian LOS and flow rates are presented for the pedestrian crossing at each intersection with the highest flow rate for each condition.

City of Redmond standard sidewalk width: 8 feet.

Appendix G
Nonmotorized Transportation Improvement Projects

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
23rd Avenue S	S Hanford Street	E Denny way	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane, bike climbing lane
31st Ave S	S McCleallan St	S Jackson St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane, Sharrow
Martin Luther King Jr. Way S	S Winthrop St	I-90 Trail	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
S Massachusetts St	24th Ave S	20th Ave S	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike climbing lane
S McClellan St	Lake Park Dr S	29th Ave S	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
S Holgate St to Beacon Ave S	8th Ave S	13th Ave S	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike climbing lane
S Jackson St	5th Ave S	14th Ave S	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane, bike climbing lane
Airport Way S	6th Ave S	I-90	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
Maynard Ave S	Airport Way/Plummer St	Dearborn St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
7th Ave S	I-90	Dearborn St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
Yesler Way	12th Ave S	Broadway	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
14th Ave S	S Jackson St	S Yesler Way	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
6th Ave S	Atlantic St	S Dakota Street	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane
12th Ave S	S Atlantic St	S Weller St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Bike lane, bike climbing lane
E Yesler Way	12th Ave S	31st Ave S	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Sharrow
20th Ave S	Yesler Way	S Judkins St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Sharrow

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
S King St	5th Ave S	20th Ave S	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Sharrow
15th Ave S	Atlantic St	S Nevada St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Sharrow
14th Ave S/12th Ave S	Bayview St	Massachusetts St	Seattle	Seattle Master Bike Plan (June 2007)	Recommended Bicycle Facilities Map (3/2007)	Sharrow
S Dearborn/ Rainier Ave intersection			Seattle	Seattle Master Bike Plan, Appendix I (June 2007)	Recommended Bicycle Facilities Map (3/2007) Map Location 78	bike improvement
I-90 Trail/Martin Luther King Jr. Way and I-90 Trail/23rd Ave S Intersections			Seattle	Seattle Master Bike Plan, Appendix I (June 2007)	Recommended Bicycle Facilities Map (3/2007) Map Location 25	Bike/ pedestrian improvement
SE 24th Street	81st Ave SE	84th Ave SE	Mercer Island	2007-2012 6-Year TIP (Detail of Expenditures – May 16, 2006)	Project #1	sidewalk
72nd Ave SE	SE 24th Street	SE 32nd Street	Mercer Island	2010-20-15 TIP, 2007-2012 6-Year TIP (Detail of Expenditures - May 16, 2006)	Project #8 (N5)	sidewalk
NE 10th Street	112th Ave NE	116th Ave NE	Bellevue	2006-2017 TFP Update	TFP-189	sidewalk or other
Bel-Red Road at NE 20th Place			Bellevue	2006-2017 TFP Update	TFP-198	pedestrian crossing
15th/16th St NE	NE 12th St	140th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-100-N, S-100-S	sidewalk
NE 8th Street	116th Ave NE	120th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-101-N, S-101-S	sidewalk
100th Ave SE/SE Bellevue Pl	Meydenbauer Way	SE Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-102-E	sidewalk
124th Ave NE	Northup Way	Bel-Red Rd	Bellevue	Pedestrian and Bicycle Plan (2009)	S-200-E, S-200-W	sidewalk
130th Ave NE	Northup Way	Bel-Red Rd	Bellevue	Pedestrian and Bicycle Plan (2009)	S-201-E, S-201-W	sidewalk
136th Pl NE	NE 20th St	NE 16th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-202-E, S-202-W	sidewalk
Bel-Red Road	NE 32nd St (alignment)	NE 24th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-203-S	sidewalk
NE 11th St	111th Ave NE	112th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-204-S	sidewalk
105th Ave NE	NE 4th St	NE 2nd St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-205-W	sidewalk

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
NE 3rd Pl	110th Ave NE	111th Ave Ne	Bellevue	Pedestrian and Bicycle Plan (2009)	S-206-S, S-206-N	sidewalk
111th Ave NE	NE 4th St	NE 2nd St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-207-S, S-207-N	sidewalk
NE 1st St (Old Bellevue sidewalks)	103rd Ave NE	Bellevue Way	Bellevue	Pedestrian and Bicycle Plan (2009)	S-209-S	sidewalk
107th Ave NE	NE 2nd St	Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-210-W	sidewalk
110th Ave NE	NE 2nd St	Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-211-W	sidewalk
NE 2nd Street	Bellevue Way	106th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-212-S	sidewalk
Main Street	Bellevue Way	116th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-213-N	sidewalk
120th Ave NE	Bel-Red Rd	Northup Way	Bellevue	Pedestrian and Bicycle Plan (2009)	S-214-E, S-214-W	sidewalk
102nd Ave NE	NE 10th St	NE 8th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-215-E	sidewalk
NE 2nd Pl	110th Ave NE	111th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-219-N, S-219-S	sidewalk
Northup Way	NE 33rd Pl/Bellevue Way	124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-301-N, S-301-S	sidewalk
140th Ave NE	NE 40th Street	NE 24th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	S-306-E, S-306-W	sidewalk/path
116th Ave NE	NE 21st St	NE 12th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	S-309-W	sidewalk
132nd Ave NE	NE 16th and Bel-Red Rd	NE 8th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	S-310-E, S-310-W	sidewalk
108th Ave NE	NE 24th St	NE 14th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-314-E, S-314-W	sidewalk
Lake Washington Blvd NE	NE 1st St	100th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-318-S	sidewalk
NE 4th St Extension	116th Ave NE	120th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-320-N, S-320-S	sidewalk
114th Ave SE	SE 6th St	SE 8th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-329-E, S-329-W	sidewalk
SE 8th St	121st Ave SE	Lake Hills Connector	Bellevue	Pedestrian and Bicycle Plan (2009)	S-330-N	sidewalk
SE 8th St	114th/118th Ave E	121st Ave E	Bellevue	Pedestrian and Bicycle Plan (2009)	S-330-S	sidewalk
SE 7th Pl	Lake Hills Connector	128th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-331-N	sidewalk

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
121st Ave SE/SE 12th St/123rd Ave SE	SE 8th St	SE 20th Pl	Bellevue	Pedestrian and Bicycle Plan (2009)	S-332-E	sidewalk
164th Ave SE	Lake Hills Blvd	SE 14th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-335-E	sidewalk
SE 6th St	100th Ave SE	102nd Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-335-S	sidewalk
Lake Washington View Trail	SE 11th St	108th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-336-W, S-336-E	sidewalk
104th Ave SE	SE 8th St	SE 25th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-337-E, S-337-W	sidewalk
Bellevue Way SE	SE 27th Pl	SE 30th St Connector	Bellevue	Pedestrian and Bicycle Plan (2009)	S-340-W	sidewalk
SE 34th St	108th Ave SE	111th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-341-N, S-341-S	sidewalk
108th Ave SE	SE 21st St and Bellevue Way	SE 34th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-339-E, S-339-W	sidewalk
NE 5th St	99th Ave NE	100th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-411-N	sidewalk
98th Pl NE/98th Ave NE/NE 4th	NE 1st St (Meydenbauer Park)	99th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-412-N	sidewalk
NE 4th St	98th Ave NE	99th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-412-S	sidewalk
NE 5th St	120th Ave NE	124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-414-S, S-414-N	sidewalk
Meydenbauer Way SE	SE Bellevue Pl	101st Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-423-S	sidewalk
Shoreline Dr SE (Lake Washington View Trail)	SE Shoreline Pl	SE 5th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-424-N	sidewalk
105th Ave SE	SE Cliff Pl	Wolverine Way (high school)	Bellevue	Pedestrian and Bicycle Plan (2009)	S-425-E, S-425-W	sidewalk
109th Ave SE	SE 2nd St	SE 4th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-426-W	sidewalk
SE 4th St/111th Ave SE	109th Ave SE	112th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-427-S	sidewalk
SE 5th St	118th Ave SE	Wilburton Hill Community Park	Bellevue	Pedestrian and Bicycle Plan (2009)	S-428-N	sidewalk
SE 6th St	100th Ave SE	Bellevue Way SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-431-N, S-431-S	sidewalk
102nd Ave SE	SE 6th St	SE 8th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-433-E, S-433-W	sidewalk

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
SE 16th St	104th Ave SE	108th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-435-N, S-435-N	sidewalk
SE 23rd St	104th Ave SE	108th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	S-437-N, S-437-S	sidewalk
SE 30th St Connector	112th Ave SE	Bellevue Way	Bellevue	Pedestrian and Bicycle Plan (2009)	S-463-S, S-463-N	sidewalk
112th Ave SE	SE 30th St	SE 34th St	Bellevue	Pedestrian and Bicycle Plan (2009)	S-465-E, S-465-W	sidewalk
Mercer Slough Park Trail	I-90	118th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	T-100	trail
SE 10th St	Bellevue Way	106th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	T-203	trail
136th Ave Power-line Corridor	Bel-Red Rd	SE 3rd Pl	Bellevue	Pedestrian and Bicycle Plan (2009)	T-302	trail
Bellefield Office Park	SE 8th St	SE 18th St alignment	Bellevue	Pedestrian and Bicycle Plan (2009)	T-303	trail
Lake Hills Connector	SE 8th St	Richards Road	Bellevue	Pedestrian and Bicycle Plan (2009)	T-304	trail
120th Ave NE Trail	Bellemeade	NE 24th St	Bellevue	Pedestrian and Bicycle Plan (2009)	T-402	trail
Unigard Trail System	Northup Way	NE 24th St E/O 156th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	T-408	trail
Northup Way	Bellevue Way	120th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-100-N, B-100-S	bike lane
108th Ave NE/NE 38th St	Northern city limits	Northup Way	Bellevue	Pedestrian and Bicycle Plan (2009)	B-101-E, B-101-W	bike lane
NE 36th Pl/ 115th Ave NE	113th Ave NE	116th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-102-E, B-102-W	bike lane
Bellevue Way	NE 24th St	103rd Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-103-E, B-103-W	bike lane
112th Ave NE	Northup Way	NE 12th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-104-E, B-104-W	bike lane
NE 40th St	140th Ave NE	148th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-106-S	bike shoulder
NE 24th St	98th Ave NE	100th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-107-N	bike lane
Bellevue Way	NE 24th St	NE 12th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-108-E, B-108-W	bike lane
116th Ave NE	Northup Way	Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-109-E, B-109-W	bike lane
Northup Way	120th Ave NE	124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-110-N, B-110-S	bike lane
Northup Way/120th	124th Ave NE	140th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-111-N, B-111-S	bike lane

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Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
140th Ave NE	NE 24th St	NE 8th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	B-112-E, B-112-W	bike lane
130th Ave NE	NE 24th St	NE 20th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	B-113-E, B-113-W	bike lane
Bel-Red Rd	NE 40th Street	156th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-114-N, B-114-S	bike lane
Bel-Red Rd	156th Ave NE	NE 20th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	B-115-E, B-115-W	bike lane
NE 20th St	Bel-Red Rd	156th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-116-N, B-116-S	bike lane
Northup Way	NE 8th St	156th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-117-N, B-117-S	bike lane
NE 12th St	100th Ave NE	112th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-118-S	bike lane
120th Ave NE	Northup Way	NE 4th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-119-E, B-119-W	bike lane
124th Ave NE	West Tributary Trail	Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-120-E, B-120-W	bike lane
136th Pl NE	NE 16th Street	NE 20th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	B-121-E, B-121-W	bike lane
164th Ave NE	Northup Way	NE 8th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-122-E, B-122-W	bike lane
92nd Ave NE	Northern city limits	Lake Washington Blvd NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-123-E	bike lane
NE 8th Street	Lake Washington Blvd	96th Avenue NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-124-S	bike lane
108th Ave NE	NE 12th Street	Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-125-E, B-125-W	bike lane
112th Ave NE	NE 12th Street	NE 6th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-126-E, B-126-W	bike lane
114th Ave NE (Frontage Rd)	NE 6th Street	SE 8th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-127-E, B-127-W	bike lane
Main St	Bellevue Way NE	116th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-129-N	bike lane
NE 4th St Extension	120th Ave NE	116th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-130-N, B-130-S	bike lane
132nd Ave NE	Bel-Red Rd	NE 8th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	B-131-E, B-131-W	bike lane
Main St	156th Ave NE	158th Pl NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-132-N	bike lane
SE 5th St	116th Ave NE	BNSF Corridor	Bellevue	Pedestrian and Bicycle Plan (2009)	B-133-S	bike lane
Main St	NE 1st St	124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-134-N	bike lane

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
SE 8th St	114th Ave SE	Lake Hills Connector	Bellevue	Pedestrian and Bicycle Plan (2009)	B-135-N	bike lane
SE 7th Pl	Lake Hills Connector	East edge of Wilburton Hill Community Park	Bellevue	Pedestrian and Bicycle Plan (2009)	B-136-N, B-136-S	bike lane
Bellevue Way SE	108th Ave SE	112th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-137-N, B-137-S	bike lane
108th Ave SE	Bellevue Way SE	SE 34th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-138-E, B-138-W	bike lane
NE 24th Street	Bellevue Way NE	112th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-201-N, B-201-S	bike shoulder
100th Ave NE	NE 24th St	NE 8th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	B-202-E, B-202-W	bike shoulder
NE 24th St	124th Pl NE	140th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-203-N	bike shoulder
108th Ave NE	NE 24th St	NE 12th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-204-E, B-204-W	bike shoulder
NE 24th St	Bel-Red Rd	172nd Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-205-N, B-205-S	bike shoulder
Lake Washington Blvd	NE 10th St	100th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-208-N, N-208-S	bike shoulder
100th Ave NE	NE 8th St	Main St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-209-E, B-209-W	bike shoulder
Main St	100th Ave NE	Bellevue Way NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-210-N, B-210-S	bike shoulder
101st Ave SE to SE 97th Pl	Main St	SE 16th St	Bellevue	Pedestrian and Bicycle Plan (2009)	B-211-E, B-211-W	bike shoulder
Lake Hills Connector	Main Street	140th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-212-S	bike shoulder
SE 16th St	104th Ave SE	108th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-213-N, B-213-S	bike shoulder
112th Ave SE/SE 34th St	Bellevue Way SE (Mercer Slough Nature Park)	108th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-215-E, B-215-W	bike shoulder
136th Pl NE	NE 24th St	SR 520 Trail	Bellevue	Pedestrian and Bicycle Plan (2009)	B-300-E, B-300-W	bike shoulder
164th Ave NE	NE 18th St	Northup Way	Bellevue	Pedestrian and Bicycle Plan (2009)	B-301-E, B-301-W	bike shoulder
NE 24th St	140th Ave NE	148th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-400-N, B-400-S	bike shoulder
NE 2nd St	102nd Ave SE	114th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-401-N, B-401-S	bike shoulder
Bellevue Way	Main St	108th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	B-402-W, B-402-E	bike route

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
130th Ave NE	NE 16th St	Bel-Red Rd	Bellevue	Pedestrian and Bicycle Plan (2009)	B-500-E, B-500-W	bike route
SR 520 Regional Trail	Evergreen Point Bridge	124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-103	path/trail
Burlington Northern Bike Path	Southern City Limits	Northern City Limits	Bellevue	Pedestrian and Bicycle Plan (2009)	O-104	path/trail
NE 24th St	126th Ave NE	136th Pl NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-105-S	path/trail
NE 12th St	100th Ave NE	116th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-108-N	path/trail
West Tributary Trail	BNSF Corridor	Bel-Red Rd	Bellevue	Pedestrian and Bicycle Plan (2009)	O-109	path/trail
NE 16th St	116th Ave NE	140th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-110-N	path/trail
132nd Ave NE	NE 20th St	Bel-Red Rd	Bellevue	Pedestrian and Bicycle Plan (2009)	O-111-E	path/trail
East Highland/Rockwood	140th Ave NE	141st Pl NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-112	path/trail
Trail	148th Ave NE	156th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-113	path/trail
Trail	Highland Middle School	NE 8th Street	Bellevue	Pedestrian and Bicycle Plan (2009)	O-114	path/trail
Crossroads E-W Connection	156th Ave NE	164 Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-115	path/trail
Trail	159th Ave NE	Crossroads Park and Community Center	Bellevue	Pedestrian and Bicycle Plan (2009)	O-116	path/trail
NE 6th St (ped corridor)	Bellevue Way	110th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-117	path/trail
NE 6th St Extension	112th Ave NE	120th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-118-S	path/trail
Bel-Red Mini Park	Bel-Red Rd at 122nd Ave (alignment)	Bel-Red Rd at 124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-119	path/trail
NE 2nd St	124th Ave NE	126th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-120-S	path/trail
Main St	Bellevue Way NE	116th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-121-S	path/trail
Main St Extension	116th Ave NE	BNSF Corridor	Bellevue	Pedestrian and Bicycle Plan (2009)	O-122	path/trail
Lake Hills Connector	Main St	140th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-123-N	path/trail

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Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
Main St	NE 1st St	124th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-124-S	path/trail
Existing BBG/ Wilburton Hill Trails	118th Ave SE	SE 4th Pl	Bellevue	Pedestrian and Bicycle Plan (2009)	O-125	path/trail
SE 8th St	114th Ave SE	Lake Hills Connector	Bellevue	Pedestrian and Bicycle Plan (2009)	O-127-S	path/trail
SE 8th St	112th Ave SE	114th Ave SE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-130-S	path/trail
112th Ave SE/Bellevue Way SE	SE 8th St	I-90 Trail	Bellevue	Pedestrian and Bicycle Plan (2009)	O-131-E	path/trail
NE 40th St	134th Ave NE	140th Ave NE	Bellevue	Pedestrian and Bicycle Plan (2009)	O-301	path/trail
BNSF Railroad Right-of-way	Bear Evans Creek	NE 90th Street	Redmond	2010-2015 Transportation Improvement Program (June 2009)	B11	trail
Bear & Evans Creek Trail	Sammamish River Trail	Puget Sound Energy Trail	Redmond	2010-2015 Transportation Improvement Program (June 2009)	B12 & B33	trail
152nd Avenue NE	NE 24th Street	NE 31st Street	Redmond	Redmond 2022 Transportation Facility Plan (2009)	RED-OV-065a	Sidewalks and bike lane
West Lake Sammamish Parkway	NE 51st St	Bel-Red Rd	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-045b	Sidewalk, bike lane
Union Hill Road	Avondale Road	178th Pl NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-049a	Sidewalk, bike lane
Union Hill Road	178th Pl NE	188th Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-049b, RED-TIP-C43	Sidewalk, bike lane
Union Hill Road	188th Ave NE	East City Limits	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-049c, RED-TIP-C43	Sidewalk, bike lane
162nd Ave NE (Bear Creek Parkway Extension, west)	159th Pl NE	Leary Way	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-050a	sidewalk
Redmond Way	SR 520	187th Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (November 2005)	RED-TFP-065	Sidewalk, bike lane
160th Ave NE	NE 99th St	Red-Wood Rd	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-072a, RED-TIP-C16	Sidewalk, bike lane
Bel-Red Road	NE 30th St	NE 40th St	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TFP-080	Sidewalk, bike lane

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Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
188th Ave NE	Redmond Way	Union Hill Rd	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-CIP-C52, RED-TFP-117	Sidewalk, bike lane
161st Ave NE	Bear Creek Parkway Extension	Redmond Way	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-001, RED-TIP-C40	Sidewalk, bike lane
164th Ave NE	NE 76th St	Cleveland St	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-002, RED-TIP-C39	Sidewalk, bike lane
NE 36th St/NE 31st St Bridge	NE 36th Street	NE 31st Street	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-004	Sidewalk, bike lane
NE 85th St	154th Ave NE	164th Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-009	bike lane
164th Ave NE	Redmond Way	NE 87th St	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-010, RED-TIP-S34	Pedestrian amenities, bike lane
170th Pl NE (Bear Creek Parkway Extension, east)	Redmond Way	Avondale Way	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-012	sidewalk
Redmond Way Bridge at Bear Creek			Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-013	sidewalk
Redmond Way	159th Pl NE	170th Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-018	Sidewalk
166th Ave NE	NE 85th St	NE 104th St	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-019, RED-TIP-S41	bike lane
NE 76th St	Redmond Way	NB Avondale Rd on-ramp	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-022	Sidewalk, bike lane
NE 70th St	Redmond Way	180th Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-029	sidewalk
Old Redmond Rd	Old Redmond Rd	West Lake Sammamish Parkway	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-042	intersection improvement for nonmotorized users
East Lake Sammamish Parkway	East Lake Sammamish Parkway	187th Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-020[b]	trail crossing
NE 31st St	156th Ave NE	Bel-Red Rd	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-031	Sidewalk, bike lane

TABLE G-1
Nonmotorized Transportation Improvement Projects

Facility	From	To	Jurisdiction	Source(s)	Source ID	Nonmotorized Improvement[a]
SR 520 Bikeway Connection to Sammamish River Regional Trail	Leary Way	Sammamish River Regional Trail	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-059	Trail
NE 83rd St	160th Ave NE	161st Ave NE	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-061	sidewalk
SR 520 Bicycle/Pedestrian Bridge at Overlake Transit Center	SR 520	Overlake Transit Center	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-TMP-067	Bicycle/Pedestrian bridge
NE 40th Street	156th Avenue NE	W. Lk. Sammamish Pkwy.	Redmond	Redmond 2022 Transportation Facility Plan (2009)	RED-TMP-080	Multi-use trail
156th Ave NE Multi-Use Trail	Bel-Red Rd	NE 51st St	Redmond	Redmond Transportation Master Plan (Aug 2009)	RED-TMP-082	Multi-use trail
185th Ave NE	SR 202/Redmond Way	NE Union Rd	Redmond	2010-2015 Transportation Improvement Program (June 2009)	RED-TIP C-8	Nonmotorized improvements
NE 76th Street	185th Ave NE	188th Ave NE	Redmond	2010-2015 Transportation Improvement Program (June 2009)	RED-TIP- C-50	Sidewalk, bike lane
NE 73rd Street	185th Ave NE	188th Ave NE	Redmond	2010-2015 Transportation Improvement Program (June 2009)	RED-TIP -C-51	Sidewalk
Bellevue-Redmond Road	Bel-Red Rd	West Lake Sammamish Pkwy	Redmond	2010-2015 Transportation Improvement Program (June 2009)	RED-TIP-C48	pedestrian crossing
West Lake Sammamish Parkway	NE 51st St	NE 50th St	Redmond	Redmond Transportation Master Plan: Transportation Facilities Plan (June 2007)	RED-BROTS-011.1	Sidewalk, bike lane
148th Avenue NE/SR 520 Interchange	North of SR 520	South of SR 520	Redmond	2010-2015 Transportation Improvement Program (June 2009)	RED-TIP-C-27	trail

Notes: Projects may include improvements located outside of the analysis area. These are not shown on the exhibits in the Transportation Technical Report.

[a] Many of these projects include other transportation improvements in addition to the listed nonmotorized improvements. Refer to the source document for the complete project description.

[b] Existing nonmotorized facilities to be replaced; project not displayed in the exhibits in the Transportation Technical Report since the nonmotorized facility does not include new infrastructure or the nonmotorized project is located outside of the nonmotorized analysis area.

7.0 Nonmotorized Facilities

7.1 Section Overview

This section describes the existing conditions and any identified future impacts with the project on nonmotorized facilities within the study area. Data were collected and analyzed for impacts on nonmotorized facilities—including sidewalks, designated bicycle routes, marked bicycle lanes, and regional multiuse trails. Sidewalk inventory extended 0.5 mile from potential stations; bicycle-route inventory extended 1 mile from potential stations. Regional multiuse trails were inventoried within 1 mile of potential stations. These trails provide regional mobility for nonmotorized users and allow East Link riders to transfer to nonmotorized modes. School walk routes were inventoried and analyzed for potential impacts on general walkability, based on their proximity to station alternatives. Land uses within 0.5 mile from the proposed stations were included in the nonmotorized analysis to evaluate the pedestrian activity surrounding the stations. The evaluation of nonmotorized facilities indicated that the East Link Project would generally increase the pedestrian activity in and around the proposed stations, compared with existing conditions.

In the no-build condition, pedestrian and bicycle facilities are likely to improve with numerous planned improvements included in agency long-range plans. East Link would support, and in most cases enhance, these improvements as the project proposes a number of nonmotorized amenities in and adjacent to the stations to minimize impacts on pedestrian and bicycle circulation during both East Link construction and operation. Sound Transit would provide enhancements, if needed, to the sidewalk adjacent to East Link stations. These enhancements would provide comfortable and safe pedestrian and bicycle access to and from the stations and areas surrounding the stations. Treatments for safe and effective pedestrian access might include crosswalks, signals, street lighting, safety gates, warning lights, signage, and other elements that might provide standard features to facilitate safe and accessible transfers for transit customers from one type of public transportation to another. In addition to pedestrian and bicycle circulation improvements, the project would provide station amenities such as bicycle racks and lockers.

There are crosswalks at all arterial study intersections within the corridor, and street-crossing access would generally remain similar to existing conditions or improve with light rail. For at-grade stations (either on the side of the roadway or in the median), crosswalks would be maintained or added to connect pedestrians and bicyclists with the station platform. For tunnel and elevated stations, stair and elevator access would be provided to connect pedestrians and bicyclists with the station platform. For elevated or at-grade alternatives, crosswalks might have slightly longer pedestrian walking distances across the roadway. Where there is at-grade light rail track crossing a sidewalk or crosswalk, either a traffic signal or light rail crossing gates and warning signals would be provided for pedestrians and bicyclists safety. Currently, there are few mid-block pedestrian crosswalks within the study area, and the East Link Project would maintain these existing crossings if directly affected, while not creating any new mid-block crossings.

Because some of the East Link stations would be located near local and regional trails, nonmotorized regional mobility would be enhanced by the project. The East Link Project would provide access and mobility to transit facilities and improved connections to the regional nonmotorized system. Without the project, pedestrian and bicycle facilities located where stations are proposed might remain disconnected, with little or no improvements and lacking amenities. Without light rail, some nonmotorized connections would continue to lack access to surrounding neighborhoods and urban centers.

7.2 Affected Environment

Pedestrian circulation and sidewalks were inventoried and evaluated along arterial streets within 0.5 mile of the proposed stations. In addition, pedestrian LOS was calculated to evaluate pedestrian crowding at intersections near (within 300 feet) the proposed stations. Gaps in the sidewalk network surrounding stations were identified on either one or both sides of arterial streets to assess the general walking conditions of pedestrian circulation paths leading to and from the stations. Land uses within 0.5 mile walking distance of the proposed stations were included in the analysis to provide understanding of the existing and future pedestrian circulation surrounding the stations. Bicycle facilities within a 1-mile radius of stations were identified to determine bicycle circulation patterns and if there are any impacts. Regional multiuse trails were identified, as well as school walk routes recommended by local agencies. Appendix A of this *Transportation Technical Report* (Appendix H1 of this Final EIS) provides greater detail on the analysis methodology.

7.2.1 Pedestrian Activity, Sidewalks, and School Walk Routes

Sidewalks are available along most arterial streets within the study area, providing sufficient pedestrian connections. Generally, there are only a few areas that are missing sidewalks on one or both sides of the street. Streets that lack sidewalks are typically in residential neighborhoods, on local access streets, or on streets with low pedestrian volumes. The following subsections describe the pedestrian activity, sidewalks, and crosswalks in each segment of the East Link Project. Bicycle routes and facilities, and regional multiuse trails are discussed in Section 7.2.2.

7.2.1.1 Segment A

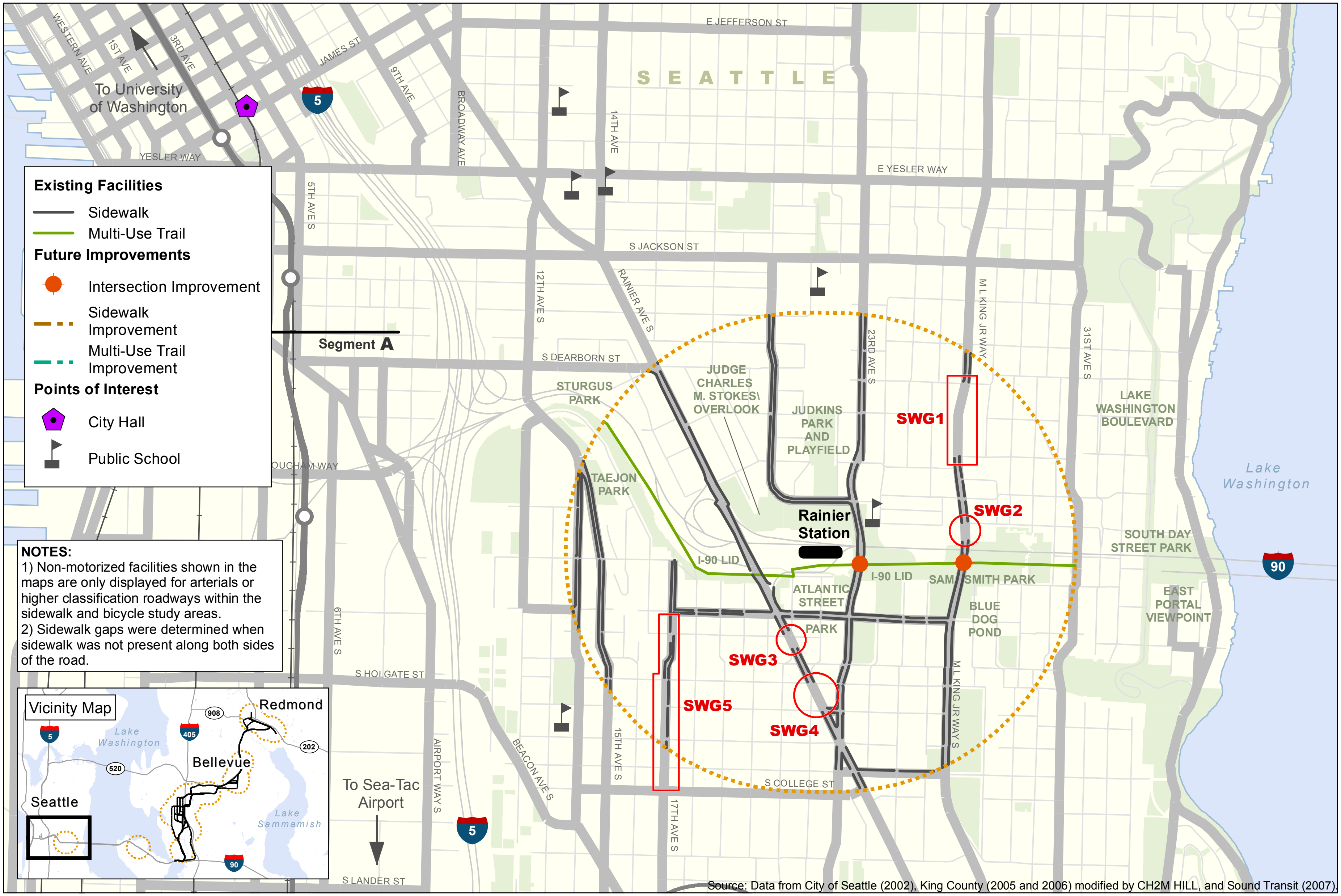
Sound Transit inventoried nonmotorized facilities located in Segment A within the City of Seattle and the City of Mercer Island. Generally, there are sidewalks surrounding Rainier Station and Mercer Island Station. A few small segments with missing sidewalks, less than one-quarter mile, were identified along Rainier Avenue South and some arterials along Mercer Island where sidewalk was provided on one side of the roadway. Table 7-1 and Exhibits 7-1 and 7-2 show missing sidewalk facilities identified within 0.5 mile of stations.

TABLE 7-1
Missing Arterial Sidewalk Segments within Segment A

Map ID[a]	Roadway	From	To	Missing Side[b]
SWG1	Martin Luther King, Jr. Way South	South Dearborn Street	South Norman Street	Both
SWG2	Martin Luther King, Jr. Way South	Irving Street	Sam Smith Park Entrance	Both
SWG3	Rainier Avenue South	South State Street	South Grand Street	Both
SWG4	Rainier Avenue South	South Holgate Street	South Plum Street	Both
SWG5	17th Avenue South	South Massachusetts Street	South College Street	Irregular
SWG6	SE 24th Street	72nd Avenue SE	76th Avenue SE	One
SWG7	SE 26th Street	Island Crest Way	North Mercer Way	One
SWG8	North Mercer Way	76th Avenue SE	SE 26th Street	One
SWG9	Island Crest Way	North Mercer Way	SE 34th Place	Irregular

[a] Corresponds to ID numbers in Exhibits 7-1 and 7-2.
[b] Irregular portions might occur on one or both sides of street.

The Rainier Station in Segment A is located between the Central Area and North Rainier Valley neighborhoods in Seattle. Pedestrians using bus facilities in this area mostly originate from or are destined for the surrounding neighborhoods, including the International District. A few small segments with missing sidewalks, less than one-quarter mile in length, were identified along Rainier Avenue South. Crosswalks are present at most arterial intersections in this area. Sidewalks are present along both sides of Rainier Avenue South, south of I-90. North of I-90, sidewalks are present along the western side of Rainier Avenue South. On the east side of Rainier Avenue South, under I-90, the sidewalk terminates and connects to a paved trail that continues into Judkins Park and Playfield. The sidewalk and crosswalk configuration in this area is discontinuous and therefore can create slightly longer walking distances for pedestrians. Additionally, there is a midblock crossing on 23rd Avenue South connecting South Day Street to the western portion of the I-90 Lid Park and the Rainier Station. Generally, pedestrian and bicycle circulation in this area is from residents and some commercial users as well as recreational users where Judkins Park connects to the I-90 Trail.


WESTERN AVE
1ST AVE
3RD AVE
To University of Washington
JAMES ST
9TH AVE
5
BROADWAY AVE
14TH AVE
E JEFFERSON ST
S E A T T L E
YESLER WAY
E YESLER WAY
5TH AVE S
S JACKSON ST
12TH AVE S
RAINIER AVE S
M L KING JR WAY
23RD AVE S
31ST AVE S
Segment A
S DEARBORN ST
STURGUS PARK
JUDGE CHARLES M. STOKES\ OVERLOOK
JUDKINS PARK AND PLAYFIELD
SWG1
LAKE WASHINGTON BOULEVARD
Lake Washington
OUGHAM WAY
TAEJON PARK
Rainier Station
SWG2
SOUTH DAY STREET PARK
I-90 LID
I-90 LID
SAM SMITH PARK
90
ATLANTIC STREET PARK
BLUE DOG POND
EAST PORTAL VIEWPOINT
6TH AVE S
SWG3
SWG5
SWG4
M L KING JR WAY S
S HOLGATE ST
AIRPORT WAY S
BEACON AVE S
15TH AVE S
17TH AVE S
S COLLEGE ST
To Sea-Tac Airport
5
S LANDER ST
Existing Facilities
Sidewalk
Multi-Use Trail
Future Improvements
Intersection Improvement
Sidewalk Improvement
Multi-Use Trail Improvement
Points of Interest
City Hall
Public School
Vicinity Map
Redmond
908
Lake Washington
405
5
202
520
Bellevue
Seattle
Lake Sammamish
90

NOTES:

1) Non-motorized facilities shown in the maps are only displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas.

2) Sidewalk gaps were determined when sidewalk was not present along both sides of the road.

Source: Data from City of Seattle (2002), King County (2005 and 2006) modified by CH2M HILL, and Sound Transit (2007).

Sidewalk Gap (SWG)
Sidewalk Study Area (1/2 mile)
Arterial Street
Proposed Station

Central Link Alignment and Station

NOTE:
Phase II SR 519 nonmotorized improvements include S Royal Brougham Way only.

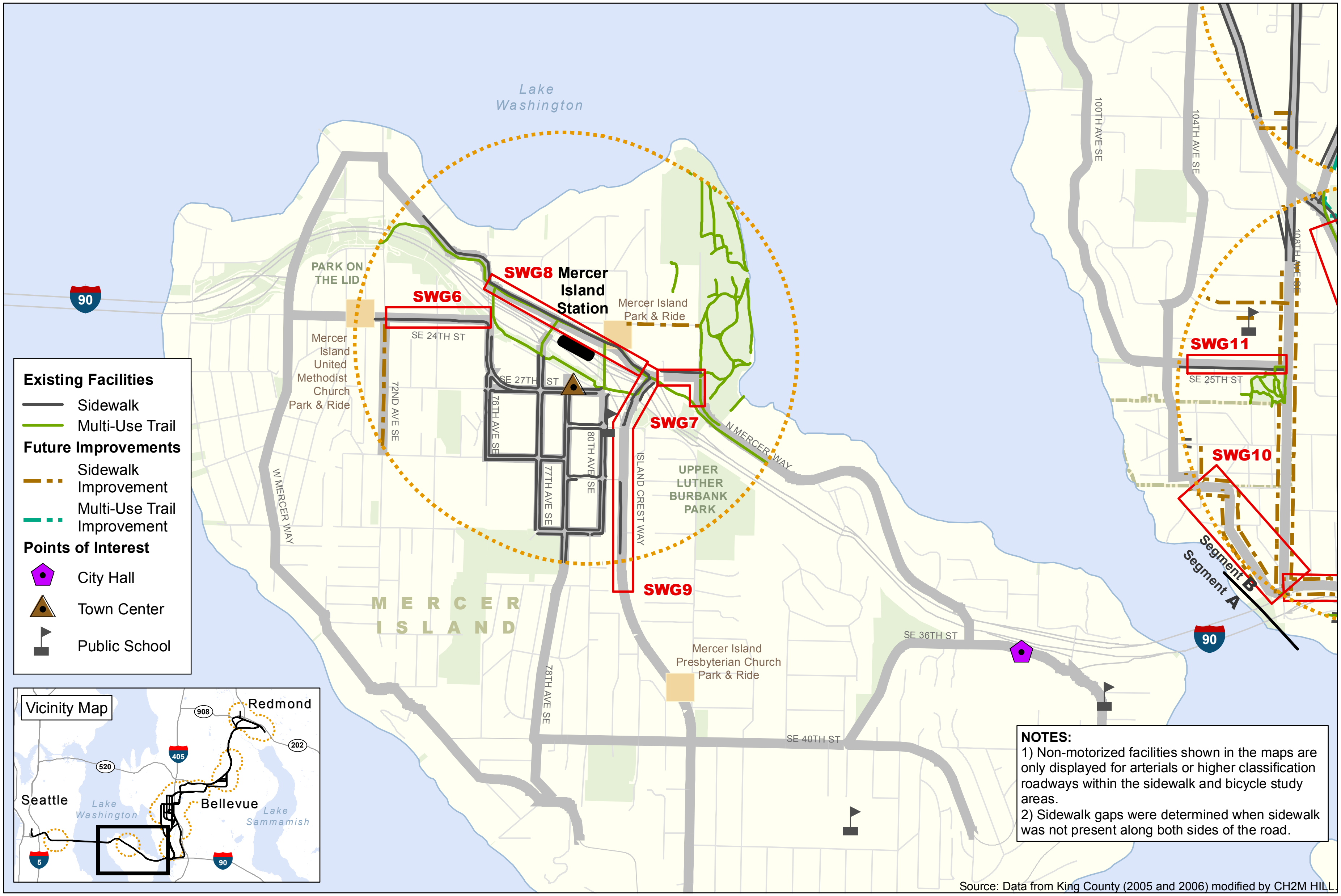
N

0 0.25 Mile

Exhibit 7-1 **Existing and Future No Build Sidewalk and Trail Facilities**

Segment A - Seattle

East Link Project


Lake Washington
90
PARK ON THE LID
SWG6
SWG8
Mercer Island Station
Mercer Island Park & Ride
SE 24TH ST
Mercer Island United Methodist Church Park & Ride
SE 27TH ST
72ND AVE SE
76TH AVE SE
80TH AVE SE
77TH AVE SE
SWG7
N MERCER WAY
ISLAND CREST WAY
UPPER LUTHER BURBANK PARK
W MERCER WAY
SWG9
MERCER ISLAND
78TH AVE SE
Mercer Island Presbyterian Church Park & Ride
SE 36TH ST
SE 40TH ST
100TH AVE SE
104TH AVE SE
108TH AVE SE
SWG11
SE 25TH ST
SWG10
Segment B
Segment A
Existing Facilities
Sidewalk
Multi-Use Trail
Future Improvements
Sidewalk Improvement
Multi-Use Trail Improvement
Points of Interest
City Hall
Town Center
Public School
Vicinity Map
Redmond
908
202
405
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
5
90

NOTES:

1) Non-motorized facilities shown in the maps are only displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas.

2) Sidewalk gaps were determined when sidewalk was not present along both sides of the road.

Source: Data from King County (2005 and 2006) modified by CH2M HILL.

🟥 Sidewalk Gap (SWG)

▨ Sidewalk Study Area (1/2 mile)

▬ Arterial Street

▬ Proposed Station

N

0 0.25 Mile

Exhibit 7-2 **Existing and Future No Build Sidewalk and Trail Facilities**

Segment A - Mercer Island

East Link Project

In Mercer Island, recent mixed-use developments at the Mercer Island Town Center, completion of the new Mercer Island Park-and-Ride Lot, and improvements in pedestrian connectivity have resulted in a more walkable area between the Town Center and North Mercer Island. Nearly all of the commercial activity in Mercer Island is centralized at the Mercer Island Town Center, making it a common destination for residents and pedestrians. The Mercer Island I-90 Lid Park provides multiple connections across I-90 between North Mercer Island and the Town Center and provides the largest area of nonmotorized recreational use on Mercer Island. Sidewalks located along 76th Avenue SE, 77th Avenue SE, and 80th Avenue SE provide pedestrian and bicycle connectivity across I-90. Crosswalks and wider sidewalks are present throughout most of the commercial area in Mercer Island, in addition to some pedestrian-friendly roadway elements such as bulb-outs and street trees. There are school walk routes for Beacon Hill Elementary School and Thurgood Marshall Elementary School within 0.5 mile of Rainier Station. However, these walk routes are located on collector and local streets and are not present on arterial streets within the Seattle area of Segment A. There are no school walk routes in Mercer Island within 0.5 mile of the Mercer Island Station.

7.2.1.2 Segment B

Generally, there is less pedestrian activity in Segment B than in the other segments because of the surrounding residential neighborhoods of Enatai, Surrey Downs, and Wilburton and Mercer Slough Nature Park, topography, and street configuration. In addition, high traffic volumes on 112th Avenue SE, Bellevue Way SE, and near the SE 8th Street/I-405 interchange can discourage pedestrians and bicycle activities. Even so, common walking origins or destinations in this area include the Enatai neighborhood, nearby office parks, and the Mercer Slough recreational area. There are generally sidewalks along arterial and residential collector streets within Segment B. There are missing sidewalk facilities, located on one side, both sides scattered on most arterials within 0.5 mile of the potential stations mainly because of topographical constraints. Table 7-2 and Exhibit 7-3 list these missing sidewalk sections.

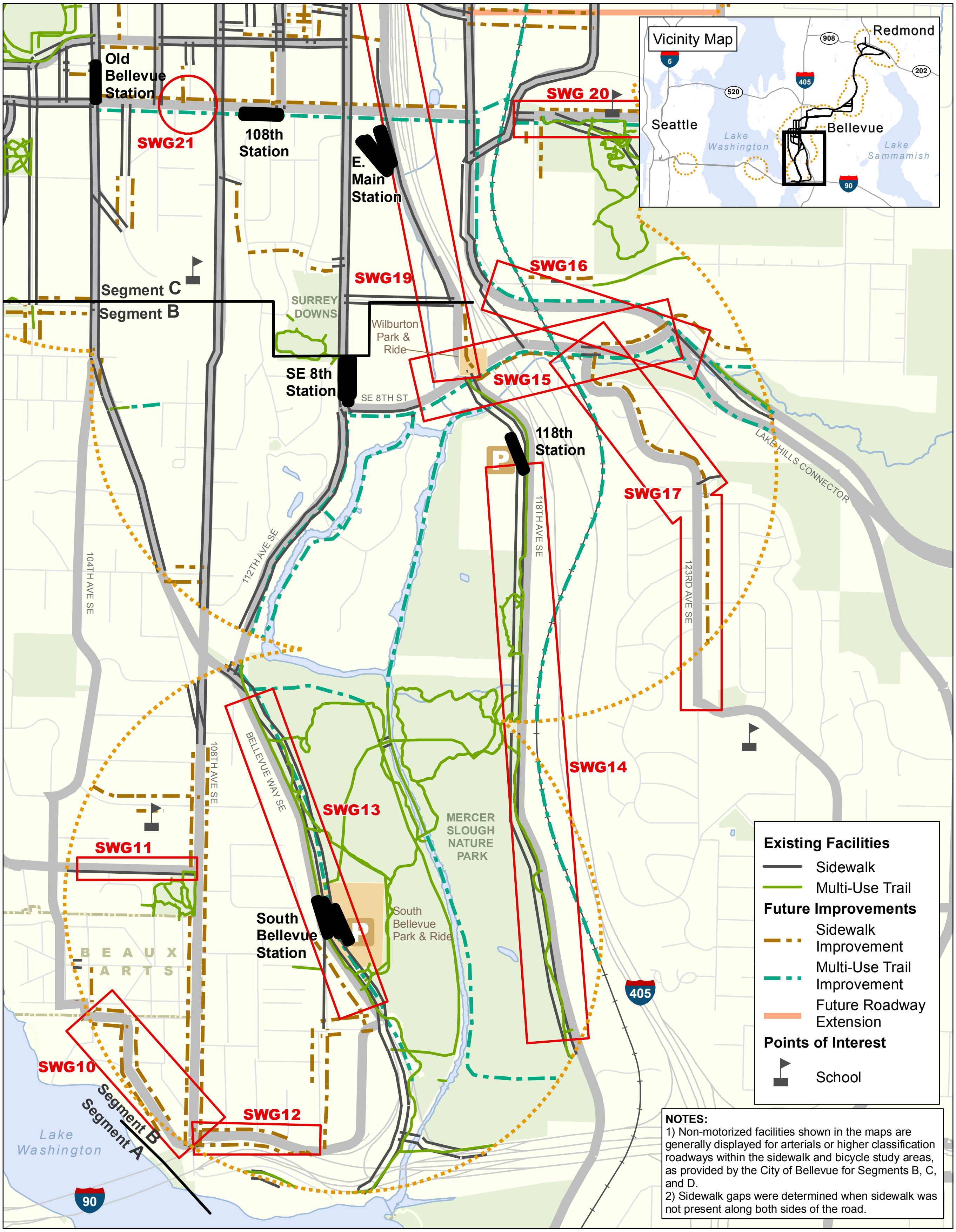
TABLE 7-2
Missing Arterial Sidewalk Segments within Segment B

Map ID[a]	Roadway	From	To	Missing Side[b]
SWG10	106th Avenue SE	SE 30th Street	108th Avenue SE	Both
SWG11	SE 25th Street	104th Avenue SE	108th Avenue SE	One
SWG12	SE 34th Street	108th Avenue SE	111th Avenue SE	Both
SWG13	Bellevue Way SE	112th Avenue SE	113th Avenue SE	One
SWG14	118th Avenue SE	SE 8th Street	I-90 Entrance	One
SWG15	SE 8th Street	114th Avenue SE	Lake Hills Connector	One
SWG16	Lake Hill Connector Road	SE 6th Street	Kelsey Creek Park	One
SWG17	121st Avenue SE	SE 8th Street	SE 20th Place	One

[a] Corresponds to ID numbers in Exhibit 7-3.
[b] Irregular portions might occur on one or both sides of street.

The South Bellevue Park-and-Ride Lot is located approximately 0.5 mile north of I-90. Most of the surrounding land use consists of open recreational spaces between I-90 and the South Bellevue Park-and-Ride Lot. Office parks are located north of the park-and-ride lot, along 112th Avenue SE. As a result, high pedestrian volumes are relatively uncommon around the park-and-ride area. Crosswalks are located at the signalized intersection entrance to the park-and-ride lot. Sidewalk is absent along the western side of Bellevue Way, south of 112th Avenue SE, because of right-of-way constraints associated with the topography.

The existing sidewalks surrounding the proposed 118th Avenue and SE 8th Street stations are generally located along arterial streets, although sidewalks are absent on the east side of 114th Avenue NE (along I-405) and 118th Avenue SE because of right-of-way constraints. At the interchange of SE 8th Street and I-405, crosswalks are marked along the north side of SE 8th Street, although they are absent along the south side of SE 8th Street.


Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
908
202
520
405
5
90
Old Bellevue Station
108th Station
E. Main Station
SE 8th Station
118th Station
South Bellevue Station
SWG 20
SWG21
SWG19
SWG16
SWG15
SWG17
SWG14
SWG13
SWG11
SWG10
SWG12
Segment C
Segment B
Segment A
SURREY DOWNS
Wilburton Park & Ride
SE 8TH ST
LAKE HILLS CONNECTOR
112TH AVE SE
104TH AVE SE
118TH AVE SE
123RD AVE SE
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
South Bellevue Park & Ride
BEAUX ARTS
Lake Washington
Existing Facilities
Sidewalk
Multi-Use Trail
Future Improvements
Sidewalk Improvement
Multi-Use Trail Improvement
Future Roadway Extension
Points of Interest
School

NOTES:
1) Non-motorized facilities shown in the maps are generally displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas, as provided by the City of Bellevue for Segments B, C, and D.
2) Sidewalk gaps were determined when sidewalk was not present along both sides of the road.

Source: Data from City of Bellevue (2003, 2004, 2005, 2007 and 2010) and King County (2005 and 2006).

🟥 Sidewalk Gap (SWG)
Sidewalk Study Area (1/2 mile)
Arterial Street
Proposed Station
City Limits

P New and/or Expanded Park-and-Ride Lot

N
0 0.2 Mile

Exhibit 7-3 **Existing and Future No Build Sidewalk and Trail Facilities, Segment B**
East Link Project

Within one-mile of the stations in Segment B, there are few local or collector east-west streets that connect the arterial streets to each other. Lake Hills Connector Road and SE 8th Street are the main east-west arterials providing connection between the South Bellevue and Wilburton neighborhoods.

A missing sidewalk was identified on SE 25th Street, which serves the school walk route for Enatai Elementary School. Most of the school walk routes for this school are located on collector and local residential streets.

7.2.1.3 Segment C

Downtown Bellevue is a major destination in the eastern Puget Sound region, and pedestrian circulation is higher in Downtown Bellevue than in the other segments. Sidewalks and crosswalks are generally present throughout Segment C and surrounding Bellevue Transit Center as indicated in Table 7-3 and shown in Exhibit 7-4. Full sidewalks are present at locations nearest to the proposed stations, indicating that pedestrian circulation would be generally well supported by existing sidewalks, although topography reduces the ease of pedestrian east-west movements in the eastern edge of downtown. Sidewalks are also provided on the arterials that connect Downtown Bellevue with Segments B and D.

TABLE 7-3
Missing Arterial Sidewalk Segments within Segment C

Map ID[a]	Roadway	From	To	Missing Side[b]
SWG18	102nd Avenue NE	NE 10th Street	NE 8th Street	One
SWG19	114th Avenue NE	NE 6th Street	SE 8th Street	One
SWG20	Main Street	1st Street	124th Avenue NE	Both
SWG21	Main Street	106th Avenue NE	108th Avenue NE	One
SWG22	NE Lake Washington Boulevard	97th Avenue NE	100th Avenue NE	One
SWG23	108th Avenue NE	NE 12th Street	NE 24th Street	Irregular

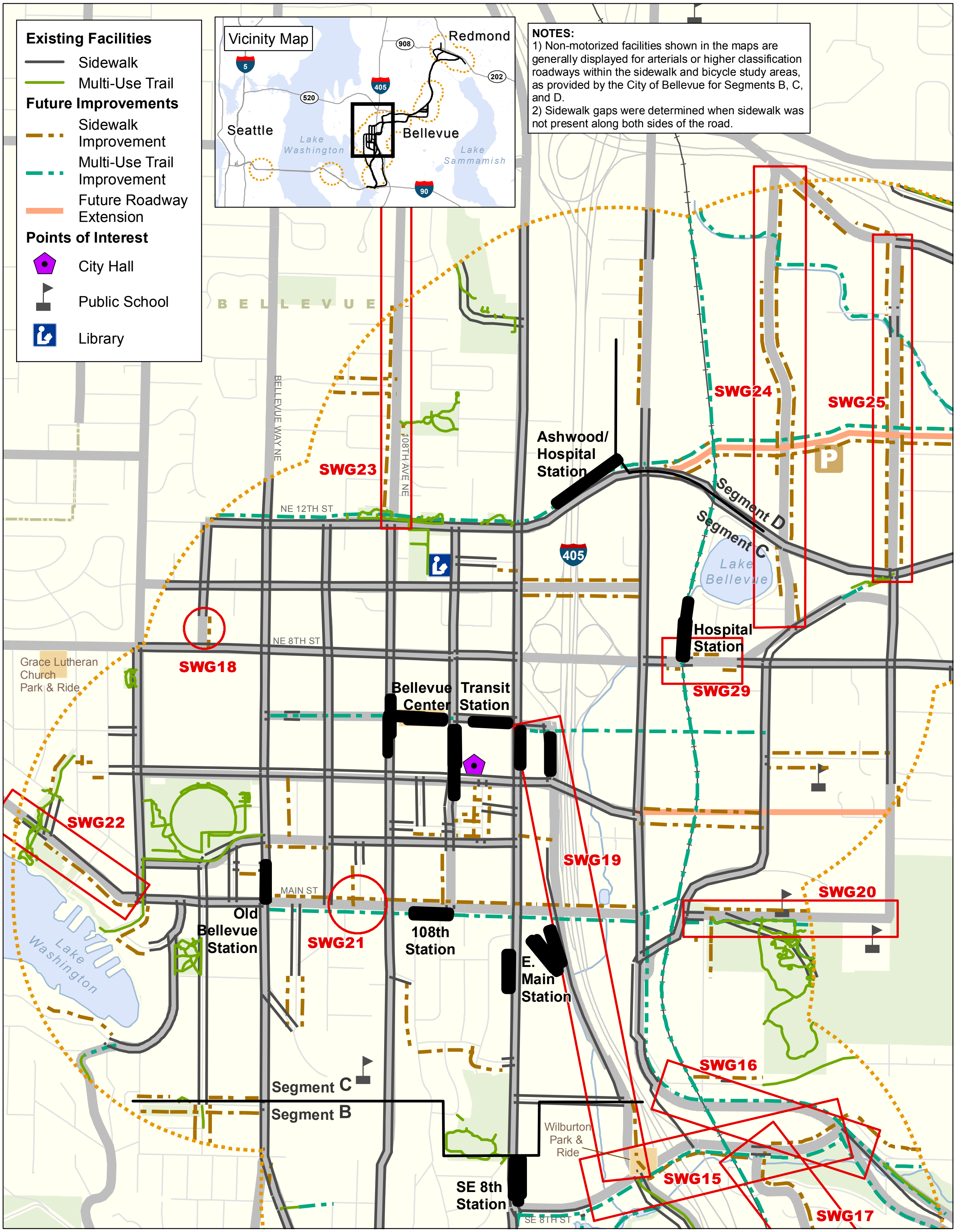
[a] Corresponds to ID numbers in Exhibit 7-4.

[b] Irregular portions might occur on one or both sides of street.

The highest pedestrian activity in Segment C and in the study area is focused around Bellevue Transit Center. There are major pedestrian crossings at Bellevue Transit Center, where there is dense pedestrian activity during the PM peak periods, when commuters are traveling to bus loading areas. Currently, almost 700 pedestrians during the PM peak hour cross through the intersection of 108th Avenue NE and NE 6th Street (adjacent to Bellevue Transit Center). Many pedestrians using this transit center originate from or are destined to nearby employers throughout downtown. An east-west pedestrian pathway provides connectivity between Bellevue Transit Center and Bellevue Square Mall/Lincoln Square and surrounding retail uses. Generally, within the downtown area, pedestrian activity is denser between Bellevue Way and 110th Avenue NE and between NE 8th Street and NE 4th Street, where retail and business office destinations are predominant. The City of Bellevue has also installed or signalized several midblock crosswalks within the downtown area to improve the connectivity between major destinations and land uses.

East of I-405, pedestrian activity occurs mostly near Overlake Hospital. Crosswalks are present along 116th Avenue NE allowing pedestrians access between the Overlake Hospital and the smaller retail areas east of 116th Avenue NE. Pedestrian connectivity between Downtown Bellevue and the Overlake Hospital area is limited to a few connections across I-405. Sidewalk is present along both sides of each crossing; however, pedestrians crossing NE 8th Street must use caution crossing the network of freeway ramp terminals at either ends of the bridge because crosswalks and signals are not present at all the ramp terminals. Crosswalks are also present along NE 8th Street, east of I-405, at 116th Avenue NE and at 120th Avenue NE intersections, although the distance between these crossings is considerable.

Sidewalks are present along arterials that serve the Bellevue High school walk route in Segment C. Similarly to the other segments, much of the school walk routes are located on collector and local streets.


Existing Facilities
Sidewalk
Multi-Use Trail
Future Improvements
Sidewalk Improvement
Multi-Use Trail Improvement
Future Roadway Extension
Points of Interest
City Hall
Public School
Library
Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
908
202
90
BELLEVUE
BELLEVUE WAY NE
108TH AVE NE
NE 12TH ST
NE 8TH ST
MAIN ST
SE 8TH ST
405
SWG23
SWG24
SWG25
SWG18
SWG29
SWG22
SWG19
SWG20
SWG21
SWG16
SWG15
SWG17
Ashwood/ Hospital Station
Segment D
Segment C
Lake Bellevue
Hospital Station
Grace Lutheran Church Park & Ride
Bellevue Transit Center Station
Old Bellevue Station
108th Station
E. Main Station
Lake Washington
Segment C
Segment B
Wilburton Park & Ride
SE 8th Station

NOTES:
1) Non-motorized facilities shown in the maps are generally displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas, as provided by the City of Bellevue for Segments B, C, and D.
2) Sidewalk gaps were determined when sidewalk was not present along both sides of the road.

Source: Data from City of Bellevue (2003, 2004, 2005, 2007 and 2010) and King County (2005 and 2006).

🟥	Sidewalk Gap (SWG)
▨	Sidewalk Study Area (1/2 mile)
▬	Arterial Street
■	Proposed Station
▭	City Limits
P	New and/or Expanded Park-and-Ride Lot

N

0 0.2 Mile

Exhibit 7-4 **Existing and Future No Build Sidewalk and Trail Facilities, Segment C**

East Link Project

7.2.1.4 Segment D

Pedestrian activity in Segment D is generally lower than in the other segments. Most of the pedestrian activity in Segment D occurs east of 140th Avenue NE near the area surrounding Overlake Village, where retail, medical, and commercial uses are more predominant, and between Overlake Transit Center and the surrounding commercial and office land uses. More sidewalks and traffic signals are present in these areas than in the western part of Segment D. Pedestrian activity in the Bel-Red area between 116th Avenue NE and 140th Avenue NE is minimal because much of the land use consists of light industrial, office park, and commercial uses. Either no sidewalk is provided or large portions of missing sidewalk occur on both sides of the arterial streets in this area (120th, 124th, 130th, and 136th Avenues NE), as listed in Table 7-4 and shown in Exhibit 7-5. Additionally, long walking distances between the two east-west arterials, Bel-Red Road and NE 20th Street, discourage pedestrian activity in this area. However, there are sidewalk facilities on both sides of these two streets. Crosswalks are located at all signalized intersections in Segment D. There are no school walk routes on arterial streets within Segment D.

TABLE 7-4
Missing Arterial Sidewalk Segments within Segment D

Map ID[a]	Roadway	From	To	Missing Side[b]
SWG24	120th Avenue NE	NE Bel-Red Road	Northup Way	Irregular
SWG25	124th Avenue NE	NE Bel-Red Road	Northup Way	Irregular
SWG26	130th Avenue NE	NE Bel-Red Road	Northup Way	Irregular
SWG27	132nd Avenue NE	NE Bel-Red Road	NE 16th Street	Irregular
SWG28	136th Place NE	NE Bel-Red Road	NE 20th Street	Both
SWG29	NE 8th Street/Old Bel-Red Road	Near former BNSF Railway tracks	120th Avenue NE	One
SWG30	NE Bel-Red Road	156th Avenue NE	NE 30th Street	One
SWG31	148th Avenue NE	NE 24th Street	NE 35th Place	One

[a] Corresponds to ID numbers in Exhibit 7-5.
[b] Irregular portions might occur on one or both sides of street.

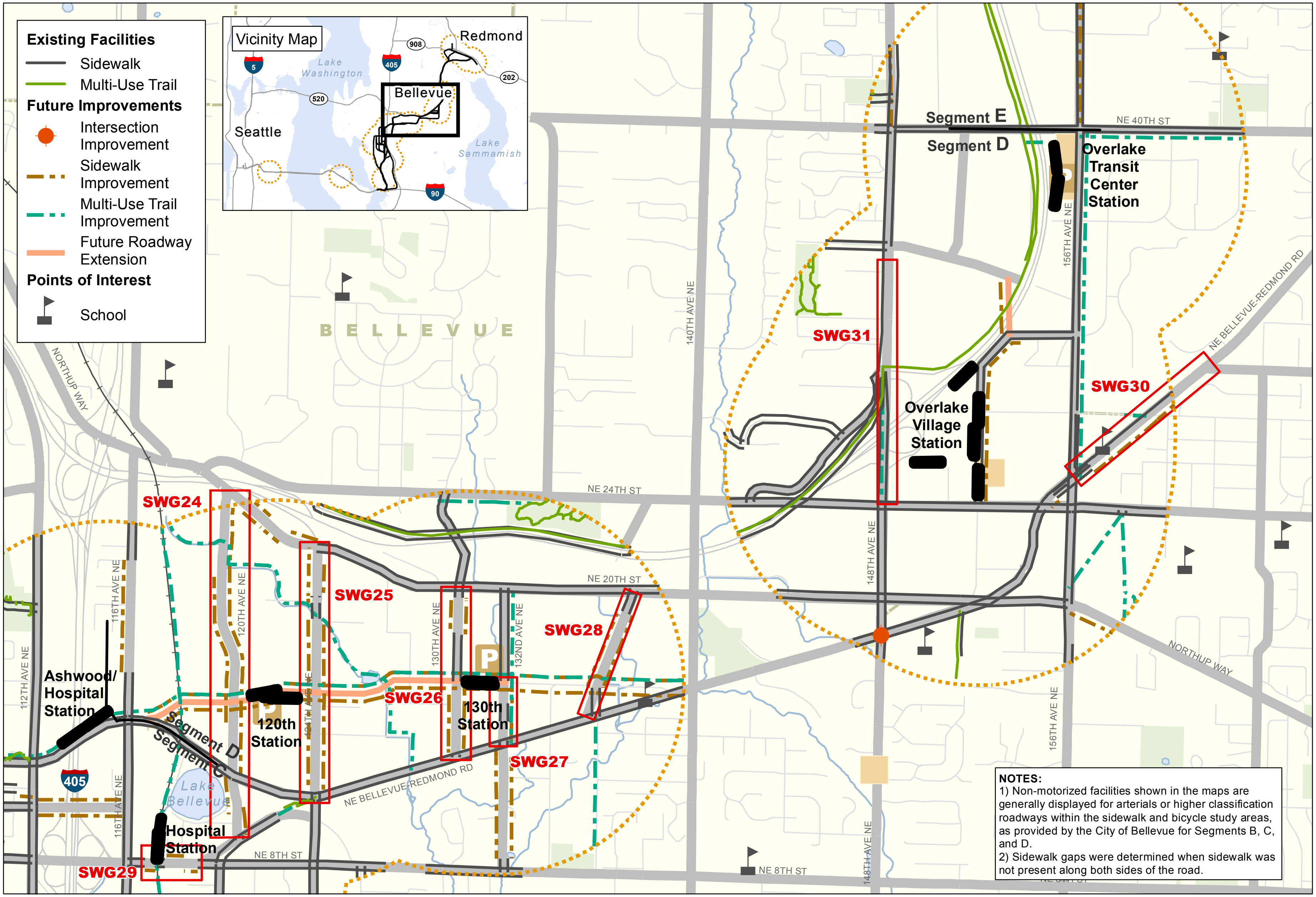
7.2.1.5 Segment E

In Segment E, pedestrian and bicycle activity is relatively higher than in other segments within the Downtown Redmond, Redmond Town Center and Marymoor Park areas because sidewalks, bicycle lanes, and recreational facilities have contributed to a more walkable area. Sidewalks are on most arterial streets in Segment E, with a small area of missing sidewalk on one side of the street, along 166th Avenue NE, as listed in Table 7-5 and shown in Exhibit 7-6. Although Redmond Town Center and Marymoor Park are popular pedestrian destinations, they are separated by SR 520, which presents a barrier for pedestrians wishing to cross between the two areas. The Sammamish River Trail passes beneath SR 520 at the West Lake Sammamish Parkway interchange and provides a pedestrian connection between the park and Downtown Redmond. Crosswalks are provided at all signalized intersections in Segment E, with the exception of the SR 520 entrance/exit ramps along NE 76th Street and NE Redmond Way. A school walk route for Redmond Elementary School is located within a 0.5-mile radius of the Redmond Town Center Station.

TABLE 7-5
Missing Arterial Sidewalk Segments within Segment E

Map ID[a]	Roadway	From	To	Missing Side
SWG32	166th Avenue NE	Redmond Way	Avondale Road	One

[a] Corresponds to ID numbers in Exhibit 7-6.


Existing Facilities
Sidewalk
Multi-Use Trail
Future Improvements
Intersection Improvement
Sidewalk Improvement
Multi-Use Trail Improvement
Future Roadway Extension
Points of Interest
School
Vicinity Map
Redmond
Lake Washington
Bellevue
Seattle
Lake Sammamish
5
405
908
202
520
90
B E L L E V U E
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
156TH AVE NE
SWG31
SWG30
Overlake Village Station
NE BELLEVUE-REDMOND RD
140TH AVE NE
148TH AVE NE
NORTHUP WAY
NE 24TH ST
NE 20TH ST
SWG24
SWG25
SWG26
SWG27
SWG28
SWG29
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
116TH AVE NE
112TH AVE NE
Ashwood/ Hospital Station
120th Station
130th Station
Segment D
Segment C
Lake Bellevue
Hospital Station
405
NE 8TH ST
NE BELLEVUE-REDMOND RD
156TH AVE NE
148TH AVE NE
NE 8TH ST

NOTES:
1) Non-motorized facilities shown in the maps are generally displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas, as provided by the City of Bellevue for Segments B, C, and D.
2) Sidewalk gaps were determined when sidewalk was not present along both sides of the road.

Source: Data from City of Bellevue (2003, 2004, 2005, 2007 and 2010) and King County (2005 and 2006).

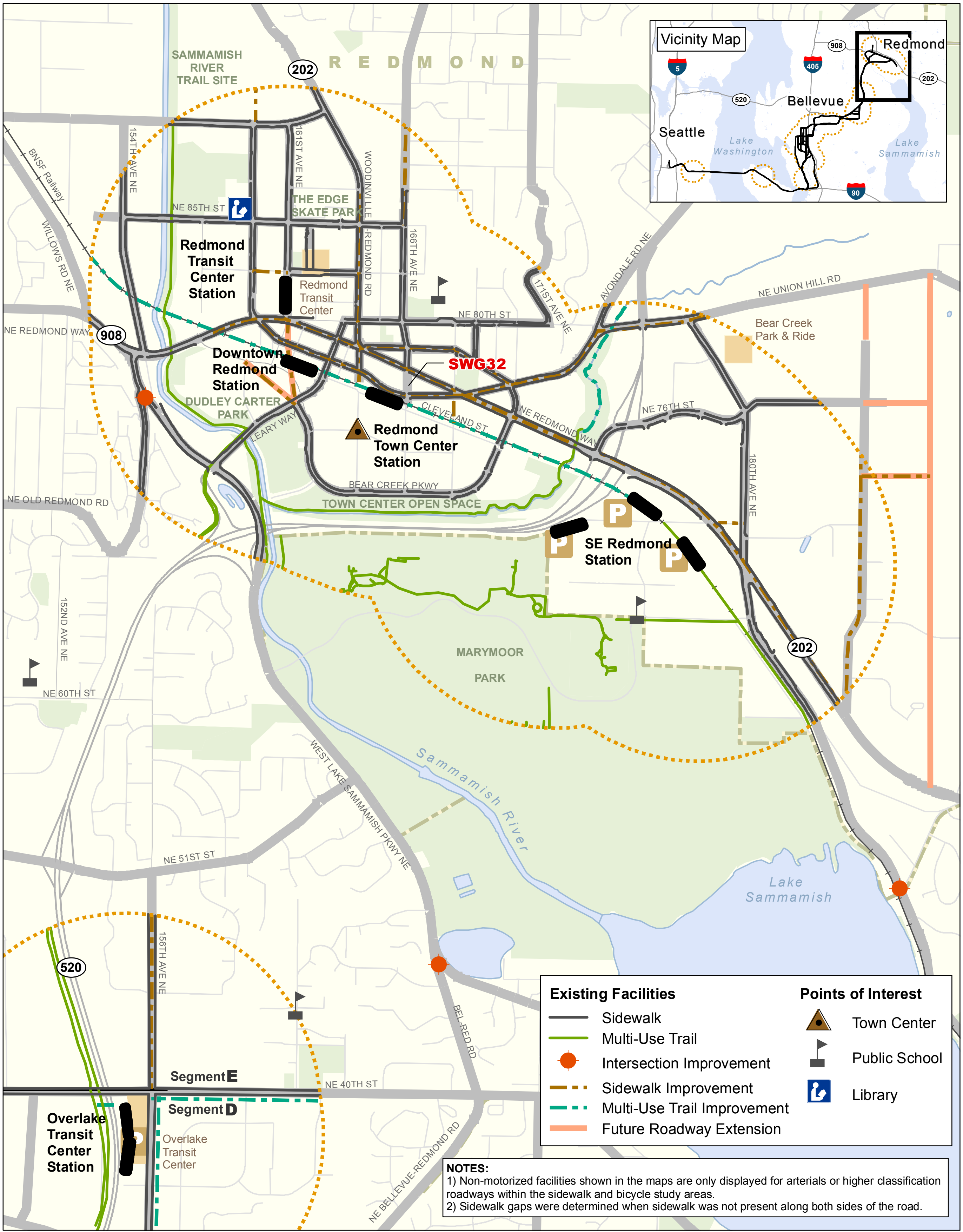
🟥	Sidewalk Gap (SWG)
▨	Sidewalk Study Area (1/2 mile)
▬	Arterial Street
▬	Proposed Station
▨	City Limits
P	New and/or Expanded Park-and-Ride Lot
▨	Existing Park & Ride / No expansion

N

0 0.2 Mile

Exhibit 7-5 **Existing and Future No Build Sidewalk and Trail Facilities, Segment D**

East Link Project


SAMMAMISH RIVER TRAIL SITE
202
R E D M O N D
154TH AVE NE
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
BNSF Railway
WILLOWS RD NE
NE 85TH ST
THE EDGE SKATE PARK
Redmond Transit Center Station
Redmond Transit Center
NE 80TH ST
171ST AVE NE
AVONDALE RD NE
NE UNION HILL RD
Bear Creek Park & Ride
NE REDMOND WAY
908
Downtown Redmond Station
SWG32
DUDLEY CARTER PARK
LEARY WAY
CLEVELAND ST
Redmond Town Center Station
NE REDMOND WAY
NE 76TH ST
180TH AVE NE
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
SE Redmond Station
202
MARYMOOR PARK
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
NE 51ST ST
Lake Sammamish
520
156TH AVE NE
BEL-RED RD
Segment E
NE 40TH ST
Segment D
Overlake Transit Center Station
Overlake Transit Center
NE BELLEVUE-REDMOND RD
Vicinity Map
5
405
908
520
202
90
Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
Existing Facilities
Sidewalk
Multi-Use Trail
Intersection Improvement
Sidewalk Improvement
Multi-Use Trail Improvement
Future Roadway Extension
Points of Interest
Town Center
Public School
Library

NOTES:
1) Non-motorized facilities shown in the maps are only displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas.
2) Sidewalk gaps were determined when sidewalk was not present along both sides of the road.

Source: Data from City of Redmond (2007) and King County (2005 and 2006) modified by CH2M HILL.

🟥	Sidewalk Gap (SWG)	P	New and/or Expanded Park-and-Ride Lot
▨	Sidewalk Study Area (1/2 mile)	▨	Existing Park & Ride / No expansion
▬	Arterial Street		
▬	Proposed Station		
▨	City Limits		

N

0 0.25 Mile

Exhibit 7-6 **Existing and Future No Build Sidewalk and Trail Facilities, Segment E**

East Link Project

7.2.2 Bicycle Routes and Lanes and Multiuse Trails

7.2.2.1 Bicycle Routes and Lanes

Throughout the East Link study area, while there are bicycle lanes on some arterials, designated and signed bicycle routes are located on most arterial or collector streets. Some arterials in the study area also have a wide shoulder that allows bicycle activity. Designated bicycle routes do not necessarily have marked lanes, although signage typically is present along these routes as an indicator to motorists that bicyclists are likely to share the roadway with vehicles. Designated bicycle routes, marked bicycle lanes, and regional multiuse trails in the study area include 12th Avenue South in Seattle; the I-90 Trail (includes North Mercer Way) on Mercer Island; Bellevue Way, 108th Avenue SE, 112th Avenue SE, 118th Avenue SE, NE 20th and NE 24th Street, and 140th Avenue NE in Bellevue; and 156th Avenue, West and East Lake Sammamish Parkway, and SR 202/Redmond Way in Redmond.

In Seattle, 12th Avenue South is a designated bicycle route, and there are marked bicycle lanes on South Dearborn Street and Martin Luther King Jr. Way South. East-west bicycle connectivity to these streets is achieved primarily through routes on collector and local streets. There are bicycle facilities facilities on both sides of most arterial streets on Mercer Island, including North Mercer Way, Island Crest Way, and 78th Avenue SE. Bicycle activity in Segment B occurs more frequently along the I-90 Trail through Bellevue, within the local street network in the Enatai and Beaux Arts neighborhoods, and within the Mercer Slough recreational area. There are designated routes on some arterial streets in Segment C along 112th Ave NE and 116th Ave NE that connect to the SR 520 multiuse trail. Within Segment D, designated bike routes are present on some local and arterial streets north of NE 24th Street in the Cherry Crest neighborhood. The SR 520 multiuse trail provides most of the continuous bicycle coverage through Segment D. In the City of Redmond, bicycle facilities are present along segments of NE 85th Street, NE 83rd Street, and 171st Avenue NE. Most other streets through Downtown Redmond are designated bicycle routes. The Sammamish River Trail, Bear Creek Parkway Trail, and Marymoor Park trail network are bicycle facilities. Exhibits 7-7 (Rainier Station), 7-8 (Mercer Island Station), 7-9 (Segment B), 7-10 (Segment C), 7-11 (Segment D), and 7-12 (Segment E) show arterials within the study area where existing bicycle facilities are present.

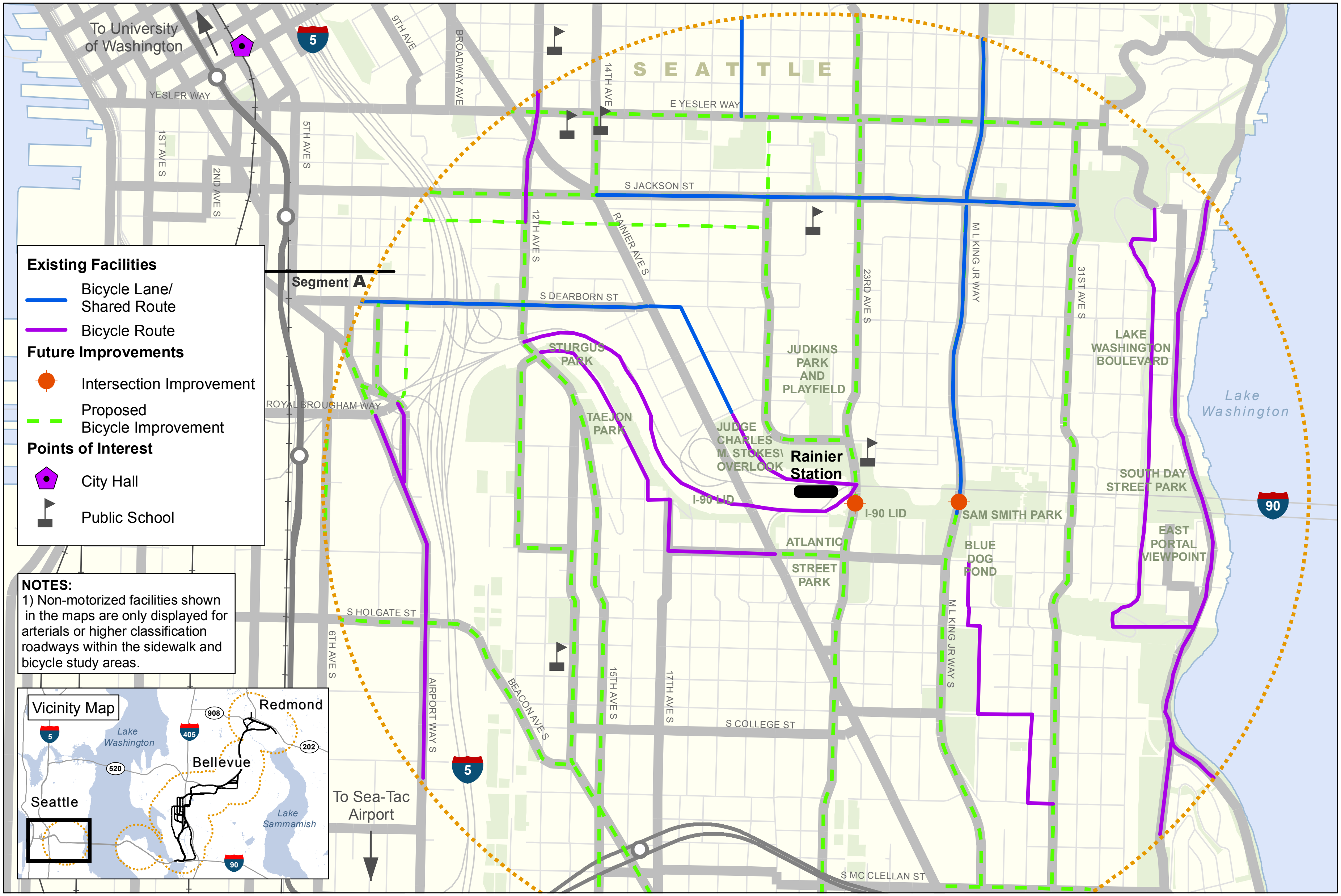
7.2.2.2 Multiuse Trails

Multiuse trails provide regional mobility for nonmotorized users. There are several regional multiuse trails within the study area, and some of the accesses to these trails are located within close walking or bicycling distance to the proposed stations, providing transit riders with a location to easily transfer to and from nonmotorized modes. Regional multiuse trails located in the project vicinity include the I-90 Multiuse Regional Trail (Mountains to Sound Greenway), Mercer Slough Nature Park, and multiuse trails, SR 520 Regional Trail, Bridle Crest Trail, Sammamish River Trail, East Lake Sammamish Trail, and Bear Creek Trail. These trails are connected to one another by local, designated bicycle routes.

The I-90 Trail originates at Sturgus Park in Seattle and crosses Lake Washington along the westbound side of I-90. A portion of the trail terminates at Mercer Slough Nature Park in south Bellevue. Trail users can also follow a paved portion of the trail that continues east of I-405, adjacent to I-90. An internal trail network within Mercer Slough Nature Park provides trail connectivity to the 118th Trail and other nonmotorized facilities that are beyond the 1-mile radius of the proposed South Bellevue Station. The I-90 Trail is a popular bicycle facility among recreational users and bicycle commuters, and it is the only nonmotorized facility that provides pedestrian and bicycle access across Lake Washington and to Mercer Island. In 2009, approximately 60 bicycle users were counted during the AM peak, and 100 bicycle users were counted during the PM peak at the intersection of the I-90 Trail entrance at Enatai Park in Bellevue. At the I-90 Trail/12th Avenue South in Seattle, approximately 110 bicyclists were counted in the AM peak and 130 in the PM peak (WSDOT, 2009b).

In Segments D and E, the SR 520 Regional Trail is a major multiuse trail facility that follows SR 520 to the Redmond Town Center. The trail is primarily accessible through public park areas, although there are few access points along the trail from designated bicycle routes on arterial streets.

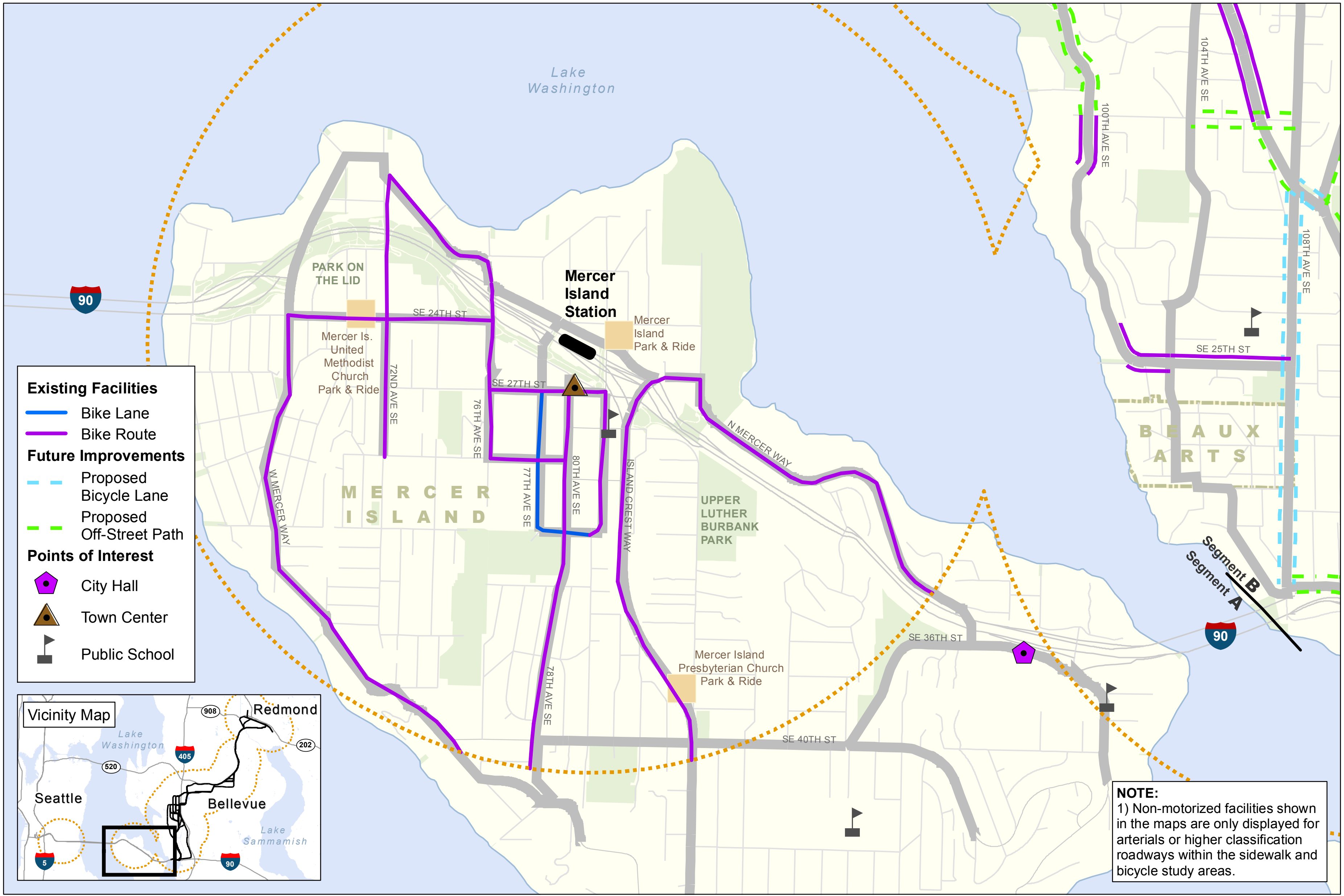
Trails that are used only for recreation are not addressed in this section. (For information about recreational facilities, see Section 4.17, Parkland and Open Space, of the Final EIS.)


To University of Washington
5
YESLER WAY
1ST AVE S
2ND AVE S
5TH AVE S
9TH AVE
BROADWAY AVE
14TH AVE
S E A T T L E
E YESLER WAY
S JACKSON ST
12TH AVE S
RAINIER AVE S
Segment A
S DEARBORN ST
23RD AVE S
M L KING JR WAY
31ST AVE S
STURGUS PARK
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
Lake Washington
ROYAL BROUGHAM WAY
TAEJON PARK
JUDGE CHARLES M. STOKES OVERLOOK
Rainier Station
SOUTH DAY STREET PARK
I-90 LID
I-90 LID
SAM SMITH PARK
90
EAST PORTAL VIEWPOINT
ATLANTIC STREET PARK
BLUE DOG POND
S HOLGATE ST
6TH AVE S
AIRPORT WAY S
BEACON AVE S
15TH AVE S
17TH AVE S
M L KING JR WAY S
S COLLEGE ST
5
To Sea-Tac Airport
S MC CLELLAN ST
Existing Facilities
Bicycle Lane/ Shared Route
Bicycle Route
Future Improvements
Intersection Improvement
Proposed Bicycle Improvement
Points of Interest
City Hall
Public School
Vicinity Map
Redmond
908
5
Lake Washington
405
202
520
Bellevue
Seattle
Lake Sammamish
90
Bicycle Study Area (1 mile)
Arterial Street
Proposed Station
Central Link Alignment and Station
N
0
0.25 Mile

NOTES:
1) Non-motorized facilities shown in the maps are only displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas.

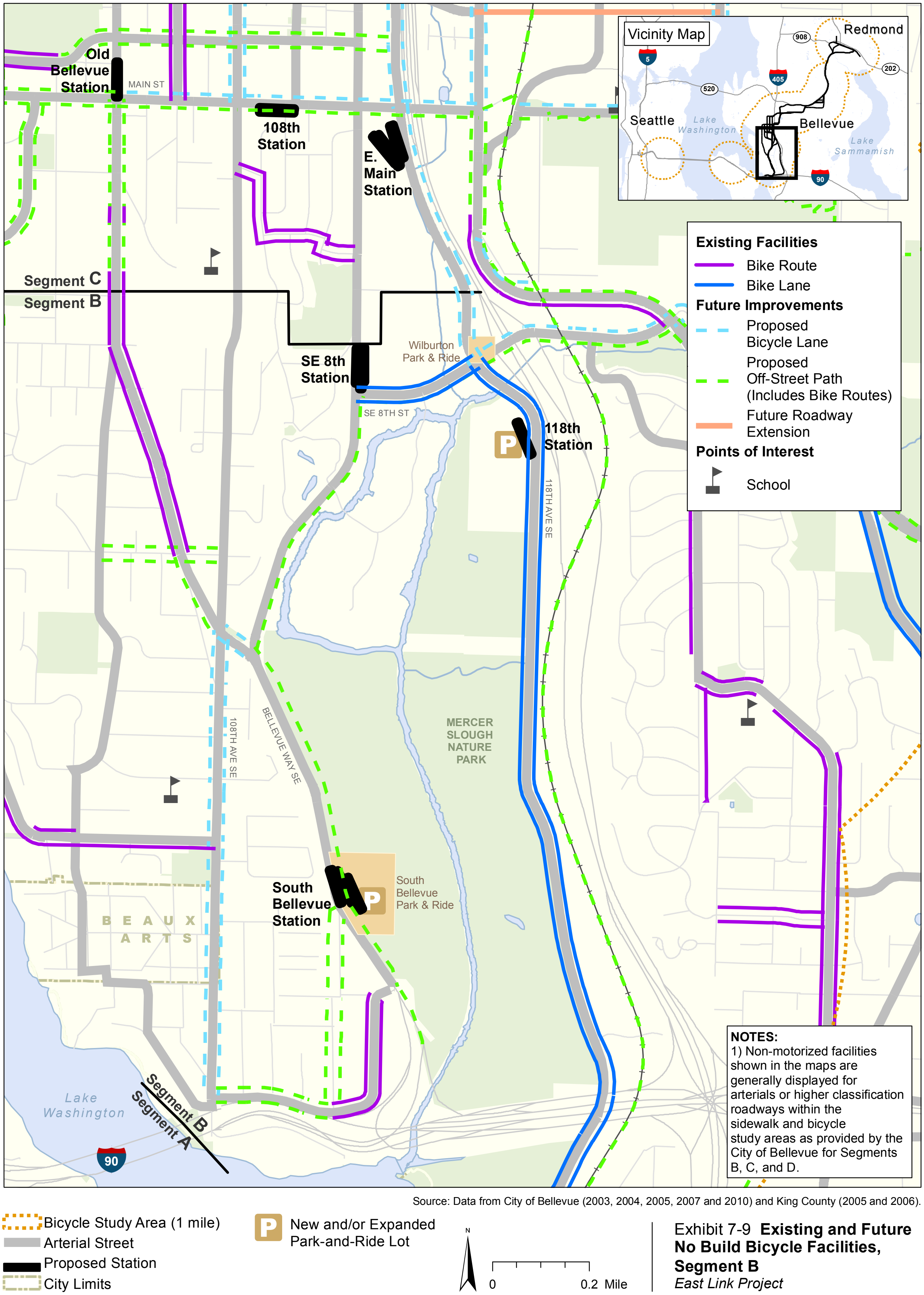
Source: Data from City of Seattle (2002), King County (2005 and 2006) modified by CH2M HILL, and Sound Transit (2007).

Exhibit 7-7 **Existing and Future No Build Bicycle Facilities Segment A - Seattle**
East Link Project


Lake Washington
90
PARK ON THE LID
SE 24TH ST
Mercer Is. United Methodist Church Park & Ride
Mercer Island Station
Mercer Island Park & Ride
SE 27TH ST
72ND AVE SE
76TH AVE SE
77TH AVE SE
80TH AVE SE
ISLAND CREST WAY
W MERCER WAY
N MERCER WAY
MERCER ISLAND
UPPER LUTHER BURBANK PARK
Mercer Island Presbyterian Church Park & Ride
78TH AVE SE
SE 40TH ST
SE 36TH ST
104TH AVE SE
100TH AVE SE
108TH AVE SE
SE 25TH ST
BEAUX ARTS
Segment B
Segment A
90
Existing Facilities
Bike Lane
Bike Route
Future Improvements
Proposed Bicycle Lane
Proposed Off-Street Path
Points of Interest
City Hall
Town Center
Public School
Vicinity Map
Lake Washington
908
Redmond
202
405
520
Seattle
Bellevue
Lake Sammamish
5
90
NOTE:
1) Non-motorized facilities shown in the maps are only displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas.
Bicycle Study Area (1 mile)
Arterial Street
Proposed Station
N
0
0.25 Mile

Source: Data from King County (2005 and 2006) modified by CH2M HILL.

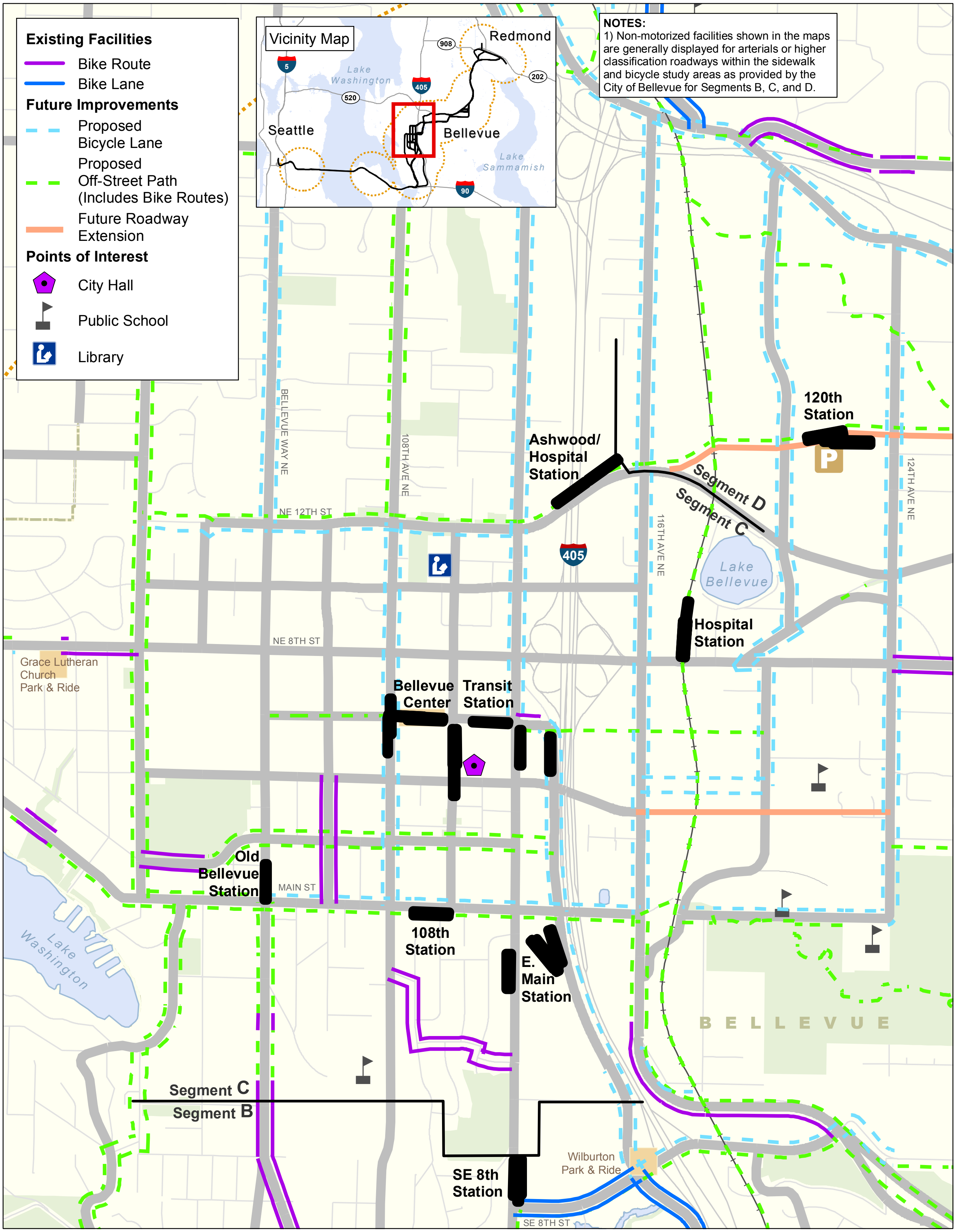
Exhibit 7-8 **Existing and Future No Build Bicycle Facilities Segment A - Mercer Island**
East Link Project


Old Bellevue Station
MAIN ST
108th Station
E. Main Station
Segment C
Segment B
SE 8th Station
Wilburton Park & Ride
SE 8TH ST
118th Station
118TH AVE SE
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
South Bellevue Station
South Bellevue Park & Ride
BEAUX ARTS
Lake Washington
Segment B
Segment A
90
Vicinity Map
Redmond
908
5
405
202
520
Seattle
Lake Washington
Bellevue
Lake Sammamish
90
Existing Facilities
Bike Route
Bike Lane
Future Improvements
Proposed Bicycle Lane
Proposed Off-Street Path (Includes Bike Routes)
Future Roadway Extension
Points of Interest
School
Bicycle Study Area (1 mile)
Arterial Street
Proposed Station
City Limits
P New and/or Expanded Park-and-Ride Lot
N
0
0.2 Mile

NOTES:
1) Non-motorized facilities shown in the maps are generally displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas as provided by the City of Bellevue for Segments B, C, and D.

Source: Data from City of Bellevue (2003, 2004, 2005, 2007 and 2010) and King County (2005 and 2006).

Exhibit 7-9 **Existing and Future No Build Bicycle Facilities, Segment B**
East Link Project


Existing Facilities
Bike Route
Bike Lane
Future Improvements
Proposed Bicycle Lane
Proposed Off-Street Path (Includes Bike Routes)
Future Roadway Extension
Points of Interest
City Hall
Public School
Library
Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
520
908
202
90
BELLEVUE WAY NE
108TH AVE NE
116TH AVE NE
124TH AVE NE
NE 12TH ST
NE 8TH ST
MAIN ST
SE 8TH ST
Ashwood/ Hospital Station
120th Station
Segment D
Segment C
Lake Bellevue
Hospital Station
Grace Lutheran Church Park & Ride
Bellevue Center Station
Transit Station
Old Bellevue Station
108th Station
E. Main Station
Lake Washington
BELLEVUE
Segment C
Segment B
SE 8th Station
Wilburton Park & Ride
405
P

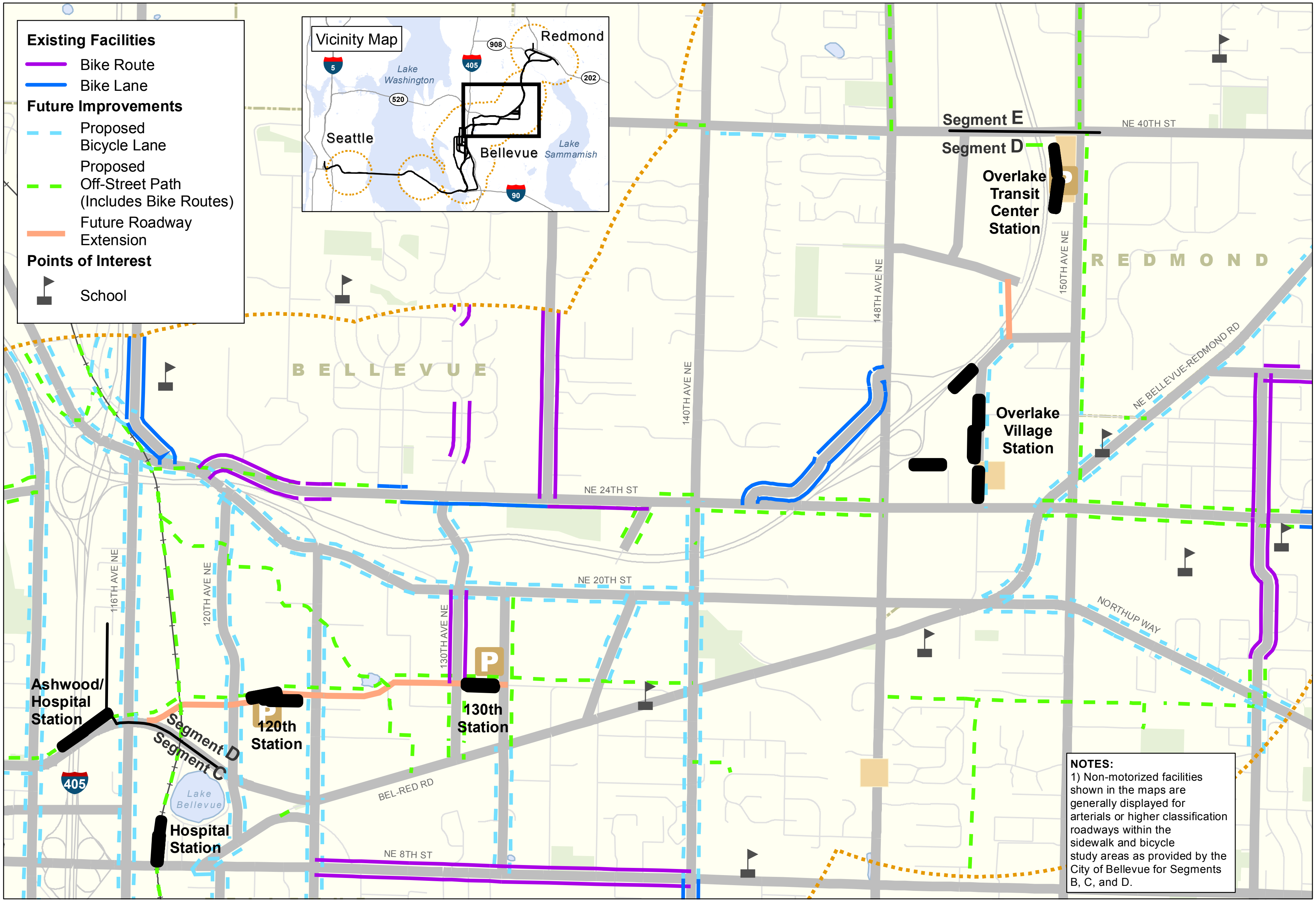
NOTES:
1) Non-motorized facilities shown in the maps are generally displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas as provided by the City of Bellevue for Segments B, C, and D.

Source: Data from City of Bellevue (2003, 2004, 2005, 2007 and 2010) and King County (2005 and 2006).

Bicycle Study Area (1 mile)
Arterial Street
City Limits
P New and/or Expanded Park-and-Ride Lot
N
0
0.2 Mile

Exhibit 7-10 **Existing and Future No Build Bicycle Facilities, Segment C**

East Link Project


Existing Facilities
Bike Route
Bike Lane
Future Improvements
Proposed Bicycle Lane
Proposed Off-Street Path (Includes Bike Routes)
Future Roadway Extension
Points of Interest
School
Vicinity Map
Redmond
Seattle
Bellevue
Lake Washington
Lake Sammamish
5
405
908
202
520
90
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
150TH AVE NE
148TH AVE NE
140TH AVE NE
R E D M O N D
B E L L E V U E
NE BELLEVUE-REDMOND RD
Overlake Village Station
NE 24TH ST
NE 20TH ST
NORTHUP WAY
116TH AVE NE
120TH AVE NE
130TH AVE NE
Ashwood/ Hospital Station
405
Segment D
Segment C
120th Station
130th Station
P
BEL-RED RD
Lake Bellevue
Hospital Station
NE 8TH ST

NOTES:
1) Non-motorized facilities shown in the maps are generally displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas as provided by the City of Bellevue for Segments B, C, and D.

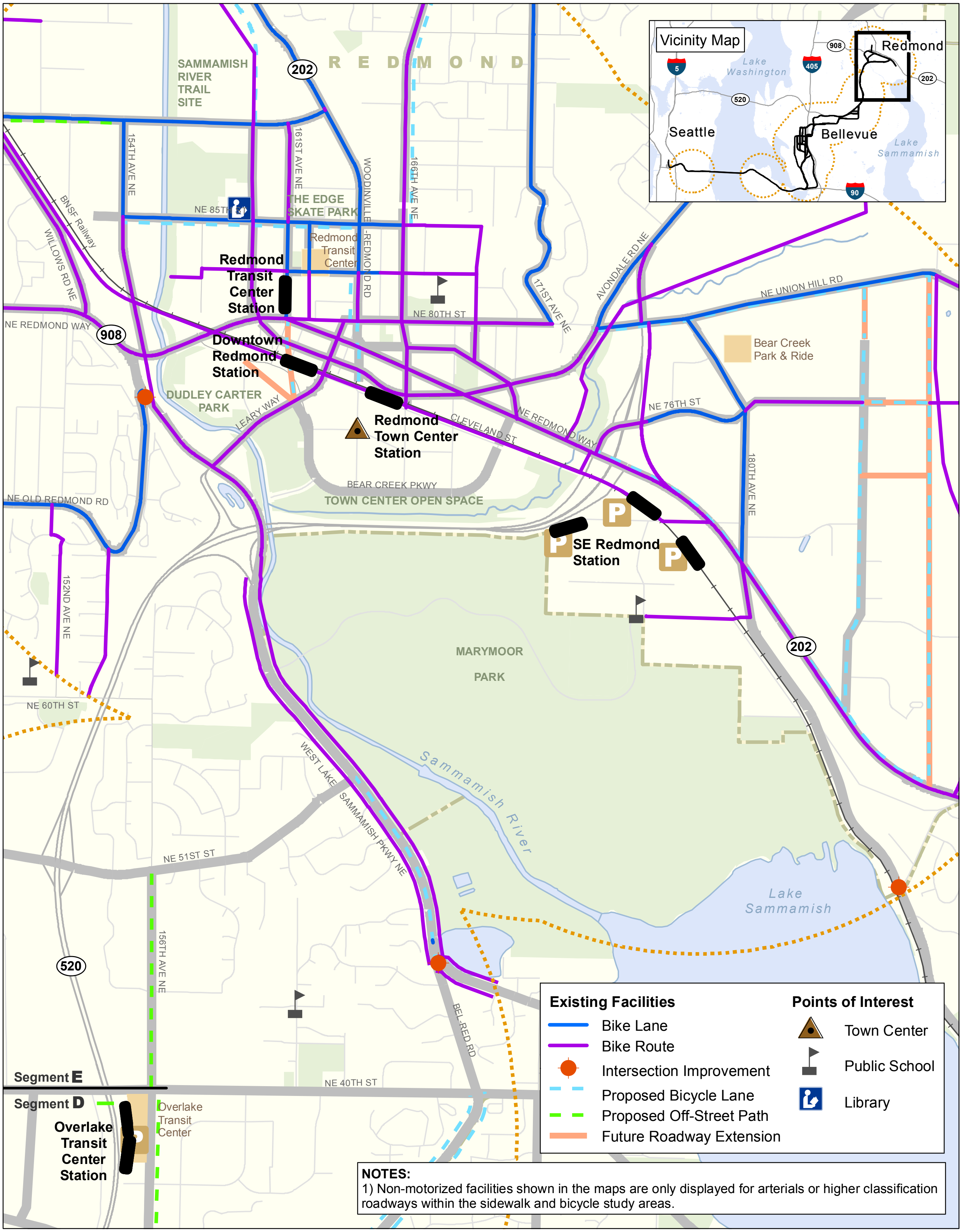
Source: Data from City of Bellevue (2003, 2004, 2005, 2007 and 2010) and King County (2005 and 2006).

Bicycle Study Area (1 mile)
Proposed Station
City Limits

P New and/or Expanded Park-and-Ride Lot

N
0 0.2 Mile

Exhibit 7-11 **Existing and Future No Build Bicycle Facilities, Segment D**
East Link Project


Vicinity Map
Redmond
Lake Washington
Seattle
Bellevue
Lake Sammamish
5
405
908
520
202
90
R E D M O N D
SAMMAMISH RIVER TRAIL SITE
202
154TH AVE NE
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
NE 85TH
THE EDGE SKATE PARK
Redmond Transit Center
Redmond Transit Center Station
BNSF Railway
WILLOWS RD NE
NE REDMOND WAY
908
NE 80TH ST
171ST AVE NE
AVONDALE RD NE
NE UNION HILL RD
Bear Creek Park & Ride
Downtown Redmond Station
DUDLEY CARTER PARK
LEARY WAY
Redmond Town Center Station
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
180TH AVE NE
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
SE Redmond Station
152ND AVE NE
MARYMOOR PARK
202
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
NE 51ST ST
Lake Sammamish
156TH AVE NE
520
BEL-RED RD
NE 40TH ST
Segment E
Segment D
Overlake Transit Center Station
Overlake Transit Center
Existing Facilities
Bike Lane
Bike Route
Intersection Improvement
Proposed Bicycle Lane
Proposed Off-Street Path
Future Roadway Extension
Points of Interest
Town Center
Public School
Library

NOTES:
1) Non-motorized facilities shown in the maps are only displayed for arterials or higher classification roadways within the sidewalk and bicycle study areas.

Source: Data from City of Redmond (2007) and King County (2005 and 2006) modified by CH2M HILL.

- Bicycle Study Area (1 mile)
- Arterial Street
- Proposed Station
- City Limits
- New and/or Expanded Park and Ride

0 0.25 Mile

Exhibit 7-12 **Existing and Future No Build Bicycle Facilities Segment E**
East Link Project

7.3 Environmental Impacts

This section describes the impacts on nonmotorized facilities and pedestrian access surrounding the stations. This includes identifying any sidewalk, bicycle and crosswalk impacts related to the project, impacts on recommended school walk routes and impacts during construction and mitigation.

To evaluate the ease and flexibility of nonmotorized activity in the areas surrounding proposed stations and the station's potential to attract walk and bike trips, the percent of existing and future sidewalk and bicycle facility coverage was inventoried and measured surrounding each proposed station. Major land uses within 0.5 mile of proposed stations were included in the analysis to identify types of nonmotorized activities that would occur among the stations. Additionally, at each proposed station, barriers to walking and biking were identified (such as topography and long distances between crosswalks), as well as posted roadway speeds, crosswalk locations, and average block lengths. Future sidewalk and bicycle facility coverage was obtained using GIS data from each municipality's nonmotorized Capital Improvement Plan (CIP) and long-range planned projects. Appendix G in this Transportation Technical Report lists nonmotorized transportation improvement projects in the study area.

Pedestrian LOS for sidewalks and intersection crossings near station entrances was evaluated using methodology from the *Highway Capacity Manual* (TRB, 2000) and the TCQSM (TRB, 2003). Pedestrian LOS is a measure of the walking conditions on a sidewalk, route, or path. LOS A represents ample spacing between pedestrians on a sidewalk or path allowing for free-flow walk speeds. LOS F represents unavoidable crowding between pedestrians on a sidewalk or path, preventing free-flow walking speed and movement. Table B-9 in Appendix B of this Transportation Technical Report contains the LOS definitions, criteria, and descriptions for walkways and sidewalks.

Existing pedestrian data were obtained from intersection volume counts collected for the project and evaluated for 15-minute flow rates. To analyze 2020 and 2030 no-build pedestrian volumes, existing pedestrian volumes were increased by the forecast annual traffic growth rates expected for each segment. For the build condition, the PM peak-period ridership forecasts were used to develop a station's pedestrian forecasts. Pedestrians were distributed to intersection crossings based on existing and future land uses. Pedestrian LOS is summarized for each segment in Tables F-1 to F-10 in Appendix F of this Transportation Technical Report [Appendix H1 of the FEIS]). Although the East Link Project would substantially increase the number of pedestrians in and around most of the stations, sidewalks and intersection crossings throughout the study area were shown to operate at LOS C or better in the future no-build and build conditions. This indicates that there is sufficient spacing between pedestrians on the sidewalk for them to walk freely at their own speed, with the ability to cross paths with other pedestrians without causing conflicts in most instances.

The project proposes a number of improvements in and around stations to minimize impacts on pedestrian and bicycle circulation, both during construction and during light rail operation. Transit facility designs would be flexible, allowing each station to reflect and fit into the community it serves, while providing standard features to facilitate smooth and accessible transfers for transit customers from one type of transportation to another. Standard design features would include the following:

- Security and safety design standards
- Easy-to-read and consistent signs
- Pedestrian-friendly design and full access for people with disabilities
- Bicycle access and secure storage
- Sidewalks immediately adjacent to stations (as shown on the conceptual design drawings in Appendix G1 of the East Link Final EIS)

Each station would provide bicycle storage, including racks and often lockers. The proposed number of bicycle racks and lockers at each station is provided in the following sections. Stations would include additional capacity for expansion of bicycle racks and lockers in the future. Because of the proximity of some stations to regional trails, such as the I-90 Trail, the East Lake Sammamish Trail, and the potential BNSF Railway trail, wayfinding signage for nearby regional trails and other local destinations could be incorporated into station site design elements.

7.3.1 Segment A

In Segment A, *Preferred Alternative A1* would serve the Rainier and Mercer Island Stations.

7.3.1.1 Pedestrian Circulation

Preferred Interstate 90 Alternative (A1)

As shown in Table 7-6, there are minimal planned improvements that would affect the sidewalk coverage surrounding the Rainier Station. Pedestrian and bicycle connectivity to the I-90 Lid Park and I-90 Trail from the Rainier Station is provided by the mid-block crosswalk on 23rd Avenue South. Crosswalks at Rainier Station and the I-90 ramp areas would be maintained, and walking distances surrounding the station would not change from existing conditions. Adding wayfinding signage along Rainier Avenue South would help pedestrians navigate through the I-90 ramp area as there are long distances between crosswalks. Other existing pedestrian access locations with the I-90 Trail would not be affected.

The access to the Mercer Island Station would be located along 80th Avenue SE. If the passenger drop-off/pick-up area is located along 77th Avenue SE, station access would also be provided along this street. If the passenger drop-off/pick-up area is not located along 77th Avenue SE, then it would remain in the Mercer Island Park-and-Ride lot. An additional station access is being evaluated that would provide a pedestrian bridge extending over eastbound I-90. This bridge would accommodate about 25 percent of the riders at the station during the 3-hour peak period. Because the Mercer Island Station is located within I-90, walking distances, sidewalks, and crosswalks on the arterial streets are expected to remain similar to no-build conditions. Compared to existing, conditions, a few new sidewalks are planned in the future; therefore, the sidewalk coverage area surrounding the Mercer Island Station increases in Table 7-6. Overcrowding on sidewalks is not expected near Mercer Island Station. Appendix D of this *Transportation Technical Report* (Appendix H1 of this Final EIS) presents the pedestrian LOS results.

Nearby school walk routes along local and collector streets near Rainier Station would not likely be affected because transit bus routes servicing Rainier Station would not use these residential local and collector streets. There are no school walk routes within walking distance of the Mercer Island Station.

As shown in Table 7-7, the year 2030 PM peak-period pedestrian activity at the Rainier Station would be split evenly between people boarding and alighting (exiting) light rail and is a little less than half of the total person-trips at this station. This indicates that the land uses surrounding the station are mixed between riders destined for the surrounding residential neighborhoods and riders boarding from commercial areas. Overcrowding on sidewalks or at crosswalks is not expected as a result of activity in the station area. Pedestrian LOS results are shown in tables in Appendix D of this *Transportation Technical Report* (Appendix H1 of this Final EIS).

At Mercer Island Station, the PM peak-period pedestrian activity would be split evenly between people boarding and aligning light rail, indicating there would be people destined to the surrounding residential areas and people boarding from the commercial land uses at Mercer Island Town Center. Close to 30 percent of the total person-trips at the station would be people walking or biking to or from the surrounding residential and commercial land uses. Table 7-7 provides the forecasted pedestrian and bicycle trips at Mercer Island Station.

7.3.1.2 Bicycle Circulation

There is no expected change in bicycle circulation in Segment A with the East Link Project, although an increased number of bicycle commuters transferring to and from light rail can be expected because both the Rainier and Mercer Island stations are conveniently located close to the I-90 Multiuse Regional Trail. Wayfinding signage to and from the trail is recommended for both stations. Table 7-6 provides a preliminary estimate of the bicycle storage facilities (bicycle racks and lockers) at the Rainier and Mercer Island stations.

With East Link, an access location to the I-90 Trail at the 23rd Avenue South entrance to the Rainier Station would be created, increasing the transferability between transit and nonmotorized modes at this location and likely resulting in increased recreational or commuter bicycle activity surrounding the station. The addition of planned bicycle capital improvements on local and collector streets, as shown in Exhibit 7-7 and indicated in Table 7-6, would enhance the circulation near the station by providing greater connectivity between streets.

TABLE 7-6
Nonmotorized Characteristics and Facilities Adjacent to Station Areas in Segment A

Station/Alternative	Station Type	Bicycle Facility Capacities[a]		Adjacent Roadway Speed Limits [b]	Walkability Barriers	Crosswalks	Average Block Length (feet)	Sidewalk[c] (percent)		Bicycle Facilities[d] (percent)		Major Existing Land Uses[e]
		Racks	Lockers					Existing	Future	Existing	Future	
Rainier Station												
Preferred Alternative A1	At-grade	56	4	Rainier Avenue South: 35 mph 23rd Avenue South: 30 mph	Long distance between crosswalks; high traffic volumes	Present	325	80	80	30	95	Multifamily: 47% Single-family: 20% Commercial 12% Park 12% Industrial/Commercial: 5%
Mercer Island Station												
Preferred Alternative A1	At-grade	56	4	North Mercer Way: 30 mph	Within the I-90 freeway	Present	425	70	75	85	85	Single-family: 42% Park: 19% Town Center: 16% Public Institution: 12% Multifamily: 8%

Notes: Existing and future sidewalks were analyzed on arterial streets within 0.5-mile walking distance of station locations; existing and future bicycle and trail facilities were analyzed on arterial streets within 1 mile of station locations.

[a] The rack and locker values represent the available capacity at each station; this does not indicate the number of facilities provided by year of opening. At the current level of design, it is expected that approximately 50 to 65 percent of the available capacity would be provided within the project's timeframe.

[b] Speed limit of road(s) adjacent to light rail station.

[c] Percent of sidewalk coverage within 0.5 mile of light rail station.

[d] Percent of bicycle facility coverage within 1 mile of light rail station.

[e] Existing major land uses within 0.5 mile of light rail station. Percentages might not sum to 100 percent because of minor land uses and/or rounding.

TABLE 7-7
PM Peak-Period (3-hour) Walk and Bicycle Trips Generated by Segment A Stations

Station[a] (Associated Alternatives)	2020			2030		
	Boarding	Alighting[b]	Total	Boarding	Alighting[b]	Total
Rainier Station (*Preferred Alternative A1*)	250	350	600	330	340	660
Mercer Island Station (*Preferred Alternative A1*)	190	170	360	240	250	490

Note: Because of rounding, in and out walk and bicycle trips might not sum exactly to total walk and bicycle trips.

[a] Person-trips for alternative with highest ridership.

[b] Alighting is defined as people exiting the light rail vehicle.

On Mercer Island, locally designated bicycle routes are present on N Mercer Way, 77th Avenue SE, and 80th Avenue SE. Bicycle circulation surrounding the Mercer Island Station would be similar to existing and no build conditions.

7.3.2 Segment B

In Segment B, *Preferred 112th SE Modified Alternative (B2M)*, 112th SE At-Grade (Alternative B2A), 112th SE Elevated (Alternative B2E), 112th SE Bypass (Alternative B3), and B3 - 114th Extension Design Option (B3 – 114th Design Option) would serve the elevated South Bellevue Station. The at-grade South Bellevue Station would be served by the Bellevue Way Alternative (B1]). *Preferred Alternative B2M* (with connections to *Preferred Alternative C9T*), the 112th SE At-Grade Alternative (B2A), and the 112th SE Elevated Alternative (B2E) would serve the SE 8th Street Station. The BNSF Alternative (B7) would serve the 118th Avenue Station.

7.3.2.1 Pedestrian Circulation

Future Pedestrian LOS in Segment B would be at an acceptable pedestrian LOS under all Segment B alternatives, as listed in Appendix D of this *Transportation Technical Report* (Appendix H1 of this Final EIS).

Preferred 112th SE Modified Alternative (B2M)

With *Preferred Alternative 112th SE Modified (B2M)*, about 95 percent of the transit riders at the South Bellevue Station would consist of people making transfers among different motorized modes (automobile or bus); therefore, most of the pedestrian activity at the South Bellevue Station would occur within the station and park-and-ride lot areas. This is indicated in Table 7-8 with a relatively low number of pedestrian and bicycle activity generated at the South Bellevue Station.

TABLE 7-8
PM Peak-Period (3-hour) Walk and Bicycle Trips Generated by Segment B Stations

Station (Associated Alternatives)	2020			2030		
	Boarding	Alighting[b]	Total	Boarding	Alighting[b]	Total
South Bellevue (*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 – 114th Extension Design Option)[a]	20	80	90	20	100	130
SE 8th (*Preferred Alternative B2M* connecting to *Preferred Alternative* C9T and Alternatives B2A and B2E)[a]	190	60	240	220	80	290
118th (Alternative B7)[a]	220	60	280	320	100	420

Note: Because of rounding, in and out walk and bicycle trips might not sum exactly to total walk and bicycle trips.
[a] Person-trips for alternative with highest ridership.
[b] Alighting is defined as people exiting the light rail vehicle.

Much of the land use surrounding the station is a combination of residential and recreational uses as identified in Table 7-9). Generally, the pedestrian circulation between the South Bellevue Station and the surrounding neighborhoods would continue to be disconnected because of the uphill terrain west of the station and the limited connections with the Enatai neighborhood, although there are a few connections between the southern Enatai neighborhood and the park-and-ride lot. Pedestrian circulation and safety surrounding the South Bellevue Station would improve compared with existing conditions with City of Bellevue's planned sidewalk improvements on 108th and 113th Avenues SE. In addition, the East Link project would not preclude future improvements planned along Bellevue Way SE.

With *Preferred Alternative B2M* (connecting to either *Preferred Alternative C9T* or *Preferred Alternative C11A* connection) a pedestrian and bicycle access to Lincoln Plaza on the east side of 112th Avenue SE would be closed. Alternative access would be available within 300 feet of the existing driveway on SE 6th Street. An option with *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* would close the east approach at SE 15th Street to Bellefield Office Park. This closure would recirculate pedestrians entering or exiting the office park to the intersection of 114th Avenue SE and SE 8th Street.

Most (about 75 percent) of the estimated PM peak-period person-trips indicated in Table 7-8 at SE 8th Station, with *Preferred Alternative B2M* connecting to *Preferred Alternative C9T,* would consist of pedestrians accessing the station and headed from the surrounding office parks or the South Bellevue neighborhoods. Similar to the other stations in South Bellevue, the SE 8th Street Station presents longer walking distances because the average block length surrounding this station is longer than other segments, as shown in Table 7-9. Pedestrian circulation and safety surrounding SE 8th Street Station would improve compared with existing conditions, with planned City of Bellevue sidewalk improvements on SE 8th Street. Access to the at-grade SE 8th Street Station under *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* would be improved with a new crosswalk on the north leg of SE 8th Street.

Overcrowding on sidewalks near the South Bellevue and SE 8th Street stations is not expected to occur with the *Preferred Alternative B2M*. Crosswalks would be maintained at signalized intersections; therefore, new mid-block pedestrian crossings would not be needed within Segment B. Pedestrian LOS results are presented in tables in Appendix D of this *Transportation Technical Report* (Appendix H1 of this Final EIS). Road widening at intersections related to the at-grade median profile of the *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* would cause increases in walking distances and wait times at crosswalks along 112th Avenue SE.

Other Segment B Alternatives

For Alternatives B2A, B2E, B3, and B3 – 114th Design Option, pedestrian access and circulation at the South Bellevue Station would be similar to conditions under *Preferred Alternative B2M.* The at-grade South Bellevue Station in Alternative B1 would require an increase in crossing times for pedestrian to walk safely across Bellevue Way at South Bellevue Station (and throughout the segment).

With Alternative B7, pedestrian crossings would not be affected because most of this alternative is outside the roadway right-of-way. At 118th Station, approximately 80 percent of the estimated future PM peak-period person-trips would be riders transferring between East Link other motorized modes. The proximity of I-405 and lack of residential land use immediately surrounding the station do not encourage walk routes. Therefore, substantial pedestrian activity beyond the immediate station area is not expected, except to the commercial land uses along SE 8th Street. Pedestrian circulation and safety surrounding 118th Station would improve compared with existing conditions, because of planned City of Bellevue sidewalk improvements on 114th and 118th Avenues SE at locations immediately surrounding the station.

The existing crosswalk locations would not change with any of the Segment B alternatives, except with the new crosswalk on the north leg of 112th Avenue SE and SE 8th Street to improve pedestrian mobility with the SE 8th Station. Overall, crosswalks are adjacent to the South Bellevue and SE 8th Street stations but are not adjacent to the 118th Station, limiting pedestrian mobility.

The missing sidewalk segment on SE 25th Street in the Enatai neighborhood is part of a school walk route to Enatai Elementary School. The East Link project is not expected to affect this school walk route because it would be located west of the project, and the volume of riders walking to and from this station is not expected to be substantial enough to impact the school walk route.

TABLE 7-9
Nonmotorized Characteristics and Facilities Adjacent to Station Areas – Segment B

Station/Alternative	Station Type	Bicycle Facility Capacities[a]		Adjacent Roadway Speed Limits [b]	Walkability Barriers	Crosswalks	Average Block Length (feet)	Sidewalk[c] (percent)		Bicycle Facilities[d] (percent)		Major Existing Land Uses[e]
		Racks	Lockers					Existing	Future	Existing	Future	
South Bellevue Station												
Preferred Alternative B2M and Alternatives B2A, B2E, B3, B3 - 114th Design Option	Elevated	180	20	Bellevue Way: 40 mph	Topography with Enatai neighborhood	Present	805	60	85	40	65	Single-family: 50% Park: 43% Multifamily: 6% Office: 1%
Alternative B1	At-grade											
SE 8th Station												
Preferred Alternative B2M connecting with Preferred Alternative C9T and Alternative B2A	At-grade	56	4	112th Avenue SE: 35 mph SE 8th Street: 35 mph	Limited Surrey Downs connections	Present	800	60	90	20	70	Single family: 40% Office: 40% Multifamily: 7% Park: 6% Light Industrial: 5%
Alternative B2E	Elevated											
118th Station												
Alternative B7	Elevated	56	4	118th Avenue SE: 30 mph SE 8th Street: 35 mph	Proximity to I-405	None present near station	910	45	80	25	65	Single-family: 33% Office: 31% Park: 15% Multifamily: 11% Light Industrial: 7%

Notes: Existing and future sidewalks were analyzed on arterial streets within 0.5 mile walking distance of station locations; existing and future bicycle and trail facilities were analyzed on arterial streets within 1 mile of station locations.

[a] The rack and locker values represent the available capacity at each station; this does not indicate the number of facilities provided by year of opening. At the current level of design, it is expected that approximately 50 to 65 percent of the available capacity would be provided within the project's timeframe.

[b] Speed limit of road(s) adjacent to light rail station.

[c] Percent of sidewalk coverage within 0.5 mile of light rail station.

[d] Percent of bicycle facility coverage within 1 mile of light rail station.

[e] Existing major land uses within 0.5 mile of light rail station. Percentages might not sum to 100 percent because of minor land uses and/or rounding.

7.3.2.2 Bicycle Circulation

Bicycle circulation within Segment B is likely to improve in the no-build condition compared with existing conditions, with planned improvements along 108th Avenue SE, Bellevue Way SE, 112th Avenue SE, SE 8th Street, 114th Avenue SE, and the former BNSF Railway. The *City of Bellevue 2009 Pedestrian and Bicycle Transportation Plan Report* identifies future connections between the I-90 Trail and other existing regional and local trails that might increase the number of trail users (City of Bellevue, 2009). The proposed BNSF Railway Trail, a major multiuse trail, would follow the former BNSF Railway corridor located along the easternmost boundary of Segment B, proceed through Segments C and D, and terminate in Segment E where it would connect with the East Lake Sammamish Trail. Sound Transit is currently coordinating with the Port of Seattle and King County to cooperatively plan the future trail, possibly including passenger rail and light rail in the same right-of-way while maintaining the ability to provide future freight use.

In general, bicycle circulation with the project would remain similar to the no-build conditions. Bicycle storage and wayfinding at Segment B stations would be provided. Table 7-9 provides a preliminary estimate of the bicycle storage facilities at the stations.

Preferred 112th SE Modified Alternative (B2M)

With *Preferred Alternative B2M*, the South Bellevue station would be located near the Mercer Slough, where bicyclists could connect to the I-90 Trail and the 118th Avenue SE Regional Multiuse Trail. As a result, an increase in bicycle activity on these trails would likely occur. Impacts on trails in Segment B would include acquiring right-of-way along 112th Avenue SE for *Preferred Alternative B2M*. This alternative would require using a narrow portion of the Mercer Slough Park's western boundary, requiring a portion of the Heritage Trail that is within Mercer Slough to be relocated. Impacts on the I-90 Trail at the I-405 interchange are not expected with *Preferred Alternative B2M*.

A pedestrian and bicycle access to Lincoln Plaza on the east side of 112th Avenue SE would be closed with *Preferred Alternative B2M*. Alternative access would be available within 300 feet on SE 6th Street. An option with the *Preferred Alternative B2M* connecting to *Preferred Alternative C9T* would close the east approach at SE 15th Street to the Bellefield Office Park. This closure would recirculate bicyclists entering or exiting the Bellefield Office Park to the intersection of 114th Avenue SE and SE 8th Street. This would affect bicycle mobility between the Bellefield office park and areas to the south.

Other Segment B Alternatives

Similarly to *Preferred Alternative B2M*, impacts to trails along Bellevue Way and near the South Bellevue Station would occur under Alternatives B1, B2A, B2E, B3, and B3 – 114th Design Option. Alternatives B2A and B2E would close the pedestrian and bicycle access to the Lincoln Plaza on the east side of 112th Avenue SE, similarly to *Preferred Alternative B2M.* Under Alternative B7, existing bicycle access to the east side of Mercer Slough along 118th Ave SE would be maintained and would connect to the Mercer Slough trails and I-90 Regional Trail.

7.3.3 Segment C

The East Link project would serve Downtown Bellevue; one of the major business and employment centers in the Puget Sound region. Compared to the other segments of the East Link Project, pedestrian activity is much higher in Downtown Bellevue. Within downtown, major employers and surrounding retail and commercial businesses, as well as existing and planned residential areas, will continue to create dense pedestrian circulation activity in the future. To provide adequate sidewalk circulation, future development projects or planned city capital improvements are expected to fill in the identified missing sidewalk segments within the downtown area, although nearly all the streets in Downtown Bellevue already provide continuous sidewalks on both sides of the street. Table 7-10 provides the year 2020 and 2030 pedestrian and bicycle activity for each of the Segment C stations.

TABLE 7-10
PM Peak-Period (3-hour) Walk and Bicycle Trips Generated by Segment C Stations

Station (Associated Alternatives)	2020			2030		
	Boarding	**Alighting**[b]	**Total**	**Boarding**	**Alighting**[b]	**Total**
108th (*Preferred Alternative C11A)*	570	400	970	770	440	1,210
East Main (*Preferred Alternatives C11A and C9T* and Alternatives C2T, C3T, C4A, C7E, C8E, and C9A) [a]	600	380	970	960	490	1,450
Old Bellevue (Alternative C1T)	530	360	890	780	420	1,200
Bellevue Transit Center (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C3T, C4A, C7E, C8E, C9A, and C14E)[a]	2,300	850	3,150	2,890	880	3,770
Ashwood/Hospital (Alternatives C3T, C4A, C7E, and C8E) [a]	440	140	580	440	140	580
Hospital (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E) [a]	250	120	380	670	240	910

Note: Because of rounding, in and out walk and bicycle trips might not sum exactly to total walk and bicycle trips.
[a] Person-trips for alternative with highest ridership.
[b] Alighting is defined as people exiting the light rail vehicle.

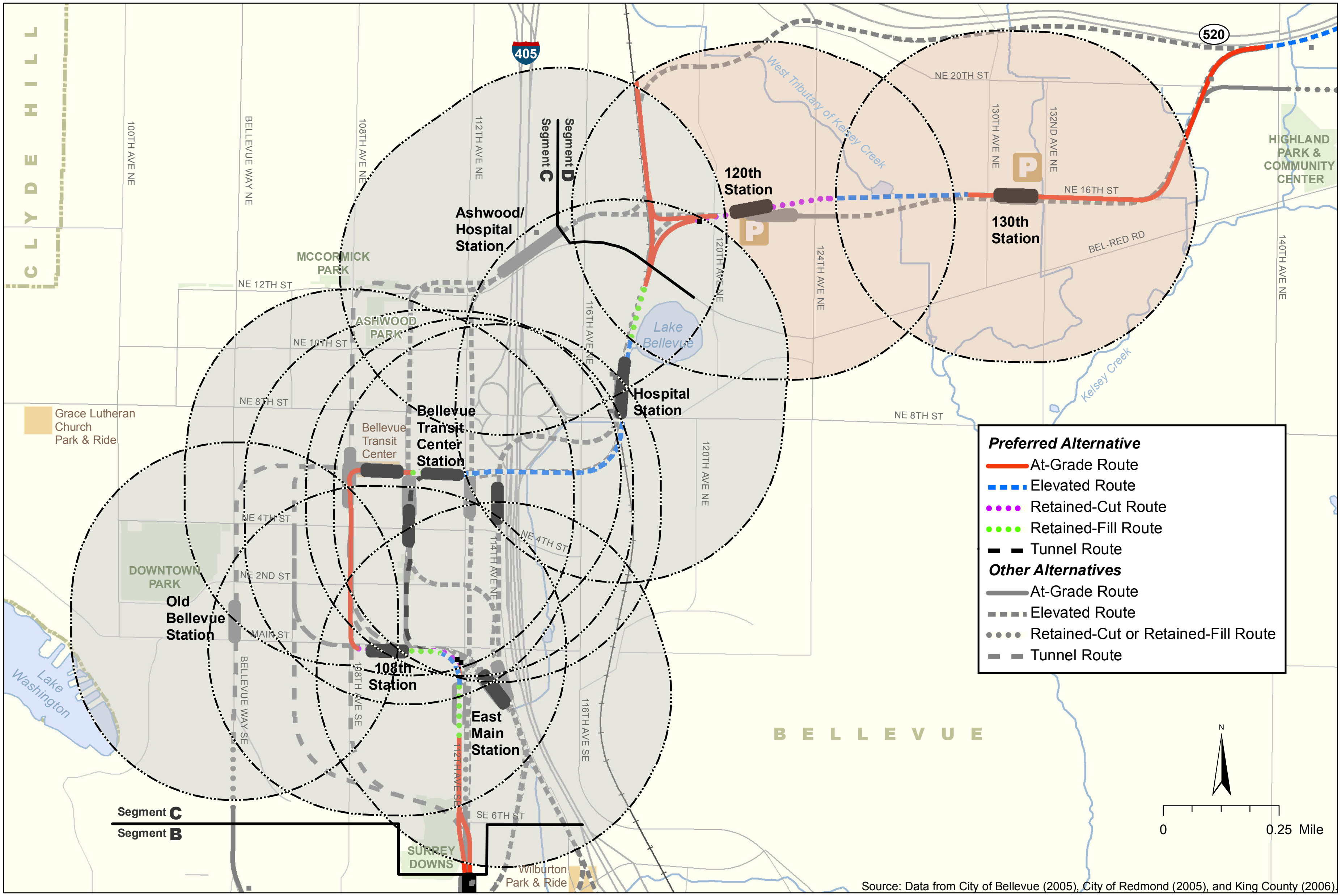
A pedestrian walkway located on NE 6th Street between 108th Avenue NE and Bellevue Way is a major east-west pedestrian walkway that provides connectivity among popular pedestrian generators, which include major retail and civic centers, Bellevue Square Mall, Lincoln Square, Bellevue Transit Center, Meydenbauer Convention Center, and Bellevue City Hall. Sidewalks and pedestrian crossings within Downtown Bellevue would not operate below LOS C with any of the project alternatives, indicating that impacts on pedestrian flow or circulation are not anticipated. In general, pedestrian circulation conditions under any Segment C alternative would not differ substantially except for the changes described in the following subsections. Street widening would generally be minimal because of right-of-way constraints, therefore pedestrian crossing distance are generally similar to the no-build condition. All the Segment C alternatives would have a Bellevue Transit Center Station and either a Hospital or an Ashwood/Hospital Station, depending on where the alignment crosses I-405. Many of the alternatives would also include a station in the south downtown area, Old Bellevue, East Main Station or 108th Station depending on their Segment B connection.

As shown in Exhibit 7-13, among the proposed stations in Segment C, the light rail stations located closer to the existing Bellevue Transit Center would be expected to attract more riders because they would better serve Downtown Bellevue as a result of their proximity to denser employment and residential areas. The farther east that the stations are located from Downtown Bellevue, the less pedestrian activity would be expected. Because the Ashwood/Hospital Station would be within walking distance from both Overlake Hospital and Downtown Bellevue, it would have more pedestrian activity in connection with downtown than the Hospital Station, but the Hospital Station would have the potential for higher pedestrian activity in conjunction with the planned redevelopment of the Wilburton area. These trends are discussed in Section 4.3 Light Rail Ridership.

7.3.3.1 Pedestrian Circulation

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would not impact pedestrian facilities. The midblock crossing on 108th Avenue NE between NE 2nd and 4th Streets would be maintained and signalized to provide a safe crossing. At the 112th Avenue SE, and SE 6th Street intersection, pedestrians and bicyclists would cross the at-grade light rail tracks on the west side of 112th Avenue SE. Similarly, pedestrians would cross the at-grade light rail tracks on the southeast corner of Main Street and 108th Avenue. Features such as fencing, signing, pavement markings, warning bells and traffic signals would be provided at these locations for pedestrian safety.


CLYDE HILL
405
520
Segment C
Segment D
Ashwood/ Hospital Station
120th Station
130th Station
Hospital Station
Bellevue Transit Center Station
Bellevue Transit Center
Old Bellevue Station
108th Station
East Main Station
MCCORMICK PARK
ASHWOOD PARK
DOWNTOWN PARK
SURREY DOWNS
HIGHLAND PARK & COMMUNITY CENTER
Grace Lutheran Church Park & Ride
Wilburton Park & Ride
Lake Bellevue
Lake Washington
West Tributary of Kelsey Creek
Kelsey Creek
NE 20TH ST
NE 16TH ST
BEL-RED RD
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 6TH ST
100TH AVE NE
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
108TH AVE SE
112TH AVE NE
112TH AVE SE
114TH AVE NE
116TH AVE NE
116TH AVE SE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
140TH AVE NE
Segment C
Segment B
BELLEVUE
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Pedestrian Walking Area Segment C (0.35 mile)

Pedestrian Walking Area Segment D (0.35 mile)

▪ Traction Power Substation

▬ Proposed Station

P New and/or Expanded Park-and-Ride Lot

NOTE: To account for a street grid system, a radius of 0.35 mile was used in place of a radius of 0.50 mile.

Exhibit 7-13 **Pedestrian Walking Areas by Stations in Downtown Bellevue and Bel-Red Area Segments C and D**
East Link Project

Although this alternative is an at-grade profile, street widening would be minimal because of right-of-way constraints; therefore, relatively small changes to the pedestrian crossing times are proposed. However, some increase in crosswalk distances would occur at Main Street and 108th Avenue NE and along NE 6th Street to accommodate the light rail track. The 108th Station location with *Preferred Alternative C11A* would not affect pedestrian facilities because it is located off-street, south of Main Street. This station's location would be convenient to a higher percentage of the Downtown Bellevue residents and employment centers compared with the East Main Station location and have fewer barriers as shown in Table 7-11.

The Bellevue Transit Center Station area would have the highest estimated PM peak-period pedestrian trips compared with other East Link stations; as close to 3,800 pedestrians and bicyclists would use the Bellevue Transit Center Station in year 2030. This would be about 60 percent of the total PM peak-period person-trips estimated at this station. Most pedestrian activity at this station would be people boarding light rail in the PM peak period, walking from the surrounding office and commercial land uses. This degree of activity would be consistent with an urban downtown environment that is expected to become denser and continue to grow in the future.

Major pedestrian crossings and sidewalks near the Bellevue Transit Center Station area for *Preferred Alternative C11A* would provide sufficient pedestrian space, although sidewalks and intersections connecting to entrances to Bellevue Transit Center Station on 108th and 110th Avenues NE would experience some pedestrian crowding during peak periods. As shown in Appendix F of this Transportation Technical Report, the sidewalks in the no-build condition near the Bellevue Transit Center would degrade to LOS C but would continue to operate well as pedestrian activity is expected to continue moving freely. In the build condition, the pedestrian LOS near the Bellevue Transit Center would continue to operate no worse than LOS C. Any crowding would generally be contained within the station near the platforms. The location of the Bellevue Transit Center Station with *Preferred Alternative C11A* would be the most convenient for transit connections and would serve the majority of Downtown Bellevue residents and employment centers.

Preferred Alternative C11A also would serve the Hospital Station located north of NE 8th Street, east of 116th Avenue NE. The location of the Hospital Station is near the Overlake Hospital area and other retail and commercial land uses (Table 7-11). It is estimated pedestrian and bicycle trips comprise about 60 percent of the future PM peak-period person-trips and primarily include people leaving Overlake Hospital and the surrounding office, retail, and commercial areas and boarding light rail. This station's location would also serve the Wilburton neighborhood, where future nonmotorized improvements are planned by others near the station to improve the connectivity for pedestrians and bicyclists navigating along NE 8th Street (sidewalk improvements) and along the former BNSF corridor (BNSF Railway regional multiuse trail) which would create a direct nonmotorized connection between the Hospital Station and the Bel-Red area.

With the connections to Alternatives B3, B7, or B3 – 114th Design Option, *Preferred Alternative C11A* would serve the East Main Station. It is estimated that pedestrian trips would comprise close to 70 percent of the future PM peak-period person trips, with most of them boarding light rail. These pedestrians are expected to originate from the adjacent residential and commercial areas. Topography constraints to the west into central downtown Bellevue might limit the pedestrian activity.

Preferred 110th NE Tunnel Alternative (C9T)

Because *Preferred Alternative C9T* profiles would be mostly elevated and tunnel north of Main Street, there would be minimal impacts on pedestrian circulation. Impacts on crosswalks are not expected with *Preferred Alternative C9T,* except along NE 6th Street, which would be widened to accommodate the tunnel portal and, therefore, would require slightly longer distances for pedestrians to cross. At the at-grade light rail crossing at the SE 6th Street and 112th Avenue SE intersection, pedestrians and bicyclists would cross over the tracks on both sides of 112th Avenue SE. Features such as fencing, signing, pavement markings, warning bells and traffic signals would be provided for pedestrian safety.

TABLE 7-11
Nonmotorized Characteristics and Facilities Adjacent to Station Areas – Segment C

Station/ Alternative	Station Type	Bicycle Facility Capacities[a]		Adjacent Roadway Speed Limits[b]	Walkability Barriers	Crosswalks	Average Block Length (feet)	Sidewalk[c] (percent)		Bicycle Facilities[d] (percent)		Major Existing Land Uses[e]
		Racks	Lockers					Existing	Future	Existing	Future	
East Main Station (connecting from Alternatives B3 and B7)												
Preferred Alternative C9T and Alternatives C4A, C7E, C8E, and C9A	Elevated	56	4	114th Avenue NE: 30 mph	Topography to central Downtown Bellevue, adjacent to I-405	Present	655	60	85	10	65	Office: 46% Commercial: 20% Single family: 20% Multifamily: 7% Park: 6%
Alternatives C2T and C3T	Retained cut											
108th Station												
Preferred Alternative C11A	At-grade	56	4	Main Street: 30 mph	No major barriers	Present	685	75	90	10	70	Office: 41% Commercial: 24% Single-family: 20% Multifamily: 8% Park: 5%
Old Bellevue Station												
Alternative C1T	Tunnel	56	4	Bellevue Way: 35 mph	No major barriers	Present	685	75	90	10	70	Commercial: 28% Single-family: 24% Multifamily: 20% Office: 18% Park: 6%
Bellevue Transit Center Station												
Preferred Alternative C11A	At-grade	88[f]	14[f]	NE 6th Street: 30 mph	No major barriers	Present	640	75	90	10	70	Office: 49% Commercial: 33% Multifamily: 6% Single-family: 5%
Preferred Alternative C9T	Tunnel			110th Avenue NE: 30 mph	No major barriers	Present	650	70	90	10	70	Office: 44% Commercial: 34% Single-family: 9% Multifamily: 7%
Alternatives C1T, C2T, and C3T	Tunnel			NE 6th Street: 30 mph	No major barriers	Present	615	80	95	10	70	Office: 39% Commercial: 38% Multifamily: 10% Single-family: 6%
Alternative C4A	At-grade			NE 6th Street: 30 mph 108th Avenue NE: 30 mph	No major barriers	Present	690	75	90	10	70	Office: 42% Commercial: 36% Single-family: 8% Multifamily: 7%

TABLE 7-11
Nonmotorized Characteristics and Facilities Adjacent to Station Areas – Segment C

Station/Alternative	Station Type	Bicycle Facility Capacities[a]		Adjacent Roadway Speed Limits[b]	Walkability Barriers	Crosswalks	Average Block Length (feet)	Sidewalk[c] (percent)		Bicycle Facilities[d] (percent)		Major Existing Land Uses[e]
		Racks	Lockers					Existing	Future	Existing	Future	
Bellevue Transit Center Station contd.												
Alternative C7E	Elevated	88[f]	14 [f]	112th Avenue NE: 30 mph	Topography to central Downtown Bellevue	Present	710	70	9	10	70	Office: 48% Commercial: 34% Multifamily: 6% Single-family: 6%
Alternative C8E	Elevated			110th Avenue NE: 30 mph	No major barriers	Present	645	75	90	10	70	Office: 43% Commercial: 35% Single-family: 8% Multifamily: 7%
Alternative C9A	At-grade and elevated			NE 6th Street/110th Avenue NE/112th Avenue NE: 30 mph	No major barriers	Present	640	70	90	10	70	Office: 44% Commercial: 38% Multifamily: 5% Single-family: 5%
Alternative C14E	Elevated			114th Avenue NE: 30 mph	Adjacent to I-405	Present	735	70	90	10	70	Office: 49% Commercial: 33% Multifamily: 6% Single-family: 5%
Ashwood/Hospital Station												
Alternatives C3T, C4A, C7E, and C8E	At-grade	72	8	NE 12th Street: 30 mph	Adjacent to I-405	Present	775	60	90	10	70	Office: 38% Commercial: 27% Light Industrial: 10% Multifamily: 10% Single-family: 8%
Hospital Station												
Preferred Alternatives C11A and *C9T* and Alternatives C1T, C2T, C9A, and C14E	Elevated	72	8	116th Avenue NE: 35 mph NE 8th Street: 35 mph	No connections south of NE 8th Street	None present near station	780	65	90	10	65	Office: 40% Commercial: 25% Light Industrial: 13% Multifamily: 10% Single-family: 5%

Notes: Existing and future sidewalks were analyzed on arterial streets within 0.5 mile walking distance of station locations; existing and future bicycle and trail facilities were analyzed on arterial streets within 1 mile of station locations.

[a] The rack and locker values represent the available capacity at each station; this does not indicate the number of facilities provided by year of opening. At the current level of design, it is expected that approximately 50 to 65 percent of the available capacity would be provided within the project's timeframe.

[b] Speed limit of road(s) adjacent to light rail station.

[c] Percent of sidewalk coverage within 0.5 mile of light rail station.

[d] Percent of bicycle facility coverage within 1 mile of light rail station.

[e] Existing major land uses within 0.5 mile of light rail station. Percentages might not sum to 100 percent because of minor land uses and/or rounding.

[f] At the Bellevue Transit Center Station, 18 bicycle parking spaces would be designed for either bike racks or lockers. These 18 spaces are not included in the total in this table.

Major pedestrian crossings and sidewalk near the Bellevue Transit Center Station area for *Preferred Alternative C9T* provide sufficient pedestrian space, although sidewalks and intersections connecting to entrances to Bellevue Transit Center Station along 110th Avenue NE would experience some pedestrian crowding during peak periods. Pedestrian access between the Bellevue Transit Center Station and the Bellevue Transit Center would be through the northern station entrance on the north side of NE 4th Street, with a crossing at NE 6th Street and 110th Avenue NE to access the Bellevue Transit Center bus platform. A design option to provide an additional northern entrance of the Bellevue Transit Center Station to the west side of 110th Avenue NE would provide a more direct bus transfer connection between the Bellevue Transit Center Station and the Bellevue Transit Center bus platforms.

Preferred Alternative C9T would also serve the Hospital Station. Pedestrian activity in and around this station would be similar to that of *Preferred Alternative C11A*. With the connections to Alternatives B3, B7, or B3 – 114th Design Option, *Preferred Alternative C9T* would serve the East Main Station and the nonmotorized activity would be similar to *Preferred Alternative C11A*. Nonmotorized activity for the East Main Station design option under *Preferred Alternative C9T* would be similar to a connection with Alternative B3, B3 - 114th Extension Design Option, or B7 that have an East Main Station.

Other Segment C Alternatives

The Bellevue Way Tunnel Alternative (C1T) is the only alternative that would include the underground Old Bellevue Station. It is estimated that pedestrian trips would comprise approximately 85 percent of future PM peak-period person trips. Much of the pedestrian activity at the Old Bellevue Station would be well served with sidewalks and pedestrian-oriented shopping in the historic Downtown Bellevue area of Main Street. The location of this station is also expected to capture a portion of pedestrian activity on the fringe of Downtown Bellevue that would otherwise require farther walking distance to the Bellevue Transit Center.

The 106th NE Tunnel (C2T), 108th NE Tunnel (C3T), Couplet (C4A), 112th NE Elevated (C7E), 110th NE Elevated (C8E), 110th NE At-Grade (C9A) Alternatives would serve the elevated East Main Station when they connect to the 112th SE Bypass (B3), 114th SE design option (B3 – 114th Design Option), and BNSF (B7) Alternatives. Pedestrian activity at this station would be similar to that of *Preferred Alternative C9T* (with connections to Alternatives B3, B3– 114th Design Option, or B7). Alternative C14E would not serve an East Main Station.

Pedestrian circulation at the Bellevue Transit Center Station for Alternatives C1T, C2T, and C3T would be similar to that of *Preferred Alternative C9T,* although Alternatives C1T and C2T would have a more direct connection to the Bellevue Transit Center. At-grade Alternatives C4A and C9A would have slightly different pedestrian circulation and access at the Bellevue Transit Center Station than *Preferred Alternative C11A*. While both of these alternatives are within one block of the Bellevue Transit Center, the station is not directly integrated with the Bellevue Transit Center; therefore, connections with other transit services are not as convenient as with *Preferred Alternative C11A*. Additionally, Alternative C4A includes two stations: one on 108th Avenue NE and one on 110th Avenue NE as track is only provided in one direction along each of these two streets. Pedestrian access between the Bellevue Transit Center Station and the Bellevue Transit Center for Alternative C9A would be through the western station entrance located at NE 6th Street and 110th Avenue NE, with one crossing during the pedestrian-only phase at NE 6th Street and 110th Avenue NE to connect the station with the bus platforms at the Bellevue Transit Center. With any of these alternatives, major pedestrian crossings and sidewalks near the Bellevue Transit Center Station would experience some pedestrian crowding during peak periods. Alternative C8E would have similar pedestrian circulation at Bellevue Transit Center Station under *Preferred Alternative C9T.* Even though it is an elevated station and Alternative C9T is a tunnel station, both would have similar pedestrian effects.

Alternatives C7E and C14E are both elevated profiles outside the downtown core; therefore, minimal impacts on the pedestrian circulation and connectivity in Downtown Bellevue are expected. To provide a connection between Bellevue Transit Center and the Bellevue Transit Center Station (along 112th Avenue NE [C7E] or 114th Avenue NE [C14E]), an elevated and covered moving walkway would be constructed as part of these two alternatives. With the Bellevue Transit Center station location further east than other Segment C alternatives, the pedestrian connections would not be as convenient and the distances to many locations in Downtown Bellevue would be greater with these two alternatives. This would require additional time for pedestrians and bicyclists to reach their destination.

It is estimated that pedestrian and bicycle trips would comprise about 80 percent of the future PM peak-period person-trips at the Ashwood/Hospital Station. These trips would be primarily people leaving Overlake Hospital and the surrounding office and commercial areas. Pedestrian access to this station would be provided on both sides of I-405. The Hospital Station would have a similar amount of pedestrian activity as the Ashwood/Hospital Station because they both capture the land uses along 116th Avenue NE. Alternatives C3T, C4A, C7E, and C8E would serve the Ashwood/Hospital Station, while alternatives C1T, C2T, C9A, and C14E would serve the Hospital Station. Pedestrian activity at the Hospital Station would be similar to that of *Preferred Alternative C11A* and *Preferred Alternative C9T*.

Similarly to *Preferred Alternative C11A*, portions of Alternatives C4A, C8E, and C9A would be within the roadway right-of-way in Downtown Bellevue. Even so, these alternatives would generally not increase the pedestrian crossing distances at intersections because roadway widening is constrained by the available right-of-way. Crosswalk locations along 108th and 110th Avenues NE with the Couplet Alternative (C4A) would remain but would require signal-phasing adjustments. Similar to *Preferred Alternative C9T*, crosswalk impacts are not expected with the tunnel alternatives (C1T, C2T, and C3T) because these alternatives would be mainly underground in Downtown Bellevue. Alternatives C1T, C2T, and C9A would become elevated on NE 6th Street, east of 110th Avenue NE; and similar to *Preferred Alternatives C11A* and *C9T*, some roadway widening is proposed. This would lengthen the pedestrian crossing distances on this street. Alternatives C7E and C14E would not impact pedestrian crossings because most of these alternatives would be elevated outside the roadway right-of-way. The school walk route along 108th Avenue SE is not expected to be affected by any of the Segment C alternatives because it is located south of Main Street.

7.3.3.2 Bicycle Circulation

With East Link, bicycle circulation through Downtown Bellevue would remain similar to the existing and no-build conditions. Currently, most arterial streets in the downtown area are designated bicycle routes. The City of Bellevue plans to provide bicycle improvements along 112th Avenue NE, north of NE 6th Street, and on 108th Avenue NE in Downtown Bellevue. Table 7-11 provides a preliminary estimate of the bicycle storage facilities at the stations. The Bellevue Transit Center would provide the most bicycle storage facilities of all the stations in Segment C.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would not likely affect bicycle facilities as a wide vehicle lane in both directions would be provided on 108th Avenue NE to accommodate bicyclists. Additionally, the location of the 108th, Bellevue Transit Center, and Hospital Stations are not expected to affect bicycle facilities. At the at-grade crossings, the light rail tracks would be designed so bicyclists along designated bicycle routes cross the light rail tracks, to the extent possible, at a perpendicular angle for bicyclist safety. With a connection to Alternative B3, B7, or B3 - 114th Design Option, *Preferred Alternative C11A* would not affect bicycle facilities along 112th Avenue SE.

Preferred 110th NE At-Grade Alternative (C9T)

Preferred Alternative C9T mostly comprised of elevated and tunnel profiles north of Main Street and an at-grade profile south of Main Street, thereby resulting in minimal bicycle circulation impacts. The at-grade crossing at SE 6th Street and 112th Avenue SE, would be designed so bicyclists cross the light rail tracks at a perpendicular angle for bicyclist safety. With a connection to Alternatives B3, B7, or B3 - 114th Design Option, *Preferred Alternative C9T* would not affect bicycle facilities along 112th Avenue SE.

Other Segment C Alternatives

The other Segment C alternatives with elevated profiles (Alternatives C7E, C8E, and C14E) and tunnel profiles (Alternatives C1T, C2T, and C3T) would have minimal impacts on downtown bicycle circulation. Crosswalk access for bicyclists would operate under the same pedestrian access conditions previously described. The Couplet Alternative (C4A) would change circulation patterns for bicyclists traveling on 108th and 110th Avenues NE by converting these streets to a one-way vehicle couplet. This could create some recirculation of bicycle activity because cyclists would not have the ability for two-way travel on these streets. The Alternative C4A side-track alignment would create the potential for bicyclists to turn across the light rail tracks. Alternative C9A would not affect planned bicycle facilities, similar to *Preferred Alternative C11A*. With any of the Segment C alternatives that include a connection to Alternative B3, B7, or B3 - 114th Design Option, similar effects on bicycle facilities along 112th Avenue SE would occur as with the *Preferred Alternative C11A.*

7.3.4 Segment D

Preferred Alternative D2A and the NE 16th Elevated (D2E) and NE 20th (D3) Alternatives would serve 120th Station. *Preferred Alternative D2A*, Alternative D2E, and Alternative D3 would serve 130th Station. The Overlake Village and Overlake Transit Center stations would be served by all the Segment D alternatives. Table 7-12 provides the year 2020 and 2030 pedestrian and bicycle activity for each of the Segment D stations.

TABLE 7-12
PM Peak-Period (3-hour) Walk and Bicycle Trips Generated by Segment D Stations

Station (Associated Alternatives)	**2020**			**2030**		
	Boarding	**Alighting**[b]	**Total**	**Boarding**	**Alighting**[b]	**Total**
120th (*Preferred Alternative D2A* and Alternatives D2A - NE 24th Design Option, D2E, and D3)[a]	130	230	360	180	250	430
130th (*Preferred Alternative D2A* and Alternatives D2E and D3)[a]	270	60	320	560	170	730
Overlake Village (*Preferred Alternative D2A*, and Alternatives D2A - NE 24th Design Option, D2E, D3, and D5)[a]	160	60	220	350	150	500
Overlake Transit Center (*Preferred Alternative D2A* and Alternatives D2E, D3, and D5)[a]	440	280	730	640	480	1,120

Note: Because of rounding, in and out walk and bicycle trips might not sum exactly to total walk and bicycle trips.
[a] Person-trips for alternative with highest ridership
[b] Alighting is defined as people exiting the light rail vehicle.

7.3.4.1 Pedestrian Circulation

Preferred NE 16th At-Grade Alternative (D2A)

In the Bel-Red area, near the 120th and 130th Stations, pedestrian and bicycle facilities planned as part of the transportation and land use projects included in the City of Bellevue's *Bel-Red Subarea Plan* (City of Bellevue, 2008a) would support and connect to these stations, as indicated by the substantial increase in sidewalk coverage area shown in Table 7-13. Implementing the *Bel-Red Subarea Plan* would improve the pedestrian and bicycle connections in this area, as the planned high-density, transit-oriented land uses would be expected to substantially increase the pedestrian and bicycle activity.

With light rail, approximately 75 percent of the PM peak-period person-trips generated at the 120th Station would be walk and bicycle trips. These trips would likely be people coming from the surrounding commercial, retail and offices land uses and boarding light rail. The D2A – 120th Design Option would provide a slightly more convenient pedestrian and bicycle access to the street system because it is at-grade, compared with the *Preferred Alternative D2A* retained-cut 120th Station.

At the 130th Station, close to 60 percent of the people using the station during the PM peak period would be either pedestrians or bicyclists, with the majority boarding light rail. During the PM peak period, many of the light rail boardings would likely originate from nearby commercial, retail, and office parks planned as part of redevelopment strategy in the Bel-Red Subarea Plan. The 120th and 130th Stations are within moderately close walking distance of each other. This is illustrated in Exhibit 7-13. Pedestrians would access the station that is closest to their walk route. The western edge of the 120th Station walking area is constrained by terrain and presents a barrier to effectively connect potential pedestrians from the west with this station. These factors would likely be the cause of the lower level of pedestrian activity at 120th Station.

At the Overlake Village Station, the future PM peak volumes of pedestrians would primarily consist of riders transferring between light rail and other modes. Many of the pedestrian trips would be coming from the nearby office parks, commercial, and mixed land uses. For improved bicycle and pedestrian connections between the Overlake Village Station (associated with *Preferred Alternative D2A*) and the commercial properties north of SR 520, the City of Redmond could build a new, nonmotorized, multiuse bridge over SR 520.

TABLE 7-13
Nonmotorized Characteristics and Facilities Adjacent to Station Areas – Segment D

Station/Alternative	Station Type	Bicycle Facility Capacities[a]		Adjacent Roadway Speed Limits [b]	Walkability Barriers	Crosswalks	Average Block Length (feet)	Percent Sidewalk[c] (percent)		Bicycle Facilities[d] (percent)		Major Existing Land Uses[e]
		Racks	Lockers					Existing	Future	Existing	Future	
120th Station												
Preferred Alternative D2A and D2A – 120th Station Design Option	Retained cut (at-grade for design option)	54	6	NE 16th Street: 30 mph	Until planned projects, limited areas with continuous sidewalk	Not present until planned NE 15th/16th Street extension	845	45	95	10	65	Light Industrial: 60% Office: 19% Commercial: 9% Multifamily: 6% Medical Institution: 2%
130th Station												
Preferred Alternative D2A and Alternatives D2E and D3	At-grade	54	6	NE 16th Street: 30 mph	Until planned projects, limited areas with continuous sidewalk	Not present until planned NE 15th/16th Street extension	880	60	100	15	60	Light Industrial: 48% Single family: 16% Commercial: 14% Office: 10% Multifamily: 7%
Overlake Village Station												
Preferred Alternative D2A	At-grade	54	6	152nd Avenue NE: 40 mph NE 24th Street: 30 mph	Proximity to SR 520	Present at Overlake Village Park-and-Ride and at 152nd Avenue NE/24th Street NE	695	90	90	20	50	Mixed use: 23% Office: 8% Commercial: 50%
D2A - 24th Design Option and Alternatives D2E and D3	At-grade						665	90	95	20	50	Mixed use: 28% Commercial: 40% Multifamily: 6%
Alternative D5	At-grade						675	90	95	20	50	
Overlake Transit Center Station												
All Segment D alternatives		188	12	NE 40th Street: 35 mph 156th Avenue NE: 35 mph	Proximity to SR 520	Present; new crosswalk on south leg of NE 38th Street and 156th Avenue NE	615	80	85	30	55	Commercial: 80% Multifamily: 8% Light Industrial: 6% Single family: 4%

Notes: Existing and future sidewalks were analyzed on arterial streets within 0.5 mile walking distance of station locations; existing and future bicycle and trail facilities were analyzed on arterial streets within 1 mile of station locations.

[a] The rack and locker values represent the available capacity at each station; this does not indicate the number of facilities provided by year of opening. At the current level of design, it is expected that approximately 50 to 65 percent of the available capacity would be provided within the project's timeframe.

[b] Speed limit of road(s) adjacent to light rail station.

[c] Percent of sidewalk coverage within 0.5 mile of light rail station.

[d] Percent of bicycle facility coverage within 1 mile of light rail station.

[e] Existing major land uses within 0.5 mile of light rail station. Percentages might not sum to 100 percent because of minor land uses and/or rounding.

At the Overlake Transit Center Station, about two-thirds of the transit riders would transfer among modes, and the remaining third would be pedestrian and bicyclists. The majority of the pedestrian activity at this station in the PM peak period would consist of commuters coming from large employment centers near the station and boarding light rail. To help facilitate pedestrian movements across 156th Avenue NE, the project would provide another crosswalk at the intersection of NE 38th Street with the Overlake Transit Center Station is provided with the project. For improved bicycle and pedestrian connections between the Overlake Transit Center Station and the properties west of SR 520, a new nonmotorized, multiuse bridge over SR 520 could be constructed by others.

Currently, there are limited sidewalks and crosswalks on NE 16th Street between 132nd Street and 136th Place NE and on 136th Place NE between NE 16th Street and NE 20th Street. *Preferred Alternative D2A* would provide sidewalks on both streets, and crosswalks would be located at the NE 16th Street and 132nd Avenue NE and at the NE 16th Street and 136th Place NE intersections. Increases in the pedestrian crossing distance at signalized intersections would occur along NE 16th Street and 136th Place NE. Additionally, planned improvements included in the Bel-Red Subarea Plan would provide sidewalks and crosswalks near both 120th and 130th Stations with the 15th Street Roadway Extension Project being designed by the City of Bellevue.

Sidewalks at the intersections nearest to all station entrances for *Preferred Alternative D2A* would operate at LOS A in the no-build and build conditions, indicating that pedestrian flows to and from the station would occur without crowding (see Appendix F of this Transportation Technical Report). There would be no impacts on any school walk routes with *Preferred Alternative D2A*.

Other Segment D Alternatives

Similarly to *Preferred Alternative D2A*, the pedestrian facilities planned as part of the City of Bellevue's *Bel-Red Subarea Plan* (City of Bellevue, 2008a) would support and connect to the 120th and 130th Stations for Alternatives D2E and D3. Because neither 120th Station nor 130th Station is considered with Alternative D5, there would be no nonmotorized benefits for this alternative with the *Bel-Red Subarea Plan*. The PM peak-period pedestrian trips generated at the 120th and 130th Stations for Alternatives D2E and D3 would be similar to the trips generated at 120th Station with *Preferred Alternative D2A*.

Pedestrian circulation to and from the private properties west of 152nd Avenue NE, near the Overlake Village Station, would be relocated to 151st Avenue NE with the D2A – NE 24th Design Option, Alternatives D2E and D5 as these alternatives would prohibit pedestrians from crossing the tracks. This would create some out-of-direction or circuitous travel for pedestrians to and from the east. Alternative D3 would provide an additional crosswalk north of the Overlake Village Station at NE 26th Street to accommodate pedestrian movements to and from the station platform. Pedestrian circulation at Overlake Transit Center for Alternatives D2E, D3, and D5 is similar to the conditions for *Preferred Alternative D2A*.

Similarly to *Preferred Alternative D2A* sidewalks would be provided on NE 16th Street between 132nd Street and 136th Place NE and on 136th Place NE between NE 16th Street and NE 20th Street for Alternatives D2E and D3. Increases in the pedestrian crossings distances would occur at the signalized intersections along NE 16th Street and 136th Place NE (similarly to *Preferred Alternative D2A*) and at NE 24th Street and 152nd Avenue NE with Alternatives D2E and D3. In addition, with Alternative D3, increases in pedestrian crossings distances would occur along NE 20th Street between 136th Place NE and 152nd Avenue NE.

Similar to *Preferred Alternative D2A*, sidewalks at the intersections nearest to all the Alternatives D2E, D3, and D5 station entrances would operate at LOS A in the no-build and build conditions (see Appendix F of this Transportation Technical Report).There would be no impacts on any school walk routes with Alternatives D2E, D3, and D5.

7.3.4.2 Bicycle Circulation

The stations in Segment D would have minimal to no impacts on existing bicycle circulation. All arterial streets are part of a designated bicycle route system; however, bicycle circulation is currently limited because designated bicycle lanes are not present on arterial streets. Bicycle circulation in Segment D would also be limited by the presence of higher traffic volumes on wider arterials such as Bel-Red Road and NE 20th Street. As indicated in the Pedestrian Circulation section (Section 7.3.4.1), the substantial bicycle improvements included in the City of Bellevue's *Bel-Red Subarea Plan* (City of Bellevue, 2008a) would support and connect the 120th and 130th Stations. Bicycle storage and wayfinding at Segment D stations would be provided. The proposed bicycle facilities at the Segment D stations are shown in Table 7-13.

Preferred NE 16th At-Grade Alternative (D2A)

In the Bel-Red area near the 120th and 130th Stations, bicycle facilities planned as part of the transportation and land use projects included in the City of Bellevue's *Bel-Red Subarea Plan* (City of Bellevue, 2008a) would support and connect to these stations. Both of these stations would be close to the SR 520 Multiuse Regional Trail; however, trail access would be limited to public park areas, and direct access from arterial streets would be constrained by terrain and private property.

Bicycle circulation conditions near the Overlake Village Station and the Overlake Transit Center Station would be similar to existing conditions. To improve nonmotorized connections between Overlake Village Station (associated with *Preferred Alternative D2A*) and the commercial properties north of SR 520, the City of Redmond could build a new, nonmotorized, multiuse bridge over SR 520. Additionally, improved bicycle and pedestrian connections between the Overlake Transit Center Station and the properties west of SR 520, could occur if a new nonmotorized, multiuse bridge over SR 520 were built by others.

Although the Overlake Village Station and Overlake Transit Center Station stations are located close to the SR 520 Regional Multiuse Trail, access between the trail and these stations would be indirect as trail users would need to cross SR 520 unless the nonmotorized bridges proposed by others were to be built.

Other Segment D Alternatives

All other Segment D alternatives (D2A – 120th and NE 24th Design Options, D2E, and D3) except Alternative D5 would have bicycle impacts at the 120th and 130th Stations similar to those of *Preferred Alternative D2A*. Similar to the pedestrian circulation, because neither 120th Station nor 130th Station is considered with Alternative D5, there would be no nonmotorized benefits with this alternative in conjunction to the Bel-Red Subarea Plan. All of the other Segment D alternatives would have similar bicycle impacts at the Overlake Village and Overlake Transit Center to those of the *Preferred Alternative D2A*.

7.3.5 Segment E

The Redmond Town Center is a major commercial destination within the East Link Project corridor and the Downtown Redmond and Redmond Town Center stations would generates the highest pedestrian activity among the proposed Segment E stations, as indicated in Table 7-14. Pedestrian and bicycle circulation and connectivity within Segment E would be improved with development projects or planned city capital improvements, as indicated by the increase in planned sidewalks listed in Table 7-15.

TABLE 7-14
PM Peak-Period (3-hour) Walk and Bicycle Trips Generated by Segment E Stations

Station (Associated Alternatives)	2020			2030		
	Boarding	Alighting	Total	Boarding	Alighting	Total
Redmond Town Center (Alternative E1, E2 – Redmond Transit Center Station Design Option, Alternative E4)	160	120	280	220	100	320
SE Redmond (E1, *Preferred Alternative E2*, Alternative E4)	50	20	70	50	20	70
Downtown Redmond (*Preferred Alternative E2)*	220	100	320	270	110	380
Redmond Transit Center (E2 – Redmond Transit Center Station Design Option)	50	60	110	70	80	140

[a] Person-trips for alternative with highest ridership.
Note: Because of rounding, in and out walk and bicycle trips might not sum exactly to total walk and bicycle trips.
Alighting – people exiting the light rail vehicle.

Preferred Marymoor Alternative (E2) would serve Downtown Redmond Station, while Alternative E1, E2 – Redmond Transit Center Design Option, and Alternative E4 would serve Redmond Town Center Station, and all Segment E alternatives would include SE Redmond Station. The E2 – Redmond Transit Center Design Option would also serve Redmond Transit Center Station.

7.3.5.1 Pedestrian Circulation

Preferred Marymoor Alternative (E2)

Preferred Marymoor Alternative (E2) would be the only alternative that would serve the at-grade Downtown Redmond Station. This station would have the highest number of PM peak-period bicycle and pedestrian trips compared with the other Segment E stations as it surrounds major commercial and retail areas. If light rail riders were to park at the Redmond Transit Center they would need to cross SR 202 to access this station. Most light rail riders at this station are expected to make bus transfers or walk to and from the surrounding commercial and retail areas.

Preferred Alternative E2 would also serve the SE Redmond Station. The pedestrian activity at the SE Redmond Station would primarily be within the facility and occur at the park-and-ride area as a result of many people transferring from light rail to autos. This travel pattern would be expected because the surrounding land uses include industrial and commercial buildings. Pedestrian circulation near this station would also be limited by wide, multilane arterials with heavy traffic volumes and by the proximity to SR 520, which is a physical barrier to travel to and from Downtown Redmond.

The future BNSF Railway regional multiuse trail would provide pedestrian access to and from both of these stations. With *Preferred Alternative E2,* crossings at 161st, 164th, 166th, and 170th Avenues NE, and NE Leary Way would be maintained. Light rail crossing gates would be installed at the at-grade intersections and driveways along the BNSF Railway corridor through Downtown Redmond to provide safe vehicle and pedestrian movements across the tracks. Pedestrian crosswalks at these locations would be maintained.

Other Segment E Alternatives

The Redmond Way Alternative (E1), E2 – Redmond Transit Center Station Design Option, and Leary Way Alternative (E4) would serve the at-grade Redmond Town Center Station. Most light rail pedestrian activity at the Redmond Town Center Station would be similar to activity at the Downtown Redmond Station with *Preferred Alternative E2*. Close to one-third of the riders at Redmond Town Center Station would likely walk to and from the surrounding commercial and retail areas.

With Alternative E2 – Redmond Transit Center Station Design Option, while 35 percent of the future PM peak-period person-trips at the Redmond Transit Center Station would be pedestrians or bicyclists there are less than 150 walk and bike trips forecasted at this station. This is likely because of the nearby Redmond Town Center Station. This indicates a lower degree of circulation extending beyond the station area to the residential and commercial areas. The highest pedestrian activity at Redmond Transit Center Station would occur within the station at the park-and-ride lot, because many riders would be transferring between modes.

Pedestrian circulation and connectivity at SE Redmond Station for Alternatives E1 and E4 would be similar to those discussed for *Preferred Alternative E2*. In terms of pedestrian crosswalk conditions, increases in walking distances across streets are only expected with Alternative E2 – Redmond Transit Center Station Design Option along 161st Avenue NE from Cleveland Street to NE 85th Street.

Similarly to *Preferred Alternative E2*, Alternatives E1 and E4 would use the former BNSF Railway right-of-way. Both of these alternatives would have street crossings at 164th, 166th, and 170th Avenues NE. Alternative E1 would have additional crossings at 161st Avenue NE and NE Leary Way, similar to *Preferred Alternative E2*. Alternative E4 would have additional crossings at Bear Creek Parkway and NE 76th Street. Pedestrian crosswalks at these locations would be maintained. To provide safe vehicle and pedestrian movements across the tracks, light rail crossing gates would be installed at at-grade intersections and driveways along the corridor through Downtown Redmond. At the Redmond Transit Center Station, pedestrian access to the station platform would occur at the crosswalks at NE 80th and 83rd Streets.

Sidewalks at the intersections near entrances of the Downtown Redmond, Redmond Town Center, SE Redmond, and Redmond Transit Center Stations would operate at LOS A, as shown in Appendix F of this Transportation Technical Report, indicating that pedestrian crowding on sidewalks is not expected. The recommended walk route for Redmond Elementary School consists of collector and local streets in residential areas and impacts on the walk route are not expected as none of the East Link alternatives would cross these routes.

7.3.5.2 Bicycle Circulation

With the East Link project, circulation for bicyclists in Segment E would likely not differ greatly from circulation under the no-build condition. Future bicycle improvement projects would enhance bicycle circulation with or without the project by improving access to Marymoor Park and the Sammamish Regional Multiuse Trail system. These bicycle facilities would be close to the proposed stations; however, SR 520 would hinder direct access to them, especially from the Redmond Town Center. With the close location of the regional trail system surrounding the proposed stations in Segment E, bicycle storage facilities are proposed at the stations, as shown in Table 7-15.

Preferred Marymoor Alternative (E2)

The *Preferred Alternative E2* would not preclude the potential development of a multiuse trail located along the former BNSF Railway tracks parallel to light rail tracks. Developing a multiuse trail in this corridor would create a pedestrian and bicycle connection between Bear Creek Trail and Lake Sammamish. The trail would be directly accessible from the SE Redmond Station and Downtown Redmond Station and allow nonmotorized commuters to transfer to light rail.

TABLE 7-15
Nonmotorized Characteristics and Facilities Adjacent to Station Areas – Segment E

Station Alternative	Station Type	Bicycle Facility Capacities[a]		Adjacent Roadway Speed Limits[b]	Walkability Barriers	Crosswalk	Average Block Length (feet)	Sidewalk[c] (percent)		Bicycle Facilities[d] (percent)		Major Existing Land Uses[e]
		Racks	Lockers					Existing	Future	Existing	Future	
Redmond Town Center Station												
Alternatives E1, E2 – Redmond Transit Center Station Design Option, and E4	At-grade	54	6	NE 76th Street: 25 mph Cleveland Street: 30 mph	No major barriers	Present	530	90	95	75	90	Commercial: 64% Park: 21% Multifamily: 6%
SE Redmond Station												
Preferred Alternative E2 and E2 - Redmond Transit Center Station Design Option	At-grade	54	6	SR 202: 45 mph NE 70th Street: 25 mph	Proximity to SR 520; few sidewalk adjacent to station	Present	600	90	95	75	95	Park: 37% Light Industrial: 20% Design (overlay) District: 11% Commercial: 25%
Alternative E1	Elevated					Present	760	80	85	70	90	Light Industrial: 43% Park: 24% Design (overlay) District: 12% Commercial: 7% Business Park: 6%
Alternative E4	At-grade					Present	650	90	95	75	95	Light Industrial: 37% Park: 21% Downtown/Mixed Use: 13% Commercial: 20%
Downtown Redmond Station												
Preferred Alternative E2	At-grade	54	6	Leary Way: 35 mph Cleveland Street: 30 mph	No major barriers	Present	505	85	95	80	95	Office: 45% Commercial: 20% Single-family: 20% Multifamily: 7% Park: 6%
Redmond Transit Center Station												
E2 - Redmond Transit Center Station Design Option	At-grade	54	6	161st Avenue NE: 30 mph NE 83rd Street: 30 mph Redmond Way: 30 mph	No major barriers	Present	505	85	95	85	100	Commercial: 61% Multifamily: 17% Park: 10% Business Park: 5% Single-family: 3%

Notes: Existing and future sidewalks were analyzed on arterial streets within 0.5 mile walking distance of station locations; existing and future bicycle and trail facilities were analyzed on arterial streets within 1 mile of station locations.

[a] The rack and locker values represent the available capacity at each station; this does not indicate the number of facilities provided by year of opening. At the current level of design, it is expected that approximately 50 to 65 percent of the available capacity would be provided within the project's timeframe.

[b] Speed limit of road(s) adjacent to light rail station.

[c] Percent of sidewalk coverage within 0.5 mile of light rail station.

[d] Percent of bicycle facility coverage within 1 mile of light rail station.

[e] Existing major land uses within 0.5 mile of light rail station. Percentages might not sum to 100 percent because of minor land uses and/or rounding.

Other Segment E Alternatives

The bicycle lanes along 161st Avenue NE would be maintained with Alternative E2 – Redmond Transit Center Station Design Option to ensure nonmotorized connectivity between Redmond Transit Center Station, the nearby Sammamish Regional Multiuse Trail and the proposed multiuse trail located along the former BNSF Railway corridor. Similarly to the *Preferred Alternative E2*, Alternatives E2 – Redmond Transit Center Station Design Option and Alternatives E1 and E4 would not preclude the potential multiuse trail located along the former BNSF Railway corridor. The trail would be directly accessible from SE Redmond Station and Redmond Town Center Station and would allow nonmotorized commuters to transfer to light rail.

7.3.6 Construction Impacts

Potential construction impacts for pedestrian and bicycle circulation could occur along streets with partial or full closures because these types of construction areas might restrict or provide detour routes for pedestrians and/or bicyclists. Section 6.4 discusses and lists the streets with expected closures during construction. Sound Transit would minimize disruptions to the sidewalk or bicycle network and provide detours as practical during construction.

In Bellevue, a number of bicycle facilities are planned as part of the City's future transportation improvement projects (Exhibits 7-9, 7-10, and 7-11) within the study area. If these projects are completed before light rail construction, these new bicycle lanes and routes that are located within or adjacent to light rail construction areas could be temporarily affected during construction, and they would be closed or detours would be provided, depending on the type of construction activity. In Redmond, most arterials are designated as existing bicycle routes or lanes. Similarly to the potential impacts on bicycle facilities in Bellevue, bicycle facilities in Redmond would be temporarily closed or detours would be provided during construction.

Regional multiuse trails might experience some temporary construction impacts because of their proximity to the alternatives. In Segments B, C, D and E, the potential multiuse trail along the former BNSF Railway corridor would be affected in some areas if constructed prior to East Link.

7.3.6.1 Segment A

The portion of the I-90 Multiuse Regional Trail on the I-90 bridge would not be affected by light rail construction as most of the construction activities would occur in reversible center roadway.

7.3.6.2 Segment B

Near the I-90 and Bellevue Way interchange, the I-90 Multiuse Regional Trail could be temporarily affected by construction associated with any of the Segment B alternatives. During construction, temporary trail closures or detours could occur where the trail is close to the I-90 and Bellevue Way ramps, and near the western boundary of Mercer Slough Nature Park. During the civil construction period for alternatives along Bellevue Way (*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3) sidewalk on the eastern side of Bellevue Way SE and 112th Avenue SE would likely close and require detours. A portion of the Periphery Loop Trail would be closed during construction and require detours. Sidewalk along Bellevue Way, north of 112th Avenue SE, would likely be closed on one side during the Alternative B1 civil construction period. The 118th Avenue Regional Multiuse Trail could be temporarily affected near I-90 by construction associated with the BNSF Alternative (B7). Also with Alternative B7, short-term, nonmotorized construction impacts would occur with the construction of the elevated profile along 118th Avenue SE.

7.3.6.3 Segment C

During the civil construction period of *Preferred Alternative C11A*, sidewalks along 112th Avenue SE, Main Street, and 108th Avenue NE and NE 6th Street would likely remain open on one side, to the extent possible, pedestrian connections would be maintained at intersections. Pedestrian access to buildings would also be maintained. During the civil construction period for *Preferred Alternative C9T*, sidewalks along 112th Avenue SE, Main Street, and 110th Avenue NE and NE 6th Street would likely remain open on one side, to the extent possible, pedestrian connections would be maintained at intersections. Pedestrian access to buildings would also be maintained.

Civil construction activities with Alternatives C1T, C2T, and C3T would likely close sidewalks on at least one side of the street along the construction route; pedestrian connections would be maintained, to the extent possible, at intersections. The pedestrian connections along NE 6th Street would be maintained with Alternative C1T and

Alternative C2T construction either along this route or nearby roads, depending on the construction activity. The civil construction period of Alternative C4A, the sidewalk would likely be closed on one side of 108th and 110th Avenues NE and along one side of Main Street and NE 12th Street between 108th and 112th Avenues NE. Civil construction activities associated with Alternative C9A would have nonmotorized impacts similar to *Preferred Alternative C9T*.

There would be minimal impacts on pedestrians and bicyclists during the civil construction of Alternatives C7E and C14E. The bicycle route along 114th Avenue SE between SE 6th and Main streets would likely be rerouted along SE 6th Street and 112th Avenue SE during construction of Alternative C14E. Construction associated with Alternative C8E would likely close sidewalks on one side of the street along the construction route of NE 2nd Street, 110th Avenue NE, and NE 12th Street.

7.3.6.4 Segment D

During the civil construction period, the SR 520 Multiuse Regional Trail in Segment D is located along the north side of SR 520, and construction impacts are not expected because the alternatives in Segment D would be located on the south side of SR 520 and therefore do not require widening or realignment of SR 520 that could require relocating the trail. The construction of a pedestrian bridge across SR 520 to the Overlake Village Station with the *Preferred Alternative D2A* and the Overlake Transit Center (all Segment D alternatives) would create short-term lane closures on SR 520.

Sidewalk, for *Preferred Alternative D2A* (and both the D2A - 120th and NE 24th Design Options) and Alternatives D2E and D3, would likely remain open on one side of the road along NE 16th Street between 132nd Street NE and 136th Place NE, 136th Place NE and Microsoft Road. Along the proposed NE 15th Street extension between 120th Avenue NE and 124th Avenue NE, sidewalk closures would be likely under Alternatives D2E and D3. Sidewalk on one side of 24th Street between 148th Avenue NE and 152nd Avenue NE would likely be closed with D2A – NE 24th Design Option and Alternative D2E. Alternative D3 would likely have sidewalk closures along NE 20th Street between 136th Place NE and 152nd Avenue NE and along 152nd Avenue NE. Alternative D5 would likely have sidewalk closures along the westside of 152nd Avenue NE and Microsoft Road.

7.3.6.5 Segment E

The elevated alternatives in Segment E would cross the Sammamish River Trail, resulting in minor short-term detours. The Segment E alternatives would also cross the Bridle Crest Trail and the Bear Creek Trail, resulting in minor short-term detours. Alternative E1 would also require minor realignment of the East Lake Sammamish Trail in the area along the former BNSF Railway tracks. With Alternative E2 – Redmond Transit Center Station Design Option, sidewalk along 161st Avenue NE would be closed.

7.4 Potential Mitigation

No adverse impacts have been identified due to the East Link operations and therefore no mitigation to nonmotorized facilities is proposed. As described in Section 3.7.3, Sound Transit would provide pedestrian and bicycle improvements at East Link stations. Sound Transit would work with the local agencies regarding alternatives and stations located within the median of roadways so that the most appropriate treatments would be provided for safe and effective pedestrian crossings and access. These treatments could include painted crosswalks or signals, street lighting, warning lights or bells, or signage.

During construction, Sound Transit would minimize potential impacts on pedestrian and bicycle facilities by providing detours within construction areas, such as protected walkways, and notify the public as determined appropriate by the project. For instance, with the sidewalk closed along Bellevue Way SE and 112th Avenue SE during the construction of *Preferred Alternative B2M*, methods to maintain pedestrian access could include using a protected walkway adjacent to the construction area or similar provision and notifying the public, as determined appropriate by the project. Multiuse trails that might be affected by construction would generally be kept open for use, but detours would be provided when trails are closed, unless they are closed for short durations or in areas where a detour option is not feasible. Public notification efforts would be conducted for temporary trail closures during construction.

8.0 Freight Mobility and Access

8.1 Section Overview

This section describes the affected environment for freight and describes any impacts on freight during East Link construction and light rail operation within the study area. Freeways, arterials, and local streets throughout the East Link Project vicinity are vital to moving freight and goods between major transportation hubs such as the Port of Seattle, Sea-Tac Airport, and other business and consumer destinations. Within the East Link study area, only roadways are used as freight transportation.

About 140,000 vehicles travel on the I-90 bridge across Lake Washington every day. Of this number, about 6,300 are trucks, or 4.5 percent of the total vehicles on the bridge. About two-thirds of these trucks travel outside of the AM and PM peak periods to avoid the more heavily congested times of the day. Due to weight and access restrictions, slightly more than 1 percent of the total traffic on the reversible center roadway of I-90 is considered to be trucks.

The East Link Project would have an overall slight beneficial impact on trucks traveling on I-90. As people choose to use light rail, the travel time of trucks during the morning peak hour are comparable and improve by an average of 5 minutes in the afternoon compared with the No Build Alternative. Trucks volumes across Lake Washington on I-90 during East Link operations are comparable in both the morning and the afternoon peak hours when compared with the No Build Alternative.

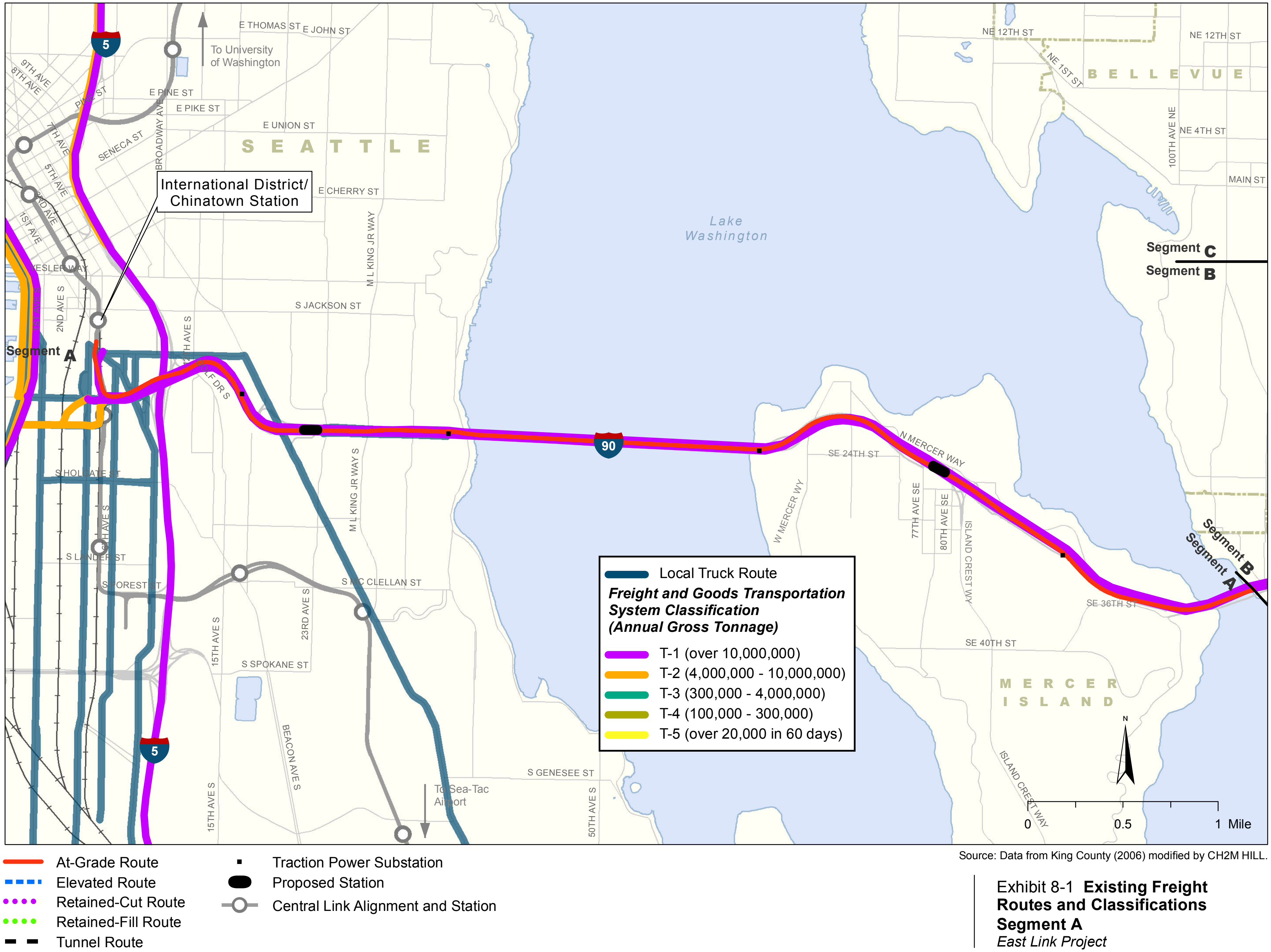
On the arterial and local street network, the East Link alternatives are not anticipated to negatively affect truck circulation or truck routes. The light rail at-grade profiles that cross or travel along designated truck routes are not expected to impact trucks because intersection operations with East Link would be similar or improved compared with the No Build Alternative. On the regional highway and arterial street networks, truck travel outside of the peak periods is expected to remain similar between the No Build Alternative and East Link Project because congestion would be substantially less than in the peak periods and therefore the roadways would operate below their capacity in both conditions.

8.2 Affected Environment

Truck mobility within the Puget Sound region is largely supported by a system of designated truck routes consisting of freeways and arterial streets that connect major freight destinations. Within the East Link study area, there are key freight corridors that serve not only the Puget Sound region but also national and international markets. These corridors include I-90 and I-405, as well as many local truck routes with a primary purpose of facilitating the flow of deliveries to local businesses. To prioritize these truck routes, WSDOT adopted the Freight Goods Transportation System (FGTS), which classifies roadways according to the amount of annual tonnage transported along these roads. The classifications range from roadways that carry more than 20,000 tons in 60 days to more than 10,000,000 tons annually (Table 8-1). Jurisdictions determine their designated truck route system on arterial streets according to the FGTS classifications. Exhibits 8-1 through 8-3 show the location of truck routes in each jurisdiction within the study area. Within the East Link study area, only roadways are used for freight transportation, although some of the freight transportation on I-90 and other highways (I-405 and SR 520) in the study area are associated with rail and marine facilities, such as the Port of Tacoma and Port of Seattle.

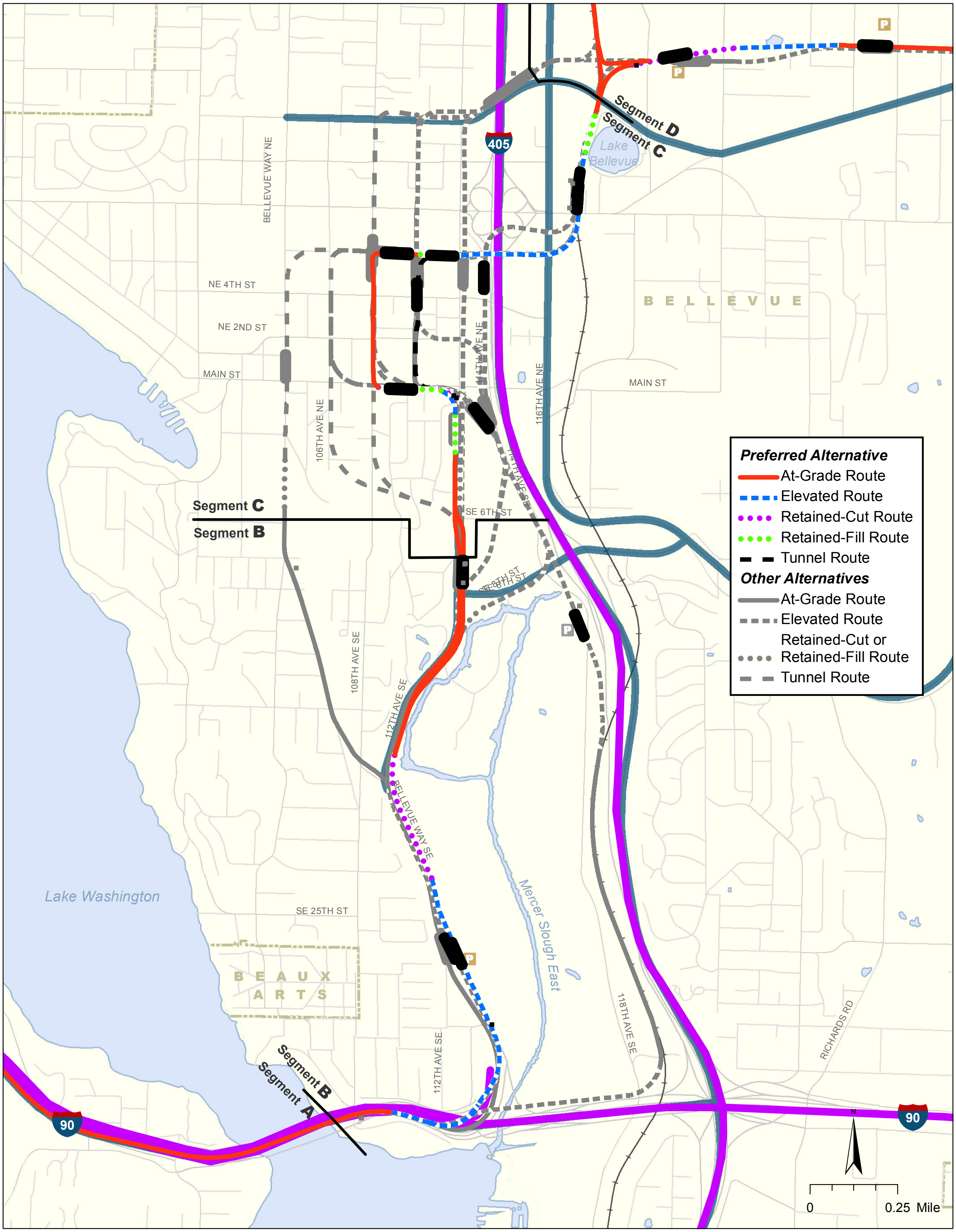
8.2.1 Regional Highways

In Segment A, I-90 is an east-west key truck route connecting local, interstate, and regional freight activity with the Ports of Seattle and Tacoma and surrounding industrial areas across Lake Washington. I-90 serves the international and national markets and is the second most heavily used highway, following I-5, for truck movement in Washington (WSDOT, 2008). From 1993 to 2003, truck traffic on I-90 grew by 72 percent (WSDOT, 2008).


E THOMAS ST
E JOHN ST
To University of Washington
9TH AVE
8TH AVE
PINE ST
E PINE ST
E PIKE ST
E UNION ST
7TH AVE
SENECA ST
BROADWAY AVE
S E A T T L E
5TH AVE
3RD AVE
1ST AVE
International District/ Chinatown Station
E CHERRY ST
M L KING JR WAY
YESLER WAY
2ND AVE S
S JACKSON ST
Segment A
14TH AVE S
RAINIER AVE S
S HOLGATE ST
6TH AVE S
S LANDER ST
S FOREST ST
S MC CLELLAN ST
23RD AVE S
15TH AVE S
S SPOKANE ST
BEACON AVE S
5
90
To Sea-Tac Airport
S GENESEE ST
50TH AVE S
Lake Washington
NE 12TH ST
NE 1ST ST
B E L L E V U E
100TH AVE NE
NE 4TH ST
MAIN ST
Segment C
Segment B
N MERCER WAY
SE 24TH ST
W MERCER WY
77TH AVE SE
80TH AVE SE
ISLAND CREST WY
SE 36TH ST
SE 40TH ST
Segment B
Segment A
M E R C E R I S L A N D
ISLAND CREST WAY
N
0
0.5
1 Mile
Local Truck Route
Freight and Goods Transportation System Classification (Annual Gross Tonnage)
T-1 (over 10,000,000)
T-2 (4,000,000 - 10,000,000)
T-3 (300,000 - 4,000,000)
T-4 (100,000 - 300,000)
T-5 (over 20,000 in 60 days)
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Central Link Alignment and Station

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 8-1 **Existing Freight Routes and Classifications**
Segment A
East Link Project


Segment D
Segment C
Lake Bellevue
405
BELLEVUE WAY NE
NE 4TH ST
NE 2ND ST
MAIN ST
106TH AVE NE
114TH AVE NE
116TH AVE NE
BELLEVUE
MAIN ST
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SE 8TH ST
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
Mercer Slough East
Lake Washington
SE 25TH ST
BEAUX ARTS
112TH AVE SE
118TH AVE SE
RICHARDS RD
Segment B
Segment A
90
90
P
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

▪	Traction Power Substation
▬	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
▬	Local Truck Route

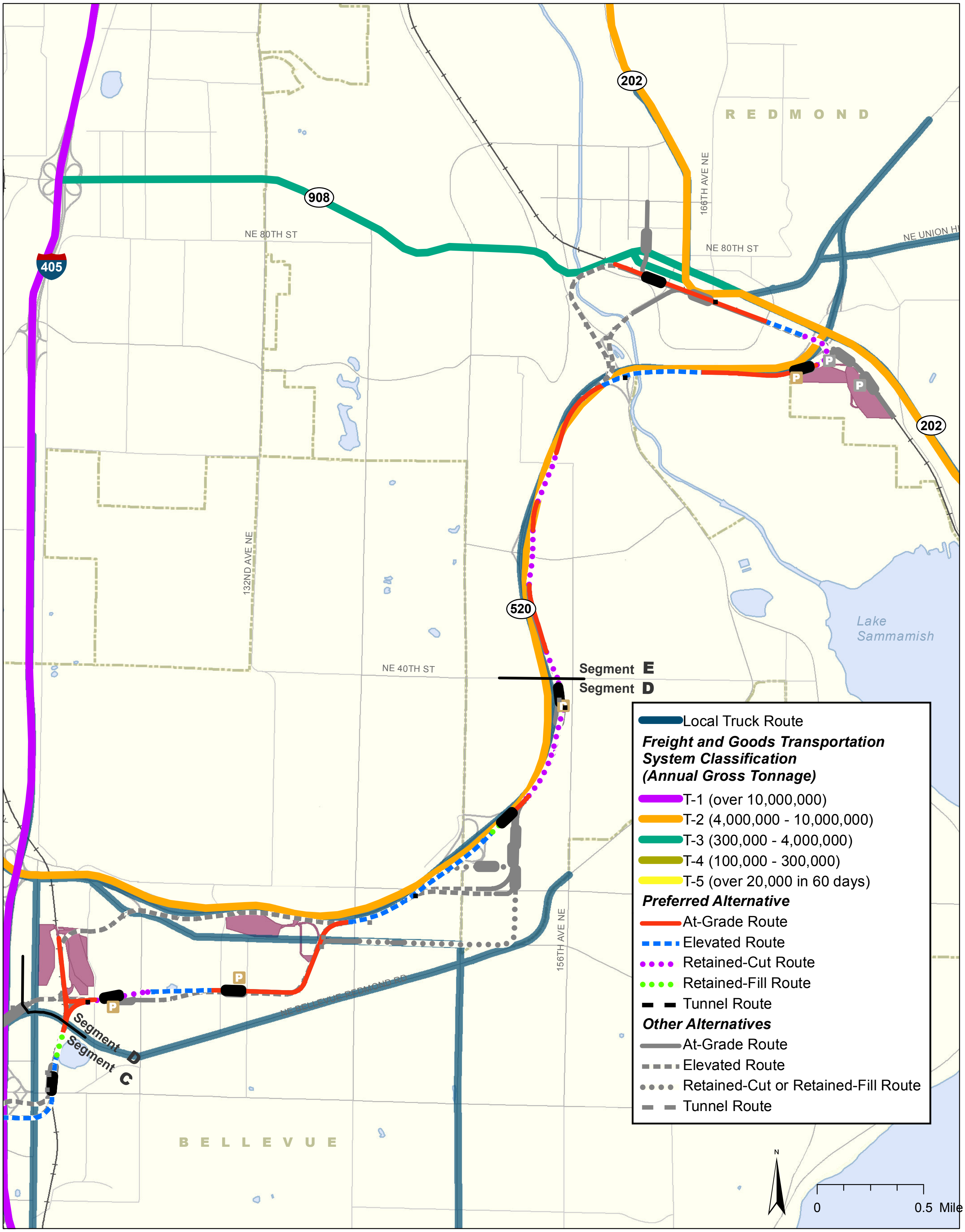
Freight and Goods Transportation System Classification (Annual Gross Tonnage)

▬	T-1 (over 10,000,000)
▬	T-2 (4,000,000 - 10,000,000)
▬	T-3 (300,000 - 4,000,000)
▬	T-4 (100,000 - 300,000)
▬	T-5 (over 20,000 in 60 days)

Source: Data from King County (2006).

Exhibit 8-2 **Existing Freight Routes and Classifications Segments B and C**

East Link Project


405
908
202
520
NE 80TH ST
NE 80TH ST
166TH AVE NE
NE UNION HI
R E D M O N D
132ND AVE NE
NE 40TH ST
156TH AVE NE
Lake Sammamish
Segment E
Segment D
Segment D
Segment C
B E L L E V U E
Local Truck Route
Freight and Goods Transportation System Classification (Annual Gross Tonnage)
T-1 (over 10,000,000)
T-2 (4,000,000 - 10,000,000)
T-3 (300,000 - 4,000,000)
T-4 (100,000 - 300,000)
T-5 (over 20,000 in 60 days)
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
N
0
0.5 Mile

▪ Traction Power Substation

● Proposed Station

▬ Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006).

Exhibit 8-3 **Existing Freight Routes and Classifications Segments D and E**

East Link Project

TABLE 8-1
Freight and Goods Transportation System Classification

FGTS Classification	Annual Gross Tonnage
T-1	Over 10,000,000
T-2	4,000,000 to 10,000,000
T-3	300,000 to 4,000,000
T-4	100,000 to 300,000
T-5	Over 20,000 in 60 days

Source: Washington State Legislative Transportation Committee, Resolution 516, March 16, 1995.
FGTS Freight and Goods Transportation System

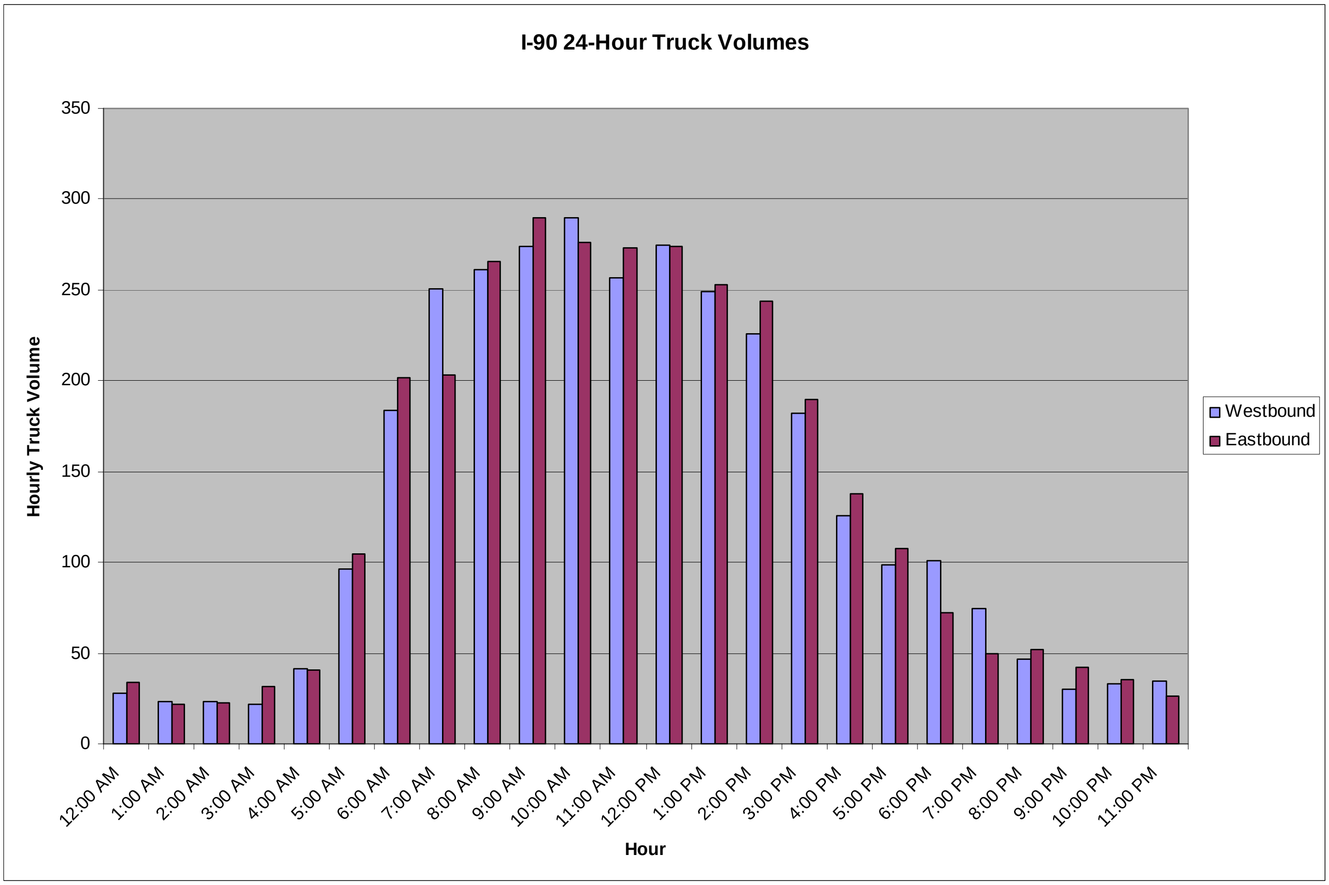
Over the course of a year, more than 31 million tons of freight are hauled across I-90, resulting in its designating under the T-1 FGTS Classification. As shown in Table 8-2, of the approximate 140,000 daily vehicles that cross Lake Washington about 6,300 (or 4.5 percent) of them are truck trips (based on traffic counts conducted on May 1 and 2, 2007) occur on I-90, many of which travel over the I-90 bridge en route to or from the Port of Seattle or other major transportation hubs ,such as Sea-Tac Airport, and to other business and consumer destinations. Many of these truck trips between these transportation hubs are considered long-haul trips across Snoqualmie Pass to or from eastern Washington and beyond (WSDOT, 2005). Within the study area, I-405 is also designated as T-1 freight route, and SR 520 is classified as a T-2 freight route.

TABLE 8-2
Current Peak-Period and Daily Truck Volumes on I-90 Bridge

Time Period	Small Trucks			Medium Trucks			Large Trucks			Total Trucks[a]	Total Vehicles
	Count	Trucks (percent)	Vehicles (percent)	Count	Trucks (percent)	Vehicles (percent)	Count	Trucks (percent)	Vehicles (percent)		
Eastbound											
AM Peak[b]	330	49.4	2.3	252	37.5	1.8	89	13.1	0.6	671 (4.7%)	14,150
PM Peak[b]	241	59.2	1.6	149	36.4	1.0	18	4.4	0.1	408 (2.7%)	14,850
Off Peak	1,125	53.1	2.8	732	34.5	1.8	263	12.4	0.7	2,120 (5.3%)	39,900
Daily	1,696	53.0	2.5	1,132	35.4	1.6	369	11.5	0.5	3,197 (4.6%)	68,900
Westbound											
AM Peak[b]	323	48.8	2.0	256	38.8	1.6	82	12.4	0.5	661 (4.1%)	15,950
PM Peak[b]	219	53.9	1.5	164	40.3	1.1	24	5.8	0.2	407 (2.8%)	14,350
Off Peak	972	46.3	2.5	848	40.5	2.2	279	13.3	0.7	2,099 (5.4%)	39,100
Daily	1,514	47.3	2.2	1,268	39.7	1.8	384	12.0	0.6	3,166 (4.6%)	69,400

Note: Data compiled from two-day vehicle classification count in Mercer Island (May 1 and 2, 2007).
[a] Values in parentheses are percentage of total vehicles that are trucks.
[b] AM peak period is 6:00 to 9:00 a.m., and the PM peak period is 3:00 to 6:00 p.m.

About half of the trucks that cross Lake Washington on I-90 are considered smaller-sized trucks, which include vehicles such as delivery vans and recreational vehicles. About 750 trucks (about 12 percent of the total daily trucks) are large-sized tractor-trailer trucks. Because much of the truck travel avoids the more heavily congested times of the day, about two-thirds of the trucks travel during nonpeak hours. Truck volumes are highest on I-90 crossing Lake Washington from the end of the AM peak period through the midday period (from 9:00 a.m. to 1:00 p.m.). During the early afternoon, truck volumes dramatically decrease to avoid the congestion during the PM peak period because only about 3 percent of total traffic is considered to be trucks during this period. This differs from general volume peaking patterns on I-90, where 50 percent of the total daily volume occurs during the AM and PM peak periods. Exhibit 8-4 provides a chart of the truck volumes throughout the day, and Table 8-2 shows truck volumes during the AM and PM peak periods, along with off-peak and daily totals.



Source: Sound Transit, 2007b

Note: I-90 total daily volume is approximately 140,000.

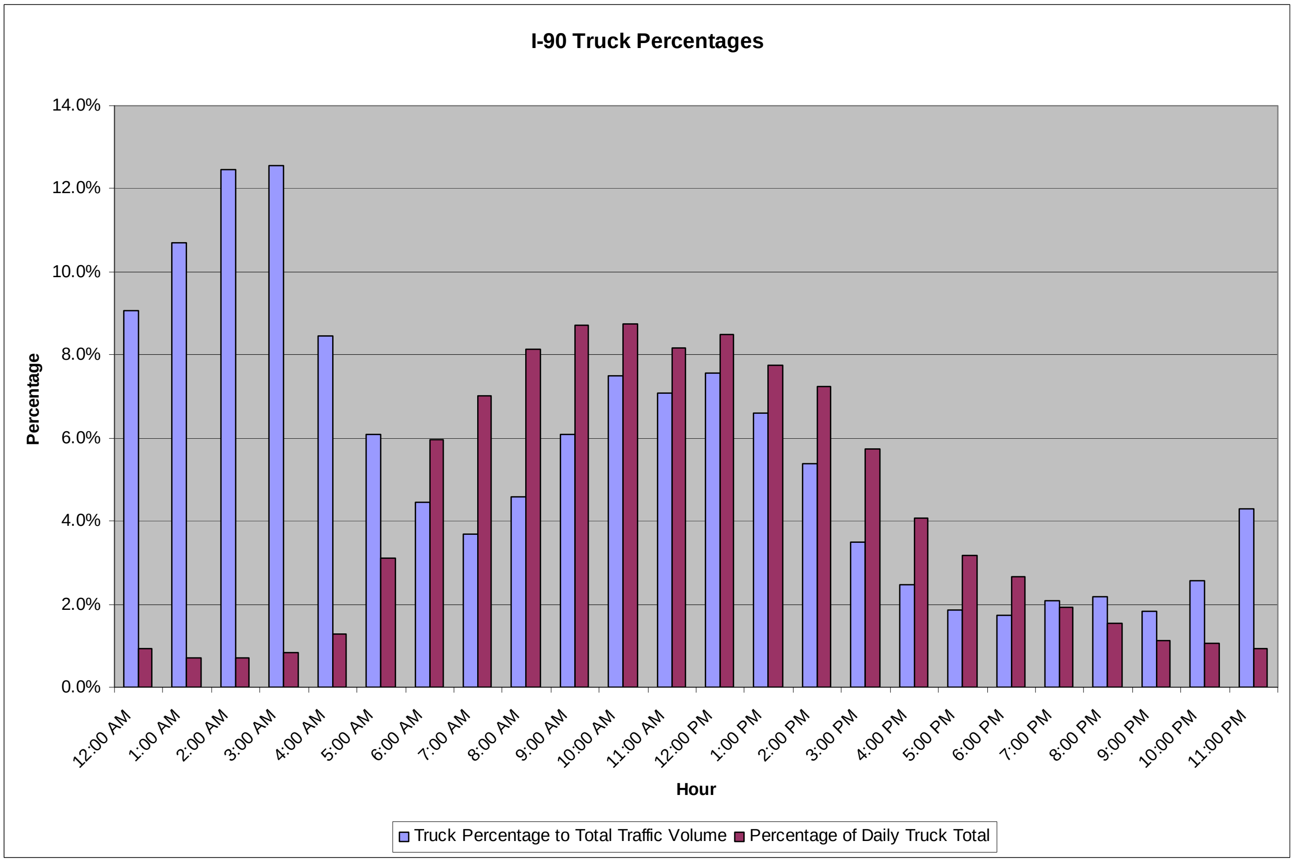
EXHIBIT 8-4

I-90 Existing 24-Hour Truck Volumes

Exhibit 8-5 provides the percentage of trucks compared with the total volumes on I-90, as well as the truck volume as a percentage of the total daily trucks crossing I-90. This exhibit further indicates that trucks patterns shift to avoid the typical morning and afternoon congested periods of the day. This exhibit also indicates that the percentage of trucks, compared with the total number of vehicles on I-90 is lowest during the AM peak period and the PM peak period through the evening. Truck volumes are less than 5 percent of the total traffic from 6 a.m. through 9:00 a.m. and from 3:00 p.m. through the rest of the day. Truck volumes are more than 7 percent of the total traffic from midnight to 4:00 a.m. and from 10:00 a.m. to 1:00 p.m.

Additional truck data was collected in July 2008 to identify the number of trucks that cross Lake Washington on I-90 heading to or from east of I-405 compared with the total number of trucks heading to or from I-405 (Table 8-3). During the AM peak period about 40 percent of the trucks crossing Lake Washington on I-90 are heading to or from east of I-405, with many passing over Snoqualmie Pass. This percentage of trucks continuing east on I-90 increases in the PM peak period to just over 50 percent, but the total number of trucks decreases dramatically in this period as stated previously.

Vehicle weight restrictions established for I-90 require vehicles over 10,000 pounds (for example, tractor-trailers) to only travel on the outer I-90 mainline roadways—vehicles over 10,000 pounds are prohibited from using the reversible center lanes. In addition, trucks less than 10,000 pounds (for example, delivery and recreational vehicles) are allowed to use the center roadway only if they either are an HOV or are heading to or from Mercer Island. Therefore, only a small percentage of trucks travel in the reversible center roadway compared with the I-90 outer mainline roadways. Based on the traffic data collected in May 2007, slightly more than 100 smaller-sized trucks use the center roadway. This is about 1 percent of all the vehicles in this roadway. Table 8-4 provides the truck use in the reversible center roadway.



Source: Sound Transit, 2007b.

EXHIBIT 8-5
I-90 Existing 24-Hour Truck Percentages of Daily Traffic Total and Truck Volumes

TABLE 8-3
Existing Two-Hour Peak-Period Long Haul Truck Volume on I-90

Peak Period and Direction	Trucks on I-90 Mainline	Trucks To and From I-405	Truck Percent East of I-405
AM Peak Period[a]			
Eastbound	450	235	48
Westbound	370	255	31
AM peak period total	820	490	40
PM Peak Period[a]			
Eastbound	195	115	41
Westbound	200	70	65
PM peak period total	395	185	53

Note: Data compiled from two-day vehicle classification count on I-90 (July 2008).

[a] AM peak period is from 6:00 to 9:00 a.m., and PM peak period is from 3:00 to 6:00 p.m.

TABLE 8-4
Current Peak-Period and Daily Truck Volumes on I-90 Reversible Center Roadway

Reversible Center Roadway Direction	AM Peak Period[a]			PM Peak Period[a]			Daily		
	Trucks	Total Vehicles	Percent of Total Vehicles	Trucks	Total Vehicles	Percent of Total Vehicles	Trucks	Total Vehicles	Percent of Total Vehicles
Westbound	36	2,390	1.5	N/A	N/A	N/A	61	3,350	1.8
Eastbound	N/A	N/A	N/A	27	3,260	0.8	50	5,900	0.9

Note: Data compiled from two-day vehicle classification count on I-90 (May 1 and 2, 2007).

[a] AM peak period is from 6:00 to 9:00 a.m., and PM peak period is from 3:00 to 6:00 p.m.

N/A not applicable

8.2.2 Arterials and Local Streets

In Seattle, most of the arterial streets within the study area (such as Rainier Avenue South, 4th Avenue South, and South Dearborn Street) are designated as Major Truck Streets, for which standards for design provide for higher volume truck travel. On Mercer Island, no roadways are designated as truck routes. Many of the truck routes on arterial roadways in Segment B have access to and from either I-90 or I-405. Bellevue Way SE, 112th Avenue SE, and SE 8th Street are all designated truck routes in Bellevue. In Segment C, the key truck routes connect with I-405 at NE 8th Street and NE 4th Street. In addition, NE 12th Street is a truck route connecting Bellevue Way, 112th Avenue NE, and 116th Avenue NE, which are also truck routes in Bellevue. Within Segment C, trucks mainly serve the commercial, office, and retail areas for delivery trips. Within Segment D, truck routes connect the commercial and industrial land uses in the Bel-Red corridor along 116th Avenue NE, 120th Avenue NE, 124th Avenue NE and 148th Avenue NE with access to and from SR 520. Bel-Red Road is also identified as a truck route by the City of Bellevue and City of Redmond. In Segment E, SR 520 is identified as a T-2 route by the State of Washington, and the City of Redmond has designated 148th Avenue NE and a small section of NE 51st Street as truck routes. Near Downtown Redmond, West Lake Sammamish Road and SR 202 are designated truck routes that serve the commercial, retail, and office land uses. SR 202 is further defined as either a T-2 or T-3 route, depending on the section of road.

8.2.3 Rail Freight

Within the study area, the only rail line is the former BNSF Railway, which has track through Segments B, C, and D. There are no rail freight operations within Segments A and E. The Port of Seattle acquired the former BNSF Railway right-of-way from Snohomish to north Renton, including a spur from Woodinville to Redmond. The Port of Seattle intends to secure the corridor for potential future freight rail use but is interested in optimizing the use of this corridor for other transportation modes compatible with freight rail (Port of Seattle, 2008). As the BNSF Railway is no longer used for freight movements, the Wilburton Tunnel, which crosses over southbound I-405, was recently removed and therefore the rail corridor is no longer continuous.

8.3 Environmental Impacts

Future truck travel was evaluated as part of this study to understand future conditions with and without the project on I-90. With the East Link Project, trucks would continue to use the eastbound and westbound outer roadways, similarly to the No Build Alternative. Truck access to and from these roadways would be unchanged because none of the general-purpose ramps to and from I-90 would be modified with the project.

8.3.1 Impacts During Operation

As further described in this section, the East Link Project would have an overall beneficial impact on trucks traveling on I-90. As people choose to ride light rail, truck travel times during peak hours would be maintained or improve, and the ability for trucks to cross Lake Washington on I-90 would be maintained.

In the future, a higher percentage of trucks is expected to cross the bridge during off-peak periods of the day to avoid traffic congestion in the peak periods. PSRC forecasts show that the average annual growth of truck traffic during the AM and PM peak periods on the I-90 bridge will slow for the decade after 2020, compared with years before 2020 (PSRC, 2007). This is because, by 2030, traffic congestion on I-90 will be much worse than it is today, and, therefore, a higher percentage of trucks are expected to cross Lake Washington during off-peak times. With more congestion in the future, there will be fewer uncongested off-peak hours available for truck travel in the no-build condition. Table 8-5 presents expected annual truck growth rates for the AM and PM peak periods by years 2020 and 2030. The result of increasing congestion in the future no-build condition will be an increase in future truck travel times on I-90. As indicated in Table 8-6, under either no-build condition (with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project, or with Stages 1 through 3), travel times are expected to take 35 to 75 percent longer than the existing AM and PM conditions. Overall, average (combined westbound and eastbound travel) peak period truck travel times would take approximately 24 minutes in the AM peak period and 27 minutes in the PM peak period to travel between I-405 and I-5 in the no-build condition.

With the East Link project, truck access to and from the I-90 westbound and eastbound outer roadways would be unchanged because none of the general-purpose ramps to and from I-90 would be modified with the project. Regarding truck travel times, the average truck travel time with the project is expected to either remain similar or improve by up to 5 minutes compared with either of the no-build conditions as it would take 23 minutes in the AM peak period and 22 minutes in the PM peak period to travel between I-405 and I-5. Most of the improved travel time is a result of people shifting to ride light rail as their transportation mode. By direction, truck travel with the East Link Project would be faster than in either of the two no-build condition in all directions except for the AM eastbound direction, where travel time would be 1 minute longer when compared with the No Build Alternative with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project completed. Even though truck travel times might be slightly longer in this direction, more trucks are able to travel on I-90 with the project as there is less congestion compared with the No Build Alternative. Truck travel times would have the largest improvement (up to an 7-minute travel time savings) compared with the no-build condition in the westbound direction during the PM peak period as congestion is expected to noticeably decrease in this direction as people shift from driving to riding light rail.

TABLE 8-5
Forecast Peak-Period Annual Truck Growth Rates on I-90

Peak Period	Average Annual Growth Rate (percent)	
	2007 to 2020 AM	**2007 to 2030 AM**
AM Peak Period	1.1	1.2
PM Peak Period	2.8	2.3

Source: PSRC, 2007.

In addition to truck travel times, Table 8-6 provides information on how many trucks would travel on I-90 during the peak periods in 2030. Overall, the number of trucks traveling on I-90 in the AM and PM peak periods would be more in the build condition compared with the No Build Alternative, when Stages 1 through 2 of the I-90 Two-Way Transit and HOV Operations Project are completed, and similar when compared with the No Build Alternative, when Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project are completed.

More trucks would cross I-90 in the nonpeak directions (eastbound in the morning and westbound in the afternoon) because congestion would improve with people riding light rail instead of driving. In the peak directions, a similar to less number of trucks would cross I-90 because congestion would remain similar with the project as the reversible center roadway would be closed to vehicles. Currently, during nonpeak periods, auto congestion on I-90 is substantially reduced, even though truck traffic is at much higher levels than during the peak periods. Because congestion is less during these periods, the East Link Project, compared with the No Build Alternative, is not expected to have an impact on truck travel during these periods. Thus, the bulk of the truck traffic would remain unaffected by the project.

The design options to potentially close the eastbound HOV direct-access off-ramp or westbound HOV direct-access on-ramp with Bellevue Way and design options for the eastbound HOV off-ramp at Mercer Island are not expected to cause impacts or circulation changes for trucks because these ramps are restricted to HOV and transit use. Similarly, the closure of the Mercer Island ramps to and from the reversible center roadway is not expected to cause truck-circulation impacts because similar access would be provided on the westbound and eastbound mainline roadways.

TABLE 8-6
Existing and Forecast 2030 AM and PM 2-Hour Peak-Period I-90 Bridge Truck Volumes and Travel Times

		Existing		No Build[a]		No Build[b]		Build	
Period	**Direction**	**Number of Trucks[c]**	**Travel Time[d] (minutes)**	**Number of Trucks[c]**	**Travel Time[d] (minutes)**	**Number of Trucks[c]**	**Travel Time[d] (minutes)**	**Number of Trucks[c]**	**Travel Time[d] (minutes)**
AM Peak (6:00 to 9:00 a.m.)	Westbound	480	13	410	30	440	27	430	25
	Eastbound	470	16	480	18	570	21	620	22
	AM peak total	**950**	**14**	**890**	**24**	**1,010**	**24**	**1,060**	**23**
PM Peak (3:00 to 6:00 p.m.)	Westbound	430	20	450	33	470	32	660	25
	Eastbound	360	19	340	21	570	22	370	20
	PM peak total	**790**	**20**	**790**	**27**	**1,040**	**27**	**1,020**	**22**

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

[c] Screenline 2 (Lake Washington) throughput data from the traffic analysis presented in section 5.0.

[d] Travel distance is between I-405 and I-5 (Seattle).

8.3.1.1 Freight on Arterials and Local Streets

The East Link Project is not anticipated to negatively affect truck circulation or change the truck route designations on the local street network. In some locations, local designated truck routes would cross or travel alongside at-grade light rail profiles. At these locations, intersection conditions with East Link would be similar to those under the No Build Alternative. Some intersection operations might improve through mitigation for the East Link Project. Additionally, many of the at-grade alternatives that travel through intersections would be accommodated within the existing traffic signal operations. Therefore, disturbances caused by the light rail would be minimized, although slight delays could occur on side streets when light rail travels through an intersection. Where an at-grade alternative intersects a street and is controlled by gates, these locations are also not expected to create noticeable delays to trucks.

8.3.1.2 Rail Freight

Within Segment A, no rail freight impacts are expected. Within Segments B, C, and D, rail freight along the former BNSF Railway corridor is not anticipated to occur in the near-term future because of the recent I-405 expansion that removed a segment of rail line. The project, however, would not preclude future rail freight operations on the former BNSF Railway tracks. There are no rail freight operations within Segment E.

8.3.2 Impacts During Construction

This section discusses activities that could occur during East Link construction and the associated impacts on freight. These impacts would mainly consist of changes in travel time, truck routes and business access for deliveries and other freight-associated activities. Rail freight would not be affected in any segment during construction. Sound Transit would coordinate with WSDOT on incident management, construction staging and traffic control permitting where the light rail construction might affect freight traffic. Sound Transit would also coordinate with WSDOT to disseminate construction closure information to the freight community.

8.3.2.1 Interstate 90

The I-90 Two-Way Transit and HOV Operations Project would be completed before the construction of East Link on I-90. Therefore, truck travel times during the East Link construction period for the AM and PM peak periods would be similar to or less than truck travel times with the No Build Alternative, when only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project are built. Similarly, compared to the No Build Alternative, when Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project are built, truck travel times during East Link construction would be similar or improved. Overall, a similar or an increased number of trucks would cross Lake Washington during the East Link construction period compared with either of the No Build

Alternatives. Truck volumes and travel times with the two No Build Alternatives and East Link construction period are provided in Table 8-7.

TABLE 8-7
2020 AM and PM Peak-Hour Truck Volumes and Travel Times on I-90 During Construction

Hour	Direction	No Build[a]		No Build[b]		Construction	
		Number of Trucks[c]	Travel Time[d] (minutes)	Number of Trucks[c]	Travel Time[d] (minutes)	Number of Trucks[c]	Travel Time[d] (minutes)
AM Peak (6:00 to 9:00 a.m.)	Westbound	160	29	180	27	320	24
	Eastbound	240	18	280	19	210	19
AM Peak-Hour Total		**400**	**22**	**460**	**22**	**530**	**22**
PM Peak (3:00 to 6:00 p.m.)	Westbound	200	32	210	31	310	23
	Eastbound	220	17	280	20	160	17
PM Peak-Hour Total		**420**	**24**	**490**	**24**	**480**	**21**

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

[c] Screenline 2 (Lake Washington) throughput data from the traffic analysis presented in section 5.0.

[d] Travel distance is between I-405 and I-5 (Seattle).

Most truck trips currently travel on I-90 during nonpeak periods, when congestion is substantially reduced. Since congestion is less during these periods, project construction is not expected to have an impact on travel times for most truck traffic.

The D2 Roadway would also be closed for light rail construction of *Preferred Alternative A1*. This closure would not impact trucks because they are prohibited from using the D2 Roadway. At the I-90 and Bellevue Way interchange, the I-90 westbound mainline, HOV direct-access ramps, and ramps to and from I-90 to the east would experience short-term partial closures (likely during the nighttime) to construct the elevated structures for *Preferred Alternative B2M* and Alternatives B2A, B2E, B3, and B7. Alternative B1 would not require these closures because it is at-grade underneath the westbound mainline. These closures are not expected to cause impacts on trucks because alternative routes are available and truck traffic using these ramps is relatively low.

8.3.2.2 Other Regional Freeways

Elevated portions of the Segment C alternatives over I-405 would likely result in multiple lane closures of I-405 at night, causing trucks to potentially detour and be delayed. Likewise, elevated portions of Alternatives E1 and E4 that cross over SR 520 near the Lake Sammamish Parkway interchange and the elevated portion of Alternative E1 that crosses over SR 520 near the SR 202 interchange would close multiple lanes of SR 520 at night, possibly causing trucks to detour and adding delay. With *Preferred Alternative E2* and E4, the SR 520 on and off-ramps at SR 202 would be rebuilt and therefore trucks may need to possibly detour and adding delay.

8.3.2.3 Arterials and Local Streets

Segment A

No truck impacts are expected on the arterial and local streets because light rail construction of the *Preferred Alternative A1* would be on the D2 Roadway and the I-90 reversible center roadway. Closing ramps to and from the I-90 reversible center roadway and constructing the Rainier and Mercer Island Stations are not expected to affect trucks along the arterials and local streets.

Segment B

Constructing all Segment B alternatives, except the BNSF Alternative (B7), would cause detours and lane closures on arterials and local streets, which could delay truck traffic on Bellevue Way and 112th Avenue SE. However, most of the businesses along each alternative are professional offices that do not rely heavily on trucks.

Segment C

Segment C at-grade (*Preferred Alternative C11A* and Alternatives C4A and C9A) and tunnel (*Preferred Alternative C9T* and Alternatives C1T and C2T) alternatives that require substantial cut-and-cover would have similar impacts on freight mobility and access on their construction routes. For these alternatives, traffic detours and lane closures are expected. These might affect trucks and could require temporary alternate business access. Constructing the Alternative C1T along Bellevue Way and NE 6th Street and Alternative C2T along Main Street, 106th Avenue NE, and NE 6th Street would require the largest amount of cut-and-cover tunnel construction. Converting 108th and 110th Avenues NE to one-way operations under Alternative C4A would detour traffic and close lanes that might affect trucks and might temporarily alter business access. Along elevated routes in Segment C, such as Alternative C7E, some impacts are anticipated as a result of lane closures and access restrictions needed the elevated structure construction. For Alternative C8E, impacts could occur along 110th Avenue NE because of lane closures. For any of the Segment C Alternatives, access to the businesses along streets with construction activities would be maintained to the extent possible either through existing or alternative access. Any access closures would be coordinated with the affected businesses.

Segment D

In Segment D, loss of parking, construction traffic, and lane closures could affect trucks along portions of NE 16th Street, 136th Place NE, NE 20th Street, 152nd Avenue NE, and NE 24th Street. Each alternative within Segment D would cause temporary detours and lane closures along some of these streets. Alternative D3 is expected to have the longest impact because it includes at-grade and/or retained-cut construction in the median of NE 20th Street and 152nd Avenue NE. This construction would create longer truck impacts than with other alternatives because the other alternatives do not travel along NE 20th Street. Alternative D5 would be built adjacent to SR 520; therefore, the impacts on access, parking, and circulation would be less compared with the other Segment D alternatives. The *Preferred Alternative D2A* would have the second least impacts on trucks, with impacts mainly along NE 16th Street and 136th Place NE. For the portions of the Segment D and E alternatives adjacent to SR 520, streets that currently provide access to properties would be rebuilt, as appropriate. D2A – NE 24th Design Option and Alternative D2E would have impacts to businesses access along NE 24th Street and 152nd Avenue NE, north of NE 24th Street.

Segment E

In Segment E, the potential loss of lanes on Leary Way with Alternative E4 and 161st Avenue NE between Redmond Way and NE 85th Street with the E2 – Redmond Transit Center Design Option could have a slight impact on trucks; otherwise, no significant impacts are expected with the other Segment E alternatives.

8.3.2.4 Maintenance Facilities

Each maintenance facility alternative is located within the current industrial areas in Segments D and E, except for the SR 520 Maintenance Facility (MF3), which would be located on a mix of retail and industrial property along NE 20th Street. The SE Redmond Maintenance Facility (MF5) would likely have the least freight-related impacts because it would be surrounded by fewer businesses and located near regional transportation facilities. Overall, the impacts on trucks from constructing the maintenance facility (potential detours and/or lane closures) are considered minimal because construction is expected to occur for about 1 year or less.

8.3.2.5 Rail Freight

Rail freight would not be affected in any segment during construction because the only rail line near East Link construction—the former BNSF Railway line in Segments B, C, and D—is closed.

8.4 Potential Mitigation

The East Link Project is not expected to require mitigation during operation to improve freight mobility and access because truck routes would be maintained and mobility would be improved with the project.

During East Link construction, adverse truck impacts would likely be associated with delays and restricted access for business deliveries on arterials and local streets near surface construction activities. The cut-and-cover tunnels and stations in Segment C would likely have the greatest impact on nearby businesses in terms of restricted access. To minimize these impacts, Sound Transit would work specifically with affected businesses throughout the construction period to maintain business access as much as possible.

During East Link construction associated with I-90, SR 520, or I-405, Sound Transit would coordinate with freight stakeholder groups by providing construction information to WSDOT for use in the state's freight notification system. Sound Transit would provide information in a format required by WSDOT and compensate WSDOT for any direct costs associated with use of the freight notification system for East Link construction.

9.0 Navigable Waterways

9.1 Section Overview

This section describes the potential impacts on navigable waterways within the study area. The East Link Project would use the reversible center roadway on I-90, a portion of which crosses Lake Washington, the largest navigable waterway within the study area. Other water bodies located within the study area include smaller lakes, streams, and rivers, which except for the Mercer Slough and Sammamish River, are not navigable. The analysis concludes that along I-90 the East Link project would not affect the navigability on Lake Washington. East Link alternatives crossing the Mercer Slough and the Sammamish River would be elevated profiles and would also not affect navigability of these waterways except for short-term periods during construction as described further in this section.

9.2 Affected Environment

Lake Washington is the largest navigable waterway in the study area. Most of the waterfront land use on Lake Washington is residential and not for commercial use. Navigation on Lake Washington is restricted to recreational users, and commercial activity is prohibited. However, the Muckleshoot Tribe, as part of the Tribe's Usual and Accustomed Treaty Rights, conducts a fishing event in July in consultation with the Washington Department of Fish and Wildlife. Public boat launch access is limited to several public parks along the east and west sides of the lake. The King County Sheriff's Office and the Mercer Island Marine Patrol regulate navigability among recreational users. Boaters can cross under I-90 at two locations on Lake Washington: under the east end of the I-90 floating bridge between Seattle and Mercer Island and under the East Channel Bridge between Mercer Island and Bellevue.

Other water bodies located in the study area include smaller lakes, streams, and river bodies, including Mercer Slough, Mercer Slough East Creek, East Lake Bellevue, Sturtevant Creek, Kelsey Creek, Goff Creek, Sears Creek, Bear Creek, and the Sammamish River. Mercer Slough Nature Park, located in the south Bellevue area of Segment B, is a protected recreational nature park where nonmotorized boating is permitted along Mercer Slough within the park. An I-90 overpass crosses the Mercer Slough East Creek at the southern end of the park. East Lake Bellevue, located near the Overlake Hospital in Segment C, is a small, built water pond entirely surrounded by residential and commercial land uses where boating is prohibited. Kelsey Creek, Sturtevant Creek, and several smaller tributary creeks that are located in Segment D are not navigable. Within Segment E, parts of the Sammamish River and Bear Creek are located adjacent to SR 520 and in urbanized and recreational areas in the City of Redmond. The Sammamish River is navigable to nonmotorized boating types. Table 9-1 lists water bodies in the study area and their navigability.

9.3 Environmental Impacts

9.3.1 Operational Impacts

The roadway changes that occur with the East Link project on the portions of I-90 that cross Lake Washington would not affect navigation on Lake Washington. Impacts on navigability in Segment B are not anticipated, because the Segment B alternatives that travel along Bellevue Way SE (*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 - 114th Extension Design Option) are located outside the navigable waterways of Mercer Slough Nature Park. The elevated profile of Alternative B7, adjacent to the I-90 overpass, would cross Mercer Slough East; however, recreational navigability on the Mercer Slough under I-90 would not be affected by this alternative.

TABLE 9-1
Navigability of Water Bodies within the Study Area

Name	Segment	Navigability
Lake Washington	Segment A, Segment B	Navigable to motorized and nonmotorized boating types
Mercer Slough	Segment B	Navigable to nonmotorized boating types
East Bellevue Lake	Segment C	Nonnavigable
Sturtevant Creek	Segment C	Nonnavigable
Kelsey Creek	Segment D	Nonnavigable
West Tributary of Kelsey Creek	Segment D	Nonnavigable
Goff Creek	Segment D	Nonnavigable
Sears Creek	Segment D	Nonnavigable
Sammamish River	Segment E	Navigable to nonmotorized boating types
Bear Creek	Segment E	Nonnavigable

The project alternatives in Segments D and E are not expected to impact navigability on water bodies crossed by these alternatives because most of these water bodies are not navigable. Alternatives that would cross the Sammamish River would be elevated, thus maintaining recreational navigability.

9.3.2 Construction Impacts

Some in-water work is anticipated to occur in Lake Washington along I-90, and some construction work could be conducted from a barge. Neither of these activities would affect lake navigability. Over-water construction of Alternative B7 might result in short durations of restricted recreational boating inside Mercer Slough near and under the Alternative B7 crossing. Similarly, constructing the *Preferred Alternative E2,* Alternative E1, and Alternative E4 might restrict nonmotorized boating on Sammamish River crossings for short periods.

9.4 Potential Mitigation

During East Link operation, no mitigation of impacts on navigable waterways would be required. During construction, Sound Transit would minimize impacts on the navigability of the Mercer Slough (Alternative B7) and the Sammamish River (all Segment E alternatives) waterway crossings by minimizing work from within the waterways. If any barging of construction equipment or materials is required on Lake Washington in July, Sound Transit would consult with the Muckleshoot Indian Tribe to avoid conflict with their tribal fishing event.

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FINAL EIS

EAST LINK PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

Appendix H1
Transportation Technical Report

SOUND TRANSIT
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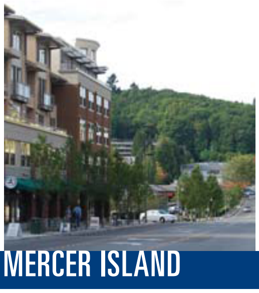
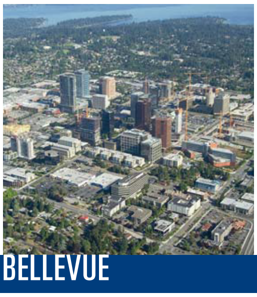
Link
SoundTransit

SEATTLE


MERCER ISLAND


BELLEVUE

OVERLAKE

REDMOND

SoundTransit

CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State
Department of Transportation

U.S. Department of Transportation
Federal Transit
Administration

July 2011

SOUNDTRANSIT

SOUND TRANSIT EAST LINK PROJECT

APPENDIX H1

Transportation Technical Report

Prepared for:
Sound Transit

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Fehr and Peers

July 2011

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Acronyms and Abbreviations

East Link Project Alternatives

Segment A. Interstate 90

Preferred Interstate 90 Alternative (A1)

Segment B. South Bellevue

Preferred 112th SE Modified Alternative (B2M) to C11A
Preferred 112th SE Modified Alternative (B2M) to C9T
Bellevue Way Alternative (B1)
112th SE At-Grade Alternative (B2A)
112th SE Elevated Alternative (B2E)
112th SE Bypass Alternative (B3)
Alternative B3 - 114th Extension Design Option
BNSF Alternative (B7)

Segment C. Downtown Bellevue

Preferred 108th NE At-Grade Alternative (C11A)
Preferred 110th NE Tunnel Alternative (C9T)
Bellevue Way Tunnel Alternative (C1T)
106th NE Tunnel Alternative (C2T)
108th NE Tunnel Alternative (C3T)
Couplet Alternative (C4A)
112th NE Elevated Alternative (C7E)
110th NE Elevated Alternative (C8E)
110th Avenue NE At-Grade Alternative (C9A)
114th Avenue NE Elevated Alternative (C14E)

Segment D. Bel-Red/Overlake

Preferred NE 16th At-Grade Alternative (D2A)
Alternative D2A - 120th Station Design Option
Alternative D2A - NE 24th Design Option
NE 16th Elevated Alternative (D2E)
NE 20th Alternative (D3)
SR 520 Alternative (D5)

Segment E. Downtown Redmond

Preferred Marymoor Alternative (E2)
Redmond Way Alternative (E1)
Alternative E2 - Redmond Transit Center Design Option
Leary Way Alternative (E4)

East Link Stations

Segment A. Interstate 90

Rainier
Mercer Island

Segment B. South Bellevue

South Bellevue
SE 8th
118th

Segment C. Downtown Bellevue

Old Bellevue

Bellevue Transit Center
108th
East Main
Hospital
Ashwood/Hospital

Segment D. Bel-Red/Overlake

120th
130th
Overlake Village
Overlake Transit Center

Segment E. Downtown Redmond

Redmond Town Center
SE Redmond
Redmond Transit Center
Downtown Redmond Station

East Link Maintenance Facilities

116th Maintenance Facility (MF1)
BNSF Maintenance Facility (MF2)
SR 520 Maintenance Facility (MF3)
SE Redmond Maintenance Facility (MF5)

General Acronyms and Abbreviations

acc./MVM	accidents/million vehicle miles
ADA	Americans with Disabilities Act
ADT	average daily traffic
APC	automatic passenger count
AVL	automatic vehicle location
AWSC	all-way stop controlled
Bel-Red	Bellevue-Redmond
CAC	collision analysis corridor
CAL	collision analysis location
CIP	Capital Improvement Program
CT	Community Transit
DSTT	Downtown Seattle Transit Tunnel
Eastside	east side of Lake Washington
EIS	environmental impact statement
FFS	free flow speed
FGTS	Freight Goods Transportation System
FHWA	Federal Highway Administration
GP	general purpose
HAC	high-accident corridor
HAL	high-accident location
HCM	Highway Capacity Manual
HCT	high-capacity transit
HOT	high-occupancy toll

HOV	high-occupancy vehicle
HV	heavy vehicles
I-405	Interstate 405
I-90	Interstate 90
KCM	King County Metro
LOS	level of service
Metro	King County Metro
MEV	million entering vehicles
MF	maintenance facility
MP	milepost
mph	miles per hour
MVMT	million vehicle miles traveled
MPMT	million person miles traveled
N/A	not applicable
PDO	property damage only
PMT	person miles traveled
PSRC	Puget Sound Regional Council
RPZ	residential parking zone
RR	railroad
Sea-Tac Airport	Seattle-Tacoma International Airport
SOV	SOV
SR	State Route
ST	Sound Transit
ST2	Sound Transit 2
TCQSM	Transit Capacity and Quality of Service Manual
TCRP	Transit Cooperative Research Program
TFP	transportation facilities plan
TRB	Transportation Research Board
TWLT	two-way left turn
TWSC	two-way stop controlled
v/c ratio	volume-to-capacity ratio
VHT	vehicle hours traveled
VMT	vehicle miles traveled
WSDOT	Washington State Department of Transportation

1.0 Introduction

This *Transportation Technical Report* evaluates existing and future local, corridor, and regional transportation impacts and potential mitigation associated with the alternatives of the proposed Sound Transit East Link Project. These alternatives are described in Chapter 2 of the East Link Project Final Environmental Impact Statement (EIS).

1.1 Transportation Elements and Study Area

The evaluation considered a number of transportation elements, including regional travel patterns and facilities, transit operations and levels of service, traffic operations and safety related to arterial and freeway system, parking, nonmotorized circulation, freight circulation, and navigable waterways. For each of these elements, this report describes the affected environment under the project's existing conditions (2007) and the environmental impacts for two future years, 2020 and 2030. The year 2020 was selected for analysis because it aligns with the project's estimated year of opening. Year 2030 provides a horizon-year analysis consistent with the regional and local agency planning period.

East Link is a light rail system that would connect Seattle with the growing urban areas on the east side of Lake Washington (the Eastside). The system would originate in south Downtown Seattle, where it would connect with Sound Transit's Central Link at the International District/Chinatown Station. It then would travel east across Lake Washington via Interstate 90 (I-90) to Mercer Island, Downtown Bellevue, and the Bel-Red/Overlake area, terminating in Downtown Redmond. The project that this report evaluates consists of 25 alternatives, associated various light rail stations, and maintenance facility sites. These project elements are described in Chapter 2 of the East Link Project Final EIS. As shown in Exhibit 1-1, the project has been divided into the following five segments:

- Segment A, Interstate 90
- Segment B, South Bellevue
- Segment C, Downtown Bellevue
- Segment D, Bel-Red/Overlake
- Segment E, Downtown Redmond

The general study area for the transportation evaluation encompasses the I-90 corridor between Seattle and I-405, proceeding through Downtown Bellevue and the Bel-Red area, and then following State Route (SR) 520 to Redmond. To assess regional and corridor operations throughout the study area, six screenlines were established to evaluate transit and vehicle travel performance. This study area includes the I-90 freeway between I-5 and I-405 and approximately 151 intersections on surface streets. To evaluate pedestrian circulation, a half-mile radius surrounding stations was established. Bicycle circulation was also evaluated, but within a larger, 1-mile radius from the stations. Parking was evaluated within a quarter-mile radius surrounding the stations. As described in the transit section of this report (Section 4.0), Sound Transit and King County Metro service planners reviewed future bus routes in the no-build condition and as part of this project. Exhibits 1-2 to 1-4 depict the transportation analysis areas within the five segments in the study area.

This technical report discusses each transportation element individually. The discussion of each element covers the affected environment, expected environmental impacts (comparing the No Build Alternative, or no-build condition, to the East Link Project alternatives, or build condition), and potential mitigation.

The transportation planning process has involved local jurisdictions, state agencies, federal agencies, transit agencies, and other interested parties. The East Link Final EIS and this technical report evolved through identifying and prioritizing regional and local transportation needs and developing local and regional transportation plans.

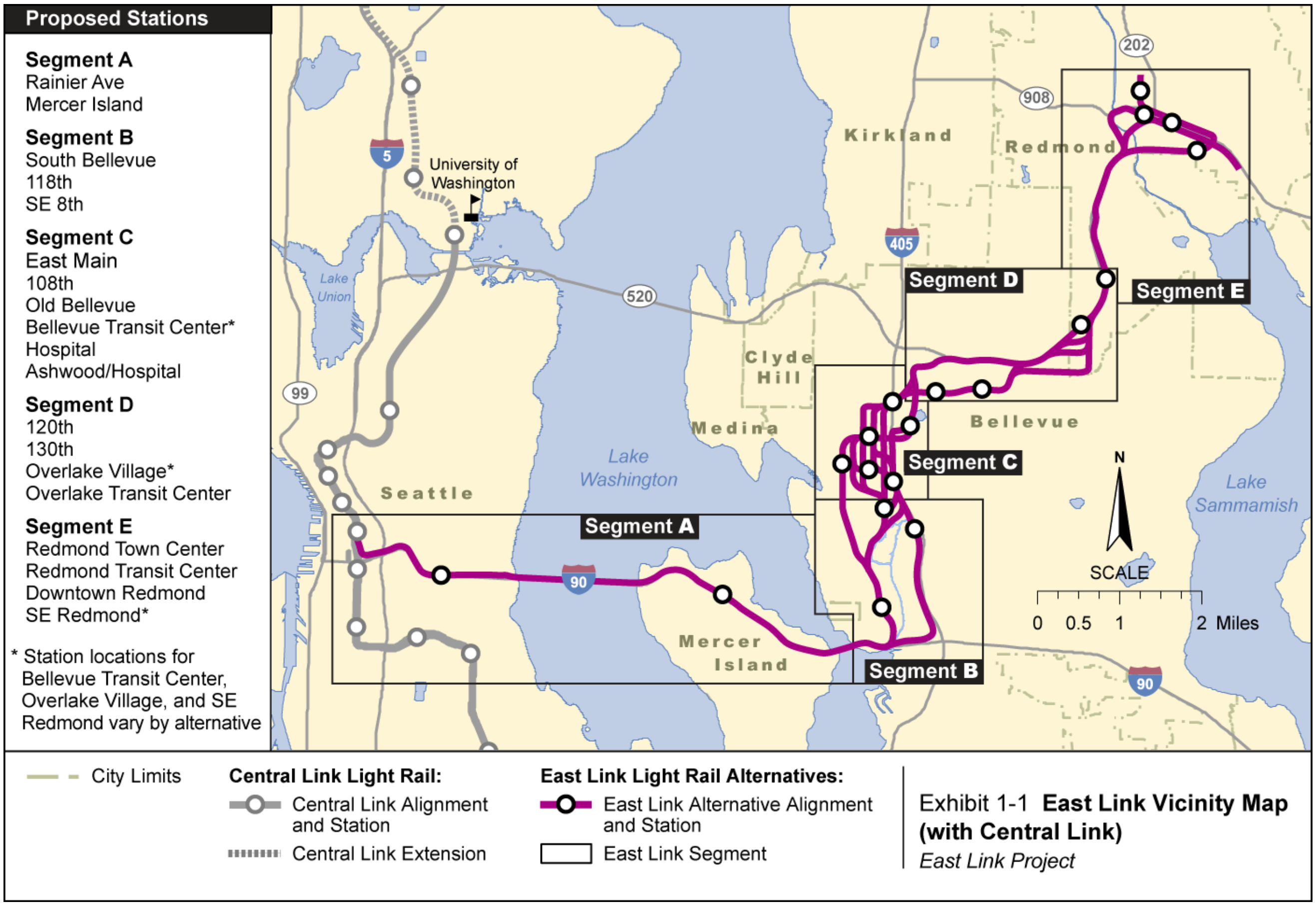

Proposed Stations
Segment A
Rainier Ave
Mercer Island
Segment B
South Bellevue
118th
SE 8th
Segment C
East Main
108th
Old Bellevue
Bellevue Transit Center*
Hospital
Ashwood/Hospital
Segment D
120th
130th
Overlake Village*
Overlake Transit Center
Segment E
Redmond Town Center
Redmond Transit Center
Downtown Redmond
SE Redmond*
* Station locations for Bellevue Transit Center, Overlake Village, and SE Redmond vary by alternative
University of Washington
Lake Union
Kirkland
Redmond
Clyde Hill
Medina
Bellevue
Seattle
Lake Washington
Mercer Island
Lake Sammamish
Segment A
Segment B
Segment C
Segment D
Segment E
5
90
405
520
99
202
908
N
SCALE
0 0.5 1 2 Miles
City Limits
Central Link Light Rail:
Central Link Alignment and Station
Central Link Extension
East Link Light Rail Alternatives:
East Link Alternative Alignment and Station
East Link Segment

Exhibit 1-1 **East Link Vicinity Map (with Central Link)**
East Link Project

During the preparation of this technical report and related elements of the Final EIS, staff from the Federal Transit Administration, Sound Transit, and Washington State Department of Transportation (WSDOT) met and coordinated with staff planners and engineers representing the following agencies and jurisdictions:

- Federal Highway Administration (FHWA)
- King County Metro (Metro)
- City of Seattle
- City of Mercer Island
- City of Bellevue
- City of Redmond

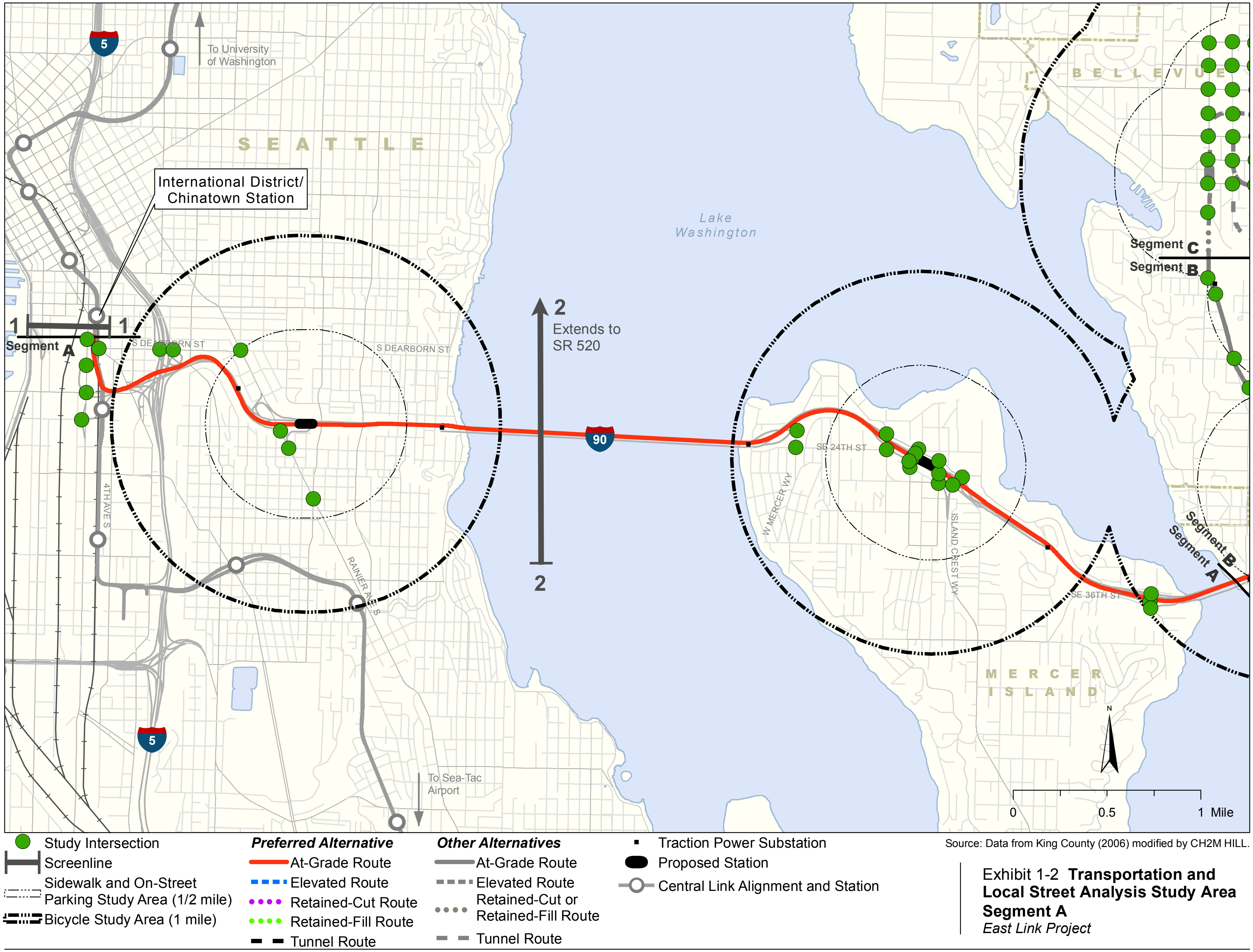
1.2 Meeting the Need for the Project

The analysis in this technical report demonstrates that the East Link Project would fully meet the need for the project in all the categories presented in Chapter 1 of the East Link Project Final EIS:

- Increased demand for transit service
- Regional urban growth center plan requirements for high-capacity transit (HCT) investments
- Increased congestion on I-90
- Operating deficiencies in regional bus transit
- Limited transit capacity and connectivity

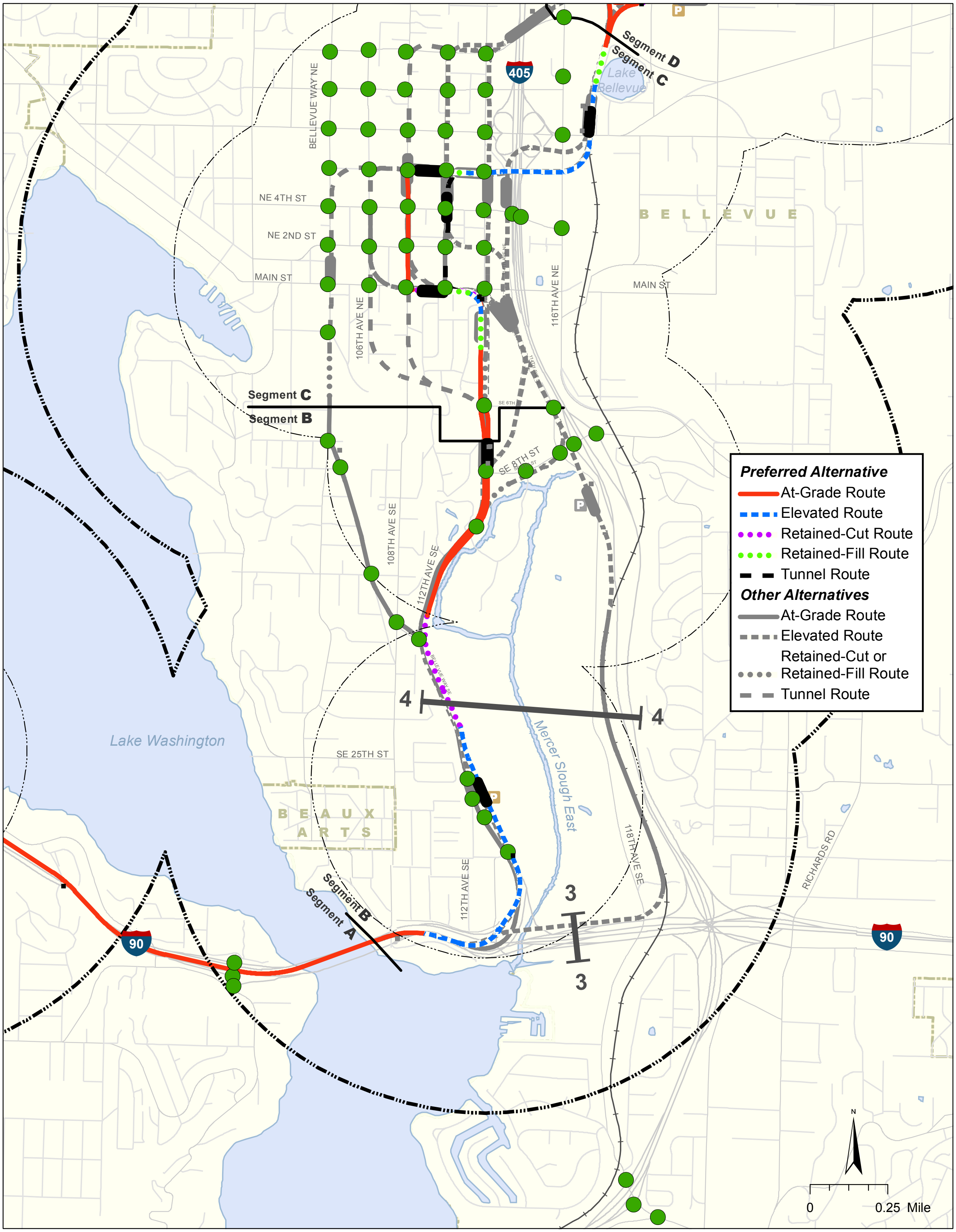
1.2.1 Increased Demand for Transit Services

Without East Link, existing and projected transit service would not meet transportation reliability and capacity needs for the Eastside corridor. In response to the combination of population and employment growth and associated congestion, transit ridership is expected to double across Lake Washington and between Bellevue and Redmond by 2030 in the No Build Alternative, further highlighting the importance of providing reliable transit service.


To University of Washington
5
SEATTLE
International District/ Chinatown Station
1
1
Segment A
S DEARBORN ST
S DEARBORN ST
4TH AVE S
RAINIER AVE S
Lake Washington
2
Extends to SR 520
2
90
BELLEVUE
Segment C
Segment B
SE 24TH ST
W MERCER WY
ISLAND CREST WY
SE 36TH ST
Segment B
Segment A
MERCER ISLAND
N
0
0.5
1 Mile
5
To Sea-Tac Airport
● Study Intersection
Screenline
Sidewalk and On-Street Parking Study Area (1/2 mile)
Bicycle Study Area (1 mile)
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Central Link Alignment and Station

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 1-2 **Transportation and Local Street Analysis Study Area Segment A**
East Link Project


Segment D
Segment C
405
Lake Bellevue
BELLEVUE WAY NE
NE 4TH ST
NE 2ND ST
MAIN ST
B E L L E V U E
MAIN ST
116TH AVE NE
106TH AVE NE
Segment C
Segment B
SE 6TH
SE 8TH ST
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
4
4
Lake Washington
Mercer Slough East
SE 25TH ST
B E A U X
A R T S
118TH AVE SE
RICHARDS RD
112TH AVE SE
Segment B
Segment A
3
3
90
90
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

Source: Data from King County (2006).

● Study Intersection

Screenline

Sidewalk and On-Street Parking Study Area (1/2 mile)

Bicycle Study Area (1 mile)

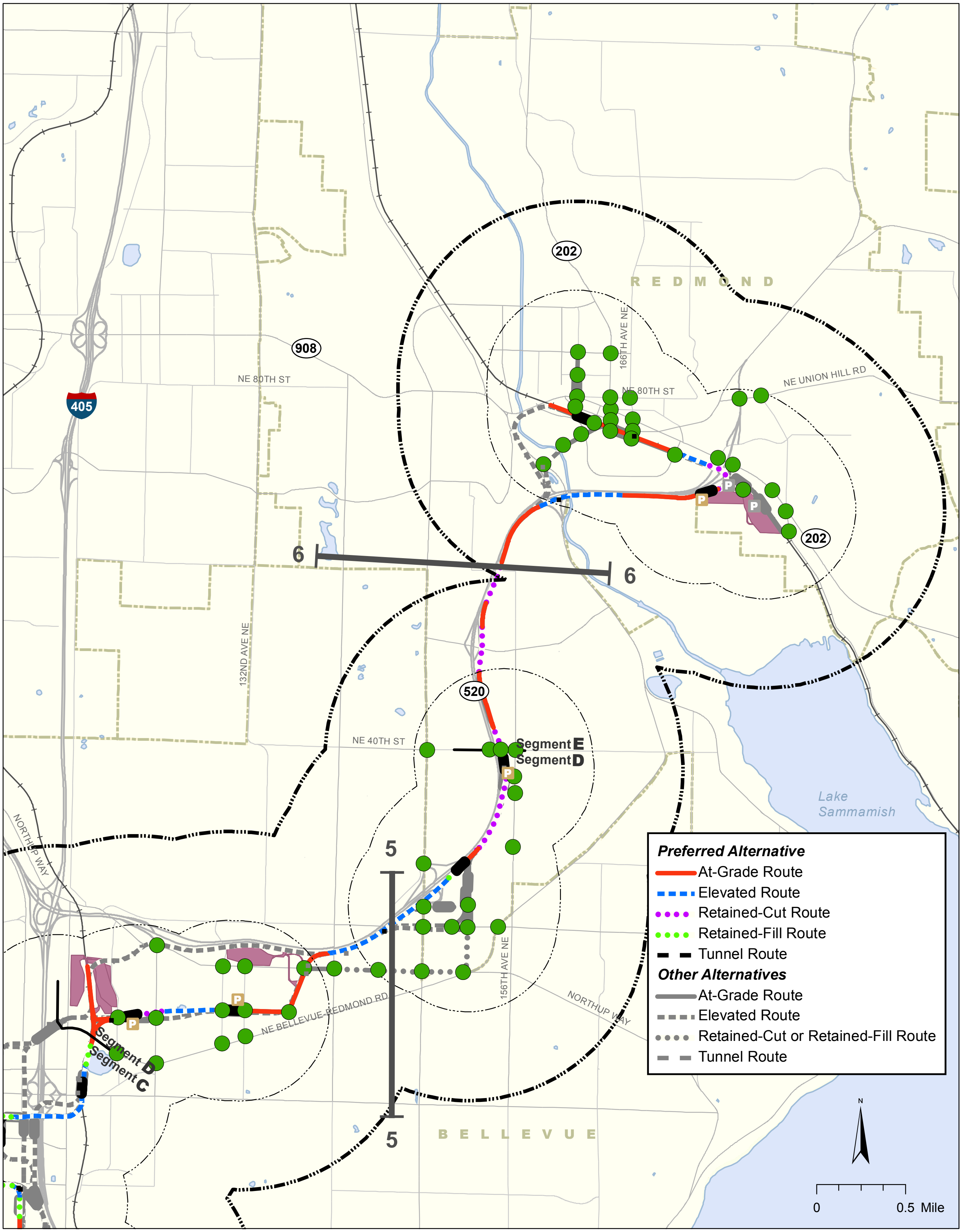
Traction Power Substation

Proposed Station

P New and/or Expanded Park-and-Ride Lot

Exhibit 1-3 **Transportation and Local Street Analysis Study Area Segments B and C**

East Link Project


405
908
NE 80TH ST
202
R E D M O N D
166TH AVE NE
NE 80TH ST
NE UNION HILL RD
202
6
6
132ND AVE NE
520
NE 40TH ST
Segment E
Segment D
Lake Sammamish
NORTHUP WAY
5
5
NE BELLEVUE-REDMOND RD
156TH AVE NE
NORTHUP WAY
Segment D
Segment C
B E L L E V U E
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
N
0
0.5 Mile

● Study Intersection

Screenline

Sidewalk and On-Street Parking Study Area (1/2 mile)

Bicycle Study Area (1 mile)

Traction Power Substation

Proposed Station

Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006).

Exhibit 1-4 **Transportation and Local Street Analysis Study Area Segments D and E**
East Link Project

East Link would meet the growing demand for reliable transit alternatives. Within the East Link corridor, the travel mode in the future is predicted to shift, generally reducing the percent of single-occupant vehicles (SOVs) and increasing the percent of high-occupancy vehicles (HOVs) (vanpools and carpools) and transit (buses and light rail), modes that carry more people within the limited transportation space. With the project, transit ridership across Lake Washington would increase by about 25 percent during the afternoon (PM) peak period; thus, close to 16 percent of the total number of people traveling across the lake would be using transit. This shift to transit indicates the growing demand for reliable high-capacity modes of travel that are consistent with urban environments and are crucial to providing person mobility rather than roadway vehicle capacity.

1.2.2 Regional Urban Growth Center Plan Requirements for High-Capacity Transit Investments

In accordance with Puget Sound Regional Council's (PSRC's) adopted *Transportation 2040* plan (PSRC, 2010a) and the Washington State Growth Management Act objectives, Bellevue, Seattle, and Redmond have made land use and planning decisions for increased employment and residential density based in part on the long-term vision of HCT connections across I-90. Traffic projections indicate that most major roadways in the study area will be congested and will fail to move vehicle travel effectively by 2030. This would occur even with implementing planned transportation improvements on SR 520, I-90 (without East Link), and I-405. With the East Link Project, HCT would connect the region's dense commercial and residential centers, as well as major employers, across Lake Washington without being hindered by the increasingly congested highways.

1.2.3 Increased Congestion on I-90

Roads leading into and out of the urban centers of Seattle and Downtown Bellevue are forecasted to be at capacity in the near future, increasing travel time between these two key employment and population centers. For example, I-90 is expected to reach its vehicular capacity during the peak traffic periods within the near future (around year 2015) (WSDOT, 2006**)**. This would further constrain travel for all modes, including freight, HOVs, and buses. This highlights the need for increased transit service because transit provides greater capacity and is more reliable than SOVs. Light rail also provides a safer transportation alternative because it operates in its own right-of-way for most of the project.

The East Link Project would more than double the I-90 person capacity across Lake Washington without any roadway widening. Being able to move more people in both directions, especially in the reverse-peak direction (eastbound in the morning [AM] and westbound in the afternoon [PM]), where travel times are expected to double in the future, would improve the mobility into and out of the urban centers served by the project on both sides of Lake Washington (Seattle, Bellevue, Overlake, and Redmond).

1.2.4 Operating Deficiencies in Regional Bus Transit

The travel time between the key urban centers of Seattle and Downtown Bellevue would improve with light rail service because light rail has faster travel times and better reliability than bus service or automobiles. The East Link Project analysis estimates that light rail travel between Seattle and Downtown Bellevue would take less than 20 minutes and between Seattle and Downtown Redmond between 29 and 39 minutes, regardless of time of day or level of traffic congestion. This is a savings of up to 25 minutes compared with an automobile currently traveling between these locations. In the afternoon peak period, it can take approximately 45 minutes to travel between Seattle and Bellevue (via I-90) and up to 55 minutes to travel between Seattle and Redmond (via SR 520) (Sound Transit, 2011). In the future, these automobile times are expected to continue to rise, and therefore light rail would provide an even greater travel time savings.

Light rail service to the Eastside would substantially improve transit service reliability throughout the project vicinity. It is expected that bus reliability in the future will continue to operate at failing levels (i.e., not meeting level of service [LOS] standards) without the project and that most bus routes would not meet scheduled headways (the time between bus arrivals). Buses would continue to be an unreliable travel choice in the project area, for instance across Lake Washington and in Downtown Bellevue and Redmond, because bus service would be slowed by heavily congested roadways. Bus speeds between Seattle and Downtown Bellevue are predicted to decrease approximately 30 percent by year 2030 as congestion worsens, even with improvements to I-90, because arterials connecting I-90 to these urban centers would not be improved. This poor bus reliability would not benefit transit ridership and would not provide an attractive transportation choice for the region. The frequency of transit throughout the day would improve because light rail would arrive at least every 15 minutes, compared with average bus arrival increments of every 30 minutes in peak hours and less frequently during off-peak hours. Light rail would also serve more hours of the day with expanded service coverage of 20 hours—a substantial improvement over existing and planned bus service.

1.2.5 Limited Transit Capacity and Connectivity

Light rail service would not only provide increased service frequency, faster travel times, and longer hours of service throughout the day, but would also be able to carry more passengers to connecting bus routes. The bus routes that share connections with the light rail system would likely have higher ridership. By the year 2030, approximately 10,000 new riders would choose to use transit each day with the addition of light rail serving Eastside communities. In addition, the East Link Project is forecasted to contribute between 46,000 and 52,500 daily riders to the region's light rail system. This is expected to eliminate about 230,000 vehicle miles traveled and about 10,000 hours of travel each day in the region in 2030.

The East Link light rail project would have the capacity to carry 9,000 to 12,000 people per hour in each direction, which would more than double the person-carrying capacity of I-90. The ability to carry this many people is equivalent to about 7 to 10 freeway lanes of vehicle traffic. Without light rail's ability to move more people in both directions across Lake Washington, there would continue to be roadway capacity constraints that would not efficiently and reliably serve the growing residential and commercial land use densities on the Eastside.

2.0 Methodology and Assumptions

The methodology and assumptions used to analyze the transportation impacts of the East Link Project have been compiled in a *Transportation Methods and Assumptions Report* (CH2M HILL, 2010). That report, provided in Appendix A of this technical report, presents the following information:

- Agency guidelines and regulations that govern or influence the analysis of local and projectwide impacts associated with the project
- Transportation analysis methodology, including relevant definitions, data collection, regional traffic analysis, corridor traffic analysis, and construction impact analysis
- Assessment methods related to data collection, travel demand forecasting, and local and projectwide LOS standards
- Surface street and freeway traffic analysis and impact assessment methods that list the locations of the analyses, describe the LOS assessment for signalized and unsignalized intersections, and describe the local street and freeway safety analysis
- Assessment methods for impacts related to light rail station and park-and-ride areas, parking, nonmotorized facilities and modes, property access and circulation, freight, transit, and construction

The transportation evaluation was performed at three levels of assessment. The first two, the regional and corridor levels, provide information on the larger surrounding area and on screenlines through major transportation corridors. The third level, the operational level, analyzes specific locations and provides in-depth analysis to determine the operational impacts of the project. Table 2-1 identifies the types of analyses done at each level and lists the measures that were used to evaluate the performance of the project. All cooperating agencies reviewed these measures.

TABLE 2-1
East Link Transportation Analyses and Measures of Performance

Assessment Level	Analysis Type	Measure of Performance
Regional Level	Ridership	East Link ridership (patrons)
	VMT/VHT	VMT/VHT values
Corridor Level	Screenline Analysis	Transit ridership
		v/c ratio
		Mode share
Operational Level	Intersection Analysis	Intersection LOS and delay
		Vehicle queue length
	Freeway Analysis	Segment LOS and density
		Person and vehicle carrying throughput
		Travel times (GP, HOV and transit, rail, and freight)
		Access modifications
	Ridership	Station ridership
	Freeway Safety	Predictive assessment with reversible center roadway conversion
	Alignment Safety	Qualitative assessment of at-grade or elevated alignments within or adjacent to surface streets

TABLE 2-1
East Link Transportation Analyses and Measures of Performance

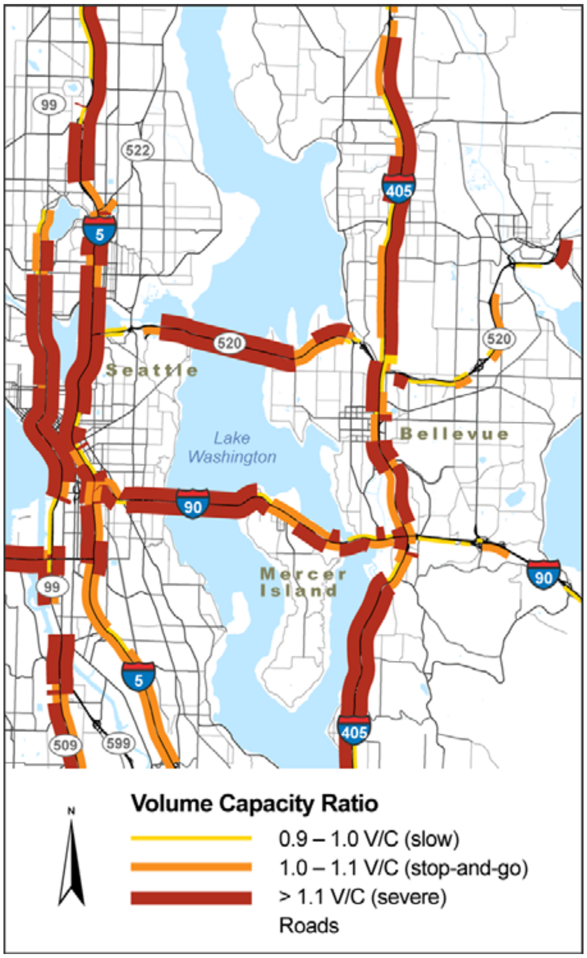
Assessment Level	Analysis Type	Measure of Performance
	Transit	Service frequency, hours of service, passenger load and reliability LOS, travel times, and transfers
	Nonmotorized	Station area pedestrian LOS
		Sidewalk, trail, and bicycle facility inventory, access, and circulation
	Parking	On-street supply and/or demand Direct alignment impacts

HOV	high-occupancy vehicle
LOS	level of service
v/c ratio	volume-to-capacity ratio
VHT	vehicle hours traveled
VMT	vehicle miles traveled

3.0 Regional Travel

3.1 Section Overview

This section describes the project's existing conditions (year 2007) and potential project impacts on regional facilities in the central Puget Sound region. Regional travel metrics include vehicle miles traveled (VMT) and vehicle hours traveled (VHT), as well as volume-to-capacity ratio (v/c ratio) and mode choice at the six screenline locations through the study area. These regional metrics and screenline data are based on information from the PSRC transportation demand model and Sound Transit's transit ridership model, which include the urbanized areas of King, Pierce, and Snohomish Counties.



Source: PSRC (2007).

EXHIBIT 3-1
PSRC 2030 PM Highway Volume-to-Capacity Ratios without East Link

Without light rail service across Lake Washington, I-90 is expected to reach its vehicular capacity in the near future, and congestion would continue to worsen as v/c ratios approach 1.0 in the future. Without a more reliable transportation alternative across I-90, all modes would be affected, including HOV and transit. Roadways that lead into and out of the urban centers of Downtown Seattle and Downtown Bellevue will be at capacity in the near future, as indicated by v/c ratios at or near 1.0 on Screenlines 1, 2, and 4 (see Section 3.2.3). This condition will substantially constrain travelers' ability to travel into the region's key employment and population areas and highlights the importance of increased use of transit because of its greater capacity and reliability for moving people compared with SOVs. Exhibit 3-1 shows that travel across the lake and on I-5 and I-405 will operate in stop-and-go to severe traffic conditions by year 2030.

The East Link Project would link Seattle, the region's main urban downtown area, with the Eastside communities, connecting the region's dense commercial and residential centers as well as major employers across Lake Washington. Light rail would support increased density in Bellevue, Redmond, and Seattle, consistent with regional land use plans and Washington Growth Management Act goals to preserve natural resources. Higher density provides economic growth and opportunities for more effective infrastructure development. Travel between the key urban centers (Seattle and Downtown Bellevue) would improve with light rail service because light rail would have greater capacity and be a more reliable mode of travel than SOVs.

The analysis estimates that light rail travel between the International District/Chinatown Station in Seattle and the proposed Bellevue Transit Center Station would take less than 20 minutes. East Link light rail service between the International District/Chinatown Station and Downtown Redmond is expected to take approximately 35 minutes. These travel times are a savings of about 25 minutes compared with an automobile currently traveling between these locations. Light rail travel times between key stations are further discussed in Section 4.3.3.5, Transit Travel Times. Because of these travel time benefits, people would choose to ride light rail in lieu of driving their vehicles, and the regionwide (includes King, Pierce, and Snohomish Counties) VMT and VHT are expected to decrease up to 0.2 percent with the project. Within the project vicinity (the area encompassing the project alternatives between Bellevue and Redmond), the mode share is expected to shift from predominantly SOVs to a more balanced mode share among SOVs, HOVs, and transit. With East Link, transit ridership across Lake Washington would increase around 25 percent during the afternoon (PM) peak period.

Providing light rail along I-90 would remove vehicle access to and from the reversible center roadway. This change along I-90 would not affect other regional highways such as SR 520, I-5, and I-405. Travel on these highways with the project is forecasted to remain similar to the No Build Alternative. The v/c ratios on Screenlines 1, 2, and 4 (Exhibits 1-2, 1-3, and 1-4), which cross these highways or connect to them, would be either similar or slightly improved with East Link.

3.2 Affected Environment

3.2.1 Vehicle Miles Traveled/Vehicles Hours Traveled

Today, more than 70 million vehicle miles of travel occur daily within the Puget Sound region. This results in close to 2 million hours of travel for all users of the transportation system. In the AM peak period (6 to 9 a.m.), about 12 million total vehicle miles occur each day, which equates to slightly more than 300,000 total vehicle hours. In the PM peak period (3 to 6 p.m.), there are about 15 million total VMT and over 400,000 total VHT. Thirty-seven percent of the daily vehicle miles traveled occur in the AM and PM peak periods, and over 40 percent of all daily hours of travel occur in the AM and PM peak periods. This indicates that the more congested periods in the Puget Sound region are during the AM and PM work commuting periods. Table 3-1 provides existing daily regional VMT and VHT information.

TABLE 3-1
Existing Regional Travel

Time of Day	VMT	VHT
AM peak period (6 to 9 a.m.)	11,843,700	307,000
Nonpeak period	44,968,200	1,086,500
PM peak period (3 to 6 p.m.)	14,948,800	432,500
Daily total	71,760,700	1,826,100

Source: PSRC (2007).

VHT	vehicle hours traveled
VMT	vehicle miles traveled

The regional highways within the study area serve a substantial number of vehicle trips in the central Puget Sound region and beyond in terms of vehicle travel and freight delivery, as noted in PSRC's regional transportation plan, *Destination 2030* (PSRC, 2001). SOVs were the dominant mode of regionwide travel in year 2006, accounting for 44 percent of the trips made. A large number of trips also occurred in vehicles with two or more passengers (HOVs). Together, SOV and HOV travel accounted for 84 percent of the person trips made in 2006. The remaining trips were by transit, walking, and other modes (PSRC, 2007). Major regional transit service providers within the study area include King County Metro, Sound Transit, and Community Transit. Major highway facilities, including I-90, I-5, I-405, and SR 520, serve most of the regional trips within the study area.

3.2.2 Regional Highways

I-90 is a major east-west interstate highway that extends from Boston to Chicago to Seattle, where it intersects the western portion of the East Link Project corridor. In Washington, I-90 connects various freight and state routes originating in Seattle, through Mercer Island and Bellevue, to the eastern side of the state and beyond. The section of I-90 that crosses Lake Washington, including the floating bridges (Lacey V. Murrow Memorial Bridge and Homer M. Hadley Memorial Bridge), has three general-purpose (GP) lanes in each direction and a reversible center roadway that operates as a peak directional expressway. The reversible center roadway is used by HOVs, buses, and Mercer Island traffic. These reversible lanes are located between the Mount Baker Tunnel in Seattle and the Bellevue Way SE interchange in Bellevue. The reversible roadway is physically separated from the eastbound and westbound mainline lanes and operates in the westbound direction in the morning and eastbound in the afternoon and evenings. In 2006, average daily traffic (ADT) volumes on the floating bridges midspan were between 140,000 and 150,000 vehicles; this includes about 135,000 vehicles per day in the eastbound and westbound mainline lanes and about 15,000 daily vehicles in the reversible center roadway (WSDOT, 2007a).

I-5 is the primary north-south West Coast route in the United States, connecting the U.S. borders with Canada and Mexico. In Washington, this interstate is a major transportation corridor in the Puget Sound region and serves as a main highway connection among the communities from Vancouver to Bellingham. In 2006, the ADT for this corridor was slightly less than 160,000 vehicles (WSDOT, 2007a).

I-405 is an interstate route that travels through Segments B and C. This interstate facility parallels I-5 on the east side of Lake Washington and connects to and from I-5 in Tukwila and Lynnwood. I-405 has system interchanges that connect with I-90 and with state routes such as SR 167, SR 520, and SR 526. In urban areas of the project corridor, specifically in Downtown Bellevue, I-405 consists of six lanes with HOV facilities. In 2006, the ADT on I-405 in Bellevue was approximately 172,000 vehicles (WSDOT, 2007a).

SR 520 is a state highway that provides east-west connections across Lake Washington between Seattle and the Eastside communities of Kirkland, Bellevue, and Redmond. The section of SR 520 that spans Lake Washington is an important segment of the state highway network because it connects the large employment centers in Bellevue, Redmond, and Seattle. In 2006, approximately 115,000 vehicles per day traveled on the floating bridge portion of SR 520 (WSDOT, 2007a).

3.2.3 Screenline Performance

Six screenlines were established to assess the travel in each corridor of the study area. As shown in Exhibits 1-2 through 1-4, the six screenlines include key arterials and highways at the following locations:

1. City of Seattle: A north-south screenline south of South Jackson Street that extends between and includes Alaskan Way, 4th Avenue South, and the I-90 D2 Roadway (this screenline analyzed only in the Section 4.0 transit analysis)
2. Lake Washington (including SR 520 and I-90): An east-west screenline between the I-90 Mount Baker Tunnel and Mercer Island
3. Interstate 90 (at Mercer Slough): An east-west screenline between the Bellevue Way and I-405 interchanges
4. South Bellevue: A north-south screenline that extends between and includes Bellevue Way and I-405
5. Bellevue-Redmond (Bel-Red): An east-west screenline that extends between and includes SR 520 and NE 8th Street in the City of Bellevue
6. Redmond (Grasslawn Area): A north-south screenline that includes 140th Avenue NE and extends to Marymoor Park (City of Redmond Screenline 6 in the *Redmond Transportation Master Plan* [City of Redmond, 2010])

These screenlines provided a snapshot of traffic operations and mode share along each corridor based on the travel demand estimated from the PSRC and Sound Transit models. Vehicle v/c is a ratio of demand to capacity for a highway facility and was used as the primary performance measure to assess regional travel on the highways. Capacity deficiencies might exist when a v/c ratio exceeds 0.9; a v/c ratio of 1.0 suggests demand equals capacity, and a v/c ratio over 1.0 suggests that demand exceeds capacity. Mode shares measure highway user demand in terms of vehicular type, including SOVs, HOVs, and transit.

The screenlines were also used to analyze transit LOS and ridership, as described in Section 4.0 (Transit). To better understand the impacts of the project on I-90, two screenline locations on I-90—west of Mercer Island and between the Bellevue Way and I-405 interchanges—were used to determine vehicle and person throughput, as described in Section 5.2. Throughput is a function of the operating condition and vehicle data, which were provided by the *VISSIM* microsimulation software program.

Table 3-2 shows the performance of screenlines for existing PM peak-hour conditions. Screenlines 2 and 4, which cross I-90 and SR 520 (Screenline 2) and I-90 and I-405 (Screenline 4), are areas with heavy congestion in both directions in the PM peak hour. This congestion is indicated by v/c ratios above 0.9, which is expected because these three highways are some of the more heavily traveled highways in the region. A v/c ratio of 0.9 and above indicates capacity deficiencies and the need for improved travel efficiency. Most other screenlines have a v/c ratio less than 0.7. Although Screenline 3 is located on I-90, its v/c ratio is considerably less than at Screenline 2 because of the additional roadway capacity (collector-distributor system) provided between the Bellevue Way and I-405 interchanges to manage the flow of traffic to and from these closely spaced interchanges.

Person mode share in the study area varies depending on the transportation choice, congestion, and land use (e.g., commercial, residential, and retail) surrounding the area. For example, some of the higher HOV and transit mode shares are seen leaving Seattle (Screenline 1 southbound and Screenline 2 eastbound). At Screenline 5 westbound (for instance, a trip to Seattle across SR 520), a higher HOV mode share occurs compared with the eastbound HOV mode share into Redmond. The highest transit mode share occurs at Screenline 1 southbound and Screenline 2 eastbound. Overall, the SOV mode is the dominant mode choice, with more than 50 percent usage. HOV usage generally varies between 25 and 40 percent, and transit is less than 10 percent.

TABLE 3-2
Existing PM Peak-Hour Screenline Performance

Screenline	Direction	V/C Ratio	Person Mode Share (percent) (SOV /HOV/transit)
1 (City of Seattle)	Northbound	0.57	53/45/2
	Southbound	0.78	60/31/19
2 (Lake Washington)	Westbound	0.99	62/33/5
	Eastbound	0.91	57/30/13
3 (I-90)	Westbound	0.58	59/39/2
	Eastbound	0.62	58/38/4
4 (South Bellevue)	Northbound	0.98	58/41/1
	Southbound	1.08	60/37/3
5 (Bel-Red)	Westbound	0.60	55/41/4
	Eastbound	0.67	62/33/5
6 (Redmond)	Northbound	0.64	71/26/3
	Southbound	0.41	58/40/2

Source: PSRC (2007).

HOV	high-occupancy vehicle
SOV	single-occupant vehicle
v/c ratio	volume-to-capacity ratio

3.3 Environmental Impacts

Regional travel conditions for the East Link Project were evaluated based on travel demand information obtained using the PSRC transportation demand model and Sound Transit's transit ridership model, which include King, Pierce, and Snohomish Counties. Regional population and employment forecasts suggest that the regional highways within the project vicinity will continue to serve increasing travel demand. Future roadway capacity projects will continue to complete the HOV system and allow for an increase in carpool trips, but they generally do not substantially improve high-capacity modes of travel. Based on these forecasts and driver travel patterns, the number of miles and hours traveled were estimated to forecast VMT and VHT. Within the project vicinity on each roadway, the future vehicle demand and mode share were predicted, giving the v/c ratios (congestion) and mode share at each of the project's six screenlines; the results of this analysis are presented in the following subsections.

3.3.1 Travel Demand Forecasts

Future year analysis was performed for the years 2020 and 2030 based on PSRC's current population and land-uses forecasts and regional model (spring 2007). The PSRC model was enhanced by integrating the Bellevue-Kirkland-Redmond transportation network to provide a more detailed roadway system in the project vicinity. In the future 2020 and 2030 (both no-build and build) conditions, a substantial number of highway and arterial improvements were assumed. For the build condition, the PSRC model includes light rail to the Eastside and other highway and transit modifications that are not part of the no-build condition. Table 3-3 lists the transportation programs and/or projects and the future year when they were assumed to occur. Appendix A, Attachment 1, provides the complete list of future projects assumed in years 2020 and 2030.

TABLE 3-3
No Build Alternative Transportation Programs and Projects

Program/Project	Horizon Year		Comments
	2020	2030	
Roadway			
Nickel Package	X	X	Approved 2003
Transportation Partnership Account	X	X	Approved 2005
I-90 Two-Way Transit and HOV Operations Project	X	X	Stages 1 through 3 and also without Stage 3
Local Agencies			
CIPs /TFPs	X	X	Typically 6-year (or near term) funding commitments
Comprehensive and transportation plans	X	X	Typically 15- to 20-year list of funded and unfunded projects; funded projects included as part of CIP/ TFP lists.
Puget Sound Regional Council			
Destination 2030		X	Selected projects included (refer to Appendix A)
Transit			
Sound Transit			
Sound Move Program	X	X	Approved 1996
ST2 Plan[a]	X[b]	X	Approved November 2008; package of projects expected to be built over the next 15 years
King County Metro			
Service Implementation Plans	X	X	
Transit Service Integration Plan	X	X	Prepared for East Link Project
Transit Now Plan	X	X	Approved 2006

[a] The ST2 Plan is a package of HCT investments in the regional transit system, which includes light rail in the Eastside corridor.
[b] Not all projects identified in this program are expected to be built by 2020; refer to Appendix A, Attachment 1, for the project list by horizon year.

CIP	Capital Improvement Program
HCT	high-capacity transit
HOV	high-occupancy vehicle
ST2	Sound Transit 2 Plan
TFP	Transportation Facility Plan

Table 3-4 lists annual traffic volumes and growth rates, based on the 2020 and 2030 PSRC travel demand models. Vehicle growth forecasted from the 2020 and 2030 PSRC travel demand models was applied to existing (2007) volumes to estimate future volumes. No-build traffic volumes in Segment A (which includes I-90) are predicted to grow at an average annual rate (up to year 2030) of about 2.0 percent in both AM and PM peak periods. The highest no-build traffic growth will occur in Segments A and D at about 2.5 percent per year by 2020 and about 2.0 percent per year by 2030.

For the build condition, the Sound Transit ridership forecasting model was also used, in conjunction with the PSRC model, to develop the 2020 and 2030 East Link light rail system ridership estimates associated with the project alternatives. For Sound Transit's planning purposes, a representative alternative was created as a "baseline" alternative used in the analysis. This representative alternative is the combination of alternatives that generally follows the path of *Preferred Interstate 90 Alternative (A1)*, 112th SE Bypass Alternative (B3), Couplet Alternative (C4A), D2A - NE 24th Design Option, and *Preferred Marymoor Alternative* (E2).

TABLE 3-4
No-Build PM Peak-Hour Travel Demand Forecasts

	Existing (2007)	2020 No-Build		2030 No-Build	
Segment	**Vehicles**	**Vehicles**	**Annual Growth Rate (percent)**	**Vehicles**	**Annual Growth Rate (percent)**
Segment A[a]	71,600	98,600	2.5	107,700	1.8
Segment B	7,100	7,900	0.8	8,900	1.0
Segment C	16,900	20,000	1.3	25,000	1.7
Segment D	15,700	21,600	2.5	24,000	1.9
Segment E	16,500	20,500	1.7	23,100	1.5

[a] In Segment A, the values represent a 3-hour peak-period. The AM peak-period annual growth rate is 2.4 percent by 2020 and 2.1 percent by 2030.

Note: Vehicle totals were created by calculating the total number of entering and exiting vehicle volumes in each segment.

Although two methods were used to analyze roadway conditions near potential stations in the build condition (discussed further in Section 6.0), the method that relies on auto forecasts from the PSRC model is more appropriate for the discussion of regional travel in this section. The PSRC model method was used to identify the shift in traffic demand and patterns within a congested transportation system. The transit ridership associated with the light rail alternatives and the transit service modifications (based on the 2020 and 2030 Transit Service Integration Plans developed by King County Metro and Sound Transit for East Link Project planning [Sound Transit, 2007a]) was incorporated into the modeling process to understand the change in auto demands and their patterns with the project. Overall, in the build condition there would be a slight reduction in the auto forecasts as approximately 10,000 people are forecasted to shift their mode of transportation and choose to use light rail by year 2030. Further discussion of travel demand forecasts is provided in Sections 5.0 and 6.0.

3.3.2 Vehicle Miles Traveled/Vehicles Hours Traveled

The East Link Project impacts on regional travel were assessed in terms of both VMT and VHT. Changes in VMT indicated that people would travel either less or farther to get to their destinations. Changes in VHT generally reflect the change in congestion or the trip's length. For instance, less congestion might correlate to fewer hours of travel. Table 3-5 compares the regionwide (King, Pierce, and Snohomish Counties) VMT and VHT for both 2020 and 2030 no-build and build conditions. The data in the table for the build condition present a range from a low to high ridership. By 2030, the alternatives that would produce the highest ridership in their segments are Alternative B1, C1T, and C3T; *Preferred Alternative D2A;* and E2 - Redmond Transit Center Design Option. These alternatives would generate a projectwide ridership between 50,000 and 52,500. The lowest ridership among alternatives by segment would be Alternatives B7, C9A, C14E, D3, and E1, resulting in a projectwide ridership range between 48,000 and 49,500 daily riders.

In both 2020 and 2030, regional VMT and VHT conditions would improve with East Link compared with the no-build conditions. The greatest reduction in VMT/VHT would be with the highest daily ridership (projectwide ridership of about 52,500 in 2030); this would reduce VMT and VHT by about 229,000 miles (0.20 percent) and 9,000 hours (0.20 percent) each day, respectively. The lowest daily ridership (projectwide ridership of about 46,000 in 2030) would reduce the VMT by 0.18 percent and VHT by 0.16 percent each day. In all cases, the VMT and VHT would be lower in the build condition than in the no-build condition because the East Link Project would provide another mode of travel for people to use in lieu of the automobile. The forecasts support a conclusion that VMT and VHT would be lower with any of the East Link alternatives compared with the No Build Alternative.

TABLE 3-5
2020 and 2030 Regional Travel Impact Comparison Summary

Measure	2020					2030				
	No-Build	Low-Ridership Alternative	Percent Change	High-Ridership Alternative	Percent Change	No-Build	Low-Ridership Alternative	Percent Change	High-Ridership Alternative	Percent Change
Daily new transit riders	N/A	7,300	N/A	9,200	N/A	N/A	8,900	N/A	11,500	N/A
Daily VMT	97,417,900	97,280,100	-0.14	97,240,700	-0.18	116,690,200	116,481,400	-0.18	116,461,200	-0.20
Daily VHT	3,085,600	3,080,800	-0.16	3,080,500	-0.20	4,463,000	4,455,900	-0.16	4,453,900	-0.20

Source: PSRC (2010b); Sound Transit (2010a).

N/A	not applicable
VHT	vehicle hours traveled
VMT	vehicle miles traveled

3.3.3 Screenline Performance

The following subsections summarize screenline vehicle performance results during the PM peak hour in no-build and build conditions for years 2020 and 2030. Generally, with the East Link Project, the roadway v/c ratios would remain the same or improve slightly (lower values) compared with the no-build condition. The mode share would generally become less dominated by SOVs as the transit share increases. This mode shift is critical to providing increased person mobility in an area with limited opportunities for road expansion.

By converting the I-90 reversible center roadway to light rail, other regional highways would not be affected because v/c ratios across Screenlines 1, 2, and 4 (which include I-90, SR 520, and I-405) with the project remain similar to or less than the no-build condition. Table 3-6 shows year 2020 and 2030 v/c ratios at each screenline, Exhibits 3-2 and 3-3 show the PM peak-hour mode share at each screenline for years 2020 and 2030, and Section 5.0 further discusses I-90 operations (including vehicle and person throughput and capacity, travel time, LOS and congestion, and safety).

TABLE 3-6
2020 and 2030 PM Peak-Hour Volume-to-Capacity Ratios at Screenlines

Screenline	Direction	2020 V/C Ratio		2030 V/C Ratio	
		No-Build	East Link	No-Build	East Link
1 (City of Seattle)	Northbound	0.89	0.88	0.95	0.94
	Southbound	1.08	1.07	1.16	1.14
2 (Lake Washington)	Westbound	1.06	1.04	1.13	1.12
	Eastbound	1.01	1.14	1.02	1.17
3 (I-90)	Westbound	0.60	0.60	0.70	0.68
	Eastbound	0.69	0.63	0.82	0.72
4 (South Bellevue)	Northbound	1.03	1.02	1.12	1.10
	Southbound	1.02	1.04	1.22	1.23
5 (Bel-Red)	Westbound	0.59	0.59	0.75	0.75
	Eastbound	0.74	0.75	0.77	0.78
6 (Redmond)	Northbound	0.76	0.76	0.86	0.86
	Southbound	0.53	0.54	0.59	0.58

Source: PSRC (2010b).
v/c ratio volume-to-capacity ratio

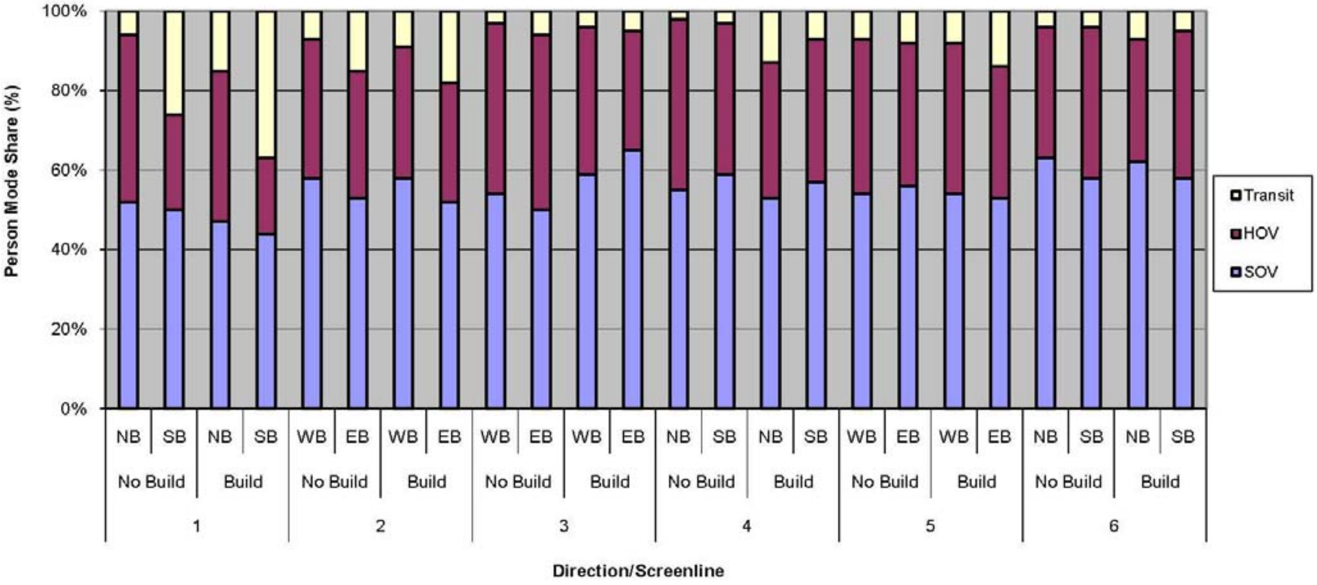


EXHIBIT 3-2
2020 PM Peak-Hour Person Screenline Mode Share

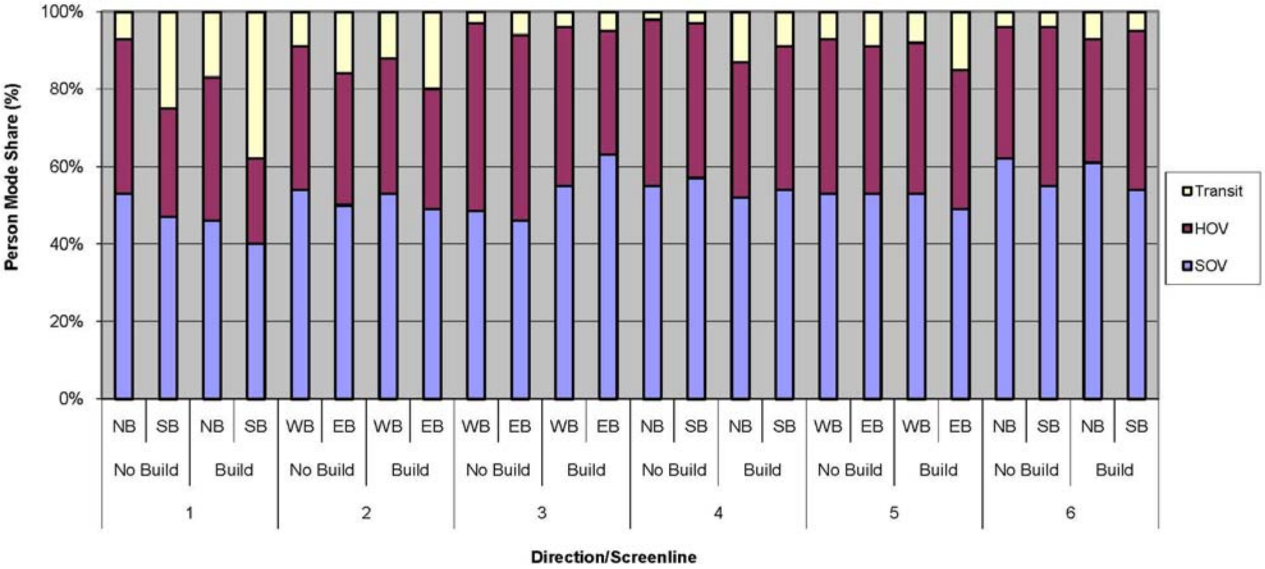


EXHIBIT 3-3
2030 PM Peak-Hour Person Screenline Mode Share

3.3.3.1 Screenline 1: City of Seattle

In the 2020 and 2030 no-build conditions, the mode share among SOV, HOV, and transit users across Screenline 1 would generally stay constant. Heading south from downtown Seattle, the v/c ratios in the no-build condition were greater than 1.10, indicating congested conditions. In the 2020 and 2030 build conditions, the mode share would change, with transit usage more than doubling. With a shift to transit, a slight improvement in the screenline v/c ratios is predicted in the build condition. This increase in transit share is due to adding light rail service and modifying transit service across this screenline.

3.3.3.2 Screenline 2: Lake Washington (Includes I-90 and SR 520)

In the future no-build and build conditions, the westbound and eastbound v/c ratios crossing Screenline 2 would increase compared with existing conditions to over 1.0, indicating highly congested conditions. With the build condition, the v/c ratio in the peak eastbound direction in the PM peak period is expected to increase slightly because vehicle access to the reversible center roadway would be prohibited. Even so, the increased transit use with the project would increase the person throughput across this screenline and provide additional capacity for growth (as described further in Section 5.3.3). In the westbound direction, the v/c ratio is expected to improve with the build condition because providing light rail would shift the modes across the lake to a higher transit emphasis and thus reduce congestion.

The travel modes across Screenline 2 would shift among SOVs, HOV, and transit in the future. The percentage of SOV users in both westbound and eastbound directions would slightly decrease in the future no-build conditions as congestion worsens and people choose alternative modes, such as HOV and transit. In both the 2020 and 2030 build conditions, SOV and HOV usage would decrease as people choose to use transit. Providing light rail across Lake Washington would increase the transit usage in 2030 by about 25 percent, suggesting a substantial shift from auto to transit. HOVs are expected to shift slightly between I-90 and SR 520 due to the HOV capacity on each facility. This shift would be caused in part by the planned SR 520 HOV lane improvements and I-90 center roadway closure. Nevertheless, overall volumes on SR 520 are expected to remain similar to the no-build condition.

3.3.3.3 Screenline 3: Interstate 90 (at Mercer Slough)

In the future no-build condition across this screenline, v/c ratios would increase slightly in the eastbound and westbound directions compared with existing conditions. In the build condition, v/c ratios would decrease in both directions, compared with the no-build condition, indicating that levels of congestion would improve. The overall slight decrease in the v/c ratio across Screenline 3 could be attributed to the slight shift in travel patterns associated with the East Link Project at this location.

Mode shift patterns indicate that in the future no-build condition, SOV usage would decrease and HOV and transit usage would increase compared with the existing conditions. In the build condition, the HOV share would decline due to the reasons noted above for Screenline 2. The transit mode share would stay relatively similar between the no-build and build conditions because East Link would not cross I-90 east of Bellevue Way.

3.3.3.4 Screenline 4: South Bellevue

In the 2020 and 2030 no-build conditions, v/c ratios would be above 1.0 in both directions. Improvements along I-405 would reduce future congestion to be at or slightly more than existing levels as the v/c ratios across this screenline are expected to be at or above 1.00. This indicates that travel into and out of this key Eastside urban center (Downtown Bellevue) would remain constrained, and vehicle mobility and access would continue to be hindered. By 2030, the v/c ratios in the build condition would be similar and operate with a minimum v/c ratio of 1.10 in both directions. This suggests high levels of vehicular congestion would still occur.

The mode share for the northbound and southbound directions is expected to remain similar between the existing and no-build conditions. In the build condition, however, the transit mode share would substantially increase as people adjust and ride light rail into and out of Bellevue and the Eastside. Overall, by 2030 the transit share of total trips is expected to reach over 10 percent with the project. This is a substantial increase from the 2 to 3 percent transit share in the no-build condition.

3.3.3.5 Screenline 5: Bellevue-Redmond (Bel-Red)

The v/c ratios across Screenline 5 in the no-build condition are expected to increase and further constrain vehicle travel in the future. By year 2030, v/c ratios are expected to reach up to 0.77. In the build condition, v/c ratios would remain similar to the no-build condition.

In the no-build conditions, the mode share percentages would remain similar to the existing conditions, with approximately 50 to 55 percent SOV users and 35 to 40 percent HOV users. Transit users would account for between 7 and 9 percent in either direction. In the build condition, transit use is expected to increase by over 60 percent (up to a 15 percent mode share) in the eastbound direction and by about 15 percent (to an 8 percent mode share) in the westbound direction as people shift to ride light rail. This is expected to decrease SOV usage to between 45 and 55 percent by 2030.

3.3.3.6 Screenline 6: Redmond (Grasslawn)

Compared with existing conditions, the future no-build v/c ratios across Screenline 6 are expected to increase in the northbound and southbound directions. In the build condition, v/c ratios would remain similar to the no-build ratios in both the northbound and southbound directions.

The mode share in the no-build condition is expected to have slightly less emphasis on the SOV compared with the existing conditions and show a slight increase in HOV usage. Transit would account for less than 5 percent in both directions along the corridor. In the build condition, transit usage is expected to increase up to 7 percent of the total mode share. This is expected to reduce dependence on SOV travel compared with the no-build condition.

3.4 Potential Mitigation

No mitigation to regional travel would be required because, overall, highways and arterials would not experience adverse changes in operations. The v/c ratios and mode share would generally remain similar to no-build conditions or improve with the East Link Project. For specific mitigation measures along I-90, refer to Section 5.0.

4.0 Transit

4.1 Section Overview

This section describes the existing and no-build condition regional transit facilities, operations, and services within the study area and the East Link Project impacts on transit facilities and services. The ridership forecasts show that by year 2030, between 46,000 and 52,500 riders would use East Link each day, and slightly more than 10,000 new daily transit riders would benefit from light rail along the East Link corridor. Transit usage across Lake Washington would increase by about 25 percent. Direct connections by light rail would be created between Northgate, the University District, Mercer Island, South Bellevue, and the Bel-Red, Overlake, and Downtown Redmond areas. In addition, light rail to the Eastside would substantially improve transit service reliability. It is expected that bus reliability in the future would continue to operate at failing levels without the project, with most transit routes operating at a reliability of LOS E or F. Data from similar light rail services in North America suggest that the reliability of light rail would be LOS A, and even though Sound Transit's Central Link system is in its first years of operations, its 2010 third quarter year-to-date service reliability data showed schedule adherence at about 80 percent and headway adherence above 90 percent (Sound Transit, 2010a). The frequency of transit throughout the day would also improve because light rail would operate with headways of 15 minutes or less, compared to the average bus headways of 30 minutes or longer expected in the future during off-peak hours without the project. Light rail would also serve the area with expanded service coverage for 20 hours of the day, which is a substantial improvement over many of the future bus routes.

Without the project, buses would continue to be an unreliable travel choice in the study area—for instance, across Lake Washington between Seattle and Bellevue and in Downtown Bellevue and Redmond—because bus service would be slowed by heavily congested roadways. Between Downtown Seattle and Downtown Bellevue, bus speeds are predicted to decrease by slightly more than 30 percent by year 2030, even with improvements to I-90, because no improvements are planned for the roadways connecting I-90 to these urban centers, especially to and from downtown Bellevue. Therefore, bus reliability would continue to operate poorly as scheduled headways are not met. The poor reliability of bus service would not benefit transit ridership and would not provide an attractive transportation choice for the region.

4.2 Affected Environment

Within the study area, transit services are provided by King County Metro, Sound Transit, and Community Transit. Regional express buses and local buses provide service to several transit centers and park-and-ride facilities. The frequency and number of bus routes in service increase during the peak periods, primarily in the peak direction of travel.

4.2.1 Regional Transit Facilities, Operations, and Services

The major transfer points within the study area are transit centers and park-and-ride facilities. King County Metro, Sound Transit, and Community Transit provide service to these facilities. There are four transit centers along the project corridor. The largest are the International District/Chinatown Station, Bellevue Transit Center, and the Overlake Transit Center; the transit center in Downtown Redmond is smaller. Within the study area, there are park-and-ride facilities in all project segments except Segment C. Table 4-1 lists the existing transit facilities in the study area. In addition to bus service, private shuttles in Downtown Bellevue and Overlake provide service between the transit centers and various commercial destinations. Sound Transit's Regional Express buses provide regional transit service to commuters in the study area as well as in other parts of King County and Pierce and Snohomish counties. King County Metro provides express and local service throughout King County and most of the local service within the study area. Community Transit provides service between Snohomish County and King County, and has one express bus route, CT 441, within the study area. Sound Transit and King County Metro bus services that cross Lake Washington and connect Downtown Seattle to Downtown Bellevue, Overlake, and Downtown Redmond currently serve over 13,000 daily transit riders (King County Metro, 2008a).

TABLE 4-1
Existing Bus Transit Facilities in Study Area

Transit Facility	Type of Facility	Rider Amenities	Served by Routes	Park-and-Ride Stalls
International District/ Chinatown Station	Station	Bike racks	KCM 41, 71, 72, 73, 74X, 101, 106, 150, 174, 194, 212, 217, 225, 229, 255, 256, 301 ST 550	none
Bellevue Transit Center	Transit center station	Bike racks, rider services building	KCM 220, 222, 230, 232, 233, 234, 237, 240, 243, 249, 253, 261, 271, 280, 342, 630, 885, 886, 921 ST 532, 535, 550, 555, 556, 560, 564, 565	none
South Bellevue Park-and-Ride	Park-and-ride facility	Bike racks	KCM 222, 240, 942 ST 550, 560	519
Wilburton Park-and-Ride	Park-and-ride facility	Bike racks	KCM 167, 243, 280, 342, 885, 921, 952 ST 560	186
Mercer Island Park-and-Ride	Park-and-ride facility	Bike lockers and racks	KCM 201, 202, 203, 204, 205, 213, 216, 942 ST 550, 554	447
Bear Creek Park-and-Ride	Park-and-ride facility	Bike lockers	KCM 216, 233, 251, 253, 266, 268, 269, 922 ST 540, 545	283
Overlake Village Park-and-Ride	Park-and-ride facility	Bike racks	KCM 222, 242, 247, 249, 250, 253, 261, 269 CT 441	203
Overlake Transit Center	Transit center station, park-and-ride facility	Bike lockers and racks, bicycle service center, customer service office	KCM 222, 225, 229, 230, 232, 233, 245, 247, 256, 268, 269, 644 CT 441 ST 545, 564, 565	170
Redmond Transit Center	Transit center station, park-and-ride facility	Bike lockers and racks	KCM 220, 249, 250, 251, 253, 254, 265, 266, 291, 922, 929 ST 540, 545	377

Note: Transit routes and park-and-ride stalls listed as of spring 2007, except the Mercer Island Park-and-Ride, which was inventoried in February 2008.
Source King County Metro (2008b).

CT	Community Transit
ST	Sound Transit
KCM	King County Metro

In the study area, King County Metro provides fixed-route local and express buses. It also provides Americans with Disabilities Act (ADA) Paratransit, dial-a-ride, vanpool, ride matching, and park-and-ride services. During peak periods, the average headway for King County Metro buses is about 30 minutes. Metro has implemented its *Six-Year Transit Development Plan for 2002 to 2007* (King County Metro, 2004, 2009) as an effort to continue to improve service between residential areas and transit hubs and activity centers. This plan was last updated in fall of 2004. Metro's first 6-year plan, spanning the years 1996-2001, was the catalyst for a major redesign of King County's Metro Transit system.

Within the study area, Sound Transit's Regional Express buses have approximate average headways of 30 minutes. A few Sound Transit routes (such as ST 550 between Bellevue and Seattle) offer more frequent service, with headways of about 10 to 15 minutes. In Downtown Seattle, Sound Transit also offers other services, including the Sounder commuter rail and the Central Link light rail system. The International District/Chinatown Station, a bus and Central Link station in the downtown Seattle Transit Tunnel, provides a connection to Sounder and Amtrak services at the nearby King Street Station. Central Link light rail offers light rail service from Downtown Seattle to the Seattle-Tacoma International Airport (Sea-Tac Airport). Headways for the light rail lines are currently 7.5 minutes in each direction for the peak period. Sounder commuter rail operates during the peak periods, running trains from Tacoma and Everett. The Seattle to Tacoma Sounder commuter rail has seven peak direction trains and two reverse-peak direction trains for both peak periods. The Seattle to Everett Sounder commuter rail has five peak direction trains and one reverse-peak direction train for both peak periods.

In general, during the peak periods, the number of buses and routes in the peak direction are greater than the number of buses running in the opposite "reverse-peak" direction. Midday, off-peak, and weekend transit service is limited, and many of the routes in the study area do not operate as often during these times. Available routes during these times also operate with less frequent headways, generally about 1 hour. Existing bus routes within the study area are listed in Table 4-2.

4.2.2 Methodology and Analysis for Transit Operations and Level of Service

The six screenlines described in Section 3.2, in addition to the service areas served by the project and key transit hubs within the study boundaries, were used to measure transit (bus and light rail) LOS performance in the study area. Although there are numerous other transit routes that cross these screenlines or serve these transit hubs or areas, the bus routes that were selected for evaluation are those most likely to have their ridership influenced by the East Link Project. The analysis of project alternatives includes both light rail and bus service on the Eastside, whereas the No Build Alternative includes only bus service on the Eastside. Existing and future regional and local transit services were evaluated based on the following categories:

- Service coverage and circulation
- Service frequency LOS
- Hours of service LOS
- Passenger load LOS
- Reliability of service LOS (on-time performance and headway adherence)
- Transit travel times
- Transfers
- Light rail ridership

The transit LOS performance levels were analyzed using the methodology defined by the and Transit Cooperative Research Program's (TRCP's*) TCRP Report 100: Transit Capacity and Quality of Service Manual* (TCQSM)(Transit Research Board [TRB], 2003). The Transportation Methods and Assumptions Report in Appendix A of this Transportation Technical Report provides a detailed discussion of the transit LOS methodology.

Transit LOS measures were analyzed for the PM peak hour (5:00 to 6:00 p.m.) to describe transit performance during the period when traffic congestion and transit ridership are the highest. For transit LOS performance, LOS A indicates more frequent service, more hours served during the day, high reliability, and minimal passenger crowding in a transit vehicle. LOS F indicates infrequent service, minimal hours served during the day, low reliability, and passenger crowding in a transit vehicle. The coverage area is defined as the area(s) for which transit provides service. Circulation is defined as the route(s) on which transit operates. Appendix B of this report provides the TCQSM descriptions of each of the transit LOS levels, their ranges, and their grade descriptions. The existing and future transit LOS values for each of the LOS measures are provided in Appendix C, Tables C-3, C-4, C-5, and C-6. The individual components of transit LOS performance are defined as follows:

- **Service frequency LOS** is the number of times within the PM peak hour that a bus or light rail train stops at a specific location. Generally, the shorter the headway between buses for a transit route (the less time a rider has to wait between bus arrivals), the better the service frequency LOS. Bus routes that have headways of less than 10 minutes are considered LOS A, whereas headways higher than 60 minutes are LOS F.

- The **hours of service LOS** measures the total transit operating hours provided within a 24-hour (daily) period. Hours of service LOS is intended to measure the availability of transit service to riders and potential users. The longer the period that transit service is provided throughout the day, the better the LOS.

  From a bus rider's perspective, bus routes that serve two areas are perceived as a single service between these two areas. To reflect these connections, pairs of specific areas served by East Link were evaluated. These areas evaluated are Northgate, University District, Downtown Seattle, Mercer Island, South Bellevue, Downtown Bellevue, Bel-Red, Overlake, and Downtown Redmond. Transit performance between these service areas was evaluated for service frequency LOS and hours of service LOS.

TABLE 4-2
Existing Bus Routes Evaluated in Study Area

Route	Stop Locations in Study Area	Service Area	Schedule (with headways)
KCM 111	I-90	Downtown Seattle, I-90 and Rainier, Newport Hills Park-and-Ride, Kennydale, Renton Highlands Park-and-Ride, Renton Highlands, Maplewood Heights, Lake Kathleen	Weekdays (5:15 a.m. to 7:30 a.m., 3:30 p.m. to 6:00 p.m.) every 30 minutes
KCM 114	I-90	Downtown Seattle, I-90 and Rainier, Newport Hills Park-and-Ride, Kennydale, Renton Highlands Park-and-Ride, Renton Highlands, Maplewood Heights, Lake Kathleen	Weekdays (5:30 a.m. to 7:45 p.m., 4:00 p.m. to 5:30 p.m.) every 30 minutes
KCM 202	North Mercer Island	Downtown Seattle, North Mercer Island, South Mercer Island	Weekdays (6:15 a.m. to 8:30 a.m., 3:00 p.m. to 7:30 p.m.) every 15 to 30 minutes
KCM 205	North Mercer Island	University District, Montlake, First Hill Seattle, North Mercer Island, South Mercer Island	Weekdays (6:30 a.m. to 8:30 a.m., 1:30 p.m. to 5:30 p.m.) every 60 minutes
KCM 210	I-90	Downtown Seattle, I-90 and Rainier, Factoria, Eastgate, Issaquah Transfer Point	Weekdays (6:00 a.m. to 7:30 a.m., 3:30 p.m. to 5:30 p.m.) every 20 to 30 minutes
KCM 212	I-90, Overlake	Downtown Seattle, I-90 and Rainier, Factoria, Eastgate I-90 Freeway Station, Eastgate Park-and-Ride	Weekdays (6:30 a.m. to 9:30 a.m., 3:30 p.m. to 7:15 p.m.) every 10 minutes
KCM 214	I-90	Downtown Seattle, I-90 and Rainier, Issaquah Transfer Point, Issaquah, Preston, Fall City, Snoqualmie Falls, Snoqualmie, North Bend, Factory Stores of North Bend	Weekdays (4:45 a.m. to 7:30 a.m., 3:30 p.m. to 6:30 p.m.) every 15 to 30 minutes
KCM 216	I-90, North Mercer Island, Redmond	Downtown Seattle, I-90 and Rainier, North Mercer Island, Pine Lake, South Sammamish Park-and-Ride, Redmond, Bear Creek Park-and-Ride	Weekdays (5:45 a.m. to 8:15 a.m., 3:30 p.m. to 8:00 p.m.) every 30 minutes
KCM 217	I-90	Downtown Seattle, I-90 and Rainier, Factoria, Eastgate Park-and-Ride, Eastgate, North Issaquah	Weekdays (6:45 a.m. to 7:45 a.m., 4:45 p.m. to 5:45 p.m.) every 30 minutes
KCM 218	I-90	Issaquah Highlands Park-and-Ride, Eastgate I-90 Freeway Station, I-90 and Rainier, Downtown Seattle	Weekdays (6:00 a.m. to 9:00 a.m., 3:30 p.m. to 6:45 p.m.) every 20 minutes
KCM 220	Bellevue, Redmond	Redmond Park-and-Ride, Redmond Town Centre, Rose Hill, South Kirkland Park-and-Ride, Bellevue	Weekdays (6:30 a.m. to 5:45 p.m.) every 30 to 60 minutes
KCM 225	I-90, Overlake	Downtown Seattle, I-90 and Rainier, Eastgate I-90 Freeway Station, Eastgate Park-and-Ride, Phantom Lake, Overlake, Overlake Transit Center	Weekdays (5:30 a.m. to 6:00 a.m., 3:45 p.m. to 5:00 p.m.) every 30 minutes
KCM 229	I-90, Overlake	Overlake Transit Center, Overlake, Crossroads, Phantom Lake, Eastgate Park-and-Ride, Eastgate I-90 Freeway Station, I-90 and Rainier, Downtown Seattle	Weekdays (6:00 a.m. to 7:45 a.m., 4:00 p.m. to 6:00 p.m.) every 30 to 60 minutes
KCM 230	Bellevue, Overlake, Redmond	Kingsgate Park-and-Ride, Totem Lake Mall, Rose Hill, 124th Avenue NE, NE 85th Street, Kirkland Transit Center, Lake Washington Boulevard, South Kirkland Park-and-Ride, Bellevue Way NE, Bellevue Transit Center, NE 8th Street, Crossroads, Overlake, Microsoft, 156th Avenue NE, SR 520, Redmond	Weekdays (4:30 a.m. to 11:45 p.m.) every 30 minutes Saturday (5:30 a.m. to 11:30 p.m.) every 30 minutes Sunday (6:30 a.m. to 11:30 p.m.) every 60 minutes
KCM 232	Bellevue, Overlake, Redmond	Duvall, Cottage Lake, English Hill, Redmond, SR 520, I-405, Overlake, Bellevue, Bellevue Transit Center	Weekdays (5:30 a.m. to 8:00 a.m., 4:15 p.m. to 6:30 p.m.) every 20 minutes
KCM 233	Bellevue, Overlake, Redmond	Avondale Road NE and Avondale Place NE, Bear Creek Park-and-Ride, 148th Avenue NE, 156th Avenue NE, Microsoft, Overlake, Bell-Red Road, Bellevue Transit Center	Weekdays (6:00 a.m. to 7:30 p.m.) every 30 minutes Saturday (8:00 a.m. to 6:00 p.m.) every 60 minutes
KCM 249	Bellevue, Overlake	Redmond Park-and-Ride, West Lake Sammamish Pkwy, Sammamish Viewpoint Park, Overlake, Overlake Park-and-Ride, NE 20th Street, 116th Avenue NE, Bellevue Transit	Weekdays (6:15 a.m. to 6:45 p.m.) every 30 minutes Saturday (7:15 a.m. to 7:15 p.m.) every 60 minutes

TABLE 4-2
Existing Bus Routes Evaluated in Study Area

Route	Stop Locations in Study Area	Service Area	Schedule (with headways)
		Center	
KCM 253	Bellevue, Overlake	Bear Creek Park-and-Ride, Redmond Park-and-Ride, Redmond Civic Center, 148th Avenue NE, Overlake, Overlake Park-and-Ride, Crossroads, Bellevue Transit Center	Weekdays (5:15 a.m. to 11:00 p.m.) every 30 minutes Saturday (6:00 a.m. to 11:00 p.m.) every 30 minutes Sunday (8:00 a.m. to 11:00 p.m.) every 60 minutes
KCM 268	Overlake, Redmond	Downtown Seattle, Montlake, SR 520 Stops, Overlake Transit Center, Bear Creek Park-and-Ride, 185th Avenue NE and Redmond-Fall City Road	Weekdays (6:00 a.m. to 7:30 a.m., 3:30 p.m. to 5:45 p.m.) every 30 minutes
KCM 269	Overlake, Redmond	Issaquah Transfer Point, Issaquah Highlands Park-and-Ride, Issaquah-Pine Lake Road, South Sammamish Park-and-Ride, 228th Avenue NE, Sahalee Way NE, Redmond-Fall City Road, Bear Creek Park-and-Ride, Overlake, Overlake Park-and-Ride	Weekdays (6:00 a.m. to 8:45 a.m., 4:45 p.m. to 7:30 p.m.) every 30 to 60 minutes
KCM 271	Bellevue	Issaquah, Issaquah Transfer Point, Eastgate, Eastgate Park-and-Ride, Bellevue Community College, Bellevue Transit Center, Medina, University District	Weekdays (5:15 a.m. to 10:15 p.m.) every 20 to 30 minutes Saturday (6:30 a.m. to 10:15 p.m.) every 30 minutes Sunday (7:30 a.m. to 10:15 p.m.) every 60 minutes
ST 545	Bellevue, Overlake, Redmond	Bear Creek Park-and-Ride, Redmond Park-and-Ride, Redmond City Hall, Downtown Seattle	Weekdays (5:00 a.m. to 12:00 p.m.) every 10 to 30 minutes Weekends (6:15 a.m. to 11:30 p.m.) every 30 minutes
ST 550	Bellevue, South Bellevue, North Mercer Island, I-90	Bellevue Square, Bellevue Transit Center, South Bellevue Park-and-Ride, North Mercer Island, I-90 and Rainier, Downtown Seattle	Weekdays (4:45 a.m. to 11:45 p.m.) every 15 minutes Weekends (6:00 a.m. to 11:45 p.m.) every 30 minutes
ST 554	North Mercer Island, I-90	South Sammamish Park-and-Ride, Issaquah Highlands Park-and-Ride, Downtown Issaquah, Issaquah Transfer Point, Bellevue Community College, Eastgate Park-and-Ride, Eastgate I-90 Freeway Station, North Mercer Island, I-90 and Rainier, Downtown Seattle	Weekdays (4:30 a.m. to 11:30 p.m.) every 30 minutes Weekends (6:00 a.m. to 11:30 p.m.) every 30 minutes
ST 555	Bellevue	Issaquah Highlands Park-and-Ride, Issaquah Transfer Point, Bellevue Community College, Eastgate Park-and-Ride, Factoria, Bellevue Transit Center, SR 520 Freeway Stations, Northgate Transit Center	Weekdays (5:45 a.m. to 8:00 a.m., 3:30 p.m. to 6:00 p.m.) every 30 minutes
ST 556	Bellevue	Issaquah Highlands Park-and-Ride, Issaquah Transfer Point, Bellevue Community College, Eastgate Park-and-Ride, Bellevue Transit Center, SR 520 Freeway Stations, University District, Northgate Transit Center	Weekdays (5:30 a.m. to 8:00 a.m., 3:15 p.m. to 6:00 p.m.) every 30 minutes
ST 564	Bellevue, Overlake	South Hill Mall Transit Center, South Hill Park-and-Ride, Sumner Station, Auburn Station, Kent Station, Renton Transit Center, Renton Boeing, Bellevue Transit Center, Overlake Transit Center	Weekdays (4:45 a.m. to 7:30 p.m.) every 30 minutes
ST 565	Bellevue, Overlake	Federal Way Transit Center, Auburn Station, Kent Station, Renton Transit Center, Renton Boeing, Bellevue Transit Center, Overlake Transit Center	Weekdays (4:45 a.m. to 9:45 p.m.) every 30 minutes

Note: Transit routes are from spring 2007 schedules obtained from King County Metro and Sound Transit web sites: http://www.kingcounty.gov and http://www.soundtransit.org.
Source: King County Metro (2007a); Sound Transit (2007b).

KCM	King County Metro
ST	Sound Transit

- The **passenger load LOS** is intended to measure passenger comfort and the ability of a rider to find a seat during the on-board portion of the trip during the PM peak hour. Passenger load LOS also measures crowding in the transit vehicle. For buses, passenger load LOS is defined by the number of passengers per seat. For light rail, passenger load LOS is a measurement of square footage available for standing per standing passenger. Passenger load LOS A indicates that riders are able to spread out on the vehicle along with the potential to use empty seats for storing carry-on items. A passenger load LOS at or worse than LOS D may reflect overcrowding, and the transit service provider might consider an increase of service frequency. In addition, a large number of passengers can cause the bus to wait (dwell) longer at stops because of crowded passenger boarding and alighting. The longer dwell time can negatively affect travel time and service reliability. Table 4-3 lists the existing bus routes evaluated for the passenger load LOS at each of the screenlines. Passenger load LOS was calculated at each screenline by averaging the total number of passengers per seat or square feet per standing passenger on transit routes within the PM peak hour.

- **Reliability of service LOS** was analyzed at major transit hubs within the East Link project vicinity. The reliability LOS measures the degree to which a transit vehicle meets or misses its scheduled headway at its arrival station. This includes not only a transit vehicle arriving late, but also a transit vehicle leaving early from a stop. A bus leaving early would mean that some transit users would miss their bus. Two methods were used to determine transit reliability. For transit routes with scheduled headways greater than 10 minutes, on-time reliability was analyzed in terms of on-time performance, defined as being 0 to 5 minutes late. For transit routes operating at scheduled headways of 10 minutes or less, headway adherence (calculated as the coefficient of variation) was used to determine reliability. Headway adherence reliability was calculated using the TCQSM methodology, which compares the standard deviation of actual headways to scheduled headways of transit routes at major transit centers and park-and-ride lots associated with the study area. On-time performance reliability was calculated using weekday automatic vehicle location (AVL) data collected by King County Metro for the selected transit hubs during spring 2007. It was assumed that in the future 2020 and 2030 conditions both Metro and Sound Transit would adjust their bus services according to the demand and congestion levels to maintain existing reliability, although unforeseen conditions may limit what is implemented. The following major transit hubs were used to evaluate service reliability:
  - International District/Chinatown Station
  - Mercer Island Park-and-Ride
  - Bellevue Transit Center
  - Overlake Transit Center
  - Redmond Transit Center

4.2.3 Level of Service for Service Frequency

In the existing condition, the bus routes between the Bel-Red area and Downtown Bellevue, Overlake, and Downtown Redmond operate at average headways of 10 to 15 minutes (LOS C or better). Service frequency between Overlake and Downtown Redmond operates similarly. The Downtown Seattle to Downtown Bellevue and the Downtown Seattle to Downtown Redmond connections have a service frequency of LOS B or better. In general, most direct bus service connecting to Downtown Bellevue operates at headways that average more than 10 minutes (LOS B). However, services between Downtown Bellevue and Northgate and the University District operate at average headways of 30 minutes or less (LOS D). Only one route within the study area provides service between the University District and Mercer Island areas, and service frequency between these areas operates at headways that average over an hour (LOS F).

Direct bus service between many of the service areas is not provided. Direct service from Bel-Red, Overlake, and Downtown Redmond to Northgate and the University District does not exist. In addition, there is no direct service between the Mercer Island and South Bellevue areas and the Bel-Red Overlake and Downtown Redmond areas. Additionally, several routes only offer service in the peak direction during the PM peak hour. Exhibit 4-1 shows the service frequency LOS for existing conditions between areas connected by the bus routes evaluated in the East Link transit analysis.

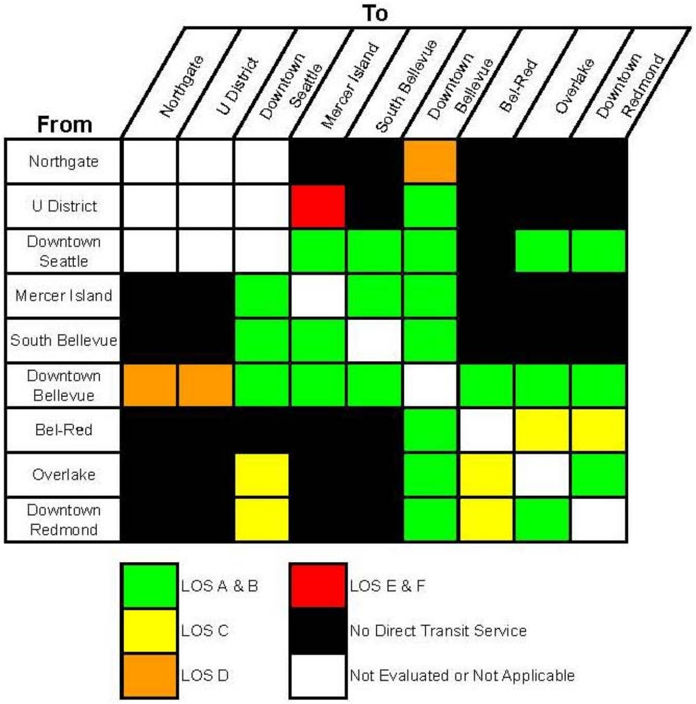
TABLE 4-3
Existing Bus Routes Evaluated (for Passenger Load Level of Service LOS only) at Screenlines

Screenline 1 (City of Seattle)		**Screenline 2 (Lake Washington)**		**Screenline 3 (I-90)**		**Screenline 4 (South Bellevue)**		**Screenline 5 (Bel-Red)**		**Screenline 6 (Redmond)**	
Route	**Location**	**Route**	**Location**	**Route**	**Location**	**Route**	**Location**	**Route**	**Location**	**Route**	**Location**
KCM 111	I-90 D2 Roadway	KCM 111	I-90	KCM 111	I-90	ST 550	Bellevue Way SE	KCM 220	NE 20th Street at 140th Avenue NE	KCM 220	140th Avenue NE at NE 61st Street
KCM 114	I-90 D2 Roadway	KCM 114	I-90	KCM 114	I-90	ST 564	I-405	KCM 230	NE 8th Street at 140th Avenue NE	KCM 230	SR 520 at NE 61st Street
KCM 202	4th Avenue South	KCM 202	I-90	KCM 210	I-90	ST 565	I-405	KCM 232	SR 520 at 140th Avenue	KCM 232	SR 520 at NE 61st Street
KCM 210	I-90 D2 Roadway	KCM 205	I-90	KCM 212	I-90			KCM 233	Bel-Red Road at 140th Avenue NE	KCM 233	SR 520 at NE 61st Street
KCM 212	I-90 D2 Roadway	KCM 210	I-90	KCM 214	I-90			KCM 249	NE 20th Street at 140th Avenue NE	KCM 249	Lake Sammamish Parkway
KCM 214	I-90 D2 Roadway	KCM 212	I-90	KCM 216	I-90			KCM 253	NE 8th Street at 140th Avenue NE	KCM 253	148th Avenue NE at NE 61st Street
KCM 216	I-90 D2 Roadway	KCM 214	I-90	KCM 217	I-90			KCM 268	SR 520 at 140th Avenue NE	KCM 268	SR 520 at NE 61st Street
KCM 217	I-90 D2 Roadway	KCM 216	I-90	KCM 218	I-90			ST 545	SR 520 at 140th Avenue NE	KCM 269	SR 520 at NE 61st Street
KCM 218	I-90 D2 Roadway	KCM 217	I-90	KCM 225	I-90			ST 564	SR 520 at 140th Avenue NE	ST 545	SR 520 at NE 61st Street
KCM 225	I-90 D2 Roadway	KCM 218	I-90	KCM 229	I-90			ST 565	SR 520 at 140th Avenue NE		
KCM 229	I-90 D2 Roadway	KCM 225	I-90	ST 554	I-90						
ST 550	I-90 D2 Roadway	KCM 229	I-90								
ST 554	I-90 D2 Roadway	ST 550	I-90								
		ST 554	I-90								
		KCM 268	SR 520								
		KCM 271	SR 520								
		ST 545	SR 520								
		ST 555	SR 520								
		ST 556	SR 520								

KCM	King County Metro
ST	Sound Transit

4.2.4 Level of Service for Hours of Service

Under existing conditions, service between Downtown Bellevue and each of the following areas operates an average of 17 to 20 hours during the day (LOS B or better): the University District, Downtown Seattle, Mercer Island, South Bellevue, Overlake, and Downtown Redmond. Service between Downtown Seattle and Downtown Bellevue, as well as between Downtown Seattle and Downtown Redmond, operates over 19 hours during the day (LOS A). Services between the University District and Mercer Island and between Northgate and Downtown Bellevue operate at an average of 3 hours (LOS F) and approximately 7 hours (LOS E), respectively. Service between the Bel-Red area and the Overlake and Downtown Redmond areas operate similarly (LOS D) because most routes that serve these areas operate during peak periods. Bel-Red, Overlake, and Downtown Redmond do not have direct service to Northgate and the University District. In addition, there is no direct service between the Mercer Island and South Bellevue area and the Bel-Red, Overlake, and Downtown Redmond areas. Exhibit 4-2 shows the hours of service LOS for existing conditions between areas connected by the bus routes evaluated in the East Link Project transit analysis.

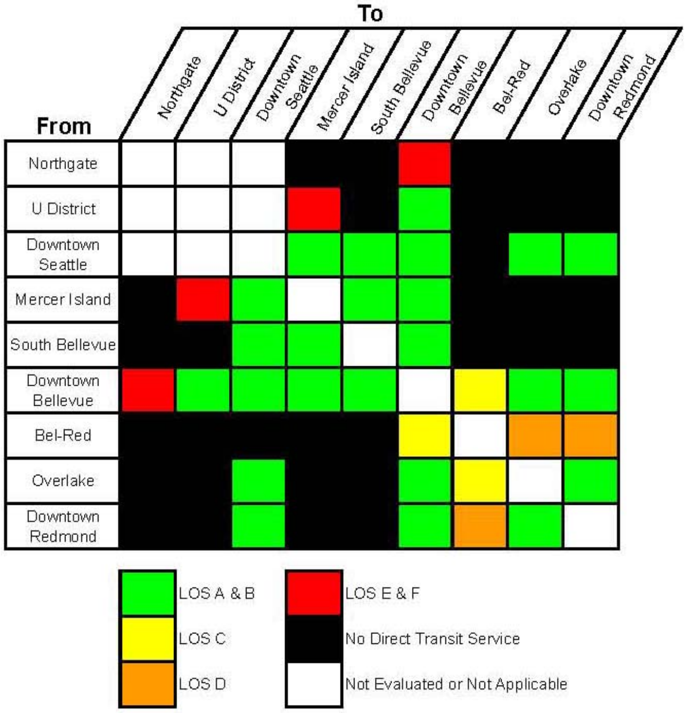


To

From	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	⬛	⬛	🟧	⬛	⬛	⬛
U District	⬜	⬜	⬜	🟥	⬛	🟩	⬛	⬛	⬛
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	⬛	🟩	🟩
Mercer Island	⬛	⬛	🟩	⬜	🟩	🟩	⬛	⬛	⬛
South Bellevue	⬛	⬛	🟩	🟩	⬜	🟩	⬛	⬛	⬛
Downtown Bellevue	🟧	🟧	🟩	🟩	🟩	⬜	🟩	🟩	🟩
Bel-Red	⬛	⬛	⬛	⬛	⬛	🟩	⬜	🟨	🟨
Overlake	⬛	⬛	🟨	⬛	⬛	🟩	🟨	⬜	🟩
Downtown Redmond	⬛	⬛	🟨	⬛	⬛	🟩	🟨	🟩	⬜

🟩 LOS A & B
🟨 LOS C
🟧 LOS D
🟥 LOS E & F
⬛ No Direct Transit Service
⬜ Not Evaluated or Not Applicable

EXHIBIT 4-1
Existing PM Peak-Hour Service Frequency Level of Service



To

From	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	⬛	⬛	🟥	⬛	⬛	⬛
U District	⬜	⬜	⬜	🟥	⬛	🟩	⬛	⬛	⬛
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	⬛	🟩	🟩
Mercer Island	⬛	🟥	🟩	⬜	🟩	🟩	⬛	⬛	⬛
South Bellevue	⬛	⬛	🟩	🟩	⬜	🟩	⬛	⬛	⬛
Downtown Bellevue	🟥	🟩	🟩	🟩	🟩	⬜	🟨	🟩	🟩
Bel-Red	⬛	⬛	⬛	⬛	⬛	🟨	⬜	🟧	🟧
Overlake	⬛	⬛	🟩	⬛	⬛	🟩	🟨	⬜	🟩
Downtown Redmond	⬛	⬛	🟩	⬛	⬛	🟩	🟧	🟩	⬜

🟩 LOS A & B
🟨 LOS C
🟧 LOS D
🟥 LOS E & F
⬛ No Direct Transit Service
⬜ Not Evaluated or Not Applicable

EXHIBIT 4-2
Existing Hours of Service Level of Service

4.2.5 Level of Service for Passenger Load

Passenger load LOS A or B was calculated for all screenlines within the corridor, which indicates that passenger crowding and comfort does not affect delayed dwell times in terms of travel time and service frequency. Transit across Screenline 6 (Redmond) is the least crowded, allowing passengers to stow carry-ons on vacant seats and flexibility for passengers to sit wherever they like on the vehicle. Screenline 2 (Lake Washington) has the highest passenger load, more than 0.50 passengers per seat, at which level passengers can still choose where to sit. Table 4-4 summarizes the existing PM peak-hour passenger load LOS associated with the study area screenlines. Existing bus passenger data were provided by King County Metro (King County Metro, 2007b).

TABLE 4-4
Existing PM Peak-Hour Bus Passenger Loads

Screenline	Existing Routes	Direction	Average Seated Passenger per Seat	LOS
1 (City of Seattle)	11 local, 2 express	Eastbound	0.45	A
		Westbound	0.49	A
2 (Lake Washington)	14 local, 5 express	Eastbound	0.52	B
		Westbound	0.57	B
3 (I-90)	10 local, 1 express	Eastbound	0.49	A
		Westbound	0.33	A
4 (South Bellevue)	0 local, 3 express	Eastbound	0.23	A
		Westbound	0.50	B
5 (Bel-Red)	7 local, 3 express	Eastbound	0.43	A
		Westbound	0.40	A
6 (Redmond)	8 local, 1 express	Eastbound	0.29	A
		Westbound	0.16	A

Source: Sound Transit (2007c).
LOS level of service

4.2.6 Level of Service for On-Time Performance and Reliability

Most transit routes at the International District/Chinatown Station, Mercer Island Park-and-Ride, Bellevue Transit Center, Overlake Transit Center, and Redmond Transit Center operate at LOS E or F for on-time performance and reliability. None of the bus routes at the International District/Chinatown and Mercer Island stations have a reliability LOS better than LOS E. Only three routes at the Bellevue Transit Center operate better than LOS E; one of the bus routes with an LOS better than LOS E is Sound Transit Regional Express Route 550 (ST 550). In the westbound direction, ST 550 is near the beginning of its route at the Bellevue Transit Center; therefore, it is expected to have an acceptable reliability because it has not yet experienced any substantial delays or congestion. Following this route into Seattle along I-90, the ST 550 on-time performance at Mercer Island is only at 50 percent, corresponding to LOS F.

Once ST 550 reaches the International District/Chinatown Station, its on-time performance even further degrades to 30 percent and a continued LOS F reliability. This route is a good example of how roadway congestion can impede transit and restrict it from providing reliable service. Table 4-5 lists the reliability LOS calculated for selected stations in the project corridor in the PM peak hour.

TABLE 4-5
Existing PM Peak-Hour Reliability Level of Service

Station	Route Number	Direction	Headway (minutes)	On-Time Performance (percent)	Coefficient of Variation	LOS
International District/Chinatown	KCM 210	Eastbound	25	41.7	-	F
	KCM 212	Eastbound	8.7	-	0.56	E
	KCM 214	Eastbound	13	49.2	-	F
	KCM 216	Eastbound	26	40.7	-	F
	KCM 218	Eastbound	9.6	-	0.53	E
	KCM 225	Eastbound	>60	59.4	-	F
	KCM 229	Eastbound	>60	44.8	-	F

TABLE 4-5 CONTINUED
Existing PM Peak-Hour Reliability Level of Service

Station	Route Number	Direction	Headway (minutes)	On-Time Performance (percent)	Coefficient of Variation	LOS
International District/Chinatown contd.	ST 550	Eastbound	6.6	-	0.68	E
	ST 554	Eastbound	35	51.7	-	F
	KCM 111	Southbound	20	66.0	-	F
	KCM 114	Southbound	27	56.3	-	F
	KCM 202	Southbound	30	43.1	-	F
	KCM 212	Westbound	30	46.0	-	F
	ST 550	Westbound	10.1	30.3	-	F
	ST 554	Westbound	30	56.9	-	F
			Station Average[a]	48.8	0.59	F/E
Mercer Island	ST 550	Eastbound	6.5	-	1.02	F
	ST 554	Eastbound	35	52.8	-	F
	KCM 202	Southbound	11	50.6	-	F
	KCM 216	Southbound	33	34.0	-	F
	KCM 202	Westbound	32	71.4	-	F
	KCM 203	Westbound	32	36.5	-	F
	ST 550	Westbound	10.2	50.0	-	F
	ST 554	Westbound	30	70.0	-	F
			Station Average[a]	52.2	1.02	F/F
Bellevue Transit Center	KCM 233	Eastbound	30	91.0	-	B
	KCM 249	Eastbound	30	84.8	-	D
	KCM 271	Eastbound	15	66.2	-	F
	ST 550	Eastbound	6	-	0.68	E
	ST 556	Eastbound	37	55.9	-	F
	ST 564	Northbound	30	39.0	-	F
	ST 565	Northbound	60	3.3	-	F
	ST 564	Southbound	30	39.0	-	F
	ST 565	Southbound	30	23.8	-	F
	KCM 233	Westbound	30	48.3	-	F
	KCM 249	Westbound	30	41.3	-	F
	KCM 253	Westbound	30	38.2	-	F
	KCM 271	Westbound	22	71.0	-	F
	ST 550	Westbound	11.25	82.4	-	D
	ST 555	Westbound	39	71.0	-	F
	KCM 230	N/A	14.5	59.5	-	F
	KCM 230	N/A	30	61.8	-	F
	KCM 232	N/A	23.5	29.3	-	F
			Station Average[a]	53.3	0.68	F/E

TABLE 4-5 CONTINUED
Existing PM Peak-Hour Reliability Level of Service

Station	Route Number	Direction	Headway (minutes)	On-Time Performance (percent)	Coefficient of Variation	LOS
Overlake Transit Center	KCM 232	Eastbound	17	35.8	-	F
	KCM 268	Eastbound	36	34.0	-	F
	ST 545	Eastbound	10	-	0.39	C
	KCM 230	Eastbound	29	74.6	-	E
	ST 564	Northbound	60	21.9	-	F
	ST 565	Northbound	60	13.3	-	F
	ST 564	Northbound	60	47.8	-	F
	ST 565	Northbound	60	17.4	-	F
	KCM 245	Northbound	29	87.5	-	C
	ST 564	Southbound	30	77.8	-	E
	ST 565	Southbound	30	89.5	-	C
	KCM 245	Southbound	30	84.8	-	D
	ST 545	Westbound	10	-	0.31	C
	KCM 230	Westbound	32	75.0	-	E
	KCM 232	Westbound	30	50.0	-	F
	ST 545	Westbound	10	-	0.30	D
	KCM 247	N/A	31	21.5	-	F
	KCM 225	N/A	31	46.7	-	F
	KCM 229	N/A	36	33.3	-	F
	KCM 256	N/A	28	95.2	-	A
	KCM 249	N/A	22	36.6	-	F
			Station Average[a]	52.4	0.33	F/C
Redmond Transit Center	KCM 230	N/A	31	32.3	-	F
	KCM 232	Eastbound	20.5	26.3	-	F
	KCM 253	Eastbound	30	40.0	-	F
	ST 545	Eastbound	10.8	27.8	-	F
	KCM 220	Eastbound	29	18.0	-	F
	KCM 220	Westbound	25	100.0	-	A
	KCM 250	N/A	44	29.2	-	F
	KCM 253	Westbound	25	88.7	-	C
	ST 545	Westbound	10	-	0.48	D
			Station Average[a]	45.3	0.48	F/D

Source: Automatic vehicle location data provided by Metro in spring 2007.

Note: While the data used in this analysis were collected during the Downtown Seattle Transit Tunnel closure, data that had been collected before the tunnel closure showed LOS F.

[a] Station average LOS = X/Y, where X= LOS for percent on-time performance station average, Y= LOS for coefficient of variation station average.

KCM	King County Metro
LOS	level of service
N/A	The transit route does not provide service to one specific direction.
ST	Sound Transit

4.3 Environmental Impacts

The East Link Project would improve transit service within the regional transportation system in terms of operations and LOS. In addition, the project would provide regional travel benefits by extending transit access and mobility in the growing eastern part of the urban Puget Sound region. Enhancing transit service between the two major business centers of the Puget Sound region—Seattle and the Eastside (Bellevue, Overlake, and Redmond)—with light rail would improve transit usage and provide these communities with more reliable direct transit service. As described in this section, light rail provides improved headways and service frequencies for transit service with longer hours of service throughout the day. East Link would also serve the peak and reverse-peak directions of travel equally. Bus routes would be tailored to feed the light rail system, closing gaps in the existing transit network. Overall, with shorter headways and travel times, light rail would improve the transit LOS for riders and increase the passenger capacity compared to bus services in the same area.

A representative East Link route (the combination of the *Preferred Alternatives A1* and *E2* and Alternatives B3, C4A, and D2A - 120th Station Design Option) was used to assess the transit LOS measures for the project because there would not be a substantial variation in these LOS results among the other project alternatives.

4.3.1 Future Transit Service Coverage and Circulation

As part of the East Link Project, King County Metro and Sound Transit service planners developed a transit integration plan for both the 2020 and 2030 no-build and build conditions (Sound Transit, 2007a). The transit integration plan identified future bus services that included changes to the current bus headways and routes to meet future demand. Although service plans would not be finalized until close to system operation, the plans provide a snapshot of how bus service would look with and without the project. Some of these plans are being implemented now through ST2 and Transit Now, an initiative to expand transit service approved by King County voters in the general election in November 2006. In general, the future bus service frequency and coverage area would increase both with and without the East Link Project in response to changes in travel demand patterns and regional growth. With the project, future express and local bus routes and service would change. For example, bus routes that serve the same markets as light rail and that are far less reliable would be reduced or eliminated. The routes with service changes in the no-build and build conditions are described in Appendix C.

For the no-build condition, several existing routes are proposed to be modified by 2020 and 2030 as part of the future transit integration plan. For example, bus service between Eastgate and Seattle would be improved as the frequency of KCM 212, which serves Eastgate, is expected to increase; however, KCM 217, which has limited service to Eastgate, would be discontinued. The King County route that locally travels on Mercer Island and connects to Downtown Seattle would be deleted. Routes providing service between Mercer Island and Downtown Seattle would have improved frequency. A new Metro RapidRide route with generally the same route and coverage area as the existing KCM 253 (which is deleted in the future) would travel between Redmond and Downtown Bellevue. Even with these changes in future service, the coverage areas would stay relatively constant.

For the build condition, direct light rail service would be created between Downtown Seattle, Mercer Island, Downtown Bellevue, Overlake, and Redmond. Most bus routes that provide parallel service to the light rail service areas would be reduced or eliminated, although some routes would be modified to terminate at light rail stations. Major routes that would see changes are ST 550 and ST 554. Specific circulation changes in transit services are described by segment in the following subsections. It was assumed that future Community Transit service in the area would be unaffected.

4.3.1.1 Segment A, *Preferred Interstate 90 Alternative (A1)*

Along I-90 between Seattle and the Bellevue Way interchange, light rail would use the reversible center roadway. Peak-direction buses would be rerouted from the reversible center roadway to the HOV lanes in the outer roadways that will be constructed as part of the I-90 Two-Way Transit and HOV Operations Project. Bus access to and from Mercer Island and the Rainier Avenue transit flyer stop would be maintained in all directions with a combination of the existing ramps provided on the outer roadways and the future HOV lanes and ramps built as part of the I-90 Two-Way Transit and HOV Operations Project. East of I-405, the I-90 HOV lanes and transit access that currently exists would not change with the East Link project. Changes to key transit routes on I-90 east of I-405 are further described in this section and are included in the transit LOS and ridership forecasts, where applicable.

In Seattle, if the D2 Roadway (the ramp connection between I-90 at Rainier Avenue and the Airport Way 5th Avenue intersection) is not designated as joint-use for bus and light rail, bus routes that use the D2 Roadway would likely be rerouted to 4th Avenue S via SR 519. Sections 4.3.2.4 and 5.3.3 identify the bus reliability and travel times with and without joint-use operations on the D2 Roadway, respectively. Also in Seattle, as evaluated in the *North Link Supplemental Final EIS* (Sound Transit, 2006), buses might not operate in the Downtown Seattle Transit Tunnel once light rail extends to Northgate, which is an assumption for the East Link Project in the no-build and build conditions for both 2020 and 2030 years. Direct service between Mercer Island and the University District would not occur in the No Build Alternative because the bus route that connects these areas would be deleted per the future bus service plan.

With East Link, light rail would reestablish the direct connection between these areas. Additional connections would also be created with light rail between Mercer Island and Northgate, Bel-Red, Overlake, and Downtown Redmond. With the project, Sound Transit Regional Express Route 554 (ST 554) is assumed to terminate at the Mercer Island Station. With this change, bus stops would be relocated on Mercer Island to serve ST 554 when it would arrive from the east. It would travel in a clockwise pattern around the station and would use the HOV ramps on 80th Avenue SE to exit and access I-90. In the build condition, ST 550 would be eliminated because it would provide parallel service to light rail. On Mercer Island, if the future eastbound HOV off-ramp is not connected to 77th Avenue SE (a connection to Island Crest Way is Sound Transit's and WSDOT’s preferred eastbound HOV off-ramp location), buses traveling eastbound on I-90 would continue to be able to serve the Mercer Island Park-and-Ride via the general-purpose eastbound off-ramps similar to current eastbound I-90 bus operations when the center roadway is closed to eastbound traffic.

4.3.1.2 Segment B

Under the No Build Alternative, direct transit connections to South Bellevue would not change from existing conditions. However, with light rail, South Bellevue would be directly connected to Bel-Red, Overlake, Downtown Redmond, Northgate, and the University District.

Preferred 112th SE Modified Alternative (B2M)

Under *Preferred Alternative B2M,* the ST 550 route would be eliminated but other bus routes would continue to serve Bellevue Way between the South Bellevue Park-and-Ride and the Bellevue Transit Center. All other modifications to the future transit service coverage and circulation would be similar in the no-build and build conditions.

Other Segment B Alternatives

For the BNSF Alternative (B7) at the 118th Station, bus routes that could be effectively rerouted would begin and end at this station. In the no-build condition, many of these routes would originate and end at the Wilburton Park-and-Ride located on SE 8th Street. Current bus service on Mercer Island would connect to the South Bellevue Park-and-Ride and Downtown Bellevue with Alternative B7. Transit service coverage and circulation would remain similar to the *Preferred Alternative B2M* for all other Segment B alternatives. Closing the eastbound HOV off-ramp at the I-90 and Bellevue Way SE interchange is a design option for all Segment B alternatives, while closing the westbound HOV on-ramp is a design option for only Alternative B1. The potential closure of the HOV direct-access ramps would not affect bus services because the project would eliminate buses currently using these ramps; the exception, however, is Alternative B7, for which one bus route would be rerouted to the general-purpose ramp if the eastbound HOV direct-access off-ramp were to be closed.

4.3.1.3 Segment C

With light rail, there would be more direct transit connections between Downtown Bellevue and the areas served by East Link. In both the no-build and build conditions, a Metro RapidRide route would connect Downtown Bellevue, Overlake, and Redmond.

Preferred 108th NE At-Grade Alternative (C11A)

Under *Preferred Alternative C11A*, routes ST 550 and ST 556 would be eliminated. Other bus routes, such as ST 555 and ST 564/565, would be truncated to end at the Bellevue Transit Center to reduce redundancy with light rail service. All other modifications to the future transit service coverage and circulation for the Segment C area would be similar under the no-build and build conditions.

Preferred 110th NE Tunnel Alternative (C9T)

Under *Preferred Alternative C9T*, transit service coverage and circulation would be similar to *Preferred Alternative C11A*.

Other Segment C Alternatives

Under Alternative C4A, transit that uses 108th and 110th Avenues NE might need to be revised depending on the direction of the one-way vehicle couplet in Downtown Bellevue. All other modifications to the future transit service coverage and circulation under the Alternative C4A would be similar to *Preferred Alternative C11A*. For all other Segment C alternatives, bus service and circulation would be similar to *Preferred Alternative C11A*.

4.3.1.4 Segment D

Without the East Link Project, there would be no direct transit connection between Bel-Red and Downtown Redmond because the bus routes connecting these areas would be deleted or modified. East Link would provide a direct connection between these areas. In addition, light rail would directly connect Bel-Red and Overlake to the South Bellevue, Mercer Island, University District, and Northgate areas. Light rail would also directly connect the Bel-Red area to Downtown Seattle.

Preferred NE 16th At-Grade Alternative (D2A)

Under *Preferred Alternative D2A*, to serve the 120th Station, some bus route circulation patterns would be modified to use 120th Avenue NE instead of 116th Avenue NE between NE Bel-Red Road and NE 20th Street. Some services between the Bellevue Transit Center and the Overlake Transit Center would be reduced or eliminated if light rail extended to the Overlake Transit Center. If light rail terminated at Overlake Village Station, then some bus routes would be changed to serve that station. All other modifications to the future transit service coverage and circulation for the Segment D area would be similar under the no-build and build conditions.

Other Segment D Alternatives

For all other Segment D alternatives, transit service coverage and circulation would be similar to *Preferred Alternative D2A* except for Alternative D5, which does not have a 120th Station and therefore would not have any of the bus route modifications associated with that station.

4.3.1.5 Segment E

Under the No Build Alternative, there would be no direct connection between Downtown Redmond and the Bel-Red area. With light rail, new direct transit connections would be established between Downtown Redmond and the Bel-Red, South Bellevue, Mercer Island, and Northgate areas.

Preferred Marymoor Alternative (E2)

Under *Preferred Alternative E2*, the addition of the SE Redmond Station would change transit service. Some bus routes would be revised to serve the SE Redmond Station. These buses would use NE Redmond Way and NE 70th Street to access the SE Redmond Station. Some bus routes would continue to use the Bear Creek Park-and-Ride as they would in the no-build condition. It was assumed that similar transit services would be provided at either the Redmond Transit Center or Downtown Redmond Station because they are both located in Downtown Redmond. All other modifications to the future transit service coverage and circulation for the Segment E area would be similar under the no-build and build conditions.

Other Segment E Alternatives

For the other Segment E alternatives, transit service coverage and circulation would be similar to *Preferred Alternative E2*.

4.3.2 Transit Level of Service and Operations Impacts

Transit service in the future no-build and build conditions was evaluated using a methodology similar to that used for evaluating the affected environment in Section 4.2. Transit LOS for routes under the no-build and build conditions were evaluated for the weekday PM peak hour. The future LOS was based on the transit integration plan and the forecasted ridership. Table 4-6 lists the future transit routes at each of the six screenlines used in calculating the passenger load LOS, and the following subsections present the results for each of the measures used to evaluate transit LOS performance. Because the transit integration plan did not alter the transit service frequencies and hours of service measures enough to cause an LOS shift between years 2020 and 2030, the analysis is the same for both future years.

TABLE 4-6
Future No-Build and Build Transit Route Changes at Screenlines in Study Area

Service Change	Screenline 1 (Seattle)	Screenline 2 (Lake Washington)	Screenline 3 (I-90)	Screenline 4 (South Bellevue)	Screenline 5 (Bel-Red)	Screenline 6 (Redmond)
No change at Screenline[a]	KCM 212, 214, 216, 218	KCM 212, 214, 216, 218, 271	KCM 111, 114, 210, 212, 214, 216, 218 ST 554	ST 564, 565	KCM 233, 249	KCM 232, 269
Routes added to the screenline in all future conditions	KCM 214.5	KCM 214.5	KCM 214.5	KCM 234	KCM RapidRide	KCM 239, RapidRide
Routes eliminated from the screenline in build conditions only	KCM 111, 114, 210 ST 550, 554	KCM 111, 114, 210, 268 ST 550, 554, 545, 555, 556		ST 550	KCM 232, 268 ST 545, 564, 565	KCM 268 ST 545
Routes added to the screenline in build conditions	Light rail	Light rail		KCM 111, 114 ST 532, 535 Light rail	Light rail	Light rail
Routes eliminated from the screenline in all future conditions	KCM 202, 217, 225, 229	KCM 202, 205, 217, 225, 229	KCM 217, 225, 229		KCM 220, 230, 253	KCM 220, 230, 233, 249, 253

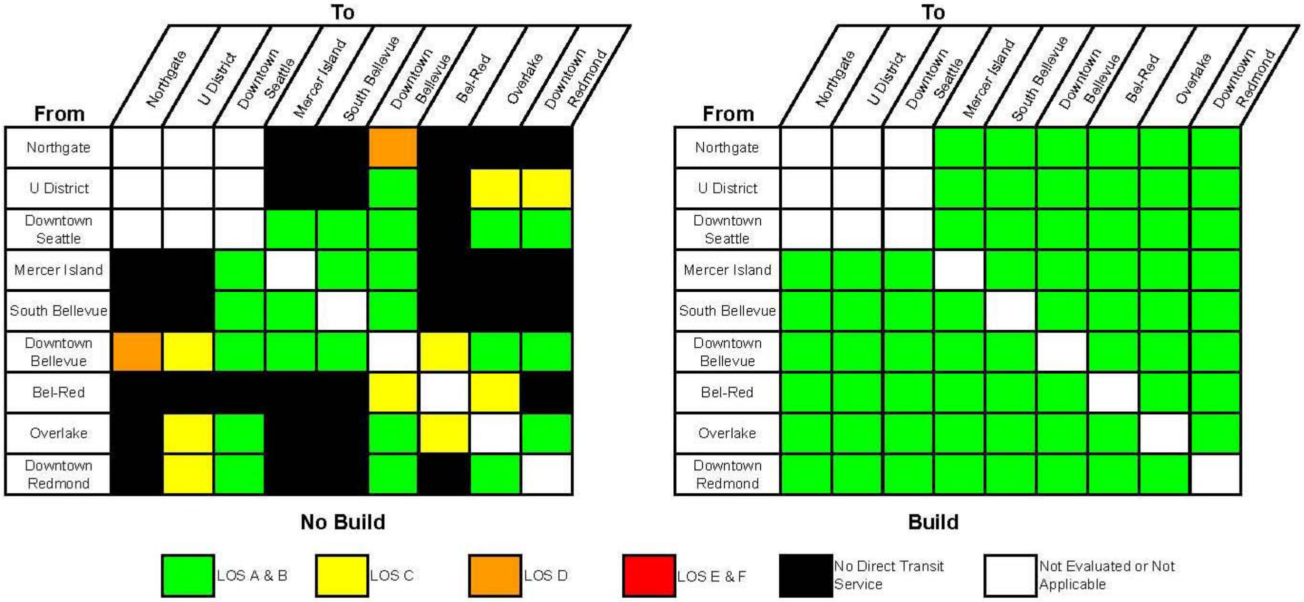
[a] East Link route crosses screenline under existing conditions.

KCM	King County Metro
ST	Sound Transit

4.3.2.1 Service Frequency Level of Service

Overall, the transit integration plans for 2020 and 2030 propose redeploying or truncating several routes to increase transit service frequency among the local routes that would feed and serve light rail stations, resulting in more frequent bus service by 2020 and 2030 with the project. The left-side chart in Exhibit 4-3 shows the service frequency LOS during the PM peak hour for the No Build Alternative and the chart on the right side shows the service frequency LOS during the PM peak hour with the project. Because the transit integration plan did not alter the transit service frequencies enough to cause an LOS shift between years 2020 and 2030, Exhibit 4-3 shows the analysis for both years in a single set of charts. Table C-3 in Appendix C provides the service frequency LOS between the service areas.

In the no-build condition, some areas would be connected by frequent service, but many other areas would not have direct transit connections. Service frequency in the reverse-peak direction (eastbound in the morning [AM] and westbound in the afternoon [PM]) between Overlake and Downtown Seattle and between Downtown Redmond and Downtown Seattle would improve from the existing LOS C to LOS A. This service frequency improvement would be due to plans for more frequent headways of route ST 545. Between Downtown Seattle and Downtown Bellevue, the service frequency would remain at an LOS B or better. With a few exceptions, the University District, Northgate, Mercer Island, South Bellevue, Bel-Red, Overlake, and Downtown Redmond areas would not have direct bus service between them. Planned modifications of some routes (i.e., elimination, truncation, rerouting) would also decrease the service frequency LOS with some of the connections to and from the Bel-Red area. Service frequency would improve from LOS D to LOS C between Downtown Bellevue and the University District because headways would improve from 25 minutes to 15 minutes. Even though many of the bus routes are planned to have more frequent headways, buses would likely be unable to meet their scheduled headways in the future due to additional congestion on roadways. Refer to Section 4.3.2.4 Transit Reliability Level of Service for a discussion of future bus reliability. In years 2020 and 2030, East Link would connect all the areas with more frequent service. East Link trains would have peak headways between 7 and 8 minutes, resulting in LOS A. The Eastside areas would be directly connected by light rail service, with frequent direct connections with the Bel-Red, Overlake, and Downtown Redmond areas.



No Build

From \ To	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	⬛	⬛	🟧	⬛	⬛	⬛
U District	⬜	⬜	⬜	⬛	⬛	🟩	⬛	🟨	🟨
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	⬛	🟩	🟩
Mercer Island	⬛	⬛	🟩	⬜	🟩	🟩	⬛	⬛	⬛
South Bellevue	⬛	⬛	🟩	🟩	⬜	🟩	⬛	⬛	⬛
Downtown Bellevue	🟧	🟨	🟩	🟩	🟩	⬜	🟨	🟩	🟩
Bel-Red	⬛	⬛	⬛	⬛	⬛	🟨	⬜	🟨	⬛
Overlake	⬛	🟨	🟩	⬛	⬛	🟩	🟨	⬜	🟩
Downtown Redmond	⬛	🟨	🟩	⬛	⬛	🟩	⬛	🟩	⬜

Build

From \ To	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
U District	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Mercer Island	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩	🟩
South Bellevue	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩
Downtown Bellevue	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩
Bel-Red	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩
Overlake	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩
Downtown Redmond	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜

🟩 LOS A & B
🟨 LOS C
🟧 LOS D
🟥 LOS E & F
⬛ No Direct Transit Service
⬜ Not Evaluated or Not Applicable

EXHIBIT 4-3
2020 and 2030 PM Peak-Hour Service Frequency Level of Service

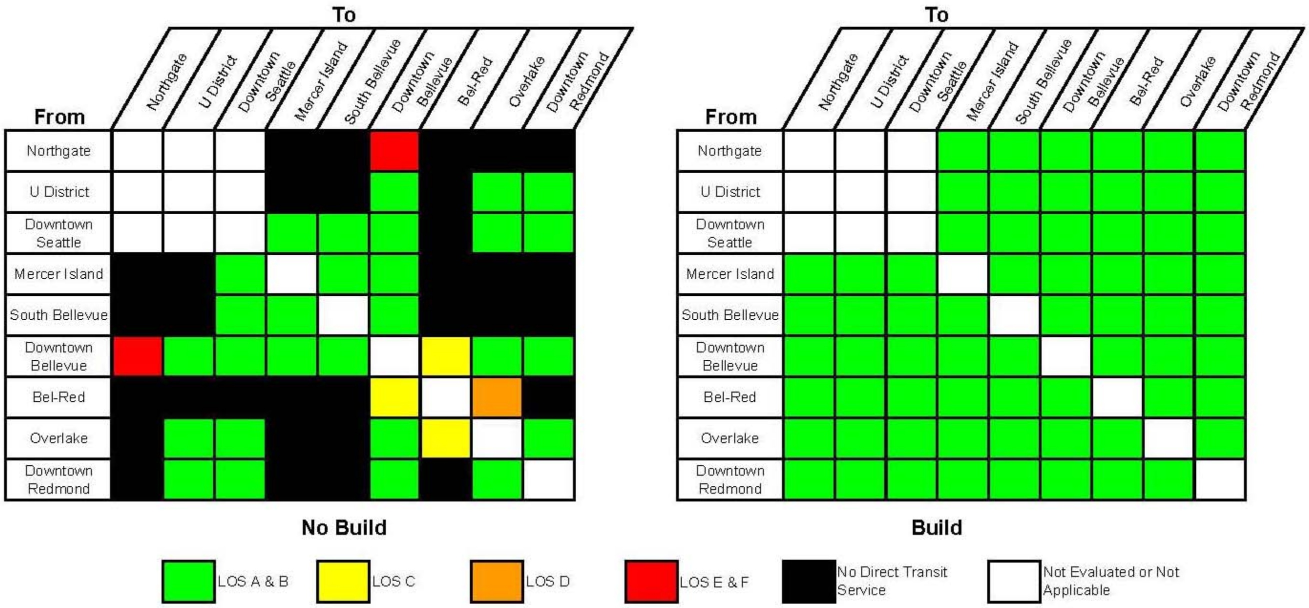
Compared to bus service in the no-build condition, light rail would provide a substantial improvement in the frequency of service not only in the peak periods but also throughout the day. Outside of the morning and afternoon peak periods, bus service would generally operate with frequencies of LOS D or worse. By contrast, light rail would operate with headways of LOS C or better and headways of 15 minutes or less throughout the day.

4.3.2.2 Hours of Service Level of Service

Hours of service LOS represents the number of hours that a transit service is available throughout the day. Existing routes that continue in the future, without major changes, were assumed to have the same existing hours of service as they do currently. New routes that are comparable to an existing route were assigned the existing route’s hours of service. Exhibit 4-4 shows the hours of service LOS with the project between areas connected by transit. Because the transit integration plan did not alter the hours of transit service enough to cause an LOS shift between years 2020 and 2030 conditions, Exhibit 4-4 shows the analysis for both years.

In the no-build condition, with a few exceptions, direct service would not exist between the Northgate, University District, Mercer Island, South Bellevue, Bel-Red, Overlake, and Downtown Redmond areas. Bus service in the no-build condition between Downtown Bellevue and Downtown Seattle, the University District, Mercer Island, South Bellevue, Overlake, and Downtown Redmond would operate at LOS B or better. The hours of service LOS between the service areas is provided in Table C-4 in Appendix C.

With light rail, the hours of service would be LOS A between all areas directly connected by light rail as East Link would either introduce new direct connections among them or provide substantial improvements to existing service areas. East Link would operate for 20 hours each day, a longer operating duration than most future bus routes. The Eastside areas would be directly connected with light rail service, with most noticeable hours of service improvements in the connections with Bel-Red, Overlake, and Downtown Redmond. Downtown Seattle to Downtown Bellevue, and Downtown Seattle to Downtown Redmond would continue to have hours of service LOS A. With light rail, Northgate and the University District would have direct connections with Mercer Island and all the Eastside areas (i.e., South Bellevue, Downtown Bellevue, Bel-Red, Overlake, and Downtown Redmond).



To

From	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	⬛	⬛	🟥	⬛	⬛	⬛
U District	⬜	⬜	⬜	⬛	⬛	🟩	⬛	🟩	🟩
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	⬛	🟩	🟩
Mercer Island	⬛	⬛	🟩	⬜	🟩	🟩	⬛	⬛	⬛
South Bellevue	⬛	⬛	🟩	🟩	⬜	🟩	⬛	⬛	⬛
Downtown Bellevue	🟥	🟩	🟩	🟩	🟩	⬜	🟨	🟩	🟩
Bel-Red	⬛	⬛	⬛	⬛	⬛	🟨	⬜	🟧	⬛
Overlake	⬛	🟩	🟩	⬛	⬛	🟩	🟨	⬜	🟩
Downtown Redmond	⬛	🟩	🟩	⬛	⬛	🟩	⬛	🟩	⬜

No Build

To

From	Northgate	U District	Downtown Seattle	Mercer Island	South Bellevue	Downtown Bellevue	Bel-Red	Overlake	Downtown Redmond
Northgate	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
U District	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Downtown Seattle	⬜	⬜	⬜	🟩	🟩	🟩	🟩	🟩	🟩
Mercer Island	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩	🟩
South Bellevue	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩	🟩
Downtown Bellevue	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩	🟩
Bel-Red	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩	🟩
Overlake	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜	🟩
Downtown Redmond	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	⬜

Build

🟩 LOS A & B
🟨 LOS C
🟧 LOS D
🟥 LOS E & F
⬛ No Direct Transit Service
⬜ Not Evaluated or Not Applicable

EXHIBIT 4-4
2020 and 2030 Hours of Service Level of Service

4.3.2.3 Passenger Load Level of Service

Passenger load measures a rider's ability to find a seat on a transit vehicle. Although intended to measure passenger comfort from the rider's perspective, it is an important factor in measuring transit LOS because the ease of passengers in finding a seat or space on the transit vehicle can influence the transit vehicle's dwell time and reliability at the transit stop or station. Future passenger load LOS relied on the Sound Transit ridership model, which predicts passenger usage for each transit route. Bus sizes were assumed the same as the current buses unless bus sizes for new routes were specified. The calculation to determine the passenger load for buses and light rail is different based on the calculation of transit capacity per the TCQSM (TRB, 2003). The bus passenger load calculations include the number of bus seats as the capacity. Bus passenger load is calculated in this way because buses are intended to provide mostly seated transit service. Light rail is intended to provide both seated and standing transit service. Therefore, it is assumed that when the number of passengers exceeds the number of available seats, some passengers must stand. Passenger load for light rail was calculated as square footage available per standing passenger. As the available square footage decreases, the LOS worsens. Because of the different passenger load LOS for bus and rail, the passenger load LOS values were not combined at the screenlines in the build condition. Table 4-7 and Table C-5 in Appendix C summarize the screenline passenger load LOS.

Compared to existing conditions, the 2020 no-build conditions showed fluctuations in the passenger loads on buses. A greater number of passengers per bus would occur at Screenlines 1 (Seattle) and 2 (Lake Washington). Across Screenline 2, the passenger load for the Seattle-to-Bellevue bus routes would be LOS D, indicating all bus seats are used by passengers. Even though the total number of transit passengers across the other screenlines would increase in the future No Build Alternative, depending on the bus service modifications (i.e., more frequent service or larger capacity buses), the passenger load LOS would increase or decrease compared to existing conditions. Overall, the 2020 no-build passenger load LOS would be no worse than LOS C. In the 2020 build condition, passenger load LOS across all screenlines would be LOS A. The improvement to LOS A is notable across Screenline 2, where the bus passenger load would operate at LOS C in the eastbound direction and LOS B in the westbound direction without light rail. Even though the passenger load LOS would improve, the number of transit users would increase over no-build conditions. The reason for the improved LOS is that light rail provides a higher capacity service than buses. Overall, the number of passengers per bus would decrease from the no-build to build conditions as more people would choose to ride light rail because of its more frequent and reliable service; therefore, improved bus passenger load LOS would be expected in the build condition.

TABLE 4-7
No-Build and Build PM Peak-Hour Passenger Load Level of Service

Screenline	Direction	2020 No-Build	2020 Build		2030 No-Build	2030 Build	
		Bus	Bus	Light Rail	Bus	Bus	Light Rail
1 (City of Seattle)	Southbound	B	A	B	B	A	B
	Northbound	A	A	A	B	A	A
2 (Lake Washington)	Eastbound	C	A	A	C	A	A
	Westbound	B	A	A	C	A	A
3 (I-90)	Eastbound	A	A	N/A	B	A	N/A
	Westbound	B	A	N/A	B	A	N/A
4 (South Bellevue)	Northbound	A	A	A	A	A	A
	Southbound	A	A	A	B	A	A
5 (Bel-Red)	Eastbound	B	A	A	C	A	A
	Westbound	A	A	A	B	A	A
6 (Redmond)	Northbound	A	A	A	A	A	A
	Southbound	A	A	A	A	A	A

N/A Not applicable because light rail would not cross this screenline.

By 2030, the passenger load LOS reflects an increase in transit usage with or without East Link. Passenger load LOS with East Link would operate at LOS B or better across all screenlines in comparison to no-build bus service that would operate at LOS C or better. While the passenger load LOS would improve with light rail as it provides a higher capacity service than buses, the number of transit (bus and light rail combined) riders would increase by about 25 percent across Lake Washington (Screenline 2) compared with the No Build Alternative. In the future, if the light rail passenger load LOS becomes unacceptable, the transit service provider might consider increasing service frequency or train length to improve the passenger load LOS and passenger comfort. In Segment A, if in the future the D2 Roadway did not operate as joint-use for bus and light rail, the buses that use the D2 roadway would be rerouted to other roadways, such as SR 519, to access downtown Seattle. This rerouting would slightly increase bus travel time, which could affect the passenger load on these buses.

4.3.2.4 Transit Reliability Level of Service

Measuring on-time performance and reliability LOS for transit included analysis of deviations of transit routes from their scheduled headways. Analysis of future on-time performance and reliability LOS in the no-build and build conditions used data from existing conditions because future headway deviations cannot be predicted. It was assumed that in the future both King County Metro and Sound Transit would adjust their bus services according to the demand and congestion levels, although unforeseen conditions could limit what is implemented. A summary of transit reliability LOS by transit station is provided in Table 4-8, but specific route transit reliability LOS can be viewed in Appendix C, Table C-6.

In the 2020 and 2030 no-build conditions, most bus routes at the International District/Chinatown Station, Mercer Island Park-and–Ride, Bellevue Transit Center, Overlake Transit Center, and Redmond Transit Center would be expected to operate at LOS E or F. None of the 23 bus routes at either the International District/Chinatown Station or Mercer Island Park-and-Ride would be expected to have a reliability LOS better than LOS E. Only 3 of the 18 evaluated routes at the Bellevue Transit Center operate better than LOS E. ST 550, a key transit route in the study area that follows a route similar to the light rail alternatives between Seattle and Downtown Bellevue, would be expected to operate at LOS F in both directions at the Mercer Island Park-and-Ride, which indicates that this route would almost always be "bunched" and would arrive on time only about 50 percent of the time.

TABLE 4-8
Transit Reliability Level of Service at Stations

Station	Existing Bus		Future Light Rail[a] LOS[b]
	On-Time Performance (percent)	LOS[b]	
International District/ Chinatown	48.8	F/E	A
Mercer Island	52.2	F/F	A
Bellevue Transit Center	53.3	F/E	A
Overlake Transit Center	52.4	F/C	A
Redmond Transit Center	45.3	F/D	A

Note: While the data used in this analysis were gathered during Downtown Seattle Transit Tunnel closure, data collected before the tunnel closure showed similar reliabilities (i.e., LOS E/F).
[a] Light rail reliability performance was projected using St. Louis light rail data (Sound Transit, 2006).
[b] LOS values are station averages; existing bus average LOS X/Y, where X = LOS for percent on-time performance station average, Y = LOS for coefficient of variation station average (definitions provided in the *Transportation Technical Report* [Appendix H1]).

LOS	level of service

Bus Reliability

The continuation of existing poor reliability between Downtown Seattle and Downtown Bellevue would be expected in the future because bus speeds between these two major urban centers are predicted to decrease slightly more than 30 percent by year 2030, even with improvements to I-90. This would occur because there are no improvements planned to roadways connecting I-90 to these urban centers, especially to and from Bellevue. On average, bus routes operate with an LOS E or F at all six of the major transit hubs evaluated as indicated in Table 4-8. Only a few bus routes at the Overlake Transit Center and Redmond Transit Center would operate with a reliability LOS better than LOS D. In Segment A, with light rail using the center roadway, buses would use the HOV lanes in the outer roadway during both construction and light rail operation. If performance of these HOV lanes degraded and did not meet WSDOT's HOV Speed and Reliability Standard of 45-mile-per-hour (mph) speeds for 90 percent of the peak-period duration, buses would likely not be able to maintain acceptable reliability.

If light rail and buses jointly use the D2 Roadway in Seattle, buses would gain up to a 2-minute savings inbound in the AM peak period to Downtown Seattle and up to a 6-minute savings outbound in the PM peak period from Downtown Seattle on I-90 compared to the operational option where buses would not be eligible to use the D2 Roadway. However, some of the savings would be reduced when buses travel along 5th Avenue South to and from the D2 Roadway. It would take up to 2 additional minutes to travel along 5th Avenue South compared to 4th Avenue South. Additionally, depending on the joint-use operating policy of the D2 Roadway, up to 3 additional minutes of average delay, in either direction, could be incurred by buses while waiting for clearance to enter the D2 Roadway. However, during evening events at the stadiums, bus routes along 4th Avenue South would incur additional travel time due to increased congestion along this street. With an interim terminus station at the Ashwood/Hospital or Hospital station in Bellevue, current bus service would continue to serve the Bel-Red and Overlake areas with poor reliability. With an interim terminus farther east, the transit reliability in the Bel-Red and Overlake areas would improve with the direct service from light rail.

Light Rail Reliability

The poor bus reliability discussed in the previous section indicates that buses would frequently arrive close together (bunched) rather than at their desired intervals, and that buses would be unable to meet their scheduled arrival times. This poor performance is indicative of a highly congested transportation network that would not serve bus transit well. Furthermore, poor reliability would not create an attractive mode for potential users and would be a major deterrent to bus transit use. Light rail would not experience the same disruptions in transit reliability because light rail would operate in its own dedicated right-of-way, separate from vehicle congestion, and therefore it would be better able to accommodate higher demand through more frequent and reliable service. For at-grade routes with dedicated right-of-way allowing vehicles to cross traffic, such as Alternatives B1, B2A, and C9A and *Preferred Alternatives C11A, D2A,* and *E2* alternatives, light rail would have some priority at traffic signals. Only with Alternative C4A in downtown Bellevue would light rail operate with vehicles as a joint bus-use lane on 108th Avenue NE between NE 4th Street and NE 8th to provide bus access to the Bellevue Transit Center from all directions.

The Puget Sound region's light rail system (Central Link) is in its first years of operation. The 2010 third quarter year-to-date service reliability indicates that the year-to-date adherence to schedule is around 80 percent and the headway adherence is above 90 percent. These service reliability measures are calculated by Sound Transit in a way slightly different than the TCQSM. For schedule adherence, a train is considered late if "a.) it departs a terminal station more than one minute late, or b.) it arrives at a terminal station three or more minutes late and is unable to make its departure time" (Sound Transit, 2010a). The headway adherence service reliability standard is considered the "percentage of time that the scheduled headway is maintained or a more frequent headway than scheduled is maintained (up to three minutes)" (Sound Transit, 2010a).

Because the current Sound Transit light rail system has different characteristics than assumed with the East Link Project (for example, current joint bus and rail operations in the Downtown Seattle Transit Tunnel are not assumed during East Link operations) and because Central Link is continuing to adjust operations to improve its reliability, East Link's expected light rail reliability was estimated using the St. Louis light rail system's on-time performance data. St. Louis light rail includes features similar to East Link (such as at-grade crossings and tunnels) and is reported to be 93 percent on time; however, their method considers any vehicle arriving more than 1 minute early not to have arrived on time. This differs from the conservative method that was used for the bus on-time performance, which considered only vehicles arriving 0 to 5 minutes late to have arrived on time. For the St. Louis light rail system, only 1 percent of trips arrive late, and just over 6 percent arrive early. Other light rail lines in the United States report between 92 and 98 percent on-time performance. Table C-7 in Appendix C provides Saint Louis light rail data supporting these findings.

4.3.2.5 Transit Travel Time Savings

Door-to-door (from the beginning to the end of a trip—for example, when you leave your place of work, ride transit, and then reach your destination, such as entering your home) travel time is a key factor in estimating transit ridership. For some potential transit riders, especially riders who have other travel mode choices available to make a trip, the ability of a transit service to save them time is an important factor in their decision-making process. These travel times were forecasted by the Sound Transit ridership model and include the following factors:

- Bicycle or walk time to stop or station
- Wait time
- Transfer wait time(s), if any
- In-vehicle time (in bus and/or light rail)
- Drive, bicycle, or walk time to destination

Table 4-9 provides average transit time comparisons for the area around the stations in each segment in the years 2020 and 2030. The comparisons reflect each person's travel time weighted by the number of trips (buses and rail) at each of the stations in the PM peak period. Compared to the no-build condition, East Link riders would save between 5 and 15 minutes during the PM peak in 2020 and between 4 and 16 minutes in 2030. The travel-time savings average over all the station areas would be 9 minutes in both 2020 and 2030. While the values presented in Table 4-9 represent a travel time for any transit rider in the region connecting to transit at the East Link stations, transit riders making trips where their origin and destination areas are both served by East Link would have the greatest travel-time benefits. This is due to shorter waits, no transfer times, and high in-vehicle speeds.

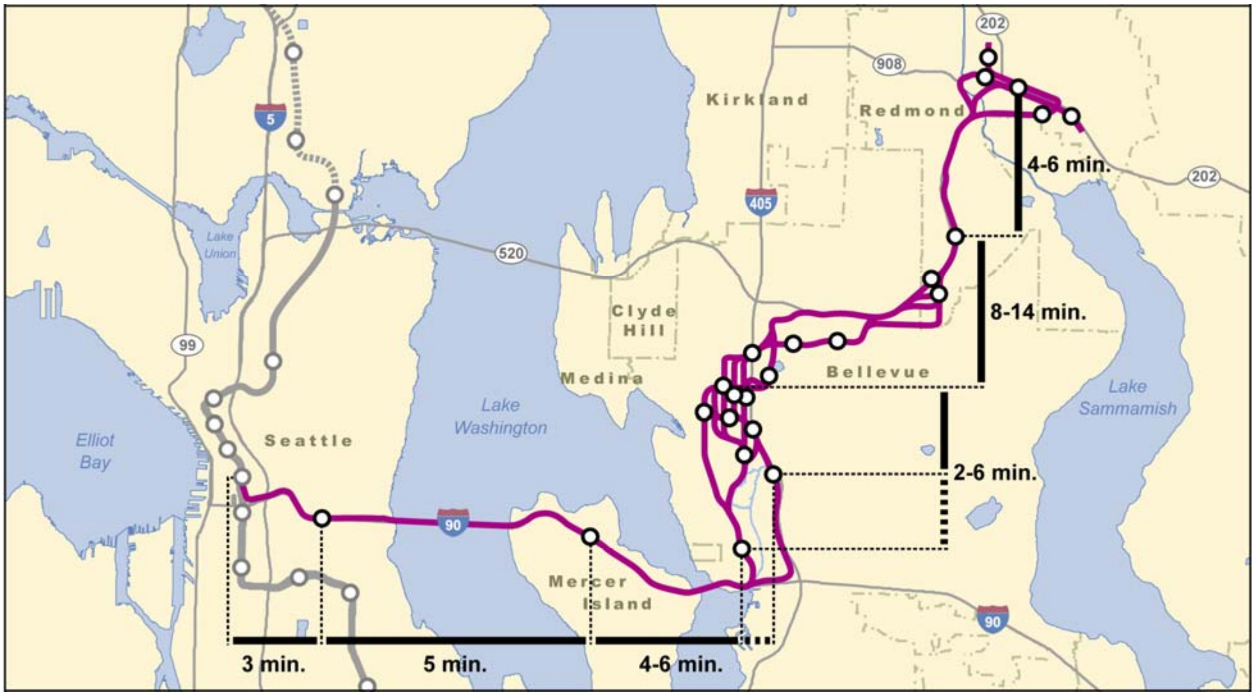
An important component of the overall transit travel time is the actual time a train takes to travel between stations. With the East Link Project, a passenger's travel time between Downtown Seattle and Downtown Redmond would be between 29 and 39 minutes. Light rail travel time between Downtown Seattle and Downtown Bellevue would be less than 20 minutes. This is a savings of up to 25 minutes compared to an automobile currently traveling between these locations, as in the afternoon peak period it currently takes up to 45 minutes to travel between Seattle and Bellevue (via I-90) and up to 55 minutes to travel between Seattle and Redmond (via SR 520) (WSDOT, 2011). In the future, automobile travel times are expected to worsen; therefore, light rail would provide an even greater travel time savings. Exhibit 4-5 shows light rail travel times between key stations.

TABLE 4-9
Year 2020 and 2030 Comparative Analysis of Average Door-to-Door PM Peak Transit Travel Times[a]

	Travel Time (minutes)			
	Year 2020		Year 2030	
Station	No Build	Build	No Build	Build
Segment A, Interstate 90				
Rainier	52	43	52	45
Mercer Island	49	41	50	41
Segment B, South Bellevue				
South Bellevue	51	43	50	43
SE 8th[b]	57	48	58	47
118th[b]	58	47	60	48
Segment C, Downtown Bellevue				
Old Bellevue[b]	59	50	60	51
Bellevue Transit Center	59	51	60	52
108th[b]	60	51	62	52
East Main	61	51	64	52
Hospital[b]	63	54	64	55
Ashwood/Hospital	59	52	60	52
Segment D, Bel-Red/Overlake				
120th	62	53	62	54
130th	63	55	64	58
Overlake Village	66	56	63	56
Overlake Transit Center	63	55	60	56
Segment E, Downtown Redmond				
Redmond Town Center	69	54	70	56
Downtown Redmond	69	56	71	58
SE Redmond	64	59	66	50
Redmond Transit Center[b]	69	58	71	61
Weighted average for all stations	**60**	**51**	**61**	**52**

[a] Door-to-door means from the beginning to the end of a trip, for instance from when a commuter leaves his or her place of work to when that commuter enters his or her home.

[b] Travel times for these stations were derived from the alternative in which the station is included, which is not among the alternatives used in the representative alternative combination described in section 4.3. These alternatives are Alternative B1 (connecting with Alternative C1T), Alternative B7, *Preferred Alternatives C11A* and *C9T (connected with Preferred Alternative B2M),* and E2 - Redmond Transit Center Design Option).



Note: Estimated East Link travel time between the Mercer Island Station and the South Bellevue Station is about 4 minutes (solid line), between the Mercer Island Station and the 118th Station it is about 6 minutes (solid plus dashed line), between the South Bellevue Station and Bellevue Transit Center it is between 4 and 6 minutes (solid plus dashed line), and between the 118th Station and the Bellevue Transit Center it is about 2 to 4 minutes (solid line).

EXHIBIT 4-5
East Link Travel Times between Key Stations

4.3.2.6 Transfers

The requirement for transit riders to transfer is often perceived as a negative attribute of transit systems and an impediment to transit use. However, the quality of transfers, whether between buses or between bus and rail, has a dramatic impact on how negatively transfers are perceived. Factors determining quality of transfers include proximity of transfer location, wait time, waiting area conditions, and service reliability.

Wait time is a function of the service frequency on the route to which a transit user is transferring and/or the ability to provide reliable “timed transfer” connections. There is evidence that quality transfers are acceptable and can be only a minor impediment. For example, King County Metro, which historically has been one of the strongest advocates of the “one-seat ride,” has been implementing a new “multi-centered” route structure focused on a series of transit “hubs” where convenient transfers can be made to multiple destinations. Key to the acceptance and success of these systems are safe, appealing, and protected transfer facilities and a combination of more frequent service and/or timed transfer, resulting in negligible impacts on ridership.

Transfers can be measured by a systemwide transfer rate, which is the average number of transit boardings per transit trip. The transfer rate in the study area was 1.29 in 2006. Table 4-10 provides the projected transfer rates for 2020 and 2030 no-build and build conditions. The transfer rates are expected to stay relatively similar between no-build and build conditions. A slight reduction in transfer rate is predicted in the build condition because East Link is assumed to connect with the planned North Link light rail line and provide a one-seat transit trip between north Seattle and the Eastside. Traveling between these two points would then not require a transfer between rail and bus, as it would under the no-build condition.

Passengers transferring from bus to light rail would have shorter wait times compared to bus-to-bus transfers because the East Link operating plan, as noted earlier, assumes East Link trains in the peak periods will arrive every 8 minutes in 2020 and every 7 minutes in 2030. Even during off-peak (midday) hours, East Link would operate with 12-minute headways in 2020 and 10-minute headways in 2030. Transfer wait times from East Link to a bus would sometimes be longer, particularly when the buses would run less frequently than East Link, although bus route frequencies are generally planned to improve over time with implementation of the light rail system. Some bus services supplanted by East Link could be redeployed to improve bus feeder system frequencies.

TABLE 4-10
Transit Transfer Rates

	2006[a]	2020 No-Build	2020 Build	2030 No-Build	2030 Build
Transfer rate	1.29	1.50	1.48	1.55	1.52
Daily (24 hours) transit trips	329,000	445,400	453,800	526,300	536,700
Daily transit boardings	424,000	667,900	670,900	814,900	816,500

[a] Source: Sound Transit (2007b).

4.3.2.7 Station Parking

With the No Build Alternative, no expansion or changes would occur to the existing park-and-ride capacities in the study area. With East Link, parking provided at the Mercer Island, Overlake Village, and Redmond Transit Center stations would remain unchanged. Depending on the alternative, the other park-and-ride lots in the study area would be expanded, e.g., at the South Bellevue (approximately 1,400 stalls), 118th (proposed 1,030 stalls), and Overlake Transit Center (proposed 320 stalls) stations, to better accommodate the expected ridership. New park-and-ride lots would be constructed at the 130th Station or 120th Station (proposed 300 stalls) with *Preferred Alternative D2A* and at SE Redmond Station (proposed 1,400 stalls). Section 6.2 provides further details on parking and parking utilization at East Link stations.

4.3.3 Light Rail Ridership

To forecast transit ridership, Sound Transit uses an incremental model that was developed in the early 1990s. The model is structured so that transit ridership results are based on observed origins and designations of transit users and observed transit line volumes that provide a realistic depiction of observed transit service characteristics. External changes in demographics, highway travel time, and costs are distinctly incorporated into the process in phases, prior to estimating the impacts of incremental changes in transit service. The Sound Transit model relies on the PSRC model for data on external changes, for example PSRC's projected year 2020 and 2030 land use forecasts. The transit ridership model also accounts for the voter-approved ST2 program and recent changes to project schedules assumed in the no-build condition. The ridership forecasts and analysis also include the City of Bellevue's adopted Bel-Red Subarea Plan and the City of Redmond's Overlake Village Plan Update. Refer to Attachment 3 of Appendix A for a further description of the Sound Transit ridership model.

The Sound Transit ridership forecasting model was used to develop the 2020 and 2030 daily light rail system ridership estimates associated with the project alternatives. For the segment alternative and projectwide ridership tables (Tables 4-11 through 4-17), a representative alternative was created to provide a baseline forecast for the East Link Project. This representative alternative generally follows a combination of *Preferred Alternatives A1* and *E2* and Alternatives B3, C4A, and D2A - NE 24th Design Option. To assess each of the alternatives within a segment, the alternatives outside that segment being analyzed reflected the representative alternative, and, within the segment, each alternative was coded and ridership forecasts were prepared. This method provides a common baseline to compare the alternatives within each of the segments. Some alternatives require exception to this method, such as with Alternatives B1 and C1T and various Alternative B7-to-Segment C alternatives (such as B7-C14E). These alternatives are specifically connected to each other, and therefore the ridership forecasts prepared for each of these alternatives included its "counterpart" alternative. Further information on the methodology used to forecast light rail ridership is described in Appendix A, Attachment 3.

The ridership for each project alternative is the sum of the daily boardings at the stations in that alternative. Because the route, profile, and station locations vary for each alternative, changes are expected not only in the station boardings but also in the segment and projectwide ridership. The projectwide ridership is the total number of daily riders that would use East Link. Daily ridership differences would be considered substantial if the forecasted variation for total East Link ridership among alternatives exceeded about 2,000 daily boardings. In general, the projected variation among East Link segment alternatives is not be considered substantial because many of the segments would include a similar number of stations serving the same areas and the projected travel times are not different enough to cause a dramatic change in ridership. Station mode of access information is discussed in Section 6.2. Year 2020 ridership estimates assume light rail service between Northgate and South 200th Street, and Seattle to Redmond (East Link). By 2030, ridership estimates assume light rail will extend between Lynnwood and Redondo/Star Lake, and Seattle to Redmond (East Link).

Although not included in these ridership results, ridership between the Eastside and Seattle would be expected to be higher on days with special events at Safeco Field, Qwest Field, or other venues near the light rail system (e.g., for concerts, trade shows, other sporting events). East Link ridership is anticipated to increase more than 8 percent on days with special events.

4.3.3.1 Preferred Alternative Ridership

Table 4-11 lists the 2020 and 2030 projectwide ridership and boardings for the East Link *Preferred Alternative* (*A1, B2M, C11A* and *C9T*, *D2A,* and *E2*) in all five segments. The ridership forecasts presented in this table use a different approach from the forecasts that compare segment alternatives. Because the *Preferred Alternative* spans all five project segments, a "representative alternative" was not required to create a consistent ridership comparison for individual segments. Therefore, the forecasts provided in Table 4-11 are defined differently than the forecasts presented in Tables 4-12 through 4-17. For each year, two forecasts are provided in Table 4-11 because of the two preferred alternatives (*Preferred Alternatives C11A* and *C9T*) in Segment C.

TABLE 4-11
Year 2020 and 2030 Daily Ridership Forecasts for the Preferred Alternatives

	2020		***2030***	
Station	***Preferred Alternative* with *C11A* (and *Preferred Alternatives A1, B2M, D2A,* and *E2)***	***Preferred Alternative* with *C9T* (and *Preferred Alternatives A1, B2M, D2A,* and *E2)***	***Preferred Alternative* with *C11A* (and *Preferred Alternatives A1, B2M, D2A,* and *E2)***	***Preferred Alternative* with *C9T* (and *Preferred Alternatives A1, B2M, D2A,* and *E2)***
	Preferred Alternative A1			
Rainier	3,000	3,000	3,000	3,000
Mercer Island	1,500	1,500	2,000	2,000
Segment A totals	**4,500**	**4,500**	**5,000**	**5,000**
	Preferred Alternative B2M			
South Bellevue	4,000	4,000	4,500	4,500
SE 8th	-	500	-	500
Segment B totals	**4,000**	**4,500**	**4,500**	**5,500**
	Preferred C11A [a]	***Preferred C9T***	***Preferred C11A*** [a]	***Preferred C9T***
108th	1,500	-	2,000	-
Bellevue Transit Center	4,000	5,000	5,000	6,000
Hospital	500	500	1,000	1,000
Segment C totals	**6,500**	**5,500**	**8,000**	**7,000**
	Preferred Alternative D2A			
120th Station	500	500	1,000	1,000
130th Station	1,000	1,000	1,000	1,500
Overlake Village	1,000	1,000	1,000	1,500
Overlake Transit Center	2,500	2,500	3,500	4,000
Segment D totals	**5,000**	**5,500**	**6,500**	**7,000**
	Preferred Alternative E2			
Downtown Redmond	1,000	1,000	1,500	1,500
SE Redmond	1,500	1,500	2,000	2,000
Segment E totals	**3,000**	**3,000**	**3,500**	**3,500**
Projectwide ridership	39,500	40,500	49,000	50,000

[a] A low level of transit signal priority is assumed to ensure key east-west arterials in downtown Bellevue are not affected. This assumption is consistent with the traffic analysis presented in this report.

- = Station not included in alternative.

Note: Due to rounding, station ridership might not sum exactly to segment totals.

Overall, projectwide ridership is very similar between the two preferred alternative forecasts with 49,000 riders for *Preferred Alternative C11A* and 50,000 for *Preferred Alternative C9T*. The two alternatives have very similar station and segment boardings within Segments A, D, and E. In Segment B, *Preferred Alternative C9T* would have 1,000 more boardings (5,500 compared to C11A with 4,500). The opposite is true in Segment C, where *Preferred Alternative C11A* has 1,000 more boardings than C9T (8,000 versus 7,000). One reason for the boarding differences between these two segments is the station locations. *Preferred Alternative C11A* has a 108th Station in Segment C and *Preferred Alternative C9T* has a SE 8th Station in Segment B.

4.3.3.2 Segment A Alternative and Projectwide Ridership

Although there is only one project alternative in Segment A (the *Preferred Alternative A1*), the adjacent Segment B alternatives would affect its daily boardings due to the proximity of the stations in Segment B to Segment A. The Segment A ridership forecasts are similar for Alternatives B1, B2A, B2E, and B3 and *Preferred Alternative B2M* because they would include a station at the South Bellevue Park-and-Ride. Alternative B7 would have a station at 118th Avenue NE, not at South Bellevue, and it would cause a shift in travel patterns to the surrounding stations. The 2020 daily boardings at the Mercer Island Station are expected to increase by about 1,000 under Alternative B7 and in 2030 to increase by about 1,500 to a total of 3,000. Although this boarding information suggests a potential increase in the number of riders at the Mercer Island Station, the park-and-ride lot would only accommodate 447 vehicles; therefore, potential riders exceeding this parking capacity would either use another station or alter their mode of transportation to access the station. Table 4-12 lists 2020 and 2030 daily station boardings and East Link projectwide ridership. Projectwide ridership would be about 40,000 riders in 2020 and up to 49,500 riders in 2030. If the D2 Roadway that connects I-90 and the Downtown Seattle Transit Tunnel operated with exclusive LRT service, transit (bus and rail) ridership along I-90 in the peak periods would not noticeably change because the anticipated slight increase in rail ridership would be offset by the slight decrease in bus ridership.

TABLE 4-12
Year 2020 and 2030 Ridership Forecasts in Segment A

	2020		**2030**	
Station	***A1***	***A1*** **(combined with B7)**	***A1***	***A1*** **(combined with B7)**
Rainier	3,000	3,000	3,000	3,000
Mercer Island	1,500	2,500	1,500	3,000
Segment A totals	4,500	5,500	5,000	6,000
Projectwide ridership	40,000	39,000	49,500	48,000

Note: Due to rounding, station ridership might not sum exactly to segment totals.

4.3.3.3 Segment B Alternative and Projectwide Ridership

Within Segment B there are six alternatives, and as part of these six alternatives, there are three proposed stations: South Bellevue, SE 8th, and 118th. The 118th and South Bellevue stations would be park-and-ride facilities. Table 4-13 provides the 2020 and 2030 daily boardings forecasted for each station in Segment B as well as projectwide ridership forecasts.

TABLE 4-13
Year 2020 and 2030 Ridership Forecasts in Segment B

	2020						2030					
Station	***B2M***	**B1**	**B2E**	**B2A**	**B3**[a]	**B7**	***B2M***	**B1**	**B2E**	**B2A**	**B3**[a]	**B7**
South Bellevue	4,000	4,000	4,000	4,000	4,000	-	4,500	4,500	4,500	4,500	4,500	-
SE 8th	500	-	500	500	-	-	500	-	500	500	-	-
118th	-	-	-	-	-	1,500	-	-	-	-	-	1,500
Segment B totals	4,500	4,000	4,500	4,500	4,000	1,500	5,000	4,500	5,000	5,000	4,500	1,500
Projectwide ridership	39,500	42,500	40,500	39,500	40,000	39,000	49,000	52,500	50,000	49,000	49,500	48,000

Notes: All Segment B alternatives are connected to Alternative C4A in Segment C to create a consistent ridership comparison except Alternative B1, which is connected to Alternative C1T.
Due to rounding, station ridership might not sum exactly to segment totals.

[a] Alternative B3 and the B3 - 114th Extension Design Option would produce similar ridership forecasts.

- Station not included in alternative.

Preferred 112th SE Modified Alternative (B2M)

In Segment B, *Preferred Alternative B2M* is in the middle of the range in daily projectwide ridership in 2020 and 2030 with 39,500 and 49,000 riders, respectively. In terms of segment boardings, *Preferred Alternative B2M* has similar ridership as the other Segment B alternatives, other than Alternative B7, with 4,500 in 2020 and 5,000 in 2030. The ridership varies between Alternatives B2M and B7 because the locations and numbers of Segment B stations are different. With Alternative B7, riders may choose to access East Link in another segment (such as Segments A or C) due to the relative ease of accessing those stations rather than the stations in Segment B. This is reflected in the East Link projectwide ridership, which varies less between these alternatives compared to the segment boarding forecasts because riders are choosing to access East Link in a different segment.

Other Segment B Alternatives

Of all the Segment B alternatives, Alternative B1 forecasts the highest projectwide ridership: 42,500 daily riders in 2020 and 52,500 daily riders in 2030. The additional station, the Old Bellevue Station immediately north of the Segment B boundary, contributes to the higher ridership in this alternative. The Old Bellevue Station is surrounded by a high concentration of medium- to high-density mixed-use neighborhoods and it is close to commercial, retail, and office properties. Alternative B7 would result in the lowest projectwide ridership in both 2020 and 2030, with 39,000 daily riders in 2020 and 48,000 daily riders in 2030. Alternative B7 would travel along the BNSF Railway/I-405 route and would not stop at the South Bellevue Station.

In the year 2020, Segment B ridership for each alternative would range from a low of 1,500 daily boardings under Alternative B7 to a high of 4,500 daily boardings generated by alternatives *Preferred B2M*, B2E, and B2A. By 2030, total Segment B ridership for each alternative would range from a low of 1,500 daily boardings in Alternative B7 to a high of 5,000 daily boardings generated by alternatives *Preferred B2M*, B2E, and B2A.

The South Bellevue Station ridership would be similar for all alternatives that include this station. The year 2020 daily boardings at this station would be 4,000. In year 2030, this station would generate 4,500 daily boardings. In both years 2020 and 2030, the SE 8th Station would generate 500 daily boardings for all alternatives with this station. Alternative B7 is the only route that would stop at the 118th Station, which would produce 1,500 daily boardings in both years 2020 and 2030. Boardings at the 118th Station are lower than South Bellevue because it would have less convenient auto and transit access to I-90.

Alternatives B3 and B7 would have an East Main Station immediately north of the Segment B boundary. Under Alternative B3, this station is expected to generate 2,000 and 2,500 daily boardings in years 2020 and 2030, while under Alternative B7, the station would generate 2,500 and 3,000 daily boardings in these same forecast years, respectively.

4.3.3.4 Segment C Alternative and Projectwide Ridership

There are ten alternatives in Segment C. As part of these ten alternatives, there are seven proposed stations: East Main, 108th, Old Bellevue, Bellevue Transit Center, Ashwood/Hospital, and Hospital. None of these stations would be park-and-ride facilities because they are located within the general Downtown Bellevue area.

Tables 4-14 and 4-15 show the 2020 and 2030 daily boardings expected at each station in Segment C for the project alternatives. Table 4-14 provides Segment C ridership forecasts with a connection to Alternatives B3 and B7, while Table 4-15 provides Segment C ridership forecasts with a connection to *Preferred Alternative B2M* or B2A.

Preferred 108th NE At-Grade Alternative (C11A)

By year 2030, projectwide daily ridership for *Preferred Alternative C11A* would be 49,000 with a connection to Alternative B3. This would be near the lower end of the range for Segment C alternatives. *Preferred Alternative C11A* is the only Segment C alternative that provides the 108th Station, which would be in lieu of an East Main Station or a SE 8th Station. *Preferred Alternative C11A* is forecasted to be in the middle of the range for segment boardings, with 6,500 in 2020 and 8,000 in 2030 with a connection to Alternative B3.

With a connection to Alternative B7, projectwide ridership decreases to 47,000, but segment boardings increase to 9,000 in year 2030 compared to Alternative B3. The reasons for the change in ridership with Alternative B7 are discussed in section 4.3.3.2. With a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership and segment boardings would remain similar to a connection with Alternative B3 due to a similar number of stations and location for these Segment B Alternatives.

Preferred 110th NE Tunnel Alternative (C9T)

By the year 2030, daily projectwide ridership for *Preferred Alternative C9T*, with a connection to Alternative B3, would be 51,000. This would be in the middle of the range for segment C alternatives. *Preferred Alternative C9T* is forecasted to have 6,500 boardings in 2020 and 8,000 boardings in 2030.

With a connection to Alternative B7, projectwide ridership would decrease to 49,000, but segment boardings increase to 9,000 in year 2030 compared to Alternative B3. The reasons for the change in ridership with Alternative B7 are discussed in section 4.3.3.2. With a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership, compared to Alternative B3, would decrease to 50,000 and segment boardings to 7,000. This is due to a change in the station locations as a SE 8th Street station is provided with *Preferred Alternative B2M* or Alternative B2A instead of an East Main Station with Alternative B3.

Other Segment C Alternatives

In 2020, the projectwide ridership under the Segment C alternatives would range from 39,000 to 43,000 with a connection to Alternative B3 and range from 37,000 to 41,500 with a connection to Alternative B7. By 2030, the projectwide ridership under the Segment C alternatives would increase from 48,500 to 52,500 with a connection to Alternative B3 and range from 46,000 to 51,000 with a connection to Alternative B7. With a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership for Segment C alternative would range from 39,000 to 42,500 in year 2020 and by year 2030 would range from 48,500 to 52,000.

The following discussion of Segment C ridership assumes a connection to Alternative B3; refer to Tables 4-14 and 4-15 for the comparison to Alternative B7 and *Preferred Alternative B2M* and Alternative B2A, respectively. In general, with a connection to *Preferred Alternative B2M* or Alternative B2A, projectwide ridership would either remain similar or be slightly reduced compared with a connection to Alternative B3, but would be higher than with a connection to Alternative B7.

Alternatives C1T and C3T would result in the highest East Link projectwide ridership by connecting to the center of the commercial, retail, and office core of Downtown Bellevue and the Bellevue Transit Center. Alternatives C1T and C3T are also expected to have shorter Segment C travel times because they would be inside a tunnel with a relatively direct route. The projectwide ridership under Alternative C1T would be 42,500 daily boardings in year 2020 and 52,500 daily boardings in year 2030. The projectwide ridership under Alternative C3T would be 43,000 daily boardings in year 2020 and 52,500 daily boardings in year 2030.

In year 2020, Alternatives C9A and C14E would result in the lowest East Link ridership among the Segment C alternatives, with 39,000 daily riders. By year 2030, both of these two alternatives would continue to have the lowest East Link ridership, 48,500 riders. Alternative C14E has a lower ridership compared to other Segment C alternatives because it would be located on the edge of downtown Bellevue.

TABLE 4-14
Year 2020 and 2030 Ridership Forecasts in Segment C (connecting from Alternative B3 or B7)

Station	2020										2030									
	***C11A*[a]**	***C9T***	**C1T**	**C2T**	**C3T**	**C4A[a]**	**C7E**	**C8E**	**C9A[a]**	**C14E**	***C11A*[a]**	***C9T***	**C1T**	**C2T**	**C3T**	**C4A[a]**	**C7E**	**C8E**	**C9A[a]**	**C14E**
Old Bellevue	-	-	1,500	-	-	-	-	-	-	-	-	-	2,500	-	-	-	-	-	-	-
East Main	-	2,000 (2,500)	-	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	2,000 (2,500)	-	-	2,500 (3,000)	-	2,500 (3,000)	2,500 (3,000)	2,500 (3,000)	2,500 (3,500)	2,500 (3,000)	2,500 (3,000)	-
108th	1,500 (2,000)	-	-	-	-	-	-	-	-	-	2,000 (2,500)	-	-	-	-	-	-	-	-	-
Bellevue Transit Center	4,000 (4,500)	4,000 (4,000)	5,000	4,500 (5,000)	4,500 (5,000)	4,000 (4,500)	3,500 (3,500)	4,000 (4,000)	3,500 (3,500)	3,500 (3,500)	5,000 (5,500)	4,500 (5,000)	6,000	5,500 (6,000)	5,500 (6,000)	5,000 (5,000)	3,500 (4,000)	4,500 (5,000)	4,000 (4,500)	4,000 (4,000)
Ashwood/ Hospital	-	-	-	-	500 (500)	500 (500)	500 (500)	500 (500)	-	-	-	-	-	-	1,000 (1,000)	1,000 (1,000)	1,000 (1,000)	1,000 (1,000)	-	-
Hospital	500 (500)	500 (500)	500	500 (500)	-	-	-	-	500 (500)	1,000 (1,000)	1,000 (1,000)	1,000 (1,000)	1,000	1,000 (1,000)	-	-	-	-	1,000 (1,000)	1,500 (1,500)
Segment C totals	6,500 (7,500)	6,500 (7,000)	7,000	7,000 (7,500)	7,000 (8,000)	6,500 (7,000)	6,000 (7,000)	6,500 (7,000)	6,000 (6,500)	4,500 (4,500)	8,000 (9,000)	8,000 (9,000)	9,000	8,500 (9,500)	9,000 (10,000)	8,000 (9,000)	7,000 (8,000)	8,000 (9,000)	7,500 (8,500)	5,500 (5,500)
Projectwide ridership	39,500 (38,000)	41,000 (39,500)	42,500	42,000 (40,500)	43,000 (41,500)	40,000 (39,000)	41,500 (40,000)	41,500 (40,500)	39,000 (38,500)	39,000 (37,000)	49,000 (47,000)	51,000 (49,000)	52,500	52,000 (50,000)	52,500 (51,000)	49,500 (48,000)	50,500 (48,500)	51,500 (49,500)	48,500 (46,500)	48,500 (46,000)

Notes: Ridership forecasts outside the parentheses are when Segment C alternatives are connected to Alternative B3. Forecasts within the parentheses are when Segment C alternatives are connected to Alternative B7. The exception to this is Alternative C1T, which is connected to Alternative B1.
Due to rounding, station ridership might not sum exactly to segment totals.

[a] A low level of transit signal priority is assumed to ensure key east-west arterials in downtown Bellevue are not affected. This assumption is consistent with the traffic analysis presented in this report.

- Station not included in alternative.

TABLE 4-15
Year 2020 and 2030 Ridership Forecasts in Segment C (connecting from *Preferred Alternative B2M* or Alternative B2A)

Station	**2020**										**2030**									
	C11A[a]	***C9T***	**C1T**	**C2T**	**C3T**	**C4A**[a]	**C7E**	**C8E**	**C9A**[a]	**C14E**	***C11A***[a]	***C9T***	**C1T**	**C2T**	**C3T**	**C4A**[a]	**C7E**	**C8E**	**C9A**[a]	**C14E**
Old Bellevue	-	-		-	-	-	-		-		-	-		-	-	-	-		-	
East Main	-	-		-	-	-	-		-		-	-		-	-	-	-		-	
108th	1,500	-		-	-	-	-		-		2,000	-		-	-	-	-		-	
Bellevue Transit Center	4,000	5,000		6,000	6,000	5,000	4,500		4,500		5,000	6,000		7,000	7,000	6,500	5,500		6,000	
Ashwood/ Hospital	-	-		-	500	500	500		-		-	-		-	1,000	1,000	1,000		-	
Hospital	500	500		500	-	-	-		500		1,000	1,000		1,000	-	-	-		1,000	
Segment C totals	6,500	5,500	N/A	6,500	6,500	5,500	5,500	N/A	5,000	N/A	8,000	7,000	N/A	8,000	8,000	7,000	6,000	N/A	7,000	N/A
Projectwide ridership	39,500	40,500	N/A	41,500	42,500	39,500	41,000	N/A	39,000	N/A	49,000	50,000	N/A	51,500	52,000	49,000	50,000	N/A	48,500	N/A

Notes: Ridership forecasts provided in this table are based on Segment C Alternatives connected to *Preferred Alternative B2M* or Alternative B2A. The exceptions to this (noted with N/A) are Alternatives C1T, C8E, and C14E; which can only be connected to Alternative B1 or Alternatives B3/B7, respectively.

Due to rounding, station ridership might not sum exactly to segment totals.

[a] A low level of transit signal priority is assumed to ensure key east-west arterials in downtown Bellevue are not affected. This assumption is consistent with the traffic analysis presented in this report.

- Station not included in alternative.

N/A not applicable

In year 2020, total Segment C ridership for each alternative would range from a low of 4,500 daily boardings for Alternative C14E to a high of 7,000 daily boardings for Alternatives C1T, C2T, and C3T. By 2030, Segment C total ridership is expected to increase from a low of 5,500 daily boardings for Alternative C14E to a high of 9,000 daily boardings for Alternatives C1 and C3T. The Old Bellevue Station, which is only included with C1T, would generate 1,500 and 2,500 daily boardings in years 2020 and 2030, respectively.

The East Main station would have ridership of 2,000 daily boardings in 2020 and 2,500 daily boardings in 2030. Ridership at the East Main Station Design Option under *Preferred Alternative C9T* would be similar to the East Main Station. The 108th Street Station, which would only be included in *Preferred Alternative C11A*, would generate 1,500 daily boardings in 2020 and 2,000 daily boardings in 2030.

The Bellevue Transit Center station would have a range of ridership between 3,500 and 5,000 daily boardings in 2020 and between 3,500 and 6,000 daily boardings in 2030. Alternative C1T would generate the highest daily boardings at the Bellevue Transit Center, with 5,000 daily boardings in year 2020 and 6,000 daily boardings in year 2030. In contrast, Alternatives C7E, C9A, and C14E would generate the lowest daily boardings of 3,500 in 2020. Alternative C7E would generate 3,500 daily boardings at the Bellevue Transit Center, the lowest daily boardings in 2030.

The Ashwood/Hospital Station is projected to generate 500 daily boardings in 2020 and 1,000 in 2030 for all alternatives. The Hospital Station is expected to generate 500 daily boardings in 2020 for all alternatives except Alternative C14E, which would produce 1,000 in 2020. The same pattern is expected in 2030, with 1,000 daily boardings for all alternatives except Alternative C14E, which would produce 1,500 daily boardings in 2030. This slight increase in boardings under Alternative C14E is due in part to a decrease in the accessibility at the Bellevue Transit Center and slightly faster travel times as the alternative is located along the eastern edge of downtown Bellevue.

4.3.3.5 Segment D Alternative and Projectwide Ridership

There are four alternatives in Segment D. As part of these four alternatives, there are four proposed stations: 120th, 130th, Overlake Village at 151st Avenue or 152nd Avenue, and Overlake Transit Center. All four of these stations could be park-and-ride facilities, but with any alternative only three stations would have a park-and-ride facility. Table 4-16 lists the 2020 and 2030 daily boardings expected at each station in Segment D for the project alternatives.

TABLE 4-16
Year 2020 and 2030 Ridership Forecasts in Segment D

	2020					2030				
Station	***D2A***[a]	**D2A - NE 24th Design Option**	**D2E**	**D3**	**D5**	***D2A***[a]	**D2A - NE 24th Design Option**	**D2E**	**D3**	**D5**
120th	500	500	500	500	-	1,000	1,000	500	1,000	-
130th	1,000	1,000	1,000	1,000	-	1,000	1,000	1,000	1,000	-
Overlake Village	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,500	1,000	1,500
Overlake Transit Center	3,000	2,500	2,500	2,500	3,000	4,000	3,500	3,500	3,500	4,500
Segment D totals	5,500	5,000	5,000	5,000	4,500	7,000	7,000	7,000	6,500	6,000
Projectwide ridership	41,500	40,000	40,500	40,000	40,000	51,000	49,500	50,000	49,000	49,500

[a] D2A - 120th Design Option would have the same ridership as *Preferred Alternative D2A*.

- Station not included in alternative.

Note: Due to rounding, station ridership may not sum exactly to segment totals.

Preferred NE 16th At-Grade Alternative (D2A)

By year 2030, daily projectwide ridership for *Preferred Alternative D2A* would be 51,000, which would be the highest for Segment D alternatives. *Preferred Alternative D2A* would have the highest segment boardings in both 2020 and 2030 with 5,500 and 7,000 boardings, respectively. This would be due in part to the alternative having a shorter route in this segment than most of the other Segment D alternatives while serving the key retail, commercial, and employment areas proposed as part of the *Bel-Red Corridor Project Environmental Impact Statement* by the City of Bellevue (2007a). The D2A – 120th Station Design Option would be expected to have a similar ridership forecast as the *Preferred Alternative D2A*.

Other Segment D Alternatives

In year 2020, *Preferred Alternative D2A* has the highest daily projectwide ridership with 41,500 in 2020. Alternative D2A - NE 24th Design Option and Alternatives D3 and D5 would result in the lowest daily projectwide ridership with 40,000 in 2020. In 2030, *Preferred Alternative D2A* would result in the highest number of projectwide riders, 51,000, and Alternative D3 would result in the lowest projectwide ridership of 49,000. These differences do not constitute a substantial difference in ridership between the Segment D alternatives. In forecast year 2020, ridership for Segment D alternatives would range from 4,500 to 5,500 daily boardings. By 2030, Segment D total ridership for Segment D alternatives would be expected to range from 6,000 to 7,000 daily boardings.

The 120th Station, which would be included in all alternatives except Alternative D5, would generate 500 daily boardings in year 2020. In 2030, daily boardings at the 120th Station would range between 500 and 1,000. The 130th Station, which is also included in all alternatives except Alternative D5, would generate 1,000 daily boardings in both years 2020 and 2030. If parking were provided at the 120th Station instead of the 130th Station, the station boarding forecasts would switch between the two stations.

The Overlake Village Station would have 1,000 daily boardings for all alternatives in year 2020 and between 1,000 and 1,500 daily boardings in 2030. *Preferred Alternative D2A*, Alternative D2A - NE 24th Design Option, and Alternative D3 are expected to generate 1,000 daily boardings at this station in 2030, whereas Alternatives D2E and D5 are expected to generate 1,500 daily boardings at this station.

In year 2020, Overlake Transit Center would be expected to generate 2,500 daily boardings for all alternatives except *Preferred Alternative D2A* and Alternative D5, for which they would generate 3,000 daily boardings. In year 2030, the daily boardings would range from a low of 3,500 with Alternatives D2A - NE 24th Design Option, D2E and D3 to a high of 4,500 under Alternative D5. Because only two stations would serve the Bel-Red and Overlake areas under Alternative D5, this alternative would generate slightly higher station ridership at the Overlake Village and Overlake Transit Center stations than the other alternatives. Nearby stations in adjacent segments would also have slightly higher ridership because Alternative D5 would require less travel time than the other alternatives. If a pedestrian/bicycle bridge were constructed connecting Overlake Transit Center Station to the land uses west of SR 520, transit ridership would be expected to increase at this station.

Although both the 120th and 130th stations were analyzed for the *Preferred Alternative D2A,* Alternative D2A - NE 24th Design Option, Alternative D2E, and Alternative D3, only one station may ultimately be constructed. If this were to occur, ridership would not substantially change from what is presented in Table 4-16 as these stations' coverage areas overlap. Riders would likely consolidate to the one station.

Sound Transit's ridership model uses population and employment growth for future forecast years that have been adopted by the regional planning agency, PSRC. The future growth projections from the City of Bellevue and City of Redmond studies (*Bel-Red Corridor Project Final Environmental Impact Statement* [City of Bellevue, 2007a] and *Overlake Neighborhood Plan Update and Implementation Project Final Supplemental Environmental Impact Statement* [City of Redmond, 2007]) have yet to be fully adopted by the PSRC. However, these two studies are included in both cities' long-range development and economic goals. Therefore, growth in these areas was adjusted in these ridership forecasts with assistance from PSRC, City of Bellevue, and City of Redmond. Based on ridership forecasts included in the *Bel-Red Corridor Project Final Environmental Impact Statement* (City of Bellevue, 2007a), if the land uses surrounding the stations were developed to be oriented toward transit use, then the projected East Link ridership could be higher. Any increase in ridership caused by this type of development would be pedestrian or bicycle trips from the areas immediately surrounding the stations.

4.3.3.6 Segment E Alternative and Projectwide Ridership

There are three alternatives in Segment E. As part of these three alternatives, there are four proposed stations: SE Redmond, Redmond Transit Center, Downtown Redmond, and Redmond Town Center. The SE Redmond Station would be a park-and-ride station and the Redmond Transit Center Station would have a park-and-ride facility nearby.

Preferred Marymoor Alternative (E2)

By year 2030, projectwide daily ridership for *Preferred Alternative E2* would be 49,500. *Preferred Alternative E2* would have segment boardings of 3,000 in 2020 and 3,500 in 2030.

Other Segment E Alternatives

All Segment E alternatives would generate very similar daily projectwide ridership, varying by 500 in both 2020 and 2030. These differences would not constitute a substantial difference in ridership between the Segment E alternatives. In forecast year 2020, total Segment E ridership for all alternatives would be 3,000 daily boardings. By 2030, Segment E total ridership would be expected to increase to 3,500 and 4,000 daily boardings, as shown in Table 4-17.

TABLE 4-17
Year 2020 and 2030 Ridership Forecasts In Segment E

	2020				**2030**			
Station	***E2***	**E2 – Redmond Transit Center Design Option**	**E1**	**E4**	***E2***	**E2 – Redmond Transit Center Design Option**	**E1**	**E4**
Redmond Town Center	-	1,000	1,500	1,500	-	1,500	2,000	2,000
Downtown Redmond	1,000	-	-	-	1,500	-	-	-
Redmond Transit Center	-	500	-	-	-	500	-	-
SE Redmond	1,500	1,500	1,500	1,500	2,000	1,500	1,500	2,000
Segment E totals	3,000	3,000	3,000	3,000	3,500	4,000	3,500	3,500
Projectwide ridership	40,000	40,500	40,000	40,500	49,500	50,000	49,500	50,000

- Station not included in alternative.

Note: Due to rounding, station ridership might not sum exactly to segment totals.

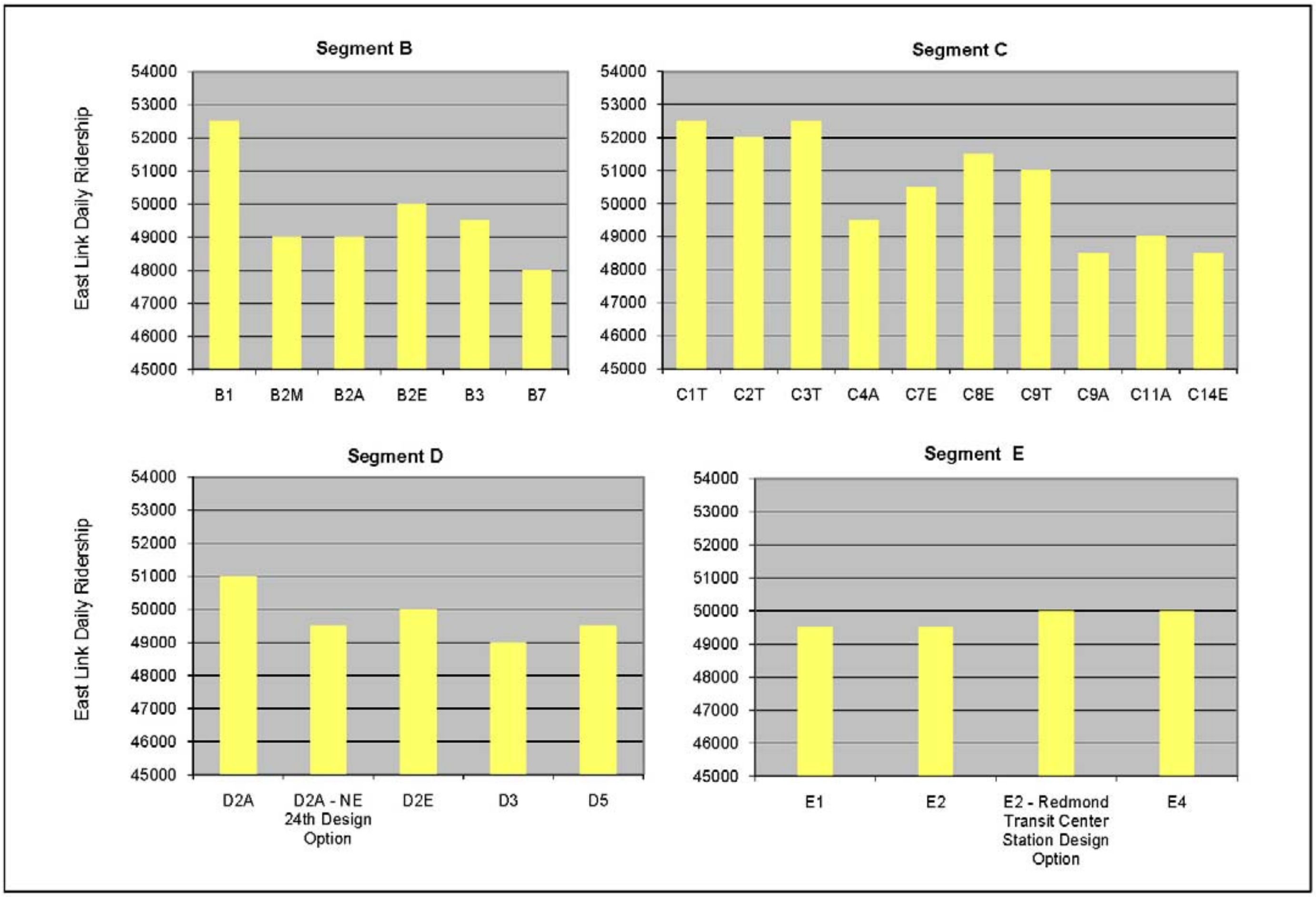
The SE Redmond Station, under all alternatives, is expected to generate 1,500 daily boardings in 2020 and between 1,500 and 2,000 in 2030. The Redmond Town Center Station, under all alternatives, is expected to generate between 1,000 and 1,500 daily boardings in 2020 and between 1,500 and 2,000 in 2030. The Downtown Redmond Station, which would only be included under *Preferred Alternative E2*, is expected to generate 1,000 daily boardings in 2020 and 1,500 in 2030. The Redmond Transit Center Station, which would only be included in E2 – Redmond Transit Center Design Option, would generate 500 daily boardings in both 2020 and 2030.

4.3.3.7 East Link Ridership Comparison Summary

Based on the segment ridership forecasts discussed in the previous sections, the East Link representative alternative would generate 40,000 riders in 2020 and up to 49,500 in 2030. In terms of new transit riders (i.e., people who do not use transit under the No Build Alternative), there would be about 8,500 new daily riders in 2020 and 10,500 by 2030.

In year 2030, alternatives that would produce the highest projectwide ridership in their segments are Alternatives B1, C1T, C3T, E4, and E2 - Redmond Transit Center Station Design Option and *Preferred Alternative D2A*, ranging between 50,000 to 52,500 daily riders. The lowest ridership among the alternatives would be under Alternatives B7, C14E, D3, and E1 or *Preferred Alternative E2*, resulting in a projectwide ridership ranging between 48,000 and 49,500 daily riders. Daily ridership differences would be considered substantial if the forecasted variation for total East Link ridership among alternatives exceeded about 2,000 daily boardings.

There are several reasons for the variation in ridership among the alternatives. Alternatives C1T and C3T would generate the highest ridership among Segment C alternatives by connecting the commercial, retail, and office core of Downtown Bellevue through a tunnel profile that would provide a relatively fast travel time. Alternatives generating lower projectwide ridership are Alternatives B7 and C14E. Alternative B7, which would travel along the BNSF Railway/I-405 route, would not stop at the South Bellevue Park-and-Ride nor provide as convenient bus transfer opportunities as other Segment B alternatives. Alternative C14E would also generate a low projectwide ridership because it would not enter the business and retail core of Downtown Bellevue as much as the other Segment C alternatives, and, therefore, would require a longer walk to access the station from Downtown Bellevue. Exhibit 4-6 displays the 2030 projectwide ridership.



Note: In Segment A, *Preferred Alternative A1* is forecasted to have a 2030 daily projectwide ridership of 49,500.

EXHIBIT 4-6
2030 Projectwide Daily Ridership

4.3.3.8 Interim Terminus Ridership

The Hospital, Ashwood/Hospital, 120th, 130th, Overlake Village, Overlake Transit Center, Redmond Town Center, and SE Redmond stations could all potentially serve as interim terminus stations, even though the East Link Project is funded to extend as far as the Overlake Transit Center. The Overlake Transit Center is therefore considered the most reasonable interim terminus. Table 4-18 compares the projected year 2020 and 2030 daily system boardings, by station, for the full-length representative alternative to the possible interim terminus stations.

TABLE 4-18
Year 2020 and 2030 Daily Station Ridership (Boardings) Forecasts for Interim Terminus Stations

		2020 Interim Terminus Station									2030 Interim Terminus Station							
Station	**Representative Alternative**	**Ashwood/ Hospital**	**Hospital**	**120th**	**130th**	**Overlake Village**	**Overlake Transit Center**	**SE Redmond**	**Redmond Town Center**	**Representative Alternative**	**Ashwood/ Hospital**	**Hospital**	**120th**	**130th**	**Overlake Village**	**Overlake Transit Center**	**SE Redmond**	**Redmond Town Center**
Rainier	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Mercer Island	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	2,000	2,000	2,000	2,000	2,000	1,500	1,500	1,500
South Bellevue	4,000	3,500	3,500	3,500	3,500	4,000	4,000	4,000	4,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
East Main	2,000	1,500	-	1,500	1,500	1,500	2,000	2,000	2,000	2,500	2,000	-	2,000	2,000	2,000	2,500	2,500	2,500
Bellevue Transit Center	4,000	6,000	4,000	5,000	5,000	4,000	4,000	4,000	4,500	5,000	7,000	5,000	7,000	7,000	5,500	5,000	5,000	5,000
Ashwood/ Hospital	500	1,000	-	500	500	500	500	500	500	1,000	1,000	-	500	500	1,000	1,000	1,000	1,000
Hospital	-	-	2,000	-	-	-	-	-		-	-	3,000	-	-	-	-	-	-
120th	500	-	-	1,000	500	-	-	500	500	1,000	-	-	1,500	1,000	-	-	1,000	1,000
130th	1,000	-	-	-	1,000	-	-	1,000	1,000	1,000	-	-	-	1,500	-	-	1,000	1,000
Overlake Village	1,000	-	-	-	-	2,500	1,000	1,000	1,000	1,000	-	-	-	-	3,500	1,500	1,000	1,000
Overlake Transit Center	2,500	-	-	-	-	-	4,500	2,500	2,500	3,500	-	-	-	-	-	6,000	4,000	4,000
SE Redmond	1,500	-	-	-	-	-	-	2,000	-	2,000	-	-	-	-	-	-	2,500	-
Redmond Town Center	-	-	-	-	-	-	-	-	2,000	1,500	-	-	-	-	-	-	-	2,500
Projectwide ridership	40,000	31,000	27,000	30,500	31,500	32,500	37,500	39,000	39,500	49,500	37,500	33,000	37,000	38,500	39,500	46,500	48,000	49,000
Compared with full-length system		(9,000)	(13,000)	(9,500)	(8,500)	(7,500)	(2,500)	(1,000)	(500)		(12,000)	(16,500)	(12,500)	(11,000)	(10,000)	(3,000)	(1,500)	(500)

Notes: Representative Alternative includes a combination of the *Preferred Alternatives A1* and *E2* and Alternatives B3, C4A, D2A - NE 24th Design Option.
Due to rounding, station ridership might not sum exactly to segment totals.
Results show only the interim stations with the project alternative having the highest full-length ridership; Alternative D5 at the Overlake Transit Center does not stop at the 120th and 130th Stations.
Station and projectwide ridership might vary depending on which alternative connects to the terminus station.

An interim terminus at either the Redmond Town Center or SE Redmond stations would slightly reduce the East Link projectwide ridership from the full-length project by up to 1,000 in 2020 and up to 1,500 in 2030. With an interim terminus at the Overlake Transit Center, the East Link projectwide boardings would decrease by 2,500 in the year 2020 and by 3,000 in year 2030. At the station though, the daily boardings would increase by as much as 2,000 and 3,000 in years 2020 and 2030, respectively when compared to the full-length ridership forecasts. With an interim terminus at Overlake Village, East Link's projectwide ridership would decrease by 7,500 and 10,000 in the years 2020 and 2030, respectively. However, there would be an increase in the Overlake Village station's daily boardings. The Overlake Village station's daily boardings would increase by 1,500 in year 2020 and up to 2,500 in year 2030. The increase in ridership at these stations would be mainly due to the changes in bus service and the increase in riders transferring between rail and bus. This expected increase in transit ridership at these two stations is further discussed in Section 6.2.

East Link projectwide ridership with an Ashwood/Hospital, Hospital, 120th, or 130th interim terminus station would decrease from the full-length project by between 8,500 and 13,000 daily boardings in year 2020 and between 11,000 and 16,500 daily boardings in year 2030. At each of these four potential interim terminus stations, the individual station daily boardings would be similar to their station ridership in the full-length project. The substantial decrease in projectwide ridership with these three interim terminus stations would occur because light rail service would not extend into the Overlake and Redmond areas.

4.4 Construction Impacts

During construction of East Link, current bus routes would be affected at some locations along the corridor. Bus reliability could potentially degrade along arterials with ongoing construction for East Link due to lane closures and other construction-related activity. For areas with construction in the roadway right-of-way, arterials may be reduced to one lane in each direction, which would affect roadway operations and bus service along those arterials. Constructing outside the roadway right-of-way would have minimal impacts on bus routes.

4.4.1 Segment A, *Preferred Interstate 90 Alternative (A1)*

East Link construction impacts on Central Link operations in Seattle would be minimal. Impacts would occur with the connection of East Link to the Central Link in the Downtown Seattle Transit Tunnel. Most Downtown Seattle Transit Tunnel construction activities would be scheduled to occur over a limited number of full weekend closures. Minor additional evening closures could be required for other technical work. When possible, the evening closures would be outside of revenue service hours. These impacts would affect Central Link service only, as bus service would have previously shifted from the tunnel to surface streets.

Along I-90, construction would affect the bus routes stopping at Rainier Avenue South and at Mercer Island. Bus service would continue at these locations during the D2 Roadway construction, but buses would use the outer I-90 mainline roadways to access the Rainier Avenue South and Mercer Island stops. During light rail construction on the D2 Roadway, buses would be rerouted to the I-90 mainline and use the HOV lanes completed as part of the I-90 Two-Way Transit and HOV project. These HOV lanes would be completed before East Link construction begins on I-90.

4.4.2 Segment B

At the South Bellevue Park-and-Ride, the entire parking lot would be closed due to construction of the parking garage and the station, but bus service and bus stops would remain on Bellevue Way SE. For *Preferred Alternative B2M*, it is likely that less disruption would affect bus service than Alternatives B1, B2A, B2E, B3, and B3 - 114th Design Option alternatives as one lane of Bellevue Way SE would likely be closed for most of the civil construction period rather than multiple lanes. *Preferred Alternative B2M*, and Alternatives B2A, B2E, and B3 would reconstruct the roadway on 112th Avenue SE. This at-grade construction would require lane closures that would reduce the reliability of buses that travel along these roads during periods when lanes are closed. For Alternative B7, bus service at the Wilburton Park-and-Ride would continue, but all or some parking would be removed.

4.4.3 Segment C

The construction of *Preferred Alternative C11A* and *Preferred Alternative C9T* would either consist of a full closure or a staged partial closure of the Bellevue Transit Center. In either scenario, impacted bus routes and stops would be rerouted along 106th, 108th, and 110th Avenues NE. Bus routes and stops may also be relocated to a nearby off-street location. One potential location is to acquire the properties along the west side of 108th Avenue NE, near NE 6th Street. This site would be able to accommodate some of the existing Bellevue Transit Center routes and stops. For Alternatives C1T, C2T, and C3T, buses would not be able to access the transit center during construction. The Bellevue Transit Center would be closed for over a year for the construction of the new station for these three alternatives. Therefore, bus service and stops associated with these alternatives would be rerouted and relocated along 106th, 108th, and 110th Avenues NE.

The remaining Segment C alternatives would likely be able to retain current bus service within the Bellevue Transit Center during the construction period. The construction of the at-grade track along 108th Avenue NE (*Preferred Alternative C11A*) would affect bus routes along this road. Cut-and-cover construction on Bellevue Way (for Alternative C1T) between SE and NE 6th Street, on 106th Avenue NE (for Alternative C2T) between Main Street and NE 6th Street, and on 110th Avenue NE (for *Preferred Alternative C9T*) would affect bus routes along these roadways. Alternative C4A would reconstruct 108th and 110th Avenues NE, which would affect bus service. Constructing Alternatives C8E and C9A would affect bus routes traveling on 110th Avenue NE. Construction activities surrounding NE 6th Street between 110th Avenue NE and the I-405 direct access ramps (*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C3T, C9A, and C14E) could affect bus routes. All of these potential construction impacts could increase bus travel times.

4.4.4 Segment D

During construction at the Overlake Transit Center station, bus service and stops could be rerouted along 156th Avenue NE and/or other nearby arterials because the parking lot is expected to be closed for construction of the parking garage and station. For Alternative D3, buses traveling on 152nd Avenue NE north of NE 24th Street would be affected by the at-grade station construction in the median, and on NE 20th Street between 136th Avenue NE and 152nd Avenue NE due to median trench construction. These effects could increase bus travel times.

4.4.5 Segment E

Buses traveling along 161st Avenue NE between Cleveland Street (SR 202) and NE 87th Street would be affected by at-grade construction of Alternative E2 - Redmond Transit Center Design Option and would likely need to be rerouted. Under the *Preferred Alternative* E2, which would terminate at the Downtown Redmond Station, and all other Segment E alternatives, potential impacts along 161st Avenue NE would be avoided.

4.5 Potential Mitigation

If the D2 Roadway is not designated for joint-use operations for bus and light rail in the future, then bus routes that use the D2 Roadway would be expected to be rerouted to 4th Avenue South to access Downtown Seattle via SR 519. Transit signal priority could be implemented on 4th Avenue South at the I-90 western terminus at Airport Way South to improve bus reliability for these affected routes. During East Link operations, bus routes on I-90 would not require any mitigation because the I-90 Two-Way Transit and HOV Project would be completed prior to East Link construction. The I-90 Two-Way Transit and HOV Project would provide HOV lanes in both directions on I-90 between Mercer Island and the Rainier Avenue South interchange. Consistent with the WSDOT's HOV Speed and Reliability Standard of a vehicle able to travel at least 45 mph during the peak commuting hour 90 percent of the time, bus reliability would remain similar to that of the No Build Alternative. No other transit mitigation during East Link operations would be required for the East Link Project because the project would have a beneficial impact on transit service. The transit integration plan provides coordinated bus service with the light rail system, and major park-and-ride lots in the study area would be expanded to better accommodate the increase in transit ridership with the project.

During construction, the existing South Bellevue (associated with all Segment B alternatives, except B7) and Overlake Transit Center (associated with all Segment D alternatives) park-and-ride lots would either be partially or fully closed. Measures to mitigate the loss of parking at these locations could include the following:

- Route transit riders that use these locations to available spaces at nearby park-and-ride lots, such as the Eastgate or Overlake Village Park-and-Rides.
- Lease parking lots and/or new parking areas within the vicinity of the closed park-and-ride lots.

During construction, transit service mitigation measures for the South Bellevue, Bellevue Transit Center (associated with *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, and C3T) and Overlake Transit Center partial or full closure could include the following:

- Relocate transit stops to adjacent streets.
- Provide a temporary transit center at a nearby off-street location.
- Revise transit services. For example, at South Bellevue and Overlake Transit Center, bus routes that stop within the park-and-ride would be rerouted, to the extent possible, to on-street stops (for example along Bellevue Way SE and 156th Avenue NE) to ensure service during construction.

During construction of alternatives within street rights-of-way, buses would be rerouted to nearby arterials, where appropriate, to maintain transit service. For example in Downtown Bellevue, transit could be rerouted to parallel streets. In other areas, such as Bellevue Way SE, buses would continue to operate along this arterial due to lack of alternative routes. Transit service modifications would be coordinated with King County Metro and private transit service providers to minimize construction impacts and disruptions to bus facilities and service. This could include posting informative signage before construction at existing transit stops that would be affected by construction activities. Refer to Section 5.0 for mitigation regarding future I-90 operations and Section 6.0 for mitigation regarding arterial and local street traffic operations.

5.0 Highway Operations and Safety

5.1 Section Overview

This section describes the highway operations within the study area and the potential impacts on highways from the East Link Project. I-90 is the only regional highway that would be directly affected during East Link operations. Direct impacts that would occur during East Link operations to SR 520 and I-405 would be limited to light rail transit overpasses, parallel routes, and construction. (For discussion of regional travel, including VMT, VHT, v/c ratio, and mode share at the six project screenline locations, refer to Section 3.0.) Key analyses in this section are vehicle and person throughput and capacity, travel time, congestion and LOS data, and safety. Analysis was conducted for the AM and PM peak periods in the existing conditions, the East Link Project's opening year (2020), and the horizon year (2030), consistent with the regional and local agency planning period.

Consistent with long-standing regional objectives of connecting the urban communities in the Puget Sound region, the I-90 center roadway has always been intended to be an HCT connection between Bellevue and Seattle to support higher-density employment and residential land uses on both sides of Lake Washington. The East Link Project would provide a reliable and safe transportation mode between the region's dense commercial and residential centers, while connecting major employers, businesses, and people across Lake Washington. During the peak hour, East Link could carry a total of 18,000 to 24,000 people (9,000 to 12,000 per direction), which would more than double the person-carrying capacity of I-90. This is equivalent to about seven to ten freeway lanes of traffic.

Without the project, congestion on I-90 would increase in the future and I-90 would reach its vehicular capacity in the near future (WSDOT, 2004). With congestion expected to worsen in the future, travel times would lengthen and in some cases would double what they are today. More congestion and longer travel times would further disconnect the key employment and population centers of Puget Sound: Seattle and the Eastside. Congestion would also extend for longer periods because the peak period would exceed 3 hours. Without light rail's ability to move more people, the imbalance in vehicle capacity on I-90 would not provide an efficient and reliable transportation system to the growing residential and commercial areas on the Eastside. This is highlighted by travel in the reverse-peak direction on I-90, which is projected to have the longest travel times in the no-build condition.

The analysis presented in this section indicates that East Link would move more people, serve a greater percentage of the forecasted demand, and improve vehicle travel times compared with the no-build conditions, especially in the reverse-peak direction, which would provide a benefit not only to the overall performance and mobility of I-90 but also to the key urban centers—Seattle, Bellevue, Overlake, and Redmond. Overall, by 2030, the number of people crossing the lake during the peak periods would increase with the East Link Project by 30 percent compared with the no-build condition that does not complete the I-90 Two-Way Transit and HOV Operations Project and by about 15 percent compared with the no-build condition with the I-90 Two-Way Transit and HOV Operations Project completed.

Although transit total ridership across the lake (i.e., combined transit use on both SR 520 and I-90) would increase by up to 25 percent with the project, I-90 itself would experience almost three times as many transit riders with the project than in the no-build condition. The result of this would be a more balanced mode share across the lake. Specifically to I-90, the total transit demand would be about 21 percent of the total number of people traveling across the lake, and almost 50 percent of the people would either be in an HOV or riding transit on I-90.

Because light rail would operate in an exclusive, fixed trackway separate from other vehicles traveling along I-90 vehicle accidents that would occur in the center roadway are eliminated. The shift from people driving to riding East Link would reduce the potential for accidents per person traveling along I-90 and improve traveler safety in the corridor.

5.2 Affected Environment

Segment A is the only East Link Project segment that would directly affect a regional highway (I-90) during project operations. Potential direct impacts on SR 520, I-5, and I-405 are not considered substantial (see Section 3.0); therefore, traffic operations on SR 520 (which crosses Screenline 2 [Lake Washington]), I-5, and I-405 were not evaluated further during East Link operation. However, this section does address SR 520 and I-405 when describing travel demand across the lake (Section 5.3.2) and potential construction impacts (Section 5.3.4). No other highways would be affected by this project.

5.2.1 Affected Regional Highway Facilities

Segment A spans approximately 7 miles, originating at the International District/Chinatown Station in Seattle and terminating near the east side of Lake Washington where I-90 reaches South Bellevue. Within the portion of Segment A that crosses Lake Washington, I-90 consists of two "outer" roadways that are the westbound and eastbound mainline lanes, as well as a two-lane reversible center roadway that has peak-directional reversible lanes for use by transit, HOVs and Mercer Island residents driving between Seattle and Mercer Island, per the 1976 Memorandum Agreement. During the morning peak period, the reversible roadway operates in the westbound direction; during the afternoon peak period, the roadway operates in the eastbound direction. A 1.4-mile corridor for buses and HOVs, called the D2 Roadway, connects the reversible center roadway to the DSTT and the intersection of 5th Avenue South and Airport Way South. East Link would traverse across Lake Washington within the I-90 reversible center roadway.

Consistent with long-standing regional objectives of connecting the urban communities in the Puget Sound region, the center roadway has always been intended to be an HCT connection between Bellevue and Seattle to support higher-density employment and residential land uses on both sides of Lake Washington. As documented in Appendix H, the 2004 Amendment to the 1976 I-90 Memorandum Agreement states that "the ultimate configuration for I-90 between Bellevue, Mercer Island, and Seattle should be defined as high-capacity transit in the center roadway and HOV lanes in the outer roadways; and further agree that high-capacity transit for this purpose is defined as a transit system operating in dedicated right-of-way such as light rail, monorail, or a substantially equivalent system" (WSDOT, 2004). In 1996, with voter approval of Sound Move and with the formation of Sound Transit, the *Long-Range Vision* (1996**)** identified the development of HCT across I-90 with future rail. Implementing this objective and the *2004 Amendment to the 1976 I-90 Memorandum Agreement* (City of Seattle et al, 2004). has led to three operational analysis studies:

- *I-90 Two-Way Transit and HOV Operations Final Environmental Impact Statement* (WSDOT, 2004)
- *I-90 Center Roadway Study* (WSDOT, 2006)
- *East Link Project Final Environmental Impact Statement* (Sound Transit, July 2011) and *Interchange Justification Report* (Sound Transit, May 2011). The Interchange Justification Report received a finding of engineering and operational acceptability from FHWA on June 22nd, 2011.

Appendix H describes these three studies, their assumptions, performance measures and, if applicable, approvals.

5.2.2 Highway Operations

Freeway traffic operational performance is described in terms of person and vehicle throughput, travel times by mode of transportation, and LOS (refer to Appendix A for freeway LOS description). Traffic volumes during the AM and PM peak periods were analyzed on freeway lanes and ramps using VISSIM software, which is compatible with the methodologies of the *Highway Capacity Manual* (HCM) (TRB, 2000). Current freeway traffic volumes, geometry, vehicle occupancy, and base and ramp free flow speed (FFS) were obtained from existing traffic data and as-built drawings. These data were used to calibrate the simulation to represent current operating conditions on I-90. Appendix A provides greater detail on the assumptions and VISSIM results associated with the freeway analysis.

The three key operating measures used to evaluate operating conditions on I-90 are vehicle and person throughput, travel time, and LOS (with congestion maps). Vehicle and person throughput is an indicator of the number of vehicles and people in vehicles that cross a screenline. Compared with vehicle throughput, person throughput is a more appropriate assessment measure for analysis of a transit project because it illustrates the overall efficiency of the system through number of people moved instead of vehicles. Throughput information is presented at Screenlines 2 (Lake Washington) to explain changes in travel patterns across the lake, while the Mercer Slough screenline (Screenline 3) is intended to be used to understand I-90 conditions east of the study area. Travel times provide information on how long it would take to travel through the corridor or certain paths within the corridor. LOS descriptions (with congestion maps as a visual aid) indicate when, how long, and how severely congestion occurs. LOS is useful to understand where poorly operating (i.e., LOS E and F) sections are located. Although LOS is based on vehicle density and the congestion maps are based on speed, the two measurements are generally related to one another.

The safety conditions on I-90 also were assessed to evaluate how the project influences the potential for accidents on I-90. For analysis of intersection operations at or near I-90 ramp terminals, refer to Section 6, Arterials and Local Streets.

5.2.2.1 Vehicle and Person Throughput

In the existing conditions, 56 to 57 percent of the total number of vehicles on I-90 travel in the peak direction (westbound in the AM peak period and eastbound in the PM peak period). In the AM peak hour, slightly fewer than 13,000 vehicles travel on I-90, while in the PM peak hour, about 13,500 vehicles travel on I-90. In both AM and PM peak hours, the center roadway accommodates less than 15 percent of the total vehicles on I-90, due to its limited access. Access is provided by slip ramps from the outer mainline roadways at either Rainier Avenue South interchange or at the East Channel Bridge and the signalized intersection of 5th Avenue South and South Dearborn Street, none of which provides enough capacity to use the reversible center roadway effectively (WSDOT, 2004). Table 5-1 provides the I-90 vehicle and person throughput data for Screenlines 2 and 3 in the AM and PM peak hours.

TABLE 5-1
Existing (2007) I-90 AM and PM Peak-Hour Vehicles and Persons

	AM Peak Hour				PM Peak Hour			
Direction	**Vehicles**	**Persons**	**Vehicle Percentage of Total**	**Person Percentage of Total**	**Vehicles**	**Persons**	**Vehicle Percentage of Total**	**Person Percentage of Total**
Screenline 2 (Lake Washington: I-90 only)								
Westbound outer roadway	5,450	6,250	43	39	6,000	7,500	44	43
Reversible center roadway	1,750	3,350	14	21	1,850	3,450	14	20
Eastbound outer roadway	5,500	6,500	43	40	5,650	6,500	42	37
Screenline 2 total (for I-90)	12,700	16,100	100	100	13,500	17,450	100	100
Screenline 3 (I-90 at Mercer Slough)								
Westbound outer roadway	7,200	9,550	58	61	6,000	6,500	45	45
Eastbound outer roadway	5,300	6,000	42	39	7,250	7,950	55	55
Screenline 3 total	12,500	15,550	100	100	13,250	14,450	100	100

Source: Sound Transit (2010c).

In terms of person throughput, in the AM peak hour on the I-90 floating bridge (Screenline 2), the westbound outer roadway throughput approaches 6,300 persons and the reversible center roadway (westbound direction in the AM peak period) person throughput is approximately 3,300 persons (of which about 25 percent are in buses). The eastbound outer roadway throughput is about 6,500 persons. Overall, about 16,100 people travel I-90 in both directions during the AM peak hour.

In the PM peak hour on the I-90 floating bridge, the westbound outer roadway throughput is about 7,500 persons. The eastbound outer roadway throughput approaches 6,500 persons, and the reversible center roadway (eastbound direction in the PM peak period) throughput is about 3,500 persons (of which about 20 percent are in buses). Overall, about 17,500 people travel I-90 in both directions during PM peak hour.

Similar person throughput trends occur at Screenline 3, except in the eastbound direction during the PM peak hour. Transit usage decreases at Screenline 3 compared with Screenline 2 because some passengers disembark at Mercer Island and some buses exit I-90 at Bellevue Way, and therefore, they do not cross Screenline 3. The mode share at two screenline locations indicate that the proportion of HOV and transit users compared with SOVs is generally between 25 and 35 percent in the peak direction and less than 20 percent in the off-peak direction. Exhibit 5-1 provides the existing AM and PM peak-hour person throughput by direction and travel mode at Screenlines 2 and 3. The person and vehicle throughput in the reversible center roadway is included in the direction in which it operates, depending on the time period.

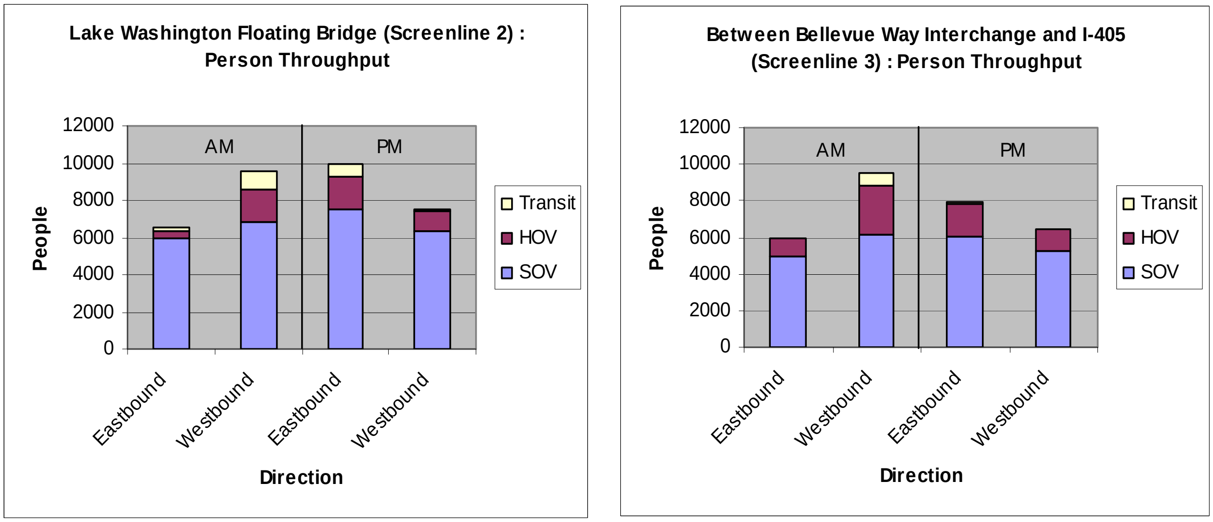


EXHIBIT 5-1
I-90 Existing AM and PM Peak-Hour Person Throughput at Screenlines 2 and 3

5.2.2.2 Travel Time

Existing travel time paths between Seattle and Mercer Island, Bellevue Way, and I-405 were established to understand regional and shorter-distance trips. Specifically, the I-90 travel times were computed to and from three locations in the study area:

- Island Crest Way to and from I-5 in Downtown Seattle
- Bellevue Way SE to and from I-5 in Downtown Seattle
- East of I-405 to and from I-5 in Downtown Seattle

Travel times were computed assuming that buses destined to or originating from Seattle do not use I-5, but rather the I-90 D2 Roadway, which is exclusive to transit and HOV vehicles. Depending on the travel direction in the reversible center roadway (westbound in the morning period and eastbound in the afternoon period), vehicles might connect between the D2 Roadway and the reversible center roadway or merge/diverge with the westbound and eastbound mainline roadways. Table 5-2 lists the existing AM and PM travel times for SOV, HOV, and transit modes along the three beginning and ending points listed above.

As shown in the table, AM peak-period travel times for SOVs traveling westbound to Seattle from I-405 and from Island Crest Way were calculated at 12.4 and 7.2 minutes, respectively. Travel times for buses traveling westbound from I-405 and from 77th Avenue SE to Seattle were 13.2 and 6.4 minutes, respectively. Travel times for SOVs traveling eastbound from Seattle to I-405 and to Island Crest Way were 14.5 and 7.7 minutes, respectively. Travel times for buses (that stop on Mercer Island) traveling eastbound from Seattle to I-405 and to Island Crest Way were 25.4 and 9.7 minutes, respectively. PM peak-period travel times for SOVs traveling westbound to Seattle from I-405 and from Island Crest Way were 18.5 and 9.1 minutes, respectively.

TABLE 5-2

I-90 Existing AM and PM Peak-Period Travel Times by Mode

Travel Time Path Endpoints		Travel Time (minutes)					
		AM			PM		
End Point	**End Point**	**SOV**	**HOV**	**Transit**[a]	**SOV**	**HOV**	**Transit**[a]
Westbound Outer Roadway							
Mercer Island (Island Crest Way)	I-5 to Downtown Seattle[b]	7.2	7.2[c]	-/-	9.1	9.1	10.7/7.7
Bellevue Way[d]	I-5 to Downtown Seattle[b]	10.0	10.0[c]	-/-	16.7	16.8	18.7/-
I-405	I-5 to Downtown Seattle[b]	12.4	12.4[c]	-/-	18.5	17.5	20.8/17.7
Reversible Center Roadway[e]							
Mercer Island (77th Avenue SE)	I-5 to Downtown Seattle[f]	6.8	N/A	-/-	8.0	N/A	-/-
Mercer Island (77th Avenue SE)	Seattle (5th Avenue South[g])	N/A	5.0	6.4/6.3	N/A	5.3	6.3/6.0
Bellevue Way	Seattle (5th Avenue South[g])	N/A	7.5	11.3/-	N/A	8.0	11.3/-
I-405	Seattle (5th Avenue South[g])	N/A	9.8	13.2/11.2	N/A	9.9	13.3/10.8
Eastbound Outer Roadway							
I-5 from Downtown Seattle[h]	Mercer Island (Island Crest Way)	7.7	7.5	9.7/8.9	11.9	11.9[c]	-/-
I-5 from Downtown Seattle[h]	Bellevue Way[d]	12.1	11.7	20.0/-	15.0	15.0[c]	-/-
I-5 from Downtown Seattle[h]	I-405	14.5	14.2	25.4/16.9	16.9	16.9[c]	-/-

[a] The two values in the transit column indicate transit routes with stops on Mercer Island/transit routes with no stops on Mercer Island.

[b] All vehicles end at I-5 northbound ramp, except transit vehicles, which use the I-90 D2 Roadway.

[c] Travel time for HOV is the same as for SOVs for comparable route.

[d] Buses and HOV use the reversible center roadway Bellevue Way ramp.

[e] Reversible center roadway operates westbound in the AM peak and eastbound in the PM peak.

[f] SOV vehicles are required to exit/enter reversible center roadway at Rainier Avenue S interchange.

[g] Travel time is to and from 5th Avenue S via the I-90 D2 Roadway.

[h] All vehicles start at I-5 southbound ramps to I-90.

HOV	high-occupancy vehicle
N/A	Travel time for this path was not prepared because either there is no transit route on this path or the route's travel time by this mode is not applicable.
-	Buses do not travel on this roadway during this period and/or do not travel between these points.
SOV	single-occupant vehicle

Travel times for buses traveling westbound from I-405 and Island Crest Way to Seattle were 20.8 and 10.7 minutes, respectively. Travel times for SOVs traveling eastbound from Seattle to I-405 and to Island Crest Way were 16.9 and 11.9 minutes, respectively. Travel times for buses (that stop on Mercer Island) traveling eastbound from Seattle to I-405 and to 77th Avenue SE were 13.3 and 6.3 minutes, respectively.

5.2.2.3 Level of Service

The LOS on I-90 varies throughout the study area. Substantial congestion and/or bottlenecks occur when vehicles travel at stop-and-go conditions (LOS F), and vehicle queues are observed throughout most of the peak periods, especially in the PM peak period. The congestion maps in Exhibit 5-2 illustrate the I-90 mainline LOS. These congestion maps indicate vehicle travel speeds over time (vertical axis) and distance (horizontal axis). The time indicated on these maps is a 2.5-hour duration in both the AM (6:30 to 9:00 a.m.) and PM (3:30 to 6:00 p.m.) peak periods. The distance covers I-90 from the western terminus at SR 519 to east of the I-405 interchange. Although LOS is based on vehicle density and the congestion maps are based on speed, the two measurements are generally related to one another. In Exhibit 5-2, LOS E or F conditions (speeds at or below 55 mph) are indicated where areas of yellow, red, or black occur. LOS D (vehicle speeds over 55 mph) or better are portrayed where areas of green occur.

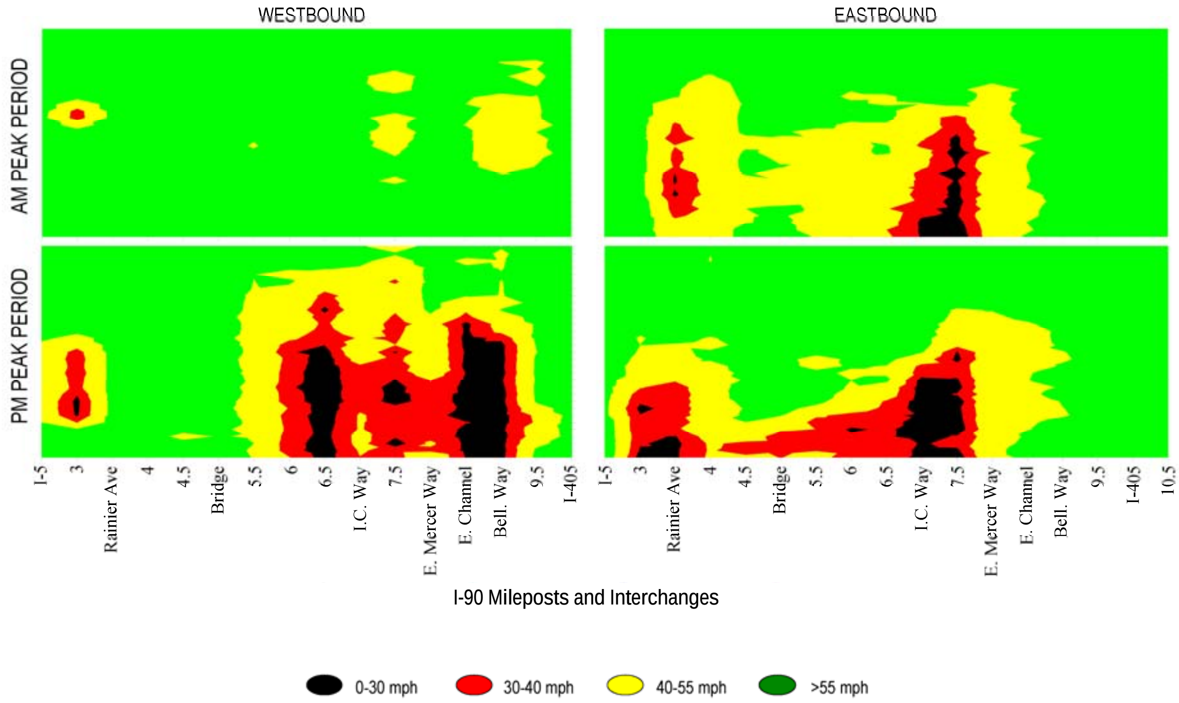


EXHIBIT 5-2
I-90 Existing Year AM and PM Peak-Period Vehicle Speeds in General-Purpose Lanes

AM Peak Period

For travel in the westbound direction from east of I-405 during the AM peak period, all I-90 sections operate at LOS E or better until the area between the Rainier Avenue South southbound off-ramp and the I-5 interchange, which operates at LOS F.

For travel in the eastbound direction, I-90 west of I-5, during the AM peak period, I-90 operates better than LOS E until the Rainier Avenue South interchange. East of the Rainier Avenue South interchange to the East Mercer interchange, I-90 operates at LOS E or worse. Within this section, LOS F conditions occur near the Rainier Avenue South interchange through the Mount Baker Tunnel and across Mercer Island. All other sections to the east of the East Mercer off-ramp operate at LOS D or better.

In the AM peak period, the reversible center roadway operates in the westbound direction and all sections operate at LOS B or better, with the worst operating conditions at the western terminus of the reversible roadway near the Rainier Avenue South interchange where vehicles in the center roadway merge with the traffic onto the I-90 mainline.

PM Peak Period

For travel in the westbound direction, I-90 operates at LOS D or better west of the I-405 on-ramp. I-90 west of the I-405 on-ramp until the First Hill Tunnel on Mercer Island operates at LOS E or worse. Across the I-90 floating bridge and into Seattle, I-90 operates at LOS D or better, except between Rainier Avenue South and the I-5 interchanges, where I-90 operates at LOS F due to vehicles merging with I-5.

For travel in the eastbound direction, I-90 west of I-5 operates at LOS D or better. East of the I-5 interchange, I-90 operates at LOS F until the section between the East Mercer Way interchange. Across the East Channel Bridge, I-90 operates at LOS E. At the Bellevue Way interchange, I-90 conditions degrade and operate at LOS F. East of the Bellevue Way off-ramp, I-90 operates at LOS D or better.

In the PM peak period, the reversible center roadway operates in the eastbound direction and all sections operate at LOS B or better, with the worst operating conditions at the western origin of the reversible center roadway near the Rainier Avenue South interchange where vehicles from the D2 Roadway and from the I-90 mainline merge together into the center roadway.

5.2.2.4 Freeway Safety

Existing accident data along the study corridor were collected from WSDOT for the 5-year period from 2004 to 2008 (WSDOT, 2009a). The accident study corridors included the westbound, eastbound, and reversible center roadways. The extent of the analysis was between the I-90 western terminus with SR 519 to just east of I-405, which is slightly more than 8 miles.

In the westbound direction, the overall I-90 corridor accident rate for I-90 is 1.04 accidents/million vehicle miles (acc./MVM). In the eastbound direction, the rate is 0.80 acc./MVM. The reversible center roadway accident rate is 0.61 acc./MVM. These accident rates are well below the average accident rate for urban interstate facilities (1.44 acc./MVM) in the Northwest Region of WSDOT.

Accident rates are also calculated by freeway sections. Two I-90 sections in the westbound direction, one I-90 section in the eastbound direction, and three I-90 sections in the reversible center roadway have accidents rates higher than the average accident rate for urban interstate facilities in the Northwest Region of WSDOT. These sections and their accident rates are discussed in the following paragraphs.

I-90 Westbound

The I-90 westbound section near the western terminus of the westbound mainline from the I-5 northbound off-ramp to SR 519 (0.85-mile length) has an accident rate of 1.70 acc./MVM. The second westbound mainline section is near the eastern end of the study area between the off-ramp to I-405 and the on-ramp from I-405 (1.08-mile length), and it has an accident rate of 2.56 acc./MVM.

I-90 Eastbound

The I-90 eastbound section from Atlantic Street to the I-5 northbound and southbound on-ramp (0.64-mile length) has an accident rate of 1.62 acc./MVM.

I-90 Reversible Center Roadway

The first freeway section of the I-90 reversible center roadway that has an accident rate above the average for urban interstate facilities in the Northwest Region of WSDOT is from the western terminus to immediately west of the Rainier Avenue South transit flyer stop (1.10 miles), with the highest accident rate in the reversible center roadway, at 3.11 acc./MVM. The second section is from immediately west of the Rainier Avenue South transit flyer stop to the eastern edge of the Mount Baker Tunnel (0.78 mile). This section of road has an accident rate of 2.59 acc./MVM. The last section is located between the I-90 on/off-ramp at East Mercer Way and the beginning and ending point of the reversible center roadway at Bellevue Way SE (1.03 miles). This section has an accident rate of 1.93 acc./MVM.

Comparing injury accident rates among each of the three roadway sections, the I-90 westbound roadway injury accident rate is 0.33 injury acc./MVM, the injury accident rate for the I-90 eastbound roadway is 0.26 injury acc./MVM, and the reversible center roadway injury accident rate is 0.28 injury acc./MVM. All roadways are below the urban interstate average for injury accident rate in the WSDOT Northwest Region, which is 0.46 injury acc./MVM. Three sections in the westbound roadway, three in the eastbound roadway, and one in the reversible center roadway exceed the statewide average for injury accident rate. All of the I-90 westbound and eastbound roadway sections mentioned previously regarding the total accident rate have an injury accident rate higher than the average injury rate. The one westbound roadway section that does have an injury accident rate higher than the statewide average is the section from the I-5 northbound off-ramp to the Rainier Avenue South northbound off-ramp.

The accident analysis also identified collision analysis locations (CAL) and collision analysis corridors (CAC), as defined by WSDOT. A CAL is defined as a spot location, determined to have a clustering of severe accidents during the previous 5 years. A CAC is defined as a 5-mile-long corridor with a 5-year history of at least 11 fatal or serious collisions. No CACs were identified in the study area, and the only CAL was from milepost (MP) 8.90 to MP 9.26, which is essentially I-90 between the Bellevue Way and I-405 ramps, near the eastern edge of the project study area.

5.3 Environmental Impacts

This section describes the differences in I-90 operations between the no-build and build conditions for years 2020 and 2030. Consistent with the *SR 520 Bridge Replacement and HOV Project: I-5 to Medina Supplemental Draft EIS*

(WSDOT and FHWA, 2010), SR 520 improvements and tolling strategies are assumed to be in place by year 2020. Therefore, the East Link Project assumed these improvements in both future year conditions.

Although the entire I-90 Two-Way Transit and HOV Operations Project is expected to be completed before East Link construction begins, allowing HOV traffic to be moved from the center roadway to the outer roadways, the East Link Project was compared with two different No Build Alternatives along I-90. Stage 1 of the I-90 Two-Way Transit and HOV Operations Project was recently completed, and Stage 2 is being constructed but Stage 3 might not be completed until just before East Link construction on I-90 begins. If the entire I-90 Two-Way Transit and HOV Operations Project is completed well before East Link construction begins, then the reversible center HOV lanes would be available for bus transit, HOVs, and Mercer Island drivers in conjunction with the new HOV lanes. Because the HOV lanes in the outer roadway might not be completed until just before East Link construction, the following two No Build Alternatives were analyzed:

1. **One with the Stage 3 HOV lanes completed immediately before East Link construction begins on I-90, so HOV and transit can shift from the center roadway to the outer roadway HOV lanes:** In this No Build Alternative, the new HOV lanes in the outer roadway would never operate in conjunction with the center roadway. This no-build condition would continue to provide a total of eight lanes across the I-90 floating bridge (three GP lanes in the westbound direction and three in eastbound direction, and two HOV lanes in the reversible center roadway). This condition is referred to as the No Build Alternative with Stages 1 and 2 only. The floating bridge section of I-90 would remain unchanged from existing conditions.
2. **One with the Stage 3 HOV lanes completed and the center roadway available for transit, HOV, and Mercer Island drivers:** In this No Build Alternative, both the center roadway and outer HOV lanes are open the entire distance between Seattle and Bellevue. This is referred to as the No Build Alternative with Stages 1 through 3. This condition would provide a total of ten lanes across the I-90 floating bridge (three GP, one HOV lane in each direction, and two HOV lanes in the reversible center roadway).

Both of these no-build conditions were evaluated for years 2020 and 2030. In all conditions (build and no-build), an HOV vehicle on I-90 is defined as a vehicles with two or more people. Exhibit 5-3 provides a schematic of the three stages of the I-90 Two-Way Transit and HOV Operations Project.

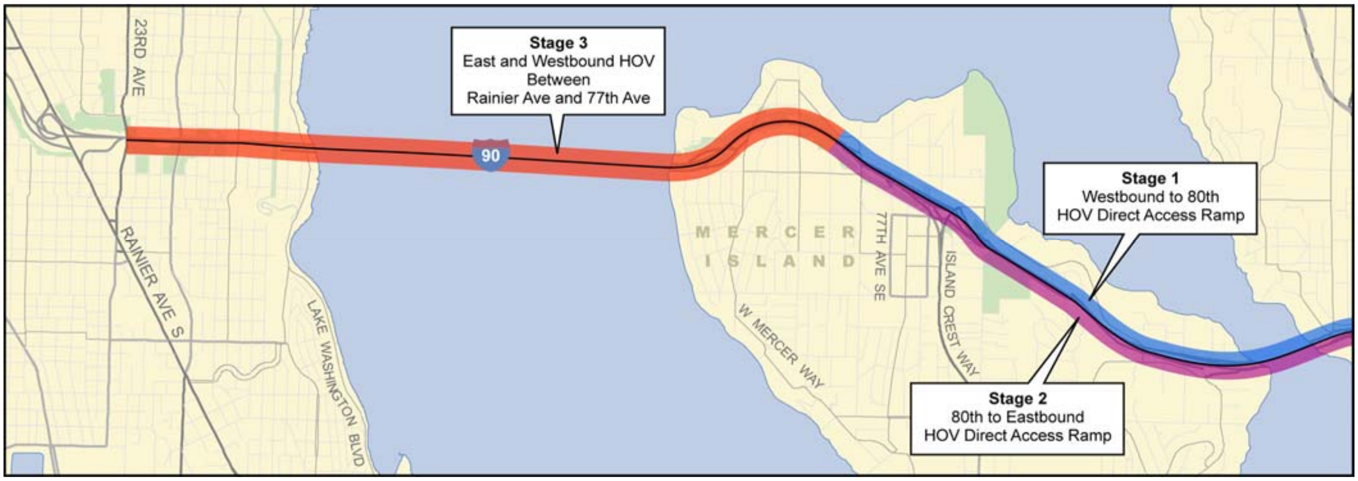
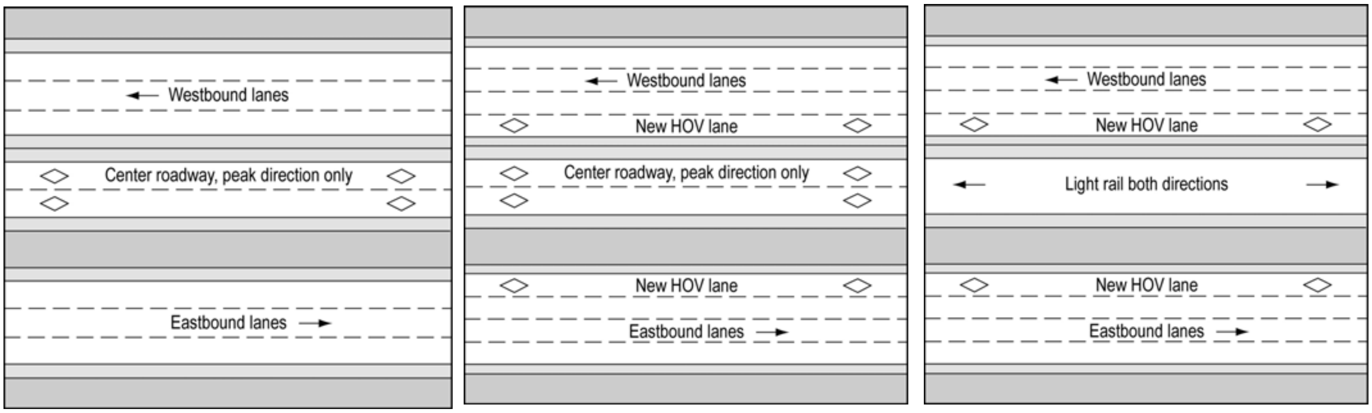


EXHIBIT 5-3
I-90 Two-Way Transit and HOV Operations Project Stages

The build condition would provide light rail along I-90 in the reversible center roadway and close all vehicle access to the center roadway. Therefore, the new HOV lanes in the outer roadway would continue to provide a total of eight traffic lanes along I-90 (three GP lanes and one HOV lane in both the westbound and eastbound directions). Exhibit 5-4 provides the I-90 lane configurations between Seattle and Mercer Island for the No Build Alternative and with the East Link Project. These access changes are further discussed in Section 5.3.1.



I-90 Existing Conditions *I-90 Two-Way Transit and HOV Project* *I-90 with Alternative A-1*

EXHIBIT 5-4
I-90 Configuration Before and After East Link

5.3.1 Access and Circulation Impacts

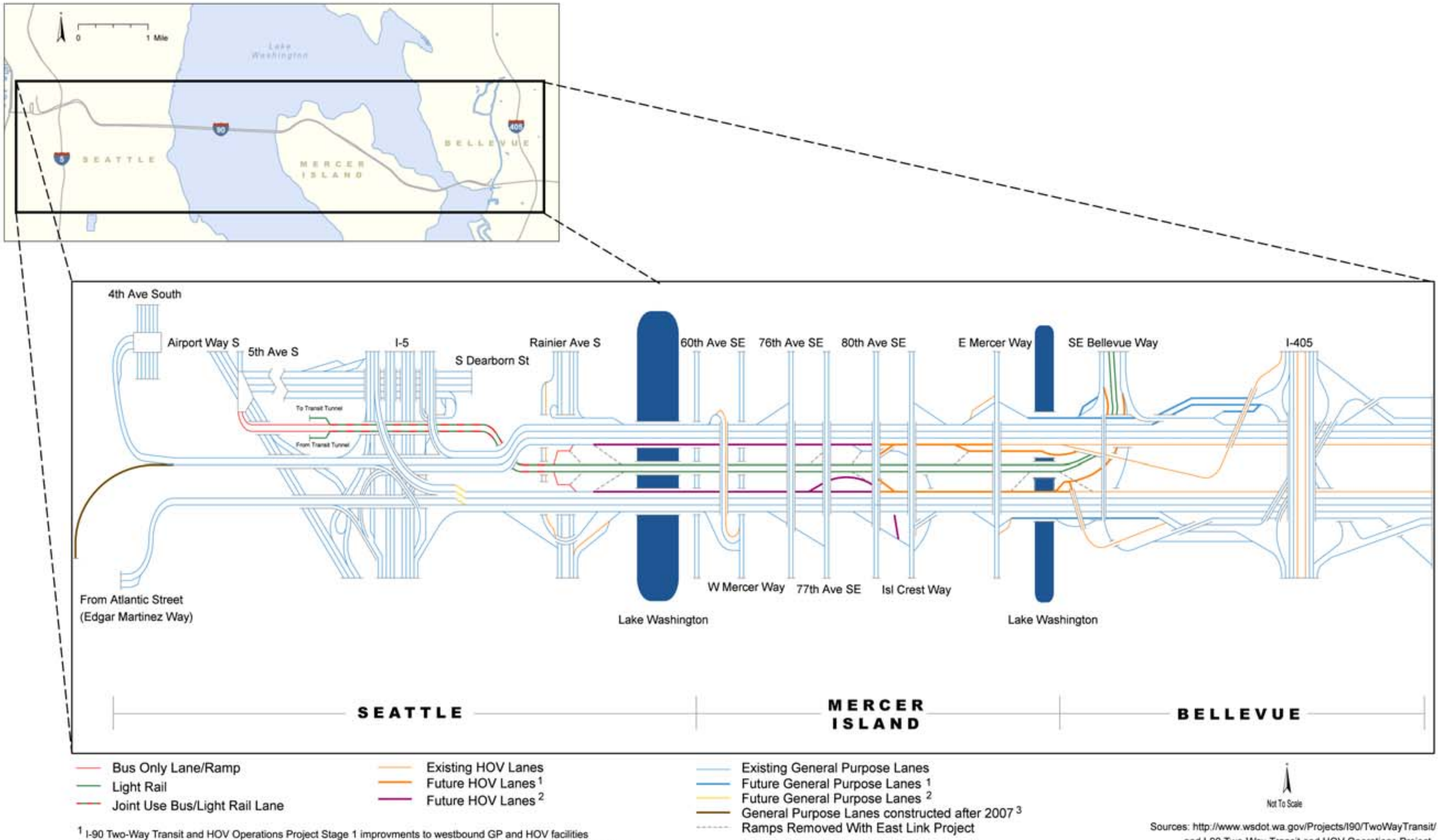
The I-90 Two-Way Transit and HOV Operations Project will modify access and circulation along the I-90 corridor in the no-build condition. With the East Link Project, access and circulation modifications would affect the D2 Roadway, center reversible roadway, eastbound HOV access near Mercer Island, and potentially the HOV ramps connecting to Bellevue Way SE. Exhibit 5-5 and Table 5-3 describe in detail the access modifications of the SR 519 Intermodal Access Project, the I-90 Two-Way Transit and HOV Operations Project, and the East Link Project.

With the East Link Project, *Preferred Alternative A1* includes joint operations of buses and light rail for the D2 Roadway that connects the south area of downtown Seattle with the I-90 center roadway. An operational option is also evaluated that has exclusive light rail operations in the D2 Roadway. HOVs would not be allowed to use this roadway for either option with the East Link Project. For the operational option that has exclusive light rail in the D2 Roadway, buses would be rerouted to other roadways to access I-90 from the south area of downtown Seattle (such as 4th Avenue South via SR 519).

Preferred Alternative A1 also provides an eastbound HOV off-ramp at Island Crest Way. In lieu of providing this HOV off-ramp at Island Crest Way, a design option to construct the eastbound HOV off-ramp at 77th Avenue SE was considered. A second design option that would construct neither of these eastbound HOV off-ramp options was also evaluated. With this design option, all HOV and buses would utilize the eastbound GP off-ramps at 77th Avenue SE and Island Crest Way to access Mercer Island. With either the preferred alternative or the design options, the existing eastbound GP off-ramps at Island Crest Way and 77th Avenue SE would remain.

During East Link construction and operations, access to and from the I-90 reversible center roadway would be removed along with its ramps connecting to Mercer Island (77th Avenue SE and Island Crest Way). With the access modifications from the I-90 Two-Way Transit and HOV Operations Project and the changes in access with the East Link Project, the traffic analysis assumed Mercer Island single-occupant vehicles would be able to use the HOV lanes in both directions of I-90 between Seattle and Island Crest Way to demonstrate that it does not affect the results of the East Link analysis and represents a worst-case condition. This assumption does not represent allowing SOVs to use the outer roadway HOV lanes or the eastbound left-side off-ramp to Island Crest Way. Any changes to the HOV lane eligibility, such as tolling, managed lanes, or Mercer Island single-occupant vehicle use, would be addressed in a future analysis, approval, and agreement.

In Segment B, *Preferred Alternative B2M* would preserve both the westbound HOV on-ramp and eastbound HOV off-ramp at the I-90 and Bellevue Way SE interchange by exiting light rail on a new elevated structure over the westbound I-90 mainline. With *Preferred Alternative B2M* and Alternatives B2A, B2E, B3, B3 – 114th Design Option, and B7, a design option is considered that would preserve only the westbound HOV on-ramp. Specific to Alternative B1, another design option is considered that would close both eastbound and westbound HOV ramps as light rail would use the space currently used by both ramps beneath the westbound mainline roadway.


0
1 Mile
Lake Washington
SEATTLE
MERCER ISLAND
BELLEVUE
5
90
405
4th Ave South
Airport Way S
5th Ave S
I-5
S Dearborn St
Rainier Ave S
To Transit Tunnel
From Transit Tunnel
60th Ave SE
76th Ave SE
80th Ave SE
E Mercer Way
SE Bellevue Way
I-405
From Atlantic Street
(Edgar Martinez Way)
Lake Washington
W Mercer Way
77th Ave SE
Isl Crest Way
Lake Washington
SEATTLE
MERCER ISLAND
BELLEVUE
Bus Only Lane/Ramp
Light Rail
Joint Use Bus/Light Rail Lane
Existing HOV Lanes
Future HOV Lanes 1
Future HOV Lanes 2
Existing General Purpose Lanes
Future General Purpose Lanes 1
Future General Purpose Lanes 2
General Purpose Lanes constructed after 2007 3
Ramps Removed With East Link Project
Not To Scale

[1] I-90 Two-Way Transit and HOV Operations Project Stage 1 improvments to westbound GP and HOV facilities constructed after 2007. Eastbound GP and HOV facility improvements as part of Stage 2 are currently being constructed.

[2] Lanes constructed as Stage 3 of I-90 Two Way Transit and HOV Operations Project

[3] SR 519 Intermodal Access Project

Sources: http://www.wsdot.wa.gov/Projects/I90/TwoWayTransit/
and I-90 Two-Way Transit and HOV Operations Project
http://www.wsdot.wa.gov/Projects/SR519

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EXHIBIT 5-5
I-90 Future Channelization and Ramps with the Preferred Alternative East Link Project

TABLE 5-3
I-90 Future Channelization and Access Modifications

Modification/Ramp	No Build		Build
	No Build[a]	No Build[b]	
SR 519 Intermodal Access Project			
• Revise westbound access to Seattle via new ramp connection with South Atlantic Street, and maintain existing ramp to 4th Avenue South.	X	X	
I-90 Two-Way Transit and HOV Operations Project			
• Construct I-90 westbound and eastbound HOV lane to outer roadway from East Mercer Way to 80th Avenue SE.	X	X	
• Construct an 80th Avenue SE westbound HOV direct-access off-ramp.	X	X	
• Modify Bellevue Way interchange for two-way continuous HOV operations to and from the west.	X	X	
• Modify the eastbound on-ramp at 80th Avenue SE to connect from the reversible center roadway to the new eastbound HOV lane in the outer roadway.	X	X	
• Add an eastbound I-90 GP lane between East Mercer Way and I-405 interchanges.	X	X	
• Restripe the I-405 westbound on-ramp to provide an additional I-90 lane to the Bellevue Way westbound on-ramp; this modification extends the auxiliary lane across the East Channel Bridge to the I-405 westbound on-ramp.	X	X	
• Convert the HOV bypass lane on the Bellevue Way westbound on-ramp to a GP lane.	X	X	
• Add a westbound and eastbound HOV lane to the outer roadways between 80th Avenue SE and Rainier Avenue South.		X	
• Construct an eastbound HOV direct-access off-ramp at 77th Avenue SE.		X	
East Link Project			
• Restrict HOVs from using the I-90 D2 Roadway between Seattle and the Rainier Avenue South interchange.			X
• Close vehicle access to and from the reversible center roadway at Rainier Avenue South and East Mercer Way.			X
• Close the Island Crest Way access to and from the reversible center roadway.			X
• Close the 77th Avenue SE westbound on-ramp and eastbound off-ramp access to the reversible center roadway.			X
• Either continue to provide the eastbound HOV direct-access off-ramp at 77th Avenue SE, relocate this HOV direct access to Island Crest Way, or provide neither eastbound HOV direct access ramp.			X
• Option to close or keep open the eastbound direct-access HOV off-ramp to Bellevue Way.[c]			X
• Close the eastbound direct-access HOV off-ramp and westbound direct-access HOV on-ramp to and from Bellevue Way.[d]			X

[a] With SR 519 Project and Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With SR 519 Project and Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
[c] Applies to Alternatives B2A, B2E, B3, B3 – 114th Design Option, B7 and *Preferred Alternative B2M*.
[d] Applies to Alternative B1 only.

However, WSDOT's preference is to maintain both the westbound HOV on-ramp and the eastbound HOV off-ramp at this interchange. To do so would require modifying the design for all nonpreferred alternatives that use Bellevue Way SE. Section 5.3.3 analyzes these access modifications. Unless specifically mentioned in this section (Section 5.3), the analysis and results presented for the build condition reflect *Preferred Alternatives A1* and *B2M,* which maintains both the westbound and eastbound Bellevue Way SE HOV direct-access ramps, provides an eastbound HOV direct-access off-ramp to Island Crest Way, and would maintain current bus routes between Seattle and I-90. Section 5.3.3 presents the analyses of the design options to close the Bellevue Way SE westbound and eastbound HOV direct-access ramps, the design options for eastbound Mercer Island off-ramp, and the operational option of exclusive light rail use in the D2 Roadway.

5.3.2 Travel Demand Forecasts

Vehicle and transit demand forecasts were prepared using the PSRC and Sound Transit travel demand models, as described in Section 3.3.1. Although it is likely that roadway capacity on I-90 would be reached before year 2030, in the auto demand would continue to increase up through year 2030. A slightly lower traffic growth rate was predicted on I-90 in the AM peak period than in the PM peak period. In the AM peak period, a traffic growth rate of approximately 1.4 percent per year was projected, and in the PM peak period, a traffic growth rate of approximately 1.8 percent per year was projected. By direction, the higher growth is forecasted in the non-peak direction (eastbound in the morning and westbound in the afternoon). By year 2030, the peak period demand in each direction would become more balanced than today as the population and employment density on the Eastside increases. The overall traffic growth rates are similar in both of the two future no-build conditions. Table 5-4 provides the existing, 2020 and 2030 3-hour vehicle demand forecasts for Screenline 2, I-90 at Lake Washington.

TABLE 5-4
Peak-Period Vehicle Demand Forecasts for I-90

	Vehicles						
		2020			2030		
Direction	**Existing**	**No Build[a]**	**No Build[b]**	**Build**	**No Build[a]**	**No Build[b]**	**Build**
AM Peak Period							
Westbound	35,100	43,800	43,900	42,500	46,500	46,600	45,800
Eastbound	28,600	39,000	38,800	35,400	41,300	41,100	38,300
PM Peak Period							
Westbound	33,900	49,500	50,200	49,100	55,000	55,600	53,900
Eastbound	40,900	53,900	54,300	53,000	57,500	58,400	55,400

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

Source: PSRC (2010b).

With the project, slightly less traffic growth was predicted compared with the no-build conditions as the model predicts people would shift from driving to riding light rail. This is because East Link would provide a more reliable mode of travel with substantial travel-time savings compared with a vehicle travelling in a congested roadway system especially between the urban centers of the Seattle and Bellevue. Section 6.3 discusses the East Link Project overall demand forecasting process.

As part of the travel demand forecasts, the demand mode shares for SOV, HOV, and transit were calculated for the no-build and build conditions. Although this information is also presented in Section 3.3, more detailed information for I-90 is provided in this section. With more congestion expected in the future, the forecasts suggest a slight shift towards people using HOV and transit in the no-build condition and from the no-build to build conditions the forecasts suggest an even more substantial shift to transit.

Analysis of Screenline 2 (Lake Washington), which includes both I-90 and SR 520 forecasts, indicates a noticeable shift to transit with the East Link Project. Compared with the no-build condition, the AM peak period transit mode share percentage with the project is predicted to increase by 5 percentage points in the westbound direction and 3 percentage points in the eastbound direction, which would be a 26 and 23 percent increase, respectively. In the PM peak period, transit mode share percentage with the project is predicted to increase by 3 percentage points in the westbound direction and 4 percentage points in the eastbound direction, which would be 33 and 25 percent increases, respectively, from the no-build condition. Table 5-5 shows the mode share at Screenline 2 with both SR 520 and I-90.

TABLE 5-5
Screenline 2 (Lake Washington) Mode Share Percentages with I-90 and SR 520

	Mode Share Percentages[1]						
		2020			2030		
Direction	**Existing**	**No Build[a]**	**No Build[b]**	**Build**	**No Build[a]**	**No Build[b]**	**Build**
AM Peak Period							
Westbound	65/20/15	59/23/18	59/24/17	56/22/22	58/23/19	57/24/19	55/21/24
Eastbound	76/18/6	74/15/11	74/16/10	72/14/14	70/17/13	69/18/13	68/16/16
PM Peak Period							
Westbound	62/33/5	58/35/7	58/35/7	58/33/9	47/42/11	54/37/9	53/35/12
Eastbound	57/30/13	55/30/15	53/32/15	52/30/18	52/32/16	50/34/16	49/31/20

[1] Mode share percentages are for SOV/ HOV/transit

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

Source: PSRC (2010b); Sound Transit (2010a).

Although Screenline 2 includes both I-90 and SR 520, analyzing only I-90 at Screenline 2 indicates a more substantial mode shift to transit in the build condition. The pie charts in Exhibit 5-6 provide a mode share comparison between the no-build and build conditions on I-90 in year 2030. By 2030, the transit share would close to triple from no-build conditions as people adjust their mode choice and choose to ride light rail because of faster travel times compared with bus or auto modes. The overall transit mode share (combined eastbound and westbound) in 2030 on I-90 would increase from about a 10 percent and 7 percent share (AM and PM peak, respectively) in the no-build condition to more than 20 percent in both the AM and PM peak build conditions. In conjunction with the transit mode share increase, the SOV and HOV mode share would decrease as people choose to ride light rail.

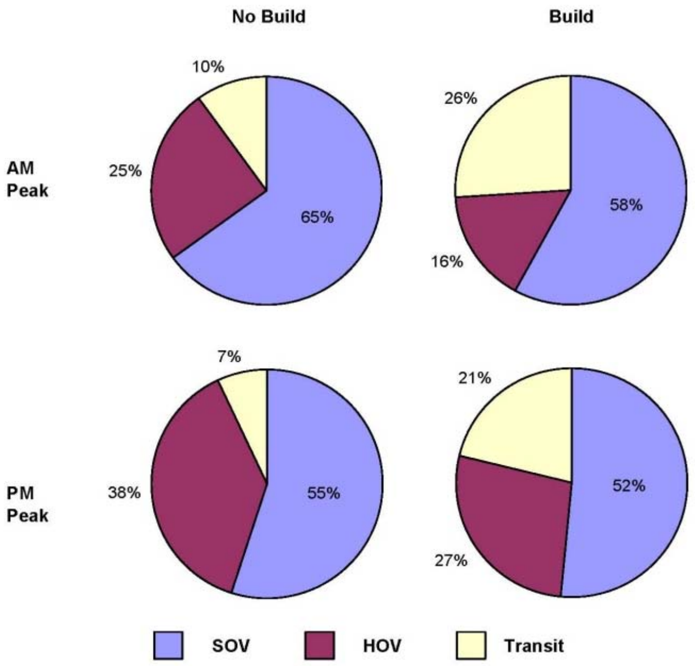


EXHIBIT 5-6
Screenline 2 (I-90 only) 2030 Mode Share

Source: PSRC (2010b); Sound Transit (2010a)

At Screenline 3 (I-90 at Mercer Slough) (Table 5-6), the shifts between the transit, HOV and SOV mode shares would be less pronounced with the project as light rail would not cross the screenline. Only slight changes to mode share are forecast at Screenline 3 in 2020 and 2030 with East Link. For a further discussion of the mode share at all six screenlines in the study area, refer to Section 3.0, Regional Travel.

TABLE 5-6
Screenline 3 (I-90 at Mercer Slough) Mode Share Percentages

Direction	Mode Share Percentages[1]						
		2020			2030		
	Existing	No Build[a]	No Build[b]	Build	No Build[a]	No Build[b]	Build
AM Peak Period							
Westbound	70/24/6	61/32/7	60/33/7	71/23/6	59/33/8	59/33/8	68/25/7
Eastbound	76/21/3	81/14/5	75/20/5	77/17/6	78/16/6	72/23/5	77/17/6
PM Peak Period							
Westbound	59/39/2	58/39/3	54/43/3	59/37/4	50/47/3	48/48/3	55/41/4
Eastbound	58/38/4	51/43/6	50/44/6	65/30/5	47/48/5	46/48/6	63/32/5

[1] Mode share percentages are for single occupant vehicles (SOV)/high occupancy vehicles (HOV)/and transit
[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

Source: PSRC (2010b); Sound Transit (2010a).

5.3.3 Highway Operational and Safety Impacts

Based on the forecasts described in Section 5.3.2, freeway operations during the AM and PM peak periods were analyzed using the VISSIM simulation software package for years 2020 and 2030. Appendix A provides information on the assumptions for the future conditions analysis. The following measures were used to assess potential project impacts on I-90:

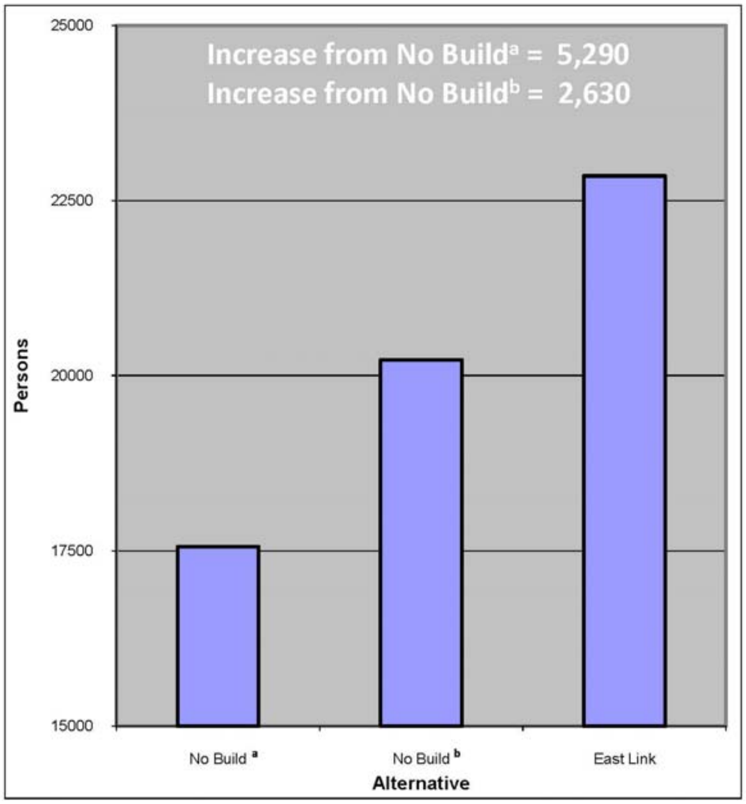
- Vehicle and person throughput and capacity
- Vehicle and person demand served
- Travel time
- LOS, including congestion diagrams
- Safety

This section presents vehicle and person throughput results at Screenlines 2 and 3. Travel times are provided along the full length of the corridor (between Seattle and I-405) and at specific intermediate locations along the corridor. Congestion diagrams are presented as a visual tool to help identify the I-90 LOS, including when, how long, and how severely congestion occurs. A safety comparison between the no-build and build conditions is provided to show how the project might affect the number of accidents on I-90.

5.3.3.1 Vehicle and Person Throughput and Capacity

Vehicle and person throughput on I-90 were tabulated at the two screenlines that intersect I-90, Screenlines 2 and 3. Throughput is summarized for the SOV, HOV, and transit modes. For the build condition, transit includes both bus and light rail passengers at Screenline 2 but only bus passengers at Screenline 3 because light rail does not cross Screenline 3. With East Link, the overall person throughput on I-90 across Lake Washington (Screenline 2) in the AM and PM peak hours in 2030 would increase by about 5,300 people (about 30 percent) compared with the No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project. Throughput would increase by about 2,600 people (about 15 percent) compared with the No Build Alternative with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project (Exhibit 5-7). One of the key reasons the East Link Project would transport more people across I-90 is because bi-directional light rail would be a more efficient use of the center roadway space than the current reversible one-directional vehicle operations. The roadway's restricted access and egress also limit vehicle capacity and throughput.

Although throughput describes the number of people forecasted to travel across Screenline 2 in 2020 and 2030, the total person capacity of I-90 across Lake Washington would substantially improve with East Link compared to the No Build Alternative. Light rail in the center roadway would not only serve both directions at all times, but it would also provide a substantial increase in capacity than the existing reversible center roadway. The project would use dedicated right-of-way, allowing East Link to operate reliably, independent of congested roadway conditions. The project is planned to operate during the peak periods with a train-arrival frequency (i.e. headway) of every 7 minutes by 2030. The project has the capacity to carry 600 persons per 4-car train comfortably and 800 persons during crowded conditions, operated with 4-minute headways. This would more than double the person carrying capacity of I-90 as East Link could carry a total of 18,000 to 24,000 people (9,000 to 12,000 per direction) during the peak hour. This is the equivalent of about seven to ten freeway lanes of traffic (assuming that automobiles in the Puget Sound region average 1.17 persons per vehicle during commute hours, or about 2,300 persons per hour per freeway lane). The following subsections present the vehicle and person throughput results at Screenlines 2 and 3.



[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project

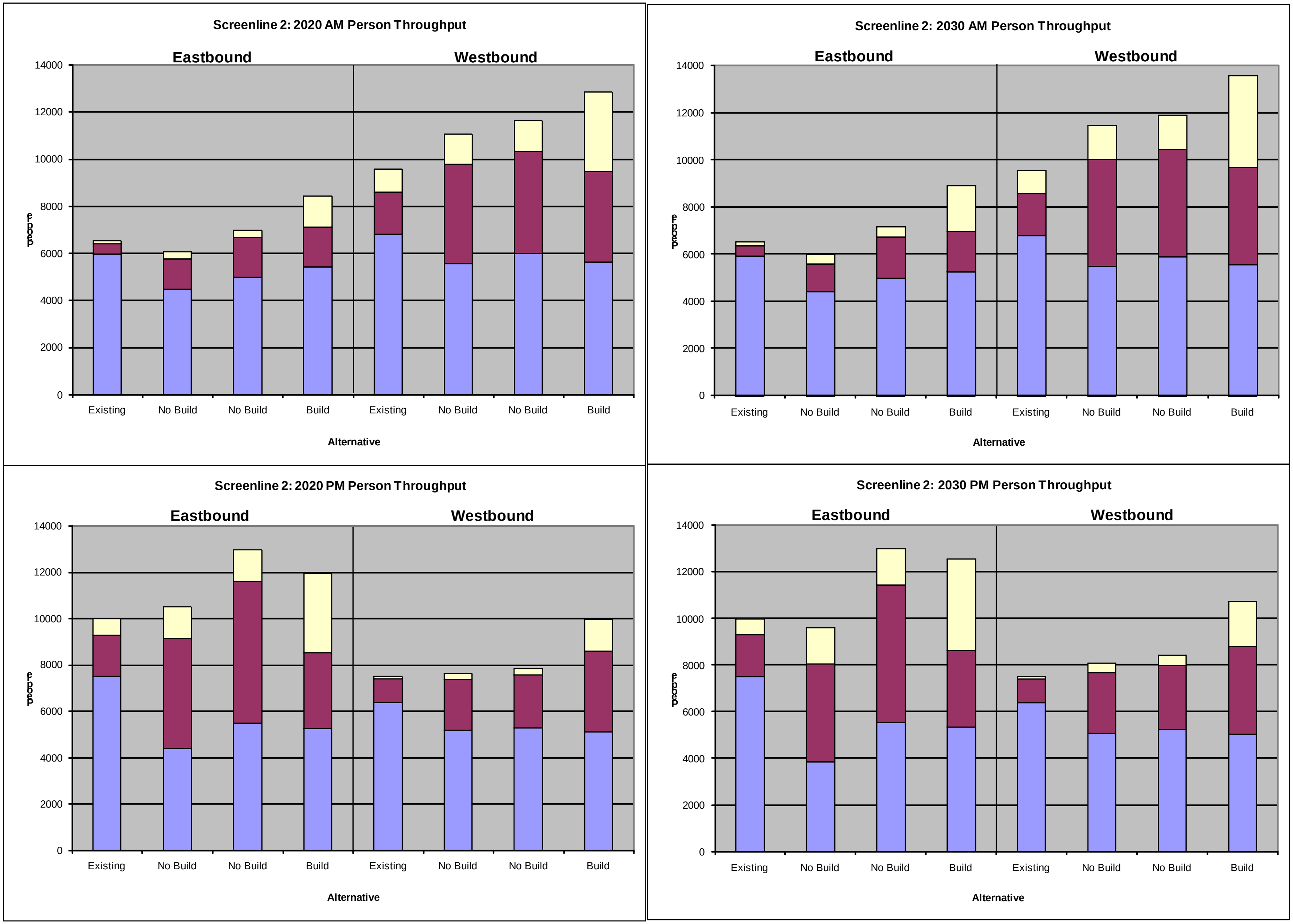
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project

EXHIBIT 5-7
Average AM and PM Peak-Hour I-90 Person Throughput with Light Rail in 2030

Screenline 2 (Lake Washington for I-90 only)

At Screenline 2, the person throughput in the build condition would be higher in every direction in both years 2020 and 2030 when compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project. Compared with the no-build condition assuming Stage 3 of the I-90 Two-Way Transit and HOV Operations Project is complete, person throughput would be higher with the project in the westbound direction in years 2020 and 2030, higher in the eastbound direction in the AM peak hour, and slightly lower (less than 4 percent in year 2030) for the eastbound direction in the PM peak hour, as indicated in Exhibit 5-8. The overall increase in person throughput is due to the project providing a reliable transportation option for crossing the lake, which would improve the mobility on I-90. However, some users would be adversely affected, and these circumstances are described in this section.

In the 2020 AM peak hour, there would be close to a 25 percent increase in total person throughput with the build condition compared with the no-build condition where only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project are completed. Compared with the no-build condition, assuming Stage 3 of the I-90 Two-Way Transit and HOV Operations Project is completed, the project would have about a 14-percent increase in person throughput in the AM peak hour. In the PM peak hour, the project would have about a 21-percent increase in the total person throughput compared with the no-build condition that includes only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project. Person throughput is expected to increase about 5 percent when comparing the build condition to the no-build condition that assumes Stage 3 of the I-90 Two-Way Transit and HOV Operations Project is completed.



ᵃ With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project
ᵇ With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project

■ SOV ■ HOV □ Transit

EXHIBIT 5-8
2020 and 2030 I-90 Peak-Hour Person Throughput by Mode at Lake Washington (Screenline 2)

In 2030, similar trends are expected. There would be close to a 29 percent increase in total person throughput in the AM peak hour comparing the build condition to the no-build condition (with Stages 1 and 2 only) and an 18 percent increase when comparing the build condition to the no-build condition with Stage 3 completed. In the PM peak hour, total person throughput would increase by 31 percent compared with the no-build condition that includes only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project. Person throughput is expected to increase by 9 percent when comparing the build condition to the no-build condition that assumes the completion of Stage 3 of the I-90 Two-Way Transit and HOV Operations Project. Compared with the no-build condition, if Stage 3 is completed, a slight reduction (less than 4 percent) in person throughput is predicted in the eastbound direction for the 2030 build condition. The lower eastbound PM person throughput is because of a relatively low throughput in the eastbound HOV lane that crosses the screenline. Lane changing associated with the transition of the GP lane to an HOV lane near the Rainier Avenue South interchange and the additional vehicles involved in the lane changing due to the center roadway closure result in reduced throughput in the HOV lane. If the lane were managed to accommodate more people, the throughput should be comparable for the no-build and build conditions.

By direction, the greatest increase in person throughput would occur in the reverse-peak directions on I-90 (eastbound in the AM peak hour and westbound in the PM peak hour), because light rail would provide another transportation option (i.e. additional person capacity) in the direction opposite of vehicle travel in the reversible center roadway (when compared with the no-build conditions). In 2020 and 2030, East Link would increase person throughput between 31 and 48 percent in the reverse-peak directions compared with the no-build condition where only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project are completed. For the same reverse-peak directions, East Link would provide an increase of 21 to 27 percent in person throughput compared with the no-build condition were the I-90 Two-Way Transit and HOV Operations Project is fully completed.

In terms of vehicle throughput, the build condition would have a higher vehicle throughput in the reverse-peak directions (i.e., eastbound AM peak and westbound PM peak) compared with either of the two no-build conditions because the roadway capacity would be unaffected in combination with people adjusting their mode choice and riding light rail. People deciding not to drive and ride light rail would cause a slight reduction in congestion and increase vehicle throughput. Vehicle throughput would increase with the project between 7 to 22 percent compared with the no-build condition that assumes only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project is completed and would increase between 4 to 7 percent compared with the no-build condition that assumes the completion of Stage 3 of the I-90 Two-Way Transit and HOV Operations Project.

Although in most cases the East Link Project would increase the person throughput in the peak direction, the vehicle throughput in the peak direction would be similar to slightly reduced compared with the No Build Alternative. The vehicle throughput in the westbound direction in the AM peak hour would be similar to the no-build condition that includes only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project, but would decrease by less than 8 percent when compared with the no-build condition that includes Stage 3. In the eastbound direction for the PM peak hour, year 2030 vehicle throughput in the build condition would be higher than the no-build condition that includes only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project, but would decrease by about 1,200 when compared with the no-build condition that includes only Stage 3. This decrease is due to a relatively low throughput in the eastbound HOV lane that crosses the screenline, as previously discussed. Table 5-7 lists Screenline 2 vehicle and person throughput.

Eastbound person and vehicle throughput at Screenline 2 for both the 77th Avenue SE eastbound HOV off-ramp design option and the design option without an HOV eastbound off-ramp to Mercer Island are expected to be similar (within 3 percent) to the *Preferred Alternative A1* with the eastbound HOV off-ramp at Island Crest Way. These access modifications are not expected to substantially affect I-90 mainline operations because connections in this area for Mercer Island residents currently exist. The operational option at the D2 Roadway and design options at the I-90 at Bellevue Way interchange would have person and vehicle throughput across Screenline 2 similar to the *Preferred Alternative A1*.

TABLE 5-7
2020 and 2030 Vehicle and Person Peak-Hour Throughput for I-90 at Lake Washington (Screenline 2)

Direction	2020 Vehicle and Person Throughput						2030 Vehicle and Person Throughput					
	Vehicles					Persons	Vehicles					Persons
	SOV	HOV[a]	Transit	LRT	Total	Total	SOV	HOV[a]	Transit	LRT	Total	Total
AM Westbound												
No Build[b]	5,550	2,000	32	N/A	7,600	11,050	5,500	2,150	34	N/A	7,700	11,450
No Build[c]	6,000	2,050	33	N/A	8,100	11,600	5,900	2,200	35	N/A	8,100	11,900
Build	5,600	1,850	17	7	7,450	12,850	5,550	1,950	17	8	7,550	13,600
AM Eastbound												
No Build[b]	4,450	600	12	N/A	5,050	6,050	4,400	550	12	N/A	4,950	6,000
No Build[c]	4,950	750	13	N/A	5,750	6,950	5,000	800	13	N/A	5,800	7,150
Build	5,400	750	4	7	6,150	8,400	5,250	750	4	8	6,050	8,900
AM Total												
No Build[b]	10,000	2,600	44	N/A	12,650	17,100	9,900	2,700	46	N/A	12,650	17,450
No Build[c]	10,950	2,800	46	N/A	13,800	18,600	10,900	2,950	48	N/A	13,900	19,050
Build	11,000	2,600	21	14	13,600	21,250	10,800	2,750	21	16	13,550	22,500
PM Westbound												
No Build[b]	5,200	950	11	N/A	6,150	7,600	5,050	1,150	13	N/A	6,200	8,050
No Build[c]	5,300	1,000	13	N/A	6,300	7,850	5,200	1,200	14	N/A	6,400	8,400
Build	5,100	1,550	4	7	6,650	9,950	5,000	1,650	4	8	6,650	10,700
PM Eastbound												
No Build[b]	4,400	2,200	34	N/A	6,650	10,500	3,850	1,950	37	N/A	5,850	9,600
No Build[c]	5,500	2,850	34	N/A	8,350	12,950	5,250	2,750	37	N/A	8,050	13,000
Build	5,200	1,550	20	7	6,750	11,950	5,300	1,550	18	8	6,850	12,500
PM Total												
No Build[b]	9,550	3,150	45	N/A	12,750	18,100	8,900	3,100	50	N/A	12,050	17,650
No Build[c]	10,750	3,850	47	N/A	14,650	20,800	10,450	3,950	51	N/A	14,450	21,350
Build	10,350	3,050	24	14	13,400	21,900	10,350	3,150	22	16	13,550	23,200

[a] HOV values are the total number of HOVs crossing the screenline, not the number of vehicles only in the HOV lanes.

[b] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[c] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

Note: Due to rounding, values might not sum correctly.

LRT	light rail transit
SOV	single-occupant vehicle
HOV	high-occupancy vehicle
N/A	not applicable

Screenline 3 (Mercer Slough)

At Screenline 3 (Mercer Slough), the total person throughput would show less change than at Screenline 2 for the no-build and build conditions because light rail would not cross this screenline, as indicated in Exhibit 5-9. In years 2020 and 2030, the total person throughput in the build condition would increase by 7 to 12 percent compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed. In the build condition, total person throughput would be similar to slightly lower (less than 4 percent) than the no-build condition if Stage 3 of the I-90 Two-Way Transit and HOV Operations Project is completed.

In the 2020 and 2030 AM peak hours, the eastbound person throughput in the build condition would increase by 4 to 12 percent compared with either of the two no-build conditions; in the westbound direction, it would be similar (4 percent decrease to a 4 percent increase) compared with either of the two no-build conditions. During the 2020 and 2030 PM peak hours, the build condition person throughput in the westbound direction would exhibit the greatest increase (14 to 28 percent) compared with either of the two no-build conditions.

In the eastbound direction, the build condition person throughput would be similar to the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project; compared with the no-build condition with Stage 3 completed, person throughput would decrease by about 15 percent. As noted in the Screenline 2 (Lake Washington for I-90 only) discussion, the reduced eastbound (PM peak) HOV throughput would cause a reduction in the HOV throughput at Screenline 3.

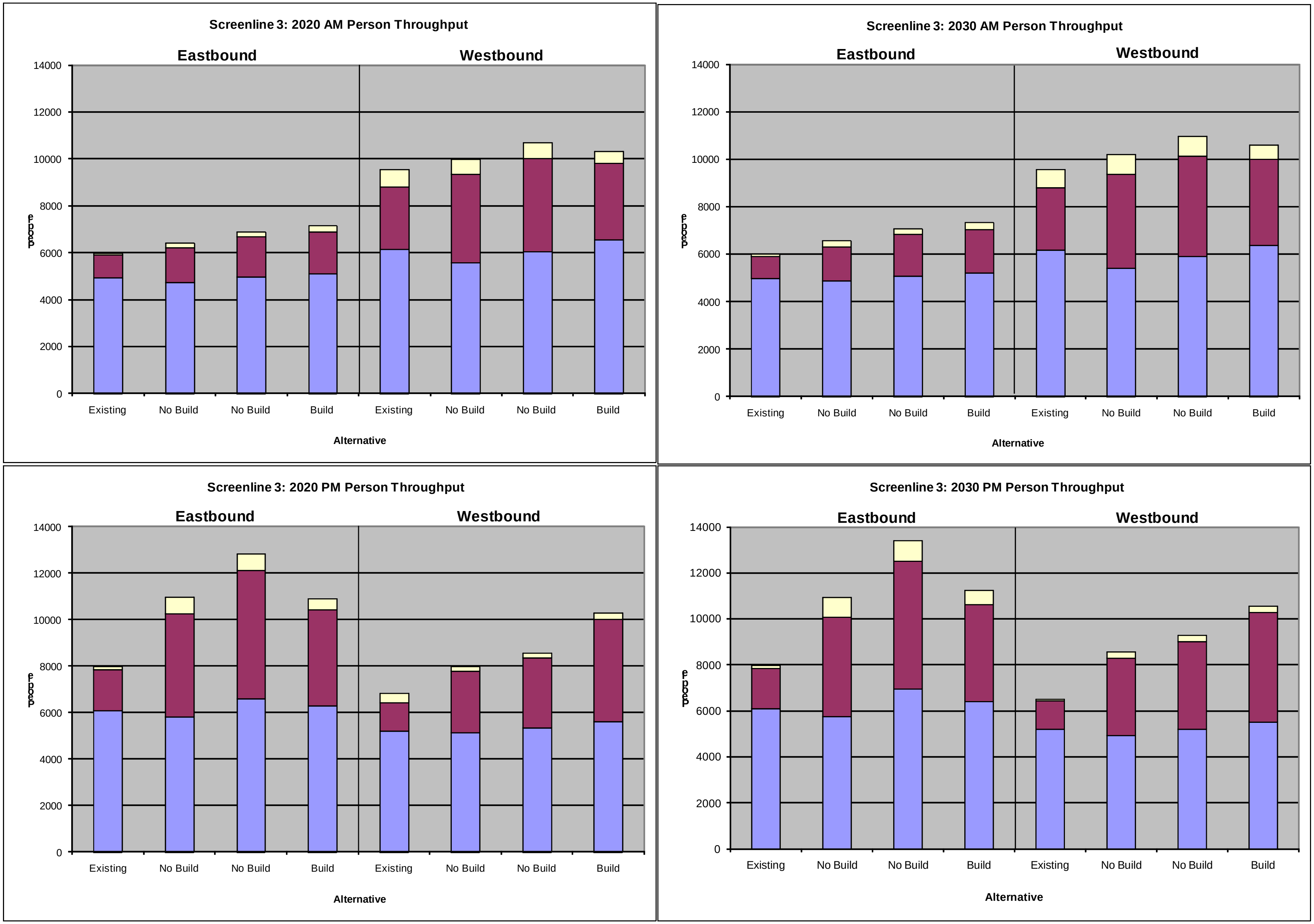
In the 2020 and 2030 reverse-peak directions (eastbound in the AM and westbound in the PM) the vehicle throughput in the build condition would increase (3 to 10 percent in the AM and 11 to 20 percent in the PM) compared with either of the two no-build conditions. Reasons for this increase are discussed earlier in this section. In the peak directions (westbound in the AM and eastbound in the PM), vehicle throughput would increase in the build condition (about 11 percent in the AM and between 4 to 8 percent in the PM) compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed. Compared with the no-build condition assuming Stage 3 is also completed, the vehicle throughput in the build condition during the AM peak hour would increase by about 2 percent and during the PM peak hour the vehicle throughput in the build condition would be less; about a 10 to 12 percent decrease. The reasons for the decrease in PM peak-hour vehicle throughput are noted earlier in this section. Table 5-8 summarizes Screenline 3 vehicle and person throughputs.

Vehicle and Person Demand Served

In conjunction with person and vehicle throughput, the percentage of the forecasted travel demand that can be accommodated was evaluated. This measure compares the person and vehicle throughput to the expected demand across each screenline. A percent served value less than 100 indicates congested conditions that limit the number of vehicles (or people) crossing the screenline. The ability to serve more of the demand indicates that congestion patterns might not be as substantial and that congestion might not occur for as long of a period. Table 5-9 provides the vehicle and person demand served across screenlines 2 and 3 for year 2030 conditions.

At Screenline 2, the AM and PM peak-hour total (combined eastbound and westbound directions) vehicle- and person-demand served percentage would increase in the build condition compared with both no-build conditions. Total vehicle percent demand served would increase between 14 and 22 percent in the build condition compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed; the increase would be between 2 and 4 percent with Stage 3 completed. Total person percent demand served would increase between 19 and 24 percent in the build condition compared with the no-build conditions with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed; the increase would be between 6 and 9 percent with Stage 3 completed.

At Screenline 3, the build condition total (eastbound and westbound directions) vehicle and person demand served would increase between 9 and 17 percent compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed. Compared with the no-build condition when Stage 3 is completed, the vehicle and person demand served would increase up to 4 percent.



ª With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project
ᵇ With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project

▨ SOV ■ HOV ☐ Transit

EXHIBIT 5-9
2020 and 2030 I-90 Peak-Hour Person Throughput by Mode at Mercer Slough (Screenline 3)

TABLE 5-8
2020 and 2030 Vehicle and Person Peak-Hour Throughput for I-90 at Mercer Slough (Screenline 3)

	2020 Vehicle and Person Throughput					2030 Vehicle and Person Throughput				
	Vehicles				Persons	Vehicles				Persons
Direction	SOV	HOV[d]	Transit	Total	Total	SOV	HOV[d]	Transit	Total	Total
AM Westbound										
No Build[a]	5,500	1,800	30	7,300	9,900	5,400	1,900	33	7,300	10,200
No Build[b]	6,050	1,900	30	7,950	10,700	5,900	2,000	33	7,950	10,950
Build[c]	6,550	1,550	31	8,150	10,300	6,350	1,700	32	8,100	10,600
AM Eastbound										
No Build[a]	4,700	650	12	5,400	6,400	4,850	650	12	5,500	6,550
No Build[b]	4,950	750	12	5,750	6,900	5,050	800	10	5,850	7,050
Build[c]	5,100	800	13	5,900	7,150	5,200	800	12	6,000	7,300
AM Total										
No Build[a]	10,200	2,450	42	12,700	16,350	10,250	2,500	45	12,850	16,700
No Build[b]	11,000	2,650	42	13,700	17,550	10,950	2,800	43	13,800	18,000
Build[c]	11,650	2,350	44	14,050	17,450	11,550	2,550	44	14,150	17,900
PM Westbound										
No Build[a]	5,150	1,150	13	6,300	8,000	4,950	1,450	13	6,400	8,550
No Build[b]	5,350	1,300	13	6,650	8,550	5,200	1,650	13	6,850	9,250
Build[c]	5,600	1,950	12	7,550	10,250	5,500	2,100	11	7,600	10,550
PM Eastbound										
No Build[a]	5,800	2,050	32	7,900	10,950	5,750	2,000	35	7,800	10,950
No Build[b]	6,600	2,600	32	9,200	12,800	6,950	2,600	35	9,600	13,400
Build[c]	6,300	1,950	30	8,250	10,900	6,400	1,950	33	8,400	11,250
PM Total										
No Build[a]	10,950	3,200	45	14,200	18,950	10,700	3,450	48	14,200	19,500
No Build[b]	11,950	3,900	45	15,850	21,400	12,150	4,250	48	16,450	22,650
Build[c]	11,900	3,850	42	15,800	21,200	11,900	4,050	44	16,000	21,800

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
[c] Light rail vehicle and its person throughput is not included in the build condition data because no light rail alternative crosses Screenline 3.
[d] HOV values are the total number of HOVs crossing the screenline, not the number of vehicles only in the HOV lanes.
Note: Due to rounding, values might not sum correctly.

SOV	single-occupant vehicle
HOV	high-occupancy vehicle

TABLE 5-9
2030 Vehicle and Person Peak-Hour Demand Served for I-90 at Lake Washington (Screenlines 2 and 3)

	Screenline 2						Screenline 3					
	Vehicles			Persons			Vehicles			Persons		
Direction	Demand	Throughput	Percent Served	Demand	Throughput	Percent Served	Demand	Throughput	Percent Served	Demand	Throughput	Percent Served
AM Westbound												
No Build[a]	11,700	7,700	65.5	15,700	11,500	72.8	11,800	7,300	62.1	14,900	10,200	68.2
No Build[b]	11,700	8,100	69.0	15,700	11,900	75.7	11,800	7,900	67.2	15,100	11,000	72.7
Build	10,800	7,500	69.5	17,000	13,600	79.7	11,700	8,100	69.5	14,300	10,600	73.9
AM Eastbound												
No Build[a]	9,300	5,000	53.4	11,300	6,000	53.0	8,500	5,500	64.9	10,100	6,500	64.7
No Build[b]	9,200	5,800	63.2	11,200	7,200	63.7	8,500	5,900	68.9	10,300	7,000	68.7
Build	8,900	6,000	68.0	12,200	8,900	73.0	8,400	6,000	71.9	10,200	7,300	71.8
AM Total												
No Build[a]	21,000	12,600	60.2	27,100	17,500	64.5	20,300	12,800	63.3	25,000	16,700	66.8
No Build[b]	20,900	13,900	66.4	27,000	19,100	70.7	20,300	13,800	67.9	25,300	18,000	71.0
Build	19,700	13,600	68.8	29,200	22,500	76.9	20,000	14,100	70.5	24,500	17,900	73.0
PM Westbound												
No Build[a]	10,500	6,200	59.0	13,100	8,100	61.4	10,100	6,400	63.6	12,900	8,600	66.4
No Build[b]	10,500	6,400	61.1	13,200	8,400	63.4	10,200	6,900	67.1	13,300	9,300	69.7
Build	9,600	6,700	69.5	14,500	10,700	73.7	9,500	7,600	80.1	13,300	10,600	79.7
PM Eastbound												
No Build[a]	11,600	5,800	50.1	16,900	9,600	56.9	12,200	7,800	63.9	16,300	10,900	66.9
No Build[b]	11,800	8,000	68.0	17,300	12,700	73.7	12,400	9,600	77.0	16,800	13,400	79.9
Build	10,900	6,900	63.2	17,200	12,500	72.6	12,000	8,400	70.0	15,500	11,200	72.4
PM Total												
No Build[a]	22,200	12,000	54.3	30,000	17,700	58.9	22,300	14,200	63.8	29,200	19,500	66.7
No Build[b]	22,300	14,500	64.7	30,500	21,100	69.2	22,700	16,400	72.5	30,100	22,700	75.4
Build	20,500	13,500	66.1	31,800	23,200	73.1	21,500	16,000	74.4	28,800	21,800	75.8

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

5.3.3.2 Travel Time

In the 2020 and 2030 no-build conditions, travel times would continue to get longer as congestion would increase in the future. Tables 5-10 and 5-11 list the years 2020 and 2030, respectively, I-90 travel times for the no-build and build conditions. By year 2030, SOV travel in the westbound direction from I-405 to Seattle during the AM peak period in the no-build condition could take close to 28 minutes, which is more than double the duration under existing conditions. In the eastbound direction, SOV travel times could increase by approximately 50 percent and be close to 21 minutes. In the PM peak period, a similar increase in SOV travel time is expected. In the westbound direction to go from I-405 to Seattle, the trip would take close to 30 minutes - an increase of about 60 percent from existing conditions. In the eastbound direction, an SOV going from Seattle to I-405 could take close to 19 minutes. The following subsections provide travel-time comparisons for each of the three modes (SOV, HOV, and transit) between the no-build conditions and the East Link Project. For trucks, a travel time comparison between the no-build conditions and the East Link Project is provided in Section 8.0.

Single-Occupant Vehicle

With light rail in 2020 and 2030, SOV travel times between I-405 and Seattle in the AM peak period are expected to decrease by approximately 5 minutes in the westbound direction and increase by up to 4 minutes in the eastbound direction compared with the No Build Alternative (with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project). In the 2020 PM peak period, SOV travel times between I-405 and Seattle are expected to be similar (eastbound direction) or improve by up to 8 minutes (westbound direction) compared with the No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

By 2030, smaller travel time improvements in the PM peak period are expected as congestion worsens. In the 2030 PM peak period, SOV travel times between I-405 and Seattle with East Link would improve by 6 minutes in the westbound direction; in the eastbound direction, travel times would be similar to the No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project. Westbound travel time improvements would be attributed to a shift from people driving their automobiles to riding light rail and the additional capacity provided with the outer roadway HOV lanes.

In year 2020, SOV travel times with East Link would be similar (eastbound direction) or improve by up to 3 minutes (westbound direction) in the AM peak period compared with the No Build Alternative with I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3 completed. The SOV travel time comparisons between East Link and the No Build Alternative that assumes the I-90 Two-Way Transit and HOV Project Stages 1 through 3 in the year 2020 PM peak period would be similar to the comparison between East Link and the No Build Alternative that only assumes Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project. In year 2030, SOV travel time comparisons in the AM peak period between East Link and the No Build Alternative that assumes the I-90 Two-Way Transit and HOV Project Stages 1 through 3 would be similar to those in year 2020. In the PM peak period, westbound travel times with light rail are expected to improve by approximately 6 minutes and eastbound travel times are expected to improve by about 2 minutes compared with the No Build Alternative with I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3 completed.

Single-occupant vehicle travel times between Seattle and Mercer Island would remain similar to or improve by as much as 2 minutes with East Link compared with the No Build Alternative, except in the PM eastbound direction. In the eastbound direction, travel times from Seattle to Mercer Island could range from 6 minutes in the reversible roadway to 12 minutes in the eastbound mainline roadway with the No Build Alternative; it would take about 11 minutes with East Link.

For trucks, a similar travel time comparison between the no-build conditions and the East Link Project would be expected because they also travel in the GP lanes. Refer to Table 5-10 and Table 5-11 for further travel time information between Seattle, Mercer Island, and the Bellevue Way interchange, and between Seattle and I-405.

TABLE 5-10
I-90 2020 No-Build and Build Travel Times by Mode (minutes)

Travel Time Path Endpoint		AM Peak Period									PM Peak Period								
		SOV			HOV			Transit[d]			SOV			HOV			Transit[d]		
End Point	End Point	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]
Westbound outer roadway																			
Mercer Island (Island Crest Way)	I-5 to Downtown Seattle[e]	8.5	9.0	7.2	8.5	7.0	5.7	-/-	-/-	7.6/6.7	6.7	8.4	8.8	6.7	6.5	7.0	8.8/7.7	9.8/6.7	-/6.6
Bellevue Way[f]	I-5 to Downtown Seattle[e]	24.3	22.5	19.1	11.1	9.8	8.4	-/-	-/-	-/-	22.2	23.3	20.0	11.1	9.2	9.5	13.8/-	14.8/-	-/-
I-405	I-5 to Downtown Seattle[e]	26.7	24.3	21.6	13.8	12.2	10.7	-/-	-/-	13.2/11.8	28.7	27.8	20.8	13.4	11.6	11.9	16.0/14.6	16.8/11.9	-/11.8
Reversible center roadway[g]																			
Mercer Island (77th Avenue SE)	I-5 to Downtown Seattle[h]	6.1	8.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.6	5.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercer Island (77th Avenue SE)	Seattle (5th Avenue South)[i]	N/A	N/A	N/A	5.1	5.9	N/A	6.5/6.4	7.5/7.3	8.0	N/A	N/A	N/A	5.4	5.5	N/A	6.2/6.2	6.2/6.2	8.0
Bellevue Way[f]	Seattle (5th Avenue South)[i]	N/A	N/A	N/A	8.1	8.9	N/A	10.7/-	11.8/-	12.0	N/A	N/A	N/A	8.0	8.1	N/A	11.0/-	11.2/-	12.0
I-405	Seattle (5th Avenue South)[i]	N/A	N/A	N/A	10.4	11.1	N/A	13.2/11.4	13.9/12.4	-/-	N/A	N/A	N/A	9.7	9.9	N/A	13.5/11.0	13.6/11.1	-/-
Eastbound outer roadway																			
I-5 from Downtown Seattle[j]	Mercer Island (Island Crest Way)	11.6	13.6	13.9	11.2	12.9	9.9	9.6/9.5	8.1/9.6	-/9.6	11.8	11.3	11.3	10.8	6.4	7.9	-/-	-/-	10.7/9.7
I-5 from Downtown Seattle[j]	Bellevue Way[h]	13.6	16.9	16.7	13.0	14.4	12.4	14.1/-	12.6/-	-/-	14.0	14.6	14.7	12.9	8.4	10.0	-/-	-/-	-/-
I-5 from Downtown Seattle[j]	I-405	15.4	18.7	18.6	15.0	16.6	14.1	15.6/13.7	14.1/12.7	-/14.3	16.0	16.8	16.9	14.3	10.4	12.3	-/-	-/-	16.7/14.0

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

[c] “Build is defined as the East Link Project with joint bus and light rail operations in the D2 Roadway, an eastbound HOV direct-access off-ramp at Island Crest Way, and both eastbound and westbound HOV direct-access ramps preserved at Bellevue Way.

[d] Transit routes with stops on Mercer Island/transit routes with no stops on Mercer Island.

[e] In no-build condition, all vehicles end at the I-5 northbound ramp except transit, which utilizes D2 Roadway.

[f] In no-build and build conditions, HOVs and transit would use the westbound Bellevue Way HOV on-ramp.

[g] Reversible center roadway operates westbound in the AM peak and eastbound in the PM peak. It would be used by light rail in the build condition.

[h] SOVs are required to exit and/or enter reversible center roadway at Rainier Avenue South interchange.

[i] Travel time is to and/or from 5th Avenue South via the D2 Roadway.

[j] In no-build condition, all SOVs and HOVs start at I-5 southbound ramps to I-90 except PM HOV vehicles, which use the D2 Roadway; in the build condition, all SOVs and HOV vehicles would start at I-5 southbound ramps; and transit would use the D2 Roadway in both the no-build and build conditions.

[k] In no-build condition, buses and HOV use the reversible center roadway Bellevue Way ramps; in build, all vehicles use the Bellevue Way outer roadway ramps.

Buses do not travel on this roadway during this period and/or do not travel between these points.

HOV	high occupancy vehicle
N/A	not applicable because the mode is not eligible to travel this path or the path is restricted
SOV	single-occupant vehicle

Note: Seattle means at the International District/Chinatown Station; Mercer Island means at the Mercer Island Station; Bellevue Way means at the South Bellevue Station.

TABLE 5-11
I-90 2030 No-Build and Build Travel Times by Mode (minutes)

Travel Time Path Endpoint		AM Peak Period									PM Peak Period								
		SOV			HOV			Transit[d]			SOV			HOV			Transit[d]		
End Point	End Point	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]	No-Build[a]	No-Build[b]	Build[c]
Westbound outer roadway																			
Mercer Island (Island Crest Way)	I-5 to Downtown Seattle[e]	8.6	9.2	7.3	8.5	7.3	5.7	-/-	-/-	9.4/6.7	6.4	8.6	9.2	6.3	6.8	7.2	8.9/7.7	10.2/6.7	-/6.8
Bellevue Way[f]	I-5 to Downtown Seattle[e]	24.4	22.4	19.9	10.9	10.0	8.5	-/-	-/-	-/-	23.1	24.0	20.9	10.9	9.5	9.8	14.5/-	15.2/-	-/-
I-405	I-5 to Downtown Seattle[e]	27.5	25.1	22.4	13.8	12.9	10.8	-/-	-/-	16.2/11.9	28.9	29.2	23.2	13.5	11.7	12.0	16.7/15.1	17.5/11.8	-/12.3
Reversible center roadway[g]																			
Mercer Island (77th Avenue SE)	I-5 to Downtown Seattle[h]	6.2	9.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.3	6.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercer Island (77th Avenue SE)	Seattle (5th Avenue South)[i]	N/A	N/A	N/A	5.1	6.3	N/A	6.5/6.4	7.6/7.5	8.0	N/A	N/A	N/A	5.4	5.5	N/A	6.2/6.2	6.2/6.2	8.0
Bellevue Way[f]	Seattle (5th Avenue South)[i]	N/A	N/A	N/A	8.1	9.2	N/A	10.7/-	11.7/-	12.0	N/A	N/A	N/A	8.1	8.1	N/A	10.9/-	11.2/-	12.0
I-405	Seattle (5th Avenue South)i	N/A	N/A	N/A	10.4	11.5	N/A	13.0/11.4	13.4/12.6	-/-	N/A	N/A	N/A	9.8	10.0	N/A	13.4/11.0	13.6/11.1	-/-
Eastbound outer roadway																			
I-5 from Downtown Seattle[j]	Mercer Island (Island Crest Way)	11.7	15.0	14.9	11.4	13.2	10.3	10.0/9.5	8.2/8.9	-/9.8	12.0	12.4	11.5	9.6	7.0	7.6	-/-	-/-	10.2/9.1
I-5 from Downtown Seattle[j]	Bellevue Way[k]	13.7	18.7	18.1	13.5	14.7	13.9	14.4/-	12.6/-	-/-	13.9	16.0	14.8	11.5	9.5	9.9	-/-	-/-	-/-
I-5 from Downtown Seattle[j]	I-405	15.6	20.8	20.0	15.2	16.8	14.7	15.9/13.7	14.5/13.2	-/14.7	16.1	18.5	17.0	13.3	11.0	12.0	-/-	-/-	15.6/13.8

[a] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

[c] Build is defined as the East Link Project with joint bus and light rail operations in the D2 Roadway, an eastbound HOV direct-access off-ramp at Island Crest Way, and both eastbound and westbound HOV direct-access ramps preserved at Bellevue Way.

[d] Transit routes with stops on Mercer Island/transit routes with no stops on Mercer Island.

[e] In no-build condition, all vehicles end at I-5 northbound ramp except transit, which uses D2 Roadway.

[f] In no-build and build conditions, HOV vehicles and transit would use the westbound Bellevue Way HOV on-ramp.

[g] Reversible center roadway operates westbound in the AM peak period and eastbound in the PM peak period; it would be used by light rail in the build condition.

[h] SOVs are required to exit and/or enter reversible center roadway at the Rainier Avenue South interchange.

[i] Travel time is to and/or from 5th Avenue South via the D2 Roadway.

[j] In no-build condition, all SOVs and HOVs start at I-5 southbound ramps to I-90, except PM HOVs, which use the D2 Roadway; in the build condition, all SOVs and HOVs would start at I-5 southbound ramps; and transit would use the D2 Roadway in both the no-build and build conditions.

[k] In no-build condition, buses and HOV use the reversible center roadway Bellevue Way ramps; in the build condition, all vehicles would use the Bellevue Way outer roadway ramps.

[-]	Buses do not travel on this roadway during this period and/or do not travel between these points.
HOV	high-occupancy vehicle
N/A	Not applicable because the mode is not eligible to travel this path or the path is restricted
SOV	single-occupant vehicle

Note: Seattle means at the International District/Chinatown Station; Mercer Island means at the Mercer Island Station; Bellevue Way means at the South Bellevue Station.

HOV and Transit

HOV and bus travel times on I-90 in years 2020 and 2030 under the No Build Alternative (with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project) would remain similar to or get longer than existing conditions as congestion would increase in the future. HOV and bus travel times would general be similar in the peak direction and either be similar or improve in the reverse-peak directions for East Link and for the No Build Alternative that assumes the I-90 Two-Way Transit and HOV Operations Project is completed (Stages 1 through 3) compared with the existing conditions. In the AM and PM peak periods, it could take between 10 and 15 minutes for an HOV to travel between Seattle and I-405 for the No Build Alternative (with only Stages 1 and 2). For the No Build Alternative (with Stages 1 through 3), HOV travel between Seattle and I-405 could take between 10 to 17 minutes. With East Link, it would take between 11 to 15 minutes.

Buses traveling along I-90 in the reverse-peak direction would be expected to have similar or improved travel times because the outer roadway HOV lane would provide buses with a faster lane than the GP lanes they would be required to use when the reversible center roadway is operating in the opposite direction. In the peak directions, buses travelling between Seattle and I-405 would have a similar to up to a 3 minutes longer travel time with the East Link Project than in either of the no-build conditions.

The *Preferred Alternative A1* assumes joint use of the D2 Roadway. For the operational option that has exclusive light rail use in the D2 Roadway, buses would be rerouted to other roadways to access I-90 from South Seattle (such as 4th Avenue South), and the bus travel time would increase. With the *Preferred Alternative A1*, buses would experience up to a 2-minute savings inbound in the AM peak period to Downtown Seattle and experience up to a 6-minute savings outbound in the PM peak period from Downtown Seattle on I-90 compared with the operational option in which buses are not eligible to use the D2 Roadway. Some of this savings would be reduced when buses travel along 5th Avenue South to and from D2 Roadway. It would take up to 2 additional minutes of time to travel along 5th Avenue South compared with 4th Avenue South. Additionally, depending on the joint-use operating policy of the D2 Roadway, up to 3 additional minutes of average delay, in either direction, could be incurred by buses while waiting for clearance to enter the D2 Roadway. However, during evening events at the stadiums, bus routes along 4th Avenue South would incur additional travel time due to increased congestion along this street.

For the design option with an HOV off-ramp to 77th Avenue SE, eastbound HOV and bus travel times to Mercer Island are expected to be up to 2 minutes faster in both the AM and the PM peak hours when compared with the Island Crest Way off-ramp in the *Preferred Alternative A1*. Compared with the *Preferred Alternative A1,* HOV and bus travel times are similar in both AM and PM peak hours for the design option that does not include an eastbound HOV off-ramp and uses the 77th Avenue SE GP ramp only.

Preferred Alternative A1 preserves both the eastbound and westbound HOV ramps from I-90 to Bellevue Way SE as preferred by WSDOT. For the design option at I-90 and Bellevue Way interchange that would close the eastbound HOV off-ramp to Bellevue Way, HOVs using this ramp would reroute to use the GP Bellevue Way off-ramp. Closing the eastbound HOV ramp would have a negligible effect on travel time for HOVs, as minimal congestion is expected between Mercer Island and the Bellevue Way interchange. This is a result of the I-90 Two-Way Transit and HOV Operations Project improvements, which include an auxiliary lane between East Mercer Way and I-405 ramps.

For Alternative B1, which closes the westbound direct-access HOV on-ramp from Bellevue Way, HOVs traveling between Bellevue and Seattle would use the GP Bellevue Way on-ramp and weave across the GP lanes to enter the HOV lane. This maneuver would increase the westbound HOV travel time from Bellevue Way to Seattle by approximately 8 to 12 minutes, depending on the peak period. In the year 2030, 660 HOV vehicles are forecasted to use this ramp during the 3-hour AM peak period; approximately 1,070 vehicles would use the ramp in the PM peak period, as indicated in Table 5-12.

With the operational option at the D2 Roadway or design option at the eastbound Mercer Island HOV off-ramp or HOV ramps at the Bellevue Way interchange, the travel times for the other vehicles (SOV and trucks) on I-90 would not be expected to change from the travel times already described.

Light rail travel between Seattle and Mercer Island and between Seattle and Bellevue Way would take 8 and 12 minutes, respectively. This would be a substantial improvement compared with a SOV trip, which could take up to 15 minutes between Seattle and Mercer Island and up to 24 minutes between Seattle and Bellevue Way in the No Build Alternative.

TABLE 5-12

2020 and 2030 AM and PM Peak Travel Times with and without Bellevue Way/I-90 HOV Ramps

	2020				2030			
From/To	**Peak-Period HOV Demand**	**With Eastbound and Westbound HOV Ramps[a] (minutes)**	**Without Eastbound and Westbound HOV Ramps[b] (minutes)**	**Difference**	**Peak-Period HOV Demand**	**With Eastbound and Westbound HOV Ramps[a] (minutes)**	**Without Eastbound and Westbound HOV Ramps[b] (minutes)**	**Difference**
AM Peak								
Westbound: Bellevue Way to I-5 Downtown Seattle[c]	630	8.4	19.9	11.5	660	8.5	20.7	12.2
Eastbound: I-5 from Downtown Seattle to Bellevue Way[d]	210	12.4	12.8	0.4	230	13.9	14.1	0.2
PM Peak								
Westbound: Bellevue Way to I-5 to Downtown Seattle[c]	980	9.5	17.5	8.0	1070	9.8	17.8	8.0
Eastbound: I-5 from Downtown Seattle to Bellevue Way[d]	360	10.0	10.4	0.4	380	9.9	9.7	-0.2

[a] Retaining both eastbound and westbound HOV ramps are included in the preferred alternative.

[b] With Alternative B1 only.

[c] Travel path terminates at I-5 northbound ramp.

[d] Travel path begins at I-5 southbound ramp.

HOV high-occupancy vehicle

5.3.3.3 Congestion and Level of Service

Congestion on I-90 is expected to worsen in the future, as indicated by longer travel times described in the previous section. Therefore, the I-90 LOS would continue to degrade and generally operate at LOS E or F conditions throughout the peak periods with the no-build conditions. Without light rail, congestion on I-90 is expected to occur for longer distances and longer periods each day in the no-build conditions. More congestion and longer travel times would make travel more difficult between Seattle and Bellevue, two of the key employment and population centers of the Puget Sound region. Congestion and resulting vehicle travel hours would likely extend to longer periods, exceeding 3 hours for each peak period. Without light rail's ability to move more people, an imbalance in vehicle capacity with the reversible center roadway across I-90 would impede efficient and reliable transit service to the growing residential and commercial areas on the Eastside.

The congestion maps in Exhibit 5-10 indicate vehicle speeds over time (vertical axis) and distance (horizontal axis) for the year 2030. The time indicated on these maps is for a 2.5-hour duration in both the AM (6:30 to 9:00 a.m.) and PM (3:30 to 6:00 p.m.) peak periods. The distance covers I-90 from the western terminus at SR 519 to east of the I-405 interchange. On the maps, areas with yellow, red, and black are generally considered LOS E or F conditions with vehicle speeds at or under 55 mph. Green areas are generally considered LOS A through D and indicate vehicle speeds over 55 mph. This section focuses on year 2030 conditions, as the comparison between no-build and build conditions in year 2020 is similar to year 2030.

In addition to the general I-90 operating conditions, HOV lane performance was evaluated to identify where they would fail to meet WSDOT's HOV Speed and Reliability Standard of vehicles travelling at least 45 mph during the peak commuting hour 90 percent of the time. It was assumed in the traffic analysis that, in the no-build conditions, Mercer Island SOVs would not be allowed in the outer roadway HOV lanes but would have access to the center roadway. However, in the build condition, the traffic analysis assumed that vehicles traveling to and from Mercer Island were able to use the outer roadway HOV lanes as described in Section 5.3.1. This assumption does not represent allowing SOVs to use the outer roadway HOV lanes. Any changes to the HOV lane eligibility, such as tolling, managed lanes, or Mercer Island SOV use, would be addressed in a future analysis, approval, and agreement.

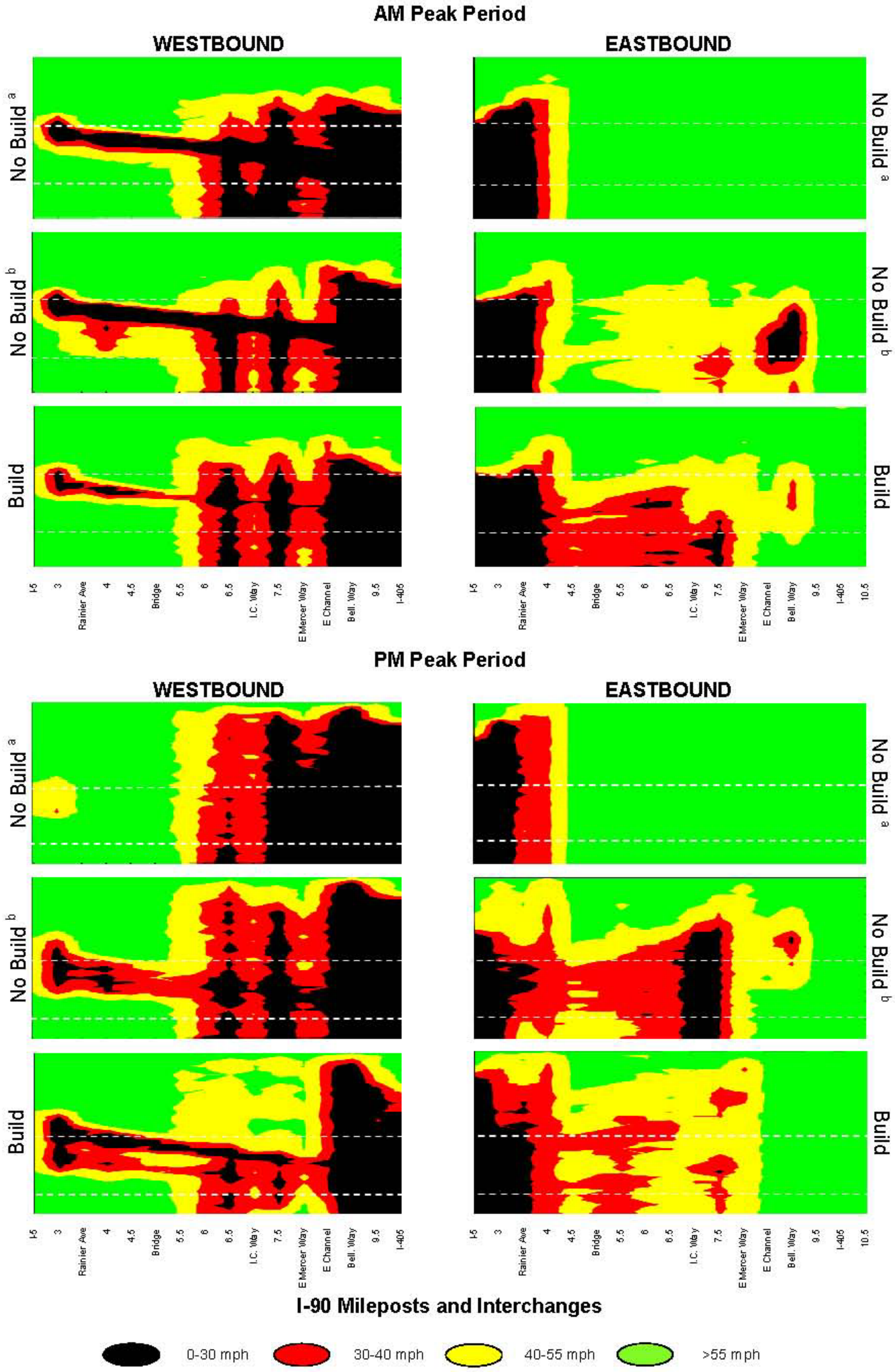
AM Peak Period

In the AM peak period, congestion in the westbound direction would slightly improve in the no-build condition (I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3) after the HOV lanes are completed (left middle congestion map in Exhibit 5-10) compared with the no-build condition, where the HOV lanes are not completed (left upper congestion map in Exhibit 5-10). In the build condition, congestion in the westbound direction shows traits similar to those of the no-build condition with the I-90 Two-Way Transit and HOV Project Stages 1 and 3, although less congestion would occur across the I-90 bridge. In the eastbound direction, the build condition would have less congestion between I-5 and the Mt. Baker Tunnel than either of the two no-build conditions as people shift to ride light rail; therefore, more vehicles can travel through this area. As a result, additional congestion would form around Mercer Island. Although this occurs, vehicle travel times are faster and person throughput is higher in the build condition than the no-build condition.

With the operational option to have exclusive light rail in the D2 Roadway, eastbound or westbound congestion on I-90 in the AM peak period would not change when compared with the *Preferred Alternative A1*. AM peak period congestion on I-90 would also be comparable between the *Preferred Alternative A1* and either of the two eastbound Mercer Island HOV off-ramp design options. If either of the Bellevue Way HOV direct-access ramps (westbound on-ramp and eastbound off-ramp) were closed, then the impact on I-90 congestion would be nearly negligible. Minor variations would occur, but they would not be noticeable enough to affect overall congestion in the GP lanes.

During the AM peak period in the 2030 no-build condition, the westbound HOV lane would meet WSDOT's HOV Speed and Reliability Standard except near the Rainier Avenue South interchange as the lane transitions from an HOV lane to a GP lane, and therefore, vehicles begin to slow due to the congestion in the GP lanes. In the 2030 build condition, the westbound HOV lane would meet WSDOT's HOV Speed and Reliability Standard at all locations in the westbound direction. The eastbound HOV lane in the 2030 no-build and build conditions would meet WSDOT's HOV Speed and Reliability Standard, except near the Rainier Avenue South interchange where the GP lane would transition to an HOV lane.

With the project, under the design option where the westbound HOV direct-access on-ramp from Bellevue Way would be closed (Alternative B1), HOVs would use the GP ramp and weave across the GP lanes to enter the HOV lane. The weave into the HOV lane would likely occur between East Mercer Way and Island Crest Way and would affect the HOV lane performance because vehicles would travel at slower speeds as they enter the HOV lane from a GP lane.



[a] The No Build Alternative with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[b] The No Build Alternative with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

EXHIBIT 5-10
I-90 Year 2030 AM and PM Peak-Period Vehicle Speeds in General-Purpose Lanes

PM Peak Period

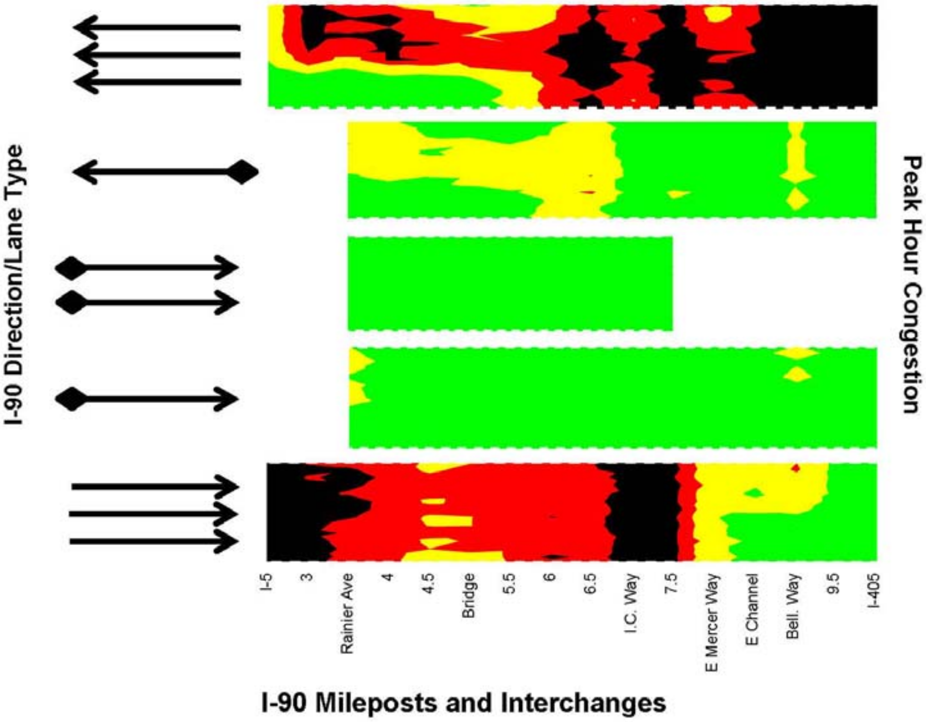


EXHIBIT 5-11
2030 PM Peak-Hour No-Build I-90 Congestion by Lane Type

In the PM peak period, freeway LOS would generally operate at LOS E or F conditions throughout the peak period. The center roadway would continue to be underutilized because access to the center roadway is constrained by congested roadways and traffic signals; these constraints reduce the ability to move high volumes of people to and from key urban centers across the lake. This is highlighted in Exhibit 5-11, which indicates the operating conditions for the no-build condition in the 2030 PM peak hour for each lane type (i.e., GP, HOV, and center roadway). The imbalance in roadway capacity across Lake Washington (six eastbound lanes and four westbound lanes) in conjunction with an evenly split eastbound and westbound demand (Table 5-4) creates more congestion in the reverse-peak direction (westbound) than in the peak direction (eastbound). Although the eastbound center roadway and HOV lanes operate mainly in free-flow conditions, the lanes in the opposite direction operate in slower conditions and have substantial congestion, especially in the GP lanes.

Congestion would noticeably decrease in the westbound direction (left lower congestion map in Exhibit 5-10) with the project compared with either no-build condition as people shift to light rail. In the eastbound direction, congestion would be heavier near the Rainier Avenue South interchange and Mount Baker Tunnel area because the reversible center roadway would be closed, but there would be less downstream congestion near Mercer Island because slightly less vehicle throughput would occur at the Rainier Avenue South and Mount Baker Tunnel section. (This was previously described in Section 5.3.3.1.)

During the PM peak period, the westbound HOV lane in the 2030 no-build condition would have some congestion between Island Crest Way and Rainier Avenue South. In the 2030 build condition, the westbound HOV lane would meet WSDOT's HOV Speed and Reliability Standard in all areas except near Rainier Avenue South where some congestion would occur as the lane transitions from an HOV lane to a GP lane. In the 2030 no-build condition, the eastbound HOV lane would meet WSDOT's HOV Speed and Reliability Standard. In the 2030 build condition, the HOV lane would perform similar to the no-build condition except that it would operate worse at the transition from a GP lane to an HOV lane near Rainier Avenue South due to vehicles weaving.

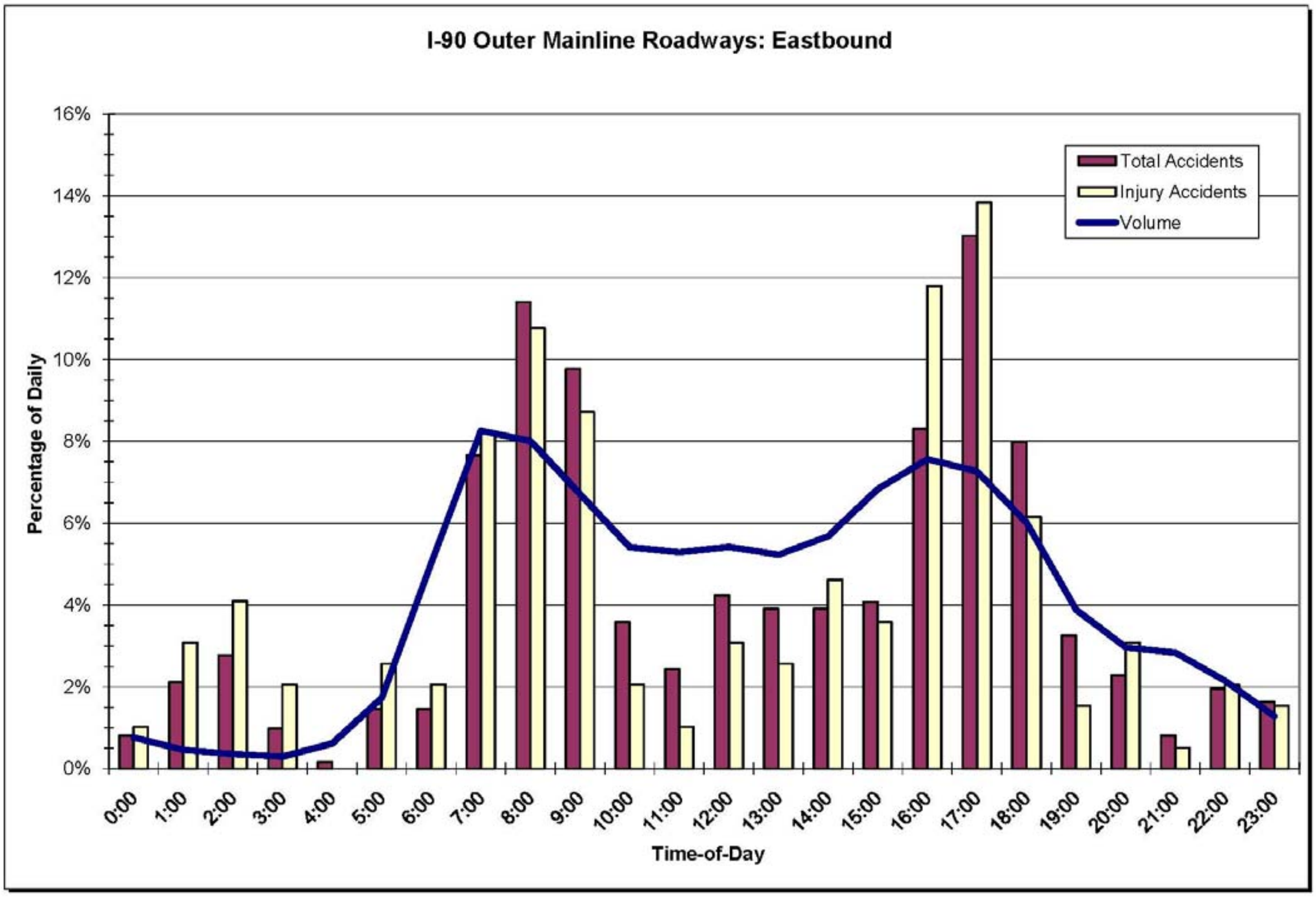
With either design option to close the Bellevue Way HOV westbound on-ramp or eastbound off-ramp, the impact on the I-90 mainline LOS would be nearly negligible compared with the *Preferred Alternative A1*. Minor variations in congestion would occur, but they would not noticeably affect the freeway performance. Under the operational option of exclusive light rail in the D2 Roadway, there would, again, be no change in the congestion levels in both the eastbound and westbound direction on I-90 compared with the *Preferred Alternative A1*. Last, vehicle congestion patterns would be expected to be similar between the *Preferred Alternative A1*, the design option of providing an eastbound HOV off-ramp at 77th Avenue SE, or the design option without an eastbound HOV off-ramp to Mercer Island.

5.3.3.4 Highway Safety Conditions

Implementing the East Link Project would not increase the total number of accidents in the corridor. Overall, with more people moving across Lake Washington with East Link and a similar number of accidents predicted between the no-build and East Link conditions, the overall collision rates (i.e., accidents per person-mile traveled) on I-90 would improve with the project.

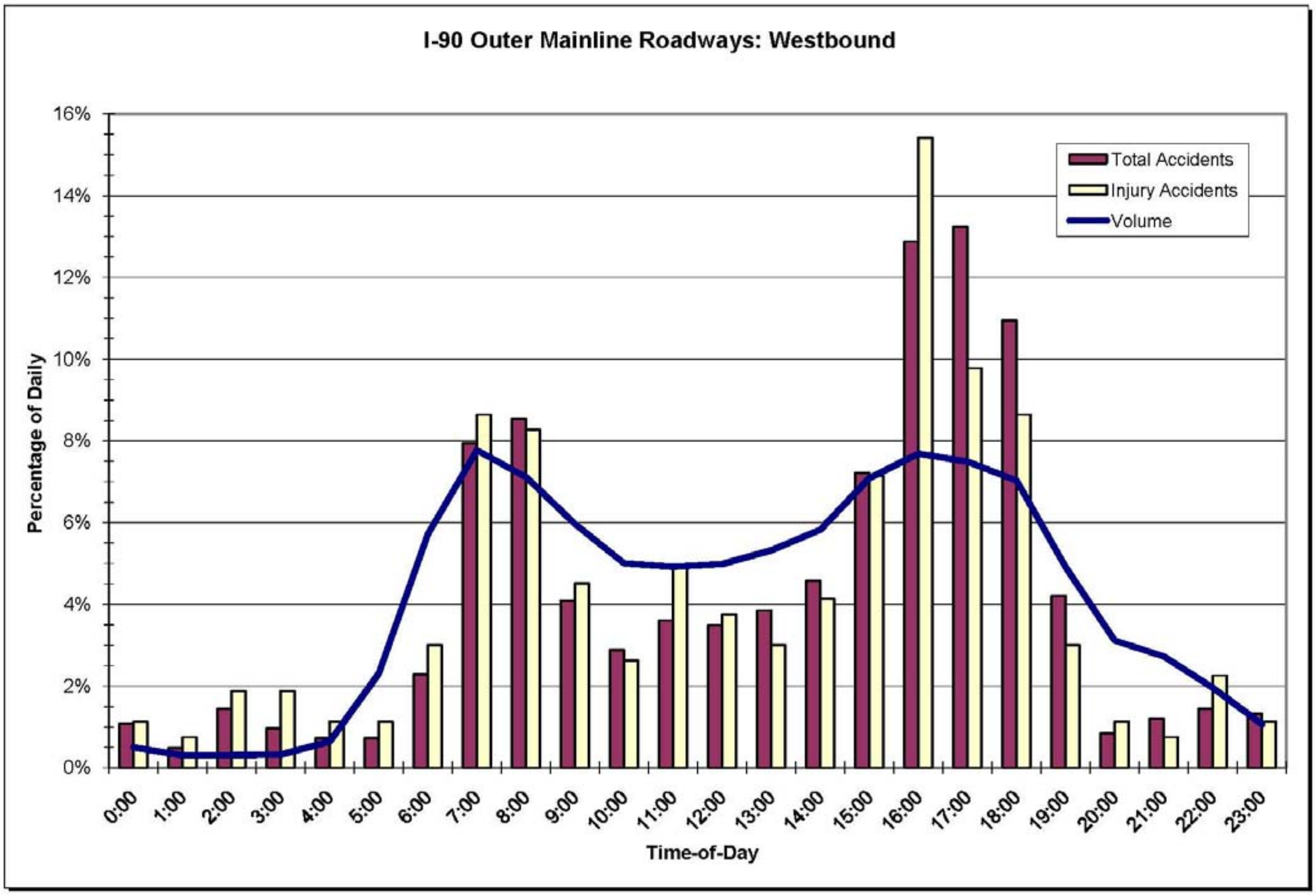
The analysis evaluated the expected safety conditions on I-90 in the westbound and eastbound mainline roadways in order to predict the percent change in the number of accidents on I-90 for the no-build and build conditions. The methodology used to predict future accident frequency for I-90 recognizes that accident rates for this high-volume freeway facility are not uniform throughout the day. As volumes increase and congestion worsens, the accident frequency are known to increase at a pace faster than the VMT (see Exhibits 5-12 and 5-13), resulting in higher peak-period accident rates. Where the percentage of the daily accidents exceeds the percentage of daily volumes in the peak periods, the accident rates are higher. Based on the patterns observed on I-90, existing accident rates (using 2004 to 2008 accident data) were calculated for the following four time periods:

- AM peak period (7:00 a.m. to 9:59 a.m.)
- PM peak period (4:00 p.m. to 6:59 p.m.)
- Midday (10:00 a.m. to 3:59 p.m.)
- Evening and early morning (7:00 p.m. to 6:59 a.m.)



Note: Traffic volume curve represents data from Screenline 2, while accident distribution represents all accidents within the corridor.

EXHIBIT 5-12
Time-of-Day Distribution for Existing Traffic Volume and Accidents on Eastbound I-90



Note: Traffic volume curve represents data from Screenline 2, while accident distribution represents all accidents within the corridor.

EXHIBIT 5-13
Time-of-Day Distribution for Existing Traffic Volume and Accidents on Westbound I-90

Table 5-13 summarizes the existing accident rates (accidents per million vehicle miles traveled [MVMT]) for the identified time periods. Additionally, an assessment was completed to provide a qualitative safety review regarding the proposed changes to the center roadway, specifically changes that might influence lane changes from a GP on-ramp to the center roadway or outer roadway HOV lane and from the center roadway or outer roadway HOV lane to a GP off-ramp. This assessment only compared the build condition with the no-build condition with the I-90 Two-Way Transit and HOV Operations Project with Stages 1 through 3 completed, because these two conditions include the completed outer roadway HOV lane.

TABLE 5-13
Existing Accident Rate Distribution on I-90

Time Period	Accident Rate (accidents per MVMT) [a]	
	Eastbound	Westbound
AM peak period	1.01 (0.31)	1.03 (0.34)
PM peak period	1.13 (0.39)	1.74 (0.51)
Midday	0.53 (0.13)	0.81 (0.26)
Evening and early morning	0.71 (0.27)	0.73 (0.27)

[a] Values in parentheses indicate the injury accident rate.
Accident rates were determined by using data from 2004 to 2008.
MVMT million vehicle miles traveled

Safety Prediction Methodology and Expected Percent Change in Accident Frequency

The accident rates calculated for the four time periods were applied to the estimated VMT in the future conditions where it is expected that volumes would increase, lengthening the periods of congested travel. To estimate the amount of travel that occurred in the extended peak periods, a VISSIM model estimated the number of vehicles that were able to cross Lake Washington on I-90 during the peak periods. The number of vehicles unable to cross Lake Washington due to congestion provides guidance on how many hours congestion would extend beyond the peak periods. The higher peak-period accident rates were applied to the travel that would occur during the peak period and during the times of extended congestion. This process resulted in estimating that in 2030 the build condition would experience a 1.4-percent increase in the accident frequency in the I-90 outer mainline roadways when compared with the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3. Although the accident frequency would slightly increase in the eastbound and westbound mainline roadways, the vehicle accidents occurring in the reversible center roadway would be eliminated. In summary, the eliminating accidents in the reversible center roadway with the project would offset the predicted increase in accidents in the eastbound and westbound mainline roadways. The no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2 would have 6.3 percent fewer accidents than the full the I-90 Two-Way Transit and HOV Operations Project no-build condition because the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3 would likely have more VMT; thus, an increase in accidents, in the outer mainline roadways than the other no-build condition. Similarly, the build condition would have a few more accidents in the outer mainline roadways than the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2 because light rail in the reversible center roadway would shift traffic to the outer mainline roadways.

Future Accident Prediction by Vehicle and Person Miles Traveled

The analysis from the I-90 Two-Way Transit and HOV Operations Project EIS formed the basis for predicting accident frequency on the I-90 outer roadways. The limits of the future accident prediction for this project and those used in the I-90 Two-Way Transit and HOV Operations Project do not match exactly, but they are similar; therefore, the percent change in the predicted accident frequency was applied to the results from the I-90 Two-Way Transit and HOV Operations Project instead of the absolute changes in accident frequency. The methodology estimates the percent change in accidents expected in the westbound and eastbound mainline roadways that would occur when vehicle demand is shifted to the outer roadways with light rail operating in the reversible center roadway (no-build to build). Previous analyses estimated that, by 2025, the I-90 outer mainline roadways would have 360 to 390 accidents per year by implementing accident mitigation measures (shown in Table 6-12 of *I-90 Two-Way Transit and HOV Operations Project Transportation Discipline Report* [WSDOT, 2002]). These mitigation measures include the following:

- Speed management, such as posted or variable speed changes, west of Island Crest Way
- Shoulder rumble strips
- Enhanced delineation
- Static and variable signing
- Roadway and tunnel illumination
- Incident management

Congestion in year 2025 is expected to resemble congestion in year 2030; therefore, the percentage changes computed for the 2030 conditions were used to estimate the expected change in accident frequency. Furthermore, the scenario analyzed in the Two-Way Transit and HOV Operations Project matches the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3, which was used as the baseline in comparing changes in accident frequency.

Considering the results of this analysis with the mitigation measures incorporated in the I-90 Two-Way Transit and HOV Operations Project (Table 5-14), the accident frequency of the I-90 westbound and eastbound mainline roadways in the build condition could increase by up to five accidents per year more than the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3. Furthermore, the no-build condition with only the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2 could have up to 25 fewer accidents per year than the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3. This would be primarily due to lower VMT (i.e., vehicle throughput) in the no-build condition with only the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2.

TABLE 5-14
2030 Accident Frequency Predictions for I-90 Outer Mainline Roadways

Condition	Eastbound and Westbound Outer Roadways		Total (includes reversible center roadway)	
	Percent Change	**2030 Accident Frequency**	**Percent Change**	**2030 Accident Frequency**
Base Condition: 2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project with mitigation measures (Stages 1 through 3)	N/A	360 to 390[a]	N/A	366 to 397[a]
2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2	- 6.3	337 to 365	- 6.3	343 to 372
2030 build	+ 1.4	365 to 395	- 0.3	365 to 395

[a] These values are from the 2025 analysis conducted as part of the I-90 Two-Way Transit and HOV Operations Project (WSDOT, 2002).

HOV	high-occupancy vehicle
N/A	not applicable

Although East Link would shift more demand to the outer roadways and likely result in a slightly greater accident frequency in these lanes (approximately five accidents per year in 2030), several safety benefits linked to the light rail operations can be expected. For instance, vehicle accidents occurring in the reversible center roadway would be eliminated once light rail replaces vehicle access in the reversible center roadway.

In the existing study period (2004 to 2008), the reversible center roadway averaged 11 accidents per year, which are expected to be prevented when light rail replaces the vehicle usage. Furthermore, the Two-Way Transit and HOV Operations Project Report predicted that the reversible facility would have six to seven accidents in 2025. This means that, overall, East Link, when combining all three roadway facilities (eastbound, westbound, and reversible center), is expected to have no effect on I-90 safety conditions, and a nearly identical accident frequency between the no-build and build conditions is expected (see Table 5-14). It should be noted that accidents occurring on the ramps (including ramp terminal intersections) that connect the reversible lanes to local streets were assumed to redistribute to the ramps that connect to the outer mainline roadways.

Measuring the accident prediction in million person miles traveled (MPMT) instead of MVMT shows a safety benefit from developing the light rail system**.** The accident rates based on daily VMT are somewhat similar for all three conditions (Table 5-15); however, there would be a noticeable increase in PMT with the build condition, and therefore, a safety benefit is expected because people using light rail would be passengers in a travel mode substantially safer than auto. Because more people would be traveling through the corridor in the build condition and the expected accident frequency is expected to be similar between the no-build and build conditions, the accident frequency in terms of moving people would be lower.

TABLE 5-15
2030 Accident Rates as a Function of Vehicle and Person Miles Traveled (All I-90 Roadways)

Condition	Annual Accident Frequency Prediction	Daily VMT (estimated)	Accidents per MVMT	Daily PMT (estimated)	Accidents per MPMT
Base Condition: 2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project with mitigation measures (Stages 1 through 3)	366 to 397	1,313,969	0.76 to 0.83	1,875,465	0.53 to 0.58
2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2	343 to 372	1,216,245	0.77 to 0.84	1,570,320	0.60 to 0.65
2030 Build	365 to 395	1,302,968	0.77 to 0.83	1,948,756	0.51 to 0.56

Note: Results include predictions for eastbound and westbound travel as well as outer roadways and reversible center roadways combined.

HOV	high-occupancy vehicle
MVMT	million vehicle miles traveled
PMT	person miles traveled
VMT	vehicle miles traveled

In Seattle, if the D2 Roadway were designated for joint-use with buses, there would be about 30 vehicles (including light rail) per hour during the peak periods, or a vehicle every 1.5 to 2 minutes using this roadway. This number of light rail and bus vehicles would be substantially less than the maximum number of vehicles for safe operations that was determined for Central Link and the bus/light rail joint operations in the Downtown Seattle Transit Tunnel. The findings from the *Central Link Initial Segment Environmental Assessment* (Sound Transit, 2002) established that 60 buses and up to 10 trains would operate jointly. To more safely separate vehicles and manage bus and light rail vehicle movements on the D2 Roadway, a vehicle identification and signal system would be installed. In addition, bus on-ramps to the D2 Roadway would be equipped with gates to prevent auto and truck traffic from entering this roadway. These gates would be raised when buses entering the D2 Roadway are detected.

Injury Accident Analysis

The analytical process that was performed to predict the total number of accidents was repeated to assess the project's potential impact on injury-only accidents. In summary, by applying the existing injury accident rates to future conditions, it was estimated that by 2030, the build condition would have a 1.9 percent increase in the accident frequency in the I-90 outer mainline roadways when compared with the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 though 3. Comparing the two no-build conditions, the no-build condition with only the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2 would have 6.0 percent fewer accidents than the full the I-90 Two-Way Transit and HOV Operations Project no-build condition. This previous analysis estimated that, by 2025, the I-90 outer mainline roadways would have from 130 to 180 injury accidents per year if accident-reduction measures were implemented and from 205 to 275 with no mitigation measures. Considering the results of this analysis with the assumed mitigation measures (Table 5-16), the injury accident frequency of the I-90 westbound and eastbound mainline roadways in the build condition could have up to three injury accidents per year more than the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3.

TABLE 5-16
2030 Injury Accident Frequency Predictions for I-90 Outer Mainline Roadways

Condition	Eastbound and Westbound Outer Roadways		Total (includes reversible center roadway)	
	Percent Change	2030 Injury Accident Frequency	Percent Change	2030 Injury Accident Frequency
Base Condition: 2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project with mitigation measures (Stages 1 through 3)	N/A	130 to 180[a]	N/A	132 to 184[a]
2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2	- 6.0	122 to 169	- 6.0	124 to 173
2030 Build	+ 1.9	132 to 183	0	132 to 183

[a] These values are from the 2025 analysis conducted as part of the Two-Way Transit and HOV Operations Project (WSDOT, 2002).

HOV	high-occupancy vehicle
N/A	not applicable

Furthermore, the no-build condition with only the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2 could have 11 fewer injury accidents per year than the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3. Similar to the analysis for total accidents, this decrease is primarily due to lower VMT (i.e., vehicle throughput) in the no-build condition with only the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2.

In the existing study period (2004–2008), the reversible center roadway averaged nearly five injury accidents per year, which are eliminated when light rail operates in the reversible center roadway. By year 2025, the Two-Way Transit and HOV Operations Project predicts that the reversible center roadway would have two to four injury accidents, meaning that East Link Project, when combining all three roadway facilities (eastbound, westbound, and reversible center), would likely have no impact on the number of I-90 injury accidents and, likewise, a similar injury accident frequency between the no-build and build conditions is expected (see Table 5-16).

A review of the injury accident rates based on PMT for the three conditions considered shows that the build condition would have a similar or slightly lower injury accident rate when compared with the two no-build conditions (Table 5-17). The similar expected frequency of injury accidents combined with the additional PMT that accompanies light rail results in similar or slightly lower injury rates based on person travel.

TABLE 5-17
2030 Injury Accident Rates as a Function of Vehicle and Person Miles Traveled (All I-90 Roadways)

Condition	Annual Injury Accident Frequency Prediction	Daily VMT (Estimated)	Injury Accident per MVMT	Daily PMT (Estimated)	Injury Accident per MPMT
Base Condition: 2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project with mitigation measures (Stages 1 through 3)	132 to 184 [a]	1,313,969	0.28 to 0.38	1,875,465	0.19 to 0.27
2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 and 2	124 to 173	1,216,245	0.28 to 0.39	1,570,320	0.22 to 0.30
2030 Build	132 to 183	1,302,968	0.28 to 0.38	1,948,756	0.19 to 0.26

Note: Results include predictions for eastbound and westbound travel as well as outer roadways and reversible center roadways combined.

HOV	high-occupancy vehicle
MVMT	million vehicle miles traveled
PMT	person miles traveled
VMT	vehicle miles traveled

Qualitative Safety Review of Interchange Specific Weaving

An assessment was completed to provide a qualitative safety review regarding the proposed changes to the center roadway, specifically changes that might influence lane changes from a GP on-ramp to the center roadway or outer roadway HOV lane and from the center roadway or outer roadway HOV lane to a GP off-ramp. This assessment only compared the build condition with the no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3 completed because these two conditions include the completed outer roadway HOV lanes.

In the no-build condition, the reversible center roadway is open to westbound HOV and Mercer Island traffic in the AM peak hour and eastbound HOV and Mercer Island traffic in the PM peak hour; therefore, the East Link Project would result in no physical differences in weaving between the HOV lanes and the outside GP lanes in the off-peak direction, except for eastbound I-90 through downtown Mercer Island, where the proposed ramp options with the project result in slight weaving volume differences during both time periods. Thus, the review of weaving volumes focuses on the following movements:

- Westbound I-90 weaving from the center roadway exit or the HOV lane to the ramp to I-5 northbound (AM peak hour)
- Northbound I-5 to eastbound I-90 ramp weaving from the ramp to the entrance to the center roadway or the HOV lane (PM peak hour)
- 76th Avenue SE westbound on-ramp weaving to the HOV lane (AM peak hour)
- Eastbound I-90 weaving from the HOV lane to 77th Avenue SE off-ramp (AM and PM peak hours)
- Eastbound I-90 weaving from the HOV lane to Island Crest Way off-ramp (AM and PM peak hours)

The weaving volumes considered in this review are based on the 2030 peak-hour throughput (Table 5-18). Specific to the Mercer Island weaves, the volumes represent the number of vehicles that complete or begin the weave within 2,500 feet of the on- or off-ramp. This distance is based on the weaving definition provided in the *Highway Capacity Manual* (TRB, 2000); the manual also provides the number of weaves that might occur in a relatively short distance. The weavers identified within this distance are assumed to have the highest potential to contribute to an accident because they might select smaller gaps in traffic, they might slow down or come to a stop while waiting for a gap, or performing the maneuver might result in increased levels of driver frustration and aggressive behavior. It is important to note that the weaving volume does not represent the total number of vehicles that would complete the maneuver.

TABLE 5-18
2030 Expected Weave and Mainline Volumes at Select Locations

Weave Location	Peak Hour	No Build		Build	
		Weave Volume	GP Mainline	Weave Volume	GP Mainline
I-90 westbound center roadway and HOV lane to I-5 northbound	2030 AM	680	5,480	520	6,240
I-5 northbound to I-90 eastbound center roadway and HOV lane	2030 PM	710	4,560	330	4,760
76th Avenue SE on-ramp to I-90 westbound HOV lane	2030 AM	0	5,020	20	5,430
I-90 eastbound to Downtown Mercer Island off-ramps	2030 AM	30	5,080	180[a] 150[b] 170[c]	5,260[a] 4,930[b] 4,800[c]
I-90 eastbound to Downtown Mercer Island off-ramps	2030 PM	Less than 10	5,000	190[a] 90[b] 90[c]	5,090[a] 5,400[b] 5,460[c]

[a] Provide a 77th Avenue SE HOV direct-access eastbound off-ramp.
[b] Provide the preferred Island Crest Way HOV direct-access eastbound off-ramp.
[c] Provide no HOV direct-access eastbound off-ramp.

GP	general purpose
HOV	high-occupancy vehicle

I-90 Westbound Center Roadway and HOV Lane to I-5 Northbound (AM Peak Period Only)
Weave volumes in the no-build condition are from the inside HOV lane and the center reversible roadway to I-5 northbound (approximately 3,800 feet); weave volumes in the build condition are only from the HOV lane (at the same distance). In the 2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3 completed, approximately 680 vehicles are expected to complete the weave from the HOV lane or center roadway. In comparison, 520 vehicles are expected to complete a similar weave from the inside HOV lane in the 2030 build condition. Even though the build condition would have slightly lower weaving volumes, these vehicles would cross a higher number of vehicles in the GP lanes (6,240 vehicles in comparison with 5,480 vehicles in the no-build condition). Overall, the total potential vehicle conflicts in the build condition should be similar to the no-build condition.

I-5 Northbound to I-90 Eastbound Center Roadway and HOV Lane (PM Peak Period Only)
Weave volumes in the no-build condition are from I-5 northbound to the inside HOV lane or to the center reversible roadway (approximately 4,700 feet); weave volumes in the build condition are only to the HOV lane. In the 2030 no-build condition with the I-90 Two-Way Transit and HOV Operations Project Stages 1 through 3 completed, approximately 710 vehicles are expected to weave to the HOV lane or center roadway. In comparison, this is more than double the number expected in the build condition because approximately 330 vehicles would perform the weave. Within this weaving area, the 2030 build condition is expected to have about 200 additional vehicles in the GP lanes compared with the no-build condition. Even so, the potential number of vehicle conflicts in the build condition is less than the no-build condition.

76th Avenue SE On-Ramp to I-90 Westbound HOV Lane (AM peak period only)
The East Link project would eliminate the westbound direct access in the morning to the center roadway, resulting in the potential for more weaving maneuvers from the 76th Avenue SE westbound on-ramp to the westbound HOV lane. Even so, only 20 vehicles would complete the weave to the inside HOV lane at a distance of 2,500 feet or less. The low frequency of expected weave vehicles in the build condition is expected to have a minimal impact on the safety performance of westbound I-90 in the area of the 76th Avenue SE on-ramp.

I-90 Eastbound to Downtown Mercer Island Off-Ramps
Three options in the build condition are assessed for eastbound I-90 through downtown Mercer Island. *Preferred Alternative A1* provides an HOV direct-access off-ramp to southbound Island Crest Way. One design option would provide a HOV direct-access off-ramp to 77th Avenue SE, while the second design option would not

provide an HOV direct access off-ramp, requiring all exiting vehicles to use either the 77th Avenue SE or Island Crest Way GP off-ramps. In Table 5-17, the ramp and weaving volumes to 77th Avenue SE and Island Crest Way are combined to reflect the total weaving in the area. In the AM peak hour, I-90 eastbound is the off-peak direction, with the mainline typically not operating at congested conditions in this area. With similar expected operations for all three options, the weaving volumes with any of the options are relatively uniform, between 150 to 180 vehicles in the AM peak hour. In comparison, the no-build condition has 30 vehicles forecasted to complete a similar weave from the inside HOV lane to the GP off-ramps. Higher weaving volumes crossing similar GP volumes in the build condition could result in a greater number of weaving conflicts in the area.

In the PM peak hour, the no-build condition is expected to have fewer weaves to the off-ramps because vehicles can use the center roadway. With the design option to provide the HOV direct-access off-ramp at 77th Avenue SE, there is an estimated 190 weaving volumes; the other two ramp configurations have approximately 90 weaving vehicles. The higher weaving volume (at or within 2,500 feet) associated with the 77th Avenue SE HOV direct-access eastbound off-ramp is expected to be related to the slightly less congested mainline operations in this area, allowing vehicles in the HOV lane to wait and make the lane changes closer to the off-ramp. In comparison with the no-build condition, all three options could result in a greater number of weaving conflicts.

5.3.4 Construction Impacts

This section discusses potential impacts on I-90 and other regional freeways.

5.3.4.1 Interstate 90

The impacts due to light rail construction on I-90 were analyzed assuming a 2020 construction year. Before light rail construction on I-90, the I-90 Two-Way Transit and HOV Operations Project would be completed (Stages 1 through 3) and the reversible center roadway and D2 Roadway would be closed. As a result, all bus routes, HOVs, and Mercer Island drivers would be rerouted to the outer roadways. Year 2020 person and vehicle throughput and travel-time information for the two no-build conditions and the East Link construction condition are presented in Tables 5-19 and 5-20. The amount of vehicle congestion on the outer roadways during East Link construction would be similar to East Link operations because the reversible center roadway would be removed in both conditions. Therefore, the vehicle travel times during construction would be similar to the travel times during East Link operations. Although the number of vehicles able to travel across Lake Washington on I-90 would be similar in both conditions, the vehicle demand to use the outer roadway would be greater during construction because light rail would not be operating. The person throughput would be less during construction because the reversible center roadway would not be operational for vehicles or light rail; therefore fewer people would cross Lake Washington.

Compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project completed, the SOV travel times in the East Link construction period would generally be similar or improved because the outer roadway HOV lanes would be completed before East Link construction. Vehicle throughput during the construction period compared with the no-build condition with only Stages 1 and 2 of the I-90 Two-Way Transit and HOV Project would be similar in the peak directions and higher in the reverse-peak directions because outer roadway HOV lanes would be completed. Person throughput, with the same comparison, would be less in the peak directions and higher in the reverse-peak directions. Similar to the previous comparison, when East Link construction is compared with the no-build condition when all three stages of the I-90 Two-Way Transit and HOV Operations Project are completed, the SOV travel times during East Link construction would generally be similar or better. One reason for this is the lower number of lane changes near the closed center roadway ramps creating less congestion.

TABLE 5-19
2020 East Link Construction (Build) and No-Build Vehicle and Person Peak-Hour Throughput for I-90 at Lake Washington (Screenline 2)

	AM Vehicle and Person Throughput					PM Vehicle and Person Throughput				
	Vehicles				Persons	Vehicles				Persons
Direction	SOV	HOV[a]	Transit	Total	Total	SOV	HOV[a]	Transit	Total	Total
Westbound										
No Build[b]	5,550	2,000	32	7,600	11,050	5,200	950	11	6,150	7,600
No Build[c]	6,000	2,050	33	8,100	11,600	5,300	1,000	13	6,300	7,850
Build	5,700	1,850	32	7,550	10,300	5,200	1,550	13	6,750	8,950
Eastbound										
No Build[b]	4,450	600	12	5,050	6,050	4,400	2,200	34	6,650	10,500
No Build[c]	4,950	750	13	5,750	6,950	5,500	2,850	34	8,350	12,950
Build	5,600	750	10	6,350	7,450	5,100	1,500	28	6,650	9,000

[a] HOV values are the total number of HOVs crossing the screenline, not the amount only in the HOV lanes.
[b] With Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.
[c] With Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.
Note: Due to rounding, values might not sum correctly.

SOV	single-occupant vehicle
HOV	high-occupancy vehicle

Person throughput in the reverse-peak directions (eastbound in the AM period and westbound in the PM period), at Screenline 2 (I-90 Floating Bridge) would be higher during East Link construction than it would be for the no-build condition when all three stages of the I-90 Two-Way Transit and HOV Operations Project are completed. This is partly because the traffic analysis assumed Mercer Island drivers would be eligible to use the outer roadway HOV lanes when the center roadway is closed. In the peak directions (westbound in the AM peak period and eastbound in the PM peak period), person throughput at Screenline 2 (Lake Washington) is expected to be higher under the no-build condition when all three stages of the I-90 Two-Way Transit and HOV Operations Project are completed than it would be in during East Link construction; this is because the outer roadway HOV lanes would be operating in conjunction with the center roadway in this No Build Alternative and project construction would close the center roadway. Although more people would cross Lake Washington in this no-build condition, the outer roadway HOV lanes during East Link construction would accommodate a substantial portion of the vehicles displaced from the center roadway as the center roadway is underutilized because its accesses do not provide enough capacity to effectively use the two lanes in the center roadway.

The reversible center roadway and D2 roadway would be affected by East Link construction. Constructing light rail tracks on these facilities would require their full closure. Therefore, buses that currently travel on the D2 roadway would be detoured to adjacent I-90 accesses, either the SR 519/South Atlantic Street or Rainier Avenue South interchanges. While the majority of construction activities would be on the reversible center roadway, activities might occur for short periods along the I-90 shoulder and outer roadway HOV lanes near the East Channel Bridge and Rainier Avenue interchange. At the Bellevue Way interchange the westbound mainline, HOV direct-access ramps, and ramps to and from I-90 to the east would experience short-term partial (likely nighttime) closures to construct the elevated structures for *Preferred Alternative B2M* or Alternatives B2A, B2E, B3, and B7. Alternative B1 would not require these closures because it would be at-grade underneath the mainline roadway. If applicable, vehicles would be detoured to the corresponding GP or HOV ramp but vehicles could also be detoured to another interchange.

TABLE 5-20
I-90 2020 No-Build and East Link Construction (Build) Peak-Period Travel Times (minutes)

Travel Time Path Endpoint		AM Peak Period									PM Peak Period								
		SOV			HOV			Transit[c]			SOV			HOV			Transit[c]		
End Point	End Point	No-Build[a]	No-Build[b]	Build	No-Build[a]	No-Build[b]	Build	No-Build[a]	No-Build[b]	Build	No-Build[a]	No-Build[b]	Build	No-Build[a]	No-Build[b]	Build	No-Build[a]	No-Build[b]	Build
Westbound outer roadway																			
Mercer Island (Island Crest Way)	I-5 to Downtown. Seattle[d]	8.5	9.0	7.5	8.5	7.0	5.8	-/-	-/-	15.1/12.2	6.7	8.4	8.9	6.7	6.5	7.1	8.8/7.7	9.8/6.7	9.8/7.7
Bellevue Way[e]	I-5 to Downtown Seattle[d]	24.3	22.5	19.3	11.1	9.8	8.4	-/-	-/-	25.5/-	22.2	23.3	20.1	11.1	9.2	9.5	13.8/-	14.8/-	22.3/-
I-405	I-5 to Downtown Seattle[d]	26.7	24.3	21.6	13.8	12.2	10.8	-/-	-/-	21.2/16.1	28.7	27.8	21.5	13.4	11.6	12.0	16.0/14.6	16.8/11.9	16.7/12.8
Reversible center roadway[f]																			
Mercer Island (77th Avenue SE)	I-5 to Downtown Seattle[g]	6.1	8.7	N/A	N/A	N/A	N/A	N/A	N/A	-/-	8.6	5.7	N/A	N/A	N/A	N/A	N/A	N/A	-/-
Mercer Island (77th Avenue SE)	Seattle (5th Avenue South[h])	N/A	N/A	N/A	5.1	5.9	N/A	6.5/6.4	7.5/7.3	-/-	N/A	N/A	N/A	5.4	5.5	N/A	6.2/6.2	6.2/6.2	-/-
Bellevue Way[e]	Seattle (5th Avenue South[h])	N/A	N/A	N/A	8.1	8.9	N/A	10.7/-	11.8/-	-/-	N/A	N/A	N/A	8.0	8.1	N/A	11.0/-	11.2/-	-/-
I-405	Seattle (5th Avenue South[h])	N/A	N/A	N/A	10.4	11.1	N/A	13.2/11.4	13.9/12.4	-/-	N/A	N/A	N/A	9.7	9.9	N/A	13.5/11.0	13.6/11.1	-/-
Eastbound outer roadway																			
I-5 from Downtown Seattle[i]	Mercer Island (Island Crest Way)	11.6	13.6	12.9	11.2	12.9	9.5	9.6/9.5	8.1/9.6	13.8/13.2	11.8	11.3	11.8	10.8	6.4	9.8	-/-	-/-	10.9/10.5
I-5 from Downtown Seattle[i]	Bellevue Way[j]	13.6	16.9	16.0	13.0	14.4	11.7	14.1/-	12.6/-	17.3/-	14.0	14.6	14.4	12.9	8.4	12.2	-/-	-/-	14.6/-
I-5 from Downtown Seattle[i]	I-405	15.4	18.7	18.0	15.0	16.6	13.6	15.6/13.7	14.1/12.7	20.1/17.2	16.0	16.8	16.6	14.3	10.4	14.1	-/-	-/-	17.6/14.9

[a] No-build condition with Stages 1 and 2 of the I-90 Two-Way Transit and HOV Operations Project.

[b] No-build condition with Stages 1 through 3 of the I-90 Two-Way Transit and HOV Operations Project.

[c] Transit routes with stops on Mercer Island/transit routes with no stops on Mercer Island.

[d] In no-build condition, all vehicles end at I-5 northbound ramp except transit, which uses D2 Roadway.

[e] In no-build conditions, HOVs and transit use the westbound Bellevue Way HOV on-ramp.

[f] Reversible center roadway operates westbound in the AM peak and eastbound in the PM peak; the center roadway would be closed to traffic in the construction condition.

[g] SOVs are required to exit and/or enter center roadway at Rainier Avenue South interchange.

[h] Travel time is to and/or from 5th Avenue South via the D2 Roadway.

[i] In no-build condition, all SOVs start at I-5 southbound ramps to I-90, except PM HOVs, which use the D2 Roadway; transit would use the D2 Roadway in the no-build condition.

[j] In no-build condition, buses and HOV use the reversible center roadway Bellevue Way ramps.

-	Buses that do not travel on this roadway during this period or do not travel between these points.
HOV	high-occupancy vehicle
N/A	not applicable because the mode is not eligible to travel this path or the path is restricted
SOV	single-occupant vehicle

Note: Seattle means at the International District/Chinatown Station; Mercer Island means at the Mercer Island Station; and Bellevue Way means at the South Bellevue Park-and-Ride.

5.3.4.2 Other Regional Freeways

Short-term East Link construction impacts on I-405 and SR 520 are expected. All Segment C alternatives would close multiple lanes of I-405, likely at night or on weekends—depending on the construction method to build the elevated structure over I-405—potentially causing drivers to detour and take alternative routes. I-405 impacts due to the *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E would occur adjacent to the NE 6th Street direct-access ramps and NE 8th Street ramps to and from the south of NE 8th Street. Impacts associated with the Alternatives C3T, C4A, C7E, and C8E would occur immediately north of the NE 12th Street overpass across I-405.

Along the SR 520 mainline, impacts would be limited to short-term shoulder or lane closures. SR 520 eastbound on- and off-ramps from 148th Avenue NE to West Lake Sammamish Parkway would experience shoulder or lane closures and temporary lane shifts for all Segment D and E alternatives; except Alternative D3 which would not have any impacts to the 148th Avenue NE interchange, and when the elevated portions of Alternatives E1 and E4 cross SR 520 near the Lake Sammamish Parkway interchange and when the elevated portion of Alternative E1 that crosses SR 520 near the SR 202 interchange. These elevated crossings would result in each direction of SR 520 being closed at night, causing drivers to detour and take alternative routes. The westbound on-ramp and eastbound off-ramp at the SR 520 and SR 202 intersection would be reconstructed to provide clearance for the light rail structure that would be constructed for *Preferred Alternative E2* and Alternative E4.

5.4 Potential Mitigation

No mitigation would be necessary along the I-90 mainline with during project operations because the project would have either similar or improved vehicle travel times and increased person throughput across Lake Washington in both the AM and PM peak periods compared with the No Build Alternative and the overall safety on I-90 would improve with the project. In addition, before I-90 East Link construction, the I-90 Two-Way Transit and HOV Operations Project would be completed to provide HOV lanes on I-90 west to Seattle that replace the reversible center roadway used by East Link.

During East Link construction, Sound Transit would coordinate with WSDOT on incident management, construction staging, and traffic control where the light rail construction might affect freeway traffic. Sound Transit would also coordinate with WSDOT to disseminate construction closure information to the public as needed.

For potential mitigation regarding transit on I-90, including mitigation for transit when the D2 Roadway is closed, refer to Section 4.0; for potential mitigation regarding trucks on I-90, refer to Section 8.0; and for potential intersection mitigation at or near I-90 ramp terminals, refer to Section 6.5.

6.0 Arterials and Local Streets

6.1 Section Overview

As described in this section, the following analysis of arterials and local streets indicates that the East Link Project would positively affect and connect the growing Eastside neighborhoods and impacts on roadway operations, safety, and parking on arterials and local streets would generally be minimal or, if there were impacts, could be mitigated. For the future no-build conditions, intersection operations would continue to degrade to congested levels (LOS E and LOS F) throughout the study area, hindering vehicular mobility within the study area. This would occur especially in Downtown Bellevue, where intersections are already operating at or near capacity. Light rail would not necessarily improve the intersection operations, but would provide a reliable and faster transportation mode for traveling through the study area.

Along streets where a light rail alternative travels at-grade, intersections would typically operate at an LOS similar to that of the no-build condition. This is because the East Link Project would restore, in most cases, roadway capacity similar to capacity under the no-build conditions. Additionally, light rail is usually able to travel safely through the intersections without substantial signal adjustments as light rail would receive some level of priority at the traffic signals. However, changes to the signal coordination are expected to be minimal because light rail detection would occur in advance of the train arriving, similarly to the operations along Martin Luther King Jr. Way in Seattle. In Downtown Bellevue, at-grade alternatives would receive some signal priority at the signals, but maintain east-west vehicle progression along key arterials. For alternatives with either elevated or tunneled sections, intersections are expected to operate similarly to the no-build condition because the alternative would operate outside the roadway right-of-way. Near the light rail stations, roadways and intersections are expected to operate in most cases at an LOS similar to the LOS under no-build conditions. Stations that include park-and-ride facilities are expected to generate more vehicle trips than would be generated by other stations; therefore, a few intersections immediately adjacent to some of the stations might operate slightly worse under the build condition than under the no-build condition. Potential intersection mitigation improvements generally consist of turn pockets or new traffic signals.

In addition to the analysis in this Final EIS, Sound Transit, and the City of Bellevue cooperatively explored at-grade and grade-separated alternatives in Segment C and analyzed their effects on traffic operations using models that are different from those applied in this Final EIS for the *Downtown Bellevue Light Rail Alternatives Concept Design Report* (Sound Transit, 2010b). To validate these results, a peer review of the study by traffic engineering and transit operations professionals from Seattle, Portland, Denver, and San Diego was organized. This group concluded that the traffic modeling, simulation, and operational analysis were sufficient to compare build alternatives. Based on their extensive experience in all four cities, the panel concluded that the surface alternatives studied would have impacts on traffic operations in Bellevue that are similar to the impacts of the surface light rail systems in the comparable environments of Downtown Portland, Downtown Denver, and Downtown San Diego. The panel noted that most of the changes in forecasted future traffic operating conditions in Downtown Bellevue are the result of traffic volume growth and not the introduction of surface light rail.

The interaction of the light rail alternatives with vehicles is expected to be minimal as many of the alternatives have portions, or completely, grade-separated outside the roadway system. For alternatives that would operate within a roadway, vehicle conflict points would be minimized as vehicle movements would be restricted across the tracks at unsignalized locations and would be protected at signalized intersections so that safety is not compromised. This would create some traffic recirculation for properties adjacent to the build alternatives because access would generally be restricted to right-in, right-out movements. Project-generated trips are not expected to increase the vehicle accident rates, as the roadway conditions would remain similar to or would improve compared with those of the No Build Alternative.

With the East Link Project, parking capacity would increase at some existing park-and-ride lots as well as through the construction of new park-and-ride facilities. The potential for spillover parking might increase near stations and park-and-ride facilities because of limited available on-street parking and increased parking demand related to transit usage. However, the potential for "hide-and-ride" parking activity is expected to be minimal at most stations because the park–and-ride lots are expected to accommodate the forecasted parking demand, and available on-street parking is limited near many stations. The following section describes the existing conditions, impacts, and potential mitigation on arterial and local street transportation elements, including roadway characteristics, intersection levels of service, intersection safety, and parking.

6.2 Affected Environment

Existing PM peak-hour turning movement counts were collected from local and state agencies (WSDOT, City of Seattle, City of Mercer Island, City of Bellevue, and City of Redmond) for the study intersections listed in Appendix A. AM and PM data were collected within the City of Seattle and the City of Mercer Island. For intersections with turning movement count data collected before 2005, new counts were taken. Turning movements were calibrated to a consistent existing conditions year of 2007. Additional information used in the operational analysis includes identifying the roadway's functional use, lane geometry, traffic signal timing and phasing patterns, on-street parking, proximity to bus stops, and speed limits.

The quality of traffic operations is described in terms of level of service (LOS). Traffic volumes were analyzed using the Highway Capacity Manual methodology to calculate peak-hour LOS at signalized and unsignalized intersections. Intersection results at signalized intersections are provided for the average delays of all vehicles as they approach the intersection. Intersection results at unsignalized intersections are provided for the average delays for all vehicles at all-way stop-controlled (AWSC) intersections, and the leg that would experience the greatest delay, or worst LOS, for two-way stop-controlled (TWSC) intersections. LOS grades range from LOS A to LOS F; LOS A represents the best operation, where most vehicles do not stop at all, and LOS F the poorest operation, where most of the drivers stop and wait more than a minute until proceeding through the intersection. A more detailed discussion of intersection LOS is provided in Appendix B.

Parking surveys were conducted during spring 2007 to inventory the availability of on-street parking within 0.25 mile of the stations. The survey included a space occupancy count, taken once during the morning and once during the afternoon on a weekday, to calculate the percent parking utilization. These calculations were used to identify where potential light rail impacts might require parking mitigation. On-street parking supply and demand were inventoried for two types: unrestricted and restricted. Restricted on-street parking includes all on-street parking that is restricted by meters, time limit signs, parking zones, or other restrictions. Off-street parking was not inventoried, but general observations are provided about the location and usage of these facilities.

Generally, parking supply and costs vary throughout the corridor, with higher parking demand and costs in the Downtown Seattle and Bellevue areas. On the Eastside, parking availability varies widely, depending on the area. For instance, many private garages are located in the Downtown Bellevue area, while private garages are limited in other areas, such as South Bellevue. Demand for parking also varies, with relatively high demand in Downtown Bellevue, more moderate demand in the Bel-Red and Overlake areas, and relatively low demand in South Bellevue.

Because the Affected Environment (existing conditions) section was based on the year 2007, a few projects (such as some of the projects in the I-405 program, the NE 10th Street extension in Downtown Bellevue and minor intersection improvements) that have been constructed are included in the future no-build conditions. Refer to Appendix A for the list of these already completed projects.

6.2.1 Segment A

Segment A spans approximately 7 miles, originating in Seattle at the International District/Chinatown Station and terminating near the Bellevue Way interchange with I-90 in Bellevue. This segment crosses Lake Washington on the I-90 reversible center roadway.

6.2.1.1 Existing Operations and Level of Service

Major arterials or roadways in Segment A potentially affected by the project are identified in Table 6-1. Generally, the identified roadways vary from two- to four-lane cross-sections with posted speed limits of 25 or 30 mph. I-90 is an eight-lane freeway with three lanes in each direction and a two-lane reversible roadway. Currently, I-90 carries approximately 140,000 vehicles per day.

TABLE 6-1
Segment A Existing Roadway Facilities

Roadway	Arterial Classification	Number of Lanes	Speed Limit (mph)	ADT [a]
5th Avenue South	Principal arterial	2	30	N/A
4th Avenue South	Principal arterial	6	30	15,890
Airport Way South	Principal arterial	4	30	3,540
Rainier Avenue South	Principal arterial	5	30	14,050
North Mercer Way	Minor arterial	2	25	9,600
Island Crest Way	Principal arterial	4	25	9,110
77th Avenue SE	Collector arterial	3	25	5,900
76th Avenue SE	Collector arterial	3	25	7,550
80th Avenue SE	Collector arterial	3	25	5,250
East Mercer Way	Collector arterial	2	25	9,600
West Mercer Way	Collector arterial	2	25	4,900
I-90	Interstate freeway	8	60	140,000

[a] ADT based on the latest available traffic count information

ADT	average daily traffic
mph	miles per hour
N/A	not applicable

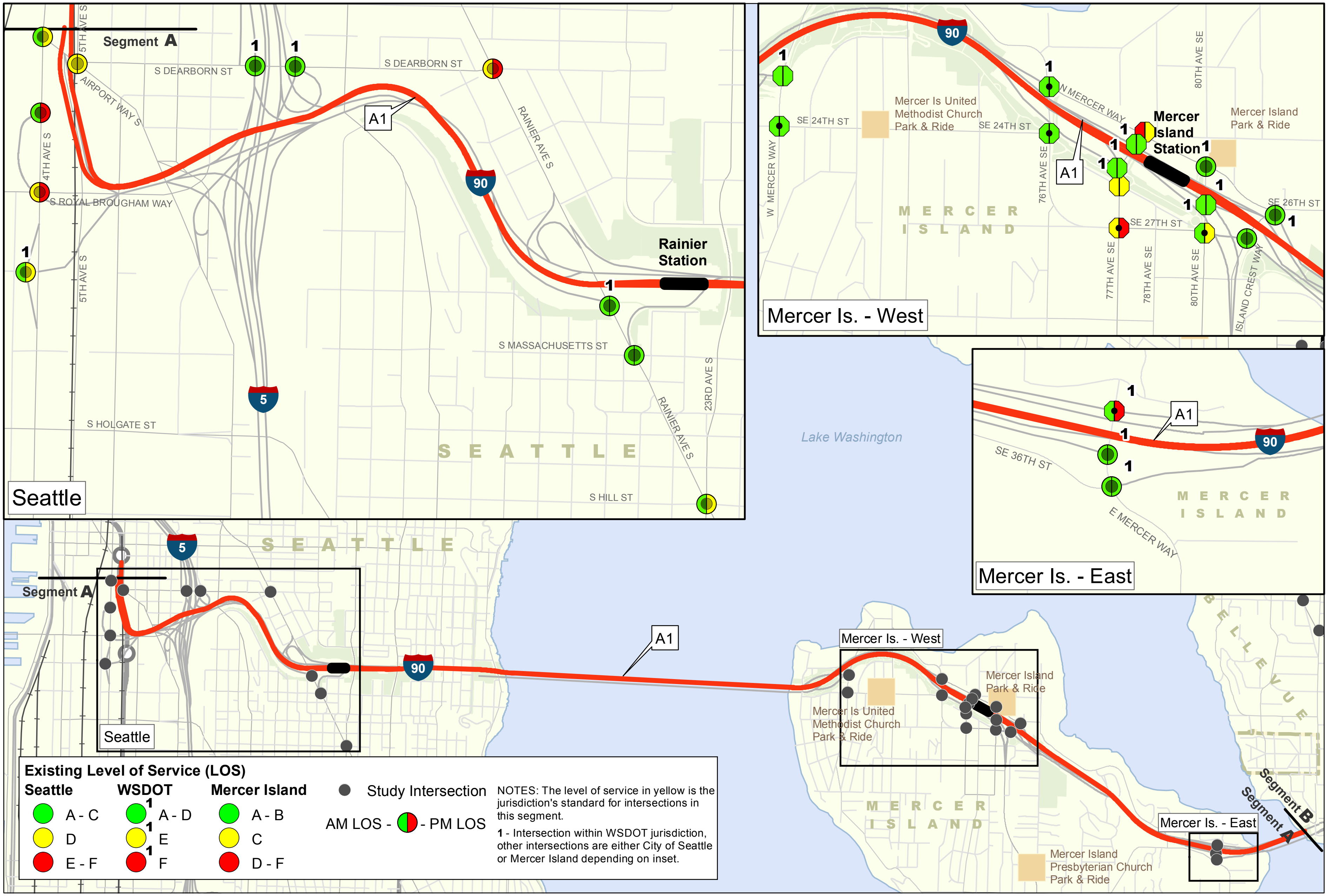
Intersection analysis for Segment A was prepared for 11 intersections in Seattle and 20 intersections on Mercer Island in the existing AM and PM peak-hour conditions. Five of the intersections in Seattle are within WSDOT jurisdiction because the intersection either is a ramp terminal or is located near a ramp terminal. Similarly, on Mercer Island, 13 of the 20 intersections evaluated are within WSDOT jurisdiction. The existing intersection analysis was completed and then compared with the relevant jurisdiction's adopted LOS standard to gauge whether the intersection operates at an acceptable LOS. The relevant agencies within Segment A and their LOS standards are:

- WSDOT: LOS E
- City of Seattle: LOS D
- City of Mercer Island: LOS C

In Segment A, six intersections would not meet agency standards in the existing condition, the following five occurring in the PM peak hour as they either operate at LOS E or F:

- Rainier Avenue S and S Dearborn Street
- I-90 and 4th Avenue S
- S Royal Brougham Way and 4th Avenue S
- 77th Avenue SE and SE 27th Street
- E Mercer Way and I-90 westbound ramps

In the AM peak hour on Mercer Island, 77th Avenue SE and N Mercer Way also would not meet Mercer Island's LOS standards because it operates at LOS D. High volumes in the westbound left-turning movement cause poor operations at the E Mercer Way and I-90 westbound ramps. AM and PM peak-hour intersection LOS results within Segment A are summarized in Exhibit 6-1 and presented in Table D-1 in Appendix D.


Segment A
S DEARBORN ST
S DEARBORN ST
5TH AVE S
AIRPORT WAY S
4TH AVE S
S ROYAL BROUGHAM WAY
5TH AVE S
A1
90
RAINIER AVE S
Rainier Station
S MASSACHUSETTS ST
5
S HOLGATE ST
23RD AVE S
RAINIER AVE S
S E A T T L E
S HILL ST
Seattle
1
90
A1
N MERCER WAY
Mercer Island Station
Mercer Is United Methodist Church Park & Ride
SE 24TH ST
SE 24TH ST
W MERCER WAY
76TH AVE SE
80TH AVE SE
Mercer Island Park & Ride
SE 26TH ST
SE 27TH ST
77TH AVE SE
78TH AVE SE
80TH AVE SE
ISLAND CREST WAY
M E R C E R I S L A N D
Mercer Is. - West
A1
90
SE 36TH ST
E MERCER WAY
M E R C E R I S L A N D
Mercer Is. - East
Lake Washington
5
S E A T T L E
Segment A
Seattle
90
A1
Mercer Is. - West
Mercer Island Park & Ride
Mercer Is United Methodist Church Park & Ride
B E L L E V U E
Segment B
Segment A
Mercer Is. - East
M E R C E R I S L A N D
Mercer Island Presbyterian Church Park & Ride
Existing Level of Service (LOS)
Seattle
🟢 A - C
🟡 D
🔴 E - F
WSDOT
🟢 A - D
🟡 E
🔴 F
Mercer Island
🟢 A - B
🟡 C
🔴 D - F
● Study Intersection
AM LOS - - PM LOS
NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.
1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

Source: Data from King County (2006) modified by CH2M HILL.

Intersection Type

- Signalized
- Two-Way Stop Controlled
- All-Way Stop Controlled

At-Grade Route

Elevated Route

Retained-Cut Route

Tunnel Route

Proposed Station

Central Link Alignment and Station

N

Exhibit 6-1 **Existing AM and PM Level of Service at Intersections Segment A**

East Link Project

6.2.1.2 Traffic Safety

Accident data for study intersections was collected from each jurisdiction within the study area and reviewed. Accident rates were calculated as the number of accidents per million entering vehicles (MEV). The City of Seattle uses a system in which a high accident location (HALs) is identified for future safety improvements. A signalized intersection is considered an HAL if it experiences an average of more than 10 collisions per year. An unsignalized intersection is considered an HAL if it experiences an average of more than five collisions per year. Intersections within the City of Mercer Island with an accident rate near or above 1.0 are considered intersections with high accident rates. In the City of Seattle, there are no HALs at any of the study intersections. In the City of Mercer Island, there are no study intersections with a high accident rate. Accident rates were also compared to the yearly average accident rate at the study intersections, as shown in Table 6-2.

TABLE 6-2
Segment A Local Intersection Accident Rates

Jurisdiction/Intersection	ADT	2004-2006 Accident Average PDO	INJ	FAT	Yearly Accident Average	Accident Rate (acc./MEV)
City of Seattle						
Rainier Avenue South and South Dearborn Street	40,140	1.00	1.33	0	2.33	0.16
Rainier Avenue South and South Massachusetts Street	35,980	3.67	3.33	0	7.00	0.53
Rainier Avenue South and 23rd Avenue South	39,650	2.67	1.67	0	4.33	0.30
Rainier Avenue South and I-90 eastbound off-ramp	33,580	0.33	0	0	0.33	0.03
Dearborn Street and I-5 southbound ramp	16,950	1.33	2.33	0	3.67	0.60
Dearborn Street and I-5 northbound ramp	19,820	1.00	0.33	0	1.33	0.18
I-90 and 4th Avenue South	31,270	1.00	0.33	0	1.33	0.12
South Royal Brougham Way and 4th Avenue South	37,780	2.67	1.00	0	3.67	0.27
Airport Way South and 4th Avenue South	25,940	1.33	0.33	0	1.67	0.18
Airport Way South and South Dearborn Street	17,610	1.33	0.67	0	2.00	0.31
4th Avenue South northbound off-ramp and Edgar Martinez Drive South	41,290	2.33	3.00	0	5.33	0.35
City of Mercer Island						
West Mercer Way and I-90 ramps	5,620	0.33	0.33	0	0.67	0.32
West Mercer Way and 24th Avenue SE	6,840	0.67	0.33	0	1.00	0.40
80th Avenue SE and SE 27th Street	12,890	0.33	1.67	0	2.00	0.43
80th Avenue SE and I-90 eastbound express lanes ramp	6,130	0	0.33	0	0.33	0.15
80th Avenue SE and North Mercer Way	10,680	0.33	0.33	0	0.67	0.17
77th Avenue SE and Sunset Highway	7,490	0.33	0.33	0	0.67	0.24
77th Avenue SE and I-90 westbound express lanes ramp	7,370	0	0	0	0	N/A
77th Avenue SE and I-90 eastbound off-ramp	660	0.67	0.3	0	1.00	0.42
77th Avenue SE and North Mercer Way	11,320	1.00	0.67	0	1.67	0.40
77th Avenue SE and SE 27th Street	16,100	1.33	1.33	0	2.67	0.45
76th Avenue SE and North Mercer Way and I-90 westbound on-ramp	9,920	1.33	0.3	0	1.67	0.46
76th Avenue SE and 24th Avenue SE	9,920	0.67	0	0	0.67	0.18
Island Crest Way and I-90 eastbound on-ramp	18,320	2.67	2.33	0	5.00	0.75

TABLE 6-2 CONTINUED
Segment A Local Intersection Accident Rates

Jurisdiction/Intersection	ADT	2004-2006 Accident Average			Yearly Accident Average	Accident Rate (acc./MEV)
Island Crest Way and I-90 westbound off-ramp	13,030	1.33	1.33	0	2.67	0.56
East Mercer Way and I-90 eastbound off-ramp	10,270	0.30	0	0	0.33	0.09
East Mercer Way and I-90 eastbound on-ramp	17,500	0	0	0	0	N/A
East Mercer Way and I-90 westbound ramps	10,290	0.30	0	0	0.33	0.09

acc./MEV	accidents per million entering vehicles
ADT	average daily traffic (entering only)
FAT	fatality
INJ	injury
N/A	not applicable; no recorded accidents during study period
PDO	property damage only

6.2.1.3 Parking

Parking supply and demand was inventoried for on-street restricted and unrestricted spaces; however, few on-street restricted areas exist within the cities of Seattle and Mercer Island in Segment A. Operation of existing on-street parking is governed by each jurisdiction. Table 6-3 provides parking utilization and supply information near Segment A stations. The only park-and-ride within Segment A is maintained by Sound Transit and located on N Mercer Way in the City of Mercer Island. This facility has recently been expanded and was closed in year 2007 because of construction and expansion activity on the site. Parking data was collected after it re-opened in 2008.

TABLE 6-3
Segment A Existing Parking Supply and Utilization

Parking Type	AM Period			PM Period		
	Supply	Demand	Utilization (percent)	Supply	Demand	Utilization (percent)
Rainier						
On-street unrestricted	879	363	41	879	335	38
On-street restricted	–	–	–	–	–	–
Subtotal	879	363	41	879	335	38
Mercer Island [a, b]						
On-street unrestricted	108	73	68	108	67	62
On-street restricted	26	23	88	26	21	81
Subtotal	134	96	72	134	88	66

Parking near the Rainier Station was collected in spring 2007 on all roads within a 0.25-mile radius of the stations.

[a] Parking near the Mercer Island Station was collected in Spring 2008 on all roads within a 0.25-mile radius of the stations because the park-and-ride was closed during spring 2007.

[b] A restricted parking zone (RPZ) near the proposed station has been implemented since the 2007 parking survey. These RPZs would reduce the available on-street unrestricted parking.

The Rainier Station parking survey area is centered on I-90 near the eastern opening of the Mount Baker Tunnel. In general, the area is bounded by S Charles Street to the north and S Grand Street to the south. Martin Luther King Jr. Way S and Rainier Avenue S form the approximate eastern and western boundaries, respectively. Land use in the area is primarily residential. On-street parking in this area is generally unrestricted by meters, loading zones, or other restrictive use. Of 879 available on-street parking spaces, 363 spaces, or 41 percent, were occupied during the AM peak period. Slightly fewer spaces, 335 spaces or 38 percent, were occupied during the PM peak period. Much of the private parking surrounding the Rainier Station is located on commercial and light industrial properties along Rainier Avenue S; parking regulations are enforced by private property owners at their discretion.

The Mercer Island Station parking area is centered on I-90 and is generally bound by SE 22nd Street to the north, SE 29th Street to the south, 76th Avenue SE to the west, and 84th Avenue SE to the east. Land use is primarily residential north of I-90 and primarily commercial south of I-90. During the AM and PM peak periods, 108 unrestricted on-street parking spaces are available. Demand reached 73 spaces, or a utilization of 68 percent, during the AM peak period and 67 spaces, or a utilization of 62 percent, during the PM peak period. Only 26 additional restricted on-street parking spaces are available. Demand reached 23 spaces, or a utilization of 88 percent, during the AM peak period and 21 spaces, or 81 percent, during the PM peak period. Private off-street parking garages are located throughout Mercer Island Town Center, and cost and validation policies vary among property owners. Regulations for private parking are enforced by property owners at their discretion. Parking located in the residential neighborhoods north of I-90, surrounding the Mercer Island Park-and-Ride Lot, is restricted parking designated as residential parking zones (RPZs). It was implemented to reduce impacts of park-and-ride spillover parking into residential neighborhoods and the Town Center. The Mercer Island Park-and-Ride has approximately 450 parking spaces, of which 435 are used currently, for a utilization rate of 97 percent each weekday (King County Metro, 2008a).

6.2.2 Segment B

Segment B spans approximately 1.8 miles from the I-90 on- and off-ramps at Bellevue Way SE to SE 6th Street. The segment is oriented primarily north and south, south of the Bellevue Central Business District. Appendix A lists the study area intersections in Segment B.

6.2.2.1 Existing Operations and Level of Service

The project corridor within Segment B consists of roadways that are listed in Table 6-4. These roadways vary from two to four lanes, with posted speeds between 30 and 40 mph. Current daily volumes on Bellevue Way are near 39,000, while all other roadways in Segment B have daily volumes between 7,000 and 15,000.

TABLE 6-4
Segment B Existing Roadway Facilities

Roadway	Arterial Classification	Number of Lanes	Speed Limit (mph)	ADT[a]
Bellevue Way SE	Principal arterial	4	30 to 40	38,800
112th Avenue SE	Principal arterial	4	35	15,200
SE 8th Street	Principal arterial	4	35	10,560
118th Avenue SE	Collector arterial	2	35	7,125
I-90	Interstate freeway	8	60	140,000
Former BNSF Railway	Railroad	N/A	55	N/A

[a] ADT based on the latest available traffic count information.

ADT	average daily traffic
mph	miles per hour
N/A	not applicable

Intersection analysis was prepared for 19 intersections in Segment B; 13 intersections are within the City of Bellevue's jurisdiction, and 6 are in WSDOT jurisdiction. Intersection analysis was prepared for existing conditions and compared with the relevant jurisdiction's adopted LOS standard to gauge whether the intersection operates at an acceptable LOS. The relevant agencies within Segment B and their LOS standards are as follows:

- City of Bellevue: LOS D (Mobility Management Area 7)
- WSDOT: LOS E

Within Segment B, four intersections (118th Avenue SE and SE 8th Street, 112th Avenue SE and SE 15th Street, Bellevue Way SE and SE 30th Street, and Bellevue Way SE and South Bellevue Park-and-Ride) operate at LOS F in the PM peak hour. All other intersections within Segment B operate at LOS D or better. During the AM peak hour, only two intersections were analyzed because they are located close to I-90: Bellevue Way SE and South Bellevue Park-and-Ride and Bellevue Way SE and SE 30th Street. Of these two intersections, the Bellevue Way SE and SE 30th Street intersection operates at LOS F. AM and PM peak-hour intersection LOS results for Segment B are summarized in Exhibit 6-2 and presented in Table D-2 in Appendix D.

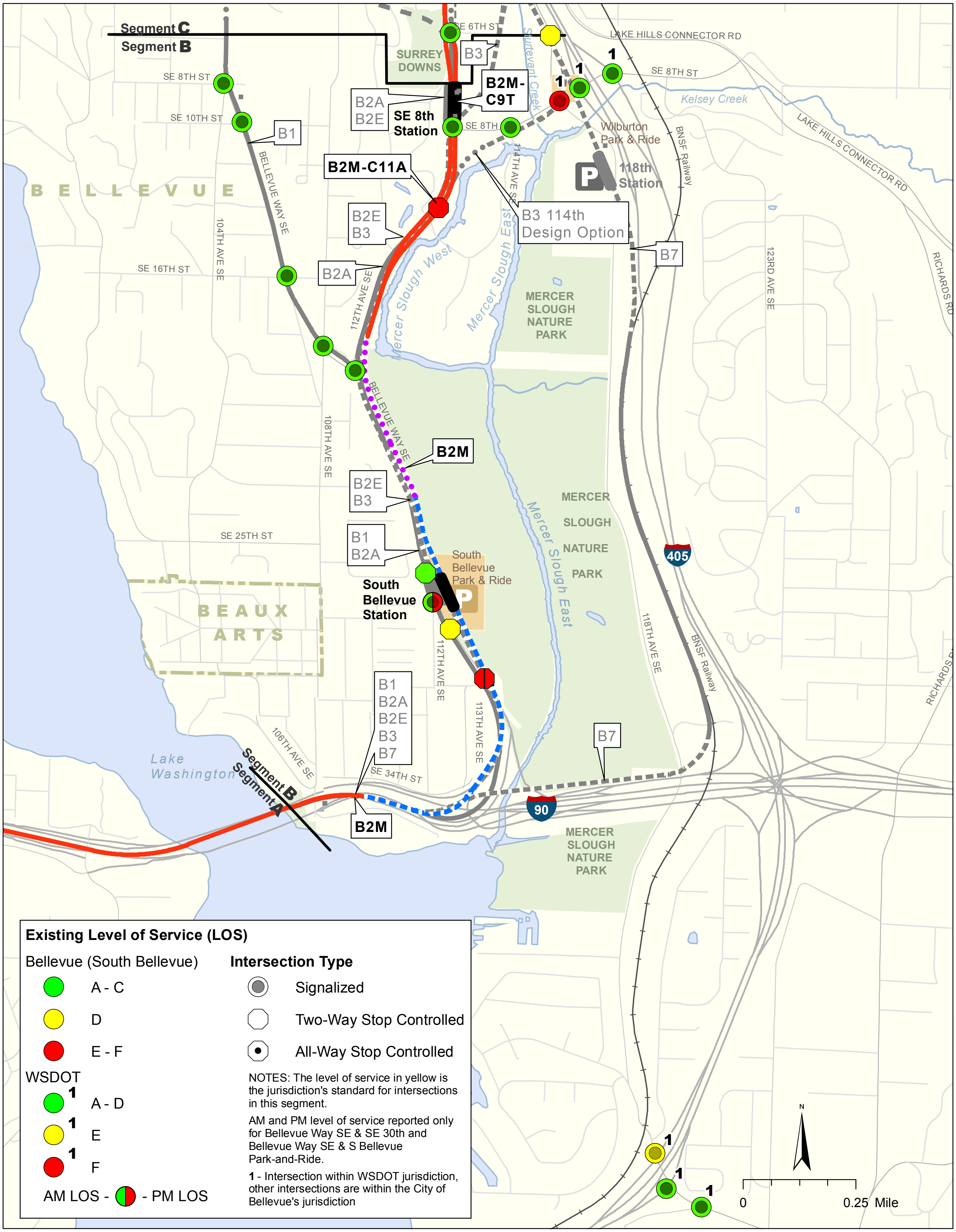
6.2.2.2 Traffic Safety

Accident data for study intersections was collected from each jurisdiction within the study area and reviewed. Accident rates were calculated as the number of accidents per MEV. Intersections within the City of Bellevue with an accident rate near or above 1.0 are considered intersections with high accident rate. In **S**egment B**,** there are no intersections with high accident rates. Accident rates were also compared with the yearly average accident rate at the study intersections, as shown in Table 6-5.

TABLE 6-5
Segment B Local Intersection Accident Rates

		2004-2006 Accident Average.				
Intersection	**ADT**	**PDO**	**INJ**	**FAT**	**Yearly Accident Average**	**Accident Rate (acc./MEV)**
City of Bellevue						
112th Avenue SE and Bellevue Way SE (MMA 7)	30,440	1.67	1.33	0	3.00	0.27
112th Avenue SE and SE 8th Street (MMA 7)	18,020	1.00	0.33	0	1.33	0.20
118th Avenue SE and SE 8th Street (MMA 7)	19,380	1.33	1.00	0	2.33	0.33
1-405 Northbound Ramps and SE 8th Street (MMA 7)	18,170	0.67	0	0	0.67	0.10
I-405 SB Ramps and SE 8th Street (MMA 7)	20,510	0.33	1.33	0	1.67	0.22
Bellevue Way SE and SE 30th Street	31,430	0.67	0	0	0.67	0.06
Bellevue Way SE and South Bellevue Park-and-Ride	32,590	1.00	0	0	1.00	0.08
112th Avenue SE and SE 6th Street	20,770	1.00	1.00	0	2.00	0.26
114th Avenue SE and SE 6th Street	9,420	0.33	0	0	0.33	0.10
SE 8th Street and 114th Avenue SE (Bellefield Business Park)	13,220	0.33	0	0	0.33	0.07
Bellevue Way SE and 108th Avenue SE	23,540	1.67	0.33	0	2.00	0.23
Bellevue Way SE and SE 16th Street	20,830	0.67	1.00	0	1.67	0.22
Bellevue Way SE and 104th Avenue SE	19,390	0.33	0.67	0	1.00	0.14
Bellevue Way SE and SE 10th Street	21,620	1.33	0.67	0	2.00	0.25
Coal Creek Parkway and I-405 southbound ramp	21,470	1	0.33	0	1.33	0.17
Coal Creek Parkway and I-405 northbound ramp	26,660	1.67	0.33	0	2.0	0.21
Coal Creek Parkway and 119th Ave SE	27,430	3.67	1	0	4.67	0.47

acc./MEV	accidents per million entering vehicles
ADT	average daily traffic (entering only)
FAT	fatality
INJ	injury
N/A	not applicable; no recorded accidents during study period
PDO	property damage only


Segment C
Segment B
SE 8TH ST
SE 10TH ST
B1
BELLEVUE WAY SE
B E L L E V U E
104TH AVE SE
SE 16TH ST
108TH AVE SE
SE 25TH ST
B E A U X A R T S
106TH AVE SE
Lake Washington
Segment B
Segment A
SE 6TH ST
SURREY DOWNS
B3
B2M-C9T
B2A
B2E
SE 8th Station
SE 8TH
B2M-C11A
B2E
B3
B2A
112TH AVE SE
Mercer Slough West
Sturtevant Creek
114TH AVE SE
B3 114th Design Option
Mercer Slough East
MERCER SLOUGH NATURE PARK
1
LAKE HILLS CONNECTOR RD
SE 8TH ST
Kelsey Creek
Wilburton Park & Ride
118th Station
BNSF Railway
B7
123RD AVE SE
RICHARDS RD
LAKE HILLS CONNECTOR RD
BELLEVUE WAY SE
B2M
B2E
B3
B1
B2A
South Bellevue Park & Ride
South Bellevue Station
MERCER SLOUGH NATURE PARK
Mercer Slough East
405
118TH AVE SE
BNSF Railway
RICHARDS RD
112TH AVE SE
113TH AVE SE
B1
B2A
B2E
B3
B7
SE 34TH ST
B7
B2M
90
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile

Existing Level of Service (LOS)

Bellevue (South Bellevue)

🟢	A - C
🟡	D
🔴	E - F

Intersection Type

◉	Signalized
⯃	Two-Way Stop Controlled
⊙	All-Way Stop Controlled

WSDOT

🟢 1	A - D
🟡 1	E
🔴 1	F

AM LOS - ◐ - PM LOS

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

AM and PM level of service reported only for Bellevue Way SE & SE 30th and Bellevue Way SE & S Bellevue Park-and-Ride.

1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

▪ Traction Power Substation

▬ Proposed Station

P New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 6-2 **Existing AM and PM Level of Service at Intersections Segment B**
East Link Project

6.2.2.3 Parking

Parking surveys were conducted to inventory the available on-street parking within 0.25 mile of the South Bellevue, SE 8th, and 118th stations located in Segment B. No restricted on-street parking exists in any of the areas surrounding the stations in Segment B. Table 6-6 summarizes the results of the surveys.

TABLE 6-6
Segment B Existing Parking Supply and Utilization by Station

Parking Type	AM Period			PM Period		
	Supply	Demand	Utilization (percent)	Supply	Demand	Utilization (percent)
South Bellevue						
On-street unrestricted	438	51	12	438	31	7
On-street restricted	–	–	–	–	–	–
Subtotal	438	51	12	438	31	7
SE 8th [a]						
On-street unrestricted	301	24	8	301	27	9
On-street restricted	–	–	–	–	–	–
Subtotal	301	24	8	301	27	9
118th						
On-street unrestricted	127	5	4	127	5	4
On-street restricted	–	–	–	–	–	–
Subtotal	127	5	4	127	5	4

Note: Data were collected in spring 2007 on all roads within a 0.25-mile radius of each station.

[a] A restricted parking zone (RPZ) near the proposed station has been implemented since the 2007 parking survey. These RPZs would reduce the available on-street unrestricted parking.

The parking survey area surrounding the South Bellevue Station is approximately bounded by 108th Avenue SE on the western side, SE 23rd Street on the northern side, and SE 31st Street on the southern side. The station is adjacent to Mercer Slough Nature Park, which forms the parking survey area’s eastern side. Land use surrounding the station is primarily residential. Parking utilization rates are relatively low compared with utilization rates in other segments. Of an available 438 unrestricted on-street parking spaces, only 51 spaces, or 12 percent, were occupied during the AM peak period; 31 spaces, or 7 percent, were occupied during the PM peak period.

The SE 8th Street Station is located near the intersection of SE 8th Street and 112th Avenue SE. The parking survey area is approximately bounded by SE 4th Street, 109th Avenue SE, SE 15th Street, and 118th Avenue SE. Land use is split between commercial office buildings and residential. Of 301 available unrestricted on-street parking spaces, only 24 spaces, or 8 percent, are occupied during the AM peak period; and only 27 spaces, or 9 percent, are occupied during the PM peak period.

The parking survey area surrounding the proposed location of the 118th Station is approximately bounded by SE 6th Street to the north, 112th Avenue SE to the west, and SE 12th Street to the east. Land use in this area is split between commercial office buildings and residential. Existing on-street parking utilization in this survey area is also low compared with the utilization in other study segments. Of 127 available unrestricted on-street parking spaces, only 5 spaces, or 4 percent, are occupied during both the AM and PM peak periods. Most of the available on-street parking conducted for the 118th Station is east of I-405.

The two park-and-ride lots in Segment B, South Bellevue Park-and-Ride and Wilburton Park-and-Ride, are both currently used at or near capacity on weekdays. With each of the park-and-rides near or at capacity in conjunction with the low on-street parking indicates that people do not appear to be parking on-street in the nearby neighborhoods and walking to these lots. South Bellevue has 519 parking spaces, and Wilburton has

186 parking spaces. The majority of off-street private parking within Segment B comprises parking lots surrounding office and commercial areas adjacent to SE 8th Street.

6.2.3 Segment C

Segment C is the area bounded by SE 6th Street to the south, Bellevue Way to the west, NE 12th Street to the north, and 116th Avenue to the east. The area includes the central business district of Bellevue. Appendix A lists the study area intersections in this segment.

6.2.3.1 Existing Operations and Level of Service

The project corridor within Segment C consists of roadways that are listed in Table 6-7. Roadways within Segment C vary between three and seven lanes, with the majority providing at least four lanes. All the roadways identified in Table 6-7 are posted for 30 mph.

TABLE 6-7
Segment C Existing Roadway Facilities

Roadway	Arterial Classification	Number of Lanes	Speed Limit (mph)	ADT [a]
112th Avenue SE	Principal arterial	4	35	15,200
Bellevue Way SE	Principal arterial	4	30	27,000
106th Avenue NE	Local arterial	3	30	19,080
108th Avenue NE	Minor arterial	2	30	4,300
110th Avenue NE	Minor arterial	2	30	7,700
112th Avenue NE	Principal arterial	4	30	20,600
116th Avenue NE	Principal arterial	4	30	18,845
Main Street	Minor arterial	4	30	8,400
NE 2nd Street	Minor arterial	3	30	6,900
NE 4th Street	Principal arterial	5	30	11,730
NE 6th Street	Local arterial	4	30	2,650
NE 8th Street	Principal arterial	7	30	42,780
NE 10th Street	Minor arterial	5	30	9,100
NE 12th Street	Principal arterial	5	30	19,490

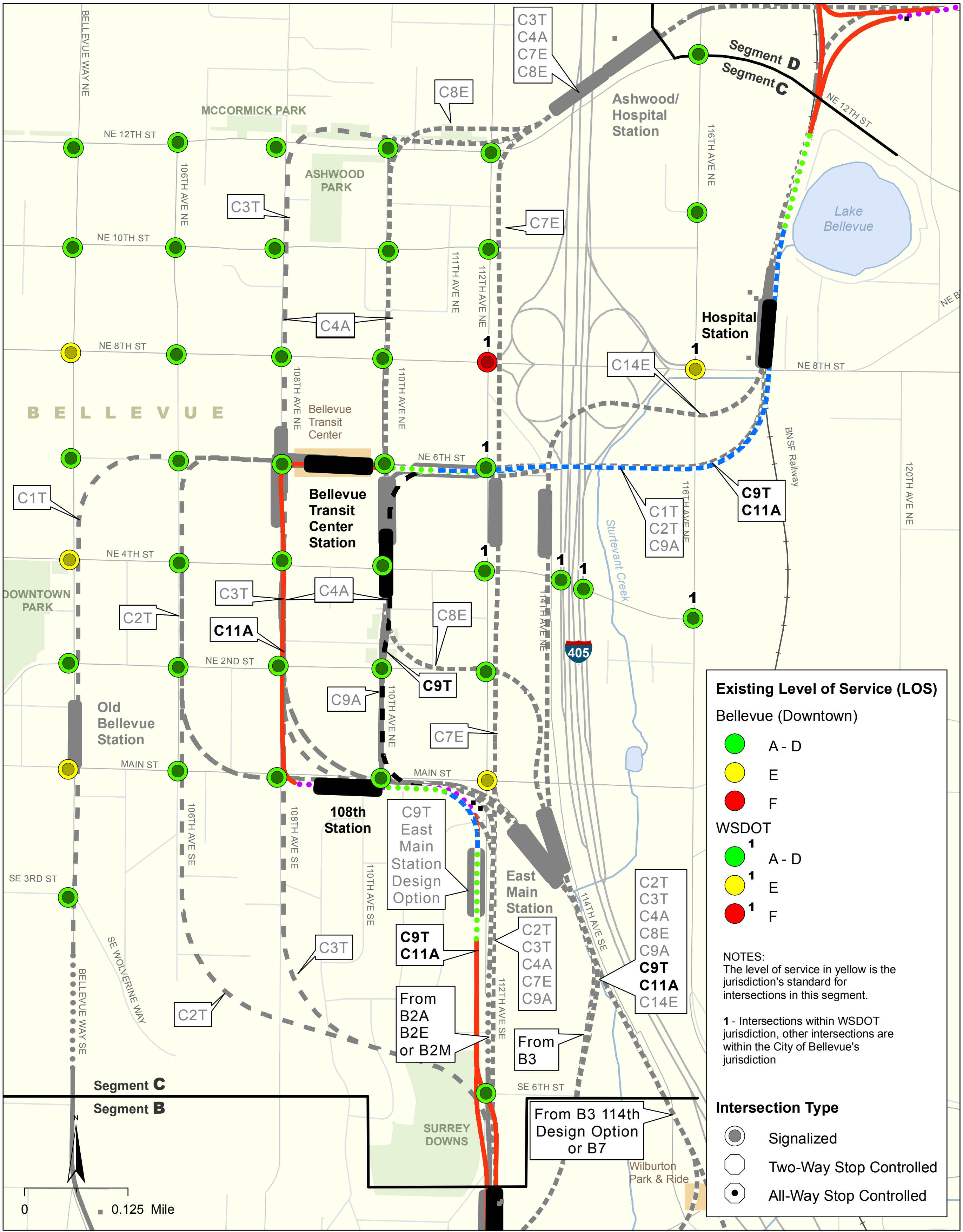
[a] ADT based on the latest available traffic count information

ADT	average daily traffic
mph	miles per hour

An existing PM peak-hour intersection analysis was prepared for 43 intersections in Segment C, 7 in WSDOT's jurisdiction and the remaining 36 in the City of Bellevue's jurisdiction. Intersection analysis was prepared for the existing conditions and was compared with the relevant jurisdiction's adopted LOS standard to gauge whether the intersections operate at an acceptable LOS. The relevant agencies within Segment C and their LOS standards are:

- City of Bellevue: LOS E (Mobility Management Area 3)
- WSDOT: LOS E

Of the 43 study intersections in Segment C, only the intersection of NE 8th Street and 112th Avenue NE operates at LOS F. Even though LOS D and E meet the LOS standards in this segment; 12 intersections operate at these conditions in Segment C, indicating that operations are near or at capacity. PM peak-hour intersection LOS results for Segment C are summarized in Exhibit 6-3 and presented in Table D-3 in Appendix D.


BELLEVUE WAY NE
MCCORMICK PARK
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
C3T
C4A
C7E
C8E
C8E
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
NE 10TH ST
C3T
C7E
111TH AVE NE
112TH AVE NE
C4A
NE 8TH ST
1
Hospital Station
NE 8TH ST
C14E
1
NE 8
B E L L E V U E
108TH AVE NE
Bellevue Transit Center
110TH AVE NE
NE 6TH ST
1
BNSF Railway
C1T
Bellevue Transit Center Station
C1T
C2T
C9A
116TH AVE NE
C9T
C11A
120TH AVE NE
NE 4TH ST
1
1
1
Sturtevant Creek
114TH AVE NE
1
DOWNTOWN PARK
C3T
C4A
C2T
C11A
C8E
405
NE 2ND ST
C9T
C9A
110TH AVE NE
Old Bellevue Station
C7E
MAIN ST
MAIN ST
108th Station
C9T East Main Station Design Option
SE 3RD ST
106TH AVE SE
108TH AVE SE
110TH AVE SE
East Main Station
C2T
C3T
C4A
C7E
C9A
C2T
C3T
C4A
C8E
C9A
C9T
C11A
C14E
114TH AVE SE
C3T
C9T
C11A
SE WOLVERINE WAY
BELLEVUE WAY SE
C2T
From B2A B2E or B2M
112TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
From B3 114th Design Option or B7
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile

Existing Level of Service (LOS)

Bellevue (Downtown)

- 🟢 A - D
- 🟡 E
- 🔴 F

WSDOT

- 🟢 1 A - D
- 🟡 1 E
- 🔴 1 F

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

Intersection Type

- ◉ Signalized
- ○ Two-Way Stop Controlled
- ⊙ All-Way Stop Controlled

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Exhibit 6-3 **Existing PM Level of Service at Intersections Segment C**
East Link Project

6.2.3.2 Traffic Safety

Accident data for study intersections were collected from each jurisdiction and reviewed within the project corridor. Accident rates were calculated as the number of accidents per MEV. Two intersections within Segment C have accident rates near or above 1.0 accident per MEV: 112th Avenue NE at NE 8th Street/I-405, and 110th Avenue NE at NE 10th Street. The reason why these intersections exhibit a higher accident rate was not evaluated but the 112th Avenue NE and NE 8th Street intersection is a high-volume intersection with an additional fifth approach. At 110th Avenue NE and NE 10th Street intersection, the traffic signal operates in two phases with all left-turn movements permitted. Accident rates were also compared with the yearly average accident rate at the study intersections, as shown in Table 6-8.

TABLE 6-8
Segment C Local Intersection Accident Rates

Intersection	ADT	2004-2006 Accident Average			Yearly Accident Average	Accident Rate (acc./MEV)
		PDO	INJ	FAT		
City of Bellevue						
Bellevue Way SE and SE Kilmarnock Street	23,950	1.33	1.00	0	2.33	0.27
Bellevue Way and Main Street (MMA 3)	35,850	4.67	1.67	0	6.33	0.48
Bellevue Way NE and NE 2nd Street	25,430	3.00	0.33	0	3.33	0.36
Bellevue Way NE and NE 4th Street	34,650	3.67	1	0	4.67	0.37
Bellevue Way NE and NE 6th Street	18,700	0	0	0	0	N/A
Bellevue Way NE and NE 8th Street	40,730	5.33	4	0	9.33	0.63
Bellevue Way NE and NE 10th Street	30,860	4	2.67	0	6.67	0.59
Bellevue Way NE and NE 12th Street	34,890	3	1.33	0	4.33	0.34
112th Avenue NE and NE 12th Street (MMA 3)	35,260	1.67	1.00	0	2.67	0.21
112th Avenue NE and NE 10th Street	20,590	1.33	0.33	0	1.67	0.22
112th Avenue NE and NE 8th Street/I-405 southbound ramp (MMA 3)	**52,330**	**14.00**	**5.00**	**0**	**19.00**	**0.99**
112th Avenue NE and NE 6th Street	21,740	0.67	0	0	0.67	0.08
112th Avenue NE and NE 4th Street (MMA 3)	37,210	4.67	2.33	0	7.00	0.52
112th Avenue NE and NE 2nd Street	20,510	0.67	0.33	0	1.00	0.13
112th Avenue and Main Street (MMA 3)	34,700	2.33	0.33	0	2.67	0.21
110th Avenue NE and NE 12th Street	21,250	0.67	0.33	0	1.00	0.13
110th Avenue NE and NE 10th Street	**7,060**	**1.00**	**1.67**	**0**	**2.67**	**1.04**
110th Avenue NE and NE 8th Street	33,390	4.33	2.33	0	6.67	0.55
110th Avenue NE and NE 6th Street	8,510	0	0	0	0	N/A
110th Avenue NE and NE 4th Street	22,860	1.00	1.00	0	2.00	0.24
110th Avenue NE and NE 2nd Street	10,750	1.33	0.33	0	1.67	0.42
110th Avenue and Main Street	19,960	1.33	0	0	1.33	0.18
108th Avenue NE and NE 12th Street (MMA 3)	21,570	1.67	0.67	0	2.33	0.30
108th Avenue NE and NE 10th Street	13,150	0.33	1.67	0	2.00	0.42
108th Avenue NE and NE 8th Street (MMA 3)	33,910	5.67	1.33	0	7.00	0.57

TABLE 6-8 CONTINUED
Segment C Local Intersection Accident Rates

Intersection	ADT	2004-2006 Accident Average			Yearly Accident Average	Accident Rate (acc./MEV)
108th Avenue NE and NE 6th Street	9,180	0.33	0.33	0	0.67	0.20
108th Avenue NE and NE 4th Street (MMA 3)	28,390	1.67	0.67	0	2.33	0.23
108th Avenue NE and NE 2nd Street	15,240	0.67	0.67	0	1.33	0.24
108th Avenue and Main Street (MMA 3)	22,560	4.67	1.67	0	6.33	0.48
106th Avenue NE and NE 12th Street	17,740	0.67	0.67	0	1.33	0.21
106th Avenue NE and NE 10th Street	16,210	0.67	0.67	0	1.33	0.23
106th Avenue NE and NE 8th Street	31,580	5.33	2.00	0	7.33	0.64
106th Avenue NE and NE 6th Street	9,150	0	0	0	0	N/A
106th Avenue NE and NE 4th Street	21,270	0.33	0.67	0	1.00	0.13
106th Avenue NE and NE 2nd Street	11,830	0.67	1.00	0	1.67	0.39
106th Avenue NE and Main Street	20,310	1.00	0	0	1.00	0.13
NE 4th Street and I-405 SB Ramp	25,470	3.33	1.67	0	5.00	0.54
NE 4th Street and I-405 NB Ramp	15,490	2.33	0.67	0	3.00	0.53
116th Avenue NE and NE 12th Street (MMA 4)	35,130	4.00	2.33	0	6.33	0.49
116th Avenue NE and NE 10th Street	21,550	1.00	0	0	1.00	0.13
116th Avenue NE and NE 8th Street (MMA 4)	56,130	9.33	3.33	0	12.67	0.62
116th Avenue NE and NE 4th Street (MMA 4)	26,350	3.67	0.33	0	4.00	0.42

Note: Intersections with an accident rate at or above 1.0 are highlighted in bold text.

acc./MEV	accidents per million entering vehicles
ADT	average daily traffic (entering only)
FAT	fatality
INJ	injury
N/A	not applicable; no recorded accidents during study period
PDO	property damage only

6.2.3.3 Parking

Parking surveys were conducted to inventory the availability of on-street parking within 0.25 mile of the Old Bellevue, East Main, 108th Avenue, Bellevue Transit Center, Ashwood/Hospital, and Hospital Stations in Segment C. Table 6-9 summarizes the survey results.

The Old Bellevue Station would be located near the intersection of Bellevue Way NE and Main Street. The parking survey area is bounded by NE 4th Street, 108th Avenue, SE 4th Street, and 100th Avenue. Land use is split between residential to the south of Main Street and commercial north of Main Street. During the AM and PM peak periods, 20 to 22 spaces—a utilization rate between 53 to 58 percent—of the available on-street parking spaces are occupied.

The proposed East Main Station is located on the southeast corner of 112th Avenue SE and Main Street. The parking survey area is bounded by 108th Avenue on the western side, SE 4th Street on the southern side, NE 4th Street on the northern side, and 116th Avenue on the eastern side. Land use is primarily commercial, with residential use to the southwest. Of an available 50 unrestricted on-street parking spaces, only 5 spaces, or 10 percent, are occupied during the AM survey period; 4 spaces, or 8 percent, are occupied during the PM survey period.

TABLE 6-9
Segment C Existing Parking Supply and Utilization by Station

Parking Type	AM Period			PM Period		
	Supply	**Demand**	**Utilization (percent)**	**Supply**	**Demand**	**Utilization (percent)**
Old Bellevue						
On-street unrestricted	38	22	58	38	20	53
On-street restricted	160	94	59	160	96	60
Subtotal	198	116	59	198	116	59
East Main						
On-street unrestricted	50	5	10	50	4	8
On-street restricted	–	–	–	–	–	–
Subtotal	50	5	10	50	4	8
108th [a]						
On-street unrestricted	29	19	66	29	13	45
On-street restricted	397	82	21	397	96	24
Subtotal	426	101	24	426	109	26
Bellevue Transit Center						
On-street unrestricted	–	–	–	–	–	–
On-street restricted	141	88	62	141	61	43
Subtotal	141	88	62	141	61	43
Ashwood/Hospital						
On-street unrestricted	–	–	–	–	–	–
On-street restricted	138	38	28	138	44	32
Subtotal	138	38	28	138	44	32
Hospital						
On-street unrestricted	26	8	31	26	8	31
On-street restricted	12	1	8	12	8	67
Subtotal	38	9	24	38	16	42

Note: Data were collected in spring 2007 on all roads within a 0.25-mile radius of each station.

[a] Parking survey was conducted in spring of 2010 after initiation of Surrey Downs Residential Parking Zone.

The proposed 108th Station is location on the south side of Main Street between 108th and 110th Avenue NE. The parking survey area is bounded by NE 4th Street, 105th Avenue SE, SE 4th Street, and 112th Avenue. Land use is split between residential south of Main Street and commercial north of Main Street. During the AM and PM peak periods, 19 and 13 of the 29 available spaces are utilized, a 66 and 45 percent utilization rate, respectively.

The Bellevue Transit Center Station is located along NE 6th Street between 108th and 110th avenues NE. The parking area surveyed is approximately bound by NE 10th Street, 106th Avenue NE, NE 2nd Street, and I-405. Land use surrounding this station is dominated by high-rise commercial offices and retail that are typical of central business districts. All of the on-street parking in this area is restricted. During the AM peak period, 88 spaces, or 62 percent, are occupied. During the PM peak period, 61 spaces, or 43 percent, are occupied.

The Ashwood/Hospital Station would be constructed over I-405, north of NE 12th Street. The parking survey area was bounded by 110th Avenue NE, NE 8th Street, and 116th Avenue NE. Similar to the parking survey surrounding the Bellevue Transit Center, all of the on-street parking, 138 stalls, within this area is restricted. Only 38—a utilization of 28 percent—of these spaces were occupied during the AM peak period; 44—a utilization of 32 percent—were occupied during the PM peak period.

The Hospital Station is located east of the intersection of NE 8th Street and 116th Avenue NE, along the former BNSF Railway rail line. The area studied by the parking survey is bounded approximately by I-405, NE 8th Street, and 124th Avenue NE. A total of 26 unrestricted on-street spaces and 12 restricted on-street spaces were identified. During the AM and PM peak periods, 8 spaces, or 31 percent, of the unrestricted spaces were occupied. Private off-street parking is provided by most of the commercial and employment centers in Segment C. Hourly parking rates, monthly permits, and validation policies are typically enforced at these private facilities. Demand for private parking is highest in the day during traditional business hours. In the downtown area bound by Main Street, 100th Avenue NE, NE 12th Street, and 116th Avenue NE, there are close to 28,700 parking stalls (private and public) with a PM peak-period utilization rate of about 63 percent (City of Bellevue, 2003).

6.2.4 Segment D

Segment D is the Bel-Red corridor and is generally bounded by SR 520 to the north and NE Bel-Red Road to the south. Appendix A lists the study area intersections in Segment D.

6.2.4.1 Existing Operations and Level of Service

The project corridor within Segment D consists of roadway facilities included in Table 6-10. Roadways in Segment D typically vary between two and five lanes. Collector classified roadways have either two or three lanes, while arterials have three to six lanes. All arterials identified in the table are posted for 25 to 35 mph.

TABLE 6-10
Segment D Existing Roadway Facilities

Roadway	Arterial Classification	Number of Lanes	Speed Limit (mph)	ADT [a]
124th Avenue NE	Minor arterial	3	30	24,310
130th Avenue NE	Collector arterial	2	30	24,310
132nd Avenue NE	Collector arterial	3	30	3,940
136th Place NE	Collector arterial	2	25	8,780
140th Avenue NE	Minor arterial	5	30	23,820
148th Avenue NE	Principal arterial	6	35	33,140
152nd Avenue NE	Local arterial	4	30	22,490
NE 16th Street	Local arterial	2	25	2,350
NE 20th Street	Minor arterial	4	35	5,820
NE 24th Street	Minor arterial	4	30	13,450

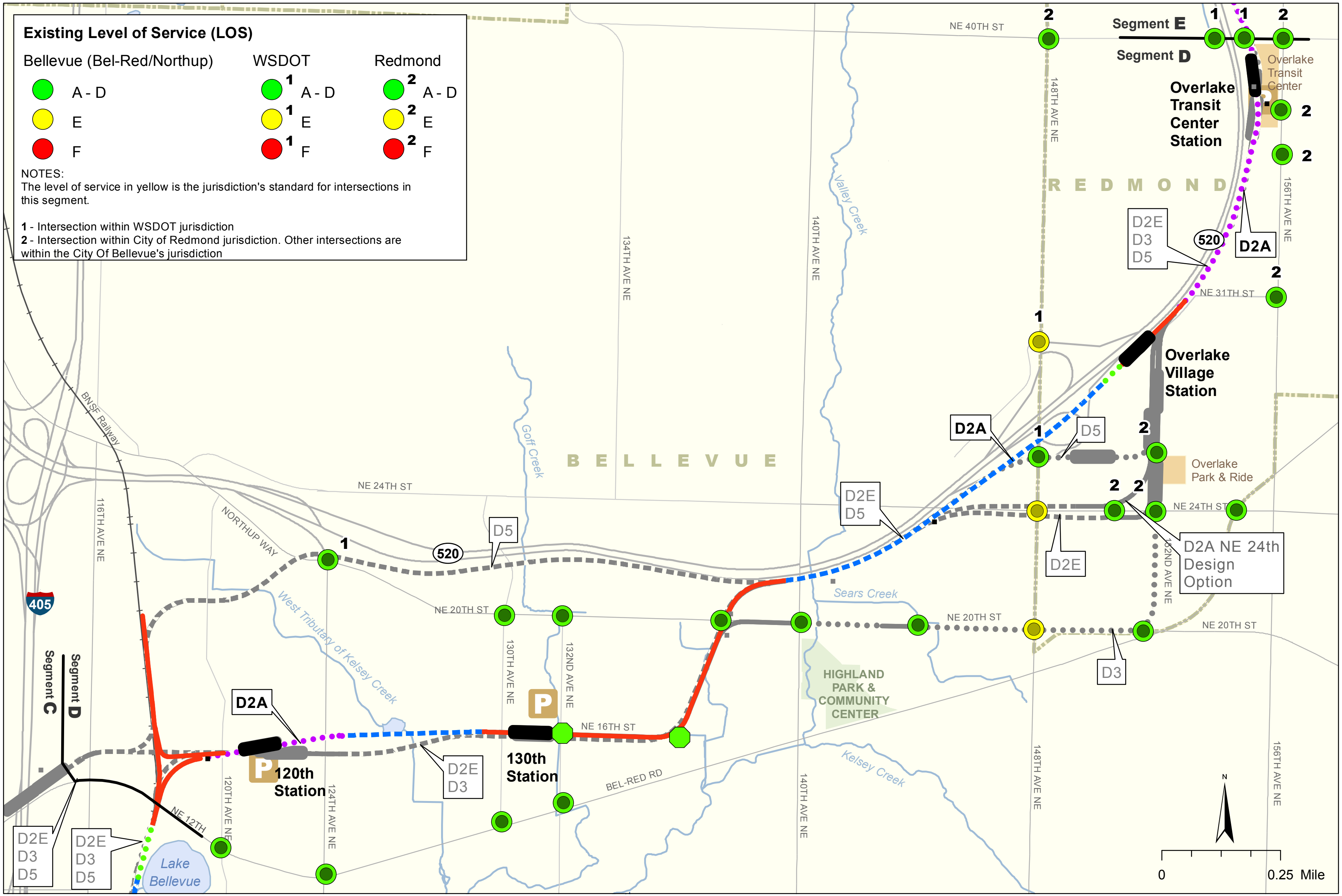
[a] ADT based on the latest available traffic count information.

ADT	average daily traffic
mph	miles per hour

A PM peak-hour intersection analysis was prepared for 28 intersections in Segment D. Sixteen of these intersections are in the City of Bellevue and 12 are in the City of Redmond. Of the 28 intersections studied in Segment D, five are in WSDOT jurisdiction. Intersection analysis was prepared for the existing conditions and compared with the relevant jurisdiction's adopted LOS standard to gauge whether the intersection operates at an acceptable LOS. The relevant agencies within Segment D and their LOS standards are as follows:

- City of Bellevue: LOS E (Mobility Management Areas 4 and 14)
- City of Redmond: LOS E
- WSDOT: LOS E

None of the intersections in Segment D currently operates at LOS F. Three intersections along 148th Avenue NE operate at LOS E: SR 520 westbound ramp, NE 24th Street, and 20th Avenue NE. All other intersections operate at LOS D or better. Generally, the worst-operating intersections are located along the higher volume (and most congested) arterials: 140th Avenue NE, 148th Avenue NE, 20th Avenue, and 156th Avenue NE. PM peak-hour intersection LOS results are summarized in Exhibit 6-4 and presented in Table D-4 in Appendix D.


NE 40TH ST
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
148TH AVE NE
156TH AVE NE
REDMOND
D2E D3 D5
520
D2A
NE 31TH ST
Overlake Village Station
D2A
D5
Overlake Park & Ride
D2E D5
NE 24TH ST
D2E
D2A NE 24th Design Option
152ND AVE NE
NE 20TH ST
D3
Valley Creek
134TH AVE NE
140TH AVE NE
BELLEVUE
Goff Creek
NE 24TH ST
D5
NORTHUP WAY
BNSF Railway
116TH AVE NE
405
Segment C
Segment D
West Tributary of Kelsey Creek
NE 20TH ST
130TH AVE NE
132ND AVE NE
Sears Creek
HIGHLAND PARK & COMMUNITY CENTER
D2A
120th Station
130th Station
NE 16TH ST
D2E D3
BEL-RED RD
Kelsey Creek
NE 12TH
120TH AVE NE
124TH AVE NE
140TH AVE NE
148TH AVE NE
156TH AVE NE
D2E D3 D5
D2E D3 D5
Lake Bellevue
N
0
0.25 Mile
1
2

Existing Level of Service (LOS)

Bellevue (Bel-Red/Northup)	WSDOT	Redmond
🟢 A - D	🟢 1 A - D	🟢 2 A - D
🟡 E	🟡 1 E	🟡 2 E
🔴 F	🔴 1 F	🔴 2 F

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersection within WSDOT jurisdiction
2 - Intersection within City of Redmond jurisdiction. Other intersections are within the City Of Bellevue's jurisdiction

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

Intersection Type
- Signalized
- Two-Way Stop Controlled
- All-Way Stop Controlled

- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006) modified by CH2M HILL.

Exhibit 6-4 **Existing PM Level of Service at Intersections Segment D**
East Link Project

The AM peak hour along 156th Avenue NE and NE 40th Street was analyzed because of the unique travel patterns created by the surrounding land uses. This analysis included five intersections and all those intersections met agency LOS standards. AM peak-hour intersection LOS results are presented in Table D-15 in Appendix D.

6.2.4.2 Traffic Safety

Accident data for study area intersections was collected from each jurisdiction and reviewed within the project corridor. Accident rates were calculated as the number of accidents per MEV. Intersections within **S**egment D with an accident rate near or above 1.0 are considered intersections with high accident rates. Because many of the arterials include either median two-way left-turn lanes or curbed medians restricting turns to signalized intersections, none of the Segment D intersections have an accident rate higher than 0.72 per MEV. This provides an indication that the accident conditions within Segment D are relatively acceptable. Accident rates were also compared with the yearly average accident rate at the study intersections, as shown in Table 6-11.

TABLE 6-11
Segment D Local Intersection Accident Rates

Intersection	ADT	2004-2006 Accident Average			Yearly Accident Average	Accident Rate (acc./MEV)
		PDO	INJ	FAT		
City of Bellevue						
120th Avenue NE and NE 12th Street (MMA 4)	24,085	1.33	0.33	0	1.67	0.19
124th Avenue NE and Northup Way (MMA 4)	30,244	4.33	0.67	0	5.00	0.45
124th Avenue NE and Bel-Red Road (MMA 4)	33,450	2.33	0.33	0	2.67	0.22
130th Avenue NE and Bel-Red Road (MMA 4)	29,841	2.00	1.33	0	3.33	0.31
130th Avenue NE and NE 16th Street	7,097	0	0	0	0	N/A
130th Avenue NE and NE 20th Street (MMA 4)	31,757	5.33	3.00	0	8.33	0.72
132nd Avenue NE and Bel-Red Road	25,667	1.67	1.00	0	2.67	0.28
132nd Avenue NE and NE 16th Street	5,152	0	0	0	0	N/A
132nd Avenue NE and NE 20th Street	24,064	0.67	1.33	0	2.00	0.23
136th Place NE and NE 16th Street	5,031	1.00	0	0	1.00	0.54
136th Place NE and NE 20th Street	24,145	1.33	0.33	0	1.67	0.19
140th Avenue NE and 20th Avenue	45,286	4.33	1.00	0	5.33	0.32
NE 20th Street and mall entrance	23,167	1.67	0.67	0	2.33	0.32
City of Redmond						
148th Avenue NE and SR 520 westbound ramps	37,833	2.00	0	0	2.00	0.15
148th Avenue NE and SR 520 eastbound ramps	56,610	0.33	0.33	0	0.67	0.03
NE 24th Street and 148th Avenue NE	102,912	8.00	2.33	0	10.33	0.28
NE 24th Street and 151st Place NE	34,169	1.67	1.33	0	3.00	0.24
NE 20th Street and 152nd Avenue NE	22,301	4.00	1.00	0	5.00	0.61
NE 24th Street and 152nd Avenue NE	37,313	7.67	2.00	0	9.67	0.71
NE 26th Street and 152nd Avenue NE	14,263	0.00	0.33	0	0.33	0.06
NE 24th Street and Bel-Red Road	35,906	2.67	0.67	0	3.33	0.25
NE 40th Street and 148th Avenue NE	40,115	3.67	0.67	0	4.33	0.30
NE 40th Street and SR 520 westbound ramps	36,502	3.00	1.67	0	4.67	0.35

TABLE 6-11 CONTINUED
Segment D Local Intersection Accident Rates

Intersection	ADT	2004-2006 Accident Average			Yearly Accident Average	Accident Rate (acc./MEV)
		PDO	INJ	FAT		
NE 40th Street and SR 520 eastbound ramps	42,524	2.33	1.00	0	3.33	0.22
NE 40th Street and 156th Avenue NE	62,911	6.67	1.67	0	8.33	0.36
Overlake Park-and-Ride entrance and 156th Avenue NE	31,798	0	0	0	0	N/A
NE 36th Street and 156th Avenue NE	37,262	4.67	1.33	0	6.00	0.44
NE 31st Street and 156th Avenue NE	30,581	3.00	0.67	0	1.67	0.33
148th Avenue NE and NE 20th Street	61,338	5.33	0.67	0	6.00	0.28

acc./MEV	accidents per million entering vehicles
ADT	average daily traffic (entering only)
FAT	fatality
INJ	injury
N/A	not applicable; no recorded accidents during study period
PDO	property damage only

6.2.4.3 Parking

Parking surveys were conducted to inventory the on-street parking availability within 0.25 mile of the Segment D 120th, 130th, Overlake Village, and Overlake Transit Center Stations. Table 6-12 summarizes the survey results.

TABLE 6-12
Segment D Existing Parking Supply and Utilization by Station

Parking Type	AM Period			PM Period		
	Supply	Demand	Utilization (percent)	Supply	Demand	Utilization (percent)
120th						
On-street unrestricted	177	44	25	177	55	31
On-street restricted	–	–	–	–	–	–
Subtotal	177	44	25	177	55	31
130th						
On-street unrestricted	152	63	41	152	59	39
On-street restricted	1	0	0	1	0	0
Subtotal	153	63	41	153	59	39
Overlake Village						
On-street unrestricted	42	21	50	42	18	43
On-street restricted	–	–	–	–	–	–
Subtotal	42	21	50	42	18	43
Overlake Transit Center						
On-street unrestricted	21	14	67	21	14	67
On-street restricted	–	–	–	–	–	–
Subtotal	21	14	67	21	14	67

Note: Data were collected in spring 2007 on all roads within a 0.25-mile radius of each station.

The proposed location for the 120th Station is between 120th Avenue NE and 124th Avenue NE, near NE 14th Street. The current land use in this area is mainly light to heavy industrial. The area studied by the parking surveys is approximately bounded by 120th Avenue NE, NE 12th Street, 124th Avenue NE, and NE 18th Street. A total of 177 unrestricted on-street parking spaces were identified in this area. Between 25 and 30 percent of these spaces are occupied during the AM and PM peak periods.

The parking survey area surrounding the proposed location of the 130th Station at the intersection of NE 16th Street and 132nd Avenue NE is approximately bounded by 130th Avenue NE, Bel-Red Road, 136th Place NE, and NE 20th Street. A total of 152 unrestricted on-street parking spaces and one restricted on-street parking space were identified in this area. Approximately 40 percent of the unrestricted spaces are occupied during the AM and PM peak periods.

The Overlake Village Station would be constructed north of the NE 24th Street and 152nd Avenue NE intersection. This area is dominated by commercial retail outlets and office buildings. The area that was inventoried is approximately bounded by 148th Avenue NE, NE 20th Street, 156th Avenue NE, and NE 28th Street. A total of 42 unrestricted on-street parking spaces were identified in this area. During the AM peak period, half of these spaces were used. The utilization rate was slightly lower for the PM peak period, when 18 spaces, or 43 percent, were used. The proposed location for the Overlake Transit Center Station is on the southwest corner of the intersection of NE 40th Street and 156th Avenue NE. The surrounding area is primarily used as commercial office space. The parking survey area for this station was bounded by 150th Avenue NE, NE 36th Street, 159th Avenue NE, and NE 45th Street. A total of 21 unrestricted on-street parking spaces were identified in this area. During the AM and PM peak periods, 14 of these spaces, or 67 percent, were used. The Overlake Village Park-and-Ride has 203 parking spaces, of which 33 percent are used each weekday. The Overlake Transit Center has 170 parking spaces, all of which are used each weekday (King County Metro, 2007b).

Within Segment D, the majority of off-street parking occurs on private property throughout the Bel-Red Corridor in Bellevue and the Overlake area in Redmond. Private parking lots along Bel-Red Road typically do not enforce hourly parking policies; however, parking policies and enforcement vary among properties. Demand among private parking lots in Segment D is highest in the day during typical business hours.

6.2.5 Segment E

Segment E extends north of NE 40th Street along SR 520 to Downtown Redmond. Appendix A lists the study area intersections in Segment E.

6.2.5.1 Existing Operations and Level of Service

The project corridor within Segment E consists of roadway facilities that are listed in Table 6-13. Excluding SR 202, the number of lanes on the listed roadways are between two and four lanes. Both local arterial roadways (NE 76th Street and NE 70th Street) and the collector arterial (161st Avenue NE) are two-lane roads that have posted speeds of 25 mph. All other roadways identified in this segment are posted for either 30 or 35 mph. Except on SR 202 (Redmond Way and Cleveland Street) and Union Hill Road and Avondale Road NE, ADT volumes range between 6,000 and 16,000 vehicles. Daily traffic volumes on Redmond Way and Cleveland Street are between 27,000 and 29,000; Union Hill Road and Avondale Road NE have about 26,000 and 33,000 ADT, respectively.

Intersection analysis was prepared for 25 intersections in Segment E. Twenty-two of these intersections are in City of Redmond jurisdiction and the other three are in WSDOT jurisdiction. Intersection analysis was prepared for the existing conditions and reviewed against the relevant jurisdiction’s adopted LOS standard to gauge whether the intersections operate at an acceptable LOS. The relevant agencies within Segment E and their LOS standards are as follows:

- City of Redmond: LOS E
- WSDOT: LOS E

The intersections of NE Leary Way and West Lake Sammamish Parkway, Avondale Road NE and NE Union Hill Road, and SR 202 and East Lake Sammamish Parkway operate at LOS F, which is lower than the standard LOS. The intersection of SR 202 and SR 520 westbound ramps operates at LOS E, while all other intersections operate at or better than LOS D. PM peak-hour intersection LOS results are summarized in Exhibit 6-5 and presented in Table D-5 in Appendix D.

TABLE 6-13
Segment E Existing Roadway Facilities

Roadway	Arterial Classification	Number of Lanes	Speed Limit (mph)	ADT[a]
NE 40th Street	Collector arterial	4	35	10,740
NE 51st Street	Minor arterial	4	30	14,120
NE 76th Street	Local arterial	2	25	2,350
NE 70th Street	Local arterial	2	25	5,920
Leary Way NE	Principal arterial	4	30	15,850
West Lake Sammamish Parkway	Principal arterial	4	30	7,985
Redmond Way (couplet)	Principal arterial	3	30	27,010
Cleveland Street (couplet)	Principal arterial	2	30	29,460
Avondale Road NE	Principal arterial	5	35	33,000
NE Union Hill Road	Minor arterial	4	30	26,000
180th Avenue NE and 178th Place NE	Collector arterial	3	30	12,400
161st Avenue NE	Collector arterial	2	25	8,550
SR 202	Principal arterial	6	45	50,000

[a] ADT based on the latest available traffic count information from City of Redmond (http://www.redmond.gov/connectingredmond/resources/pdfs/redmondmachinecounts.pdf)

ADT	average daily traffic
mph	miles per hour

6.2.5.2 Traffic Safety

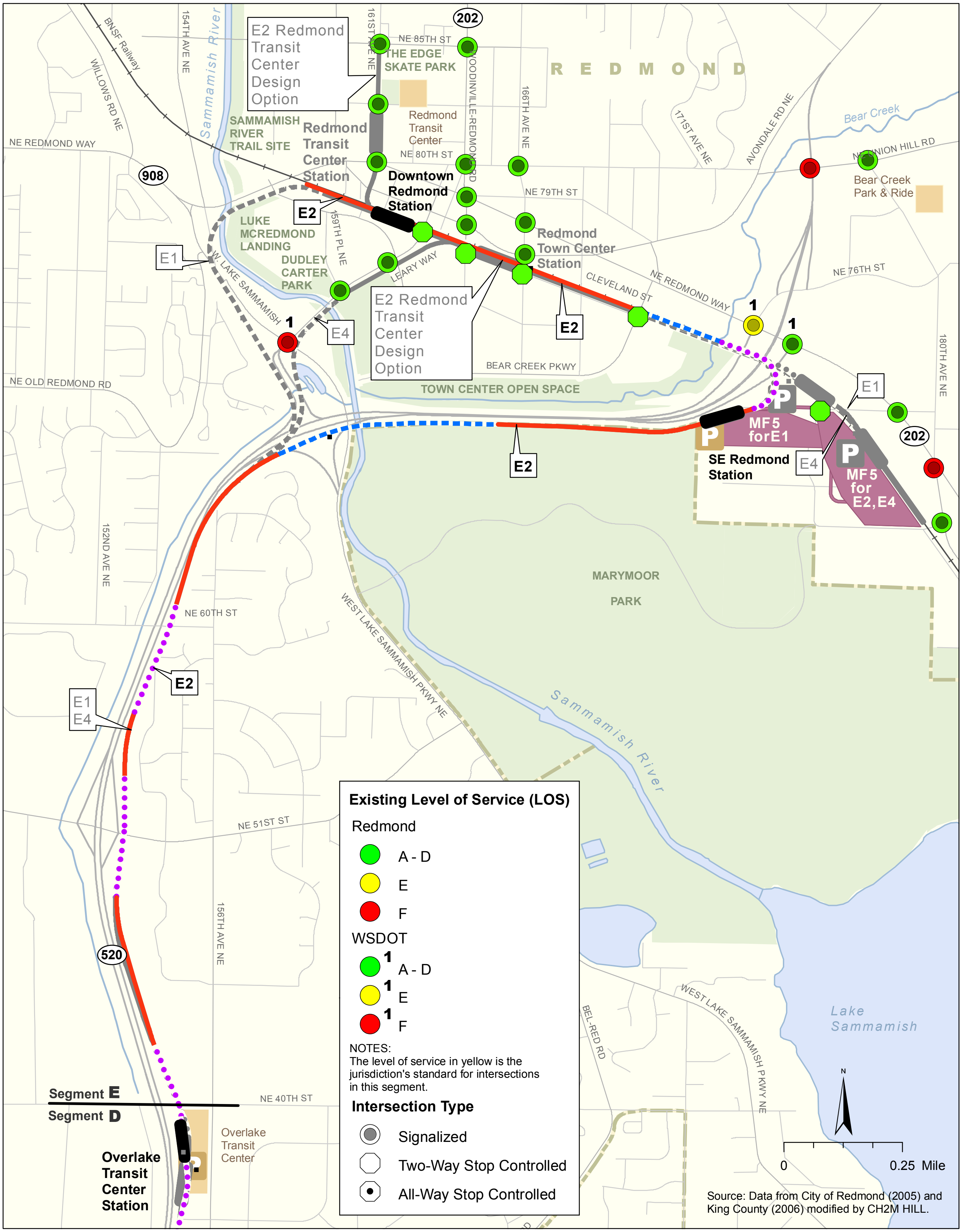
Accident data for study area intersections was collected from each jurisdiction within the project corridor and reviewed. Accident rates were calculated as the number of accidents per MEV. Four intersections within Segment E have accident rates near or above 1.0: 164th Avenue NE and NE 76th Street, 166th Avenue NE and SR 202, SR 202, and SR 520 westbound ramps, and 164th Avenue NE and NE 85th Street. Intersection accident rates were compared with the average number of yearly accidents, as shown in Table 6-14.

6.2.5.3 Parking

Parking surveys were conducted to inventory the availability of on-street parking within 0.25 mile of the Redmond Town Center, SE Redmond, and Redmond Transit Center stations in Segment E. Table 6-15 summarizes the results of the surveys.

The proposed location for Redmond Town Center Station is along NE 76th Street between 164th Avenue NE and 166th Avenue NE. Commercial and retail businesses surround this location. A total of 393 unrestricted and 31 restricted on-street parking spaces were identified within a 0.25-mile radius of the proposed station. During the AM peak period, 179 of these spaces, or 41 percent, were occupied. During the PM peak period, 187 of these spaces, or 45 percent, were occupied.

SE Redmond Station would be located near the intersection of SR 520 and SR 202. Light industry occupies the surrounding area. Within 0.25 mile of the station, a total of 41 unrestricted on-street parking spaces were identified. During the AM and PM peak periods, 29 of these spaces, or 71 percent, were occupied.


E2 Redmond Transit Center Design Option
202
NE 85TH ST
161ST AVE NE
THE EDGE SKATE PARK
REDMOND
154TH AVE NE
BNSF Railway
Sammamish River
WILLOWS RD NE
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Redmond Transit Center
NE 80TH ST
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE REDMOND WAY
908
Downtown Redmond Station
NE 79TH ST
E2
LUKE MCREDMOND LANDING
159TH PL NE
Redmond Town Center Station
E1
W. LAKE SAMMAMISH
DUDLEY CARTER PARK
LEARY WAY
NE 76TH ST
CLEVELAND ST
NE REDMOND WAY
1
E4
E2 Redmond Transit Center Design Option
E2
1
180TH AVE NE
BEAR CREEK PKWY
NE OLD REDMOND RD
TOWN CENTER OPEN SPACE
E1
MF5 for E1
202
E2
SE Redmond Station
E4
MF5 for E2, E4
152ND AVE NE
MARYMOOR PARK
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
E2
E1
E4
Sammamish River
NE 51ST ST
520
156TH AVE NE
BEL-RED RD
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
N
0
0.25 Mile
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
Overlake Transit Center Station
P

Existing Level of Service (LOS)

Redmond

- 🟢 A - D
- 🟡 E
- 🔴 F

WSDOT

- 🟢[1] A - D
- 🟡[1] E
- 🔴[1] F

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection Type

- ◉ Signalized
- ○ Two-Way Stop Controlled
- ⊙ All-Way Stop Controlled

Source: Data from City of Redmond (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Other Alternatives

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut or Retained-Fill Route
- ▬ ▬ Tunnel Route

- ▪ Traction Power Substation
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot

NOTE:
The intersection at Cleveland St. and 161st Ave NE does not exist in existing (2007) conditions, as roadway projects were not completed by then.

Exhibit 6-5 **Existing PM Level of Service at Intersections Segment E**

East Link Project

Redmond Transit Center Station would be located along 161st Avenue NE between NE 80th Street and NE 83rd Street. Land use consists mainly of multifamily residences and light commercial. A total of 485 unrestricted and 52 restricted on-street parking spaces were identified within a 0.25-mile radius of this location. At least 60 percent of the unrestricted spaces were occupied during the AM and PM peak periods.

TABLE 6-14
Segment E Local Intersection Accident Rates

Intersection	ADT	2004-2006 Accident Average			Yearly Accident Average	Accident Rate (Acc./MEV)
		PDO	INJ	FAT		
City of Redmond						
NE Leary Way and West Lake Sammamish Parkway	61,732	5.00	0.67	0	5.67	0.25
NE Leary Way and 159th Place NE	36,895	1.33	0.67	0	2.00	0.14
NE Leary Way and Bear Creek Parkway	35,944	1.67	0.33	0	2.00	0.15
NE Leary Way and NE 76th Street	15,721	0	0	0	0	N/A
Redmond Way at 161st Avenue NE	22,682	3.00	0.67	0	3.67	0.44
NE 83rd Street at 161st Avenue NE	12,476	2.67	1.00	0	3.67	0.81
NE 85th Street and 161st Avenue NE	2,112	3.00	0.67	0	3.67	0.47
164th Avenue NE and SR 202/Redmond Way	21,731	2.33	0.33	0	2.67	0.34
164th Avenue NE and NE 76th Street	**3,017**	**0**	**1.67**	**0**	**1.67**	**1.51**
164th Avenue NE and Cleveland Street	18,523	1.33	0.33	0	1.67	0.25
164th Avenue NE and NE 80th Street	20,818	4.33	0.67	0	5.00	0.66
164th Avenue NE and NE 85th Street	**29,109**	**8.00**	**2.33**	**0.33**	**10.67**	**1.00**
166th Avenue NE and SR 202/Redmond Way	**24,901**	**10.67**	**1.33**	**0**	**12.00**	**1.32**
166th Avenue NE and NE 76th Street	10,980	0.67	0	0	0.67	0.17
166th Avenue NE and NE Cleveland Street	29,388	2.33	0.67	0	3.00	0.28
166th Avenue NE and NE 80th Street	23,620	2.33	1.00	0	3.33	0.39
NE 76th Street and Bear Creek Parkway	16,507	1.00	1.00	0	2.00	0.33
SR 202/Redmond Way and SR 520 westbound ramps	**51,564**	**15.33**	**3.00**	**0**	**18.33**	**0.97**
SR 202/Redmond Way and SR 520 eastbound ramps	51,564	5.33	1.33	0	6.67	0.35
SR 202/Redmond Way and NE 70th Street	46,163	4.67	0.67	0	5.33	0.32
NE 70th Street and 176th Avenue NE	5,882	0	0	0	0	N/A
178th Place NE and Union Hill Road	35,652	2.67	1.00	0	3.67	0.28
Avondale Road NE and NE Union Hill Road	53,858	6.00	0	0	6.00	0.31
East Lake Sammamish Parkway and NE 65th Street	29,160	1.33	0	0	1.33	0.13
SR 202/Redmond Way and East Lake Sammamish Parkway (180th Avenue NE)	49,814	12.67	2.00	0	14.67	0.81

Note: Intersections with an accident rate at or above 1.0 are highlighted in bold text.

acc./MEV	accidents per million entering vehicles
ADT	average daily traffic (entering only)
FAT	fatality
INJ	injury
N/A	not applicable; no recorded accidents during study period
PDO	property damage only

TABLE 6-15
Segment E Existing Parking Supply and Utilization by Station

Parking Type	AM Period			PM Period		
	Supply	Demand	Utilization (percent)	Supply	Demand	Utilization (percent)
Redmond Town Center [a]						
On-street unrestricted	393	162	41	393	175	45
On-street restricted	31	17	55	31	12	39
Subtotal	424	179	42	424	187	44
Downtown Redmond [a]						
On-street unrestricted	253	121	48	253	120	47
On-street restricted	13	9	69	13	12	92
Subtotal	266	130	49	266	132	50
SE Redmond						
On-street unrestricted	41	29	71	41	29	71
On-street restricted	–	–	–	–	–	–
Subtotal	41	29	71	41	29	71
Redmond Transit Center [a]						
On-street unrestricted	485	303	62	485	303	62
On-street restricted	52	27	52	52	21	40
Subtotal	537	330	61	537	324	60

Note: Data were collected in spring 2007 on all roads within a 0.25-mile radius of each station.

[a] A restricted parking zone (RPZ) near the proposed station has been implemented since the 2007 parking survey. These RPZs would reduce the available on-street unrestricted parking.

Redmond Transit Center Park-and-Ride Lot has 377 parking spaces, 80 percent of which are used each weekday. The Bear Creek Park–and-Ride Lot, located about 1 mile east of Redmond Transit Center, has 273 parking spaces, more than 100 percent of which are used each weekday (King County Metro, 2007b). Private off-street parking is located at major employment and commercial centers within Segment E. A majority of the private parking is located at Redmond Town Center, and demand varies through the day and evening hours.

6.3 Environmental Impacts

This section analyzes the impacts of the no-build condition and build alternatives in two subsections. Section 6.3.1 presents regional and local travel demand forecasts and each station's vehicle trip generation. The vehicle trip generation is based on the light rail ridership estimates presented in Section 4.3.3. Section 6.3.2 describes the impacts on the local and arterial street system. The analysis on the local and arterial street system includes the future 2020 and 2030 intersection LOS, safety assessment, parking impacts, and property access and circulation patterns. The focus of the analysis in this section is near the proposed stations and along the alternative routes.

6.3.1 Travel Demand Forecasts

Future-year analysis was performed for years 2020 and 2030 and based on the PSRC's current population and land uses forecasts (spring 2007). In the future conditions (no-build and build), numerous highway and arterial improvements were assumed to have been implemented. Section 3.3 provides a more detailed discussion of the travel demand forecasts and summarizes the list of programs and/or projects and the future year(s) when they were assumed to occur. Appendix A provides a complete list of future projects assumed to have been implemented by 2020 and 2030.

Overall, by year 2030, no-build traffic volumes in Segment A are predicted to grow at an average annual growth rate of 2.1 percent and 1.8 percent in the AM and PM, respectively. The highest no-build vehicle growth would occur in Segments A and D, at approximately 2.5 percent per year until 2020, and about 2.0 percent annually up to 2030. Traffic volumes in Segment B are expected to annually grow at a rate of about 1.0 percent through year 2030. Traffic volumes in Segments C and E are expected to annually grow at approximately 1.5 percent through year 2030.

For the build condition, two methods were used to forecast the future vehicular demand. The first method focuses on the impacts of station demand in the South Bellevue (Segment B), Bel-Red (Segment D), and Redmond (Segment E) areas. The second method applies to the I-90 freeway (including Seattle and Mercer Island) and the Downtown Bellevue area (Segment C).

The first method relies on the future no-build forecasts and the station's trip generation information developed from the Sound Transit ridership model. The mode of travel information generated by the Sound Transit ridership model was refined based on the Portland Banfield LRT Station Mode of Access Survey (Tri-Met, 1996) and the *2008 Bay Area Rapid Transit (BART) Station Profile Study* (BART, 2008). The Banfield and BART studies provided mode of access and egress data of Portland and BART light rail riders. These surveys characterize the different modes people choose to use to access and egress the stations, such as walk, drive alone, drive with others, drop off, transit transfer, or other. The light rail station's vehicle and nonmotorized trips associated with the light rail station ridership forecasts for the highest ridership alternative were assigned to the transportation system around the stations. The station's vehicle and nonmotorized forecasts were incorporated into the 2020 and 2030 no-build forecasts to yield a vehicle and nonmotorized forecast for the build condition. This approach yields a conservative forecast for the project alternatives because it does not reflect the shift to transit as people choose to ride light rail rather than drive.

The second method to develop future forecasts of the build condition relies on a forecast of the build condition from the PSRC model and the transit station trip generation information developed from the Sound Transit ridership model. This method was used to identify the shift in traffic demand and patterns within a congested transportation system. The transit ridership associated with the light rail alternatives and the transit service modifications (based on the 2020 and 2030 Transit Service Integration Plan, Sound Transit, 2007) were used to understand demand and travel pattern changes with the build condition compared with the no-build condition.

This method was used to estimate the regional and screenline changes in modal shares and to estimate the vehicular demand for the I-90 and Downtown Bellevue areas. Specifically, the PSRC model was used to develop I-90 freeway mainline and ramps volumes and intersection turn movement volumes in Seattle, Mercer Island (Segment A), and downtown Bellevue (Segment C) for the no-build and build conditions. In these segments, the station's vehicle forecasts from the PSRC demand model were compared with the station's vehicle trip forecasts from the Sound Transit ridership model to ensure a similar forecast between the two models. Volume adjustments were made where necessary to provide a consistent analysis approach for the stations throughout the study area.

In the build condition, there would be a slight reduction in auto use compared with the no-build condition as people adjust their mode of transportation and ride light rail. For 2020, the forecasts for the build condition estimate a reduction of between 2 and 3 percent in the vehicle demand compared with the no-build condition. By 2030, the reduction in vehicle demand between the build and no-build conditions is estimated to be up to 4 percent. A slightly larger reduction would occur in 2030 because congestion is expected to be higher and therefore more people would choose to ride light rail as it is a more reliable transportation mode and would provide a considerable travel time savings compared with driving.

Station trip generation was calculated based on the highest PM peak-period (3-hour) ridership forecasts for each station and included the PM peak bus service levels provided by the transit integration plan prepared for this project (Sound Transit, 2007a). Net increases in bus volumes over existing and no-build conditions were added to the transportation network for each station. Year 2020 and 2030 daily and PM peak-period ridership for the highest ridership alternatives at each station are summarized by mode of travel in Tables 6-16 and 6-17.

TABLE 6-16
2020 3-Hour PM Peak-Period and Daily Station Ridership

Station	Alternative	Daily Station Light Rail Boardings[a]	3–Hour PM Peak Light Rail Ridership[a,d]						
			Walk-and/or Bike-On[c]	Walk-and/or Bike-Off[c]	Bus Access	Bus Egress	Vehicle Person Demand[b]	Person Total[e]	Kiss-and-Ride and Park-and-Ride Vehicle Trips[b]
Rainier	*Preferred Alternative A1*	3,000	290	420	390	390	N/A	1,490	220/0
Mercer Island	*Preferred Alternative A1*	2,500	190	170	280	130	520	1,280	70/390
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 – 114th Extension Design Option	4,000	20	80	500	470	1,710	2,780	250/1,310
SE 8th	*Preferred Alternative B2M (from C9T)* and Alternatives B2A and B2E	500	220	70	30	0	N/A	310	50/0
118th	Alternative B7	2,000	210	60	110	250	750	1,390	110/580
Old Bellevue	Alternative C1	1,500	630	420	10	0	N/A	1,070	160/0
East Main	Segment C alternatives (except C14E) from Alternatives B3, B3 – 114th Extension Design Option, and B7 [g]	2,500	710	450	230	50	N/A	1,440	210/0
108th	*Preferred Alternative C11A*	2,000	670	480	160	50	N/A	1,360	200/0
Bellevue Transit Center	All Segment C alternatives	6,000	2,530	930	500	1,700	N/A	5,650	460/0
Ashwood/ Hospital	Alternatives C3T, C4A, C7E, and C8E	1,000	520	170	50	0	N/A	740	110/0
Hospital	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E	1,000	300	150	200	30	N/A	680	100/0
120th[f]	*Preferred Alternative D2A* and Alternatives D2E and D3	500	150	280	30	10	N/A	460	70/0
130th[f]	*Preferred Alternative D2A* and Alternatives D2E and D3	1,000	270	60	0	0	360	680	50/270
Overlake Village	All Segment D alternatives	1,000	160	60	80	100	340	740	50 /260
Overlake Transit Center	All Segment D alternatives	3,000	440	280	190	620	600	2,140	90/460
SE Redmond	All Segment E alternatives	2,000	50	20	50	0	1,350	1,470	200/1,030
Redmond Town Center	All Segment E alternatives	1,500	190	140	250	210	N/A	790	120/0
Downtown Redmond	*Preferred Alternative E2*	1,500	270	120	350	250	N/A	980	140/0
Redmond Transit Center	E2 – Redmond Transit Center Design Option	500	50	60	10	0	190	310	30/150

Note: Because of rounding, ridership might not sum exactly to totals.
Source: Sound Transit ridership model.

[a] The forecasts provided in this table represent the highest ridership at that station from any East Link alternative.

[b] The unconstrained demand forecasts are shown and are not constrained by the available parking supply.

[c] Walk-on and walk-off station forecasts include bicyclist riders.

[d] 3-hour PM peak period closely represents daily park-and-ride demand.

[e] PM peak person trips include people boarding and alighting from bus and light rail.

[f] Instead of providing a park-and-ride at the 130th Station, this lot could be relocated to 120th Station with the *Preferred Alternative D2A*.

[g] C9T – East Main Station Design Option connecting with *Preferred Alternative B2M* would have no change in forecast information .

N/A This station does not have a park-and-ride.

TABLE 6-17
2030 3-Hour PM Peak-Period and Daily Station Ridership

Station	Alternative	Daily Station Light Rail Boardings[a]	3–Hour PM Peak Light Rail Ridership[a,d]						
			Walk-on[c]	**Walk-off[c]**	**Bus Access**	**Bus Egress**	**Vehicle Person Demand[b]**	**Person Total[e]**	**Kiss-and-Ride and Park-and-Ride Vehicle Trips[b]**
Rainier	*Preferred Alternative A1*	3,000	390	400	370	380	N/A	1,550	220/0
Mercer Island	*Preferred Alternative A1*	3,000	240	250	390	200	610	1,670	90/460
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 – 114th Extension Design Option	5,000	20	100	750	680	2,040	3,600	300/1,560
SE 8th	*Preferred Alternative B2M (from C9T)* and Alternatives B2A and B2E	500	260	90	30	0	N/A	380	60/0
118th	Alternative B7	2,500	320	100	200	390	990	2,010	140/760
Old Bellevue	Alternative C1	2,500	930	500	20	0	N/A	1,450	210/0
East Main	Segment C alternatives (except C14E) from Alternatives B3, B3 – 114th Extension Design Option, and B7[g]	3,500	1,140	580	320	80	N/A	2,120	310/0
108th	*Preferred Alternative C11A*	2,500	920	520	190	70	N/A	1,700	250/0
Bellevue Transit Center	All Segment C alternatives	7,000	3,180	960	530	1,570	N/A	6,240	510/0
Ashwood/ Hospital	Alternatives C3T, C4A, C7E, and C8E	1,000	520	170	50	0	N/A	740	110/0
Hospital	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E	1,500	800	280	440	90	N/A	1,610	230/0
120th[f]	*Preferred Alternative D2A* and Alternatives D2E and D3	1,000	210	300	40	10	N/A	560	80/0
130th[f]	*Preferred Alternative D2A* and Alternatives D2E and D3	1,500	560	170	0	0	500	1,230	70/380
Overlake Village	All Segment D alternatives	1,500	350	150	160	210	630	1,510	90/480
Overlake Transit Center	All Segment D alternatives	4,500	640	480	310	930	880	3,230	130/670
SE Redmond	All Segment E alternatives	2,000	50	20	50	0	1,350	1,470	200/1,030
Redmond Town Center	All Segment E alternatives	2,000	260	120	300	270	N/A	950	140/0
Downtown Redmond	*Preferred Alternative E2*	2,000	320	130	380	310	N/A	1,130	160/0
Redmond Transit Center	E2 – Redmond Transit Center Design Option	500	70	80	10	0	240	390	30/180

Note: Because of rounding, ridership might not sum exactly to totals.
Source: Sound Transit ridership model.

[a] The forecasts provided in this table represent the highest ridership at that station from any East Link alternative

[b] The unconstrained demand forecasts are shown and are not constrained by the available parking supply.

[c] Walk-on and walk-off station forecasts include bicyclist riders.

[d] 3-hour PM peak period is a close representation of daily park-and-ride demand

[e] PM peak person trips include people boarding and alighting from bus and light rail.

[f] Instead of providing a park and ride at the 130th Station, this lot could be relocated to 120th Station with the *Preferred Alternative D2A*.

[g] C9T – East Main Station Design Option connecting with *Preferred Alternative B2M* would have no change in forecast information.

N/A This station does not have a park-and-ride lot.

Total ridership at each station was separated into three categories: walk/bike, bus transfer, and auto-related person demand for stations with proposed park-and-ride lots. Walk/bike and bus transfer trips were divided into walk/bike trips on and off light rail and bus access onto and egress with light rail. Vehicle trips were calculated by applying an average vehicle occupancy factor to the auto person demand. The vehicle data in these tables includes park-and-ride and passenger drop-off and pick-up trips but do not include bus vehicles. The PM peak-period park-and-ride demand is considered to be the daily demand at the park-and-ride lot as vehicles typically arrive in the AM peak period and leave in the PM peak period, with limited activity outside these periods. A percentage of the total PM peak period ridership at a proposed station was used to calculate the passenger drop-off/pick-up volumes and is discussed in further detail later in this section. These percentages are provided in Table 6-18.

TABLE 6-18
Light Rail Station Passenger Drop-Off and Pick-Up (Kiss-and-Ride) Assumptions

Station Type	Applicable Stations	Passenger Drop-Off and Pick-Up (percent)
Station with park-and-ride facilities	Mercer Island, South Bellevue, 118th, 130th, Overlake Village, SE Redmond, Redmond Transit Center	16
Station only	Rainier, SE 8th, Old Bellevue, 108th, East Main, Ashwood/Hospital, Hospital, 120th, Redmond Town Center	16
Major transit center with park-and-ride facilities	Overlake Transit Center	16
Major transit center only	Bellevue Transit Center	9

Source: Tri-Met (1996); BART (2008).

In 2020, the highest nonmotorized accessed station would be the Bellevue Transit Center, with about 6,000 people accessing (entering or leaving) this station in the PM peak period. This high number is expected because of the dense urban environment surrounding the station. In more suburban stations, the nonmotorized access trips would be substantially lower. The highest transit access/egress person forecasts are at the Rainier, Mercer Island, South Bellevue, Bellevue Transit Center, Overlake Transit Center, Downtown Redmond, and Redmond Town Center stations. All of these stations are expected to have more than 400 people either accessing or exiting buses. The largest park-and-ride person demand forecasts are for the South Bellevue, SE Redmond, and Overlake Transit Center stations.

In general, ridership by year 2030 would be higher than year 2020 although the characteristics a station's modes of access would be similar to the patterns exhibited in year 2020. As shown in Table 6-17, the highest number of people accessing (entering or leaving) the Bellevue Transit Center Station is over 7,000 people in the PM peak period. Many of these riders would originate from businesses in Downtown Bellevue and would be bound for cross-lake and surrounding destinations. Alternatively, in terms of bus transfer ridership, the highest number of trips originating from transferring transit modes (that is, bus to light rail and vice versa) would occur at transit centers or stations with park-and-ride facilities. In generally, during the PM peak period, a higher number of transit riders would board (rather than exit) a bus or light rail at stations (SE 8th Street, Old Bellevue, East Main, 108th, Bellevue Transit Center, Ashwood/Hospital, Hospital, Redmond Town Center and Downtown Redmond stations) within or adjacent to a downtown core that have a concentration of commercial and office land uses, as shown in Table 6-17.

For proposed park-and-ride stations, regardless of the vehicle demand predicted from the ridership model, it was assumed that the number of new park-and-ride vehicle trips generated would be equal to the total number of proposed park-and-ride stalls. If the park-and-ride facility is an existing lot, the total number of new park-and-ride trips is the difference between the total number of proposed stalls and the existing utilization of the park-and-ride lot. This assumption is applied to all park-and-rides in the study area and provides a conservative assessment of traffic impacts near the stations.

Within the study area, five of the proposed park-and-ride stations already exist as park-and-ride facilities. These are the Mercer Island, South Bellevue, Overlake Transit Center, Overlake Village, and Redmond Transit Center stations. With the project, the total number of parking stalls at the South Bellevue and Overlake Transit Center stations would increase. The 118th Avenue, 130th Avenue, and SE Redmond stations would include new park-and-ride facilities. Instead of providing a park and ride at the 130th Station, this lot could be relocated to 120th Station with the *Preferred Alternative D2A*. The number of parking stalls at the Mercer Island, Overlake Village, and Redmond Transit Center would not be increased. For the traffic analysis, all these park-and-ride lots were assumed to be at full capacity. Section 6.3.2 compares the existing and, if applicable, proposed number parking stalls at each park-and-ride station to the number of vehicles forecasted to park there.

Bus vehicle trips were estimates from the transit integration plan (Sound Transit, 2007a). This integration plan developed a bus service plan for the no-build and build conditions. At stations with a park-and-ride, the passenger drop-off and pick-up trips were assumed to be a percentage of the unconstrained auto person demand. For non-park-and-ride stations, the passenger drop-off and pick-up trips were assumed to be a percentage of the total peak-hour ridership. The passenger drop-off and pick-up percentages (see Table 6-18) were developed based on information provided by Tri-Met (1996) for stations in the Portland area and BART (2008) for stations in the San Francisco area that have characteristics similar to the proposed East Link stations.

Using the 3-hour station ridership information and the passenger drop-off/pick-up assumptions, year 2020 and 2030 vehicle trip generation numbers were prepared for each station. To generate PM peak-hour vehicle trips, it was assumed 43 percent of the PM peak-period (3-hour) activity would occur during the PM peak hour. This 43 percent estimate was based on survey data from Sound Transit's commuter rail stations, Central Link's light rail park-and-ride, and trip generation from light rail transit park-and-ride lots in other U.S. rail systems. Year 2020 and 2030 vehicle trip generation for each East Link station is summarized in Table 6-19.

TABLE 6-19
2020 and 2030 Station PM Peak-Hour Vehicle Trip Generation Summary

Station	Alternatives	Type of Trips	2020			2030		
			In	Out	Total	In	Out	Total
Rainier	*Preferred Alternative A1*	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	93	93	186	97	97	194
		Buses	-19 (53)	-19 (53)	-38 (106)	-20 (54)	-20 (54)	-40 (108)
		Total	74	74	148	77	77	154
Mercer Island	*Preferred Alternative A1*	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	32	32	64	38	38	76
		Buses	-17 (17)	-17 (18)	-34 (35)	-18 (17)	-18 (18)	-36 (35)
		Total	15	15	30	20	20	40
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 – 114th Extension Design Option	Park-and-ride	0	367	367	0	367	367
		Drop-off/pick-up	107	107	214	128	128	256
		Buses	-3 (30)	0 (33)	-3 (63)	-1 (33)	1 (35)	0 (68)
		Total	104	474	578	127	496	623
SE 8th	*Preferred Alternative B2M (from C9T)* and Alternatives B2A and B2E	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	20	20	40	24	24	48
		Buses	4 (20)	4 (20)	8	5 (21)	5 (21)	10 (42)
		Total	24	24	48	29	29	58
Old Bellevue	Alternative C1	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	67	67	134	91	91	182
		Buses	2 (24)	2 (24)	4 (48)	2 (24)	2 (24)	4 (48)
		Total	69	69	138	93	93	186
118th	Alternative B7	Park-and-ride	0	353	353	0	353	353
		Drop-off/pick-up	47	47	94	62	62	124
		Buses	0 (11)	0 (11)	0 (22)	0 (11)	0 (11)	0 (22)
		Total	47	400	447	62	415	477

TABLE 6-19 CONTINUED
2020 and 2030 Station PM Peak-Hour Vehicle Trip Generation Summary

Station	Alternatives	Type of Trips	2020			2030		
			In	Out	Total	In	Out	Total
East Main	All Segment C alternatives (except C14E) with Alternatives B3, B3 – 114th Extension Design Option, and B7	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	90	90	180	133	133	266
		Buses	0 (12)	0 (12)	0 (24)	0 (12)	0 (12)	0 (24)
		Total	90	90	180	133	133	266
108th	*Preferred Alternative C11A*	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	85	85	170	106	106	212
		Buses	0	0	0	0	0	0
		Total	85	85	170	106	106	212
Bellevue Transit Center	All Segment C Alternatives	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	199	199	398	219	219	438
		Buses	-12 (72)	-12 (78)	-24 (150)	-12 (70)	-11 (77)	-23 (147)
		Total	187	187	374	207	208	415
Ashwood/ Hospital	Alternatives C3T, C4A, C7E, and C8E	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	46	46	92	46	46	92
		Buses	0 (8)	0 (8)	0 (16)	0 (8)	0 (8)	0 (16)
		Total	46	46	92	46	46	92
Hospital	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	42	42	84	101	101	202
		Buses	0	0	0	0	0	0
		Total	42	42	84	101	101	202
120th	*Preferred Alternative D2A* and Alternative D2E and D3	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	29	29	58	35	35	70
		Buses	4 (8)	4 (8)	8 (16)	4 (8)	4 (8)	8 (16)
		Total	33	33	66	39	39	78
130th	*Preferred Alternative D2A* and Alternative D2E and D3	Park-and-ride	0	129	129	0	129	129
		Drop-off/pick-up	22	22	44	31	31	62
		Buses	0	0	0	0	0	0
		Total	22	151	173	31	160	191
Overlake Village	All Segment D Alternatives	Park-and-ride	0	58 (203)	58 (203)	0	58 (203)	58 (203)
		Drop-off/pick-up	21	21	42	39	39	78
		Buses	-2 (12)	-2 (15)	-4 (27)	-2 (12)	-2 (15)	-4 (27)
		Total	19	77	96	37	95	132
Overlake Transit Center	All Segment D Alternatives	Park-and-ride	0	60	60	0	60	60
		Drop-off/pick-up	38	38	76	55	55	110
		Buses	-20 (51)	-20 (53)	-40 (104)	-20 (51)	-20 (53)	-40 (104)
		Total	18	78	96	35	95	130
Redmond Town Center	All Segment E Alternatives	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	50	50	100	59	59	118
		Buses	-14 (26)	-14 (26)	-28 (52)	-14 (26)	-14 (26)	-28 (52)
		Total	36	36	72	45	45	90
SE Redmond	All Segment E Alternatives	Park-and-ride	0	602	602	0	602	602
		Drop-off/pick-up	85	85	170	85	85	170
		Buses	6 (6)	6 (6)	12 (12)	6 (6)	6 (6)	12 (12)
		Total	91	693	784	91	693	784

TABLE 6-19 CONTINUED
2020 and 2030 Station PM Peak-Hour Vehicle Trip Generation Summary

Station	Alternatives	Type of Trips	2020			2030		
			In	Out	Total	In	Out	Total
Downtown Redmond	*Preferred Alternative E2*	Park-and-ride	0	0	0	0	0	0
		Drop-off/pick-up	61	61	122	71	71	142
		Buses	0	0	0	0	0	0
		Total	61	61	122	71	71	142
Redmond Transit Center	E2 – Redmond Transit Center Design Option	Park-and-ride	0	33	33	0	33	33
		Drop-off/pick-up	12	12	24	15	15	30
		Buses	-14 (39)	-14 (37)	-28(76)	-14 (39)	-14 (37)	-28(76)
		Total	-2	31	29	1	34	35

Notes: The highest ridership alternative is shown for reach station.

For bus trips, the total build bus volumes are noted in parentheses. Outside the parentheses are the net changes to the bus volumes in the build compared with the no-build condition.

Overall, the highest trip-generating stations are those with expanded or new park-and-ride facilities. The three highest trip generating park-and-ride stations are South Bellevue, 118th, and SE Redmond. These locations are expected to generate between 400 and 800 new PM peak-hour vehicle trips. Bellevue Transit Center, while generating the highest station ridership, would produce a low percentage of vehicle trips because most of the transit riders would be walking or bicycling between the station and the surrounding office, commercial, retail, and residential areas of Downtown Bellevue.

The PM peak-hour vehicle trips generated at each proposed station were allocated throughout the study area based on existing and future travel patterns, station access plans, and bus route assumptions as part of the transit integration plan (Sound Transit, 2007a). Only the net increases in bus volume over existing and no-build conditions were added to the transportation network for each station.

Ridership forecasts were also prepared for each of the potential interim terminus stations. The alternative generating the highest station ridership was used to forecast the potential increase in trip activity if that station were to be an interim terminus. Table 6-20 provides mode of access ridership information for each potential interim terminus station including the increases in each station’s daily boardings, peak-period vehicle-trips, and peak-period total person-trips over the values shown in Tables 6-16 and 6-17 for the full-length East Link alternatives.

The interim terminus station ridership forecasts at the Hospital, Overlake Village, and Overlake Transit Center stations indicate a noticeable increase in daily boardings; however the majority of these trips are either walk/bike or bus transfer trips. Similar to the process used to create Table 6-19, Table 6-21 provides PM peak hour vehicle trip information converted from the ridership forecast information in Table 6-20. From Table 6-21, the Hospital, Overlake Village, and Redmond Town Center stations would generate the largest increases in PM peak hour vehicle activity as interim terminus stations in either year 2020 or 2030. No other stations would have a noticeable trip generation impact as an interim terminus station.

Because the vehicle data in Table 6-21 was adjusted based on the traffic analysis methodology (described earlier in this section) there are differences between the increases in vehicle-trips in Tables 6-20 and 6-21. Since the park-and-ride stations are already conservatively estimated to be fully utilized in the peak periods under the full-length alternatives, there would be no change between the park-and-ride trip generation for the full-length alternative analysis and the interim terminus analysis.

TABLE 6-20
2020 and 2030 3-Hour PM Peak-Period and Daily Interim Terminus Station Ridership

			3–Hour PM Peak Light Rail Ridership[a]								
Interim Terminus Station	**Daily Station Boardings[a]**	**Increase in Daily Boardings[d]**	**Light Rail Walk-on[c]**	**Light Rail Walk-off[c]**	**Bus Access**	**Bus Egress**	**Vehicle Person Demand[b]**	**Person Total**	**Increase in Person Totals[c]**	**Kiss-and-Ride/Park-and-Ride Vehicle Trips[b]**	**Increase in Vehicle Trips[c]**
2020 Condition											
Hospital	2,000	1,000	330	170	370	290	N/A	1160	480	170/0	70
Ashwood/Hospital	1,000	0	320	160	60	0	N/A	530	-210	80/0	0[d]
120th	1,000	500	250	330	50	20	N/A	660	200	100/0	30
130th	1,000	0	240	50	0	0	590	880	200	90/450	210
Overlake Village	2,500	1,500	220	140	180	180	1,000	1,720	980	150/770	600
Overlake Transit Center	4,500	1,500	370	240	410	1,330	580	2,940	800	80/440	0[d]
SE Redmond	2,000	0	70	30	100	0	1,260	1,460	-10	180/960	0[d]
Redmond Town Center	2,000	500	200	540	260	350	N/A	1,350	560	200/0	80
2030 Condition											
Hospital	3,000	1,500	590	230	550	370	N/A	1,740	130	250/0	20
Ashwood/Hospital	1,000	0	540	200	110	0	N/A	850	110	120/0	10
120th	1,500	500	370	410	70	30	N/A	880	320	130/0	50
130th	1,500	0	350	110	0	0	660	1,120	-110	100/510	150
Overlake Village	3,500	2,000	310	180	250	310	1,260	2,310	800	180/960	570
Overlake Transit Center	6,000	1,500	500	390	650	1,690	730	3,960	730	110/560	0[d]
SE Redmond	2,500	500	90	30	140	0	1,370	1,630	160	200/1,050	20
Redmond Town Center	2,500	500	280	610	310	430	N/A	1,630	680	240/0	100

Source: Sound Transit ridership model.

[a] The highest ridership alternative is shown for each interim terminus station

[b] The unconstrained demand forecasts are shown and are not constrained by the available parking supply.

[c] Ridership increases are determined by comparing to the forecasts in Tables 6-16 and 6-17. Due to rounding, the increases might not sum exactly to totals.

[d] These interim terminus stations are conservatively projected to have a zero net increase in vehicle trips even though the forecasts suggested a potential decrease due to changes in the mode of access when the station is an interim terminus.

TABLE 6-21
2020 and 2030 Interim Terminus Station PM Peak-Hour Vehicle Trip Generation Summary

Interim Terminus Station	Type of Trips	2020			2030		
		In	Out	Total	In	Out	Total
Hospital	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	30	30	60	8	8	16
	Buses	0	0	0	0	0	0
	Total	30	30	60	8	8	16
Ashwood/Hospital[a]	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	-13	-13	-26	7	7	14
	Buses	4 (12)	4 (12)	8 (24)	4 (12)	4 (12)	8 (24)
	Total	-9	-9	-18	11	11	22
120th	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	12	12	24	20	20	40
	Buses	0	0	0	0	0	0
	Total	12	12	24	20	20	40
130th	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	15	15	30	11	11	22
	Buses	0	0	0	0	0	0
	Total	15	15	30	11	11	22
Overlake Village	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	42	42	84	40	40	80
	Buses	24 (36)	24 (39)	48 (75)	24 (36)	24 (39)	48 (75)
	Total	66	66	132	64	64	128
Overlake Transit Center	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	-2	-2	-4	-9	-9	-18
	Buses	0	0	0	0	0	0
	Total	-2	-2	-4	-9	-9	-18
Redmond Town Center	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	34	34	68	43	43	86
	Buses	0	0	0	0	0	0
	Total	34	34	68	43	43	86
SE Redmond	Park-and-ride	0	0	0	0	0	0
	Drop-off/pick-up	-6	-6	-12	1	1	2
	Buses	0	0	0	0	0	0
	Total	-6	-6	-12	1	1	2

Notes: The highest ridership alternative is shown for reach interim terminus station.

The number of trips reported is the net increase over the build condition traffic estimate. For bus trips, the total anticipated volumes are noted in parentheses.

6.3.2 Arterials and Local Streets

The arterials and local streets analysis compares the 2020 and 2030 no-build and build conditions in the study area. In total, more than 150 intersections were analyzed for the five segments. Individual station impacts are described by segment in the following subsections. Each Segment section discusses the traffic control (traffic signals, rail gates, access control), property access and circulation impacts, operations and intersection LOS, traffic safety impacts, parking and if applicable interim terminus stations and maintenance facilities for each alternative.

Traffic control treatments are proposed to maintain traffic flow while providing protected vehicle crossings that ensure safe traffic operations. Generally, for median at-grade or elevated profile, driveways and other mid-block accesses that do not prohibit movements would be modified for safety reasons (visibility/sight distance, and exposure to increased accidents) to allow only turns that do not conflict with the light rail track. The only locations where left turns would be allowed for these profiles are at protected crossings (gates or traffic signals). The installation of these traffic controls would be coordinated with WSDOT, local jurisdictions, and King County Metro throughout the design phase of the project.

As further detailed in the following subsections, the intersection LOS results for the build condition where an at-grade profile is proposed to operate through an intersection was analyzed under two operating plans: when light rail is not present at the intersection, and when light rail is present. The two analyses were combined based on the signal cycle length and light rail headways. Intersections adjacent to the light rail alternatives in these situations were also included in this analysis because they could be influenced by the light rail operations.

Overall, intersections near potential stations are expected to operate in most cases at an LOS similar to the LOS under the no-build condition. Potential stations that include park-and-ride facilities are expected to generate more vehicles trips than stations without a park-and-ride. Therefore, at a few of these locations, the intersections immediately adjacent to the stations might operate at a lower LOS in the build condition than in the no-build condition. Potential intersection mitigation improvements generally consist of turn pockets or new traffic signals.

Where light rail is located within an existing street, intersection operations are generally predicted to operate with an intersection LOS similar to the LOS under no-build conditions, although a few intersections in the study area might have a lower LOS, depending on the alternative and intersection movements. A similar LOS occurs between these two conditions, partly because the project would restore the roadway to a similar capacity as compared with the no-build condition. Additionally, the light rail trains, operating in at-grade profiles, would generally be able to travel safely through the intersection within the established intersection signal phasing. This is because the time required for a light rail train to proceed through the intersection usually is accommodated within the time needed for the vehicle or pedestrian movements. Intersections that require a new signal phase just for light rail are generally on lower-volume streets, therefore the intersection would continue to maintain acceptable operations. Finally, even though at-grade alternatives would likely receive some level of signal priority, disturbances to the signal coordination are expected to be minimized because light rail train detection would occur in advance of the train arriving at the intersection, thereby allowing non-light-rail signal phases to be served without substantial adjustments to the signal timing. Within Downtown Bellevue, at-grade alternatives would likely receive some form of priority, although east-west traffic signal coordination on key arterials would be maintained. For alternatives with either elevated or tunneled profile, intersection operations are generally expected to operate similar to the no-build condition because the alternative would be outside the roadway right-of-way.

A safety assessment is provided for each alternative and based on the Integration of *Light Rail Transit into City Streets* (TRB, 1996), *Light Rail Service, Vehicular, and Pedestrian Safety* (TRB, 1999) and *Light Rail Vehicle Collisions with Vehicles at Signalized Intersections* (TRB, 2009) research reports. Overall, the project-generated trips created by the East Link alternatives are not expected to increase the vehicle accident rates because roadway operations would remain similar to or would improve compared with the No Build Alternative. Additionally, many of the at-grade alignments resemble the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), accidents involving the light rail train and vehicle or pedestrian constitute about 6 percent of the total number of accidents along the corridor, and the corridor total was reduced by close to 60 percent once the LRT revenue service began. The median barrier and restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor.

The parking assessment is based on the current level of design completed for each alternative and the potential for hide-and-ride opportunities near light rail stations. In subsequent design refinements, the on- and off-street parking impacts might be modified. Parking impacts were quantified by overlaying a map of existing property boundaries on the alternatives. The number of on-street and off-street parking spaces that would be affected by each alternative was determined by identifying the number of existing parking spaces that fall within the proposed limits of improvements. Parking spaces within properties that are entirely taken by the alternative are not included because there would be no demand for these spaces when the existing use is displaced.

Lastly, construction activities and impacts are discussed, as is any mitigation required during construction or operation. Appendix A provides further discussion of the arterial and local street impact analysis assumptions. Discussion of the impacts on transit service and facilities and on pedestrian and bicycle access is provided in Sections 4.0 and 7.0, respectively.

6.3.2.1 Segment A, Preferred Interstate 90 Alternative (A1)

I-90 is the only major roadway within Segment A where the no-build and build conditions would alter the physical characteristics of the road.

In the no-build condition, an additional HOV lane would be added to the eastbound and westbound mainline roadways as part of the I-90 Two Way Transit and HOV Operations Project. Section 5.3.1 provides a detailed description of that project and its effect on the freeway. Regarding local access modifications as part of the I-90 Two Way Transit and HOV Operations Project, improvements to the HOV direct access to and from the Bellevue Way SE interchange would be provided to allow direct access to and from eastbound and westbound HOV lanes throughout the day. At Mercer Island, the I-90 Two Way Transit and HOV Operations Project would provide additional access to and from the island via an 80th Avenue SE westbound HOV direct-access off-ramp and an eastbound HOV direct-access on-ramp. At 77th Avenue SE, an eastbound HOV direct access off-ramp would be built. Access to the reversible center roadway would continue to vary, depending on time of day.

In the build condition, the I-90 reversible center roadway would be converted for exclusive light rail use, as discussed in Section 5.0, Highway Operations and Safety. Local access changes related to the reversible center roadway closure would consist of eliminating the 77th Avenue SE and Island Crest Way reversible center roadway accesses. This would require rerouting vehicles to other I-90 access points, specifically, the West Mercer Way on- and off-ramps, 76th Avenue SE on-ramp, 77th Avenue SE off-ramp, and Island Crest Way on- and off-ramps. On Mercer Island, as part of Stage 3 of the I-90 Two Way Transit and HOV Operations Project, the current proposal would build the eastbound HOV off-ramp proposed at 77th Avenue SE. This location of the HOV off-ramp is not preferred in conjunction with the East Link project because bus use of 77th Avenue SE ramp would be partially or wholly replaced by light rail service. Therefore *Preferred Alternative A1* assumes this HOV off-ramp connects to the Island Crest Way eastbound off-ramp from the center roadway. Even so, these two ramp locations and another design option, that would build neither of these eastbound HOV off-ramps, are analyzed.

Traffic Control, Property Access, and Circulation

The *Preferred Alternative A1* and any of the design options are not expected to affect private property access and changes to vehicular circulation on arterial streets is minimal, except near the I-90 ramps on Mercer Island which is discussed in the next section. Both of the proposed stations would be located near or at existing transit stations therefore the impacts on vehicle circulation and access are not expected.

In terms of traffic controls within Segment A, there are no new traffic control measures that are proposed for Segment A along the local street system because *Preferred Alternative A1* and any of its design options would be exclusively in the reversible center roadway and do not cross or merge with general-purpose vehicles. Gates would be installed at the D2 roadway ramps to ensure general-purpose vehicles do not enter this facility.

If light rail operated exclusively in the D2 Roadway, buses would need to modify their route and use another access location with I-90 (such as Rainier or SR 519 interchanges). This would not affect general vehicles and is discussed in more depth in Sections 4.0 and 5.0.

Operations and Level of Service

Intersection operations under the no-build condition are expected to degrade as traffic volumes increase in the study area. In the AM peak hour all intersections in Seattle and Mercer Island would operate at an acceptable LOS in both 2020 and 2030. However, in the 2020 PM peak hour two intersections in Seattle and two intersections in Mercer Island would fail to operate at an acceptable level. By 2030, two additional intersections (for a total of four intersections) in Seattle and one additional intersection (for a total of three intersections) in Mercer Island would fail to operate at an acceptable LOS. The Seattle intersections that fail to operate acceptably in the 2030 PM peak hour are Rainier Avenue South and South Dearborn, Rainier Avenue South and 23rd Avenue South, South Royal Brougham Way and 4th Avenue South, and Airport Way South and South Dearborn Street. The Mercer Island intersections the fail to operate acceptably in the 2030 PM peak hour are 80th Avenue SE and SE 27th Street, 77th Avenue SE and N Mercer Way, and 76th Avenue SE and North Mercer Way/I-90 westbound on-ramp.

In Segment A, light rail would operate in an exclusive right-of-way, except if joint bus and light rail operations are implemented in the I-90 D2 Roadway. The operational option to have light rail exclusive in the D2 Roadway would result in minimal direct impact on the local streets.

During the AM and PM peak hours, intersection operations within the City of Seattle would vary slightly when comparing the no-build to the build conditions. In the AM peak hour, intersection operations would improve near the I-90 D2 Roadway terminus at 5th Avenue S and Airport Way S/ S Dearborn Street because the D2 Roadway is, at a minimum, restricted to buses only and would not be accessible by other vehicles. If the D2 Roadway was only exclusive light rail operations, AM and PM peak-hour intersection operations would further improve at the D2 Roadway terminus and could slightly degrade at the I-90 terminus on 4th Avenue.

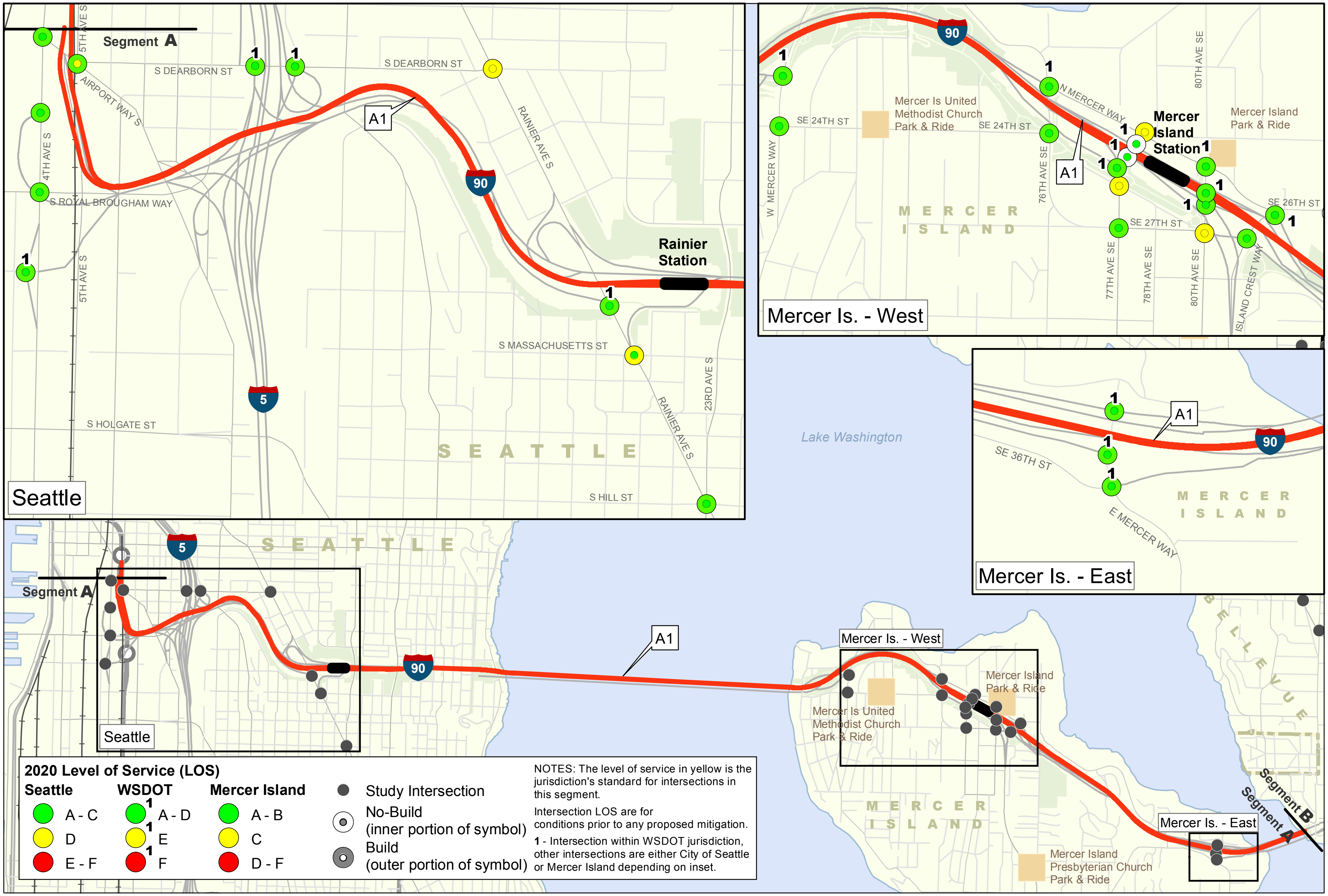
On Mercer Island in the AM peak hour some intersections that provide access to or are adjacent to I-90 in the build condition might experience some degradation in operations because of the changes in I-90 access between the no-build and build conditions. At 77th Avenue SE and Island Crest Way, the reversible center roadway westbound access would be eliminated, thereby rerouting vehicles to other I-90 access locations. Under *Preferred Alternative A1* and the design option that provides neither eastbound HOV off-ramp all intersections would meet agency standards in the 2020 and 2030 AM peak hours. With the design option to provide a 77th HOV eastbound off-ramp the intersection of 77th Avenue SE and Sunset Highway would not meet agency standards in the 2020 and 2030 AM peak hours.

Similarly, in the PM peak hour some intersections on Mercer Island that provide access to or are adjacent to I-90 in the build condition might experience some degradation in operations because of changes in access between the no-build and build conditions. Because access to Mercer Island from the reversible center roadway would be eliminated, eastbound vehicles destined for Mercer Island would shift to the other access locations: such as the West Mercer Way and Island Crest Way eastbound off-ramps.

In *Preferred Alternative A1*, and the design option that provides neither eastbound HOV off-ramp, three intersections in the 2020 PM peak hour would not meet agency standards. These intersections are North Mercer Way and 77th Avenue SE, SE 24th Street and West Mercer Way, and SE 27th Street and 80th Avenue SE. These intersections are expected to operate at LOS D or E conditions. In addition, the I-90 eastbound off-ramp and 77th Avenue SE would exhibit vehicle queue lengths that extend onto the I-90 mainline. With the design option to provide a 77th eastbound HOV off-ramp the intersection of 77th Avenue SE and I-90 eastbound HOV off-ramp would fail to meet agency standards in addition to those identified above, except the I-90 eastbound off-ramp at 77th Avenue SE which would not exhibit queues extending onto the I-90 mainline. By 2030, under *Preferred Alternative A1* and both HOV off-ramp design options the 76th Avenue SE and I-90 westbound on-ramp intersection would fail to meet agency standards, in addition to those identified for the 2020 PM peak hour under these options. The intersection of 77th Avenue SE and Sunset Highway would also fail to meet agency standards under the design option to provide a 77th eastbound HOV off-ramp.

Overall, with the *Preferred Alternative A1* and the design option that provides neither eastbound HOV off-ramp five intersections would fail to meet agency standards by year 2030, all in the PM peak hour. With the design option to provide a 77th eastbound HOV off-ramp six intersections would fail to meet agency standards by year 2030, five in the PM peak hour and one in both the AM and PM peak hours.

Exhibits 6-6 through 6-9 and Tables D-6 and D-7 in Appendix D show 2020 and 2030 intersection LOS results in the no-build and build conditions for the AM and PM peak hours, respectively. The intersection LOS results are included in exhibits to provide a visual indication of the intersection operations between no-build and build conditions. This presentation provides the intersection location relative to the other intersections and/or alternatives and illustrates whether the intersection LOS would be positively or negatively affected.


Seattle
Segment A
S DEARBORN ST
AIRPORT WAY S
4TH AVE S
5TH AVE S
S ROYAL BROUGHAM WAY
A1
90
5
RAINIER AVE S
Rainier Station
S MASSACHUSETTS ST
23RD AVE S
S HOLGATE ST
S HILL ST
SEATTLE
1
Mercer Is. - West
N MERCER WAY
SE 24TH ST
Mercer Is United Methodist Church Park & Ride
Mercer Island Station
Mercer Island Park & Ride
W MERCER WAY
76TH AVE SE
77TH AVE SE
78TH AVE SE
80TH AVE SE
SE 26TH ST
SE 27TH ST
ISLAND CREST WAY
MERCER ISLAND
Mercer Is. - East
SE 36TH ST
E MERCER WAY
Lake Washington
Mercer Island Presbyterian Church Park & Ride
BELLEVUE
Segment B
Segment A

2020 Level of Service (LOS)

Seattle		WSDOT		Mercer Island	
🟢	A - C	🟢 1	A - D	🟢	A - B
🟡	D	🟡 1	E	🟡	C
🔴	E - F	🔴 1	F	🔴	D - F

● Study Intersection

⊙ No-Build (inner portion of symbol)

◎ Build (outer portion of symbol)

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

Source: Data from King County (2006) modified by CH2M HILL.

▬	At-Grade Route
▪▪▪▪	Elevated Route
••••	Retained-Cut Route
▬ ▬	Tunnel Route
▬	Proposed Station
─○─	Central Link Alignment and Station

N

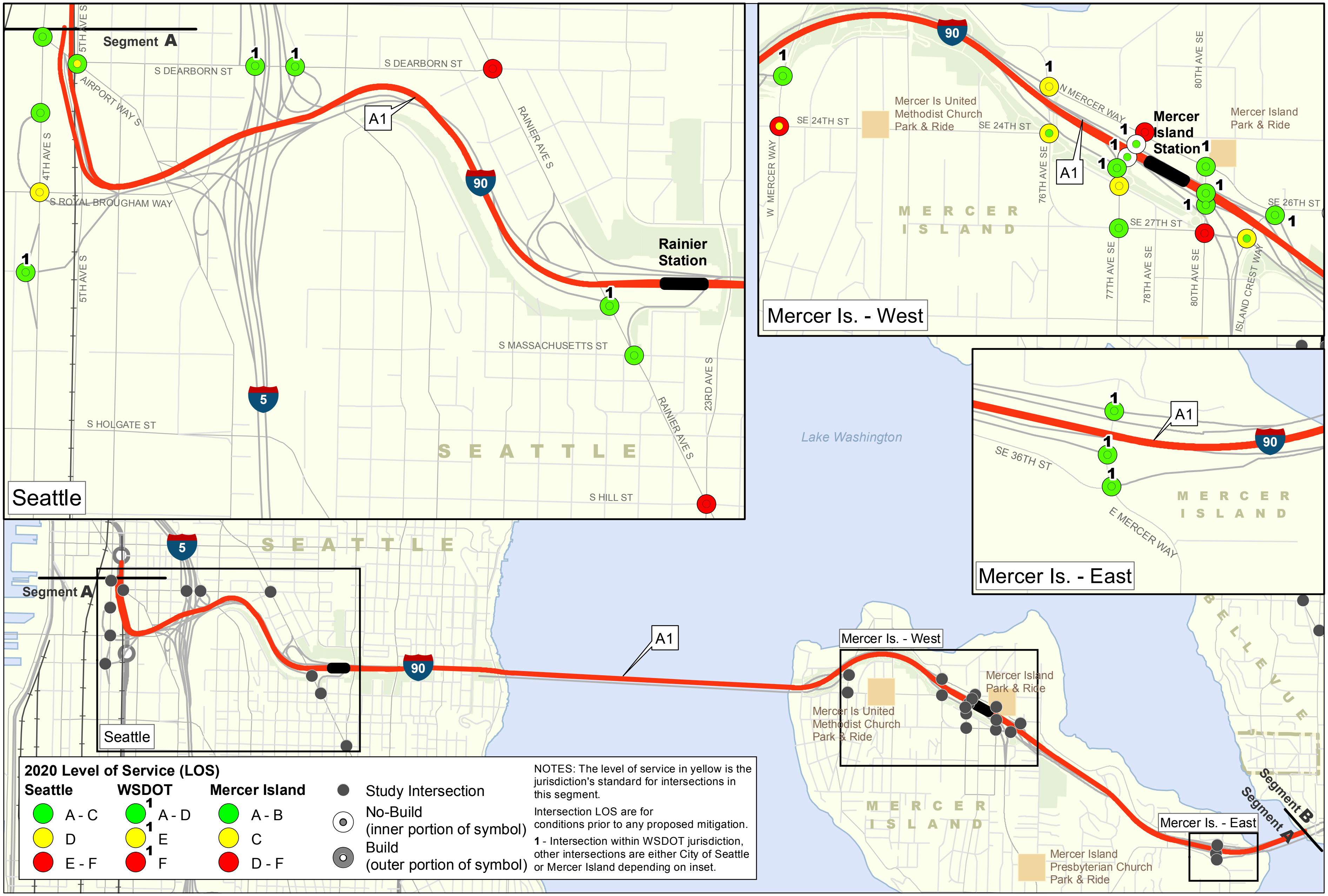
0 0.5 Mile

NOTES: The level of service in white indicates that this intersection does not exist for the build condition.

Intersection LOS indicated in the Mercer Island - West inset map is for the Preferred Alternative (A1) which provides an eastbound HOV direct-access off-ramp at Island Crest Way. For the intersection LOS results of the two eastbound off-ramp design options refer to Appendix D.

Exhibit 6-6 **2020 AM No Build and Build Level of Service at Intersections Segment A**

East Link Project


Seattle
Segment A
S DEARBORN ST
AIRPORT WAY S
4TH AVE S
5TH AVE S
S ROYAL BROUGHAM WAY
A1
90
5
RAINIER AVE S
Rainier Station
S MASSACHUSETTS ST
23RD AVE S
S HOLGATE ST
S HILL ST
S E A T T L E
1
Mercer Is. - West
N MERCER WAY
W MERCER WAY
SE 24TH ST
Mercer Is United Methodist Church Park & Ride
Mercer Island Station
Mercer Island Park & Ride
76TH AVE SE
77TH AVE SE
78TH AVE SE
80TH AVE SE
SE 26TH ST
SE 27TH ST
ISLAND CREST WAY
M E R C E R I S L A N D
Mercer Is. - East
SE 36TH ST
E MERCER WAY
Lake Washington
B E L L E V U E
Mercer Island Presbyterian Church Park & Ride
Segment B
Segment A

2020 Level of Service (LOS)

Seattle	WSDOT	Mercer Island
🟢 A - C	🟢 A - D	🟢 A - B
🟡 D	🟡 E	🟡 C
🔴 E - F	🔴 F	🔴 D - F

● Study Intersection

⊙ No-Build (inner portion of symbol)

◎ Build (outer portion of symbol)

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

Source: Data from King County (2006) modified by CH2M HILL.

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route
- Proposed Station
- Central Link Alignment and Station

N

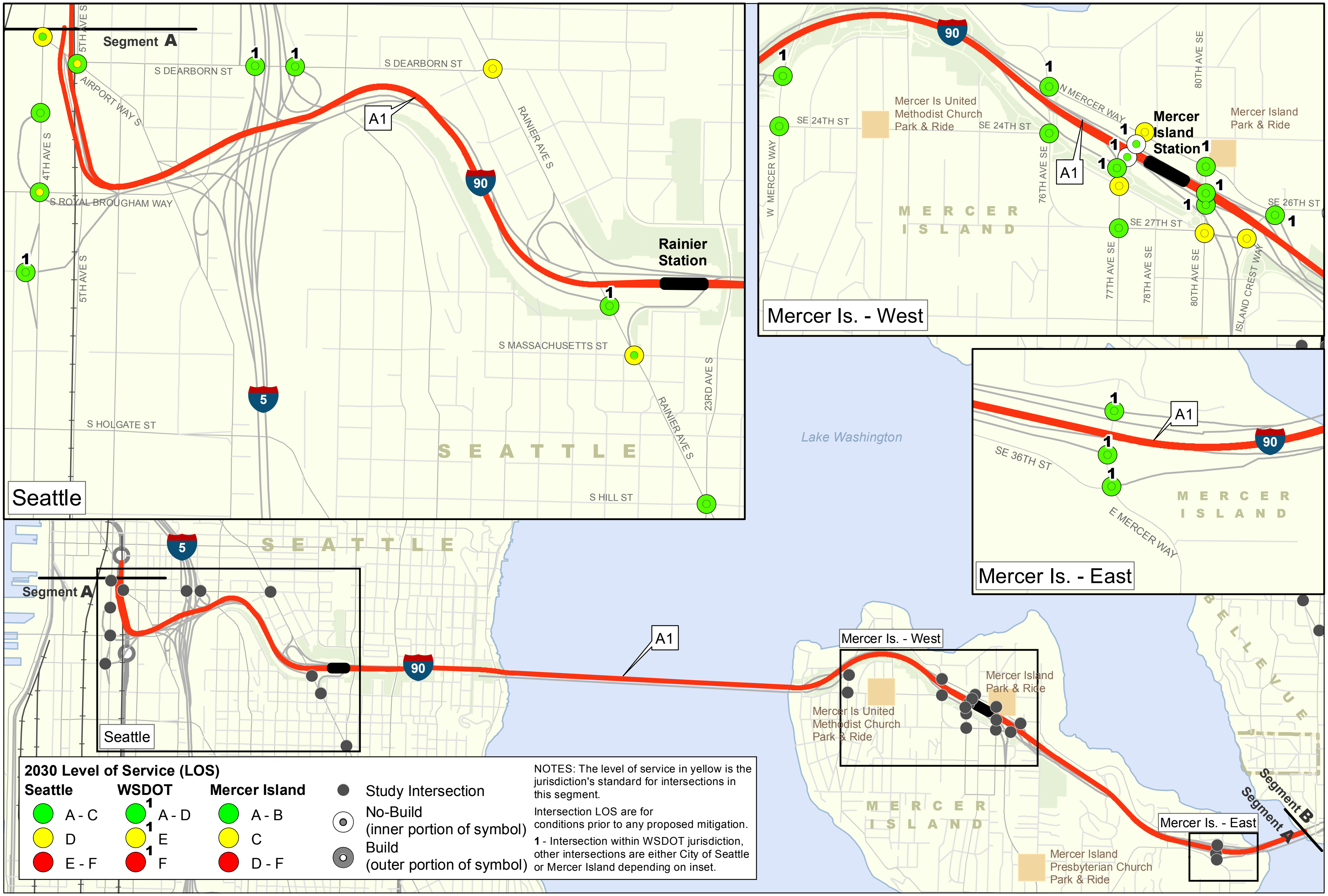
0 0.5 Mile

NOTES: The level of service in white indicates that this intersection does not exist for the build condition.

Intersection LOS indicated in the Mercer Island - West inset map is for the Preferred Alternative (A1) which provides an eastbound HOV direct-access off-ramp at Island Crest Way. For the intersection LOS results of the two eastbound off-ramp design options refer to Appendix D.

Exhibit 6-7 **2020 PM No Build and Build Level of Service at Intersections Segment A**

East Link Project


Segment A
5TH AVE S
S DEARBORN ST
AIRPORT WAY S
4TH AVE S
S ROYAL BROUGHAM WAY
5TH AVE S
A1
RAINIER AVE S
90
Rainier Station
S MASSACHUSETTS ST
5
23RD AVE S
S HOLGATE ST
S E A T T L E
S HILL ST
Seattle
1
90
N MERCER WAY
SE 24TH ST
Mercer Is United Methodist Church Park & Ride
Mercer Island Station
Mercer Island Park & Ride
80TH AVE SE
76TH AVE SE
W MERCER WAY
SE 26TH ST
SE 27TH ST
77TH AVE SE
78TH AVE SE
ISLAND CREST WAY
M E R C E R I S L A N D
Mercer Is. - West
Lake Washington
SE 36TH ST
E MERCER WAY
Mercer Is. - East
B E L L E V U E
Mercer Island Presbyterian Church Park & Ride
Segment B
Segment A
2030 Level of Service (LOS)
Seattle
WSDOT
Mercer Island
A - C
D
E - F
A - D
E
F
A - B
C
D - F
Study Intersection
No-Build (inner portion of symbol)
Build (outer portion of symbol)

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

Source: Data from King County (2006) modified by CH2M HILL.

▬	At-Grade Route
▪▪▪	Elevated Route
•••	Retained-Cut Route
▬ ▬	Tunnel Route
▬	Proposed Station
○	Central Link Alignment and Station

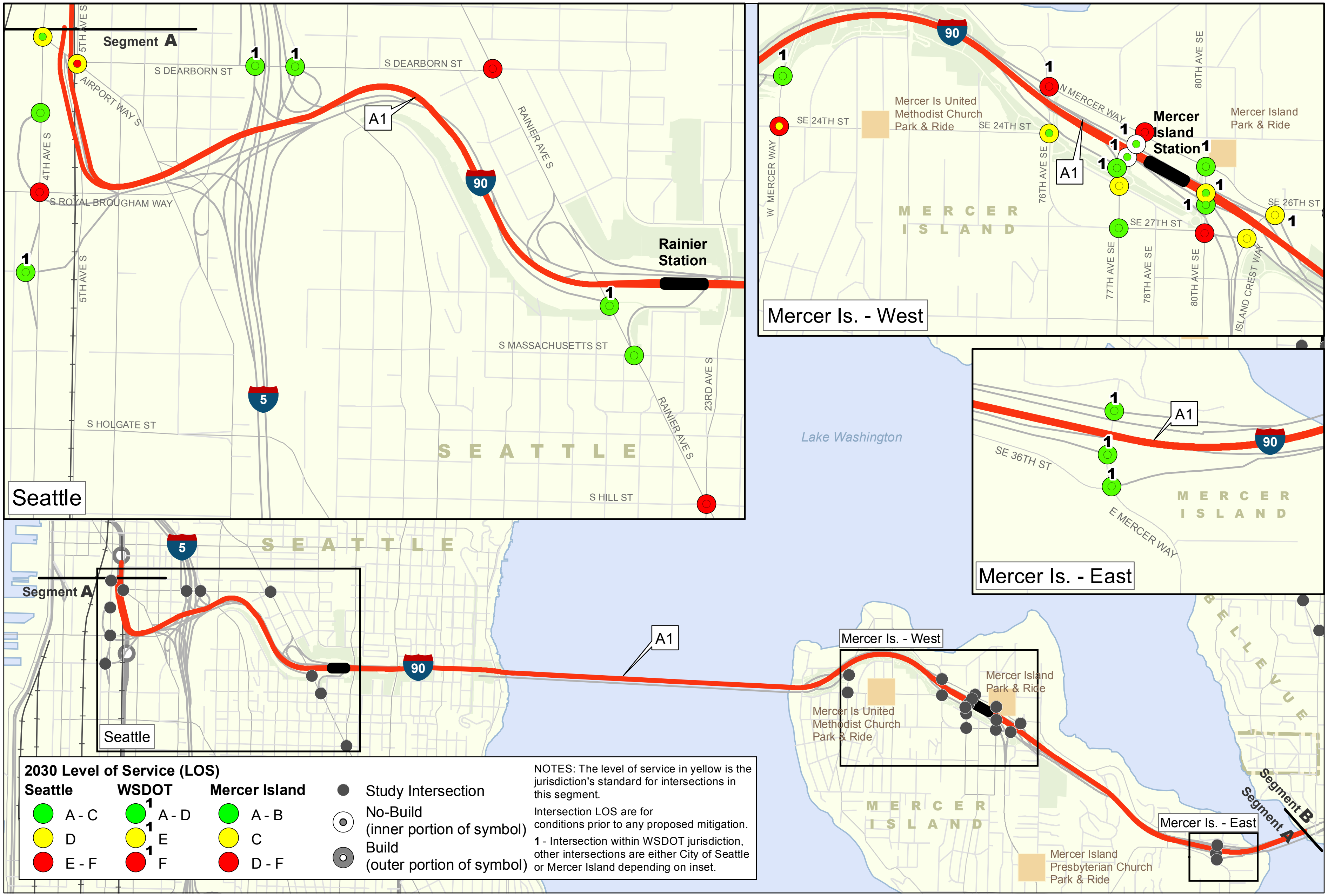
N

0 0.5 Mile

NOTES: The level of service in white indicates that this intersection does not exist for the build condition.

Intersection LOS indicated in the Mercer Island - West inset map is for the Preferred Alternative (A1) which provides an eastbound HOV direct-access off-ramp at Island Crest Way. For the intersection LOS results of the two eastbound off-ramp design options refer to Appendix D.

Exhibit 6-8 **2030 AM No Build and Build Level of Service at Intersections Segment A**
East Link Project



Segment A
S DEARBORN ST
S DEARBORN ST
AIRPORT WAY S
5TH AVE S
4TH AVE S
S ROYAL BROUGHAM WAY
5TH AVE S
A1
90
RAINIER AVE S
Rainier Station
S MASSACHUSETTS ST
5
23RD AVE S
RAINIER AVE S
S HOLGATE ST
S E A T T L E
S HILL ST
Seattle
1
90
1
N MERCER WAY
Mercer Is United Methodist Church Park & Ride
SE 24TH ST
SE 24TH ST
W MERCER WAY
76TH AVE SE
A1
Mercer Island Station
Mercer Island Park & Ride
80TH AVE SE
SE 26TH ST
SE 27TH ST
77TH AVE SE
78TH AVE SE
80TH AVE SE
ISLAND CREST WAY
M E R C E R I S L A N D
Mercer Is. - West
A1
90
SE 36TH ST
E MERCER WAY
M E R C E R I S L A N D
Mercer Is. - East
Lake Washington
S E A T T L E
5
Segment A
Seattle
A1
90
Mercer Is. - West
Mercer Island Park & Ride
Mercer Is United Methodist Church Park & Ride
M E R C E R I S L A N D
B E L L E V U E
Segment B
Segment A
Mercer Is. - East
Mercer Island Presbyterian Church Park & Ride

2030 Level of Service (LOS)

Seattle		**WSDOT**		**Mercer Island**	
🟢	A - C	🟢 1	A - D	🟢	A - B
🟡	D	🟡 1	E	🟡	C
🔴	E - F	🔴 1	F	🔴	D - F

● Study Intersection

⊙ No-Build (inner portion of symbol)

◎ Build (outer portion of symbol)

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are either City of Seattle or Mercer Island depending on inset.

Source: Data from King County (2006) modified by CH2M HILL.

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route

▬ Proposed Station

-○- Central Link Alignment and Station

N

0 0.5 Mile

NOTES: The level of service in white indicates that this intersection does not exist for the build condition.

Intersection LOS indicated in the Mercer Island - West inset map is for the Preferred Alternative (A1) which provides an eastbound HOV direct-access off-ramp at Island Crest Way. For the intersection LOS results of the two eastbound off-ramp design options refer to Appendix D.

Exhibit 6-9 **2030 PM No Build and Build Level of Service at Intersections Segment A**

East Link Project

Traffic Safety

The safety of light rail operations and the roadway and vehicle conditions associated with each of the build alternatives was assessed based on national research and safety guidelines. Because *Preferred Alternative A1* consists of an at-grade profile exclusively located in dedicated I-90 right-of-way, there would be no traffic safety impacts to the arterials and local streets in Seattle or on Mercer Island with the project.

Parking

This section discusses the parking impacts associated with the light rail route and stations in Segment A. Table 6-22 summarizes the impacts by alternative, and Table 6-23 summarizes the impacts associated each station. There would be no anticipated direct permanent impacts on public on-street parking or private off-street parking associated with I-90 alternative and its stations (*Preferred Alternative A1* and any design options).

TABLE 6-22
Segment A Parking Impacts Summary for *Preferred Alternative A1*

Alternative	Parking Spaces Removed	
	On-Street	**Off-Street**[a]
Preferred Alternative A1	0	0

Note: Parking impacts shown are permanent displacements. Parking losses associated with construction staging are not included in this summary.

[a] Includes parking spaces removed at the station areas.

TABLE 6-23
Segment A Parking Impacts Summary by Station

Station	Associated Alternative	Spaces Removed	Area Affected by Development
Rainier Station	*Preferred Alternative A1*	0	None
Mercer Island Station	*Preferred Alternative A1*	0	None

Note: Parking impacts shown are permanent displacements; parking losses associated with construction staging are not included in this summary. Parking impacts shown are only those associated with the area covered by the station.

The potential for hide-and-ride parking impacts at the Rainier Station is expected to be high because there is a substantial amount of surrounding on-street parking available to accommodate riders (Table 6-3).

At the Mercer Island Station, there would be low potential for impacts with alternatives that include the South Bellevue Station. The location of the South Bellevue Station, which is proposed to provide approximately 1,400 stalls, would provide riders with a higher-parking capacity option along I-90. Additionally, although the current demand for the Mercer Island Park-and-Ride Lot is near capacity, there is minimal parking spillover into the surrounding areas, further indicating that the future potential for hide-and-ride impacts is low.

With a connection to the BNSF Alternative (B7), there could be a slightly greater potential for spillover impacts at the Mercer Island Station because the forecast auto demand is slightly higher than the parking capacity. With the current park-and-ride almost at full capacity and this alternative not providing a nearby light rail station with a park-and-ride, there might be a potential for parking spillover surrounding Mercer Island Station (Table 6-3). However with the City of Mercer Island recently implementing restricted (time-limited) parking in selected areas surrounding the Town Center, in addition to the already implemented RPZs in the residential neighborhoods north of I-90, hide-and-ride parking opportunities would be limited.

Table 6-24 shows the existing and proposed parking stalls and forecast park-and-ride vehicle demand at Mercer Island Station. Section 6.5 discusses possible parking mitigation strategies to reduce hide-and-ride potential.

TABLE 6-24
Segment A Existing and Proposed Park-and-Ride Parking Stalls and Forecasted Park-and-Ride Vehicle Demand

Station	Alternative	Total Existing Parking Stalls	Total Proposed Parking Stalls	2020 Park-and-Ride Vehicle Demand[a]	2030 Park-and-Ride Vehicle Demand[a]
Mercer Island[b]	*Preferred Alternative A1*	447	447	390	460

[a] 3-hour PM peak-period park-and-ride vehicle demand. 3-hour PM peak period is a close representation of daily park-and-ride demand.

[b] The park-and-ride vehicle demand is associated with Alternative B7. With any Segment B alternative that includes a South Bellevue Station, the park-and-ride forecast is less than the proposed number of parking stalls.

6.3.2.2 Segment B

With the No Build Alternative, the physical characteristics of the arterials and local roadways in 2020 and 2030 would remain the same as in the existing conditions, except for modifications to the SE 8th Street interchange as part of the I-405 Program.

With any Segment B alternative, roadway channelization generally remains similar to the No Build Alternative, except near the South Bellevue Station (described in the following section), as the alternatives are either outside the roadway right-of-way or, when the alternative is within the roadway, channelization is restored to no-build conditions. Appendix A provides the complete list of roadway and intersection projects assumed in 2020 and 2030 for Segment B.

Traffic Control, Property Access, and Circulation

For all alternatives, with the exception of B7, traffic control, property access, and circulation near the South Bellevue Station to I-90 would be the same as described in *Preferred Alternative B2M.* Alternative B1 would have the highest number of traffic control revisions because it travels in the median along Bellevue Way SE, while Alternatives B7 would have the fewest. Table 6-25 presents the traffic control modifications for each Segment B alternative.

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M (with either the *Preferred Alternative C11A* or *Preferred Alternative C9T* connection) would operate in exclusive right-of-way along the eastside of Bellevue Way SE. Two roadway modification options are proposed to improve the station and neighborhood access along Bellevue Way SE near the South Bellevue Station. Of the two options, the option that does not include a signal at SE 30th Street or provide a southbound HOV lane is more consistent with the City of Bellevue’s adopted long-range plans.

The first option would install two new traffic signals along Bellevue Way SE; one signal at the south driveway to the South Bellevue Station and the other signal at SE 30th Street. This option would also convert the center two-way left-turn lane into a southbound HOV lane between the South Bellevue Station and I-90. With the signal at the south driveway, westbound left turns exiting the South Bellevue Station would be allowed. Right-in and right-out access would be provided to residences south of the South Bellevue Station and northbound and southbound u-turn movements would be allowed at the Bellevue Way SE/112th Avenue SE/South Bellevue Station intersection. At the SE 30th Street intersection, northbound traffic from I-90 would not be stopped by the signal. At SE 30th Street, access to the Sweylochen Boat Ramp would be right-in and right-out, and the northbound left-turn into the Enatai neighborhood would be provided. The eastbound left-turn exiting the Enatai neighborhood would be prohibited requiring vehicles turning left and exiting the neighborhood to use the signal at Bellevue Way SE/112th Avenue SE/South Bellevue Station or at another location.

The second option would also install a traffic signal at Bellevue Way SE and the south driveway to the South Bellevue Station. With this signal, northbound u-turn movements would be allowed at this intersection and southbound u-turns would be allowed at the Bellevue Way SE/112th Avenue SE/South Bellevue Station intersection. No changes to property access and circulation along Bellevue Way would occur south of the south driveway and the current movements allowed at SE 30th Street and Bellevue Way SE would remain.

TABLE 6-25
Segment B Intersection Traffic Control

Control Location	Existing Control	Proposed Control
Preferred Alternative B2M* to *Preferred Alternative C9T		
Bellevue Way and SE 30th Street	Minor street stop-controlled	Install new signal[1]
Bellevue Way and South Bellevue Park-and-Ride south entrance	Minor street stop-controlled	Install new signal
Bellevue Way and South Bellevue Park-and-Ride	Signal	Replace signal
112th Avenue SE and SE 15th Street	Minor street stop-controlled	Install new signal and light rail gates
112th Avenue SE and SE 8th Street	Signal	Replace signal and install light rail gates
Preferred Alternative B2M* to *Preferred Alternative C11A		
Bellevue Way and SE 30th Street	Minor street stop-controlled	Install new signal[1]
Bellevue Way and South Bellevue Park-and-Ride south entrance	Minor street stop-controlled	Install new signal
Bellevue Way and South Bellevue Park-and-Ride	Signal	Replace signal
112th Avenue SE, south of SE 15th Street	None	Install light rail gates for northbound traffic
112th Avenue SE and SE 15th Street	Minor street stop-controlled	Right-in/right-out
112th Avenue SE and SE 8th Street	Signal	Replace signal
Alternative B1		
Bellevue Way and SE 30th Street	Minor street stop-controlled	Right-in/right-out
Bellevue Way and South Bellevue Park-and-Ride south entrance	Minor street stop-controlled	Install new signal
Bellevue Way and South Bellevue Park-and-Ride	Signal	Replace signal
Bellevue Way and South Bellevue Park-and-Ride north entrance	Minor street stop-controlled	Install new signal
Bellevue Way and 112th Avenue SE	Signal	Replace signal
Bellevue Way and 108th Avenue SE	Signal	Replace signal
Bellevue Way and SE 16th Street	Signal	Replace signal
Bellevue Way and SE 14th Street	Minor street stop-controlled	Right-in/right-out
Bellevue Way and SE 13th Street	Minor street stop-controlled	Right-in/right-out
Bellevue Way and SE 11th Street	Minor street stop-controlled	Right-in/right-out
Bellevue Way and SE 10th Street	Signal	Replace signal
Bellevue Way and SE 8th Street	Signal	Replace signal
Bellevue Way and SE 6th Street	Minor street stop-controlled	Right-in/right-out
Alternative B2A		
Bellevue Way and SE 30th Street	Minor street stop-controlled	Install new signal[1]
Bellevue Way and South Bellevue Park-and-Ride south entrance	Minor street stop-controlled	Install new signal
Bellevue Way and South Bellevue Park-and-Ride	Signal	Replace signal
Bellevue Way and 112th Avenue SE	Signal	Replace signal

TABLE 6-25 CONTINUED
Segment B Intersection Traffic Control

Control Location	Existing Control	Proposed Control
112th Avenue SE and SE 15th Street	SE 15th Street stop-controlled, two-way left-turn median	Right-in/right-out
112th Avenue SE and SE 8th Street	Signal	Replace signal
Alternative B2E		
Bellevue Way and SE 30th Street	Minor street stop-controlled	Install new signal[1]
Bellevue Way and South Bellevue Park-and-Ride south entrance	Minor street stop-controlled	Install new signal
Bellevue Way and South Bellevue Park-and-Ride	Signal	Replace signal
Alternative B3 and B3 - 114th Extension Design Option		
Bellevue Way and SE 30th Street	Minor street stop-controlled	Install new signal[1]
Bellevue Way and South Bellevue Park-and-Ride south entrance	Minor street stop-controlled	Install new signal
Bellevue Way and South Bellevue Park-and-Ride	Signal	Replace signal
Bellevue Way and 112th Avenue SE	Signal	Replace signal
112th Avenue SE and SE 15th Street	SE 15th Street stop-controlled, two-way left-turn median	Right-in/right-out
112th Avenue SE, south of SE 8th Street[2]	None	Install light rail gates for northbound traffic
Alternative B7		
No intersection traffic control modifications		

[1] Two options are being considered at this location; the second option does not change the control from existing conditions.

[2] Only with the Alternative B3 – 114th Extension Design Option.

For the connection to *Preferred Alternative C11A*, *Preferred Alternative B2M* along 112th Avenue SE would transition to at-grade center-running south of SE 15th Street. The light rail train would cross the northbound lanes and be controlled by gates. A signalized crossing would be provided at the SE 8th Street intersection. This variation of *Preferred Alternative B2M* would provide right-in/right-out access along 112th Avenue SE from Bellevue Way to SE 6th Street except at SE 8th Street where left-turn and u-turn movements would be allowed. The emergency access driveway to Lincoln Plaza from 112th Avenue SE just south of SE 6th Street would be maintained, but the pedestrian, bicycle, and maintenance driveway would be closed. Access to this property would be maintained on SE 6th Street, minimizing the impact.

Along 112th Avenue SE, the connection from *Preferred Alternative B2M* to *Preferred Alternative C9T* would operate on the east side of 112th Avenue SE and cross SE 15th Street and SE 8th Street as signalized gated crossings. A northbound right-turn pocket would be provided at the SE 8th Street and 112th Avenue SE intersection and at SE 15th and 112th. The emergency access driveway to Lincoln Plaza from 112th Avenue SE just south of SE 6th Street would be maintained, but the pedestrian, bicycle, and maintenance driveway would be closed. Access to this property is maintained on SE 6th Street, which would minimize the impact.

An option with the *Preferred Alternative B2M* connection to *Preferred Alternative C9T* would close the east approach at SE 15th Street to Bellefield Office Park. Closing SE 15th Street would eliminate the conflict between light rail and vehicles, pedestrians, and bicyclists at this location. This closure would recirculate vehicles in the office park to the intersection of 114th Avenue SE and SE 8th Street. During emergencies, SE 15th Street might need to be opened allowing for a secondary access into and out of the Bellefield Office Park.

Other Segment B Alternatives

For all alternatives, with the exception of Alternatives B1 and B7, traffic control, property access, and circulation near the South Bellevue Station to I-90 would be the same as described in *Preferred Alternative B2M.* The Bellevue Way Alternative (B1) proposes new signal installations at two intersections and signal replacements at six intersections along Bellevue Way SE. To provide safe light rail operations, Alternative B1 would modify property access along Bellevue Way north of the 112th Avenue SE intersection and between the South Bellevue Station and I-90 to right-in/right- out because of the at-grade median profile. Between the 112th Avenue SE intersection and the South Bellevue Station an existing median is already in place; therefore, no change in property access would occur for this section. Where feasible, u-turn movements would be provided at signalized intersections along Bellevue Way to minimize circulation impacts.

The 112th SE At-Grade (B2A) and 112th SE Bypass (B3) and 112th SE Bypass (B3) – 114th Extension Design Option alternatives would have fewer modifications to traffic control compared with Alternative B1. With these alternatives, property access and circulation along Bellevue Way SE, south of the 112th Avenue SE intersection, would be similar to property access and circulation under Alternative B1. Along 112th Avenue SE, right-turn-in, right-turn-out access would replace the stop-controlled and two-way left turn median at the 112th Ave SE and SE 15th Street intersection. With the 112th SE Bypass (B3) – 114th Extension Design Option an at-grade gated crossing of the northbound lanes on 112th Avenue SE, south of SE 8th Street, would be provided. East of this gated crossing, Alternative B3 and B3 – 114th Extension Design Option would be similar. With Alternative B2A, U-turn movements at the intersection of SE 8th Street and 112th Avenue SE would be allowed from the southbound approach only.

The 112th SE Elevated Alternative (B2E) would be elevated and have no additional traffic control, property access and circulation modifications beyond those already described near the South Bellevue Station with *Preferred Alternative B2M.*

The BNSF Alternative (B7) would follow the BNSF corridor within an exclusive right-of-way and, consequently, would have no traffic control, property access and circulation impacts.

Operations and Level of Service

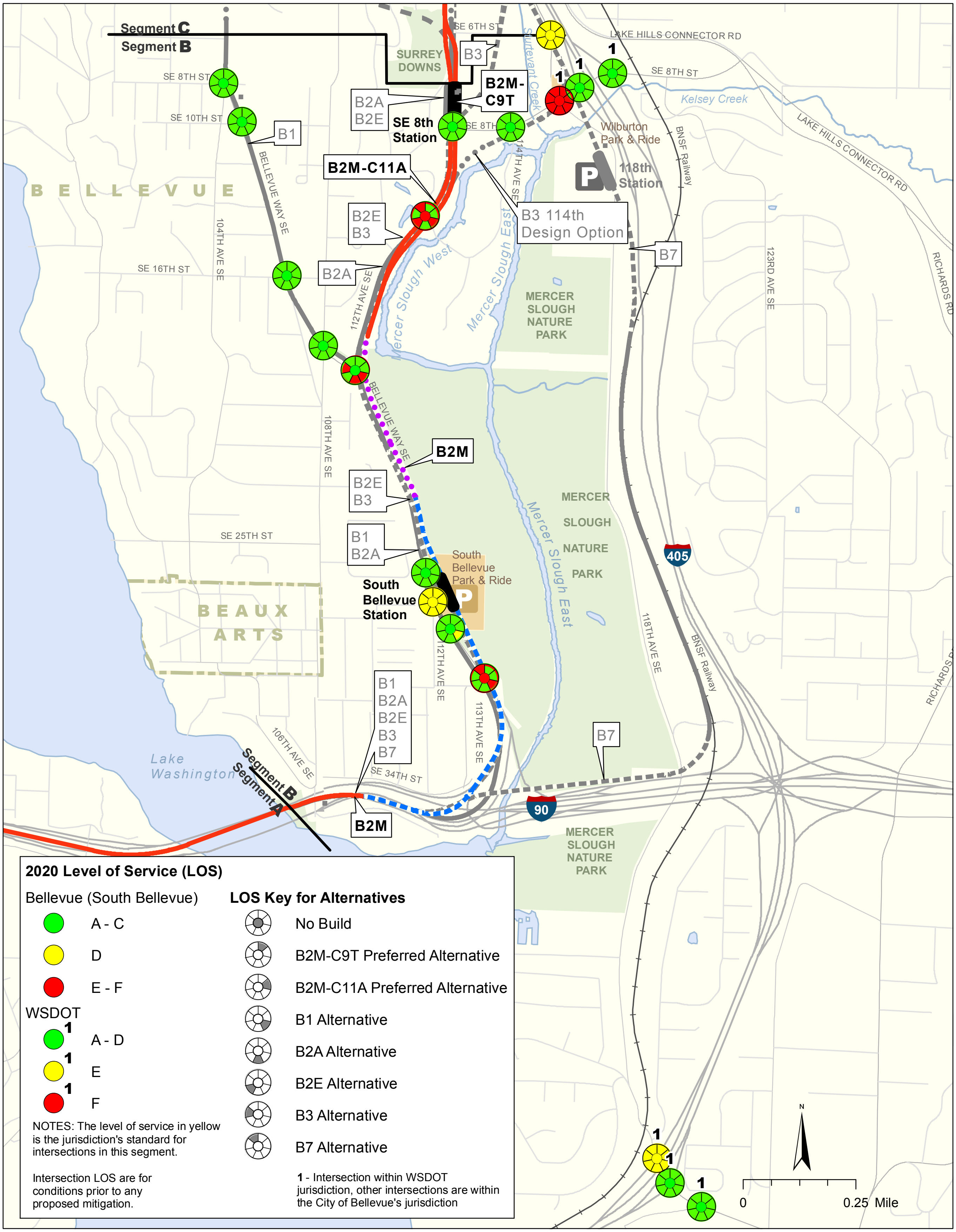
PM peak-hour intersection LOS for the 2020 and 2030 no-build conditions is expected to degrade as traffic volumes increase in the study area. Three intersections are expected to operate at LOS F during the PM peak hour in 2020: 118th Avenue SE and SE 8th Street, Bellevue Way SE at SE 30th Street, and 112th Avenue SE and SE 15th Street. The unsignalized intersections at Bellevue Way SE at SE 30th Street and at 112th Avenue SE and SE 15th Street intersections would not meet agency LOS standards because the vehicles on the cross street would have difficulty finding gaps in the major street's traffic. By 2030, the 114th Avenue SE and SE 6th Street and I-405 Southbound ramps and Coal Creek Parkway intersections would operate at a failing LOS. All other intersections that would not meet agency standards in 2020 are expected to not meet agency standards in 2030 no-build conditions.

Exhibits 6-10 and 6-11 and Tables D-8 and D-9 in Appendix D show 2020 and 2030 intersection PM peak-hour LOS results for the no-build and build conditions.

Preferred 112th SE Modified Alternative (B2M)

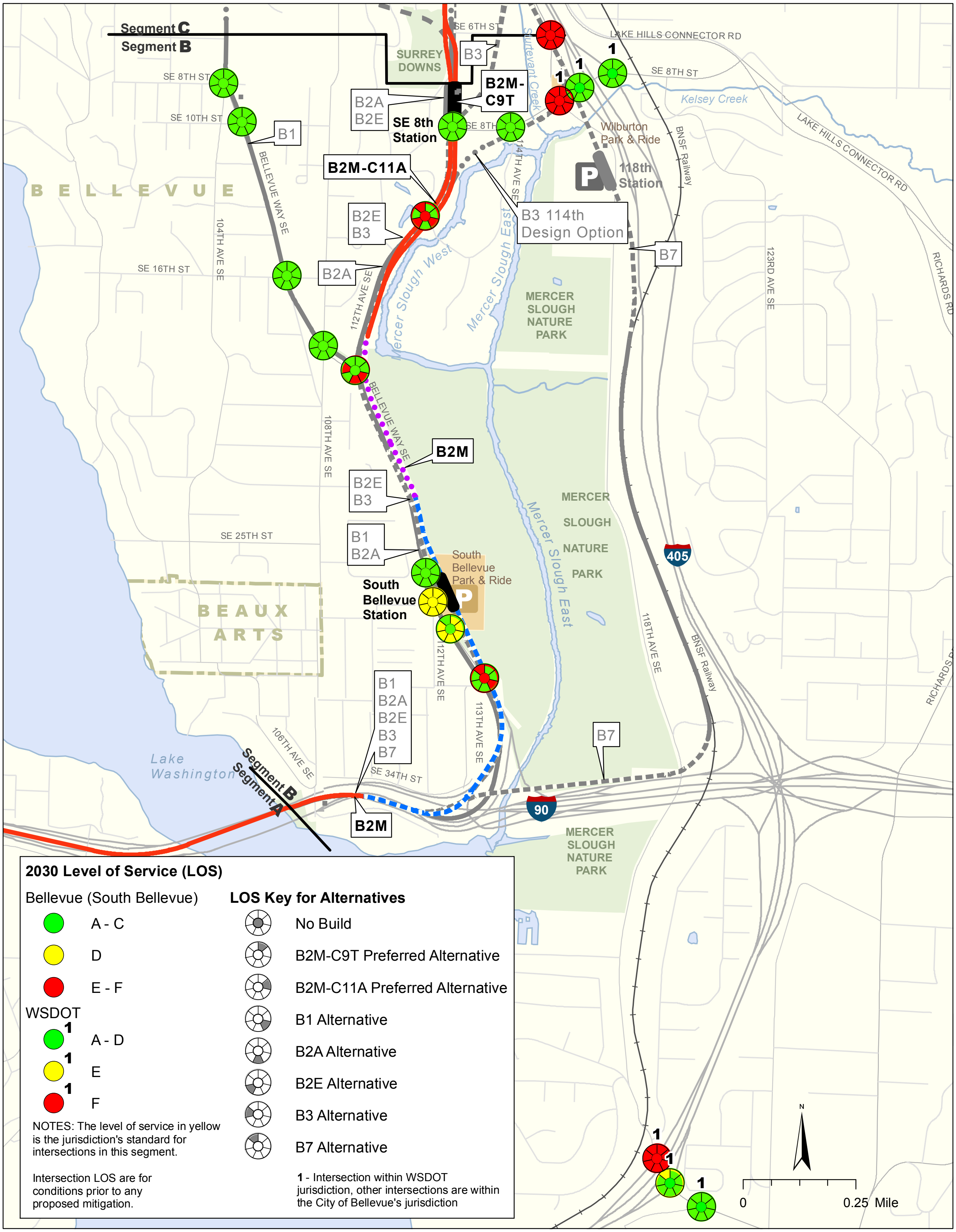
Within Segment B, some level of signal priority would be provided at the at-grade light rail crossings. Even so, most intersections within Segment B with *Preferred Alterative B2M* would operate similarly to the no-build conditions. With either of the two roadway modification options along Bellevue Way SE, a traffic signal would be install at the southern driveway of the South Bellevue Station and Bellevue Way SE. In one of the roadway modification options, a traffic signal is proposed at SE 30th Street and Bellevue Way SE. In either of these options, the southern driveway of the South Bellevue Station and SE 30th Street intersection with Bellevue Way SE would meet City LOS standards. These improvements are proposed with either of the connections to Segment C: *Preferred Alternative C11A* or *Preferred Alternative C9T.*

For the *Preferred Alternative B2M* connection to *Preferred Alternative C11A,* when the gated crossing south of SE 15th Street is activated, a northbound queue would form but would not extend into the Bellevue Way SE and 112th Avenue SE intersection.


Segment C
Segment B
SURREY DOWNS
SE 6TH ST
B3
LAKE HILLS CONNECTOR RD
SE 8TH ST
SE 8TH ST
SE 10TH ST
B1
B2A
B2E
SE 8th Station
B2M-C9T
SE 8TH
Surrey Creek
Kelsey Creek
Wilburton Park & Ride
BNSF Railway
118th Station
LAKE HILLS CONNECTOR RD
B2M-C11A
BELLEVUE
BELLEVUE WAY SE
104TH AVE SE
B2E
B3
B3 114th Design Option
114TH AVE SE
B7
SE 16TH ST
B2A
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
RICHARDS RD
108TH AVE SE
BELLEVUE WAY SE
B2M
B2E
B3
MERCER SLOUGH NATURE PARK
SE 25TH ST
B1
B2A
South Bellevue Park & Ride
405
South Bellevue Station
BEAUX ARTS
Mercer Slough East
118TH AVE SE
BNSF Railway
112TH AVE SE
113TH AVE SE
RICHARDS RD
B1
B2A
B2E
B3
B7
B7
106TH AVE SE
SE 34TH ST
Lake Washington
Segment B
Segment A
90
B2M
MERCER SLOUGH NATURE PARK
1
1
1
1
1
1
2020 Level of Service (LOS)
Bellevue (South Bellevue)
A - C
D
E - F
WSDOT
A - D
E
F
NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
LOS Key for Alternatives
No Build
B2M-C9T Preferred Alternative
B2M-C11A Preferred Alternative
B1 Alternative
B2A Alternative
B2E Alternative
B3 Alternative
B7 Alternative
1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction
N
0
0.25 Mile
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 6-10 **2020 PM No Build and Build Level of Service at Intersections Segment B**
East Link Project


Segment C
Segment B
SE 6TH ST
SURREY DOWNS
B3
B2M-C9T
B2A
B2E
SE 8th Station
SE 8TH
LAKE HILLS CONNECTOR RD
SE 8TH ST
Kelsey Creek
Sturtevant Creek
1
Wilburton Park & Ride
118th Station
BNSF Railway
LAKE HILLS CONNECTOR RD
SE 8TH ST
SE 10TH ST
B1
BELLEVUE WAY SE
B2M-C11A
BELLEVUE
104TH AVE SE
B2E
B3
114TH AVE SE
B3 114th Design Option
B7
SE 16TH ST
B2A
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
RICHARDS RD
108TH AVE SE
BELLEVUE WAY SE
B2M
B2E
B3
MERCER SLOUGH NATURE PARK
SE 25TH ST
B1
B2A
South Bellevue Park & Ride
South Bellevue Station
405
BEAUX ARTS
118TH AVE SE
BNSF Railway
112TH AVE SE
113TH AVE SE
B1
B2A
B2E
B3
B7
B7
106TH AVE SE
SE 34TH ST
Lake Washington
Segment B
Segment A
B2M
90
MERCER SLOUGH NATURE PARK
RICHARDS RD
N
0
0.25 Mile
2030 Level of Service (LOS)
Bellevue (South Bellevue)
A - C
D
E - F
WSDOT
1 A - D
1 E
1 F
LOS Key for Alternatives
No Build
B2M-C9T Preferred Alternative
B2M-C11A Preferred Alternative
B1 Alternative
B2A Alternative
B2E Alternative
B3 Alternative
B7 Alternative

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Source: Data from King County (2006) modified by CH2M HILL.

Exhibit 6-11 **2030 PM No Build and Build Level of Service at Intersections Segment B**
East Link Project

For the *Preferred Alternative B2M* connection to *Preferred Alternative C9T,* vehicle queuing would be similar at the intersection of SE 8th Street and 112th Avenue SE compared with the no-build condition due to the provided northbound right-turn pocket. An option with the *Preferred Alternative B2M* connection to *Preferred Alternative C9T* would close the east approach at SE 15th Street to the Bellefield Office Park. This closure would recirculate vehicles in the office park to the intersection of 114th Avenue SE and SE 8th Street. The resulting intersection LOS along SE 8th Street at 112th Avenue SE and at 114th Avenue SE would still meet City of Bellevue LOS standards, but there would be an increase in the northbound queuing at SE 8th Street and 114th Avenue SE. This increase could impede driveway accesses within the Bellefield office park.

Other Segment B Alternatives

The Bellevue Way Alternative (B1) would have an at-grade profile throughout Segment B. The TWSC intersection of 112th Avenue SE and SE 15th Street would degrade because of an increase in the number of vehicles along 112th Avenue SE associated with the South Bellevue Station, limiting vehicles on SE 15th Street from finding gaps to turn onto 112th Avenue SE. In 2020 and 2030, the Bellevue Way SE and 112th Avenue SE intersection is also expected to operate at LOS F because of the at-grade profile and increase in the number of vehicles associated with the South Bellevue Station which is expected to create additional vehicle delay at this intersection.

Bellevue Way SE, south of the South Bellevue Station, would operate similar to *Preferred Alternative B2M.* At the South Bellevue Station and 112th Avenue SE intersection, pedestrians would access the South Bellevue Station light rail platform in one pedestrian crossings cycle, while pedestrians completely crossing Bellevue Way SE, would require two pedestrian crossing cycles. This change in pedestrian crossing time would allow for improved intersection operations. All other intersections along Bellevue Way are not expected to experience worse intersection operations because the number of roadway lanes being provided would remain the same as in the no-build condition and the light rail train would travel concurrently with the major flow of traffic (northbound and southbound directions). Additionally, disturbances in signal coordination are expected to be minimized with Alternative B1 or any at-grade profile because train detection would occur prior to the train arriving at the intersection, thereby allowing non-light-rail signal phases to be served without substantial adjustments to the signal timing.

B2A would be at-grade between the South Bellevue Station and the northern boundary of Segment B. Intersection operations would degrade at Bellevue Way SE at 112th Avenue SE as the at-grade profile and increase in the number of vehicles associated with the South Bellevue Station is expected to create additional vehicle delay at this location causing it to operate at LOS E in 2020 and LOS F in 2030 conditions. Similar to Alternative B1, all other intersections on Bellevue Way and 112th Avenue NE where Alternative B2A operates at-grade through are not expected to experience worse intersection operations. The reasons for this are the same as those described for Alternative B1.

Because Alternative B2E would be elevated throughout Segment B, intersection operations would degrade only at the TWSC intersection of 112th Avenue SE and SE 15th Street because of an increase in trips along 112th Avenue SE associated with the South Bellevue Station, limiting vehicles on SE 15th Street from finding gaps to turn onto 112th Avenue SE.

Alternative B3 would be at-grade between the South Bellevue Station to south of the intersection of SE 8th Street and 112th Avenue SE. North of this intersection the profile would become elevated. Intersection operations would degrade at Bellevue Way SE at 112th Avenue SE because the at-grade light rail operations and increase in the number of vehicles associated with the South Bellevue Station would produce additional vehicle delay. This intersection is expected to operate at LOS E in 2020 and LOS F in 2030 build conditions. With the B3 - 114th Design Option, traffic operations would be the similar to those under Alternative B3.

The 118th Avenue SE and SE 8th Street intersection would operate at LOS F with the no-build condition and all Segment B alternatives. In BNSF Alternative (B7), however, this intersection would operate with a worse delay than in the no-build conditions in both 2020 and 2030. This would be caused by the increase in vehicle traffic from the new park-and-ride lot at the 118th Station, located just south of this intersection. The TWSC intersection of 112th Avenue SE and SE 15th Street would also degrade because of an increase in trips along 112th Avenue SE associated with the 118th Station limiting vehicles on SE 15th Street from finding gaps to turn onto 112th Avenue SE. The intersection of Coal Creek Parkway and I-405 southbound ramps would also operate with a higher delay under Alternative B7.

Traffic Safety

Table 6-26 discusses the expected safety impacts of the Segment B alternatives on the local roadway system. The safety assessments were based on each alternative's design and national research and safety guidelines relevant to East Link Project. Appendix E provides information about findings from national research projects for the various design types assessed for the East Link Project.

TABLE 6-26
Segment B Alternative Safety Assessment

Alternative	Section	Safety Assessment
*Preferred 112th SE Modified Alternative (B2M) (*connecting to *Preferred Alternative C9T)*	Bellevue Way SE from I-90 connection to 112th Avenue SE	The alternative is an elevated profile as it exits I-90, with grade-separated crossings over Bellevue Way interchange ramps, SE 30th Street, and the South Bellevue Station. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway—including piers located near any ramps for the Bellevue Way interchange. However, relatively low travel speeds (less than or equal to 40 mph) and 6-inch curbs should provide adequate protection for the arterials. At locations where collisions with a pier would be of concern, taller (9-inch) curbs, low-profile median barrier, or guardrail could be used to minimize safety risks. Piers located near the Bellevue Way interchange ramps should be adequately protected with guardrail or crash cushions to reduce the likelihood of a severe accident. Near the Bill Pace Fruit and Produce Farm, the alternative transitions to an open-cut section with grade-separated street and driveway crossings over the track. An important safety feature would be barriers to prevent vehicles and pedestrians from falling onto the tracks. For the bridges over the track, a potential traffic safety issue would be motor vehicle collisions with guardrails or bridge rails. Crashworthy-end treatments and lateral offset to the railings—combined with relatively low travel speeds (less than or equal to 35 mph)—should provide adequate protection, especially against severe collisions.
	112th Avenue SE from Bellevue Way SE to SE 6th Street	The alternative is at-grade, side-aligned on the east side of 112th Avenue SE with at-grade, gated crossings at SE 15th and SE 8th Streets. Both intersections are signalized to assign right-of-way to trains and vehicles. Gates should reduce the potential for a vehicle to be on the tracks when a train approaches the intersections. A pedestrian crossing is also provided approximately 250 feet south of SE 6th Street. Refer to *Preferred Alternative C9T* for more information regarding the operation of the pedestrian crossing with the intersection of 112th Avenue SE and SE 6th Street. An option to close the approach at SE 15th Street exists and would result in only one crossing at SE 8th Street*.*
*Preferred 112th SE Modified Alternative (B2M) (*connecting to *Preferred Alternative C11A)*	Bellevue Way SE from I-90 Connection to 112th Avenue SE	Refer to the *Preferred Alternative B2M* (to C9T) safety assessment for the same road section.
	112th Avenue SE from Bellevue Way SE to SE 6th Street	The alternative remains side-aligned rising from an open-cut section to at-grade approximately 500 feet north of Bellevue Way. This section would have no vehicle crossings over the tracks. At approximately 1,400 feet north of Bellevue Way SE, the track crosses the northbound lanes of 112th Avenue SE at-grade to become a median-aligned, at-grade alignment. The transition from side-aligned to median-aligned includes gates and signals for northbound traffic as well as a gated pedestrian crossing. The gates are intended to maintain separation between the different travel modes and reduce the collision potential. Following, SE 8th Street is a signalized intersection and all remaining cross streets (SE 15th Street), and driveways have right-in/right-out access. Relative to alternatives that operate outside the roadway, this low-speed median alignment would have more potential vehicle conflicts and, therefore, would have a higher expected accident exposure, but it might also have less severe accidents because of slower travel speeds. The train crossing through major intersections is signal-controlled to assign right-of-way to trains and vehicles. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersections is believed to be a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents was considered life-threatening, and all of the LRT-vehicle accidents involved vehicles illegally turning. Of the existing midblock accidents, there were two rear-end and one right-angle accidents that could be prevented by the light rail median prohibiting midblock turns if any of the accidents involved a vehicle turning left into or out of a driveway.

TABLE 6-26 CONTINUED
Segment B Alternative Safety Assessment

Alternative	Section	Safety Assessment
Bellevue Way Alternative (B1)	Bellevue Way from SE 30th Street to SE 6th Street	Relative to alternatives that operate outside the roadway this low-speed median alignment would have more potential vehicle conflicts and, therefore, would have a higher expected accident exposure, but it might have less severe accidents because of slower travel speeds. The train crossing through major intersections is signal-controlled to assign right-of-way to trains and vehicles. Most signalized intersections would provide a left-turn pocket for traffic on Bellevue Way; however, the current continuous left-turn median would be removed. This is not expected to be a substantial safety concern because light rail would prevent mid-block left turns and allow left turns only at signalized intersections. The conversions of some full-access intersections into right-in/right-out access would reduce the number of conflict points and should be expected to reduce accidents at these intersections. Left-turn traffic will redistribute to full-access signalized intersections, but the volumes might not lead to more accidents at those locations with appropriate intersection design and signal phasing, such as exclusive left-turn phasing. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersections is believed to be a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents was considered life-threatening, and all of the LRT-vehicle accidents involved vehicles illegally turning. Of the existing mid-block accidents, a few (for example, rear-end accidents involving a vehicle stopped and turning left into a driveway) could be prevented by the light rail median prohibiting mid-block turns if any of the accidents involved a vehicle turning left into or out of a driveway.
112th SE At-Grade Alternative (B2A)	Bellevue Way from north park-and-ride entrance to approximately 500 feet further north	The elevated median alignment would separate vehicular traffic from light rail operations, which would prevent any vehicle-train accidents. Appropriate use of curb, low-profile median barrier, wide median to provide offset, or guardrail (if needed) would minimize the risk of a vehicle striking the pier. Overall, this short section is expected to have no substantial effect on the number of accidents.
	Bellevue Way and 112th Avenue SE from approximately 500 feet north of north park-and-ride entrance to SE 8th Street	Relative to alternatives that operate outside the roadway this low-speed median alignment would have a greater potential vehicle conflicts and, therefore, would have a higher expected accident exposure, but it might have less severe accidents because of slower travel speeds. The train crossing through major intersections is signal-controlled to assign right-of-way to trains and vehicles. The conversion of some full-access intersections into right in/right out access reduces the number of conflict points and should be expected to reduce accidents at these intersections. Left-turn traffic will redistribute to full-access signalized intersections, but the volumes might not lead to more accidents at those locations with appropriate intersection design and signal phasing, such as exclusive left-turn phasing. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersections is believed to be a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents were considered life-threatening and all of the LRT-vehicle accidents involved vehicles illegally turning. Of the existing mid-block accidents, a few (for example, rear-end accidents involving a vehicle stopped and turning left into a driveway) could be prevented by the light rail median prohibiting mid-block turns. As such, there is the potential to reduce the overall accident frequency by eliminating mid-block rear-end and turning accidents.

TABLE 6-26 CONTINUED
Segment B Alternative Safety Assessment

Alternative	Section	Safety Assessment
112th SE Elevated Alternative (B2E)	Segment A boundary to Segment C boundary	This elevated alternative would have no light rail interactions with vehicles, pedestrians, or bicycles on the street level, eliminating the possibility of a light rail accident with these travel modes. The largest apparent traffic safety issue is the relatively close location of some of the piers to the roadway — as little as 3 feet in some locations. However, relatively low travel speeds (35 mph or less) and 6-inch curbs should provide adequate protection. At locations where collisions with a pier are of concern, taller curbs (9-inch), low-profile barriers, or guardrail would minimize safety risks. Overall, no substantial effect on the number of accidents is expected.
112th SE Bypass Alternative (B3)	Bellevue Way from north park-and-ride entrance to approximately 500 feet further north	The elevated median profile would separate vehicular traffic from light rail operations, which would prevent any vehicle-train accidents. Use of curb, low-profile median barrier, wide median to provide offset, and guardrail (if needed) would minimize the risk of a vehicle striking the pier. Overall, this short section is expected to have no substantial effect on the number of accidents.
	Bellevue Way and 112th Avenue SE from approximately 500 feet north of north park-and-ride entrance to SE 15th Street	Relative to alternatives that operate outside the roadway this low-speed median alignment would have the most potential vehicle conflicts and, therefore, would have the highest expected accident exposure, but it might have less severe accidents because of slower travel speeds. The train crossing through major intersections is signal-controlled to assign right-of-way to trains and vehicles. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersections is believed to be a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents was considered life-threatening and all of the LRT-vehicle accidents involved vehicles illegally turning. The conversions of some full-access intersections into right in/right out access would reduce the number of conflict points and would be expected to reduce accidents at these intersections. Left-turn traffic would redistribute to full-access signalized intersections, but the volumes might not lead to more accidents at those locations with appropriate intersection design and signal phasing, such as exclusive left-turn phasing. Of the existing mid-block accidents, a few (for example, rear-end accidents involving a vehicle stopped and turning left into a driveway) could be prevented by the light rail median prohibiting mid-block turns. As such, there is the potential to reduce the overall accident frequency by eliminating mid-block rear-end and turning accidents.
	112th Avenue SE from SE 15th Street to SE 8th Street	The elevated median profile would separate vehicular traffic from light rail operations, which would prevent any vehicle-train accidents. Use of curb, low-profile median barrier, wide median to provide offset, and guardrail (if needed) would minimize the risk of a vehicle striking the pier. Overall, this short section is expected to have no substantial effect on the number of accidents.
BNSF Alternative (B7)	Segment A boundary to Segment C boundary	The alternative is elevated or at-grade, generally paralleling I-90 and I-405. There would be no interaction with streets and therefore no substantial effect on the number of accidents is expected.

Parking

The number of off-street parking spaces that are expected to be removed with any of the alternatives in Segment B ranges from 3 to 73 spaces. None of the Segment B alternatives would remove on-street parking spaces. Table 6-27 summarizes the impacts by alternative.

TABLE 6-27
Segment B Parking Impacts Summary by Alternative

Alternative	Parking Spaces Removed	
	On-Street	Off-Street[a]
Preferred 112th SE Modified Alternative (B2M)	0	20
Bellevue Way Alternative (B1)	0	57
112th SE At-Grade Alternative (B2A)	0	7
112th SE Elevated Alternative (B2E)	0	18
112th SE Bypass Alternative (B3)	0	3
B3 – 114th Extension Design Option	0	73
BNSF Alternative (B7)	0	18

Note: Parking impacts shown are permanent displacements. Parking losses associated with construction staging are not included in this summary.

[a] Includes parking spaces removed at the station areas.

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M would remove 20 off-street parking spaces in properties along Bellevue Way SE and 112th Avenue SE and zero on-street parking spaces.

Other Segment B Alternatives

The B3 – 114th Extension Design Option is expected to require removing the most parking spaces of the Segment B alternatives. Most of these spaces are located in the Wilburton Park-and-Ride lot. Alternative B3 would require the removal of the fewest parking spaces (three spaces), which are located in the Mercer Slough Nature Park.

As shown in Table 6-28, none of the stations located in Segment B would result in a parking supply reduction. The South Bellevue Station would occupy space currently occupied by the South Bellevue Park-and-Ride Lot. The proposed location of the SE 8th Street Station would not interfere with any existing off-street parking. The 118th Station, however, would require several properties to be taken for the construction and operations of the proposed park-and-ride lot. Because the entire parcels would be taken, the parking demand would be removed.

TABLE 6-28
Segment B Parking Impacts Summary by Station

Station	Associated Alternatives	Spaces Removed	Area Affected by Development
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3	0	None.
SE 8th	*Preferred Alternative B2M* to *Preferred Alternative C9T* and Alternatives B2A and B2E	0	None.
118th	Alternative B7	0	Several entire parcels would be acquired along the west side of 118th Avenue SE, south of SE 8th Street.

Notes: Indicated parking impacts are permanent displacements. Parking losses associated with construction are not included in this summary. Parking impacts shown are only those associated with the area covered by the station.

There is some potential for parking spillover to occur at the South Bellevue Station by year 2030, when the vehicle demand of 1,560 would exceed the proposed parking (approximately 1,400 stalls), as shown in Table 6-29. Even though there could be a potential for spillover by year 2030, the potential for hide-and-ride parking is expected to be low. Even though the South Bellevue park-and-ride lot is currently at capacity there is minimal parking spillover in the nearby residential areas because most of the parking in the area is not easily identifiable or accessible from Bellevue Way. This is illustrated by the low on-street parking utilization in the Enatai neighborhood (Table 6-6). Additionally, the City of Bellevue constructed a sidewalk and eliminated on-street parking on 112th Avenue SE south of the South Bellevue park-and-ride to remove the potential for spillover near the station.

TABLE 6-29
Segment B Existing and Proposed Park-and-Ride Parking Stalls and Forecasted Park-and-Ride Vehicle Demand

Station	Alternative	Total Existing Parking Stalls	Total Proposed Parking Stalls	2020 Park-and-Ride Vehicle Demand[a]	2030 Park-and-Ride Vehicle Demand[a]
South Bellevue	*Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3	519	1,400	1,310	1,560
118th	Alternative B7	--	1,030	580	760

[a] 3-hour PM peak-period park-and-ride vehicle demand. 3-hour PM peak period is a close representation of daily park-and-ride demand.

At SE 8th Street Station, there would be a low potential for hide-and-ride activity because of the residential parking zone for the Surrey Downs neighborhood recently established by the City of Bellevue. Additionally, this parking is not easily accessible to the SE 8th Street Station. At the 118th Avenue Station, there is a low potential for hide-and-ride impacts because the park-and-ride lot is expected to accommodate 2020 and 2030 vehicle demand (Table 6-29).

6.3.2.3 Segment C

Within Segment C, multiple projects are planned to be built by the City of Bellevue and WSDOT under the no-build condition would change the physical characteristics of major roadways from their existing conditions. This includes; widening 110th Avenue NE from a three- or four-lane cross section to a five-lane cross-section between NE 4th Street and NE 8th Street. Extending NE 4th Street from 116th Avenue NE to 120th Avenue NE and by year 2030 widening NE 2nd Street from three lanes with on-street parking to five lanes between 112th Avenue NE and Bellevue Way NE. Appendix A provides the complete list of roadway and intersection projects assumed in 2020 and 2030 for Segment C.

Traffic Control, Property Access, and Circulation

Within Segment C, traffic-control treatments proposed with the project alternatives include signal replacements and modifications, right (or left)-in, right (or left)-out restrictions, light rail gates and access closures. Table 6-30 identifies locations and types of control measures for each Segment C alternative. Alternative C4A would have the highest number of traffic control revisions because it travels at-grade along the side of 108th and 110th avenues NE. The tunnel alternatives (*Preferred Alternative C9T* and Alternatives C1T, C2T, C3T) and elevated alternatives along or east of 112th Avenue NE (C7E andC14E) would have the fewest revisions.

TABLE 6-30
Segment C Intersection Traffic Control

Control Location[a]	Existing Control	Proposed Control
Preferred 108th At-Grade Alternative (C11A)		
112th Avenue SE and SE 6th Street	Signal	Replace signal
112th Avenue SE and SE 4th Street	Minor street stop-controlled	Close
110th Avenue NE and Main Street	Signal	Replace signal
108th Avenue NE and Main Street	Signal	Replace signal
108th Avenue NE and NE 2nd Street	Signal	Replace signal
108th Avenue NE and NE 4th Street	Signal	Replace signal
108th Avenue NE and NE 6th Street	Signal	Replace signal
110th Avenue NE and NE 6th Street	Signal	Replace signal
112th Avenue NE and NE 6th Street	Signal	Replace signal

TABLE 6-30 CONTINUED
Segment C Intersection Traffic Control

Control Location[a]	Existing Control	Proposed Control
Preferred 110th NE Tunnel Alternative (C9T)		
112th Avenue SE and SE 6th Street	Signal	Replace signal
112th Avenue SE and SE 4th Street	Minor street stop-controlled	Relocate approach to SE 6th Street
112th Avenue SE and SE 1st Place	Minor street stop-controlled	Close
110th Avenue NE and NE 6th Street	Signal	Replace signal
112th Avenue NE and NE 6th Street	Signal	Replace signal
Bellevue Way Tunnel Alternative (C1T)		
Bellevue Way and SE Kilmarnock Street	Signal	Replace signal
110th Avenue NE and NE 6th Street	Signal	Replace signal
112th Avenue NE and NE 6th Street	Signal	Replace signal
106th NE Tunnel Alternative (C2T)		
110th Avenue NE and NE 6th Street	Signal	Replace signal
112th Avenue NE and NE 6th Street	Signal	Replace signal
108th NE Tunnel Alternative (C3T)		
116th Avenue NE, north of NE 12th Street	None	Install light rail gates
Couplet Alternative (C4A) (eastbound/northbound)		
SE 6th Street and 112th Avenue SE	Signal	Replace signal
Main Street and 110th Avenue NE	Signal	Replace signal
NE 2nd Street and 110th Avenue NE	Signal	Replace signal
NE 4th Street and 110th Avenue NE	Signal	Replace signal
NE 6th Street and 110th Avenue NE	Signal	Replace signal
NE 8th Street and 110th Avenue NE	Signal	Replace signal
NE 10th Street and 110th Avenue NE	Signal	Replace signal
NE 12th Street and 110th Avenue NE	Signal	Replace signal
NE 12th Street driveway and mid-block access on the north side	None	Close access
116th Avenue NE, north of NE 12th Street	None	Install light rail gates
Couple Alternative (C4A) (westbound/southbound)		
Main Street and 110th Avenue NE	Signal	Install light rail gates
Main Street and 108th Avenue NE	Signal	Replace signal
NE 2nd Street and 108th Avenue NE	Signal	Replace signal
NE 4th Street and 108th Avenue NE	Signal	Replace signal
NE 6th Street and 108th Avenue NE	Signal	Replace signal
NE 8th Street and 108th Avenue NE	Signal	Replace signal
NE 10th Street and 108th Avenue NE	Signal	Replace signal
NE 12th Street and 108th Avenue NE	Signal	Replace signal
NE 12th Street driveway and midblock access on the north side	None	Close access

TABLE 6-30 CONTINUED
Segment C Intersection Traffic Control

Control Location[a]	Existing Control	Proposed Control
NE 12th Street and 110th Avenue NE	Signal	Light rail gate
116th Avenue NE, north of NE 12th Street	None	Install light rail gates
112th NE Elevated Alternative (C7E)		
SE 6th Street and 112th Avenue SE	Signal	Replace signal
NE 6th Street and 112th Avenue NE	Signal	Replace signal
116th Avenue NE, north of NE 12th Street	None	Install light rail gates
110th NE Elevated Alternative (C8E)		
NE 4th Street and 110th Avenue NE	Signal	Replace signal
NE 6th Street and 110th Avenue NE	Signal	Replace signal
NE 8th Street and 110th Avenue NE	Signal	Replace signal
NE 10th Street and 110th Avenue NE	Signal	Replace signal
NE 12th Street and 110th Avenue NE	Signal	Replace signal
116th Avenue NE, north of NE 12th Street	None	Install light rail gates
110th NE At-Grade Alternative (C9A)		
SE 6th Street and 112th Avenue SE	Signal	Replace signal
SE 4th Street and 112th Avenue SE	Minor street stop controlled	Right-in/right-out
SE 1st Place and 112th Avenue SE	Minor street stop controlled	Right-in/right-out
Main Street and 110th Place SE	Minor street stop controlled	Install light rail gates
Main Street and 110th Avenue NE	Signal	Replace signal
NE 2nd Street and 110th Avenue NE	Signal	Replace signal
NE 4th Street and 110th Avenue NE	Signal	Replace signal
NE 6th Street and 110th Avenue NE	Signal	Replace signal
NE 6th Street and 112th Avenue NE	Signal	Replace signal
114th NE Elevated Alternative (C14E)		
No intersection traffic control modifications		

[a] With connectors to Segment B Alternatives B3 and B7 no change to the existing intersection control on 112th Avenue SE would occur.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A has signalized crossings along 108th Avenue NE at Main, NE 2nd, NE 4th, and NE 6th streets, a mid-block pedestrian crossing north of NE 2nd Place and signalized crossings at 112th Avenue SE and SE 6th Street and 110th Avenue NE and NE 6th Street intersections. A southbound left-turn pocket would be provided at the SE 6th Street and 112th Avenue SE intersection. As *Preferred Alternative C11A* operates along portions of 108th Avenue NE and NE 6th Street in the median, property access and circulation is right-in/right-out except at signalized intersections where all movements are allowed (including u-turn movements where appropriate); except the northbound left-turns along 108th Avenue NE at NE 2nd Street and NE 4th Street. SE 4th Street would be closed to 112th Avenue SE. Access to SE 4th Street would be maintained via 111th Avenue SE. 110th Place SE and 110th Avenue SE would not have access to Main Street, but would have a new connection to one another. At Surrey Downs Park, the north driveway would be closed and the south driveway would allow right-in and right-out movements. No gates would be required. Due to the roadway realignment, the driveway might need to be rebuilt to the appropriate standards with this alternative.

With a connection to Alternatives B3, B3 - 114th Design Option, or B7, no traffic control, property access or circulation changes would occur along 112th Avenue SE because *Preferred Alternative C11A* would operate grade-separated east of 112th Avenue SE before transitioning to at-grade south of Main Street, west of 112th Avenue SE.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T has one signalized crossing at 112th Avenue SE and SE 6th Street. *Preferred Alternative C9T* would not affect roadway and property access and circulation except along 112th Avenue SE and NE 6th Street. SE 1st Street would be closed and not have access with 112th Avenue SE. Access to SE 1st Place would be maintained via 111th Avenue SE. SE 4th Street would be realigned to the intersection of 112th Avenue SE and SE 6th Street. With this realignment northbound and southbound left turn pockets would be provided at SE 6th and 112th Avenue SE. Along NE 6th Street, property access would be similar to property access under *Preferred Alternative C11A*. With a connection to Alternatives B3, B3 114th - Design Option, or B7, *Preferred Alternative C9T* would operate in the same manner as *Preferred Alternative C11A* with no traffic control, property access or circulation changes along 112th Avenue SE.

Other Segment C Alternatives

Because the Bellevue Way Tunnel (C1T), 106th NE Tunnel (C2T), and 108th NE Tunnel (C3T) alternatives are mainly underground, minimal traffic control, property access and circulation changes are expected and only at the beginning and end of the tunnels near the portal areas. Alternative C1T would restrict driveway access on Bellevue Way between the short segment of SE 6th Street and SE Kilmarnock Street by allowing only right-turn-in, right-turn-out movements and a new signal would be installed at the Bellevue Way SE and SE Kilmarnock Street intersection. Alternatives C2T and C3T would restrict driveway access on 112th Avenue SE south of SE 6th Street when connected to Alternative B2A. All other Segment B connections to alternatives C2T and C3T would not result in additional traffic control, property access and circulation impacts on 112th Avenue SE. Alternatives C1T and C2T are similar to *Preferred Alternative C11A* once they exits their tunnel profiles east of the Bellevue Transit Center Station. Alternative C3T would require two road modifications north of NE 12th Street to serve the residential properties. New connections to 110th Avenue NE would be constructed to the north and connect with 110th Avenue NE.

Because the At-Grade Couplet Alternative (C4A) would consist of track side-aligned along 108th Avenue NE and 110th Avenue NE, both of the roadways would be converted to one-way streets, with 108th Avenue NE in the northbound direction and 110th Avenue NE in the southbound direction. These directions are opposite of the light rail train. At each intersection along 110th Avenue NE, there would be a left-turn lane, a through lane, and a shared through/right lane. On 108th Avenue NE, three vehicle lanes would be provided with an exclusive left-turn lane at the intersections.

In situations where a vehicle would cross the light rail tracks to access a driveway along 108th Avenue NE and 110th Avenue NE, that driveway would be closed if access is available at another location. For driveways that remain open on the west side and east side of the streets, respectively, they would be signed to alert the drivers crossing the tracks when a light rail train is approaching. Because the train would approach a driveway from the left side of the street, its operation follows standards to which drivers are accustomed. The proposed Bellevue Transit Center Station location would close the City Hall visitor parking entrance on 110th Avenue NE, parking access would remain on NE 6th Street.

Light rail gates would be installed on the southern leg of the 110th Avenue NE and Main Street intersection and on the northern leg of the 110th Avenue NE and NE 12th Street intersection. The intersection at Main Street and 110th Avenue NE would be reconfigured to accommodate the realignment of 110th Avenue SE and 110th Place SE. Minor impacts on traffic circulation at the NE 12th Street and 110th Avenue NE intersection are expected as a result of realigning 111th Avenue NE to connect to 110th Avenue NE. Private driveway access from existing properties on 111th Avenue NE would be maintained, and impacts on circulation are expected to be minimal.

If Alternative C4A connects with Alternative B2A, there would be some additional property access and circulation impacts between SE 6th Street and just south of Main Street because the profile is at-grade and elevated in the median. Therefore, turning movements into and out of driveways would be restricted to allow only right-turn-in and right-turn-out movements. U-turn movements would be provided at the SE 6th Street and Main Street intersections along 112th Avenue NE to minimize any impacts. All other Segment B connections would not result in traffic control, property access or circulation impacts.

The 112th NE Elevated Alternative (C7E) would have minor traffic control, property access, and circulation impacts because the alternative is elevated along the east side of 112th Avenue NE. The signal at NE 6th Street and 112th Avenue NE would be modified because of column placement. With a connection to Alternative B2A, traffic control, property access, and circulation along 112th Avenue SE between Main Street and SE 6th Street would be similar to that in Alternative C4A. No other Segment B connections would result in additional traffic controls, property access or circulation impacts.

The 110th NE Elevated Alternative (C8E) would have some traffic control, property access and circulation impacts. Due to column placements along 110th Avenue NE between NE 2nd and NE 12th streets one through lane in each direction would be provided and turning movements into and out of driveways would be restricted to right-turn-in and right–turn-out only. Northbound and southbound left turn lanes would be provided at each intersection along 110th Avenue NE with the exception at NE 8th Street and 110th Avenue NE, where the northbound left turn would not be allowed due to right-of-way constraints. Vehicles in this direction would need to turn left at either at NE 4th Street or NE 10th Street. To minimize circulation impacts, U-turn movements would be provided at signalized intersections along this roadway section, where appropriate. Because this alternative connects only with Alternative B3 or Alternative B7, there would be no traffic control, property access or circulation impacts along 112th Avenue SE, south of Main Street.

Alternative C9A, with a connection to Alternative B2A, would have traffic control, property access, and circulation impacts along 112th Avenue SE between Main Street and SE 6th Street similar to those under Alternative C4A. A gated crossing would be provided to the properties south of Main Street at 110th Place SE. Alternative C9A would have signalized crossings along 110th Avenue NE at Main, NE 2nd, NE 4th, and NE 6th streets. Because Alternative C9A operates along 110th Avenue SE in the center median, property access and circulation would be right-in/right-out. The alternative would be similar to *Preferred Alternative C11A* once it becomes elevated on NE 6th Street. With the other Segment B connections, there would be no traffic control, property access, or circulation impacts.

Alternative C14E would have no signalized crossings or access and circulation impacts.

Within Segment C, gated vehicle crossings would occur under the C3T, C4A, C7E, C8E and C9A alternatives and are listed in Table 6-30.

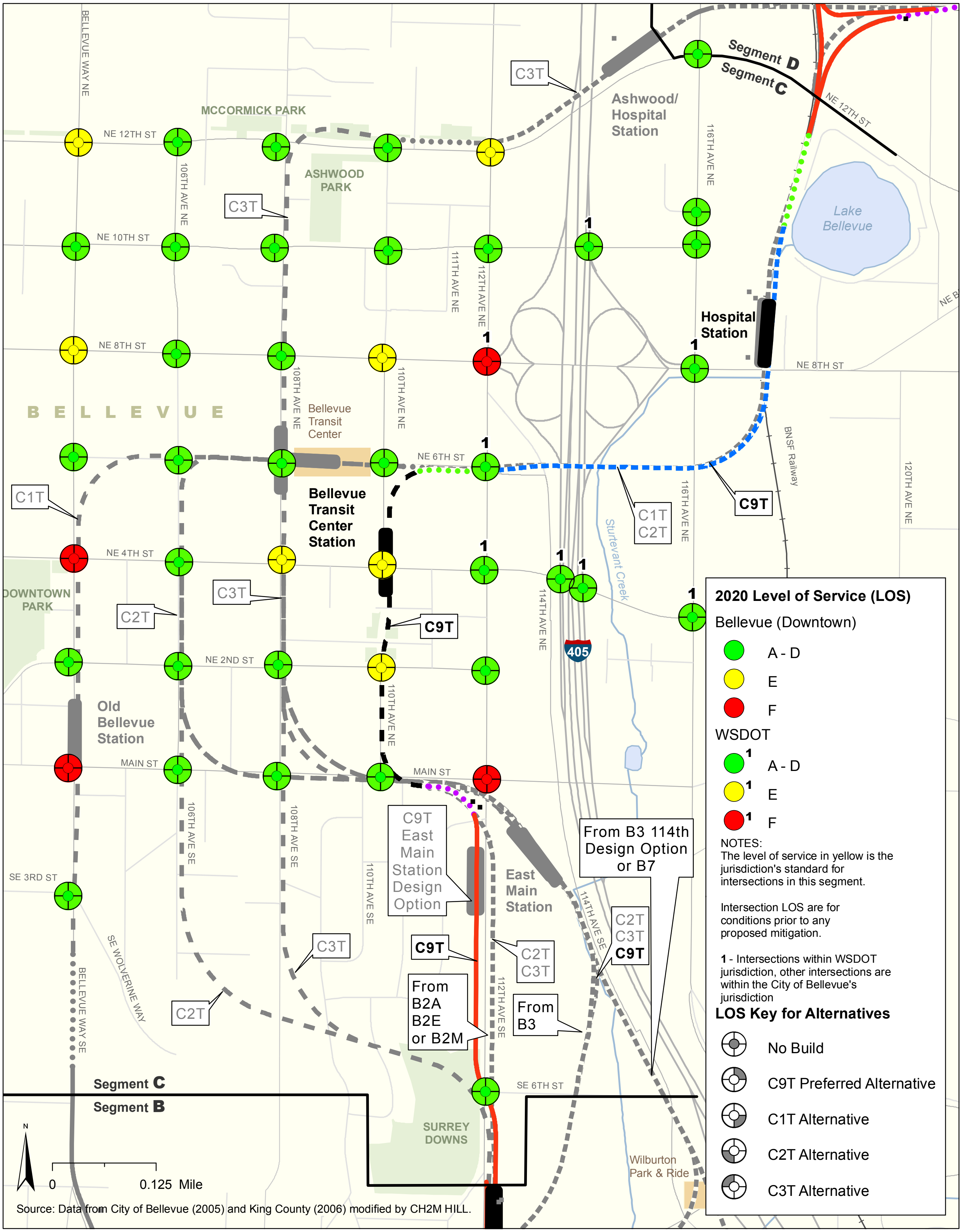
Operations and Level of Service

In the future, several roadway projects in Downtown Bellevue are assumed to be completed under the No Build Alternative. Four intersections in the study area would likely operate at LOS F under the No Build Alternative in 2020, and by 2030, four additional intersections would likely operate at LOS F, totaling eight intersections in 2030 that are expected to operate at LOS F with the No Build Alternative. These eight intersections are as follows:

- Bellevue Way and Main Street
- Bellevue Way and NE 4th Street
- Bellevue Way and NE 12th Street
- 112th Avenue NE and NE 8th Street (I-405 southbound off-ramp)
- 112th Avenue NE and Main Street
- 110th Avenue NE and NE 8th Street
- 112th Avenue NE and NE 12th Street
- 108th Avenue NE and NE 4th Street

The majority of intersections with the project in the year 2020 and 2030 PM peak-hour analysis are expected to operate similarly to the no-build conditions. This is because of the roadway modifications incorporated into each alternative and modified travel patterns related to a shift to transit. As stated previously, within Downtown Bellevue, the at-grade alternatives, such as *Preferred Alternative C11A*, would likely receive some form of priority although east-west traffic signal coordination on key arterials would be maintained for vehicle progression.

Exhibits 6-12 through 6-15 and Tables D-10 and D-11 in Appendix D provide 2020 and 2030 intersection PM peak-hour LOS results for the no-build and build conditions.


BELLEVUE WAY NE
NE 12TH ST
106TH AVE NE
MCCORMICK PARK
ASHWOOD PARK
C3T
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
NE 10TH ST
111TH AVE NE
112TH AVE NE
1
NE 8TH ST
108TH AVE NE
110TH AVE NE
Hospital Station
NE 8TH ST
NE B
B E L L E V U E
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
C1T
C1T C2T
C9T
BNSF Railway
116TH AVE NE
120TH AVE NE
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
C2T
C3T
C9T
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
Old Bellevue Station
MAIN ST
MAIN ST
C9T East Main Station Design Option
East Main Station
From B3 114th Design Option or B7
114TH AVE SE
106TH AVE SE
108TH AVE SE
110TH AVE SE
SE 3RD ST
SE WOLVERINE WAY
C3T
C9T
C2T C3T
C2T C3T C9T
C2T
From B2A B2E or B2M
112TH AVE SE
From B3
BELLEVUE WAY SE
SE 6TH ST
Segment C
Segment B
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile
2020 Level of Service (LOS)
Bellevue (Downtown)
A - D
E
F
WSDOT
1 A - D
1 E
1 F
NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction
LOS Key for Alternatives
No Build
C9T Preferred Alternative
C1T Alternative
C2T Alternative
C3T Alternative

Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

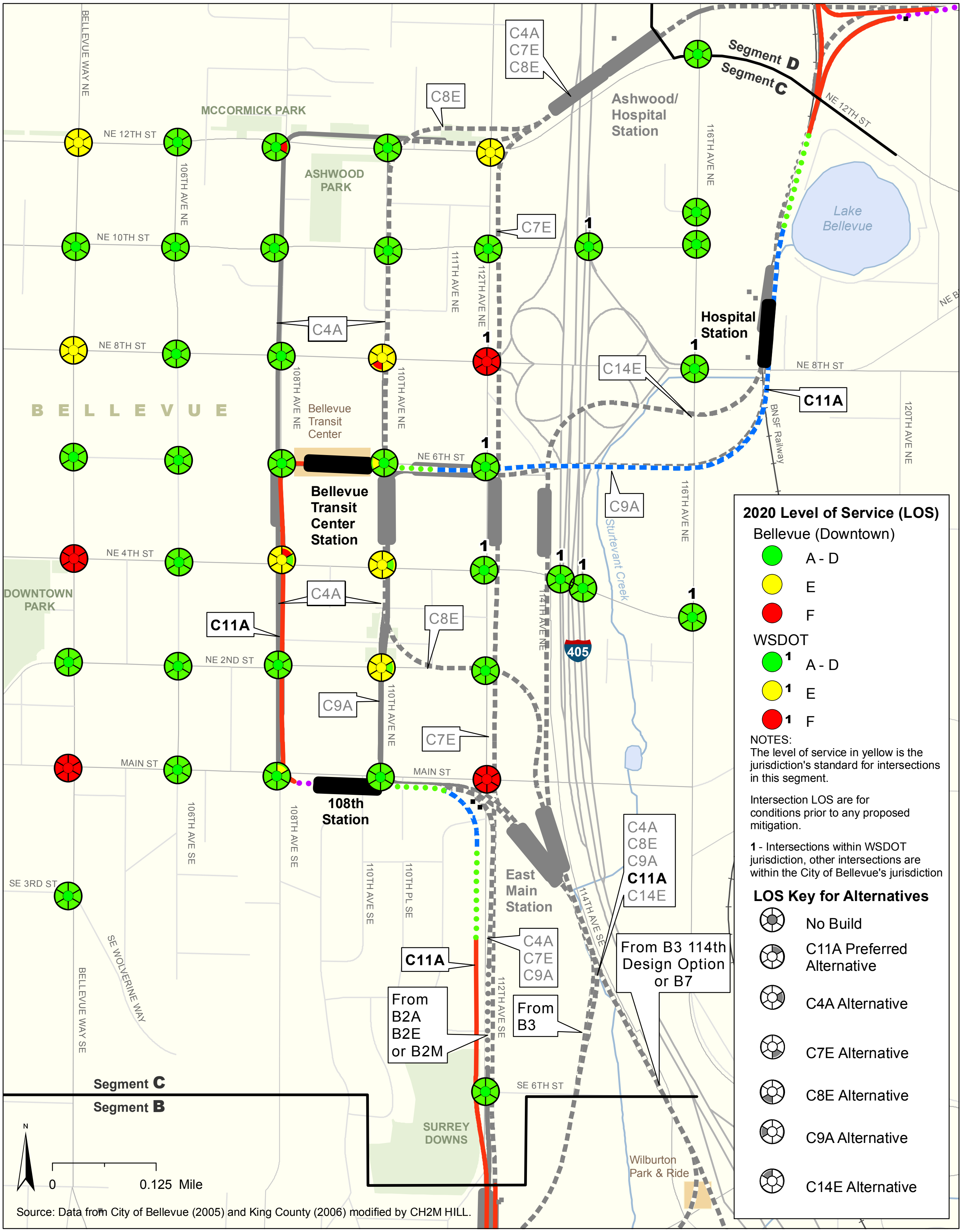
Other Alternatives

At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

▪ Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot

Exhibit 6-12 **2020 PM No Build and Build Level of Service at Intersections, Tunneled Alignments Segment C**

East Link Project



C4A
C7E
C8E
C8E
Segment D
Segment C
NE 12TH ST
Ashwood/
Hospital
Station
MCCORMICK PARK
ASHWOOD
PARK
BELLEVUE WAY NE
NE 12TH ST
106TH AVE NE
116TH AVE NE
Lake
Bellevue
NE 10TH ST
C7E
1
111TH AVE NE
112TH AVE NE
C4A
NE 8TH ST
1
Hospital
Station
1
NE B
108TH AVE NE
110TH AVE NE
C14E
NE 8TH ST
BELLEVUE
Bellevue
Transit
Center
C11A
BNSF Railway
120TH AVE NE
1
NE 6TH ST
Bellevue
Transit
Center
Station
C9A
Sturtevant Creek
116TH AVE NE
NE 4TH ST
1
1
1
1
DOWNTOWN
PARK
C4A
C11A
C8E
114TH AVE NE
405
NE 2ND ST
C9A
110TH AVE NE
C7E
MAIN ST
MAIN ST
108th
Station
106TH AVE SE
108TH AVE SE
SE 3RD ST
110TH AVE SE
110TH PL SE
East
Main
Station
C4A
C8E
C9A
C11A
C14E
114TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
C11A
C4A
C7E
C9A
From B3 114th
Design Option
or B7
From
B2A
B2E
or B2M
From
B3
112TH AVE SE
SE 6TH ST
Segment C
Segment B
SURREY
DOWNS
Wilburton
Park & Ride
N
0
0.125 Mile

2020 Level of Service (LOS)

Bellevue (Downtown)

- 🟢 A - D
- 🟡 E
- 🔴 F

WSDOT

- 🟢1 A - D
- 🟡1 E
- 🔴1 F

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

LOS Key for Alternatives

- No Build
- C11A Preferred Alternative
- C4A Alternative
- C7E Alternative
- C8E Alternative
- C9A Alternative
- C14E Alternative

Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

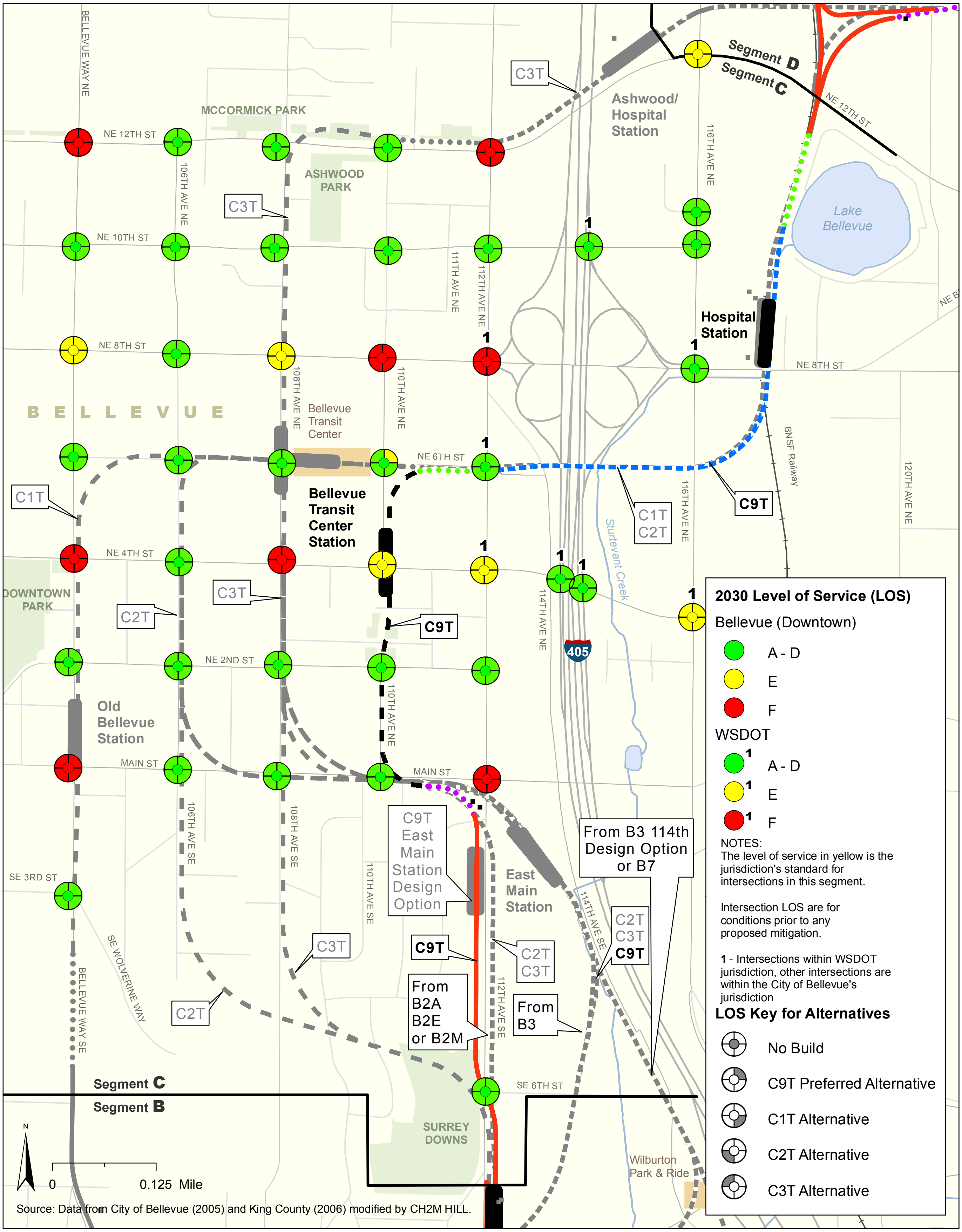
Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 6-13 **2020 PM No Build and Build Level of Service at Intersections, Non-Tunneled Alignments Segment C**

East Link Project


BELLEVUE WAY NE
NE 12TH ST
106TH AVE NE
MCCORMICK PARK
ASHWOOD PARK
C3T
Ashwood/
Hospital
Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake
Bellevue
NE 10TH ST
111TH AVE NE
112TH AVE NE
Hospital
Station
NE 8TH ST
108TH AVE NE
110TH AVE NE
BELLEVUE
Bellevue
Transit
Center
BNSF Railway
120TH AVE NE
NE 6TH ST
C1T
C2T
C9T
Bellevue
Transit
Center
Station
116TH AVE NE
Sturtevant Creek
NE 4TH ST
DOWNTOWN
PARK
114TH AVE NE
405
NE 2ND ST
Old
Bellevue
Station
110TH AVE NE
MAIN ST
106TH AVE SE
108TH AVE SE
C9T
East
Main
Station
Design
Option
From B3 114th
Design Option
or B7
East
Main
Station
SE 3RD ST
110TH AVE SE
114TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
From
B2A
B2E
or B2M
112TH AVE SE
From
B3
SE 6TH ST
Segment C
Segment B
SURREY
DOWNS
Wilburton
Park & Ride
N
0
0.125 Mile
1
NE B

2030 Level of Service (LOS)

Bellevue (Downtown)

- 🟢 A - D
- 🟡 E
- 🔴 F

WSDOT

- 🟢[1] A - D
- 🟡[1] E
- 🔴[1] F

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

LOS Key for Alternatives

- No Build
- C9T Preferred Alternative
- C1T Alternative
- C2T Alternative
- C3T Alternative

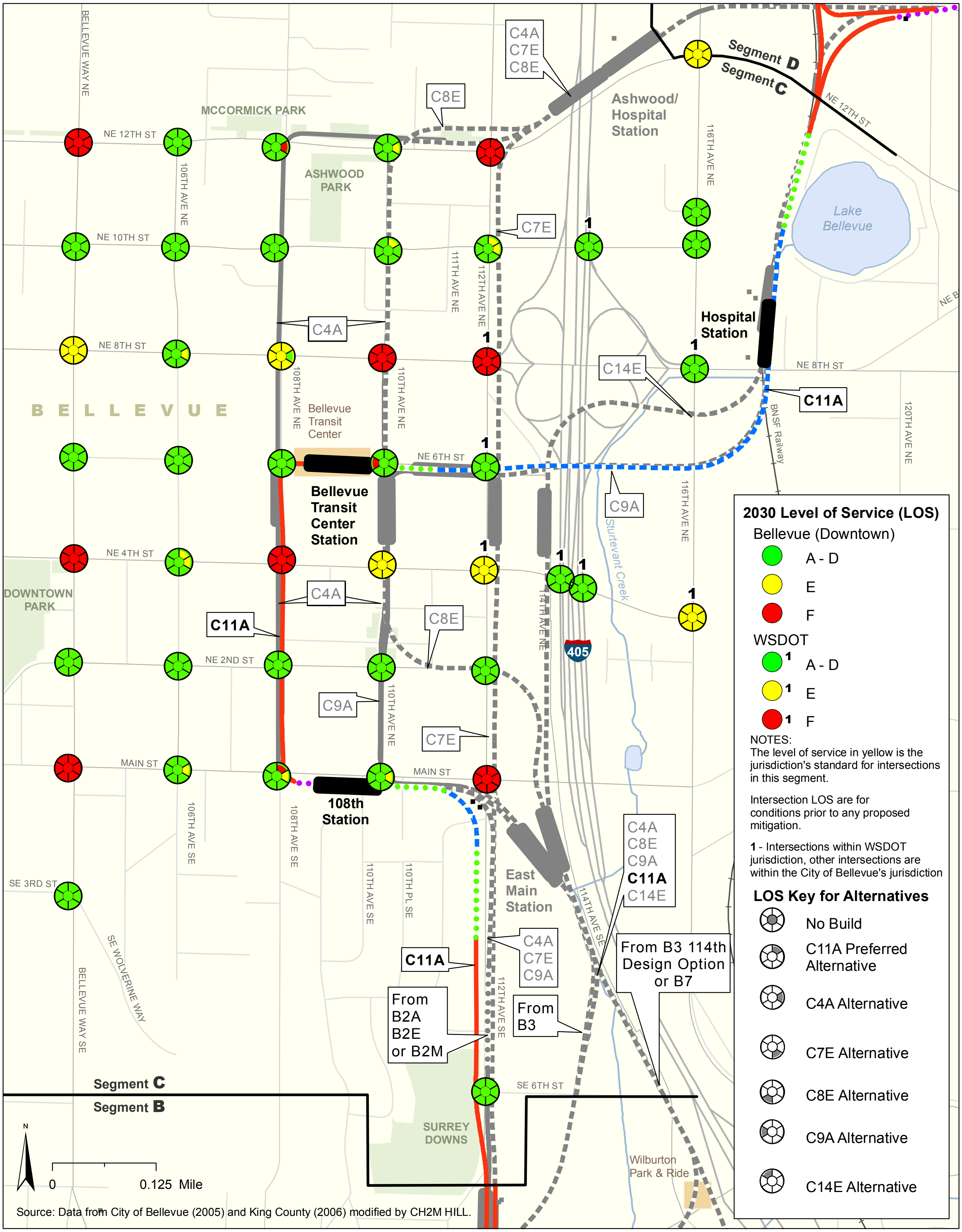
Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 6-14 **2030 PM No Build and Build Level of Service at Intersections, Tunneled Alignments Segment C**
East Link Project


BELLEVUE WAY NE
MCCORMICK PARK
NE 12TH ST
106TH AVE NE
ASHWOOD PARK
C4A
C7E
C8E
C8E
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
NE 10TH ST
C7E
111TH AVE NE
112TH AVE NE
1
NE 8TH ST
C4A
Hospital Station
1
1
NE 8TH ST
C14E
BELLEVUE
108TH AVE NE
110TH AVE NE
Bellevue Transit Center
C11A
BNSF Railway
120TH AVE NE
NE 6TH ST
1
Bellevue Transit Center Station
C9A
Sturtevant Creek
116TH AVE NE
NE 4TH ST
1
1
1
1
DOWNTOWN PARK
C4A
C11A
C8E
114TH AVE NE
405
NE 2ND ST
C9A
110TH AVE NE
C7E
MAIN ST
MAIN ST
108th Station
106TH AVE SE
108TH AVE SE
110TH AVE SE
110TH PL SE
C4A
C8E
C9A
C11A
C14E
SE 3RD ST
East Main Station
114TH AVE SE
SE WOLVERINE WAY
C4A
C7E
C9A
C11A
From B3 114th Design Option or B7
From B2A B2E or B2M
From B3
112TH AVE SE
BELLEVUE WAY SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile
2030 Level of Service (LOS)
Bellevue (Downtown)
A - D
E
F
WSDOT
1 A - D
1 E
1 F
LOS Key for Alternatives
No Build
C11A Preferred Alternative
C4A Alternative
C7E Alternative
C8E Alternative
C9A Alternative
C14E Alternative

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersections within WSDOT jurisdiction, other intersections are within the City of Bellevue's jurisdiction

Source: Data from City of Bellevue (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- Traction Power Substation
- Proposed Station
- New and/or Expanded Park-and-Ride Lot

Exhibit 6-15 **2030 PM No Build and Build Level of Service at Intersections, Non-Tunneled Alignments Segment C**
East Link Project

Preferred 108th NE At-Grade Alternative (C11A)

Most intersections in downtown Bellevue under *Preferred Alternative C11A* would operate similar to the No Build Alternative. The intersections of Main Street and 112th Avenue NE, Main Street and 108th Avenue NE, and NE 4th Street and 108th Avenue NE would not meet the City of Bellevue LOS standards and operate worse than the No Build Alternative. These impacts are due to the roadway modifications and signal adjustments along 108th Avenue NE and because of the passenger drop-off and pick-up traffic at the 108th Station and Bellevue Transit Center Station. With a connection to Alternative B3, B3 - 114th Extension Design Option, or B7, operations along 112th Avenue SE would be similar to a connection with *Preferred Alternative B2M*.

Preferred 110th NE Tunnel Alternative (C9T)

Most intersections under the *Preferred Alternative C9T* would operate similar to the No Build Alternative because this alternative is mostly grade-separated from the roadway system. The intersection of NE 4th Street and 108th Avenue NE would not meet City of Bellevue LOS standards and would operate slightly worse than the No Build Alternative because of the passenger drop-off and pick-up traffic at the Bellevue Transit Center Station.

A design option under the *Preferred Alternative C9T* is to provide a Bellevue Transit Center Station exit/entrance on the west side of 110th Avenue NE. This would result in improved intersection operations at the intersection of 110th Avenue NE and NE 6th Street as the pedestrian-only signal phase would no longer be proposed to provide convenient pedestrian access to the station exit/entrance on the east side of 110th Avenue NE.

With a connection to alternatives B3, B3 - 114th Design Option, or B7, operations along 112th Avenue SE would be similar to a connection with *Preferred Alternative B2M.* Intersection LOS results for the East Main Station design option under *Preferred Alternative C9T* would be similar to a connection with Alternative B3, B3 - 114th Extension Design Option, or B7 that have an East Main Station.

Other Segment C Alternatives

The Bellevue Way Tunnel Alternative (C1T) would be grade-separated throughout most of Segment C except on Bellevue Way SE south of SE Kilmarnock Street, where the profile transitions between at-grade and a tunnel. The intersection operations at the Bellevue Way and Main Street intersection in 2020 and 2030 are expected to get slightly worse when compared with no-build condition because of the vehicle traffic associated with the Old Bellevue Station. Overall, however, C1T is expected to cause little to no impact on the intersections LOS compared with the No Build Alternative.

The 106th NE Tunnel (C2T) and 108th NE Tunnel (C3T) alternatives would be grade-separated through most of Segment C. The intersection operations in both of these alternatives are expected to cause minimal change in the intersection LOS compared with the 2020 and 2030 no-build conditions except at the intersection of 108th Avenue NE and NE 4th Street under both alternatives and at the intersection of 112th Avenue NE and NE 12th Street under Alternative C3T. At both intersections, an increase in delay is caused by additional drop-off and pick-up traffic associated with nearby stations.

The Couplet Alternative (C4A) would be an at-grade profile throughout Segment C except when connecting to an elevated Segment B alternative - 112th SE Bypass (B3), BNSF (B7), or 112th NE Elevated (B2E). With these connections, Alternative C4A south of Main Street would be elevated. Alternative C4A would operate as a light rail track couplet along 110th Avenue NE and 108th Avenue NE. Light rail would operate northbound along the east side of 110th Avenue NE and southbound along the west side of 108th Avenue NE between Main Street and NE 12th Street. To improve vehicle safety, 108th and 110th avenues NE would be converted to one-way vehicle traffic in the southbound direction on 110th Avenue NE and northbound direction on 108th Avenue NE. Left-turn lanes would be provided at each signalized intersection along 108th and 110th avenues NE.

The light rail operations associated with Alternative C4A would affect some north-south vehicle operations because of the one-way vehicle couplet proposed with this alternative. Therefore, intersection operations are expected to experience changes compared with 2020 and 2030 no-build conditions. Three intersections would fail to meet standards and operate worse than under no-build conditions: 108th Avenue NE and NE 12th Street, 110th Avenue NE and NE 8th Street and 112th Avenue NE and NE 8th Street. These impacts are associated with the changes in trip patterns and recirculation that would occur with a one-way couplet except at 108th Avenue NE and NE 12th Street, which is caused by the at-grade light rail operations.

The 112th NE Elevated (C7E) Alternative would be elevated throughout Segment C and, therefore, is expected to have little to no change in intersection LOS compared with the no-build condition except at the intersection of

112th Avenue NE and NE 12th Street because of additional vehicle trips associated with the Ashwood/Hospital Station. In Alternative C7E, the Bellevue Transit Center Station would be located on 112th Avenue NE between NE 4th Street and NE 6th Street. The resulting shift in passenger drop-off/pick-up traffic is not expected to create additional delays at the intersections near this station.

The 110th NE Elevated Alternative (C8E) would be elevated throughout Segment C. Along 110th Avenue NE, between NE 2nd Street and NE 12th Street, the number of lanes would be reduced from a three- to five-lane section (planned by the City of Bellevue) to a two- to four-lane section. This is due to column placements and right-of-way constraints. In 2020 and 2030, the intersections of NE 8th Street at 110th Avenue NE, NE 8th Street at 112th Avenue NE, NE 12th Street at 112th Avenue NE, and 108th Avenue NE and NE 4th Street would operate at LOS F and worse than the no-build condition. This is a result of the shift in travel patterns associated with the reduction in travel lanes because of the median column placement and the additional vehicle trips associated with the Bellevue Transit Center and Ashwood/Hospital stations. All other intersections are expected to have little to no change in intersection LOS compared with the no-build condition.

Most intersections in Alternative C9A would operate similar to No Build Alternative. Along 112th Avenue SE, intersection impacts would be similar to those described for Alternative C4A. The intersections of NE 4th Street and 108th Avenue NE and NE 8th Street and 110th Avenue NE would not meet City of Bellevue's LOS standards and would operate worse than the No Build Alternative. Intersection delays along 110th Avenue NE would be higher with Alternative C9A than under the No Build Alternative, but would operate within City of Bellevue's LOS standards unless where noted.

Intersection operations with Alternative C14E would operate similar to the No Build Alternative because of the elevated alignment on the eastern edge of downtown Bellevue. If a parking garage were provided to support the Bellevue Transit Center Station with Alternative C14E, the stalls would need to be managed to prohibit use by non-transit passengers. It is also expected congestion along NE 6th Street and 112th Avenue NE would likely become slightly worse and possibly require mitigation with the additional traffic associated with a parking garage.

With any of the non-preferred Segment C alternatives, a connection to Alternative B3, B3 - 114th Extension Design Option, or B7 would not impact operations along 112th Avenue SE and intersection LOS results would be similar to the No Build Alternative.

With alternatives C3T, C4A, C7E, and C8E, the gated crossing of 116th Avenue NE would be coordinated with the traffic signal at NE 12th Street and 116th Avenue NE to allow enough clearance for southbound vehicles potentially queued between NE 12th Street and the gated crossing. Intersection operations at NE 12th Street and 116th Avenue NE would meet the City of Bellevue intersection LOS standard.

As stated in the Section Overview, Sound Transit and the City of Bellevue cooperatively explored at-grade and grade-separated alternatives in Segment C and analyzed their effects on traffic operations using different models than those applied in this FEIS for the *Downtown Bellevue Light Rail Alternatives Concept Design Report* (Sound Transit, 2010b). A peer review of the study by traffic engineering and transit operations professionals from Seattle, Portland, Denver, and San Diego concluded that the traffic modeling, simulation, and operational analysis were sufficient to compare build alternatives. Based upon their experience in all four cities, the panel concluded that the surface alternatives studied would have impacts on traffic operations in Bellevue that are similar to the surface light rail systems in the comparable environments of Downtown Portland, Downtown Denver, and Downtown San Diego. The panel noted that most of the changes in forecasted future traffic operating conditions in Downtown Bellevue are the result of traffic volume growth and not the introduction of surface light rail.

This analysis is not included in the Final EIS because the methodology is not consistent with the EIS approach reviewed by all cooperating agencies, a no-build condition was not analyzed, and some of the Segment C alternatives were not included. Even so, some of the key findings of the Downtown Study are important to note. Specifically, two criteria (average vehicle delay for all downtown intersections and average vehicle delay for intersections adjacent to the at-grade light rail alignments) produced conclusions similar to those of the EIS analysis when comparing the grade-separated (C9T and C14E) and at-grade (C9A and C11A) alternatives. In both analyses, the difference between the grade-separated and the at-grade alternative for the average downtown vehicle delay was within 10 percent. The analysis in the Final EIS also projected percentage differences in vehicle delay for the key affected intersections similar to those presented in the *Downtown Bellevue Light Rail Alternatives Concept Design Report* (Sound Transit, 2010b).

Traffic Safety

Table 6-31 discusses the expected safety impacts of the Segment C alternatives on the local roadway system. The safety assessments were based on each alternative's design and national research and safety guidelines relevant to East Link Project. Appendix E provides information about findings from national research projects for the various design types assessed for the East Link Project.

TABLE 6-31
Segment C Alternative Safety Assessment

Alternative	Section[a]	Safety Assessment
Preferred 108th NE At-Grade Alternative (C11A)	112th Avenue SE near Segment B boundary at SE 6th Street (connecting from *Preferred Alternative B2M*)	Approximately 300 feet south of SE 6th Street, *Preferred Alternative C11A* transitions from median at-grade to at-grade side-aligned by crossing the southbound lanes of 112th Avenue SE. The transition does not include gates because the traffic signal at SE 6th Street controls the vehicle, pedestrian, and train movements. When a train crosses the intersection, northbound vehicle movements would be allowed to proceed. This approach also uses an appropriate clearance interval to allow vehicles to clear the tracks before permitting the train to cross. Sufficient lighting should be provided so that drivers can clearly see the trains throughout the day. The clearance interval should consider the possibility of vehicles travelling through the intersection during their red-light phase. Adjacent to the signalized intersection, the tracks cross the sidewalk at a gated crossing to reduce the potential conflict with pedestrians and bicyclists.
	112th Avenue SE from SE 6th Street to 108th Avenue NE (connecting from *Preferred Alternative B2M*)	The segment is side-aligned with no crossings. South of SE 1st Place, the alignment transitions to elevated and back to at-grade after the crossing. With driveway and street crossings eliminated, no substantial effect on the number of accidents would be expected.
	Segment B boundary to 108th Avenue NE (connecting from Alternative B3 or B7)	*Preferred Alternative C11A* is elevated with a grade-separated crossing over 112th Avenue SE. The alignment transitions to at-grade, south of Main Street, west of 112th Avenue SE. With driveway and street crossings eliminated, no substantial effect on the number of accidents would be expected.
	108th Avenue NE and NE 6th Street from Main Street to 110th Avenue NE	This section is a low-speed median alignment, which would likely have highest higher expected accident exposure than grade-separated alignments; however, it might have less severe accidents because of slower travel speeds. Train crossings through major intersections are signal-controlled to assign right-of-way between the trains, vehicles, pedestrians, and bicyclists. On 108th Avenue NE, southbound vehicles are provided with left-turn pockets for turning across the tracks, while northbound left turns across the tracks would not be permitted. Southbound left turns would have a protected signal phase that would prohibit drivers from turning when a train is approaching. Additionally, driveways are right-in/right-out, eliminating vehicle-train conflicts between intersections. Along NE 6th Street, the train remains at-grade, median-aligned with buses operating on the outside the platform. To reach the platform, pedestrians would have to cross the bus lanes; however, this would not be different from the current design of the Bellevue Transit Center, which has pedestrians crossing to the median for loading and unloading. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr., Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 through June 2010), seven light rail train and vehicle accidents and one light rail train and pedestrian accident occurred, and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the light rail train revenue service began. The light rail train median barrier restricting vehicle turns to signalized intersections likely contributes to the overall accident reduction along the corridor. None of the light rail train-related accidents was considered life-threatening, and all of the light rail train-vehicle accidents involved vehicles illegally turning. Of the existing midblock accidents, there were two side-swipe and one right-angle accidents that could be prevented by the light rail median prohibiting midblock turns if any of the accidents involved a vehicle turning left into or out of a driveway.

TABLE 6-31 CONTINUED
Segment C Alternative Safety Assessment

Alternative	Section[a]	Safety Assessment
	NE 6th Street from 110th Avenue NE to end of Segment C	This section transitions to a median-elevated and eventually to a side-elevated as the alternative crosses over I-405. After crossing I-405, the alternative has grade-separated crossings over 116th Avenue NE and NE 8th Street. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway—including piers located near any ramps for the NE 8th Street interchange. However, relatively low travel speeds (less than or equal to 35 mph) and 6-inch curbs should adequately protect the arterials. At locations where collisions with a pier would be of concern, taller (9-inch) curbs, low-profile median barrier, or guardrail could be used to minimize safety risks. Piers located near the NE 8th Street interchange ramps should be adequately protected with guardrail or crash cushions to reduce the likelihood of a severe accident.
Preferred 110th NE Tunnel Alternative (C9T)	112th Avenue SE and Main Street from Segment B boundary to tunnel portal (connecting from *Preferred Alternative B2M*)	This section crosses from the east side of 112th Avenue SE to the west side through the intersection at SE 6th Street. The intersection is signalized to control vehicle, train, pedestrian, and bicycle movements but does not include gates. Active devices could be used where necessary to inform drivers of an approach train while waiting at the intersection. Approximately 400 feet north of SE 6th Street, the sidewalk paralleling 112th Avenue NE on the west side crosses the track at a gate-controlled crossing. (Note: In Segment B, approximately 250 feet south of SE 6th Street, a similar pedestrian and bicycle crossing, is provided on the east side of 112th Avenue SE.) Pedestrians would have to walk a longer distance to cross 112th Avenue SE, especially pedestrians that want to cross east-west north of SE 6th Street. To keep pedestrians and bicyclists from cutting-crossing the tracks to avoid the additional distance to the crossings, directional signing to inform pedestrians and bicyclists where to cross and fencing might be needed. The remaining section is at-grade side-aligned with no driveway or street crossings until it portals into the tunnel next to Main Street. This portion of the section would likely have no substantial effect on the number of accidents.
	Segment B boundary to tunnel portal (connecting from Alternative B3 or B7)	This section is elevated with a grade-separated crossing over 112th Avenue SE. The alternative transitions to the tunnel portal after the crossing south of Main Street. This portion of the alternative would have no substantial change in the number of accidents.
	NE 6th Street from tunnel portal to end of Segment C	See *Preferred Alternative C11A* for the same section.
Bellevue Way Tunnel Alternative (C1T)	Bellevue Way from north of SE 6th Street to south of SE Kilmarnock Street	The alternative transitions from median at-grade to a median retained cut. The retained-cut design would eliminate the opportunity for train-vehicle collisions. Furthermore, the median alignment would prohibit mid-block turning movements, providing some expected safety benefit. Overall, this short section is expected to cause no substantial change in the number of accidents.
	NE 6th Street from tunnel portal to end of Segment C	See *Preferred Alternative C11A* for the same section.
106th NE Tunnel Alternative (C2T)	112th Avenue SE from Segment B boundary to SE 1st Place	The connection from Alternative B2E would be an elevated profile and, therefore, have no light rail interaction with vehicles, pedestrians, or bicycles. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway (as little as 3 feet in some locations). However, relatively low travel speeds (less than 35 mph) and 6-inch curbs should provide adequate protection. At locations where collisions with piers are of concern, taller curbs (9-inch), low-profile median barrier, or guardrail could be used to further minimize traffic safety risks. No substantial change in the number of accidents is expected.
	112th Avenue SE from Segment B boundary to SE 1st Place (connecting to Alternative B2A)	The connection from Alternative B2A is a retained cut and transitions for approximately 200 feet to tunnel, minimizing the potential for a light rail accident with other modes.
	112th Avenue SE from Segment B boundary to SE 1st Place (connecting to Alternative B3 or B7)	The connections from Alternative B3 or B7 would be an elevated profile and, therefore, have no light rail interactions with vehicles, pedestrians, or bicycles.

TABLE 6-31 CONTINUED
Segment C Alternative Safety Assessment

Alternative	Section[a]	Safety Assessment
	NE 6th Street from tunnel portal to end of Segment C	See *Preferred Alternative C11A* for the same section.
108th NE Tunnel Alternative (C3T)	112th Avenue SE from SE 6th Street to SE 1st Place	The connection with Alternative B2E would be an elevated profile and, therefore, have no light rail interactions with vehicles, pedestrians, or bicycles. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway (as little as 3 feet in some locations). However, relatively low travel speeds (less than 35 mph) and 6-inch curbs should provide adequate protection. At locations where collisions with a pier are of concern, taller curbs (9-inch), low-profile median barrier, or guardrail could be used to minimize safety risks. No substantial change in the number of accidents is expected.
	112th Avenue SE from SE 6th Street to SE 1st Place (connecting to Alternative B2A)	The connection from Alternative B2A is an open trench and transitions for approximately 200 feet to tunnel, minimizing the potential of a light rail accident with other modes.
	112th Avenue SE from SE 6th Street to SE 1st Place (connecting to Alternative B3 or B7)	The connections from Alternative B3 or B7 would be an elevated profile and, therefore, have no light rail interactions with vehicles, pedestrians, or bicycles.
	NE 12th Street from 110th to 116th Avenues NE	The alternative transitions from a tunnel profile to a side-elevated, and this design would eliminate the opportunity for train-vehicle collisions. Furthermore, several cross streets to NE 12th Street are be closed, and alternative access is provided. The only conflict point with vehicles would be the at-grade crossing at 116th Avenue NE. Using gates at this intersection is expected to minimize safety concerns. The largest potential traffic safety issue would occur if any piers for the elevated track are placed close to the roadway. At locations where collisions with piers are of concern, taller curbs (9-inch), low-profile median barrier, or guardrail could be used to minimize safety risks. No substantial change in the number of accidents is expected.
Couplet Alternative (C4A)	Along 112th Avenue SE and Main Street from Segment B boundary to 108th Avenue NE	The elevated connection from Alternative B2E would have no light rail interactions with vehicles, pedestrians, or bicycles, eliminating the possibility of a light rail accident with these modes. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway (as little as 3 feet in some locations). However, relatively low travel speeds (less than 35 mph) and 6-inch curbs should provide adequate protection. At locations where collisions with a pier are of concern, taller curbs (9-inch), low-profile barrier, or guardrail could be used to minimize safety risks.
	Along 112th Avenue SE and Main Street from Segment B boundary to 108th Avenue NE (connecting to Alternative B2A)	The connection from Alternative B2A transitions from median at-grade to median elevated to side elevated. The greatest potential for vehicle-train collisions is at SE 6th Street, where the track is median at-grade. The transition does not include gates as the traffic signal at SE 6th Street controls the vehicle, pedestrian, and train movements. This design type typically has less severe accidents because of slower vehicle speeds. An additional traffic safety issue would occur where piers for the elevated track are placed close to the roadway and where there are piers for the structures that straddle the roadway when the track transitions from median elevated to side elevated. At locations where collisions with a pier are of concern, taller curbs (9-inch), low-profile barrier, or guardrail could be used to minimize safety risks.
	Along 112th Avenue SE and Main Street from Segment B boundary to 108th Avenue NE (connecting to Alternative B3 or B7)	The connections from Alternative B3 or B7 would have no light rail interactions with vehicles, pedestrians, or bicycles, eliminating the possibility of a light rail accident with these travel modes.

TABLE 6-31 CONTINUED
Segment C Alternative Safety Assessment

Alternative	Section[a]	Safety Assessment
	108th and 110th Avenues NE from Main to NE 12th Streets (westbound and eastbound tracks of one-way couplet) to NE 12th Street	Using a side-aligned profile adjacent to vehicle travel could have greater potential for accident exposure than other track profiles. Converting both 108th and 110th Avenues NE to one-way vehicle streets would reduce the number of locations where vehicles interact with light rail by removing possible movements that would cross the light rail tracks. With the configuration of vehicles traveling in the direction opposite from light rail, drivers can see the light rail train coming toward them. To avoid accidents at intersections, only protected movements (with turn pockets) would be allowed to cross the light rail tracks. To keep vehicles from using the counterflow lanes, pavement marking messages or signs could be used to inform drivers the lane is for transit use only. At driveways, signs and other messages also could be used to remind drivers to look in the direction opposite of the approaching vehicles for transit approaching in the counter-flow lane. Additionally, the counterflow lane will be a joint-use lane for buses in the four-block section between NE 4th Street and NE 8th Street. At the entrance points to the joint-use lanes, the turning movements would be signed for buses only. Furthermore, these turn movements will be at signalized intersections and the signal phasing would minimize the risk of a collision from a bus and light rail from entering the lane at the same time. Operations within the joint-use lanes is expected to have little risk of a collision because of the short four-block segment, relatively low bus and train volumes, and train speeds of 25 mph or less.
	NE 12th Street from 108th to 116th Avenues NE	The section transitions from at-grade median aligned to at-grade side-aligned. The only conflicts with vehicles would be the at-grade crossings at 110th and 116th Avenues NE. The gates at these intersections are expected to minimize traffic safety concerns.
112th NE Elevated Alternative (C7E)	112th Avenue SE from Segment B boundary to Main Street	The elevated connection from Alternative B2E would have no light rail interactions with vehicles, pedestrians, or bicycles on the street level, eliminating the possibility of a light rail accident with these travel modes. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway (as little as 3 feet in some locations). However, relatively low travel speeds (less than 35 mph) and 6-inch curbs should provide adequate protection. At locations where collisions with a pier are of concern, taller curbs (9-inch), low-profile barrier, or guardrail could be used to minimize safety risks. Overall, this section is expected to cause no substantial change in the number of accidents.
	112th Avenue SE from Segment B boundary to Main Street (connecting to B2A)	The connection from Alternative B2A transitions from median at-grade to median elevated to side elevated. The greatest potential for vehicle-train collisions is up to SE 6th Street, when light rail is median at-grade. The transition does not include gates because the traffic signal at SE 6th Street controls the vehicle, pedestrian, and train movements; however, this design type typically has less severe accidents because of slower vehicle speeds. An additional traffic safety issue would occur where piers for the elevated track are placed close to the roadway and where the piers for the structures straddle the roadway when the track transitions from median elevated to side elevated. At locations where collisions with a pier are of concern, taller curbs (9-inch), low-profile barrier, or guardrail could be used to further minimize traffic safety risks.
	112th Avenue SE from Segment B boundary to Main Street (connecting to Alternative B3 or B7)	The elevated connections from Alternative B3 or B7 would have no light rail interactions with vehicles, pedestrians, or bicycles, eliminating the possibility of a light rail accident with these travel modes.
	112th Avenue SE from Main to NE 12th Streets	The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway (as little as 3 feet in some locations). However, relatively low travel speeds (less than 35 mph) and 6-inch curbs should provide adequate protection. At locations where collisions with a pier are of concern, taller curbs (9-inch) or low-profile barrier could be used to minimize safety risks. No substantial change in the number of accidents is expected.
	NE 12th Street from 112th to 116th Avenues NE	The only conflict with vehicles would be the at-grade crossing at 116th Avenue NE. Using gates at this intersection is expected to minimize safety concerns.

TABLE 6-31 CONTINUED
Segment C Alternative Safety Assessment

Alternative	Section[a]	Safety Assessment
110th NE Elevated Alternative (C8E)	112th Avenue SE from Segment B boundary to Main Street	This section would have no light rail interactions with vehicles, pedestrians, or bicycles on the street level, eliminating the possibility of an at-grade light rail accident with these travel modes.
	112th Avenue SE from Main to NE 2nd Streets	This section would have no light rail interactions with vehicles, pedestrians, or bicycles on the street level, eliminating the possibility of an at-grade light rail accident with these travel modes. The largest apparent traffic safety issue would be the relatively close location of some of the piers to the roadway (as little as 3 feet in some locations). However, relatively low travel speeds (less than 35 mph) and 6-inch curbs should provide adequate protection. At locations where collisions with a pier are of concern, taller curbs (9-inch) or low-profile barrier could be used to minimize safety risks. No substantial change in the number of accidents is expected.
	110th Avenue from NE 2nd to NE 12th Streets	The elevated median profile separates vehicle traffic from light rail operations, which would prevent any vehicle-train accidents. Track piers would be close to the vehicle travel way, but low speeds should reduce the potential for a vehicle collision with a track pier to cause severe or fatal injury. Furthermore, using curb or low-profile median barrier can reduce the likelihood a vehicle colliding with a pier. This section currently has few midblock accidents related to midblock turning movements; therefore, light rail track in the median is unlikely to substantially reduce mid-block accidents Overall, this section is expected to cause no substantial change in the number of accidents.
	NE 12th Street from 112th to 116th Avenues NE	The only conflict with vehicles would be the at-grade crossing at 116th Avenue NE. Using gates at this intersection is expected to minimize traffic safety concerns.
110th NE At-Grade Alternative (C9A)	Connection from *Preferred Alternative B2M* to Main Street at 110th Avenue NE	The alternative is a low-speed median alignment, which would have a higher accident exposure than other profiles but would also have less severe accidents because of slower travel speeds. The train crossing through major intersections is signal-controlled to assign right-of-way to trains and vehicles. At SE 6th Street, vehicles are provided with left-turn pockets for turning across the tracks. Left turns would have a protected signal phase to prohibit drivers from turning when a train is approaching. Additionally, SE 4th Street, SE 1st Street, and driveways are right-in/right-out, eliminating vehicle-train conflicts between intersections. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr., Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 through June 2010), seven light rail train and vehicle accidents and one light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the light rail train revenue service began. The light rail train median barrier restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor. None of the light rail train-related accidents was considered life-threatening, and all of the light rail train-vehicle accidents involved vehicles illegally turning. The alternative south of Main Street becomes elevated and crosses over 112th Avenue SE and transitions to at-grade side aligned on the south side of Main Street with a gated crossing at 110th Place SE. At this crossing, there is minimal distance between the track and Main Street for a vehicle turning onto Main Street to wait without having to stop on the tracks. Although 110th Place SE is a low-volume road, a vehicle could be waiting on the tracks to turn onto Main Street when a train approaches. This would require the train to come to a stop to avoid a collision, possibly having to stop in the intersection of Main Street and 110th Avenue SE. While right-out access for 110th Place SE would eliminate the left-turn onto Main Street and should minimize the time spent waiting on the tracks, it would not eliminate the possibility of a vehicle waiting on the tracks when a train approaches. An additional traffic safety issue would occur where piers for the elevated track are placed close to the roadway. At locations where collisions with a pier would be of concern, taller (9-inch) curbs, a low-profile barrier, or guardrail could be used to minimize safety risks.

TABLE 6-31 CONTINUED
Segment C Alternative Safety Assessment

Alternative	Section[a]	Safety Assessment
	Connection from Alternative B3 or B7 to Main Street at 110th Avenue NE	The section of the alternative is elevated with a grade-separated crossing over 112th Avenue SE. The alternative transitions to at-grade side aligned with a gated crossing at 110th Place SE. At this crossing, there is minimal distance between the track and Main Street for a vehicle turning onto Main Street to wait without having to stop on the tracks. Although 110th Place SE is a low-volume road, a vehicle could be waiting on the tracks to turn onto Main Street when a train approaches. This would require the train to come to a stop to avoid a collision, possibly having to stop in the intersection of Main Street and 110th Avenue SE. While right-out access for 110th Place SE would eliminate the left-turn onto Main Street and should minimize the time spent waiting on the tracks, it would not eliminate the possibility of a vehicle waiting on the tracks when a train approaches. An additional traffic safety issue would occur where piers for the elevated track are placed close to the roadway. At locations where collisions with a pier would be of concern, taller (9-inch) curbs, a low-profile barrier, or guardrail could be used to minimize safety risks.
	110th Avenue NE from Main to NE 6th Streets	The alternative is a low-speed median alignment and would likely have highest higher accident exposure than other profiles but would also have less severe accidents because of slower travel speeds. The train crossing through major intersections is signal controlled to assign right-of-way to trains and vehicles. On 110th Avenue NE, southbound vehicles are provided with left-turn pockets for turning across the tracks while northbound left turns across the tracks are not permitted at NE 2nd and NE 4th Streets. Southbound left turns have a protected signal phase to prohibit drivers from determining when to turn when a train is approaching. Additionally, driveways are right-in/right-out, thereby eliminating vehicle-train conflicts between intersections. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 through June 2010), seven light rail train and vehicle accidents and one light rail train and pedestrian accident occurred and overall corridor accidents changed from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the light rail train revenue service began. The light rail train median barrier restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor. None of the light rail train-related accidents was considered life-threatening, and all of the light rail train-vehicle accidents involved vehicles illegally turning. Of the existing midblock accidents, there was one rear-end accident that could be prevented by the light rail median prohibiting midblock turns if the accident involved a vehicle turning left into or out of a driveway.
	NE 6th Street from 110th Avenue NE to end of Segment C	The section of the alternative is a retained fill that transitions to a median-elevated and eventually to a side-elevated as the alternative crosses over I-405. After crossing I-405, the alternative has grade-separated crossings over 116th Avenue NE and NE 8th Street. The largest apparent traffic safety issue would be the relatively close location of some piers to the roadway—including piers located near any ramps for the NE 8th Street interchange. However, relatively low travel speeds (less than or equal to 35 mph) and 6-inch curbs should adequately protect the arterials. At locations where collisions with piers would be of concern, taller (9-inch) curbs, low-profile median barrier, or guardrail could be used to further minimize traffic safety risks. Piers located near the NE 8th Street interchange ramps should be adequately protected with guardrail or crash cushions to reduce the likelihood of a severe accident. At the Bellevue Transit Center Station, a pedestrian scramble phase is used at the west end of the platform to allow for pedestrian movements across NE 6th Street, 110th Avenue NE, and to and from the station platform in the median of NE 6th Street. Clearly, signing and enforcing no right turns on red are important to safely operating the pedestrian scramble. No substantial change in the number of accidents would be expected.
114th NE Elevated Alternative (C14E)	Connection from Alternative B7 from Segment B connection to Segment D connection	Alternative C14E is elevated, predominately paralleling I-405 on the west side from just north of SE 6th to NE 6th Street. The alternative crosses I-405 over the NE 8th Street interchange and then crosses over 116th Avenue NE and NE 8th Street before connecting to the former BNSF Railway. Elevated crossings occur at Main, NE 2nd, NE 4th, NE 6th, and NE 8th Streets; 116th Avenue NE; and the NE 8th Street interchange with I-405. The largest possible traffic safety issue would be if piers are located close to the roadway — whether obstructing driver sight lines at intersections or driveways or as a fixed-object collision if a vehicle leaves the roadway. However, relatively low travel speeds (less than or equal to 35 mph) and 6-inch curbs should adequately protect the arterial crossings. At locations where collisions with a pier would be of concern, taller (9-inch) curbs, low-profile barriers, or guardrail could be used to further minimize traffic safety risks. Regarding the NE 8th Street interchange, piers located close to the roadway, especially located on the outside a horizontal curve, should have adequate protection, such as guardrail or crash cushions, should a vehicle leaves the ramp or roadway.

[a] Sections that are within a tunnel profile are not included as there would be no conflicts with vehicles, pedestrians or bicycles.

Parking

The parking impacts associated with the light rail alternatives and stations in Segment C are discussed in this section. Table 6-32 summarizes the impacts by alternative. Table 6-33 summarizes the impacts associated with each of the proposed station. The parking impacts associated with each alternative in Segment C depend on which Segment B connection.

TABLE 6-32
Segment C Parking Impacts Summary by Alternative

Alternative	Parking Spaces Removed		
	Unrestricted On-Street	**Restricted On-Street**[a]	**Off-Street**[b]
Preferred 108th NE At-Grade Alternative (C11A)	0	10	340 to 360
Preferred 110th NE Tunnel Alternative (C9T)	0	0	385 to 410
Bellevue Way Tunnel Alternative (C1T)	0	0	158
106th NE Tunnel Alternative (C2T)	0	0	82 to 172
108th NE Tunnel Alternative (C3T)	0	0	26 to 106
Couplet Alternative (C4A)	7	4	39 to 94
112th NE Elevated Alternative (C7E)	0	0	198 to 226
110th NE Elevated Alternative (C8E)	0	0	92 to 125
110th At-Grade Alternative (C9A)	0	20	315 to 345
114th NE Elevated Alternative (C14E)	0	0	220

Note: Indicated parking impacts are permanent displacements. Parking losses associated with construction are not included in this summary.

[a] Restricted parking includes all parking spaces with special-use restrictions, such as drop-off/loading zones.

[b] The range of off-street parking removal is due to the Segment B connectors and includes parking spaces removed at the station areas.

TABLE 6-33
Segment C Parking Impacts Summary by Station

Station	Associated Alternatives	Spaces Removed	Area Affected by Development
Old Bellevue	Alternative C1T	0	None
East Main	All Segment C Alternatives except C1 and C14E[a]	0	Several entire parcels to be acquired on the southern side of Main Street near intersection with 112th Avenue SE
108th	*Preferred Alternative C11A*	0	None
Bellevue Transit Center	*Preferred Alternative C11A*	0	None
	Preferred Alternative C9T	105	Private off-street parking lot on the southeast corner of the intersection of NE 6th Street and 110th Avenue NE
	Alternatives C1T and C2T	0	None
	Alternative C3T	24	Private off-street parking lot on the northeast corner of the intersection of NE 6th Street and 108th Avenue NE
	Alternative C4A	0	None
	Alternative C7E	18	Private off-street parking lots on the southeast corner of the intersection of NE 6th Street and 112th Avenue NE
	Alternative C8E	0	None
	Alternative C9A	35	Private off-street parking lot on the southeast corner of the intersection of NE 6th Street and 110th Avenue NE
	Alternative C14E	0	None

TABLE 6-33 CONTINUED
Segment C Parking Impacts Summary by Station

Station	Associated Alternatives	Spaces Removed	Area Affected by Development
Ashwood/Hospital	Alternatives C3T, C4A, and C8E, C7E	0	None
Hospital	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E	0	Private off-street parking lot on northeast corner of the intersection of NE 8th Street and 116th Avenue NE

Notes: Parking impacts shown are permanent displacements. Parking losses associated with construction staging are not included in this summary. Parking impacts shown are only those associated with the area covered by the station.

[a] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* would have no change in impacts to Preferred Alternative C9T or B2M.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would remove approximately 10 on-street and 340 off-street parking spaces. The on-street parking spaces are located along 108th Avenue NE. The off-street parking spaces are parcels along 112th Avenue SE, Main Street, NE 2nd Street, 108th Avenue NE, 112th Avenue NE, Lake Bellevue Drive, and 116th Avenue NE. *Preferred Alternative C11A* (and the other at-grade alternatives, C4A and C9A) are the only alternatives in Segment C that are expected to result in the removal of on-street parking. With a connection to Alternatives B3, B3 - 114th Design Option, or B7, 10 on-street and 360 off-street parking spaces would be removed with *Preferred Alternative C11A*.

Preferred 110th NE Tunnel Alternative (C9T)

With *Preferred Alternative C9T*, no on-street parking spaces would be removed, but this alternative would remove the greatest amount of off-street parking spaces, 385 stalls, among Segment C alternatives. These off-street parking removals would be associated with parcels along 112th Avenue SE/NE, Lake Bellevue Drive, and 116th Avenue NE and would include parking spaces for approximately 105 vehicles and 20 motorcycles at the Bellevue City Hall parking garage. With a connection to alternatives B3, B3 - 114th Design Option, or B7, no on-street parking spaces would be removed, but 410 off-street parking spaces would be removed with *Preferred Alternative C9T*.

Other Segment C Alternatives

Alternative C1T would remove 158 off-street parking spaces. Approximately two-thirds of these parking spaces are located on commercial properties located in Downtown Bellevue. The remaining third is composed of parking spaces located at various residential apartment buildings on the west side of Bellevue Way between SE 3rd Street and SE 6th Street.

Alternative C2T with a connection to Alternative B3 (or Alternative B3 – 114th Design Option) is expected to result in the greatest number of lost off-street parking spaces (172 spaces) of all the Segment B connections with Alternative C2T. Fifty parking spaces are expected to be removed at a commercial building located at the intersection of SE 6th Street and 112th Avenue SE with the Alternative B3 (or Alternative B3 – 114th Design Option) connection. The Alternative C2T connection that is expected to require the removal of the fewest parking spaces (82 spaces) is with Alternative B2A. No on-street parking spaces will be taken under Alternative C2T for any segment B alternative.

Alternative C3T with a connection to Alternative B3 (or Alternative B3 – 114th Design Option) is expected to result in the greatest number of lost off-street parking spaces (82 spaces) of all the Segment B connections with Alternative C3T. Forty parking spaces are expected to be removed at a commercial building located at the intersection of SE 6th Street and 112th Avenue SE with the Alternative B3 (or Alternative B3 – 114th Design Option) connection. The Alternative C3T connection that is expected to require the removal of the fewest parking spaces (2 spaces) is with Alternative B2A. No on-street parking spaces will be taken under Alternative C3T for any segment B alternative.

Alternative C4A is expected to affect 39 and 94 off-street parking spaces, respectively, if Alternative B2E, Alternative B3 (or B3 – 114th Design Option) is constructed in Segment B. The expected numbers of affected off-street parking spaces associated with Alternatives B7 and B2A are 66 and 77, respectively. The largest single contributor to the 94 affected off-street spaces associated with Alternative C4A (connection with Alternative B3 or B3 – 114th Design Option) is a commercial office building located on the corner of the SE 6th Street and 112th

Avenue SE intersection. Forty off-street parking spaces are expected to be taken at this location. Alternative C4A with a connection to Alternative B2E has the lowest number of affected off-street parking spaces, but would have the greatest impact on a property at the intersection of Main Street and 112th Avenue SE, where 25 off-street spaces are expected to be lost. Implementation of the couplet under Alternative C4A between 108th Avenue NE and 110th Avenue NE might require the removal of additional on-street parking spaces.

For Alternative C7E, between 198 and 226 off-street parking spaces would be removed, depending on its Segment B connection. A connection to Alternative B3 (or B3 – 114th Design Option) would remove 226 stalls, while a connection to Alternative B7 would remove 198 stalls. A total of 201 stalls would be removed with either the Alternative B2E or Alternative B2A connection. These parking stalls removals would occur throughout the corridor, but the property with the most stalls removed (slightly more than 50) is a commercial property in the northeast corner of 112th Avenue NE and Main Street.

Between 92 and 125 stalls are expected to be removed under Alternative C8E. With a connection to Alternative B7, 92 off-street stalls would be removed. With a connection to Alternative B3 (or Alternative B3 – 114th Design Option), 125 parking stalls would be removed. Similar to Alternative C7E, the property with the most parking removed is a commercial property in the northeast corner of 112th Avenue NE and Main Street. Slightly more than 50 stalls are expected to be removed at this location.

Alternative C9A would remove approximately 20 on-street parking spaces and 345 off street parking spaces. Impacts on the Bellevue City Hall parking garage would be less than those described above under *Preferred Alterative C9T*. With any Segment B connection the number of on-street parking spaces removed would be the same.

Alternative C14E would remove no on-street parking spaces and approximately 220 off-street parking spaces. The off-street parking space removals would be associated with parcels along 114th Avenue and 116th Avenue NE. Under Alternative C14E, a 200-space underground parking structure could be implemented as part of a larger development project on nearby property.

As shown in Table 6-33, only the Bellevue Transit Center Station would result in the removal of parking spaces. The design of the Bellevue Transit Center Station would not affect any on-street or off-street parking spaces for *Preferred Alternative C11A* and Alternatives C1T, C2T, C4A, C8E, and C14E. The design for the Bellevue Transit Center Station for *Preferred Alternative C9T* and Alternative C9A would remove 105 and 35 stalls respectively at the City of Bellevue parking garage. The design of Alternative C3T would require the removal of approximately 24 off-street parking spaces in a private parking lot on the northeast corner of the intersection of NE 6th Street and 108th Avenue NE. The design of Bellevue Transit Center Station for Alternative C7E is expected to require the removal of 18 parking spaces in a private off-street parking lot on the southeast corner of the intersection of NE 6th Street and 112th Avenue NE.

In general, the stations in Segment C are designed to accommodate bus transfers, pedestrians, and bicyclists. These stations would not be attractive stations for auto access (and the potential for hide-and-ride parking) due to the surrounding congestion and restricted public parking opportunities. At the Old Bellevue, Ashwood/Hospital, and Bellevue Transit Center stations, there is available on-street parking (Table 6-9); however, there is only low potential for hide-and-ride parking at these stations because most of the on-street parking provided in this area is either restricted or in private lots that are monitored. At the 108th Avenue Station, hide-and-ride parking would be unlikely because the City of Bellevue has established a residential parking zone in the Surrey Downs neighborhood. There is also a low potential for hide-and-ride parking at the East Main and Hospital stations because there is a minimal amount of available on-street parking surrounding the station areas.

Interim Terminus Stations

The Ashwood/Hospital and Hospital stations are potential interim termini. The ridership at the Ashwood/Hospital station would not substantially increase as an interim terminus. The ridership at the Hospital Station would increase as an interim terminus. With a Hospital Station interim terminus, most of the additional ridership would be the result from transfers to and from buses. Therefore, no transportation impacts would be expected beyond what is described in the alternative route analysis. Table D-12 in Appendix D provides the intersection LOS and delay results at the Hospital interim terminus station.

6.3.2.4 Segment D

Multiple roadway projects are planned by the cities of Bellevue and Redmond that will change the characteristics of major roadways in Segment D. Many of these projects are scheduled as part of the Bel-Red redevelopment. Principal among these projects is a phased extension and widening of NE 15th and NE 16th Streets to widths varying between three and five lanes between 116th Avenue NE and 132nd Avenue NE. Other roadway widening projects include widening 120th and 124th avenues NE to five lanes, 130th Avenue NE to provide a center, two-way left-turn lane and along Northup Way to accommodate an additional eastbound lane between 120th Avenue NE and 124th Avenue NE. NE 36th Street is also extended across SR 520 connecting to NE 31st Street. Along 152nd Avenue NE a multi-modal pedestrian corridor will be implemented with a vehicle lane in each direction, left turn lanes, bike lanes, parking and sidewalks. Appendix A provides the complete list of roadway and intersection projects assumed in 2020 and 2030 for Segment D.

Traffic Control, Property Access, and Circulation

Overall, *Preferred Alternative D2A* would have the second least amount of traffic controls modifications to Alternative D5. Alternative D5 would have the fewest because it travels along the SR 520 corridor outside traffic conditions for a majority of the segment. Alternative D3 would have the highest number of traffic control and property access and circulation modifications because it would operate in the median along NE 16th Street, NE 20th Street and 152nd Avenue NE. Table 6-34 presents the traffic control modifications for each Segment D alternative.

TABLE 6-34
Segment D Intersection Traffic Control

Control Location	Existing Control	Proposed Control
Preferred NE 16th At-Grade Alternative (D2A)		
130th Avenue NE	None	Install light rail gates
NE 16th Street and 132nd Avenue NE	Minor street stop-controlled	Install new signal
NE 16th Street and 134th Avenue NE	Minor street stop-controlled	Right-in/right-out
NE 16th Street and 136th Place NE	Minor street stop-controlled	Install new signal
NE 20th Street and 136th Place NE	Signal	Replace signal
156th Avenue NE and NE 36th Street	Signal	Replace signal
156th Avenue NE and NE 38th Street	Signal	Replace signal
D2A – 120th and NE 24th Design Options		
120th Avenue NE	None	Light rail gates[a]
130th Avenue NE	None	Light rail gates
NE 16th Street and 132nd Avenue NE	Minor street stop-controlled	Install new signal
NE 16th Street and 134th Avenue NE	Minor street stop-controlled	Right-in/right-out
NE 16th Street and 136th Place NE	Minor street stop-controlled	Install new signal
NE 24th Street and 151st Place NE	Signal	Replace signal and light rail gates
156th Avenue NE and NE 36th Street	Signal	Replace signal
156th Avenue NE and NE 38th Street	Signal	Replace signal
NE 16th Elevated Alternative (D2E)		
NE 24th Street and 151st Place NE	Signal	Replace signal and light rail gates
NE 24th Street at 152nd Avenue NE	Signal	Replace signal and light rail gates
156th Avenue NE and NE 36th Street	Signal	Replace signal
156th Avenue NE and NE 38th Street	Signal	Replace signal
NE 20th Alternative (D3)		

TABLE 6-34 CONTINUED
Segment D Intersection Traffic Control

Control Location	Existing Control	Proposed Control
120th Avenue NE	None	Install light rail gates
124th Avenue NE	None	Install light rail gates
130th Avenue NE	None	Install light rail gates
NE 16th Street and 132nd Avenue NE	Minor street stop-controlled	Install new signal
NE 16th Street and 134th Avenue NE	Minor street stop-controlled	Right-in/right-out
NE 16th Street and 136th Place NE	Minor street stop-controlled	Install new signal
NE 20th Street and 136th Place NE	Signal	Replace signal
NE 20th Street and 140th Avenue NE	Signal	Replace signal
NE 20th Street and Ross Plaza (143rd Avenue NE)	Signal	Replace signal
NE20th and 148th Avenue NE	Signal	Replace signal
NE 20th and 152nd Avenue NE	Signal	Replace signal
NE 21st Street and 152nd Avenue NE	Minor street stop-controlled	Right-in/right-out
NE 24th Street and 152nd Avenue NE	Signal	Replace signal
NE 26th Street and 152nd Avenue NE	Signal	Replace signal
152nd Avenue NE	None	Install light rail gates
156th Avenue NE and NE 36th Street	Signal	Replace signal
156th Avenue NE and NE 38th Street	Signal	Replace signal
SR 520Alternative (D5)		
151st Place NE	None	Install light rail gates
NE 26th Street and 152nd Avenue NE	Signal	Replace signal
156th Avenue NE and NE 36th Street	Signal	Replace signal
156th Avenue NE and NE 38th Street	Signal	Replace signal

[a] – Proposed control associated with the D2A – 120th Station Design Option only.

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A would be located north of the planned NE 15th Street extension and would be grade-separated from 120th and 124th avenues NE, with minimal impacts on property access and circulation in this area. *Preferred Alternative D2A* would then transition to at-grade center-running on NE 16th Street and 136th Place NE, with signalized crossings at 130th Avenue NE, 132nd Avenue NE, 136th Place NE, and NE 20th Street. Where *Preferred Alternative D2A* would operate center-running along NE 16th Street and 136th Place NE, property access and circulation would be right-in/right-out except at signalized intersections where u-turn movements are provided.

The D2A - 120th Design Option provides a gated at-grade crossing at 120th Avenue NE. The D2A - NE 24th Design Option provides a gated crossing at 151st Place NE as driveways along the west side of 152nd Avenue NE are closed. Access to these properties is provided at the 151st Place NE and NE 24th Street intersection. Two driveways on the north side of NE 24th Street are closed, but vehicle access would remain at one driveway and at the NE 24th Street and 151st Place NE intersection. Because there are up to two remaining access locations along NE 24th Street, no substantial impacts would be anticipated.

Other Segment D Alternatives

Alternative D2E would travel outside the roadway right-of-way through most of Segment D, and therefore traffic control modifications would be minimal. At the intersections of 151st and 152nd avenues NE with NE 24th Street, light rail crossing signals and gates would be provided. Driveway access on the south side of NE 24th Street between 148th Avenue NE and 151st Place NE would be eliminated to prevent vehicles from crossing the at-grade track. Internal circulation within properties would be modified to allow access via 148th Avenue NE and/or 151st Place NE. Similarly, driveways on the west side of 152nd Avenue NE between NE 24th Street and NE 28th Street would be closed. Vehicle circulation within surrounding office park would be route to 151st Place NE.

With the NE 20th Alternative (D3), signalized crossings would be provided along the planned NE 15th Street extension at 120th Avenue NE, 124th Avenue NE, 130th Avenue NE and along NE 16th Street at 132nd Avenue NE, and 136th Place NE. Property access and circulation along the NE 15th Street extension and NE 16th Street would be right-turn-in/right-turn-out only except at signalized intersections. Alternative D3, east of 136th Place NE, would operate at-grade in the median along NE 20th Street with at-grade crossings at 140th Avenue NE and Ross Plaza (approximately 143rd Avenue NE). At the 148th Avenue NE and 152nd Avenue intersections along NE 20th Street, it would transition to a retained cut with a covered lid to maintain intersection movements and channelization. The retained cut would prohibit all mid-block left-turn movements (unsignalized locations) along this arterial between 136th Place NE and 152nd Avenue NE. Drivers would either adjust their travel patterns or be rerouted to the nearest signalized intersections and perform a u-turn movement; such as at 140th Avenue NE, Ross Plaza (approximately 143rd Avenue NE), and at 148th Avenue NE intersections.

Lastly, Alternative D3 along 152nd Avenue NE between NE 20th Street and Microsoft Road is also at-grade in the median of the road. The number of lanes on these roadways would be maintained. Exclusive northbound and southbound left-turn pockets would be provided at the signalized intersection of NE 24th Street and 152nd Avenue NE. This alternative would prohibit mid-block left-turn movements and potentially provide U-turn movements at the signalized intersections of NE 24th Street and NE 26th Street. Unlike Alternative D2E, the western property access along 152nd Avenue NE, between NE 24th Street and NE 28th Street, would remain and allow right-in/right-out movements.

The SR 520 Alternative (D5) would operate mainly outside the roadway system and would only affect the western driveway access along 152nd Avenue NE between NE 26th Street and NE 28th Street. This access would be closed and vehicle circulation would be rerouted to 151st Place NE. For all Segment D alternatives, vehicle access to the park-and-ride at the Overlake Transit Center would be reconfigured to the NE 36th Street and 156th Avenue NE intersection.

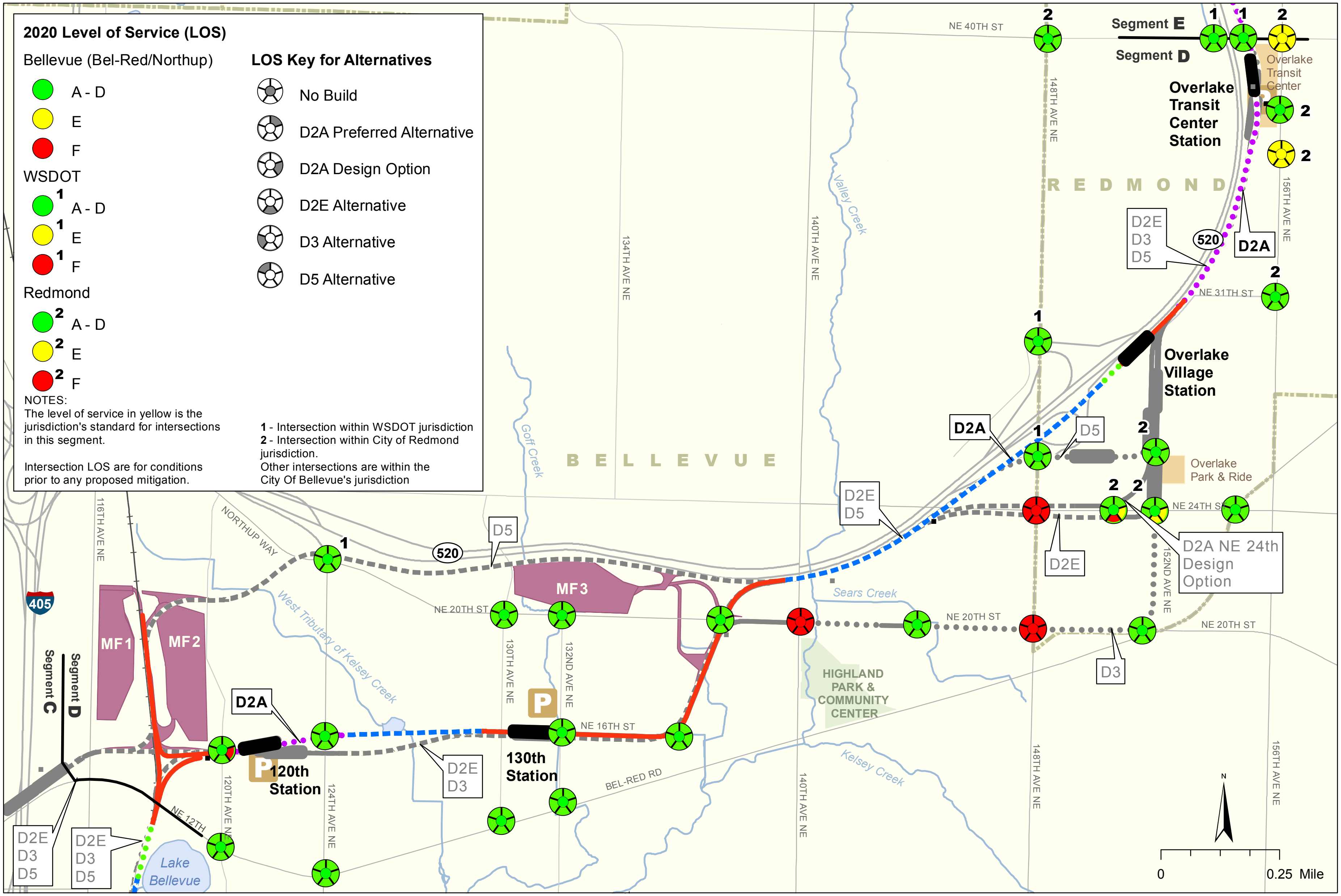
Operations and Level of Service

Year 2020 and 2030 PM peak-hour no-build intersection operations in Segment D are expected to worsen as traffic volumes increase on the roadways. Under the No Build Alternative in 2020, three intersections would operate at LOS F: NE 20th Street and 140th Avenue NE, NE 20th Street and 148th Avenue NE, and NE 24th Street and 148th Avenue NE. By 2030, NE 20th Street and 148th Avenue NE would no longer operate at LOS F because of background improvements planned by year 2030 but four additional intersections would operate at LOS F: NE 24th Street and 152nd Avenue NE, NE 36th Street and 156th Avenue NE, NE 40th Street and 156th Avenue NE, and NE 40th Street and 148th Avenue NE.

By 2020 and 2030, morning peak-hour operations along 156th Avenue NE and NE 40th Street would remain similar to the existing condition as all intersections would continue to meet the City of Redmond's LOS standards. AM peak-hour intersection LOS results for the 2020 and 2030 no-build condition are presented in Table D-15 in Appendix D. Exhibits 6-16 and 6-17 and Tables D-13 and D-14 in Appendix D provide 2020 and 2030 intersection PM peak-hour LOS results for the no-build and build conditions.

Preferred NE 16th At-Grade Alternative (D2A)

Intersection operations with *Preferred Alternative D2A* would operate similar to the No Build Alternative because this alternative would be either grade-separated from the roadway or, when at-grade, it would generally operate parallel to the major traffic movements, and the number of roadway lanes provided would remain the same as in the no-build condition.


2020 Level of Service (LOS)
Bellevue (Bel-Red/Northup)
A - D
E
F
WSDOT
1 A - D
1 E
1 F
Redmond
2 A - D
2 E
2 F
LOS Key for Alternatives
No Build
D2A Preferred Alternative
D2A Design Option
D2E Alternative
D3 Alternative
D5 Alternative
NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
1 - Intersection within WSDOT jurisdiction
2 - Intersection within City of Redmond jurisdiction.
Other intersections are within the City Of Bellevue's jurisdiction
Segment E
Segment D
Segment C
Segment D
NE 40TH ST
148TH AVE NE
Overlake Transit Center
Overlake Transit Center Station
REDMOND
BELLEVUE
156TH AVE NE
D2E D3 D5
520
D2A
NE 31TH ST
Overlake Village Station
D2A
D5
Overlake Park & Ride
D2E D5
NE 24TH ST
D2E
D2A NE 24th Design Option
152ND AVE NE
Valley Creek
Goff Creek
134TH AVE NE
140TH AVE NE
116TH AVE NE
NORTHUP WAY
D5
520
MF 3
NE 20TH ST
Sears Creek
NE 20TH ST
NE 20TH ST
D3
MF 1
MF 2
405
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
HIGHLAND PARK & COMMUNITY CENTER
D2A
P
NE 16TH ST
120th Station
130th Station
D2E D3
BEL-RED RD
Kelsey Creek
NE 12TH
120TH AVE NE
124TH AVE NE
140TH AVE NE
148TH AVE NE
156TH AVE NE
D2E D3 D5
D2E D3 D5
Lake Bellevue
N
0
0.25 Mile
1
2

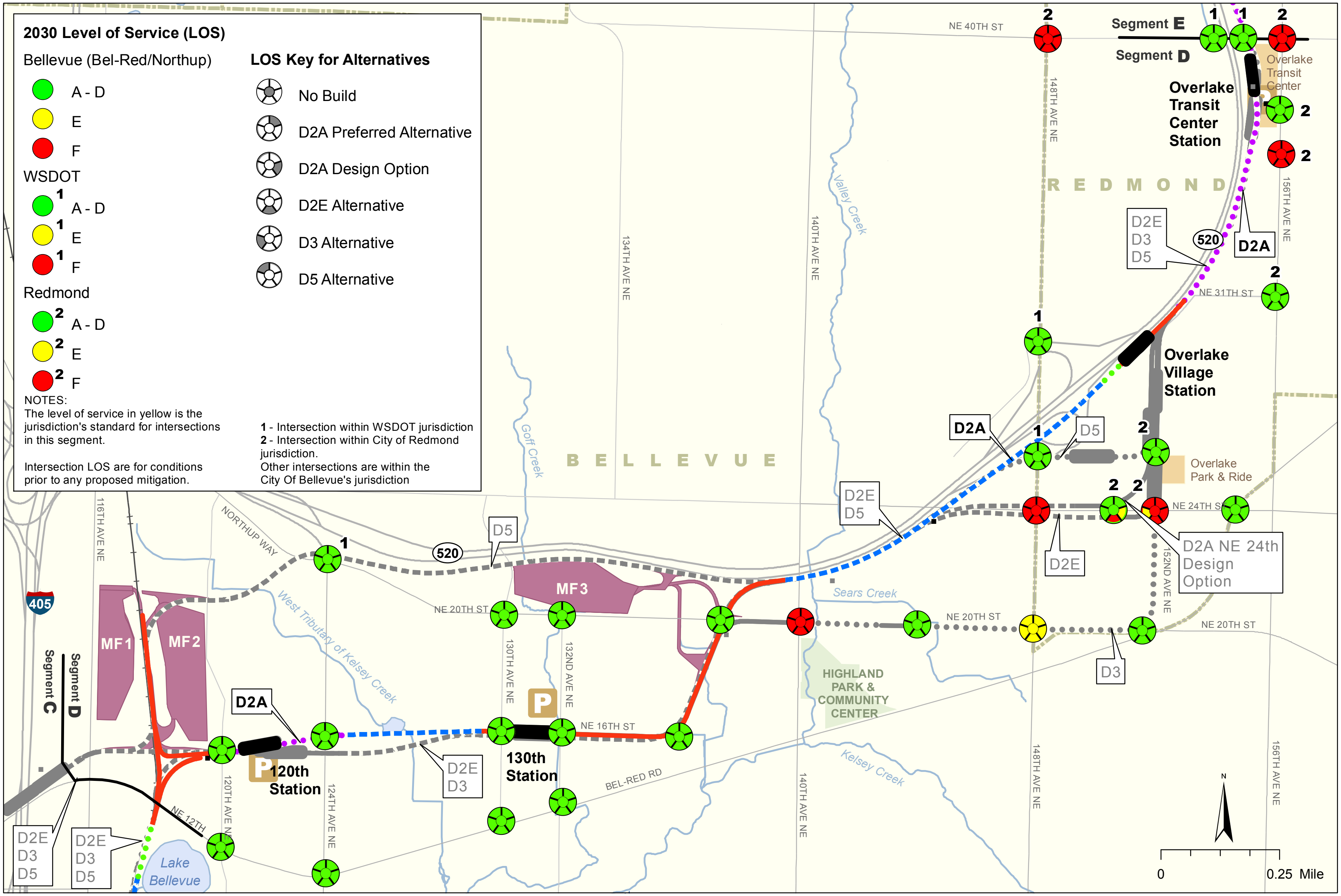
Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ■ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006) modified by CH2M HILL.

Exhibit 6-16 **2020 PM No Build and Build Level of Service at Intersections**
Segment D
East Link Project


2030 Level of Service (LOS)
Bellevue (Bel-Red/Northup)
A - D
E
F
WSDOT
1 A - D
1 E
1 F
Redmond
2 A - D
2 E
2 F
LOS Key for Alternatives
No Build
D2A Preferred Alternative
D2A Design Option
D2E Alternative
D3 Alternative
D5 Alternative
NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.
Intersection LOS are for conditions prior to any proposed mitigation.
1 - Intersection within WSDOT jurisdiction
2 - Intersection within City of Redmond jurisdiction.
Other intersections are within the City Of Bellevue's jurisdiction
NE 40TH ST
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
148TH AVE NE
REDMOND
D2E
D3
D5
520
D2A
NE 31TH ST
156TH AVE NE
Overlake Village Station
Valley Creek
140TH AVE NE
134TH AVE NE
Goff Creek
BELLEVUE
D2A
D5
Overlake Park & Ride
D2E
D5
NE 24TH ST
D2E
D2A NE 24th Design Option
152ND AVE NE
D5
520
NORTHUP WAY
MF 3
NE 20TH ST
Sears Creek
NE 20TH ST
NE 20TH ST
D3
HIGHLAND PARK & COMMUNITY CENTER
116TH AVE NE
405
MF 1
MF 2
Segment C
Segment D
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
D2A
NE 16TH ST
120th Station
130th Station
D2E
D3
BEL-RED RD
Kelsey Creek
120TH AVE NE
124TH AVE NE
NE 12TH
D2E
D3
D5
D2E
D3
D5
Lake Bellevue
140TH AVE NE
148TH AVE NE
156TH AVE NE
N
0
0.25 Mile

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006) modified by CH2M HILL.

Exhibit 6-17 **2030 PM No Build and Build Level of Service at Intersections Segment D**
East Link Project

Although the at-grade light rail crossings in Segment D would likely receive some level of signal priority for the light rail train, disturbances to the traffic signal coordination are expected to be minimized with *Preferred Alternative D2A* or any at-grade profile because train detection would occur prior to the train arriving at the intersection. This allows non-light-rail signal phases to be served without substantial adjustments to the signal timing. At the NE 20th Street and 136th Place NE intersection, the light rail train would travel at-grade through the intersection and perpendicular to the major east-west traffic movements but the intersection would continue to meet City of Bellevue intersection LOS standards as some vehicle movements would be allowed to go when the train crosses the intersection.

With the D2A - 120th Design Option, the intersection of NE 15th Street and 120th Avenue NE would not meet City intersection LOS standards and would operate worse than the No Build Alternative condition in 2020. By 2030, the intersection would meet City LOS standards as a result of planned City of Bellevue improvements along 120th Avenue NE.

Although both the *Preferred Alternative D2A* and the D2A - NE 24th Design Option would not cross the intersection of NE 24th Street and 152nd Avenue NE this intersection would not meet City of Redmond intersection LOS standards because of additional trips associated with the Overlake Village Station. The intersection of NE 24th Street and 151st Place NE would also not meet City intersection LOS standards because of driveway closures along the west side of 152nd Avenue NE and train operations associated with the D2A - NE 24th Design Option.

With the *Preferred Alternative D2A* there is the potential to locate the park-and-ride lot at either the 130th Station or the 120th Station. With either location, traffic operations, including the number of intersections failing to meet the intersection LOS standards, would be similar to the previously described analysis for the *Preferred Alternative D2A*.

Other Segment D Alternatives

Because Alternative D2E generally shares a similar route as *Preferred Alternative D2A*, except along NE 16th Street between 120th Avenue NE and NE 124th Street and near NE 24th Street and 152nd Avenue NE, the intersection results are similar. Intersection operations would degrade at the intersections of NE 24th Street and 151st Place NE and NE 24th Street and 152nd Avenue NE due to signal adjustments necessary for safe operations of the light rail train as it travels through this short block between the two intersections. The cause of this impact is the signal phasing required to clear the potential queued vehicles along NE 24th Street, allowing a clear path for the train to travel through. In addition, changes are required in the signal phasing to restrict the northbound left and southbound right-turn movements at 152nd Avenue NE and NE 24th Street when the train crosses NE 24th Street and trips associated with Overlake Village Station, would cause impacts to the intersection operations.

The NE 20th Alternative (D3) would be at-grade or in a trench throughout most of Segment D. Alternative D3 would operate along 152nd Avenue NE at-grade in the median until it becomes side aligned to the north of Microsoft Road. By operating in the median on 152nd Avenue NE, light rail trains would be able to travel through the NE 24th Street intersection with the north-south through traffic, minimizing the impacts at this intersection. Otherwise, intersection operations would be similar to the no-build condition.

Alternative D5 would be elevated throughout most of Segment D, until west of 152nd Avenue NE where Alternative D5 would become at-grade and side aligned along 152nd Avenue NE. There would be little variation in intersection operations compared with the no-build condition except at NE 24th Street and 152nd Avenue NE, where trips associated with Overlake Village Station would cause intersection operations to fail and be worse than under the no-build condition.

Under any Segment D alternative, AM peak hour intersection operations along 156th Avenue NE and NE 40th Street would vary only slightly when compared with the no-build condition. In 2030, no intersections would fail to meet intersection operating standards in the build condition and none would operate worse than the no-build condition. AM peak-hour intersection LOS results are presented in Table D-15 in Appendix D.

Traffic Safety

Table 6-35 discusses the expected safety impacts of the Segment D alternatives on the local roadway system. The safety assessments were based on each alternative's design and national research and safety guidelines relevant to East Link Project. Appendix E provides information about findings from national research projects for the various design types assessed for the East Link Project. No substantial changes are expected in the accident frequency along the roadways surrounding the maintenance facilities in Segment D. The only maintenance facility in Segment D that would have track that crosses roadway is the SR 520 Maintenance Facility (MF3). The track access spurs off the main light rail track and crosses NE 20th Street. Light rail trains would not cross the road frequently and it would be protected with gates, so there would be no change to the roadway safety conditions.

TABLE 6-35
Segment D Alternative Safety Assessment

Alternative	Track Section in Right-of-Way	Safety Assessment
Preferred NE 16th At-Grade Alternative (D2A)	Connecting from former BNSF Railway to 124th Avenue NE to intersection with proposed NE 15th Street extension	This section is outside the road with grade-separated crossings with NE 12th Street, proposed NE 15th Street extension, 120th Avenue NE, and 124th Avenue NE. A potential traffic safety issue would be motor vehicle collisions with guardrails or bridge rails on the bridges over the light rail. Crash treatments and lateral offset to the railings—combined with relatively low travel speeds (less than or equal to 35 mph)—should provide adequate protection, especially against severe collisions. Additionally, pedestrian accommodations, such as a raised sidewalk or a sidewalk behind a guardrail, should reduce the potential for a pedestrian to be struck by a vehicle when crossing the bridge. Overall, no substantial effect on the number of accidents would be expected.
	Intersection with proposed NE 15th Street extension to 130th Avenue NE	The elevated to transitioning at-grade median alignment is generally separated from vehicular traffic, thereby preventing any vehicle-train accidents. Appropriate use of curb, low-profile median barrier, wide median (to provide offset), or guardrail (if needed) would minimize the risk of a vehicle striking the pier. The only conflict would be the at-grade crossing with 130th Avenue NE. Use of gates (prior to signal installation with the NE 16th Street extension project) at this intersection is expected to minimize safety impacts. Overall, no substantial change in the number of accidents is expected.
	NE 16th Street and 136th Place NE from 130th Avenue NE to NE 20th Street	The existing roadway has no midblock accidents that would be expected to be prevented by adding light rail tracks that prevents midblock turns. Low-speed median alignments would likely have highest higher accident exposure than other track profiles but would also have less severe accidents. As such, total accident frequency in the track section could increase. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents was considered life-threatening, and all of the LRT-vehicle accidents involved vehicles illegally turning. The 130th Station is located in the center of the planned roadway, and passengers cross two lanes of traffic to reach the platform. Directing pedestrians to high-visibility crossings (signs and markings) or to crossings controlled by a traffic signal could increase driver awareness and might reduce the risk to pedestrians.
	Along SR 520 from NE 20th Street to Overlake Transit Center Station	This section is outside the roadway system and primarily within WSDOT right-of-way. The section includes grade-separated crossings at 140th Avenue NE, NE 24th Street, SR 520 ramps at 148th Avenue NE, and NE 36th Street. The largest possible traffic safety issue would be if piers are located close to the roadway. WSDOT sightline and clearzone requirements for the highway and interchanges will be met. Additionally, relatively low travel speeds (less than or equal to 35 mph) and 6-inch curbs should provide adequate protection for the arterial crossings. At locations where collisions with a pier would be of concern, taller (9-inch) curbs, low-profile barriers, or guardrail could be used to minimize safety risks. Regarding the SR 520 ramps, piers located close to the roadway should have adequate protection, such as guardrail or crash cushions, should a vehicle leaves the ramp. Near intersections or driveways, locating the piers to minimize blocking sight lines is important. Overall, no substantial effect on the number of accidents would be expected.

TABLE 6-35 CONTINUED
Segment D Alternative Safety Assessment

Alternative	Track Section in Right-of-Way	Safety Assessment
D2A - 120th Station Design Option and D2A - NE 24th Design Option	Connecting from former BNSF Railway to 124th Avenue to intersection with proposed NE 15th Street extension	D2A - 120th Station Design Option would have a similar safety assessment as *Preferred Alternative D2A*, except the grade separated crossing at 124th Avenue NE would be elevated and the D2A - 120th Station Design Option operates at-grade through 120th Avenue NE just north of NE 16th Street. The crossing at 120th Avenue NE is gated, and the intersection of NE 16th Street and 120th Avenue NE is signalized to assign right-of-way to trains and vehicles. The gates should reduce the potential for a vehicle to be on the tracks when a train approaches the intersection.
	NE 16th Street to approximately 150 feet west of 151st Place NE	D2A - NE 24th Design Option would have similar safety conclusions as the *Preferred Alternative D2A* section from the existing NE 16th Street, along SR 520 to 151st Place NE. Therefore, no substantial effect on the number of accidents would be expected.
	NE 24th Street and 152nd Avenue NE from approximately 150 feet west of 151st Place NE to SR 520	This section is side-aligned with NE 24th Street, with the only crossing at the gated, signalized intersection of NE 24th Street and 151st Place NE. While gates and a traffic signal should help separate traffic and assign right-of-way through the area, the crossing of 151st Place NE is in a horizontal curve. This results in the track crossing 151st Place NE at a slight skew and curving away from the intersection, creating additional separation from the NE 24th Street and the intersection. This crossing is not typical to most side-aligned crossings. As a result, approaching trains might not be as easily visible for vehicles turning from NE 24th Street onto 151st Place NE. Highly visible and clear signs and markings would minimize conflicts and potential collisions.
	Along SR 520 from 152nd Avenue to Overlake Transit Center Station	D2A - NE 24th Design Option would have similar safety conclusions as the *Preferred Alternative D2A* section along SR 520 from NE 20th Street to Overlake Transit Center Station. Therefore, no substantial effect on the number of accidents would be expected.
NE 16th Elevated Alternative (D2E)	Connecting from Alternatives C3T, C4A, C7E, and C8E at 116th Avenue NE	This connection would not have at-grade crossings with existing roadways because the track would be in a separate right-of-way. Therefore, no conflicts with vehicles, pedestrians, or bicyclists are expected.
	Connecting from *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E from 120th to 124th Avenues NE	This connection would not have at-grade crossings with existing roadways because the track would be in a separate right-of-way. Therefore, no conflicts with vehicles, pedestrians, or bicyclists are expected.
	NE 24th Street and 152nd Avenue from 151st Place NE to SR 520	The use of side alignment within the right-of-way but outside the vehicle travel way would reduce the risk of collisions by separating the travel modes. Providing gates at the vehicle-train crossings would reduce the risk of collisions at these conflict points. No substantial change in the number of accidents is expected.
NE 20th Alternative (D3)	Connecting from Alternatives C3T, C4A, C7E, and C8E from 120th to 124th Avenues NE	The only conflict would be at-grade crossings with existing roadways at 120th, 124th, and 130th avenues NE. Use of gates at these intersections is expected to minimize safety concerns. No substantial change in the number of accidents is expected.
	Connecting from *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E from 120th to 124th Avenues NE	The only conflict would be at-grade crossings with existing roadways at 120th, 124th, and 130th avenues NE. Use of gates at these intersections is expected to minimize safety concerns. No substantial change in the number of accidents is expected.
	NE 16th Street, 136th Place NE, and NE 20th Street from 130th to 143rd Avenues NE	Although low-speed median alignments are expected to have highest higher accident frequency than other track profiles (but less severe accidents), there is the potential to reduce the overall accident frequency by eliminating mid-block rear-end and turning accidents. Three to four mid-block accidents that have occurred in this section over the last 5 years are expected to be prevented by the elimination of mid-block turns with the addition of light rail tracks. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents was considered life-threatening, and all of the LRT-vehicle accidents involved vehicles illegally turning.

TABLE 6-35 CONTINUED
Segment D Alternative Safety Assessment

Alternative	Track Section in Right-of-Way	Safety Assessment
	NE 20th Street and 152nd Avenue NE from 143rd Avenue NE to NE 24th Street	Adding the light rail in a retained cut would prevent midblock left turn movements. Using a retained cut would eliminate some existing conflicts between motorists, pedestrians, and bicycles. Accident frequencies are expected to decrease in this section because 2 to 3 mid-block accidents over the last 5 years could be prevented. Portions of this median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 – June 2010), 7 light rail train and vehicle accidents and 1 light rail train and pedestrian accident occurred and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor and the corridor total reduced by close to 60 percent once the LRT revenue service began. The LRT median barrier restricting vehicle turns to signalized intersection was a contributing factor in the overall accident reduction along the corridor. None of the LRT-related accidents was considered life-threatening, and all of the LRT-vehicle accidents involved vehicles illegally turning.
	152nd Avenue from NE 24th Street to SR 520	Although low-speed median alignments are expected to have highest higher exposure to accidents than other track profiles (but less severe accidents), the overall accident frequency could be reduced by eliminating midblock rear-end and turning accidents. Over the last 5 years three to four midblock accidents that have occurred in this section are expected to be prevented by eliminating midblock turns and adding light rail tracks. This median alignment resembles the current light rail train operations along the 4-mile track in the center median of Martin Luther King Jr. Way in Seattle. During the first year of revenue service of the Central Link system (July 2009 through June 2010), seven light rail train and vehicle accidents and one light rail train and pedestrian accident occurred, and overall corridor accidents per year reduced from 327 (before light rail) to 134 (after light rail). The light rail train and vehicle or pedestrian accidents constitute about 6 percent of the total number of accidents along the corridor, and the corridor total reduced by close to 60 percent once the light rail train revenue service began. The light rail train median barrier restricting vehicle turns to signalized intersection was a contributing factor in overall reducing accidents along the corridor. None of the light rail train-related accidents was considered life-threatening, and all of the light rail train-vehicle accidents involved vehicles illegally turning.
SR 520 Alternative (D5)	Connecting from Alternatives C3T, C4A, C7E, and C8E at 116th Avenue NE	The only conflict point is the at-grade crossing with the existing roadway at 116th Avenue NE. Using gates at this intersection is expected to minimize safety concerns.
	Connecting from *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E through proposed maintenance facilities	This connection does not have at-grade crossings with the roadway system because the track is in a separate right-of-way; therefore, no conflicts with vehicle, pedestrians, or bicycles are expected.
	From 151st Place NE to SR 520	The only conflict is the at-grade crossing with the 151st Place NE. Using gates at this intersection would minimize traffic safety concerns. Otherwise, the side alignment along 152nd Avenue NE is outside the vehicle travel and would reduce the risk of collisions as travel modes are separated.

Note: Sections outside the roadway network are not included as there would be no conflicts with vehicles, pedestrians, or bicycles.

Parking

The parking impacts associated with the proposed alternatives and stations in Segment D are discussed in this section. Table 6-36 summarizes the impacts by alternative. Table 6-37 summarizes the impacts associated with the area covered by each station. The number of parking spaces that are expected to be removed with any of the alternatives in Segment D ranges from 0 to 30 on-street parking spaces and 239 to 816 off-street parking spaces.

TABLE 6-36
Segment D Parking Impacts Summary by Alternative

Alternative	Parking Spaces Removed	
	On-Street	**Off-Street**[a]
Preferred Alternative D2A and D2A – 120th Station Design Option	30	376
D2A – NE 24th Design Option	30	382
Alternative D2E	0	348 to 356
Alternative D3	30	808 to 816
Alternative D5	0	239

Note: Indicated parking impacts are permanent displacements. Parking losses associated with construction are not included in this summary.

[a] The range of off-street parking removals is due to the Segment C connectors and includes parking spaces removed at the station areas.

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A parking impacts would remove approximately 376 off-street parking spaces. *Preferred Alternative D2A* is also expected to require the removal of 30 on-street parking spaces located on the north side of NE 16th Street between 132nd Avenue NE and 134th Avenue NE, and on the east side of 136th Place NE between NE 16th Street and NE 20th Street. The largest off-street parking impacts with the *Preferred Alternative D2A* would occur at the light industrial properties on the southwest end of Segment D near 120th Avenue NE between NE 14th Street and NE 15th Street.

With the D2A - NE 24th Design Option, approximately 60 additional off-street stalls would be affected along the north side of NE 24th Street and the west side of 152nd Avenue NE and 60 fewer off-street stalls at the Overlake Village Station, totaling 382. With the D2A – 120th Design Option, parking impacts would be similar to Preferred Alternative D2A.

Other Segment D Alternatives

Alternative D5 is expected to affect the fewest off-street parking spaces of the Segment D alternatives. This alternative would require the removal of 239 off-street parking spaces and no on-street parking spaces. The alternative affecting the most parking spaces is Alternative D3, which would require the removal of up to 816 off-street parking spaces. The largest impacted property with Alternative D3 is a commercial space on the northwest corner of the NE 20th Street and 152nd Avenue NE intersection, which would lose approximately 100 parking spaces. An adjacent shopping center, on the northeast corner of the intersection of NE 20th Street and 148th Avenue NE, is expected to lose 55 parking spaces with Alternative D3. Alternative D3 also would require the removal of off-street parking spaces on multiple properties located along 152nd Avenue NE between NE 20th Street and NE 24th Street. Similar to *Preferred Alternative D2A*, D2E and D3 would also affect the parking provided at the light industrial properties on the southwest end of Segment D near 120th Avenue NE between NE 14th Street and NE 15th Street. D2E would require the removal of up to 356 off-street parking spaces and no on-street parking spaces. Regarding on-street parking impacts, Alternative D3 is expected to have similar impacts as *Preferred Alternative D2A*. No impacts on on-street parking are anticipated with alternatives D2E and D5.

As shown in Table 6-37, the only station designs that are expected to have no impact on parking spaces are the 120th and Overlake Transit Center Stations. The 120th Station, however, would require the removal of several buildings located between 120th Avenue NE and 124th Avenue NE, near NE 15th Street. The 130th Station would affect 20 parking spaces for *Preferred Alternative D2A*, both D2A design options, Alternative D2E, or Alternative D3. All affected parking spaces would be located within private off-street parking lots between 130th Avenue NE and 132nd Avenue NE, near NE 16th Street.

TABLE 6-37
Segment D Parking Impacts Summary by Station

Station	Associated Alternatives	Spaces Removed	Area Affected by Development
120th	*Preferred Alternative D2A,* D2A - 120th Station Design Option, D2A - NE 24th Design Option, and Alternatives D2E and D3	0	Businesses between 120th and 124th Avenues NE near NE 14th Street
130th	*Preferred Alternative D2A*, D2A - 120th Station Design Option, D2A - NE 24th Design Option, Alternative D2E , and Alternative D3	20	Private off-street parking lots between 130th and 132nd Avenues NE near NE 16th Street
Overlake Village	*Preferred Alternative D2A*	100	Private off-street lots adjacent to SR 520 and west of 152nd Ave NE
	D2A - NE 24th Design Option and Alternative D2E	40	Private off-street lots on the northwest corner of the intersection of NE 24th Street and 152nd Avenue NE
	Alternative D3	100	Private off-street lots along 152nd Avenue NE, north of NE 24th Street
	Alternative D5	20 to 40	Private off-street parking lots northwest of the intersection of NE 24th Street and 152nd Avenue NE
Overlake Transit Center	*Preferred Alternative D2A*, D2A Design Options, and Alternatives D2E, D3, and D5	0	None

Notes: Parking impacts shown are permanent displacements. Parking losses associated with construction staging are not included in this summary. Parking impacts shown are only those associated with the area covered by the station.

For *Preferred Alternative D2A,* the Overlake Village Station is located approximately 450 feet further north on the west side of 152nd Avenue NE from the existing Overlake Village Park-and-Ride. The design of the Overlake Village Station with this alternative would require the removal of 100 parking spaces located in private off-street parking lots adjacent to SR 520 right-of-way and west of 152nd Avenue NE. With Alternative D2A - NE 24th Design Option and Alternative D2E, 40 parking spaces located in private off-street parking lots on the northwest corner of the intersection of NE 24th Street and 152nd Avenue NE would be removed. Alternative D5 would affect the same private parking lots, but the number of affected parking spaces would vary between 20 and 40 stalls depending on the two proposed station locations. The design of the Overlake Village Station associated with D3 requires the removal of approximately 100 parking spaces located in private lots along 152nd Avenue NE north of NE 24th Street.

At the 130th, Overlake Village, and Overlake Transit Center stations, there is a potential for parking spillover because the future parking forecast is higher than the station's parking capacity, as shown in Table 6-38. However, because there is a minimal amount of available on-street parking surrounding these stations (see Table 6-12), there is a low potential for hide-and-ride impacts. Potential spillover from the Overlake Transit Center could infringe into nearby private businesses; however, these parking lots are currently monitored. Therefore, hide-and-ride activity is expected to be low at the Overlake Transit Center Station.

Although there is currently available on-street parking that surrounds the 120th Station, planned land use and transportation changes surrounding the Bel-Red area could result in a decrease of available on-street parking and therefore a lower potential for hide-and-ride impacts. In Segment D, because there are numerous private parking lots surrounding the stations, measures such as security enforcement or time-limited parking by private owners would minimize the potential for hide-and-ride activities.

Maintenance Facilities

The three maintenance facility sites and the storage track in the BNSF Railway, north of NE 12th Street crossing, in Segment D are not expected to substantially affect intersection operations, property access, or traffic or nonmotorized circulation. Vehicular access to the 116th Maintenance Facility (MF1) and BNSF Maintenance Facility (MF2) would be located off 120th Avenue NE by way of an access road.

TABLE 6-38
Segment D Existing and Proposed Park-and-Ride Parking Stalls and Forecasted Park-and-Ride Vehicle Demand

Station	Alternative	Total Existing Parking Stalls	Total Proposed Parking Stalls	2020 Park-and-Ride Vehicle Demand[a]	2030 Park-and-Ride Vehicle Demand[a]
130th[b]	*Preferred Alternative D2A*, D2A - 120th Station Design Option, D2A - NE 24th Design Option, and Alternatives D2E and D3	--	300	270	380
Overlake Village	All Segment D Alternatives	203	203	260	480
Overlake Transit Center	All Segment D Alternatives	170	320	460	670

[a] 3-hour PM peak-period park-and-ride vehicle demand. 3-hour PM peak period is a close representation of daily park-and-ride demand.

[b] With *Preferred Alternative D2A*, there is the potential to locate the park-and-ride lot at either the 130th Station or 120th Station. With either location, park-and-ride auto demand would be similar.

The access road also would provide connectivity to the maintenance facility parking. Vehicular access to the SR 520 Maintenance Facility (MF3) would be located on NE 20th Street, and track access would spur off the main light rail track route running parallel to 136th Place NE. For *Preferred Alternative D2A*, vehicles traveling southbound on 136th Place NE and eastbound and westbound on NE 20th would be gate-controlled when light rail train vehicles access MF3. Existing driveway access on NE 20th Street between 132nd Avenue NE and 136th Place NE would be limited or signalized at specific locations.

The alternative maintenance facilities in Segment D would have approximately 60 parking stalls for the employees and visitors. Maintenance facility staff shift hours would be similar to Central Link operation and maintenance facilities: 6:00 a.m. to 2:00 p.m. and 2:00 p.m. to 10:00 p.m. These shift hours occur outside the peak periods, so little shift in traffic is expected to occur during the peak hour. Less than 10 vehicle trips would occur to and from the maintenance facility in peak periods. These trips would include visitors and deliveries to and from the maintenance facility.

Light rail vehicle storage track would be located along the former BNSF railway right-of-way within Segment D. Light rail vehicles entering or exiting this vehicle storage track would have no impact on traffic operations as this activity would occur outside of vehicle roadways. Parking and limited office space for vehicle maintenance, such as cleaning, would occur at this location but no impacts on traffic operations are anticipated.

Interim Terminus Stations

The 120th, 130th, Overlake Village, and Overlake Transit Center stations are potential interim termini. While increases in ridership at these interim termini stations ranged from 0 to 2,000 (Table 6-20), only Overlake Village Station warranted further traffic analysis as it is expected to generate an additional 130 vehicles trips as an interim terminus station by 2030. Table 6-21 shows the PM peak-hour interim terminus trip generation for each of these potential interim termini.

Because the additional ridership at the Overlake Village Station would be largely composed of people transferring between light rail and buses, bus services would be increased to accommodate this additional ridership. The increase in bus service at the Overlake Village Station would be mainly routes to and from the north along 156th Avenue NE. Overall, increases in vehicle delay under interim terminus conditions compared with the full-length alternative analysis would be negligible, and no change in intersection LOS is expected. Table D-16 in Appendix D provides the build and build interim terminus intersection LOS and delay results at the Overlake Village interim terminus station.

6.3.2.5 Segment E

In Downtown Redmond, Cleveland Street and Redmond Way currently operate as a one-way couplet with traffic operating eastbound and westbound, respectively, in existing conditions. In the future no-build conditions, these two streets are planned to be converted to two-way operations with Redmond Way providing one through lane and a left-turn pocket in both directions at intersections and Cleveland Street providing one lane in each directions. In addition, right-turn pockets would be provided for the eastbound and westbound approach at the intersection of Redmond Way and 164th Avenue NE. 164th Avenue NE would be extended between NE 76th

Street and Cleveland Street. Bear Creek Parkway and 161st Avenue NE would be extended to intersect south of the BNSF Railway right-of-way. Appendix A presents the complete list of roadway and intersection projects assumed in 2020 and 2030 for Segment E.

Traffic Control, Property Access, and Circulation

Impacts on access are expected to be minimal for all Segment E alternatives except along 161st Avenue NE for the E2 – Redmond Transit Center Design Option. The E2 – Redmond Transit Center Design Option would have the highest number of traffic control revision because it travels at-grade in the median of 161st Avenue NE, while the other Segment E alternatives would have a similar number of traffic control modifications. Table 6-39 presents the traffic control modifications for each Segment E alternative.

TABLE 6-39
Segment E Intersection Traffic Control

Control Location	Existing Control	Proposed Control
Preferred Marymoor Alternative (E2)		
Former BNSF Railway and 170th Avenue NE	Railroad gates	Install light rail gates
Former BNSF Railway and 166th Avenue NE	Railroad gates	Install light rail gates
Former BNSF Railway and 164th Avenue NE	None	Install light rail gates
Former BNSF Railway and NE Leary Way	Railroad gates	Install light rail gates
Former BNSF Railway and 161st Avenue NE	None	Install light rail gates
Redmond Way Alternative (E1)		
Former BNSF Railway and 161st Avenue NE	None	Install light rail gates
Former BNSF Railway and NE Leary Way	Railroad gates	Install light rail gates
Former BNSF Railway and 164th Avenue NE	None	Install light rail gates
Former BNSF Railway and 166th Avenue NE	Railroad gates	Install light rail gates
Former BNSF Railway and 170th Avenue NE	Railroad gates	Install light rail gates
E2 – Redmond Transit Center Design Option		
Former BNSF Railway and 170th Avenue NE	Railroad gates	Install light rail gates
Former BNSF Railway and 166th Avenue NE	Railroad gates	Install light rail gates
Former BNSF Railway and 164th Avenue NE	None	Install light rail gates
Former BNSF Railway and NE Leary Way	Railroad gates	Install light rail gates
Former BNSF Railway and 161st Avenue NE	None	Install light rail gates
SR 202 and 161st Avenue NE	Signal	Replace signal
NE 80th Street and 161st Avenue NE	Signal	Replace signal
NE 83rd Street and 161st Avenue NE	Signal	Replace signal
NE 85th Street and 161st Avenue NE	Signal	Replace signal
Leary Way Alternative (E4)		
Bear Creek Parkway and Leary Way	Signal	Install light rail gates, replace signal
NE 76th Street	None	Install light rail gates
Former BNSF Railway and 164th Avenue NE	None	Install light rail gates
Former BNSF Railway and 166th Avenue NE	Railroad gates	Install light rail gates
Former BNSF Railway BNSF and 170th Avenue NE	Railroad gates	Install light rail gates

Preferred Marymoor Alternative (E2)

For *Preferred Alternative E2*, light rail crossing gates would replace the existing railroad gates and serve as traffic controls along the former BNSF Railway corridor (at the 161st Avenue NE, Leary Way, 164th Avenue NE, 166th Avenue NE, and 170th Avenue NE crossings). *Preferred Alternative E2* would not affect the roadway channelization. There would be no property access or circulation impacts with *Preferred Alternative E2*.

The E2 – Redmond Transit Center Design Option would extend from *Preferred Alternative E2* and travel into Downtown Redmond along 161st Avenue NE between Cleveland Street and NE 85th Street. The E2 – Redmond Transit Center Design Option would have more impact on property access and circulation because this design option would be at-grade in the median of 161st Avenue NE. Mid-block property access would be restricted to allow only right-turns in and out of the driveways. To minimize vehicle recirculation, NE 83rd Street and 161st Avenue NE would be signalized, and u-turn movements would be allowed at the intersection of NE 85th Street and 161st Avenue NE.

Other Segment E Alternatives

Similar to *Preferred Alternative E2*, both the Redmond Way Alternative (E1) and the Leary Way Alternative (E4) would have light rail crossing gates along the former BNSF Railway corridor (at the 164th Avenue NE, 166th Avenue NE, and 170th Avenue NE crossings). Alternative E1 would have additional crossings at 161st Avenue NE and NE Leary Way, while Alternative E4 would have additional crossings at the intersection of Bear Creek Parkway and NE Leary Way and along NE 76th Street between NE Leary Way and 164th Avenue NE. With Alternative (E1), properties with access on the south side of Redmond Way near the 159th Place NE intersection might have their access altered to accommodate the light rail track. West Lake Sammamish Parkway and the former BNSF Railway corridor would be modified to accommodate the tracks. With Alternative E4, potentially one access to a residential property along the south side of Leary Way, just west of the Sammamish River, would be modified to accommodate the tracks along the road. Both the Redmond Way (E1) and Leary Way (E4) alternatives would not affect the roadway channelization in Segment E.

A service access road would be constructed near the SR 520 eastbound on-ramp and West Lake Sammamish Parkway to allow access to a traction power substation. However, only service vehicles would use this access point, and it is not expected to affect circulation or property access near the on-ramp.

Operations and Level of Service

As traffic volumes increase in 2020 and 2030, the no-build intersection LOS results for the PM peak hour would be worse than in the existing conditions. In the year 2020, three intersections are expected to operate at LOS F during the PM peak hour and by year 2030 two additional intersections would operate at LOS F. These intersections are:

- NE Leary Way and West Lake Sammamish Parkway
- NE 76th Street and 170th Avenue NE
- Avondale Road NE and Union Hill Road
- NE 85th Street and 164th Avenue NE
- SR 202 and E Lake Sammamish Parkway (180th Avenue NE)

The intersections of NE Leary Way and West Lake Sammamish Parkway, Avondale Road NE and Union Hill Road, and SR 202 and East Lake Sammamish Parkway already operate at LOS F in the existing conditions. The NE 76th Street and 170th Avenue NE intersection is unsignalized in the existing and future conditions.

Preferred Marymoor Alternative (E2)

Intersection operations with the *Preferred Alternative E2* would be similar to the no-build condition except at four intersections where operations would be worse and the intersection would fail to meet the City of Redmond's LOS standards: NE 76th Street and 170th Avenue NE, SR 202 and NE 70th Street, NE 70th Street and 176th Avenue NE, and SR 202 and E Lake Sammamish Parkway (180th Avenue NE). These impacts are due to the increased traffic associated with the SE Redmond Station and at the at-grade light rail crossings adjacent to the NE 76th Street and 170th Avenue NE intersection.

For the E2 – Redmond Transit Center Design Option, the intersection operations would be similar to those of *Preferred Alternative E2*, except at the Redmond Way and 161st Avenue NE intersection. This intersection is expected to operate at LOS F in year 2030 because of the roadway modifications along 161st Avenue NE as part of the median track alignment.

Independent of the *Preferred Alternative E2* alignment adjacent to NE 76th Street, the intersection signal phasing and operations along NE 76th Street would be similar as discussed under the *Preferred Alternative E2* and E2 – Redmond Transit Center Design Option.

Other Segment E Alternatives

Within Segment E, the light rail train along the former BNSF Railway corridor would likely receive full signal priority. With the E2 – Redmond Transit Center Design Option route, it is likely some signal priority would be given to the light rail train along 161st Avenue NE through Downtown Redmond. Intersection operations with Alternatives E1 and E4 would be similar to the *Preferred Alternative E2*, except at the intersection of NE 70th Street and 176th Avenue NE where intersection operations would be similar to the no-build condition. This intersection would not degrade under these two alternatives because a different intersection channelization associated with the station access and circulation at the SE Redmond Station.

Because a substantial number of transit users would relocate from the Bear Creek Park-and-Ride Lot to the SE Redmond Station, the intersection operations are expected to improve near the Beak Creek Park-and-Ride Lot. This though was not included in the traffic analysis results as the analysis did not consider a reduction in vehicle traffic at the beak Creek Park-and-Ride.

Exhibits 6-18 and 6-19 and Table D-17 in Appendix D provide 2020 and 2030 intersection LOS results for the PM peak hour in the no-build and build conditions.

Traffic Safety

Table 6-40 discusses the expected safety impacts of the Segment E alternatives on the local roadway system. The safety assessments were based on each alternative’s design and national research and safety guidelines relevant to East Link Project. Appendix E provides information about findings from national research projects for the various design types assessed for the East Link Project. No substantial changes are expected in the accident frequency along the roadways surrounding the maintenance facility in Segment E. The SE Redmond Maintenance Facility (MF5), the only maintenance facility in Segment E, would have track crossing NE 70th Street. The light rail train would not cross this road frequently, and it would be protected with gates, so there would be no change in the roadway safety conditions.

TABLE 6-40
Segment E Alternative Safety Assessment

Alternative	Track Section in Right-of-Way	Safety Assessment
Preferred Marymoor Alternative (E2)	NE 76th Street from 170th Avenue NE to 161st Avenue NE	Track within the former BNSF Railway corridor and outside of vehicle travel would reduce the risk of collisions by separating traffic types. Also, gates at vehicle-train crossings would reduce collision risk at these points. No substantial change in the number of accidents is expected.
E2 – Redmond Transit Center Design Option	NE 76th Street from 170th Avenue NE to 161st Avenue NE	Track within the former BNSF Railway corridor and outside of vehicle travel would reduce the risk of collisions by separating traffic types. Also, gates at vehicle-train crossings would reduce collision risk at these points. No substantial change in the number of accidents is expected.
	161st Avenue from Bear Creek Parkway to NE 85th Street	This section would not likely have many midblock accidents that could be prevented by adding light rail tracks in the median preventing midblock left-turn movements. Low-speed median alignments would likely have a higher exposure to accidents but less severe accidents than other track profiles.
Redmond Way Alternative (E1)	NE 76th Street from Redmond Way to 170th Avenue NE	Track within the former BNSF Railway corridor and outside of vehicle travel would reduce the risk of collisions by separating traffic types. Also, gates at vehicle-train crossings would reduce collision risk at these points. No substantial change in the number of accidents is expected.
Leary Way Alternative (E4)	NE Leary Way and NE 76th Street from Bear Creek Parkway to 170th Avenue NE	Track within the former BNSF Railway corridor and outside of vehicle travel would reduce the risk of collisions by separating traffic types. Also, gates at vehicle-train crossings would reduce collision risk at these points. No substantial change in the number of accidents is expected.

Note: Sections outside the roadway network are not included as there would be no conflicts with vehicles, pedestrians or bicycles.

Parking

The parking impacts associated with the alternative routes and stations in Segment E are summarized in Table 6-41 by alternative. Table 6-42 summarizes the impacts associated with the area covered by each station.

TABLE 6-41
Segment E Parking Impacts Summary by Alternative

Alternative	Parking Spaces Removed		
	Unrestricted On-Street	**Restricted On-Street**[a]	**Off-Street**[b]
Preferred Marymoor Alternative (E2)	0	0	20
E2 – Redmond Transit Center Design Option	14	2	94
Redmond Way Alternative (E1)	0	0	37
Northeast Leary Way Alternative (E4)	0	0	45

Note: Indicated parking impacts are permanent displacements. Parking losses associated with construction are not included in this summary.

[a] Restricted parking includes all parking spaces with special-use restrictions, such as drop-off/loading zones.

[b] Includes parking spaces removed at the station areas.

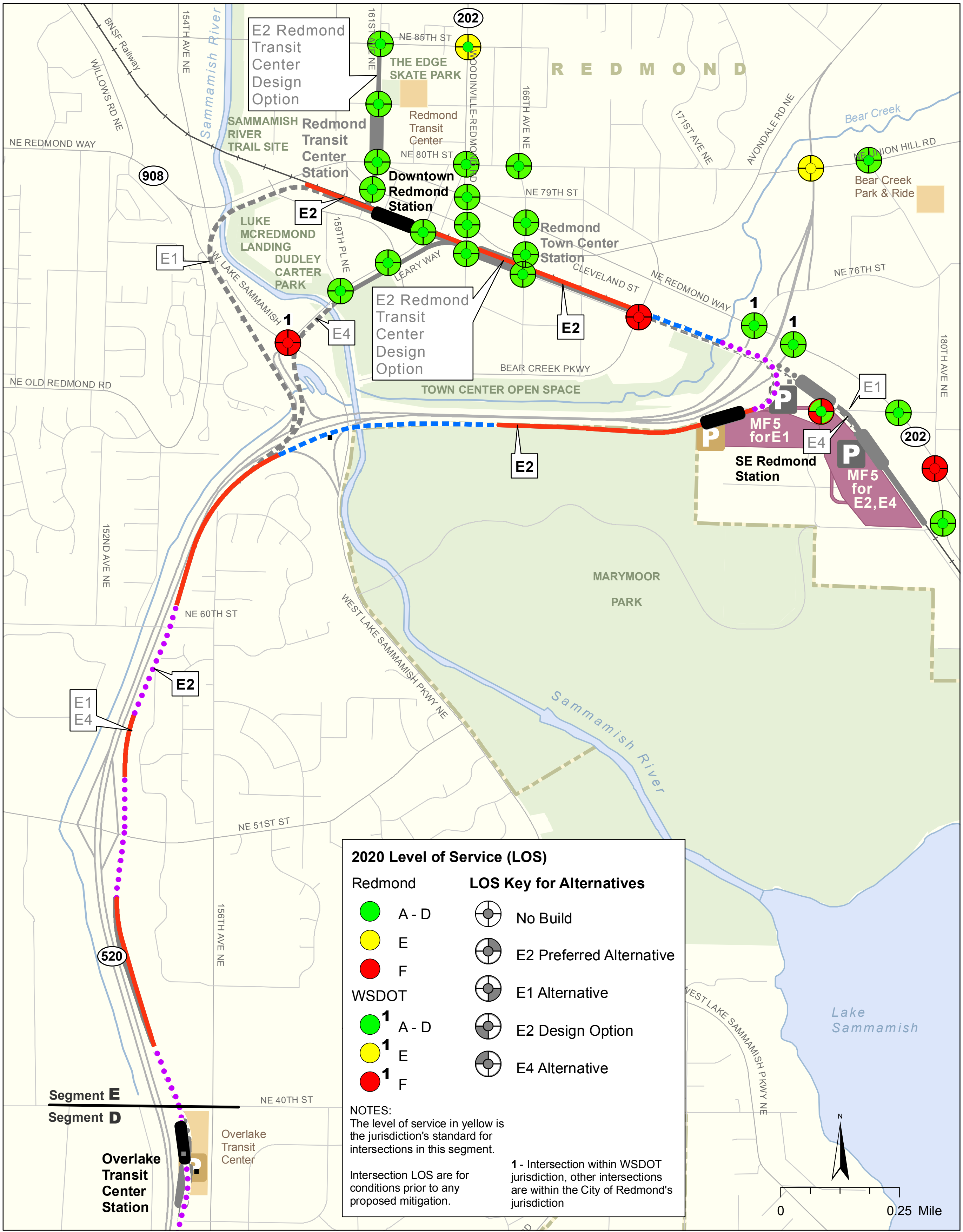
TABLE 6-42
Segment E Parking Impacts Summary by Station

Station	Associated Alternatives	Spaces Removed	Area Affected by Development
Downtown Redmond	*Preferred Alternative E2*	0	None
Redmond Town Center	E2 - Redmond Transit Center Design Option and Alternatives E1 and E4	0	None
SE Redmond	*Preferred Alternative E2,* Alternative E1, and E2 – Redmond Transit Center Design Option	0	Several entire parcels will be acquired near the intersection of NE 70th Street and 176th Avenue NE
	Alternative E4	0	None
Redmond Transit Center	E2 – Redmond Transit Center Design Option	30	Private off-street parking lots along the west side of 161st Avenue NE, between NE 80th and NE 83rd Streets

Notes: Parking impacts shown are permanent displacements. Parking losses associated with construction staging are not included in this summary. Parking impacts shown are only those associated with the area covered by the station.

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would have the least impact on parking of the four Segment E alternatives. A total of 20 off-street private parking spaces and zero on-street public parking spaces would be removed. The E2 – Redmond Transit Center Design Option would have the greatest impact on parking of the four Segment E alternatives due to impacts along 161st Avenue NE. A total of 94 off-street private parking spaces and 16 on-street public parking spaces would be removed. All the removed on-street public parking spaces would be located along 161st Avenue NE between NE 83rd Street and NE 85th Street. Two of the parking spaces prohibit parking longer than 15 minutes. If the *Preferred Alternative E2* alignment adjacent to NE 76th Street requires the roadway to be reconstructed its on-street parking might be removed.


E2 Redmond Transit Center Design Option
202
NE 85TH ST
161ST AVE NE
THE EDGE SKATE PARK
R E D M O N D
BNSF Railway
154TH AVE NE
Sammamish River
WILLOWS RD NE
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Redmond Transit Center
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE REDMOND WAY
908
NE 80TH ST
Downtown Redmond Station
NE 79TH ST
E2
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
159TH PL NE
Redmond Town Center Station
E1
W. LAKE SAMMAMISH
LEARY WAY
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
1
E4
E2 Redmond Transit Center Design Option
E2
180TH AVE NE
BEAR CREEK PKWY
NE OLD REDMOND RD
TOWN CENTER OPEN SPACE
E1
MF5 for E1
E4
202
E2
SE Redmond Station
MF5 for E2, E4
152ND AVE NE
MARYMOOR PARK
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
E2
E1
E4
Sammamish River
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
WEST LAKE SAMMAMISH PKWY NE
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
Overlake Transit Center Station
0
0.25 Mile
N
2020 Level of Service (LOS)
Redmond
🟢 A - D
🟡 E
🔴 F
WSDOT
🟢 1 A - D
🟡 1 E
🔴 1 F
LOS Key for Alternatives
No Build
E2 Preferred Alternative
E1 Alternative
E2 Design Option
E4 Alternative
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

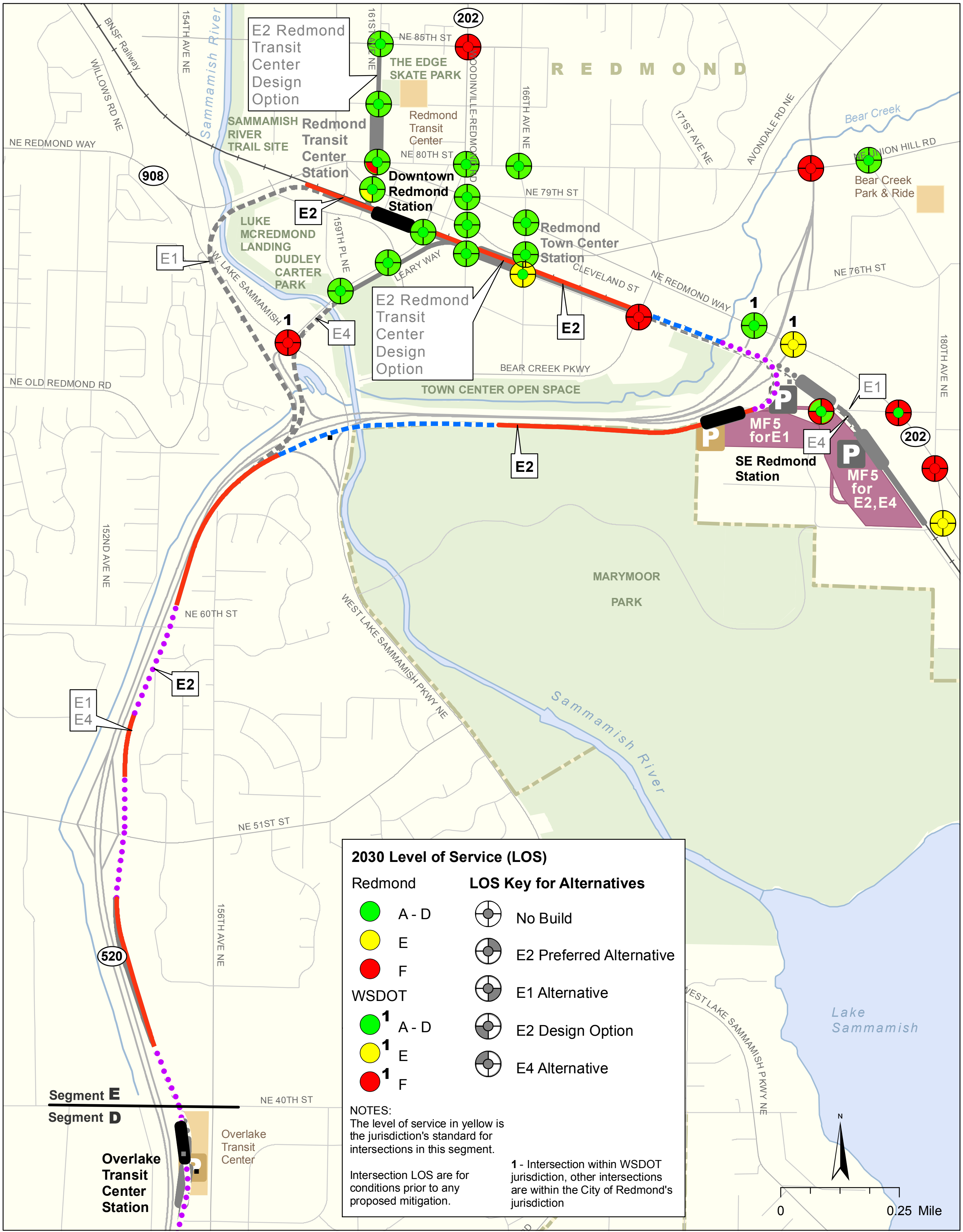
NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Redmond's jurisdiction

Source: Data from City of Redmond (2005) and King County (2006) modified by CH2M HILL.

Exhibit 6-18 **2020 PM No Build and Build Level of Service at Intersections Segment E**
East Link Project


2030 Level of Service (LOS)
Redmond
A - D
E
F
WSDOT
1 A - D
1 E
1 F
LOS Key for Alternatives
No Build
E2 Preferred Alternative
E1 Alternative
E2 Design Option
E4 Alternative
E2 Redmond Transit Center Design Option
Redmond Transit Center Station
Downtown Redmond Station
Redmond Town Center Station
SE Redmond Station
Overlake Transit Center Station
Overlake Transit Center
Redmond Transit Center
MF5 forE1
MF5 for E2,E4
THE EDGE SKATE PARK
SAMMAMISH RIVER TRAIL SITE
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
TOWN CENTER OPEN SPACE
MARYMOOR PARK
Bear Creek Park & Ride
R E D M O N D
Sammamish River
Bear Creek
Lake Sammamish
BNSF Railway
NE 85TH ST
NE 80TH ST
NE 79TH ST
NE 76TH ST
NE 60TH ST
NE 51ST ST
NE 40TH ST
NE REDMOND WAY
NE OLD REDMOND RD
NE UNION HILL RD
CLEVELAND ST
LEARY WAY
BEAR CREEK PKWY
W. LAKE SAMMAMISH
WEST LAKE SAMMAMISH PKWY NE
WILLOWS RD NE
154TH AVE NE
161ST AVE NE
159TH PL NE
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
180TH AVE NE
152ND AVE NE
156TH AVE NE
WOODINVILLE-REDMOND RD
202
908
520
E1
E2
E4
E1 E4
Segment E
Segment D
0
0.25 Mile
N

NOTES:
The level of service in yellow is the jurisdiction's standard for intersections in this segment.

Intersection LOS are for conditions prior to any proposed mitigation.

1 - Intersection within WSDOT jurisdiction, other intersections are within the City of Redmond's jurisdiction

Source: Data from City of Redmond (2005) and King County (2006) modified by CH2M HILL.

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot

Exhibit 6-19 **2030 PM No Build and Build Level of Service at Intersections Segment E**
East Link Project

Other Segment E Alternatives

E1 and E4 are expected to have no impact on on-street parking but would affect between 37 and 45 off-street parking spaces, respectively. As shown in Table 6-42, the only station that would require the removal of parking spaces in Segment E is the Redmond Transit Center Station with the E2 – Redmond Transit Center Design Option. This station would require the removal of 30 off-street parking spaces in lots located on the west side of 161st Avenue NE between NE 80th Street and NE 83rd Street. The design for the SE Redmond Station in *Preferred Alternative E2,* E2 – Redmond Transit Center Design Option, and Alternative E1 would require the acquisition of several entire parcels near the intersection of Northeast 70th Street and 176th Avenue NE.

At the two stations with park-and-ride lots, Redmond Transit Center and SE Redmond, the expected park-and-ride demand is less than the available parking capacity, as shown in Table 6-43; therefore, there is a low potential for parking spillover to occur. Additionally, because of the low amount of on-street parking near the SE Redmond Station, there likely would not be a substantial hide-and-ride impact at this station if the parking demand exceeded the park-and-ride capacity.

TABLE 6-43
Segment E Existing and Proposed Park-and-Ride Parking Stalls and Forecasted Park-and-Ride Vehicle Demand

Station	Alternative	Total Existing Parking Stalls	Total Proposed Parking Stalls	2020 Park-and-Ride Vehicle Demand[a]	2030 Park-and-Ride Vehicle Demand[a]
SE Redmond	All Segment E Alternatives	--	1,400	1,030	1,030
Redmond Transit Center	*Preferred Alternative E2*	377	377	150	180

[a] 3-hour PM peak-period park-and-ride vehicle demand. 3-hour PM peak period is a close representation of daily park-and-ride demand.

Even though a park-and-ride lot at the Downtown Redmond Station and Redmond Town Center Station (with the E2 – Redmond Transit Center Design Option) is not proposed, a substantial amount of available on-street parking surrounds both stations. Therefore there is a potential for hide-and-ride impacts. However, the City of Redmond has recently implemented a restricted (time-limited) parking policy for much of their downtown area. This would limit opportunities for hide-and-ride parking. Hide-and-ride parking also could occur in the neighboring retail center but this development has already implemented security enforcement, which minimizes the potential for hide-and-ride activities. Owners of other private parking lots near the stations could implement measures such as security enforcement or time-limited parking that would minimize the potential for hide-and-ride activities in their parking lots.

6.3.2.6 Maintenance Facilities

The SE Redmond Maintenance Facility (MF5) would be located adjacent to the SE Redmond Station and would be connected to the station by tail track. The position of MF5 would differ for E1, *Preferred Alternative E2* and E4, but the traffic circulation surrounding this area is not expected to differ between these alternatives. Vehicular access to MF5 in E1 would be located off NE 70th Street between Redmond Way and the SR 520 eastbound off-ramp. Vehicular access to MF5 in *Preferred Alternative E2* and Alternative E4 would be located off NE 65th Street between 176th Avenue NE and East Lake Sammamish Parkway. The additional access into MF5 is not expected to affect business, residential, or nonmotorized circulation and access on either of these streets. For *Preferred Alternative E2* and E4 vehicles traveling along NE 70th Street, there would be a gate controlling the crossing when the light rail trains access MF5.

MF5 in Segment E would have approximately 60 parking stalls for the employees and visitors. Maintenance facility staff shift hours would be similar to Central Link operation and maintenance facilities: 6:00 a.m. to 2:00 p.m. and 2:00 p.m. to 10:00 p.m. These shift hours occur outside the peak periods, so little shift in traffic is expected to occur during the peak hour. Fewer than 10 vehicle trips would occur to and from the maintenance facility in peak periods. These trips would include visitors and deliveries to and from the maintenance facility.

6.3.2.7 Interim Terminus Stations

The SE Redmond and Redmond Town Center stations are potential interim termini. The SE Redmond Station is not expected to generate enough auto trips beyond the full-length alternative to warrant further traffic analysis because the analysis of the full-length alternative assumed the park-and-ride lot at the SE Redmond Station would be at capacity. The Redmond Town Center Station would generate an additional 85 total vehicle trips as an interim terminus by year 2030, which warranted further traffic analysis. Table 6-21 shows the PM peak-hour interim terminus trip generation for each of these potential interim termini.

Intersections near the Redmond Town Center Station are expected to operate acceptably compared with the City of Redmond's LOS standards except the intersection of NE 76th Street and 170th Avenue NE. The increase in delay at this intersection is attributed to the at-grade light rail crossing adjacent to the intersection, similar to all Segment E alternatives. Table D-18 in Appendix D provides the build and build interim terminus intersection LOS and delay results at the Redmond Town Center interim terminus station.

6.4 Construction Impacts

Construction impacts are estimated based on the level of design completed to date and the known construction activities. Constructing the East Link Project would result in temporary impacts to local and regional automobile, transit, truck, and pedestrian or bicycle activities. Construction activities analyzed include construction operations, truck routes, and staging schemes, and their related effects, including the following:

- Potential roadway or lane closure requirements, alignment shifts, areas of construction activity adjacent to travel lanes, or other reductions in street capacity associated with construction activities
- Major construction activities with complete roadway closures requiring construction of interim detour facilities or identification of available detour routes
- Areas that would require extensive construction coordination between Sound Transit and local jurisdictions, affected neighborhoods, adjacent businesses, and other affected agencies
- Locations where existing on- or off-street parking supply would be affected by construction activity or staging

Construction traffic impacts could also occur where construction site access routes require using streets not typically used by or designated for use by trucks. The closure of roadway lanes (especially arterials) during peak periods could create substantial transportation impacts (congestion, increased potential for cut-through traffic, disconnected bicycle/sidewalk facilities), especially if alternate routes would be congested or lengthy. Impacts could also result from property access restrictions. During construction, some roads immediately adjacent to or within the construction areas would have to be temporarily closed or narrowed. This includes the following:

- Full closure: road closed to all traffic
- Partial closure: individual lane closures could be expected, but at least one travel lane in each direction would be maintained
- Short-term closure: closed up to 12 months
- Long-term closure: closed more than 12 months
- Peak closures: closures scheduled for periods of highest traffic (typically mornings and late afternoons/early evenings on weekdays)
- Off-peak closures: closures scheduled for periods of lowest traffic (typically weekends and nights)
- 24-hour closures: all day closures for both weekdays and weekends

Even with careful preparation of the traffic maintenance and construction plans, access to construction areas could require using collector or local designated streets in certain areas. Coordination with local jurisdictions and WSDOT would take place as part of final engineering and permitting stages of this project so that streets and highways are provided with the necessary signage and traffic control measures.

Linear projects such as East Link are typically divided into various segments or line sections for construction. Segments include construction of retained cut-and-fill trackway, elevated structures, tunnels and underground stations, park-and-ride facilities, station platforms, transit centers, substation and control facilities, and other related improvements. A work-specific construction approach would be developed during the final design effort to establish the limits for the various construction phases and construction contracts, their estimated schedule and duration, and appropriate sequencing. Where possible, construction activities would be coordinated with other capital improvement projects to help minimize construction impacts.

Typical construction for surface and elevated guideways and stations would occur on a 6-day-per-week work schedule, although in some locations (such as when street detours are involved and/or construction periods need to be abbreviated to reduce impacts), additional shifts, all-week, or 24-hour construction activities could be necessary. While underground construction activities could occur on a 24-hour basis, truck activity at the surface staging area could be limited to a shorter period daily.

The overall construction duration would be about seven years. A period of civil construction during which site preparation, primary construction, and finish construction takes place would have duration of approximately two to five years in any given portion of the corridor. A typically shorter period of system installation, integration, and testing would then follow. The initial and final construction periods would have minimal construction impacts compared with the primary construction period.

The civil construction work at each site would normally begin with site preparation, including property acquisition, demolition and clearing, and utilities rerouting. In some areas, it would be necessary to demolish existing buildings or structures before starting construction of light rail facilities. Demolition would involve implementing stormwater and erosion control measures, tearing down buildings and structures, relocating utilities, removing debris, and containing and disposing of hazardous materials. Demolition work would create noise and dust, and there would be truck traffic for debris removal.

Staging areas are also needed before, during, and for a short time after construction work occurs. The staging areas for tunnel boring and mining would be located at or near tunnel portals, stations, or construction shafts. Staging areas for cut-and-cover stations would be located at or near the station site. At-grade, elevated, and retained cut-and-fill line sections would have construction staging areas all along the routes. Staging areas for the stations (both at-grade and elevated) would generally need to be larger than for the guideway/trackway segments (line sections). For the line sections, contractors would generally use as the staging area the property in which the facility is being constructed and adjacent properties, although larger areas could be required.

Staging areas could be used for construction, equipment storage, construction materials delivery and storage, demolition or spoils handling (in accordance with applicable regulations), contractor trailers, and parking. Section 5.3.4 discusses construction impacts on the regional highways in the project vicinity, (I-90, I-405, and SR 520); Section 4.4 discusses construction impacts on transit.

6.4.1 Truck Volumes and Haul Routes

The exact number of truck trips that would be needed for each alternative is dependent on many variables that cannot be fully determined or finalized at this time. An estimate, based on the engineering and design information available at this time, was prepared to understand the impact of constructing the East Link Project would have on the transportation system. A range of truck trips is shown in Table 6-44, based on known quantities for the main trip-generation activities, including imported fill material, concrete, asphalt concrete pavement, and excavated waste material that would be generated for the construction of each alternative. The variation between the minimum and maximum number of truck trips per day or hour is also shown in Table 6-44. Truck trips associated with activities such as miscellaneous deliveries have not yet been quantified and are excluded from this estimate.

Preliminary haul routes are provided in Table 6-44 and in Appendix G1 of the Final EIS. Truck haul routes were identified by using the classified truck routes from WSDOT, King County, and the cities of Seattle, Bellevue, and Redmond. Final truck routes would be determined in conjunction with affected jurisdictions through the project's permitting process. The truck routes for each alternative have been split into several sections based on the access to and from the alternative and the classified truck routes. Trucks were assumed to arrive from I-90, I-405, or SR 520; they were also assumed to be capable of turning around in staging areas and maintenance facility sites. When an alternative includes a tunnel, haul routes were assumed to end and begin at the tunnel portals.

TABLE 6-44
Average Truck Trips for Construction of Alternatives

Alternative	Average Truck Trips To and From Location[c]		Haul Origin/Destination	Suggested Haul Route Streets
	Per Day[a]	Per Hour[b]		
Segment A, Interstate 90				
Preferred Alternative A1	12 to 14	1 to 2	West of I-5	I-90 to Airport Way to 4th Avenue South to Jackson Street to 5th Avenue South to I-90
			East of I-5	I-90 center HOV lanes, turnaround at 76th Avenue NE and Island Crest Way in Mercer Island
Segment B, South Bellevue				
Preferred Alternative B2M connecting to *Preferred Alternative C9T*	60 to 70	6 to 7	South of SE 8th Street	I-90 to Bellevue Way SE to 112th Avenue SE to SE 8th Street to I-405
			North of SE 8th Street	I-405 to SE 8th Street to 112th Avenue SE to NE 4th Street to I-405
Preferred Alternative B2M connecting to *Preferred Alternative C11A*	80 to 90	8 to 9	South of SE 8th Street	I-90 to Bellevue Way SE to 112th Avenue SE to SE 8th Street to I-405
			North of SE 8th Street	I-405 to SE 8th Street to 112th Avenue SE to NE 4th Street to I-405
Alternative B1	54 to 66	5 to 7	South of 112th Avenue SE	I-90 to Bellevue Way SE to 112th Avenue SE to SE 8th Street to I-405
			North of112th Avenue SE	I-405 to SE 8th Street to 112th Avenue SE to Bellevue Way SE
Alternative B2A	35 to 42	3 to 4	South of SE 8th Street	Same as *Preferred Alternative B2M*
			North of SE 8th Street	Same as *Preferred Alternative B2M*
Alternative B2E	18 to 23	2	Entire alternative	Same as *Preferred Alternative B2M*
Alternative B3 and B3 – 114th Extension Design Option	26 to 32	3	South of SE 8th Street	Same as *Preferred Alternative B2M*
			North of SE 8th Street	I-405 to SE 8th Street to 114th Avenue SE to SE 6th Street to 112th Avenue SE to I-405
Alternative B7	24 to 30	2 to 3	South of SE 8th Street	I-405 to 118th Avenue SE to I-405
			North of SE 8th Street	Same as Alternative B3
Segment C, Downtown Bellevue				
Preferred Alternative C11A	35 to 40	3 to 4	South of NE 4th Street	I-405 to SE 8th Street to 112th Avenue NE to NE 4th Street to I-405
			North of NE 4th Street	I-405 to NE 6th Street to 110th Avenue NE to NE 4th Street to 112th Avenue NE to I-405
			East of I-405	I-405 to NE 8th Street to former BNSF Railway; return via same route or I-405 to NE 4th Street to 116th Avenue NE to NE 8th Street I-405
Preferred Alternative C9T	75 to 85	7 to 9	South of NE 4th Street	I-405 to SE 8th Street to 112th Avenue NE to NE 4th Street to I-405
			North of NE 4th Street	I-405 to NE 6th Street to 108th Avenue NE to NE 4th Street to 112th Avenue NE to I-405
			East of I-405	I-405 to NE 8th Street to former BNSF Railway; return via same route or I-405 to NE 4th Street to 116th Avenue NE to NE 8th Street I-405

TABLE 6-44 CONTINUED
Average Truck Trips for Construction of Alternatives

Alternative	Average Truck Trips To and From Location[c]		Haul Origin/Destination	Suggested Haul Route Streets
	Per Day[a]	Per Hour[b]		
Alternative C1T	135 to 165	13 to 17	Southern tunnel portal	I-405 to SE 8th Street to 112th Ave SE to Bellevue Way SE to NE 8th Street to I-405
			Northern tunnel portal	I-405 to NE 8th Street to 108th Avenue NE to NE 4th Street to 112th Avenue NE to I-405
			East of I-405	Same as *Preferred Alternative C11A*
Alternative C2T	100 to 120	10 to 12	Southern tunnel portal	I-405 to SE 8th Street to 112th Avenue NE (or to SE 6th Street) to NE 8th Street to I-405
			Remainder	Same as Alternative C1T
Alternative C3T	140 to 170	14 to 17	Southern tunnel portal	Same as Alternative C2T
			Remainder	I-405 to NE 8th Street to 112th Avenue NE or 108th Avenue NE to NE 12th Street to 116th Avenue NE to I-405
Alternative C4A	105 to 130	10 to 13	South of Main Street	Same as Alternative C2T (“southern tunnel portal”)
			Along 108th Avenue NE	I-405 to SE 8th Street to 112th Avenue SE to Main Street to 108th Avenue NE to NE 12th Street to 116th Avenue NE to I-405
			Along 110th Avenue NE	I-405 to SE 8th Street to 112th Avenue NE to Main Street to 110th Avenue NE to NE 12th Street to 116th Avenue NE to I-405
			Along NE 12th Street	I-405 to NE 8th Street to 112th Avenue NE to NE 12th Street; return via same route
Alternative C7E	20 to 30	2 to 3	South of NE 8th Street	Same as Alternative C2T (“southern tunnel portal”)
			North of NE 8th Street	Same as Alternative C4A (“Along NE 12th Street”)
Alternative C8E	100 to 125	10 to 13	South of NE 8th Street	I-405 to SE 8th Street to 112th Avenue SE to NE 2nd Street to 110th Avenue NE to NE 8th Street to I-405
			Between NE 8th and NE 12th Streets	I-405 to NE 8th Street to 110th Avenue NE to NE 12th Street to 112th Avenue NE to I-405
			Along NE 12th Street	Same as Alternative C4A
Alternative C9A	25 to 30	2 to 3	South of NE 4th Street	Same as *Preferred Alternative C9T*
			North of NE 4th Street; NE 6th Street	Same as *Preferred Alternative C9T*
			East of I-405	Same as *Preferred Alternative C9T*
Alternative C14E	40 to 45	4 to 5	West of I-405	I-405 to SE 8th Street to 118th and 114th Avenue NE to NE 2nd Street to 112th Avenue NE to NE 4th Street to I-405
			East of I-405	Same as *Preferred Alternative C11A*

TABLE 6-44 CONTINUED
Average Truck Trips for Construction of Alternatives

Alternative	Average Truck Trips To and From Location[c]		Haul Origin/Destination	Suggested Haul Route Streets
	Per Day[a]	Per Hour[b]		
Segment D, Bel-Red/Overlake				
Preferred Alternative D2A and D2A - 120th Station Design Option	85 to 95	8 to 10	West of 140th Avenue NE	I-405 to NE 8th Street to former BNSF Railway; 120th, 124th, 130th Avenues NE; and NE 16th Street and Bel-Red Road. SR 520 to Northup Way and NE 20th Street to former BNSF Railway; 120th, 124th, and 130th Avenues NE; and 136th Place NE.
			East of 140th Avenue NE	SR 520 to 148th Avenue NE to NE 24th Street and 152nd Avenue NE to Microsoft Road to 156th Avenue NE to NE 40th Street and SR 520 to 148th Avenue NE to NE 20th Street
D2A – NE 24th Design Option	95 to 105	9 to 11	West of 140th Avenue NE	Same as *Preferred Alternative D2A*
			East of 140th Avenue NE	Same as *Preferred Alternative D2A*
Alternative D2E	25 to 30	2 to 3	Entire alternative	Same as *Preferred Alternative D2A*
Alternative D3	50 to 60	5 to 6	West of140th Avenue NE	Same as *Preferred Alternative D2A*
			East of 140th Avenue NE	SR 520 to 148th Avenue NE to NE 20th Street and 152nd Avenue NE to Microsoft Road to 156th Avenue NE to NE 40th Street to SR 520
Alternative D5	20 to 30	2 to 3	West of 140th Avenue NE	I-405 to NE 8th Street to 116th Avenue NE, along alignment, to Northup Way and SR 520.
			East of 140th Avenue NE	Same as *Preferred Alternative D2A*
Segment E, Downtown Redmond				
Preferred Alternative E2	55 to 65	5 to 7	West of West Lake Sammamish Parkway	SR 520 and NE 51st Street interchange to access SR 520 roadside and alternative
			East of West Lake Sammamish Parkway	SR 520 to West Lake Sammamish Parkway to Leary Way or to SR 202 to access alternative along Redmond Way, NE 76th Street, and NE 70th Street
E2 – Redmond Transit Center Design Option	55 to 70	5 to 7	West of West Lake Sammamish Parkway	Same as *Preferred Alternative E2*
			East of West Lake Sammamish Parkway	Same as *Preferred Alternative E2* with 161st Avenue NE to NE 85th Street to 164th Avenue NE.
Alternative E1	50 to 65	5 to 7	West of West Lake Sammamish Parkway	Same as *Preferred Alternative E2*
			East of West Lake Sammamish Parkway	Same as *Preferred Alternative E2*
Alternative E4	50 to 60	5 to 6	West of West Lake Sammamish Parkway	Same as *Preferred Alternative E2*
			East of West Lake Sammamish Parkway	Same as *Preferred Alternative E2*

[a] Truck trips presented are for connections to alternatives in adjacent segments that would produce the highest truck volumes.
[b] Assuming a minimum of 10 construction hours per day.
[c] A range of truck trips has been provided in this table, based on known quantities of imported fill material, concrete, asphalt concrete pavement, and excavated waste material that would be needed for the construction of each alternative.

In Segment A, a relatively low amount of truck activity (fewer than 20 trucks per day) is expected because the alternative requires minimal excavation and import of loose materials. Trucks would access and use I-90 as a haul route. Trucks might also access a potential construction staging site within I-90 right-of-way along Dearborn Street. In Segment A, the most intensive period of truck trips would last approximately 2 years.

Of the alternatives in Segment B, *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* would likely require the most truck trips because of the amount of excavation and asphalt concrete pavement required. With this alternative, between 80 and 90 truck trips per day are estimated. Access to the construction areas would be along Bellevue Way SE, SE 8th Street, 112th Avenue SE, and 118th Avenue SE from I-90 and I-405. For all the Segment B alternatives, the trucks would access construction areas from these same streets. In Segment B, the most intensive period of truck trips would last approximately 2 to 3 years.

In Segment C, the 108th NE Tunnel Alternative (C3T) would likely result in the greatest number of truck trips per day. Between 140 and 170 haul truck trips per day would be required to access 108th Avenue NE and 112th Avenue NE between SE 8th Street and NE 12th Street. There is substantial variability in the number of trucks expected in Segment C because the tunnel alternatives are expected to generate a large amount of excavated material while alternatives C7E, C9A, C11A, and C14E are expected to generate a relatively smaller number of trucks as they do not require an extensive amount of excavation. In Segment C, the most intensive period of truck trips would last approximately 3 years for surface and elevated alternatives and approximately 4 years for tunneled alternatives. Generally, truck trips would access Segment C construction areas from I-405 via SE 8th, NE 4th, and NE 8th streets.

The D2A – NE 24th Design Option would require the most truck trips of the alternatives in Segment D because of the amount of fill and elevated structure. Between 95 and 105 truck trips per day could be expected with this alternative. Generally, truck trips would access Segment D construction areas from SR 520 via 124th and 148th avenues NE and NE 40th Street. In Segment D, the most intensive period of truck trips would last approximately 3 to 4 years.

In Segment E, each alternative would require about the same number of truck trips: between 50 and 70 trips per day. These trips would likely be routed on a frontage road along SR 520 and along SR 202, West Lake Sammamish Parkway NE, and other streets. Generally, truck trips would access the Segment E construction areas from West Lake Sammamish Parkway and SR 202. In Segment E, the most intensive period of truck trips would last approximately 2 to 3 years.

Of the maintenance facilities proposed within Segment D, the 116th Maintenance Facility (MF1) is expected to require the greatest number of truck trips: up to 140 trucks per day. MF1 would be located between 116th Avenue NE and the BNSF Railway with auto access from 120th Avenue NE. Truck trips are assumed to use the SR 520 at 124th Avenue NE interchange to make deliveries and haul materials. The maintenance facilities proposed in Segment E would require up to 25 trips per day. The suggested truck route for all three of these facilities would use the SR 520 interchange with SR 202. The most intensive period of truck trips would last approximately 2 years. The average number of truck trips per day and per hour for the construction of maintenance facilities is provided in Table 6-45. Similar to Table 6-44 these truck trips are based on known quantities at this time, including imported fill material, concrete, asphalt concrete pavement, and excavated waste material that would be generated for the construction of each maintenance facility.

6.4.2 Roadway and Parking Impacts

Construction impacts are estimated based on the level of design completed to date and the known construction activities. The construction impacts by segment are detailed in Table 6-46 and include construction truck traffic level, type and duration of road closure, availability of detour routes, and potential for neighborhood traffic intrusion. Detour routes are available near most alternatives, but for detour routes that require longer out-of-direction travel, potential detour routes are identified. For roadways classified as collector or local arterials, these roads could be signed to only provide local access. This section also discusses potential impacts for each maintenance facility. Maintenance of traffic and construction plans would continue to be refined through the final design and permitting stages of this project and subject to approval by WSDOT and the Cities of Bellevue, Redmond, Seattle and Mercer Island where appropriate.

TABLE 6-45
Average Truck Trips for Construction of Maintenance Facilities

Maintenance Facility	**Associated Alternatives**	**Average Haul Truck Trips To and From Location[a]**		**Suggested Haul Route**
		Per Day	**Per Hour**	
116th Avenue Maintenance Facility (MF1)	*Preferred Alternative D2A*, D2A – 120th Station Design Option, D2A – 24th NE Design Option, and Alternatives D2E and D3	115 to 141	12 to 14	SR 520 to 124th Avenue NE to 120th Avenue NE; return via same route
	AlternativeD5	111 to 135	11 to 14	Same as above
BNSF Maintenance Facility (MF2)	*Preferred Alternative D2A,* D2A – 120th Station Design Option, D2A - 24th NE Design Option, and Alternatives D2E and D3	21 to 26	2 to 3	Same as MF1
	Alternative D5	34 to 42	3 to 4	Same as MF1
SR 520 Maintenance Facility (MF3)	*Preferred Alternative D2A,* D2A – 120th Station Design Option, D2A - 24th NE Design Option, and Alternative D2E	49 to 60	5 to 6	SR 520 to 124th Avenue NE to Northup Way; return via same route
	Alternative D3	50 to 62	5 to 6	Same as above
	Alternative D5	25 to 31	3	Same as above
SE Redmond Maintenance Facility (MF5)	Alternative E1	17 to 21	2	SR 520 to SR 202 to NE 70th Street; return via same route
	Preferred Alternative E2 and E2 – Redmond Transit Center Design Option	20 to 24	2	SR 520 to SR 202 to East Lake Sammamish Parkway NE to NE 65th Street; return via same route
	AlternativeE4	16 to 19	2	Same as above

[a] A range of truck trips has been provided in this table, based on known quantities of imported fill material, concrete, asphalt concrete pavement, and excavated waste material that will be needed for the construction of each maintenance facility.

For the preferred alternatives in Segments B and C, a PM peak-hour traffic analysis on the local streets and arterials is provided assuming the preliminary lane closures and possible detour routes described during the civil construction period. This was not performed for the preferred alternatives in Segments D and E because any roadway impacts would be on relatively low-volume local and collector streets; therefore, impacts to traffic would be less. This analysis is compared with the 2020 no-build condition, which indicates how the roadway conditions would change during the construction period. For nonpreferred alternatives, relative comparisons with the impacts described for the preferred alternatives are provided, where applicable.

In all segments, construction of the project would affect roads, close lanes, require detours and therefore alter the traffic patterns. Cross streets that intersect the alternatives would be closed for short durations to build the track or other associated features through the intersection. These closures would most likely occur during off-peak hours to avoid traffic disruptions, and would generally occur for a short duration. Temporary closures of private driveways and any roads that need to be paved would also occur. If driveway closures are required, then property access to residences and businesses would be maintained to the extent possible. If alternative access is not available, then the specific construction activity would be reviewed to determine if it could occur during nonbusiness hours or if parking could be provided at an alternative location.

TABLE 6-46
Roadway Construction Impacts by Segment

Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	Neighborhood Traffic Intrusion		
Segment A, Interstate 90[d]								
Rainier Avenue South	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
23rd Avenue South	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
77th Avenue SE	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
80th Avenue SE	*Preferred Alternative A1*	Principal arterial	Low	Partial, short-term	Yes	Low	No	Yes
Segment B, South Bellevue								
Bellevue Way (south of 112th Avenue SE)	*Preferred Alternative B2M*	Principal arterial	Moderate	Partial, long-term	Yes, via I-405	Low	No	Yes
	Alternative B1	Principal arterial	Moderate	Partial, long-term	Yes, via I-405	Moderate	No	Yes
	Alternative B2A	Principal arterial	Low	Partial, long-term	Yes, via I-405	Moderate	No	Yes
	Alternative B2E	Principal arterial	Low	Partial, long-term	Yes, via I-405	Moderate	No	Yes
	Alternative B3	Principal arterial	Low	Partial, long-term	Yes, via I-405	Moderate	No	Yes
Bellevue Way (north of 112th Avenue SE)	Alternative B1	Principal arterial	Moderate	Partial, long-term	Yes	Moderate	No	Yes
112th Avenue SE	*Preferred Alternative B2M* connecting to *Preferred Alternative C9T*	Principal arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
	Preferred Alternative B2M connecting to *Preferred Alternative C11A*	Principal arterial	Moderate	Partial, long-term	Yes	Moderate	No	Yes
	Alternative B2A	Principal arterial	Low	Partial, long-term	Yes	Moderate	No	Yes
	Alternative B2E	Principal arterial	Low	Partial, short-term	Yes	Moderate	No	Yes
	Alternative B3	Principal arterial	Low	Partial, long-term	Yes	Moderate	No	Yes
118th Avenue SE	Alternative B7	Collector arterial	Low	Partial, long-term	Yes	Low	No	No
Segment C, Downtown Bellevue								
Bellevue Way	Alternative C1T	Principal arterial	High	Partial, long-term	Yes	Moderate	No	Yes
106th Avenue NE	Alternative C2T	Local arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
108th Avenue NE	Alternative C3T	Minor arterial	High	Partial, short-term, with possible full, short-term	Yes	Low	No	No

TABLE 6-46 CONTINUED
Roadway Construction Impacts by Segment

Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	Neighborhood Traffic Intrusion		
108th Avenue NE (Main to NE 6th Street)	*Preferred Alternative C11A*	Minor arterial	Moderate	Partial, long-term	Yes	Low	Yes	Yes
108th Avenue NE (Main to NE 12th Street)	Alternative C4A	Minor arterial	High	Partial, long-term, with possible full, short-term	Yes	Low	Yes	No
110th Avenue NE (Main to NE 6th Street)	*Preferred Alternative C9T* and Alternative C9A	Minor arterial	High	Partial, long-term, with possible full, short-term	Yes	Low	Yes	Yes
110th Avenue NE (Main Street to NE 12th Street)	Alternative C4A	Minor arterial	High	Partial, long-term, with possible full, short-term	Yes	Low	Yes	Yes
110th Avenue NE (NE 2nd Street to NE 12th Street)	Alternative C8E	Minor arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
112th Avenue SE (south of Main Street)	*Preferred Alternatives C11A* and *C9T*[f]	Principal arterial	Moderate	Partial, short-term	Yes	Low	No	Yes
112th Avenue SE (south of Main Street)	Alternatives C2T, C3T, C4A, C7E and C9A (connecting from *Preferred Alternative B2M* and B2A or B2E)	Principal arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
112th Avenue NE (north of Main Street)	Alternative C7E	Principal arterial	Low	Partial, short-term	Yes	Low	No	No
Main Street	*Preferred Alternative C11A* and *C9T* and Alternatives C4A and C9A	Minor arterial	Moderate	Partial, short-term	Yes	Low	No	Yes
NE 2nd Street (110th to 112th Avenue NE)	Alternative C8E	Minor arterial	Moderate	Partial, short-term	Yes	Low	No	No
NE 12th Street	Alternatives C4A, C3T, and C8E	Principal arterial	Moderate	Partial, short-term	Yes	Low	No	No
NE 6th Street (between Bellevue Way and 106th Avenue NE)	Alternative C1T	Local arterial	High	Full, long-term	Yes	Low	No	Yes
NE 6th Street (between 110th Avenue NE and I-405)	*Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, and C9A	Minor arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
114th Avenue NE	Alternatives C8E and C14E	Minor arterial	Low	Partial, long-term	Yes	Low	No	No
Segment D, Bel-Red/Overlake								
NE 16th Street (between 120th and 124th Avenues NE)	Alternatives D2E and D3	Local arterial	Low	Partial, long-term	Yes	Low	No	No

TABLE 6-46 CONTINUED
Roadway Construction Impacts by Segment

Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	**Neighborhood Traffic Intrusion**		
NE 16th Street (between 132nd Avenue NE and 136th Place NE)	*Preferred Alternative D2A*, D2A – 120th Station Design Option, D2A - 24th NE Design Option, and Alternatives D2E and D3	Local arterial	Low	Partial, long-term and full, short-term	Yes	Low	Yes	Yes
136th Place NE (between NE16th and NE 20th Streets)	*Preferred Alternative D2A*, D2A – 120th Station Design Option, D2A - 24th NE Design Option, and Alternatives D2E and D3	Collector arterial	Low	Partial, long-term and full, short-term	Yes	Low	Yes	Yes
NE 20th Street (between 136th and 152nd Avenues NE)	Alternative D3	Minor arterial	Moderate	Partial, long-term	Yes	Moderate	No	Yes
NE 24th Street (between 148th and 152nd Avenues NE)	D2A - 24th NE Design Option and Alternative D2E	Minor arterial	Low	Partial, long-term	Yes	Low	No	Yes
151st Place NE at NE 24th Street	D2A - 24th NE Design Option and Alternative D2E	Minor arterial	Low	Full, short-term	Yes	Low	No	No
152nd Avenue NE (north of NE 24th Street)	D2A - 24th NE Design Option and Alternative D2E	Local arterial	Low	Partial, long-term	Yes	Low	No	Yes
152nd Avenue NE (between NE 20th Street and SR 520)	Alternative D3	Local arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
Microsoft Road	All Segment D Alternatives	Local arterial	Low	Partial, short-term	Yes	Low	No	No
Segment E, Downtown Redmond								
NE 40th, NE 51st, and NE 60th Streets overcrossings	All Segment E Alternatives	Collector arterial	Moderate	Partial, short-term	Yes, via nearest overcrossing	Moderate	No	No
Leary Way, 164th, 166th and 170th Avenues NE crossings	All Segment E Alternatives	Local arterials	Moderate	Partial, short-term	Yes	Low	No	Yes
NE Leary Way	Alternative E4	Principal arterial	Moderate	Partial, long-term	Yes	Low	No	Yes
NE 70th Street	All Segment E Alternatives	Local arterial	Moderate	Full, short-term	Yes	Low	Yes	No
161st Avenue NE (between Redmond Way and NE 85th Street)	E2 – Redmond Transit Center Design Option	Collector arterial	Moderate	Full, long-term	Yes	Moderate	Yes	Yes

TABLE 6-46 CONTINUED
Roadway Construction Impacts by Segment

Location	Alternative	Roadway Classification	Construction Truck Traffic[a]	Road Closure[b]	Detour of Traffic		On-Street Parking Loss?[c]	Bus Route Impact?
					Detour Route Available?[e]	Neighborhood Traffic Intrusion		
SR 520 on- and off-ramps at SR 202	*Preferred Alternative E2,* E2 – Redmond Transit Center Design Option, and Alternative E4	State highway	Moderate	Partial, long-term	Yes, via West Lake Sammamish Parkway or the SR 520 terminus	Low	No	No

[a] Low truck traffic is associated with alternatives that would have minimal fill, excavation, and concrete work; high truck traffic is associated with major fill, excavation, and concrete work. Moderate is between these two boundaries.

[b] Partial road closure assumes some lanes are open to traffic. Short- and long-term duration was determined to be less or more than 1 year. Full short-term closures would be required for specific activities like station construction, retained cut and fill construction, column drilling or girder placement, and can be as short as 1 night/day closure to less than 1 year.

[c] On-street parking loss is characterized for street parking only and does not consider that some off-street parking might be lost because of the location of construction and staging areas.

[d] Refer to Section 5.3.4 for I-90 mainline construction impacts

[e] Roadways classified as collector or local arterial could be signed to only provide local access. Additionally, if detour routes within the immediate vicinity are not available possible routes are suggested.

[F] C9T – East Main Station Design Option connecting from *Preferred Alternative B2M* would have no change in impacts on either *Preferred Alternative B2M* or *Preferred Alternative C9T.*

A relatively high number of construction workers (producing traffic and requiring parking) would be needed to construct the project. The largest number of workers at any given site is anticipated during two periods: excavation for tunnel or retained-cut activities, and construction of the guideway and stations, especially if grade separated. Contractors and construction workers parking near designated construction staging areas could affect area parking supply during heavy construction periods by using unrestricted on-street parking in residential or other areas near the construction site. The contractor is generally responsible for providing parking for construction workers where necessary. It is expected that some worker parking could be accommodated at the staging areas and along the route. Sound Transit or its contractors might lease parking for construction workers near construction sites. Sound Transit might acquire additional properties for temporary use for contractor parking.

For the discussion of the East Link construction impacts on transit service and facilities and on regional highways (I-90, I-405 and SR 520), refer to Sections 4.4 and 5.3.4, respectively.

6.4.2.1 Segment A, Preferred Interstate 90 Alternative (A1)

Short-term roadway shoulder and/or lane closures due station construction might occur on Rainier Avenue S, 23rd Avenue S, 77th Avenue SE, and 80th Avenue SE.

6.4.2.2 Segment B

Primarily arterials would be affected by construction, mostly by partial road closures for long-term durations during construction.

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M, connecting to either the *Preferred Alternative C9T or C11A,* would result in construction impacts would be along Bellevue Way, south of 112th Avenue SE, and along 112th Avenue SE, north of Bellevue Way. Along Bellevue Way SE, between the South Bellevue Park-and-Ride and 112th Avenue SE, it is likely one lane would be closed for most of the civil construction period, and additional lane closures could be required at certain times depending on the construction activity. To construct the improvements on Bellevue Way SE, south of the South Bellevue Park-and-Ride, it would require lanes to be closed on Bellevue Way SE for short periods to install the traffic signals and perform the necessary roadwork.

Civil construction activities would likely close one northbound lane along Bellevue Way SE for the *Preferred Alternative B2M* with additional lane closures possible at times. Motorist information and advanced signing would be provided to encourage usage of parallel routes, such as I-405. Even with signed detour routes, congestion would likely increase for northbound traffic on Bellevue Way SE between I-90 and 112th Avenue SE, and therefore up to two intersections would operate at LOS F compared with one intersection in the no-build condition during the civil construction period. Additionally, increase congestion would be expected along the signed alternate routes. The potential for traffic to cut through the Enatai neighborhood and travel along 108th Avenue SE to bypass the construction zone in the northbound direction along Bellevue Way SE during the afternoon peak would be low because cut-through routes in this area are limited and circuitous – access to 108th Avenue SE from Bellevue Way SE would be via SE 30th Street/113th Avenue SE or 112th Avenue SE and traveling south. Congestion in the northbound direction on Bellevue Way SE is also not considered to be as substantial in the afternoon peak period as in the southbound direction.

For *Preferred Alternative B2M* that connects to *Preferred Alternative C11A*, one northbound and one southbound lane of 112th Avenue SE from Bellevue Way SE to SE 6th Street could be closed. For *Preferred Alternative B2M* that connects to *Preferred Alternative C9T*, one northbound lane on 112th Avenue SE from Bellevue Way SE to SE 6th Street could be closed for some of the civil construction period. Similar to the construction impacts on Bellevue Way SE, depending on the construction activity, more or fewer lanes could be closed along 112th Avenue SE for short periods.

During construction along 112th Avenue SE for *Preferred Alternative B2M* connecting to *Preferred Alternative C11A*, traffic diversions (motorists information and advanced signing) to other parallel arterials, such as Bellevue Way SE and SE 8th Street, and regional facilities, such as I-405, would be likely. Although congestion would likely increase in the northbound and southbound directions on 112th Avenue SE, the number of intersections along 112th Avenue SE not meeting the City of Bellevue LOS threshold would be similar of the no-build condition. The probability of traffic using 108th Avenue SE between Bellevue Way SE and Main Street to bypass the construction zones along 112th Avenue SE would be discouraged by the existing traffic-calming devices (slow speeds and speed bumps) and information and signs directing vehicles to other arterials and regional facilities.

For Preferred *Alternative B2M* connecting to *Preferred Alternative C9T,* some increase in congestion for the northbound traffic during the afternoon peak is expected with a northbound lane closed, but it would have lower impacts compared with *Preferred Alternative B2M* connecting to *Preferred Alternative C11A*.

Other Segment B Alternatives

The Bellevue Way Alternative (B1), construction impacts would affect Bellevue Way SE throughout the segment and would likely close multiple lanes (one northbound and one southbound lane) for some of the civil construction period. Additional lane closures on Bellevue Way SE could be required at certain times depending on the construction activity. Under the 112th SE At-Grade (B2A), 112th SE Elevated (B2E), 112th SE Bypass (B3) and 112th SE Bypass (B3) 114th Design Option alternatives, construction impacts would occur along Bellevue Way SE, south of 112th Avenue SE, and along 112th Avenue SE, north of Bellevue Way SE. Alternatives B2A, B3 and D3 - 114th Design Option alternatives would have roadway impacts similar to Alternative B1 and Alternative B2E would have roadway impacts similar to *Preferred Alternative B2M* along Bellevue Way SE, south of 112th Avenue SE. Along 112th Avenue SE, these four alternatives (B2A, B3, B3 – 114th Design Option and B2E) would likely have impacts similar to those under *Preferred Alternative B2M*. The BNSF Alternative (B7) would result in construction impacts on 118th Avenue SE with short term lane closures at certain times depending on the construction activity.

Detour routes for the Segment B alternatives along Bellevue Way SE and/or 112th Avenue SE (B1, B2A, B2E, B3 and B3 – 114th Design Option) would be similar to *Preferred Alternative B2M*. Detour routes for Alternative B7 construction activities could include I-405, Bellevue Way SE and 112th Avenue SE, but would likely not be required because the traffic volumes on 118th Avenue SE are relatively low compared with volumes on Bellevue Way and 112th Avenue SE.

Traffic congestion for all alternatives along Bellevue Way SE or 112th Avenue SE is expected to be similar to or worse than the *Preferred Alternative B2M* depending on the number of lane closures. Traffic congestion with any lane closures proposed for Alternative B7 would likely be limited to along 118th Avenue SE.

6.4.2.3 Segment C

Local, minor, and principal arterials would be affected by construction. Road closures would range from none at staging areas and partial road closures for short-term durations to potentially full road closures for long-term durations. For at-grade and cut-and-cover tunnel alternatives, cross-streets along alignments would have short-term full or partial closures.

Preferred 108th NE At-Grade Alternative (C11A)

Preferred Alternative C11A would affect 112th Avenue SE near SE 6th Street, 108th Avenue NE between Main Street and NE 6th Street, and NE 6th Street between 108th Avenue NE and 112th Avenue NE. One or more lanes along 112th Avenue SE south of SE 6th Street will be closed for a short time to construct the rail crossing from the median to the west side. For some of the *Preferred Alternative C11A* civil construction period, one eastbound lane on Main Street between 108th and 112th avenues NE would likely be closed, but there is a possibility that more or fewer lanes could be closed for short periods, depending on construction activities. Construction activities would close lanes along 108th Avenue NE. Property access to the residences and businesses along 108th Avenue NE between Main and NE 6th Streets would be maintained to the extent possible, either through access on 108th avenue NE or alternative routes. Changes in property access would be coordinated with the appropriate residences and businesses. With any of the lane closures in downtown Bellevue, motorist information and advanced signing would be provided that could encourage travel on parallel streets and signal operations could be modified to optimize vehicle flow during construction.

Even with vehicles detoured to parallel streets, increased congestion would likely occur on 108th Avenue NE and one intersection would operate at LOS F with the lane closures. In addition to 108th Avenue NE, 106th and 110th Avenues NE would likely also experience some increase in congestion as vehicles are detoured to avoid 108th Avenue NE. Up to two additional intersections on these parallel streets between Main Street and NE 8th Street would operate at LOS F compared with the no-build condition.

With a connection to alternatives B3, B3 - 114th Design Option, or B7, *Preferred Alternative C11A* would result in temporary lane closures on 112th Avenue SE south of Main Street during the construction of the elevated track across 112th Avenue SE.

Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T would affect 112th Avenue SE near SE 6th Street, 110th Avenue NE between Main Street and NE 6th Street and NE 6th Street between 110th Avenue and I-405. One or more lanes along 112th Avenue SE south of SE 6th Street would be closed for the short-term construction of the at-grade crossing through the intersection of 112th Avenue SE and SE 6th Street. *Preferred Alternative C9T* would likely close one eastbound lane on Main Street between 110th and 112th avenues NE, but there is a possibility that more or fewer lanes could be closed for short periods, depending on the construction approach. Construction activities would close some and possibly all lanes at times along 110th Avenue NE between Main and NE 6th streets. Property access to the residences and businesses along 110th Avenue NE between Main and NE 6th streets would be maintained to the extent possible either through access on 110th Avenue NE or alternative routes. Changes in property access would be coordinated with the appropriate residences and businesses. With any of the lane closures in downtown Bellevue, motorist information and advanced signing would be provided that could encourage travel on parallel streets and signal operations could be modified to optimize vehicle flow during construction.

Even with vehicles diverted to parallel streets, congestion would likely increase on 110th Avenue NE In addition to 110th Avenue NE, 108th and 112th Avenues NE would likely also experience some increase in congestion as vehicles are detoured to avoid 110th Avenue NE. Up to three additional intersections, compared with the no-build condition, along these parallel streets between Main Street and NE 8th Street would operate at LOS F.

With a connection to alternatives B3, B3 - 114th Design Option, or B7, *Preferred Alternative C9T* would have similar impacts as *Preferred Alternative C11A* crossing 112th Avenue SE.

Other Segment C Alternatives

The Bellevue Way Tunnel Alternative (C1T) would affect Bellevue Way and NE 6th Street along the alignment. The 106th NE Tunnel Alternative (C2T) would have impacts along 112th Avenue SE, 106th Avenue NE, and NE 6th Street along the alignment. Construction activities under Alternatives C1T and C2T would close lanes on the affected roadways. Property access to the residences and businesses along affected roadways would be maintained to the extent possible on those roadways or through alternative routes. Increased congestion would likely occur along Bellevue Way under Alternative C1T and 106th Avenue NE under Alternative C2T. Adjacent roads would also likely experience increased congestion due to the lane closures. The 108th NE Tunnel alternative (C3T) would have impacts along the alignment on 112th Avenue SE, 108th Avenue NE, and NE 12th Street, but because of its tunnel construction methods, there would be fewer impacts along 108th Avenue NE relative to the roadway impacts due to the tunnel construction methods under Alternative C1T and Alternative C2T. For Alternative C3T, one or more lanes along 112th Avenue SE might be closed for a short time to construct the light rail crossing of 112th Avenue SE. One westbound lane on NE 12th Street between 108th and 112th Avenues NE would likely be closed, but more or fewer lanes could be closed for short periods, depending on construction activities.

The At-Grade Couplet Alternative (C4A) would have impacts along the alignment on 112th Avenue SE, Main Street, 108th Avenue NE, 110th Avenue NE, and NE 12th Street. Along 112th Avenue SE and NE 12th Street impacts would be similar to those of Alternative C3T. Along Main Street, impacts would be similar to those under *Preferred Alternative C11A*. Along 108th Avenue NE and 110th Avenue NE, multiple lanes would be closed for the conversion from two-way to one-way couplet traffic operations and construction of light rail. Increased congestion would likely occur along both of these streets during the road modification and light rail construction periods. With a connection to alternatives B3, B3 - 114th Design Option, or B7, Alternative C4A impacts would be similar to those under *Preferred Alternative C11A* crossing 112th Avenue SE.

The 112th NE Elevated Alternative (C7E) would have impacts along 112th Avenue between SE 6th Street to NE 12th Street. Likely one northbound lane on 112th Avenue from the southern Segment C boundary to NE 12th Street would be closed during construction activities. With a connection to Alternatives B3, B3 - 114th Design Option, or B7, no additional roadway impacts would be experienced.

The 110th NE Elevated Alternative (C8E) would have impacts along the alignment on 114th Avenue, NE 2nd Street, 110th Avenue NE, and NE 12th Street. One lane on 114th Avenue between SE 6th Street and NE 2nd Street and one or more lanes on 110th Avenue NE between NE 2nd Street and NE 12th Street would likely be closed during construction activities. Alternative C8E would also result in temporary lane closures on NE 2nd Street and NE 12th Street (both closures between 110th and 112th Avenues NE) during overhead light rail track construction.

Alternative C9A would have impacts along the alignment on 112th Avenue SE, 110th Avenue NE between Main and NE 6th Street and along NE 6th Street between 110th Avenue NE and 112th Avenue NE. With a connection to alternatives B3, B3 - 114th Design Option, or B7, Alternative C9A would result in temporary lane closures on 112th Avenue SE south of Main Street during overhead light rail track construction similar to *Preferred Alternative C11A*.

Alternative C14E would have impacts along 114th Avenue NE. Property and emergency access along 114th Avenue NE between Main and NE 6th streets would be maintained either through access on 114th Avenue NE or alternate routes. This is not expected to create traffic impacts beyond this roadway.

Detour routes would be determined through final design and construction permitting. Because of the gridded street network in Downtown Bellevue, detour routes would likely be provided via adjacent parallel streets. Neighborhood traffic intrusion would range from low to moderate depending on whether the construction activity occurs near residential areas to the north and south of downtown but for most construction period neighborhood traffic intrusion would be minimal. Where partial and full closures occur increased congestion can be expected at adjacent intersections as vehicles avoid construction areas.

Within Segment C where tunneled alternatives cross roadways, short-term street closures would occur. These closures are necessary for material excavation at these locations, such as the intersections of Main, NE 2nd, and NE 4th Streets with 110th Avenue NE under *Preferred Alternative C9T*.

6.4.2.4 Segment D

Local, collector, minor, and principal arterials would be affected by construction. Road closures range from partial road closures for short-term durations to full road closures for long-term durations.

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A would have roadway impacts along NE 16th Street (between 132nd Avenue NE and 136th Place NE), 136th Place NE, and Microsoft Road. At-grade crossings would occur at 130th Avenue NE, 132nd Avenue NE, 136th Place NE, and NE 20th Street. Property accesses along NE 16th Street and 136th Place NE would be maintained to the extent possible through access either on these streets or on an alternate route, depending on the construction activity. However, short-periods of full closure might occur along NE 16th Street and 136th Place NE. Increases in congestion are expected to remain isolated to these low-volume roadways and not extend into surrounding arterials.

The D2A – 120th Design Option would have impacts similar to the *Preferred Alternative D2A* with an additional at-grade crossing at 120th Avenue NE. The D2A – NE 24th Design Option would have roadway impacts similar to those under *Preferred Alternative D2A*, except that one lane along NE 24th Street and 152nd Avenue NE could be closed for most of the civil construction period and additional lane closures could be required at certain times, depending on the construction activity.

Detours would be available through many of the parallel arterial routes available in Segment D. The potential for detoured traffic and construction vehicles in neighborhood areas would be low because there is not a substantial amount of residential development in the area, and the construction would occur on or near designated truck routes. There would be some on-street parking loss associated with construction impacts within Segment D.

Other Segment D Alternatives

The NE 16th Elevated Alternative (D2E) would have impacts along NE 16th Street, 136th Place NE, NE 24th Street, 152nd Avenue NE, and Microsoft Road. The NE 20th Alternative (D3) would have impacts along NE 16th Street, 136th Place NE, NE 20th Street, 152nd Avenue NE, and Microsoft Road with at-grade crossings of 120th Avenue NE, 124th Avenue NE, 130th Avenue NE, 132nd Avenue NE, 136th Place NE, NE 20th Street, 140th Avenue NE, Ross Plaza entrance (14300 block), and NE 24th Street.

With alternatives D2E and D3, impacts along the existing NE 16th Street and 136th Place NE would be similar to those under *Preferred Alternative D2A.* Along NE 24th Street and 152nd Avenue NE, Alternative D2E impacts would be similar to those under D2A – 24th Design Option. Alternative D3 could have multiple lanes closed along NE 20th Street and 152nd Avenue NE for most of the civil construction period, and additional lane closures could be required at certain times depending on the construction activity. During periods of multiple lane closures, increased traffic congestion and poor intersection operations would likely occur along NE 20th Street. The SR 520 Alternative (D5) would have impacts along Microsoft Road similar to the *Preferred Alternative D2A*.

Traffic detours would be available under Alternative D3 during the construction along NE 20th Street and 152nd Avenue NE. Motorist information and signs directing vehicles to other arterials (NE 24th Street, Bel-Red Road, and 156th Avenue NE) would be provided. All other alternatives would have detours similar to those under *Preferred Alternative* D2A, with the exception of Alternative D5, which would have no detours.

6.4.2.5 Segment E

Local, collector, and arterials would be affected by construction. Road closures would range from partial closures for short-term durations to full closures for long-term durations.

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would have impacts at the SR 520 on- and off-ramps at SR 202 and with the at-grade crossings at Leary Way, 164th Avenue NE, 166th Avenue NE and 170th Avenue NE. All Segment E alternatives would have grade-separated crossings of NE 40th Street, NE 51st Street, and NE 60th Street. At these crossings multiple lanes would be closed for most of the civil construction period and additional lane closures could be required at certain times depending on the construction activity. Increased traffic congestion would likely occur during multiple lane closures on the NE 40th Street overpass during civil construction activities. Detours to adjacent SR 520 crossings and interchanges would be provided. NE 70th Street would be a full closure for all Segment E alternatives.

The E2 – Redmond Transit Center Design Option would have the same impacts as *Preferred Alternative E2,* in addition to impacts along 161st Avenue NE between Redmond Way and NE 85th Street. 161st Avenue NE would likely be closed for most of the civil construction period. Property access along 161st Avenue NE between Redmond Way and NE 85th Street would be maintained to the extent possible either through access on 161st Avenue NE or alternative routes.

Detours through the commercial areas would occur along parallel routes (160th or 164th Avenues NE if 161st Avenue NE is closed). Throughout Segment E for all Segment E alternatives, the potential for traffic to detour through residential neighborhoods is low as most of the construction activities occur along SR 520 and in downtown Redmond. There would be some on-street parking loss associated with construction impacts within Segment E. If the *Preferred Alternative E2* alignment adjacent to NE 76th Street requires the roadway to be reconstructed it would be constructed prior to the East Link construction along this section of roadway.

Other Segment E Alternatives

The Redmond Way Alternative (E1) would have impacts at the Leary Way, 164th Avenue NE, 166th Avenue NE, 170th Avenue NE crossings and NE 70th Street. The Leary Way Alternative (E4) would have impacts along Leary Way, 164th Avenue NE, 166th Avenue NE, 170th Avenue N, and NE 70th Street, and at the SR 520 on- and off-ramps at SR 202. Many of the construction impacts and potential detours under alternatives E1 and E4 would be similar to *Preferred Alternative E2*.

6.4.2.6 Maintenance Facilities

Constructing the maintenance facilities would temporarily close streets that intersect the track leading to and from the maintenance facility. These closures would most likely occur during off-peak hours to avoid traffic disruptions and would generally last for less than a week. Also, private driveways and any roads that need to be paved could be temporarily closed. Otherwise, there would be no impacts from construction of the maintenance facilities.

6.5 Potential Mitigation

This section describes the potential mitigation required to operate and build the East Link Project. This includes any construction mitigation and arterial and local street mitigation where the intersection LOS with the East Link Project, compared with the no-build condition, would degrade to levels that do not meet the LOS standards of the jurisdiction. In addition, mitigation might be required where there are potential impacts on parking around stations. Final mitigation would be determined in coordination with WSDOT, City of Bellevue, City of Mercer Island, City of Redmond, and City of Seattle through subsequent phases of this project.

6.5.1 Potential Operational Impact Mitigation

For impacts during project operation, arterial and local street mitigation is potentially required at intersections where the intersection LOS in the build condition, compared with the no-build condition, would degrade to levels that do not meet the LOS standards of the jurisdiction and where there are potential impacts on the parking surrounding potential stations. Intersection and parking impact mitigation are discussed in the following subsections.

6.5.1.1 Segment A Intersections

In Segment A, no mitigation would be required in the City of Seattle. However, several intersections in Mercer Island might potentially require turn pockets or traffic signal improvements to adjust for the change in travel patterns to and from the island:

Improvements at intersections within the City of Mercer Island's jurisdiction would include:

- West Mercer Way and 24th Avenue SE: Provide southbound left-turn pocket (*Preferred Alternative A1* and both design options).
- 80th Avenue SE and SE 27th Street: Install a traffic signal (*Preferred Alternative A1* and both design options).
- 77th Avenue SE and Sunset Highway: Install a traffic signal (design option that provides a 77th HOV ramp).
- 77th Avenue SE and North Mercer Way: Install a traffic signal (*Preferred Alternative A1* and both design options).

Improvements at intersections within WSDOT's jurisdiction include:

- 77th Avenue SE and I-90 eastbound HOV off-ramp: Install a traffic signal (design option that provides a 77th HOV ramp).
- 77th Avenue SE and I-90 eastbound off-ramp: Install a traffic signal (*Preferred Alternative A1* and design option that provides neither eastbound off-ramp).
- 76th Avenue SE/North Mercer Way and I-90 Westbound on-ramp: Modify the westbound channelization to provide left-turn pocket and through/right shared lane (*Preferred Alternative A1* and both design options).

All of these improvements would improve the AM and PM peak hour intersection delay to the same or better than the no-build conditions. Sound Transit would be responsible for implementing improvements at the WSDOT controlled intersections prior to East Link opening service. Sound Transit would contribute a proportionate share of costs to improve project-affected intersections controlled by Mercer Island. Sound Transit's contribution would be determined by the project's ratio of trips at the intersection or another equitable method. Through this contribution, the City of Mercer Island might determine other improvements than the intersection modifications listed that are more compatible with Downtown Mercer Island. Tables D-19 and D-20 in Appendix D show the intersection results with these proposed intersection treatments for the AM and PM peak hours.

6.5.1.2 Segment B Intersections

Depending on the Segment B alternative, the project would potentially require improvements at the following intersections. With *Preferred Alternative B2M*, no intersection mitigation is required.

- 112th Avenue SE and Bellevue Way SE: Provide a northbound right-turn pocket (Alternatives B1, B2A, B3 and B3 – 114th Extension Design Option).
- 112th Avenue SE and SE 15th Street: Install a traffic signal (Alternatives B1, B2E, and B7).
- Coal Creek Parkway and I-405 Southbound Ramps: Provide an additional westbound left-turn pocket (Alternative B7).

- 118th Avenue SE and SE 8th Street/I-405 southbound Ramps: Provide a northbound right-turn pocket (Alternative B7).

While not considered mitigation, as part of the East Link Project, two roadway options that modify Bellevue Way SE near the South Bellevue Station are proposed for alternatives that include this station. These modifications are proposed to improve the station and neighborhood access and are described in Section 6.3.2.2. Table D-21 in Appendix D provides the intersection results for each intersection with and without the proposed mitigation.

6.5.1.3 Segment C Intersections

Depending on which Segment C alternative is selected, the project would potentially require mitigation at the following intersections:

- Bellevue Way and Main Street: Provide a northbound right-turn pocket (Alternative C1T).
- 112th Avenue NE and NE 12th Street: Provide a westbound right-turn pocket (alternatives C3T, C7E, and C8E).
- 112th Avenue NE and Main Street: Provide an eastbound right-turn pocket (*Preferred Alternative C11A*).
- 110th Avenue NE and NE 8th Street: Provide an eastbound right-turn pocket (alternatives C4A and C9A). Provide a northbound right-turn pocket (C8E)
- 108th Avenue NE and NE 12th Street: Provide a northbound right-turn pocket (Alternative C4A).

Additionally, at the intersections listed below, mitigation to better use the roadway capacity could be implemented, such as providing active traffic management strategies. For example, active signing could be installed to more effectively route vehicles to less congested streets, turn movements could be restricted during congested periods, or adaptive signal controllers could be installed to better respond to changing traffic conditions:

- Main Street and 108th Avenue NE (*Preferred Alternative C11A)*
- NE 4th Street and 108th Avenue NE (*Preferred Alternatives C11A* and *C9T*, and Alternatives C1T, C2T, C3T, C8E, and C9A)
- NE 6th Street and 110th Avenue NE (Alternative C9A)
- NE 8th Street and 112th Avenue NE (Alternatives C4A and C8E)

Table D-21 in Appendix D provides the intersection results for each intersection with and without the proposed mitigation.

6.5.1.4 Segment D Intersections

Depending on which Segment D alternative is selected, the project would potentially require mitigation at the following intersections:

- 120th Avenue NE and NE 16th Street: Provide a southbound right-turn pocket (D2A – 120th Station Design Option, year 2020 only. Once background improvements along 120th Avenue NE are completed by year 2030, this intersection will operate acceptably with the project).
- 152nd Avenue NE and NE 24th Street: Provide a southbound right-turn pocket (All Segment D alternatives except D3). This or a similar intersection improvement would be coordinated with the City of Redmond.
- 148th Avenue NE and NE 20th Street: Accelerate planned eastbound and westbound left-turn improvements by year 2020 (D3).

Table D-21 in Appendix D provides the intersection results for each intersection with and without the proposed mitigation.

Alternative D2E would require mitigation at the intersections of 151st Place NE and 152nd Avenue NE on NE 24th Street. The increase in delay is caused by the two intersections being closely spaced and the intersection phasing and timing needed so that the light rail vehicle can safely travel across NE 24th Street. Prior to the light rail vehicle arriving at this street crossing, both of the adjacent traffic signals would only serve the westbound approach at 151st Place NE and the eastbound approach at 152nd Avenue NE to release any stopped or queued vehicles in this section of roadway. Once the section is clear, the light rail vehicle could then proceed. While this might not create substantial delay for the light rail vehicle, it might create unacceptable vehicle operations on NE 24th Street. If the track were to be realigned through the NE 24th Street and NE 152nd Avenue NE intersection, it would remove the need to provide a vehicle clearance phase prior to the train arriving. With this realignment the alternative would be similar to Alternative D3, north of the intersection of 152nd Avenue NE and NE 24th Street.

6.5.1.5 Segment E Intersections

Depending on which Segment E alternative is selected, the project would potentially require mitigation at the following intersections:

- NE 76th Street and 170th Avenue NE: Install a traffic signal (all Segment E alternatives and Redmond Town Center Station interim terminus).
- SR 202 and NE 70th Street: Provide a southbound right-turn pocket (all Segment E alternatives).
- Redmond Way and 161st Avenue NE: Provide a westbound right-turn pocket (E2 – Redmond Transit Center Design Option only). This improvement might be included as part of the City’s future roadway improvements, but has yet to be designed.
- SR 202 and East Lake Sammamish Parkway: Re-channelize southbound approach to provide additional through lane (all Segment E alternatives).
- NE 70th and 176th Avenue NE: Install a traffic signal (*Preferred Alternative E2* and E2 – Redmond Transit Center Design Option).

Table D-21 in Appendix D lists the Segment E intersection results for the PM peak hour with the proposed mitigation.

6.5.1.6 Parking

Mitigation might be required where there are potential impacts on parking around stations. The potential for hide-and-ride activities near stations and the best ways to mitigate such activities is specific to each area surrounding a station. Stations that might generate hide-and-ride users are locations where the auto forecast is higher than the available parking at the station, or the station does not provide parking, and there is a substantial amount of on-street parking available surrounding the station. The station most likely to generate hide-and-ride impacts is the Rainier Station. At the Mercer Island and South Bellevue stations, the parking analysis determined a low potential for hide–and-ride impacts. However, given the locations of these stations Sound Transit will evaluate hide-and-ride impacts within one year of East Link operations. If impacts are determined, Sound Transit would implement appropriate mitigation measures as discussed in this section.

Prior to implementing any parking mitigation measures, Sound Transit would inventory on-street parking around each of the three stations listed up to 1 year prior to the start of light rail revenue service. These inventories would document the current on-street parking supply within a 0.25-mile radius of the stations. Based on the inventory results, Sound Transit and the local jurisdiction would work with the affected stakeholders to identify and implement appropriate mitigation measures, if necessary. Parking control measures could consist of parking meters, restricted parking signage, passenger and truck load zones, and RPZ signage. Other parking mitigation strategies could include promotion of alternative transportation services (for example, encourage use of buses, vanpool or carpool services, walking, or bicycling).

For parking controls agreed to with the local jurisdiction and community, Sound Transit would be responsible for the cost of installing the signage or other parking controls and any expansion of the parking controls for 1 year after opening the light rail system. The local jurisdictions would be responsible for monitoring the parking controls and providing all enforcement and maintenance of the parking controls. The local residents would be responsible for any RPZ-related costs imposed by the local jurisdiction.

6.5.2 Potential Construction Impact Mitigation

All mitigation measures associated with constructing the East Link Project would comply with local regulations governing construction traffic control and construction truck routing. Sound Transit would finalize detailed construction mitigation plans in coordination with local jurisdictions and WSDOT during the final design and permitting phase of the project. Mitigation measures for traffic impacts due to light rail construction could include the following:

- Follow standard construction safety measures, such as installing advance warning signs, installing highly visible construction barriers, and using flaggers.
- Use lighted or reflective signage to direct drivers to truck haul routes and enhance visibility during nighttime work hours.
- Use temporary reflective truck prohibition signs on streets with a high likelihood of cut-through truck traffic.
- In areas with high levels of traffic congestion, schedule traffic lane closures and high volumes of construction traffic during off-peak hours to minimize delays where practical.
- Communicate public information through tools such as print, radio, posted signs, websites and e-mail to provide information regarding street closures, hours of construction, business access, and parking impacts.
- Coordinate access closures in person with affected businesses and residents. If access closures are required, property access to residences and businesses would be maintained to the extent possible. If access to the property is not able to be maintained, the specific construction activity would be reviewed to determine if it could occur during nonbusiness hours, or if the parking and users of this access (for example deliveries) could be provided at an alternative location.
- Where necessary, the contractor could be responsible for providing parking areas for construction workers.

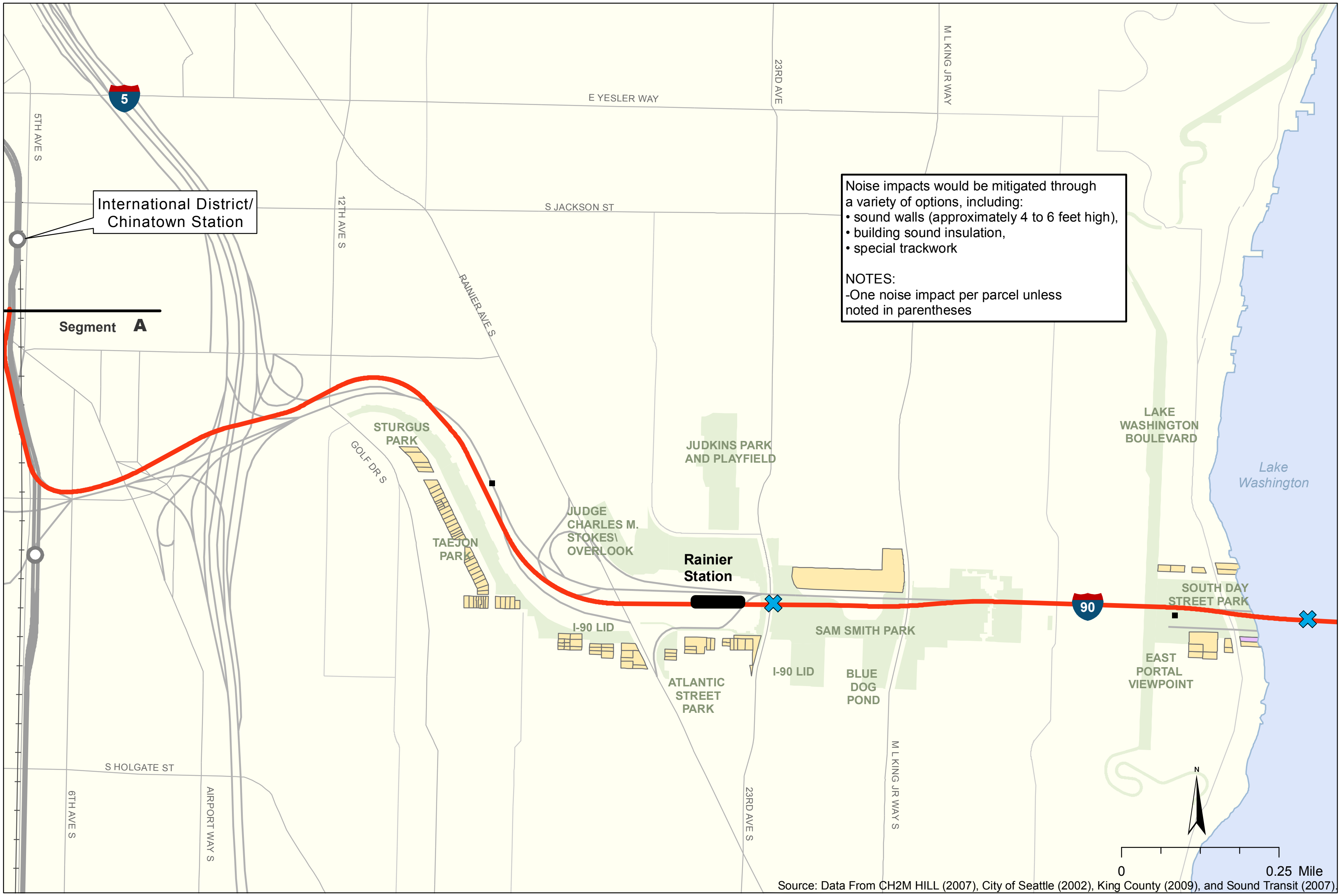
For potential transit (and associated park-and-ride) and regional highway (I-90, I-405 and SR 520) mitigation during East Link Project construction, refer to Sections 4.5 and 5.4, respectively.

Appendix A

Noise and Vibration Impacts by Build Alternative

Noise

The maps in this section depict noise impacts by parcel for the project alternatives and design options. Properties presumed to be displaced for the project are not shown as being impacted.


5
E YESLER WAY
23RD AVE
M L KING JR WAY
5TH AVE S
International District/ Chinatown Station
12TH AVE S
S JACKSON ST
RAINIER AVE S
Segment A
STURGUS PARK
GOLF DR S
TAEJON PARK
JUDGE CHARLES M. STOKES\ OVERLOOK
JUDKINS PARK AND PLAYFIELD
Rainier Station
I-90 LID
ATLANTIC STREET PARK
I-90 LID
BLUE DOG POND
SAM SMITH PARK
90
LAKE WASHINGTON BOULEVARD
Lake Washington
SOUTH DAY STREET PARK
EAST PORTAL VIEWPOINT
S HOLGATE ST
6TH AVE S
AIRPORT WAY S
23RD AVE S
M L KING JR WAY S
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data From CH2M HILL (2007), City of Seattle (2002), King County (2009), and Sound Transit (2007).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Traction Power Substation
Proposed Station
Central Link Alignment and Station

Moderate
Severe
Both Moderate and Severe
No Noise Impact

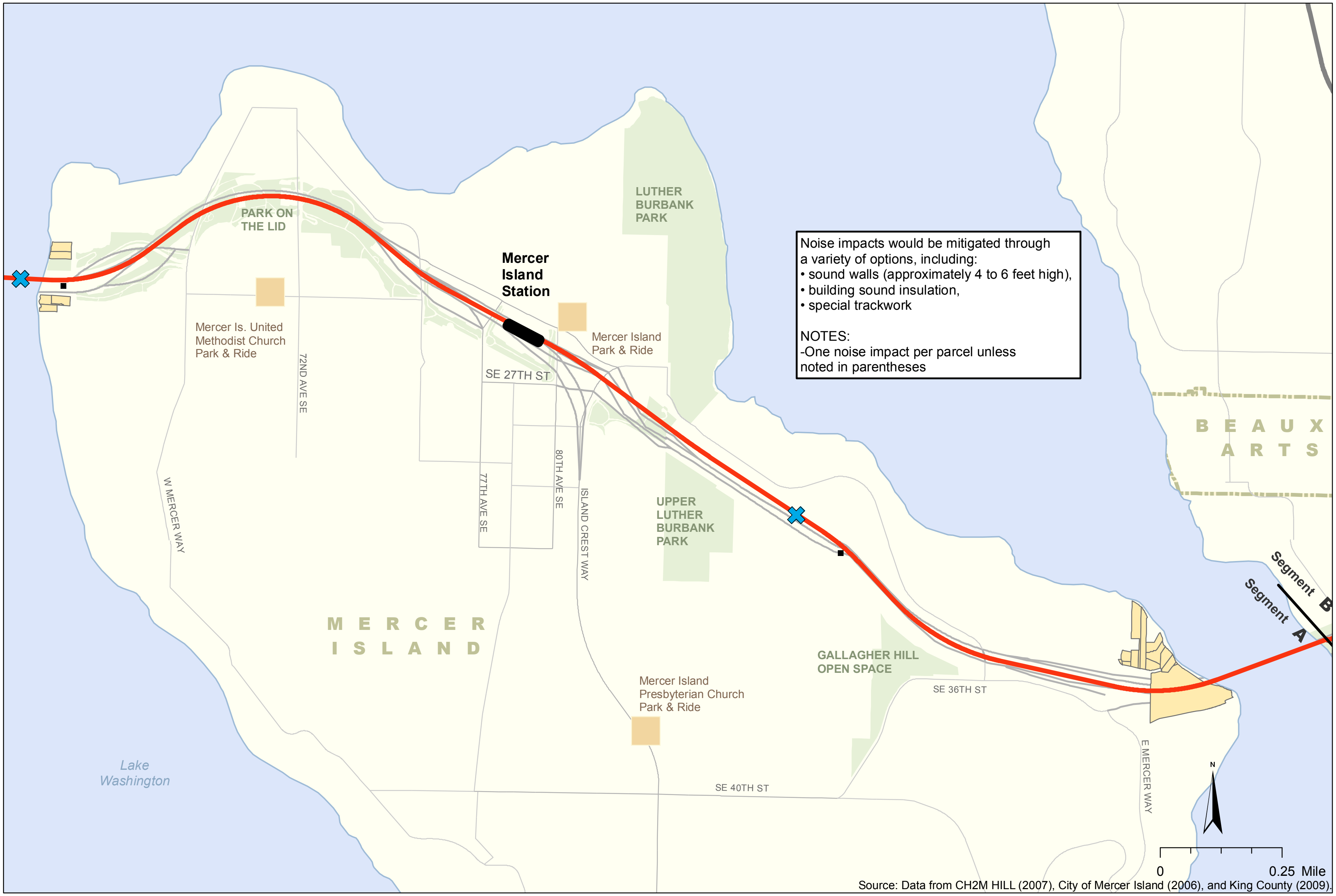
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Exhibit A-1-Na
Noise Impacts Segment A, A1
East Link Project

Exhibit A-1-Nb

Noise Impacts Segment A, A1

East Link Project


PARK ON THE LID
Mercer Island Station
LUTHER BURBANK PARK
Mercer Is. United Methodist Church Park & Ride
Mercer Island Park & Ride
SE 27TH ST
72ND AVE SE
W MERCER WAY
77TH AVE SE
80TH AVE SE
ISLAND CREST WAY
UPPER LUTHER BURBANK PARK
BEAUX ARTS
Segment B
Segment A
MERCER ISLAND
GALLAGHER HILL OPEN SPACE
SE 36TH ST
Mercer Island Presbyterian Church Park & Ride
E MERCER WAY
SE 40TH ST
Lake Washington
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

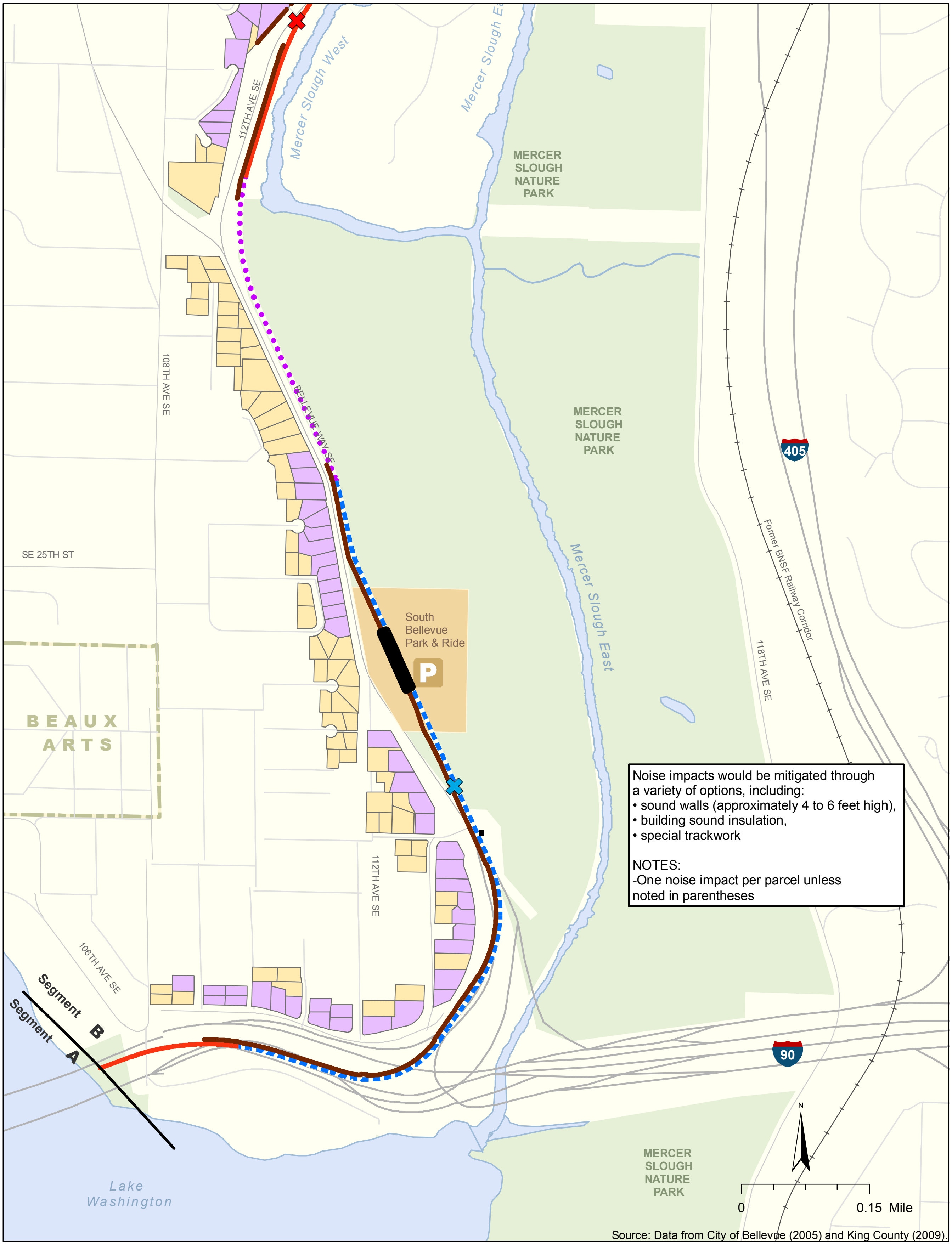
Source: Data from CH2M HILL (2007), City of Mercer Island (2006), and King County (2009).

▬ At-Grade Route
- - - Elevated Route
• • • • Retained-Cut Route
• • • • Retained-Fill Route
▬ ▬ Tunnel Route

■ Traction Power Substation
▬ Proposed Station

▭ Moderate
▭ Severe
▭ Both Moderate and Severe
▭ No Noise Impact

✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)


112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
405
Former BNSF Railway Corridor
118TH AVE SE
SE 25TH ST
South Bellevue Park & Ride
P
BEAUX ARTS
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
N
MERCER SLOUGH NATURE PARK
Lake Washington
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

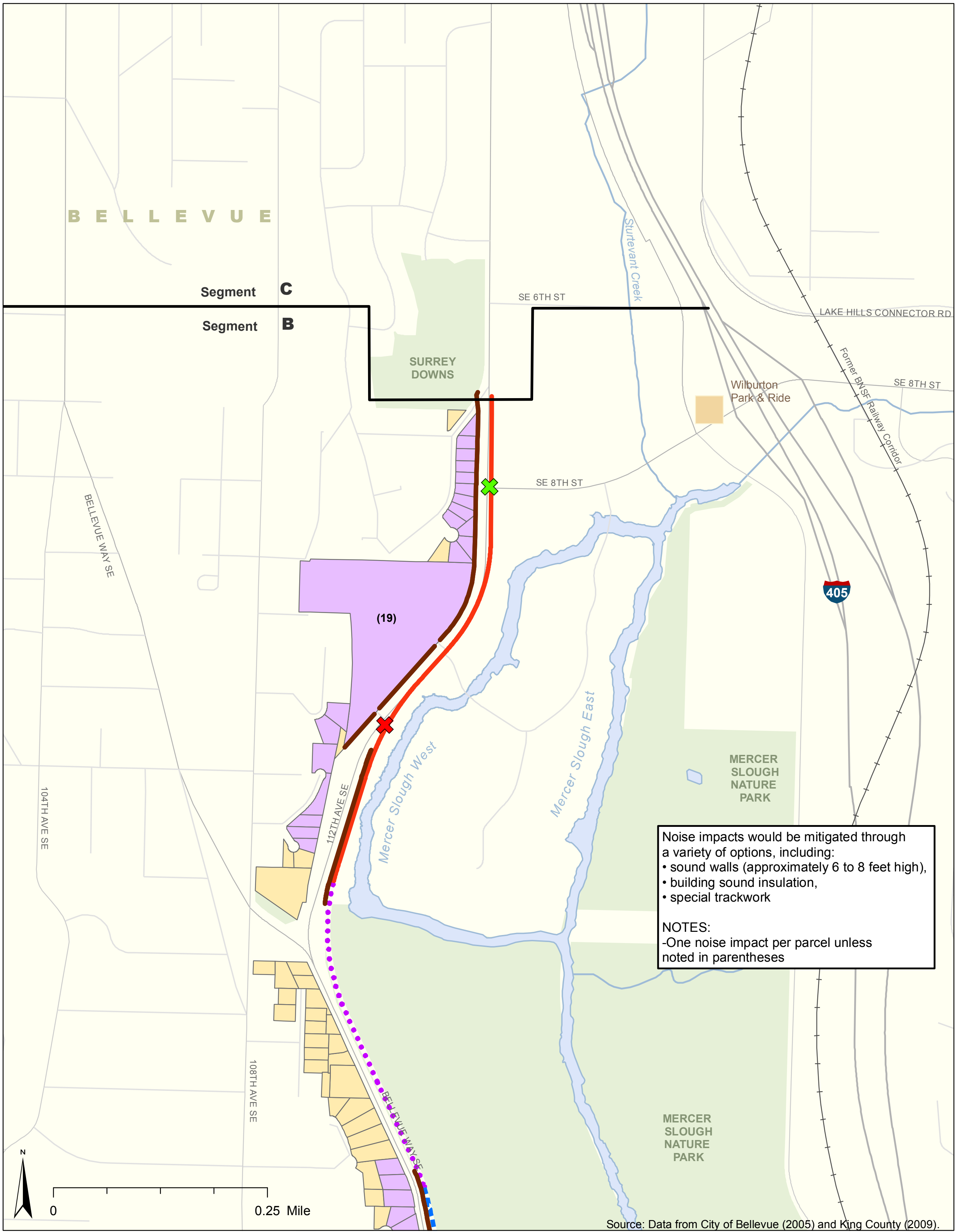
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location

Moderate
Severe
Both Moderate and Severe
No Noise Impact

Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Exhibit A-2-Na
Noise Impacts
Segment B,
B2M-C11A
East Link Project


BELLEVUE
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
SURREY DOWNS
Wilburton Park & Ride
SE 8TH ST
SE 8TH ST
Former BNSF Railway Corridor
Sturtevant Creek
405
BELLEVUE WAY SE
(19)
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
104TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

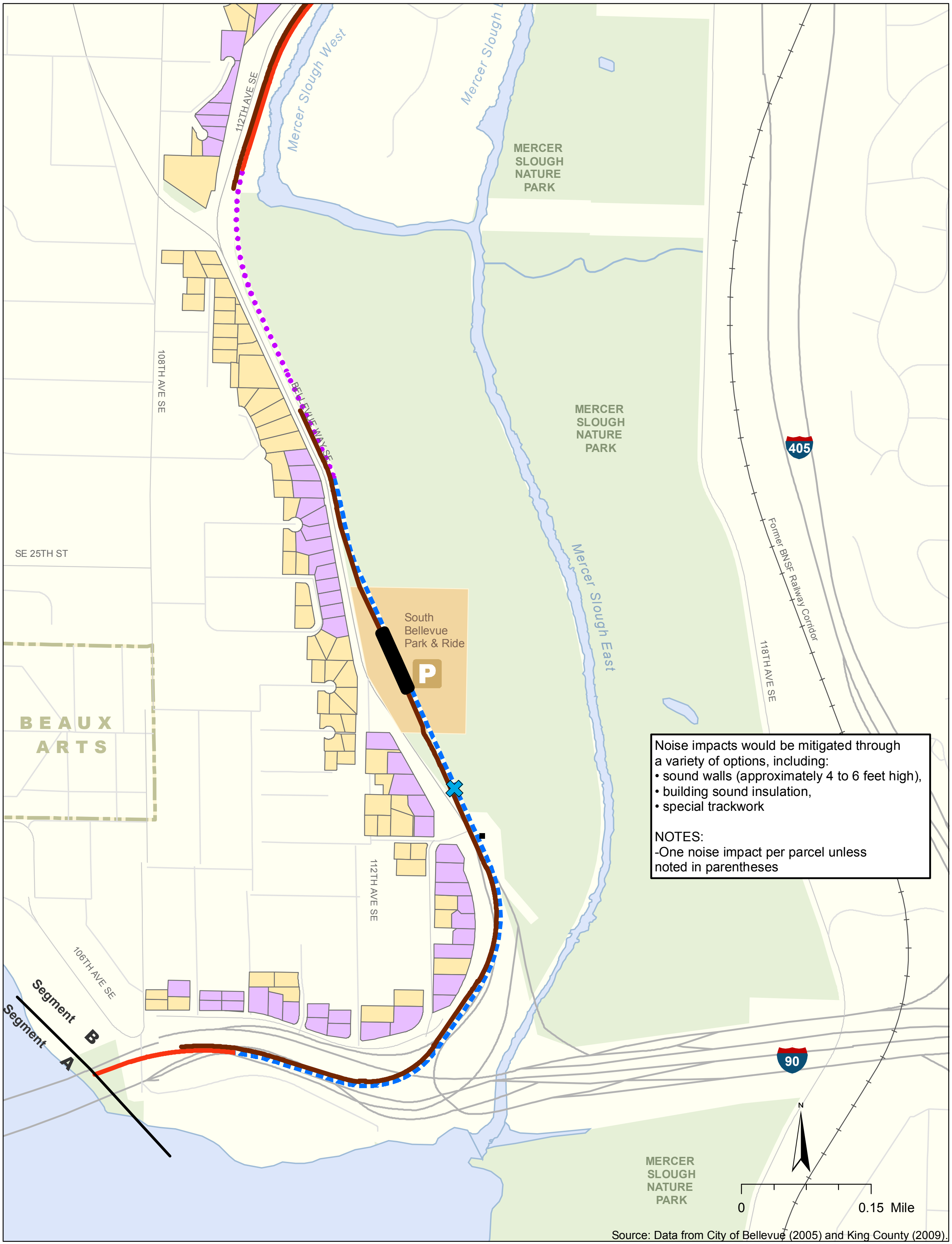
- sound walls (approximately 6 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
▪ Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Exhibit A-2-Nb
Noise Impacts
Segment B,
B2M-C11A
East Link Project


112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
BEAUX ARTS
South Bellevue Park & Ride
P
405
Former BNSF Railway Corridor
118TH AVE SE
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
N
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

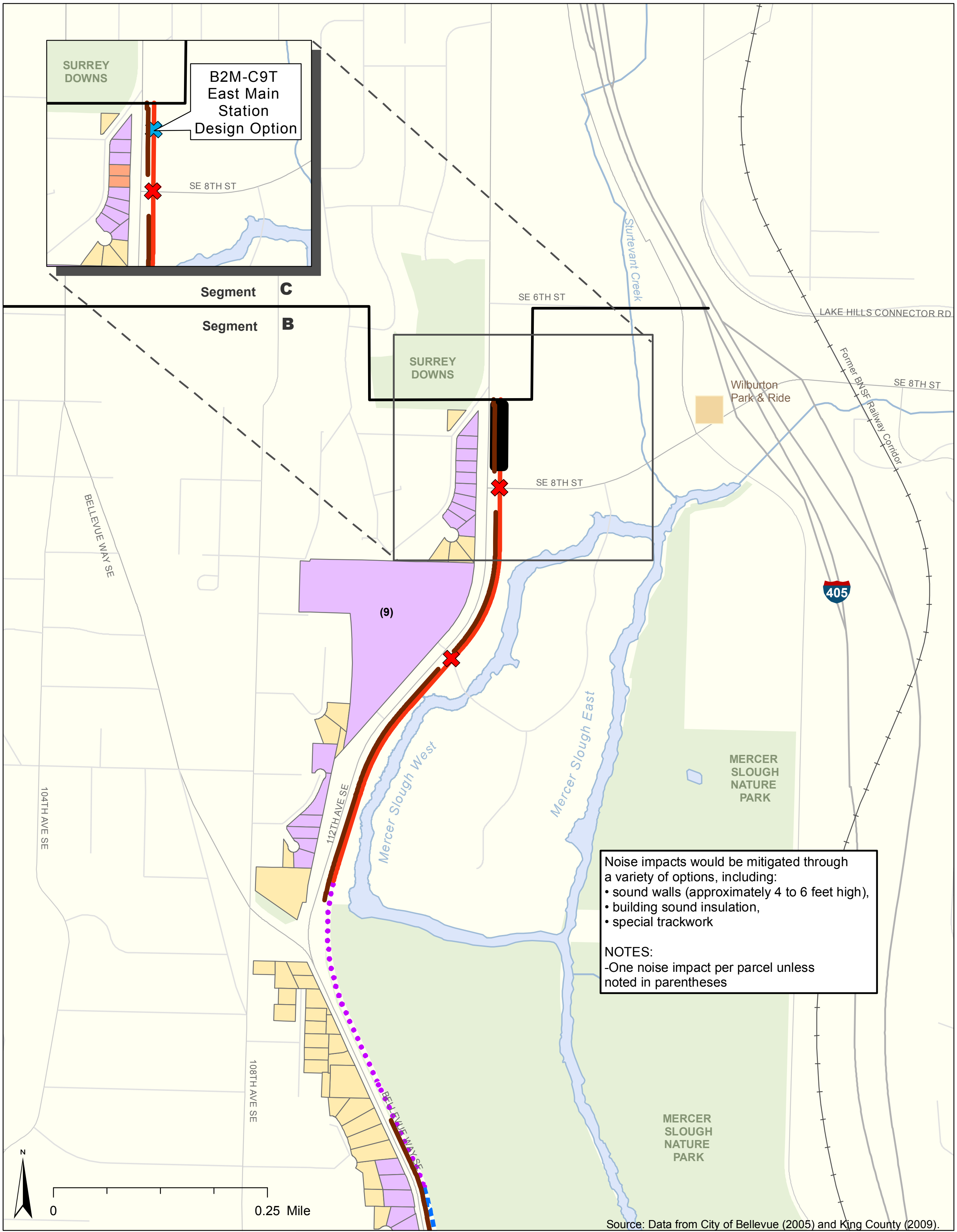
Source: Data from City of Bellevue (2005) and King County (2009).

━	At-Grade Route
┅	Elevated Route
●●●	Retained-Cut Route
●●●	Retained-Fill Route
━ ━	Tunnel Route
▪	Traction Power Substation
━	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
━	Proposed Sound Wall Location
▭	Moderate
▭	Severe
▭	Both Moderate and Severe
▭	No Noise Impact
✖	Crossover Location
✖	Gated Crossing
✖	Shared Crossing (No Gates)

Exhibit A-3-Na

Noise Impacts Segment B, B2M-C9T

East Link Project


SURREY DOWNS
B2M-C9T
East Main
Station
Design Option
SE 8TH ST
Segment C
Segment B
SE 6TH ST
Sturtevant Creek
LAKE HILLS CONNECTOR RD
SURREY DOWNS
Wilburton
Park & Ride
SE 8TH ST
Former BNSF Railway Corridor
SE 8TH ST
BELLEVUE WAY SE
405
(9)
MERCER
SLOUGH
NATURE
PARK
112TH AVE SE
Mercer Slough West
Mercer Slough East
104TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
MERCER
SLOUGH
NATURE
PARK
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

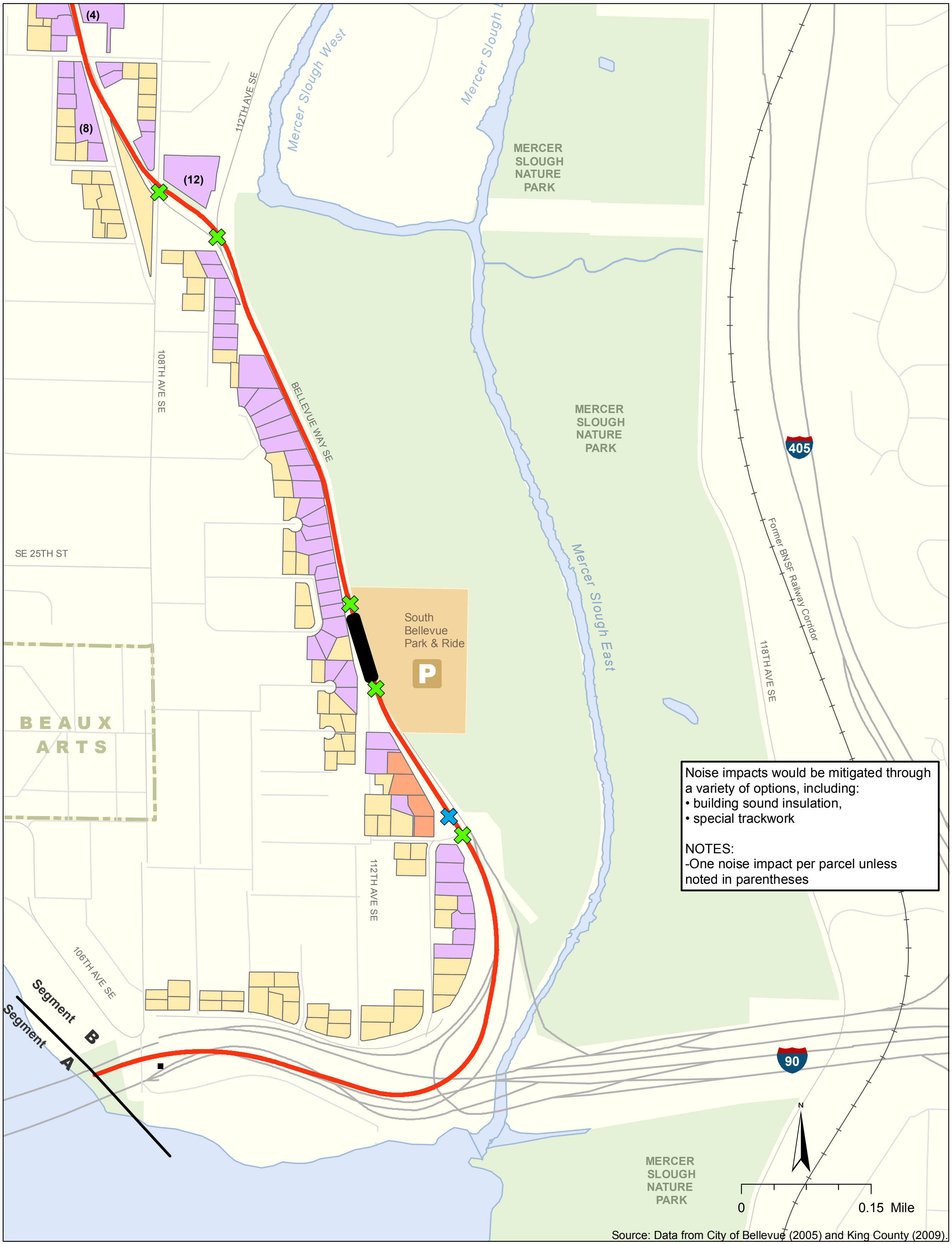
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route	■ Traction Power Substation	Moderate	✖ Crossover Location
Elevated Route	Proposed Station	Severe	✖ Gated Crossing
Retained-Cut Route	P New and/or Expanded Park-and-Ride Lot	Both Moderate and Severe	✖ Shared Crossing (No Gates)
Retained-Fill Route	Proposed Sound Wall Location	No Noise Impact	
Tunnel Route			

Exhibit A-3-Nb
Noise Impacts
Segment B,
B2M-C9T
East Link Project


(4)
(8)
(12)
112TH AVE SE
Mercer Slough West
Mercer Slough
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
405
SE 25TH ST
Former BNSF Railway Corridor
Mercer Slough East
South Bellevue Park & Ride
P
118TH AVE SE
BEAUX ARTS
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
N
MERCER SLOUGH NATURE PARK
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

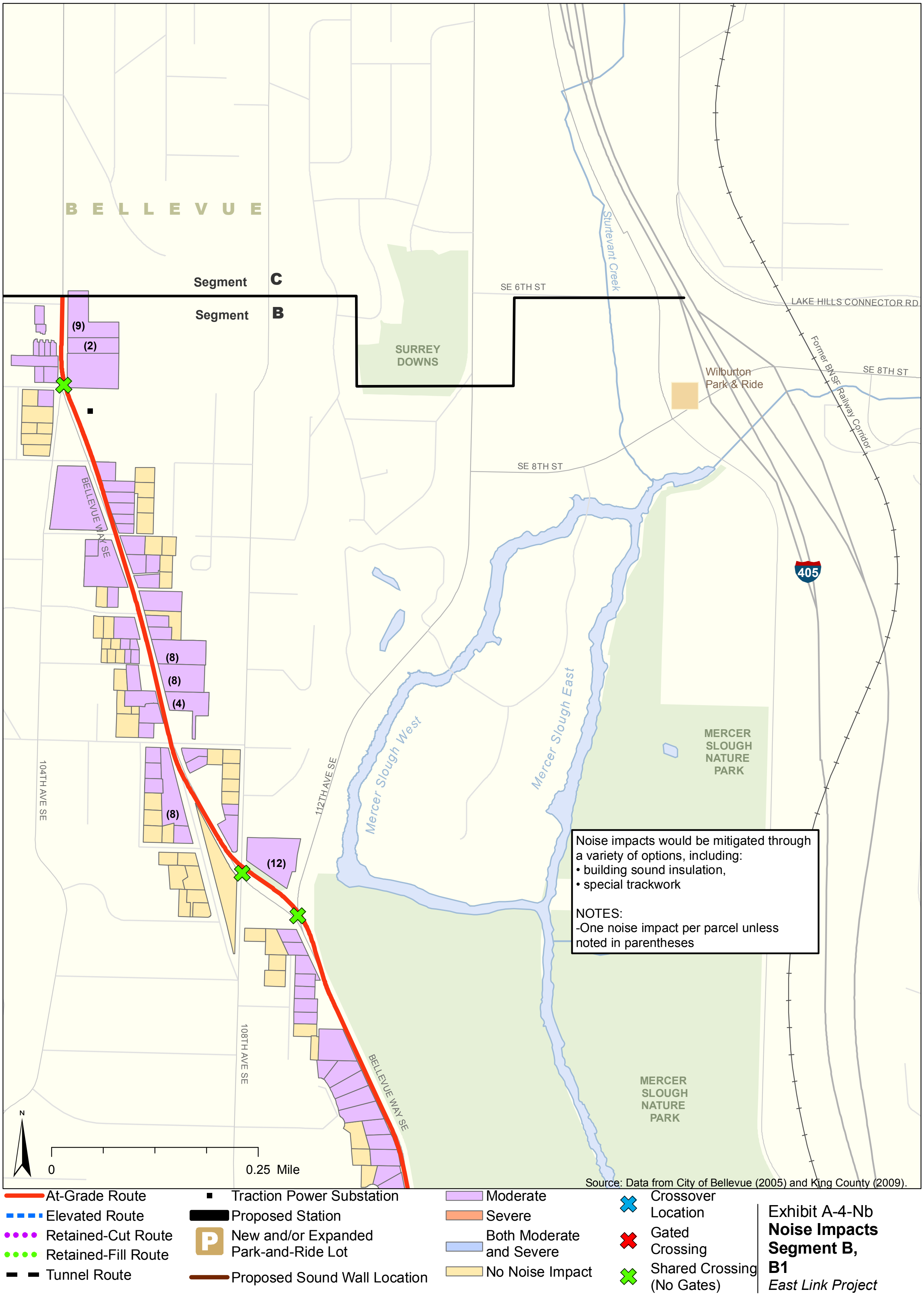
Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
▪ Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Exhibit A-4-Na

Noise Impacts Segment B, B1

East Link Project

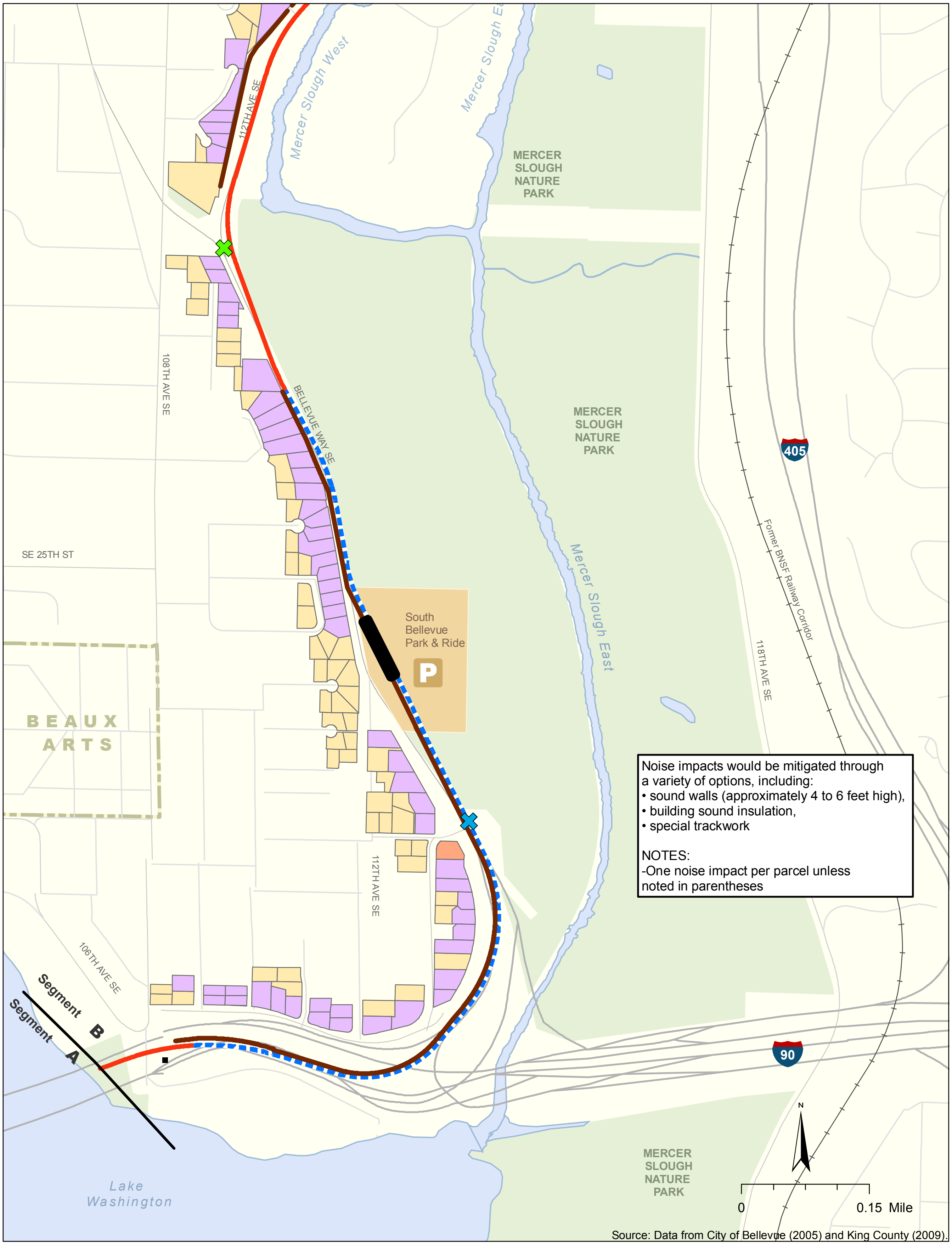

BELLEVUE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
LAKE HILLS CONNECTOR RD
Former BNSF Railway Corridor
Wilburton Park & Ride
SE 8TH ST
SE 8TH ST
405
(9)
(2)
BELLEVUE WAY SE
(8)
(8)
(4)
(8)
(12)
104TH AVE SE
108TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
BELLEVUE WAY SE
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Noise impacts would be mitigated through a variety of options, including:
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-4-Nb
Noise Impacts
Segment B, B1
East Link Project


112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
405
SE 25TH ST
South Bellevue Park & Ride
P
Mercer Slough East
Former BNSF Railway Corridor
118TH AVE SE
BEAUX ARTS
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
Lake Washington
MERCER SLOUGH NATURE PARK
N
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

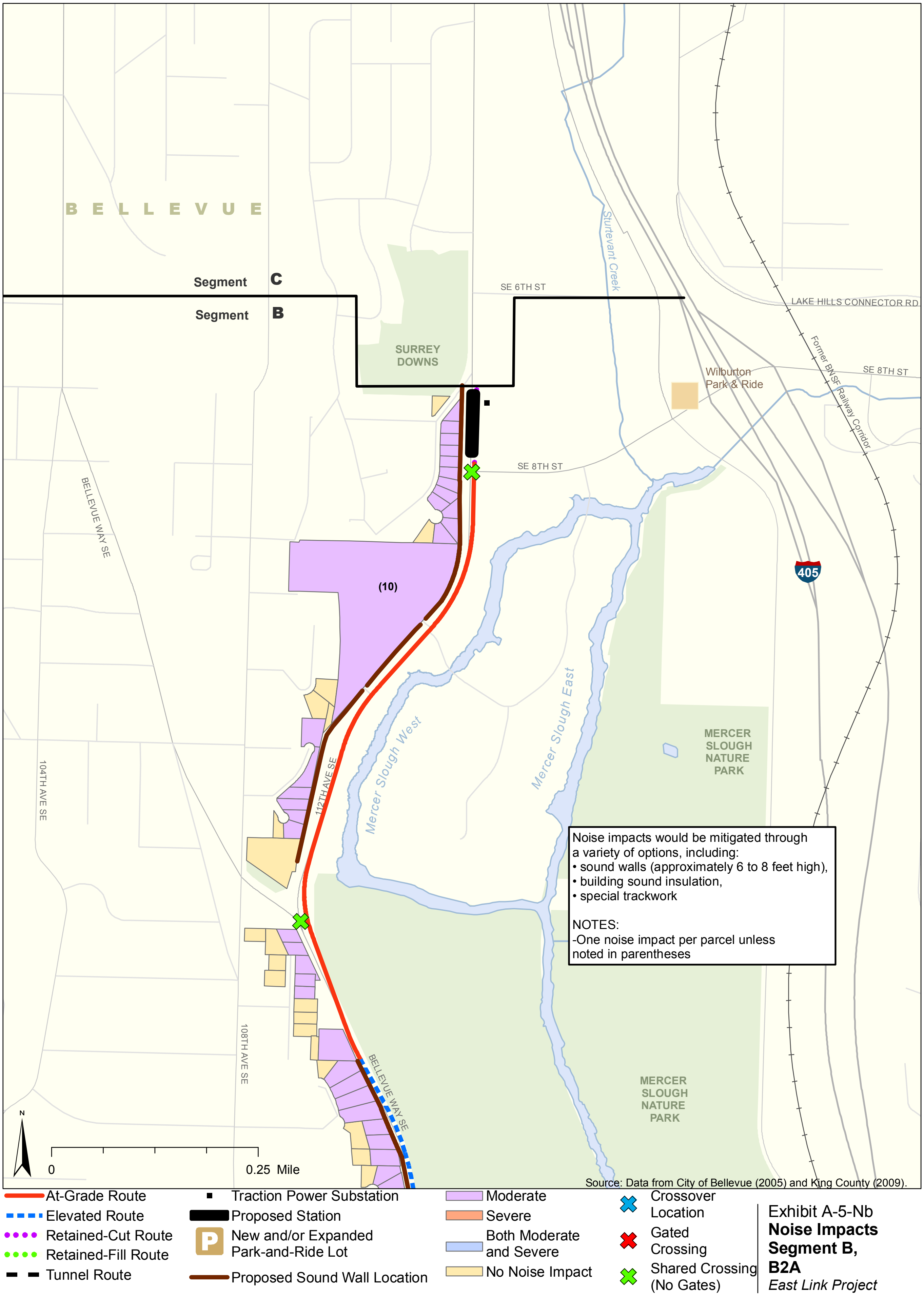
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

▪ Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location

Moderate
Severe
Both Moderate and Severe
No Noise Impact

Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Exhibit A-5-Na
Noise Impacts
Segment B,
B2A
East Link Project


B E L L E V U E
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
LAKE HILLS CONNECTOR RD
Former BNSF Railway Corridor
Wilburton Park & Ride
SE 8TH ST
SE 8TH ST
405
BELLEVUE WAY SE
(10)
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
112TH AVE SE
104TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

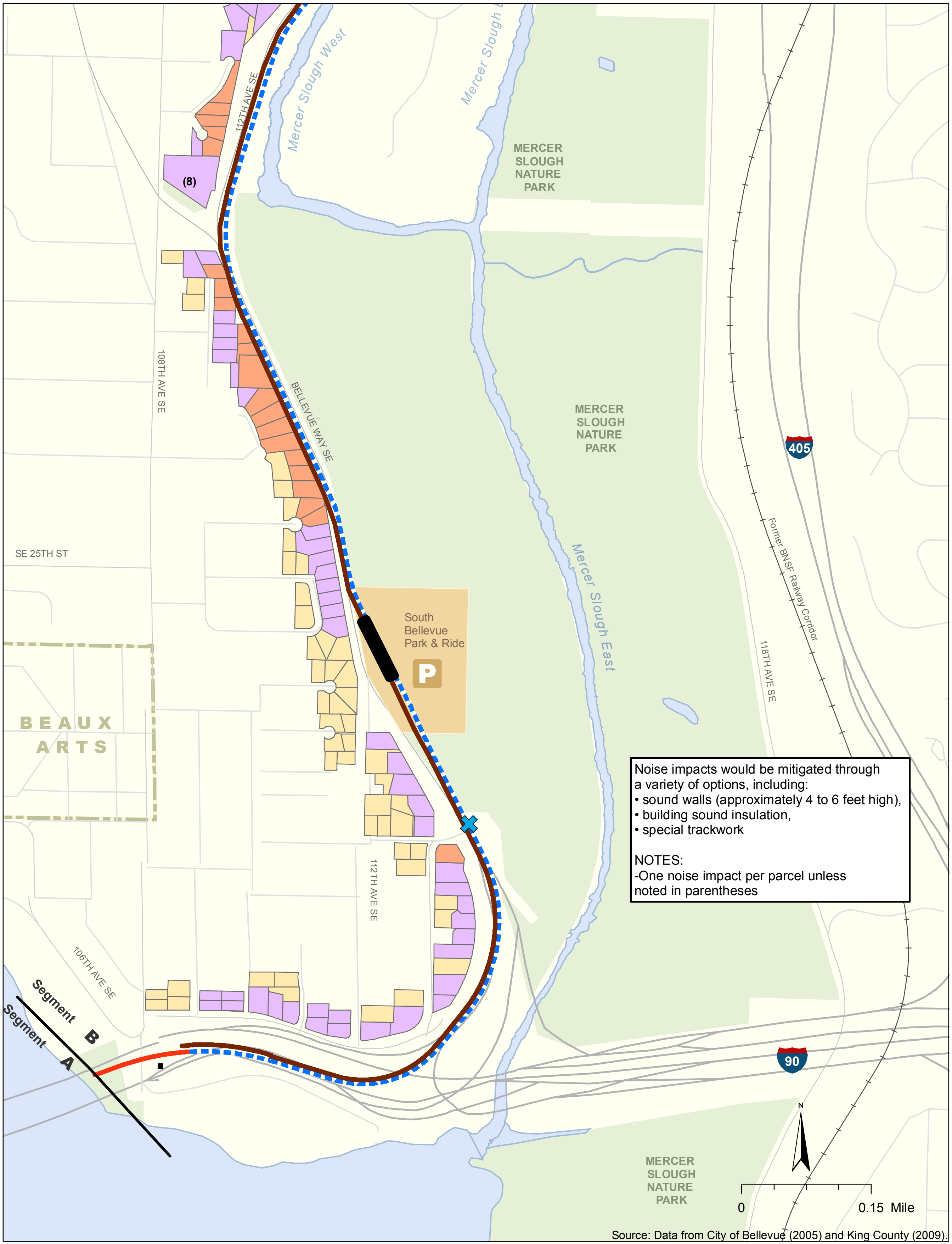
Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 6 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-5-Nb
Noise Impacts
Segment B,
B2A
East Link Project


112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
(8)
108TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
South Bellevue Park & Ride
P
BEAUX ARTS
405
Former BNSF Railway Corridor
118TH AVE SE
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
N
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:

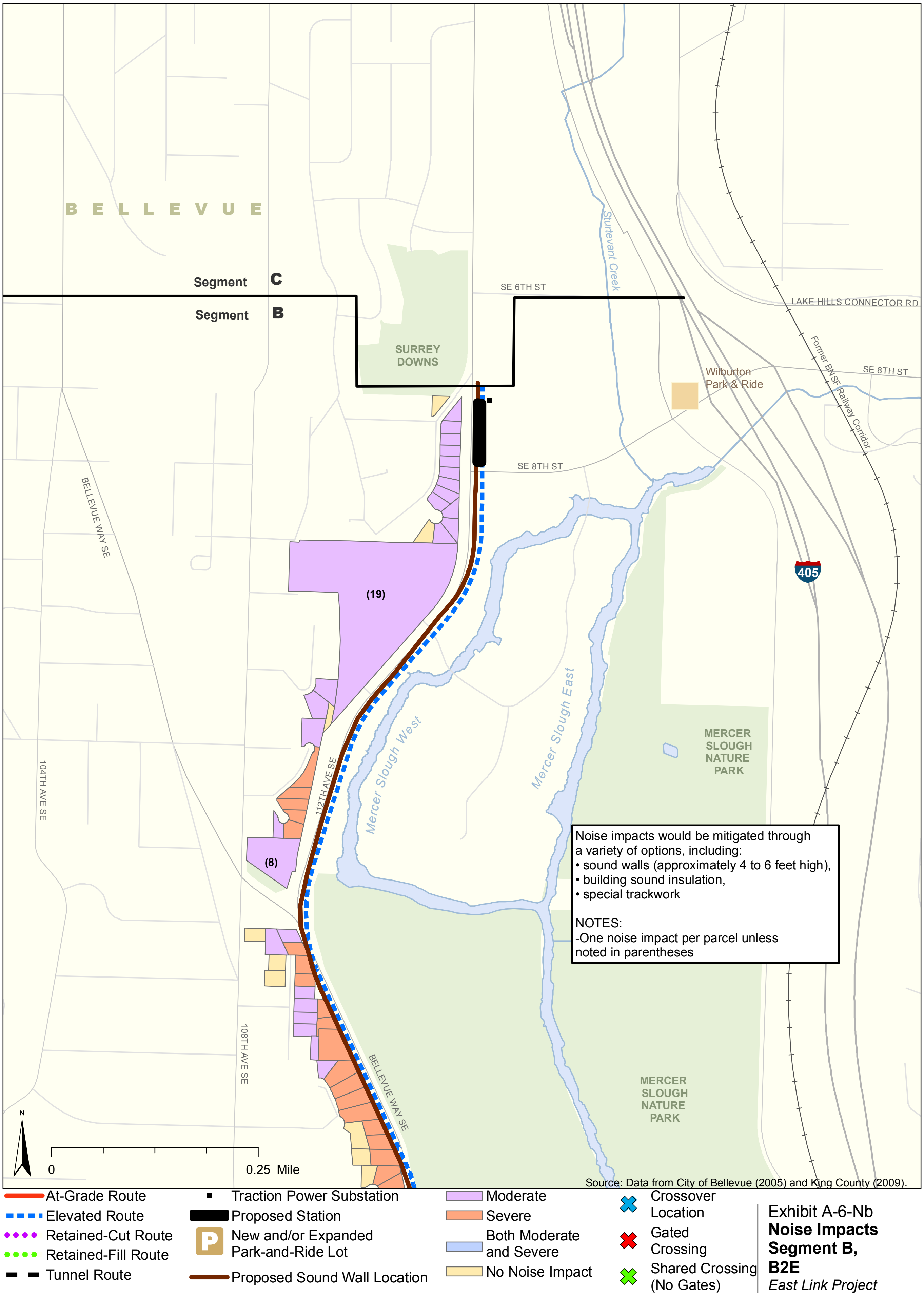
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
▪ Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Exhibit A-6-Na
Noise Impacts
Segment B,
B2E
East Link Project

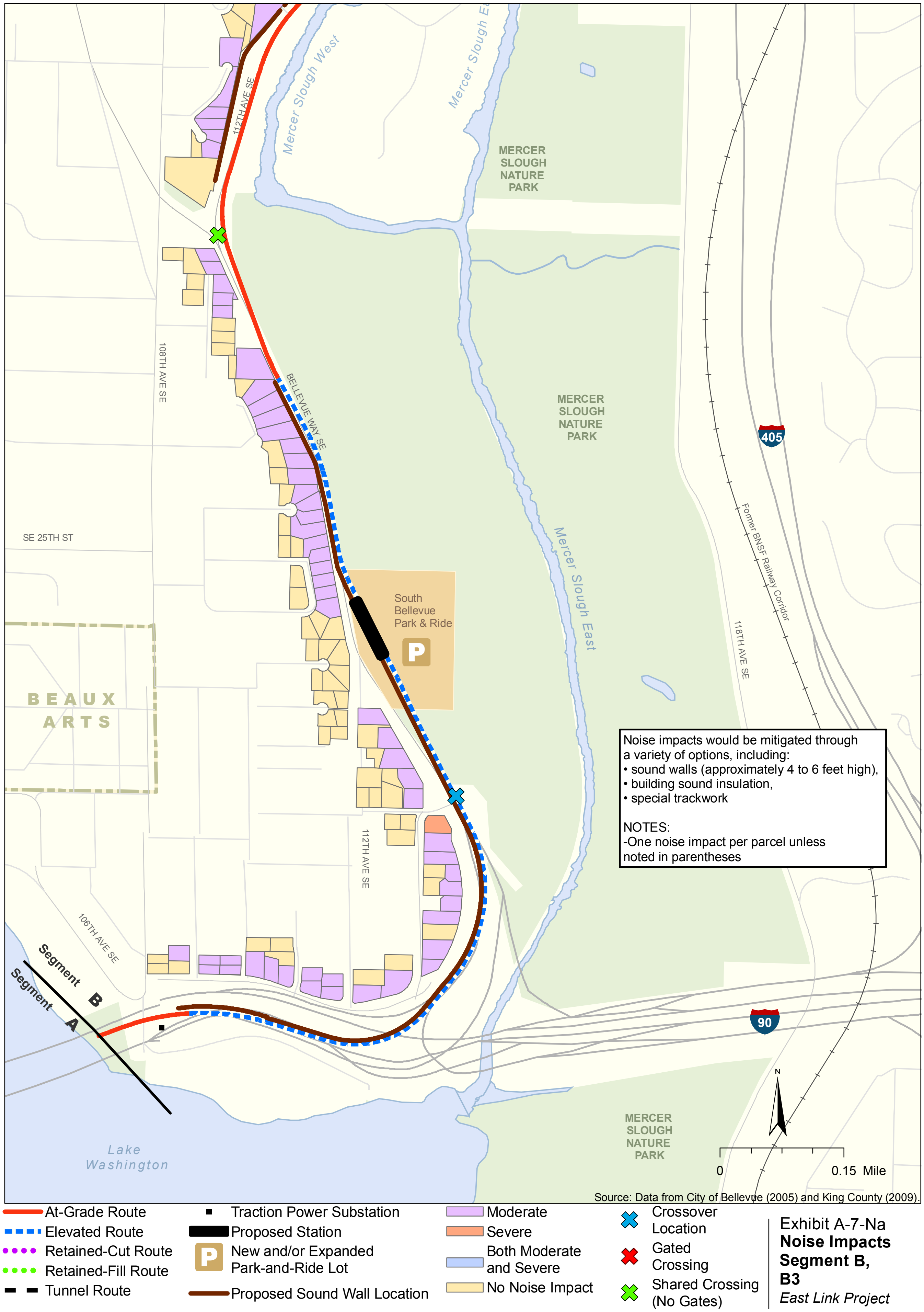

B E L L E V U E
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
LAKE HILLS CONNECTOR RD
Wilburton Park & Ride
SE 8TH ST
Former BNSF Railway Corridor
SE 8TH ST
BELLEVUE WAY SE
405
(19)
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
104TH AVE SE
112TH AVE SE
(8)
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-6-Nb
Noise Impacts Segment B, B2E
East Link Project



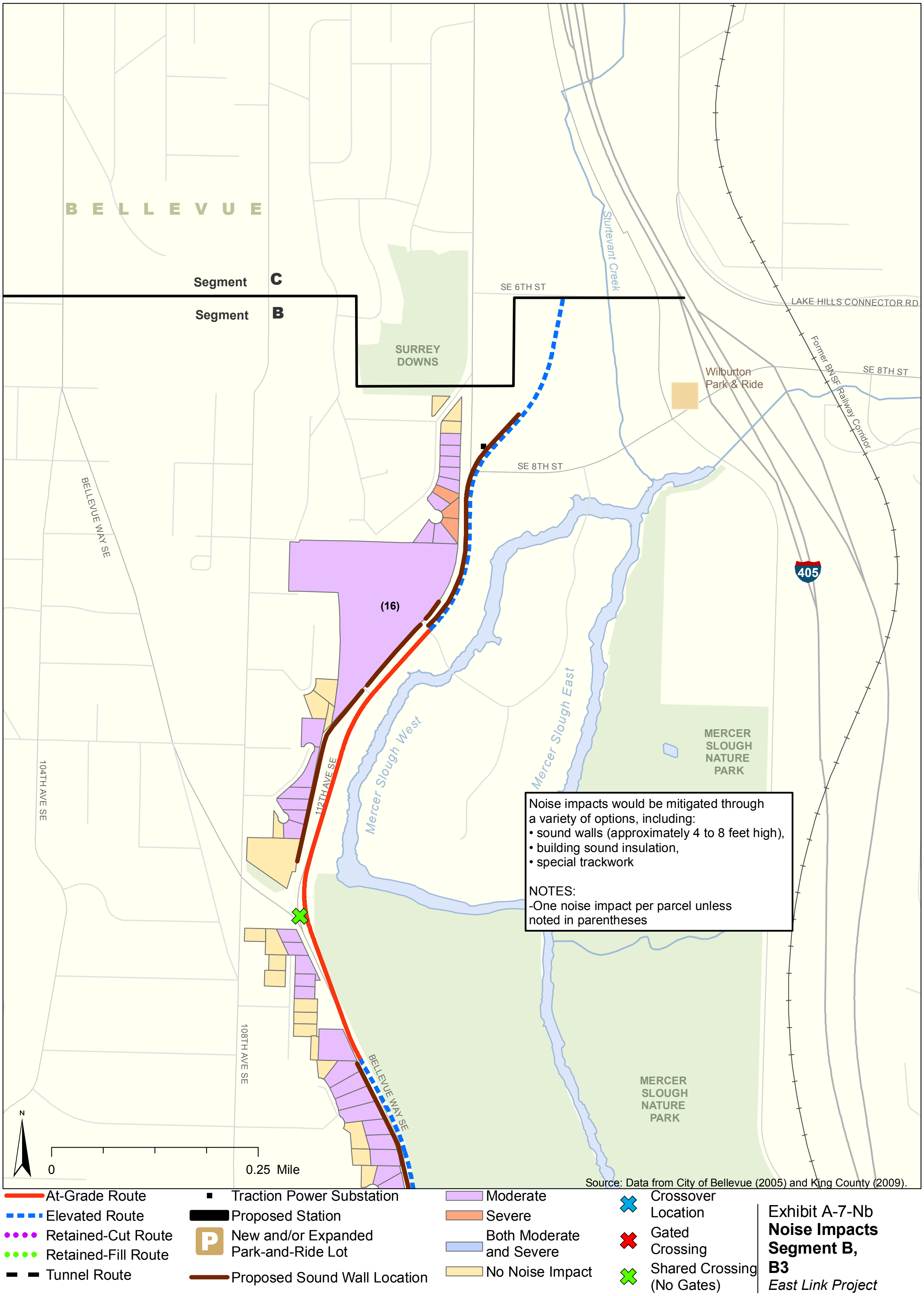
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
South Bellevue Park & Ride
P
BEAUX ARTS
405
Former BNSF Railway Corridor
118TH AVE SE
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
Lake Washington
MERCER SLOUGH NATURE PARK
N
0
0.15 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-7-Na
Noise Impacts Segment B, B3
East Link Project


B E L L E V U E
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
LAKE HILLS CONNECTOR RD
Wilburton Park & Ride
SE 8TH ST
Former BNSF Railway Corridor
SE 8TH ST
BELLEVUE WAY SE
405
(16)
MERCER SLOUGH NATURE PARK
Mercer Slough West
Mercer Slough East
112TH AVE SE
104TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:

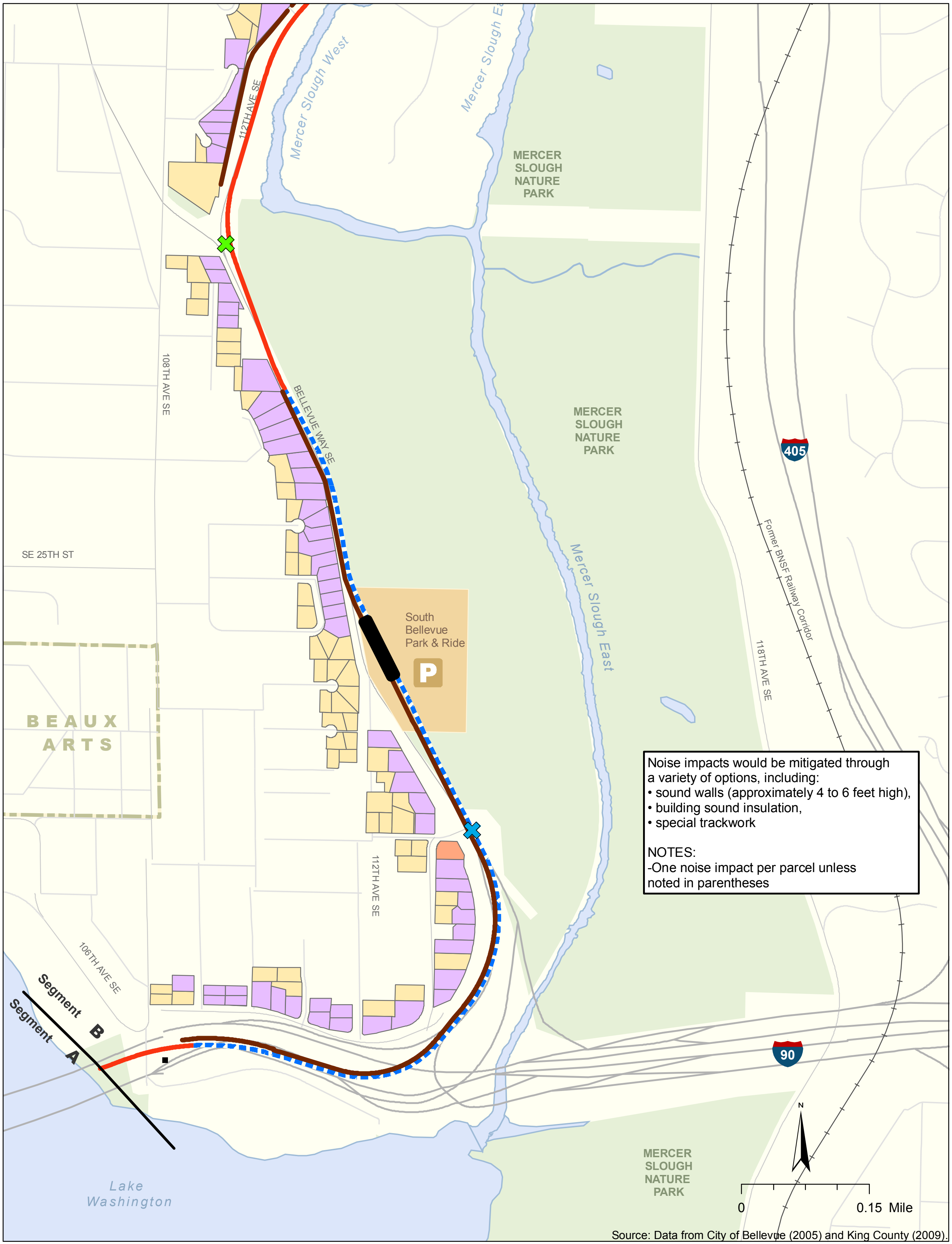
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-7-Nb

Noise Impacts Segment B, B3

East Link Project


Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
112TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
BEAUX ARTS
South Bellevue Park & Ride
P
405
Former BNSF Railway Corridor
118TH AVE SE
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
Lake Washington
MERCER SLOUGH NATURE PARK
N
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:

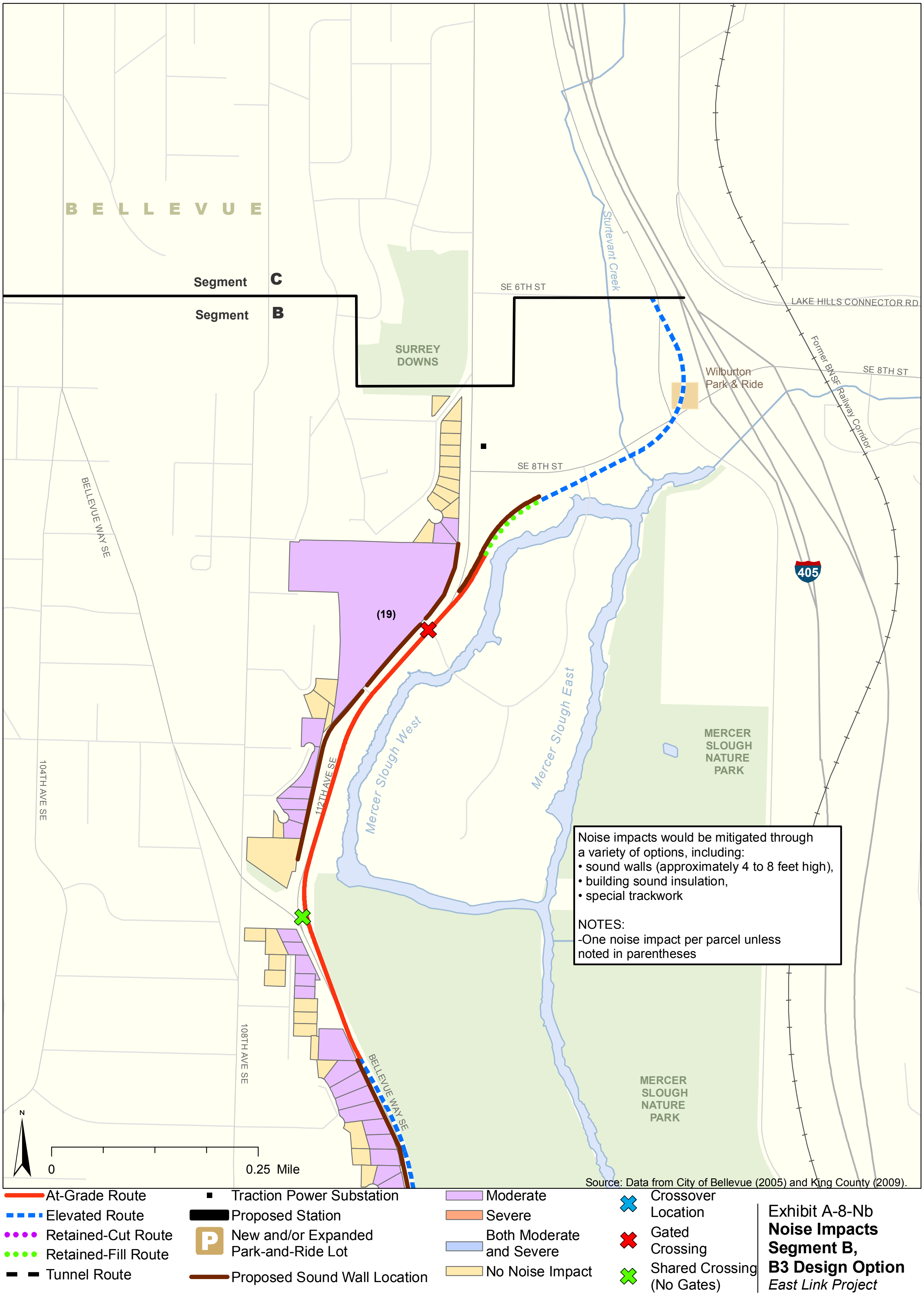
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Exhibit A-8-Na
Noise Impacts
Segment B,
B3 Design Option
East Link Project

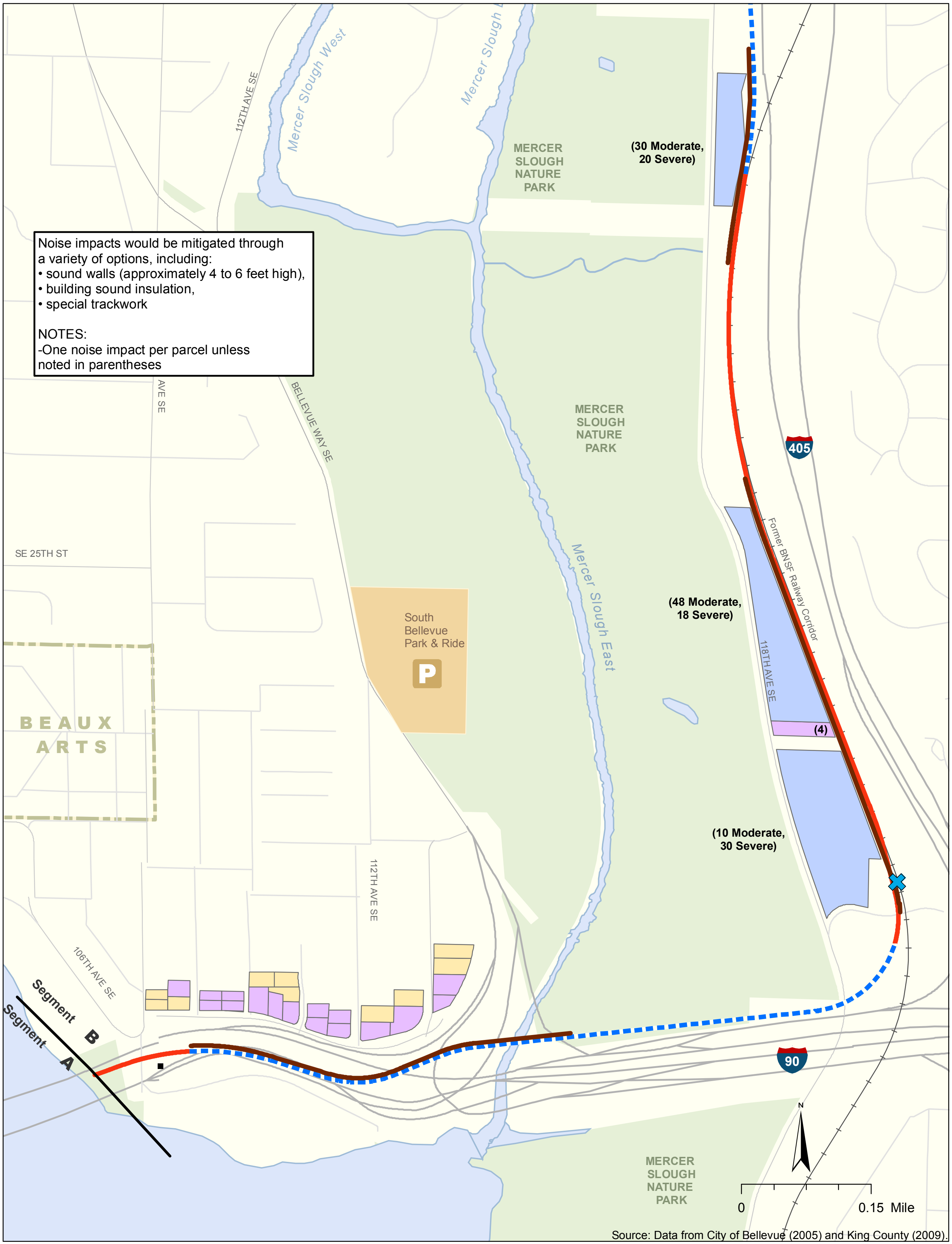

BELLEVUE
Segment C
Segment B
SE 6TH ST
Sturtevant Creek
LAKE HILLS CONNECTOR RD
SURREY DOWNS
Wilburton Park & Ride
SE 8TH ST
Former BNSF Railway Corridor
SE 8TH ST
BELLEVUE WAY SE
405
(19)
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
104TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-8-Nb
Noise Impacts
Segment B,
B3 Design Option
East Link Project


Mercer Slough West
Mercer Slough East
112TH AVE SE
MERCER SLOUGH NATURE PARK
(30 Moderate, 20 Severe)
MERCER SLOUGH NATURE PARK
AVE SE
BELLEVUE WAY SE
405
Former BNSF Railway Corridor
SE 25TH ST
South Bellevue Park & Ride
P
(48 Moderate, 18 Severe)
118TH AVE SE
(4)
BEAUX ARTS
(10 Moderate, 30 Severe)
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
N
MERCER SLOUGH NATURE PARK
0
0.15 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

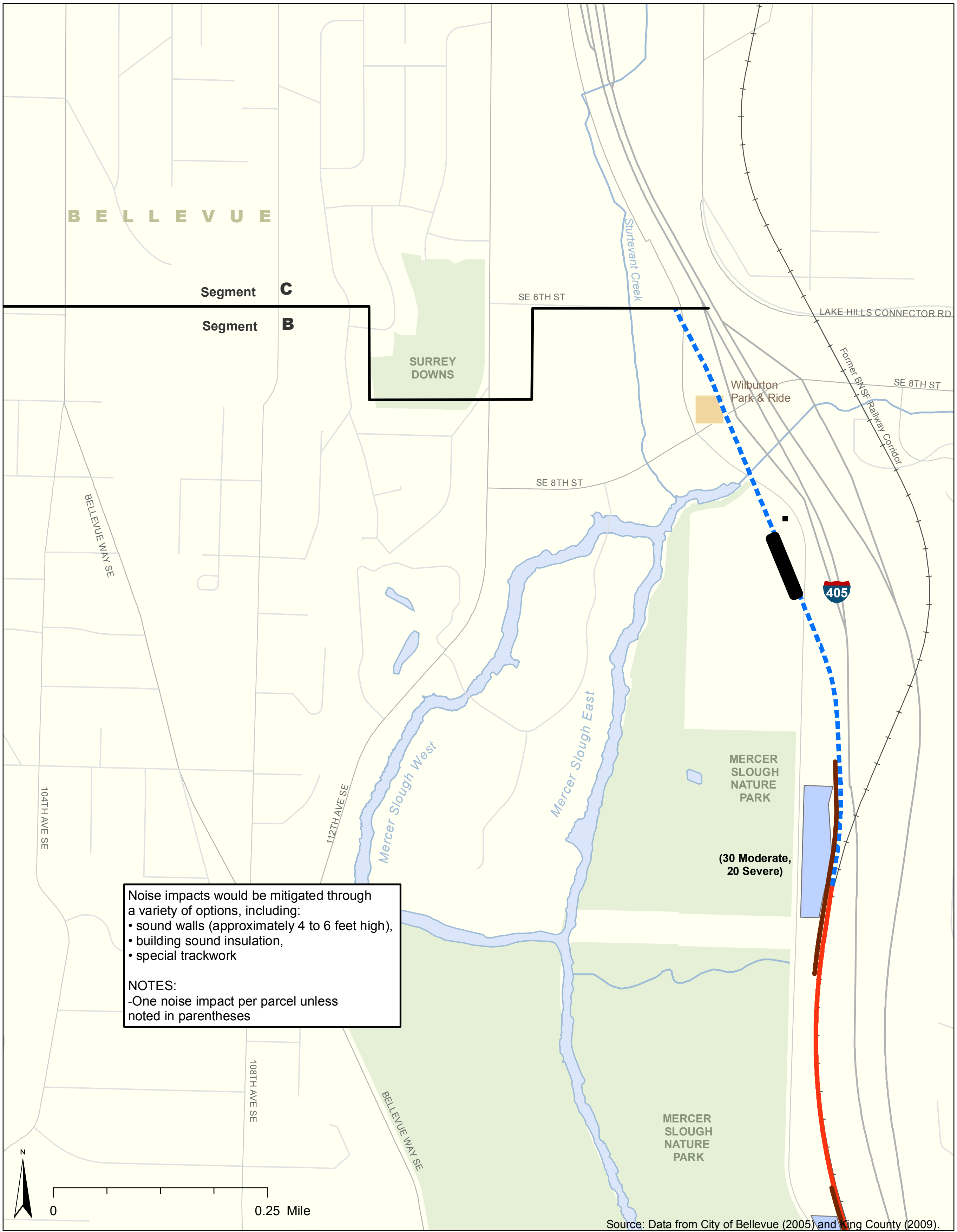
Exhibit A-9-Na

Noise Impacts

Segment B,

B7

East Link Project


B E L L E V U E
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
SE 8TH ST
Sturtevant Creek
Wilburton Park & Ride
Former BNSF Railway Corridor
405
BELLEVUE WAY SE
104TH AVE SE
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
(30 Moderate, 20 Severe)
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ━ At-Grade Route
- ┅ Elevated Route
- ••• Retained-Cut Route
- ••• Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▪ Traction Power Substation
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ━ Proposed Sound Wall Location
- ▭ Moderate
- ▭ Severe
- ▭ Both Moderate and Severe
- ▭ No Noise Impact
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)

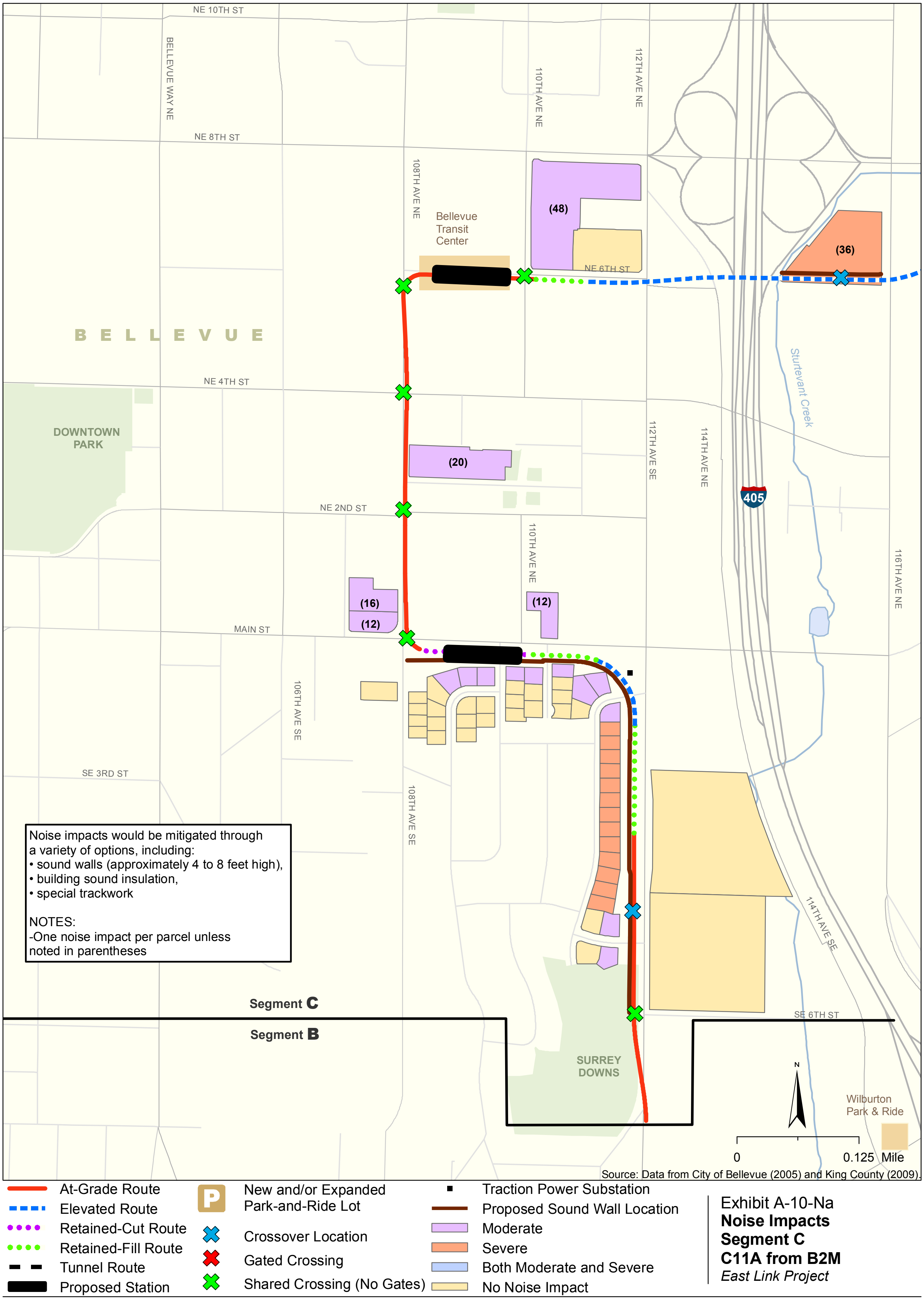
Exhibit A-9-Nb

Noise Impacts

Segment B,

B7

East Link Project



NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
(48)
(36)
NE 6TH ST
BELLEVUE
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(20)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
(16)
(12)
(12)
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

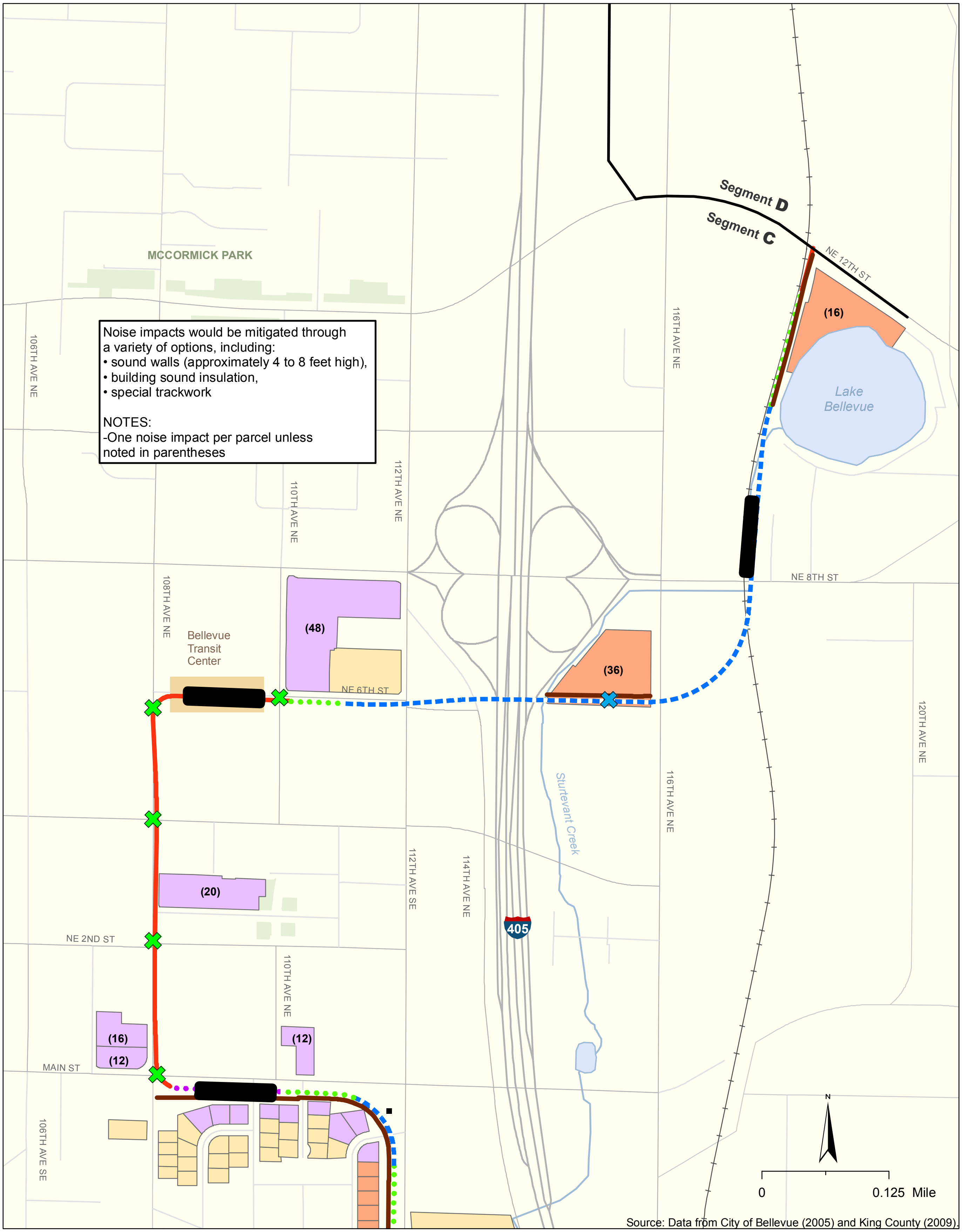
Exhibit A-10-Na

Noise Impacts

Segment C

C11A from B2M

East Link Project


MCCORMICK PARK
106TH AVE NE
110TH AVE NE
112TH AVE NE
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
116TH AVE NE
NE 8TH ST
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
(20)
NE 2ND ST
110TH AVE NE
(16)
(12)
(12)
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

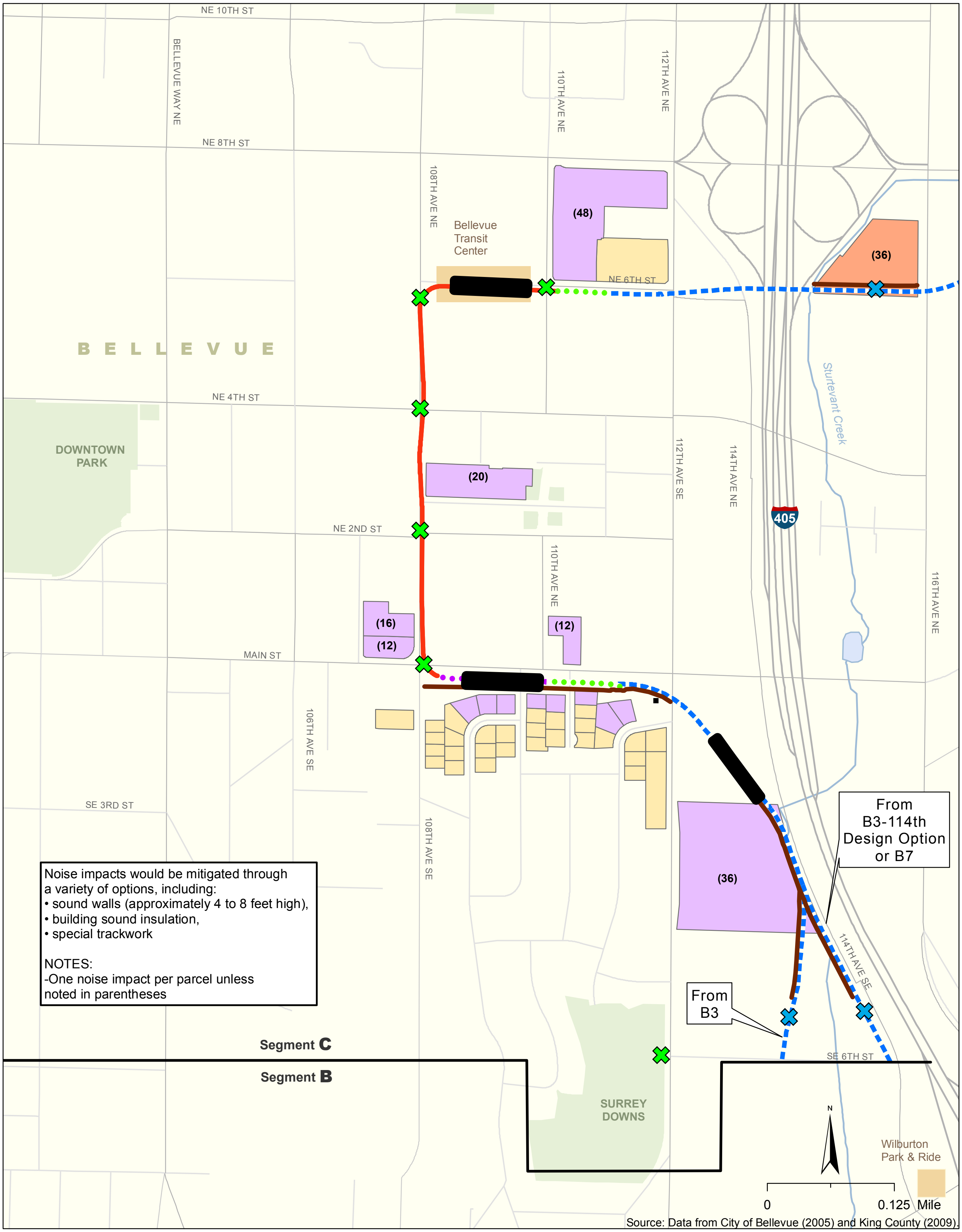
- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✕ Crossover Location
- ✕ Gated Crossing
- ✕ Shared Crossing (No Gates)
- ■ Traction Power Substation
- Proposed Sound Wall Location
- ▨ Moderate
- ▨ Severe
- ▨ Both Moderate and Severe
- ▨ No Noise Impact

Exhibit A-10-Nb
Noise Impacts
Segment C
C11A from B2M
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(20)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
(16)
(12)
(12)
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(36)
From B3-114th Design Option or B7
114TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬	At-Grade Route
▪▪▪	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
✖	Crossover Location
✖	Gated Crossing
✖	Shared Crossing (No Gates)
▪	Traction Power Substation
▬	Proposed Sound Wall Location
🟪	Moderate
🟧	Severe
🟦	Both Moderate and Severe
🟨	No Noise Impact

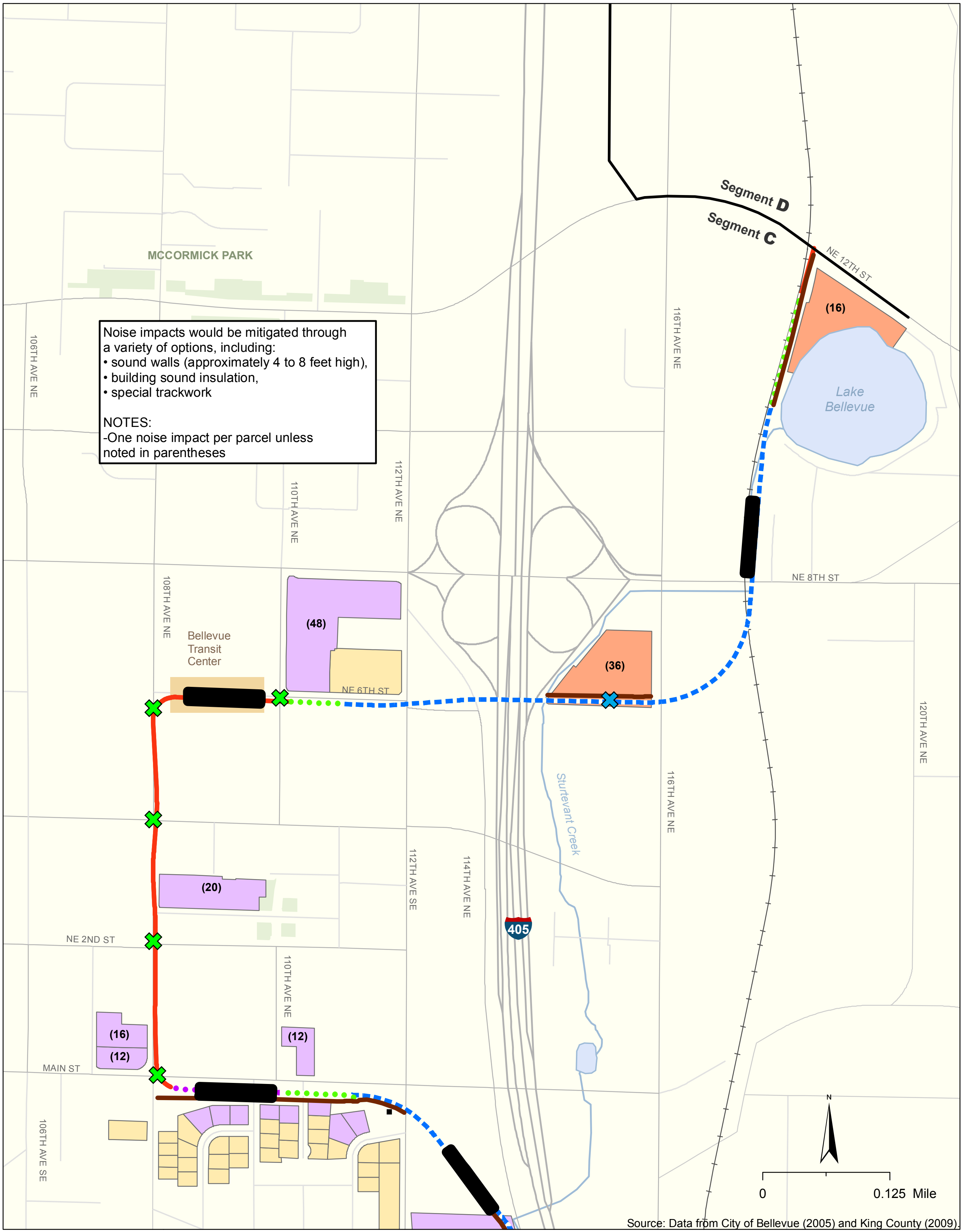
Exhibit A-11-Na

Noise Impacts

Segment C

C11A from B3/B7

East Link Project


MCCORMICK PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
116TH AVE NE
NE 8TH ST
Bellevue Transit Center
(48)
NE 6TH ST
(36)
Sturtevant Creek
120TH AVE NE
116TH AVE NE
112TH AVE SE
114TH AVE NE
405
(20)
NE 2ND ST
110TH AVE NE
(16)
(12)
(12)
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

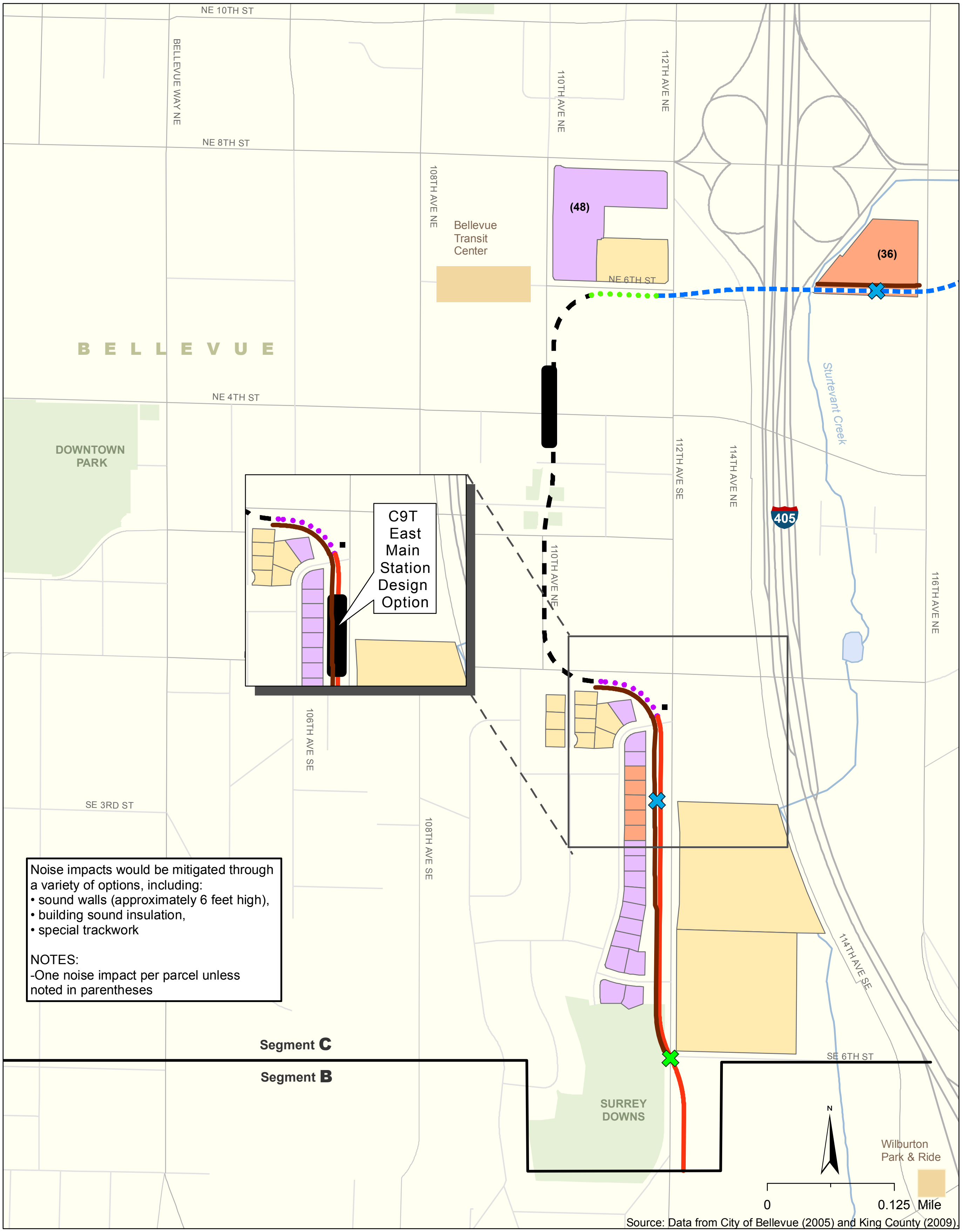
- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ╍ Elevated Route
- ⋯ Retained-Cut Route
- ⋯ Retained-Fill Route
- ╍ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation
- ▬ Proposed Sound Wall Location
- ▭ Moderate
- ▭ Severe
- ▭ Both Moderate and Severe
- ▭ No Noise Impact

Exhibit A-11-Nb
Noise Impacts
Segment C
C11A from B3/B7
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
BELLEVUE
NE 4TH ST
DOWNTOWN PARK
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
C9T East Main Station Design Option
110TH AVE NE
116TH AVE NE
106TH AVE SE
SE 3RD ST
108TH AVE SE
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 6 feet high),
- building sound insulation,
- special trackwork

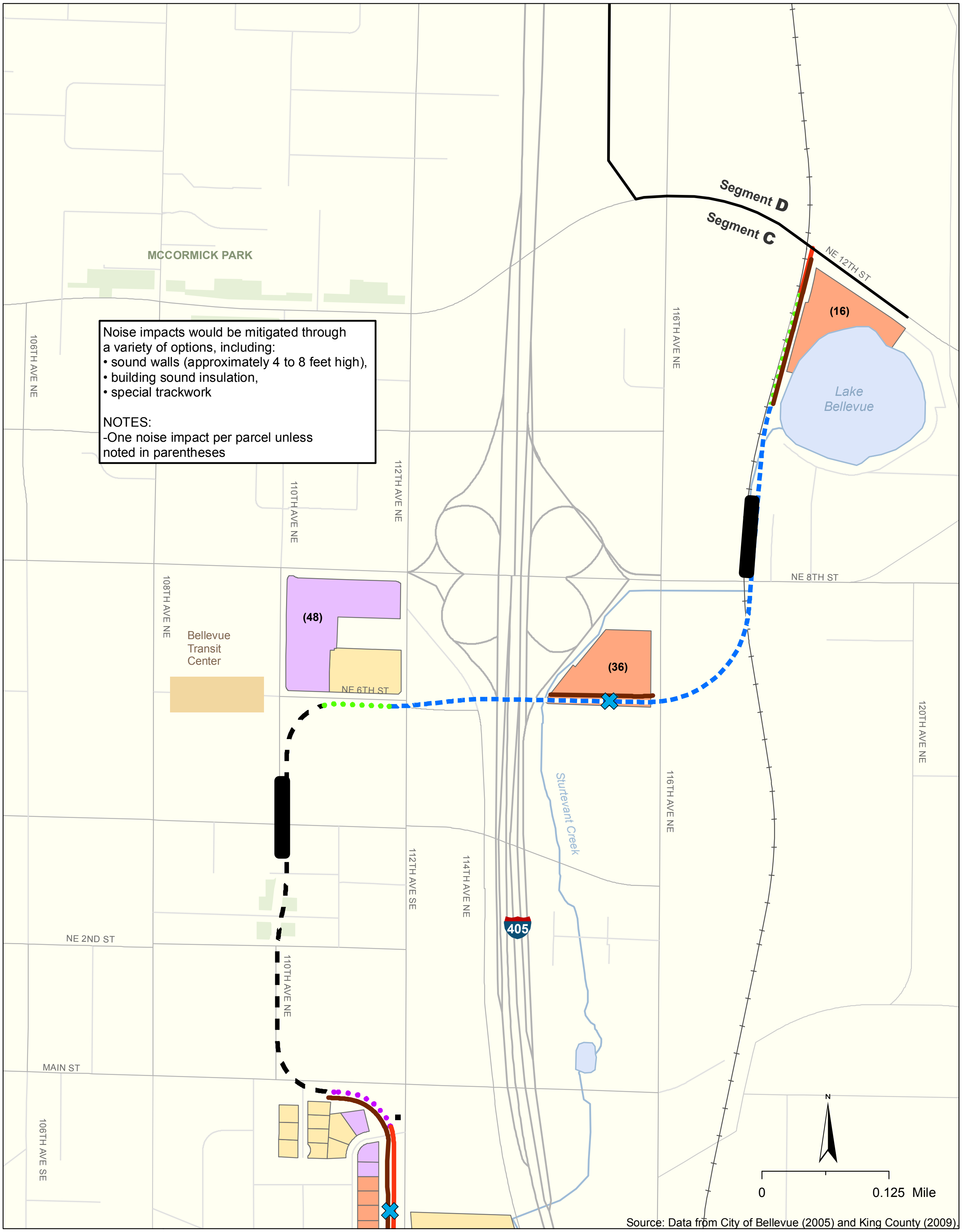
NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬ At-Grade Route	P New and/or Expanded Park-and-Ride Lot	■ Traction Power Substation
▬ Elevated Route	✖ Crossover Location	▬ Proposed Sound Wall Location
● Retained-Cut Route	✖ Gated Crossing	▨ Moderate
● Retained-Fill Route	✖ Shared Crossing (No Gates)	▨ Severe
▬ Tunnel Route		▨ Both Moderate and Severe
▬ Proposed Station		▨ No Noise Impact

Exhibit A-12-Na

Noise Impacts
Segment C
C9T from B2M
East Link Project


MCCORMICK PARK
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
106TH AVE NE
116TH AVE NE
110TH AVE NE
112TH AVE NE
108TH AVE NE
NE 8TH ST
(48)
Bellevue Transit Center
NE 6TH ST
(36)
Sturtevant Creek
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
MAIN ST
106TH AVE SE
N
0
0.125 Mile

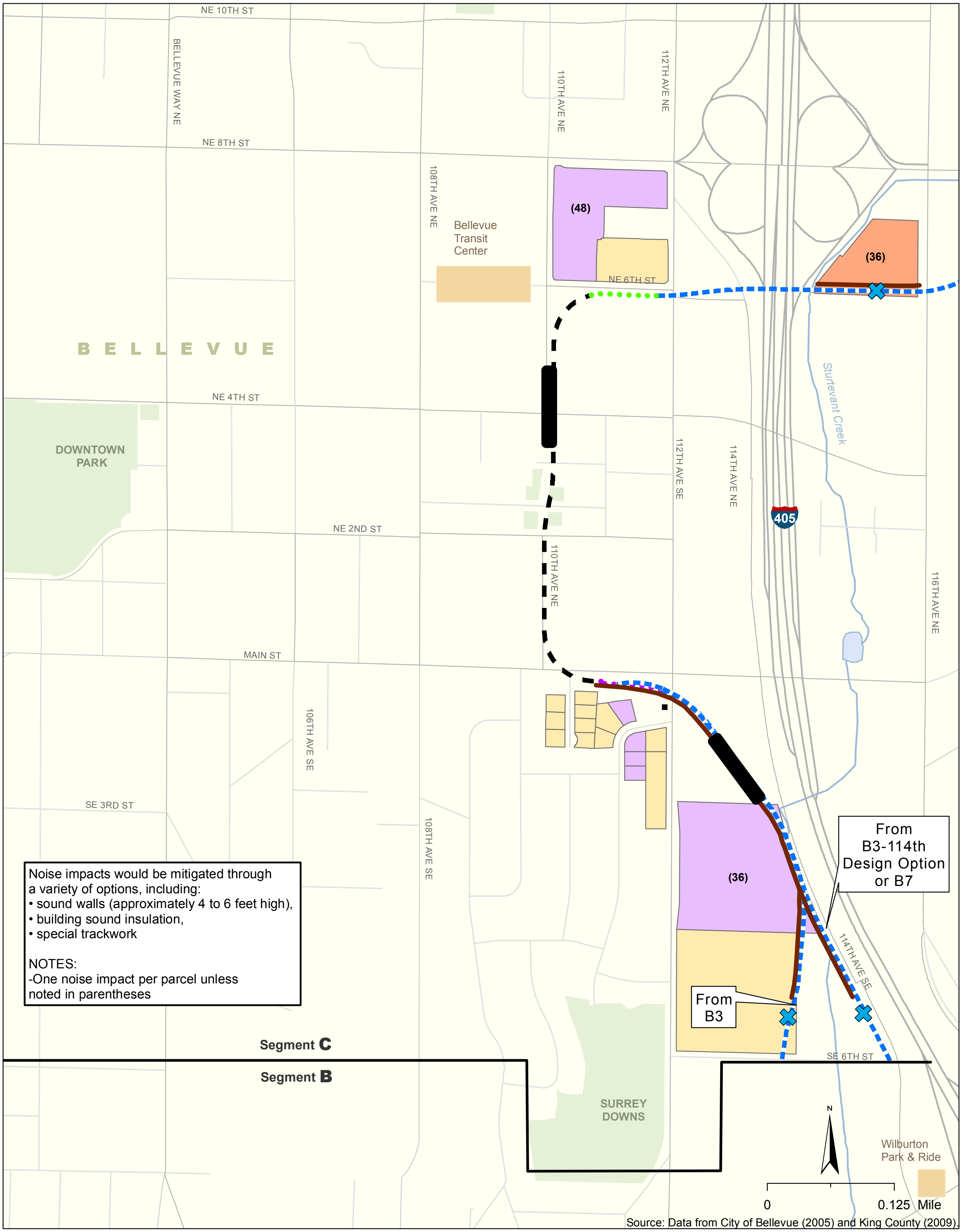
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-12-Nb
Noise Impacts
Segment C
C9T from B2M
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
(48)
Bellevue Transit Center
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(36)
From B3-114th Design Option or B7
114TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

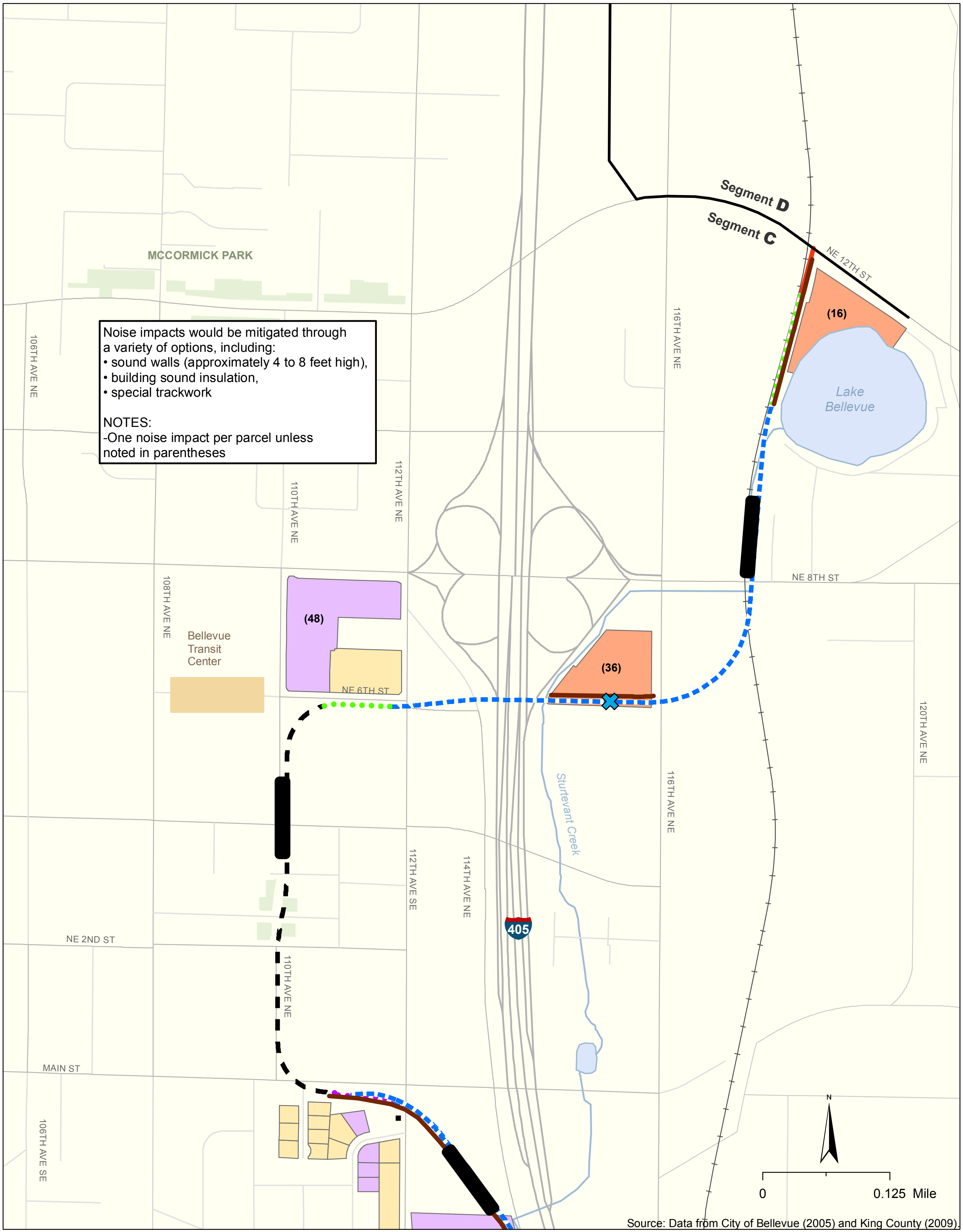
Exhibit A-13-Na

Noise Impacts

Segment C

C9T from B3/B7

East Link Project


MCCORMICK PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
NE 8TH ST
(48)
Bellevue Transit Center
NE 6TH ST
(36)
Sturtevant Creek
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
MAIN ST
106TH AVE SE
N
0
0.125 Mile

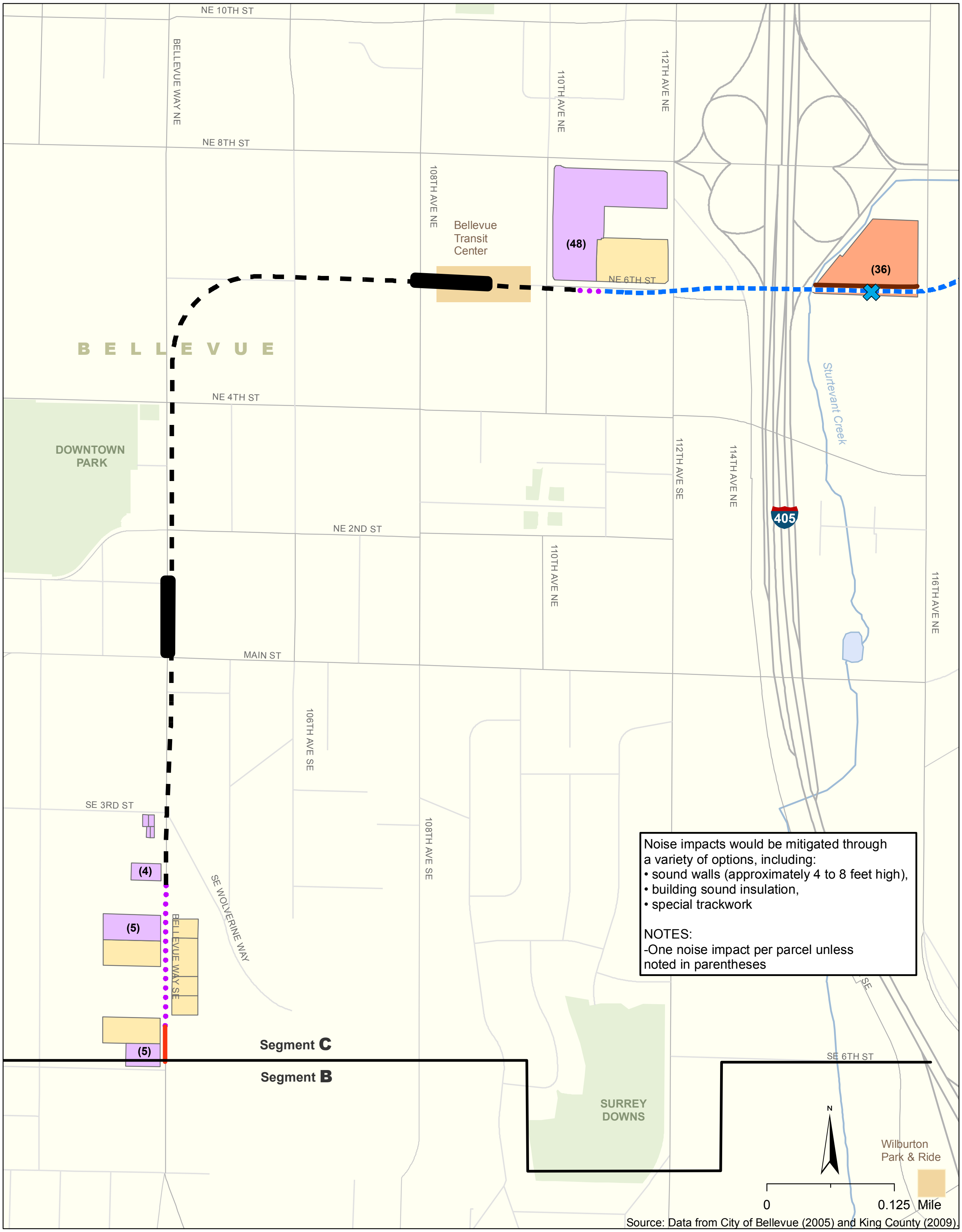
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
■ Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-13-Nb
Noise Impacts
Segment C
C9T from B3/B7
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(4)
SE WOLVERINE WAY
(5)
BELLEVUE WAY SE
SE
Segment C
(5)
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

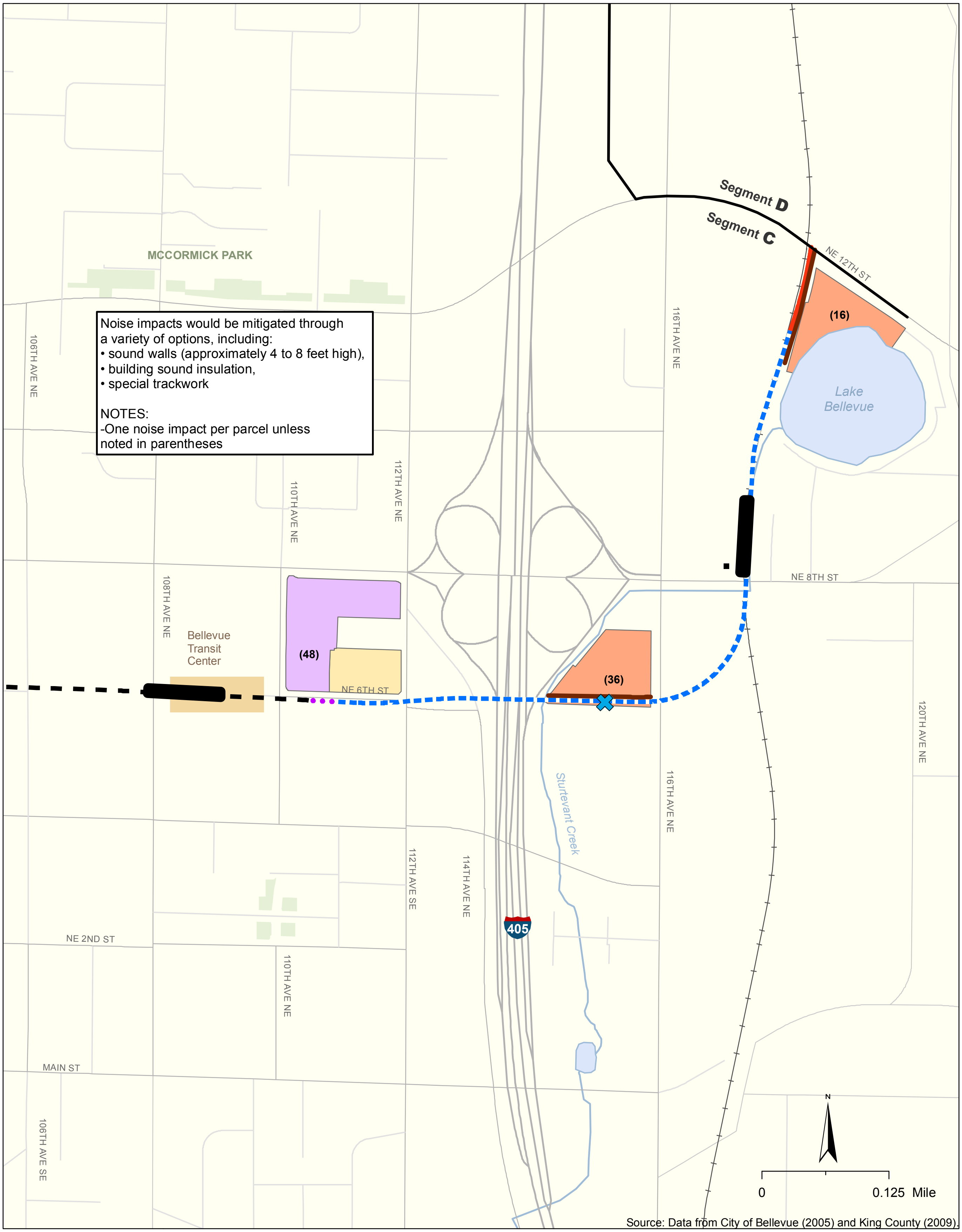
NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬	At-Grade Route	P	New and/or Expanded Park-and-Ride Lot	▪	Traction Power Substation
▪ ▪ ▪	Elevated Route			▬	Proposed Sound Wall Location
● ● ● ●	Retained-Cut Route	✖	Crossover Location	▭	Moderate
● ● ● ●	Retained-Fill Route	✖	Gated Crossing	▭	Severe
▬ ▬	Tunnel Route	✖	Shared Crossing (No Gates)	▭	Both Moderate and Severe
▬	Proposed Station			▭	No Noise Impact

Exhibit A-14-Na
Noise Impacts
Segment C
C1T
East Link Project


MCCORMICK PARK
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
106TH AVE NE
116TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
(48)
NE 6TH ST
(36)
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

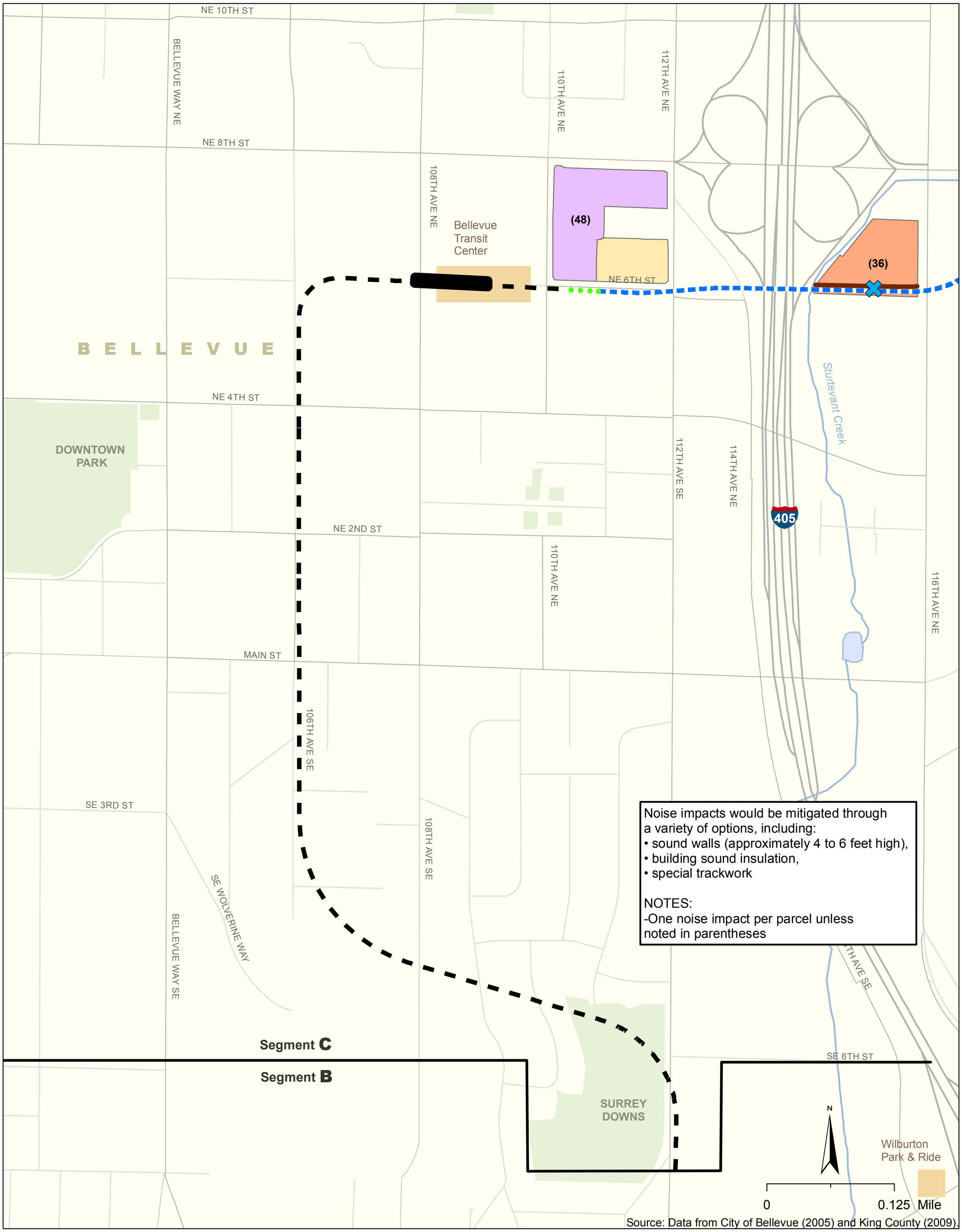
- sound walls (approximately 4 to 8 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- 🟥 At-Grade Route
- 🟦 Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ■ Traction Power Substation
- ▬ Proposed Sound Wall Location
- 🟪 Moderate
- 🟧 Severe
- 🟦 Both Moderate and Severe
- 🟨 No Noise Impact

Exhibit A-14-Nb
Noise Impacts
Segment C
C1T
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue
Transit
Center
(48)
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN
PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY
DOWNS
N
Wilburton
Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

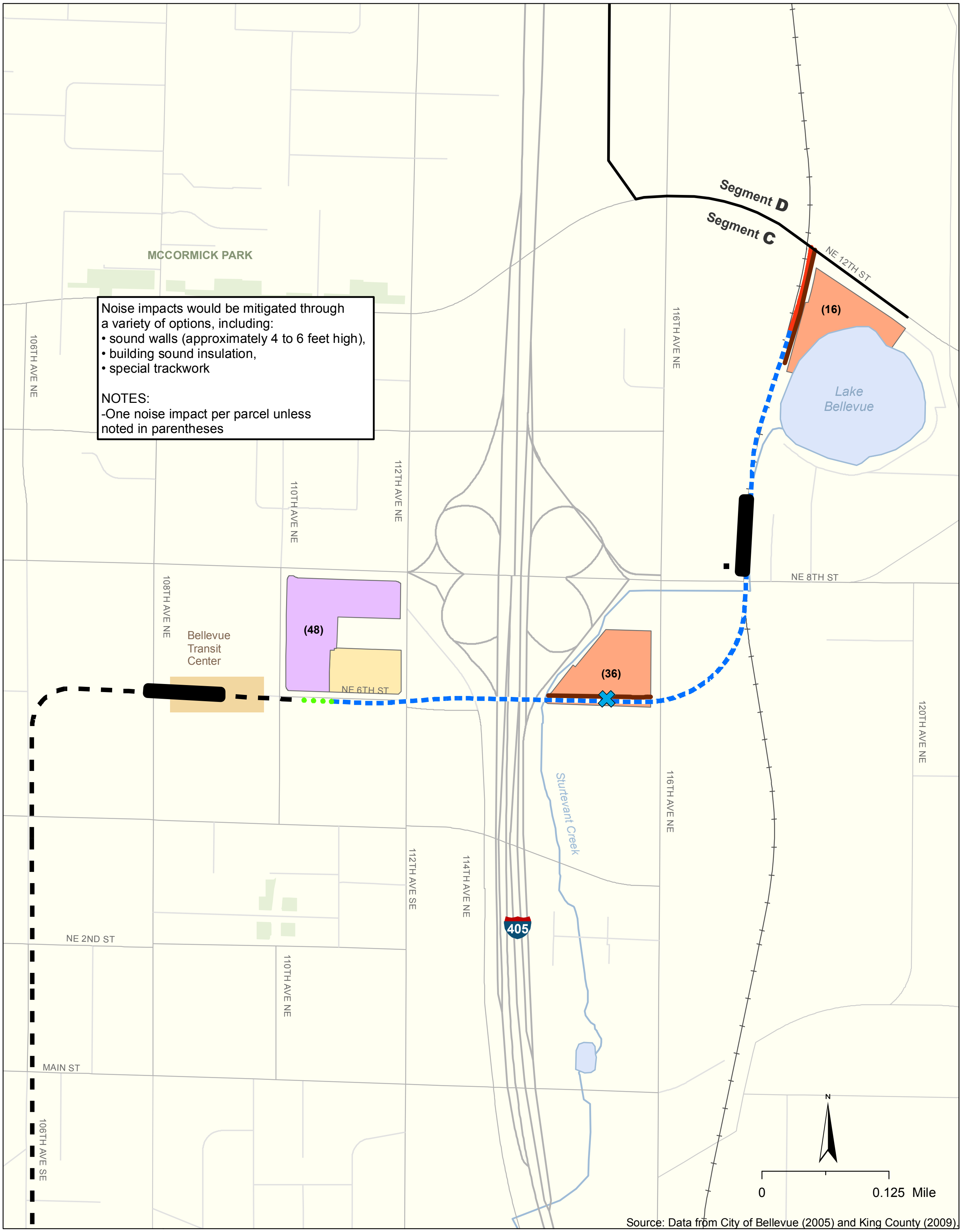
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬	At-Grade Route
▬ ▬ ▬	Elevated Route
● ● ● ●	Retained-Cut Route
● ● ● ●	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
✖	Crossover Location
✖	Gated Crossing
✖	Shared Crossing (No Gates)
■	Traction Power Substation
▬	Proposed Sound Wall Location
▭	Moderate
▭	Severe
▭	Both Moderate and Severe
▭	No Noise Impact

Exhibit A-15-Na
Noise Impacts
Segment C
C2T from B2A
East Link Project


Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
MCCORMICK PARK
106TH AVE NE
116TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
NE 8TH ST
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

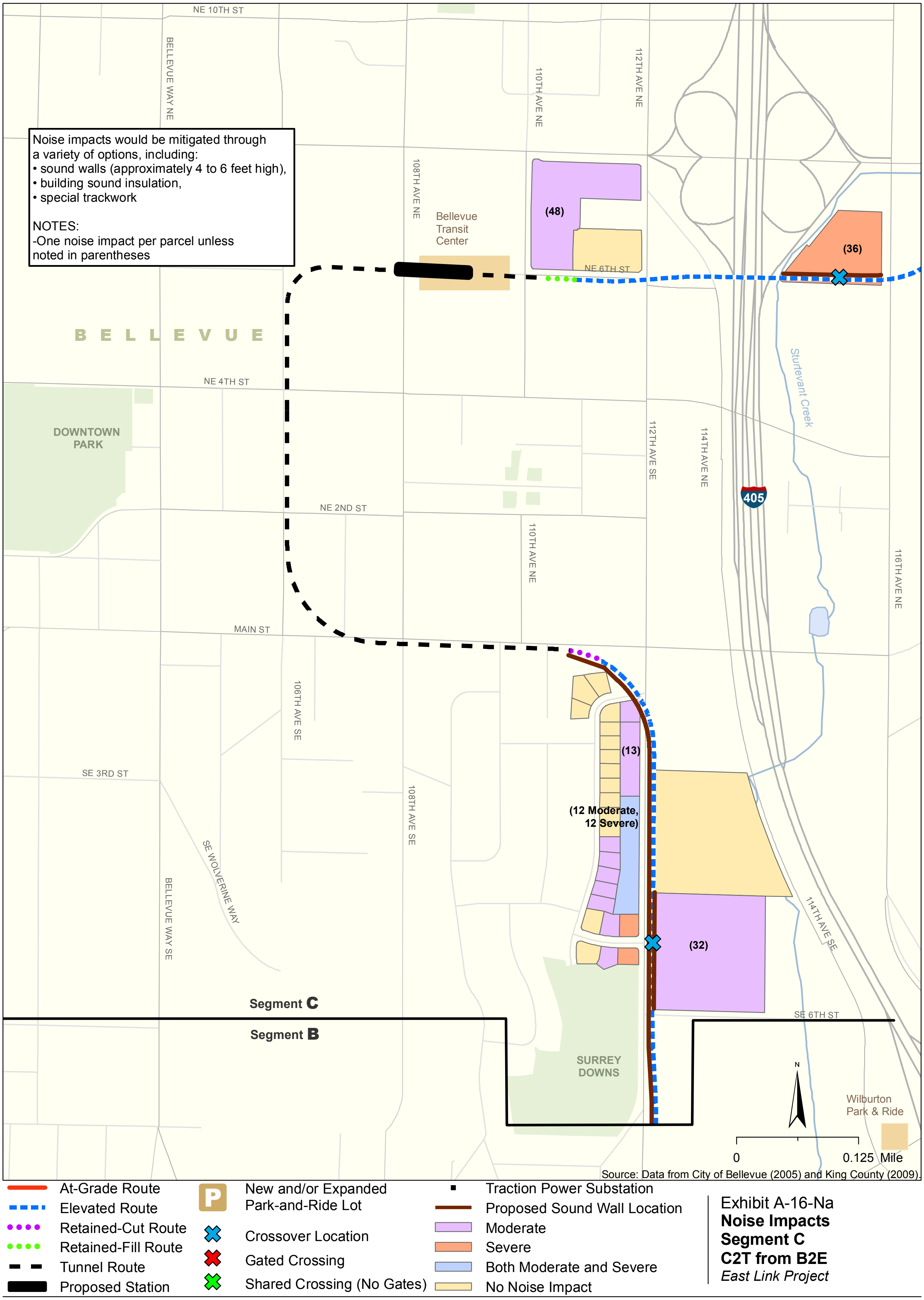
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

━ At-Grade Route
┅ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
╍ Tunnel Route
▬ Proposed Station
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
■ Traction Power Substation
━ Proposed Sound Wall Location
🟪 Moderate
🟧 Severe
🟦 Both Moderate and Severe
🟨 No Noise Impact

Exhibit A-15-Nb
Noise Impacts
Segment C
C2T from B2A
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
BELLEVUE
NE 4TH ST
DOWNTOWN PARK
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
(13)
SE 3RD ST
(12 Moderate, 12 Severe)
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
114TH AVE SE
(32)
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

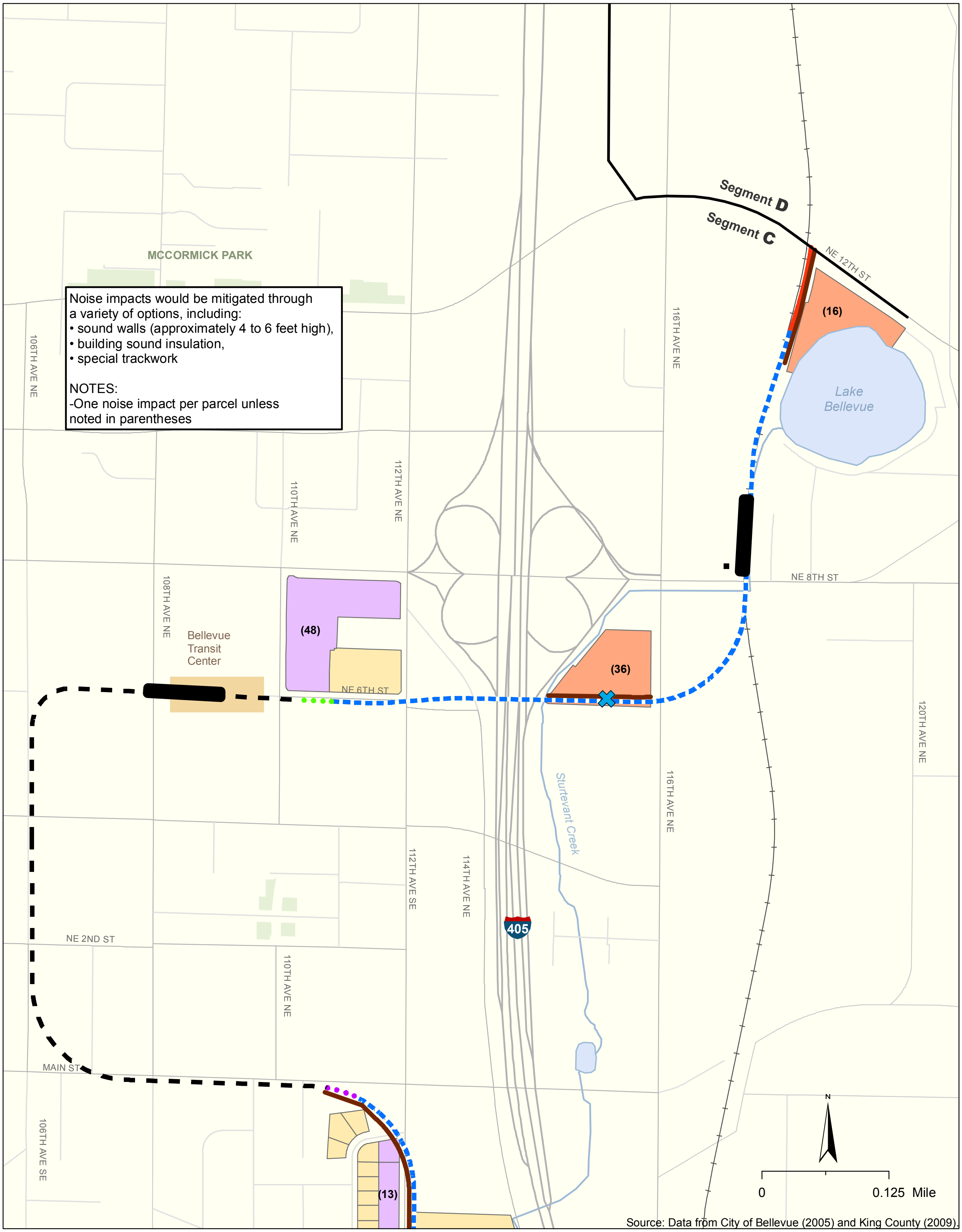
Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-16-Na
Noise Impacts
Segment C
C2T from B2E
East Link Project


MCCORMICK PARK
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
116TH AVE NE
106TH AVE NE
110TH AVE NE
112TH AVE NE
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
NE 8TH ST
(36)
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
(13)
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

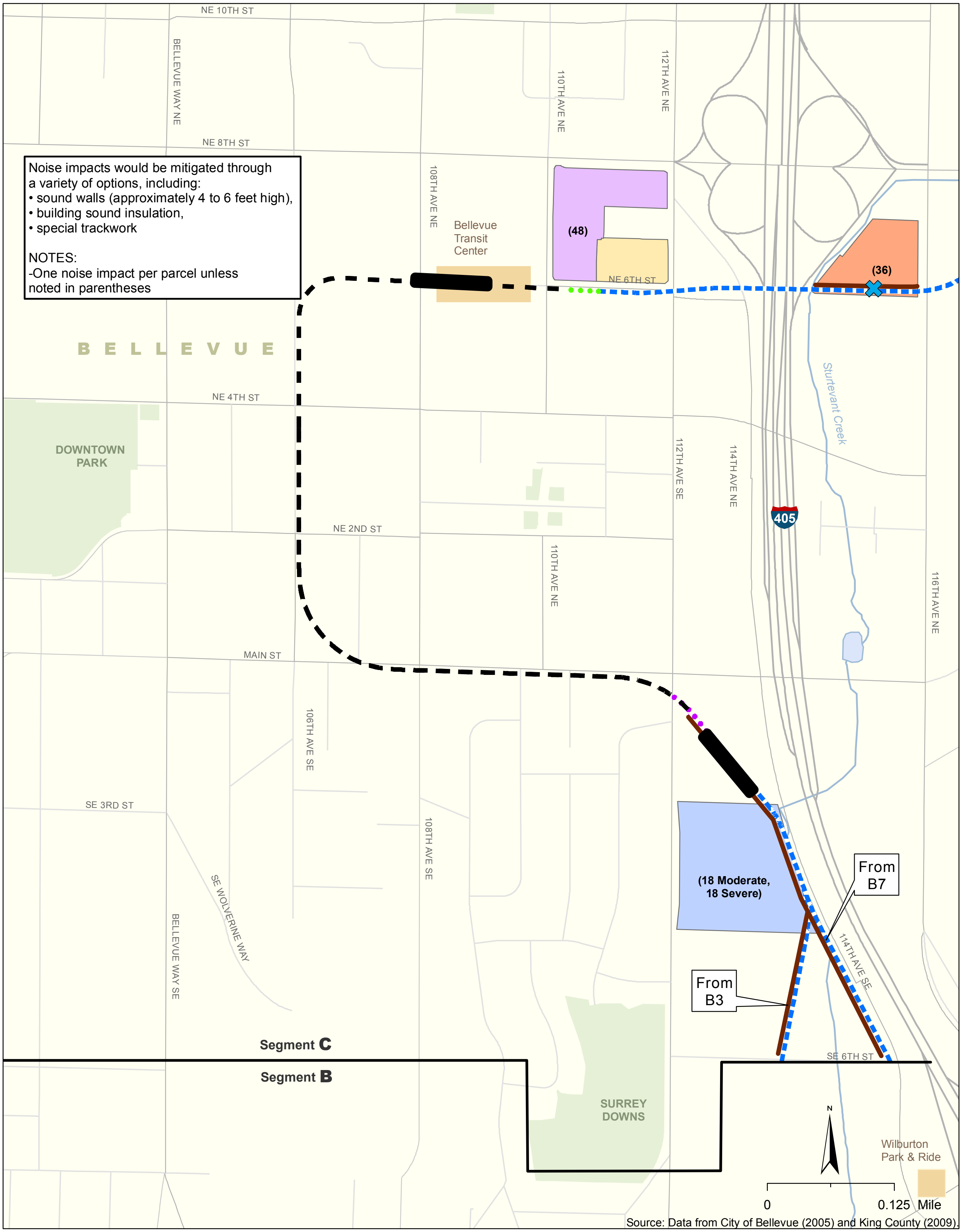
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- 🟥 At-Grade Route
- ┅ Elevated Route
- ● Retained-Cut Route
- ● Retained-Fill Route
- ╍ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation
- ▬ Proposed Sound Wall Location
- 🟪 Moderate
- 🟧 Severe
- 🟦 Both Moderate and Severe
- 🟨 No Noise Impact

Exhibit A-16-Nb
Noise Impacts
Segment C
C2T from B2E
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue
Transit
Center
(48)
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN
PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
(18 Moderate,
18 Severe)
From
B7
114TH AVE SE
From
B3
Segment C
Segment B
SE 6TH ST
SURREY
DOWNS
N
Wilburton
Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬ At-Grade Route	P New and/or Expanded Park-and-Ride Lot	▪ Traction Power Substation
┅ Elevated Route		▬ Proposed Sound Wall Location
•••• Retained-Cut Route	✖ Crossover Location	▨ Moderate
•••• Retained-Fill Route	✖ Gated Crossing	▨ Severe
▬ ▬ Tunnel Route	✖ Shared Crossing (No Gates)	▨ Both Moderate and Severe
▬ Proposed Station		▨ No Noise Impact

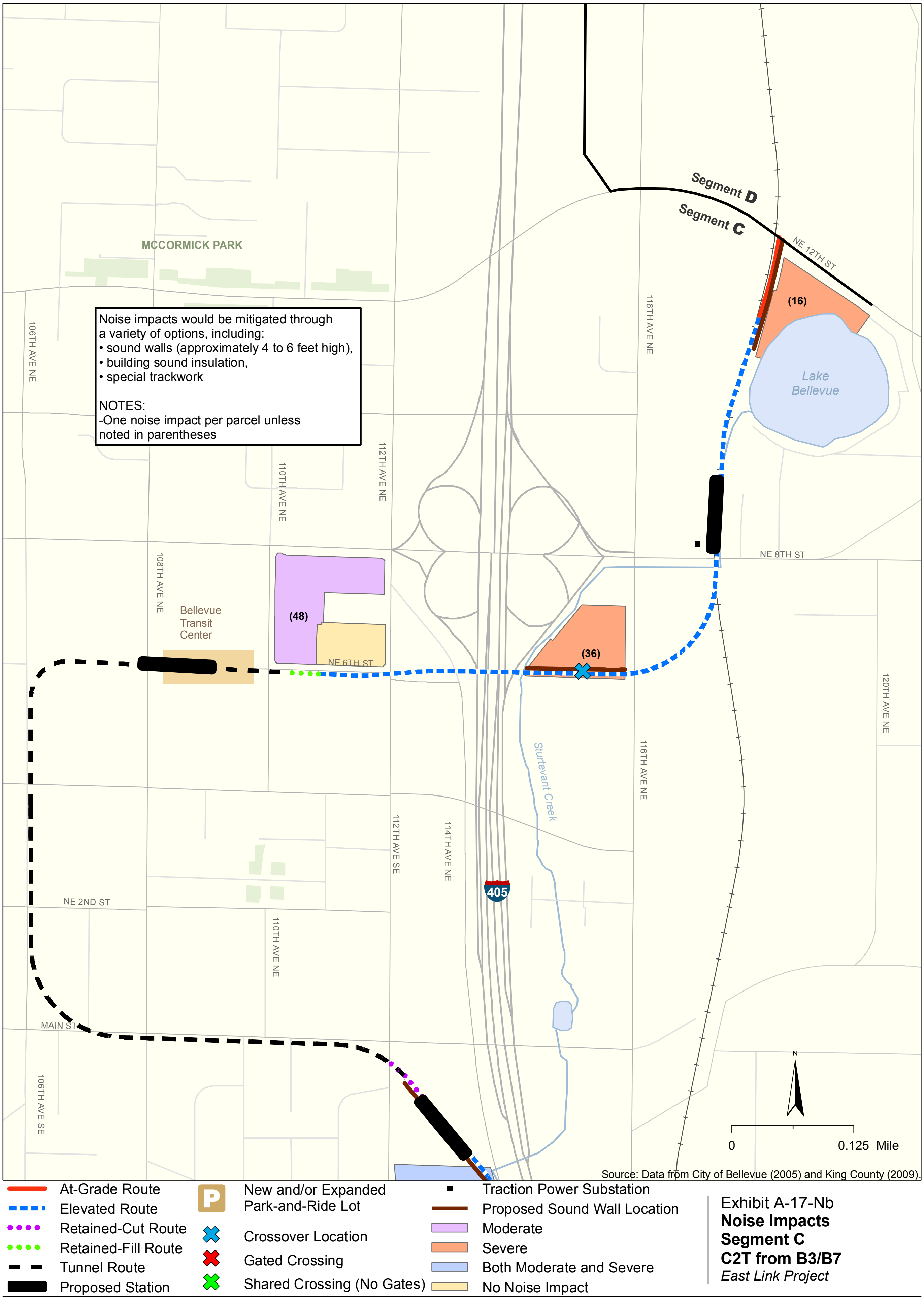
Exhibit A-17-Na

Noise Impacts

Segment C

C2T from B3/B7

East Link Project


Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
116TH AVE NE
MCCORMICK PARK
106TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
(48)
NE 6TH ST
(36)
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
N
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

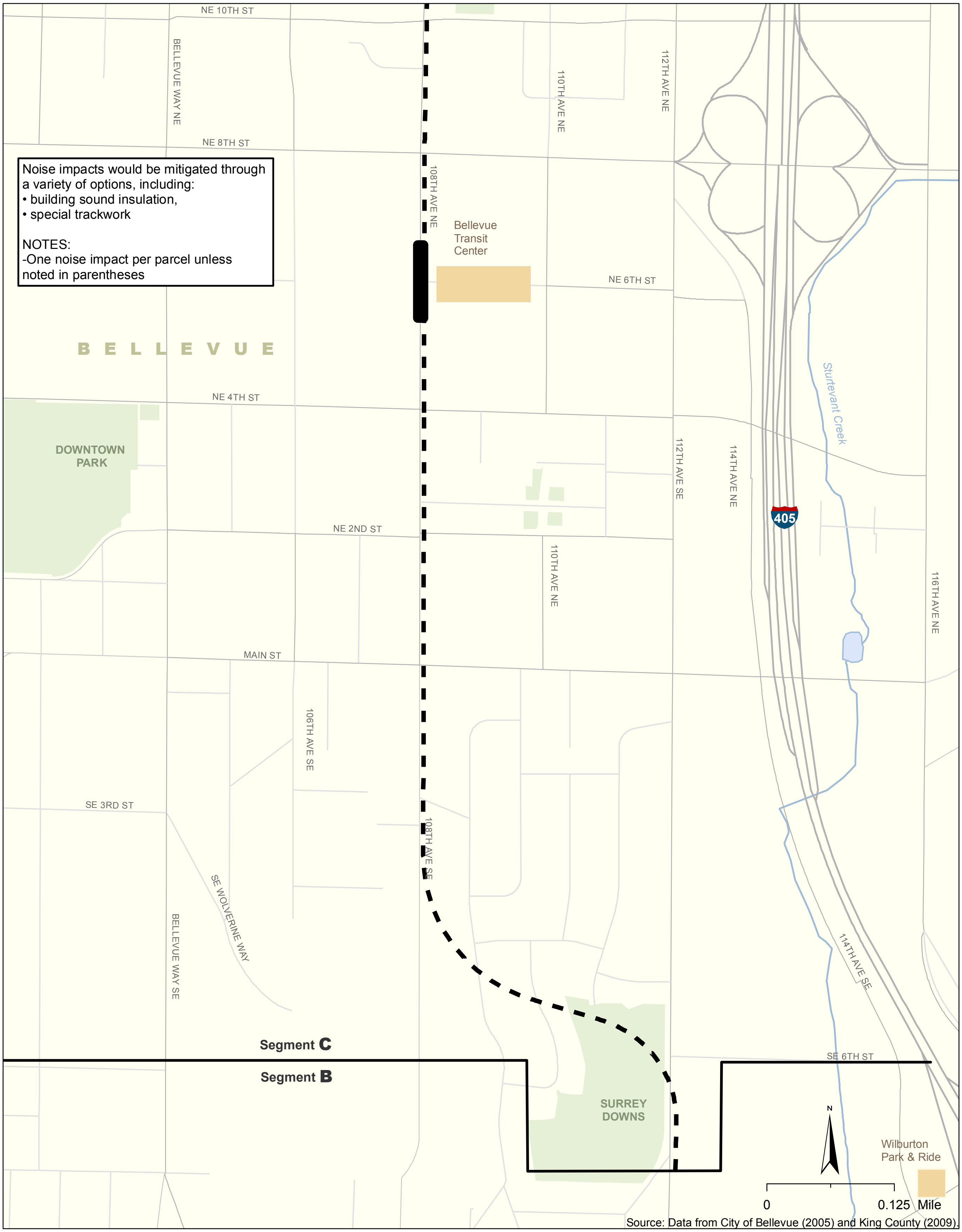
Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-17-Nb
Noise Impacts
Segment C
C2T from B3/B7
East Link Project


NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
106TH AVE SE
SE WOLVERINE WAY
Sturtevant Creek
405
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
SURREY DOWNS
Wilburton Park & Ride
Segment C
Segment B
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

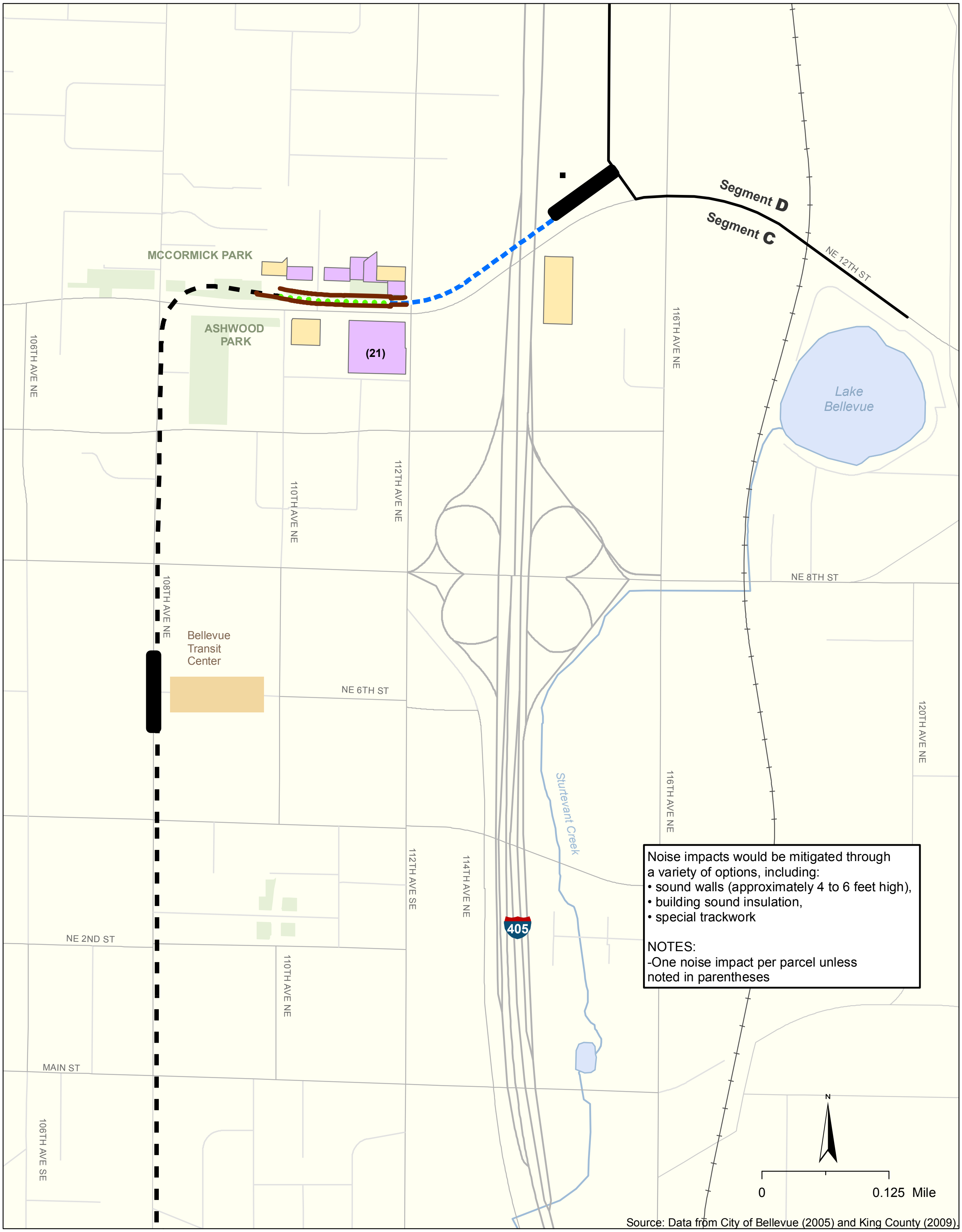
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route	New and/or Expanded Park-and-Ride Lot	Traction Power Substation
Elevated Route	Crossover Location	Proposed Sound Wall Location
Retained-Cut Route	Gated Crossing	Moderate
Retained-Fill Route	Shared Crossing (No Gates)	Severe
Tunnel Route		Both Moderate and Severe
Proposed Station		No Noise Impact

Exhibit A-18-Na
Noise Impacts
Segment C
C3T from B2A
East Link Project


MCCORMICK PARK
ASHWOOD PARK
(21)
Segment D
Segment C
NE 12TH ST
Lake Bellevue
106TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

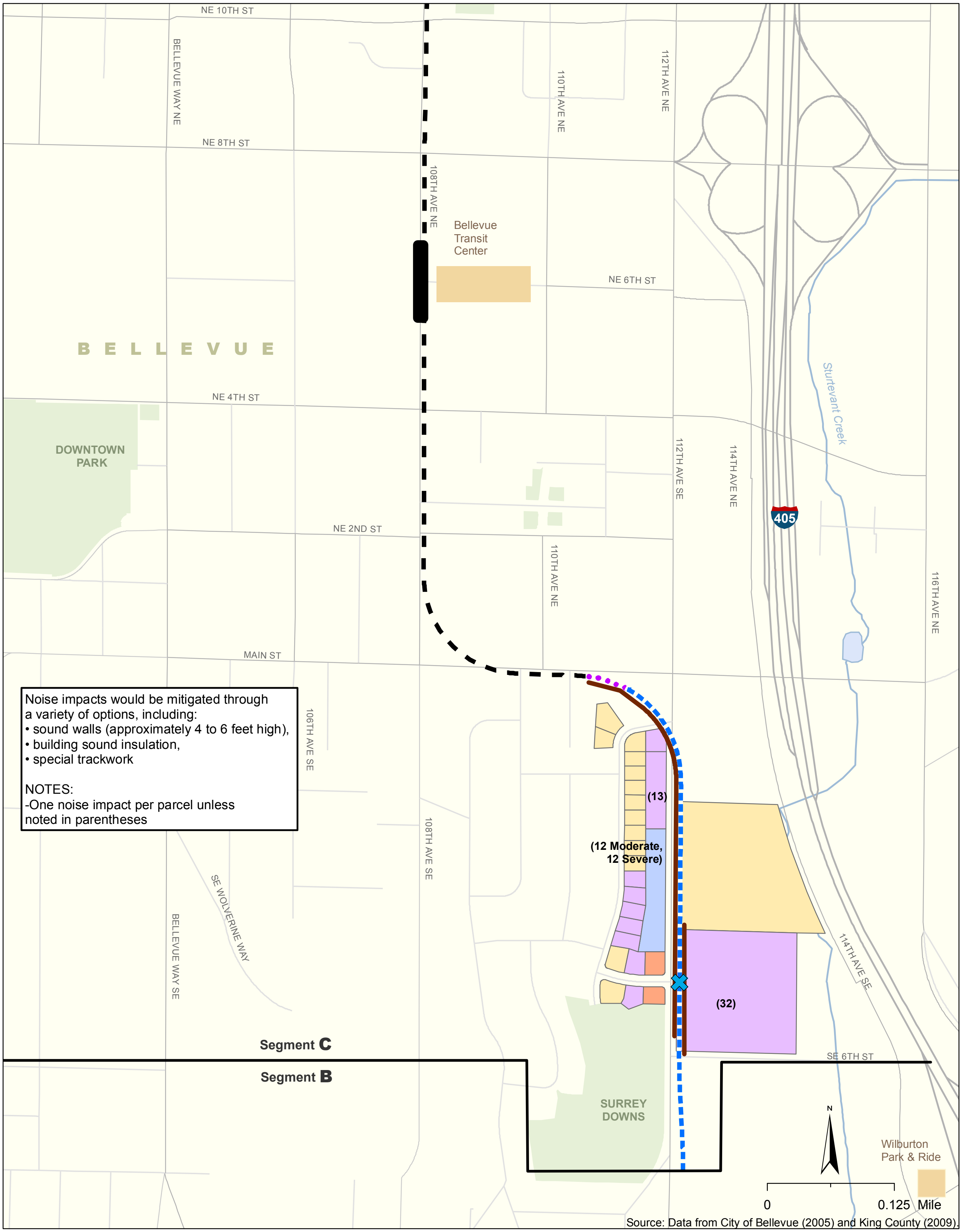
Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station

P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-18-Nb
Noise Impacts
Segment C
C3T from B2A
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
(13)
(12 Moderate, 12 Severe)
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
114TH AVE SE
(32)
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ━ At-Grade Route
- ┅ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ━ ━ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ■ Traction Power Substation
- ━ Proposed Sound Wall Location
- 🟪 Moderate
- 🟧 Severe
- 🟦 Both Moderate and Severe
- 🟨 No Noise Impact

Exhibit A-19-Na

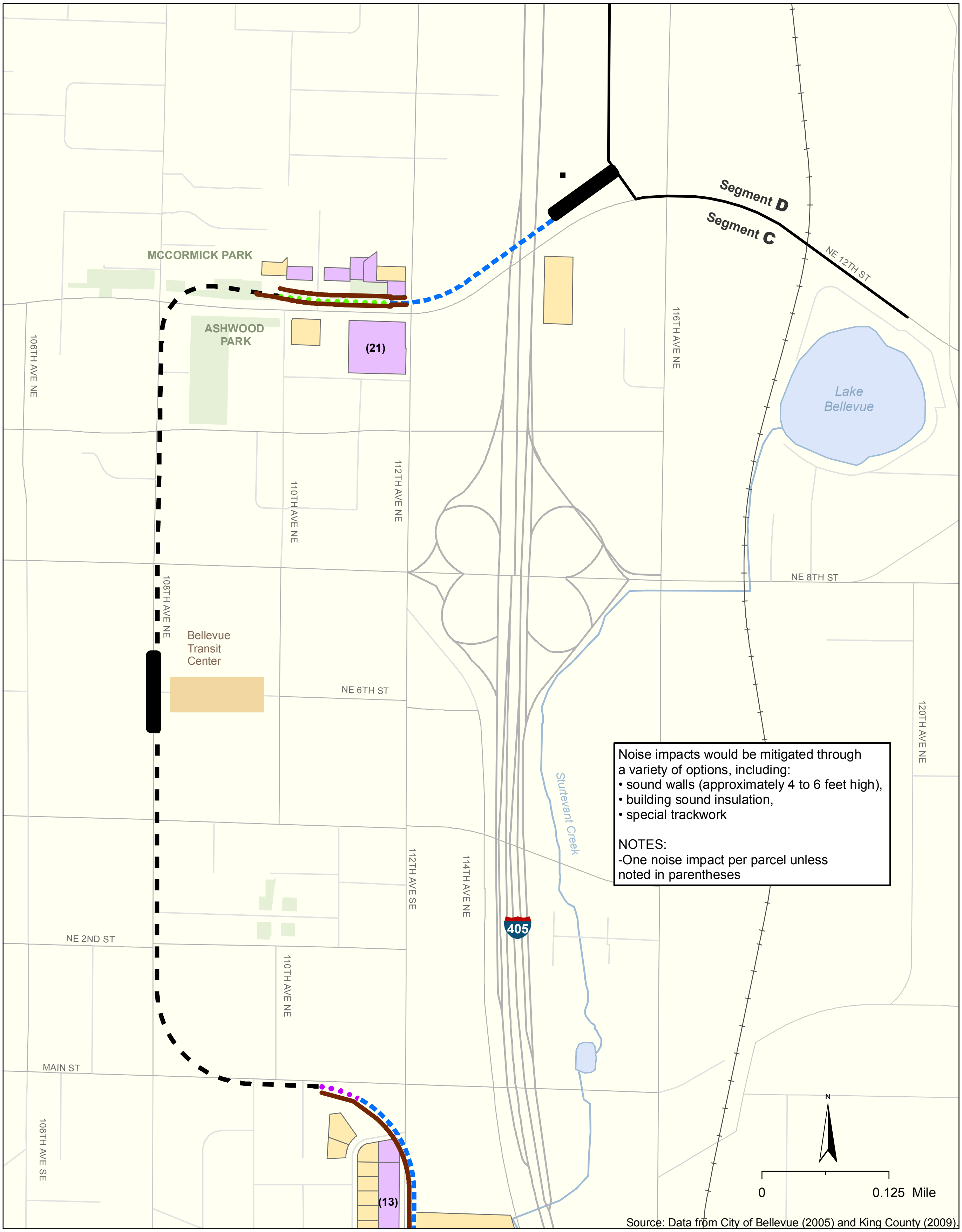
Noise Impacts

Segment C

C3T from B2E

East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\NOISEVIBRATION\FEIS_NOISE_SEGMENTC-NORTH.MXD AYOST 6/22/2011 15:33:45



Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
(21)
106TH AVE NE
116TH AVE NE
Lake Bellevue
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
120TH AVE NE
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
(13)
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

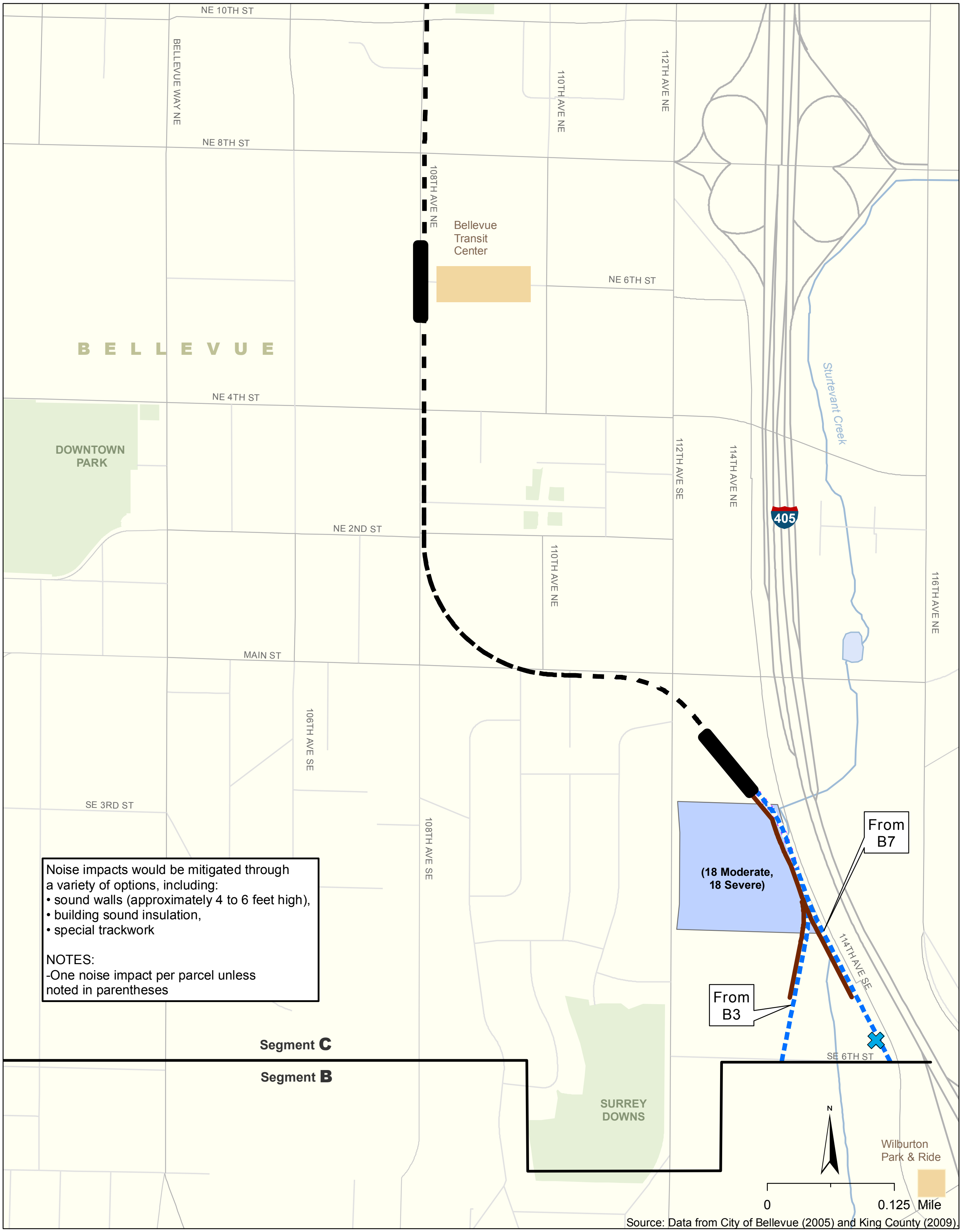
NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ━ At-Grade Route
- ┅ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ━ ━ Tunnel Route
- ■ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation
- ━ Proposed Sound Wall Location
- ▭ Moderate
- ▭ Severe
- ▭ Both Moderate and Severe
- ▭ No Noise Impact

Exhibit A-19-Nb

Noise Impacts
Segment C
C3T from B2E
East Link Project


NE 10TH ST
BELLEVUE WAY NE
NE 8TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
Bellevue Transit Center
NE 6TH ST
BELLEVUE
NE 4TH ST
DOWNTOWN PARK
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(18 Moderate, 18 Severe)
From B7
114TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬ At-Grade Route	P New and/or Expanded Park-and-Ride Lot	▪ Traction Power Substation
‒ ‒ Elevated Route		▬ Proposed Sound Wall Location
•••• Retained-Cut Route	✖ Crossover Location	▭ Moderate
•••• Retained-Fill Route	✖ Gated Crossing	▭ Severe
‒ ‒ Tunnel Route	✖ Shared Crossing (No Gates)	▭ Both Moderate and Severe
▬ Proposed Station		▭ No Noise Impact

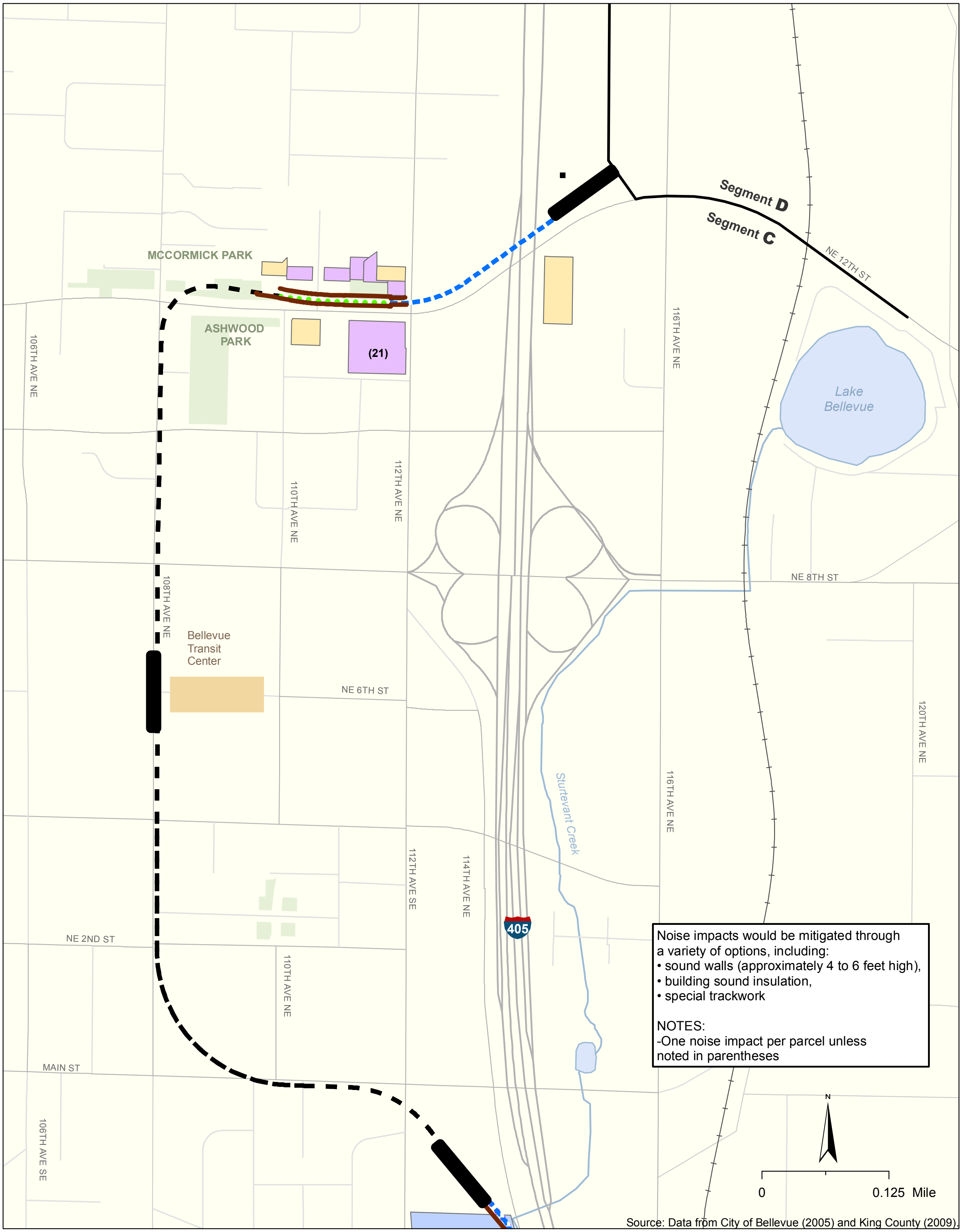
Exhibit A-20-Na

Noise Impacts

Segment C

C3T from B3/B7

East Link Project


Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
(21)
106TH AVE NE
116TH AVE NE
Lake Bellevue
112TH AVE NE
110TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
120TH AVE NE
Sturtevant Creek
116TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ╍ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ╍ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ■ Traction Power Substation
- ▬ Proposed Sound Wall Location
- 🟪 Moderate
- 🟧 Severe
- 🟦 Both Moderate and Severe
- 🟨 No Noise Impact

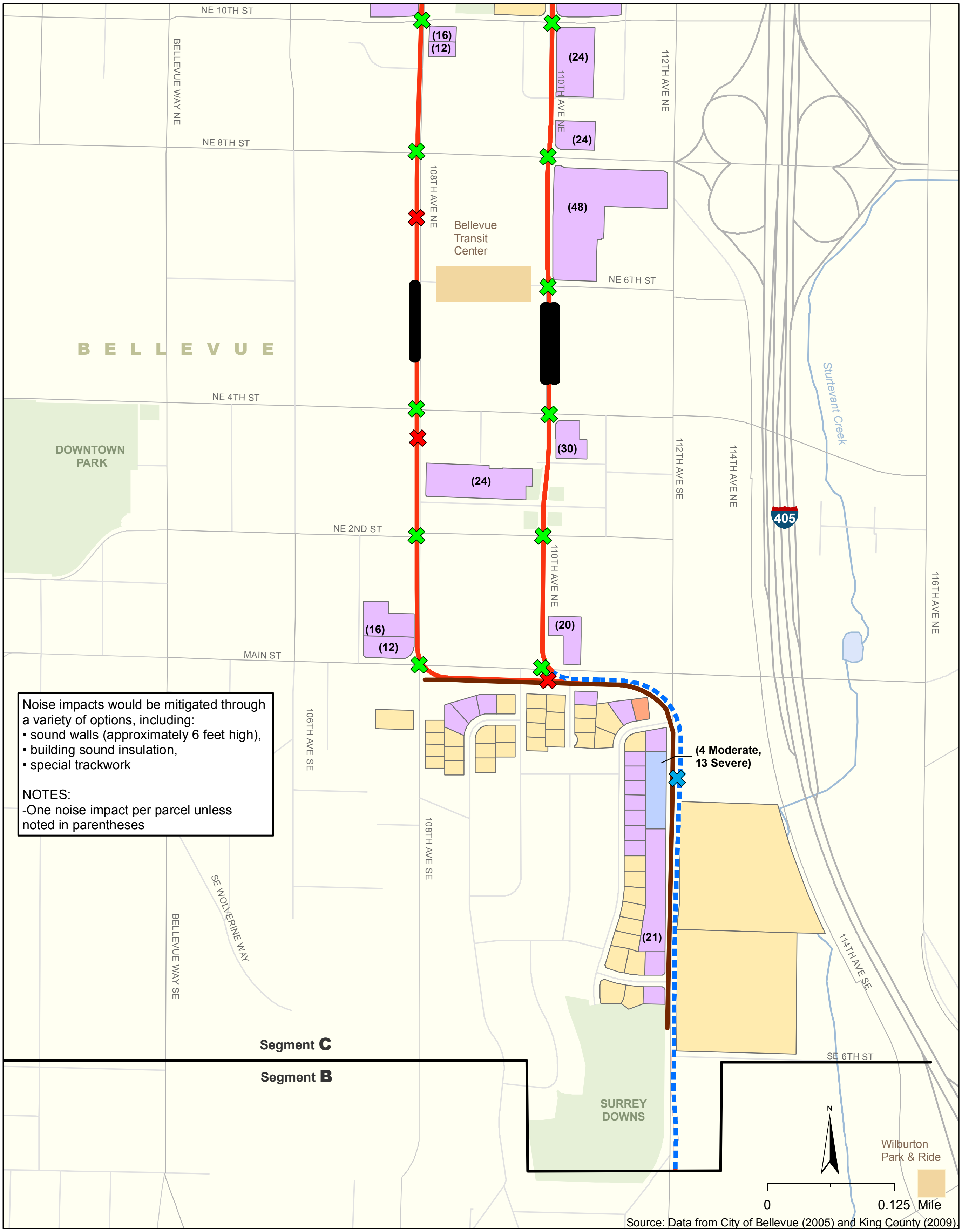
Exhibit A-20-Nb

Noise Impacts

Segment C

C3T from B3/B7

East Link Project


NE 10TH ST
BELLEVUE WAY NE
(16)
(12)
(24)
110TH AVE NE
112TH AVE NE
NE 8TH ST
(24)
108TH AVE NE
(48)
Bellevue Transit Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(30)
(24)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
(16)
(12)
(20)
MAIN ST
106TH AVE SE
(4 Moderate, 13 Severe)
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
(21)
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route	New and/or Expanded Park-and-Ride Lot	Traction Power Substation
Elevated Route	Crossover Location	Proposed Sound Wall Location
Retained-Cut Route	Gated Crossing	Moderate
Retained-Fill Route	Shared Crossing (No Gates)	Severe
Tunnel Route		Both Moderate and Severe
Proposed Station		No Noise Impact

Exhibit A-21-Na

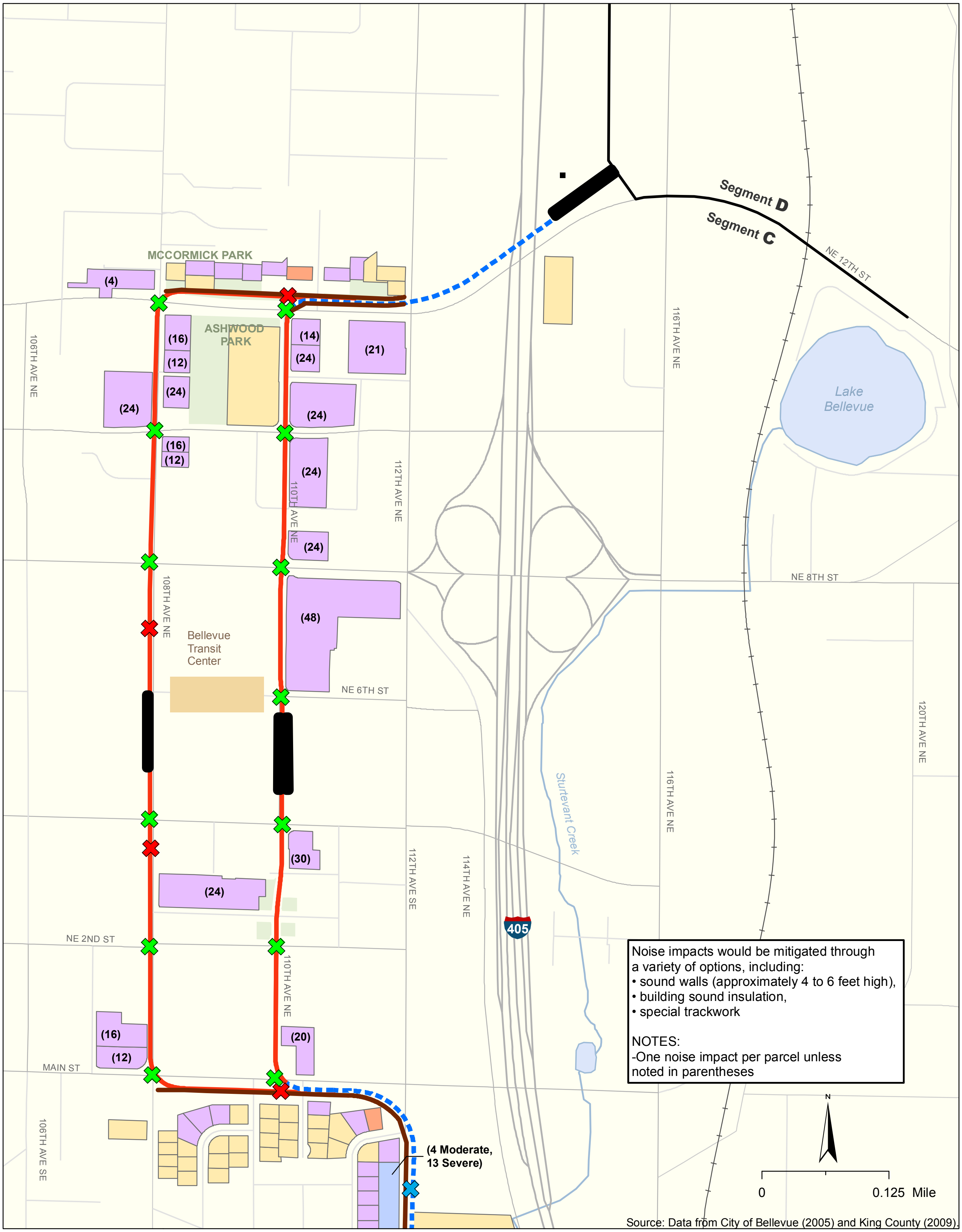
Noise Impacts

Segment C

C4A from B2A/B2E

East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\NOISEVIBRATION\FEIS_NOISE_SEGMENTC-NORTH.MXD AYOST 6/22/2011 15:33:45


MCCORMICK PARK
ASHWOOD PARK
(4)
(16)
(12)
(24)
(14)
(24)
(21)
(24)
(24)
(16)
(12)
(24)
(24)
(48)
(30)
(24)
(16)
(12)
(20)
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
NE 12TH ST
NE 8TH ST
NE 6TH ST
NE 2ND ST
MAIN ST
106TH AVE SE
112TH AVE SE
114TH AVE NE
Bellevue Transit Center
Lake Bellevue
Sturtevant Creek
405
Segment D
Segment C
(4 Moderate, 13 Severe)
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬	At-Grade Route
- - -	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
— —	Tunnel Route
▬	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
✖	Crossover Location
✖	Gated Crossing
✖	Shared Crossing (No Gates)
▪	Traction Power Substation
▬	Proposed Sound Wall Location
▭	Moderate
▭	Severe
▭	Both Moderate and Severe
▭	No Noise Impact

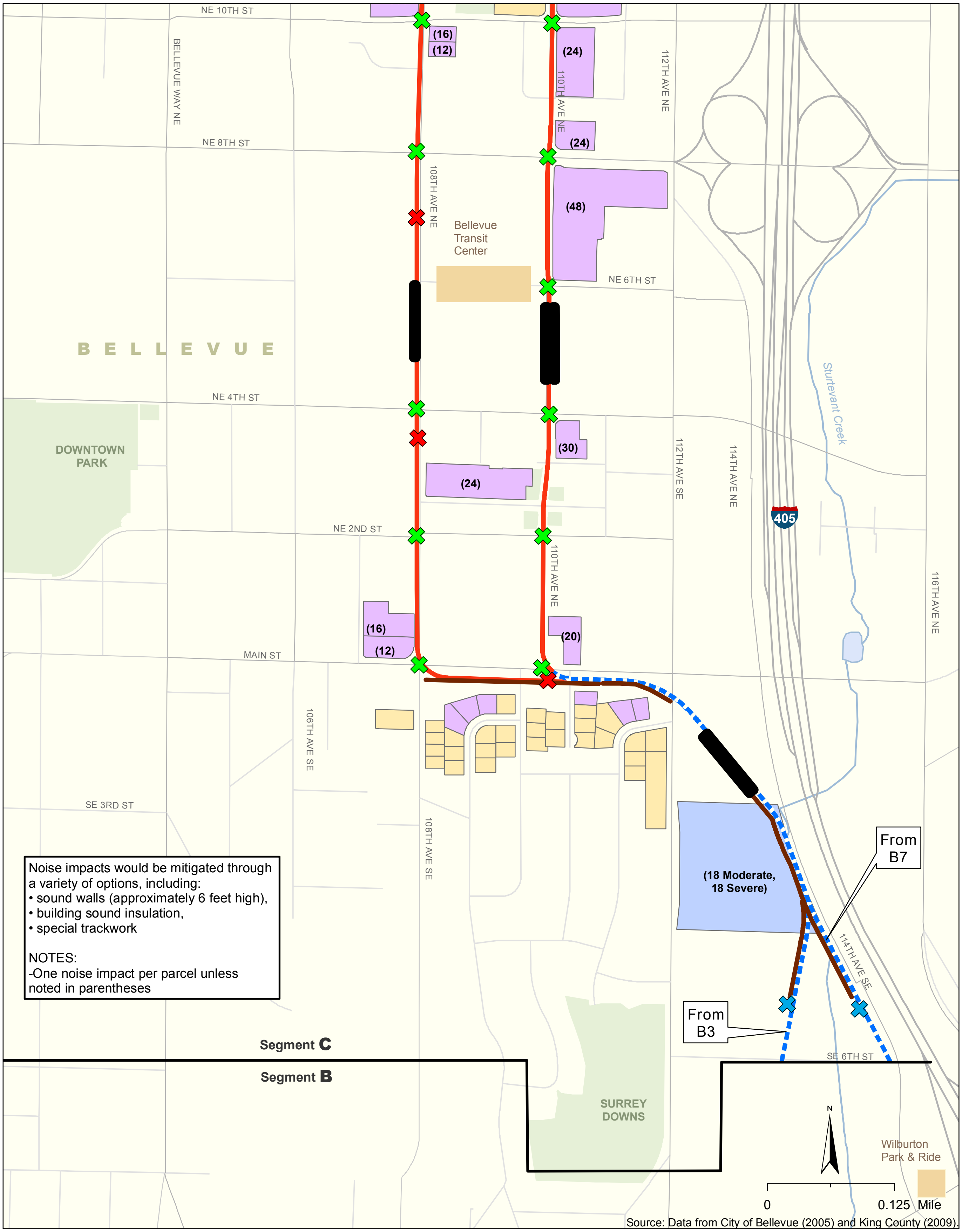
Exhibit A-21-Nb

Noise Impacts

Segment C

C4A from B2A/B2E

East Link Project


NE 10TH ST
BELLEVUE WAY NE
(16)
(12)
(24)
110TH AVE NE
112TH AVE NE
(24)
NE 8TH ST
108TH AVE NE
(48)
Bellevue
Transit
Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
(30)
DOWNTOWN
PARK
(24)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
(16)
(12)
(20)
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(18 Moderate,
18 Severe)
From
B7
114TH AVE SE
From
B3
Segment C
Segment B
SE 6TH ST
SURREY
DOWNS
N
Wilburton
Park & Ride
0
0.125
Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 6 feet high),
- building sound insulation,
- special trackwork

NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬	At-Grade Route
╍	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route
▬	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
✖	Crossover Location
✖	Gated Crossing
✖	Shared Crossing (No Gates)
▪	Traction Power Substation
▬	Proposed Sound Wall Location
▭	Moderate
▭	Severe
▭	Both Moderate and Severe
▭	No Noise Impact

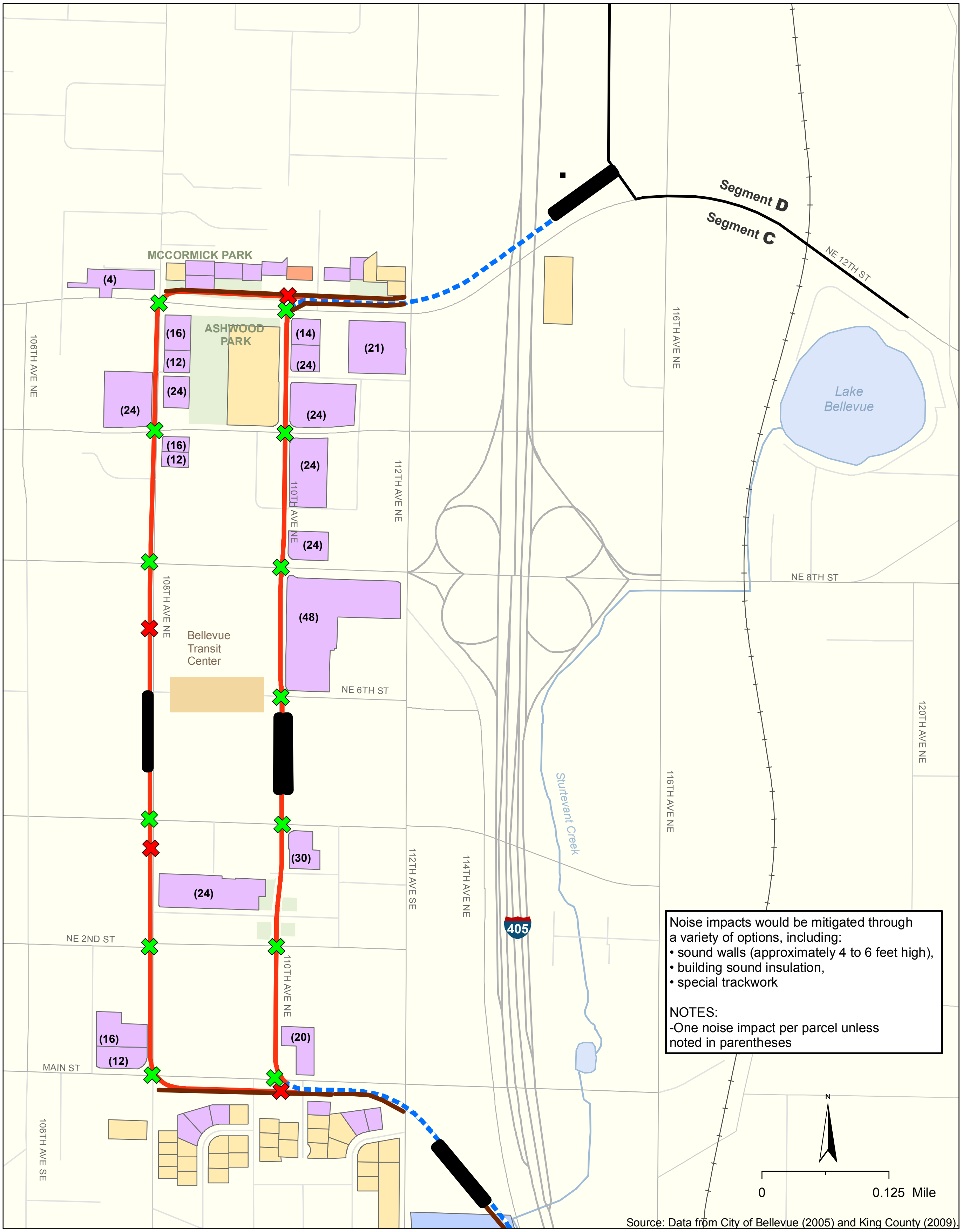
Exhibit A-22-Na

Noise Impacts

Segment C

C4A from B3/B7

East Link Project


MCCORMICK PARK
(4)
ASHWOOD PARK
(16)
(12)
(24)
(14)
(24)
(21)
(24)
(24)
(16)
(12)
(24)
(24)
(48)
(30)
(24)
(20)
(16)
(12)
Segment D
Segment C
NE 12TH ST
Lake Bellevue
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
N
0
0.125 Mile

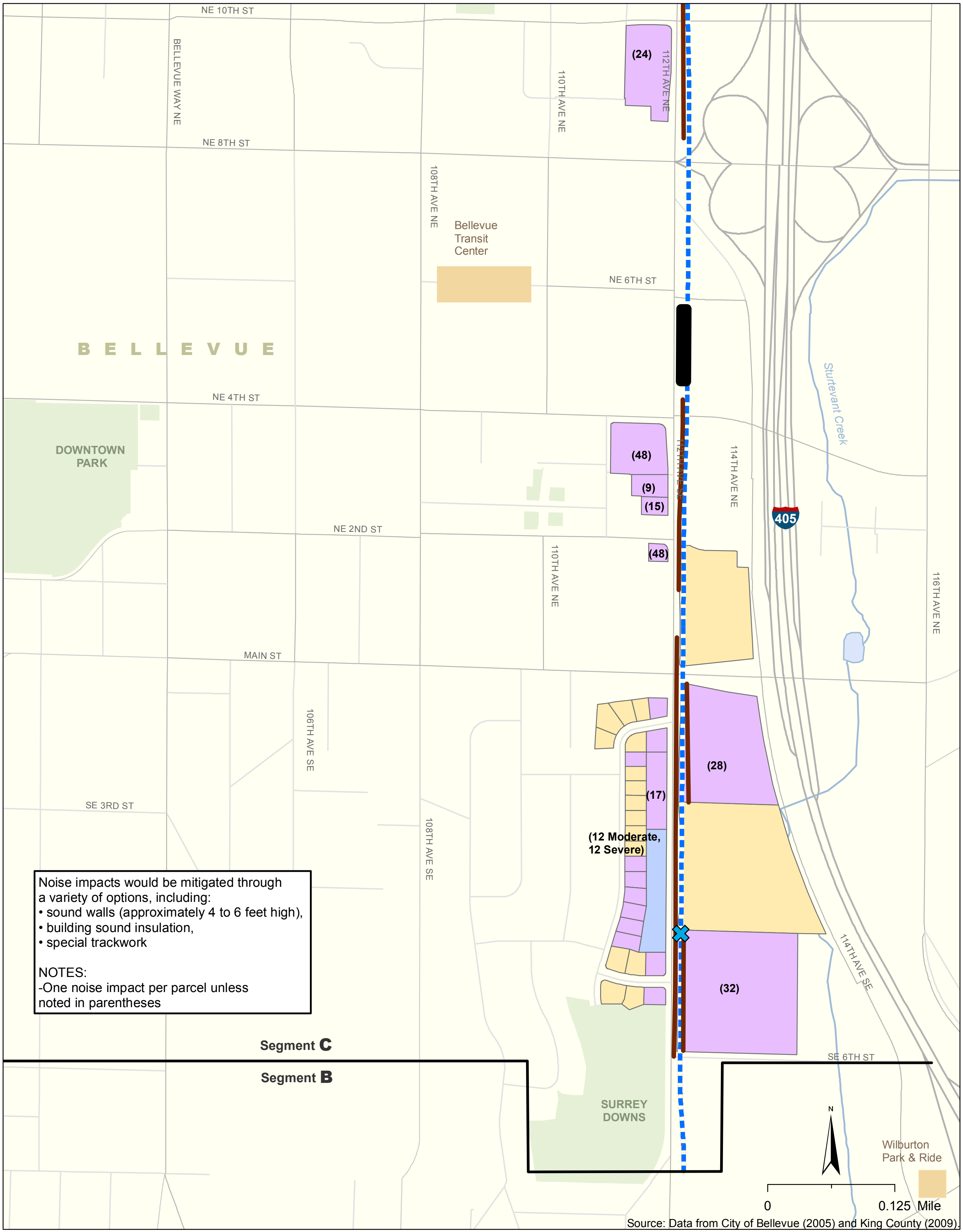
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
✕ Crossover Location
✕ Gated Crossing
✕ Shared Crossing (No Gates)
▪ Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-22-Nb
Noise Impacts
Segment C
C4A from B3/B7
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
(24)
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(48)
(9)
(15)
114TH AVE NE
405
NE 2ND ST
(48)
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
(28)
(17)
SE 3RD ST
108TH AVE SE
(12 Moderate, 12 Severe)
114TH AVE SE
(32)
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

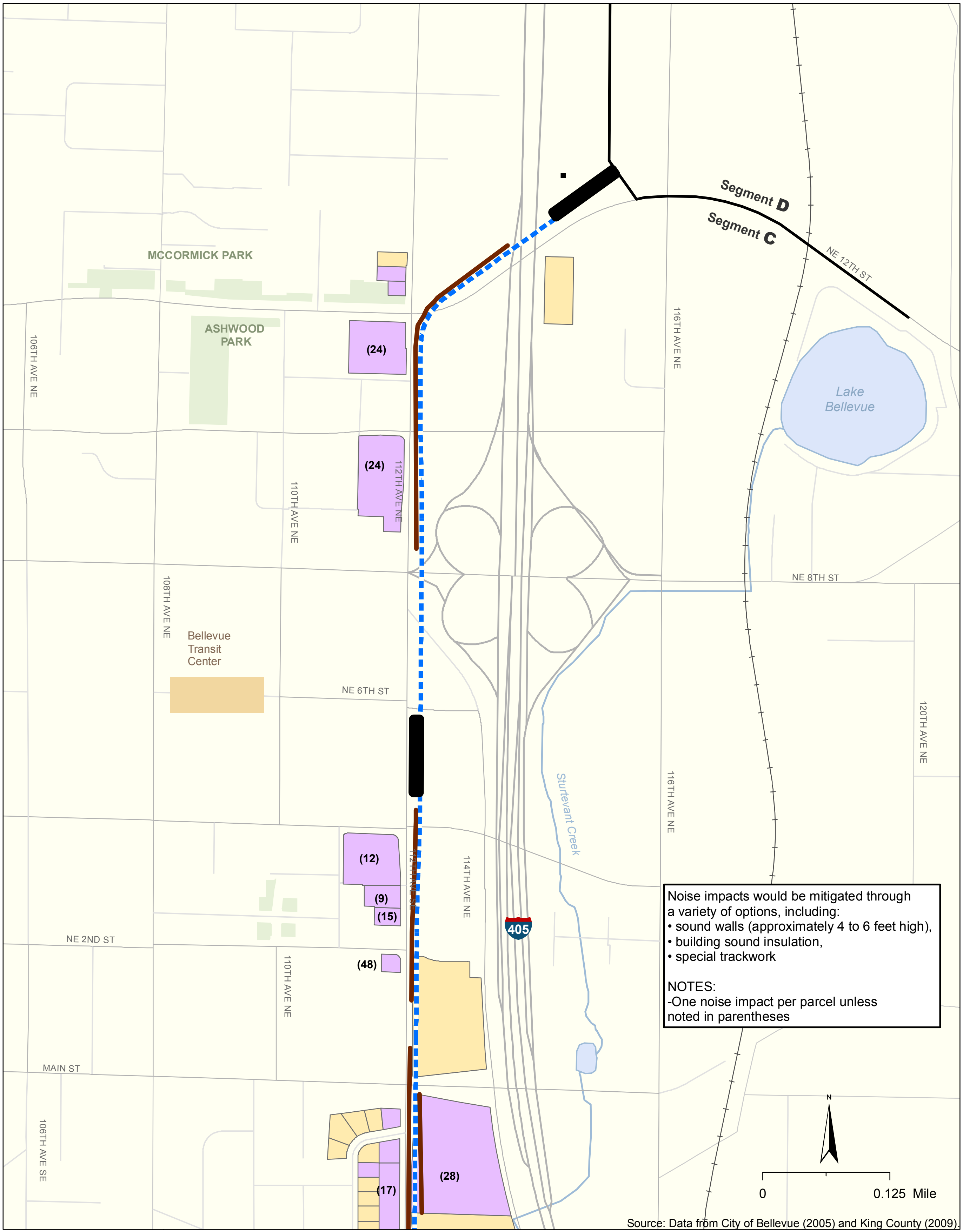
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ▪▪▪▪ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation
- ▬ Proposed Sound Wall Location
- ▭ Moderate
- ▭ Severe
- ▭ Both Moderate and Severe
- ▭ No Noise Impact

Exhibit A-23-Na
Noise Impacts
Segment C
C7E from B2A/B2E
East Link Project


Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
Lake Bellevue
(24)
(24)
112TH AVE NE
110TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
116TH AVE NE
120TH AVE NE
(12)
(9)
(15)
114TH AVE NE
405
NE 2ND ST
(48)
110TH AVE NE
MAIN ST
106TH AVE SE
(17)
(28)
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

🟥 At-Grade Route
🟦 Elevated Route
● Retained-Cut Route
● Retained-Fill Route
▬ Tunnel Route
■ Proposed Station

P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

■ Traction Power Substation
▬ Proposed Sound Wall Location
▨ Moderate
▨ Severe
▨ Both Moderate and Severe
▨ No Noise Impact

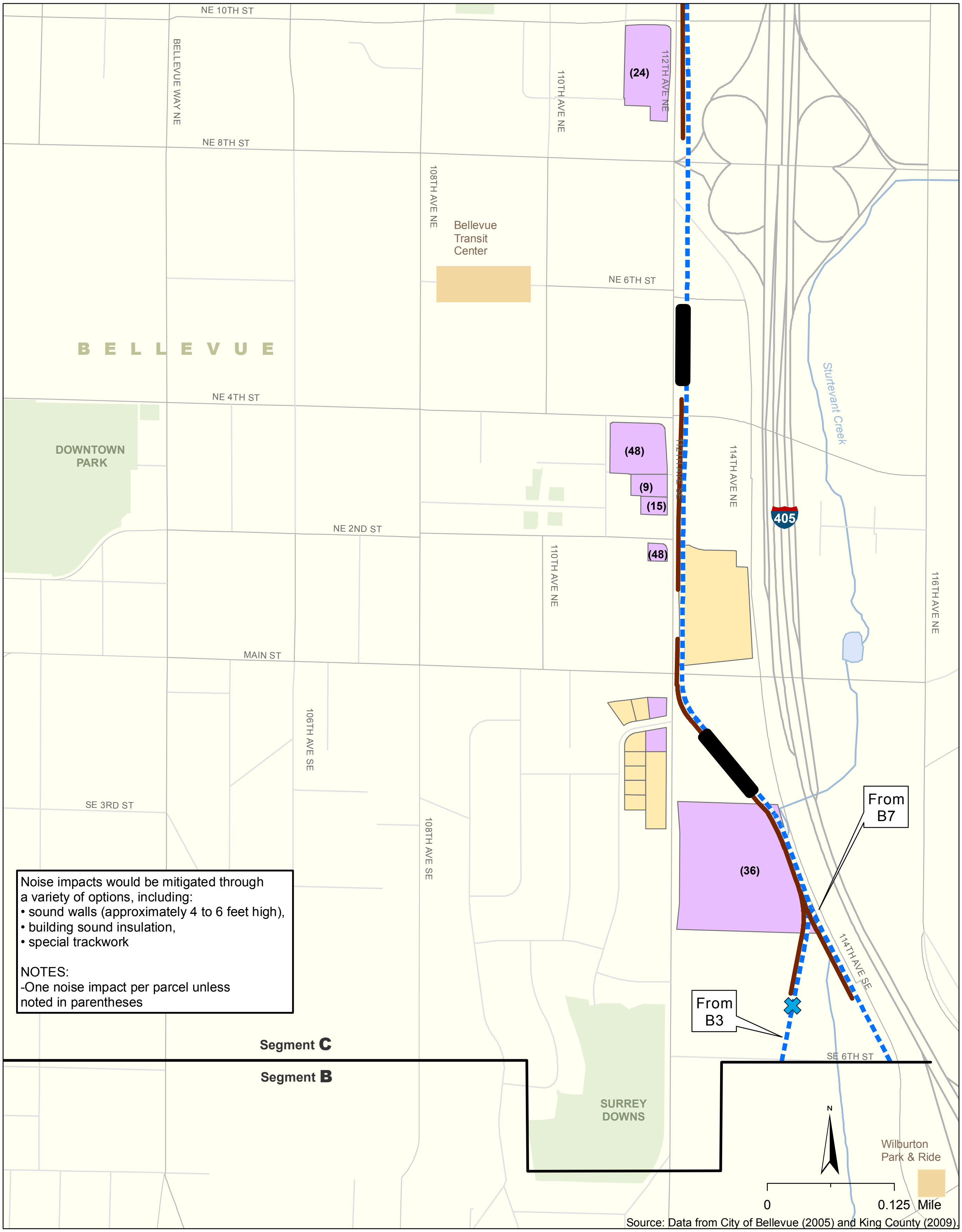
Exhibit A-23-Nb

Noise Impacts

Segment C

C7E from B2A/B2E

East Link Project


NE 10TH ST
BELLEVUE WAY NE
NE 8TH ST
110TH AVE NE
112TH AVE NE
(24)
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(48)
(9)
(15)
112TH AVE NE
114TH AVE NE
405
NE 2ND ST
(48)
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
From B7
(36)
114TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬ At-Grade Route
- - - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
— — Tunnel Route
▬ Proposed Station

P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

▪ Traction Power Substation
▬ Proposed Sound Wall Location
▭ Moderate
▭ Severe
▭ Both Moderate and Severe
▭ No Noise Impact

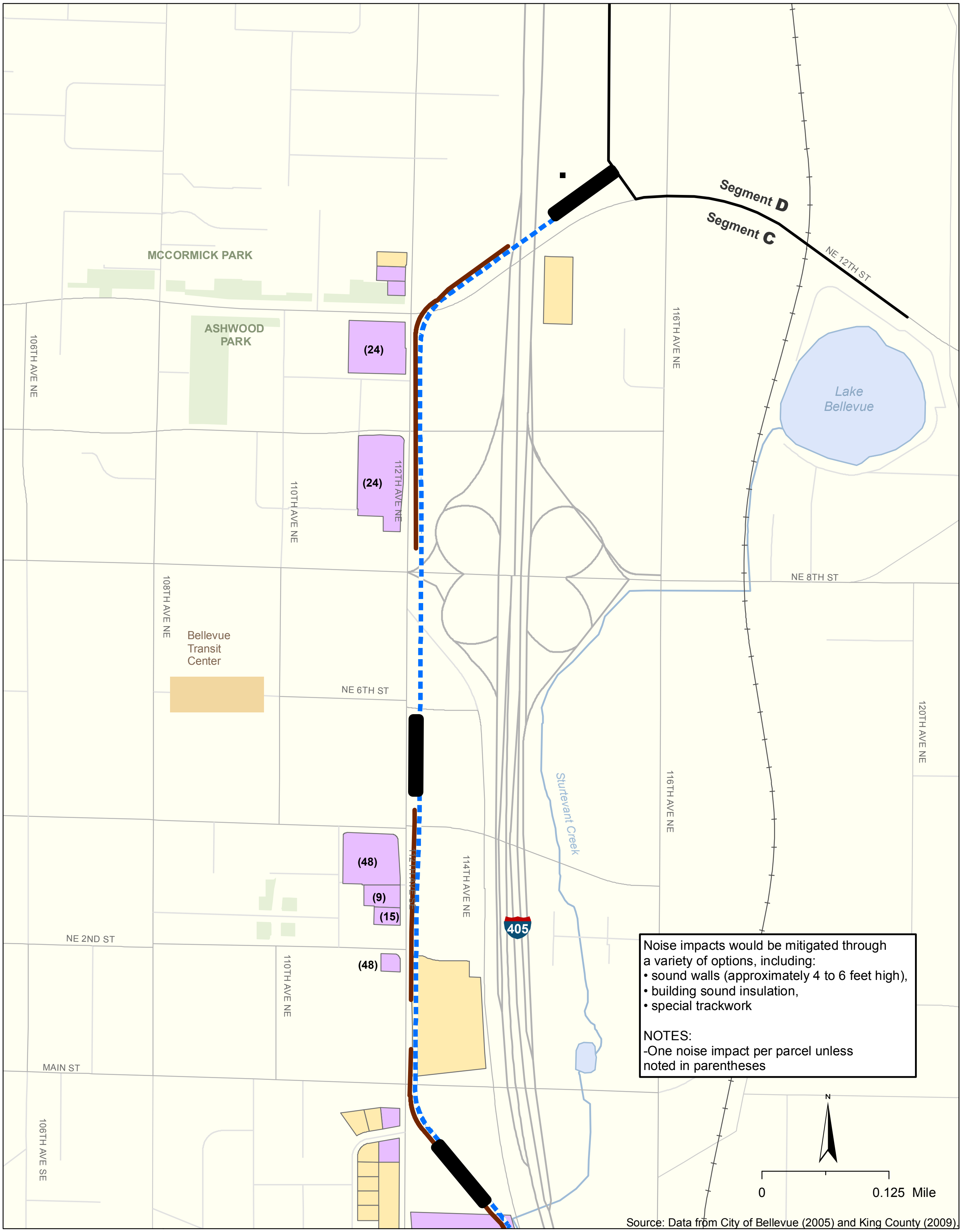
Exhibit A-24-Na

Noise Impacts

Segment C

C7E from B3/B7

East Link Project


Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
Lake Bellevue
(24)
(24)
112TH AVE NE
110TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
120TH AVE NE
116TH AVE NE
114TH AVE NE
(48)
(9)
(15)
112TH AVE NE
405
NE 2ND ST
110TH AVE NE
(48)
MAIN ST
106TH AVE SE
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

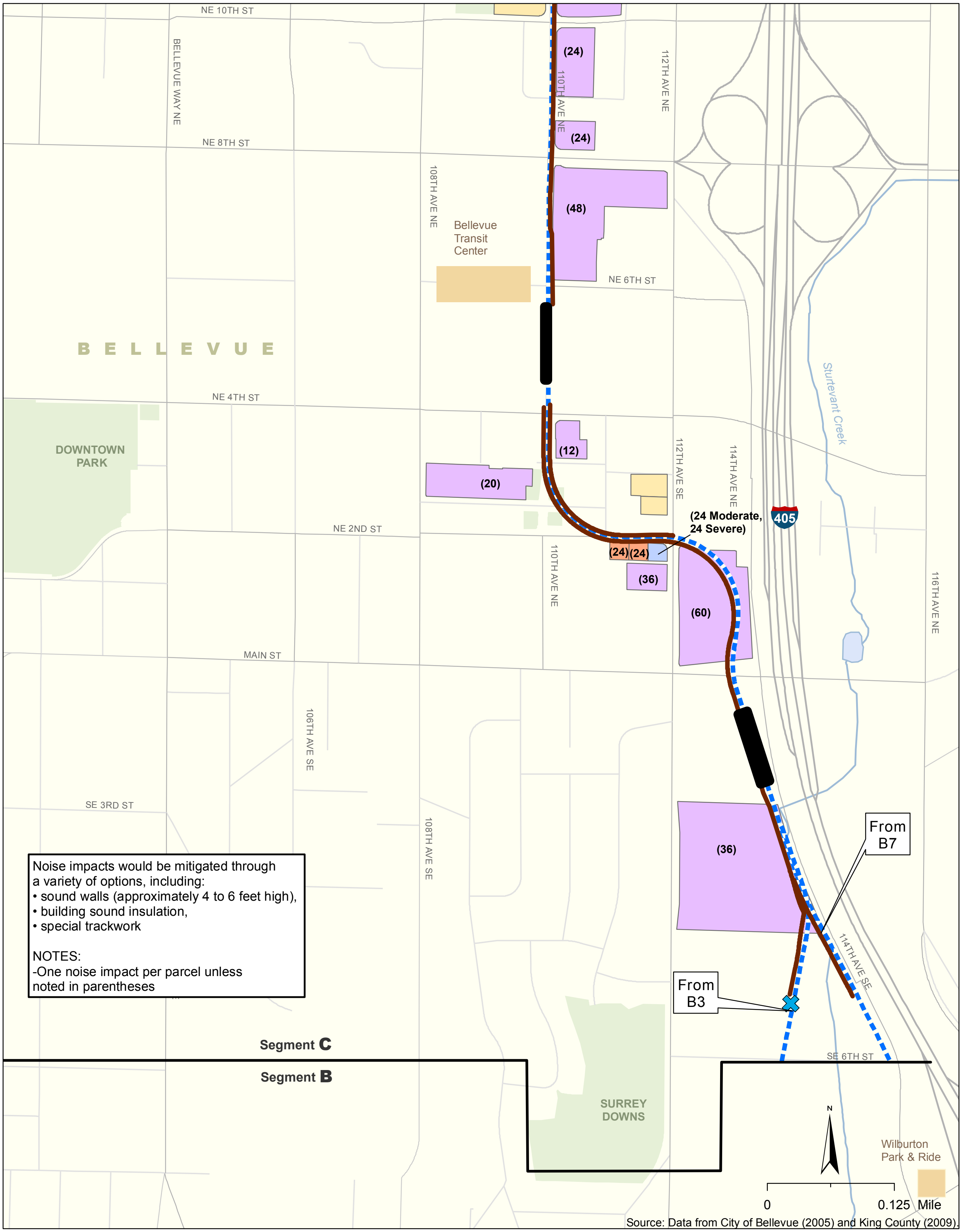
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

▬ At-Grade Route	P New and/or Expanded Park-and-Ride Lot	▪ Traction Power Substation
▪▪▪ Elevated Route		▬ Proposed Sound Wall Location
•••• Retained-Cut Route	✖ Crossover Location	▨ Moderate
•••• Retained-Fill Route	✖ Gated Crossing	▨ Severe
▬ ▬ Tunnel Route	✖ Shared Crossing (No Gates)	▨ Both Moderate and Severe
▬ Proposed Station		▨ No Noise Impact

Exhibit A-24-Nb
Noise Impacts
Segment C
C7E from B3/B7
East Link Project


NE 10TH ST
BELLEVUE WAY NE
NE 8TH ST
112TH AVE NE
110TH AVE NE
108TH AVE NE
(24)
(24)
(48)
Bellevue
Transit
Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN
PARK
(12)
(20)
112TH AVE SE
114TH AVE NE
(24 Moderate,
24 Severe)
405
NE 2ND ST
(24)
(24)
(36)
110TH AVE NE
(60)
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(36)
From
B7
114TH AVE SE
From
B3
Segment C
Segment B
SE 6TH ST
SURREY
DOWNS
N
Wilburton
Park & Ride
0
0.125 Mile

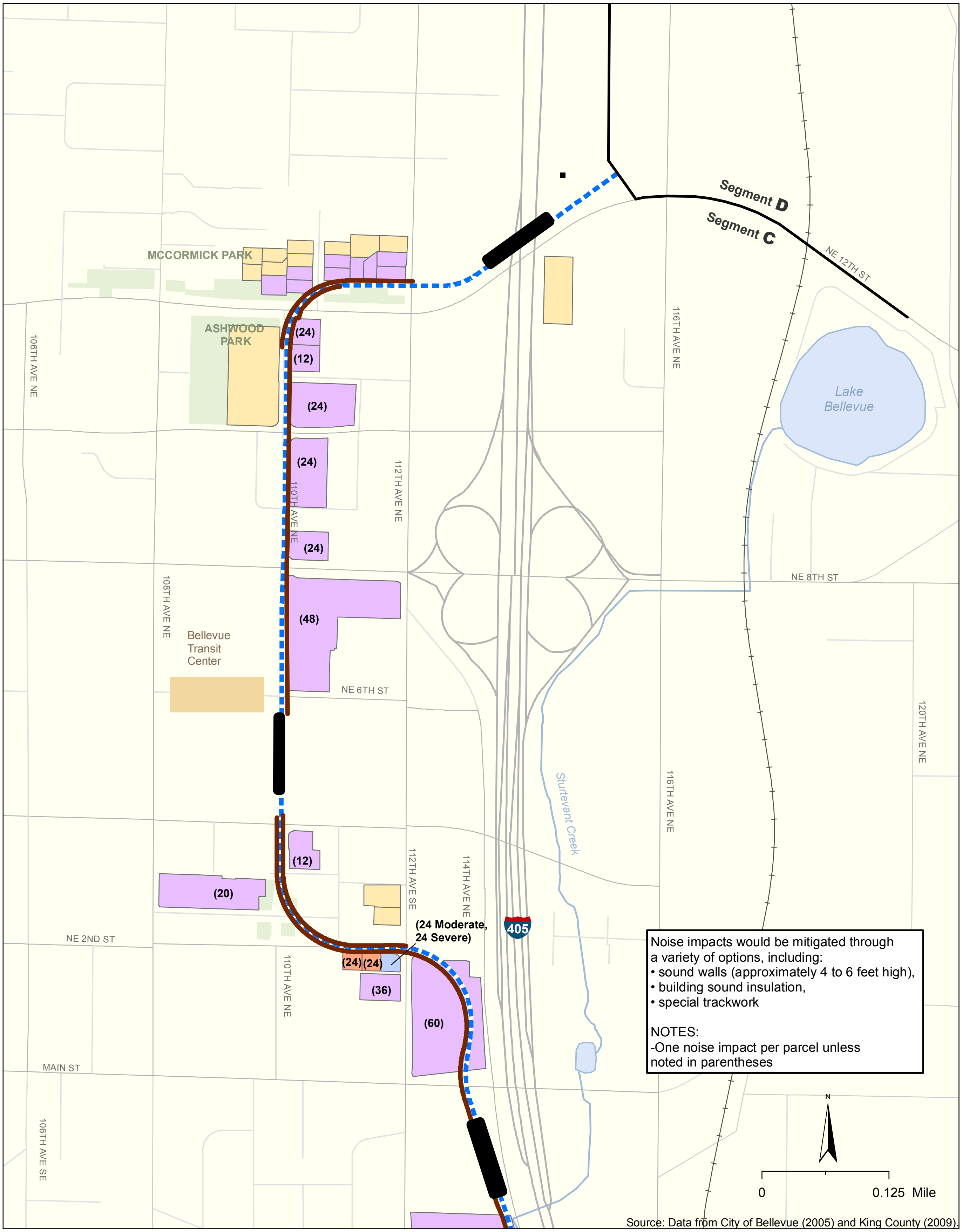
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation
- ▬ Proposed Sound Wall Location
- 🟪 Moderate
- 🟧 Severe
- 🟦 Both Moderate and Severe
- 🟨 No Noise Impact

Exhibit A-25-Na
Noise Impacts
Segment C
C8E
East Link Project


Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
Lake Bellevue
NE 8TH ST
NE 6TH ST
Bellevue Transit Center
Sturtevant Creek
112TH AVE SE
114TH AVE NE
110TH AVE NE
NE 2ND ST
MAIN ST
106TH AVE SE
405
(24)
(12)
(24)
(24)
(24)
(48)
(12)
(20)
(24 Moderate, 24 Severe)
(24)
(24)
(36)
(60)
N
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

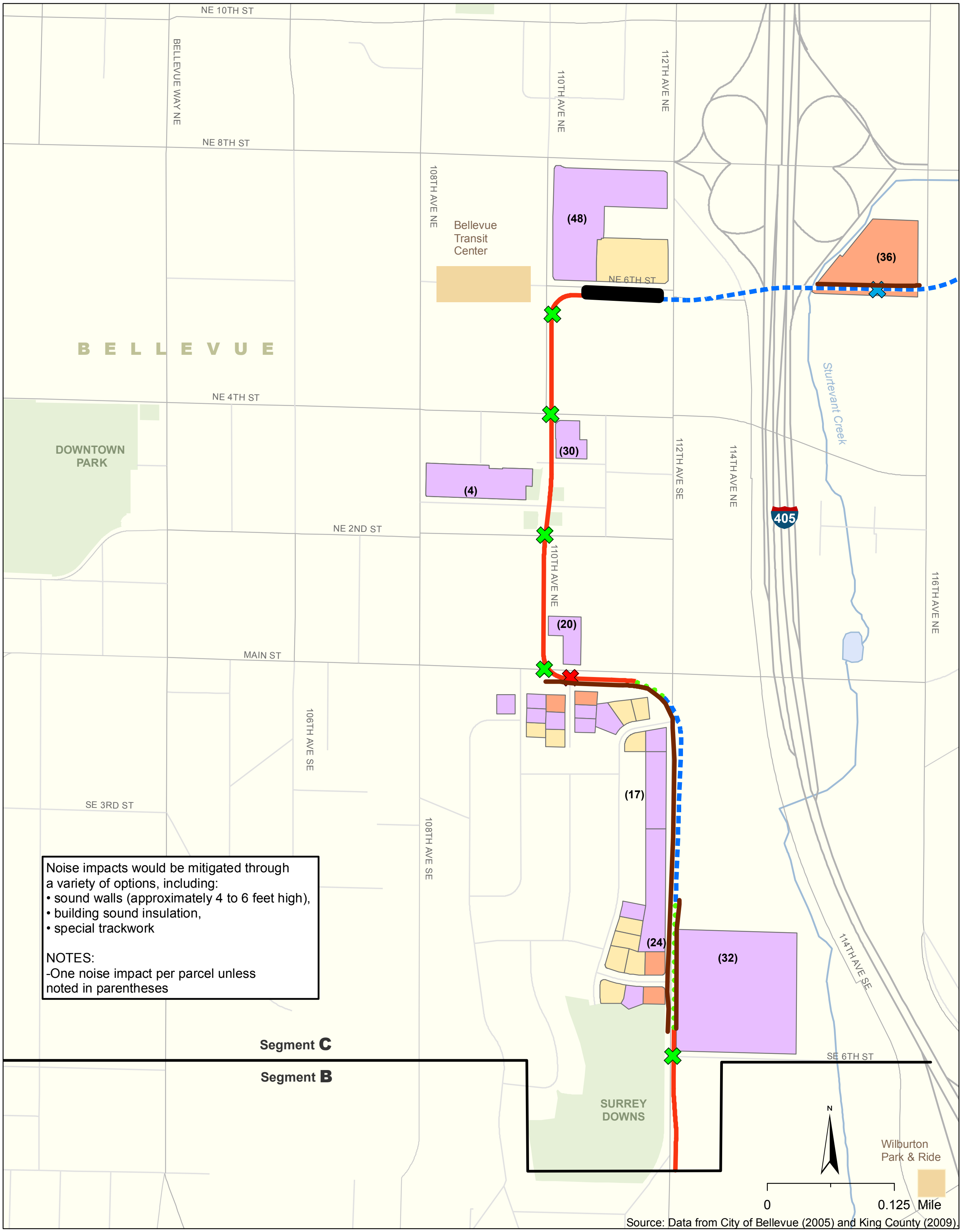
Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station

P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

■ Traction Power Substation
Proposed Sound Wall Location
▨ Moderate
▨ Severe
▨ Both Moderate and Severe
▨ No Noise Impact

Exhibit A-25-Nb
Noise Impacts
Segment C
C8E
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
BELLEVUE
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(30)
(4)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
(20)
MAIN ST
106TH AVE SE
(17)
SE 3RD ST
108TH AVE SE
(24)
(32)
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

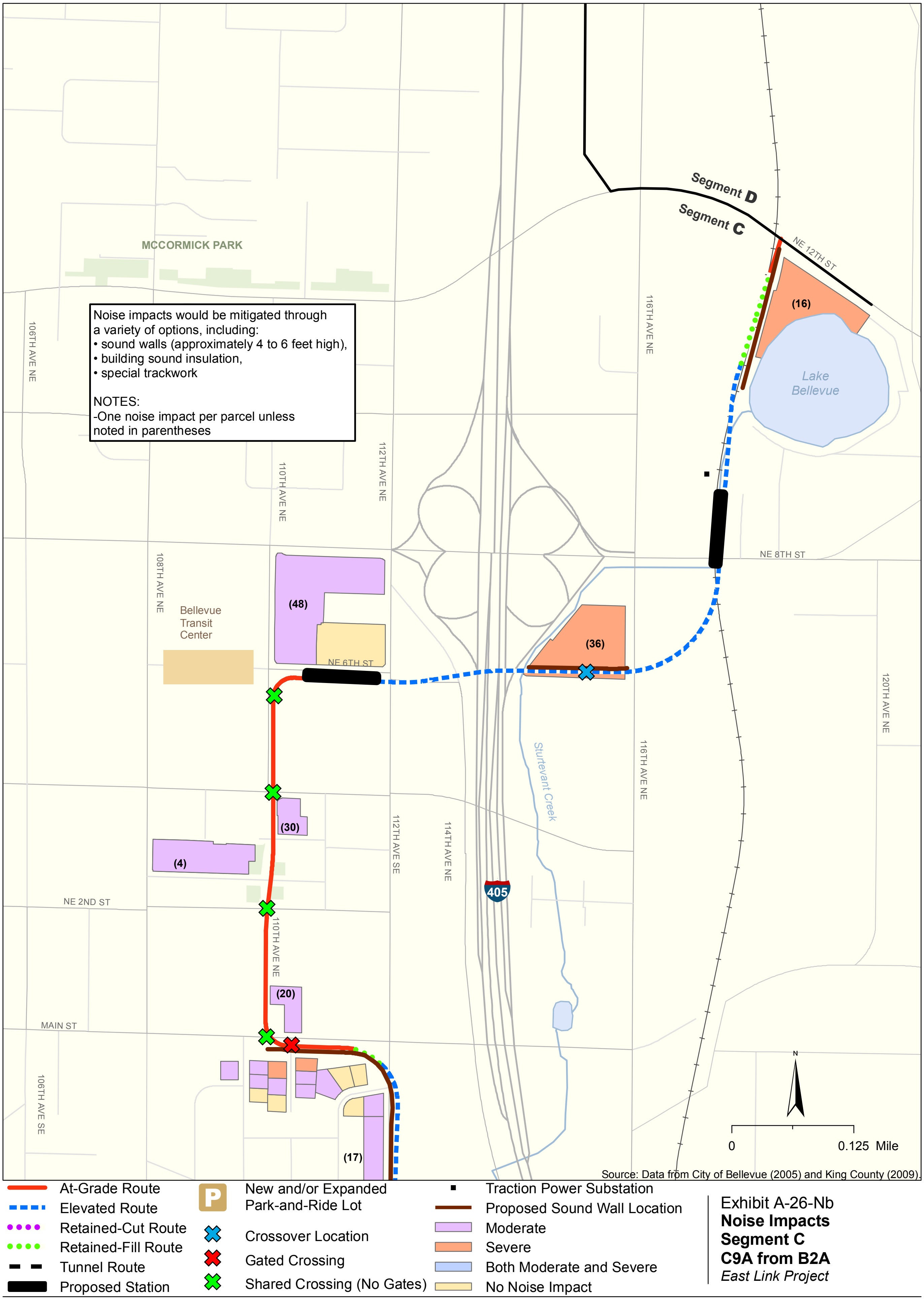
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- Crossover Location
- Gated Crossing
- Shared Crossing (No Gates)
- ▪ Traction Power Substation
- Proposed Sound Wall Location
- Moderate
- Severe
- Both Moderate and Severe
- No Noise Impact

Exhibit A-26-Na
Noise Impacts
Segment C
C9A from B2A
East Link Project


MCCORMICK PARK
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
106TH AVE NE
116TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
(48)
Bellevue Transit Center
NE 6TH ST
(36)
Sturtevant Creek
120TH AVE NE
(30)
(4)
112TH AVE SE
114TH AVE NE
116TH AVE NE
405
NE 2ND ST
110TH AVE NE
(20)
MAIN ST
106TH AVE SE
(17)
N
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

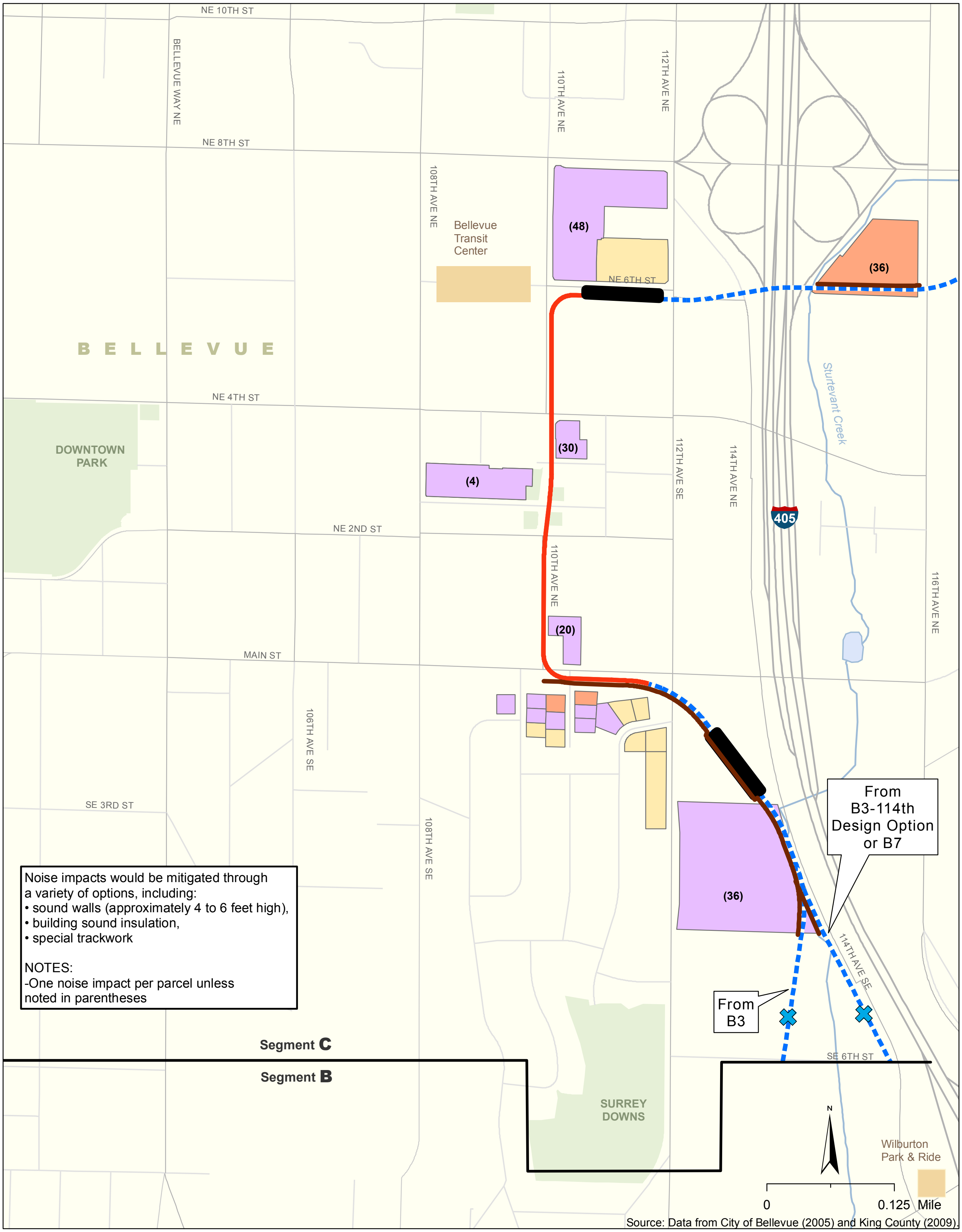
Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-26-Nb
Noise Impacts
Segment C
C9A from B2A
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
(48)
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
(30)
(4)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
(20)
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
From B3-114th Design Option or B7
(36)
114TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

━ At-Grade Route

┅ Elevated Route

•••• Retained-Cut Route

•••• Retained-Fill Route

▬ ▬ Tunnel Route

▬ Proposed Station

P New and/or Expanded Park-and-Ride Lot

✖ Crossover Location

✖ Gated Crossing

✖ Shared Crossing (No Gates)

▪ Traction Power Substation

━ Proposed Sound Wall Location

▭ Moderate

▭ Severe

▭ Both Moderate and Severe

▭ No Noise Impact

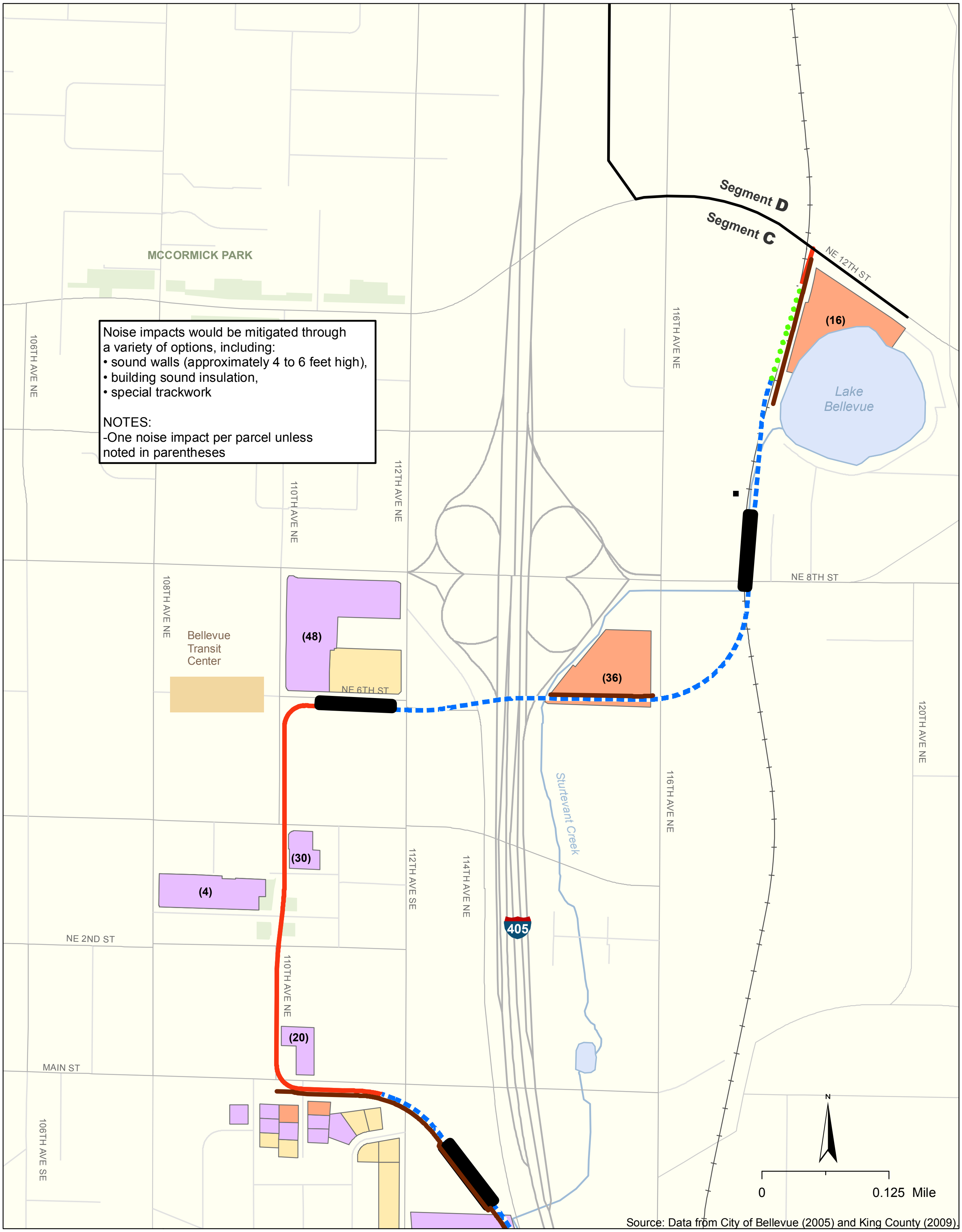
Exhibit A-27-Na

Noise Impacts

Segment C

C9A from B3/B7

East Link Project



MCCORMICK PARK
Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
106TH AVE NE
116TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
(48)
NE 6TH ST
(36)
120TH AVE NE
Sturtevant Creek
116TH AVE NE
(30)
(4)
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
(20)
MAIN ST
106TH AVE SE
N
0
0.125 Mile

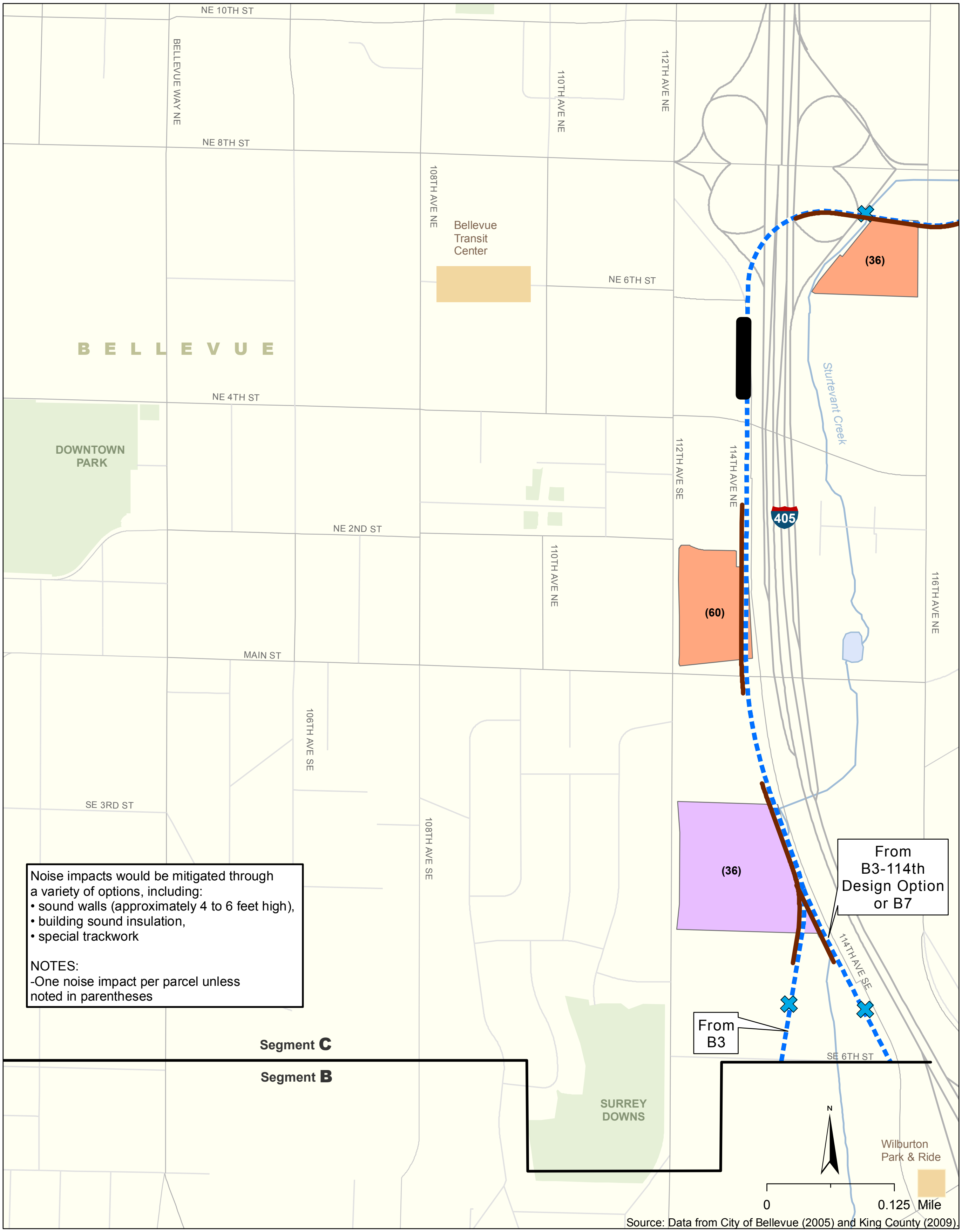
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

🟥	At-Grade Route	P	New and/or Expanded Park-and-Ride Lot	■	Traction Power Substation
┅	Elevated Route			━	Proposed Sound Wall Location
····	Retained-Cut Route	✖	Crossover Location	▭	Moderate
····	Retained-Fill Route	✖	Gated Crossing	▭	Severe
▬ ▬	Tunnel Route	✖	Shared Crossing (No Gates)	▭	Both Moderate and Severe
▬	Proposed Station			▭	No Noise Impact

Exhibit A-27-Nb
Noise Impacts
Segment C
C9A from B3/B7
East Link Project


NE 10TH ST
BELLEVUE WAY NE
110TH AVE NE
112TH AVE NE
NE 8TH ST
108TH AVE NE
Bellevue Transit Center
NE 6TH ST
(36)
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
(60)
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
(36)
From B3-114th Design Option or B7
114TH AVE SE
From B3
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route	New and/or Expanded Park-and-Ride Lot	Traction Power Substation
Elevated Route	Crossover Location	Proposed Sound Wall Location
Retained-Cut Route	Gated Crossing	Moderate
Retained-Fill Route	Shared Crossing (No Gates)	Severe
Tunnel Route		Both Moderate and Severe
Proposed Station		No Noise Impact

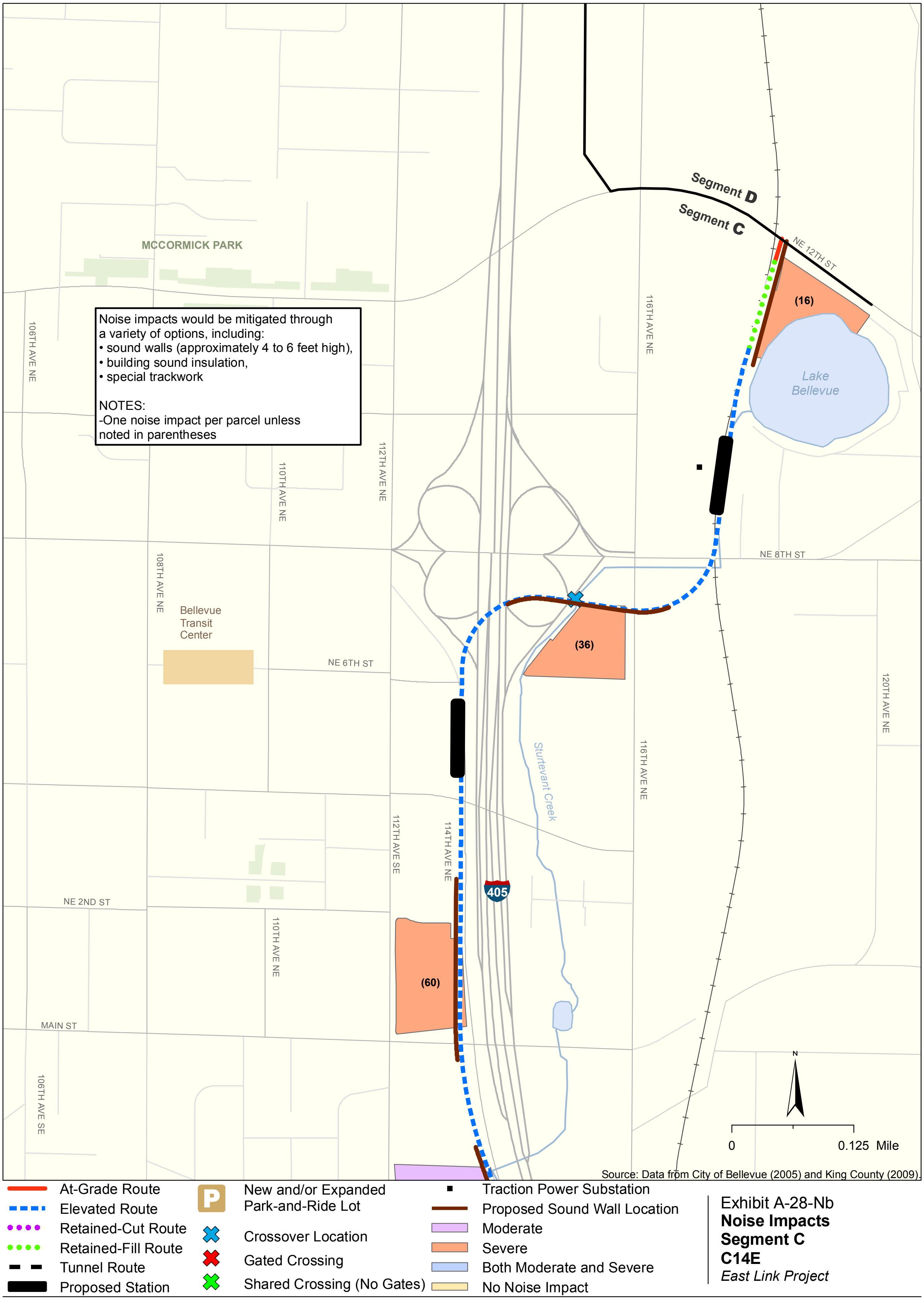
Exhibit A-28-Na

Noise Impacts

Segment C

C14E

East Link Project


Segment D
Segment C
NE 12TH ST
(16)
Lake Bellevue
MCCORMICK PARK
106TH AVE NE
116TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
(36)
Sturtevant Creek
116TH AVE NE
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
(60)
MAIN ST
106TH AVE SE
N
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

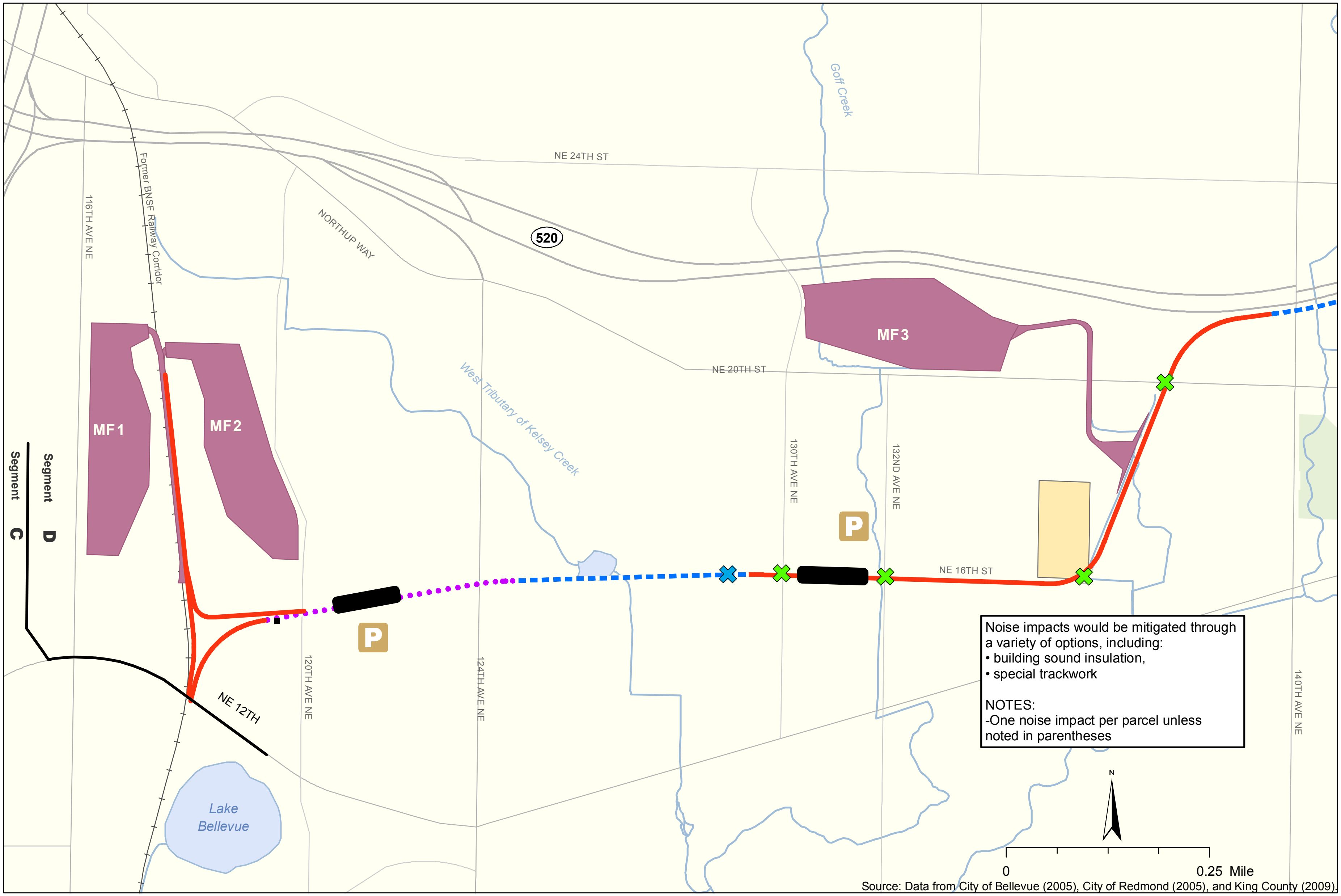
Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-28-Nb
Noise Impacts
Segment C
C14E
East Link Project


Former BNSF Railway Corridor
116TH AVE NE
NORTHUP WAY
NE 24TH ST
520
Goff Creek
MF 3
NE 20TH ST
West Tributary of Kelsey Creek
MF 1
MF 2
Segment C
Segment D
130TH AVE NE
132ND AVE NE
P
NE 16TH ST
P
120TH AVE NE
124TH AVE NE
NE 12TH
Lake Bellevue
140TH AVE NE
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

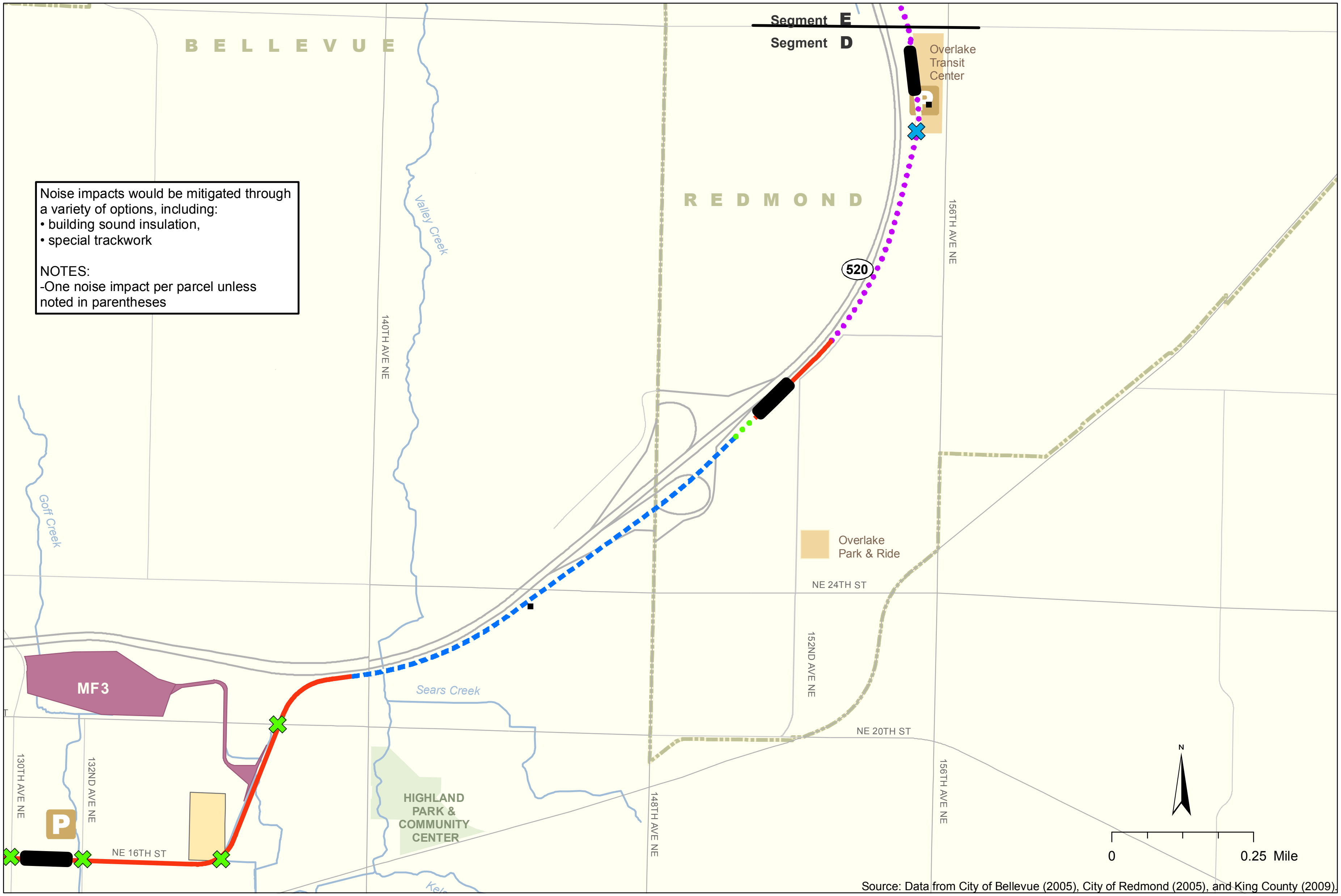
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

At-Grade Route	Traction Power Substation	Proposed Sound Wall Location	Moderate
Elevated Route	Proposed Station	Crossover Location	Severe
Retained-Cut Route	Maintenance Facility and Access Track	Gated Crossing	Both Moderate and Severe
Retained-Fill Route	New and/or Expanded Park-and-Ride Lot	Shared Crossing (No Gates)	No Noise Impact
Tunnel Route			

Exhibit A-29-Na
Noise Impacts
Segment D, D2A
East Link Project


Segment E
Segment D
BELLEVUE
REDMOND
Overlake Transit Center
Valley Creek
520
156TH AVE NE
140TH AVE NE
Goff Creek
Overlake Park & Ride
NE 24TH ST
152ND AVE NE
MF3
Sears Creek
NE 20TH ST
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
156TH AVE NE
130TH AVE NE
132ND AVE NE
NE 16TH ST
N
0
0.25 Mile

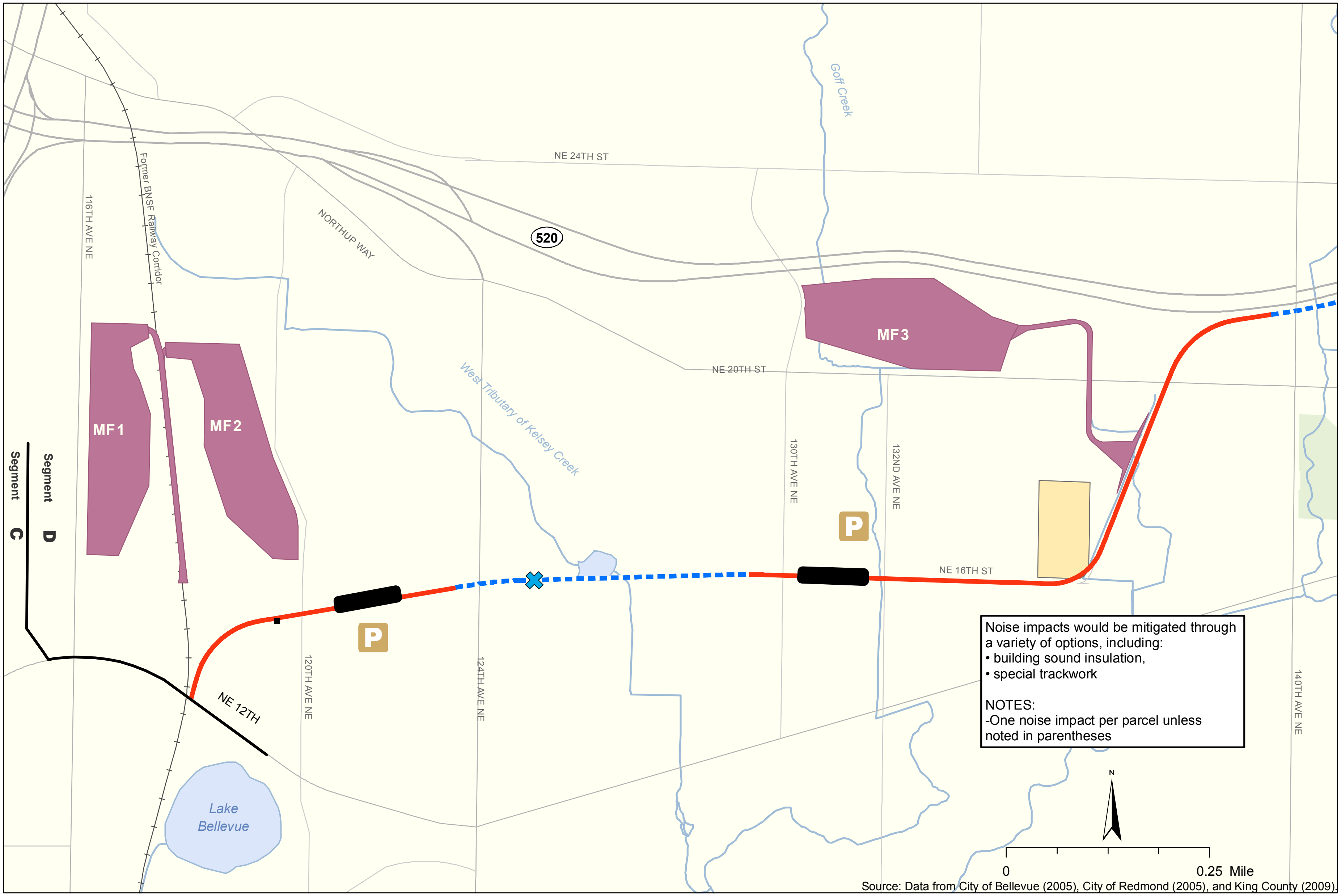
Noise impacts would be mitigated through a variety of options, including:
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
■ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
Proposed Sound Wall Location
▨ Moderate
▨ Severe
▨ Both Moderate and Severe
▨ No Noise Impact

Exhibit A-29-Nb
Noise Impacts
Segment D, D2A
East Link Project


NE 24TH ST
520
NORTHUP WAY
Goff Creek
Former BNSF Railway Corridor
116TH AVE NE
MF 1
MF 2
MF 3
NE 20TH ST
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
P
NE 16TH ST
Segment C
Segment D
P
NE 12TH
120TH AVE NE
124TH AVE NE
140TH AVE NE
Lake Bellevue
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

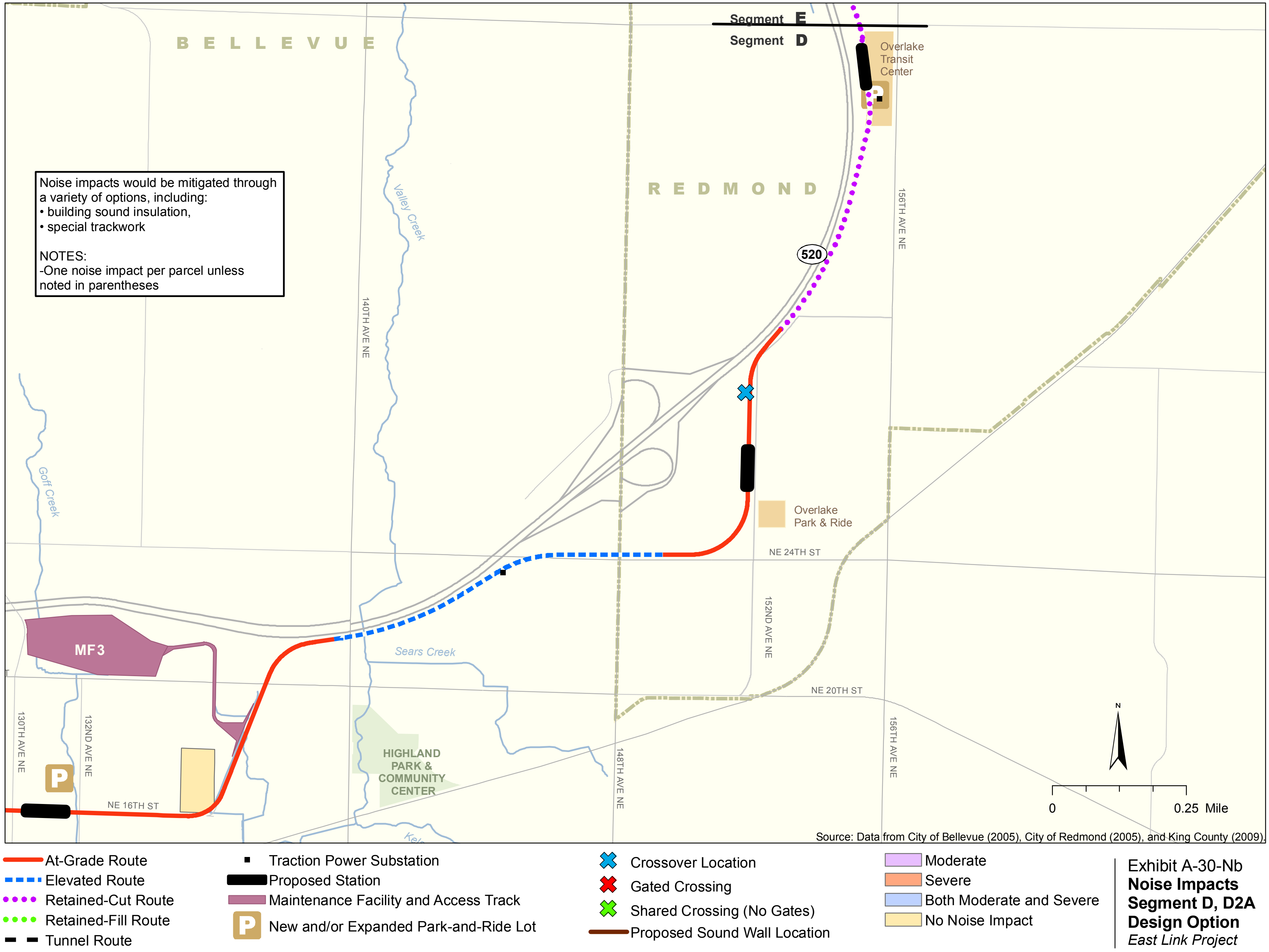
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot

Proposed Sound Wall Location
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-30-Na
Noise Impacts
Segment D, D2A
Design Option
East Link Project


Segment E
Segment D
BELLEVUE
REDMOND
Overlake Transit Center
Valley Creek
Goff Creek
520
140TH AVE NE
156TH AVE NE
Overlake Park & Ride
NE 24TH ST
152ND AVE NE
MF3
Sears Creek
NE 20TH ST
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
130TH AVE NE
132ND AVE NE
NE 16TH ST
156TH AVE NE
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

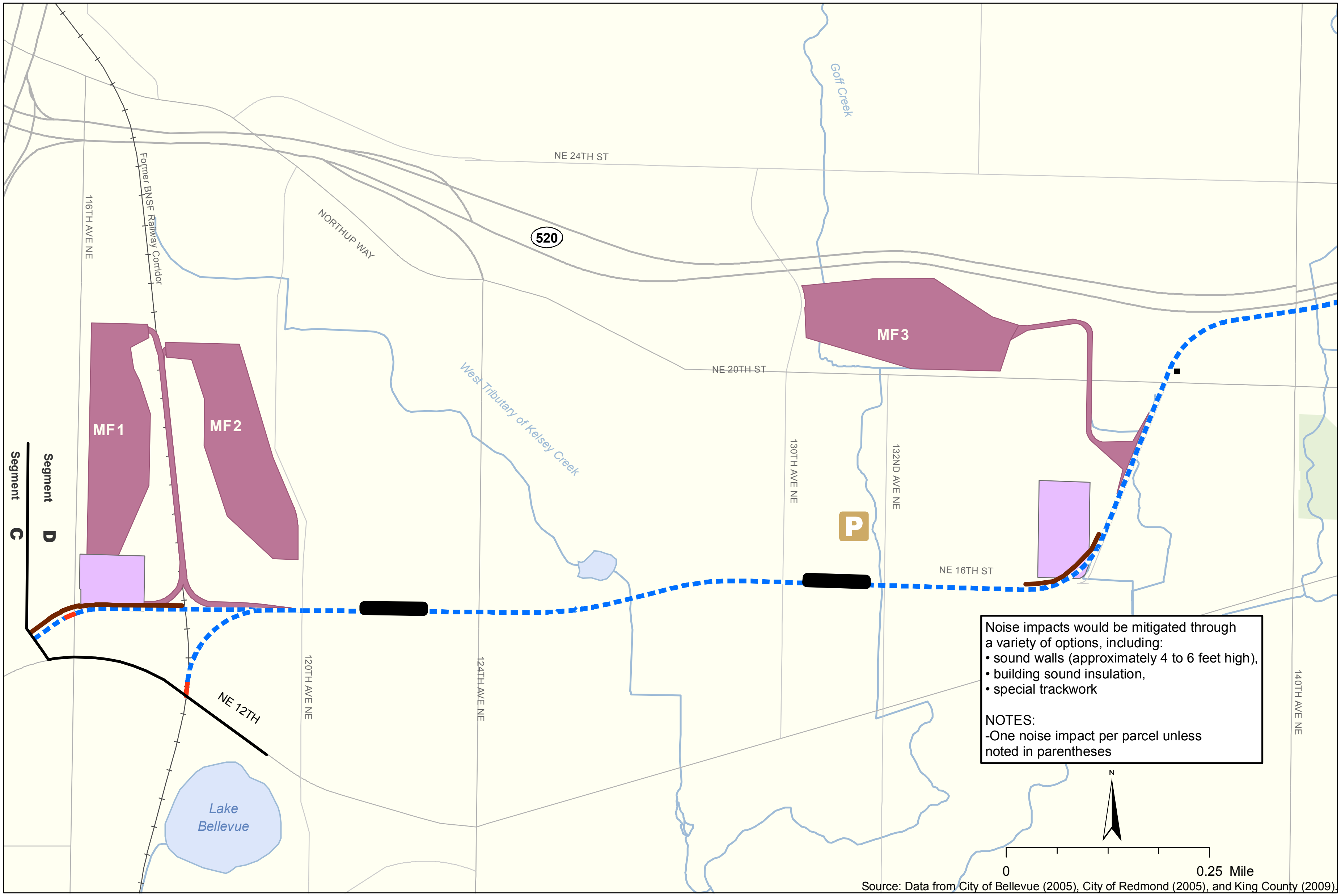
Noise impacts would be mitigated through a variety of options, including:

- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

Exhibit A-30-Nb
Noise Impacts
Segment D, D2A
Design Option
East Link Project



Goff Creek
NE 24TH ST
NORTHUP WAY
520
116TH AVE NE
Former BNSF Railway Corridor
West Tributary of Kelsey Creek
MF 3
NE 20TH ST
MF 1
MF 2
Segment C
Segment D
130TH AVE NE
132ND AVE NE
NE 16TH ST
NE 12TH
120TH AVE NE
124TH AVE NE
140TH AVE NE
Lake Bellevue
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

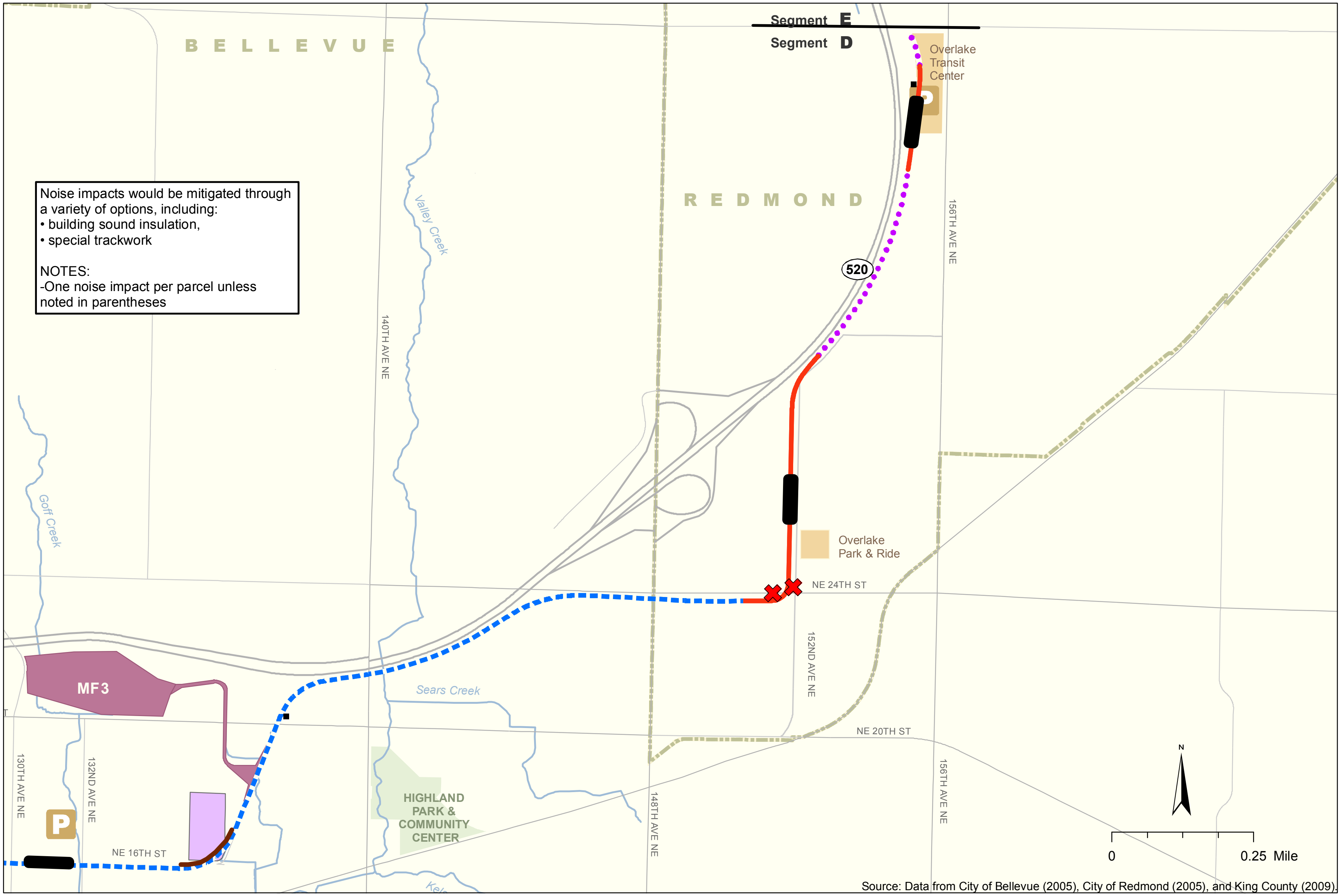
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

— At-Grade Route
- - Elevated Route
••• Retained-Cut Route
••• Retained-Fill Route
— — Tunnel Route
▪ Traction Power Substation
▬ Proposed Station
▬ Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
— Proposed Sound Wall Location
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
■ Moderate
■ Severe
■ Both Moderate and Severe
■ No Noise Impact

Exhibit A-31-Na
Noise Impacts
Segment D, D2E
East Link Project


Segment E
Segment D
BELLEVUE
REDMOND
Overlake Transit Center
520
156TH AVE NE
140TH AVE NE
Valley Creek
Goff Creek
Overlake Park & Ride
NE 24TH ST
152ND AVE NE
MF3
Sears Creek
NE 20TH ST
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
156TH AVE NE
130TH AVE NE
132ND AVE NE
NE 16TH ST
N
0
0.25 Mile

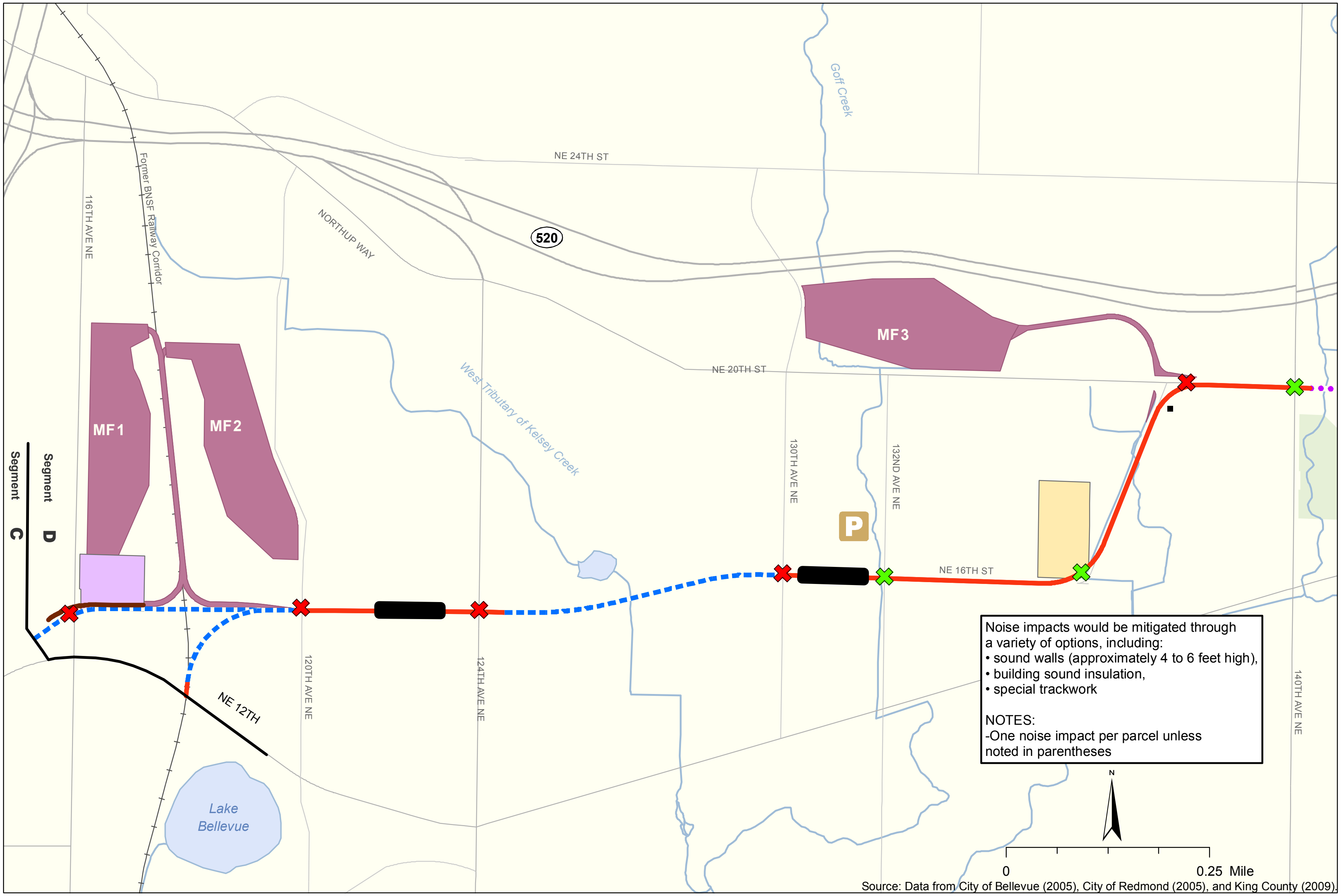
Noise impacts would be mitigated through a variety of options, including:
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

— At-Grade Route
- - - Elevated Route
••• Retained-Cut Route
••• Retained-Fill Route
▬ ▬ Tunnel Route
▪ Traction Power Substation
▬ Proposed Station
▬ Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
— Proposed Sound Wall Location
▨ Moderate
▨ Severe
▨ Both Moderate and Severe
▨ No Noise Impact

Exhibit A-31-Nb
Noise Impacts
Segment D, D2E
East Link Project


NE 24TH ST
NORTHUP WAY
520
Goff Creek
Former BNSF Railway Corridor
116TH AVE NE
MF3
NE 20TH ST
MF1
MF2
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
Segment C
Segment D
NE 16TH ST
120TH AVE NE
124TH AVE NE
NE 12TH
140TH AVE NE
Lake Bellevue
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

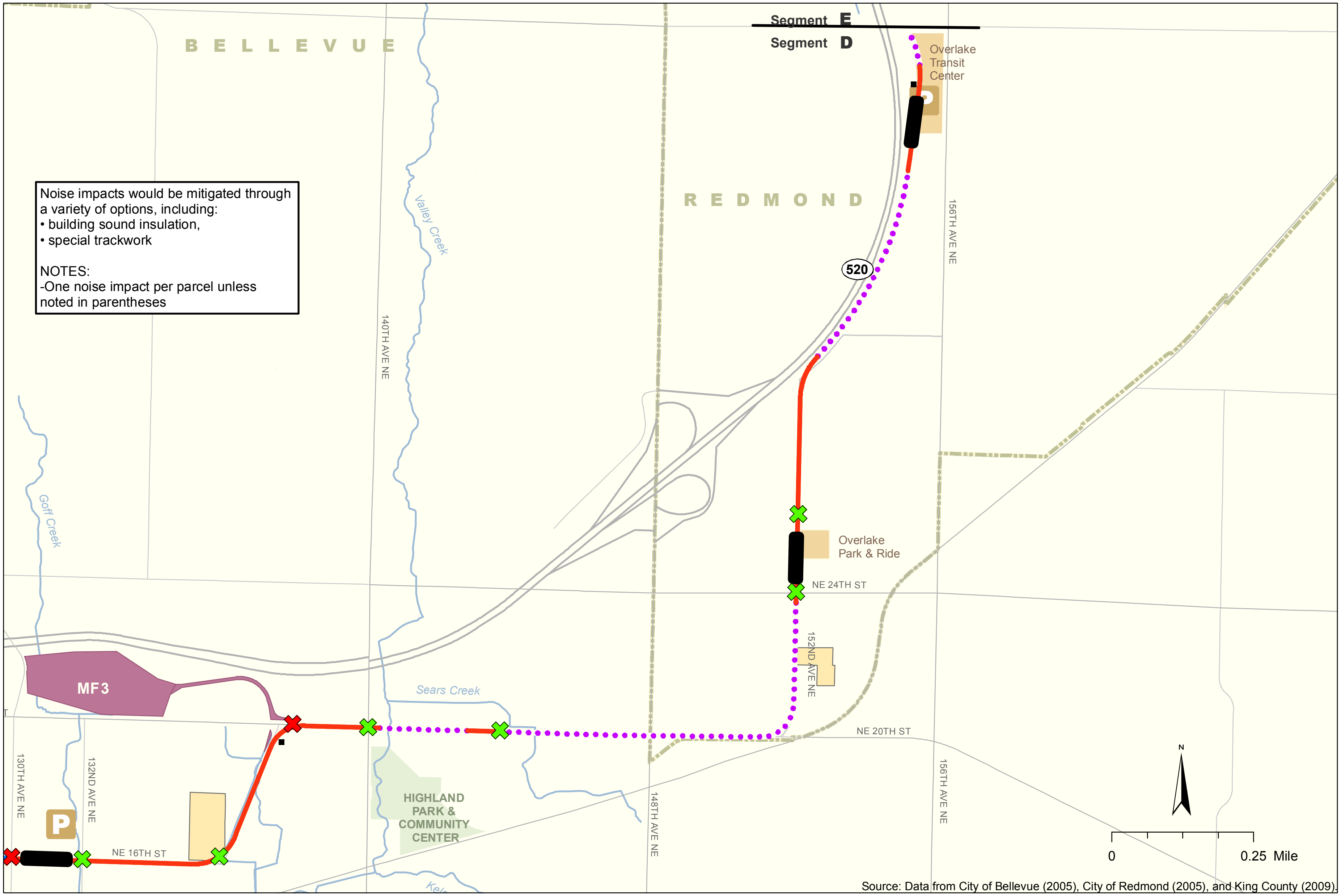
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
■ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-32-Na
Noise Impacts
Segment D, D3
East Link Project



Segment E
Segment D
B E L L E V U E
R E D M O N D
Overlake Transit Center
520
156TH AVE NE
Valley Creek
140TH AVE NE
Goff Creek
Overlake Park & Ride
NE 24TH ST
152ND AVE NE
NE 20TH ST
MF3
Sears Creek
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
156TH AVE NE
130TH AVE NE
132ND AVE NE
NE 16TH ST
P
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

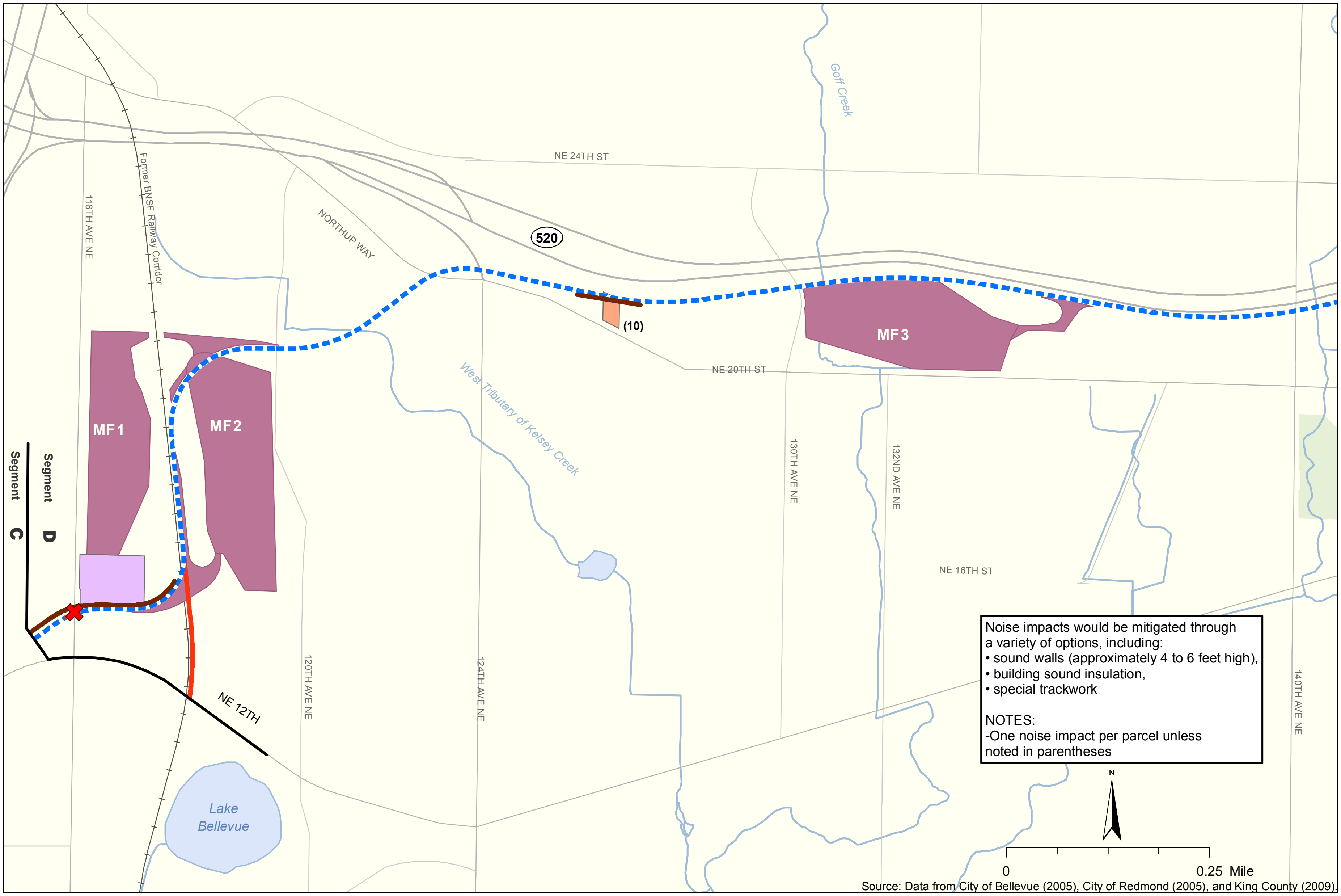
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

▪ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot

✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
Proposed Sound Wall Location

🟪 Moderate
🟧 Severe
🟦 Both Moderate and Severe
🟨 No Noise Impact

Exhibit A-32-Nb
Noise Impacts
Segment D, D3
East Link Project


Goff Creek
NE 24TH ST
NORTHUP WAY
520
Former BNSF Railway Corridor
116TH AVE NE
MF 1
MF 2
MF 3
(10)
NE 20TH ST
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
NE 16TH ST
Segment C
Segment D
NE 12TH
120TH AVE NE
124TH AVE NE
Lake Bellevue
140TH AVE NE
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:

-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

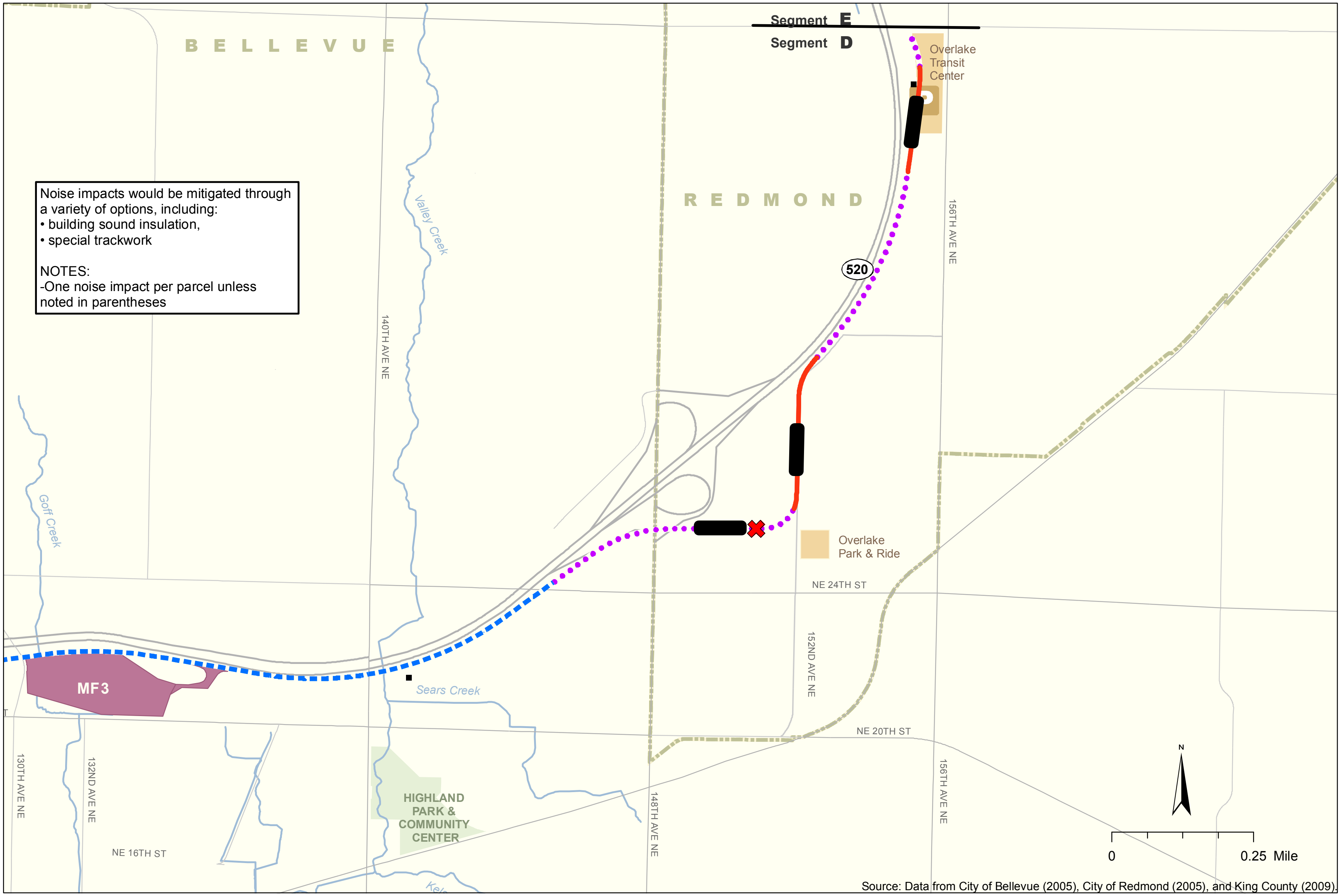
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

▪ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot

Proposed Sound Wall Location
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

▨ Moderate
▨ Severe
▨ Both Moderate and Severe
▨ No Noise Impact

Exhibit A-33-Na
Noise Impacts
Segment D, D5
East Link Project


Segment E
Segment D
BELLEVUE
REDMOND
Overlake Transit Center
P
Valley Creek
520
156TH AVE NE
140TH AVE NE
Goff Creek
Overlake Park & Ride
NE 24TH ST
152ND AVE NE
MF3
Sears Creek
NE 20TH ST
130TH AVE NE
132ND AVE NE
HIGHLAND PARK & COMMUNITY CENTER
148TH AVE NE
156TH AVE NE
NE 16TH ST
N
0
0.25 Mile

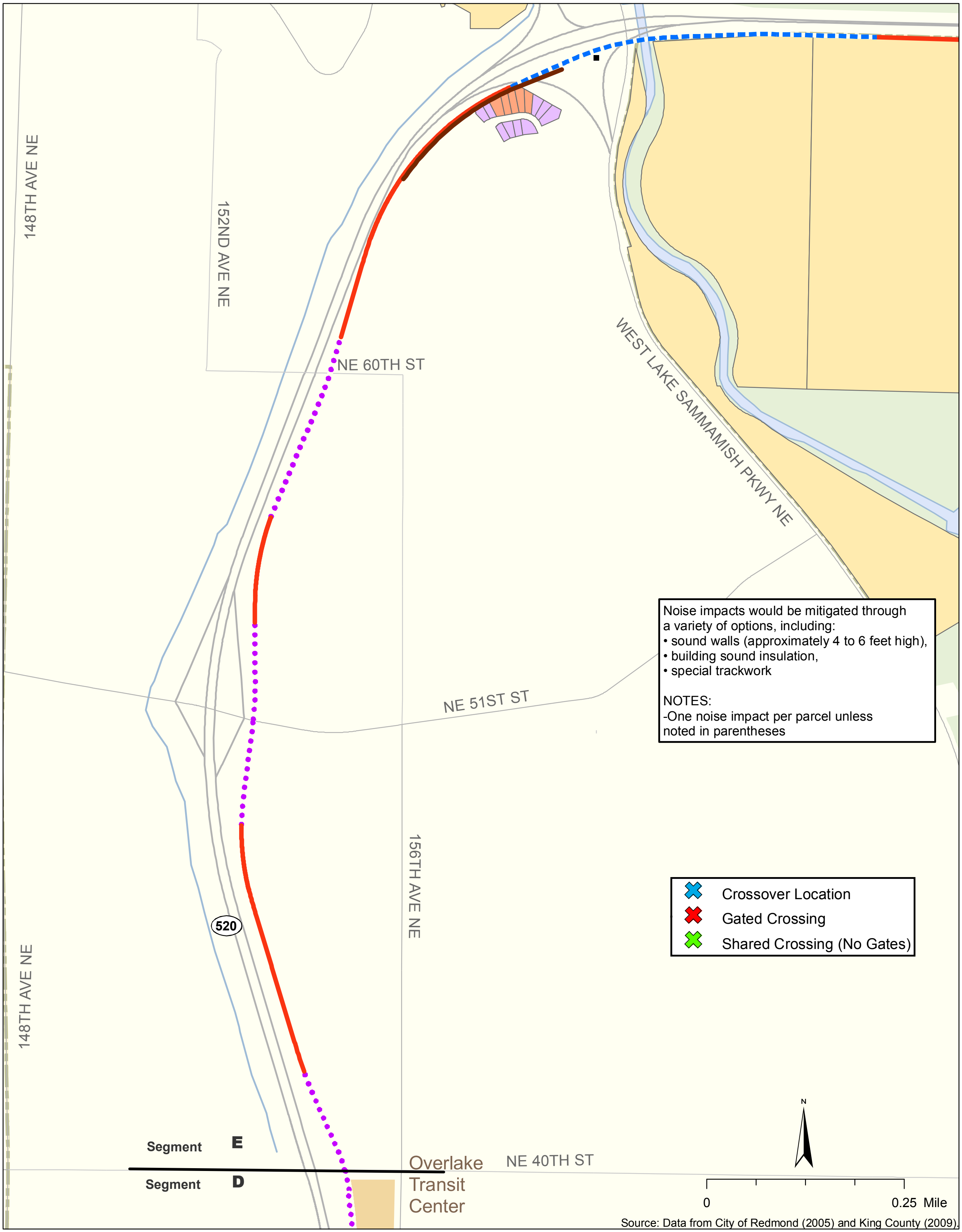
Noise impacts would be mitigated through a variety of options, including:
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact

Exhibit A-33-Nb
Noise Impacts
Segment D, D5
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
520
156TH AVE NE
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

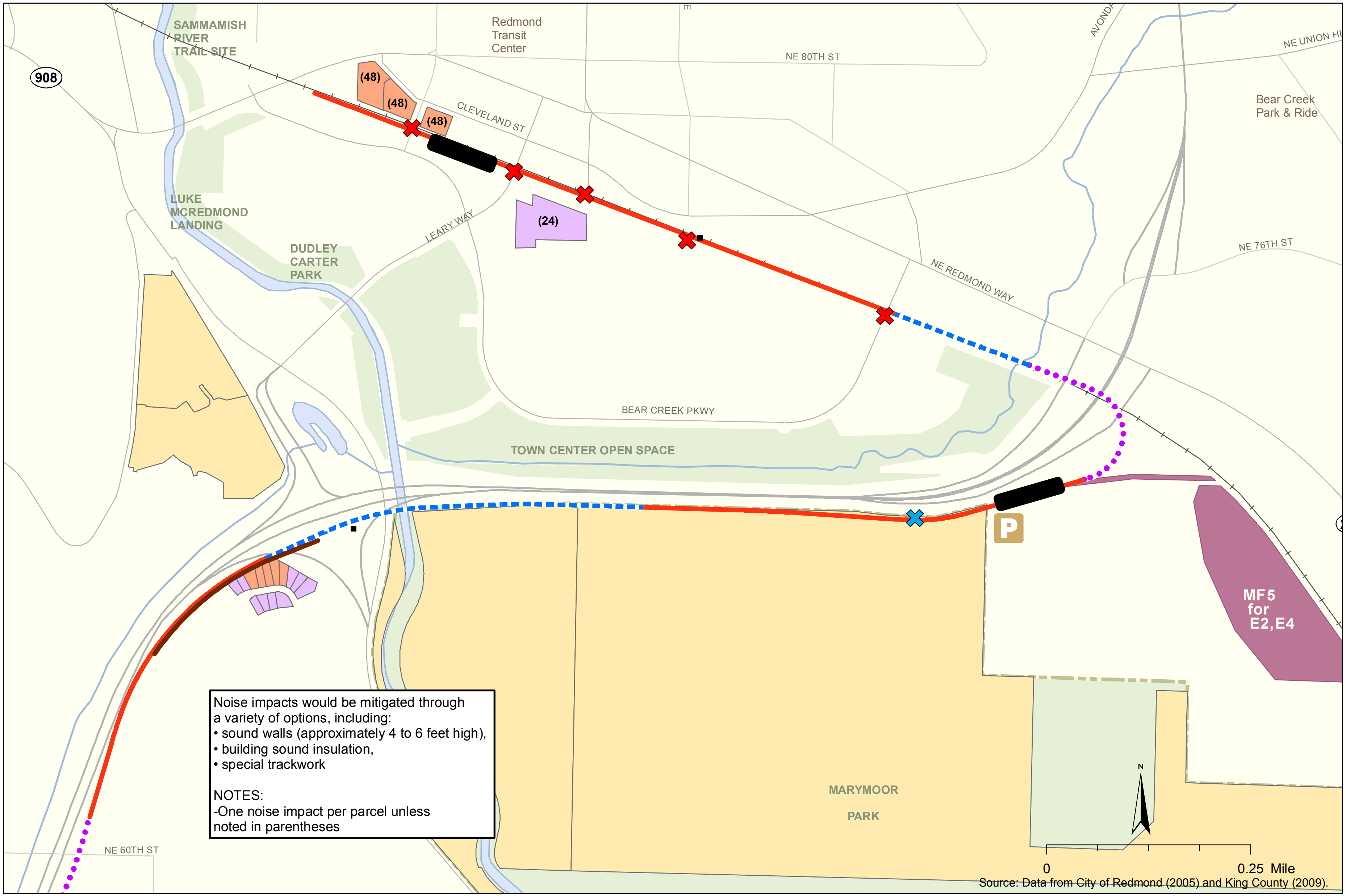
NOTES:
-One noise impact per parcel unless noted in parentheses

✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Source: Data from City of Redmond (2005) and King County (2009).

━	At-Grade Route
┅	Elevated Route
⋯	Retained-Cut Route
⋯	Retained-Fill Route
━ ━	Tunnel Route
▪	Traction Power Substation
━	Proposed Station
▬	Maintenance Facility and Access Track
P	New and/or Expanded Park-and-Ride Lot
▭	Moderate
▭	Severe
▭	Both Moderate and Severe
▭	No Noise Impact
━	Proposed Sound Wall Location

Exhibit A-34-Na
Noise Impacts
Segment E,
Alternative E2
East Link Project


SAMMAMISH RIVER TRAIL SITE
908
Redmond Transit Center
NE 80TH ST
AVONDA
NE UNION HI
Bear Creek Park & Ride
(48)
(48)
(48)
CLEVELAND ST
(24)
LEARY WAY
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
NE REDMOND WAY
NE 76TH ST
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
MF5 for E2, E4
MARYMOOR PARK
NE 60TH ST
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

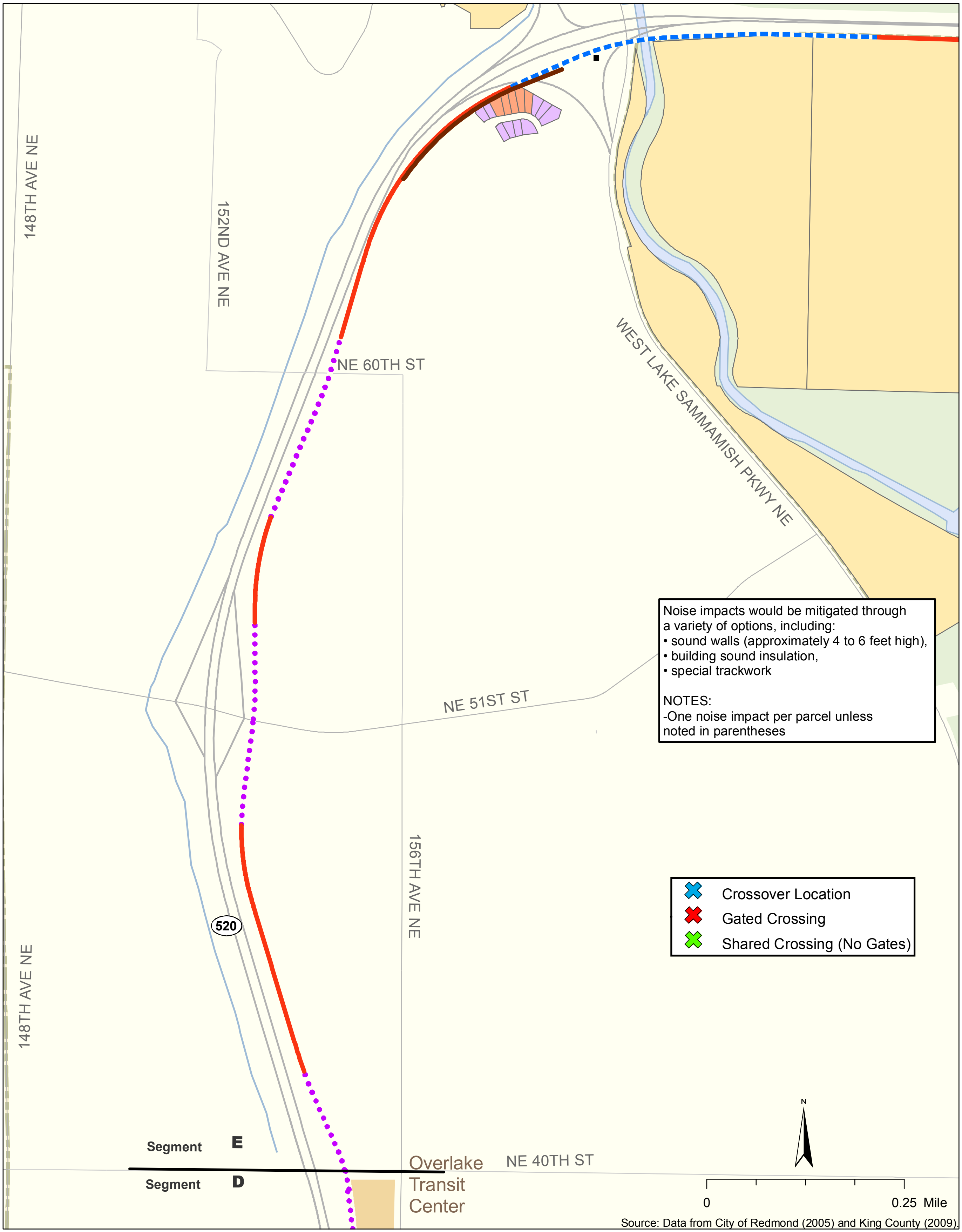
NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Redmond (2005) and King County (2009).

At-Grade Route	Traction Power Substation	Proposed Sound Wall Location
Elevated Route	Proposed Station	Moderate
Retained-Cut Route	Maintenance Facility and Access Track	Severe
Retained-Fill Route	New and/or Expanded Park-and-Ride Lot	Both Moderate and Severe
Tunnel Route		No Noise Impact

Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Exhibit A-34-Nb
Noise Impacts
Segment E,
Alternative E2
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
156TH AVE NE
520
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

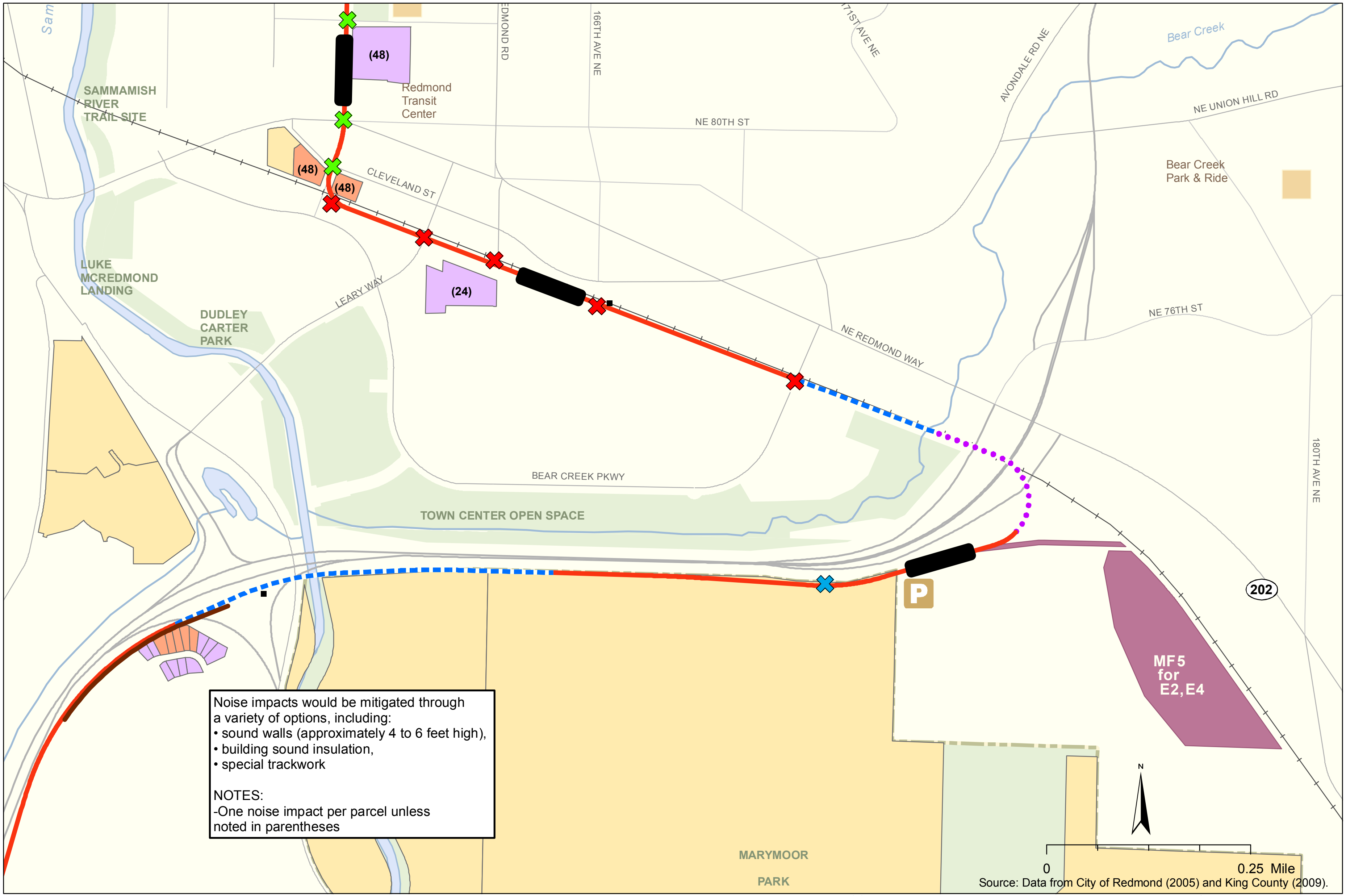
Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Redmond (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
New and/or Expanded Park-and-Ride Lot
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Proposed Sound Wall Location

Exhibit A-35-Na
Noise Impacts
Segment E,
Alternative E2
Design Option
East Link Project



Sam
SAMMAMISH RIVER TRAIL SITE
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
(48)
Redmond Transit Center
(48)
(48)
CLEVELAND ST
LEARY WAY
(24)
REDMOND RD
166TH AVE NE
171ST AVE NE
NE 80TH ST
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE 76TH ST
NE REDMOND WAY
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
202
MF5 for E2,E4
180TH AVE NE
N
MARYMOOR PARK
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

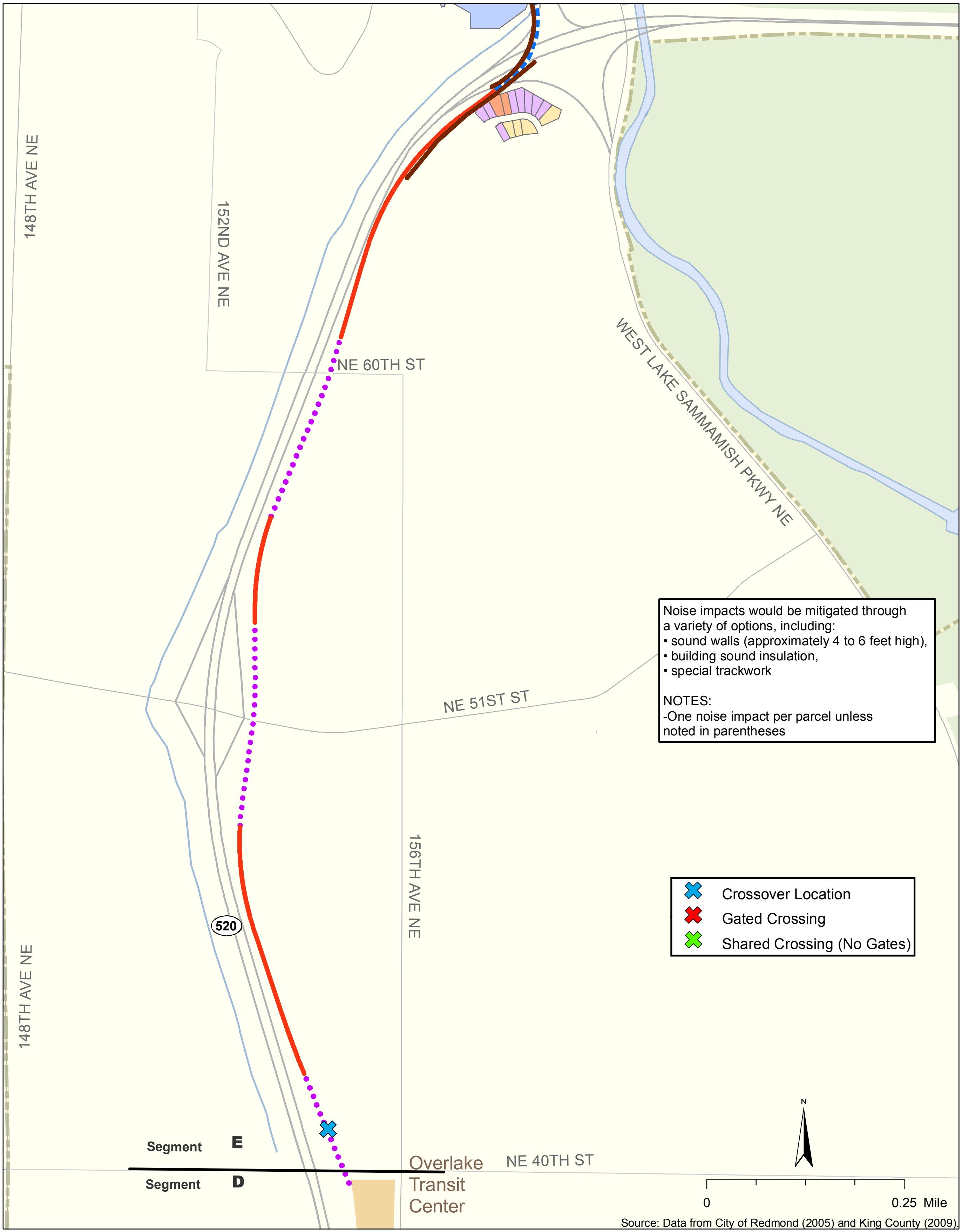
NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Redmond (2005) and King County (2009).

▬ At-Grade Route	▪ Traction Power Substation	▬ Proposed Sound Wall Location
▪▪▪ Elevated Route	▬ Proposed Station	▭ Moderate
••• Retained-Cut Route	▭ Maintenance Facility and Access Track	▭ Severe
••• Retained-Fill Route	P New and/or Expanded Park-and-Ride Lot	▭ Both Moderate and Severe
▬ ▬ Tunnel Route		▭ No Noise Impact

✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Exhibit A-35-Nb
Noise Impacts
Segment E,
Alternative E2
Design Option
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
520
156TH AVE NE
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

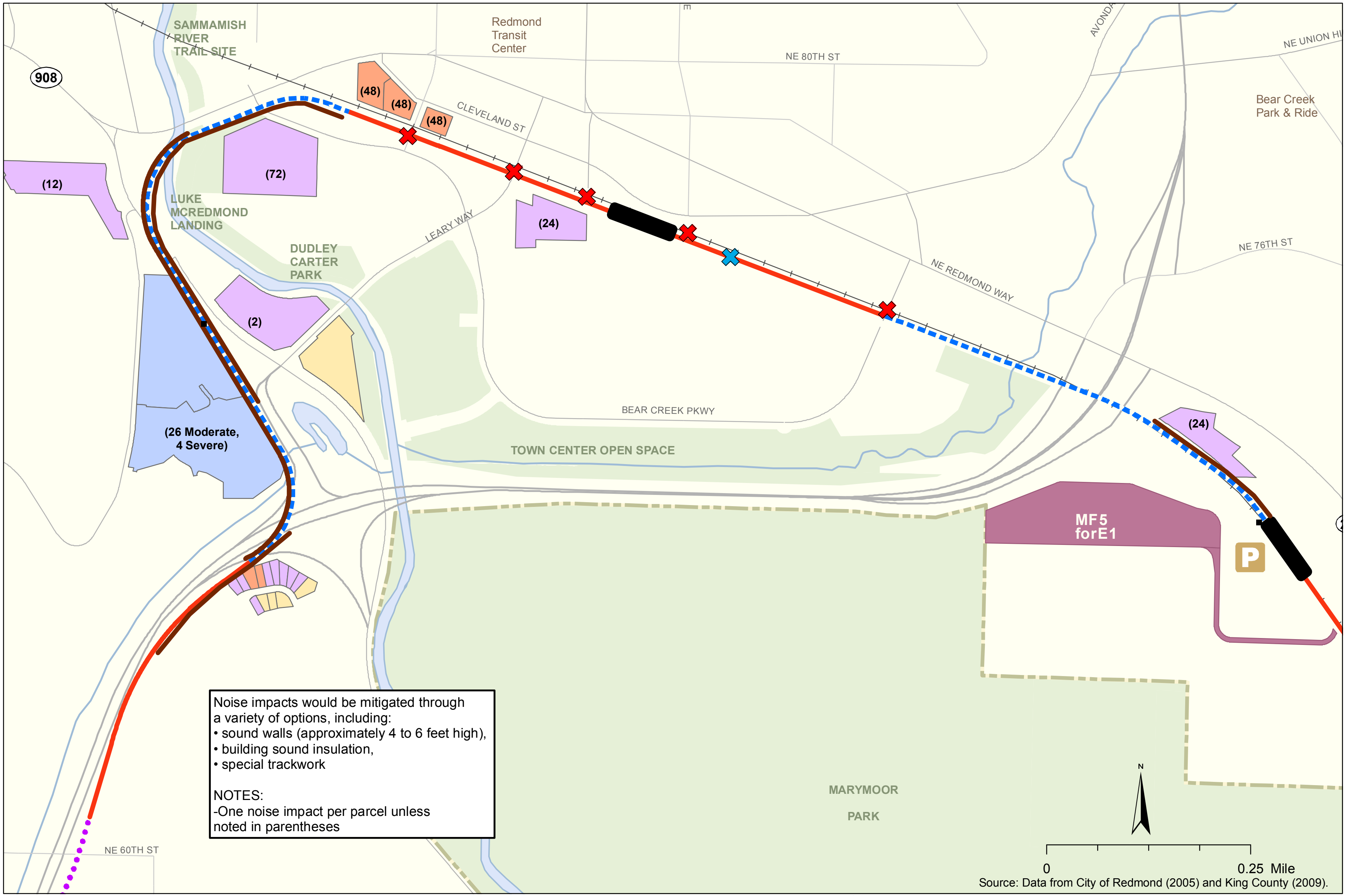
NOTES:
-One noise impact per parcel unless noted in parentheses

✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Source: Data from City of Redmond (2005) and King County (2009).

—	At-Grade Route	▪	Traction Power Substation	▭	Moderate
- - -	Elevated Route	▬	Proposed Station	▭	Severe
•••••	Retained-Cut Route	▬	Maintenance Facility and Access Track	▭	Both Moderate and Severe
•••••	Retained-Fill Route	P	New and/or Expanded Park-and-Ride Lot	▭	No Noise Impact
- -	Tunnel Route			—	Proposed Sound Wall Location

Exhibit A-36-Na
Noise Impacts
Segment E,
Alternative E1
East Link Project


SAMMAMISH RIVER TRAIL SITE
908
Redmond Transit Center
NE 80TH ST
AVONDA
NE UNION HI
Bear Creek Park & Ride
(48)
(48)
(48)
CLEVELAND ST
(12)
(72)
LUKE MCREDMOND LANDING
LEARY WAY
(24)
DUDLEY CARTER PARK
NE REDMOND WAY
NE 76TH ST
(2)
BEAR CREEK PKWY
(26 Moderate, 4 Severe)
TOWN CENTER OPEN SPACE
(24)
MF5 forE1
P
MARYMOOR PARK
N
0
0.25 Mile
NE 60TH ST

Noise impacts would be mitigated through a variety of options, including:

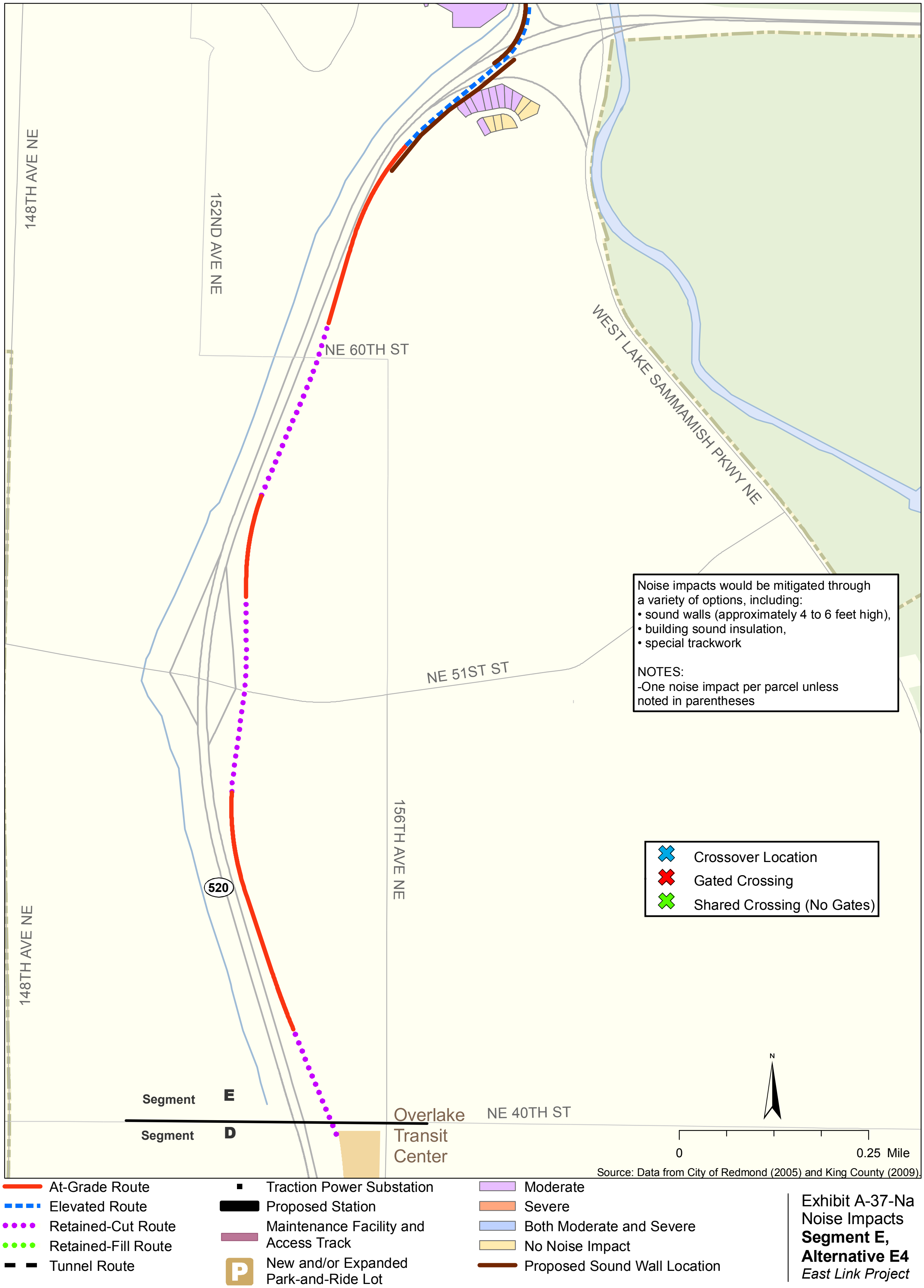
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Redmond (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
■ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Exhibit A-36-Nb
Noise Impacts
Segment E,
Alternative E1
East Link Project

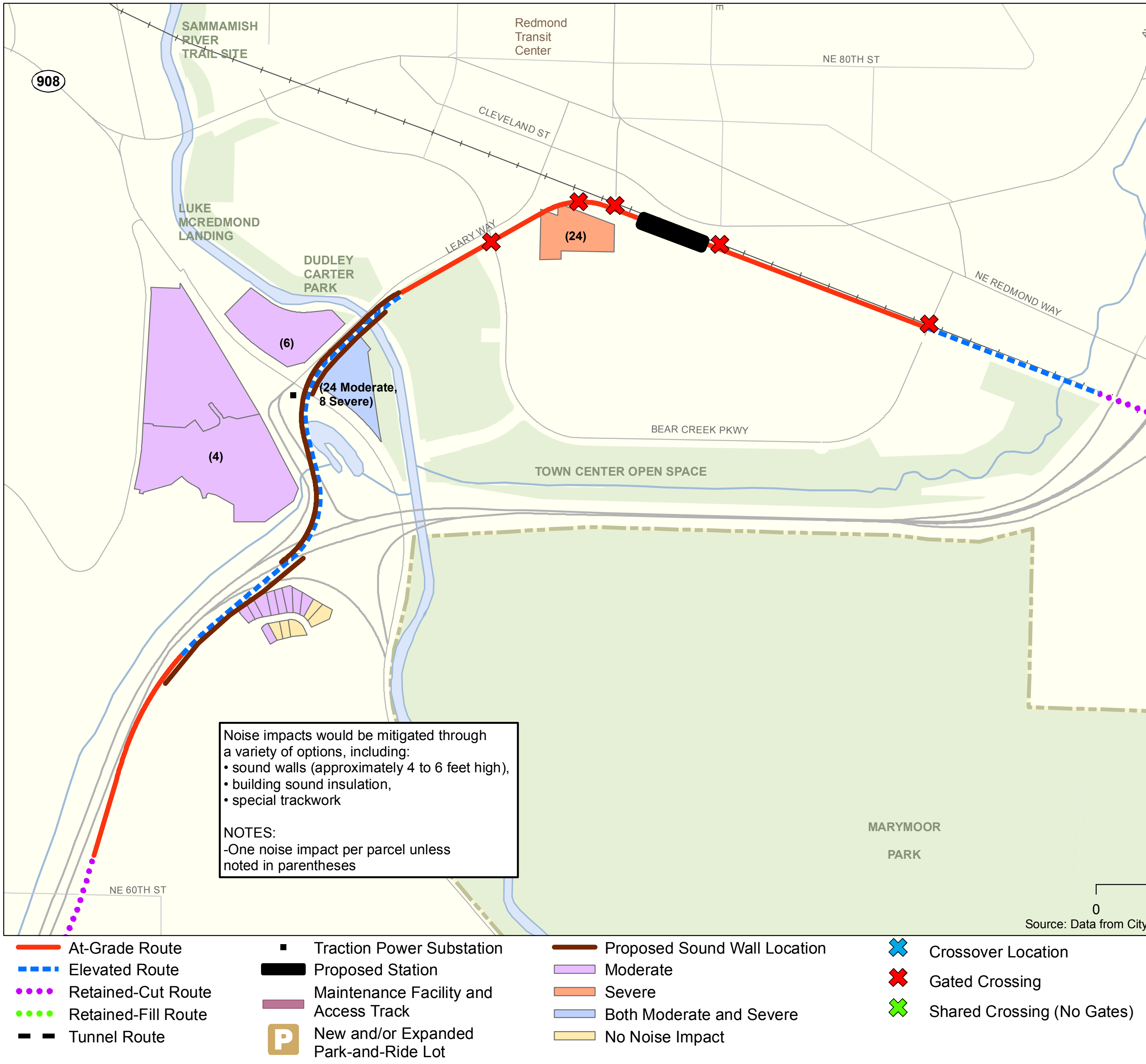

148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
520
156TH AVE NE
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Proposed Sound Wall Location

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Redmond (2005) and King County (2009).

Exhibit A-37-Na
Noise Impacts
Segment E,
Alternative E4
East Link Project

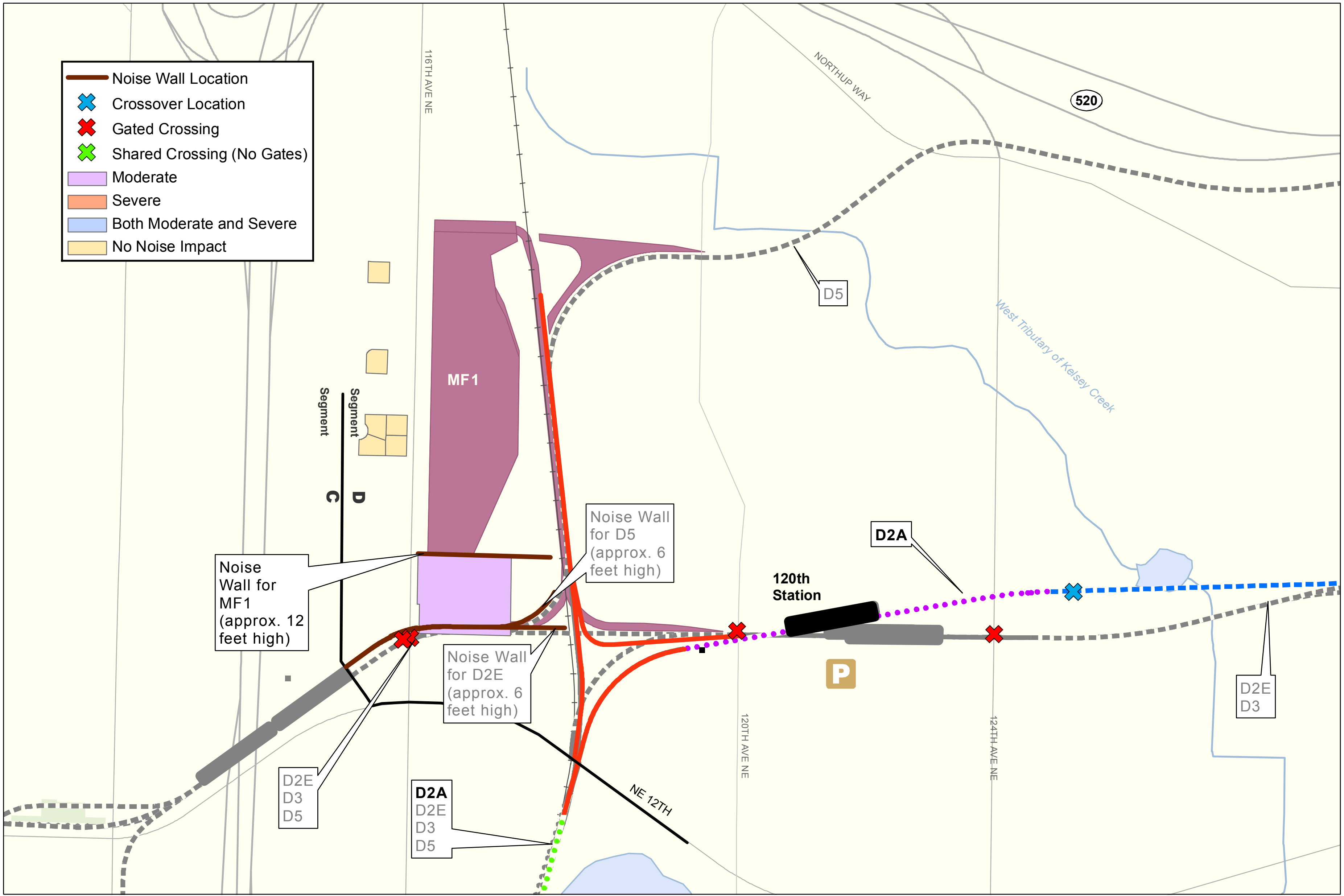

908
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center
NE 80TH ST
AVONDA
NE UNION HI
Bear Creek Park & Ride
CLEVELAND ST
LUKE MCREDMOND LANDING
LEARY WAY
(24)
DUDLEY CARTER PARK
NE REDMOND WAY
NE 76TH ST
(6)
(24 Moderate, 8 Severe)
BEAR CREEK PKWY
(4)
TOWN CENTER OPEN SPACE
(24)
P
MF5 for E2, E4
MARYMOOR PARK
NE 60TH ST
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
Proposed Sound Wall Location
Moderate
Severe
Both Moderate and Severe
No Noise Impact
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Noise impacts would be mitigated through a variety of options, including:
- sound walls (approximately 4 to 6 feet high),
- building sound insulation,
- special trackwork

NOTES:
-One noise impact per parcel unless noted in parentheses

Source: Data from City of Redmond (2005) and King County (2009).

Exhibit A-37-Nb
Noise Impacts
Segment E,
Alternative E4
East Link Project



Noise Wall Location
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Moderate
Severe
Both Moderate and Severe
No Noise Impact
116TH AVE NE
NORTHUP WAY
520
D5
West Tributary of Kelsey Creek
MF1
Segment C
Segment D
Noise Wall for D5 (approx. 6 feet high)
D2A
120th Station
Noise Wall for MF1 (approx. 12 feet high)
Noise Wall for D2E (approx. 6 feet high)
D2E D3
D2E D3 D5
D2A D2E D3 D5
NE 12TH
120TH AVE NE
124TH AVE NE
P

Preferred Alternative **D2A**

- 🟥 At-Grade Route
- ▬ ▬ Elevated Route
- • • • Retained-Cut Route
- • • • Retained-Fill Route
- ▬ ▬ Tunnel Route

Other Alternatives D3

- ▬ At-Grade Route
- ▬ ▬ Elevated Route
- • • • Retained-Cut or Retained-Fill Route
- ▬ ▬ Tunnel Route

- ▪ Traction Power Substation
- ▬ Proposed Station
- ▬ Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot

N

0 0.1 Mile

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

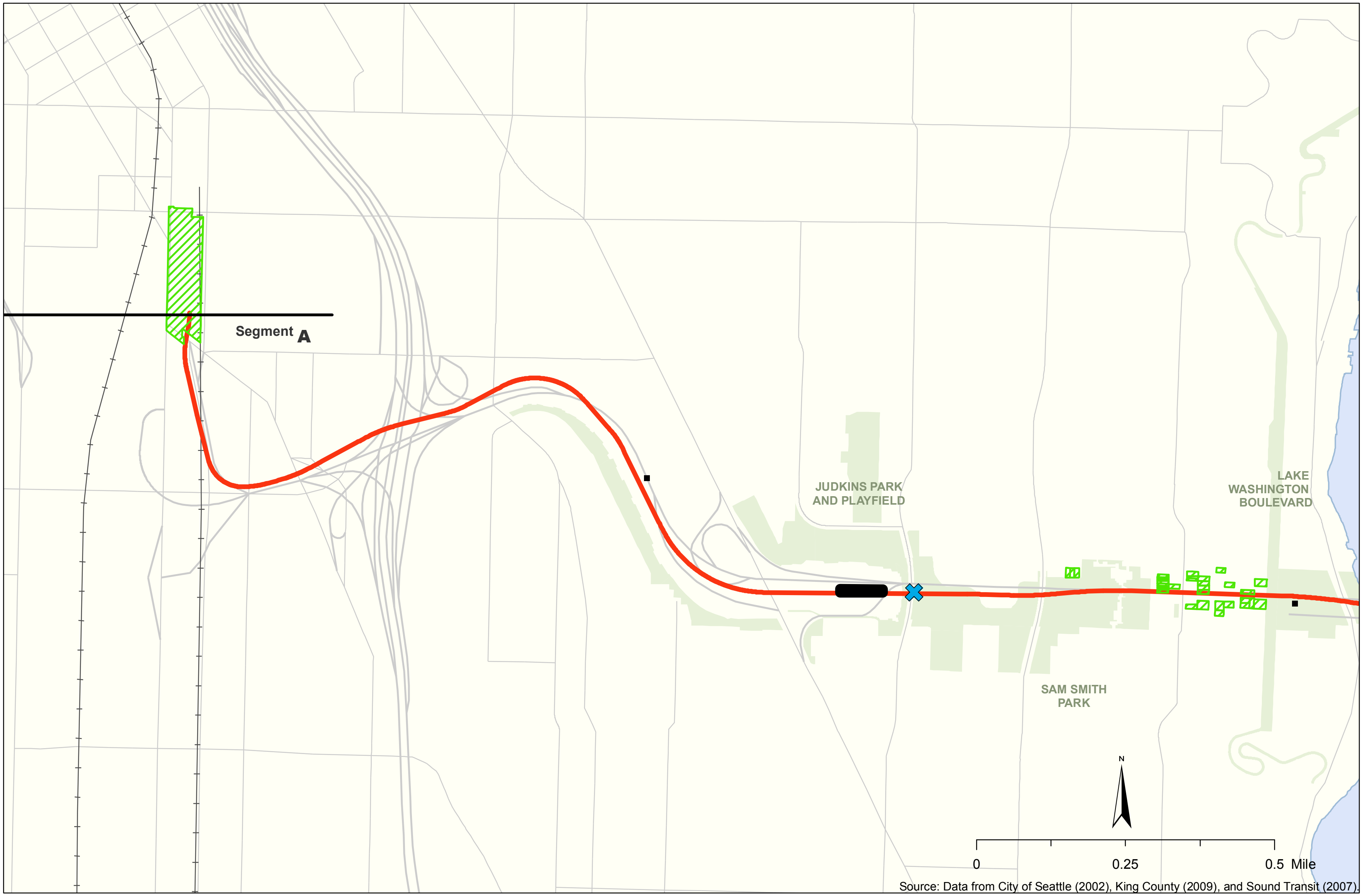
Exhibit A-38

Noise Impacts
Maintenance Facility
Alternative MF1

East Link Project

Vibration

The maps in this section depict vibration and groundborne noise impacts by parcel for the project alternatives and design options. Properties presumed to be displaced for the project are not shown as being impacted.

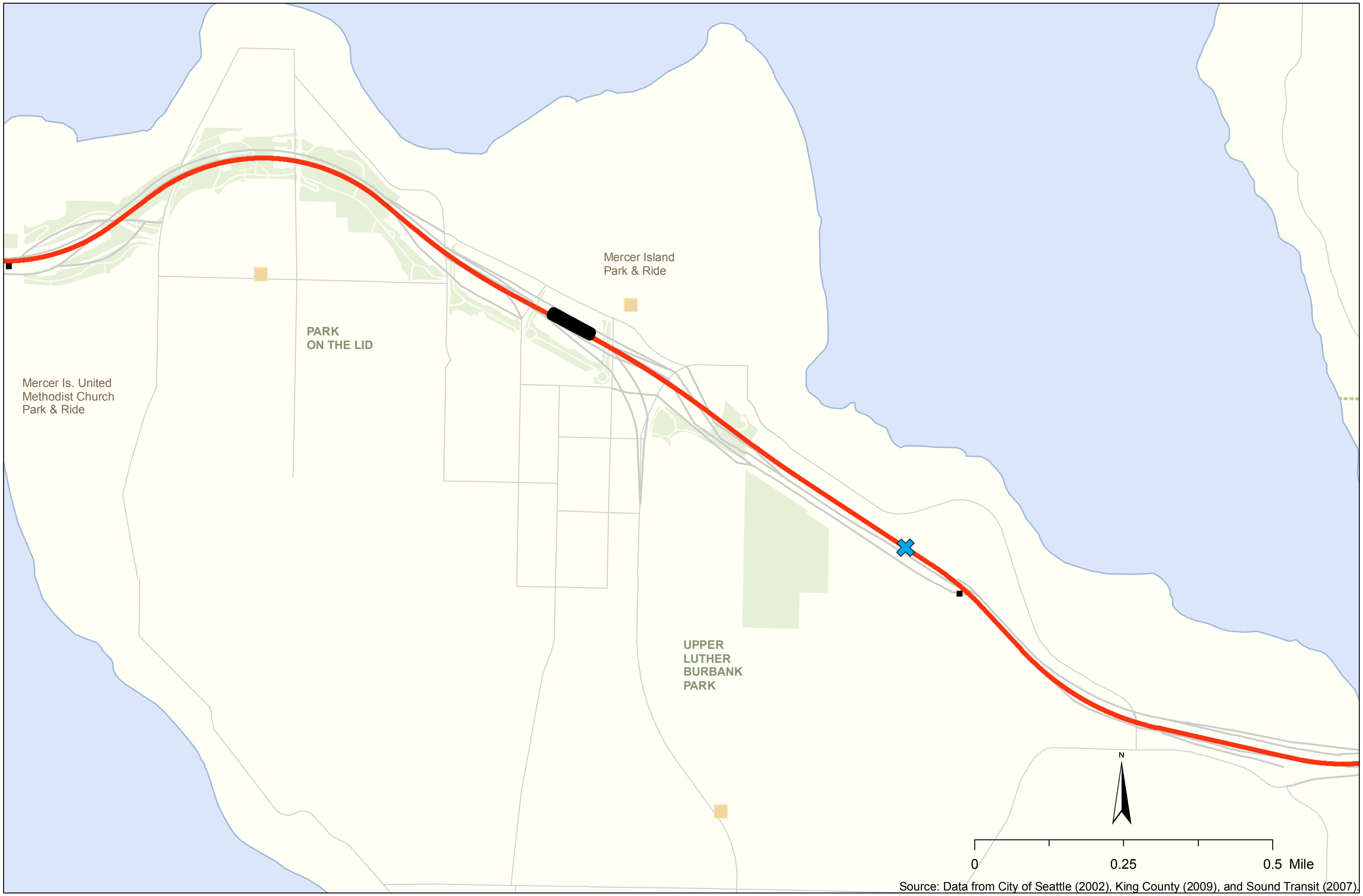

Segment A
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
SAM SMITH PARK
N
0
0.25
0.5 Mile

Source: Data from City of Seattle (2002), King County (2009), and Sound Transit (2007).

🟥 At-Grade Route
🟦 Elevated Route
● Retained-Cut Route
● Retained-Fill Route
▬ Tunnel Route

● Proposed Station
■ Traction Power Substation
✖ Crossover Location
✖ Gated Crossing
▨ Potential for Vibration Impacts (Impacts can be Mitigated)

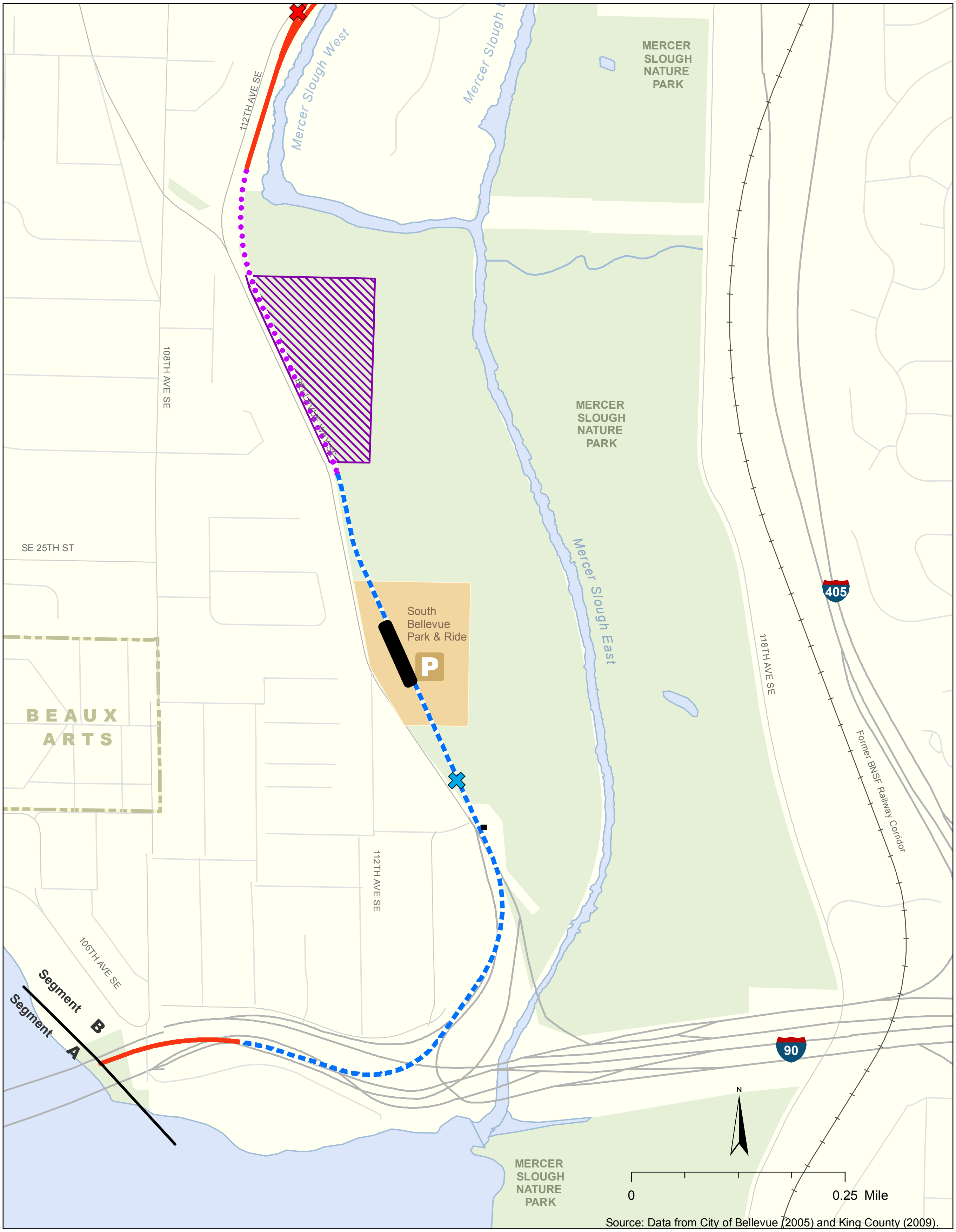
Exhibit A-1-Va
Vibration Impacts
Segment A,
Alternative A1
East Link Project


Mercer Island
Park & Ride
PARK
ON THE LID
Mercer Is. United
Methodist Church
Park & Ride
UPPER
LUTHER
BURBANK
PARK
N
0
0.25
0.5 Mile

Source: Data from City of Seattle (2002), King County (2009), and Sound Transit (2007).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
Traction Power Substation
Crossover Location
Gated Crossing
▨ Potential for Vibration Impacts (Impacts can be Mitigated)

Exhibit A-1-Vb
Vibration Impacts
Segment A,
Alternative A1
East Link Project


112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
108TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
South Bellevue Park & Ride
P
BEAUX ARTS
112TH AVE SE
118TH AVE SE
405
Former BNSF Railway Corridor
106TH AVE SE
Segment B
Segment A
90
N
MERCER SLOUGH NATURE PARK
0
0.25 Mile

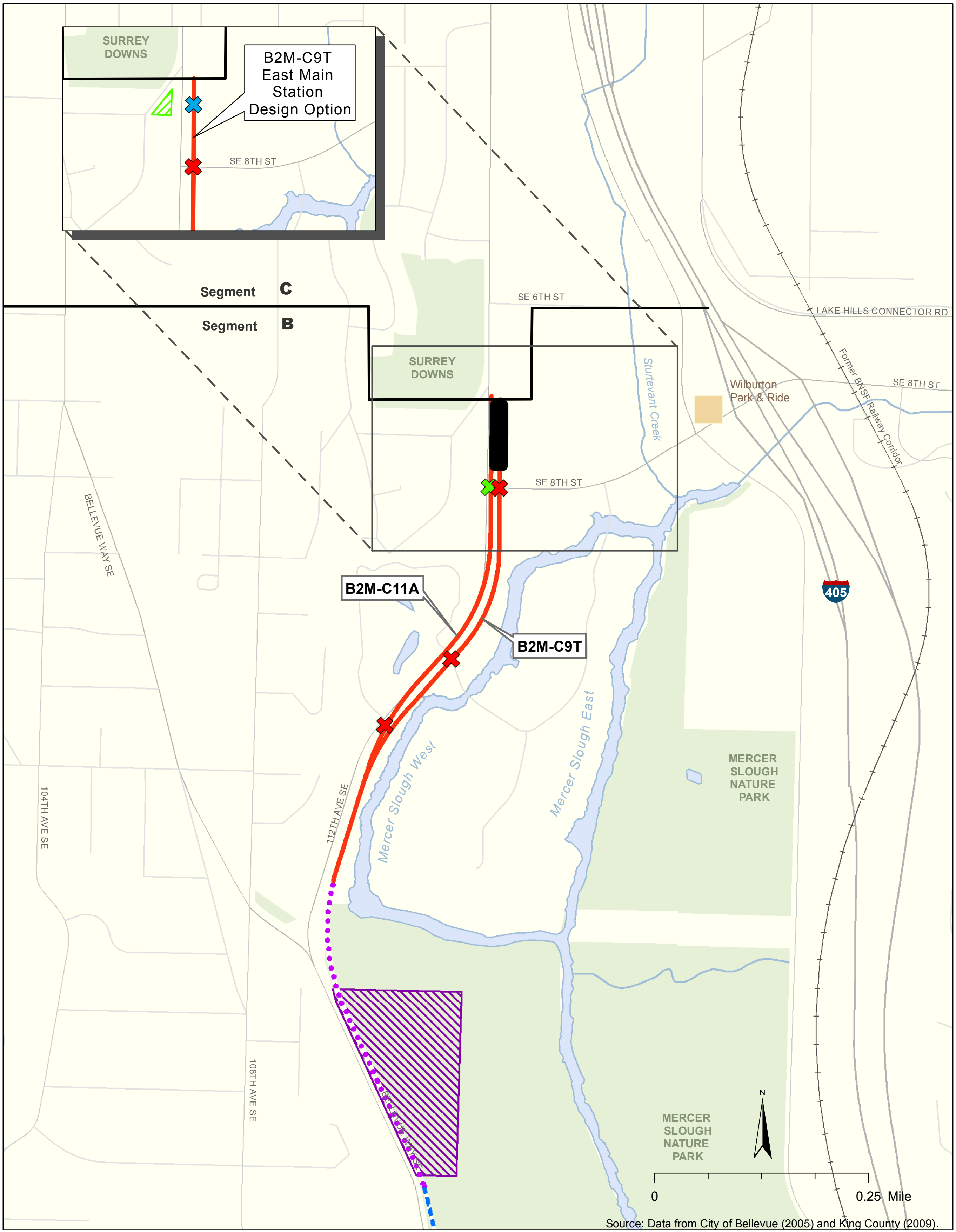
Source: Data from City of Bellevue (2005) and King County (2009).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- ▪ Traction Power Substation
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)

Exhibit A-2-Va

Vibration Impacts Segment B, B2M

East Link Project


SURREY DOWNS
B2M-C9T East Main Station Design Option
SE 8TH ST
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
SURREY DOWNS
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
Former BNSF Railway Corridor
SE 8TH ST
BELLEVUE WAY SE
B2M-C11A
B2M-C9T
405
Mercer Slough West
Mercer Slough East
112TH AVE SE
MERCER SLOUGH NATURE PARK
104TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile

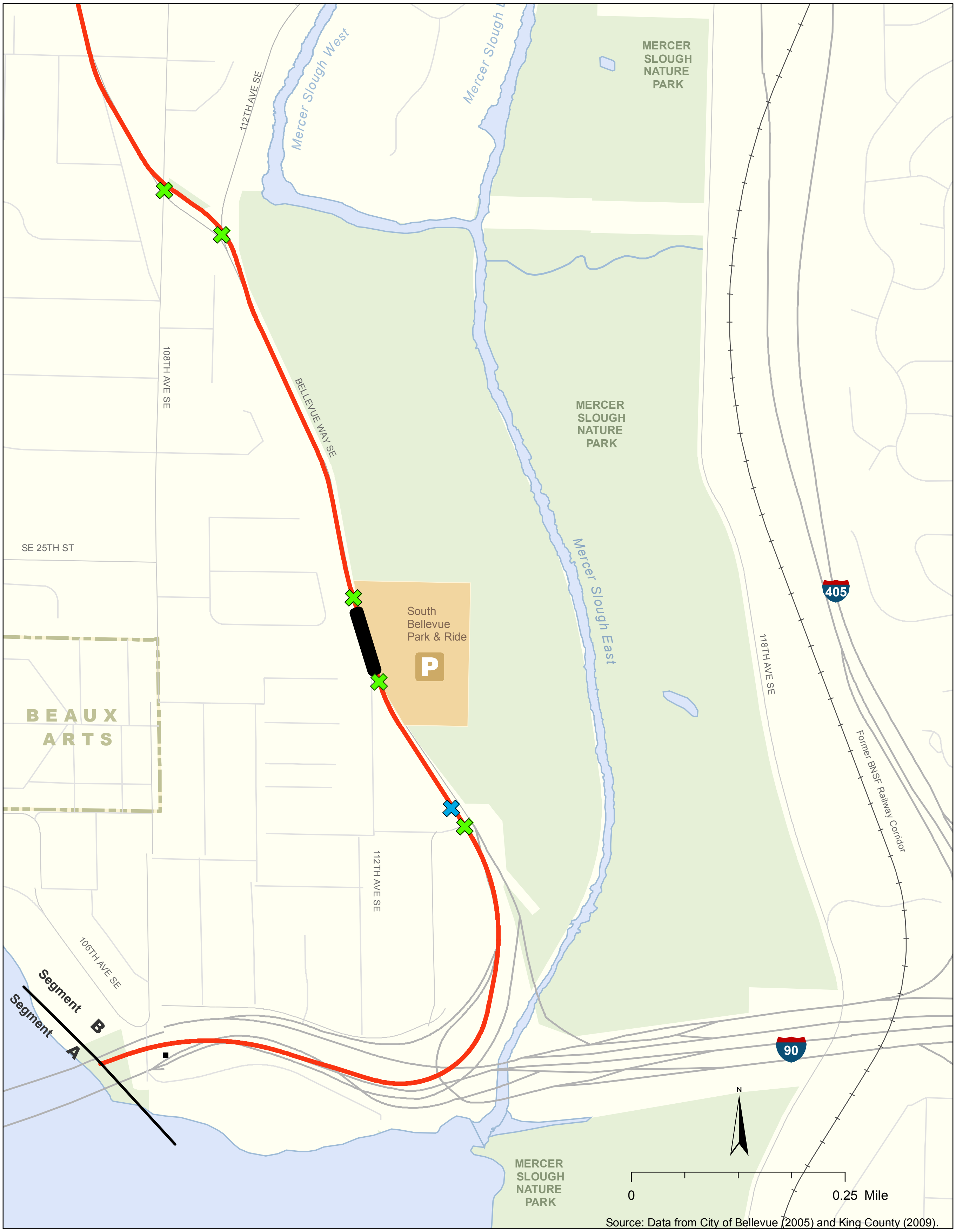
Source: Data from City of Bellevue (2005) and King County (2009).

▬ At-Grade Route	▪ Traction Power Substation	✖ Crossover Location	▨ Potential for Vibration Impacts (Impacts can be Mitigated)
▬ Elevated Route	▬ Proposed Station	✖ Gated Crossing	▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
●●● Retained-Cut Route	P New and/or Expanded Park-and-Ride Lot	✖ Shared Crossing (No Gates)	
●●● Retained-Fill Route			
▬ ▬ Tunnel Route			

Exhibit A-2-Vb

Vibration Impacts Segment B, B2M

East Link Project


MERCER SLOUGH NATURE PARK
Mercer Slough West
Mercer Slough East
112TH AVE SE
108TH AVE SE
BELLEVUE WAY SE
SE 25TH ST
MERCER SLOUGH NATURE PARK
South Bellevue Park & Ride
P
BEAUX ARTS
405
118TH AVE SE
Former BNSF Railway Corridor
112TH AVE SE
106TH AVE SE
Segment B
Segment A
90
N
MERCER SLOUGH NATURE PARK
0
0.25 Mile

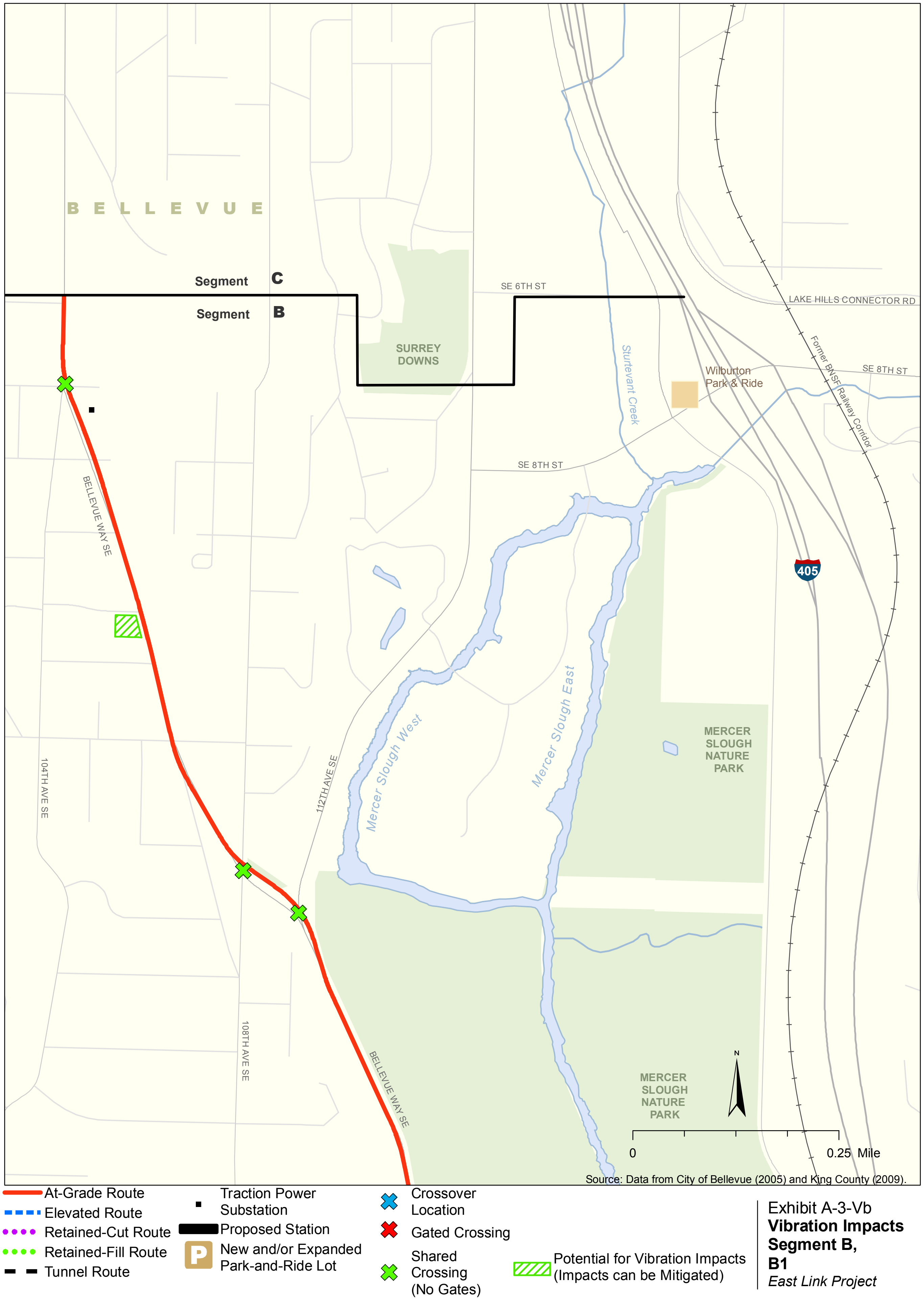
Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ‒ ‒ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▪ Traction Power Substation
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▨ Potential for Vibration Impacts (Impacts can be Mitigated)

Exhibit A-3-Va

Vibration Impacts Segment B, B1

East Link Project

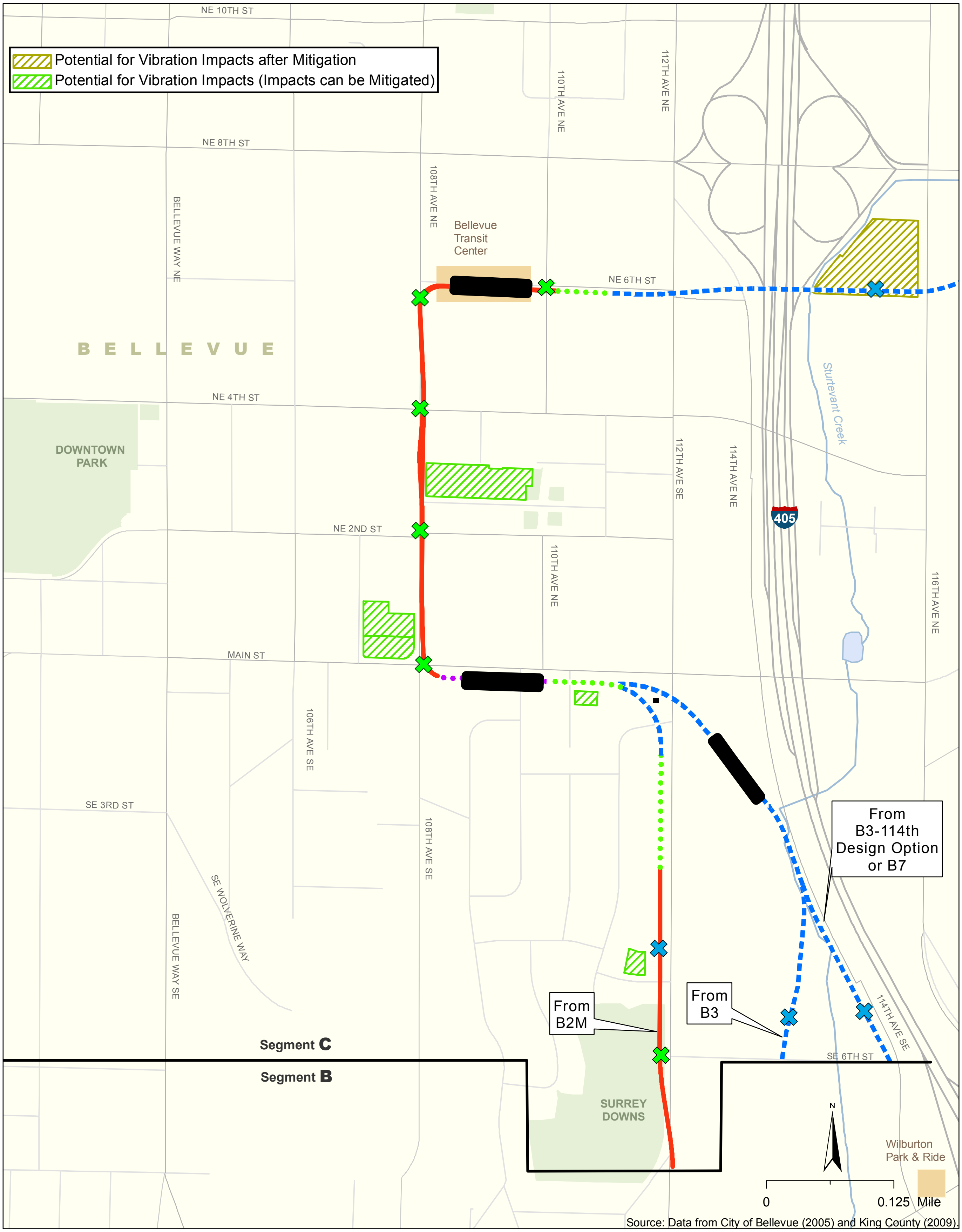

B E L L E V U E
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
Wilburton Park & Ride
SE 8TH ST
SE 8TH ST
Sturtevant Creek
Former BNSF Railway Corridor
405
BELLEVUE WAY SE
104TH AVE SE
108TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Potential for Vibration Impacts (Impacts can be Mitigated)

Source: Data from City of Bellevue (2005) and King County (2009).

Exhibit A-3-Vb

Vibration Impacts
Segment B,
B1

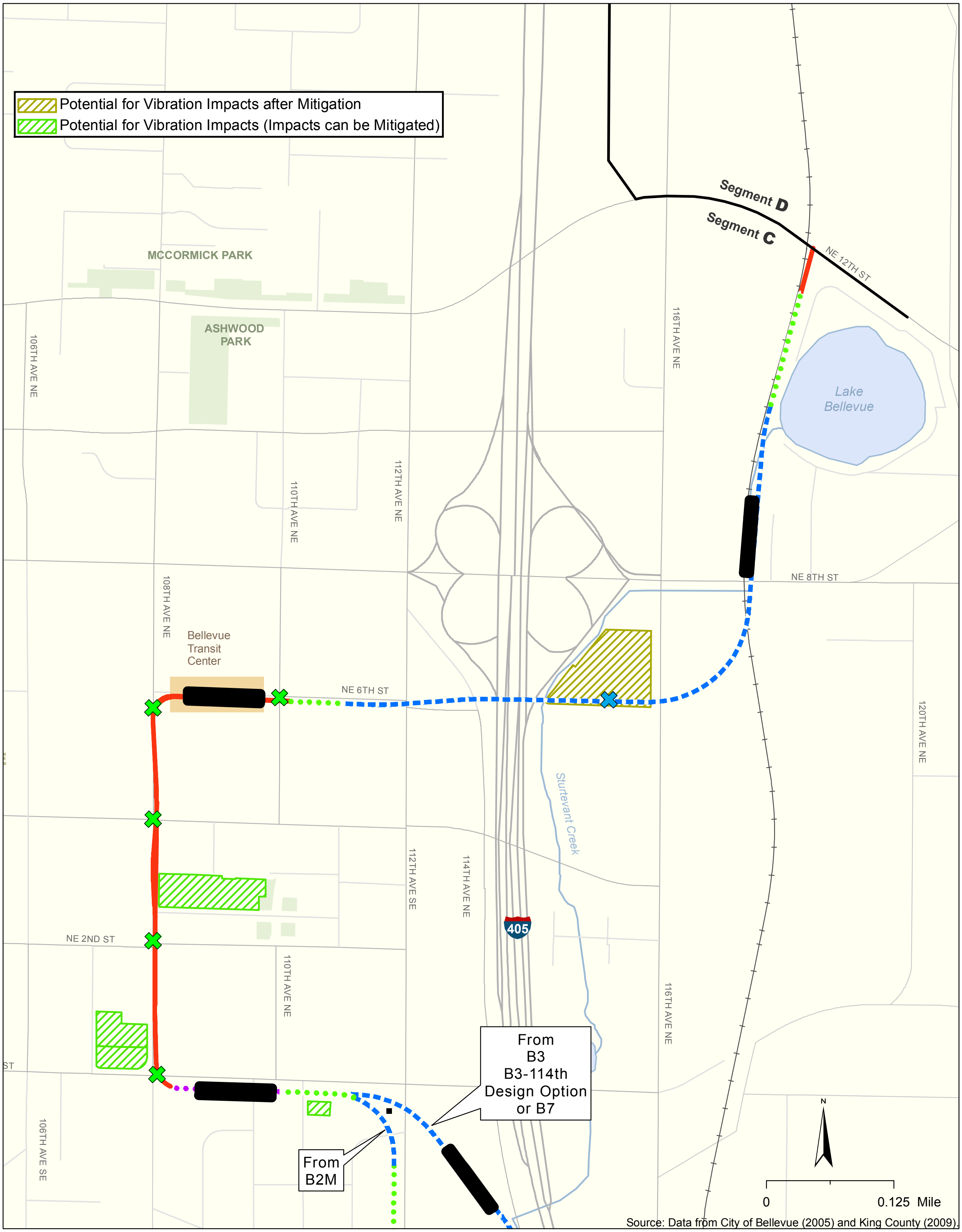
East Link Project


▨ Potential for Vibration Impacts after Mitigation
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
106TH AVE SE
SE WOLVERINE WAY
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
SURREY DOWNS
Sturtevant Creek
405
From B3-114th Design Option or B7
From B2M
From B3
Segment C
Segment B
Wilburton Park & Ride
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation

Exhibit A-4-Va
Vibration Impacts
Segment C
C11A
East Link Project



Potential for Vibration Impacts after Mitigation
Potential for Vibration Impacts (Impacts can be Mitigated)
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
Lake Bellevue
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
ST
106TH AVE SE
From B3 B3-114th Design Option or B7
From B2M
N
0
0.125 Mile

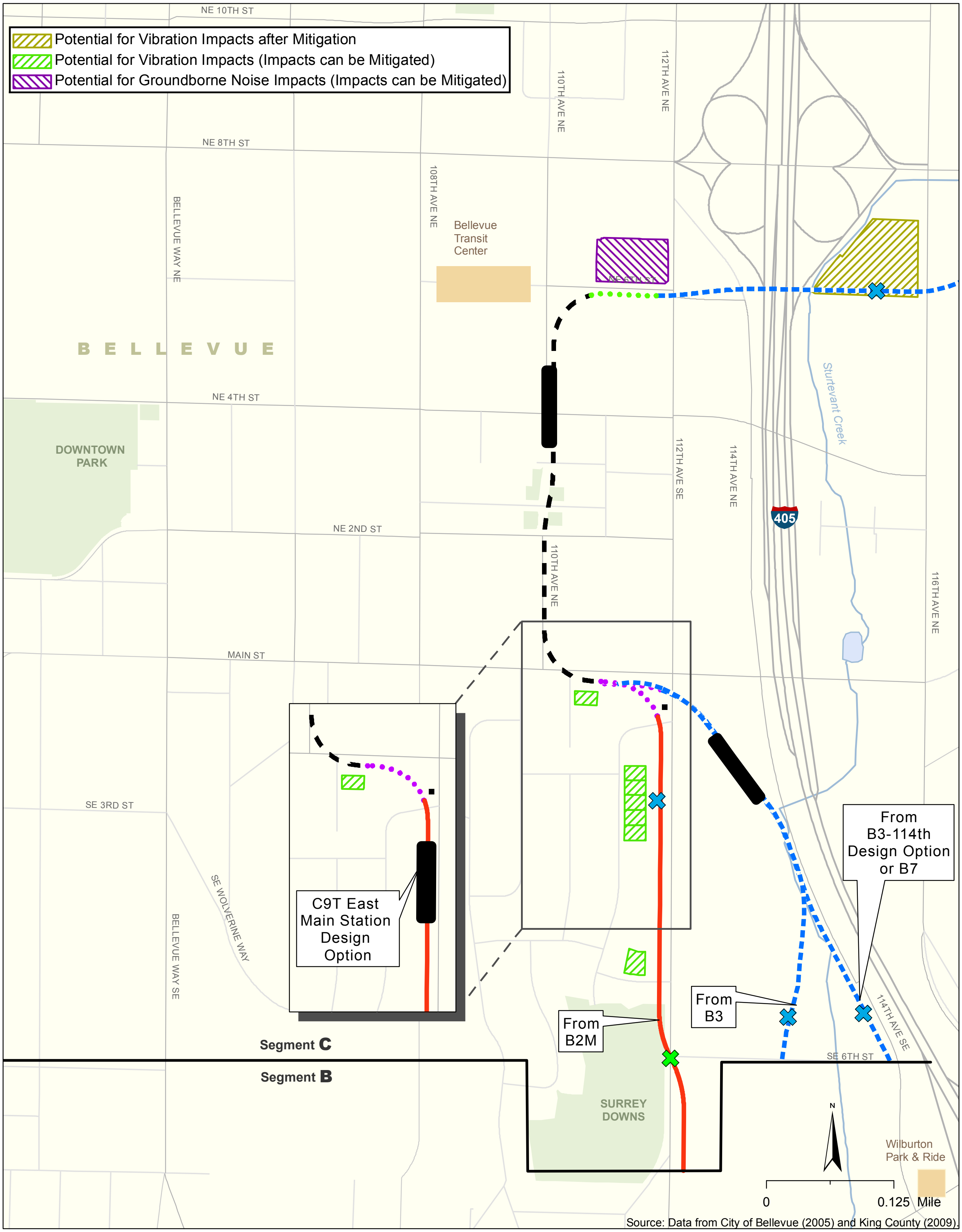
Source: Data from City of Bellevue (2005) and King County (2009).

🟥 At-Grade Route
🟦 Elevated Route
●●●● Retained-Cut Route
●●●● Retained-Fill Route
▬ ▬ Tunnel Route
▬ Proposed Station
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
▪ Traction Power Substation

Exhibit A-4-Vb

Vibration Impacts
Segment C
C11A

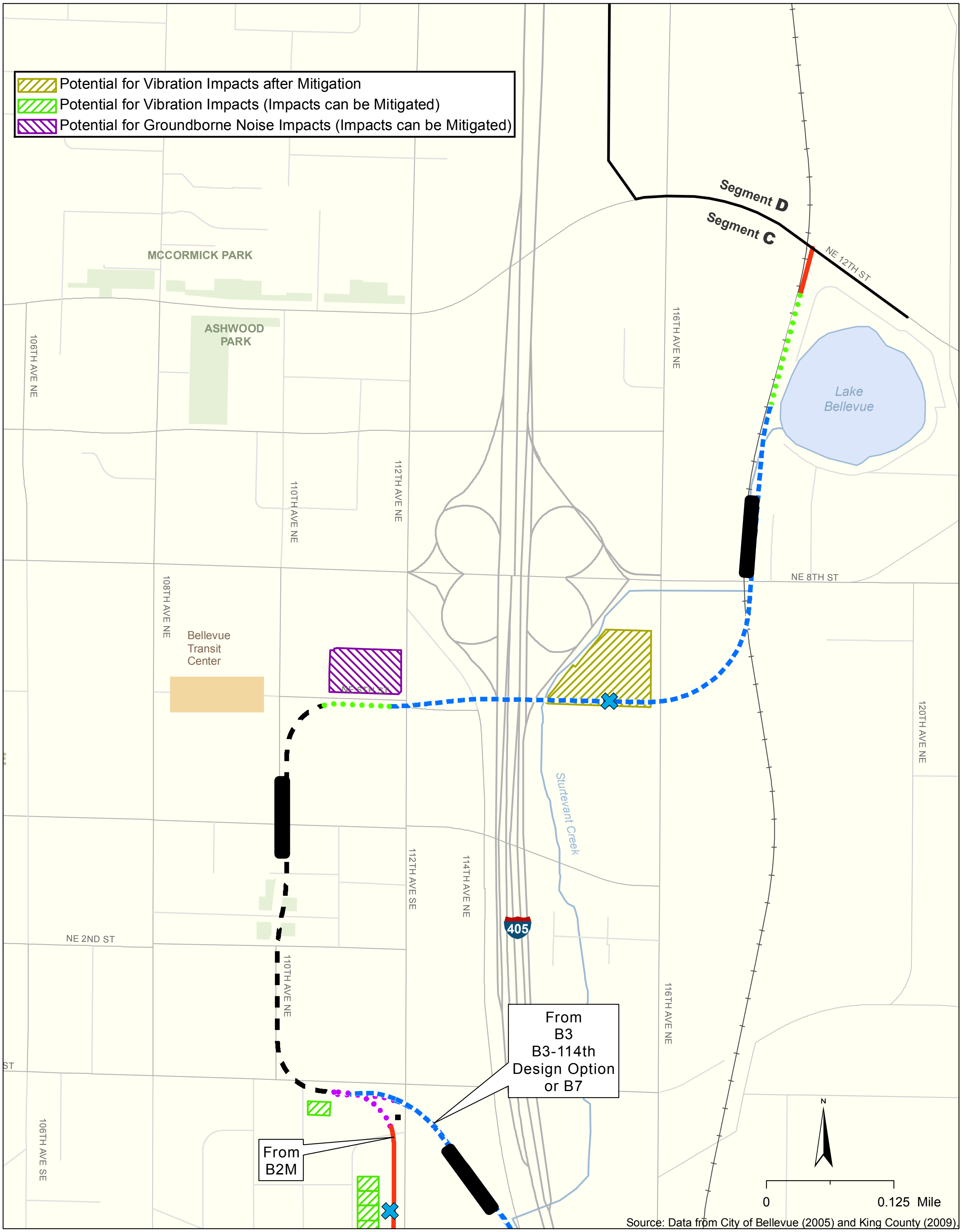
East Link Project


Potential for Vibration Impacts after Mitigation
Potential for Vibration Impacts (Impacts can be Mitigated)
Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
SE WOLVERINE WAY
Bellevue Transit Center
B E L L E V U E
DOWNTOWN PARK
Sturtevant Creek
405
C9T East Main Station Design Option
From B3-114th Design Option or B7
From B3
From B2M
Segment C
Segment B
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ▬ ▬ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation

Exhibit A-5-Va
Vibration Impacts
Segment C
C9T
East Link Project

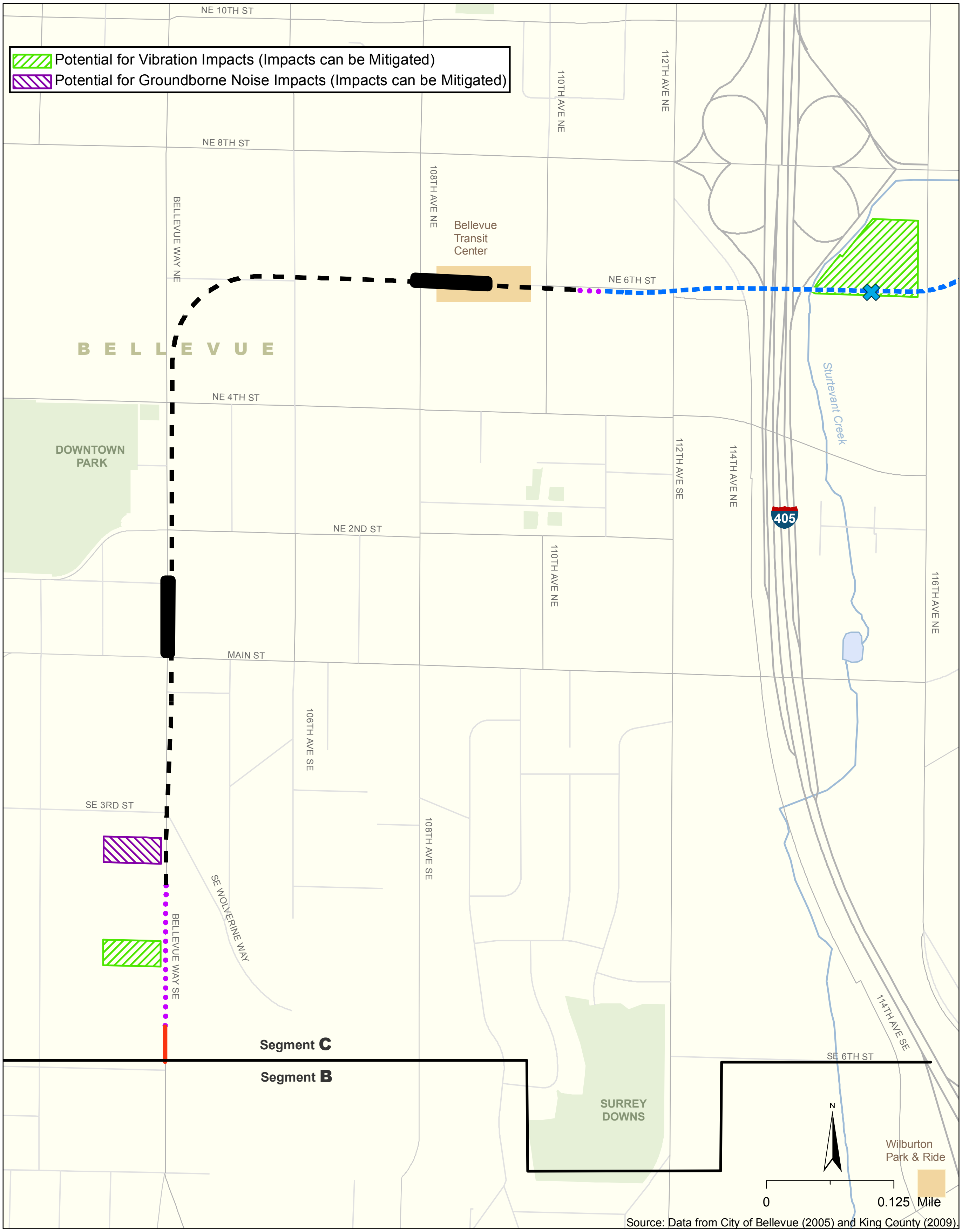


▨ Potential for Vibration Impacts after Mitigation
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
MCCORMICK PARK
ASHWOOD PARK
Segment D
Segment C
NE 12TH ST
Lake Bellevue
116TH AVE NE
106TH AVE NE
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
120TH AVE NE
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
ST
106TH AVE SE
From B3 B3-114th Design Option or B7
From B2M
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ■ Traction Power Substation

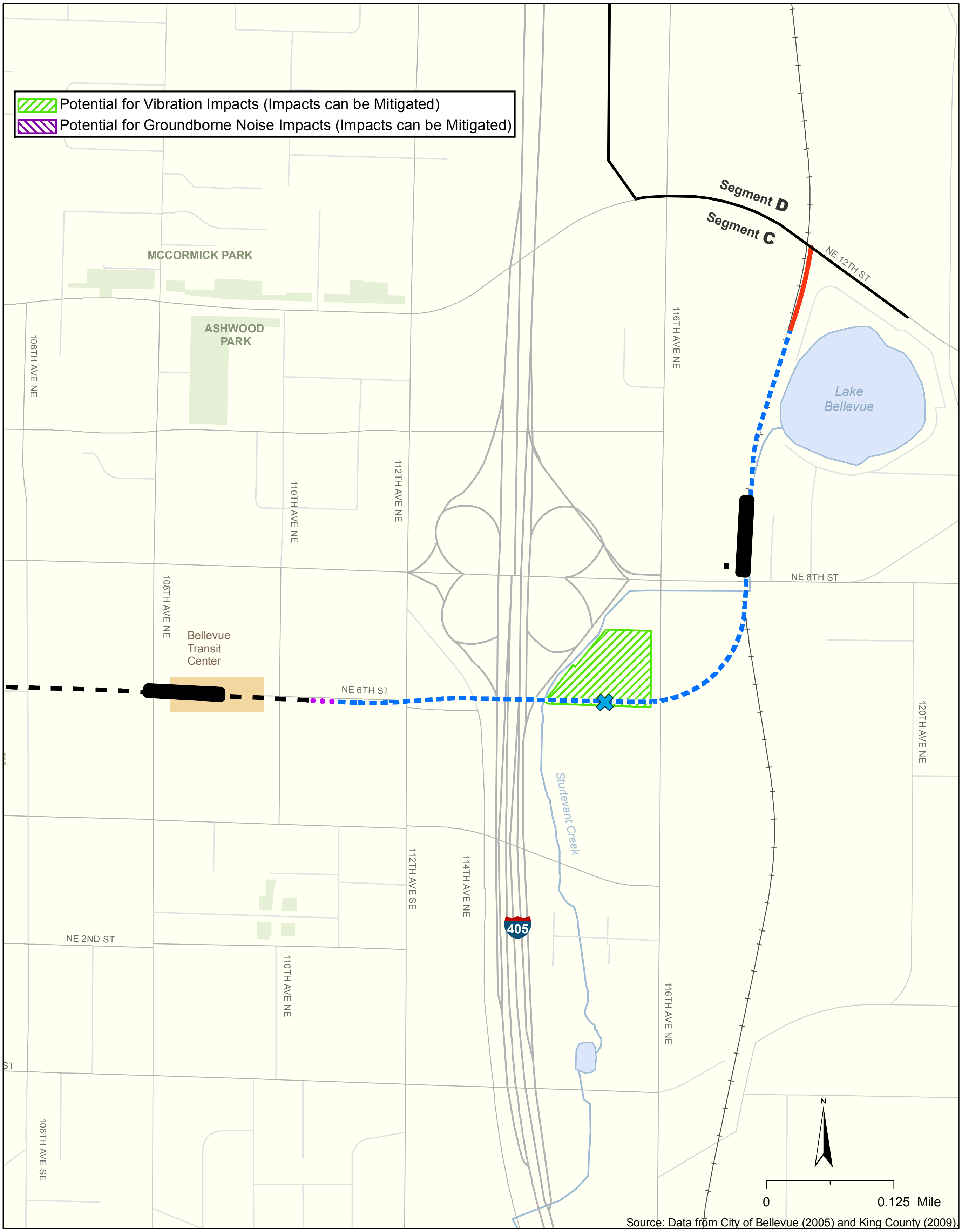
Exhibit A-5-Vb
Vibration Impacts
Segment C
C9T
East Link Project


Potential for Vibration Impacts (Impacts can be Mitigated)
Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
110TH AVE NE
112TH AVE NE
108TH AVE NE
BELLEVUE WAY NE
Bellevue Transit Center
NE 6TH ST
B E L L E V U E
Sturtevant Creek
NE 4TH ST
DOWNTOWN PARK
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
MAIN ST
106TH AVE SE
SE 3RD ST
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
114TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)
▪ Traction Power Substation

Exhibit A-6-Va
Vibration Impacts
Segment C
C1T
East Link Project


▨ Potential for Vibration Impacts (Impacts can be Mitigated)
▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
MCCORMICK PARK
ASHWOOD PARK
Segment D
Segment C
NE 12TH ST
Lake Bellevue
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
120TH AVE NE
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
ST
106TH AVE SE
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route	New and/or Expanded Park-and-Ride Lot	■ Traction Power Substation
Elevated Route		
Retained-Cut Route	✖ Crossover Location	
Retained-Fill Route	✖ Gated Crossing	
Tunnel Route	✖ Shared Crossing (No Gates)	
Proposed Station		

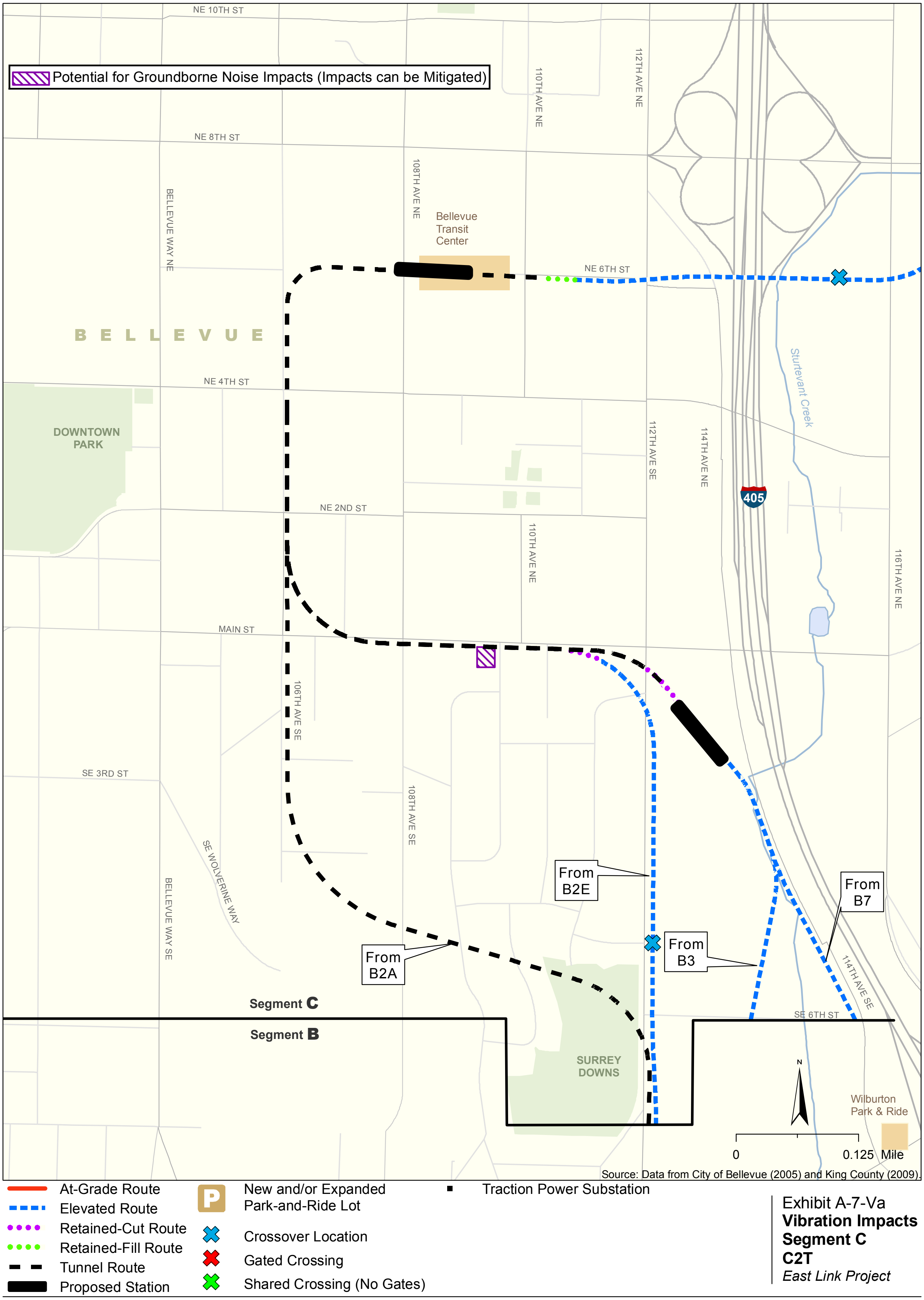
Exhibit A-6-Vb

Vibration Impacts

Segment C

C1T

East Link Project


▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
106TH AVE SE
SE WOLVERINE WAY
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
SURREY DOWNS
Sturtevant Creek
405
From B2E
From B2A
From B3
From B7
Segment C
Segment B
Wilburton Park & Ride
N
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation

Source: Data from City of Bellevue (2005) and King County (2009).

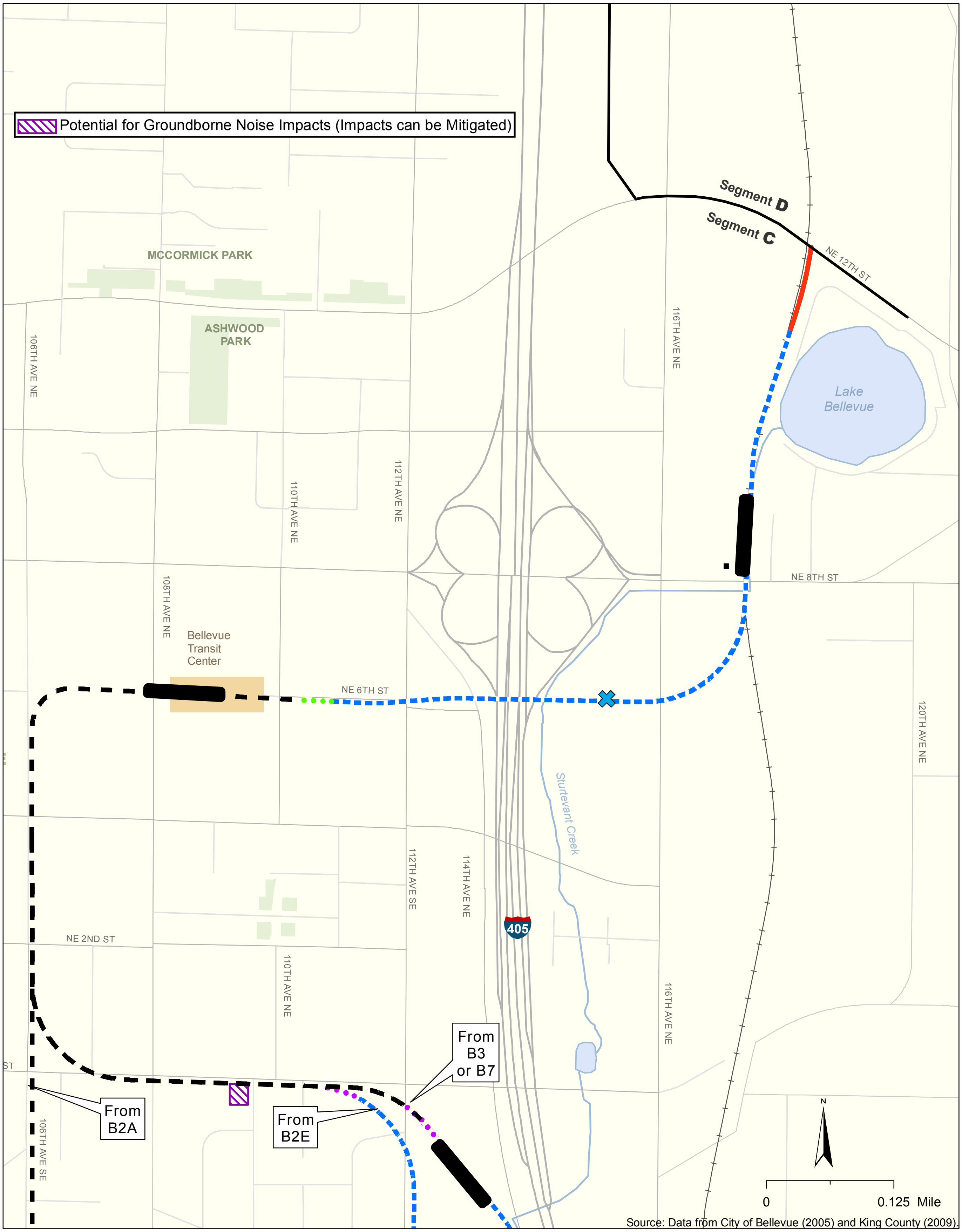
Exhibit A-7-Va

Vibration Impacts

Segment C

C2T

East Link Project



▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
Segment D
Segment C
NE 12TH ST
Lake Bellevue
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
ST
From B3 or B7
From B2A
From B2E
106TH AVE SE
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ▬ Elevated Route
- ● Retained-Cut Route
- ● Retained-Fill Route
- ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation

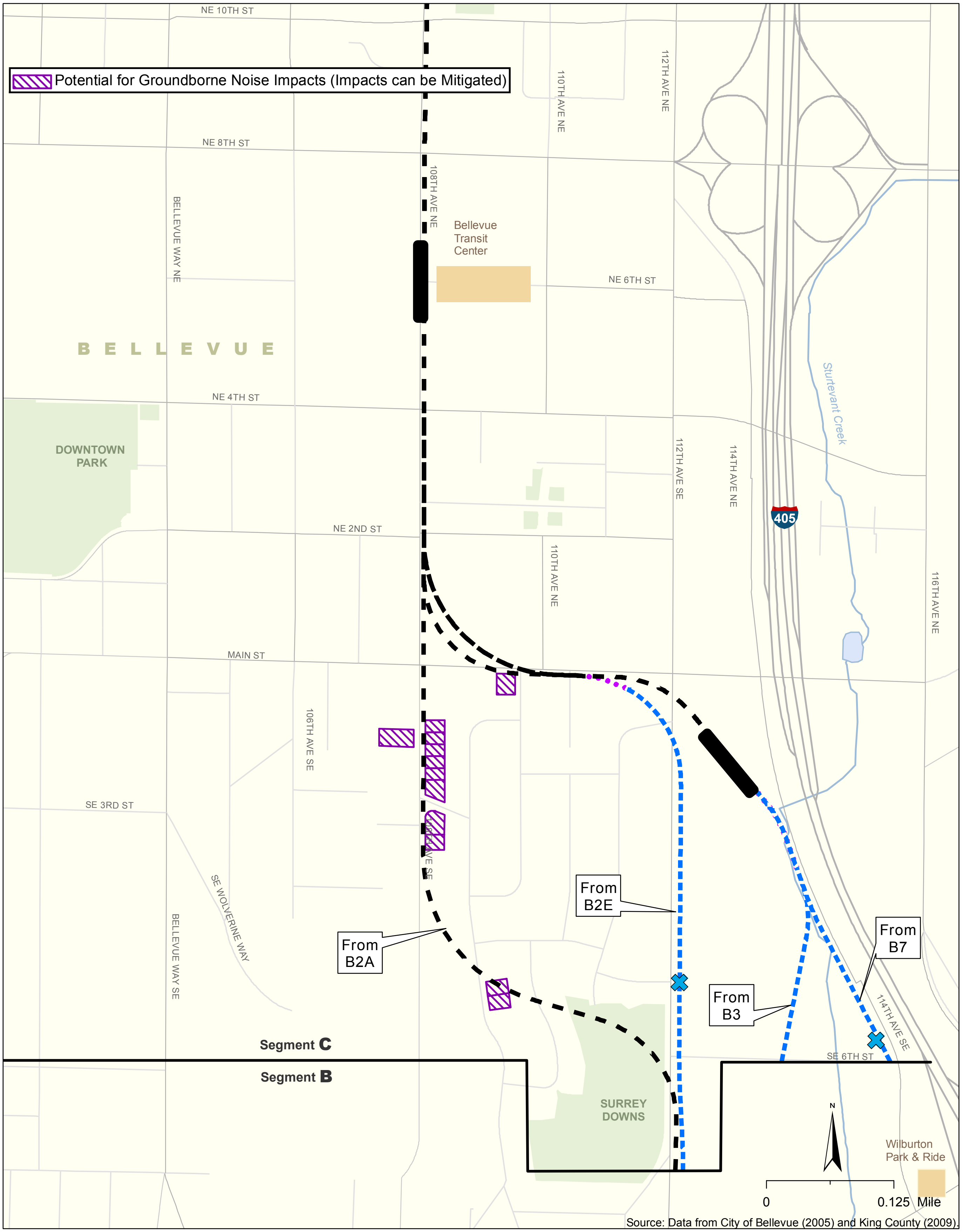
Exhibit A-7-Vb

Vibration Impacts

Segment C

C2T

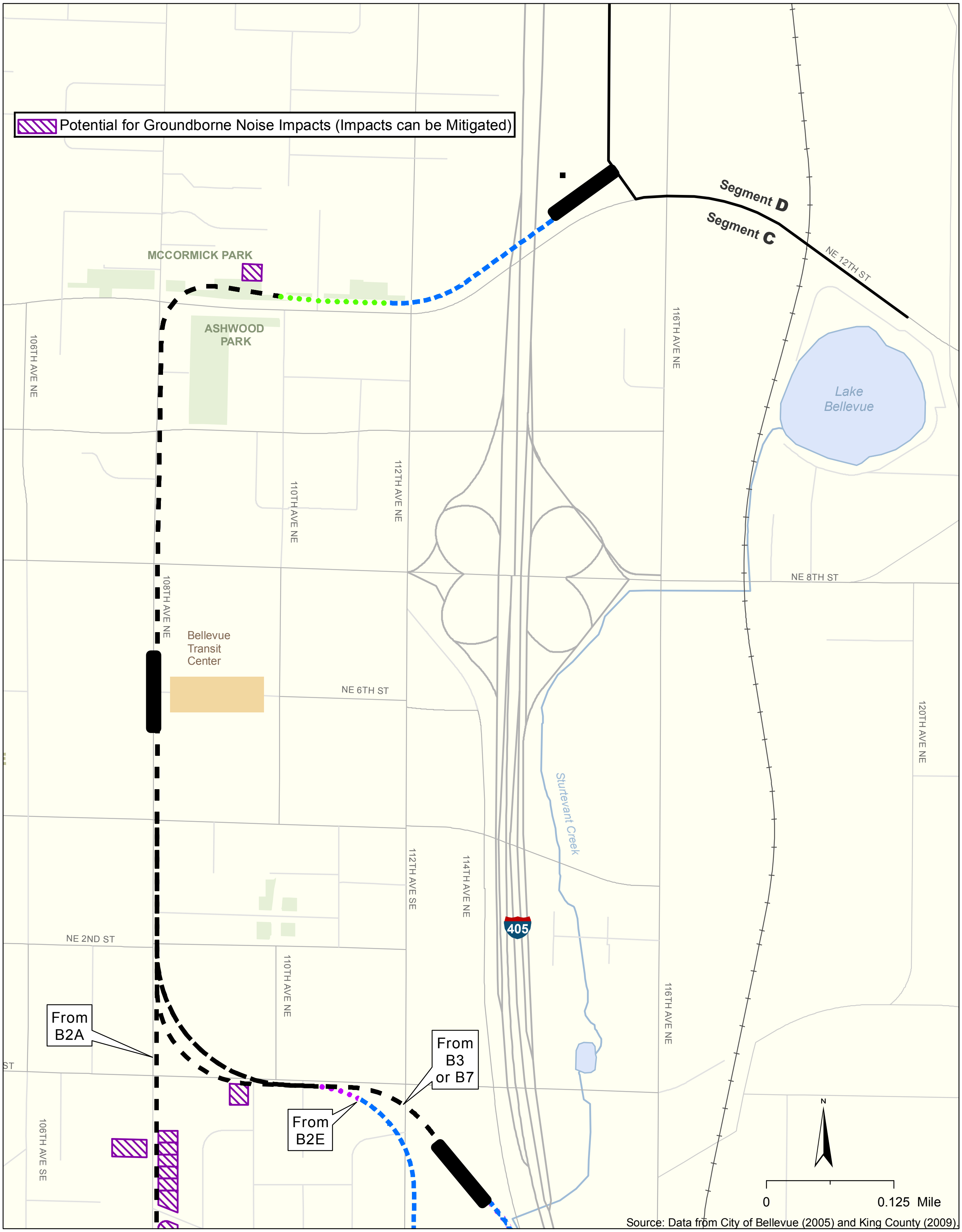
East Link Project


Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
112TH AVE SE
114TH AVE SE
106TH AVE SE
BELLEVUE WAY NE
BELLEVUE WAY SE
SE WOLVERINE WAY
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
SURREY DOWNS
Sturtevant Creek
405
From B2A
From B2E
From B3
From B7
Segment C
Segment B
Wilburton Park & Ride
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- - - - Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route
- ■ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation

Exhibit A-8-Va
Vibration Impacts
Segment C
C3T
East Link Project


▨ Potential for Groundborne Noise Impacts (Impacts can be Mitigated)
MCCORMICK PARK
ASHWOOD PARK
Segment D
Segment C
NE 12TH ST
116TH AVE NE
Lake Bellevue
106TH AVE NE
110TH AVE NE
112TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
120TH AVE NE
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
From B2A
ST
From B3 or B7
From B2E
106TH AVE SE
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

━ At-Grade Route	🅿 New and/or Expanded Park-and-Ride Lot	▪ Traction Power Substation
┅ Elevated Route		
⋯ Retained-Cut Route	✖ Crossover Location	
⋯ Retained-Fill Route	✖ Gated Crossing	
━ ━ Tunnel Route	✖ Shared Crossing (No Gates)	
▬ Proposed Station		

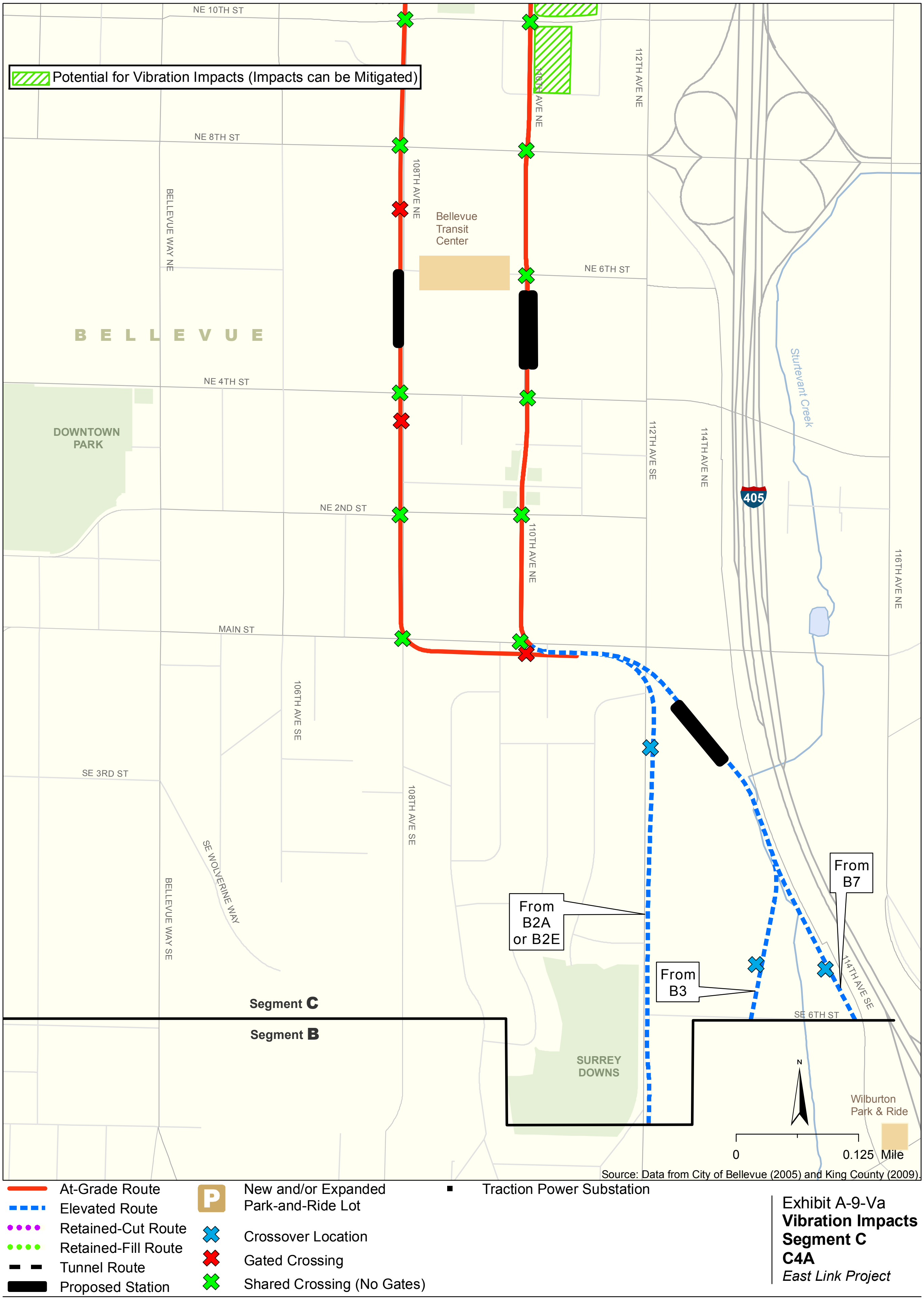
Exhibit A-8-Vb

Vibration Impacts

Segment C

C3T

East Link Project


Potential for Vibration Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
106TH AVE SE
108TH AVE SE
BELLEVUE WAY NE
BELLEVUE WAY SE
SE WOLVERINE WAY
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
Sturtevant Creek
405
From B2A or B2E
From B3
From B7
Segment C
Segment B
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
Traction Power Substation

Source: Data from City of Bellevue (2005) and King County (2009).

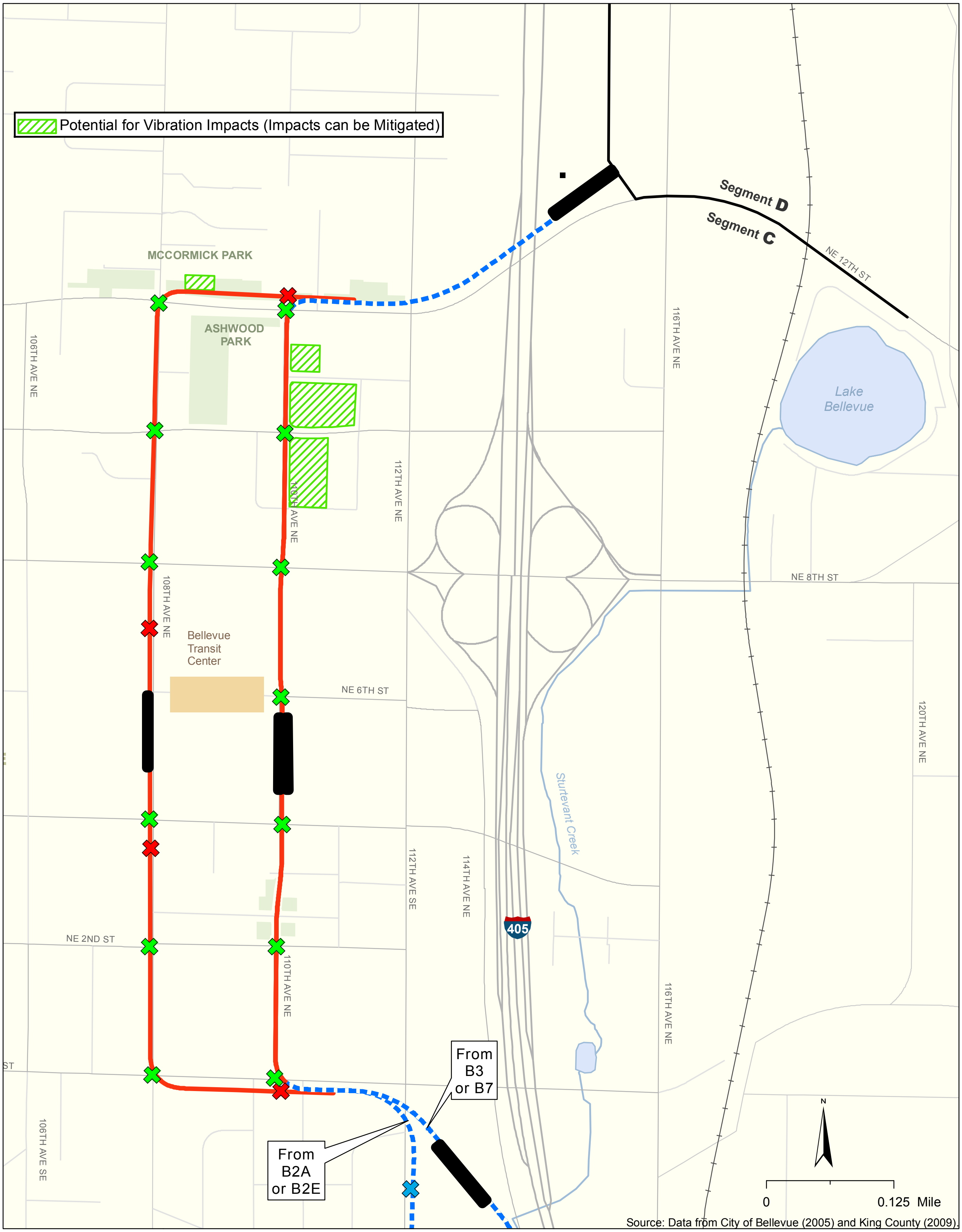
Exhibit A-9-Va

Vibration Impacts

Segment C

C4A

East Link Project

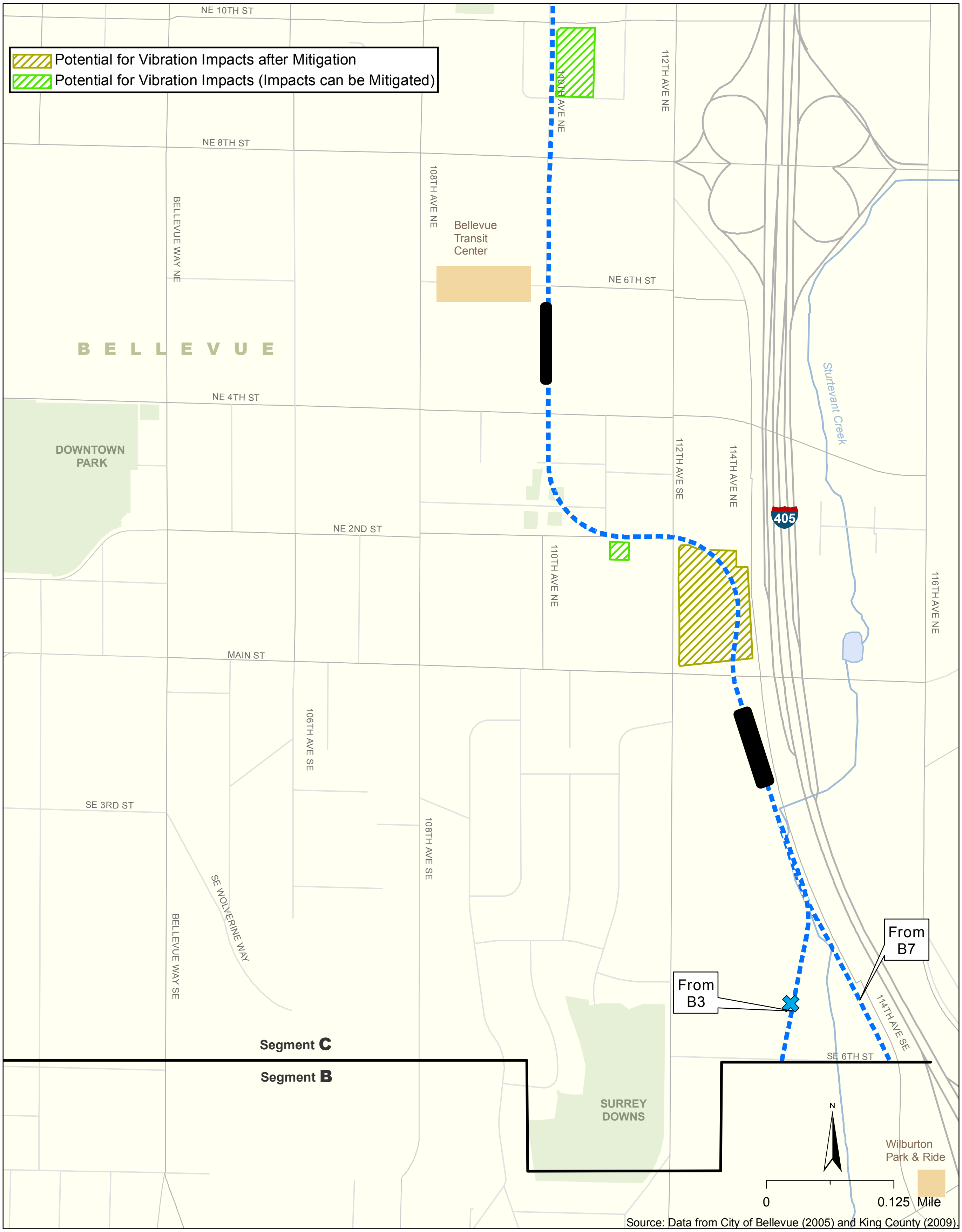

▨ Potential for Vibration Impacts (Impacts can be Mitigated)
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
Segment D
Segment C
NE 12TH ST
Lake Bellevue
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
ST
106TH AVE SE
From B3 or B7
From B2A or B2E
N
0
0.125 Mile
Source: Data from City of Bellevue (2005) and King County (2009).

- 🟥 At-Grade Route
- 🟦 Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ■ Traction Power Substation

Exhibit A-9-Vb

Vibration Impacts
Segment C
C4A

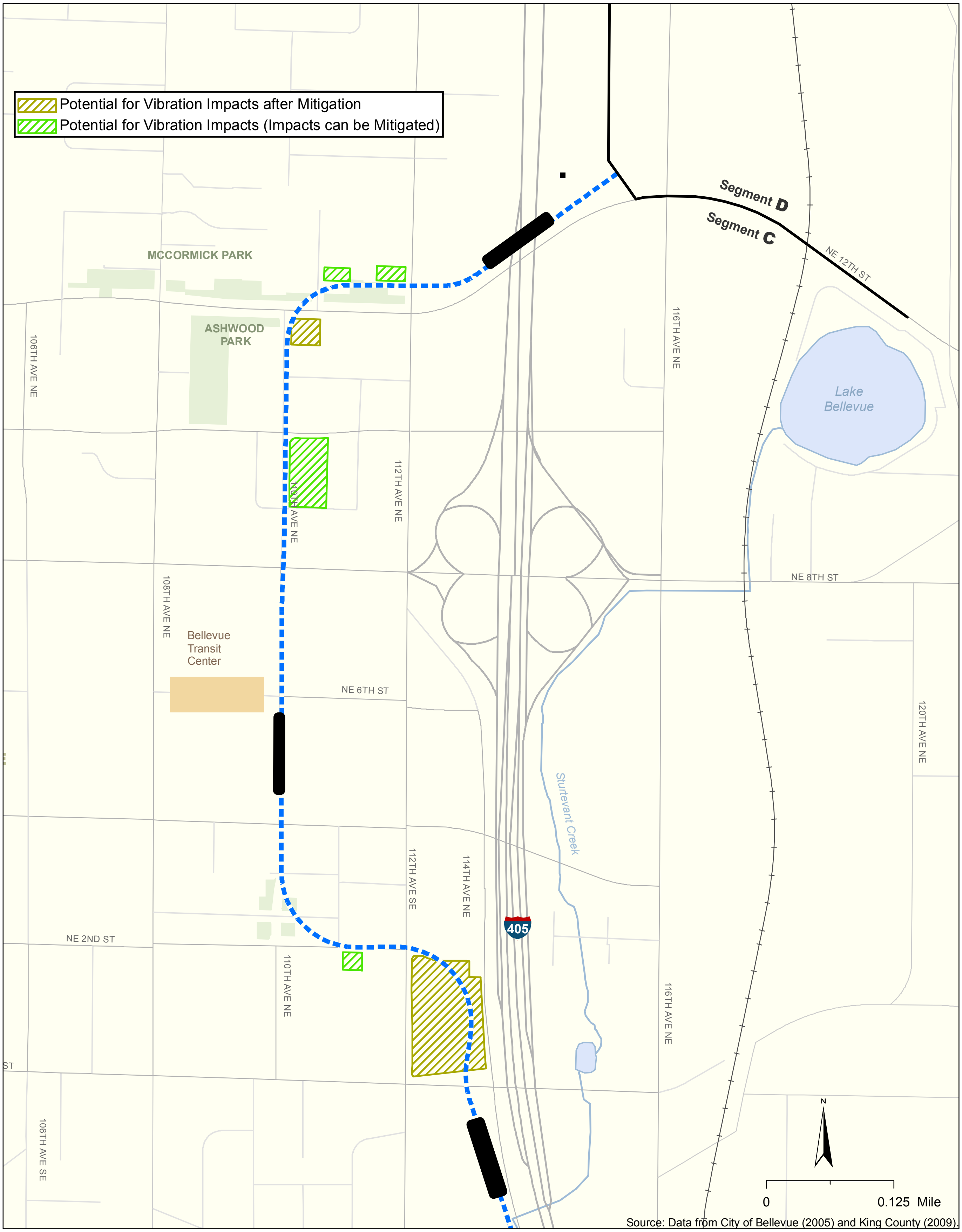
East Link Project


▨ Potential for Vibration Impacts after Mitigation
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
110TH AVE NE
112TH AVE NE
108TH AVE NE
BELLEVUE WAY NE
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
112TH AVE SE
114TH AVE NE
405
Sturtevant Creek
116TH AVE NE
106TH AVE SE
108TH AVE SE
SE WOLVERINE WAY
BELLEVUE WAY SE
From B7
From B3
114TH AVE SE
Segment C
Segment B
SURREY DOWNS
N
Wilburton Park & Ride
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)
■ Traction Power Substation

Exhibit A-10-Va
Vibration Impacts
Segment C
C8E
East Link Project



▨ Potential for Vibration Impacts after Mitigation
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
Lake Bellevue
110TH AVE NE
112TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
ST
106TH AVE SE
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

At-Grade Route

Elevated Route

Retained-Cut Route

Retained-Fill Route

Tunnel Route

Proposed Station

P New and/or Expanded Park-and-Ride Lot

Crossover Location

Gated Crossing

Shared Crossing (No Gates)

■ Traction Power Substation

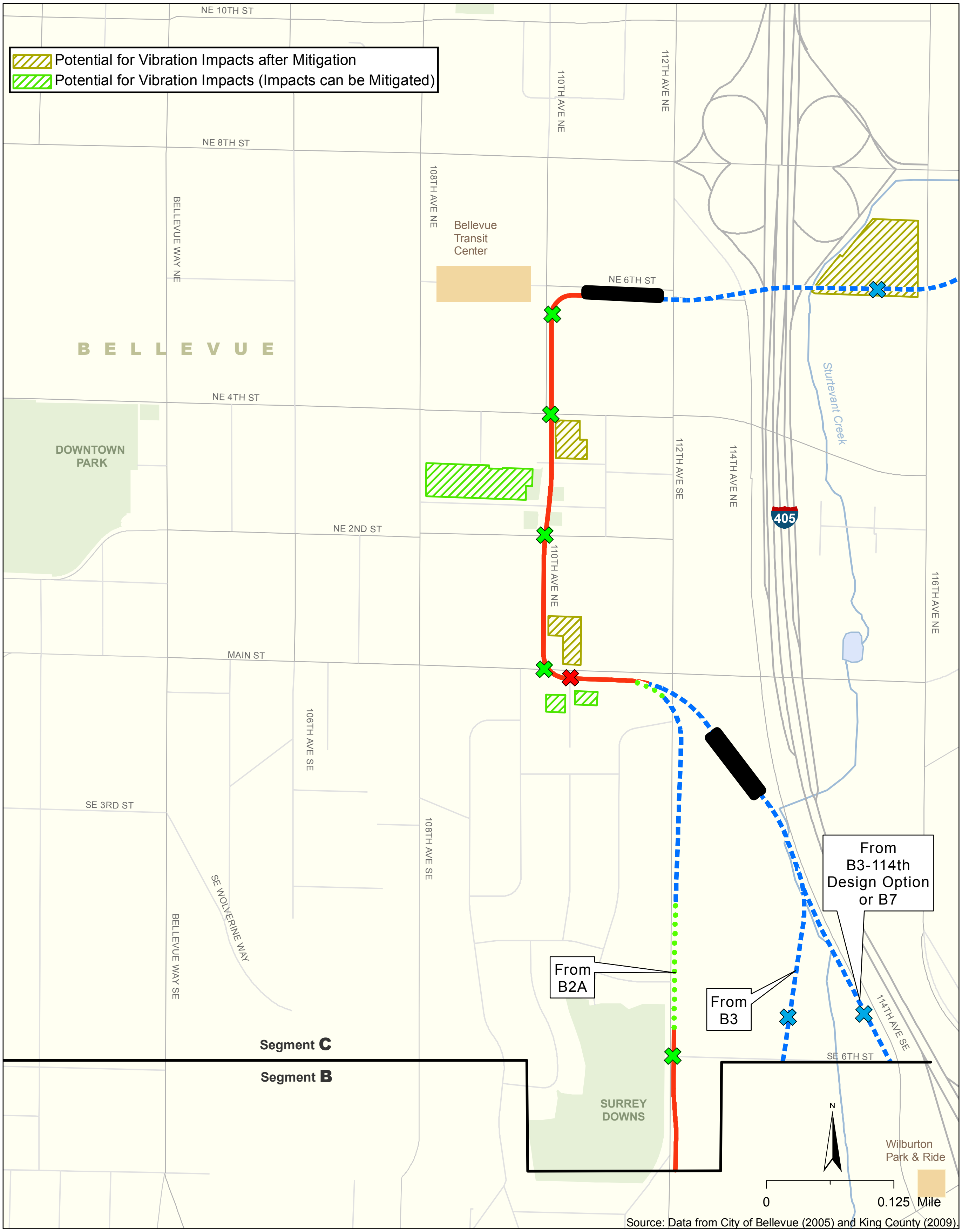
Exhibit A-10-Vb

Vibration Impacts

Segment C

C8E

East Link Project


Potential for Vibration Impacts after Mitigation
Potential for Vibration Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
106TH AVE SE
SE WOLVERINE WAY
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
SURREY DOWNS
Sturtevant Creek
405
From B3-114th Design Option or B7
From B2A
From B3
Segment C
Segment B
N
0
0.125 Mile
Wilburton Park & Ride

Source: Data from City of Bellevue (2005) and King County (2009).

- ▬ At-Grade Route
- ▪ ▪ ▪ Elevated Route
- ● ● ● ● Retained-Cut Route
- ● ● ● ● Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)
- ▪ Traction Power Substation

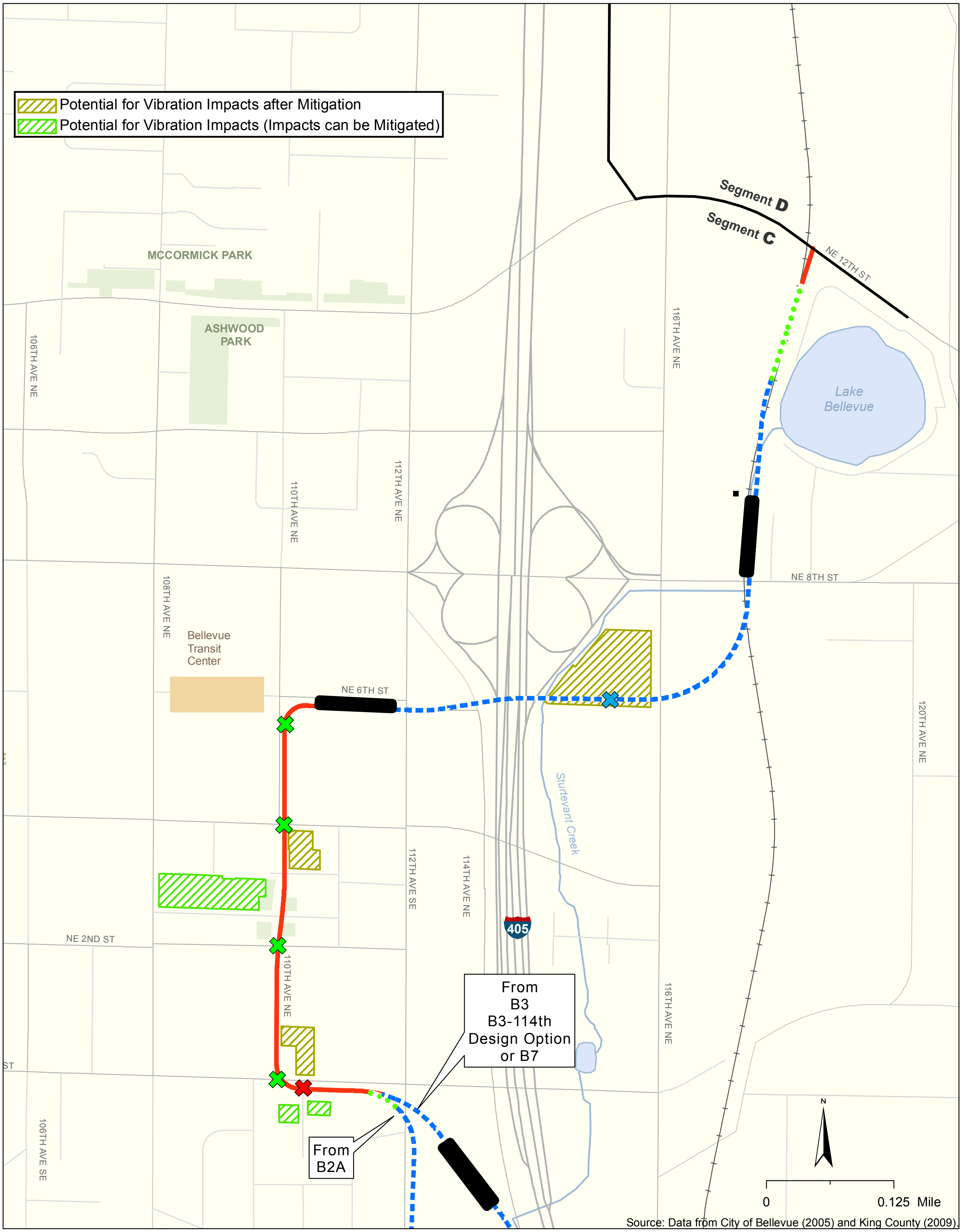
Exhibit A-11-Va

Vibration Impacts

Segment C

C9A

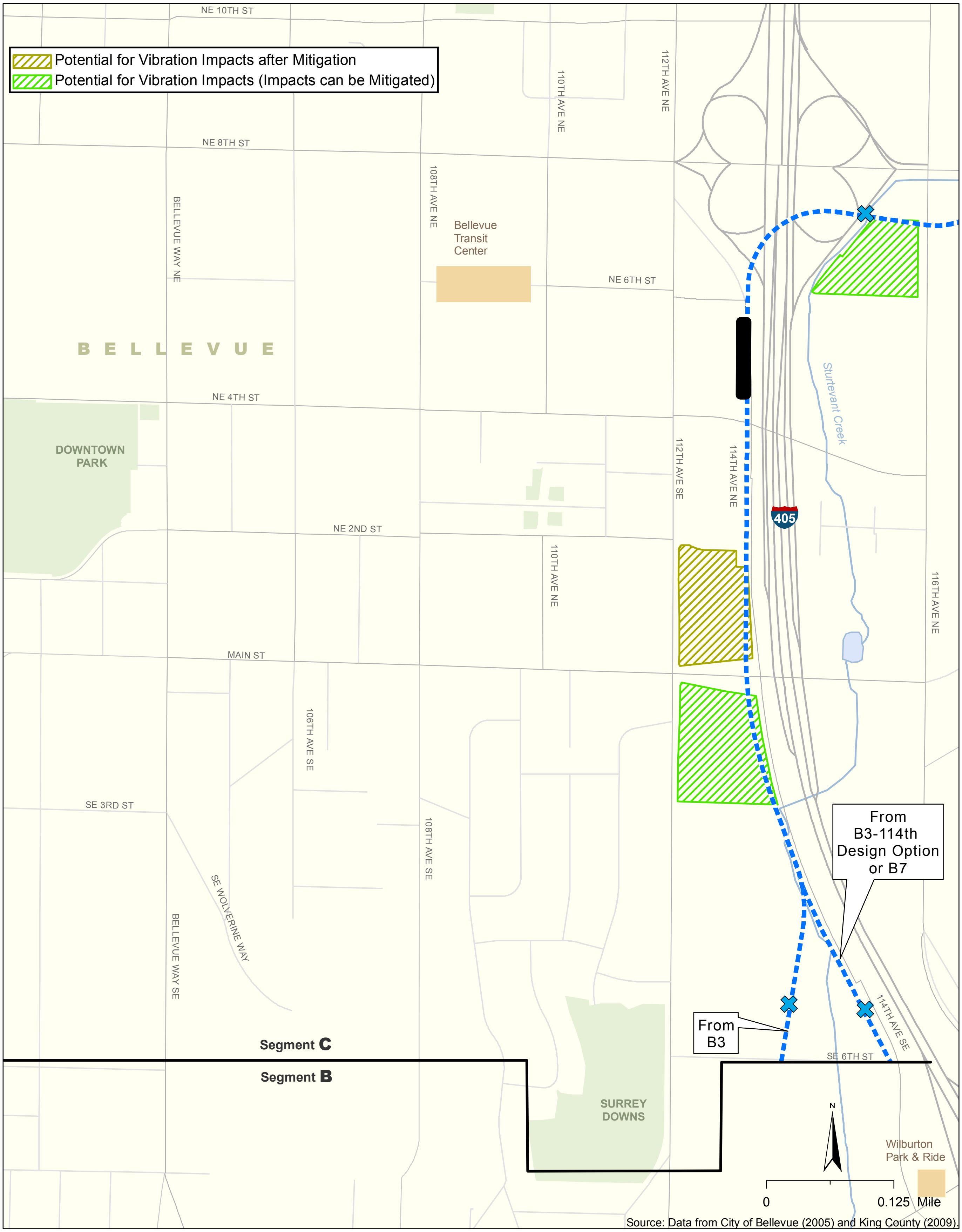
East Link Project


Potential for Vibration Impacts after Mitigation
Potential for Vibration Impacts (Impacts can be Mitigated)
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
Lake Bellevue
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
Sturtevant Creek
120TH AVE NE
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
From B3 B3-114th Design Option or B7
116TH AVE NE
ST
106TH AVE SE
From B2A
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- Crossover Location
- Gated Crossing
- Shared Crossing (No Gates)
- ■ Traction Power Substation

Exhibit A-11-Vb
Vibration Impacts
Segment C
C9A
East Link Project


Potential for Vibration Impacts after Mitigation
Potential for Vibration Impacts (Impacts can be Mitigated)
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
BELLEVUE WAY NE
BELLEVUE WAY SE
108TH AVE NE
108TH AVE SE
106TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
SE WOLVERINE WAY
Bellevue Transit Center
BELLEVUE
DOWNTOWN PARK
SURREY DOWNS
Sturtevant Creek
405
From B3-114th Design Option or B7
From B3
Segment C
Segment B
Wilburton Park & Ride
N
0
0.125 Mile
Source: Data from City of Bellevue (2005) and King County (2009).

▬	At-Grade Route	P	New and/or Expanded Park-and-Ride Lot	■	Traction Power Substation
▬ ▬ ▬	Elevated Route				
••••	Retained-Cut Route	✖	Crossover Location		
••••	Retained-Fill Route	✖	Gated Crossing		
▬ ▬	Tunnel Route	✖	Shared Crossing (No Gates)		
▬	Proposed Station				

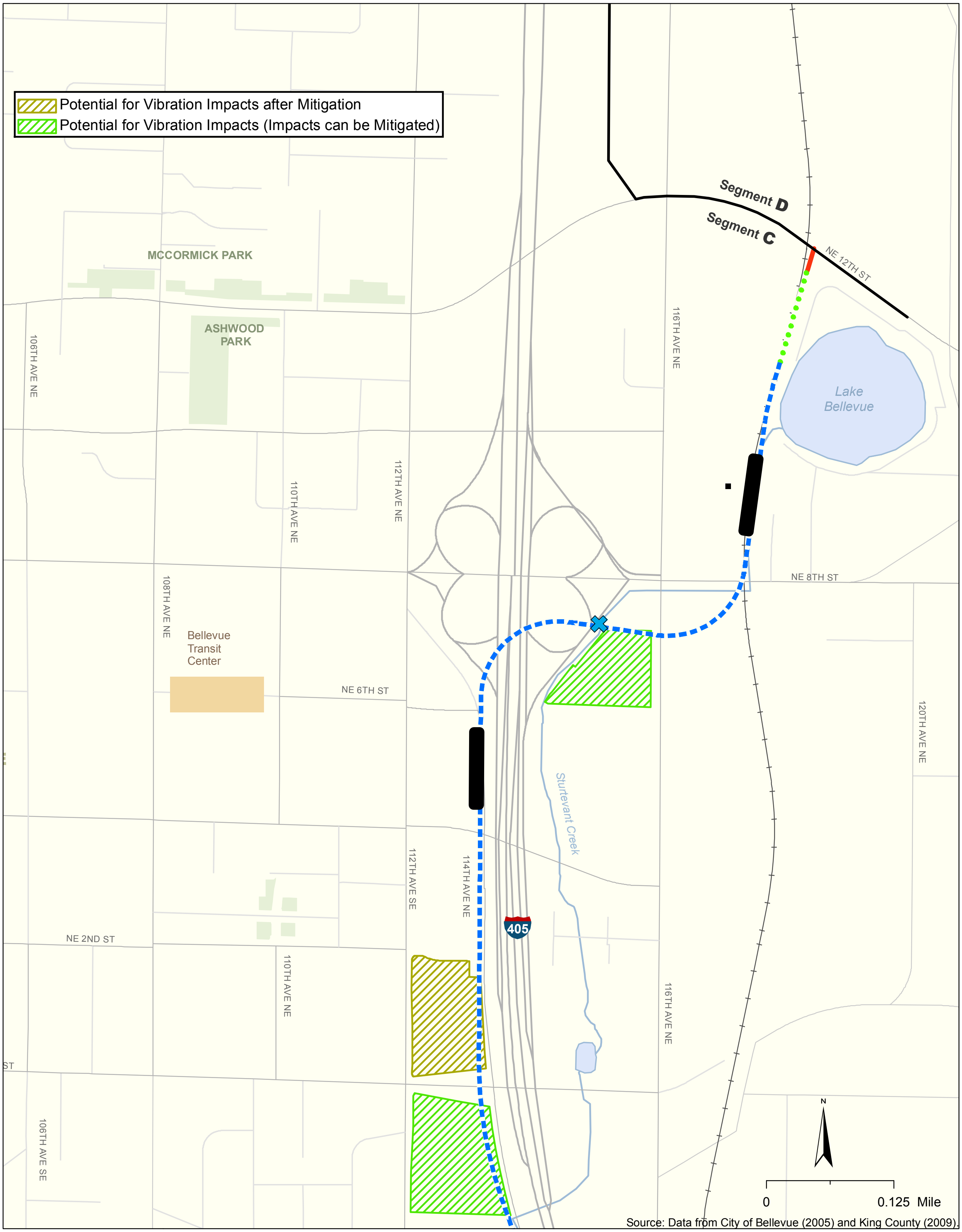
Exhibit A-12-Va

Vibration Impacts

Segment C

C14E

East Link Project


▨ Potential for Vibration Impacts after Mitigation
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
ASHWOOD PARK
106TH AVE NE
116TH AVE NE
Lake Bellevue
112TH AVE NE
110TH AVE NE
108TH AVE NE
NE 8TH ST
Bellevue Transit Center
NE 6TH ST
120TH AVE NE
Sturtevant Creek
112TH AVE SE
114TH AVE NE
405
NE 2ND ST
110TH AVE NE
116TH AVE NE
ST
106TH AVE SE
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

━ At-Grade Route
╍ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
╍ Tunnel Route
▬ Proposed Station

P New and/or Expanded Park-and-Ride Lot

✖ Crossover Location

✖ Gated Crossing

✖ Shared Crossing (No Gates)

▪ Traction Power Substation

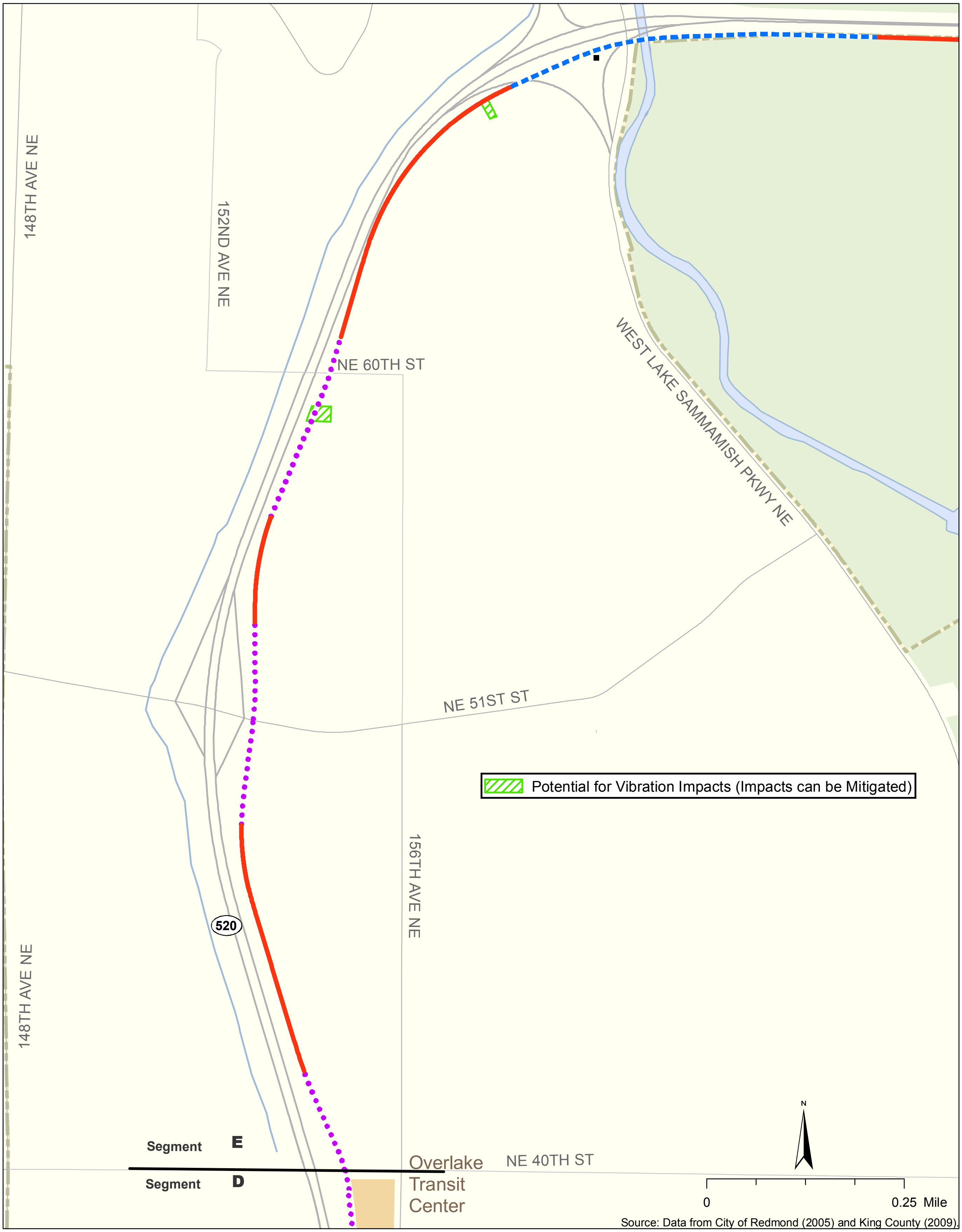
Exhibit A-12-Vb

Vibration Impacts

Segment C

C14E

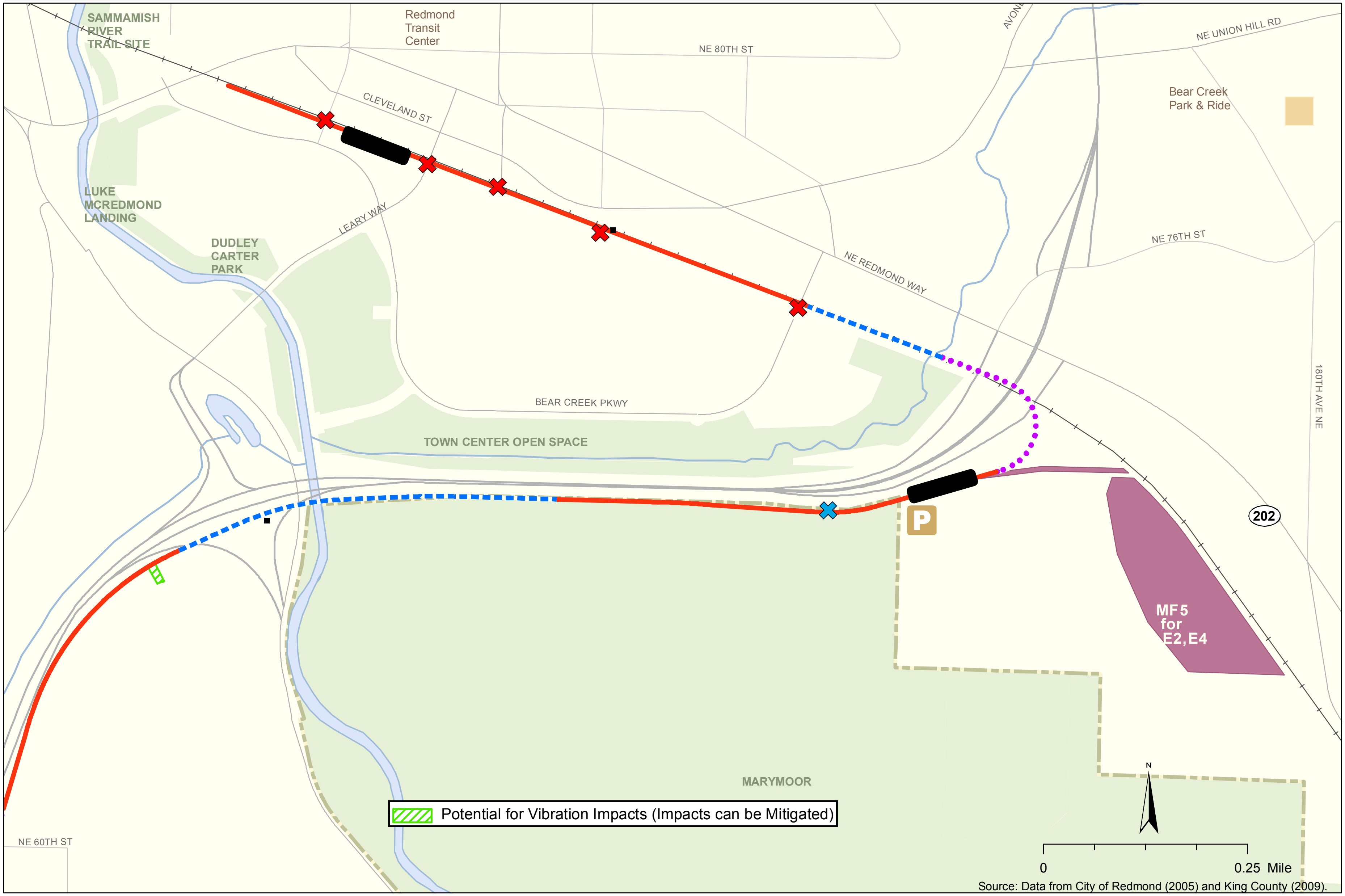
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
520
156TH AVE NE
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile
▨ Potential for Vibration Impacts (Impacts can be Mitigated)

Source: Data from City of Redmond (2005) and King County (2009).

🟥	At-Grade Route	■	Traction Power Substation	✖	Crossover Location
🟦	Elevated Route	▬	Maintenance Facility and Access Track	✖	Gated Crossing
●	Retained-Cut Route	P	New and/or Expanded Park-and-Ride Lot	✖	Shared Crossing (No Gates)
●	Retained-Fill Route				
▬	Tunnel Route				
▬	Proposed Station				

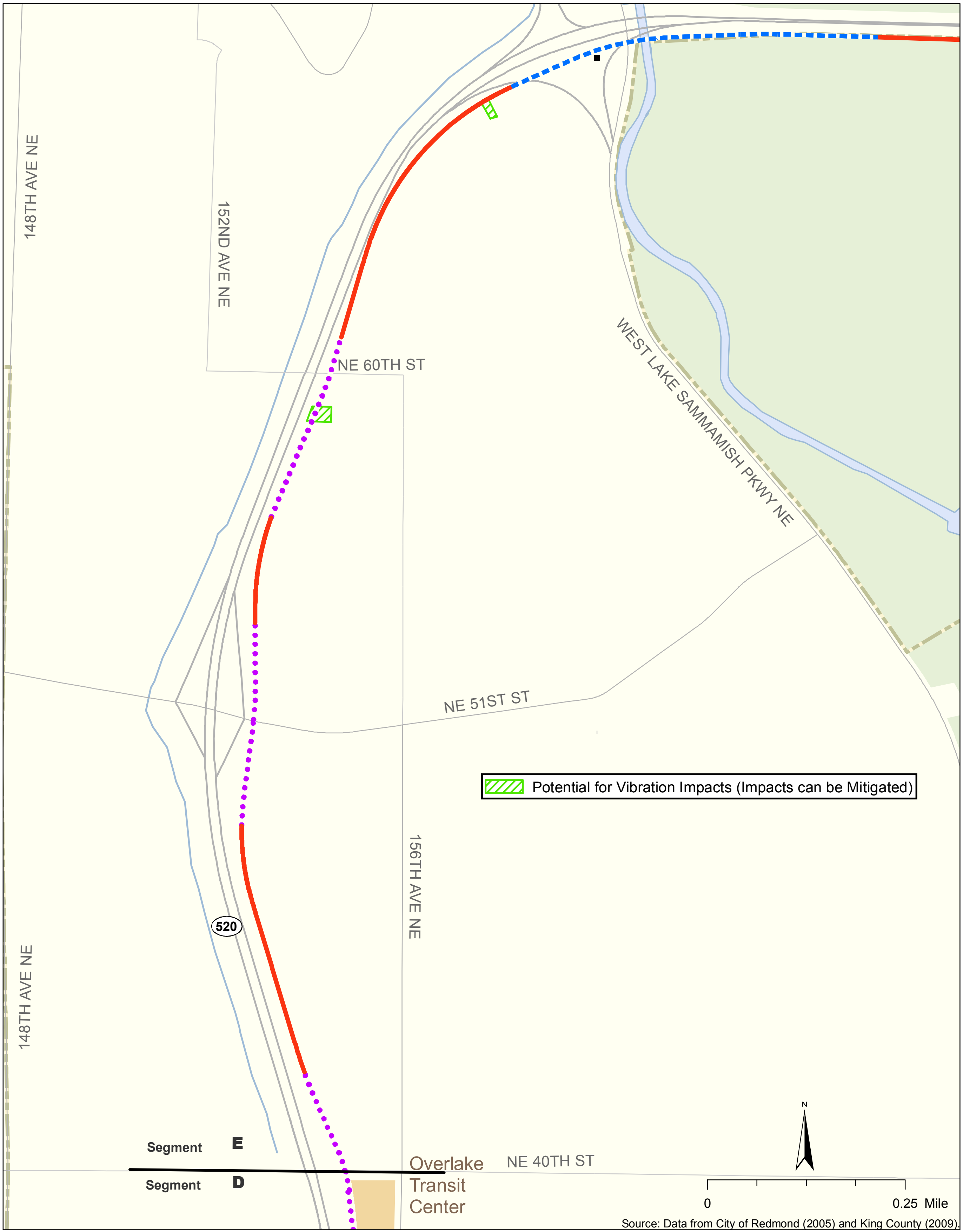
Exhibit A-13-Va
Vibration Impacts
Segment E,
Alternative E2
East Link Project


SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center
NE 80TH ST
AVON
NE UNION HILL RD
Bear Creek Park & Ride
CLEVELAND ST
LUKE MCREDMOND LANDING
LEARY WAY
DUDLEY CARTER PARK
NE REDMOND WAY
NE 76TH ST
180TH AVE NE
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
202
MF5 for E2, E4
MARYMOOR
Potential for Vibration Impacts (Impacts can be Mitigated)
N
0
0.25 Mile
NE 60TH ST

Source: Data from City of Redmond (2005) and King County (2009).

▬ At-Grade Route
▬ Elevated Route
● Retained-Cut Route
● Retained-Fill Route
▬ Tunnel Route
▪ Traction Power Substation
▬ Proposed Station
▬ Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

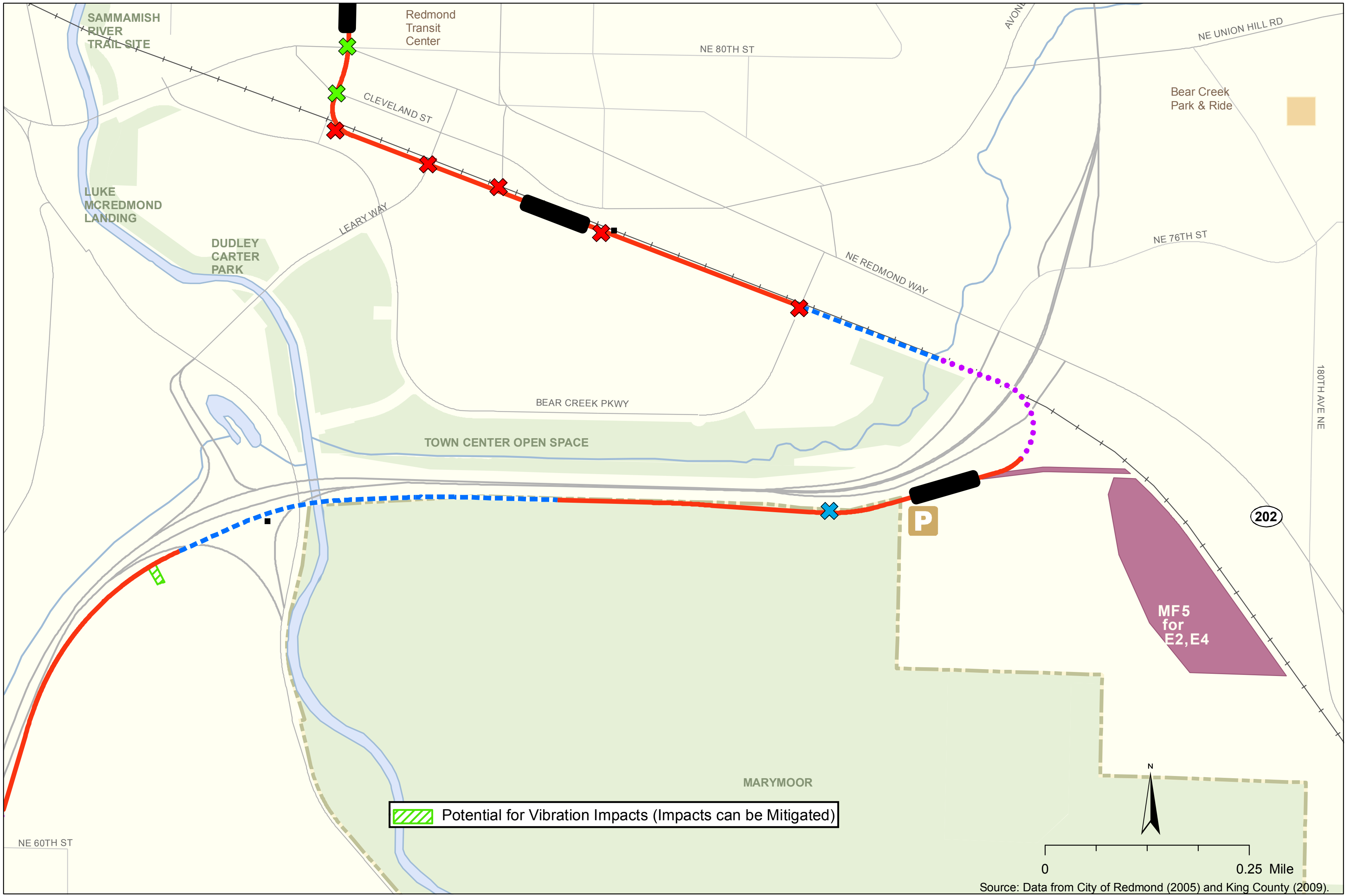
Exhibit A-13-Vb
Vibration Impacts
Segment E,
Alternative E2
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
520
156TH AVE NE
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile

Source: Data from City of Redmond (2005) and King County (2009).

- ▬ At-Grade Route
- ╍ Elevated Route
- ⋯ Retained-Cut Route
- ⋯ Retained-Fill Route
- ▬ ▬ Tunnel Route
- ▬ Proposed Station
- ▪ Traction Power Substation
- ▬ Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)

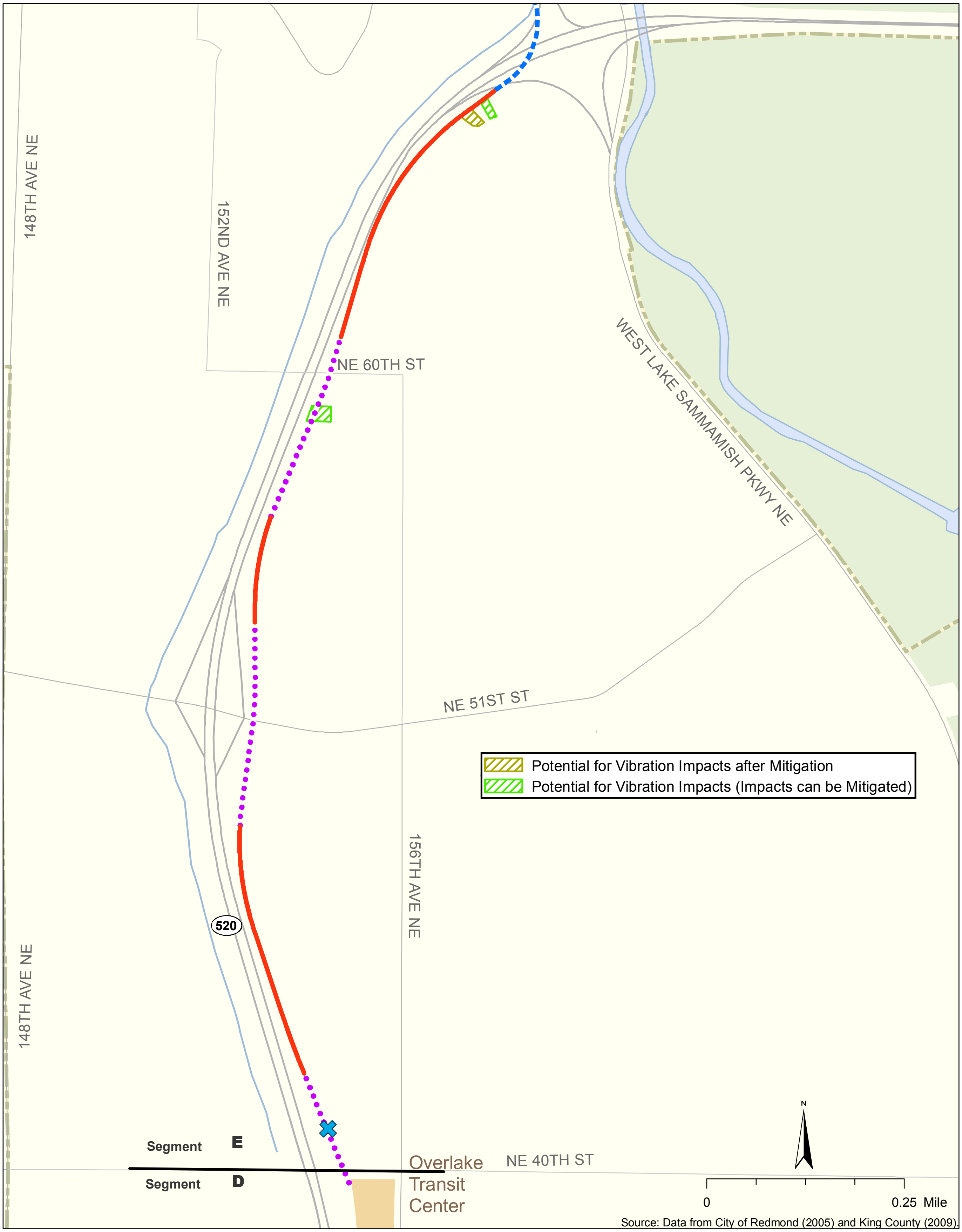
Exhibit A-14-Va
Vibration Impacts
Segment E,
Alternative E2
Design Option
East Link Project


SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center
NE 80TH ST
AVONDALE
NE UNION HILL RD
Bear Creek Park & Ride
CLEVELAND ST
LUKE MCREDMOND LANDING
LEARY WAY
DUDLEY CARTER PARK
NE 76TH ST
NE REDMOND WAY
180TH AVE NE
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
P
202
MF5 for E2, E4
MARYMOOR
Potential for Vibration Impacts (Impacts can be Mitigated)
N
0
0.25 Mile
NE 60TH ST

Source: Data from City of Redmond (2005) and King County (2009).

🟥 At-Grade Route
🟦 Elevated Route
● Retained-Cut Route
● Retained-Fill Route
▬ Tunnel Route
▪ Traction Power Substation
▬ Proposed Station
▬ Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

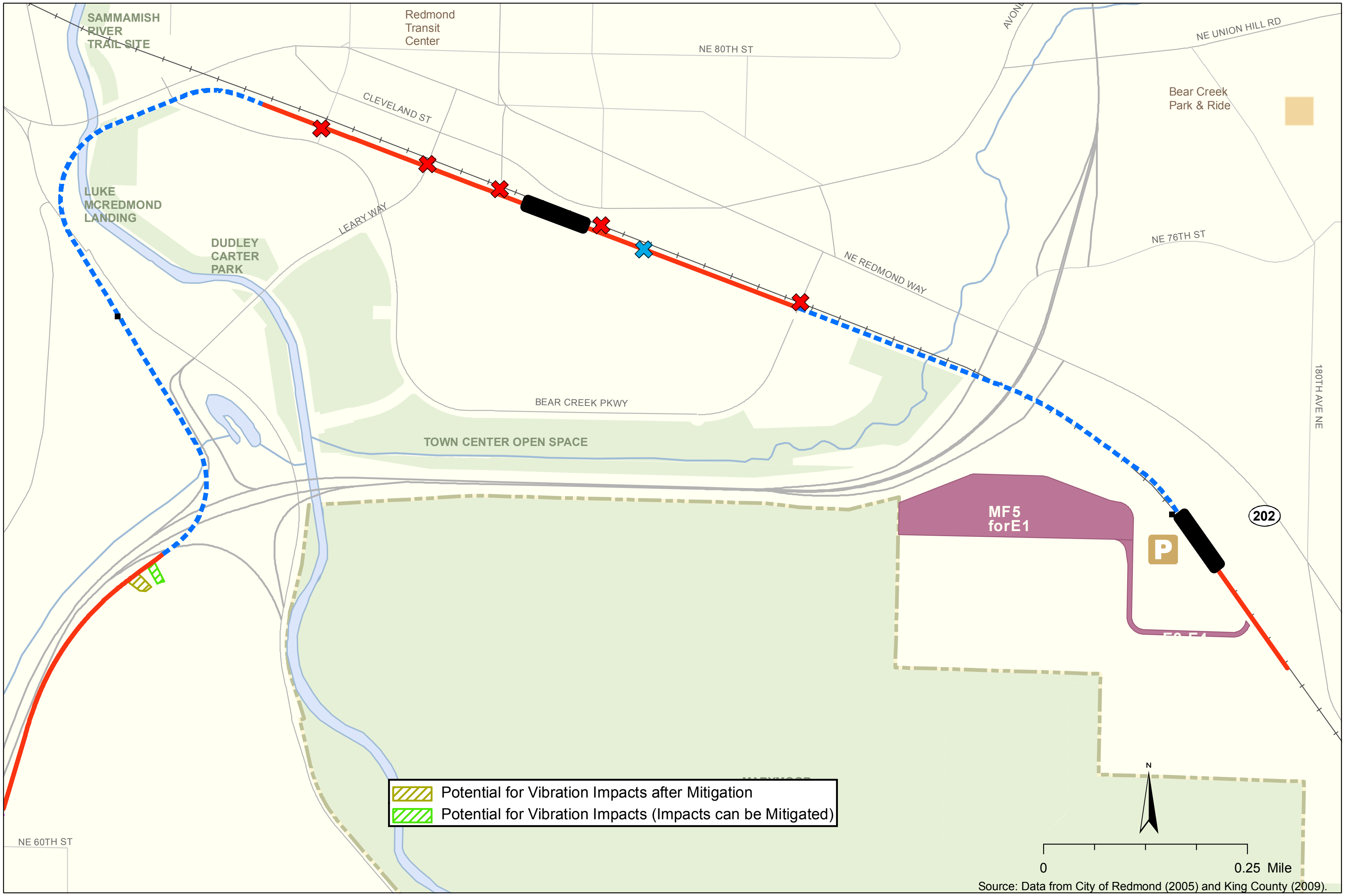
Exhibit A-14-Vb
Vibration Impacts
Segment E, Alternative E2 Design Option
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
▨ Potential for Vibration Impacts after Mitigation
▨ Potential for Vibration Impacts (Impacts can be Mitigated)
156TH AVE NE
520
148TH AVE NE
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
N
0
0.25 Mile

Source: Data from City of Redmond (2005) and King County (2009).

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- Proposed Station
- Traction Power Substation
- Maintenance Facility and Access Track
- New and/or Expanded Park-and-Ride Lot
- Crossover Location
- Gated Crossing
- Shared Crossing (No Gates)

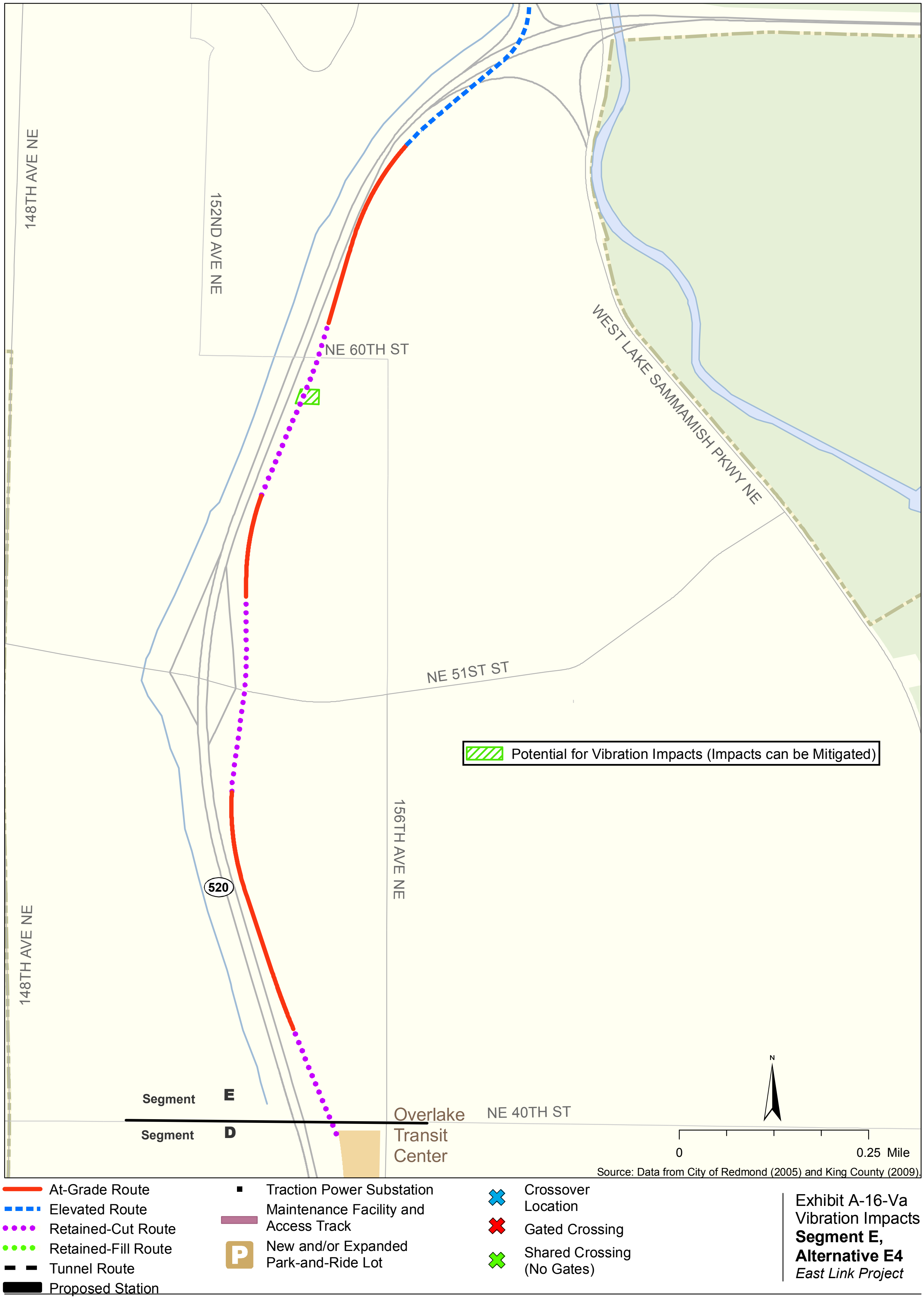
Exhibit A-15-Va
Vibration Impacts
Segment E,
Alternative E1
East Link Project


SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center
AVONDALE
NE 80TH ST
NE UNION HILL RD
Bear Creek Park & Ride
CLEVELAND ST
LUKE MCREDMOND LANDING
DUDLEY CARTER PARK
LEARY WAY
NE REDMOND WAY
NE 76TH ST
180TH AVE NE
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
MF5 forE1
P
202
NE 60TH ST
N
0
0.25 Mile
Potential for Vibration Impacts after Mitigation
Potential for Vibration Impacts (Impacts can be Mitigated)

Source: Data from City of Redmond (2005) and King County (2009).

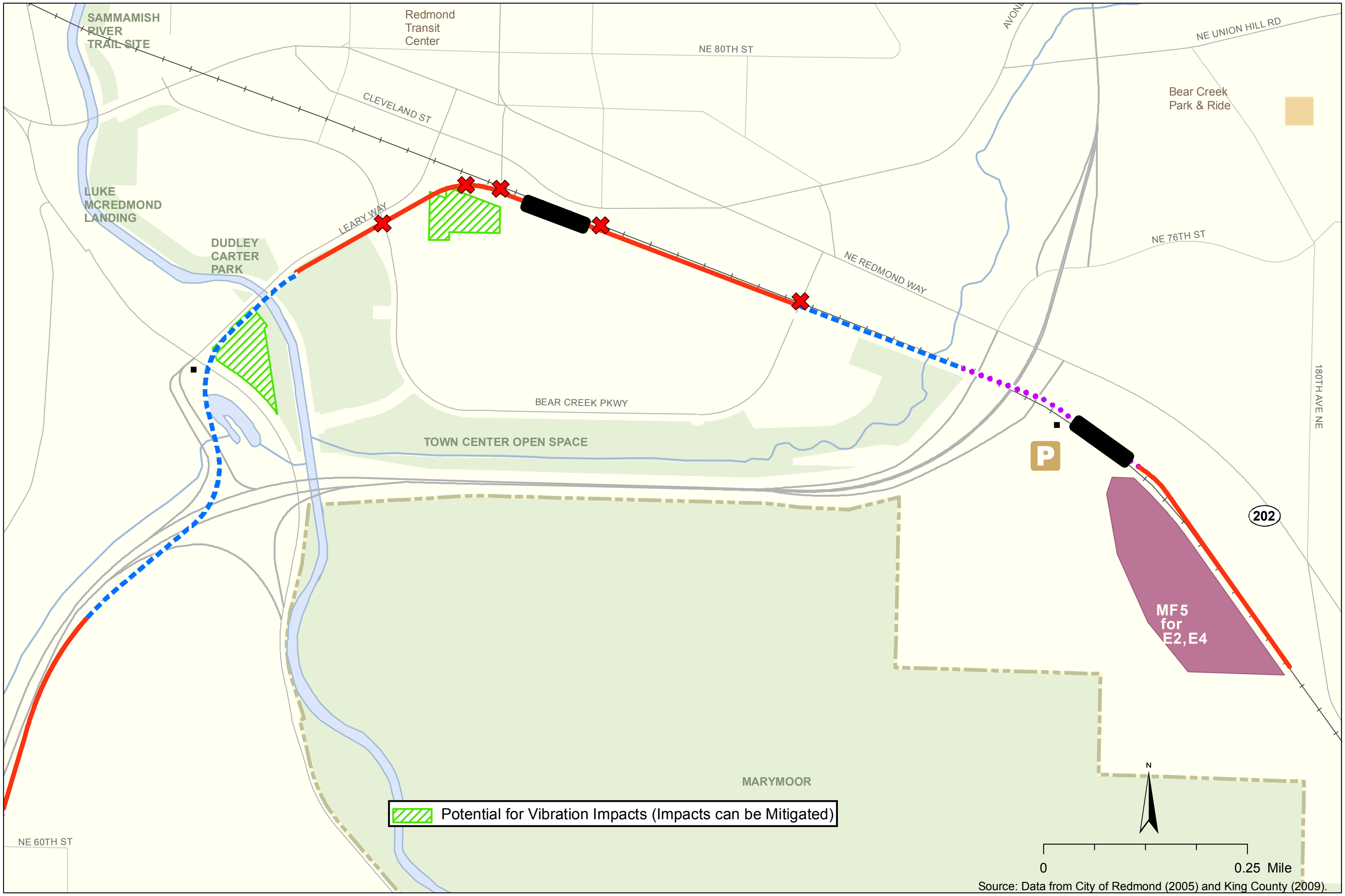
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route
- ▪ Traction Power Substation
- Proposed Station
- Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot
- ✖ Crossover Location
- ✖ Gated Crossing
- ✖ Shared Crossing (No Gates)

Exhibit A-15-Vb
Vibration Impacts
Segment E,
Alternative E1
East Link Project


148TH AVE NE
152ND AVE NE
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
Potential for Vibration Impacts (Impacts can be Mitigated)
156TH AVE NE
520
148TH AVE NE
N
Segment E
Segment D
Overlake Transit Center
NE 40TH ST
0
0.25 Mile
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Proposed Station
Traction Power Substation
Maintenance Facility and Access Track
New and/or Expanded Park-and-Ride Lot
Crossover Location
Gated Crossing
Shared Crossing (No Gates)

Source: Data from City of Redmond (2005) and King County (2009).

Exhibit A-16-Va
Vibration Impacts
Segment E,
Alternative E4
East Link Project


SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center
NE 80TH ST
AVONDALE
NE UNION HILL RD
Bear Creek Park & Ride
CLEVELAND ST
LUKE MCREDMOND LANDING
LEARY WAY
DUDLEY CARTER PARK
NE 76TH ST
NE REDMOND WAY
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
180TH AVE NE
202
MF5 for E2, E4
MARYMOOR
Potential for Vibration Impacts (Impacts can be Mitigated)
NE 60TH ST
N
0
0.25 Mile

Source: Data from City of Redmond (2005) and King County (2009).

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
▪ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot
✖ Crossover Location
✖ Gated Crossing
✖ Shared Crossing (No Gates)

Exhibit A-16-Vb
Vibration Impacts
Segment E,
Alternative E4
East Link Project

Appendix B

Vibration Measurement Site Photographs

EXHIBIT B-1
Site V-1, 32nd Avenue South and South Day Street, Seattle

EXHIBIT B-2
Site V-2, South Bellevue Park-and-Ride, Bellevue

EXHIBIT B-3
Site V-3, King County District Court Parking Lot, Bellevue

EXHIBIT B-4
Site V-4, NE 12th Street Bore Hole, Bellevue

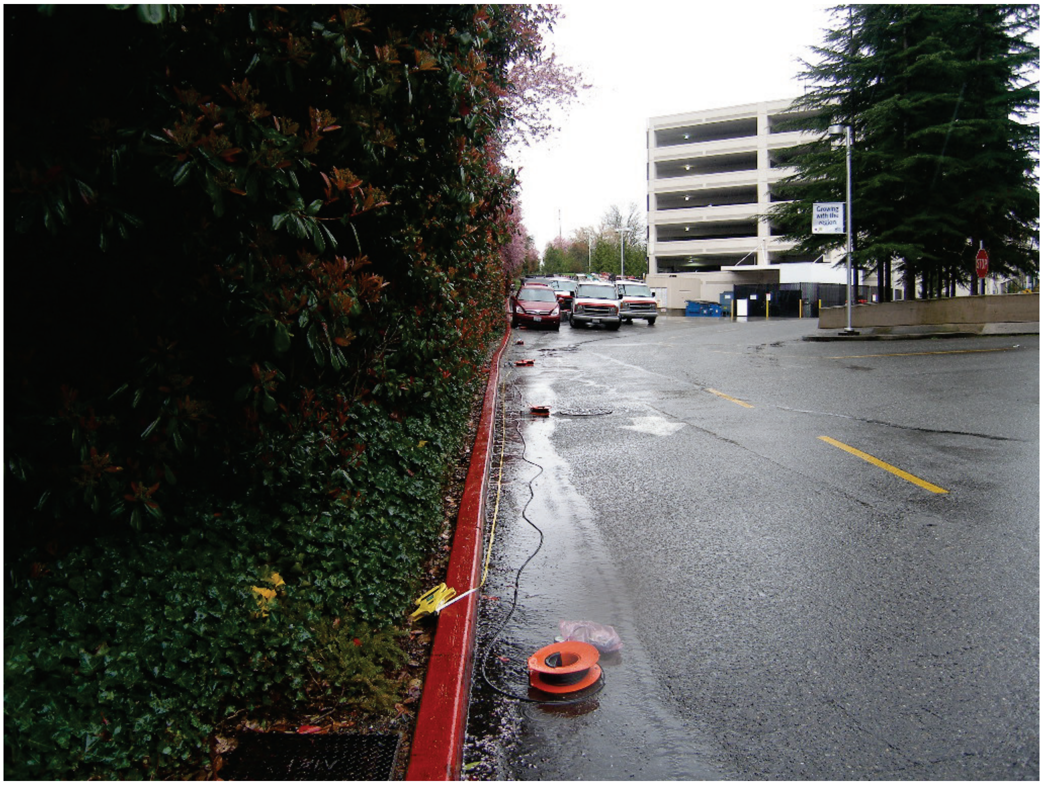

Growing with the mission
STOP

EXHIBIT B-5
Site V-5, Overlake Hospital, Bellevue

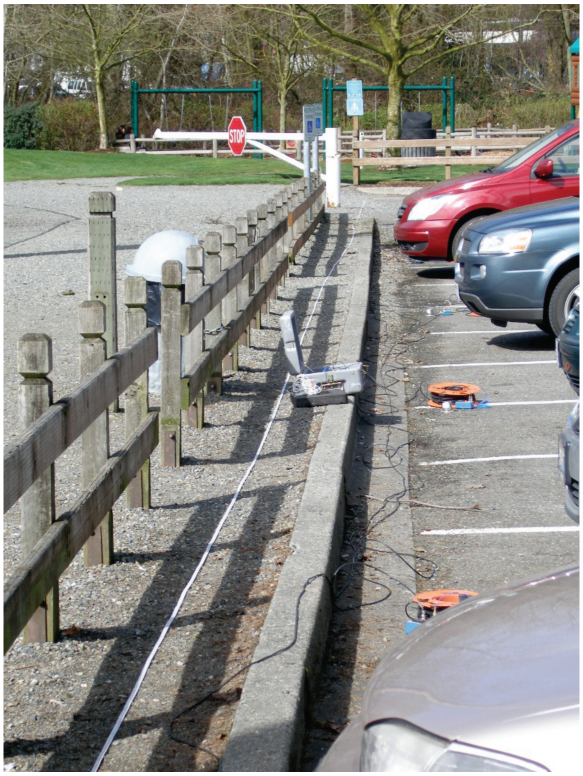


EXHIBIT B-6
Site V-6, King County Park, Bellevue

EXHIBIT B-7
Site V-7, 154th Avenue NE and NE54th Street, Redmond

EXHIBIT B-8
Site V-8, Redmond Town Center, Redmond

Appendix C

Noise Measurement Data

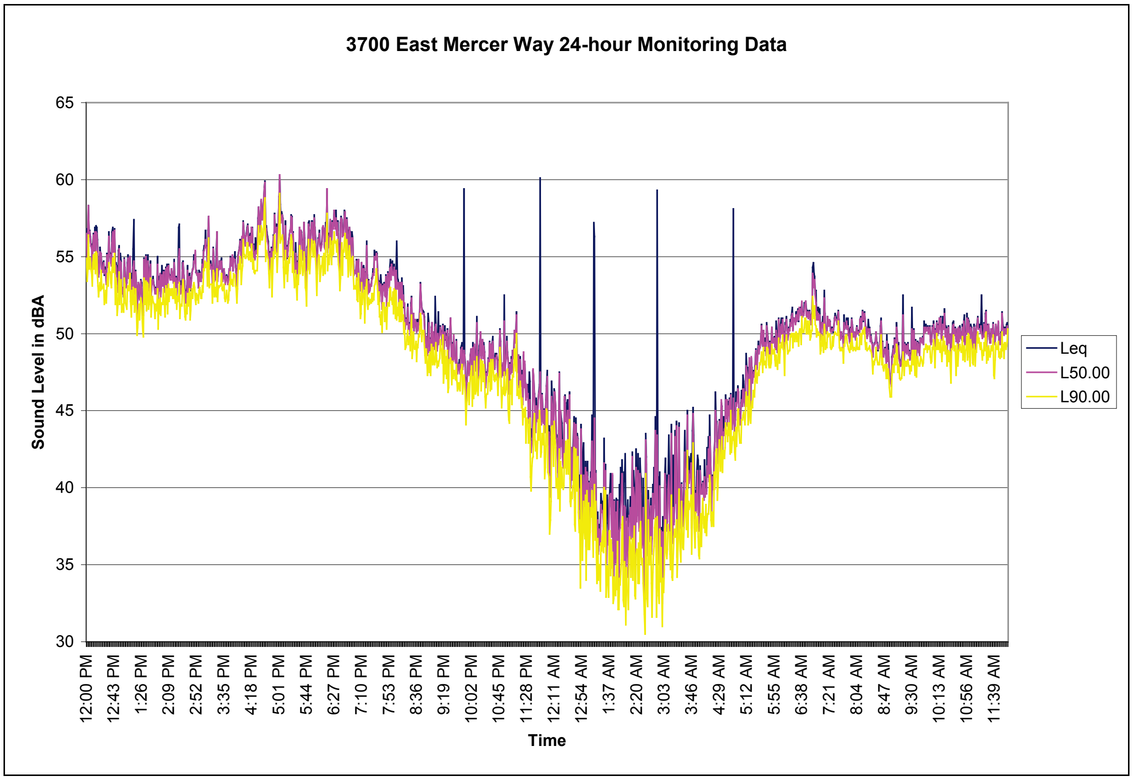


EXHIBIT C-1
Noise Survey Results, Site MA-5

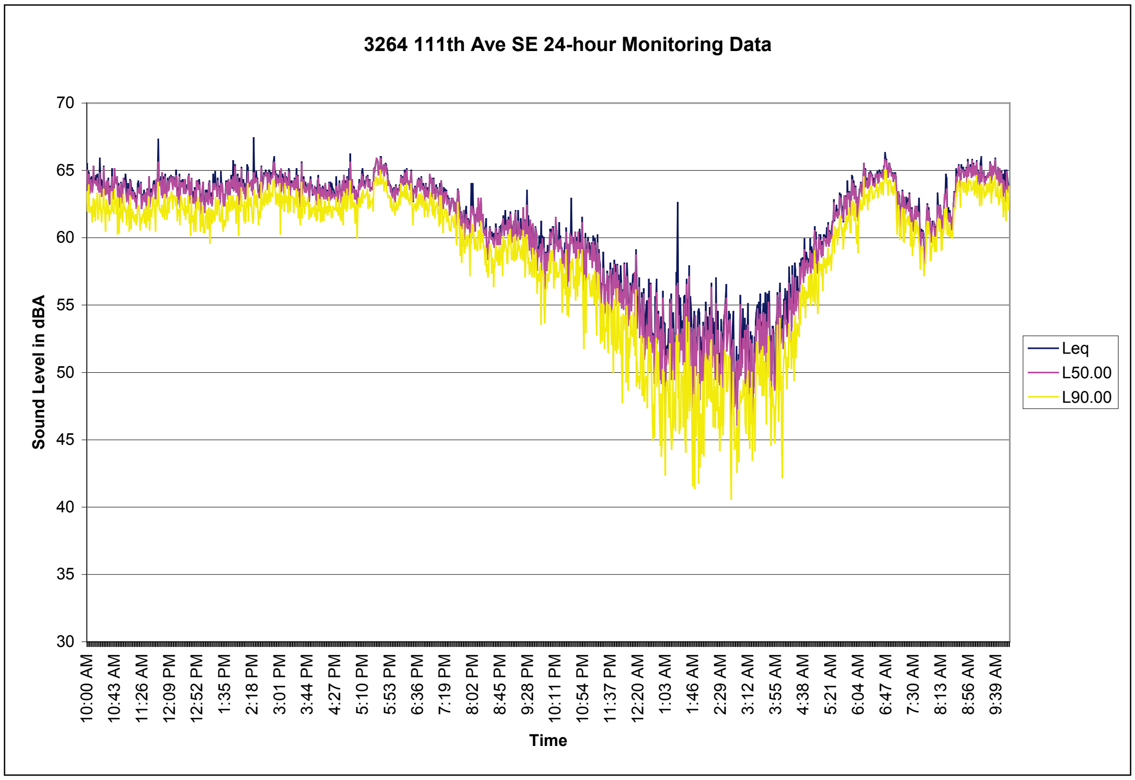


EXHIBIT C-2
Noise Survey Results, Site MB-4

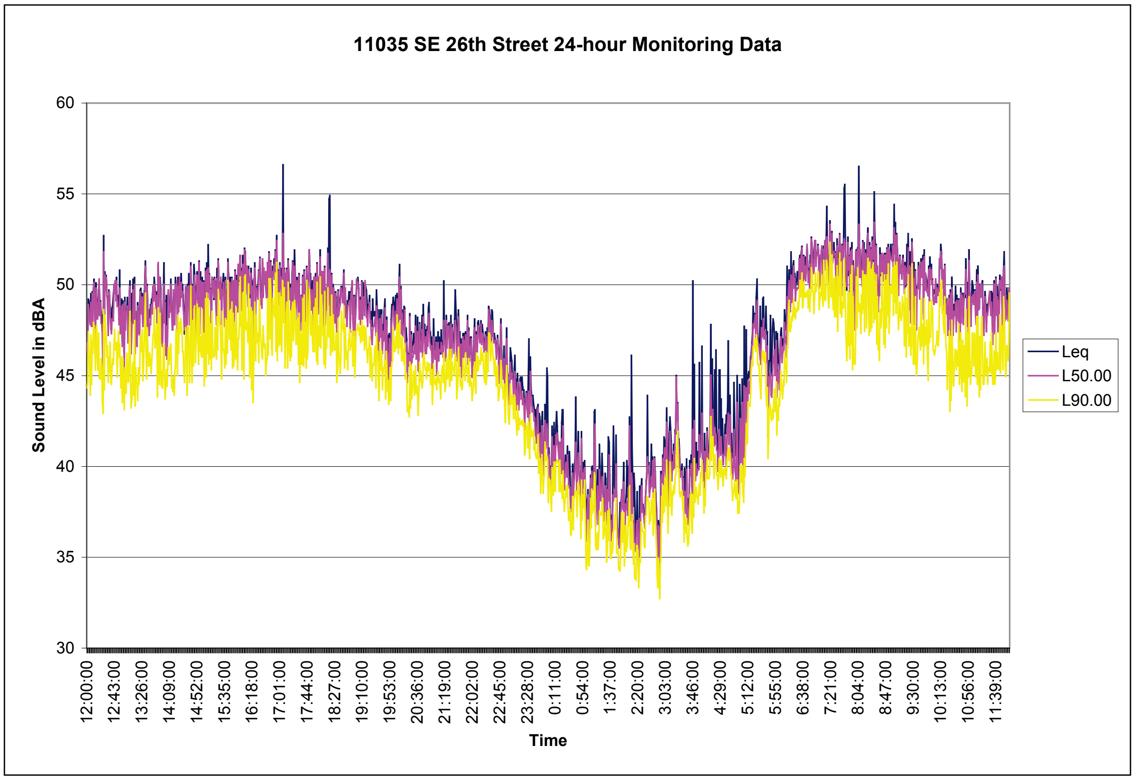


EXHIBIT C-3
Noise Survey Results, Site MB-7

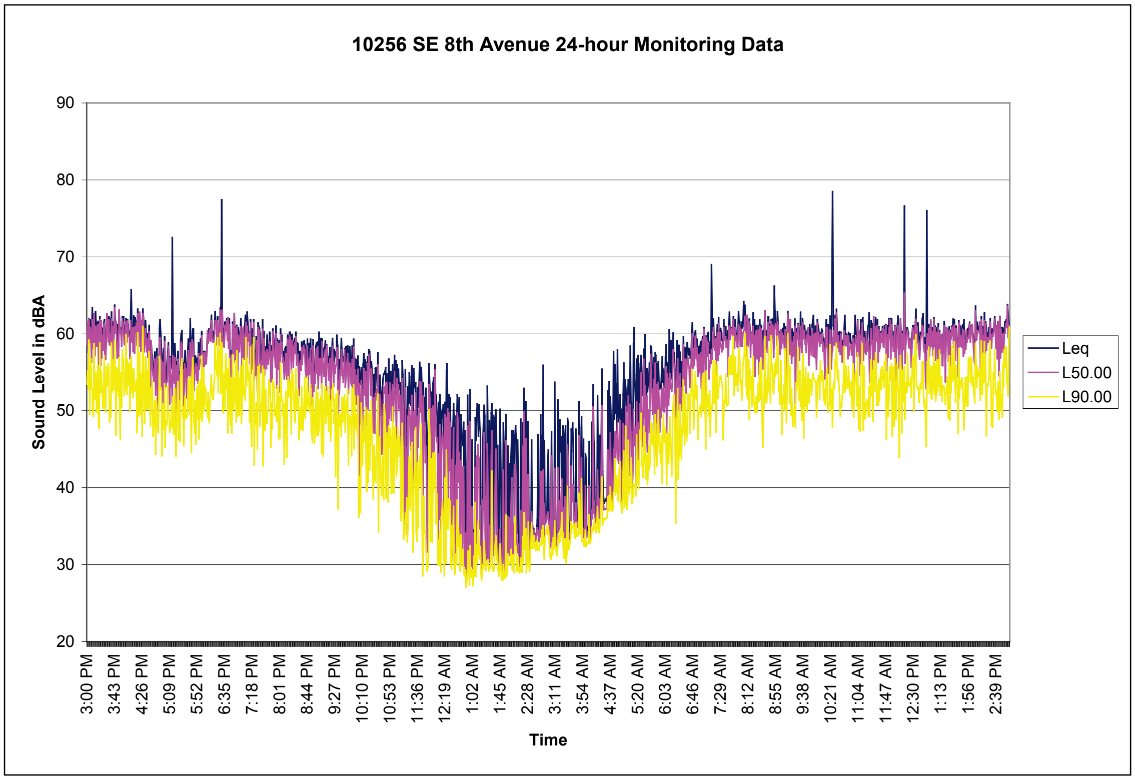


EXHIBIT C-4
Noise Survey Results, Site MB-13

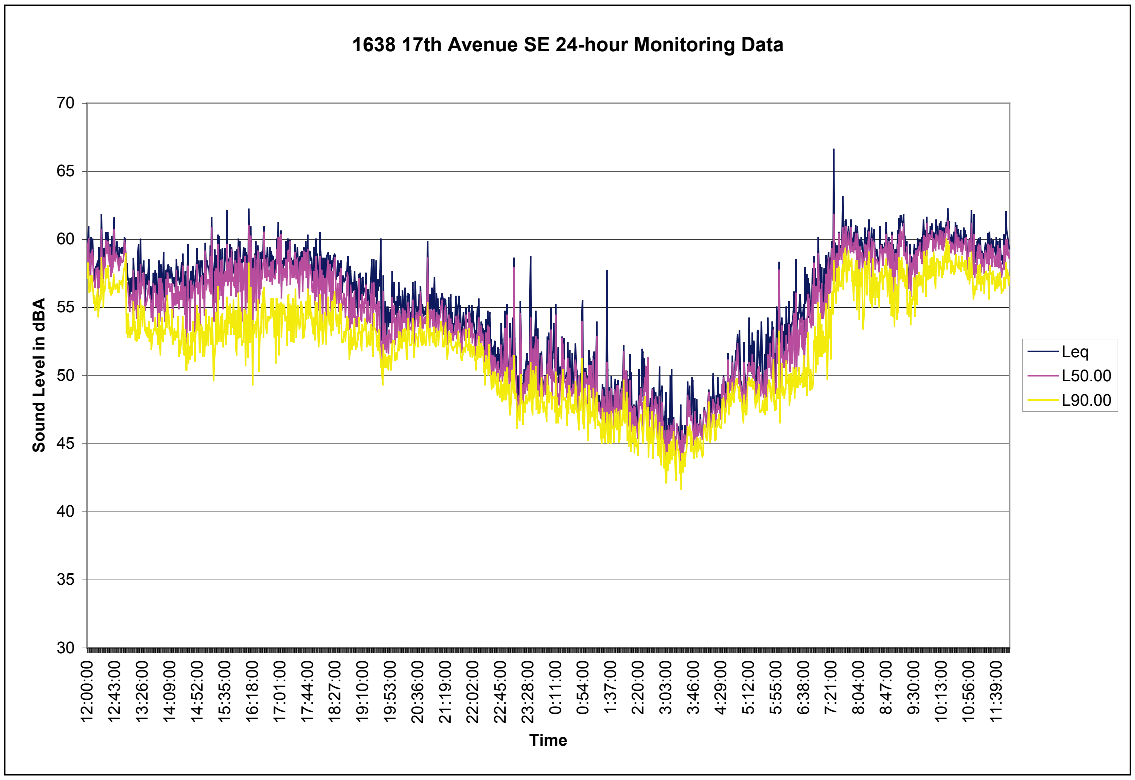


EXHIBIT C-5
Noise Survey Results, Site MB-14

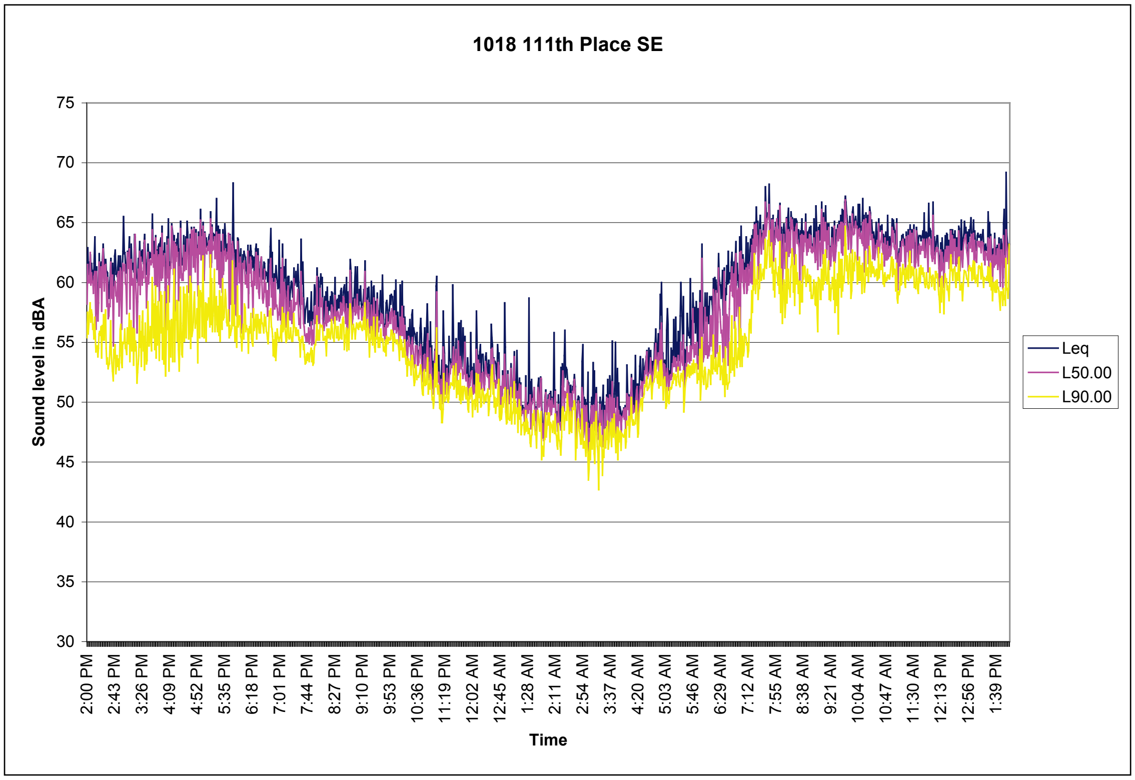


EXHIBIT C-6
Noise Survey Results, Site MB-16

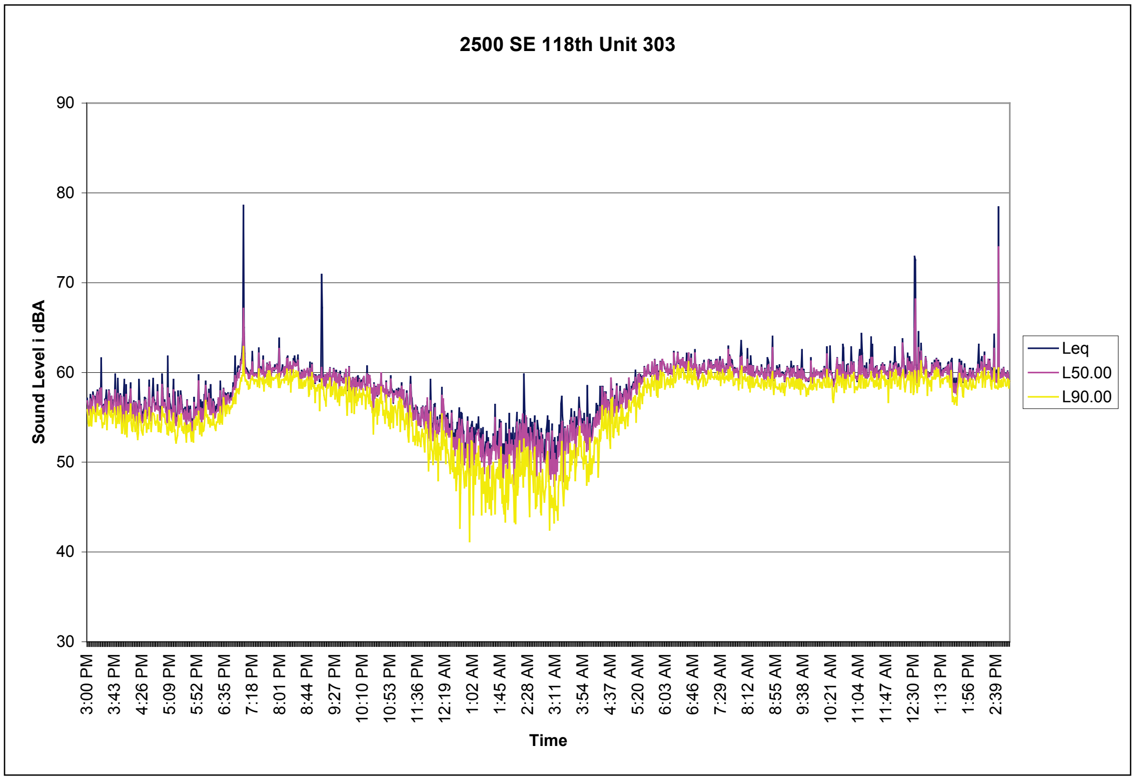


EXHIBIT C-7

Noise Survey Results, Site MB-18

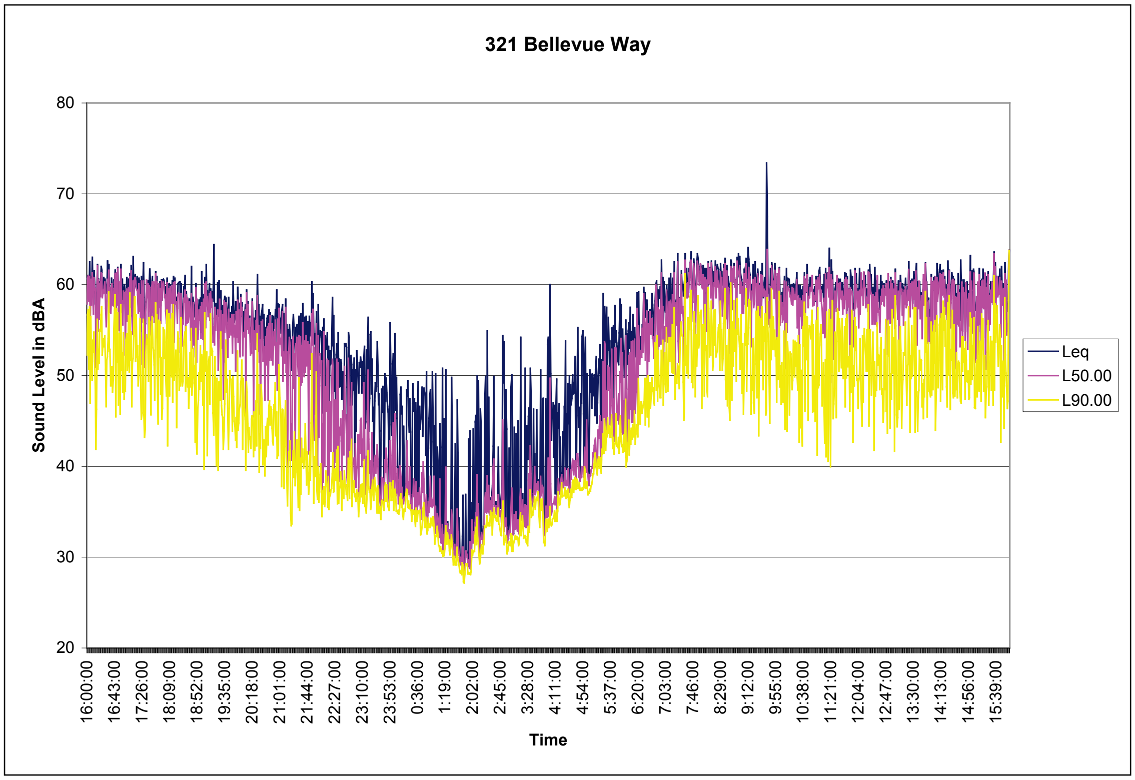


EXHIBIT C-8

Noise Survey Results, Site MC-2

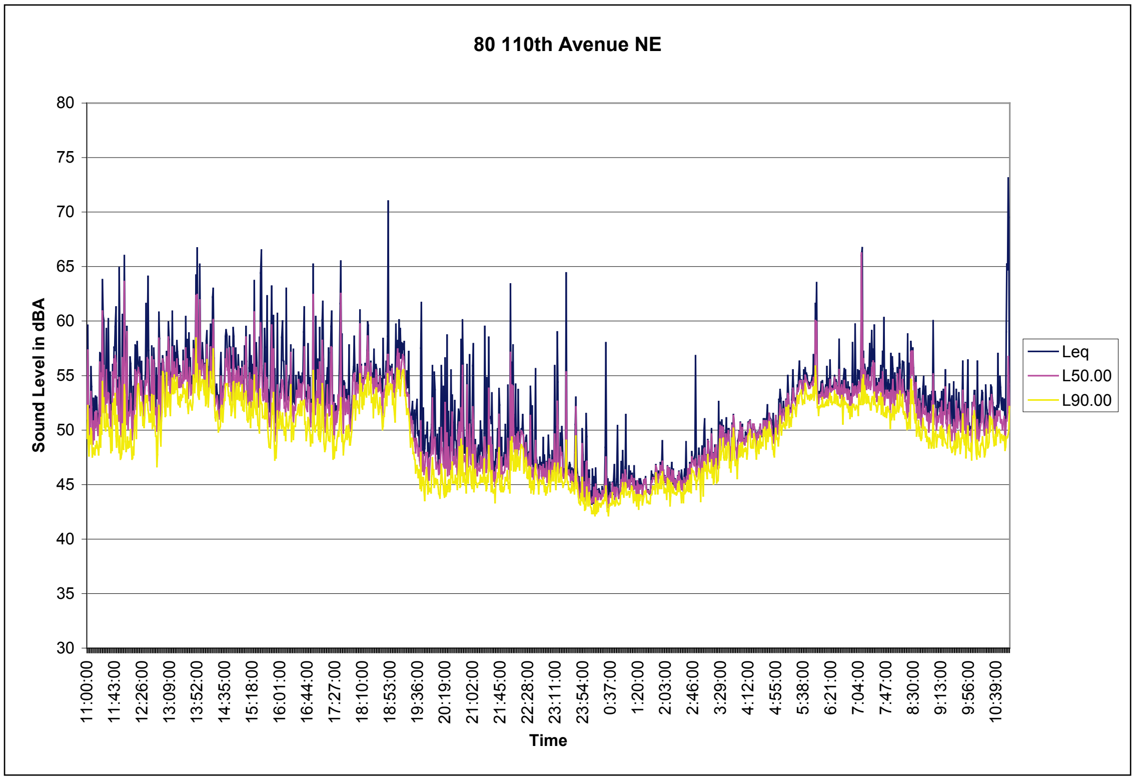


EXHIBIT C-9
Noise Survey Results, Site MC-6

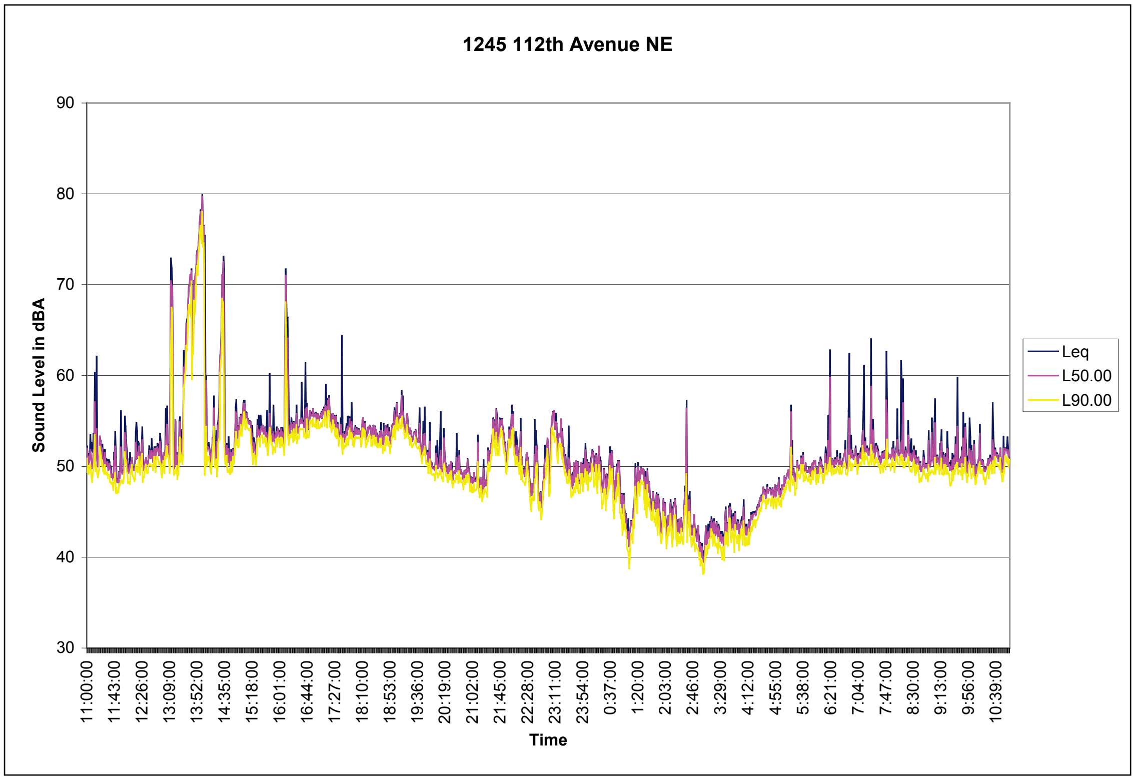


EXHIBIT C-10
Noise Survey Results, Site MC-13

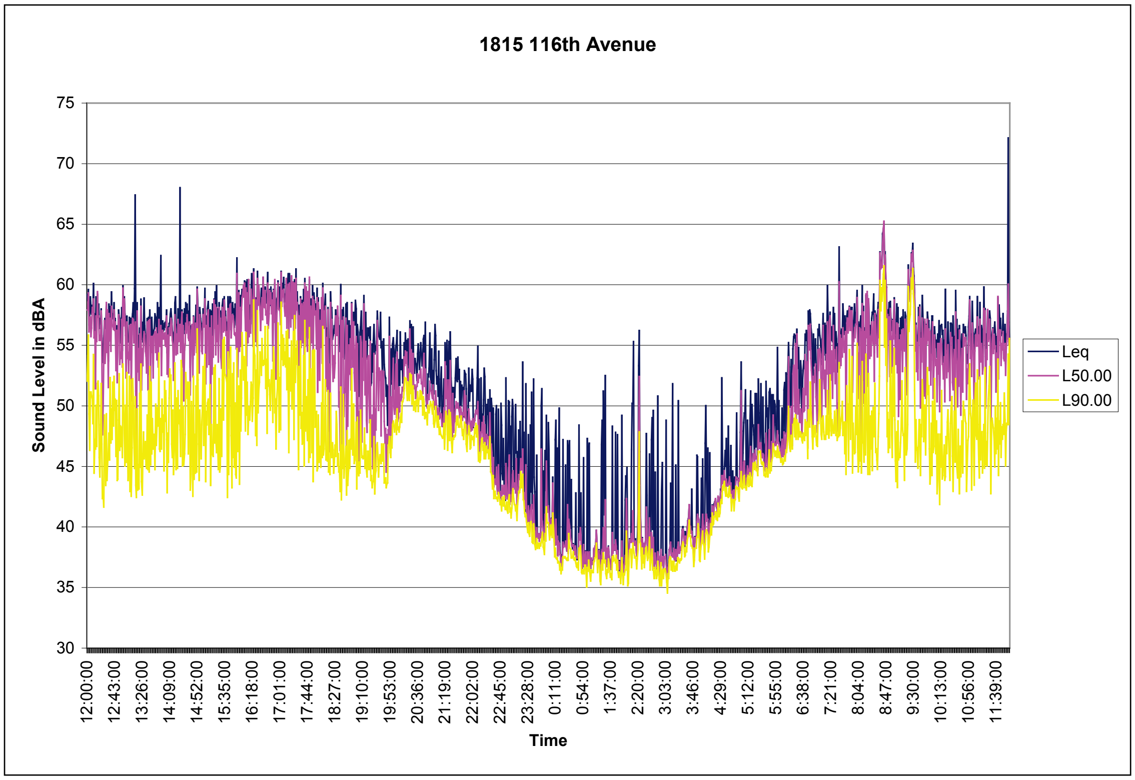


EXHIBIT C-11
Noise Survey Results, Site MD-1

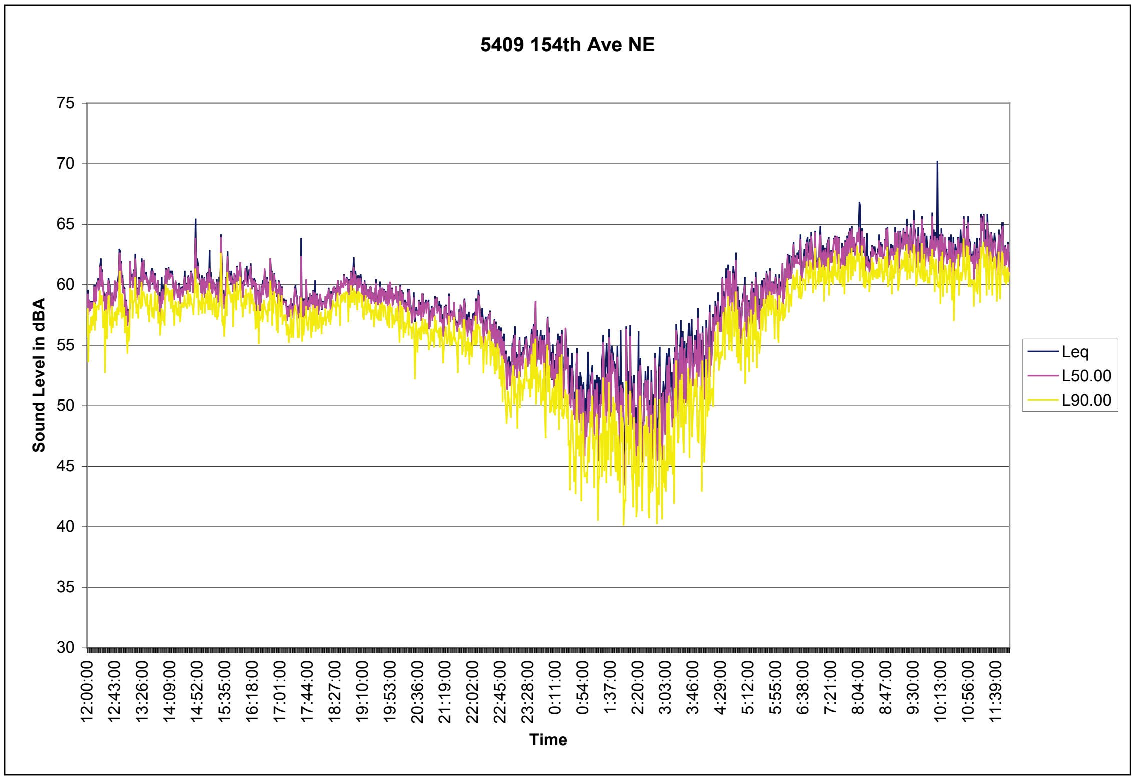


EXHIBIT C-12
Noise Survey Results, Site ME-1

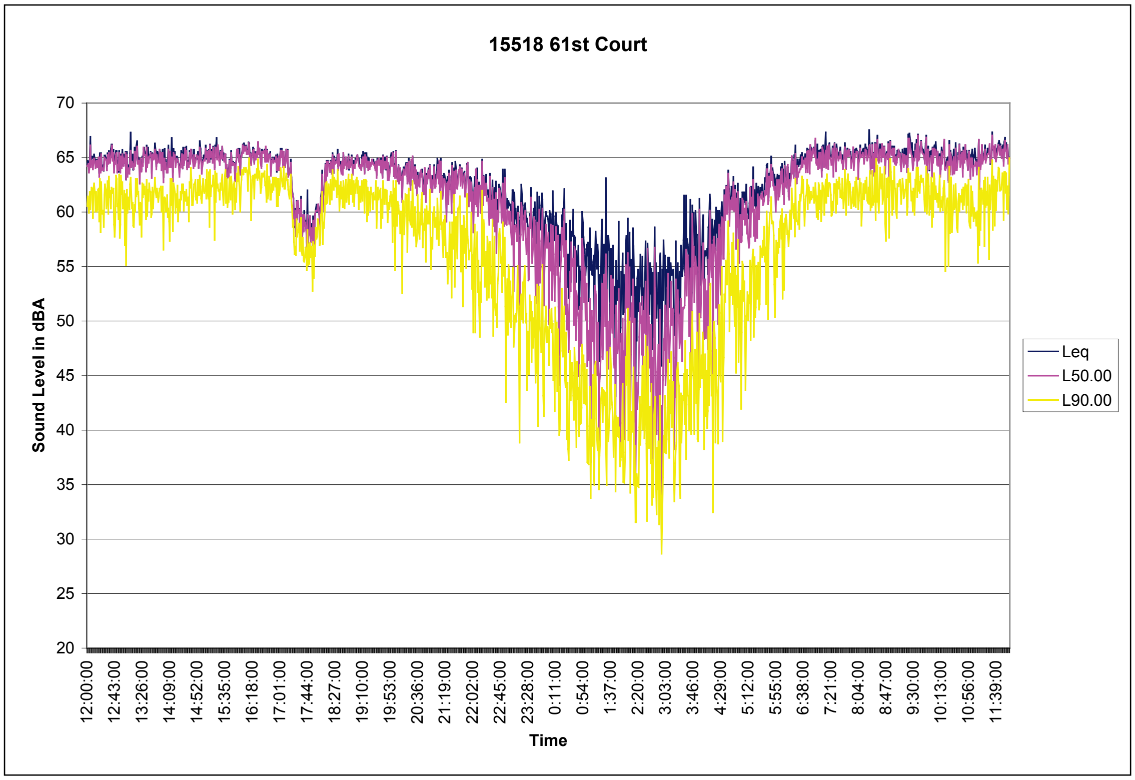


EXHIBIT C-13
Noise Survey Results, Site ME-2

Appendix D

Vibration Propagation Data

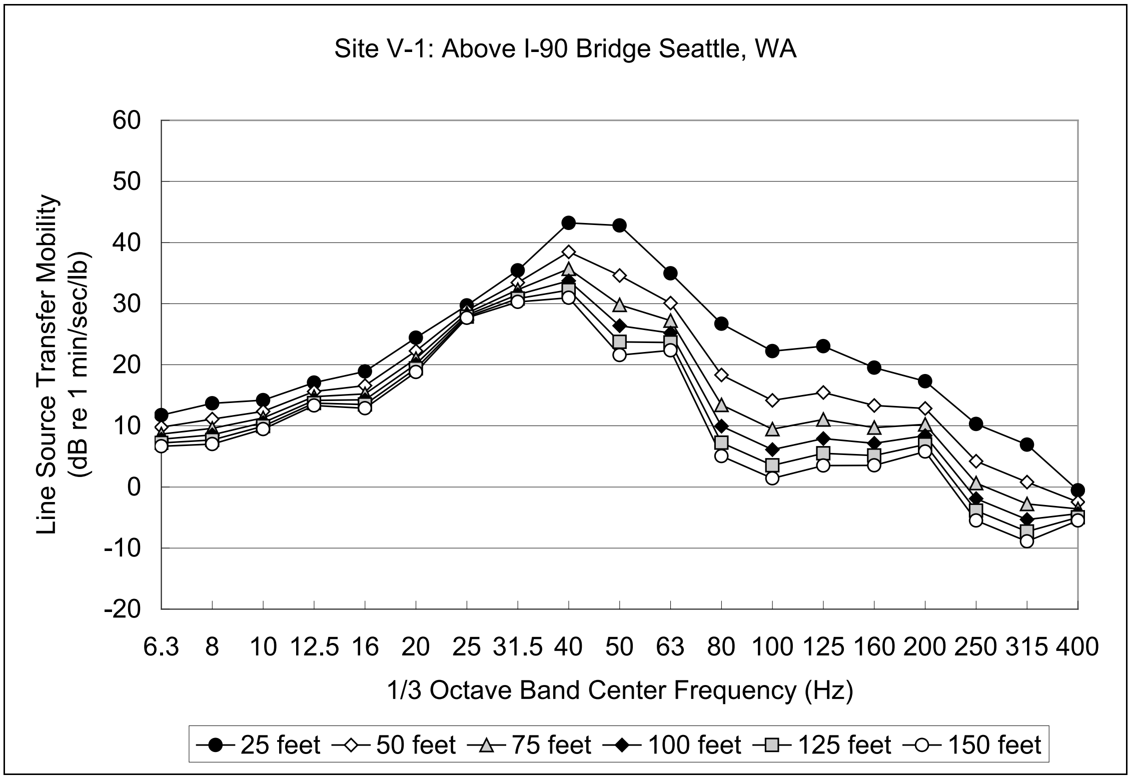


EXHIBIT D-1.
Representative Transfer Mobility Functions, Site V-1

TABLE D-1
Line Source Transfer Mobility Coefficients, Site V-1

Frequency (Hz)	A	B	C
6.3	20.90	-6.54	0.00
8	25.70	-8.59	0.00
10	22.71	-6.09	0.00
12.5	23.84	-4.83	0.00
16	29.75	-7.75	0.00
20	34.46	-7.19	0.00
25	33.31	-2.59	0.00
31.5	44.65	-6.59	0.00
40	65.18	-15.72	0.00
50	80.85	-27.23	0.00
63	57.65	-16.22	0.00
80	65.58	-27.82	0.00
100	59.63	-26.75	0.00
125	58.09	-25.09	0.00
160	48.20	-20.53	0.00
200	37.98	-14.79	0.00
250	38.69	-20.30	0.00
315	35.41	-20.37	0.00
400	8.33	-6.35	0.00

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2
d = Distance in feet

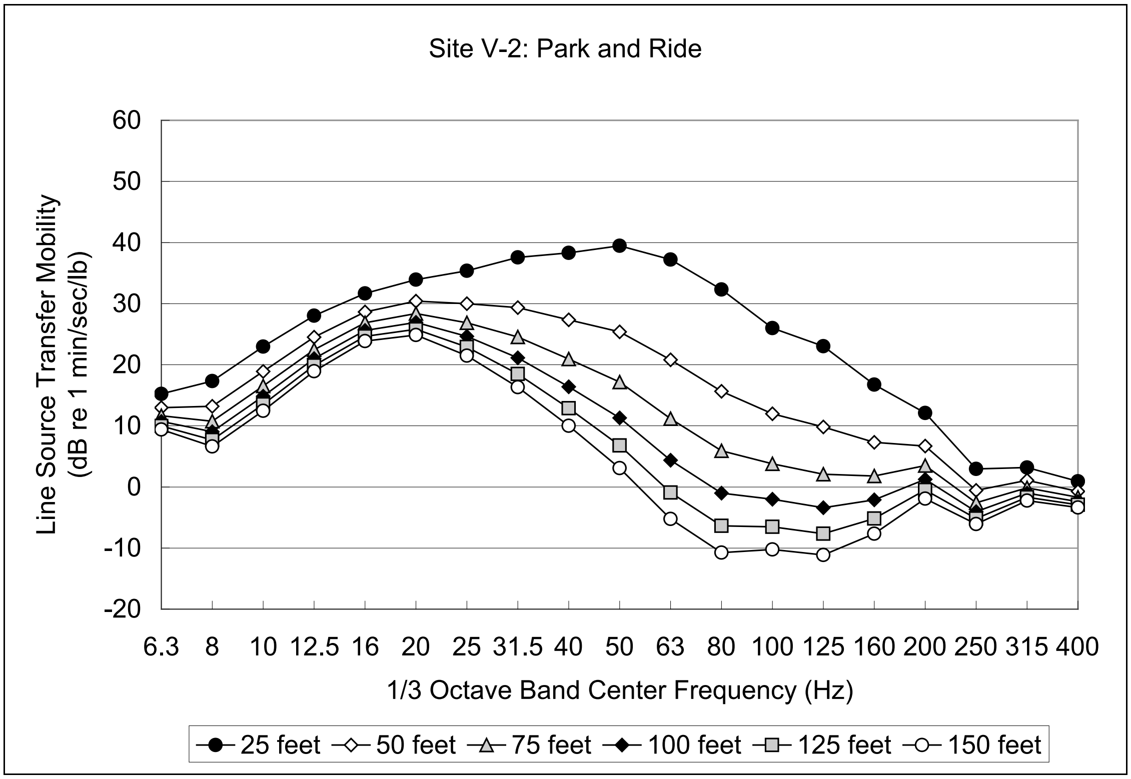


EXHIBIT D-2.
Representative Transfer Mobility Functions, Site V-2

TABLE D-2
Line Source Transfer Mobility Coefficients, Site V-2

Frequency (Hz)	A	B	C
6.3	25.72	-7.50	0.00
8	36.60	-13.78	0.00
10	41.86	-13.51	0.00
12.5	44.36	-11.68	0.00
16	45.70	-10.04	0.00
20	50.22	-11.65	0.00
25	60.29	-17.83	0.00
31.5	75.75	-27.32	0.00
40	89.18	-36.39	0.00
50	104.88	-46.78	0.00
63	113.52	-54.58	0.00
80	109.72	-55.36	0.00
100	91.03	-46.53	0.00
125	84.38	-43.89	0.00
160	60.52	-31.32	0.00
200	37.29	-18.02	0.00
250	19.18	-11.61	0.00
315	12.88	-6.95	0.00
400	8.64	-5.51	0.00

$$TM = A + B*\log(d) + C*(\log(d))^2$$

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2
d = Distance in feet

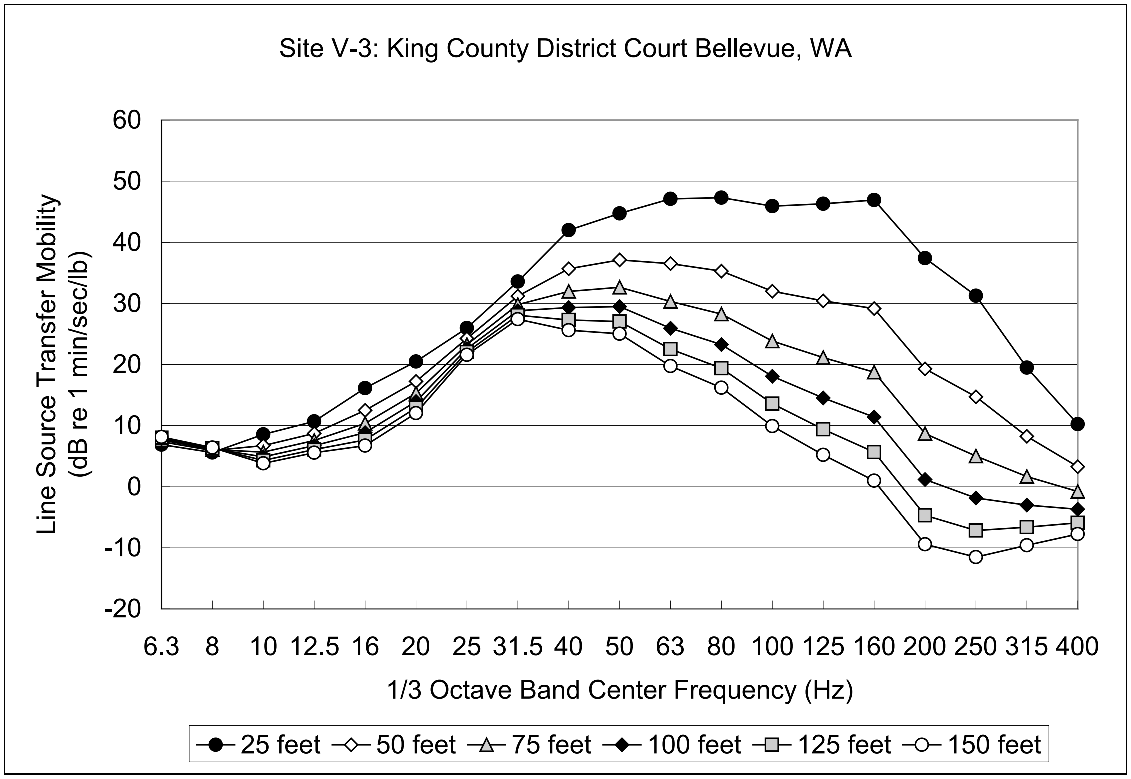


EXHIBIT D-3.
Representative Transfer Mobility Functions, Site V-3

TABLE D-3
Line Source Transfer Mobility Coefficients, Site V-3

Frequency (Hz)	A	B	C
6.3	4.64	1.61	0.00
8	4.20	1.00	0.00
10	17.12	-6.12	0.00
12.5	19.90	-6.59	0.00
16	33.04	-12.10	0.00
20	35.67	-10.86	0.00
25	33.81	-5.62	0.00
31.5	44.59	-7.89	0.00
40	71.43	-21.06	0.00
50	80.08	-25.30	0.00
63	96.25	-35.16	0.00
80	103.20	-39.98	0.00
100	110.57	-46.26	0.00
125	120.12	-52.80	0.00
160	129.38	-59.00	0.00
200	121.57	-60.20	0.00
250	108.07	-54.96	0.00
315	71.75	-37.38	0.00
400	42.48	-23.08	0.00

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2

d = Distance in feet

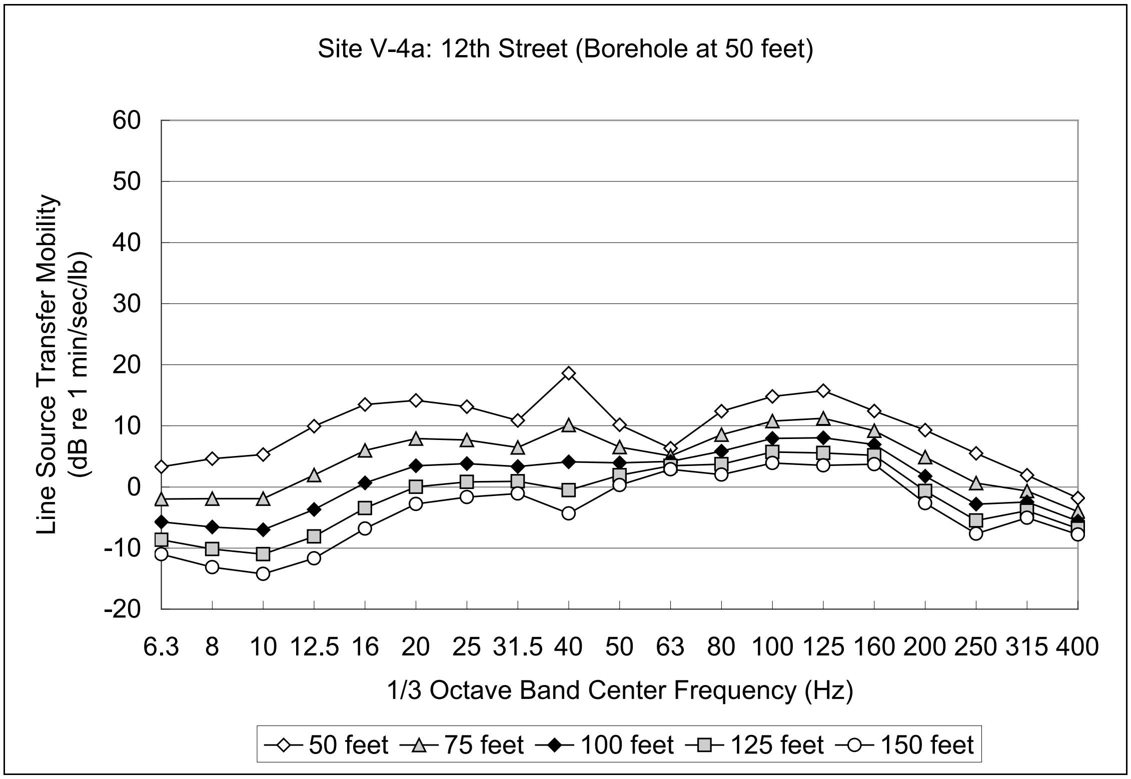


EXHIBIT D-4.
Representative Transfer Mobility Functions, Site V-4a

TABLE D-4
Line Source Transfer Mobility Coefficients, Site V-4a

Frequency (Hz)	A	B	C
6.3	54.32	-30.02	0.00
8	67.81	-37.19	0.00
10	74.90	-40.96	0.00
12.5	86.94	-45.32	0.00
16	85.84	-42.59	0.00
20	74.60	-35.56	0.00
25	65.84	-31.01	0.00
31.5	53.44	-25.05	0.00
40	100.37	-48.12	0.00
50	45.32	-20.69	0.00
63	18.58	-7.21	0.00
80	49.34	-21.75	0.00
100	53.58	-22.82	0.00
125	59.29	-25.62	0.00
160	43.36	-18.21	0.00
200	51.86	-25.06	0.00
250	52.39	-27.60	0.00
315	26.59	-14.53	0.00
400	19.37	-12.48	0.00

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2

d = Distance in feet

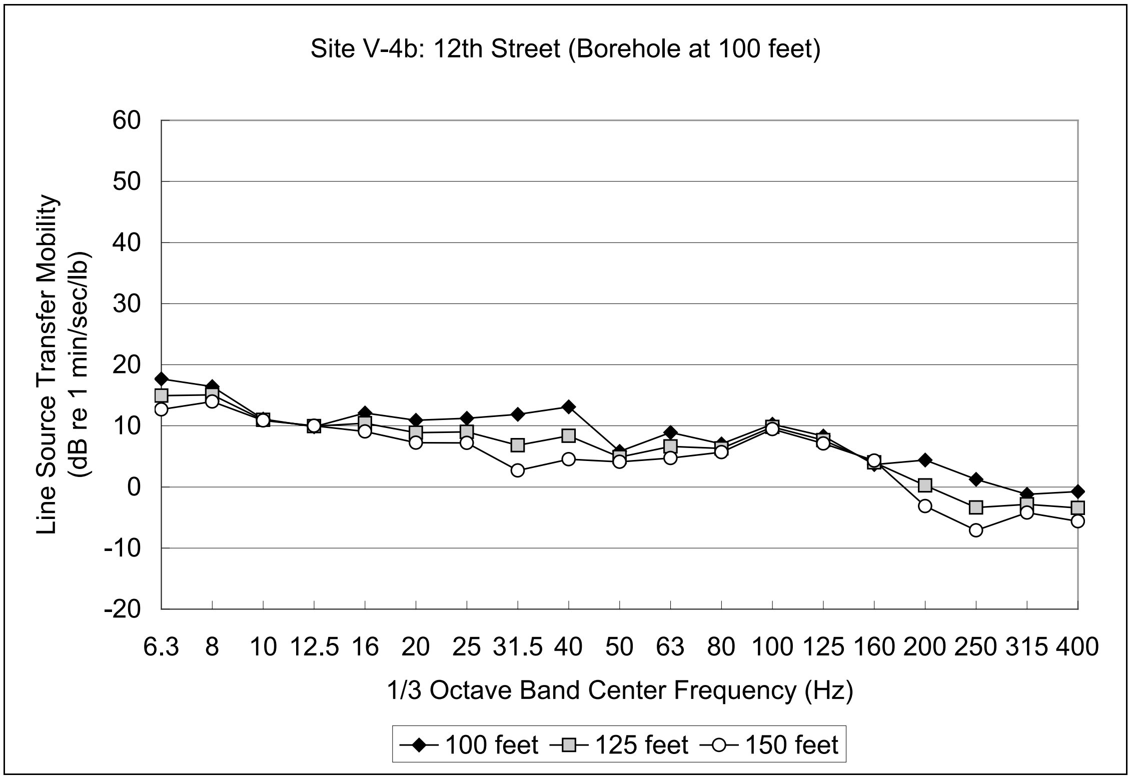


EXHIBIT D-5.
Representative Transfer Mobility Functions, Site V-4b

TABLE D-5
Line Source Transfer Mobility Coefficients, Site V-4b

Frequency (Hz)	A	B	C
6.3	74.56	-28.43	0.00
8	43.93	-13.76	0.00
10	13.57	-1.24	0.00
12.5	8.10	0.88	0.00
16	46.57	-17.23	0.00
20	52.61	-20.86	0.00
25	57.16	-22.96	0.00
31.5	115.84	-51.99	0.00
40	110.36	-48.64	0.00
50	25.25	-9.71	0.00
63	56.46	-23.77	0.00
80	22.62	-7.79	0.00
100	19.32	-4.53	0.00
125	22.24	-6.96	0.00
160	-3.78	3.72	0.00
200	90.02	-42.81	0.00
250	95.93	-47.35	0.00
315	32.69	-16.95	0.00
400	54.49	-27.63	0.00

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2
d = Distance in feet

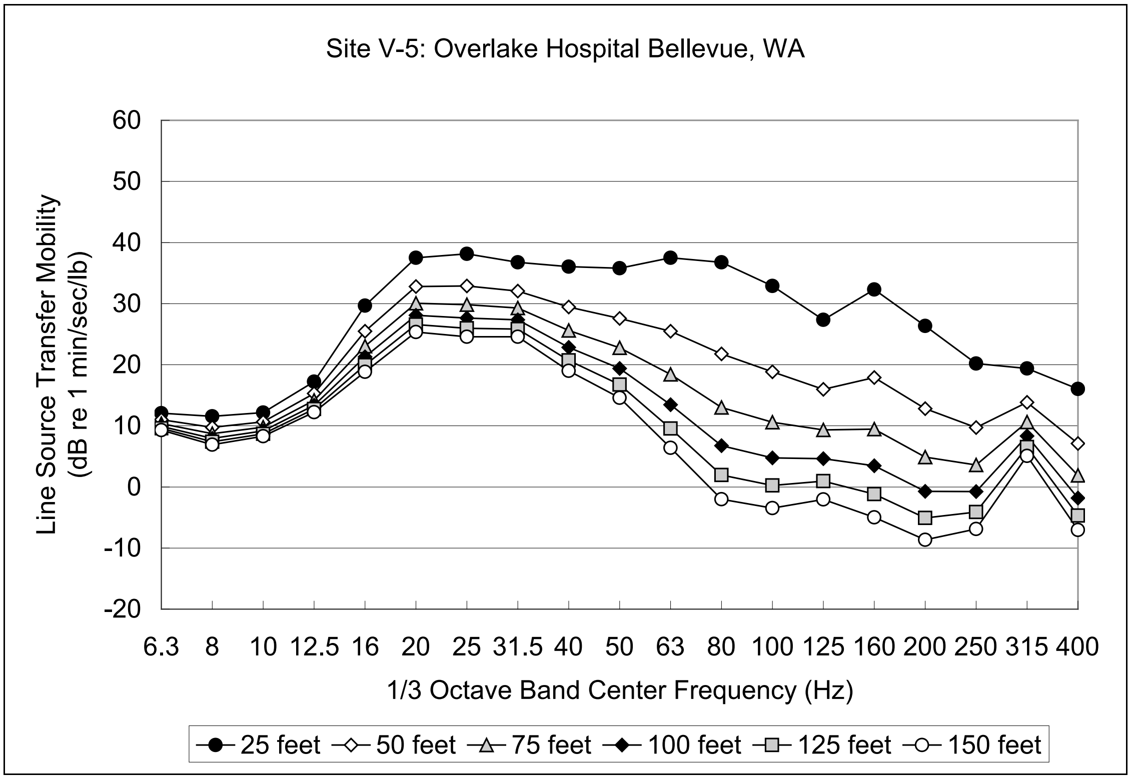


EXHIBIT D-6.
Representative Transfer Mobility Functions, Site V-5

TABLE D-6

Line Source Transfer Mobility Coefficients, Site V-5

Frequency (Hz)	A	B	C
6.3	17.01	-3.54	0.00
8	19.90	-5.97	0.00
10	19.11	-4.97	0.00
12.5	26.19	-6.41	0.00
16	49.18	-13.95	0.00
20	59.36	-15.63	0.00
25	62.49	-17.43	0.00
31.5	58.66	-15.66	0.00
40	66.75	-21.95	0.00
50	73.92	-27.27	0.00
63	93.36	-39.96	0.00
80	106.44	-49.84	0.00
100	98.17	-46.70	0.00
125	80.15	-37.77	0.00
160	99.32	-47.92	0.00
200	89.19	-44.96	0.00
250	68.77	-34.76	0.00
315	45.12	-18.40	0.00
400	57.47	-29.64	0.00

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2

d = Distance in feet

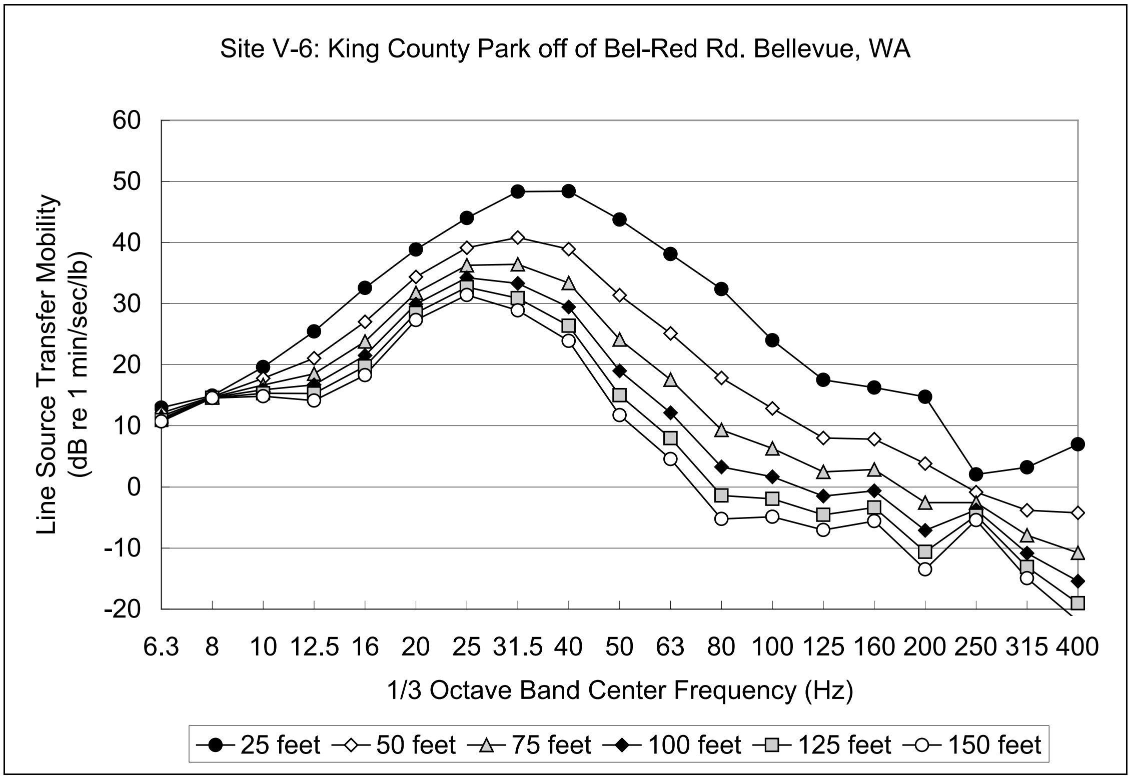


EXHIBIT D7.
Representative Transfer Mobility Functions, Site V-6

TABLE D-7
Line Source Transfer Mobility Coefficients, Site V-6

Frequency (Hz)	A	B	C
6.3	17.03	-2.91	0.00
8	15.60	-0.49	0.00
10	28.19	-6.14	0.00
12.5	45.77	-14.53	0.00
16	58.21	-18.35	0.00
20	59.59	-14.84	0.00
25	66.64	-16.19	0.00
31.5	83.24	-24.97	0.00
40	92.46	-31.51	0.00
50	101.24	-41.12	0.00
63	98.45	-43.15	0.00
80	99.99	-48.36	0.00
100	75.87	-37.10	0.00
125	61.66	-31.57	0.00
160	55.51	-28.08	0.00
200	65.42	-36.26	0.00
250	15.46	-9.61	0.00
315	35.82	-23.33	0.00
400	58.98	-37.20	0.00

$$TM = A + B*\log(d) + C*(\log(d))^2$$

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2
d = Distance in feet

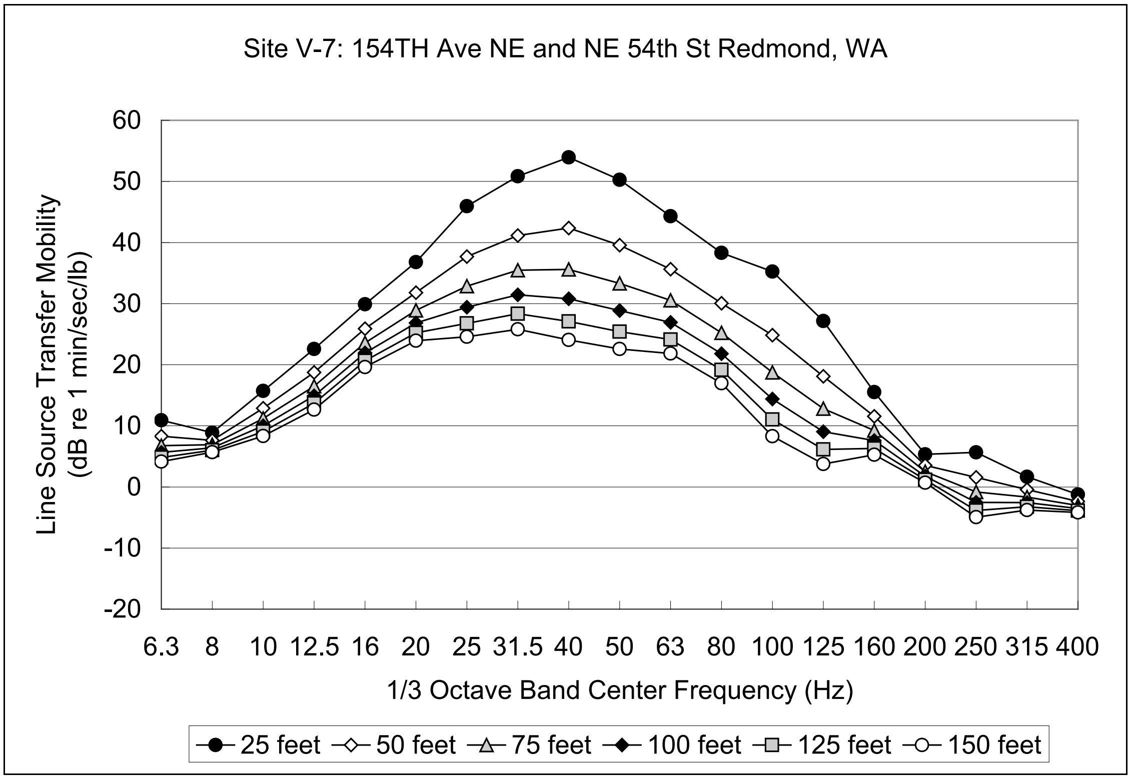


EXHIBIT D-8.
Representative Transfer Mobility Functions, Site V-7

TABLE D-8
Line Source Transfer Mobility Coefficients, Site V-7

Frequency (Hz)	A	B	C
6.3	23.05	-8.69	0.00
8	14.62	-4.11	0.00
10	29.02	-9.51	0.00
12.5	40.39	-12.74	0.00
16	48.33	-13.20	0.00
20	59.87	-16.52	0.00
25	84.34	-27.46	0.00
31.5	95.87	-32.20	0.00
40	107.59	-38.39	0.00
50	100.02	-35.58	0.00
63	84.64	-28.85	0.00
80	76.58	-27.39	0.00
100	83.65	-34.62	0.00
125	69.15	-30.05	0.00
160	33.97	-13.19	0.00
200	13.62	-5.94	0.00
250	24.72	-13.63	0.00
315	11.43	-6.99	0.00
400	4.05	-3.78	0.00

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2
d = Distance in feet

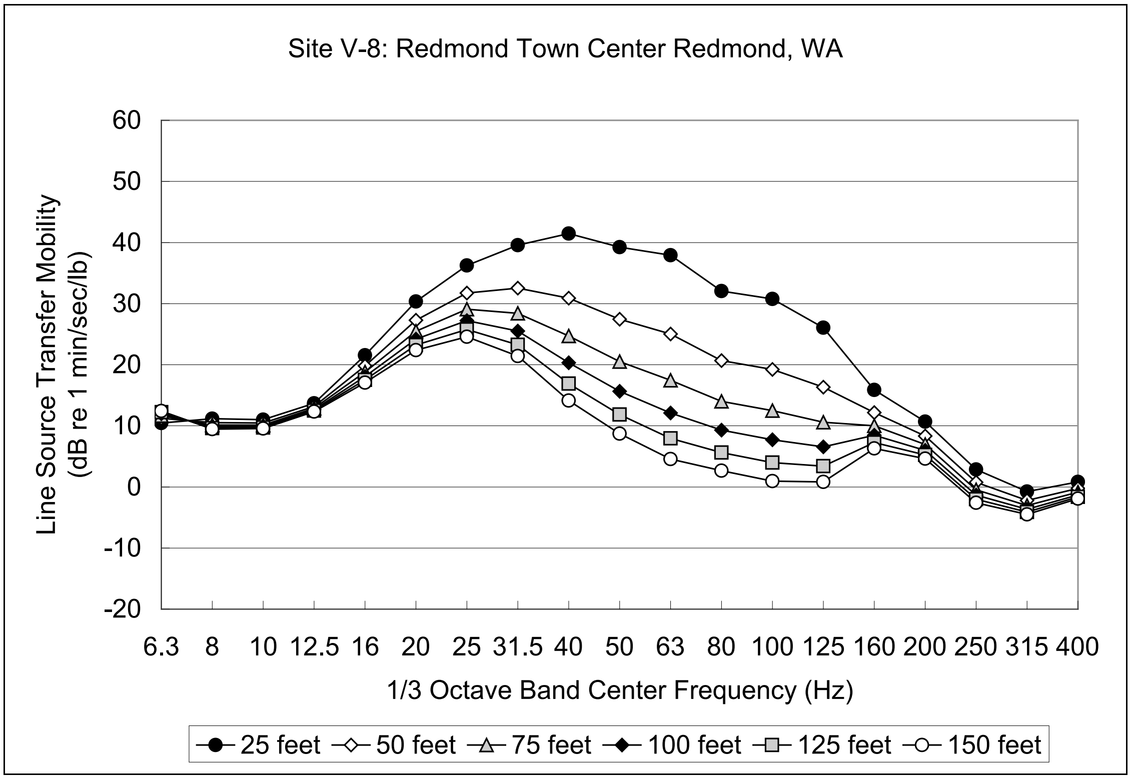


EXHIBIT D-9.
Representative Transfer Mobility Functions, Site V-8

TABLE D-9
Line Source Transfer Mobility Coefficients, Site V-8

Frequency (Hz)	A	B	C
6.3	6.97	2.50	0.00
8	14.26	-2.21	0.00
10	13.59	-1.85	0.00
12.5	16.11	-1.73	0.00
16	29.62	-5.77	0.00
20	44.63	-10.22	0.00
25	57.24	-15.01	0.00
31.5	72.14	-23.31	0.00
40	90.61	-35.15	0.00
50	94.03	-39.20	0.00
63	97.87	-42.88	0.00
80	84.86	-37.78	0.00
100	84.28	-38.29	0.00
125	71.42	-32.44	0.00
160	33.12	-12.33	0.00
200	21.59	-7.80	0.00
250	12.66	-7.00	0.00
315	5.94	-4.80	0.00
400	5.78	-3.53	0.00

$$TM = A + B*\log(d) + C*(\log(d))^2$$

Where:

TM = Transfer Mobility in dB re 1μin/sec/lb/(ft)^1/2
d = Distance in feet

Appendix E

Detailed Noise Impact Assessment

Preferred Interstate 90 Alternative (A1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers West of Tunnel: Seattle																	
		Sturgus Ave S	18	68	2	No	No	60	Ldn	63	69	--	--	No Wall	N/A	No	60
		Sturgus Ave S	5	68	2	No	No	60	Ldn	63	69	--	--	No Wall	N/A	No	60
		S Atlantic St at 17th Ave S	12	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		18th and 19th Ave S	6	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		19th Ave S and Valentine Pl	6	68	2	No	No	60	Ldn	63	69	--	--	No Wall	N/A	No	60
		20th Ave at S Atlantic St	5	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		20th Ave at S Atlantic St	6	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		S Atlantic St	6	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
		Judkins Park and Playfield	1	67	3	No	No	61	Leq	69	73	--	--	No Wall	N/A	No	61
Receiver East of the Tunnel: Seattle																	
		Irving Street	2	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
		Irving Street	1	67	2	No	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
		Lake Washington Blvd	2	67	2	No	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
		35th Ave S	3	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		36th Ave S	2	67	2	No	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
	1250204665	Lake Washington Blvd	1	67	2	No	Yes	63	Ldn	63	68	1	--	No Wall	Special	No	60
Mercer Island West Shore Landing																	
		60th Ave	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		60th Ave	1	67	2	No	No	55	Ldn	63	68	--	--	No Wall	N/A	No	55
		60th Ave	2	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		60th Ave	1	67	2	No	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
Mercer Island East Shore Landing																	
		SE 35th Pl	6	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		SE 36th Pl	0	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58

Preferred 112th SE Modified Alternative (B2M) to Preferred 108th NE At-Grade Alternative (C11A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2003	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2008	Lot	0	69	2	No	No	67	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2030	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2036	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	67	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2073	SF residence	1	69	2	No	Yes	66	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2094	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2045	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	51
	2055	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2070	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2078	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area																	
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51

Preferred 112th SE Modified Alternative (B2M) to Preferred 108th NE At-Grade Alternative (C11A)

Receiver and Data Input Section						Impact Analysis							Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	2144	SF residence	1	69	2	Yes	No	58	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	49
	2160	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2210	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2225	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2235	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2130	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2137	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2146	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2166	SF residence	1	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2170	SF residence	1	65	2	Yes	No	52	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	43
	2181	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2183	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2211	SF residence	1	67	2	No	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2230	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2252	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2265	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2275	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2284	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2288	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2296	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2300	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2307	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2326	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2333	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2345	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2351	SF residence	1	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	2361	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2367	SF residence	1	69	2	No	No	48	Ldn	64	70	--	--	No Wall	N/A	No	48
Station change to C9T																	
	2375	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2384	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2397	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2378	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2385	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	2393	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	2401	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	2407	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2413	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2421	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	3001	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2414	SF residence	1	67	2	No	No	49	Ldn	63	68	--	--	No Wall	N/A	No	49
	2418	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3000	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3004	SF residence	1	67	2	No	No	48	Ldn	63	68	--	--	No Wall	N/A	No	48
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56

Preferred 112th SE Modified Alternative (B2M) to Preferred 108th NE At-Grade Alternative (C11A)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3010	MF Units at Y	4	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	3010	MF Units at Y	4	69	2	No	No	48	Ldn	64	70	--	--	No Wall	N/A	No	48
	3010	MF Units at Y	4	67	2	No	No	50	Ldn	63	68	--	--	No Wall	N/A	No	50
SF Units forth of Y, south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	50	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	44
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	57
	4005	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	57
	4007	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4010	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4017	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4024	Lot	0	60	2	Yes	No	63	Ldn	58	64	0	--	Potential Sound Wall	N/A	Yes	59
	4025	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4029	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	Yes	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	58
	4050	MF units at Bellefield Park	2	64	2	Yes	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	Yes	61
	4050	MF units at Bellefield Park	2	63	2	Yes	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	65	2	No	No	65	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	59
	4050	MF units at Bellefield Park	3	63	2	No	No	62	Ldn	60	66	3	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	4	64	2	No	No	64	Ldn	61	66	4	--	Potential Sound Wall	N/A	Yes	61
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	60
	4050	MF units at Bellefield Park	2	63	2	No	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	53
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	63	2	No	No	62	Ldn	60	66	2	--	Potential Sound Wall	N/A	No	56
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	58	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	52
	4063	SF residence	1	66	2	Yes	No	66	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	60
	4067	SF residence	1	66	2	Yes	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	59
	4074	SF residence	1	66	2	Yes	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	59
	4079	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	4084	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5000	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5006	SF residence	1	65	2	Yes	No	66	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5013	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5021	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5026	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5036	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5039	SF residence	1	66	2	Yes	No	63	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	61
	5050	SF residence	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	58

Preferred 112th SE Modified Alternative (B2M) to Preferred 110th NE Tunnel Alternative (C9T)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2003	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2008	Lot	0	69	2	No	No	67	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2030	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2036	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	67	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2073	SF residence	1	69	2	No	Yes	66	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2094	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2045	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	51
	2055	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2070	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2078	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area																	
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51

Preferred 112th SE Modified Alternative (B2M) to Preferred 110th NE Tunnel Alternative (C9T)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	2144	SF residence	1	69	2	Yes	No	58	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	49
	2160	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2210	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2225	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2235	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2130	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2137	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2146	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2166	SF residence	1	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2170	SF residence	1	65	2	Yes	No	52	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	43
	2181	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2183	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2211	SF residence	1	67	2	No	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2230	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2252	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2265	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2275	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2284	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2288	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2296	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2300	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2307	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2326	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2333	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2345	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2351	SF residence	1	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	2361	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2367	SF residence	1	69	2	No	No	48	Ldn	64	70	--	--	No Wall	N/A	No	48
Station change to C9T																	
	2375	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2384	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2397	SF residence	1	69	2	No	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	2378	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2385	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	2393	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	2401	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	2407	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2413	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2421	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	3001	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2414	SF residence	1	67	2	No	No	49	Ldn	63	68	--	--	No Wall	N/A	No	49
	2418	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3000	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3004	SF residence	1	67	2	No	No	48	Ldn	63	68	--	--	No Wall	N/A	No	48
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61

Preferred 112th SE Modified Alternative (B2M) to Preferred 110th NE Tunnel Alternative (C9T)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	3010	MF Units at Y	4	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	3010	MF Units at Y	4	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3010	MF Units at Y	4	67	2	No	No	55	Ldn	63	68	--	--	No Wall	N/A	No	55
SF Units forth of Y, south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4024	Lot	0	60	2	No	No	59	Ldn	58	64	0	--	Potential Sound Wall	N/A	No	53
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	52
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	No Wall	N/A	No	55
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	Yes	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	49
	4050	MF units at Bellefield Park	2	65	2	Yes	No	64	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	3	63	2	Yes	No	60	Ldn	60	66	3	--	No Wall	N/A	Yes	60
	4050	MF units at Bellefield Park	4	64	2	Yes	No	63	Ldn	61	66	4	--	No Wall	N/A	Yes	63
	4050	MF units at Bellefield Park	2	64	2	Yes	No	60	Ldn	61	66	--	--	No Wall	N/A	No	60
	4050	MF units at Bellefield Park	2	63	2	Yes	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	48
	4050	MF units at Bellefield Park	2	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	4050	MF units at Bellefield Park	2	63	2	Yes	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	52
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	55	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	48
	4063	SF residence	1	66	2	Yes	No	60	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	54
	4067	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	55
	4074	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	55
	4079	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	4084	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5000	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	No Wall	N/A	Yes	65
	5006	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	No Wall	N/A	Yes	65
	5013	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	No Wall	N/A	Yes	64
	5021	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5026	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5036	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5039	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	55
	5050	SF residence	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53

Preferred 112th SE Modified Alternative (B2M) to Alternative C9T - East Main Station Design Option

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2003	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2008	Lot	0	69	2	No	No	67	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2030	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2036	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	67	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2073	SF residence	1	69	2	No	Yes	66	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2094	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2045	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	51
	2055	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2070	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2078	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area																	
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51

Preferred 112th SE Modified Alternative (B2M) to Alternative C9T - East Main Station Design Option

Receiver and Data Input Section						Impact Analysis									Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number			Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**		**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	2144	SF residence	1	69	2	Yes	No	58	Ldn	64	70	--	--		Potential Sound Wall	N/A	No	49
	2160	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--		Potential Sound Wall	N/A	No	50
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--		Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	55
	2210	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	55
	2225	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	56
	2235	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	56
Same as above, second row																		
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--		Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--		Potential Sound Wall	N/A	No	47
	2130	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	47
	2137	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	47
	2146	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--		Potential Sound Wall	N/A	No	44
	2166	SF residence	1	67	2	Yes	No	59	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	50
	2170	SF residence	1	65	2	Yes	No	52	Ldn	61	67	--	--		Potential Sound Wall	N/A	No	43
	2181	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--		Potential Sound Wall	N/A	No	45
	2183	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	47
	2211	SF residence	1	67	2	No	No	57	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	48
	2230	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	49
Receptors from 23rd St to 25th St																		
	2246	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	57
	2252	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	57
	2265	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	57
	2275	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	57
	2284	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	57
	2288	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	58
	2296	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	58
	2300	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--		Potential Sound Wall	N/A	No	58
Same as above, second row																		
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--		Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	50
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	51
	2307	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--		Potential Sound Wall	N/A	No	51
25th St to 112th "Y"																		
	2317	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--		Potential Sound Wall	N/A	No	50
	2326	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--		Potential Sound Wall	N/A	No	50
	2333	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--		No Wall	N/A	No	53
	2345	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--		No Wall	N/A	No	51
	2351	SF residence	1	69	2	No	No	49	Ldn	64	70	--	--		No Wall	N/A	No	49
	2361	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--		No Wall	N/A	No	51
	2367	SF residence	1	69	2	No	No	48	Ldn	64	70	--	--		No Wall	N/A	No	48
Station change to C9T																		
	2375	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--		No Wall	N/A	No	57
	2384	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--		No Wall	N/A	No	56
	2397	SF residence	1	69	2	No	No	58	Ldn	64	70	--	--		No Wall	N/A	No	58
	2378	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--		No Wall	N/A	No	53
	2385	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--		No Wall	N/A	No	54
	2393	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--		No Wall	N/A	No	55
	2401	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--		No Wall	N/A	No	55
	2407	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--		No Wall	N/A	No	57
	2413	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--		No Wall	N/A	No	57
	2421	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--		No Wall	N/A	No	57
	3001	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--		No Wall	N/A	No	56
	2414	SF residence	1	67	2	No	No	49	Ldn	63	68	--	--		No Wall	N/A	No	49
	2418	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--		No Wall	N/A	No	53
	3000	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--		No Wall	N/A	No	53
	3004	SF residence	1	67	2	No	No	48	Ldn	63	68	--	--		No Wall	N/A	No	48
MF Units at the 112th "Y"																		
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--		No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--		No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	61	Ldn	64	70	--	--		No Wall	N/A	No	61

Preferred 112th SE Modified Alternative (B2M) to Alternative C9T - East Main Station Design Option

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	3010	MF Units at Y	4	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	3010	MF Units at Y	4	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3010	MF Units at Y	4	67	2	No	No	55	Ldn	63	68	--	--	No Wall	N/A	No	55
SF Units forth of Y, south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4024	Lot	0	60	2	No	No	59	Ldn	58	64	0	--	Potential Sound Wall	N/A	No	53
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	52
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	No Wall	N/A	No	55
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	Yes	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	49
	4050	MF units at Bellefield Park	2	65	2	Yes	No	64	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	3	63	2	Yes	No	60	Ldn	60	66	3	--	No Wall	N/A	Yes	60
	4050	MF units at Bellefield Park	4	64	2	Yes	No	63	Ldn	61	66	4	--	No Wall	N/A	Yes	63
	4050	MF units at Bellefield Park	2	64	2	Yes	No	60	Ldn	61	66	--	--	No Wall	N/A	No	60
	4050	MF units at Bellefield Park	2	63	2	Yes	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	48
	4050	MF units at Bellefield Park	2	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	4050	MF units at Bellefield Park	2	63	2	Yes	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	52
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	55	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	48
	4063	SF residence	1	66	2	Yes	No	60	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	54
	4067	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	55
	4074	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	55
	4079	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	4084	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5000	SF residence	1	65	2	Yes	Yes	65	Ldn	61	67	1	--	No Wall	Special	Yes	64
	5006	SF residence	1	65	2	Yes	Yes	66	Ldn	61	67	1	--	No Wall	Special	Yes	64
	5013	SF residence	1	65	2	Yes	Yes	67	Ldn	61	67	--	1	No Wall	Special	Yes	61
	5021	SF residence	1	65	2	Yes	Yes	67	Ldn	61	67	--	1	Potential Sound Wall	Special	No	55
	5026	SF residence	1	65	2	Yes	Yes	66	Ldn	61	67	1	--	Potential Sound Wall	Special	No	55
	5036	SF residence	1	65	2	Yes	Yes	66	Ldn	61	67	1	--	Potential Sound Wall	Special	No	55
	5039	SF residence	1	66	2	Yes	Yes	66	Ldn	62	68	1	--	Potential Sound Wall	Special	No	55
	5050	SF residence	1	64	2	Yes	Yes	60	Ldn	61	66	--	--	Potential Sound Wall	Special	No	53

Bellevue Way Alternative (B1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers north of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
	1103	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1137	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1152/3	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1164	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1172	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1182	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1195	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	1203	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	55	Ldn	61	67	--	--	No Wall	N/A	No	55
	1106	SF residence	1	65	2	No	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	1136	SF residence	1	65	2	No	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	1151	SF residence	1	65	2	No	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	1163	SF residence	1	65	2	No	No	53	Ldn	61	67	--	--	No Wall	N/A	No	53
	1175	SF residence	1	65	2	No	No	52	Ldn	61	67	--	--	No Wall	N/A	No	52
	1177	SF residence	1	65	2	No	No	53	Ldn	61	67	--	--	No Wall	N/A	No	53
	1194	SF residence	1	65	2	No	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	1202	SF residence	1	65	2	No	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
Receivers east of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	Yes	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	1217	SF residence	1	69	2	Yes	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2001	SF residence	1	69	2	Yes	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	2003	SF residence	1	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	2008	Lot	0	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	2012	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2015 E	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	9819	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2017	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2023	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2026	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2030	SF residence	1	69	2	Yes	Yes	69	Ldn	64	70	1	--	No Wall	Special	Yes	67
Same as above, second row																	
	1209	SF residence	1	67	2	Yes	No	53	Ldn	63	68	--	--	No Wall	N/A	No	53
	2000	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	2015 W	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	9820	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	2021	SF residence	1	67	2	Yes	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
	2032	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	No Wall	N/A	No	57
	2036	SF residence	1	67	2	Yes	Yes	60	Ldn	63	68	--	--	No Wall	Special	No	59
	2038	SF residence	1	65	2	Yes	Yes	56	Ldn	61	67	--	--	No Wall	Special	No	55
Triangle north of SE 30th																	
	2040	SF residence	1	69	2	Yes	Yes	71	Ldn	64	70	--	1	No Wall	Special	Yes	66
	2049	SF residence	1	69	2	Yes	Yes	75	Ldn	64	70	--	1	No Wall	Special	Yes	67
	2061	SF residence	1	69	2	Yes	Yes	73	Ldn	64	70	--	1	No Wall	Special	Yes	68
	2073	SF residence	1	69	2	Yes	Yes	70	Ldn	64	70	--	1	No Wall	Special	Yes	68
	2094	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	2045	SF residence	1	67	2	Yes	Yes	62	Ldn	63	68	--	--	No Wall	Special	No	59
	2055	SF residence	1	67	2	Yes	Yes	63	Ldn	63	68	1	--	No Wall	Special	No	60
	2050	SF residence	1	65	2	Yes	Yes	55	Ldn	61	67	--	--	No Wall	Special	No	55
	2054	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	2060	SF residence	1	65	2	Yes	Yes	57	Ldn	61	67	--	--	No Wall	Special	No	56
	2070	SF residence	1	67	2	Yes	Yes	60	Ldn	63	68	--	--	No Wall	Special	No	60
	2078	SF residence	1	67	2	Yes	No	62	Ldn	63	68	--	--	No Wall	N/A	No	62
Receptors on 112th Ave SE and near Station Area																	
	2095	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	2109	SF residence	1	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2124	SF residence	1	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	2144	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64

Bellevue Way Alternative (B1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	2160	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2178	Lot	0	69	2	Yes	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	2193	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2210	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2225	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2235	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
Same as above, second row																	
	2104	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	2116	SF residence	1	65	2	Yes	No	55	Ldn	61	67	--	--	No Wall	N/A	No	55
	2130	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	2137	SF residence	1	67	2	Yes	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
	2146	SF residence	1	65	2	Yes	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	2166	SF residence	1	67	2	Yes	No	65	Ldn	63	68	1	--	No Wall	N/A	Yes	65
	2170	SF residence	1	65	2	Yes	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	2181	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	No Wall	N/A	Yes	63
	2183	SF residence	1	67	2	Yes	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	2211	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	2230	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2252	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2265	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2275	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2284	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2288	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2296	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2300	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2306	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	55	Ldn	61	67	--	--	No Wall	N/A	No	55
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	2289	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
	2297	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
	2307	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
25th St to 112th Y																	
	2317	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2326	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2333	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2345	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2351	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2361	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2367	SF residence	1	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	2375	Displacement	0	69	2	No	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	2384	Displacement	0	69	2	No	No	66	Ldn	64	70	0	--	No Wall	N/A	Yes	66
	2397	Displacement	0	69	2	No	No	68	Ldn	64	70	0	--	No Wall	N/A	Yes	68
	2378	SF residence	1	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	2385	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2393	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2401	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	2407	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	2413	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2421	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	3001	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	2414	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
	2418	SF residence	1	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3000	SF residence	1	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3004	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	Yes	No	66	Ldn	64	70	4	--	No Wall	N/A	Yes	66
	3010	MF Units at Y	4	69	2	Yes	No	64	Ldn	64	70	4	--	No Wall	N/A	Yes	64
	3010	MF Units at Y	4	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	3010	MF Units at Y	4	69	2	Yes	No	65	Ldn	64	70	4	--	No Wall	N/A	Yes	65
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62

Bellevue Way Alternative (B1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3010	MF Units at Y	4	67	2	Yes	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
W of Alignment from S 19th St to SE 16th																	
	3029	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	3049	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	3075	SF residence	1	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3094	SF residence	1	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3109	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	3133	MF Units	4	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3133	MF Units	4	69	2	Yes	No	64	Ldn	64	70	4	--	No Wall	N/A	Yes	64
	3133	MF Units	2	69	2	Yes	No	66	Ldn	64	70	2	--	No Wall	N/A	Yes	66
	3133	MF Units	2	69	2	Yes	No	67	Ldn	64	70	2	--	No Wall	N/A	Yes	67
Pool at 112th																	
	3083	Pool and Recreation	1	69	3	Yes	No	65	Leq	70	75	--	--	No Wall	N/A	No	65
Same as Above, 2nd Row																	
	3052	SF residence	1	66	2	Yes	No	56	Ldn	62	68	--	--	No Wall	N/A	No	56
	3087	SF residence	1	66	2	Yes	No	57	Ldn	62	68	--	--	No Wall	N/A	No	57
	3101	SF residence	1	66	2	Yes	No	57	Ldn	62	68	--	--	No Wall	N/A	No	57
	3114	SF residence	1	66	2	Yes	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3117	SF residence	1	65	2	No	No	55	Ldn	61	67	--	--	No Wall		No	55
	3125	SF residence	1	66	2	Yes	No	58	Ldn	62	68	--	--	No Wall	N/A	No	58
	3140	SF residence	1	66	2	Yes	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3147	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	No Wall	N/A	No	61
	3165	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3183	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
E side, S of SE 16th St																	
	3097	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	3110	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	3116	SF residence	1	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3121	SF residence	1	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3129	SF residence	1	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	3143	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	3149	SF residence	1	66	2	Yes	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3150	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	3170	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
E side, SE 16th St to just North of SE 13th St																	
	3223	MF Residence	0	69	2	Yes	No	66	Ldn	64	70	0	--	No Wall	N/A	Yes	66
	3223	MF Residence	6	65	2	Yes	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	3223	MF Residence	4	69	2	Yes	No	66	Ldn	64	70	4	--	No Wall	N/A	Yes	66
	3246	MF Residence	4	69	2	Yes	No	66	Ldn	64	70	4	--	No Wall	N/A	Yes	66
	3246	MF Residence	4	69	2	Yes	No	66	Ldn	64	70	4	--	No Wall	N/A	Yes	66
	3267	MF Residence	4	69	2	No	No	67	Ldn	64	70	4	--	No Wall	N/A	Yes	67
	3267	MF Residence	6	65	2	No	No	55	Ldn	61	67	--	--	No Wall	N/A	No	55
	3267	MF Residence	4	69	2	No	No	67	Ldn	64	70	4	--	No Wall	N/A	Yes	67
	3288	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3300	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	3305	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3319	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
W side from 16 St to 11th St																	
	3204	Displacement	0	69	2	Yes	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	3220	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	3237	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	3252	Displacement	0	69	2	Yes	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	9823	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3302	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3329	Displacement	0	69	2	No	No	68	Ldn	64	70	0	--	No Wall	N/A	Yes	68
	3368	Church Bldg	1	69	3	No	No	68	Leq	70	75	--	--	No Wall	N/A	No	68
	3387	Church Bldg	1	69	3	No	No	64	Leq	70	75	--	--	No Wall	N/A	No	64
Same as above, 2nd and 3rd rows																	
	3208	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	3215	SF residence	1	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3226	Lot	0	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63

Bellevue Way Alternative (B1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	3239	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3257	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3260	SF residence	1	66	2	Yes	No	60	Ldn	62	68	--	--	No Wall	N/A	No	60
	9824	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	9825	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3279	SF residence	1	66	2	No	No	60	Ldn	62	68	--	--	No Wall	N/A	No	60
	9828	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	9830	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	9826	SF residence	1	66	2	No	No	62	Ldn	62	68	1	--	No Wall	N/A	Yes	62
	9827	SF residence	1	65	2	No	No	58	Ldn	61	67	--	--	No Wall	N/A	No	58
	9829	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	3306	SF residence	1	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3310	SF residence	1	66	2	No	No	58	Ldn	62	68	--	--	No Wall	N/A	No	58
	3334	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	3337	SF residence	1	66	2	No	No	60	Ldn	62	68	--	--	No Wall	N/A	No	60
East side, S of SE 11th to 10th																	
	3339	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3362	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3376	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3396	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3403	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3415	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3423	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3432	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3447	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
Same as above, 2nd/3rd rows																	
	3336	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3355	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	3369	SF residence	1	66	2	No	No	57	Ldn	62	68	--	--	No Wall	N/A	No	57
	3350	SF residence	1	66	2	No	No	58	Ldn	62	68	--	--	No Wall	N/A	No	58
	3394	SF residence	1	66	2	No	No	60	Ldn	62	68	--	--	No Wall	N/A	No	60
	3409	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3421	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3437	SF residence	1	66	2	No	No	58	Ldn	62	68	--	--	No Wall	N/A	No	58
West side, 11th St to 8th St																	
	3434	Church Bldg	1	69	3	No	No	68	Leq	70	75	--	--	No Wall	N/A	No	68
East side 10th to 8th																	
	3493	Displacement	0	69	2	No	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
West side 10th to 8th																	
	3482	SF residence	1	66	2	No	No	58	Ldn	62	68	--	--	No Wall	N/A	No	58
	3487	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	3492	SF residence	1	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3494	SF residence	1	66	2	No	No	58	Ldn	62	68	--	--	No Wall	N/A	No	58
	3501	Lot	0	69	2	No	No	64	Ldn	64	70	0	--	No Wall	N/A	Yes	64
	3508	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	3516	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
West side, SE 8th to 6th St																	
	3544	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3561	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3573	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66
	3600	Displacement	0	69	2	No	No	68	Ldn	64	70	0	--	No Wall	N/A	Yes	68
	3605	Displacement	0	69	2	No	No	68	Ldn	64	70	0	--	No Wall	N/A	Yes	68
Same as above, 2nd and 3rd rows																	
	3546	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	3574	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	No Wall	N/A	Yes	67
	3575	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	No Wall	N/A	Yes	62
	3576	SF residence	1	65	2	Yes	No	59	Ldn	61	67	--	--	No Wall	N/A	No	59
	3601	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3606	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
East side, SE 8th to N of 6th St																	
	3545	Fire Department	1	69	2	Yes	No	68	Ldn	64	70	1	--	No Wall	N/A	Yes	68
	3578	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	No Wall	N/A	Yes	66

Bellevue Way Alternative (B1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3578	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	No Wall	N/A	No	61
	3578	SF residence	1	65	2	Yes	No	58	Ldn	61	67	--	--	No Wall	N/A	No	58
	3578	SF residence	1	65	2	Yes	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	3578	SF residence	1	65	2	Yes	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	3578	SF residence	1	65	2	Yes	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	3578	SF residence	1	65	2	Yes	No	55	Ldn	61	67	--	--	No Wall	N/A	No	55
	3597	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3597	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	No Wall	N/A	No	61
	3597	SF residence	1	65	2	Yes	No	58	Ldn	61	67	--	--	No Wall	N/A	No	58
	3597	SF residence	1	65	2	Yes	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	3597	SF residence	1	65	2	Yes	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	3597	SF residence	1	65	2	Yes	No	56	Ldn	61	67	--	--	No Wall	N/A	No	56
	3597	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3597	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3597	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3597	SF residence	4	69	2	No	No	66	Ldn	64	70	4	--	No Wall	N/A	Yes	66

112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2001	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2003	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2008	Lot	0	69	2	No	No	66	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2030	SF residence	1	69	2	No	Yes	72	Ldn	64	70	--	1	Potential Sound Wall	Special	No	59
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2036	SF residence	1	67	2	No	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2073	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2094	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2045	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2055	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	58	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	49
	2070	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2078	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area															N/A		
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52

112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	2144	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2160	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2210	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2225	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2235	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2130	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2137	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2146	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2166	SF residence	1	67	2	Yes	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2170	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2181	SF residence	1	65	2	Yes	No	55	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	46
	2183	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2211	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2230	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2252	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2265	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2275	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2284	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2288	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2296	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2300	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2307	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2326	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2333	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2345	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2351	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2361	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2367	SF residence	1	69	2	No	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	2375	Displacement	0	69	2	No	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	2384	Displacement	0	69	2	No	No	64	Ldn	64	70	0	--	No Wall	N/A	Yes	64
	2397	Displacement	0	69	2	No	No	66	Ldn	64	70	0	--	No Wall	N/A	Yes	66
	2378	SF residence	1	69	2	No	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	2385	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	2393	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2401	SF residence	1	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	2407	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2413	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2421	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3001	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2414	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	2418	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	3000	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	3004	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3010	MF Units at Y	4	69	2	Yes	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56

112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3010	MF Units at Y	4	69	2	Yes	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	3010	MF Units at Y	4	67	2	Yes	No	57	Ldn	63	68	--	--	No Wall	N/A	No	57
SF Units north of "Y", south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	56	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	50
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	61	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	61	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4024	Lot	0	60	2	No	No	61	Ldn	58	64	0	--	Potential Sound Wall	N/A	No	55
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	56	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	50
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	51
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	64	2	No	No	62	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	63	2	No	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	50
	4050	MF units at Bellefield Park	2	65	2	No	No	63	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	3	63	2	No	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	55
	4050	MF units at Bellefield Park	4	64	2	No	No	61	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	58
	4050	MF units at Bellefield Park	2	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	No	No	55	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	50
	4050	MF units at Bellefield Park	2	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	No	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	53
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	55	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	50
	4063	SF residence	1	66	2	Yes	No	64	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	58
	4067	SF residence	1	66	2	Yes	No	64	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	58
	4074	SF residence	1	66	2	Yes	No	64	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	58
	4079	SF residence	1	65	2	Yes	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	56
	4084	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	5000	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	5006	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	57
	5013	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	5021	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	5026	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	5036	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	5039	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	58
	5050	SF residence	1	64	2	Yes	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	55

112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	1106	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2001	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2003	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2008	Lot	0	69	2	No	No	66	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	Yes	69	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2030	SF residence	1	69	2	No	Yes	72	Ldn	64	70	--	1	Potential Sound Wall	Special	No	59
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2036	SF residence	1	67	2	No	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2073	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2094	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2045	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2055	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	58	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	49
	2070	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2078	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area															N/A		
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52

112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	2144	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2160	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2210	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2225	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2235	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2130	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2137	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2146	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2166	SF residence	1	67	2	Yes	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2170	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2181	SF residence	1	65	2	Yes	No	55	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	46
	2183	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2211	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2230	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2252	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2265	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2275	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2284	SF residence	1	69	2	No	No	70	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	60
	2288	SF residence	1	69	2	No	No	70	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	61
	2296	SF residence	1	69	2	No	No	74	Ldn	64	70	--	1	Potential Sound Wall	N/A	Yes	64
	2300	SF residence	1	69	2	No	No	74	Ldn	64	70	--	1	Potential Sound Wall	N/A	Yes	64
	2306	SF residence	1	69	2	No	No	72	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	63
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2307	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	71	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	62
	2326	SF residence	1	69	2	No	No	71	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	62
	2333	SF residence	1	69	2	No	No	71	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	62
	2345	SF residence	1	69	2	No	No	71	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	62
	2351	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2361	SF residence	1	69	2	No	No	71	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	62
	2367	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2375	SF residence	1	69	2	No	No	73	Ldn	64	70	--	1	Potential Sound Wall	N/A	Yes	64
	2384	SF residence	1	69	2	No	No	70	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	61
	2397	SF residence	0	69	2	No	No	70	Ldn	64	70	--	0	Potential Sound Wall	N/A	No	61
	2378	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2385	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2393	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2401	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2407	SF residence	1	69	2	No	No	74	Ldn	64	70	--	1	Potential Sound Wall	N/A	Yes	65
	2413	SF residence	1	69	2	No	No	74	Ldn	64	70	--	1	Potential Sound Wall	N/A	Yes	65
	2421	SF residence	1	69	2	No	No	71	Ldn	64	70	--	1	Potential Sound Wall	N/A	No	62
	3001	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2414	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2418	SF residence	1	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3000	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	3004	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	3010	MF Units at Y	4	69	2	No	No	64	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	64	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	58	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	49

112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	3010	MF Units at Y	4	69	2	No	No	57	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	48
	3010	MF Units at Y	4	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
SF Units north of "Y", south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	50
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	65	Ldn	58	64	--	1	Potential Sound Wall	N/A	No	56
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	64	Ldn	58	64	--	1	Potential Sound Wall	N/A	No	55
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	64	Ldn	58	64	--	1	Potential Sound Wall	N/A	No	55
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	64	Ldn	58	64	--	1	Potential Sound Wall	N/A	No	55
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	64	Ldn	58	64	--	1	Potential Sound Wall	N/A	No	55
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4024	Lot	0	60	2	No	No	64	Ldn	58	64	--	0	Potential Sound Wall	N/A	No	55
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	51
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	51
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	65	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	64	2	No	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	55
	4050	MF units at Bellefield Park	2	63	2	No	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	50
	4050	MF units at Bellefield Park	2	65	2	No	No	64	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	3	63	2	No	No	62	Ldn	60	66	3	--	Potential Sound Wall	N/A	No	53
	4050	MF units at Bellefield Park	4	64	2	No	No	64	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	55
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	No	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	50
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	No	No	62	Ldn	60	66	2	--	Potential Sound Wall	N/A	No	53
SF Units along 111th Place																	
	4065	SF residence	1	62	2	No	No	58	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	49
	4063	SF residence	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	4067	SF residence	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	4074	SF residence	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	4079	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	4084	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5000	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5006	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	5013	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	5021	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	5026	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5036	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5039	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	60
	5050	SF residence	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	58

112th SE Bypass Alternative (B3)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2001	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2003	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2008	Lot	0	69	2	No	No	66	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2030	SF residence	1	69	2	No	Yes	72	Ldn	64	70	--	1	Potential Sound Wall	Special	No	59
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2036	SF residence	1	67	2	No	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2073	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2094	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2045	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2055	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	58	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	49
	2070	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2078	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area															N/A		
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52

112th SE Bypass Alternative (B3)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	2144	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2160	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2210	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2225	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2235	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2130	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2137	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2146	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2166	SF residence	1	67	2	Yes	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2170	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2181	SF residence	1	65	2	Yes	No	55	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	46
	2183	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2211	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2230	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2252	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2265	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2275	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2284	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2288	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2296	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2300	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2307	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2326	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2333	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2345	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2351	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2361	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2367	SF residence	1	69	2	No	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	2375	Displacement	0	69	2	No	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	2384	Displacement	0	69	2	No	No	64	Ldn	64	70	0	--	No Wall	N/A	Yes	64
	2397	Displacement	0	69	2	No	No	66	Ldn	64	70	0	--	No Wall	N/A	Yes	66
	2378	SF residence	1	69	2	No	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	2385	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	2393	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2401	SF residence	1	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	2407	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2413	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2421	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3001	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2414	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	2418	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	3000	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	3004	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3010	MF Units at Y	4	69	2	Yes	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56

112th SE Bypass Alternative (B3)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	3010	MF Units at Y	4	69	2	Yes	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	3010	MF Units at Y	4	67	2	Yes	No	57	Ldn	63	68	--	--	No Wall	N/A	No	57
SF Units north of "Y", south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	56	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	50
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	61	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	61	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4024	Lot	0	60	2	No	No	61	Ldn	58	64	0	--	Potential Sound Wall	N/A	No	55
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	56	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	50
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	51
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	64	2	No	No	62	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	63	2	No	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	50
	4050	MF units at Bellefield Park	2	65	2	No	No	63	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	3	63	2	No	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	55
	4050	MF units at Bellefield Park	4	64	2	No	No	64	Ldn	61	66	4	--	Potential Sound Wall	N/A	Yes	61
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	63	2	No	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	64	2	No	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	58
	4050	MF units at Bellefield Park	2	63	2	No	No	63	Ldn	60	66	2	--	Potential Sound Wall	N/A	No	57
SF Units along 111th Place																	
	4065	SF residence	1	62	2	No	No	59	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	53
	4063	SF residence	1	66	2	No	No	67	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	60
	4067	SF residence	1	66	2	No	No	68	Ldn	62	68	--	1	Potential Sound Wall	N/A	No	59
	4074	SF residence	1	66	2	No	No	68	Ldn	62	68	--	1	Potential Sound Wall	N/A	No	59
	4079	SF residence	1	65	2	No	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	56
	4084	SF residence	1	65	2	No	No	68	Ldn	61	67	--	1	Potential Sound Wall	N/A	No	59
	5000	SF residence	1	65	2	No	No	66	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	57
	5006	SF residence	1	65	2	No	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5013	SF residence	1	65	2	No	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	54
	5021	SF residence	1	65	2	No	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	53
	5026	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	5036	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	5039	SF residence	1	66	2	No	No	59	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	50
	5050	SF residence	1	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48

B3 - 114th Extension Design Option

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2001	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2003	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2008	Lot	0	69	2	No	No	66	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2030	SF residence	1	69	2	No	Yes	72	Ldn	64	70	--	1	Potential Sound Wall	Special	No	59
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2036	SF residence	1	67	2	No	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2073	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2094	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2045	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2055	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	58	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	49
	2070	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2078	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area															N/A		
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52

B3 - 114th Extension Design Option

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	2144	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2160	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2210	SF residence	1	69	2	Yes	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2225	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2235	SF residence	1	69	2	Yes	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2130	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2137	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2146	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2166	SF residence	1	67	2	Yes	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2170	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2181	SF residence	1	65	2	Yes	No	55	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	46
	2183	SF residence	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2211	SF residence	1	67	2	Yes	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2230	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2252	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2265	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2275	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2284	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2288	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2296	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2300	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2307	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2326	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2333	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2345	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	No Wall	N/A	Yes	64
	2351	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2361	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2367	SF residence	1	69	2	No	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	2375	Displacement	0	69	2	No	No	67	Ldn	64	70	0	--	No Wall	N/A	Yes	67
	2384	Displacement	0	69	2	No	No	64	Ldn	64	70	0	--	No Wall	N/A	Yes	64
	2397	Displacement	0	69	2	No	No	66	Ldn	64	70	0	--	No Wall	N/A	Yes	66
	2378	SF residence	1	69	2	No	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	2385	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	2393	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	2401	SF residence	1	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	2407	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2413	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2421	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	3001	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	No Wall	N/A	Yes	65
	2414	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	2418	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	3000	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	No Wall	N/A	No	59
	3004	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3010	MF Units at Y	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	3010	MF Units at Y	4	69	2	Yes	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56

B3 - 114th Extension Design Option

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3010	MF Units at Y	4	69	2	Yes	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	3010	MF Units at Y	4	67	2	Yes	No	57	Ldn	63	68	--	--	No Wall	N/A	No	57
SF Units north of "Y", south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	56	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	50
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	61	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	61	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4024	Lot	0	60	2	No	No	61	Ldn	58	64	0	--	Potential Sound Wall	N/A	No	55
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	56	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	50
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	51
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	64	2	No	No	62	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	63	2	No	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	50
	4050	MF units at Bellefield Park	2	65	2	Yes	No	66	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	60
	4050	MF units at Bellefield Park	3	63	2	No	No	61	Ldn	60	66	3	--	Potential Sound Wall	N/A	No	58
	4050	MF units at Bellefield Park	4	64	2	Yes	No	64	Ldn	61	66	4	--	Potential Sound Wall	N/A	Yes	61
	4050	MF units at Bellefield Park	2	64	2	Yes	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	63	2	Yes	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	53
	4050	MF units at Bellefield Park	2	64	2	Yes	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	63	2	No	No	61	Ldn	60	66	2	--	Potential Sound Wall	N/A	No	55
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	58	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	51
	4063	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	4067	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	4074	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	54
	4079	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	52
	4084	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	53
	5000	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	52
	5006	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	5013	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	5021	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	No Wall	N/A	No	59
	5026	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	No Wall	N/A	No	59
	5036	SF residence	1	65	2	No	No	58	Ldn	61	67	--	--	No Wall	N/A	No	58
	5039	SF residence	1	66	2	No	No	57	Ldn	62	68	--	--	No Wall	N/A	No	57
	5050	SF residence	1	64	2	No	No	57	Ldn	61	66	--	--	No Wall	N/A	No	57

BNSF Alternative (B7)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	1217	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2003	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2008	Lot	0	69	2	No	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2012	SF residence	1	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	1209	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	2000	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
MF Units: Emerald Ridge Condominiums (3000 118th Ave S - 180 units, 16 3-story buildings)																	
	6097	MF Residence	8	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	6097	MF Residence	4	64	2	No	Yes	59	Ldn	61	66	--	--	Potential Sound Wall	Special	No	52
	6097	MF Residence	4	64	2	No	Yes	65	Ldn	61	66	4	--	Potential Sound Wall	Special	No	56
	6097	MF Residence	10	64	2	No	Yes	66	Ldn	61	66	--	10	Potential Sound Wall	Special	No	57
	6097	MF Residence	10	64	2	No	Yes	66	Ldn	61	66	--	10	Potential Sound Wall	Special	No	57
	6097	MF Residence	10	64	2	No	Yes	66	Ldn	61	66	--	10	Potential Sound Wall	Special	No	57
	6097	MF Residence	6	64	2	No	No	65	Ldn	61	66	6	--	Potential Sound Wall	N/A	No	59
	6097	MF Residence	2	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
MF Units: Townhomes (1 bldg., 6 - 2-story units)																	
	6176	MF Residence	4	64	2	No	No	61	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	55
MF Units: Mercer Park Condominiums (2680 118TH AVE SE, 17 Buildings, 3 story, 122 units)																	
	6209	MF Residence	4	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	6209	MF Residence	9	64	2	No	No	64	Ldn	61	66	9	--	Potential Sound Wall	N/A	No	58
	6209	MF Residence	4	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	6209	MF Residence	9	64	2	No	No	67	Ldn	61	66	--	9	Potential Sound Wall	N/A	No	60
	6209	MF Residence	9	64	2	No	No	65	Ldn	61	66	9	--	Potential Sound Wall	N/A	No	58
	6209	MF Residence	9	64	2	No	No	65	Ldn	61	66	9	--	Potential Sound Wall	N/A	No	58
	6209	MF Residence	9	64	2	No	No	61	Ldn	61	66	9	--	Potential Sound Wall	N/A	No	54
	6209	MF Residence	9	64	2	No	No	67	Ldn	61	66	--	9	Potential Sound Wall	N/A	No	60
	6209	MF Residence	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	58
	6209	MF Residence	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	59
	6209	MF Residence	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	59

BNSF Alternative (B7)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
MF Units: Condominiums North End (1600 118th Ave SE - 6 bldgs., 50 units)																	
	6394	MF Residence	9	64	2	No	No	65	Ldn	61	66	9	--	Potential Sound Wall	N/A	No	58
	6394	MF Residence	9	64	2	No	No	66	Ldn	61	66	--	9	Potential Sound Wall	N/A	No	57
	6394	MF Residence	12	64	2	No	No	63	Ldn	61	66	12	--	Potential Sound Wall	N/A	No	54
	6394	MF Residence	9	64	2	No	No	62	Ldn	61	66	9	--	Potential Sound Wall	N/A	No	53
	6394	MF Residence	5	64	2	No	No	66	Ldn	61	66	--	5	Potential Sound Wall	N/A	No	57
	6394	MF Residence	6	64	2	No	No	69	Ldn	61	66	--	6	Potential Sound Wall	N/A	No	60

Preferred 108th NE At-Grade Alternative (C11A) from Preferred 112th SE Modified Alternative (B2M)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
112th Ave SF at SE 4th																	
	2001	SF Second Line	1	67	2	Yes	Yes	63	Ldn	63	68	1	--	Potential Sound Wall	Special	No	57
	2002	SF Third Line	1	64	2	Yes	Yes	58	Ldn	61	66	--	--	Potential Sound Wall	Special	No	51
	4003	SF Second Line	1	67	2	Yes	Yes	66	Ldn	63	68	1	--	Potential Sound Wall	Special	No	56
	4004	SF Third Line	1	64	2	Yes	Yes	59	Ldn	61	66	--	--	Potential Sound Wall	Special	No	51
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4007	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4009	SF Homes Along SE 111th Pl	1	64	2	No	Yes	69	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4011	SF Homes Along SE 111th Pl	1	64	2	No	Yes	67	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4015	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	58
	4019	SF Homes Along SE 111th Pl	1	64	2	No	Yes	67	Ldn	61	66	--	1	Potential Sound Wall	Special	No	59
	4024	SF Homes Along SE 111th Pl	1	64	2	No	Yes	66	Ldn	61	66	--	1	Potential Sound Wall	Special	No	59
	4028	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4032	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4036	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4040	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	67	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	58
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	67	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	58
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	66	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	5011	SF Homes near DT	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	59
	5017	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5016	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5015	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5026	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5025	SF Homes near DT	1	64	2	Yes	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 111th Ave SE																	
	5034	SF Homes near DT	1	64	2	Yes	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	5033	SF Homes near DT	1	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5032	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5031	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5040	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5039	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5038	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 1st Street																	
	5044	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5046	SF Homes near DT	1	67	2	Yes	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5042	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	3068	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	3061	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3076	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	3071	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	3067	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3060	SF Homes near DT	1	64	2	Yes	No	53	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
MF Residences along 108th Ave SE																	
	3075	Duplex Units	2	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	3072	Duplex Units	2	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	3069	Duplex Units	2	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	3063	Duplex Units	2	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	3074	Apartment	8	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	56
110th Ave Corridor																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
108th Ave Corridor																	
	C5050	MF Units near Main	12	66	2	Yes	No	65	Ldn	62	68	12	--	No Wall	N/A	Yes	65
	C5051	MF Units near Main	16	66	2	Yes	No	65	Ldn	62	68	16	--	No Wall	N/A	Yes	65

Preferred 108th NE At-Grade Alternative (C11A) from Preferred 112th SE Modified Alternative (B2M)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
	C6015	MF Units near 2nd Pl	20	66	2	Yes	No	67	Ldn	62	68	20	--	No Wall	N/A	Yes	67
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4020	Bellevue Hilton South	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	4020	Bellevue Hilton North	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	10001	Coast Hotel	36	69	2	No	Yes	80	Ldn	64	70	--	36	Potential Sound Wall	Special	No	61
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	64	Leq	70	75	--	--	No Wall	N/A	No	64

Preferred 108th NE At-Grade Alternative (C11A) from 112th SE Bypass (B3) or BNSF (B7) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave - Front Line Condos																	
	4037	MF Units	5	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	4037	MF Units	4	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	4037	MF Units	4	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	4037	MF Units	4	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
SF Residences along 111th PL SE																	
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	No Wall	N/A	No	60
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	No Wall	N/A	No	60
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	4045	SF Homes Along SE 111th Pl	1	69	2	No	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	5011	SF Homes near DT	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	59
	5017	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5016	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5015	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5026	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5025	SF Homes near DT	1	64	2	Yes	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 111th Ave SE																	
	5034	SF Homes near DT	1	64	2	Yes	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	5033	SF Homes near DT	1	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5032	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5031	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5040	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5039	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5038	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 1st Street																	
	5044	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5046	SF Homes near DT	1	67	2	Yes	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5042	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	3068	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	3061	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3076	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	3071	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	3067	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3060	SF Homes near DT	1	64	2	Yes	No	53	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
MF Residences along 108th Ave SE																	
	3075	Duplex Units	2	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	3072	Duplex Units	2	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	3069	Duplex Units	2	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	3063	Duplex Units	2	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	3074	Apartment	8	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	56
110th Ave Corridor																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
108th Ave Corridor																	
	C5050	MF Units near Main	12	66	2	Yes	No	65	Ldn	62	68	12	--	No Wall	N/A	Yes	65
	C5051	MF Units near Main	16	66	2	Yes	No	65	Ldn	62	68	16	--	No Wall	N/A	Yes	65
	C6015	MF Units near 2nd Pl	20	66	2	Yes	No	67	Ldn	62	68	20	--	No Wall	N/A	Yes	67
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55

Preferred 108th NE At-Grade Alternative (C11A) from 112th SE Bypass (B3) or BNSF (B7) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Hotels																	
	4020	Bellevue Hilton South	18	71	2	No	No	67	Ldn	66	71	18	--	No Wall	N/A	Yes	67
	4020	Bellevue Hilton North	18	71	2	No	No	67	Ldn	66	71	18	--	No Wall	N/A	Yes	67
	10001	Coast Hotel	36	69	2	No	Yes	80	Ldn	64	70	--	36	Potential Sound Wall	Special	No	61
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	64	Leq	70	75	--	--	No Wall	N/A	No	64

Preferred 110th NE Tunnel Alternative (C9T) from Preferred 112th SE Modified Alternative (B2M)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave SF at SE 4th																	
	2001	SF Second Line	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	Yes	63
	2002	SF Third Line	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	4003	SF Second Line	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	Yes	63
	4004	SF Third Line	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4007	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4009	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4011	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4015	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4019	SF Homes Along SE 111th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4024	SF Homes Along SE 111th Pl	1	64	2	No	Yes	64	Ldn	61	66	1	--	Potential Sound Wall	Special	No	56
	4028	SF Homes Along SE 111th Pl	1	64	2	No	Yes	66	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4032	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4036	SF Homes Along SE 111th Pl	1	64	2	No	Yes	69	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4040	SF Homes Along SE 111th Pl	1	64	2	No	Yes	69	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4041	SF Homes Along SE 111th Pl	1	64	2	No	Yes	67	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4042	SF Homes Along SE 111th Pl	1	64	2	No	Yes	64	Ldn	61	66	1	--	Potential Sound Wall	Special	No	56
	4044	SF Homes Along SE 111th Pl	1	67	2	No	Yes	65	Ldn	63	68	1	--	Potential Sound Wall	Special	No	57
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
	5011	SF Homes near DT	1	64	2	No	No	48	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	43
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5017	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	No Wall	N/A	No	52
	5016	SF Homes near DT	1	64	2	Yes	No	50	Ldn	61	66	--	--	No Wall	N/A	No	50
	5015	SF Homes near DT	1	64	2	Yes	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
	5026	SF Homes near DT	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5025	SF Homes near DT	1	64	2	Yes	No	51	Ldn	61	66	--	--	No Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4020	Bellevue Hilton South	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	4020	Bellevue Hilton North	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	10001	Coast Hotel	36	69	2	No	Yes	79	Ldn	64	70	--	36	Potential Sound Wall	Special	No	60
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	65	Leq	70	75	--	--	No Wall	N/A	No	65

Preferred 110th NE Tunnel Alternative (C9T) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave - Front Line Condos																	
	4037	MF Units	5	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4037	MF Units	4	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4037	MF Units	4	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	4037	MF Units	4	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
SF Residences along 111th PL SE																	
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	54
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	54
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	54
	4045	SF Homes Along SE 111th Pl	1	69	2	No	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
	5011	SF Homes near DT	1	64	2	No	No	48	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	43
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	No	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5017	SF Homes near DT	1	64	2	No	No	51	Ldn	61	66	--	--	No Wall	N/A	No	51
	5016	SF Homes near DT	1	64	2	No	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
	5015	SF Homes near DT	1	64	2	No	No	48	Ldn	61	66	--	--	No Wall	N/A	No	48
	5026	SF Homes near DT	1	67	2	No	No	55	Ldn	63	68	--	--	No Wall	N/A	No	55
	5025	SF Homes near DT	1	64	2	No	No	50	Ldn	61	66	--	--	No Wall	N/A	No	50
	5024	SF Homes near DT	1	64	2	No	No	48	Ldn	61	66	--	--	No Wall	N/A	No	48
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4020	Bellevue Hilton South	18	69	2	No	No	65	Ldn	64	70	18	--	No Wall	N/A	Yes	65
	4020	Bellevue Hilton North	18	69	2	No	No	65	Ldn	64	70	18	--	No Wall	N/A	Yes	65
	10001	Coast Hotel	36	69	2	No	Yes	79	Ldn	64	70	--	36	Potential Sound Wall	Special	No	60
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	65	Leq	70	75	--	--	No Wall	N/A	No	65

Alternative C9T - East Main Station Design Option

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave SF at SE 4th																	
	2001	SF Second Line	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	Yes	63
	2002	SF Third Line	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	4003	SF Second Line	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	Yes	63
	4004	SF Third Line	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4007	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4009	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4011	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4015	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4019	SF Homes Along SE 111th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4024	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4028	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4032	SF Homes Along SE 111th Pl	1	64	2	Yes	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4036	SF Homes Along SE 111th Pl	1	64	2	Yes	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4040	SF Homes Along SE 111th Pl	1	64	2	Yes	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4041	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4042	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4044	SF Homes Along SE 111th Pl	1	67	2	Yes	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
	5011	SF Homes near DT	1	64	2	No	No	48	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	43
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5017	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	No Wall	N/A	No	52
	5016	SF Homes near DT	1	64	2	Yes	No	50	Ldn	61	66	--	--	No Wall	N/A	No	50
	5015	SF Homes near DT	1	64	2	Yes	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
	5026	SF Homes near DT	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5025	SF Homes near DT	1	64	2	Yes	No	51	Ldn	61	66	--	--	No Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4020	Bellevue Hilton South	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	4020	Bellevue Hilton North	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	10001	Coast Hotel	36	69	2	No	Yes	79	Ldn	64	70	--	36	Potential Sound Wall	Special	No	60
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	65	Leq	70	75	--	--	No Wall	N/A	No	65

Bellevue Way Tunnel Alternative (C1T) from Bellevue Way Alternative (B1)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
West Side of Bellevue Way, Segment B to Tunnel																	
	1000	MF north of SE 6th	5	69	2	No	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	1005	Displacement	8	64	2	No	No	55	Ldn	61	66	--	--	No Wall	N/A	No	55
	1008	Displacement	1	69	2	No	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	1008	Displacement	1	69	2	No	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	1012	2nd Row MF	16	64	2	No	No	55	Ldn	61	66	--	--	No Wall	N/A	No	55
	1015	MF Units	8	67	2	No	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	1017	Displacement	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	1024	MF Units	1	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
East Side of Bellevue Way, Segment B to Tunnel																	
	1004	Two "L" shaped MF Bldgs.	10	69	2	No	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	1007	MF Units on Bellevue Way	6	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	1009	MF Units on Bellevue Way	4	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	1011	MF Units on Bellevue Way	12	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	1014	MF Units on Bellevue Way	6	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	64	Ldn	63	68	48	--	No Wall	N/A	Yes	64
Coast Hotel																	
	10001	Coast Hotel	36	69	2	No	Yes	82	Ldn	64	70	--	36	Potential Sound Wall	Special	No	61
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	Yes	No	65	Leq	70	75	--	--	No Wall	N/A	No	65

106th NE Tunnel Alternative (C2T) from 112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	No	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	63	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	56
Hotels																	
	10001	Coast Hotel	36	69	2	No	Yes	80	Ldn	64	70	--	36	Potential Sound Wall	Special	No	59
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	66	Leq	70	75	--	--	No Wall	N/A	No	66

106th NE Tunnel Alternative (C2T) from 112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
112th Ave SF at SE 4th																	
	4000	SF Intersection	1	69	2	No	Yes	73	Ldn	64	70	--	1	Potential Sound Wall	Special	No	57
	2001	SF Second Line	1	67	2	No	Yes	64	Ldn	63	68	1	--	Potential Sound Wall	Special	No	52
	2002	SF Third Line	1	64	2	No	Yes	58	Ldn	61	66	--	--	Potential Sound Wall	Special	No	48
	4002	SF Intersection	1	69	2	No	Yes	73	Ldn	64	70	--	1	Potential Sound Wall	Special	No	57
	4003	SF Second Line	1	67	2	No	Yes	64	Ldn	63	68	1	--	Potential Sound Wall	Special	No	52
	4004	SF Third Line	1	64	2	No	Yes	58	Ldn	61	66	--	--	Potential Sound Wall	Special	No	48
112th Ave - Front Line Condos																	
	4014	MF Units	3	69	2	No	Yes	73	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	73	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	70	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	70	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	65	Ldn	64	70	3	--	Potential Sound Wall	Special	No	54
	4014	MF Units	3	69	2	No	Yes	66	Ldn	64	70	3	--	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	5	69	2	No	No	66	Ldn	64	70	5	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	4	69	2	No	No	65	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	56
	4037	MF Units	4	69	2	No	No	65	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	56
	4037	MF Units	4	69	2	No	No	63	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	54
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4007	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4009	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4011	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4015	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4019	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4024	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4028	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4032	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4036	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4040	SF Homes Along SE 111th Pl	1	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	4045	SF Homes Along SE 111th Pl	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
SF Homes South of Main East of 110th Pl																	
	5009	Displacement	0	64	2	No	No	62	Ldn	61	66	0	--	Potential Sound Wall	N/A	No	52
	5010	Displacement	0	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5011	Displacement	0	64	2	No	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	No	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	63	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	54
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	54
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	54
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	No	Yes	68	Ldn	63	69	16	--	Potential Sound Wall	Special	No	55
	4001	Bellevue Club Rooms	16	68	2	No	Yes	68	Ldn	63	69	16	--	Potential Sound Wall	Special	No	55
	4020	Bellevue Hilton South	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4020	Bellevue Hilton North	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	10001	Coast Hotel	36	69	2	No	Yes	80	Ldn	64	70	--	36	Potential Sound Wall	Special	No	59
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	47	Leq	70	75	--	--	No Wall	N/A	No	47

106th NE Tunnel Alternative (C2T) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	No	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	63	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	56
Hotels																	
	4020	Bellevue Hilton South	18	71	2	No	No	71	Ldn	66	71	--	18	Potential Sound Wall	N/A	No	62
	4020	Bellevue Hilton North	18	71	2	No	No	68	Ldn	66	71	18	--	Potential Sound Wall	N/A	No	61
	10001	Coast Hotel	36	69	2	No	Yes	80	Ldn	64	70	--	36	Potential Sound Wall	Special	No	59
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	66	Leq	70	75	--	--	No Wall	N/A	No	66

108th NE Tunnel Alternative (C3T) from 112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
SF Residences Along NE 12th Street																	
	8061	SF residences north of NE 12th	1	64	2	No	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	8064	SF residences north of NE 12th	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	8071	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	8078	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	8083	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	9018	SF residences north of NE 12th	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	8084	SF residences north of NE 12th	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52
MF Residences Along NE 12th Street																	
	8055	MF Building 11011 NE 12th St	14	67	2	No	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
	9017	Verona Apartments, West Bldg	15	67	2	No	No	63	Ldn	63	68	15	--	Potential Sound Wall	N/A	No	57
	9017	Verona Apartments, East Bldg	6	67	2	No	No	64	Ldn	63	68	6	--	Potential Sound Wall	N/A	No	55
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	No	No	62	Ldn	63	68	--	--	No Wall	N/A	No	62

108th NE Tunnel Alternative (C3T) from 112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
112th Ave SF at SE 4th																	
	4000	SF Intersection	1	69	2	No	Yes	73	Ldn	64	70	--	1	Potential Sound Wall	Special	No	57
	2001	SF Second Line	1	67	2	No	Yes	64	Ldn	63	68	1	--	Potential Sound Wall	Special	No	52
	2002	SF Third Line	1	64	2	No	Yes	58	Ldn	61	66	--	--	Potential Sound Wall	Special	No	48
	4002	SF Intersection	1	69	2	No	Yes	73	Ldn	64	70	--	1	Potential Sound Wall	Special	No	57
	4003	SF Second Line	1	67	2	No	Yes	64	Ldn	63	68	1	--	Potential Sound Wall	Special	No	52
	4004	SF Third Line	1	64	2	No	Yes	58	Ldn	61	66	--	--	Potential Sound Wall	Special	No	48
112th Ave - Front Line Condos																	
	4014	MF Units	3	69	2	No	Yes	73	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	73	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	70	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	70	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	65	Ldn	64	70	3	--	Potential Sound Wall	Special	No	54
	4014	MF Units	3	69	2	No	Yes	66	Ldn	64	70	3	--	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	5	69	2	No	No	66	Ldn	64	70	5	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	4	69	2	No	No	65	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	56
	4037	MF Units	4	69	2	No	No	65	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	56
	4037	MF Units	4	69	2	No	No	63	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	54
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4007	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4009	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4011	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4015	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4019	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4024	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4028	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4032	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4036	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4040	SF Homes Along SE 111th Pl	1	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	4045	SF Homes Along SE 111th Pl	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
SF Homes South of Main East of 110th Pl																	
	5009	Displacement	0	64	2	No	No	62	Ldn	61	66	0	--	Potential Sound Wall	N/A	No	52
	5010	Displacement	0	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5011	Displacement	0	64	2	No	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences Along NE 12th Street																	
	8061	SF residences north of NE 12th	1	64	2	No	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	8064	SF residences north of NE 12th	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	8071	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	8078	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	8083	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	9018	SF residences north of NE 12th	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	8084	SF residences north of NE 12th	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52
MF Residences Along NE 12th Street																	
	8055	MF Building 11011 NE 12th St	14	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	9017	Verona Apartments, West Bldg.	15	67	2	No	No	63	Ldn	63	68	15	--	Potential Sound Wall	N/A	No	54
	9017	Verona Apartments, East Bldg.	6	67	2	No	No	64	Ldn	63	68	6	--	Potential Sound Wall	N/A	No	55
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	No	No	62	Ldn	63	68	--	--	No Wall	N/A	No	62
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	No	Yes	68	Ldn	63	69	16	--	Potential Sound Wall	Special	No	55
	4001	Bellevue Club Rooms	16	68	2	No	Yes	68	Ldn	63	69	16	--	Potential Sound Wall	Special	No	55
	4020	Bellevue Hilton South	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4020	Bellevue Hilton North	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60

108th NE Tunnel Alternative (C3T) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
SF Residences Along NE 12th Street																	
	8061	SF residences north of NE 12th	1	64	2	No	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	8064	SF residences north of NE 12th	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	8071	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	8078	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	8083	SF residences north of NE 12th	1	64	2	No	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	9018	SF residences north of NE 12th	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	8084	SF residences north of NE 12th	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52
MF Residences Along NE 12th Street																	
	8055	MF Building 11011 NE 12th St	14	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	9017	Verona Apartments, West Bldg	15	67	2	No	No	63	Ldn	63	68	15	--	Potential Sound Wall	N/A	No	54
	9017	Verona Apartments, East Bldg	6	67	2	No	No	64	Ldn	63	68	6	--	Potential Sound Wall	N/A	No	55
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	No	No	62	Ldn	63	68	--	--	No Wall	N/A	No	62
Hotels																	
	4020	Bellevue Hilton South	18	71	2	No	No	71	Ldn	66	71	--	18	Potential Sound Wall	N/A	No	62
	4020	Bellevue Hilton North	18	71	2	No	No	68	Ldn	66	71	18	--	Potential Sound Wall	N/A	No	61

Couplet Alternative (C4A) from 112th SE At-Grade Alternative (B2A) or 112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave SF at SE 4th																	
	4000	SF Intersection	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF Second Line	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2002	SF Third Line	1	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	4002	SF Intersection	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	4003	SF Second Line	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	4004	SF Third Line	1	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
112th Ave - Front Line Condos																	
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	No	63	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	54
	4014	MF Units	3	69	2	No	No	66	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4014	MF Units	3	69	2	No	Yes	67	Ldn	64	70	3	--	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	67	Ldn	64	70	3	--	Potential Sound Wall	Special	No	57
	4037	MF Units	5	69	2	No	Yes	70	Ldn	64	70	--	5	Potential Sound Wall	Special	No	57
	4037	MF Units	4	69	2	No	Yes	71	Ldn	64	70	--	4	Potential Sound Wall	Special	No	56
	4037	MF Units	4	69	2	No	Yes	70	Ldn	64	70	--	4	Potential Sound Wall	Special	No	56
	4037	MF Units	4	69	2	No	Yes	67	Ldn	64	70	4	--	Potential Sound Wall	Special	No	54
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4007	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4009	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4011	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4015	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4019	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4024	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4028	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4032	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4036	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4040	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	50
	4041	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	50
	4042	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	49
	4044	SF Homes Along SE 111th Pl	1	67	2	No	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	4045	SF Homes Along SE 111th Pl	1	69	2	No	Yes	67	Ldn	64	70	1	--	Potential Sound Wall	Special	No	55
SF Homes South of Main East of 110th Pl																	
	5006	SF Homes near DT	1	67	2	Yes	Yes	68	Ldn	63	68	--	1	Potential Sound Wall	Special	No	57
	5009	SF Homes near DT	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	5010	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	5011	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	58
	5017	SF Homes near DT	1	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5016	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5015	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5026																
	5025	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 111th Ave SE																	
	5034																
	5033	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5032	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5031	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5040	SF Homes near DT	1	67	2	Yes	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	55
	5039	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5038	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
SF Residences along 1st Street																	
	5044	SF Homes near DT	1	67	2	Yes	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	52
	5046	SF Homes near DT	1	67	2	Yes	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	55
	5042	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46

Couplet Alternative (C4A) from 112th SE At-Grade Alternative (B2A) or 112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3068	SF Homes near DT	1	64	2	Yes	No	53	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	45
	3061	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	44
	3076	SF Homes near DT	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	51
	3071	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3067	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
	3060	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
MF Residences along 108th Ave SE																	
	3075	Duplex Units	2	64	2	Yes	No	57	Ldn	61	66	--	--	No Wall	N/A	No	57
	3072	Duplex Units	2	64	2	Yes	No	55	Ldn	61	66	--	--	No Wall	N/A	No	55
	3069	Duplex Units	2	64	2	Yes	No	54	Ldn	61	66	--	--	No Wall	N/A	No	54
	3063	Duplex Units	2	64	2	Yes	No	52	Ldn	61	66	--	--	No Wall	N/A	No	52
	3074	Apartment	8	67	2	Yes	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
110th Ave Corridor																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C5021	MF - Sir Gallahad 110th at Main	8	66	2	Yes	No	64	Ldn	62	68	8	--	No Wall	N/A	Yes	64
	C6015	MF - Pinnacle Bell Centre	4	66	2	Yes	No	62	Ldn	62	68	4	--	No Wall	N/A	Yes	62
	C6015	MF - Pinnacle Bell Centre	16	66	2	Yes	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	C8024	MF - Abella on 110th	18	66	2	Yes	No	64	Ldn	62	68	18	--	No Wall	N/A	Yes	64
	C8024	MF - Abella on 110th	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C8031	MF Bravern	48	66	2	Yes	No	64	Ldn	62	68	48	--	No Wall	N/A	Yes	64
	C8037	Marriott Hotel	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
	C8045	MF Units on 110th (9th to 10th)	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
	C8051	MF units on 110th (10th to 11th)	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C8051	MF units on 110th (10th to 11th)	12	66	2	Yes	No	62	Ldn	62	68	12	--	No Wall	N/A	Yes	62
	C8054	MF units on 110th at 12th	24	66	2	Yes	No	66	Ldn	62	68	24	--	No Wall	N/A	Yes	66
	C8052	Bellevue Library	1	67	3	Yes	No	64	Leq	69	73	--	--	No Wall	N/A	No	64
108th Ave Corridor																	
	C5050	MF Units near Main	12	66	2	Yes	No	65	Ldn	62	68	12	--	No Wall	N/A	Yes	65
	C5051	MF Units near Main	16	66	2	Yes	No	64	Ldn	62	68	16	--	No Wall	N/A	Yes	64
	C6015	MF Units near 2nd Pl	20	66	2	Yes	No	67	Ldn	62	68	20	--	No Wall	N/A	Yes	67
	C6054	MF Units near 10th	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
	C6056	MF Units near 10th	16	66	2	Yes	No	64	Ldn	62	68	16	--	No Wall	N/A	Yes	64
	C6060	MF Units near 10th	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
	C6062	MF Units near 12th	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
	C6066	MF Units near 12th	16	66	2	Yes	No	63	Ldn	62	68	16	--	No Wall	N/A	Yes	63
	C6058	MF Units near 10th	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
Units along NE 12th St. west of 110th																	
	6080	Row Houses	4	66	2	Yes	No	63	Ldn	62	68	4	--	Potential Sound Wall	N/A	No	56
	6080	Row Houses	4	66	2	Yes	No	59	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	55
	6083	SF Homes north of 12th	1	67	2	Yes	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	58
	6090	SF Homes north of 12th	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	6089	Displacement	0	67	2	Yes	No	65	Ldn	63	68	0	--	Potential Sound Wall	N/A	No	62
	6102	SF Homes north of 12th	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	6101	SF Homes north of 12th	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	8061	SF Homes north of 12th	1	64	2	Yes	No	65	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	58
	8064	SF Homes north of 12th	1	64	2	Yes	No	67	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
Units along NE 12th St. west of 112th																	
	8071	SF residences north of NE 12th	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	8078	SF residences north of NE 12th	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	54
	8083	SF residences north of NE 12th	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	9018	Displacement	0	69	2	Yes	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	55
	8084	SF residences north of NE 12th	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	54
MF Residences Along NE 12th Street																	
	8055	MF Building 11011 NE 12TH ST	14	67	2	No	No	63	Ldn	63	68	14	--	No Wall	N/A	Yes	63
	9017	Verona Apartments, West Bldg.	15	67	2	No	No	63	Ldn	63	68	15	--	Potential Sound Wall	N/A	No	56
	9017	Verona Apartments, East Bldg.	6	67	2	No	No	64	Ldn	63	68	6	--	Potential Sound Wall	N/A	No	55
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	No	No	62	Ldn	63	68	--	--	No Wall	N/A	No	62
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	No	No	62	Ldn	63	69	--	--	No Wall	N/A	No	62
	4001	Bellevue Club Rooms	16	68	2	No	No	62	Ldn	63	69	--	--	No Wall	N/A	No	62
	4020	Bellevue Hilton South	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4020	Bellevue Hilton North	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60

Couplet Alternative (C4A) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
112th Ave - Front Line Condos																	
	4037	MF Units	5	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	4037	MF Units	4	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	4037	MF Units	4	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	4037	MF Units	4	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
SF Residences along 111th PL SE																	
	4041	SF Homes Along SE 111th Pl	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
	4042	SF Homes Along SE 111th Pl	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
	4044	SF Homes Along SE 111th Pl	1	67	2	Yes	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	4045	SF Homes Along SE 111th Pl	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
SF Homes South of Main East of 110th Pl																	
	5006	SF Homes near DT	1	67	2	Yes	No	66	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5009	SF Homes near DT	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	5010	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	5011	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	58
	5017	SF Homes near DT	1	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5016	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5015	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5025	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 111th Ave SE																	
	5033	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5032	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5031	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5040	SF Homes near DT	1	67	2	Yes	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	55
	5039	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5038	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
SF Residences along 1st Street																	
	5044	SF Homes near DT	1	67	2	Yes	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	52
	5046	SF Homes near DT	1	67	2	Yes	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	55
	5042	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
	3068	SF Homes near DT	1	64	2	Yes	No	53	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	45
	3061	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	44
	3076	SF Homes near DT	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	51
	3071	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3067	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
	3060	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
MF Residences along 108th Ave SE																	
	3075	Duplex Units	2	64	2	Yes	No	57	Ldn	61	66	--	--	No Wall	N/A	No	57
	3072	Duplex Units	2	64	2	Yes	No	55	Ldn	61	66	--	--	No Wall	N/A	No	55
	3069	Duplex Units	2	64	2	Yes	No	54	Ldn	61	66	--	--	No Wall	N/A	No	54
	3063	Duplex Units	2	64	2	Yes	No	52	Ldn	61	66	--	--	No Wall	N/A	No	52
	3074	Apartment	8	67	2	Yes	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
110th Ave Corridor																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C5021	MF - Sir Gallahad 110th at Main	8	66	2	Yes	No	64	Ldn	62	68	8	--	No Wall	N/A	Yes	64
	C6015	MF - Pinnacle Bell Centre	4	66	2	Yes	No	62	Ldn	62	68	4	--	No Wall	N/A	Yes	62
	C6015	MF - Pinnacle Bell Centre	16	66	2	Yes	No	59	Ldn	62	68	--	--	No Wall	N/A	No	59
	C8024	MF - Abella on 110th	18	66	2	Yes	No	64	Ldn	62	68	18	--	No Wall	N/A	Yes	64
	C8024	MF - Abella on 110th	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C8031	MF Bravern	48	66	2	Yes	No	64	Ldn	62	68	48	--	No Wall	N/A	Yes	64
	C8037	Marriott Hotel	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
	C8045	MF Units on 110th (9th to 10th)	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
	C8051	MF units on 110th (10th to 11th)	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C8051	MF units on 110th (10th to 11th)	12	66	2	Yes	No	62	Ldn	62	68	12	--	No Wall	N/A	Yes	62
	C8054	MF units on 110th at 12th	24	66	2	Yes	No	66	Ldn	62	68	24	--	No Wall	N/A	Yes	66
	C8052	Bellevue Library	1	67	3	Yes	No	64	Leq	69	73	--	--	No Wall	N/A	No	64

Couplet Alternative (C4A) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
108th Ave Corridor																	
	C5050	MF Units near Main	12	66	2	Yes	No	65	Ldn	62	68	12	--	No Wall	N/A	Yes	65
	C5051	MF Units near Main	16	66	2	Yes	No	64	Ldn	62	68	16	--	No Wall	N/A	Yes	64
	C6015	MF Units near 2nd Pl	20	66	2	Yes	No	67	Ldn	62	68	20	--	No Wall	N/A	Yes	67
	C6054	MF Units near 10th	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
	C6056	MF Units near 10th	16	66	2	Yes	No	64	Ldn	62	68	16	--	No Wall	N/A	Yes	64
	C6060	MF Units near 10th	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
	C6062	MF Units near 12th	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
	C6066	MF Units near 12th	16	66	2	Yes	No	63	Ldn	62	68	16	--	No Wall	N/A	Yes	63
	C6058	MF Units near 10th	24	66	2	Yes	No	64	Ldn	62	68	24	--	No Wall	N/A	Yes	64
Units along NE 12th St. west of 110th																	
	6080	Row Houses	4	66	2	Yes	No	63	Ldn	62	68	4	--	Potential Sound Wall	N/A	No	56
	6080	Row Houses	4	66	2	Yes	No	59	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	55
	6083	SF Homes north of 12th	1	67	2	Yes	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	58
	6090	SF Homes north of 12th	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	6089	SF Homes north of 12th	1	67	2	Yes	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	62
	6102	SF Homes north of 12th	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	6101	SF Homes north of 12th	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	59
	8061	SF Homes north of 12th	1	64	2	Yes	No	65	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	58
	8064	SF Homes north of 12th	1	64	2	Yes	No	67	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
Units along NE 12th St. west of 112th																	
	8071	SF residences north of NE 12th	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	8078	SF residences north of NE 12th	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	54
	8083	SF residences north of NE 12th	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	9018	SF residences north of NE 12th	1	69	2	Yes	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	55
	8084	SF residences north of NE 12th	1	69	2	Yes	No	58	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
MF Residences Along NE 12th Street																	
	8055	MF Building 11011 NE 12TH ST	14	67	2	No	No	63	Ldn	63	68	14	--	No Wall	N/A	Yes	63
	9017	Verona Apartments, West Bldg.	15	67	2	No	No	63	Ldn	63	68	15	--	Potential Sound Wall	N/A	No	56
	9017	Verona Apartments, East Bldg.	6	67	2	No	No	64	Ldn	63	68	6	--	Potential Sound Wall	N/A	No	55
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	No	No	62	Ldn	63	68	--	--	No Wall	N/A	No	62
Hotels																	
	4020	Bellevue Hilton South	18	71	2	No	No	71	Ldn	66	71	--	18	No Wall	N/A	Yes	71
	4020	Bellevue Hilton North	18	71	2	No	No	68	Ldn	66	71	18	--	No Wall	N/A	Yes	68

112th SE Elevated Alternative (C7E) from 112th SE At-Grade Alternative (B2A) or 112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave SF at SE 4th																	
	4000	SF Intersection	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF Second Line	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2002	SF Third Line	1	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	4002	SF Intersection	1	69	2	No	Yes	69	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	4003	SF Second Line	1	67	2	No	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	4004	SF Third Line	1	64	2	No	Yes	57	Ldn	61	66	--	--	Potential Sound Wall	Special	No	48
112th Ave - Front Line Condos																	
	4014	MF Units	3	69	2	No	Yes	70	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	71	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	73	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	73	Ldn	64	70	--	3	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	66	Ldn	64	70	3	--	Potential Sound Wall	Special	No	54
	4014	MF Units	3	69	2	No	Yes	68	Ldn	64	70	3	--	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	Yes	67	Ldn	64	70	3	--	Potential Sound Wall	Special	No	57
	4014	MF Units	3	69	2	No	No	65	Ldn	64	70	3	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	5	69	2	No	No	66	Ldn	64	70	5	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	4	69	2	No	No	66	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	4	69	2	No	No	66	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	57
	4037	MF Units	4	69	2	No	No	66	Ldn	64	70	4	--	Potential Sound Wall	N/A	No	57
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4007	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4009	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4011	SF Homes Along SE 111th Pl	1	64	2	No	Yes	63	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4015	SF Homes Along SE 111th Pl	1	64	2	No	Yes	62	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4019	SF Homes Along SE 111th Pl	1	64	2	No	Yes	61	Ldn	61	66	1	--	Potential Sound Wall	Special	No	51
	4024	SF Homes Along SE 111th Pl	1	64	2	No	Yes	60	Ldn	61	66	--	--	Potential Sound Wall	Special	No	51
	4028	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4032	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4036	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4040	SF Homes Along SE 111th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	4045	SF Homes Along SE 111th Pl	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
SF Homes South of Main East of 110th Pl																	
	5003	SF Homes near DT	1	67	2	No	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	55
	5006	SF Homes near DT	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	5009	SF Homes near DT	1	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	5010	SF Homes near DT	1	64	2	No	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
	5011	SF Homes near DT	1	64	2	No	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
MF-SF Units west of 112th Ave NE																	
	7007	MF Units 112th at NE 2nd	48	69	2	No	No	66	Ldn	64	70	48	--	Potential Sound Wall	N/A	No	57
	7014	Meydenbauer Apartments	15	69	2	No	No	66	Ldn	64	70	15	--	Potential Sound Wall	N/A	No	57
	7017	Apartments	9	69	2	No	No	66	Ldn	64	70	9	--	Potential Sound Wall	N/A	No	57
	7024	Apartments	48	69	2	No	No	66	Ldn	64	70	48	--	Potential Sound Wall	N/A	No	57
	9009	Apartments	24	69	2	No	No	64	Ldn	64	70	24	--	Potential Sound Wall	N/A	No	55
	9017	Apartments	16	69	2	No	No	65	Ldn	64	70	16	--	Potential Sound Wall	N/A	No	56
	9017	Apartments	8	69	2	No	No	65	Ldn	64	70	8	--	Potential Sound Wall	N/A	No	56
	9018	SF residences north of 112th	1	67	2	No	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	54
	8084	SF residences north of 112th	1	67	2	No	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	54
	8082	SF residences north of 112th	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53

112th SE Elevated Alternative (C7E) from 112th SE At-Grade Alternative (B2A) or 112th SE Elevated Alternative (B2E)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	No	No	64	Ldn	63	69	16	--	Potential Sound Wall	N/A	No	55
	4001	Bellevue Club Rooms	16	68	2	No	No	64	Ldn	63	69	16	--	Potential Sound Wall	N/A	No	55
	4020	Bellevue Hilton South	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4020	Bellevue Hilton North	18	69	2	No	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	5002	Bellevue Red Lion (112th)	28	70	2	No	No	66	Ldn	65	70	28	--	Potential Sound Wall	N/A	No	57
	5002	Bellevue Red Lion (405)	28	70	2	No	No	64	Ldn	65	70	--	--	Potential Sound Wall	N/A	No	55
	7003	Sheraton Bellevue	60	70	2	No	No	64	Ldn	65	70	--	--	No Wall	N/A	No	64
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	Yes	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61

112th SE Elevated Alternative (C7E) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
112th Ave - Front Line Condos																	
	4037	MF Units	5	69	2	Yes	No	60	Ldn	64	70	--	--	No Wall	N/A	No	60
	4037	MF Units	4	69	2	Yes	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	4037	MF Units	4	69	2	Yes	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61
	4037	MF Units	4	69	2	Yes	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
SF Residences along 111th PL SE																	
	4036	SF Homes Along SE 111th Pl	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	4040	SF Homes Along SE 111th Pl	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	4041	SF Homes Along SE 111th Pl	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
	4042	SF Homes Along SE 111th Pl	1	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	4044	SF Homes Along SE 111th Pl	1	67	2	Yes	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	4045	SF Homes Along SE 111th Pl	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
SF Homes South of Main East of 110th Pl																	
	5003	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	55
	5006	SF Homes near DT	1	67	2	Yes	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	5009	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
MF-SF Units west of 112th Ave NE																	
	7007	MF Units 112th at NE 2nd	48	69	2	No	No	66	Ldn	64	70	48	--	Potential Sound Wall	N/A	No	57
	7014	Meydenbauer Apartments	15	69	2	No	No	66	Ldn	64	70	15	--	Potential Sound Wall	N/A	No	57
	7017	Apartments	9	69	2	No	No	66	Ldn	64	70	9	--	Potential Sound Wall	N/A	No	57
	7024	Apartments	48	69	2	No	No	66	Ldn	64	70	48	--	Potential Sound Wall	N/A	No	57
	9009	Apartments	24	69	2	No	No	64	Ldn	64	70	24	--	Potential Sound Wall	N/A	No	55
	9017	Apartments	16	69	2	No	No	65	Ldn	64	70	16	--	Potential Sound Wall	N/A	No	56
	9017	Apartments	8	69	2	No	No	65	Ldn	64	70	8	--	Potential Sound Wall	N/A	No	56
	9018	SF residences north of 112th	1	67	2	No	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	54
	8084	SF residences north of 112th	1	67	2	No	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	54
	8082	SF residences north of 112th	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53
Hotels																	
	4020	Bellevue Hilton South	18	69	2	No	No	66	Ldn	64	70	18	--	Potential Sound Wall	N/A	No	57
	4020	Bellevue Hilton North	18	69	2	No	No	67	Ldn	64	70	18	--	Potential Sound Wall	N/A	No	58
	7003	Sheraton Bellevue	60	70	2	No	No	64	Ldn	65	70	--	--	Potential Sound Wall	N/A	No	55
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	Yes	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61

110th Ave NE Elevated Alternative (C8E) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
MF-SF Units west of 112th Ave NE																	
	7004	MF Units 112th at NE 2nd	36	69	2	No	No	64	Ldn	64	70	36	--	Potential Sound Wall	N/A	No	55
	7007	MF Units 112th at NE 2nd	24	69	2	No	No	71	Ldn	64	70	--	24	Potential Sound Wall	N/A	No	62
	7007	MF Units 112th at NE 2nd	24	69	2	No	No	68	Ldn	64	70	24	--	Potential Sound Wall	N/A	No	59
	7008	MF Units 112th at NE 2nd	24	69	2	No	No	71	Ldn	64	70	--	24	Potential Sound Wall	N/A	No	62
	7009	MF Units 112th at NE 2nd	24	69	2	No	No	71	Ldn	64	70	--	24	Potential Sound Wall	N/A	No	62
	7014	Meydenbauer Alartments	15	69	2	No	No	62	Ldn	64	70	--	--	No Wall	N/A	No	62
	7017	Apartments	9	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	6015	Apartments	20	66	2	No	No	66	Ldn	62	68	20	--	Potential Sound Wall	N/A	No	57
	8024	MF - Abella on 110th	12	66	2	No	No	67	Ldn	62	68	12	--	Potential Sound Wall	N/A	No	58
	8031	MF Bravern	48	66	2	Yes	No	66	Ldn	62	68	48	--	Potential Sound Wall	N/A	No	56
	8037	Marriott Hotel	24	66	2	No	No	67	Ldn	62	68	24	--	Potential Sound Wall	N/A	No	58
	8045	MF Units on 110th (9th to 10th)	24	66	2	No	No	67	Ldn	62	68	24	--	Potential Sound Wall	N/A	No	58
	8051	MF units on 110th (10th to 11th)	12	66	2	No	No	67	Ldn	62	68	12	--	Potential Sound Wall	N/A	No	58
	8051	MF units on 110th (10th to 11th)	12	66	2	No	No	67	Ldn	62	68	12	--	Potential Sound Wall	N/A	No	58
	8054	MF units on 110th (10th to 11th)	12	66	2	No	No	64	Ldn	62	68	12	--	Potential Sound Wall	N/A	No	55
	8055	MF units on 110th at 12th	24	66	2	No	No	66	Ldn	62	68	24	--	Potential Sound Wall	N/A	No	57
	8052	Bellevue Library	1	67	3	No	No	66	Leq	69	73	--	--	Potential Sound Wall	N/A	No	57
SF Units North of NE 12th Street																	
	6101	SF units north of NE 12th St	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	6099	SF units north of NE 12th St	1	64	2	No	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	47
	8062	SF units north of NE 12th St	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	8061	SF units north of NE 12th St	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	8060	SF units north of NE 12th St	1	64	2	No	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	8063	SF units north of NE 12th St	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	8064	SF units north of NE 12th St	1	67	2	No	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	55
	8065	SF units north of NE 12th St	1	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	8066	SF units north of NE 12th St	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	8071	SF units north of NE 12th St	1	67	2	No	No	66	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	8072	SF units north of NE 12th St	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	8073	SF units north of NE 12th St	1	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	8078	SF units north of NE 12th St	1	67	2	No	No	66	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	8083	SF units north of NE 12th St	1	67	2	No	No	66	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	8079	SF units north of NE 12th St	1	64	2	No	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	8084	SF units north of NE 12th St	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	8082	SF units north of NE 12th St	1	67	2	No	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	54
	9019	SF units north of NE 12th St	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
Hotels																	
	4020	Bellevue Hilton South	18	69	2	No	No	66	Ldn	64	70	18	--	Potential Sound Wall	N/A	No	57
	4020	Bellevue Hilton North	18	69	2	No	No	66	Ldn	64	70	18	--	Potential Sound Wall	N/A	No	57
	7003	Sheraton Bellevue	60	71	2	No	No	69	Ldn	66	71	60	--	Potential Sound Wall	N/A	No	60
Medical																	
	9024	Overlake Hospital (childbirth)	1	67	2	Yes	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61

110th NE At-Grade Alternative (C9A) from 112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Single Family Residences near SE 4th Ave																	
	C4000	SF Res near SE 4th Yard	1	69	2	Yes	Yes	74	Ldn	64	70	--	1	Potential Sound Wall	Special	No	60
	C2001	SF Res near SE 4th Yard	1	67	2	Yes	Yes	63	Ldn	63	68	1	--	Potential Sound Wall	Special	No	53
	C2002	SF Res near SE 4th Yard	1	64	2	Yes	Yes	59	Ldn	61	66	--	--	Potential Sound Wall	Special	No	51
	C4002	SF Res near SE 4th Yard	1	69	2	Yes	Yes	70	Ldn	64	70	--	1	Potential Sound Wall	Special	No	60
	C4003	SF Res near SE 4th Yard	1	67	2	Yes	Yes	62	Ldn	63	68	--	--	Potential Sound Wall	Special	No	53
	C4004	SF Res near SE 4th Yard	1	64	2	Yes	Yes	56	Ldn	61	66	--	--	Potential Sound Wall	Special	No	49
	C4005	SF Res near SE 4th Yard	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	C4007	SF Res near SE 4th Yard	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	C4009	SF Res near SE 4th Yard	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
Multi-Family Residences, North of SE 4th Ave to SE 1st Pl																	
	C4014	MF Units along SE 112th	2	70	2	No	No	68	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	59
	C4014	MF Units along SE 112th	1	70	2	No	No	68	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	59
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4014	MF Units along SE 112th	1	70	2	No	No	67	Ldn	65	70	1	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	3	70	2	No	No	67	Ldn	65	70	3	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
	C4037	MF Units along SE 112th	2	70	2	No	No	67	Ldn	65	70	2	--	Potential Sound Wall	N/A	No	58
Single Family Residences along SE 1st Pl																	
	C4044	SF units on SE 1st PL	1	66	2	Yes	No	58	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	49
	C4045	SF units on SE 1st PL	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	C5006	SF units on SE 1st PL	1	69	2	Yes	No	63	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	54
	C5009	SF units on SE 1st PL	1	67	2	Yes	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	C5010	SF units on SE 1st PL	1	62	2	Yes	No	60	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	51
Single Family Residences South of Main, west of 112th Ave SE																	
	C5018	SF on 110th PL	1	62	2	Yes	No	67	Ldn	59	65	--	1	Potential Sound Wall	N/A	Yes	61
	C5017	SF on 110th PL	1	59	2	Yes	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	C5016	SF on 110th PL	1	59	2	Yes	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	C5026	SF on 110th PL	1	62	2	Yes	No	66	Ldn	59	65	--	1	Potential Sound Wall	N/A	Yes	60
	C5025	SF on 110th PL	1	59	2	Yes	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	C5024	SF on 110th PL	1	59	2	Yes	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	52
	C5034	SF on 110th Ave SE	1	62	2	Yes	No	63	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	56
	C5033	SF on 110th Ave SE	1	59	2	Yes	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	50
	C5032	SF on 110th Ave SE	1	59	2	Yes	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	C5040	SF on 110th Ave SE	1	62	2	Yes	No	60	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	53
Multi-Family Residences along 110th Ave NE																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C5021	MF - Sir Gallahad 110th at Main	8	66	2	Yes	No	65	Ldn	62	68	8	--	No Wall	N/A	Yes	65
	C6015	MF - Pinnacle Bell Centre	4	66	2	Yes	No	62	Ldn	62	68	4	--	No Wall	N/A	Yes	62

110th NE At-Grade Alternative (C9A) from 112th SE At-Grade Alternative (B2A)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	C6015	MF - Pinnacle Bell Centre	16	66	2	Yes	No	61	Ldn	62	68	--	--	No Wall	N/A	No	61
	C8024	MF - Abella on 110th	18	66	2	Yes	No	64	Ldn	62	68	18	--	No Wall	N/A	Yes	64
	C8024	MF - Abella on 110th	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	67	Ldn	63	68	48	--	No Wall	N/A	Yes	67
Coast Hotel																	
	10001	Coast Hotel	36	69	2	No	Yes	82	Ldn	64	70	--	36	Potential Sound Wall	Special	No	62
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	66	Ldn	57	63	--	8	Potential Sound Wall	N/A	Yes	59
	10045	Bellevue Lake Condos	4	58	2	No	No	65	Ldn	57	63	--	4	Potential Sound Wall	N/A	Yes	58
	10045	Bellevue Lake Condos	4	58	2	No	No	65	Ldn	57	63	--	4	Potential Sound Wall	N/A	Yes	58
Bellevue Club Hotel																	
	4001	Bellevue Club Rooms	16	68	2	Yes	Yes	65	Ldn	63	69	16	--	No Wall	Special	No	62
	4001	Bellevue Club Rooms	16	68	2	Yes	Yes	65	Ldn	63	69	16	--	No Wall	Special	No	62
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	Yes	No	63	Leq	70	75	--	--	No Wall	N/A	No	63

110th NE At-Grade Alternative (C9A) from 112th SE Bypass Alternative (B3) or BNSF Alternative (B7)

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Single & Multi-Family Residences near Main																	
	C4037	MF Units along SE 112th	3	70	2	Yes	No	60	Ldn	65	70	--	--	No Wall	N/A	No	60
	C4037	MF Units along SE 112th	2	70	2	Yes	No	60	Ldn	65	70	--	--	No Wall	N/A	No	60
	C4037	MF Units along SE 112th	2	70	2	Yes	No	60	Ldn	65	70	--	--	No Wall	N/A	No	60
	C4037	MF Units along SE 112th	2	70	2	Yes	No	60	Ldn	65	70	--	--	No Wall	N/A	No	60
	C4037	MF Units along SE 112th	2	70	2	Yes	No	61	Ldn	65	70	--	--	No Wall	N/A	No	61
	C4037	MF Units along SE 112th	2	70	2	Yes	No	61	Ldn	65	70	--	--	No Wall	N/A	No	61
	C4037	MF Units along SE 112th	2	70	2	Yes	No	62	Ldn	65	70	--	--	No Wall	N/A	No	62
	C4037	MF Units along SE 112th	2	70	2	Yes	No	62	Ldn	65	70	--	--	No Wall	N/A	No	62
Single Family Residences along SE 1st Pl																	
	C4044	SF units on SE 1st PL	1	66	2	Yes	No	58	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	48
	C4045	SF units on SE 1st PL	1	69	2	Yes	No	63	Ldn	64	70	--	--	No Wall	N/A	No	63
	C5006	SF units on SE 1st PL	1	69	2	Yes	No	63	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	54
	C5009	SF units on SE 1st PL	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	52
	C5010	SF units on SE 1st PL	1	62	2	Yes	No	60	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	51
Single Family Residences south of Main, west of 112th Ave SE																	
	C5018	SF on 110th PL	1	62	2	Yes	No	68	Ldn	59	65	--	1	Potential Sound Wall	N/A	Yes	61
	C5017	SF on 110th PL	1	59	2	Yes	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	C5016	SF on 110th PL	1	59	2	Yes	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	C5026	SF on 110th PL	1	62	2	Yes	No	66	Ldn	59	65	--	1	Potential Sound Wall	N/A	Yes	60
	C5025	SF on 110th PL	1	59	2	Yes	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	C5024	SF on 110th PL	1	59	2	Yes	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	52
	C5034	SF on 110th Ave SE	1	62	2	Yes	No	64	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	56
	C5033	SF on 110th Ave SE	1	59	2	Yes	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	50
	C5032	SF on 110th Ave SE	1	59	2	Yes	No	57	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	C5040	SF on 110th Ave SE	1	62	2	Yes	No	60	Ldn	59	65	1	--	Potential Sound Wall	N/A	No	53
Multi-Family Residences along 110th Ave NE																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
	C5021	MF - Sir Gallahad 110th at Main	8	66	2	Yes	No	65	Ldn	62	68	8	--	No Wall	N/A	Yes	65
	C6015	MF - Pinnacle Bell Centre	4	66	2	Yes	No	62	Ldn	62	68	4	--	No Wall	N/A	Yes	62
	C6015	MF - Pinnacle Bell Centre	16	66	2	Yes	No	61	Ldn	62	68	--	--	No Wall	N/A	No	61
	C8024	MF - Abella on 110th	18	66	2	Yes	No	64	Ldn	62	68	18	--	No Wall	N/A	Yes	64
	C8024	MF - Abella on 110th	12	66	2	Yes	No	64	Ldn	62	68	12	--	No Wall	N/A	Yes	64
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	67	Ldn	63	68	48	--	No Wall	N/A	Yes	67
Coast Hotel																	
	10001	Coast Hotel	36	69	2	No	Yes	82	Ldn	64	70	--	36	Potential Sound Wall	Special	No	62
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	66	Ldn	57	63	--	8	Potential Sound Wall	N/A	Yes	59
	10045	Bellevue Lake Condos	4	58	2	No	No	65	Ldn	57	63	--	4	Potential Sound Wall	N/A	Yes	58
	10045	Bellevue Lake Condos	4	58	2	No	No	65	Ldn	57	63	--	4	Potential Sound Wall	N/A	Yes	58
Hilton Hotel																	
	4020	Bellevue Hilton South	18	69	2	No	No	65	Ldn	64	70	18	--	No Wall	N/A	Yes	65
	4020	Bellevue Hilton North	18	69	2	No	No	65	Ldn	64	70	18	--	No Wall	N/A	Yes	65
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	Yes	No	63	Leq	70	75	--	--	No Wall	N/A	No	63

114th Avenue NE Elevated Alternative (C14E) from 112th SE Bypass (B3) or BNSF (B7) Alternative

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Bellevue Sheraton Hotel																	
	7003	Bellevue Sheraton Hotel	60	71	2	No	No	72	Ldn	66	71	--	60	Potential Sound Wall	N/A	No	63
Coast Hotel																	
	10001	Coast Hotel	36	69	2	No	Yes	82	Ldn	64	70	--	36	Potential Sound Wall	Special	No	62
	10001	Coast Hotel Pool	1	69	3	No	Yes	63	Leq	70	75	--	--	Potential Sound Wall	Special	No	52
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	63	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	63	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	56
Hilton Hotel																	
	4020	Bellevue Hilton South	18	69	2	No	No	65	Ldn	64	70	18	--	Potential Sound Wall	N/A	No	56
	4020	Bellevue Hilton North	18	69	2	No	No	65	Ldn	64	70	18	--	Potential Sound Wall	N/A	No	56

Preferred NE 16th At-Grade Alternative (D2A) from Preferred 108th NE At-Grade (C11A) or Preferred 110th NE Tunnel (C9T) Alternative

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
D2A	1205	PNB	1	56	3	Yes	No	62	Leq	63	68	--	--	N/A	N/A	No	62

D2A - 120th Station and NE 24th Design Options from *Preferred 108th NE At-Grade (C11A) or Preferred 110th NE Tunnel (C9T) Alternative*

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D2A DO	1205	PNB	1	56	3	Yes	No	62	Leq	63	68	--	--	N/A	N/A	No	62

NE 16th Elevated Alternative (D2E) from 108th NE Tunnel (C3T), Couplet (C4A), 112th SE Elevated (C7E), or 110th NE Elevated (C8E) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D2E																	
	1002	Children's Hospital	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	1205	PNB	1	56	3	No	No	63	Leq	63	68	1	--	No	N/A	Yes	68

NE 16th Elevated Alternative (D2E) from Bellevue Way Tunnel (C1T) or 106th NE Tunnel (C2T) Alternative

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D2E																	
D2E	1205	PNB	1	56	3	No	No	63	Leq	63	68	1	--	No	No	Yes	63

NE 20th Alternative (D3) from 108th NE Tunnel (C3T), Couplet (C4A), 112th SE Elevated (C7E), or 110th NE Elevated (C8E) Alternative

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D3																	
	1002	Children's Hospital	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	4230	Silver Cloud Inn Hotel	24	65	2	Yes	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	1205	PNB	1	56	3	Yes	No	62	Leq	63	68	--	--	No Wall	N/A	No	62

NE 20th Alternative (D3) from Bellevue Way Tunnel (C1T) or 106th NE Tunnel (C2T) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D3																	
	4230	Silver Cloud Inn Hotel	24	65	2	Yes	No	54	Ldn	61	67	--	--	No Wall	N/A	No	54
	1205	PNB	1	56	3	Yes	No	62	Leq	63	68	--	--	No Wall	N/A	No	62

SR 520 Alternative (D5) from 108th NE Tunnel (C3T), Couplet (C4A), 112th SE Elevated (C7E), or 110th NE Elevated (C8E) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D5																	
	1002	Children's Hospital	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	2132	Apartments (12628 Northup Way)	10	70	2	No	No	73	Ldn	65	70	--	10	Potential Sound Wall	N/A	No	64

SR 520 Alternative (D5) from Bellevue Way Tunnel (C1T) or 106th NE Tunnel (C2T) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D5																	
	2132	Apartments (12628 Northup Way)	10	70	2	No	No	73	Ldn	65	70	--	10	Potential Sound Wall	N/A	No	64

Preferred Marymoor Alternative (E2) from All Segment D Alternatives

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Along SR520 from Segment D																	
	1708	SF Residence on NE 67th Pl	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	1718	SF Residence on NE 67th Pl	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	1730	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1733	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1737	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	1738, 4000	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	4001	SF Residence on NE 67th Pl	1	68	2	No	No	67	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	58
	4002	SF Residence on NE 67th Pl	1	68	2	No	No	65	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	56
	4003	SF Residence on NE 67th Pl	1	68	2	No	No	64	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	55
Second Line homes same area as above																	
	1719	SF Residence on NE 67th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	1728	SF Residence on NE 67th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	1731	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	1736	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
Condos along the Bluff																	
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	59	Ldn	61	66	--	--	No Wall	N/A	No	59
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	58	Ldn	61	66	--	--	No Wall	N/A	No	58
New Condos Between Bear Creek Pkwy and Cleveland St at Brown St																	
	2173	The Cleveland Condominiums	48	64	2	Yes	Yes	66	Ldn	61	66	--	48	No Wall	Special	No	60
	2180	The Cleveland Condominiums	48	64	2	Yes	Yes	69	Ldn	61	66	--	48	No Wall	Special	Yes	61
	5002	Name Unknown	48	64	2	Yes	Yes	67	Ldn	61	66	--	48	No Wall	Special	No	60
Redmond Town Center/Redmond Way Hotels														No Wall			
	6047	Redmond TC Hotel (Lion)	24	64	2	Yes	Yes	65	Ldn	61	66	24	--	No Wall	Special	Yes	63
Marymoor Park																	
	4020	Baseball area	1	68	3	No	No	66	Leq	69	74	--	--	No Wall	N/A	No	66
	4026	Field near crossover	1	68	3	No	Yes	66	Leq	69	74	--	--	No Wall	Special	No	62

Redmond Way Alternative (E1) from All Segment D Alternatives

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Along SR520 from Segment D																	
	1708	SF Residence on NE 67th Pl	1	64	2	No	No	65	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	58
	1718	SF Residence on NE 67th Pl	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	1730	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1733	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	1737	SF Residence on NE 67th Pl	1	68	2	No	No	67	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	59
	1738, 4000	SF Residence on NE 67th Pl	1	68	2	No	No	66	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	57
	4001	SF Residence on NE 67th Pl	1	68	2	No	No	64	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	55
	4002	SF Residence on NE 67th Pl	1	68	2	No	No	63	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	54
	4003	SF Residence on NE 67th Pl	1	68	2	No	No	62	Ldn	63	69	--	--	Potential Sound Wall	N/A	No	53
Second Line homes same area as above																	
	1719	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	1728	SF Residence on NE 67th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	1731	SF Residence on NE 67th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	1736	SF Residence on NE 67th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
Condos along the Bluff																	
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	64	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	55
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	62	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	53
	2000	MF units on Bluff above W Lake Samm	2	64	2	No	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	55
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	56
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	56
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	56
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	65	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	56
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	69	Ldn	61	66	--	4	Potential Sound Wall	N/A	No	60
Condos along the Bluff to the West																	
	2112	MF units on Bluff above W Lake Samm	4	64	2	No	No	63	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	54
	2112	MF units on Bluff above W Lake Samm	4	64	2	No	No	62	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	53
	2112	MF units on Bluff above W Lake Samm	4	64	2	No	No	61	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	52
MF on Leary																	
	3001	MF units on Leary Way	4	66	2	No	No	59	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	50
	3001	MF units on Leary Way	4	66	2	No	No	54	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	46
	3001	MF units on Leary Way	4	66	2	No	No	54	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	45
MF on Lake Sam																	
	3000	MF units on W Lake Samm	2	66	2	No	No	55	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	46
	3000	MF units on W Lake Samm	2	66	2	No	No	56	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	47
	3000	MF units on W Lake Samm	2	66	2	No	No	60	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	51
	3000	MF units on W Lake Samm	2	66	2	No	No	61	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	52
	3000	MF units on W Lake Samm	2	66	2	No	No	61	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	52
	3000	MF units on W Lake Samm	2	66	2	No	No	62	Ldn	62	68	2	--	Potential Sound Wall	N/A	No	53
Hotel and MF units off Redmond Way at Bear Creek Pkwy																	
	2149	Hotel Sierra Redmond- Redmond Way	24	64	2	No	No	65	Ldn	61	66	24	--	Potential Sound Wall	N/A	No	56
	2149	Condos/MF units (NEW)	48	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	2149	Condos/MF units (NEW)	48	64	2	No	No	62	Ldn	61	66	48	--	Potential Sound Wall	N/A	No	53
New Condos Between Bear Creek Pkwy and Cleveland St at Brown St																	
	2173	The Cleveland Condominiums	48	64	2	Yes	No	67	Ldn	61	66	--	48	No Wall	N/A	Yes	67
	2180	The Cleveland Condominiums	48	64	2	Yes	No	67	Ldn	61	66	--	48	No Wall	N/A	Yes	67
	5002	Name Unknown	48	64	2	Yes	No	67	Ldn	61	66	--	48	No Wall	N/A	Yes	67
														No Wall			
														No Wall			
Redmond Town Center/Redmond Way Hotels														No Wall			
	6047	Redmond TC Hotel (Lion)	24	64	2	Yes	No	64	Ldn	61	66	24	--	No Wall	N/A	Yes	64
	6225	Redmond Inn Hotel	24	68	2	No	No	66	Ldn	63	69	24	--	Potential Sound Wall	N/A	No	57

E2 - Redmond Transit Center Design Option from All Segment D Alternatives

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Along SR520 from Segment D																	
	1708	SF Residence on NE 67th Pl	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	1718	SF Residence on NE 67th Pl	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	1730	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1733	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1737	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	1738, 4000	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	4001	SF Residence on NE 67th Pl	1	68	2	No	No	67	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	58
	4002	SF Residence on NE 67th Pl	1	68	2	No	No	65	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	56
	4003	SF Residence on NE 67th Pl	1	68	2	No	No	64	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	55
Second Line homes same area as above																	
	1719	SF Residence on NE 67th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	1728	SF Residence on NE 67th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	1731	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	1736	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
Condos along the Bluff																	
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	59	Ldn	61	66	--	--	No Wall	N/A	No	59
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	58	Ldn	61	66	--	--	No Wall	N/A	No	58
New Condos Between Bear Creek Pkwy and Cleveland St at Brown St																	
	2173	The Cleveland Condominiums	48	64	2	Yes	No	56	Ldn	61	66	--	--	No Wall	N/A	No	56
	2180	The Cleveland Condominiums	48	64	2	Yes	No	67	Ldn	61	66	--	48	No Wall	N/A	Yes	67
	5002	Name Unknown	48	64	2	Yes	Yes	70	Ldn	61	66	--	48	No Wall	Special	Yes	64
Redmond Town Center/Redmond Way Hotels														No Wall			
	6047	Redmond TC Hotel (Lion)	24	64	2	Yes	No	64	Ldn	61	66	24	--	No Wall	N/A	Yes	64
Marymoor Park																	
	4020	Baseball area	1	68	3	No	No	66	Leq	69	74	--	--	No Wall	N/A	No	66
	4026	Field near crossover	1	68	3	No	Yes	66	Leq	69	74	--	--	No Wall	Special	No	62
Condos Near RTC																	
	5048	New MF near station	48	66	2	Yes	No	66	Ldn	62	68	48	--	No Wall	N/A	Yes	66

Leary Way Alternative (E4) from All Segment D Alternatives

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Along SR520 from Segment D																	
	1708	SF Residence on NE 67th Pl	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	1718	SF Residence on NE 67th Pl	1	66	2	No	No	63	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	54
	1730	SF Residence on NE 67th Pl	1	68	2	No	No	68	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	59
	1733	SF Residence on NE 67th Pl	1	68	2	No	No	67	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	59
	1737	SF Residence on NE 67th Pl	1	68	2	No	No	67	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	58
	1738, 4000	SF Residence on NE 67th Pl	1	68	2	No	No	66	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	57
	4001	SF Residence on NE 67th Pl	1	68	2	No	No	64	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	55
	4002	SF Residence on NE 67th Pl	1	68	2	No	No	62	Ldn	63	69	--	--	Potential Sound Wall	N/A	No	53
	4003	SF Residence on NE 67th Pl	1	68	2	No	No	61	Ldn	63	69	--	--	Potential Sound Wall	N/A	No	53
Second Line homes same area as above																	
	1719	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	1728	SF Residence on NE 67th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	1731	SF Residence on NE 67th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	1736	SF Residence on NE 67th Pl	1	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
Condos along the Bluff																	
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	62	Ldn	61	66	4	--	Potential Sound Wall	N/A	No	54
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
MF on Leary																	
	3001	MF units on Leary Way	12	66	2	No	No	67	Ldn	62	68	12	--	Potential Sound Wall	N/A	No	58
	3001	MF units on Leary Way	12	66	2	No	No	64	Ldn	62	68	12	--	Potential Sound Wall	N/A	No	55
	3001	MF units on Leary Way	8	66	2	No	No	68	Ldn	62	68	--	8	Potential Sound Wall	N/A	No	59
MF on Lake Samm																	
	3000	MF units on W Lake Samm	2	66	2	No	No	66	Ldn	62	68	2	--	Potential Sound Wall	N/A	No	57
	3000	MF units on W Lake Samm	2	66	2	No	No	64	Ldn	62	68	2	--	Potential Sound Wall	N/A	No	55
	3000	MF units on W Lake Samm	2	66	2	No	No	62	Ldn	62	68	2	--	Potential Sound Wall	N/A	No	53
	3000	MF units on W Lake Samm	2	66	2	No	No	57	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	48
	3000	MF units on W Lake Samm	2	66	2	No	No	56	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	47
	3000	MF units on W Lake Samm	2	66	2	No	No	56	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	47
Redmond Town Center/Redmond Way Hotels																	
	6047	Redmond TC Hotel (Lion)	24	64	2	Yes	No	73	Ldn	61	66	--	24	No Wall	N/A	Yes	73
	6225	Redmond Inn Hotel	24	68	2	Yes	No	64	Ldn	63	69	24	--	Potential Sound Wall	N/A	No	54

Bellevue Way Alternative (B1) - Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
Receivers east of 112th to SE 30th and 111th							
	2012	2031	SF residence	66	66	1	Insulation
	2015 E	2032	SF residence	66	66	1	Insulation
	9819	2033	SF residence	66	67	1	Insulation
	2017	2034	SF residence	66	68	1	Insulation
	2023	2035	SF residence	66	68	1	Insulation
	2026	2036	SF residence	66	70	1	Insulation
	2030	2028	SF residence	66	72	1	Insulation
Triangle north of SE 30th							
	2040	2040	SF residence	66	71	1	Insulation
	2049	2041	SF residence	66	72	1	Insulation
	2061	2043	SF residence	66	72	1	Insulation
	2073	2044	SF residence	66	72	1	Insulation
	2094	2046	SF residence	66	72	1	Insulation
	2078	2044	SF residence	66	68	1	Insulation
Receptors on 112th Ave SE and near Station Area							
	2144	2049	SF residence	66	68	1	Insulation
	2160	2050	SF residence	66	71	1	Insulation
	2178	2052	Lot	66	72	0	Insulation
	2193	2053	SF residence	66	71	1	Insulation
	2210	2054	SF residence	66	72	1	Insulation
	2225	2055	SF residence	66	72	1	Insulation
	2235	2056	SF residence	66	72	1	Insulation
Same as above, second row							
	2166	2050	SF residence	66	67	1	Insulation
	2181	2052	SF residence	66	71	1	Insulation
	2183	2052	SF residence	66	66	1	Insulation
Receptors from 23rd St to 25th St							
	2246	2057	SF residence	66	72	1	Insulation
	2252	2058	SF residence	66	72	1	Insulation
	2265	2058	SF residence	66	72	1	Insulation
	2275	2059	SF residence	66	72	1	Insulation
	2284	2060	SF residence	66	72	1	Insulation
	2288	2061	SF residence	66	72	1	Insulation
	2296	2062	SF residence	66	72	1	Insulation
	2300	2063	SF residence	66	72	1	Insulation
	2306	2064	SF residence	66	72	1	Insulation
25th St to 112th Y							
	2317	2065	SF residence	66	72	1	Insulation
	2326	2066	SF residence	66	72	1	Insulation
	2333	2067	SF residence	66	72	1	Insulation
	2345	2068	SF residence	66	72	1	Insulation
	2351	2068	SF residence	66	66	1	Insulation
	2361	2070	SF residence	66	72	1	Insulation
	2375	2071	Displacement	66	72	0	
	2384	2072	Displacement	66	72	0	

Bellevue Way Alternative (B1) - Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
	2397	2073	Displacement	66	72	0	
	2385	2072	SF residence	66	67	1	Insulation
	2393	2072	SF residence	66	72	1	Insulation
	2401	2073	SF residence	66	72	1	Insulation
	2407	2074	SF residence	66	72	1	Insulation
	2413	2075	SF residence	66	72	1	Insulation
	2421	2076	SF residence	66	72	1	Insulation
	3001	2077	SF residence	66	72	1	Insulation
MF Units at the 112th "Y"							
	3010	2081	MF Units at Y	66	71	4	Insulation
	3010	2083	MF Units at Y	66	71	4	Insulation
W of Alignment from S 19th St to SE 16th							
	3109	2087	SF residence	66	66	1	Insulation
	3133	2089	MF Units	66	67	4	Insulation
	3133	2090	MF Units	66	71	2	Insulation
	3133	2091	MF Units	66	72	2	Insulation
Pool at 112th, 2nd Row							
	3147	2090	SF residence	66	67	1	Insulation
	3165	2091	SF residence	66	70	1	Insulation
	3183	2092	SF residence	66	72	1	Insulation
E side, S of SE 16th St							
	3097	2086	SF residence	66	71	1	Insulation
	3110	2087	SF residence	66	66	1	Insulation
	3150	2091	SF residence	66	71	1	Insulation
	3170	2091	SF residence	66	71	1	Insulation
E side, SE 16th St to just North of SE 13th St							
	3223	2095	MF Residence	66	71	4	Insulation
	3246	2096	MF Residence	66	70	4	Insulation
	3246	2097	MF Residence	66	70	4	Insulation
	3267	2098	MF Residence	66	71	4	Insulation
	3267	2099	MF Residence	66	71	4	Insulation
	3288	2100	SF residence	66	68	1	Insulation
	3300	2100	SF residence	66	71	1	Insulation
	3319	2102	SF residence	66	66	1	Insulation
W side from 16 St to 11th St							
	3204	2093	Displacement	66	71	0	
	3220	2095	SF residence	66	72	1	Insulation
	3237	2096	SF residence	66	72	1	Insulation
	3252	2097	Displacement	66	72	0	
	9823	2099	SF residence	66	72	1	Insulation
	3302	2100	SF residence	66	72	1	Insulation
	3329	2102	Displacement	66	72	0	
	3368	2104	Church Bldg	66	72	1	Insulation
	3387	2106	Church Bldg	66	67	1	Insulation
Same as above, 2nd and 3rd rows							
	3208	2093	SF residence	66	72	1	Insulation

Bellevue Way Alternative (B1) - Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
	3215	2094	SF residence	66	65		
	3226	2095	Lot	66	66	0	Insulation
	3257	2097	SF residence	66	68	1	Insulation
	9824	2098	SF residence	66	72	1	Insulation
	9825	2098	SF residence	66	68	1	Insulation
	9826	2099	SF residence	66	70	1	Insulation
	3334	2300	SF residence	66	72	1	Insulation
East side, S of SE 11th to 10th							
	3339	2103	SF residence	66	72	1	Insulation
	3362	2104	SF residence	66	72	1	Insulation
	3376	2105	SF residence	66	72	1	Insulation
	3396	2107	SF residence	66	72	1	Insulation
	3403	2107	SF residence	66	72	1	Insulation
	3415	2108	SF residence	66	72	1	Insulation
	3423	2109	SF residence	66	72	1	Insulation
	3432	2110	SF residence	66	72	1	Insulation
	3447	2110	SF residence	66	72	1	Insulation
Same as above, 2nd/3rd rows							
	3355	2104	SF residence	66	66	1	Insulation
West side, 11th St to 8th St							
	3434	2108	Church Bldg	66	72	1	Insulation
East side 10th to 8th							
	3493	2114	Displacement	66	72	0	
West side 10th to 8th							
	3501	2115	Lot	66	67	0	Insulation
	3508	2116	SF residence	66	72	1	Insulation
West side, SE 8th to 6th St				66			
	3544	2117	SF residence	66	72	1	Insulation
	3561	2118	SF residence	66	72	1	Insulation
	3573	2119	SF residence	66	72	1	
	3600	2120	Displacement	66	72	0	
	3605	2121	Displacement	66	72	0	
Same as above, 2nd and 3rd rows							
	3546	2117	SF residence	66	67	1	Insulation
	3574	2119	SF residence	66	72	1	Insulation
	3575	2119	SF residence	66	70	1	Insulation
	3576	2119	SF residence	66	66	1	Insulation
	3601	2120	SF residence	66	70	1	Insulation
	3606	2121	SF residence	66	68	1	Insulation
East side, SE 8th to N of 6th St							
	3545	2117	Fire Department	66	71	1	Insulation
	3578	2119	SF residence	66	71	1	Insulation
	3578	2119	SF residence	66	67	1	Insulation
	3597	2120	SF residence	66	70	1	Insulation
	3597	2120	SF residence	66	66	1	Insulation
	3597	2121	SF residence	66	67	1	Insulation

Bellevue Way Alternative (B1) - Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
	3597	2121	SF residence	66	67	1	Insulation
	3597	2121	SF residence	66	67	1	Insulation
	3597	2122	SF residence	66	70	4	Insulation

112th SE At-Grade Alternative (B2A) - Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
25th St to 112th Y							
	2265	2056	SF Residence	66	67	1	Insulation
	2275	2057	SF Residence	66	67	1	Insulation
	2284	2058	SF Residence	66	68	1	Insulation
	2288	2059	SF Residence	66	68	1	Insulation
	2296	2060	SF Residence	66	68	1	Insulation
	2300	2061	SF Residence	66	68	1	Insulation
	2306	2062	SF Residence	66	68	1	Insulation
	2317	2063	SF Residence	66	68	1	Insulation
	2326	2064	SF Residence	66	68	1	Insulation
	2333	2065	SF Residence	66	68	1	Insulation
	2345	2066	SF Residence	66	68	1	Insulation
	2351	2066	SF Residence	66	65		
	2361	2068	SF Residence	66	67	1	Insulation
	2367	2068	SF Residence	66	64		
	2375	2070	Displacement	66	70	0	
	2384	2070	Displacement	66	70	0	
	2397	2071	Displacement	66	71	0	
	2401	2072	SF Residence	66	66	1	Insulation
	2407	2072	SF Residence	66	67	1	Insulation
	2413	2073	SF Residence	66	69	1	Insulation
	2421	2075	SF Residence	66	69	1	Insulation
	3001	2075	SF Residence	66	70	1	Insulation

112th SE Bypass Alternative (B3) and B3 - 114th Extension Design Option- Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
25th St to 112th Y							
	2265	2056	SF Residence	66	67	1	Insulation
	2275	2057	SF Residence	66	67	1	Insulation
	2284	2058	SF Residence	66	68	1	Insulation
	2288	2059	SF Residence	66	68	1	Insulation
	2296	2060	SF Residence	66	68	1	Insulation
	2300	2061	SF Residence	66	68	1	Insulation
	2306	2062	SF Residence	66	68	1	Insulation
	2317	2063	SF Residence	66	68	1	Insulation
	2326	2064	SF Residence	66	68	1	Insulation
	2333	2065	SF Residence	66	68	1	Insulation
	2345	2066	SF Residence	66	68	1	Insulation
	2351	2066	SF Residence	66	65		
	2361	2068	SF Residence	66	67	1	Insulation
	2367	2068	SF Residence	66	64		
	2375	2070	Displacement	66	70	0	
	2384	2070	Displacement	66	70	0	
	2397	2071	Displacement	66	71	0	
	2401	2072	SF Residence	66	66	1	Insulation
	2407	2072	SF Residence	66	67	1	Insulation
	2413	2073	SF Residence	66	69	1	Insulation
	2421	2075	SF Residence	66	69	1	Insulation
	3001	2075	SF Residence	66	70	1	Insulation

Bellevue Way Tunnel Alternative (C1T) from Bellevue Way Alternative (B1) - Traffic Noise Impacts

Receiver/Area Information	Parcel	Station	Description	WSDOT Traffic Noise Impact Criteria (dBA)	Future Traffic Noise Levels (dBA Leq)	Traffic Noise Impact	Proposed Noise Mitigation
Westside of Bell Way (widening)							
	1000	3000	MF north of SE 6th	66	67	5	Insulation
	1008 (A)	3003	Displacement	66	67	0	Insulation
	1008 (B)	3004	Displacement	66	67	0	Insulation
	1015	3007	MF Units	66	67	5	Insulation
	1017	3008	Displacement	66	67	0	Insulation
	1024	3010	MF Units	66	67	4	Insulation
	1031	3011	MF ROW House	66	67	1	Insulation
	22347	3011	MF ROW House	66	67	1	Insulation
	22345	3011	MF ROW House	66	67	1	Insulation
	22344	3011	MF ROW House	66	67	1	Insulation

Maintenance Base MF1

Receiver and Data Input Section								*Impact Analysis*					*Project Mitigation*	
Receiver/Area Information								**Project Noise**	**FTA Criteria**		**Noise Impacts**		**Mitigation Proposed**	**Mitigated Level**
	Parcel	**Description**	**Use**	**FTA Cat**	**Units**	**Ldn**	**Dist. NT**	**Ldn**	**Mod**	**Sev**	**Mod**	**Sev**		
Receivers along 116th														
Front Line	21792	1825 116TH AVE NE	SFR	2	1	58	125	56	57	63	--	--	N/A	N/A
	21674	1815 116TH AVE NE	SFR	2	1	58	125	56	57	63	--	--	N/A	N/A
Second Line	21777	11520 NE 20TH ST	SFR	2	1	56	220	48	56	62	--	--	N/A	N/A
	21790	1854 115TH AVE NE	SFR	2	1	56	220	48	56	62	--	--	N/A	N/A
	21671	1824 115TH AVE NE	SFR	2	1	56	220	48	56	62	--	--	N/A	N/A
	21662	1814 115TH AVE NE	SFR	2	1	56	220	48	56	62	--	--	N/A	N/A
Hospital	1002	Hospital (rear of bldg facing MF1	Hosp	2	1	58	90	57	57	62	1	--	Sound Wall	50

Appendix F

Supplemental Noise Analyses

Prepared for:	Jodi Ketelsen / CH2M HILL
Prepared by:	Michael A. Minor
Date:	November 10, 2008
Subject:	Station Noise Levels and Potential Noise Mitigation
Project:	Sound Transit East Link Station Analysis

This memorandum provides a summary of noise levels at existing and proposed East Link light rail stations. As a point of comparison, noise measurements were taken at:

- SR 520 Evergreen Road Flyer Stop (readings taken near the 84th Avenue off-ramp)
- SR 520 Montlake Flyer Stop

Where appropriate, noise abatement measures are discussed. The following stations were examined:

- Rainier Avenue light rail station (I-90 center roadway at the 23rd Avenue over crossing)
- Mercer Island light rail station (I-90 between 77th and 80th Avenues)
- Ashwood/Hospital light rail station (NE 12th Street on overpass above I-405)

Analysis Period

Traffic noise levels on I-90, I-405, and SR-520 are all loudest during mid-day hours of 11:00 a.m. to 3:00 p.m. This is due to the higher speeds and level of truck traffic during daytime hours. Peak commute traffic noise levels on these same highways are typically lower (by 2 to 3 dBA) due to reduced speeds associated with congested highways. Based on these factors, the maximum traffic noise levels during daytime hours were used in the analysis. The analysis also assumes the worst-case, 15-minute headways for the maximum time a person would spend at a platform.

Station Noise Level Guidelines

There are no federal standards for noise exposure on transit passengers at stations due to traffic noise. Sound Transit has established a general design criteria goal of 72 dBA L_{eq} for noise from exterior sources at station platforms. The National Institute for Occupations Safety and Health (NIOSHA) standard for workplace noise exposure is 85 dBA for up to 8 hours, or 100 dBA for 15 minutes (NIOSHA Publication No. 98-126, Occupational Noise Exposure, June 1998). The EPA states that communication at close proximity (2 to 4 feet) can be understood even with ambient noise levels of 72 to 78 dBA ("Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March, 1974).

Noise measurements were taken at existing bus flyer stops on SR 520. Noise level for the SR 520 Evergreen Road Flyer Stop are derived from readings taken near the 84th Avenue off-ramp as part of the quiet pavement study. The measurements were taken at 75 feet from SR 520, which is close to the distance for the Evergreen Flyer stop. Noise levels at this distance before the quiet pavement was installed ranged from 72 to 75 dBA L_{eq} during daytime hours (7 a.m. to 7 p.m.), reducing to 64 to 66 dBA L_{eq} after midnight. Current noise levels are 4 to 5 dBA lower than this, but in recent measurements, the upper-level hourly L_{eq} noise levels are consistently above 70 dBA L_{eq} at this location.

Noise reading were also taken near the waiting area of the SR 520 Montlake Flyer Stop. Noise levels varied with traffic flow, and the 1-second L_{eq} ranged from 76 to 89 dBA. The typical peak traffic noise level for this station is 81.1 dBA L_{eq}. This shows that the transit riders are currently exposed to high noise levels at transit stops.

There is a potential that, on some station platforms, reducing traffic noise levels to Sound Transit's 72 dBA design goal may not be feasible or reasonable. As stated, it is unlikely that a person would ever spend more than 15 minutes at a station platform. Due to the short period of waiting at platforms, and existing bus-flyer stop noise levels in the region, Sound Transit will use the 78 dBA 15-minute L_{eq} platforms noise level goal for designing stations within or above freeway, where reasonable and feasible.

Noise Measurements

Noise readings were taken at several existing and proposed stations. The measurements were taken in accordance with the American National Standards Institute (ANSI) procedures for community noise measurements. The equipment used for noise monitoring was a Bruel & Kjaer Type 2238 Sound Level Meter. The meter was calibrated prior to and after the measurement period using a Bruel & Kjaer Type 4231 Sound Level Calibrator. Calibration varied by less than 0.1 dB during the measurement periods. Complete system calibration is performed on an annual basis by Bruel & Kjaer Instruments. System calibration is traceable to the National Institute of Standards and Testing (NIST). The system meets or exceeds the requirements for an ANSI Type 1 noise measurement system.

Rainier Avenue Light Rail Station

The Rainier Avenue light rail station would be located along the center of I-90 in a retained cut in the center roadway just west of the Mount Baker Tunnels. This location has large retaining walls along the both sides the highway, resulting in a substantial level of reflected traffic noise. Existing noise levels were measured using a microphone on a 40 foot extension cable dropped over the edge of the 23rd Avenue overpass. The measurement was taken around 11:00 am when traffic on the revisable lanes were changing direction, and only one pass-by was recorded on the reversible lanes. This would most closely resemble the East Link Project scenario. The 15 minute L_{eq} for the existing conditions was measured at 86.3 dBA L_{eq}.

Mercer Island Light Rail Station

The Mercer Island Station would be located along the center of I-90 in a deep retained cut between 77th Avenue and 80th Avenue on Mercer Island. This location has 20- to 25-foot-high retaining walls along each side of the highway, resulting in a substantial level of reflected traffic noise. Existing noise levels were measured at the Mercer Island Station using a microphone on a 40-foot extension cable dropped over the edge of the77th Avenue overpass. This location is shown in Table 1 as R1/M1, and this measurement was used to calibrate the model used to project noise levels at other points within the proposed station. This location was not used to determine the effects traffic noise on passengers as this is merely a pass-through area to the station platform.

Two 10-minute measurements were taken, with the first having a L_{eq} of 86 dBA and the second having an L_{eq} of 88 dBA. For transit stations near major highways, a short-term Leq measurement of 10 minutes is typically long enough to provide an accurate reading of the noise exposure. This is due to the relatively steady noise from passing vehicles on major highways. Measurements at the Mercer Island and NE 12th Street stations provided verification of this, as the running L_{eq} stabilized after only 2 minutes of measurements and varied by less than 1 dBA after 5 minutes, even during heavy truck pass-bys where 1-second L_{eq} sound levels exceeded 92 dBA.

To illustrate this, the 1-second L_{eq} noise levels along with a running-energy average Leq at 10-second intervals was derived and plotted. Figure 1 shows the results of the analysis. The orange dashed lines are the 1-second L_{eq} readings and the black squares are the running-energy average for the measurement period to that point. The plot shows that after approximately 2 minutes, the energy average noise levels remain constant at 88 dBA (+0.3/ -0.5 dBA) for the remainder of the measurement session.

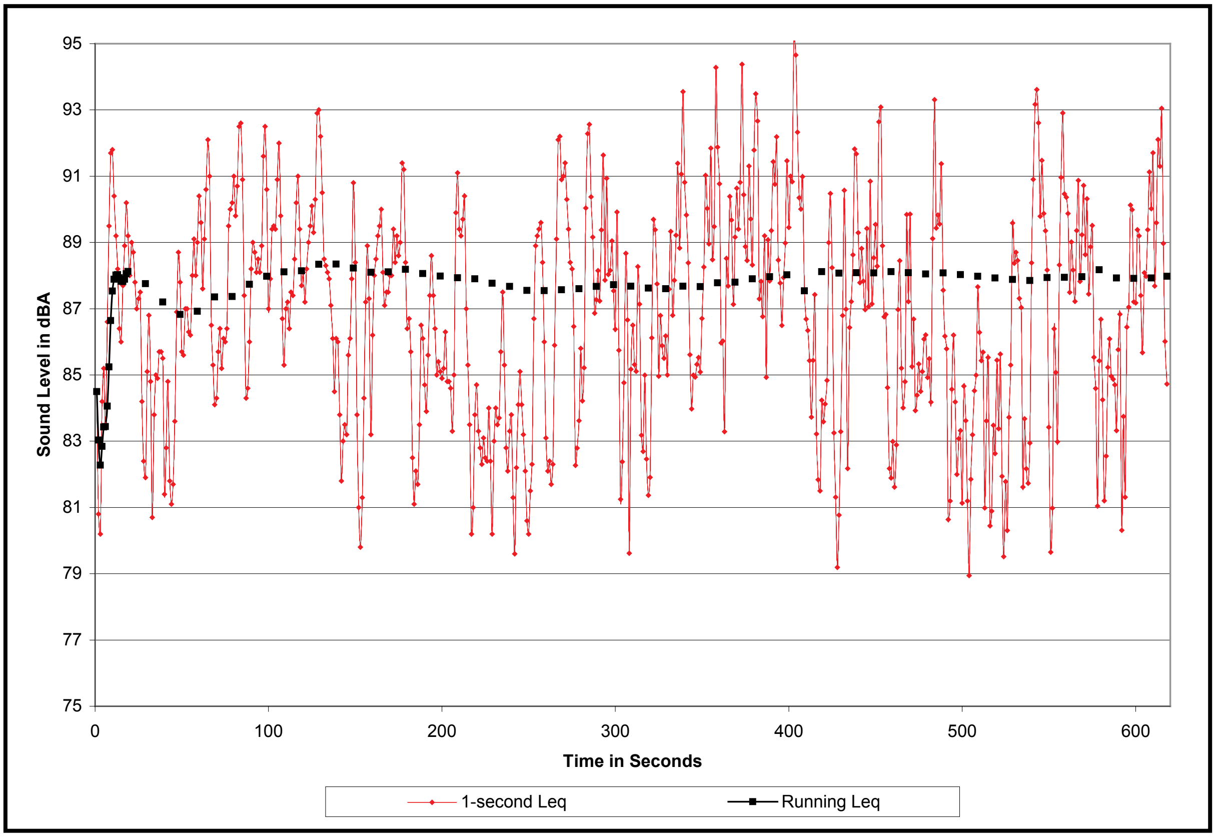


FIGURE 1
Energy Average Leq Noise Levels for Proposed Mercer Island Station

Ashwood/Hospital Light Rail Station

The Ashwood/Hospital light rail station would be located separate and adjacent to the NE 12th Street overpass, approximately 25 feet above I-405. It would be a center platform station, with light rail running on either side of the station platform. On-site noise measurements were performed in the center of the existing overpass on the north side of the NE 12th Street. The dominant noise source was heavy trucks on I-405; however, noise from traffic crossing the overpass was also notable. One-second L_{eq} ranged from 77 to 87 dBA with the overall energy average at this site being 83 dBA L_{eq}.

Noise Modeling

Based on the noise measurements, further analysis was performed for each of the Freeway stations: I-90 Rainier Avenue, Mercer Island and Ashwood/Hospital light rail stations. The models were created using typical daytime traffic volumes and speed from the traffic engineers, a noise model was constructed using the Federal Highway Administration's Traffic Noise Model (TNM). The TNM produces hourly L_{eq} noise levels based on hourly traffic volumes. Because of the constant traffic volumes on major highway like I-90 and I-405, the short-term L_{eq} experienced by patrons at the stations would be the same as the hourly L_{eq}.

Rainier Avenue Light Rail Station Noise Modeling

Because of the high traffic volumes, reflective retaining walls, and close proximity of the traffic to the station, it is unlikely that the noise levels in this area would be able to meet the Sound Transit design guidelines of 72 dBA. Therefore, the 78 dBA 15-minute L_{eq} platforms noise level goal will be applied.

The Rainier Avenue Station noise model was constructed and verified using the measured noise data. Modeled and measured data agreed within +/- 2 dBA Five receivers were located along the platform, with two at each ends and one in the middle. The modeled noise levels ranged from 84.6 to 85.3 dBA L_{eq}, verifying the accuracy of the model against the measured noise levels but also showing that noise levels would exceed the 78 dBA goal.

Figure 2 shows the potential of ten-foot sound walls added to the outside of the light rail alignment, along the edge the I-90 mainlines. With the walls in place, the noise levels along the platform were reduced by 8.2 to 9.7 dBA along the platform. Figure 2 shows the noise measurement and modeling locations and the approximate locations for the sound walls. Table 1 provides a summary of the noise modeling results before and after adding sound walls.

TABLE 1
Rainier Station Noise Analysis

Receiver No.	Measured Levels	Modeled Levels before Noise Walls	Modeled Levels W/ Noise Walls	Noise Wall Reduction	Wall Details
R1	N/A	85.3	76.4	8.9	10 foot walls along the outside of the tracks, between the rail alignment and the I-90 traffic lanes. Walls could be integrated with the crash barriers to save room.
R2	N/A	85.1	76.9	8.2	
R3	N/A	85.0	75.8	9.2	
R4	N/A	84.9	75.2	9.7	
R5	86.3	84.6	75.4	9.2	

The walls would extend approximately 800 feet west of the Mount Baker Tunnel portals. Actual wall design would be performed during project final design. With noise walls the majority of the platform, the noise levels on the platform are within the 78-dBA noise level and no further noise reducing design alternatives were examined.

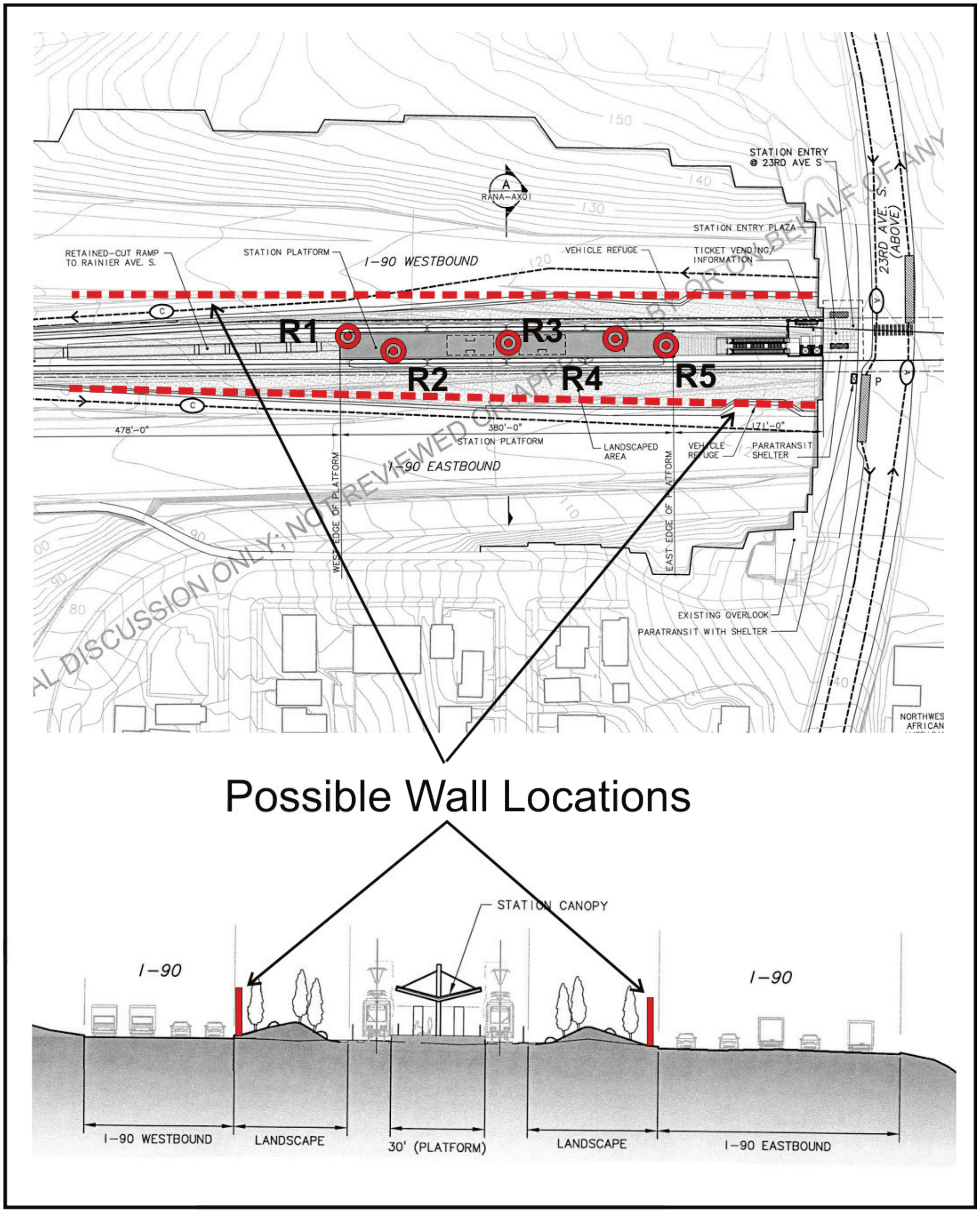

STATION ENTRY
@ 23RD AVE S
A
RANA-AX01
STATION ENTRY PLAZA
TICKET VENDING
INFORMATION
23RD AVE. S.
(ABOVE)
RETAINED-CUT RAMP
TO RAINIER AVE. S.
STATION PLATFORM
I-90 WESTBOUND
VEHICLE REFUGE
R1
R2
R3
R4
R5
478'-0"
380'-0"
STATION PLATFORM
LANDSCAPED
AREA
VEHICLE
REFUGE
171'-0"
PARATRANSIT
SHELTER
I-90 EASTBOUND
WEST EDGE OF PLATFORM
EAST EDGE OF PLATFORM
EXISTING OVERLOOK
PARATRANSIT WITH SHELTER
NORTHWES
AFRICAN
AL DISCUSSION ONLY; NOT REVIEWED OR APPROVED BY OR ON BEHALF OF ANY
Possible Wall Locations
STATION CANOPY
I-90
I-90
I-90 WESTBOUND
LANDSCAPE
30' (PLATFORM)
LANDSCAPE
I-90 EASTBOUND

FIGURE 2
Rainier Avenue Noise Monitoring Modeling and Noise Wall Locations

Mercer Island Light Rail Station Noise Modeling

Because of the high traffic volumes, reflective retaining walls and close proximity of the traffic to the station, it is unlikely that the noise levels in this area would be able to meet the Sound Transit design guidelines of 72 dBA. Therefore, the 78 dBA 15-minute Leq platforms noise level goal will be applied

The Mercer Island Station platform model was constructed and verified using the measured noise data of 86 to 88 dBA Leq as reference sound levels, from the measurement taken at R1/M1. Three receivers were located along the platform, Receiver R1/M1, next to the 77th Avenue overpass, and Receivers R2 and R3, located on the proposed station platform. Passengers would only pass through the location of R1/M1 and the purpose of modeling this receiver is to verify the accuracy of the model. Passengers would spend time waiting at the locations of R2 and R3 and therefore the noise effects of traffic concern only those locations. The modeled noise at all three locations was 88 dBA Leq, which verified the accuracy of the model against the measured noise levels.

Figure 3 and 4 show the potential of 10-foot sound walls added on the outside of the light rail alignment, along the edge nearest the train tracks. With the walls in place the noise levels along the platform would be reduced by 10 dBA in the center of the platform, and 7 to 8 dBA towards the end of the platform. Figures 3 and 4 show the noise measurement and modeling locations as well as the approximate locations for the sound walls. Table 2 provides a summary of the noise modeling results before and after adding sound walls.

TABLE 2
Mercer Island Station Noise Analysis

Receiver No.	Measured Levels	Modeled Levels before Noise Walls	Modeled Levels W/ Noise Walls	Noise Wall Reduction	Wall Details
R2	N/A	87.9	77.6	10.3	10-foot walls along the outside of the tracks, with the base of the wall at the same elevations as the tracks.
R3	N/A	87.9	78.3	9.6	

The majority of the platform will have noise levels near or below the 78-dBA noise level goal and therefore no further noise reducing design alternatives were examined.

Ashwood/Hospital Light Rail Station (NE 12th Street above I-405)

Ashwood/Hospital Station noise modeling was also performed using projected 2030 traffic data and speeds for I-405. The modeled noise levels *without* traffic on NE 12th included in the model was 81 dBA L_{eq} at outer edge of the station where the light rail tracks would be installed. For patrons on the station platforms, noise levels ranged from 75 to 78 dBA L_{eq}. The lower noise levels on the platform are due to the noise-reducing effects of the light rail alignment and bridge over I-405. Because the noise levels at the platform are projected to remain below 78 dBA L_{eq}, no noise-reducing design improvements were investigated.

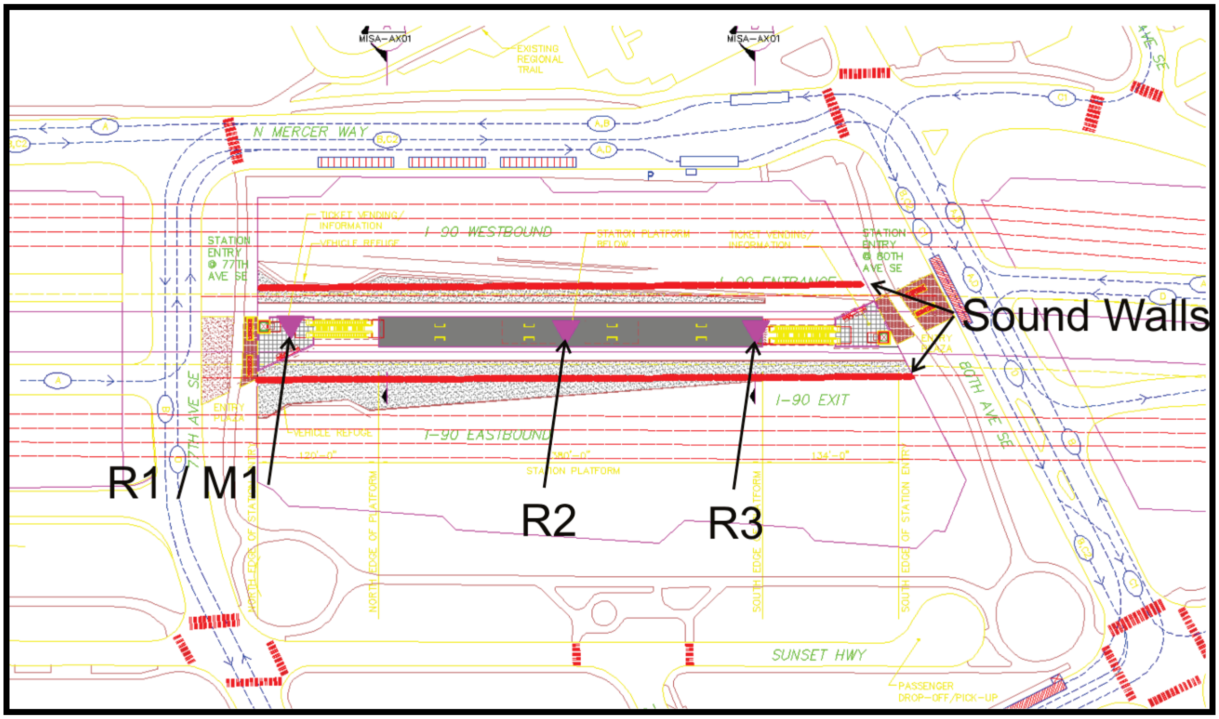

MISA-AX01
EXISTING REGIONAL TRAIL
MISA-AX01
N MERCER WAY
I-90 WESTBOUND
TICKET VENDING/INFORMATION
VEHICLE REFUGE
STATION PLATFORM BELOW
TICKET VENDING/INFORMATION
STATION ENTRY @ 77TH AVE SE
STATION ENTRY @ 80TH AVE SE
I-90 ENTRANCE
Sound Walls
I-90 EXIT
I-90 EASTBOUND
77TH AVE SE
80TH AVE SE
120'-0"
180'-0"
134'-0"
STATION PLATFORM
NORTH EDGE OF PLATFORM
SOUTH EDGE OF PLATFORM
SOUTH EDGE OF STATION ENTRY
R1 / M1
R2
R3
SUNSET HWY
PASSENGER DROP-OFF/PICK-UP

FIGURE 3
Mercer Island Station Noise Monitoring Modeling and Noise Wall Locations

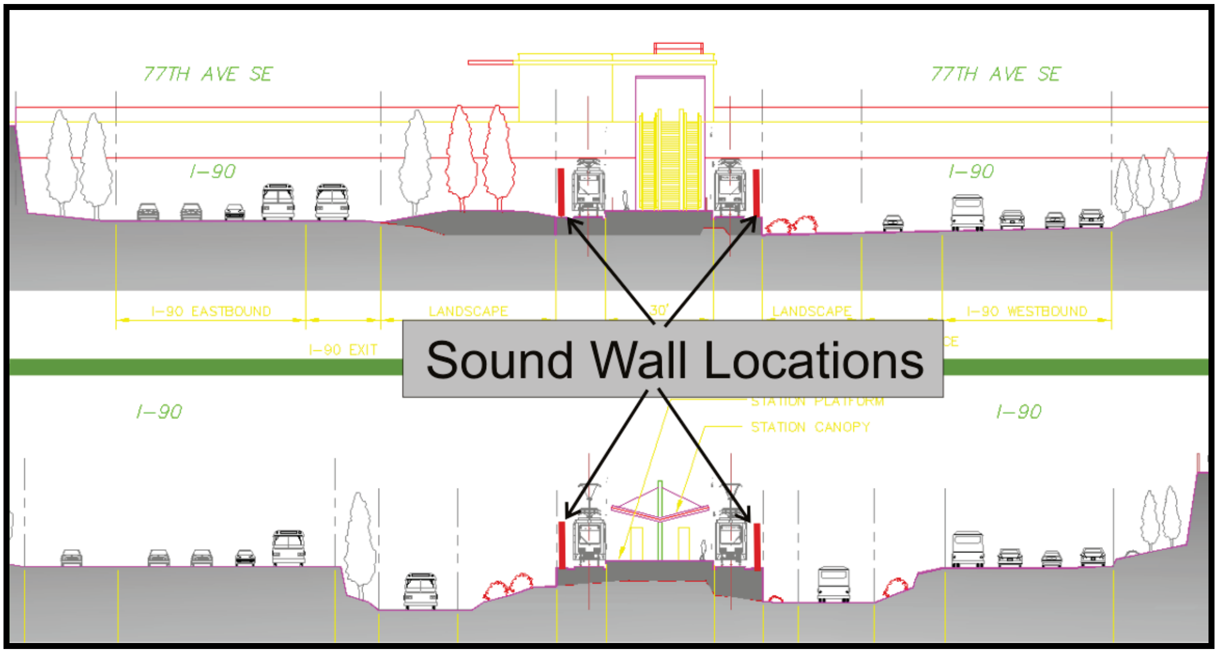

77TH AVE SE
77TH AVE SE
I-90
I-90
I-90 EASTBOUND
LANDSCAPE
30'
LANDSCAPE
I-90 WESTBOUND
I-90 EXIT
Sound Wall Locations
I-90
STATION PLATFORM
STATION CANOPY
I-90

FIGURE 4
Mercer Island Station Noise Walls as Viewed from I-90

Prepared for: Jodi Ketelsen

Prepared by: Michael A. Minor

Date: November 10, 2008

Subject: Noise Level Projections

Project: Proposed Children's Hospital

This memorandum summarizes the noise level projections for the new Children's Hospital on 116th Ave NE, just north of NE 12th Street. The noise projections assume the following:

1. Distance from the LRT alignment to the building is approximately 100 feet, the distance from the proposed gates is approximately 150 feet and 200 feet (may be further).
2. Speed of the train was modeled at 35 MPH as the worst case scenario.
3. Reference noise levels for typical crossing bells are 72 dBA Lmax at 50 feet (86 dBA at 10 feet). The bells run for approximately 20 seconds.
4. The plan is for one train to pass in either direction every 7 mins in the evening hours including after 10 PM until 1AM and up to one train every 4.5 minutes in the day time.
5. The existing Ldn for traffic near the site is 68 dBA as a conservative (based on 2 dBA lower than the intersection noise level measurement at NE 12th and 116th Avenue NE due to shielding and distance) and the FTA criteria is 63 dBA Ldn for moderate impact and 68 dBA Ldn for severe impacts.

Based on the above information, the noise from LRT operations is predicted at 61 dBA Ldn at the closest point at the proposed hospital and the noise from the crossing bells is predicted at 53 dBA for the same point. The total Ldn is projected at 62 dBA Ldn and no noise impacts are projected.

It is anticipated that modern insulation and noise reduction due to double windows, it is unlikely that noise will be auditable inside the building assuming that the windows are non-open-able.

FINAL EIS

EAST LINK PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

Appendix H2
Noise and Vibration Technical Report

SOUND TRANSIT
102B
Link
SoundTransit

SEATTLE
MERCER ISLAND
BELLEVUE
OVERLAKE
REDMOND

SOUNDTRANSIT

CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State
Department of Transportation

U.S. Department of Transportation
Federal Transit
Administration

July 2011

SOUND TRANSIT

SOUND TRANSIT EAST LINK PROJECT

Appendix H2

Noise and Vibration Technical Report

Prepared for:
Sound Transit

Prepared by:
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Harris Miller
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and
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CH2M HILL

July 2011

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Acronyms and Abbreviations

ANSI	American National Standards Institute
CFR	Code of Federal Regulations
DAT	digital audio tape
dB	Decibel
dBA	A-weighted decibel
DNL	Day-Night Equivalent Sound Level (also Ldn)
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	heating ventilation and air conditioning
Hz	Hertz
HUD	Department of Housing and Urban Development+
HVAC	heating, ventilation, air conditioning
I-90	Interstate 90
I-405	Interstate 405
Ldn	24-hour, time-averaged, A-weighted sound level (day-night)
Leq	equivalent continuous sound level
Lmax or Lm	maximum noise level
Lv	vibration velocity level
LRV	light rail vehicle
mph	miles per hour
NIOSHA	National Institute for Occupations Safety and Health
NIST	National Institute of Standards and Technology
OSHA	Occupation and Health and Safety Administration
PPV	peak particle velocity
rms	root mean square
SR	state route
TDA	tire-derived aggregate
TNM	traffic noise model
V	Velocity
VdB	vibration decibels
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation

1.0 Introduction and Summary

This technical report presents a noise and vibration impact study for the Sound Transit East Link Project. The objective of the study was to assess the potential noise and vibration impacts of the planned light rail transit project.

Section 1 of this report describes the background and results of the assessment. Section 2 discusses environmental noise and vibration basics, and Section 3 describes the existing noise and vibration conditions and measurement results. The criteria used to assess noise and vibration impacts are presented in Section 4, and future noise and vibration conditions projections are described in Section 5. Section 6 summarizes the impact assessment, and Section 7 outlines potential mitigation measures. Appendix A includes noise and vibration impacts by affected alternative; Appendix B includes vibration measurement site photographs; Appendix C and Appendix D include detailed noise and vibration measurement data, respectively; Appendix E contains the detailed noise impact assessment data; and Appendix F contains two project memoranda on supplemental noise analyses.

1.1 Background

The proposed project consists of constructing and operating an 18-mile light rail system, known as East Link, between Seattle and Redmond. This system would connect with Sound Transit's Central Link at the International District/ Chinatown Station; travel east across Lake Washington via Interstate 90 (I-90) to Mercer Island, Downtown Bellevue, and Overlake; and terminate in Downtown Redmond. For evaluation purposes, the East Link study area was divided into five segments along distinct geographic boundaries. There are 24 alternatives and 5 design options spread over the following five segments:

- **Segment A, Interstate 90**
  - *Preferred Interstate 90 Alternative (A1)*
- **Segment B, South Bellevue**
  - *Preferred 112th SE Modified Alternative (B2M)*
  - Bellevue Way Alternative (B1)
  - 112th SE At-Grade Alternative (B2A)
  - 112th SE Elevated Alternative (B2E)
  - 112th SE Bypass Alternative (B3)
    - B3 - 114th Extension Design Option
  - BNSF Alternative (B7)
- **Segment C, Downtown Bellevue**
  - *Preferred 108th NE At-Grade Alternative (C11A)*
  - *Preferred 110th NE Tunnel Alternative (C9T)*
    - C9T – East Main Station Design Option
  - Bellevue Way Tunnel Alternative (C1T)
  - 106th NE Tunnel Alternative (C2T)
  - 108th NE Tunnel Alternative (C3T)
  - Couplet Alternative (C4A)
  - 112th NE Elevated Alternative (C7E)
  - 110th NE Elevated Alternative (C8E)
  - 110th NE At-Grade (C9A)
  - 114th NE Elevated (C14E)

- **Segment D, Bel-Red/Overlake**
  - *Preferred NE 16th At-Grade Alternative (D2A)*
    - D2A - 120th Station Design Option
    - D2A - NE 24th Design Option
  - NE 16th Elevated Alternative (D2E)
  - NE 20th Alternative (D3)
  - SR 520 Alternative (D5)
- **Segment E, Downtown Redmond**
  - *Preferred Marymoor Alternative (E2)*
    - E2 - Redmond Transit Center Design Option
  - Redmond Way Alternative (E1)
  - Leary Way Alternative (E4)

Within Segments D and E, there are four alternative sites for a new light rail maintenance facility:

- 116th Maintenance Facility (MF1)
- BNSF Maintenance Facility (MF2)
- SR 520 Maintenance Facility (MF3)
- SE Redmond Maintenance Facility (MF5)

The build alternatives are made up of a range of light rail routes and stations, some with adjoining park-and-ride lots. Maintenance facility alternatives are evaluated separately from the alternative routes and stations.

1.2 Summary of Results

1.2.1 Noise Impact Assessment

The results of the noise analysis indicate that the environment in the project vicinity is already affected by existing noise from traffic on major highways and local roads and from general community noise. Based on Federal Transit Administration (FTA) criteria, the East Link Project is projected, without mitigation, to cause noise impacts at the locations listed in Table 1-1. Detailed information regarding the impacts can be found in Section 6.1 and Appendix D of this report. A number of noise mitigation measures would be considered for the impacts. The two most likely methods of noise mitigation would be sound walls and sound insulation. Sound insulation treatments are typically applied to buildings in areas where walls would not be effective. The final mitigation design will depend on more detailed noise analysis during final design; however, all noise impacts can be mitigated.

In addition to the required noise analyses, Sound Transit conducted an analysis for select stations that are located within or over freeway corridors. These analyses are not reflected in Table 1-1 below. These unique locations present the potential for noise impacts on light rail patrons; however, there are no standards for this type of receptor. With sound walls at some of these stations, projected noise levels at these station locations were found to be within the range identified by the U.S. Environmental Protection Agency (EPA) as appropriate for communication at close distances.

1.2.2 Vibration Impact Assessment

Based on FTA criteria, it is projected that without mitigation, the East Link Project would cause some level of vibration and groundborne noise impacts at the locations listed in Table 1-2. However, these impacts would be related to annoyance impacts and not to building damage impacts. Section 6.2 includes detailed information regarding the impacts, and Section 7.5 discusses proposed mitigation measures. Although most impacts can be mitigated, there might be some residual impacts remaining after mitigation.

There are a number of options available for mitigating vibration impacts. The most common method is ballast mats and high compliance track fasteners. Ballast mats consist of pads made of rubber-like material placed on an asphalt or concrete base with the normal ballast, ties, and rail on top. Because the vibration reduction provided by ballast mats is limited at lower frequencies, their effectiveness is dependent on the frequency content of the vibration. Track fasteners can be used to provide vibration isolation between rails and concrete slabs for direct fixation track on elevated structures or in tunnels. Mitigation measures will be evaluated in more detail during final design, and the most appropriate measures would be selected based on feasibility and cost-effectiveness.

TABLE 1-1
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	Connection Alternatives	Light Rail Impacts		Traffic Noise Impacts[c]	Proposed Mitigation	Locations Considered for Sound Insulation
		Moderate[a]	Severe[b]			
Segment A						
Preferred Interstate 90 Alternative (A1)	N/A	1	0	0	Potential sound wall	0
Segment B						
Preferred 112th SE Modified Alternative (B2M)	*Preferred Alternative C11A*	79	0	0	Sound walls, special trackwork, and building insulation	10
	Preferred Alternative C9T	66				
	Preferred Alternative C9T with C9T - East Main Station Design Option	64	2	0		
Bellevue Way Alternative (B1)[d]	N/A	128	4	136	Special trackwork, and building insulation	141
112th SE At-Grade Alternative (B2A)[e]	N/A	77	1	17	Sound walls, special trackwork, and building insulation	17
112th SE Elevated Alternative (B2E)	N/A	85	21	0	Sound walls, special trackwork, and building insulation	5
112th SE Bypass Alternative (B3)[f]	N/A	79	4	17	Sound walls, special trackwork, and building insulation	17
B3 - 114th Extension Design Option[f]	N/A	76	1	17	Sound walls, special trackwork, and building insulation	31
BNSF Alternative (B7)	N/A	108	68	0	Sound walls and special trackwork	0
Segment C						
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred Alternative B2M*	119	65	0	Sound walls, special trackwork, and building insulation	108
	Alternative B3, B3 – 114th Extension Design Option, or B7	152	52			144
Preferred 110th NE Tunnel Alternative (C9T)	*Preferred Alternative B2M*	62	57	0	Sound walls, special trackwork, and building insulation	50
	Alternative B3, B3 – 114th Extension Design Option, or B7	88	52			84
C9T – East Main Station Design Option	*Preferred Alternative B2M*	67	52	0	Sound walls, special trackwork, and building insulation	50
Bellevue Way Tunnel Alternative (C1T)[g]	Alternative B1	48	52	18	Sound walls, special trackwork, and building insulation	69
106th NE Tunnel Alternative (C2T)	Alternative B2A	48	52	0	Sound walls, special trackwork, and building insulation	48
	Alternative B2E	113	66			
	Alternative B3 or B7	66	70			

TABLE 1-1 CONTINUED
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	**Connection Alternatives**	**Light Rail Impacts**		**Traffic Noise Impacts**[c]	**Proposed Mitigation**	**Locations Considered for Sound Insulation**
		Moderate[a]	**Severe**[b]			
108th NE Tunnel Alternative (C3T)	Alternative B2A	26	0	0	Sound walls	0
	Alternative B2E	91	14		Sound walls and special trackwork	32
	Alternative B3 or B7	44	18		Sound walls	0
Couplet Alternative (C4A)	Alternative B2A or B2E	435	15	0	Sound walls, special trackwork, and building insulation	364
	Alternative B3 or B7	420	19	0	Sound walls and building insulation	400
112th SE Elevated Alternative (C7E)	Alternative B2A or B2E	270	12	0	Sound walls and special trackwork	0
	Alternative B3 or B7	208	0		Sound walls	
110th NE Elevated Alternative (C8E)	Alternative B3 or B7	353	72	0	Sound walls	0
110th Avenue NE At-Grade Alternative (C9A)	Alternative B2A	185	56	0	Sound walls, special trackwork, and building insulation	120
	Alternative B3, B3 – 114th Extension Design Option, or B7	145	54			156
114th Avenue NE Elevated Alternative (C14E)	Alternative B3, B3 – 114th Extension Design Option, or B7	36	112	0	Sound walls and special trackwork	0
Segment D						
Preferred NE 16th At-Grade Alternative (D2A)	*Preferred Alternative C11A* or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
D2A - 120th Station Design Option	*Preferred Alternative C11A* or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
D2A - NE 24th Design Option	*Preferred Alternative C11A* or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
NE 16th Elevated Alternative (D2E)	Alternative C3T, C4A, C7E, or C8E	2	0	0	Sound wall and potential building insulation	1
	Preferred Alternative C11A or *C9T*, Alternative C1T, C2T, C9A or C14E	1	0	0	Sound wall and potential building insulation	1
NE 20th Alternative (D3)	Alternative C3T, C4A, C7E, or C8E	1	0	0	Sound wall	0
	Preferred Alternative C11A or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
SR 520 Alternative (D5)	Alternative C3T, C4A, C7E, or C8E	1	10	0	Sound wall	0
	Preferred Alternative C11A or *C9T*, Alternative C1T, C2T, C9A or C14E	0	10	0	Sound wall	0

TABLE 1-1 CONTINUED
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	Connection Alternatives	Light Rail Impacts[a,b]		Traffic Noise Impacts[c]	Proposed Mitigation	Locations Considered for Sound Insulation
		Moderate[a]	Severe[b]			
Segment E						
Preferred Marymoor Alternative (E2)	All Segment D alternatives	33	148	0	Sound wall, special trackwork, and building insulation	168
E2 - Redmond Transit Center Design Option	All Segment D alternatives	81	100	0	Sound wall, special trackwork, and building insulation	168
Redmond Way Alternative (E1)	All Segment D alternatives	167	150	0	Sound wall, special trackwork, and building insulation	288
Leary Way Alternative (E4)	All Segment D alternatives	66	32	0	Sound wall, special trackwork, and building insulation	48

[a] **Moderate impact:** In this range of noise impact, the change in the cumulative noise level is noticeable to most people but might not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing noise level, the projected level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views, and the cost of mitigating noise to more acceptable levels.

[b] **Severe impact:** Project-generated noise in the severe impact range can be expected to cause a substantial percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation will normally be specified for severe impact areas unless there are truly extenuating circumstances that prevent it.

[c] These traffic noise impacts are based on the Federal Highway Administration 66 A-weighted decibel (dBA) equivalent continuous sound level (L_{eq}) impact criteria.

[d] Under Alternative B1 all but nine of the traffic noise impacts would also have light rail noise impacts; conversely, there are only five light rail impacts that would not have traffic noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 141; 5 would be impacted by light rail noise only, 9 would be impacted by traffic noise only, and 127 would be impacted by both traffic noise and light rail noise.

[e] Under Alternative B2A all but one of the traffic noise impacts would also have light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 79; 62 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[f] Under Alternatives B3 and B3 – 114th Extension Design Option all but one of the traffic noise impacts would also have light rail noise impacts. For B3, the total number of residences impacted (single- and multifamily) would be 84; 67 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise. For B3 – 114th Extension Design Option, the total number of residences impacted (single- and multifamily) would be 78; 61 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[g] Under Alternative C1T all the traffic noise impacts are separate from light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 118; 100 would be impacted by light rail noise only, 18 would be impacted by traffic noise only, and 0 would be impacted by both traffic noise and light rail noise.

TABLE 1-2
Summary of Potential Vibration Impacts

		Before Mitigation		**After Mitigation**	
Alternative	**Connection Alternatives**	**Number of Vibration Impacts**[a]	**Number of Groundborne Noise Impacts**[b]	**Number of Vibration Impacts**	**Number of Groundborne Noise Impacts**[b]
Segment A					
Preferred Interstate 90 Alternative (A1)	N/A	None	25 single-family	None	None
Segment B					
Preferred 112th SE Modified Alternative (B2M)	*Preferred Alternative C11A* or *C9T*	None	1 (Winters House)	None	None
Preferred 112th SE Modified Alternative (B2M)	C9T – East Main Station Design Option	1 single-family	1 (Winters House)	None	None
Bellevue Way Alternative (B1)	N/A	1 single-family	None	None	None
112th SE At-Grade Alternative (B2A)	N/A	None	None	None	None
112th SE Elevated Alternative (B2E)	N/A	None	None	None	None
112th SE Bypass Alternative (B3)[c]	N/A	None	None	None	None
BNSF Alternative (B7)	N/A	None	None	None	None
Segment C					
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred Alternative B2M*	2 single-family, 3 multifamily (108 units), 1 hotel	None	1 hotel	None
	Alternative B3 or B7	1 single-family, 3 multifamily (108 units), 1 hotel	None	1 hotel	None
Preferred 110th NE Tunnel Alternative (C9T)	*Preferred Alternative B2M*	7 single-family, 1 hotel	1 theater (Meydenbauer Center)	1 hotel	None
	Alternative B3 or B7	1 single-family, 1 hotel	1 theater (Meydenbauer Center)	1 hotel	None
C9T – East Main Station Design Option	*Preferred Alternative B2M*	2 single-family, 1 hotel	1 theater (Meydenbauer Center)	1 hotel	None
Bellevue Way Tunnel Alternative (C1T)	Alternative B1	1 single-family, 1 hotel	1 single-family	None	None
106th NE Tunnel Alternative (C2T)	Alternative B2A	None	None	None	None
	Alternative B2E	None	1 single-family	None	None
	Alternative B3 or B7	None	None	None	None
108th NE Tunnel Alternative (C3T)	Alternative B2A	None	12 single-family	None	None
	Alternative B2E	None	2 single-family	None	None
	Alternative B3 or B7	None	1 single-family	None	None
Couplet Alternative (C4A)	Alternative B2A, B2E, B3 or B7	1 single-family, 6 multifamily (729 units)	None	2 multifamily (176 units)	None
112th NE Elevated Alternative (C7E)	Alternative B2A, B2E, B3, or B7	None	None	None	None
110th NE Elevated Alternative (C8E)	Alternative B3 or B7	2 single-family, 3 multifamily (418 units), 1 hotel	None	1 multifamily (38 units), 1 hotel	None
110th Avenue NE At-Grade Alternative (C9A)	Alternative B2A, B3, or B7	2 single-family, 3 multifamily (108 units), 1 hotel	None	2 multifamily (68 units), 1 hotel	None

TABLE 1-2 CONTINUED
Summary of Potential Vibration Impacts

Alternative	Connection Alternatives	Before Mitigation		After Mitigation	
		Number of Vibration Impacts[a]	**Number of Groundborne Noise Impacts[b]**	**Number of Vibration Impacts**	**Number of Groundborne Noise Impacts[b]**
114th NE Elevated Alternative (C14E)	Alternative B3 or B7	3 hotels	None	1 hotel	None
Segment D					
All alternatives	N/A	None	None	None	None
Segment E					
Preferred Marymoor Alternative (E2)[d]	N/A	3 single-family	None	1 single-family	None
Redmond Way Alternative (E1)	N/A	3 single-family	None	1 single-family	None
Leary Way Alternative (E4)	N/A	1 single-family, 1 multifamily, 1 hotel	None	None	None

[a] Commercial and industrial buildings are only assessed for vibration impact if they contain vibration-sensitive uses.
[b] Groundborne noise is only assessed for tunnel locations.
[c] Impacts for B3 – 114th Extension Design Option would not vary from those of Alternative B3.
[d] Impacts for E2 - Redmond Transit Center Design Option would not vary from those of *Preferred Alternative E2*.

2.0 Environmental Noise and Vibration Basics

2.1 Noise Fundamentals and Descriptors

What humans perceive as sound is a series of continuous air pressure fluctuations superimposed on the atmospheric pressure that surrounds us. The amplitude of fluctuation is related to the energy carried in a sound wave; the greater the amplitude, the greater the energy, and the louder the sound. The full range of sound pressures encountered in the world is so great that it is more convenient to compress the range by using a logarithmic scale, resulting in the fundamental descriptor used in acoustics, the sound pressure level, which is measured in decibels (dB). When sounds are unpleasant, unwanted, or disturbingly loud, we tend to classify them as noise.

Another aspect of sound is the quality described as its pitch. Pitch of a sound is established by the frequency, which is a measure of how rapidly a sound wave fluctuates. The unit of measurement is cycles per second, called hertz (Hz). When a sound is analyzed, its energy content at individual frequencies is displayed over the frequency range of interest, usually the range of human audibility from 20 Hz to 20,000 Hz. This display is called a frequency spectrum.

Sound is measured using a sound-level meter with a microphone designed to respond accurately to all audible frequencies. However, the human hearing system does not respond equally to all frequencies. Low-frequency sounds below about 400 Hz are progressively and severely attenuated, as are high frequencies above 10,000 Hz. To approximate the way humans interpret sound, a filter circuit with frequency characteristics similar to the human hearing mechanism is built into sound-level meters. Measurements with this filter enacted are called A-weighted sound levels, expressed in A-weighted decibels (dBA). Community noise is usually characterized in terms of the A-weighted sound level. Exhibit 2-1 illustrates the A-weighted levels of common sounds.

The range of human hearing extends from about 0 dBA for young healthy ears (that have not been exposed to loud noise sources) to about 140 dBA. When sounds exceed 110 dBA, there is a potential for hearing damage, even with relatively short exposures. In quiet suburban areas far from major freeways, the noise levels during the late night hours will drop to about 30 dBA. Outdoor noise levels lower than this only occur in isolated areas where there is a minimum even of natural noises, such as leaves blowing in the wind, crickets, or flowing water.

Another characteristic of environmental noise is that it is constantly changing. The noise-level increase when a train passes is an example of a short-term change. The lower average noise levels occur during nighttime hours, when activities are at a minimum, and higher noise levels during daytime hours are caused by daily patterns of noise-level fluctuation. The instantaneous A-weighted sound level is insufficient to describe the overall acoustic "environment." Thus, it is common practice to condense the fluctuating noise levels into a single number, called the "equivalent" sound level (Leq). Leq can be thought of as the steady sound level that represents the same sound energy as the varying sound levels over a specified time period (typically 1 hour or 24 hours). Often the Leq values over a 24-hour period are used to calculate cumulative noise exposure in terms of the Day-Night Equivalent Sound Level (Ldn, also abbreviated DNL), which is defined as the 24-hour Leq but with a 10-dB penalty assessed to noise events occurring at night (defined as 10 p.m. to 7 a.m.). The effect of this penalty is that any event during nighttime hours is equivalent to 10 events during the daytime. This strongly weights Ldn toward nighttime noise to reflect most people being more easily annoyed by noise at night, when background noise is lower and most people are resting.

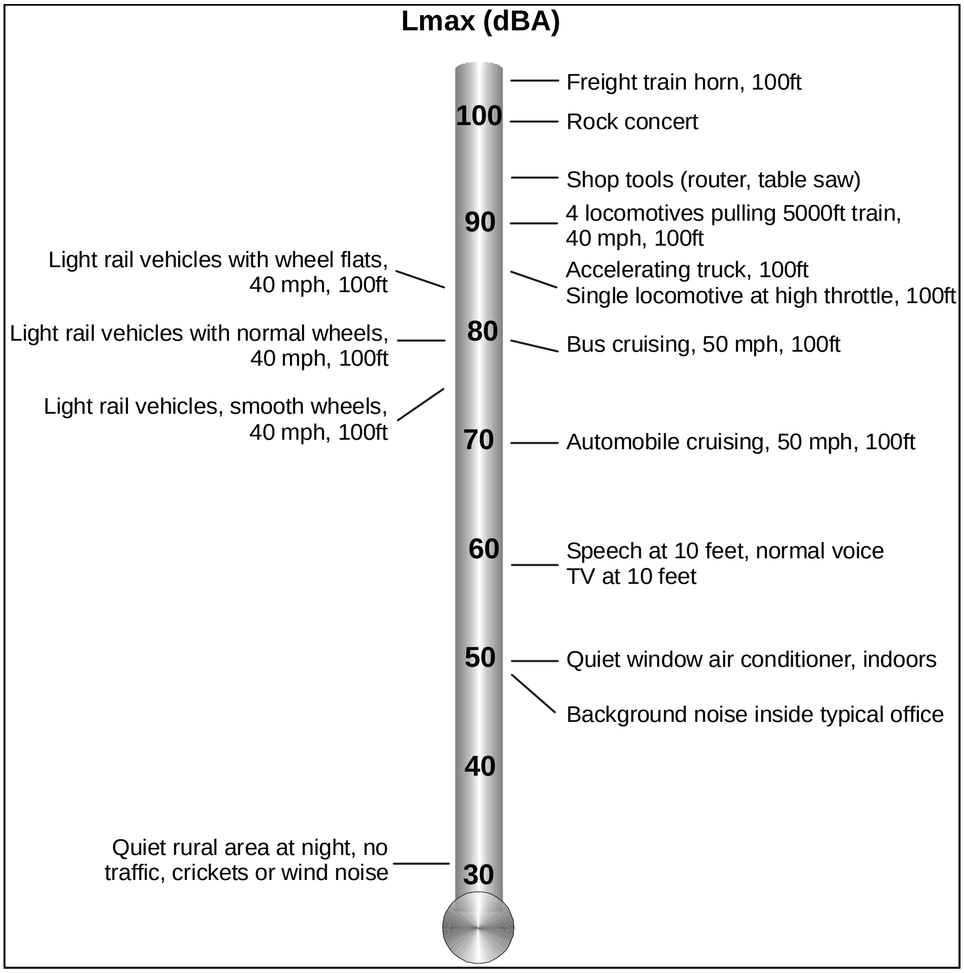


EXHIBIT 2-1
Comparison of Various Noise Levels

Environmental impact assessments for high-capacity transit projects in the United States typically use Ldn to describe the community noise environment at residential locations. Studies of community response to a wide variety of noises indicate that Ldn is a good measure of the noise environment. Efforts to derive measures that are better correlated to community response have not been successful, although there are still efforts in the acoustical community to develop improved measures. Exhibit 2-2 defines typical community noise levels in terms of Ldn. Most urban and suburban neighborhoods are usually in the range of Ldn 50 dBA to 70 dBA. An Ldn of 70 dBA is a relatively noisy environment that might be found at buildings on a busy surface street, close to a freeway, or near a busy airport and would usually be considered unacceptable for residential land use without special measures taken to enhance outdoor-indoor sound insulation. Residential neighborhoods that are not near major sound sources are usually in the range of Ldn 55 dBA to 60 dBA. If there is a freeway or moderately busy arterial nearby, or any nighttime noise, Ldn is usually in the range of 60 to 65 dBA.

Ldn is the designated noise metric of choice for many federal agencies, including the Department of Housing and Urban Development (HUD), Federal Aviation Administration (FAA), FTA, and EPA. Although Ldn does have recognized limitations and there is still considerable discussion within the acoustical community about whether improved metrics are possible, there is general consensus that Ldn, or similar energy-based metrics, are the best available means of describing community noise environments. Most federal and state agency criteria for noise impacts are based on some measurement of noise energy. For example, the FAA and HUD use Ldn, and the Federal Highway Administration (FHWA) uses peak hour Leq. The noise impact criteria applicable to residential areas, and included in the FTA manual *Transit Noise and Vibration Impact Assessment*, use both Leq and Ldn to characterize community noise.

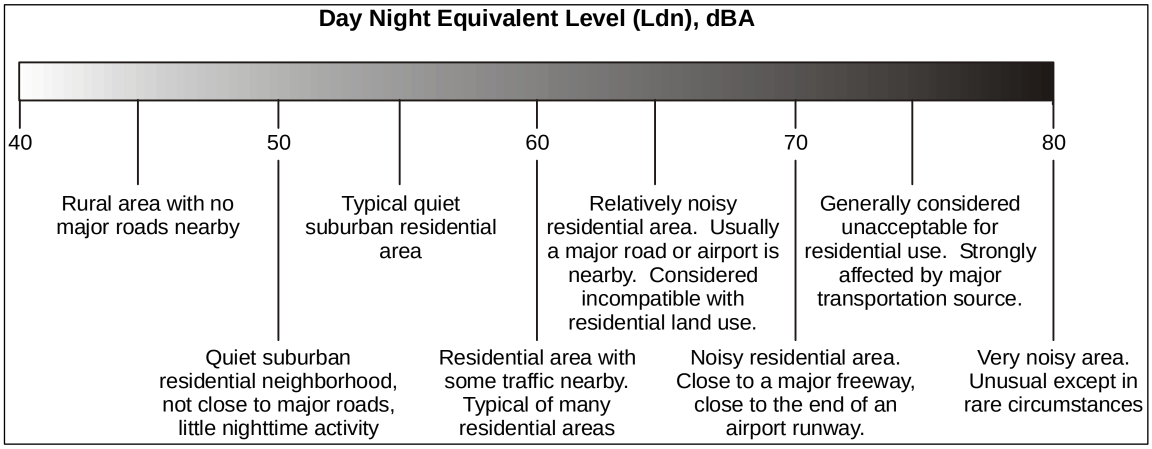

Day Night Equivalent Level (Ldn), dBA
40
50
60
70
80
Rural area with no major roads nearby
Typical quiet suburban residential area
Relatively noisy residential area. Usually a major road or airport is nearby. Considered incompatible with residential land use.
Generally considered unacceptable for residential use. Strongly affected by major transportation source.
Quiet suburban residential neighborhood, not close to major roads, little nighttime activity
Residential area with some traffic nearby. Typical of many residential areas
Noisy residential area. Close to a major freeway, close to the end of an airport runway.
Very noisy area. Unusual except in rare circumstances

EXHIBIT 2-2
Examples of Typical Outdoor Noise Exposure

The Washington State Administrative Code (WAC) uses the maximum noise level with a set of allowable exceedances in their noise control ordinance, which is applicable to the noise analysis of ancillary facilities such as park-and-ride lots and maintenance facilities, as well as construction activities. To qualify the allowable exceedances, the commonly used noise metric—the Lnn—is used for compliance verification. The sound level descriptor Lnn is defined as the sound level exceeded "n" percent of the time. For example, the L25 is the sound level exceeded 25 percent of the time; therefore, during a 1-hour measurement, an L25 of 60 dBA means the sound level equaled or exceeded 60 dBA for 15 minutes during that hour. More detailed information on the WAC is provided in Section 4.4.1.

2.2 Vibration Fundamentals and Descriptors

Groundborne vibration is the oscillatory motion of the ground about some equilibrium position, which can be described in terms of displacement, velocity, or acceleration. Displacement refers to the distance an object moves away from its equilibrium position. Velocity refers to the rate of change in displacement or the speed of this motion. Acceleration refers to the time rate of change in the velocity of the object. At any given frequency of oscillation, vibration displacement, velocity, and acceleration are related. However, the relationship between these descriptors is complex and can vary greatly in different situations. Therefore, the relationship between the overall vibration levels in terms of these descriptors depends on the frequency content of the vibration energy.

Although displacement is easier to understand than velocity or acceleration, it is rarely used for describing groundborne vibration. One reason for this is that most sensors used for measuring groundborne vibration are designed to provide output signals proportional to either velocity or acceleration. Even more important, the response of humans, buildings, and equipment to vibration is more accurately described using velocity or acceleration. Because sensitivity to vibration typically corresponds to a constant level of vibration-velocity amplitude within the low-frequency range that is of most concern for environmental vibration (i.e., roughly 5 to 100 Hz), vibration velocity is used in this analysis as the primary measure to evaluate the impacts of vibration.

There are several different measures used to quantify vibration amplitude. One of the most common is the peak particle velocity (PPV), defined as the maximum instantaneous positive or negative peak of the vibratory motion. PPV is often used to monitor blasting vibration because it is related to the stresses experienced by building components. Although PPV is appropriate for evaluating the potential for building damage, it is less suitable for evaluating human response, which is better related to an average vibration amplitude. Because the net average of a vibration signal about its equilibrium position is zero, the root mean square (rms) amplitude is often used to describe the "smoothed" vibration amplitude. The rms amplitude is defined as the square root of the average of the squared amplitude of the signal and is typically evaluated over a 1-second period of time.

Although vibration velocity is normally described in units of inches per second in the United States, the decibel notation, which acts to compress the range of numbers required to describe vibration, can also be used. In this notation, the vibration magnitude can be expressed in terms of velocity level, in decibels, defined as follows:

$$L_v = 20\log_{10}(v/v_{ref}),\ \text{VdB}$$

where:

v = rms velocity, inches/second
v_{ref} = 1×10^{-6} inches/second

Thus, the descriptor used for this assessment of groundborne vibration is the rms vibration velocity level, Lv, expressed in vibration decibels (VdB) relative to one micro-inch per second. Exhibit 2-3 illustrates typical groundborne vibration levels for common sources, as well as human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 VdB to 100 VdB (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration exceeds 70 VdB.

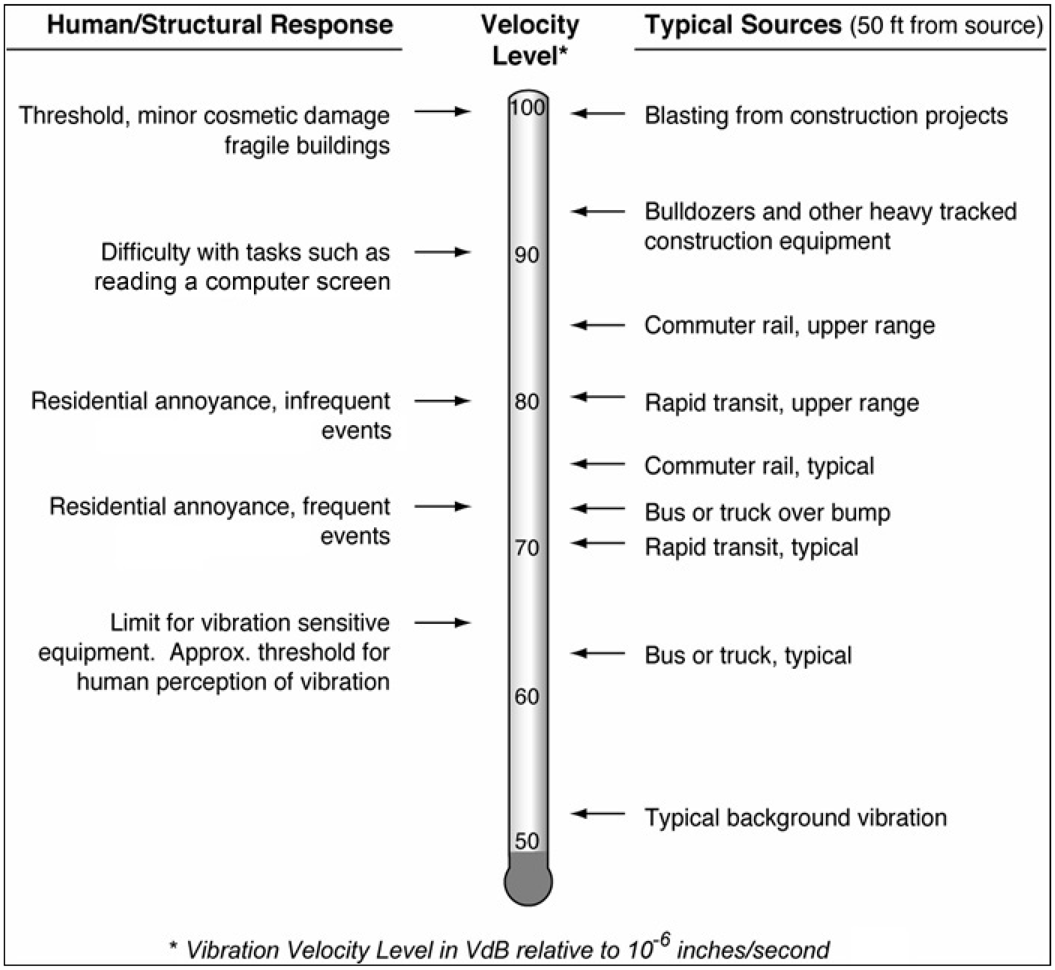

Human/Structural Response
Velocity Level*
Typical Sources (50 ft from source)
Threshold, minor cosmetic damage fragile buildings
Difficulty with tasks such as reading a computer screen
Residential annoyance, infrequent events
Residential annoyance, frequent events
Limit for vibration sensitive equipment. Approx. threshold for human perception of vibration
100
90
80
70
60
50
Blasting from construction projects
Bulldozers and other heavy tracked construction equipment
Commuter rail, upper range
Rapid transit, upper range
Commuter rail, typical
Bus or truck over bump
Rapid transit, typical
Bus or truck, typical
Typical background vibration
* Vibration Velocity Level in VdB relative to 10^-6 inches/second

EXHIBIT 2-3
Typical Groundborne Vibration Levels and Human/Structural Response

When groundborne vibrations propagate from transit vehicles to nearby buildings, the floors and walls of the building structure will respond to the motion and may resonate at natural frequencies. The vibration of the walls and floors may cause perceptible vibration, rattling of items such as windows or dishes on shelves, or a rumbling noise. The rumble is the noise radiated from the motion of the room surfaces. In essence, the room surfaces act like a giant loudspeaker. This is called groundborne noise.

The potential annoyance of groundborne noise is often assessed using the A-weighted sound level, although there are potential problems in using the A-weighted sound level to characterize low-frequency groundborne noise. Human hearing is non-linear, which causes sounds with substantial low-frequency content to seem louder than broadband sounds that have the same A-weighted level. This is accounted for by setting A-weighted impact criteria limits lower for groundborne noise than would be the case for broadband noise.

3.0 Existing Conditions

The project corridor was examined to identify noise-sensitive locations and to select locations where noise monitoring would be performed. The following sections describe the land use along the project corridor, the existing noise-level measurements, and the current noise sources in the project corridor. While a more detailed presentation of land use can be found in Section 4.3, Land Use, in Chapter 4 of the East Link Final Environmental Impact Statement (EIS), the following land uses are summarized for their potential sensitivity to noise and vibration. Most identified land uses are sensitive to both noise and vibration. The exceptions include outdoor parks, which may be noise-sensitive, depending on usage, but are not vibration-sensitive, and vibration-sensitive equipment (such as an MRI), which is not sensitive to noise. Exhibits 3-1 through 3-5 show the different alternatives, noise monitoring locations, and existing land uses.

3.1 Land Use

3.1.1 Segment A

The Central Link connection to the East Link Project corridor is located in the International/Chinatown District, which is within walking distance to Downtown Seattle and Pioneer Square to the north, sports stadiums to the west and south, and an industrial area also to the south. Land use near the connection is mainly commercial; however, the route is already in the existing transit tunnel and therefore would not have the potential to affect adjacent land uses. The route continues along the 5th Avenue ramps of I-90, remaining in the existing I-90 corridor to the I-90 tunnel portals. I-90 crosses I-5, passing by predominantly commercial uses to the north and large greenbelt parks, residential, and commercial uses on Beacon Hill to the south. Land use along this section of the route is mainly commercial until 12th Avenue South, where there is a large group of single-family and multifamily residences along Sturgus Avenue South. Several single-family residences are also located above the Mount Baker Ridge Tunnel. The route then transitions from the tunnel to the floating bridge in an area that is also primarily single-family residential.

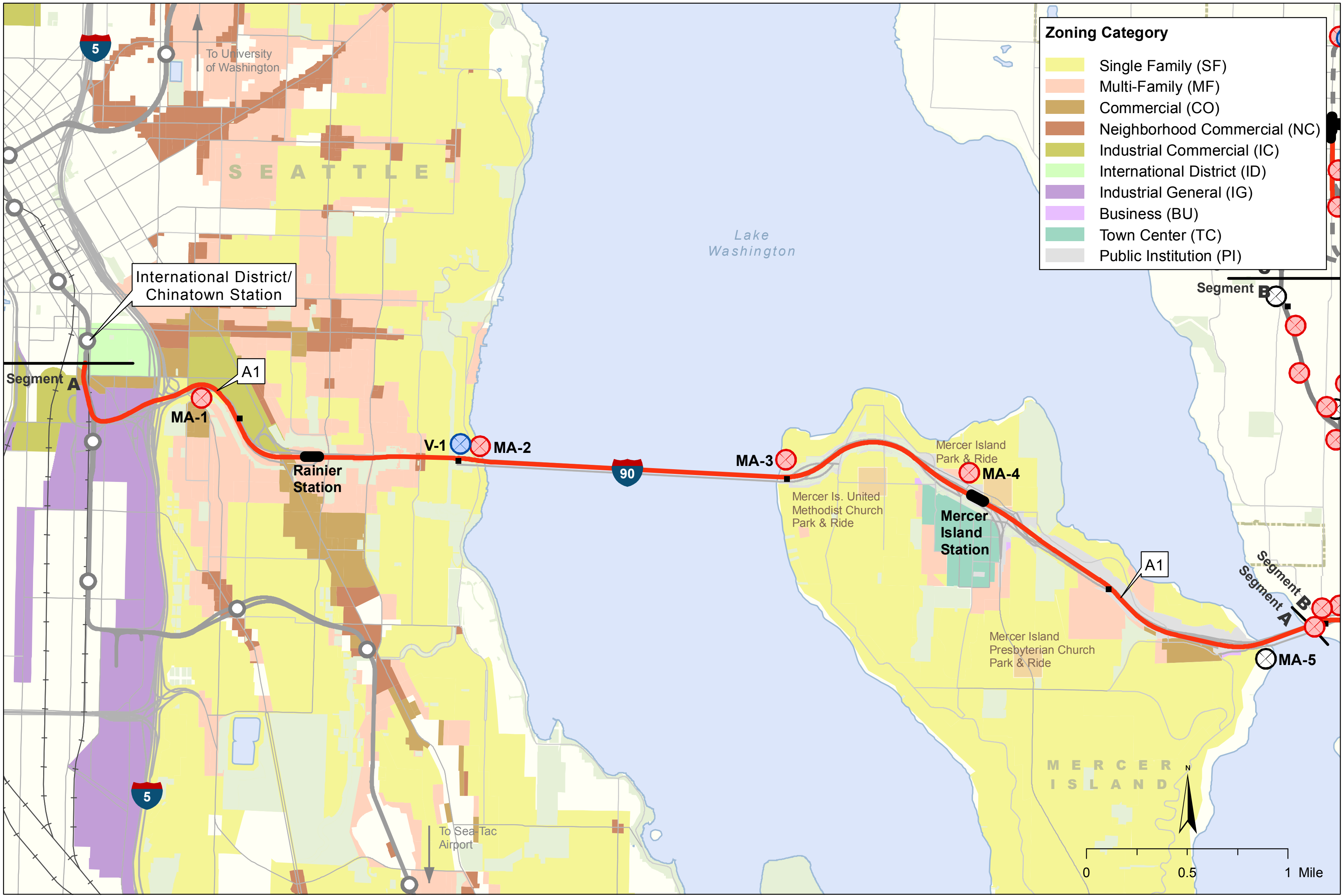
The I-90 corridor and light rail routes are well below grade across Mercer Island. At the western end of the island, near the I-90 bridge and tunnel, land use is residential. Most residences in this area are more than 300 feet from the proposed light rail route. Land use near the proposed Mercer Island Station includes a new park-and-ride structure and single-family residences to the north and a large multifamily building to the east. West and south of the station are the highway and connector roadways that lead to the I-90 on- and off-ramps. Also to the south of the station are midrise, mixed-use developments that either are under construction or newly opened. At the eastern end of Mercer Island, land use is primarily single-family residential with some commercial use to the south of I-90.

Parks in Segment A include Judkins Park and Playfield located near the entrance to the Mount Baker Ridge Tunnel and Sam Smith Park located above the tunnel. Other parks in Segment A include Daejeon Park and East Portal Park. There are also several parks on Mercer Island, including Park on the Lid and Luther Burbank Park, both of which are near I-90. None of these parks are considered noise-sensitive under the FTA criteria because of their proximity to I-90 and the high existing noise levels.

3.1.2 Segment B

Land use in Segment B consists primarily of residences and parks, with some institutional and commercial uses. Land use in the southern end of Segment B, near Lake Washington, includes single-family residences and Enatai Beach Park. Along the west side of the Bellevue Way SE, land use is entirely residential from SE 34th Street to the intersection at 112th Avenue SE. Mercer Slough Nature Park dominates the east side of Bellevue Way. Along Bellevue Way SE between 112th Avenue SE and where Segment C begins, land use is also primarily residential; however, there are also several churches, commercial structures, and a daycare in this portion of Segment B.

The Winters House, a historic structure used for nonresidential uses, is located along the east side of Bellevue Way SE, adjacent to the Mercer Slough Nature Park. Along 112th Avenue SE, land use to the west is entirely single- and multifamily residential; to the east, land use is commercial between the intersection of Bellevue Way and SE 8th Street, transitioning to mixed commercial and hotel use from SE 8th Street to Segment C at


Zoning Category
Single Family (SF)
Multi-Family (MF)
Commercial (CO)
Neighborhood Commercial (NC)
Industrial Commercial (IC)
International District (ID)
Industrial General (IG)
Business (BU)
Town Center (TC)
Public Institution (PI)
5
To University of Washington
S E A T T L E
Lake Washington
International District/ Chinatown Station
Segment A
A1
MA-1
Rainier Station
V-1
MA-2
90
MA-3
Mercer Island Park & Ride
MA-4
Mercer Is. United Methodist Church Park & Ride
Mercer Island Station
A1
Segment B
Segment B
Segment A
Mercer Island Presbyterian Church Park & Ride
MA-5
5
To Sea-Tac Airport
M E R C E R I S L A N D
N
0
0.5
1 Mile
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Central Link Alignment and Station
Existing Park

Source: Data from City of Seattle (2006), Sound Transit (2007), King County (2006), and City of Mercer Island (2001 and 2006).

Exhibit 3-1 **Noise Monitoring and Vibration Measurement Locations and Land Use Segment A**

East Link Project

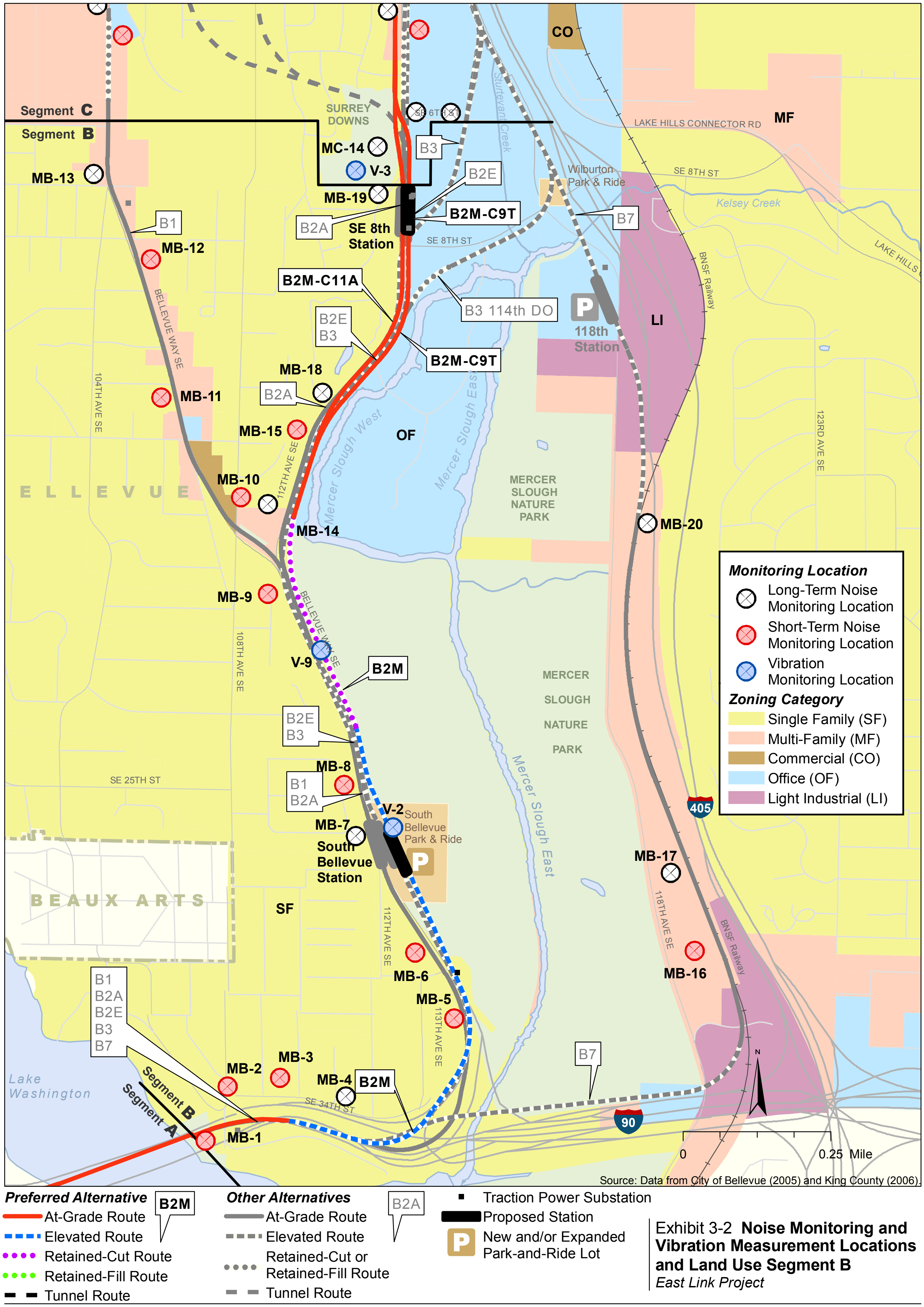
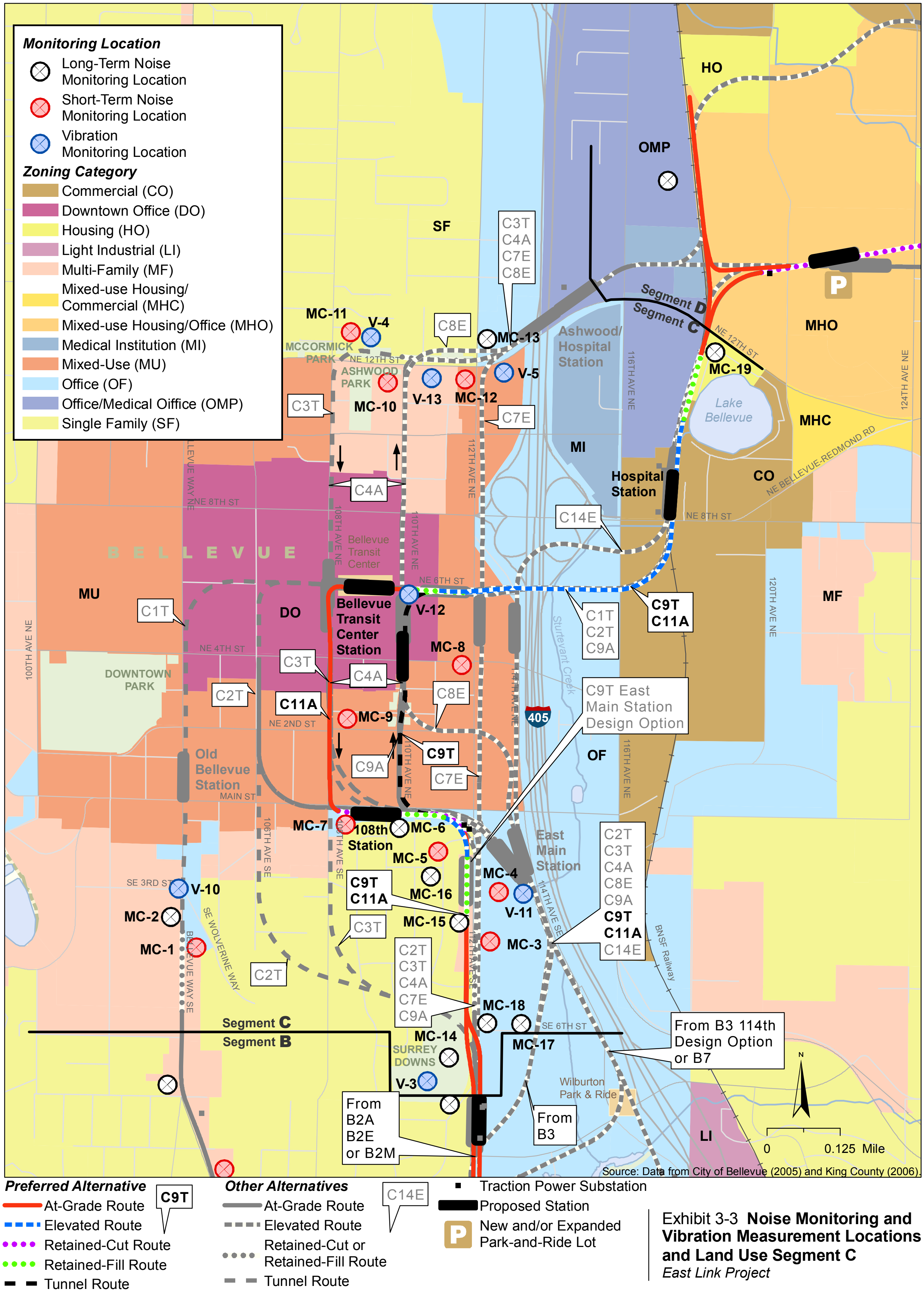

CO
MF
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
Kelsey Creek
LAKE HILLS
Sturtevant Creek
Wilburton Park & Ride
MC-14
V-3
MB-19
MB-13
B1
B2A
B2E
B3
B7
B2M-C9T
SE 8th Station
SE 8TH ST
MB-12
B2M-C11A
B3 114th DO
118th Station
LI
B2E
B3
B2M-C9T
BNSF Railway
BELLEVUE WAY SE
104TH AVE SE
MB-18
B2A
MB-11
MB-15
Mercer Slough West
Mercer Slough East
OF
112TH AVE SE
123RD AVE SE
B E L L E V U E
MB-10
MERCER SLOUGH NATURE PARK
MB-14
MB-20
MB-9
BELLEVUE WAY SE
108TH AVE SE
V-9
B2M
MERCER SLOUGH NATURE PARK
B2E
B3
Mercer Slough East
SE 25TH ST
MB-8
B1
B2A
V-2
South Bellevue Park & Ride
MB-7
South Bellevue Station
405
MB-17
BEAUX ARTS
SF
112TH AVE SE
118TH AVE SE
BNSF Railway
MB-6
MB-16
MB-5
B1
B2A
B2E
B3
B7
113TH AVE SE
B7
Lake Washington
Segment B
Segment A
MB-2
MB-3
MB-4
B2M
SE 34TH ST
90
N
MB-1
0
0.25 Mile
Source: Data from City of Bellevue (2005) and King County (2006).
Monitoring Location
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
Zoning Category
Single Family (SF)
Multi-Family (MF)
Commercial (CO)
Office (OF)
Light Industrial (LI)
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
P
New and/or Expanded Park-and-Ride Lot

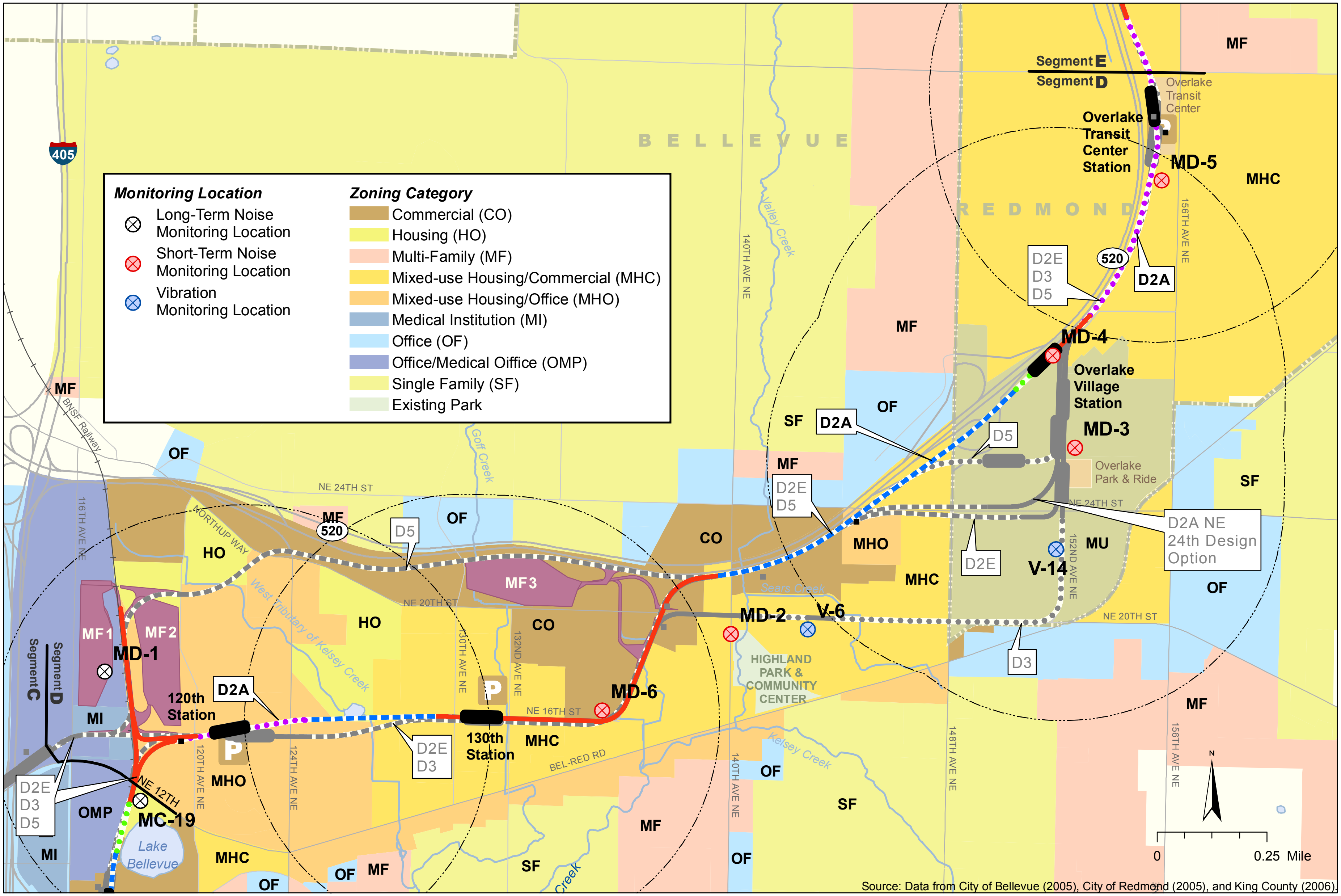
Exhibit 3-2 **Noise Monitoring and Vibration Measurement Locations and Land Use Segment B**
East Link Project


Monitoring Location
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
Zoning Category
Commercial (CO)
Downtown Office (DO)
Housing (HO)
Light Industrial (LI)
Multi-Family (MF)
Mixed-use Housing/Commercial (MHC)
Mixed-use Housing/Office (MHO)
Medical Institution (MI)
Mixed-Use (MU)
Office (OF)
Office/Medical Office (OMP)
Single Family (SF)
HO
OMP
SF
MHO
MHC
CO
MI
MF
MU
DO
OF
LI
C3T C4A C7E C8E
C8E
C3T
C4A
C7E
C14E
C1T
C2T
C11A
C9A
C9T
C1T C2T C9A
C9T C11A
C9T East Main Station Design Option
C2T C3T C4A C8E C9A C9T C11A C14E
C2T C3T C4A C7E C9A
From B3 114th Design Option or B7
From B2A B2E or B2M
From B3
Segment D
Segment C
Segment B
MC-1
MC-2
MC-3
MC-4
MC-5
MC-6
MC-7
MC-8
MC-9
MC-10
MC-11
MC-12
MC-13
MC-14
MC-15
MC-16
MC-17
MC-18
MC-19
V-3
V-4
V-5
V-10
V-11
V-12
V-13
Ashwood/Hospital Station
Hospital Station
Bellevue Transit Center Station
Bellevue Transit Center
Old Bellevue Station
108th Station
East Main Station
Lake Bellevue
MCCORMICK PARK
ASHWOOD PARK
DOWNTOWN PARK
SURREY DOWNS
Wilburton Park & Ride
B E L L E V U E
NE 12TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
NE BELLEVUE-REDMOND RD
100TH AVE NE
BELLEVUE WAY NE
BELLEVUE WAY SE
SE WOLVERINE WAY
106TH AVE SE
108TH AVE NE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
114TH AVE SE
116TH AVE NE
120TH AVE NE
124TH AVE NE
Sturtevant Creek
BNSF Railway
405
N
0
0.125 Mile
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C14E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
New and/or Expanded Park-and-Ride Lot

Source: Data from City of Bellevue (2005) and King County (2006).

Exhibit 3-3 **Noise Monitoring and Vibration Measurement Locations and Land Use Segment C**

East Link Project



Monitoring Location
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
Zoning Category
Commercial (CO)
Housing (HO)
Multi-Family (MF)
Mixed-use Housing/Commercial (MHC)
Mixed-use Housing/Office (MHO)
Medical Institution (MI)
Office (OF)
Office/Medical Oiffice (OMP)
Single Family (SF)
Existing Park
405
520
B E L L E V U E
R E D M O N D
Segment E
Segment D
Segment C
Overlake Transit Center
Overlake Transit Center Station
MD-5
MD-4
MD-3
MD-2
MD-1
MD-6
MC-19
V-6
V-14
Overlake Village Station
Overlake Park & Ride
120th Station
130th Station
D2A NE 24th Design Option
D2A
D2E
D3
D5
MF 1
MF 2
MF 3
HIGHLAND PARK & COMMUNITY CENTER
Lake Bellevue
BNSF Railway
NORTHUP WAY
NE 24TH ST
NE 20TH ST
NE 16TH ST
NE 12TH
BEL-RED RD
116TH AVE NE
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
140TH AVE NE
148TH AVE NE
152ND AVE NE
156TH AVE NE
Valley Creek
Goff Creek
West Tributary of Kelsey Creek
Sears Creek
Kelsey Creek
Creek
MF
MHC
MHO
MU
OF
SF
HO
CO
MI
OMP
0
0.25 Mile
N

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

D2A

Other Alternatives

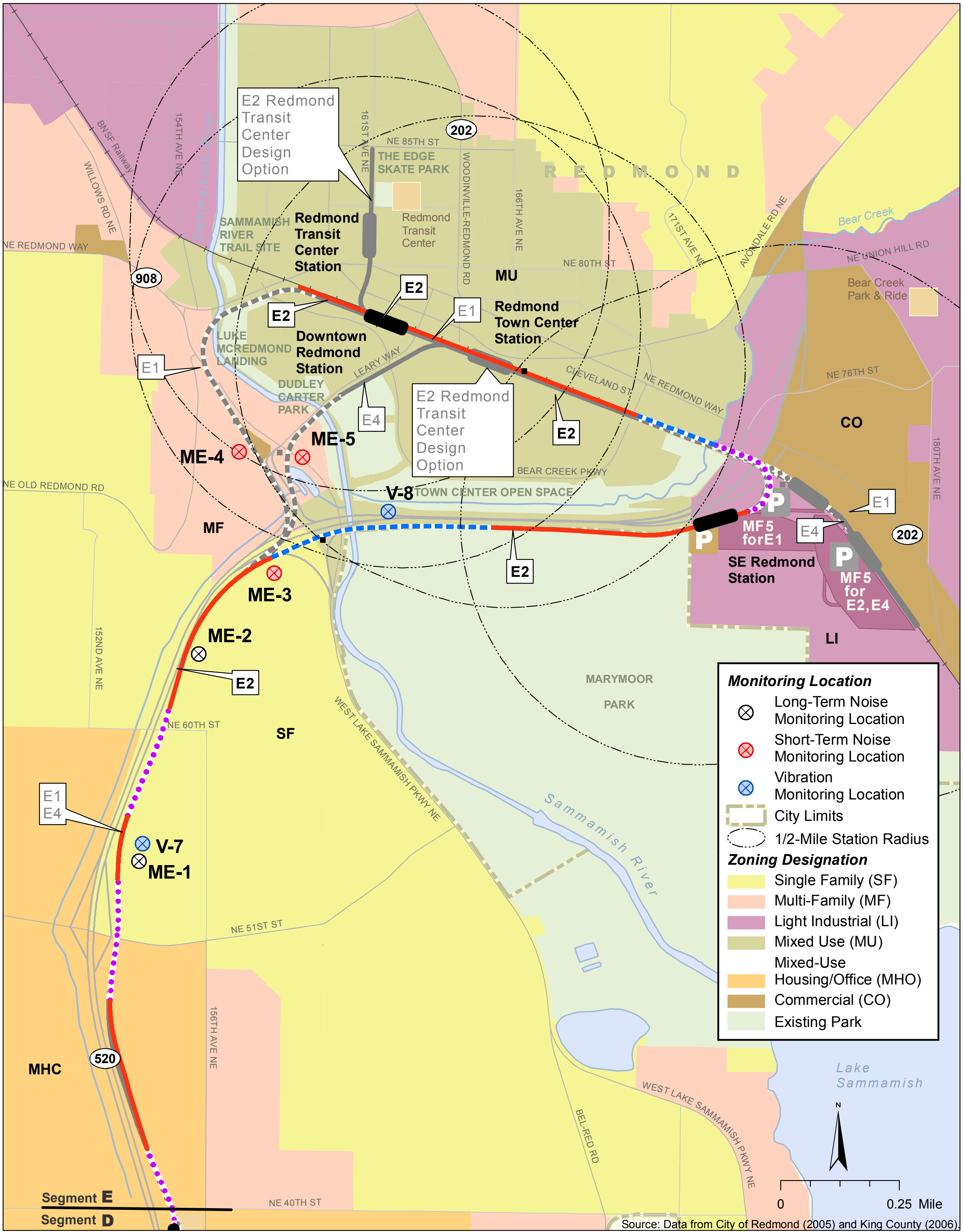
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

D3

- ▪ Traction Power Substation
- Proposed Station
- Maintenance Facility and Access Track
- 1/2-Mile Station Radius
- P New and/or Expanded Park-and-Ride Lot

Exhibit 3-4 **Noise Monitoring and Vibration Measurement Locations and Land Use Segment D**

East Link Project


E2 Redmond Transit Center Design Option
Redmond Transit Center Station
Redmond Transit Center
THE EDGE SKATE PARK
NE 85TH ST
202
REDMOND
SAMMAMISH RIVER TRAIL SITE
BNSF Railway
WILLOWS RD NE
154TH AVE NE
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
NE REDMOND WAY
908
NE 80TH ST
MU
E2
E1
Redmond Town Center Station
Downtown Redmond Station
LUKE MCREDMOND LANDING
LEARY WAY
DUDLEY CARTER PARK
E4
E2 Redmond Transit Center Design Option
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
CO
180TH AVE NE
ME-4
ME-5
V-8
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
MF
MF 5 for E1
SE Redmond Station
MF 5 for E2, E4
LI
ME-3
ME-2
152ND AVE NE
NE 60TH ST
SF
WEST LAKE SAMMAMISH PKWY NE
MARYMOOR PARK
Sammamish River
E1 E4
V-7
ME-1
NE 51ST ST
MHC
520
156TH AVE NE
BEL-RED RD
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
NE 40TH ST
Segment E
Segment D
N
0
0.25 Mile
Monitoring Location
Long-Term Noise Monitoring Location
Short-Term Noise Monitoring Location
Vibration Monitoring Location
City Limits
1/2-Mile Station Radius
Zoning Designation
Single Family (SF)
Multi-Family (MF)
Light Industrial (LI)
Mixed Use (MU)
Mixed-Use Housing/Office (MHO)
Commercial (CO)
Existing Park
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
New and/or Expanded Park-and-Ride Lot

Source: Data from City of Redmond (2005) and King County (2006).

Exhibit 3-5 **Noise Monitoring and Vibration Measurement Locations and Land Use Segment E**

East Link Project

SE 6th Street. Land use along the BNSF Alternative (B7) is primarily parkland north of the route, with some multifamily and commercial land uses where the alternative transitions to the former BNSF Railway corridor. Land use along the former BNSF Railway corridor includes multifamily residential and some commercial between SE 32nd Street and SE 8th Street.

Parks in Segment B include the Enatai Beach Park and the Mercer Slough Nature Park. Portions of the Enatai Beach Park and the Mercer Slough Nature Park that could be affected by the proposed project are near a major highway or major arterial roadways, including I-90 and Bellevue Way SE, and therefore are not considered noise-sensitive under FTA criteria. The only parklands in Segment B considered noise-sensitive under the FTA criteria are interior portions of Mercer Slough Nature Park, which are 350 feet or more from the proposed alternatives.

3.1.3 Segment C

Land uses in the southern section of Segment C consists of the Surrey Downs residential area and park, transitioning to commercial and office use at Main Street. Land uses along Bellevue Way and 112th Avenue SE south of Main Street are similar as in Segment B. There are some mixed-use buildings in Downtown Bellevue, with commercial uses on the ground floors and residential units on the upper floors. The Downtown Park is located near the Bellevue Way Alternative (C1T) west of Bellevue Way. Some Segment C alternatives pass by the Bellevue City Hall, the Meydenbauer Convention Center, the Bellevue Regional Library, and Ashwood Park.

In addition, residential land uses were identified along the northern edge of Downtown Bellevue. There are several multifamily residential units along 108th Avenue NE, 110th Avenue NE, and 112th Avenue NE near NE 12th Street. The Bellevue Regional Library and Ashwood Park are also located near NE 12th Street. McCormick Park is located on the north side of NE 12th Street, between 112th Avenue NE and 106th Place NE. North of McCormick Park, land use is primarily single- and multifamily residential.

Noise-sensitive land uses east of I-405 include Overlake Hospital, Group Health Medical Center, and a broad range of medical offices supporting the hospital. There is also a multifamily residential area at the north end of Lake Bellevue, along NE 12th Street.

Surrey Downs Park, an active park with playfields; Downtown Park; Ashwood Park; and McCormick Park were all reviewed for their sensitivity to noise. Because all these parks do not have noise-sensitive uses, and are located along established transportation corridors, none meet the FTA criteria for a noise-sensitive use.

3.1.4 Segment D

Land uses in the Segment D portion of the project are mainly commercial and light industrial, including retail, distribution facilities, and office spaces. There are single- and multifamily residences along 116th Avenue NE, north of NE 12th Street. There is also a multifamily residential structure along NE 21st Place, just south of State Route (SR) 520. The Pacific Northwest Ballet School is located on NE 16th Street and 136th Place NE. No other residential land use was identified near the light rail alternatives between Segment C and Overlake Center.

The noise-sensitive land use in the Overlake area is an assisted living facility. In addition, the former Eastside Hospital property is being redeveloped to a mixed residential and commercial use facility. The remaining land use in Segment D is commercial, including the Microsoft Campus and several retail complexes.

The only park in Segment D near any of the proposed alternatives is the Highland Park and Community Center, an active recreation facility with sports fields, near the NE 20th Alternative (D3). Since this park does not have noise-sensitive uses, and is located along established transportation corridors, it does not meet the FTA criteria for a noise-sensitive use.

3.1.5 Segment E

All light rail alternatives in Segment E begin at the Overlake Transit Center in the commercial area near the NE 40th Street SR 520 overpass. North of NE 51st Street, land use changes to single-family residential. Most residences in this area are located behind a sound wall along SR 520. Land use remains single-family residential to the West Lake Sammamish Parkway exit, where land uses change to multifamily residential, park, and commercial land uses south of Downtown Redmond. The *Preferred Marymoor Alternative (E2)* follows SR 520 just north of Marymoor Park, while the Redmond Way (E1) and Leary Way (E4) Alternatives pass through multifamily and commercial areas adjacent to NE Redmond Way and Leary Way.

Land use in the Downtown Redmond area varies but is mainly commercial and retail, with some mixed-use buildings with residential use on their upper floors. There are also several hotels in Downtown Redmond, including the Residence Inn on 164th Avenue NE and the Redmond Inn on Redmond Way near the proposed SE Redmond Station.

Other land uses in Segment E include Marymoor Park, and several other parks and green spaces, including Luke McRedmond Landing Park; Dudley Carter Park; the Edge Skate Park; and the Sammamish River, East Lake Sammamish and Bear Creek trails. All of these parks are near SR 520 and other major arterial roadways and are not considered noise-sensitive under FTA criteria due to active park uses and high existing noise levels. The one exception to this review is the portion of Marymoor Park that is near Lake Sammamish, which is 2,500 to 3,000 feet from the above-mentioned transportation noise sources, and is a portion of the park where low noise levels are part of its intended purpose. This portion of the park would be considered noise-sensitive under FTA criteria.

3.2 Noise Measurements

The existing noise environment was characterized through on-site inspections and on-site noise monitoring. Monitoring was performed at 55 locations, including 21 long-term (24-hour or greater) and 34 short-term (20-minute) sites. Exhibits 3-1 through 3-5 show the locations of the noise monitoring sites. The exhibits also show land use in the project vicinity and light rail alternatives. Selection of monitoring sites was based on land use, existing noise sources, alternative proximity and profile type, and ability to represent nearby noise-sensitive land uses.

All noise measurements were taken in accordance with the FTA manual *Transit Noise and Vibration Impact Assessment* and the American National Standards Institute (ANSI) procedures for community noise measurements and guidelines provided in the FTA manual. Measurement locations were at least 5 feet from any solid structure to prevent acoustical reflections and at a height of 5 feet off the ground as required by FTA and ANSI standards. The equipment used for noise monitoring included Bruel & Kjaer Type 2238 Sound Level Meters and a Larson Davis Model 820 Sound Level Meter. The meters were calibrated before and after measurement periods using a sound-level calibrator. Complete system calibration is performed on an annual basis by an accredited testing laboratory. The laboratory system calibration is traceable to the National Institute of Standards and Technology (NIST). The systems meet or exceed the requirements for an ANSI Type 1 or Type 2 noise measurement systems.

For long-term monitoring locations, the Ldn was calculated using logarithmic energy averaging for the 24-hour data with a 10-dBA penalty for noise measured between 10 p.m. and 7 a.m. For short-term monitoring locations, the Ldn levels were projected using formulas in the FTA manual *Transit Noise and Vibration Impact Assessment* and comparison to other nearby long-term noise monitoring sites.

The following sections describe the existing noise environment by project segments.

3.2.1 Segment A

Segment A had one long-term and four short-term monitoring locations. Noise levels along the proposed light rail alternative in Segment A are dominated by traffic noise from area highways, including I-5, I-90, and major arterial roadways such as Airport Way and Rainier Avenue South. The modeled Ldn near *Preferred Interstate 90 Alternative (A1)* in the Seattle area was 69 dBA. Peak-hour noise levels measured at two different representative locations ranged from 67 to 68 dBA Leq.

Near the entrance to the Mercer Island Tunnel, the modeled Ldn was 65 dBA and the measured peak-hour Leq was 65 dBA. At residences near the existing Mercer Island Park-and-Ride Lot, the modeled Ldn was 54 dBA and the measured peak-hour noise level was 51 dBA Leq. The measured Ldn at the east end of Mercer Island was 55 dBA and the peak-hour Leq was 56 dBA. It is also important to note that the short-term maximum noise levels in Segment A, which is dominated by heavy trucks on I-90, frequently exceeded 74 to 81 dBA maximum noise level (Lmax). Table 3-1 summarizes the noise monitoring for Segment A, and Exhibit 3-1 shows the monitoring sites.

TABLE 3-1
Segment A Noise Measurements and Modeled 24-Hour Ldn

Monitoring Location No. [a]	Address	Land Use Type	Type of Measurement	Leq (peak-hour Leq in dBA)	Ldn (24-hour Ldn in dBA)
MA-1	Taejon Park	Park	Short-term	68	69
MA-2	East Portal Park	Park	Short-term	68	69
MA-3	West Mercer Way Park	Park	Short-term	65	65
MA-4	2257 80th Avenue SE	Single-family	Short-term	51	54
MA-5	3700 East Mercer Way	Single-family	Long-term	56	55

[a] Sites shown on Exhibit 3-1.

3.2.2 Segment B

Segment B has the highest number of noise-sensitive receivers and, therefore, had the highest number of noise-monitoring locations. There were 20 noise monitoring locations in Segment B, including 7 long-term sites and 13 short-term sites. Measured existing Ldn ranged from 53 to 72 dBA. Overall peak-hour noise levels in south Bellevue ranged from 50 to 72 dBA Leq. The highest noise levels were measured at locations near I-90 and along 112th Avenue SE and Bellevue Way SE. The main source of noise in Segment B is traffic on I-90, Bellevue Way SE, I-405, and 112th Avenue SE, with heavy trucks producing the highest average noise levels.

Measured peak-hour noise levels at Enatai Beach Park were 62 dBA Leq. Noise levels at this location are lower than other locations near I-90 because the site is well below the highway and is shielded somewhat from traffic noise by crash barriers. For the residential areas along SE 34th Street (noise monitoring sites MB-2 through MB-4), the Ldn was modeled to range from 66 to 72 dBA, with peak-hour noise levels from 64 to 72 dBA Leq.

Existing noise levels at residential land uses along the southern end of Bellevue Way (MB-5 though MB-9) ranged from 53 to 72 dBA Ldn. Site MB-7 is located uphill from Bellevue Way, with some shielding from roadway noise by existing topography, resulting in lower noise levels in this area. The locations with the highest measured levels are directly adjacent to Bellevue Way and have little or no shielding from the roadway. Noise levels along the northern section of Bellevue Way SE (MB-10 through MB-13), from 112th Avenue SE to SE 6th Street, ranged from 60 to 67 dBA Leq during peak hours, and the Ldn ranged from 62 to 69 dBA. Maximum noise levels between I-90 and 112th Avenue SE ranged from 67 to 80 dBA Lmax, with an average of 74 dBA Lmax. The highest noise levels were measured at locations near I-90 and along Bellevue Way.

Along 112th Avenue SE, north of the intersection with Bellevue Way, for *Preferred Alternative B2M* and the 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) Alternatives, the Ldn ranged from 55 to 66 dBA, with peak-hour levels ranging from 55 to 62 dBA Leq (MB-14, MB-15, MB-18, and MB-19). North of the intersection of 112th Avenue SE and Bellevue Way, maximum noise levels on Bellevue Way or along 112th Avenue SE and vicinity ranged from 75 dBA Lmax to over 96 dBA Lmax. For Alternative B7 along I-405, noise levels at the nearby multifamily units were measured at 58 to 65 dBA Leq and the Ldn levels were modeled to range from 60 to 69 dBA (MB-16, MB-17, and MB-20). The multifamily units along the former BNSF Railway corridor are somewhat shielded from I-405 traffic noise by topographical conditions and a recently installed sound wall near monitoring site MB-20. Table 3-2 summarizes the noise measurements and projections for Segment B, and Exhibit 3-2 shows the monitoring sites.

TABLE 3-2
Segment B Noise Measurements and Modeled 24-Hour Ldn

Monitoring Location No. [a]	Address	Land Use Type	Type of Measurement	Leq (Peak-hour Leq in dBA)	Ldn (24-hour Ldn in dBA)
MB-1	Enatai Beach Park	Park	Short-term	62	62
MB-2	3457 107th Avenue SE	Single-family	Short-term	64	66
MB-3	3246 109th Avenue SE	Single-family	Short-term	72	72

TABLE 3-2 CONTINUED
Segment B Noise Measurements and Modeled 24-Hour Ldn

Monitoring Location No. [a]	Address	Land Use Type	Type of Measurement	Leq (Peak-hour Leq in dBA)	Ldn (24-hour Ldn in dBA)
MB-4	3264 111th Avenue SE	Single-family	Long-term	64	66
MB-5	3218 113th Avenue SE	Single-family	Short-term	70	72
MB-6	3005 113th Avenue SE	Single-family	Short-term	67	69
MB-7	11035 SE 26th Street	Single-family	Long-term	50	53
MB-8	11038 SE 25th Street	Single-family	Short-term	61	63
MB-9	1928 109th Avenue SE	Single-family	Short-term	64	66
MB-10	1850 108th Avenue SE	Single-family	Short-term	63	65
MB-11	1435 Bellevue Way SE	Single-family	Short-term	64	66
MB-12	1030 Bellevue Way SE	Multifamily	Short-term	67	69
MB-13	10256 SE 8th Street	Multifamily	Long-term	60	62
MB-14	1638 SE 17th Street	Single-family	Long-term	58	60
MB-15	1600 109th Avenue SE	Single-family	Short-term	55	55
MB-16	1018 111th Avenue SE	Single-family	Short-term	62	64
MB-17	2500 118th Avenue SE, Unit 303	Multifamily	Short-term	62	64
MB-18	Bellefield Residential Park Condominiums	Multifamily	Long-term	64	64
MB-19	900 111th Avenue SE	Single-family	Long-term	62	66
MB-20	1600 118th Avenue SE, Brookshire Condominiums	Multifamily	Long-term	65	69

[a] Sites shown on Exhibit 3-2.

3.2.3 Segment C

There were 19 noise-monitoring locations in Downtown Bellevue, including 9 long-term sites and 10 short-term sites. Peak-hour noise levels ranged from 55 dBA Leq in quiet areas away from major arterial roads to 75 dBA Leq near the Hilton Hotel along I-405 (monitoring site MC-3). The modeled Ldn at the Hilton Hotel was 75 dBA. Noise levels at residences along Bellevue Way ranged from 66 dBA Ldn for properties near the roadway to 60 dBA Ldn for properties shielded from roadway noise. For front-line residences along 112th Avenue SE (represented by MC-15), the measured peak-hour noise level was 68 dBA Leq and the Ldn was 70 dBA.

Along 112th Avenue north of Surrey Downs Park, noise levels are dominated by local traffic and vehicles on I-405. Measured traffic noise levels in this area ranged from 57 (at MC-5) to 75 (at MC-3) dBA Leq, depending on the proximity to the roadway and shielding from existing structures. Noise levels at single-family residences along NE 12th Street ranged from 60 dBA Ldn for shielded properties (MC-13) increasing to as high as 70 dBA Ldn (MC-15) for residences directly adjacent to major arterial roads. The measured noise level at the Bellevue Regional Library (MC-10) was 62 dBA Leq. Noise levels for residences near NE 12th Street ranged from 60 dBA Ldn at MC-13 to 70 dBA Ldn at MC-15. Finally, noise levels near Lake Bellevue (MC-19) were measured at 58 dBA Ldn. Maximum noise levels in Segment C ranged from 68 to 90 dBA Lmax, with maximum noise levels along 112th Avenue SE consistently in the mid to upper 80 decibel range. For example, over a 70-hour measurement period the Lmax at the condominiums on 112th Avenue SE (MC-15) ranged from 70 to 93 dBA Lmax, with an average Lmax of 80 dBA Lmax. Table 3-3 summarizes the noise measurements and modeled 24-Hour Ldn for Segment C, and Exhibit 6 shows the monitoring sites.

TABLE 3-3
Segment C Noise Measurements and Modeled 24-Hour Ldn

Monitoring Location No. [a]	Address	Land Use Type	Type of Measurement	Leq (peak-hour Leq in dBA)	Ldn (24-hour Ldn in dBA)
MC-1	420 Bellevue Way SE	Multifamily	Short-term	66	66
MC-2	321 Bellevue Way SE	Multifamily	Long-term	60	60
MC-3	300 112th Avenue SE	Hotel	Short-term	75	75
MC-4	221 112th Avenue SE, No. 221	Multifamily	Short-term	69	71
MC-5	11039 SE 2nd Street	Single-family	Short-term	57	58
MC-6	80 110th Avenue NE	Single-family	Long-term	57	59
MC-7	100 108th Avenue SE	Office	Short-term	61	63
MC-8	225 112th Avenue SE	Commercial	Short-term	62	63
MC-9	308 108th Avenue NE	Commercial	Short-term	64	65
MC-10	Bellevue Regional Library, 1111 110th Avenue NE	Mixed-use	Short-term	62	63
MC-11	10814 NE 12th Place	Single-family	Short-term	58	59
MC-12	11121 NE 12th Street	Commercial	Short-term	67	68
MC-13	1245 112th Avenue NE	Single-family	Long-term	57	60
MC-14	Surrey Downs Park	Park	Long-term	62	64
MC-15	281 112th Avenue SE	Multifamily	Long-term	68	70
MC-16	112 111th Avenue SE	Single-family	Long-term	58	64
MC-17	Bellevue Hotel and Club	Hotel	Long-term	59	62
MC-18	112th Avenue SE at SE 6th Street	N/A	Long-term	62	64
MC-19	Bellevue Lake Condominiums, Building 7, Unit 112	Multifamily	Long-term	55	58

[a] Sites shown on Exhibit 3-3.

3.2.4 Segment D

Because much of Segment D is commercial and light industrial uses, which are not typically sensitive to light rail noise, only six sites were monitored, with only one long-term monitoring site at a residential area along 116th Avenue NE. Noise levels for these residences were dominated by traffic on I-405 and 116th Avenue NE. An Ldn of 58 dBA was measured along the side of 116th Avenue NE facing the SR 520 Alternative (D5), which is well shielded from I-405. There was also a monitoring location near the Highland Park and Community Center, where the peak-hour level was measured at 65 dBA Leq. The main noise sources included SR 520, Bel-Red Road, and NE 20th Street.

Three additional noise measurement sites were located near the Overlake area, including one near the former Group Health Eastside Hospital, one at the Overlake Assisted Living Center, and one on the Microsoft Campus near Building 44. Estimated noise levels at these sites ranged from 65 to 71 dBA Ldn, with measured peak hour Leq levels ranging from 64 to 70 dBA Leq. Finally, a short-term monitoring session was performed at the Pacific Northwest Ballet School on NE 16th Street to assist with analysis of potential impacts at the school. The measured daytime noise level at the school was 56 dBA Leq, while the maximum noise level of 83 dBA Lmax was due to truck traffic. Table 3-4 summarizes the noise measurements and modeled 24-Hour Ldn for Segment D, and Exhibit 3-4 shows the monitoring sites.

TABLE 3-4
Segment D Noise Measurements and Modeled 24-Hour Ldn

Monitoring Location No.[a]	Address	Land Use Type	Type of Measurement	Leq (Peak-hour Leq in dBA)	Ldn (24-hour Ldn in dBA)
MD-1	1815 116th Avenue NE	Single-family	Long-term	58	58
MD-2	Near Highland Park (on pathway 50 feet from NE 20th Street)	Park	Short-term	65	65
MD-3	Former Group Health Campus, 2700 152nd Avenue NE (to be redeveloped as mixed use)	Commercial	Short-term	64	65
MD-4	Overlake Assisted Living Center, 2956 152nd Avenue NE	Commercial	Short-term	64	65
MD-5	Near Microsoft Building 44	Mixed-use	Short-term	70	71
MD-6	13440 NE 16th Street (Pacific Northwest Ballet School)	Mixed-use	Short-term	56	56

[a] Sites shown on Exhibit 3-4.

3.2.5 Segment E

There were five noise-monitoring locations in Segment E—two long-term sites and three short-term sites The initial portion of all light rail alternatives in Segment E is along the east side of SR 520, shielded from nearby residences by existing sound walls. For locations with existing sound walls (represented by ME-1), Ldn ranged from 60 to 64 dBA, with peak-hour levels of 58 to 60 dBA Leq. A small group of homes along 156th Avenue NE does not have a sound wall (ME-2), and the measured Ldn was 68 dBA at this location.

Noise at the multifamily units along 156th Place NE (ME-4) was also dominated by traffic on SR 520 and arterial roads, with an estimated Ldn of 64 dBA. The apartments along NE Leary Way and West Lake Sammamish Parkway (ME-5) had an estimated Ldn of 64 dBA, with most noise coming from the two main arterial roadways. Table 3-5 summarizes the noise measurements and modeled 24-hour Ldn for Segment E, and Exhibit 3-5 shows the monitoring sites.

TABLE 3-5
Segment E Noise Measurements and Modeled 24-Hour Ldn

Monitoring Location No.[a]	Address	Land Use Type	Type of Measurement	Leq (Peak-hour Leq in dBA)	Ldn (24-hour Ldn in dBA)
ME-1	5409 154th Avenue NE	Single-family	Long- term	60	64
ME-2	15516 61st Court	Single-family	Long-term	65	68
ME-3	15834 NE 67th Place	Single-family	Short-term	58	60
ME-4	7250 Old Redmond Road	Multifamily	Short-term	63	64
ME-5	15821 Leary Way NE	Multifamily	Short-term	62	64

[a] Sites shown on Exhibit 3-5.

3.2.6 Maintenance Facilities

The maintenance facilities are proposed in areas that are currently light industrial land uses and have no nearby noise-sensitive land uses. The exception is the 116th Maintenance Facility (MF1) (see Exhibit 3-4), where some residences are located to the west between 116th Avenue NE and I-405, and the new Children's Hospital Bellevue Clinic and Surgery Center (BCSC) is located to the south. The maintenance facility sites in Segment D are characterized by monitoring data discussed in Section 3.2.4. Existing background noise levels for the maintenance facility sites in Segment E are discussed in Section 3.2.5.

3.3 Vibration Measurements

3.3.1 Locations and Tests

Vibration measurement test sites were selected based on a review of aerial photographs and were supplemented by a visual land-use survey. Unlike noise, human response to vibration is not dependent on existing vibration levels. Humans respond to a new source of vibration based on the frequency of the events. Therefore, rather than measuring existing vibration levels, the vibration measurements for the project focused on characterizing the vibration propagation through the ground at representative locations. Eight sites, designated as V-1 through V-8, were selected during the Draft EIS process to represent a range of soil conditions in areas along the East Link Project corridor near sensitive land uses. An additional six measurement locations, designated as V-9 through V-14, were selected during the Final EIS process to refine the projections at locations where impacts would occur, as identified during the Draft EIS; several of these were conducted at specific buildings to measure the response of the foundation to vibration. Measurements were conducted at selected sites in Seattle, Bellevue, and Redmond. The locations of these measurement sites are indicated in Exhibits 3-1 through 3-5, along with the noise monitoring locations, and are described below; site photographs are included in Appendix B of this report:

- **Site V-1:** This site was located at the corner of 32nd Avenue and South Day Street in Seattle, above the I-90 tunnel. The vibration measurements at this site are representative of Segment A.
- **Site V-2:** This site was located in the parking lot of the South Bellevue Park-and-Ride Lot. The vibration measurements at this site are representative of the southern portions of Segment B.
- **Site V-3:** This site was located in the parking lot of the King County District Court in Surrey Downs Park. The vibration measurements at this site are representative of the northern portion of Segment B and the at-grade and elevated alternatives in Segment C, except for Overlake Hospital.
- **Site V-4a and V-4b:** This site was located in the median of NE 12th Street, between 108th Avenue NE and 110th Avenue NE. The vibration measurements at this site, taken at two different depths (V-4a and V-4b), are representative of the tunnel alternatives in Segment C.
- **Site V-5:** This site was located in the parking lot of Overlake Hospital, adjacent to NE 12th Street. The vibration measurements at this site represent Overlake Hospital and were used to assess the vibration-sensitive equipment, including the mobile MRI and the optical surgery unit within this facility.
- **Site V-6:** This site was located in Highland Park off Bel-Red Road in Bellevue. The vibration measurements at this site are representative of Segment D.
- **Site V-7:** This site was located at the corner of 154th Avenue NE and NE 54th Street in Redmond, in a residential neighborhood. The vibration measurements at this site are representative of the southern portion of Segment E, along SR 520.
- **Site V-8:** This site was located at the Redmond Town Center, along Bear Creek Trail to the south of the commercial buildings. The vibration measurements at this site are representative of the areas along the northern portion of Segment E, near the Redmond Town Center.
- **Site V-9:** This site was located at the Winters House in Bellevue, and the vibration measurements at this site were used to assess vibration and groundborne noise impact at the Winters House.
- **Site V-10:** This site was located on SE 3rd Street in a residential neighborhood. The vibration measurements at this site are representative of the residential area just to the south of Downtown Bellevue.
- **Site V-11:** This site was located at the Bellevue Hilton, and the vibration measurements at this site were used to assess impacts at the Hilton Hotel.
- **Site V-12:** This site was located at the Meydenbauer Center Theater in Bellevue, and the vibration measurements at this site were used to assess the vibration and groundborne noise levels in the theater at the Meydenbauer Center.

- **Site V-13:** This site was located at NE 12th Street in Bellevue, and the vibration measurements at this site are representative of the sensitive receptors in Downtown Bellevue associated with the at-grade and elevated alternatives.
- **Site V-14:** This site was located at 152nd Avenue NE in Redmond and the vibration measurements at this site were used to supplement the measurement Site V-6 for Segment D.

3.3.2 Instrumentation and Procedures

Vibration propagation is characterized by the relationship between an input force and the resulting ground-surface vibration, called the transfer mobility. Transfer mobility measurements are made by producing an impulsive force and measuring the vibration response at accelerometers located at a range of distances. With the transfer mobility, it is possible to estimate the ground vibration that would be caused by sources, such as a train, by substituting the impact force with the train forces. The vibration propagation test system for surface alternatives is shown schematically in Exhibit 3-6, and Exhibit 3-7 shows the test system for tunnel alternatives. As shown in the cross-section view at the top of Exhibit 3-6, the surface test consists of dropping a 60-pound weight from a height of 3 to 4 feet onto the ground to generate a force. For tunnel testing, a drill rig is used to generate the force at the required tunnel depth.

The measurement equipment includes a load cell to measure the forces produced by the weight, high-sensitivity accelerometers, amplifiers, and an eight-channel digital audio tape (DAT) recorder. The accelerometers are located on either paved surfaces or on top of steel stakes driven into soil and mounted with a clay compound in the vertical orientation. During the measurements, personnel continually monitor the recording levels and listen to the acceleration signals to make sure that acceptable data are collected. The sketch in the lower half of Exhibit 3-6 shows how the dropped weight point source was used to simulate a line vibration source such as a train. Impact tests were made at regular intervals in a line along the rail alternative. For these tests, impacts were done at 11 points spaced 15 feet apart. Six accelerometers were placed perpendicular to the impact locations at distances between 25 and 150 feet away. For each impact location, approximately 25 impacts were produced in order to obtain a statistically accurate sample.

3.4 Vibration Propagation Results

Data recorded in the field were analyzed in the laboratory using digital signal processing software that calculates the point-source transfer mobility and coherence between each impact and accelerometer location. Coherence is a measure of how accurate the transfer mobility is calculated; following are the basic analysis steps:

- Each impulse signal from the load cell and response signals from the accelerometers was identified in the recordings.
- Narrowband transfer functions and coherences were computed from an average of all the impulses at a specific impact location.
- The narrowband transfer functions and coherences were summed into 1/3-octave band levels.
- A linear or quadratic regression was calculated for all of the point-source transfer mobilities in each 1/3 octave band. These transfer mobility regressions were used to compute smooth point-source transfer mobility versus distance relationship.
- Each of the 1/3-octave band point-source transfer mobility relationships were then integrated into an equivalent line-source transfer mobility using Simpson's rule for numerical integration. The end result was an estimate of line source transfer mobility based on the distance from the source of the vibration.

Examples of the resulting smoothed line source transfer mobilities are provided in Exhibits 3-8 through 3-10E, which provide the spectra at a distance of 100 feet for each test site. More details on the propagation test and analysis procedures are given in the FTA guidance manual *Transit Noise and Vibration Impact Assessment*. Detailed vibration propagation data for the project are included in Appendix C of this report.

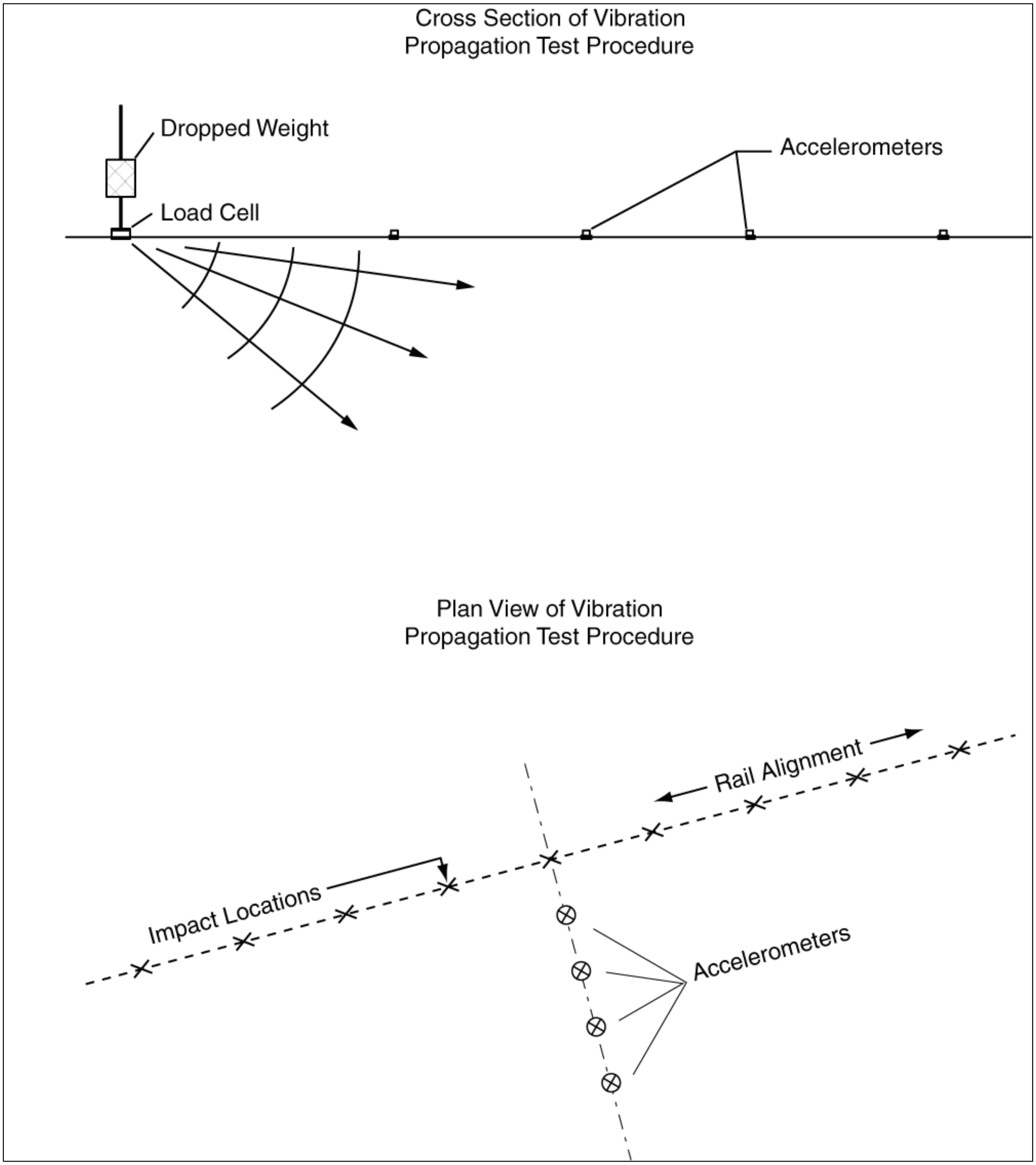

Cross Section of Vibration Propagation Test Procedure
Dropped Weight
Load Cell
Accelerometers
Plan View of Vibration Propagation Test Procedure
Rail Alignment
Impact Locations
Accelerometers

EXHIBIT 3-6
Surface Vibration Propagation Test Procedure

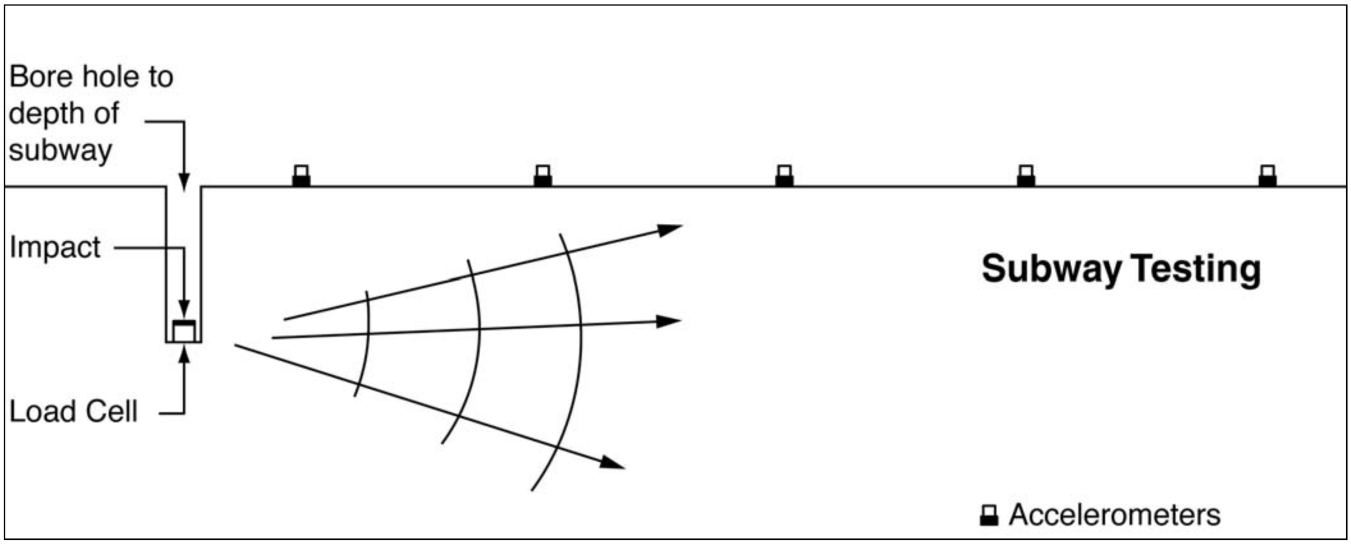

Bore hole to depth of subway
Impact
Load Cell
Subway Testing
Accelerometers

EXHIBIT 3-7
Vibration Propagation Test Procedure for Tunnels

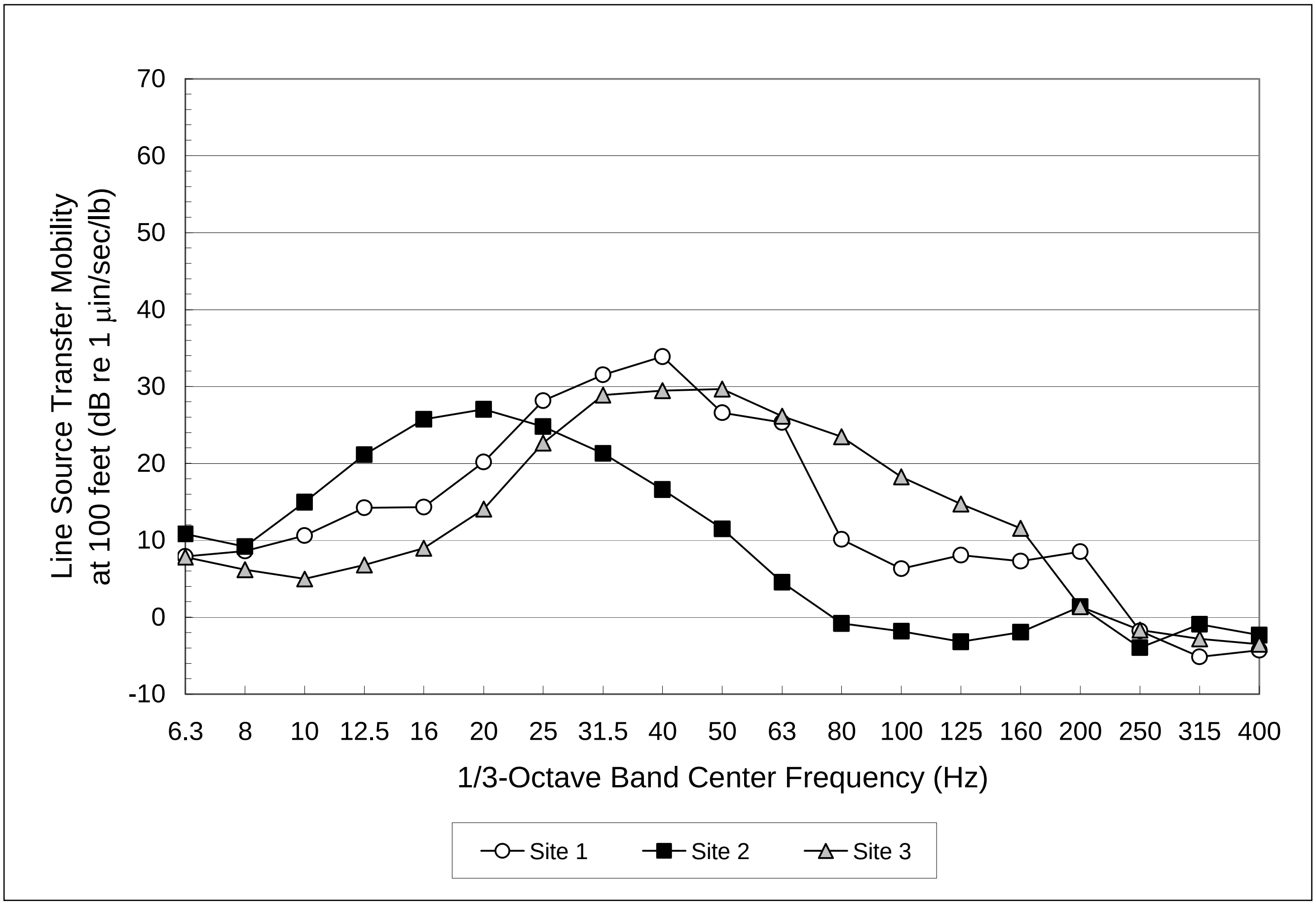


EXHIBIT 3-8
Line Source Transfer Mobilities for Sites V-1 to V-3

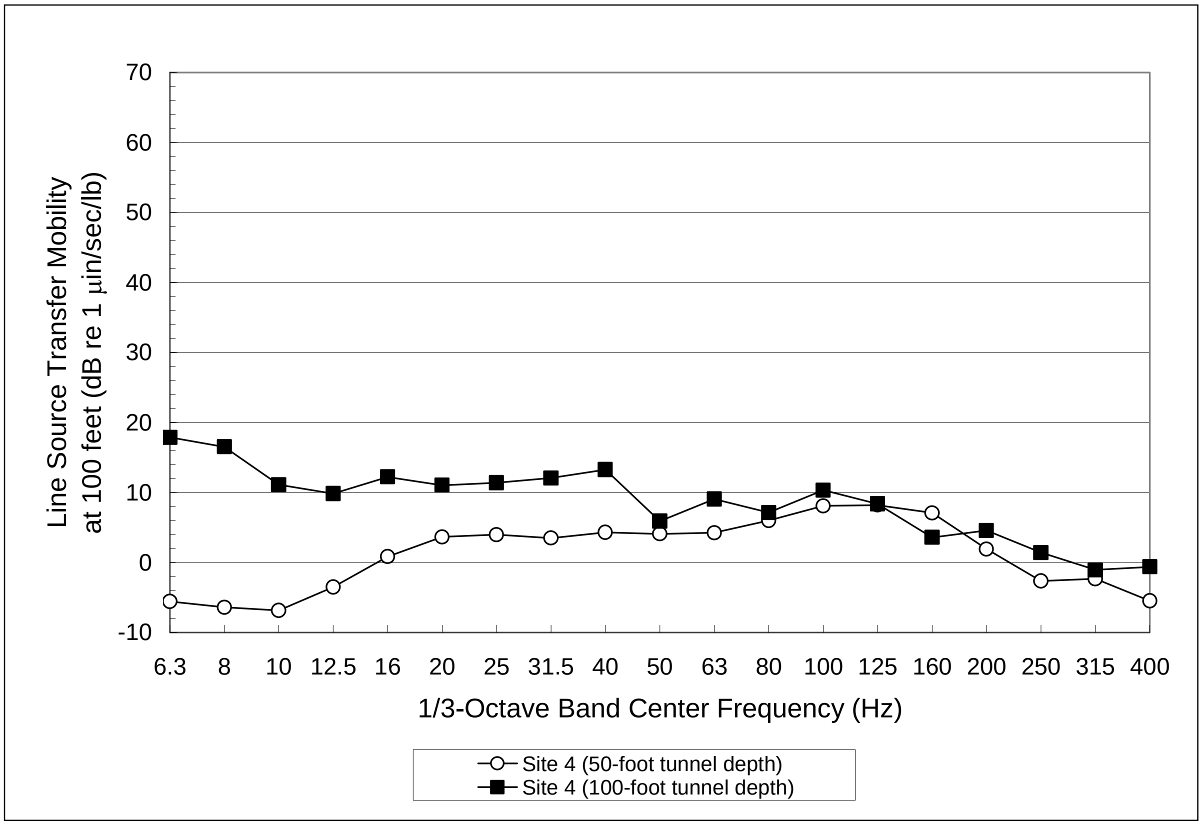


EXHIBIT 3-9
Line Source Transfer Mobilities for Site V-4

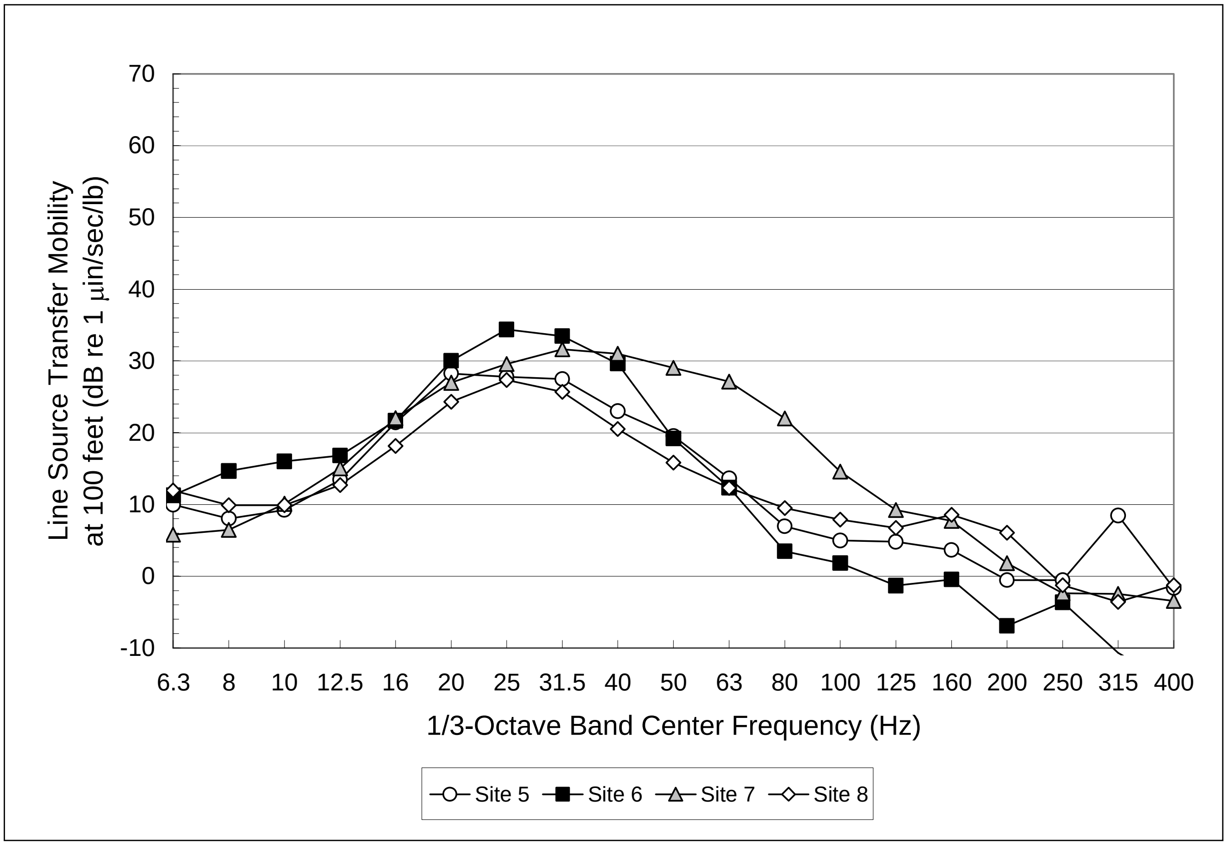


EXHIBIT 3-10A
Line Source Transfer Mobilities for Sites V-5 to V-8

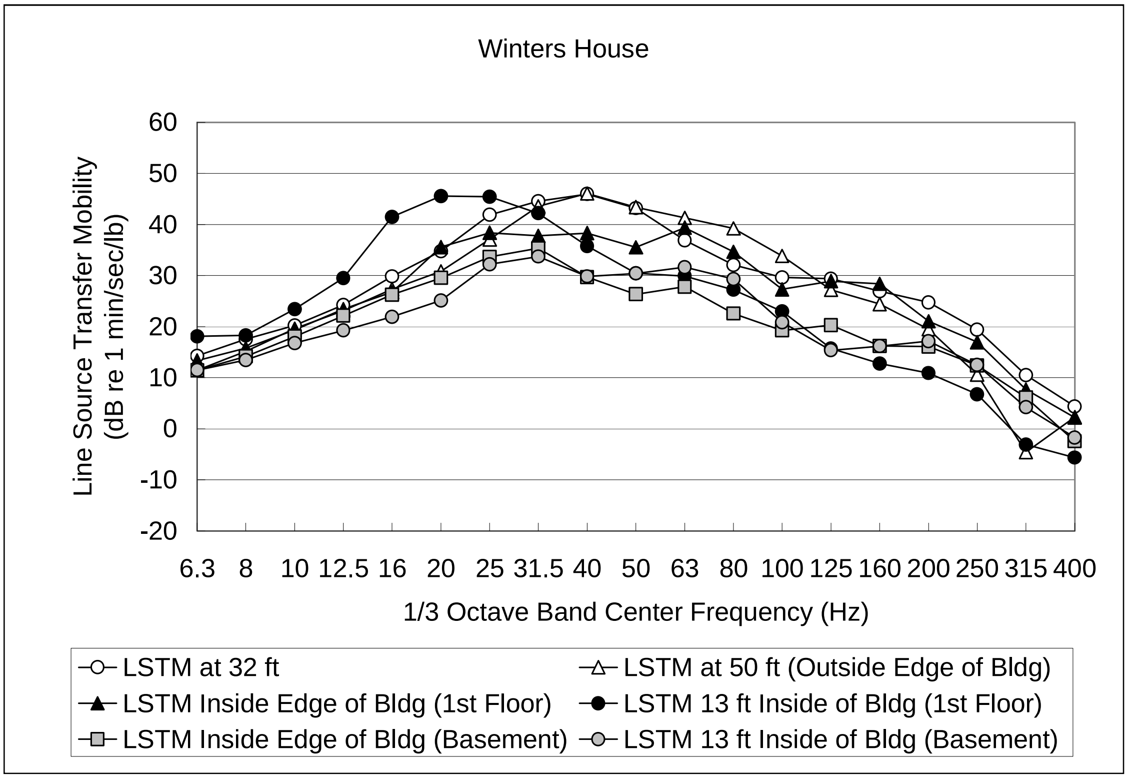


EXHIBIT 3-10B
Line Source Transfer Mobilities for Site V-9, Winters House

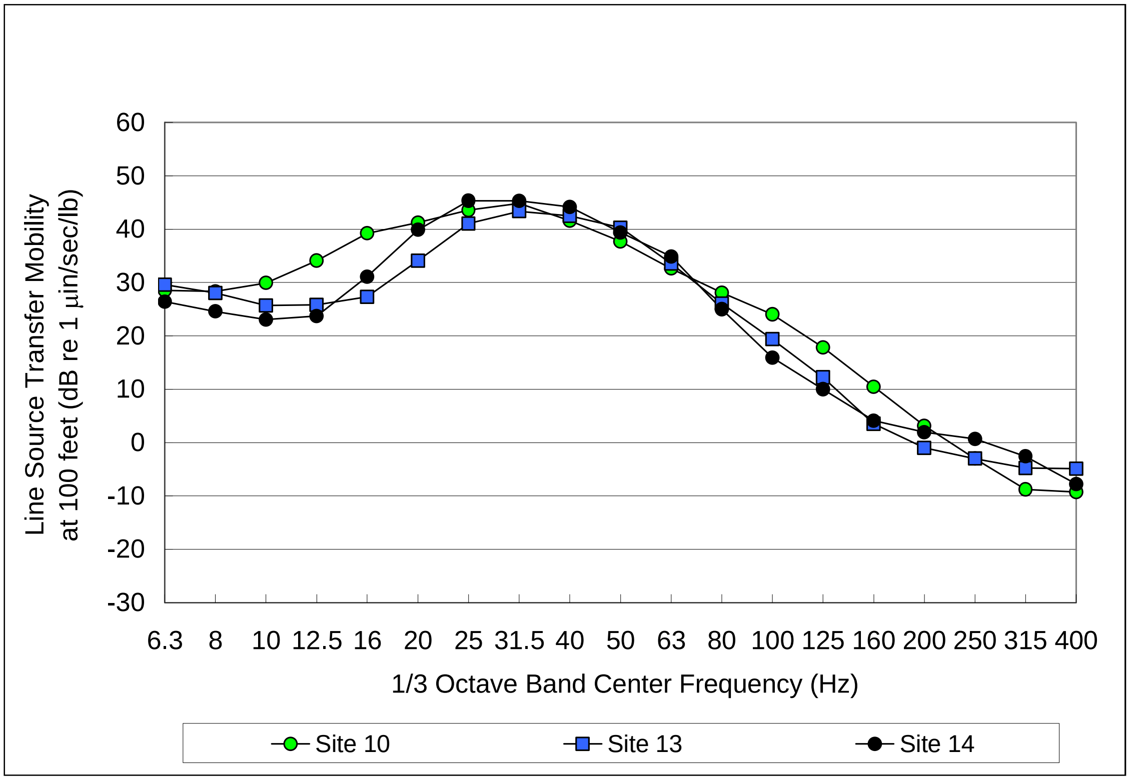


EXHIBIT 3-10C
Line Source Transfer Mobilities for Sites V-10, V-13, and V-14

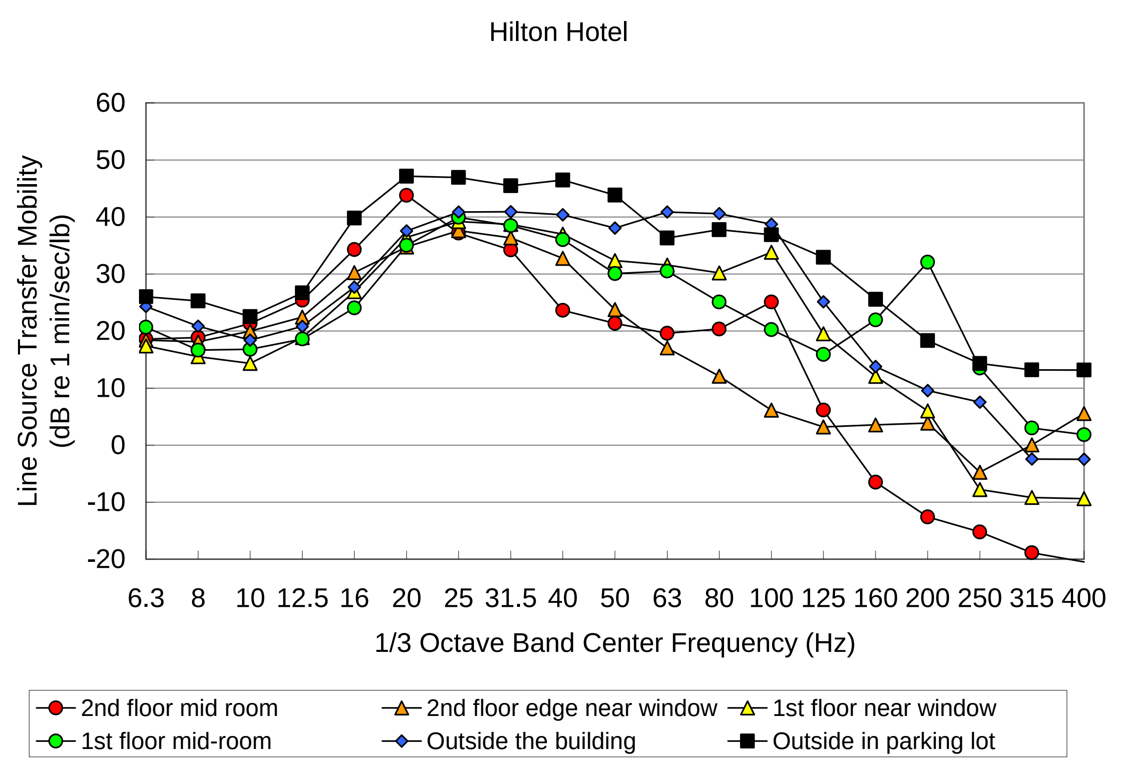


EXHIBIT 3-10D
Line Source Transfer Mobilities for Site V-11, Hilton Hotel

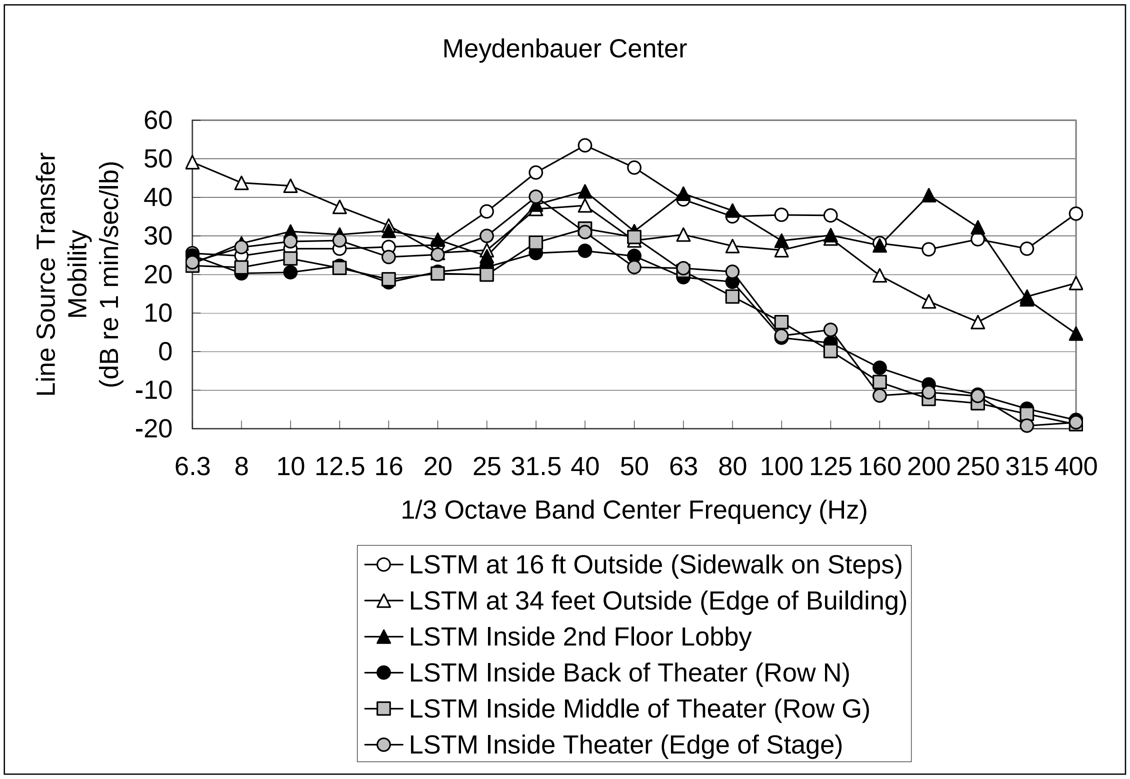


EXHIBIT 3-10E
Line Source Transfer Mobilities for Site V-12, Meydenbauer Center

4.0 Noise and Vibration Impact Criteria

The operation of a light rail system can cause noise and vibration that can be a major public concern. Noise impacts can be caused by either transit operations or changes in traffic resulting from a roadway being widened or realigned for the project, and different criteria exist for each source of noise. In addition, groundborne noise caused by vibration has different impact criteria. This section summarizes what defines a noise and vibration impact, as applicable to the East Link Project.

4.1 Transit Noise Criteria

Noise impacts for this project are determined based on the criteria defined in the FTA guidance manual *Transit Noise and Vibration Impact Assessment* (FTA, 2006). The FTA noise impact criteria are based on well-documented research on community reaction to noise and on change in noise exposure rated using a sliding scale. Although more transit noise is allowed in neighborhoods with high levels of existing noise, as existing noise levels increase, smaller increases in total noise exposure are allowed than in areas with lower existing noise levels. The FTA Noise Impact Criteria group noise-sensitive land uses into the following three categories:

- **Category 1**: Buildings or parks where quiet is an essential element of their purpose.
- **Category 2**: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- **Category 3**: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, and active parks.

Ldn is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour Leq during the facility's operating period is used.

There are two levels of impact included in the FTA criteria, severe and moderate, interpreted as follows:

- **Severe Impact:** Project-generated noise in the severe impact range can be expected to cause a large percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation will normally be specified for severe impact areas unless there are truly extenuating circumstances that prevent it.
- **Moderate Impact:** In this range of noise impact, the change in the cumulative noise level is noticeable to most people but may not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing level, the projected level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views, and the cost of mitigating noise to more acceptable levels.

The FTA noise impact criteria are summarized in graphical form in Exhibit 4-1, which shows the existing noise exposure and the additional noise exposure from the transit project that would cause either moderate or severe impact. The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the transit project. Exhibit 4-2 expresses the same criteria in terms of the increase in total or cumulative noise that can occur in the overall noise environment before an impact occurs.

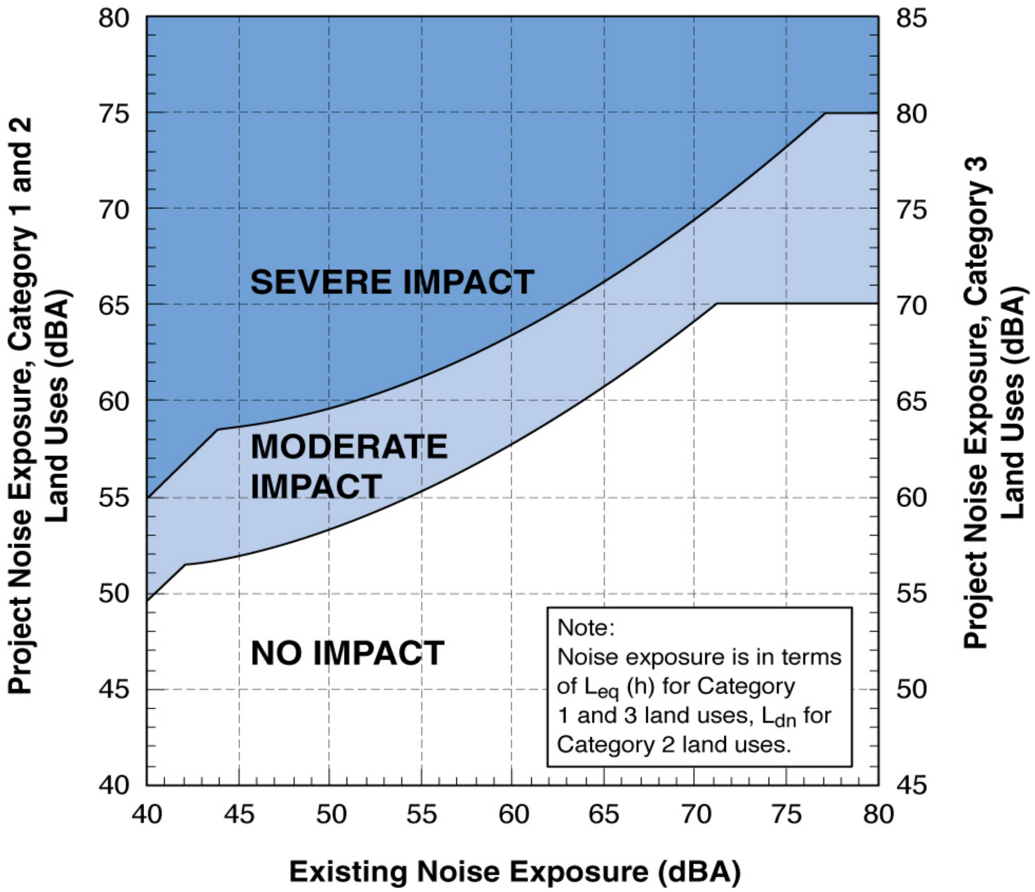


EXHIBIT 4-1
FTA Project Noise Impact Criteria
Note: Leq(h) = hourly Leq

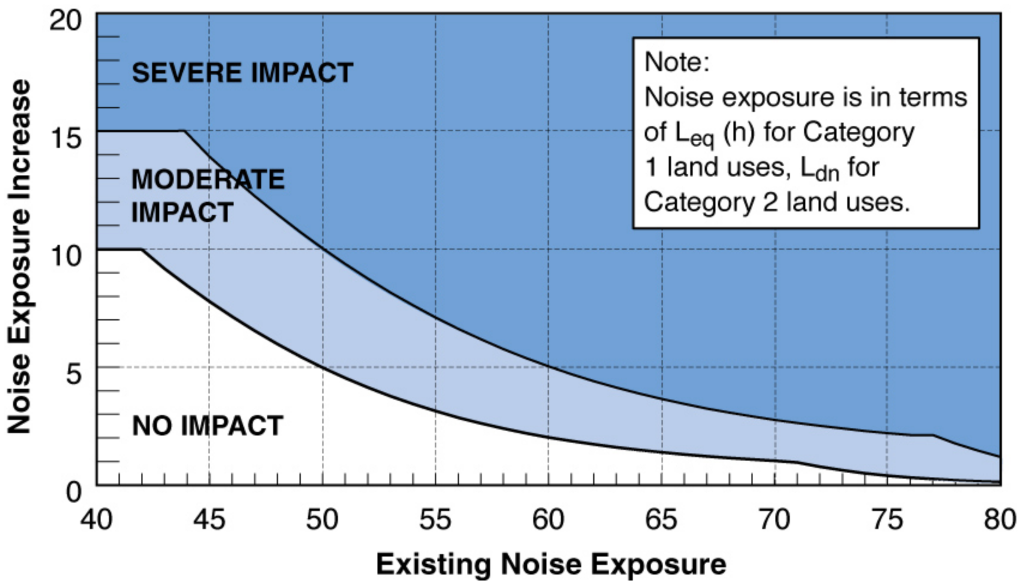


EXHIBIT 4-2
Increase in Cumulative Noise Exposure Allowed by FTA Criteria
Note: Leq(h) = hourly Leq

The FTA Manual provides guidance on how parks are analyzed for noise in Chapter 3, Section 2, Application of Noise Impact Criteria. The FTA assumes that parks are a special case, and how they are used and where they are located should be considered when considering whether or not that particular park, or an area in that park, is considered noise-sensitive. In general, most parks used for outdoor recreation are not considered noise-sensitive. This includes parks with baseball diamonds, soccer fields, basketball courts, football fields, and other active recreation areas.

Parks that are noise-sensitive would be those where quiet is an essential element in their intended purpose or places where it is important to avoid interference with activities such as talking, meditation, and concentration on reading material. The existing noise levels at a park can provide some indication of the sensitivity of its use. All parks along the project corridor were evaluated for noise, and the results are provided in Section 6.1 in Chapter 6, Noise and Vibration Impact Assessment.

4.2 Traffic Noise Criteria

Consistent with the FTA Manual, FHWA methodology and criteria are used to evaluate traffic noise impacts. The criteria for highway noise impacts are taken from the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise, United States Code of Federal Regulations (CFR) 23 772, 1982. Table 4-1 lists the traffic noise abatement criteria. A noise impact occurs if projected noise levels approach the levels listed in Table 4-1 or substantially exceed existing noise levels. Each state defines their own quantitative levels considered to approach or substantially exceed existing noise levels. Projects that include construction of new highways, reconstruction of existing highways that includes significantly changing either the horizontal or vertical profile, or an increase in the number of through traffic lanes require analysis and consideration of abatement. A significant change in the horizontal or vertical profile occurs when the change is likely to result in increased noise levels to developed lands.

TABLE 4-1
FHWA Traffic Noise Abatement Criteria

Land Use Category		Hourly Leq (dBA)
Type A	Lands on which serenity and quiet are of extraordinary significance and which serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose	57 (exterior)
Type B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals	67 (exterior)
Type C	Developed lands, properties, or activities not included in the above categories	72 (exterior)
Type D	Undeveloped land	—
Type E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums	52 (interior)

The Washington State Department of Transportation (WSDOT) is responsible for implementing the FHWA regulations in Washington. Under WSDOT policy, a traffic noise impact occurs if projected noise levels are within 1 dB of the FHWA criteria; therefore, a residential impact occurs at 66 dBA Leq and a commercial impact occurs at 71 dBA Leq. WSDOT also considers a 10-dB increase in noise a substantial increase impact, regardless of the existing noise level. Potential noise from park-and-ride lots were assessed using the local noise criteria, which is discussed later in Section 4.4.1 for construction noise.

4.3 Transit Vibration and Groundborne Noise Criteria

The FTA groundborne vibration impact criteria are based on land use and train frequency. The criteria for most land uses are shown in Table 4-2. The FTA vibration criteria are applied primarily to residential (including hotels and other places where people sleep) and institutional land uses. Commercial land uses are only considered when they contain vibration-sensitive uses, such as medical offices or sensitive manufacturing equipment. The criterion applied to these locations is dependent on the sensitivity of the use. Some buildings, such as concert halls, recording studios, and theaters, can be particularly sensitive to vibration but do not fit into any of the three categories listed in Table 4-2. Due to their sensitivity, these buildings usually warrant special attention during the impact assessment. Table 4-3 gives criteria for acceptable levels of groundborne vibration for various types of special buildings.

Table 4-4 provides vibration criteria for detailed vibration analyses at highly sensitive locations . The criteria in Table 4-4 are based on exceedances of the 1/3-octave-band vibration levels over the frequency range 8 to 80 Hertz (Hz). In addition, these detailed criteria would be used to assess vibration impact at highly sensitive locations, such as the Overlake Hospital, the Group Health Hospital, and the new Children's Hospital BCSC because of potentially sensitive medical equipment and procedures. These criteria are also shown graphically in Exhibit 4-3.

It should also be noted that Tables 4-2 and 4-3 include separate FTA criteria for groundborne noise, the "rumble" that can be radiated from the motion of room surfaces in buildings due to groundborne vibration. The vibration of floors and walls causes them to act like loudspeakers, generating noise due to the movement of the surfaces. Although expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are set considerably lower than for airborne noise to account for the annoying low-frequency character of groundborne noise. Because airborne noise often masks groundborne noise for aboveground (i.e., at-grade or elevated) transit systems, groundborne noise criteria are primarily applied to subway operations where airborne noise is not a factor. For above-grade transit systems, groundborne noise criteria are applied only to buildings that have sensitive interior spaces that are well insulated from exterior noise.

TABLE 4-2
Groundborne Vibration and Noise Impact Criteria

	Groundborne Vibration Impact Levels (VdB re 1 microinch/second)			**Groundborne Noise Impact Levels (dB re 20 micro-Pascals)**		
Land Use Category	**Frequent Events**[a]	**Occasional Events**[b]	**Infrequent Events**[c]	**Frequent Events**[a]	**Occasional Events**[b]	**Infrequent Events**[c]
Category 1: Buildings where low ambient vibration is essential for interior operations	65 VdB[d]	65 VdB[d]	65 VdB[d]	N/A[e]	N/A[e]	N/A[e]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

[a] "Frequent Events" are defined as more than 70 vibration events of the same source per day; most rapid transit projects fall into this category.

[b] "Occasional Events" are defined as between 30 and 70 vibration events of the same source per day; most commuter trunk lines have this many operations.

[c] "Infrequent Events" are defined as fewer than 30 vibration events of the same kind per day; this category includes most commuter rail branch lines.

[d] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research requires detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air conditioning (HVAC) systems and stiffened floors.

[e] Not applicable. Vibration-sensitive equipment is generally not sensitive to groundborne noise.

TABLE 4-3
Groundborne Vibration and Noise Impact Criteria for Special Buildings

Type of Building or Room[a]	Groundborne Vibration Impact Levels (VdB re 1 micro-inch/sec)		Groundborne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[b]	Occasional or Infrequent Events[c]	Frequent Events[b]	Occasional or Infrequent Events[c]
Concert Halls	65 VdB	65 VdB	25 dBA	25 dBA
TV Studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording Studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA

[a] If the building will rarely be occupied when trains are operating, then there is no need to consider impact. As an example, consider locating a commuter rail line next to a concert hall: if no commuter trains will operate after 7 p.m., then trains should rarely interfere with the use of the hall.

[b] "Frequent Events" are defined as more than 70 vibration events per day; most transit projects fall into this category.

[c] "Occasional or Infrequent Events" are defined as fewer than 70 vibration events per day; this category includes most commuter rail systems.

TABLE 4-4
Vibration Criteria for Detailed Analysis at Highly Sensitive Locations

Criterion Curve	Maximum Lv (VdB)[a]	Description of Use
Workshop	90	Distinctly detectable vibration; appropriate to workshops and nonsensitive areas
Office	84	Detectable vibration; appropriate to offices and nonsensitive areas
Residential day	78	Barely detectable vibration; adequate for computer equipment and low-power optical microscopes (up to 20X)
Residential night, operating rooms/ sensitive hospital equipment	72	Vibration not detectable, but groundborne noise might be audible inside quiet rooms; suitable for medium-power optical microscopes (100X) and other equipment of low sensitivity
VC-A	66	Adequate for medium- to high-power optical microscopes (400X), microbalances, optical balances, and similar specialized equipment
VC-B	60	Adequate for high-power optical microscopes (1,000X) and inspection and lithography equipment up to 3 micron-line widths
VC-C	54	Appropriate for most lithography and inspection equipment to 1 micron detail size
VC-D	48	Suitable in most instances for the most demanding equipment, including electron microscopes operating to the limits of their capability
VC-E	42	The most demanding criterion for extremely vibration-sensitive equipment

[a] As measured in one-third-octave bands of frequency over the frequency range 8 to 80 Hz.

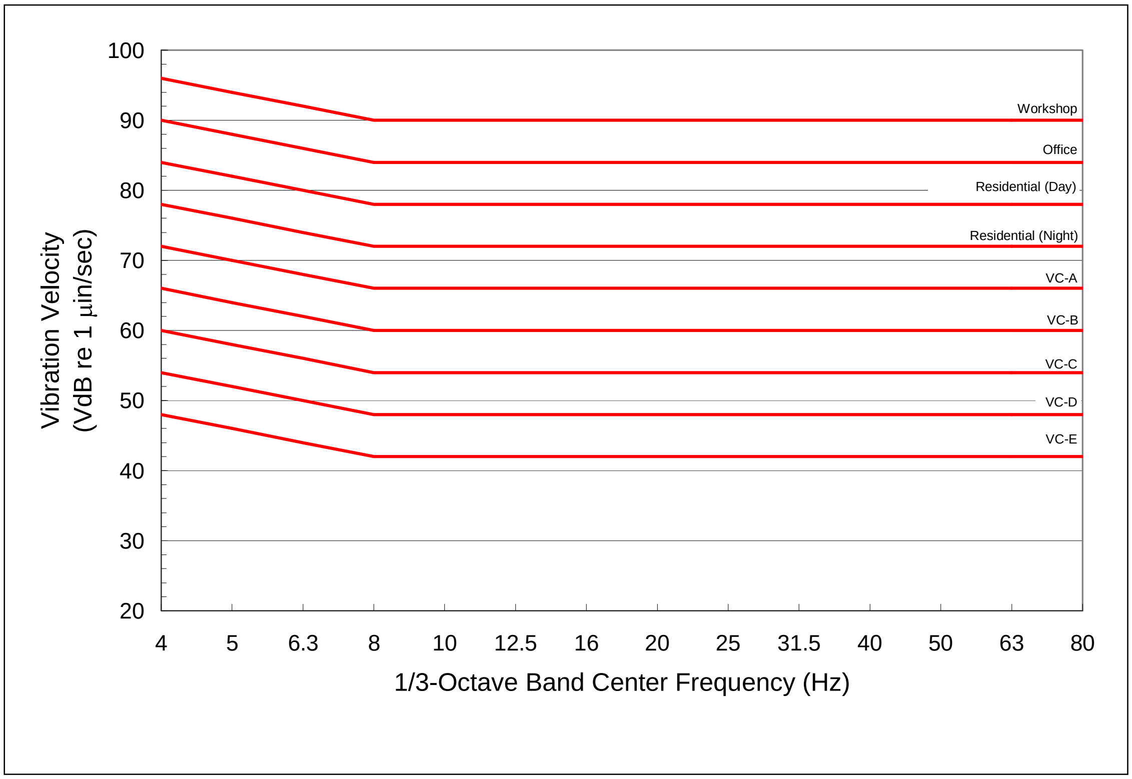


EXHIBIT 4-3
Vibration Criteria for Highly Sensitive Locations

4.4 State and Local Noise Ordinances

Project operation and construction would take place in four cities within King County, so several different noise ordinances might be applicable to the operation of ancillary facilities and project construction. Most cities in Washington, including all those in the project corridor, rely, at least in part, on the Washington State Administrative Code (WAC), Chapter 173-60, Maximum Environmental Noise Levels, for residential, commercial, and industrial noise limits, along with construction noise limits. The City of Seattle has a set of specific construction criteria that would be followed for all construction work in Segment A. Construction work in other segments would follow the WAC noise control ordinance. However, local noise ordinances can include different provisions from the State law. For example, the City of Bellevue applies its exemption for construction noise more stringently, with fewer evening and weekend hours considered exempt.

4.4.1 Washington State Noise Regulation

The Washington State Noise Control Ordinance (together with local noise regulations) applies to general construction activities, park-and-ride lots, and maintenance facilities. The WAC does not contain a section specific to highway or light rail noise. State law exempts mobile noise sources, including freight rail, aircraft in flight, and vehicles traveling in public right-of-way, as well as safety warning devices (i.e., bells). For stationary land uses with noises originating from outside public roadways and rights-of-way, the Washington State Noise Control Ordinance defines three classes of property usage, called Environmental Designation for Noise Abatement (EDNA), and maximum allowable noise levels for each, as shown in Table 4-5. For example, the noise caused by a commercial property must be less than 57 dBA at the closest residential property line. From 10 p.m. to 7 a.m., the maximum allowable levels shown in Table 4-5 are reduced by 10 dBA. Besides the property line noise standards in Table 4-5, there are exemptions in the WAC for short-term noise exceedances, including those outlined in Table 4-6 that are based on the minutes per hour that the noise limit is exceeded. The allowable exceedances presented in Table 4-6 are commonly measured using the statistical distribution measurement metrics, with the L25 equal to the 15-minute exceedance, the L8.3 for the 5-minute exceedance, and the L2.5 for the 1.5-minute exceedance.

TABLE 4-5
Washington State Noise Control Regulation (WAC 173-60)

Land Use	Maximum Allowable Sound Level (dBA)[a]		
	Residential	Commercial	Industrial
Residential	55	57	60
Commercial	57	60	65
Industrial	60	65	70

[a] Between 10 p.m. and 7 a.m. the levels given above are reduced by 10 dBA.
WAC Washington Administrative Code

TABLE 4-6
WAC 173-60 Exemptions for Short-Term Noise Exceedance

Minutes Per Hour	Adjustment to Maximum Sound Level
15	+5 dBA
5	+10 dBA
1.5	+15 dBA

WAC Washington Administrative Code

4.4.2 WAC Construction Noise Criteria

For the purpose of discussing construction noise and potential construction noise impacts, this study used the WAC. Most project construction can be performed within the limits of the WAC noise ordinance if the work is conducted during normal daytime hours. If construction is performed during the nighttime, the contractor must still meet the WAC noise-level requirements presented in Table 4-5 or get a noise variance from the governing jurisdiction. The construction contracts would contain sections specific to construction noise and address any site-specific requests for variances or other construction-related noise issues associated with the East Link Project.

The State of Washington has also developed a set of construction-specific allowable noise-level limits that would apply to the construction of the East Link Project. These construction noise regulations are organized by type of noise and include general construction equipment; impulse equipment, such as jackhammers and pile-drivers; haul trucks; and safety alarms, such as back-up beepers.

4.4.3 Haul Truck Noise Criteria

Maximum permissible sound levels for haul trucks on public roadways are limited to 86 dBA for speeds of 35 miles per hour (mph) or less, and 90 dBA for speeds over 35 mph when measured at 50 feet (Chapter 173-62, WAC). For trucks operating at staging areas, the general construction equipment would be used to determine compliance.

4.4.4 Noise Related to Back-Up Alarms

Sounds created by backup alarms are exempt, except between 10 p.m. and 7 a.m. when "beep-beep" backup alarms are essentially prohibited by the WAC in urban areas and would be replaced with smart back-up alarms, which automatically adjust the alarm level based on the background level or switch off back-up alarms and replace with spotters. This criterion is included because, just like noise from construction activities, noise from back-up beepers would exceed the WAC nighttime criteria, even with the allowable exceedance, at distances up to 800 feet, or more, from the construction site.

4.5 Construction Vibration Criteria

Construction vibration, unlike vibration from operations, has the potential to cause damage to structures at very close distances, from activities such as blasting and pile-driving. Because of this, the construction vibration discussion includes both annoyance impact criteria and damage criteria.

Generally, because of the short duration of construction vibration activities, annoyance is usually not an issue. For longer-term activities, such as tunneling and associated muck train use (a muck train removes excavated material from a tunnel during construction), annoyance impact would be addressed. When vibration and associated groundborne noise are assessed for particular construction activities, the transit vibration impact criteria are used to determine the potential for impact. Because the transit vibration criteria are based on the frequency of events, it is important to know the frequency of events for a particular construction activity.

In order to assess the potential for damage from construction activities, criteria in terms of PPV (as discussed in Section 2.2) have been developed based on the building type (Swiss Consultants for Road Construction Association, 1992). These criteria include the following (vibration velocity levels are noted in parentheses):

- Reinforced concrete, steel, or timber: 0.5 PPV (102 VdB)
- Engineered concrete and masonry: 0.3 PPV (98 VdB)
- Nonengineered timber and masonry buildings: 0.2 PPV (94 VdB)
- Buildings extremely susceptible to vibration damage: 0.12 VdB (90 VdB)

As can be seen from the corresponding vibration velocity levels in parentheses, the thresholds for damage for even the most sensitive buildings are 1 to 2 orders of magnitude higher than the criteria for annoyance from vibration.

5.0 Future Build Conditions

This section summarizes the models used to predict future noise and vibration levels for potential sources of community impact related to the East Link Project. These sources include light rail operation, changes in traffic due to the project, and construction activities.

5.1 Light Rail Noise Projections

Noise from light rail operations was modeled using the methods described in the FTA *Transit Noise and Vibration Assessment Manual*. Input to the model included the following:

- Three-car trains with 7-minute headways during peak hours, 10-minute headways during midday and early evening, and 15-minute headways during late evening, nighttime, and early morning hours. (See Appendix E of the Final EIS for a summary of the Operations Plan.)
- Measured reference noise levels for the new light rail vehicles that are being used on the Central Link system, which have wheel skirts. The reference measurements were taken along the ballast and tie segment of the initial segment in south Seattle in March 2010. Curves of modeled Ldn and maximum noise level (Lmax) versus distance assuming a train speed of 50 mph are shown in Exhibit 5-1. (The noise projections in Exhibit 5-1 are corrected to account for speed, track type, and topographical conditions.)
- Digital terrain in 5-foot-elevation contour intervals.
- Plan and profile of the proposed light rail alternatives and design options, including the locations of special trackwork, such as crossovers, where wheel impacts make a clicking noise and vibration levels can be increased. For this analysis, measured increases in the light rail pass-by at crossovers were taken from the embedded crossovers along Martin Luther King Jr. Way South in Seattle. The measured data used for the crossovers were taken before noise-reducing modifications were recently added to these crossovers.
- Proposed maximum speeds along each of alternatives/design options.
- Adjustments based on track type, as shown in Table 5-1.
- Train-mounted bells were measured and validated in October 2009, with several supplemental measurements over the last two years. Under the current Sound Transit bell policy, train-mounted bells would be sounded two to three times as a train approaches and passes through an at-grade crossing, producing maximum levels of 80 dBA Lmax at 50 feet between 6:00 a.m. and 10:00 p.m. and reducing to 72 dBA Lmax between 10:00 p.m. and 6:00 a.m.
- For gated at-grade crossings, the project proposes to use electrical bells that are adjustable, with typical noise levels ranging from approximately 75 dBA to 85 dBA Lmax at 10 feet. For this analysis, the gate bells were analyzed using the default methods from the FTA Manual (2006), which assumes a typical Lmax of 85 to 86 dBA at 10 feet (or a single event level [SEL] of 109 dBA at 50 feet) and a 360 degree directional sound output. The bells would sound for approximately 25 seconds per train (10 to 13 seconds each, while lowering and raising the gates). Although it is plausible to lower the bell noise levels to 75 dBA, the default setting are being used to ensure a conservative analysis. Other noise mitigation alternatives, such as directional shrouds and turning off the bells while the gates are raised, were also not considered in this analysis.
- Sound Transit is currently investigating the use of nonaudible warnings for gated and ungated at-grade crossings. If nonaudible warning devices are found to be viable, this option could be used to reduce or eliminate bell noise at specific crossings, and could also reduce the number or severity of noise impacts presented in this study.
- Wheel squeal was assumed on all curves with a radius of less than 600 feet based on experience with the Central Link system. Wheel squeal is not included in the model because Sound Transit has committed to lubricating all curves in noise-sensitive areas with a radius of less than 600 feet, and preparing all curves with radius of less than 1,000 feet for lubrication.

The procedure used to evaluate the impacts of the project alternatives is based on the change in noise levels that would be caused by each alternative and the number of dwelling units potentially affected by project noise. For this analysis, attenuation for the noise reducing effects of ground coverage was not included, and all front-line receivers were assumed to have a line-of-sight view of the light rail route unless the route was in a retained cut, directly shielding the receptor from the tracks. This conservative methodology ensures that all potential noise impacts will be identified. This method is consistent with the FTA *Transit Noise and Vibration Manual*. Based on the results of the analysis provided in this section, noise impacts were determined for each alternative and for ancillary facilities. These impacts are identified in Section 6. Noise mitigation options were evaluated for all locations where the projected levels of noise exposure would exceed the FTA noise impact thresholds. The noise mitigation measures for the alternatives are discussed in Section 7.

TABLE 5-1
Light Rail Track-Type Adjustments

Track Type	Adjustment in dB
At-grade ballast and tie-track (ballast exposed)	0
Elevated structure	+4
Embedded track or retained-fill trackway	+3
Retained cut	-6
Crossover	+10

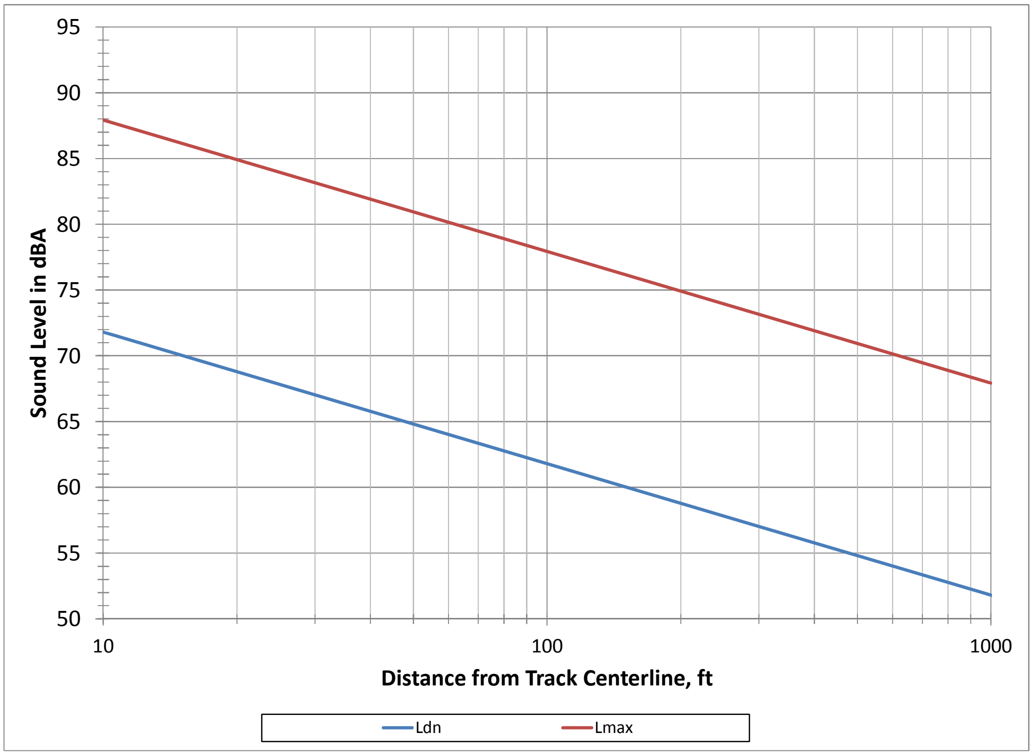


EXHIBIT 5-1
Projected Noise Levels from Light Rail Operations, 50 mph

5.2 Light Rail Vibration Projections

The projection of groundborne vibration from East Link Project light rail operations was based on the following:

- Vibration source levels were based on measurement data for the Sound Transit light rail vehicle, as measured by Wilson Ihrig & Associates, Inc. (2007).
- Vibration propagation tests were conducted at representative sites along the corridor near sensitive receptors (described in Section 3.3). The test results were combined with the vehicle vibration source level measurement data to project vibration levels from vehicles operating on the East Link Project alternatives.
- Vehicle operating speeds were taken from the operations plans. The speeds are dependent on location, with a maximum operating speed of 55 mph.
- Wheel impacts at crossovers typically cause localized vibration increases of 10 VdB.

The assumed vehicle vibration characteristics (represented by the force density spectra in Exhibit 5-2) at the appropriate speeds were combined with the ground-vibration propagation test results described in Section 3.3 and represented by transfer mobility spectra such as those shown in Exhibits 3-8 through 3-10E. Vibration levels were projected as a function of distance and speed for each of the test sites along the proposed corridor. The results of these transfer mobility tests are presented in Appendix D of this report. The results suggest dividing the rail corridor into ten regions for the purposes of vibration projection (excluding the site-specific vibration testing at the Winters House, Hilton Hotel, and Meydenbauer Center), defined based on the test sites as follows:

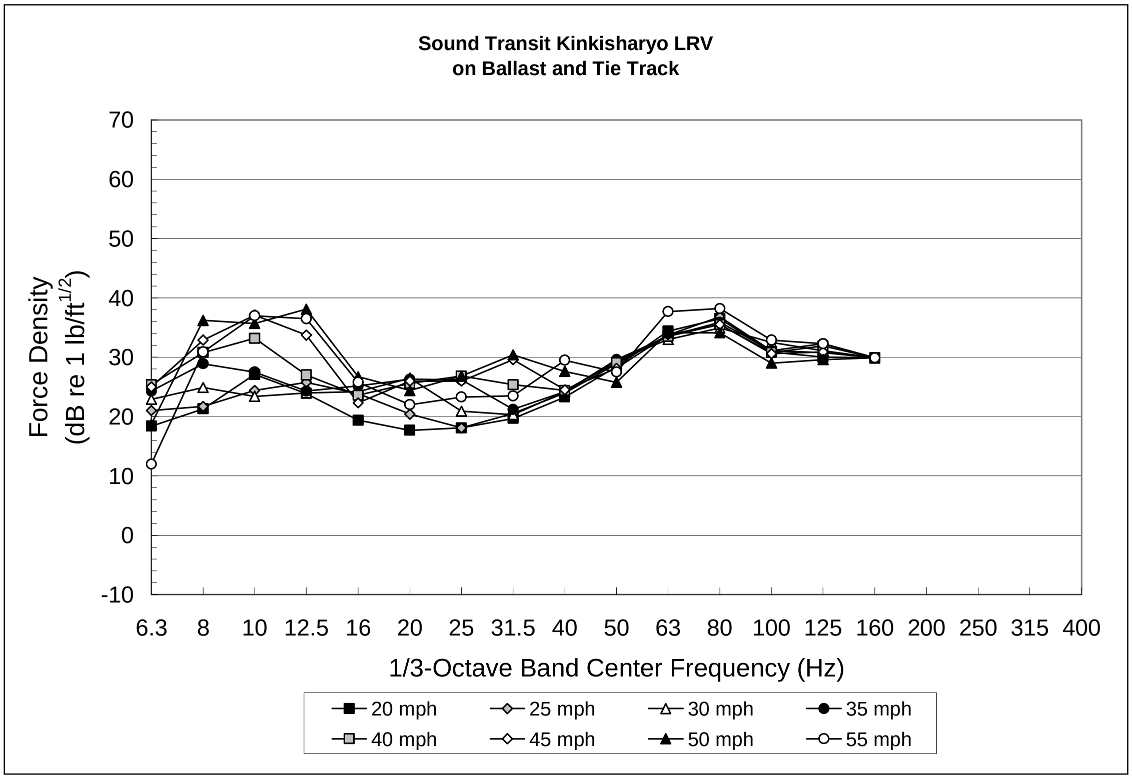


EXHIBIT 5-2
Light Rail Vehicle (LRV) Force Density Spectra on Ballast and Tie Track

- Region 1: Segment A (Site V-1)
- Region 2: The southern section of Segment B (Site V-2)
- Region 3: The northern section of Segment B and (Site V-3)
- Region 4: The southern section of Segment C (V-10)
- Region 5: The at-grade and elevated alternatives for Segment C (Site V-13)
- Region 6: The tunnel alternatives for Segment C (Site V-4)
- Region 7: Overlake Hospital (Site V-5)

- Region 8: Segment D (Sites V-6 and V-14)
- Region 9: The southern portion of Segment E (Site V-7)
- Region 10: The northern portion of Segment E (Site V-8)

The projections of maximum ground-vibration levels from light rail operations at 100 feet and 55 mph for each of the above ten regions are provided in Exhibits 5-3 through 5-5B. The curve for each site has a different spectral characteristic, which determines the distance to each region. The results suggest that there is relatively inefficient propagation of vibration throughout the proposed corridor, which will limit potential vibration impacts. However, there is substantial energy at higher frequencies (i.e., above 50 Hz), which suggests the potential for groundborne noise impacts in tunnel sections.

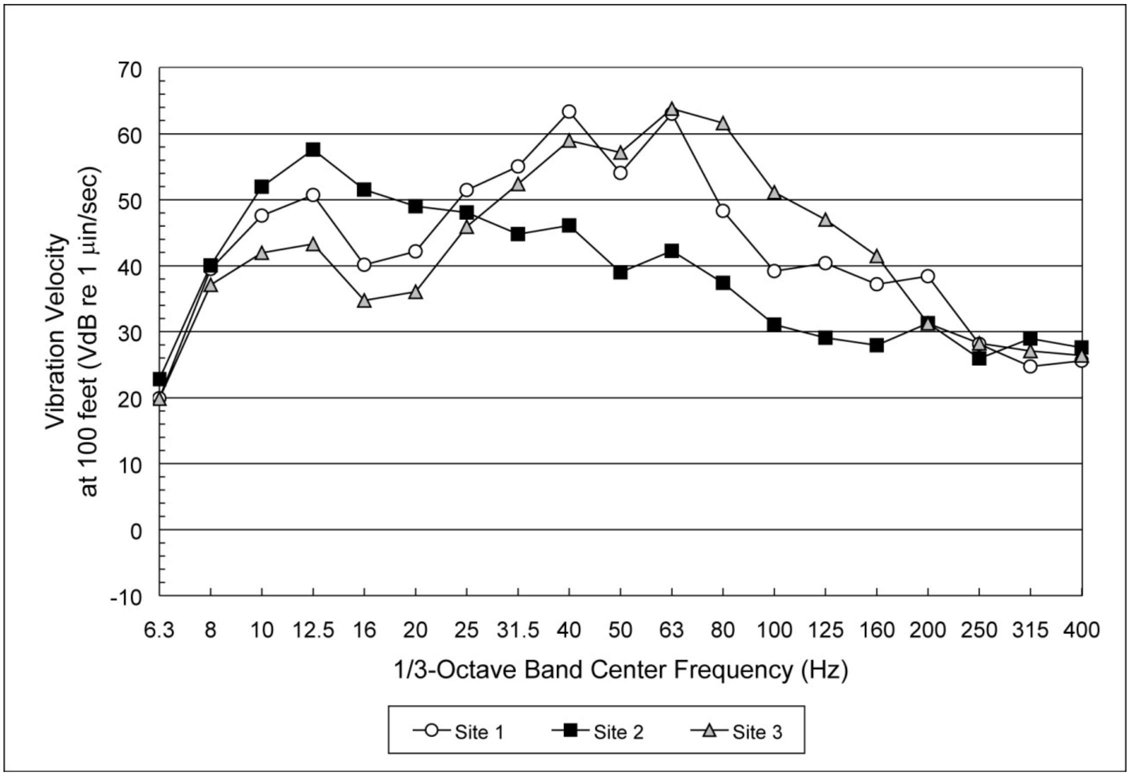


EXHIBIT 5-3
Projected Light Rail Ground Vibration Spectra at 55 mph, Sites V-1 to V-3

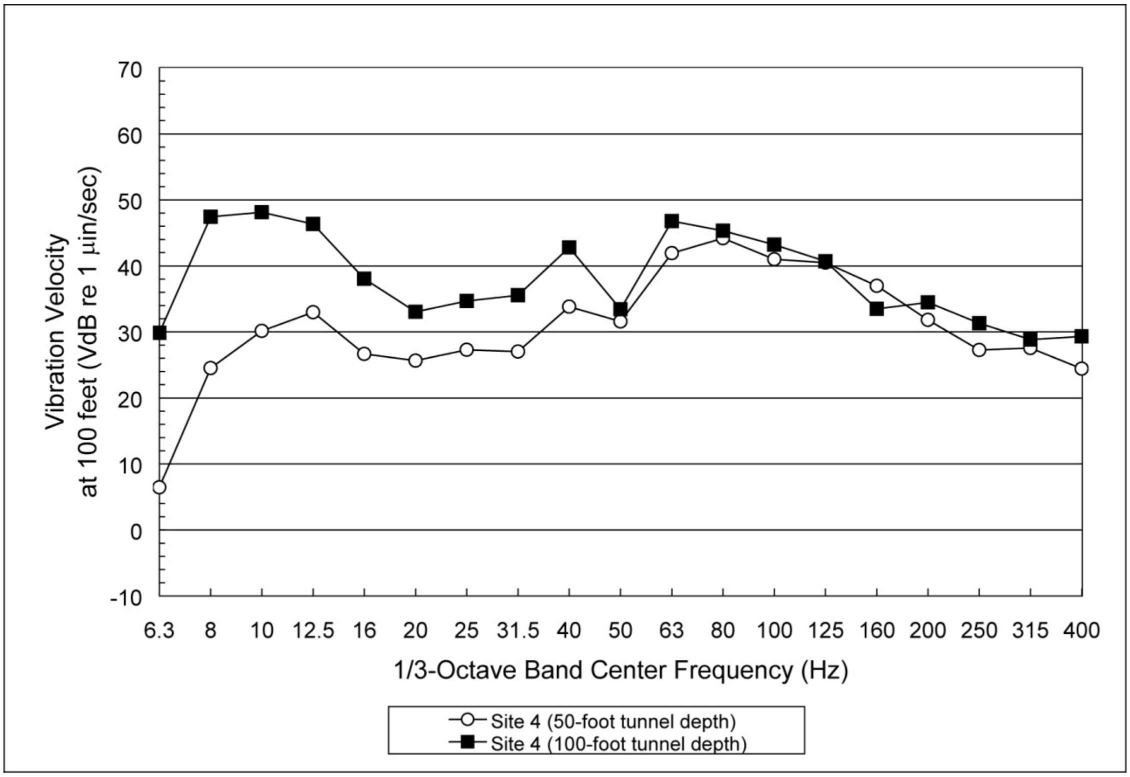


EXHIBIT 5-4
Projected Light Rail Ground Vibration Spectra at 55 mph, Site V-4

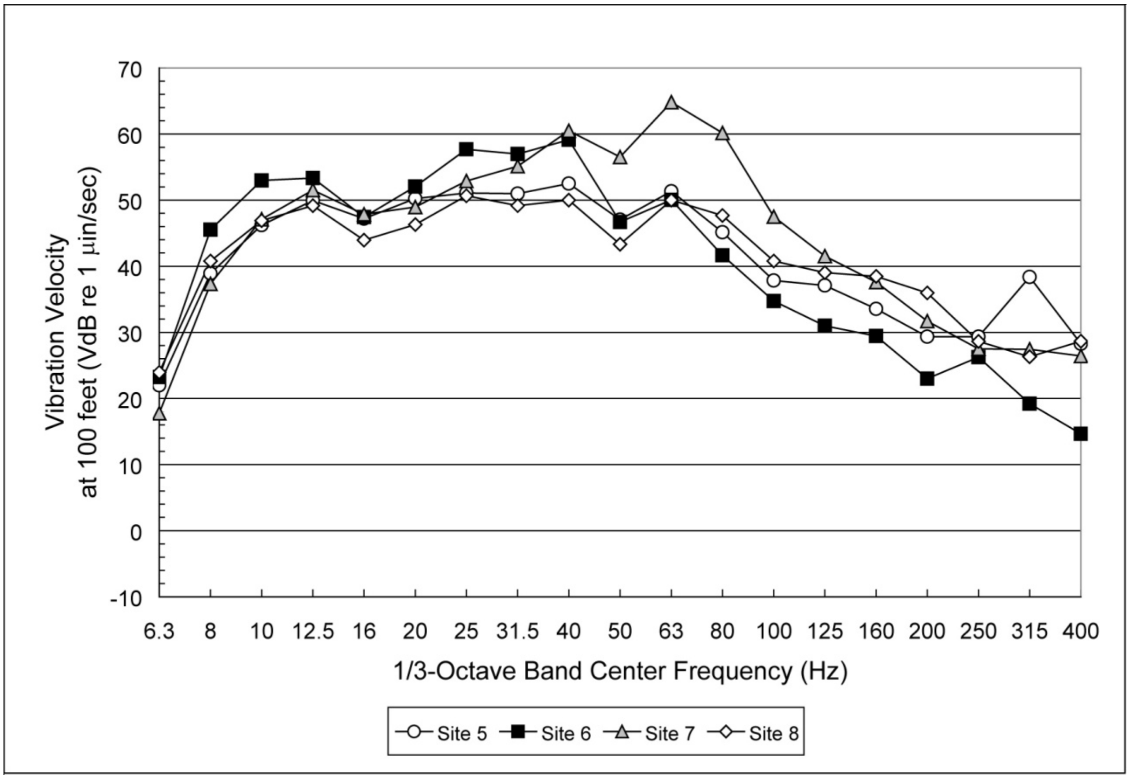


EXHIBIT 5-5A
Projected Light Rail Ground Vibration Spectra at 55 mph, Sites V-5 to V-8

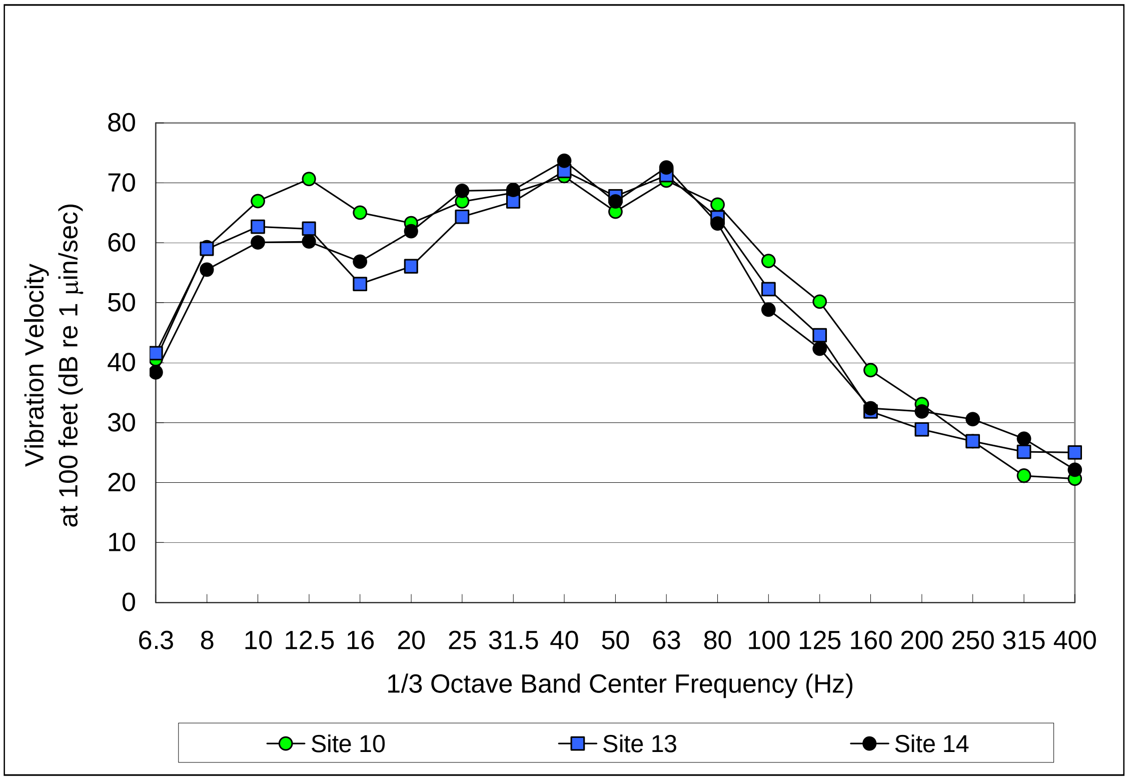


EXHIBIT 5-5B
Projected Light Rail Ground Vibration Spectra at 55 mph, Sites V-10, V-13, and V-14

5.3 Construction Noise Projections

The construction noise analysis considers the temporary noise impacts that construction would cause in the project vicinity. These impacts would end when project construction is completed.

Noise and vibration related to construction would result from the operation of heavy equipment needed to construct various project components, including bridges, retaining walls, roads, park-and-ride lots, and stations. The contractor would be required to adhere to local ordinances regulating noise, discussed in Section 4.4. Construction outside normal weekday daytime hours might require a noise variance from the city or county where the work is being performed if regulatory noise levels are exceeded.

Equipment required to complete the project includes normal construction equipment typically used for transportation construction projects. Table 5-2 provides a list of the typical equipment used for this type of project, the activities they would be used for, and the corresponding Lmax that would be produced as measured at 50 feet, under normal use.

TABLE 5-2
Construction Equipment List, Reference Noise Levels

Equipment	Expected Project Use	Lmax[a, b] (dBA)
Air compressors	Pneumatic tools and general maintenance (all phases)	70 to76
Backhoe	General construction and yard work	78 to 82
Concrete pump	Pumping concrete	78 to 82
Concrete saws	Concrete removal and utilities access	75 to 80

TABLE 5-2 CONTINUED
Construction Equipment List, Reference Noise Levels

Equipment	Expected Project Use	Lmax[a, b] (dBA)
Crane	Materials handling: removal and replacement	78 to 84
Excavator	General construction and materials handling	82 to 88
Forklifts	Staging area work and hauling materials	72
Haul trucks	Materials handling: general hauling	86
Jackhammers	Pavement removal	74 to 82
Loader	General construction and materials handling	86
Pavers	Roadway paving	88
Pile-drivers	Support for structure and hillside	99 to 105
Power plants	General construction use: nighttime work	72
Pumps	General construction use: water removal	62
Pneumatic tools	Miscellaneous construction work	78 to 86
Tractor trailers	Material removal and delivery	86
Utility trucks	General project work	72
Vibratory equipment	Shoring up hillside to prevent slides and soil compacting	82 to 88
Welders	General project work	76

[a] Typical maximum noise level under normal operation as measured at 50 feet from the noise source.

[b] Noise levels presented are based on measured data from the Portland Light Rail and I-5 Preservation and Hawthorne Bridge construction projects and other measured data and USDOT construction noise documentation and other construction noise sources.

5.4 Construction Vibration Projections

Construction vibration, similar to noise, is highly dependent on the specific equipment and methods employed. Construction vibration can cause a variety of potential effects, including influence on vibration-sensitive equipment at lower levels, low rumbling or groundborne noise, vibrations perceptible to humans at moderate levels, and slight damage to buildings at the highest levels. Generally, construction vibration was assessed at locations where prolonged annoyance or building damage could be expected.

In most cases, the main concern for construction vibration is the potential for damage. However, most construction processes do not generate high enough vibration levels to approach damage criteria. Because construction is a short-term, temporary impact, annoyance is usually not an important issue. The only time annoyance is usually addressed for construction vibration is for longer-term impacts, such as those related to the tunneling in Segment C. However, the thresholds for annoyance from construction vibration are substantially lower than those for damage.

Damage from construction vibration is generally limited to pile-driving and vibratory rolling, the only two activities with PPV levels at 25 feet that are higher than the damage criteria discussed in Section 4.5, Construction Vibration Criteria. Because of this, care should be taken to limit these activities near structures as much as possible.

Tunnel construction in Segment C is most likely to have potential temporary, short-term vibration annoyance impacts. Some sections of the proposed tunnel alternatives are expected to be constructed using a tunnel-boring machine with muck trains to transport the excavated material. Other tunnel sections and stations would use cut-and-cover techniques with sheet piling or augered pile techniques at the stations and portals.

The methodology for assessing construction vibration annoyance impacts is consistent with the approach provided in the FTA guidance manual, which includes obtaining reference 1-second rms overall vibration levels and 1/3-octave band spectra for each source at a distance of 25 feet. The propagation of vibration as a function of distance is an important factor in predicting vibration levels. Generally, surface or bore-hole-based vibration propagation measurements at the specific sensitive sites are needed to provide a detailed assessment. The following general prediction model is used to calculate vibration levels at the sensitive locations in each 1/3-octave band using the following propagation adjustment:

$$Lv(\text{distance}) = Lv(25\text{ feet}) - 30*\log(\text{distance}/25\text{ feet})$$

Adjustment factors are then applied according to the geological conditions that could promote efficient vibration propagation, coupling to the building foundation, floor-to-floor attenuation, and the amplification of vibrations due to the resonances of floors, walls, and ceilings. Vibration levels at the sensitive locations are then assessed against the vibration criteria for detailed analysis at highly sensitive locations shown in Table 4-4.

In accordance with FTA guidance, groundborne noise is assessed by converting the 1/3-octave band vibration velocity levels into A-weighted noise levels. Assessment of groundborne noise levels only applies to human annoyance because research equipment and other receptors are rarely sensitive to noise. The projected A-weighted noise levels are then assessed against the groundborne noise impact criteria shown in Tables 4-2 and 4-3.

6.0 Noise and Vibration Impact Assessment

A detailed noise and vibration impact assessment was performed based on the criteria discussed in Section 4 and on the projections described in Section 5 of this report. The assessment results are described below.

6.1 Light Rail and Traffic Noise Impact Assessment

Evaluation of the environmental noise impacts of the East Link alternatives was based on the change in the environmental noise level due to each project alternative and the number of dwelling units potentially affected by project noise. The transit noise methodology is consistent with the FTA *Transit Noise and Vibration Manual*. The FTA noise assessment methodology was also applied to the park-and-ride facilities and transit centers.

Because of the magnitude of properties analyzed for noise impacts, this report only summarizes and presents the impacts. Appendix A provides detailed maps showing all parcels analyzed, noise impacts, and severity of impact along with mitigation measures. Appendix E includes complete tabulated data, including the project parcel identification, existing noise levels, project noise levels, criteria, and other information.

6.1.1 Transit Noise

East Link Project light rail operational noise impacts were determined using the following approach:

- Perform a land-use survey of potential noise-sensitive receptors near the project alternatives. This process involved site visits and review of area land-use maps. Receivers located near each other and at the same distance from the proposed light rail alternatives were grouped together in clusters. All of the receivers in a given cluster would be within the same distance of light rail tracks and under similar conditions (such as track type and train speed); they would therefore have the same noise exposure.
- Establish existing noise levels for the potentially affected area through long-term (24-hour) and short-term (20-minute periods) noise monitoring. Ambient noise monitoring data from previous studies were used along with supplemental data taken specifically for this project. The criteria for monitoring selection included land use, existing ambient noise, number of sensitive receivers in the area, and level of expected impact.
- Use the field-noise measurements to project ambient sound levels for the noise-sensitive receptors, based on similarities in noise-source characteristics.
- Use the existing ambient sound levels to determine the noise impact criteria at each cluster. The FTA criteria for noise impacts for a particular area are based on the existing noise level.
- Make projections of light rail noise levels based on track type, train speed, vehicle type, and distance of receiver from tracks, with adjustments for shielding and ground attenuation.
- Compare projections to affect thresholds to determine if the receiver or cluster would be impacted by light rail operations, and where noise impacts are identified, consider mitigation and review any mitigation with the FTA *Transit Noise and Vibration Manual* and the Sound Transit's 2004 *Noise Mitigation Policy*.

In addition to the light rail operational noise analysis, a general noise analysis was also performed for park-and-rides and maintenance bases. These facilities were analyzed following the FTA *Transit Noise and Vibration Manual* for fixed ancillary facilities, which include an analysis using the local noise control ordinance, as provided in the WAC, Chapter 173-60. In addition, all parks along the proposed alternatives were reviewed for noise sensitivity under the FTA *Transit Noise and Vibration Manual*.

The only parks that are considered noise-sensitive under the FTA regulations are the sections of Mercer Slough Nature Park and Marymoor Park where peace and quiet are an essential part of the park's purpose. In both of these parks, these areas of peace and quiet are over 350 feet from the project alternatives, highways, and major arterial roadways. In addition, the distance to these areas, along with existing shielding, are sufficient to reduce noise to below the existing environment in sensitive areas. All other parks and park areas along the alternatives are near major highway or arterial roadways, including I-90, SR520, Bellevue Way SE, 112th Avenue SE, NE 12th Street, and other major roadways, and therefore are not considered noise-sensitive under FTA criteria.

6.1.2 Traffic Noise

Traffic noise was analyzed using the WSDOT methods given in the *Traffic Noise Abatement Policy and Procedures* (WSDOT, 2006). Traffic noise was only evaluated where required by FTA and FHWA, where the following conditions apply:

- A new roadway is planned as part of the project
- The project results in a significant change in the horizontal or vertical profile of an existing roadway
- The number of through-traffic lanes increases

Existing and future year 2030 peak-hour traffic noise levels were calculated using FHWA Traffic Noise Model (TNM) Version 2.5. Input to this model included traffic-volume and speed information from roadway traffic counts and data generated by Sound Transit traffic engineers. Input to the model relating to the existing and future roadway alignments and profiles was taken from engineering drawings and aerial photographs prepared by Sound Transit for the East Link Project. Traffic-noise emission levels used in the model were nationwide averages for automobiles, medium trucks, and heavy trucks. The noise-reducing effects of adjacent residences, roadway depressions, and topography were included in the calculations where appropriate. Project-related traffic noise impacts were identified by evaluating the TNM 2.5 model output against the traffic noise impact criteria. Noise monitoring data were used to validate the model.

6.1.3 Segment A

Segment A begins in the existing Downtown Seattle transit tunnel, continues along the I-90 D2 Roadway, and remains in the existing I-90 corridor to the I-90 Mount Baker Tunnel portals. Noise levels from rail operations in Seattle were projected for the residential area along Sturgus Avenue South, residences north of South Massachusetts Street, and at residences and parklands near the Mount Baker Tunnel. Projected project-related noise levels ranged from 55 to 63 dBA Ldn at residences and 61 dBA Leq at Judkins Park and Playfield.

Installing light rail on the I-90 floating bridge would require expansion joints at each end of the floating bridge structure that could create noise. Based on current projections, noise levels at a single home on Lake Washington Boulevard, just south of the bridge, could meet the FTA criteria, with a projected level of 63 dBA Ldn, when worst-case additional noise from the expansion joint is added to the analysis.

There are no existing expansion joints that could be measured for noise like the one proposed. Sound Transit is currently constructing a sample expansion joint for testing purposes. At that time, additional noise testing will be performed to determine if this impact would actually occur and what mitigation measures would be best suited to reduce noise levels from the joints.

In addition to the expansion joints, there would also be double crossovers located at each end of the floating bridge to facilitate single-track operations in the case of an emergency or for track maintenance. These crossovers are located over 400 feet from the nearest residences, would also be partly shielded from the residences by the safety barriers along the sides of the structure, and are not predicted to cause noise impacts.

On Mercer Island, noise projections were performed for the residences located on the west end of Mercer Island, to the I-90 lid, and near the east end of the island. Future project-related noise levels would range from 55 dBA Ldn to 58 dBA Ldn at the nearest homes on the west end of the island. The parks on Mercer Island are all well above the grade of the light rail trackway and would not be affected by noise from transit operations. There are no projected changes in the noise levels at any residences on Mercer Island, and no light rail noise impacts were identified. Table 6-1 summarizes noise impacts in Segment A, and Appendix E provides the tables of the modeled light rail noise levels.

TABLE 6-1
Summary of Potential Noise Impacts for Segment A

Alternative	Moderate Light Rail Impacts	Severe Light Rail Impacts	Traffic Noise Impacts
Preferred Interstate 90 Alternative (A1)	1	0	0

6.1.4 Segment B

Table 6-2 summarizes noise impacts in Segment B, and then a detailed description of the impacts for each alternative follows. Transit noise impacts were identified under all of the Segment B alternatives; traffic noise impacts would only occur for 112th SE Bypass (B3), B3 - 114th Extension Design Option , 112th SE At-Grade (B2A), and Bellevue Way (B1) Alternatives because of changes in the travel lanes in relation to sensitive receptors. Before mitigation, the *Preferred 112th SE Modified Alternatives (B2M)* connecting to *Preferred Alternative C9T*, both with and without the C9T – East Main Station Design Option, would have the fewest impacts with 66 noise impacts. Maps showing the locations of the Segment B alternatives impacts are provided in Appendix A, and full tables of all modeled light rail and traffic noise levels are in Appendix E.

TABLE 6-2
Summary of Potential Noise Impacts for Segment B

Alternative	Moderate Light Rail Impacts	Severe Light Rail Impacts	Traffic Noise Impacts
Preferred 112th SE Modified Alternative (B2M) to C11A	79	0	0
Preferred 112th SE Modified Alternative (B2M) to C9T	66	0	0
Preferred 112th SE Modified Alternative (B2M) to C9T – East Main Station Design Option	64	2	0
Bellevue Way Alternative (B1) [a]	128	4	136
112th SE At-Grade Alternative (B2A) [b]	77	1	17
112th SE Elevated Alternative (B2E)	85	21	0
112th SE Bypass Alternative (B3) [c]	79	4	17
B3 - 114th Extension Design Option [c]	76	1	17
BNSF Alternative (B7)	108	68	0

[a] Under Alternative B1 all but nine of the traffic noise impacts would also have light rail noise impacts; conversely, there are only five light rail impacts that would not have traffic noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 141; 5 would be impacted by light rail noise only, 9 would be impacted by traffic noise only, and 127 would be impacted by both traffic noise and light rail noise.

[b] Under Alternative B2A all but one of the traffic noise impacts would also have light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 79; 62 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[c] Under Alternatives B3 and B3 – 114th Extension Design Option all but one of the traffic noise impacts would also have light rail noise impacts. For B3, the total number of residences impacted (single- and multifamily) would be 84; 67 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise. For B3 – 114th Extension Design Option, the total number of residences impacted (single- and multifamily) would be 78; 61 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

All Segment B alternatives except Alternative B7 travel along the west side of Mercer Slough Nature Park. This park is bordered on two sides by two interstate highways—I-90 and I-405—and on a third side by the major arterial Bellevue Way SE, a park-and-ride, and a commercial office park, where "quiet" is not an essential element as outlined in the FTA criteria for park noise analysis. The active uses along the west perimeter include the boat launch, blueberry farm, and Winters House and are not considered noise-sensitive. The central portions of Mercer Slough Nature Park contain uses that do meet the criteria as noise-sensitive, such as nature watching and protected trails.

Sound Transit conducted a noise impact analysis for park users in noise-sensitive areas of the Mercer Slough Nature Park and also predicted noise levels for the areas of the park near Bellevue Way SE. Typical noise levels at the edge of the park, near Bellevue Way SE, are between 61 dBA and 67 dBA Leq. Noise levels in noise sensitive areas of the park, near the center, were measured at 58 dBA Leq during normal daytime hours. The FTA Category 3, which includes certain parks and recreational areas, was used to determine compliance with FTA noise impact criteria at the interior noise-sensitive parts of the park. Light rail noise levels from operation of *Preferred Alternatives B2M* to *C11A* or *B2M* to *C9T* are predicted to be lower than the existing noise levels in the interior noise-sensitive areas of the park, and are under the FTA noise impact criteria for a Category 3 land use.

The only other park in Segment B is the Enatai Beach Park, which is well-shielded from light rail noise by I-90, and therefore would have no project-related noise impacts.

6.1.4.1 Preferred 112th SE Modified Alternative (B2M)

Under *Preferred Alternative B2M*, the level of noise impacts would vary with the different connections. Under *Preferred Alternative B2M to C11A*, 79 moderate light rail noise impacts are predicted. Forty-one impacts would occur along the elevated segment from I-90 to the intersection with 112th Avenue SE, affecting single-family residences adjacent to SE 34th Street and Bellevue Way SE. North of the Bellevue Way SE/112th Avenue SE intersection, seven noise impacts are predicted at the single-family residences west of 112th Avenue SE, near SE 17th and SE 14th Streets. All noise impacts between I-90 and the retained cut at the Winters House would be related to the elevated guideway, a crossover near SE 30th Street, and, to a lesser extent, train bells at the station.

Under *Preferred Alternative B2M to C11A*, 19 moderate noise impacts were also identified at the Bellefield Residential Park Condominiums as well as 12 moderate impacts at single-family residences along 111th Avenue SE just south of Surrey Downs Park. Impacts in this area would be due to lower impact criteria as a result of lower ambient noise levels, gated crossings, and train wayside noise.

Under *Preferred Alternative B2M to C9T*, 66 moderate light rail noise impacts were identified. Noise impacts from I-90 to 112th Avenue SE would be the same as with *Preferred Alternative B2M to C11A*, with 41 moderate impacts along this portion of the alternative. There would also be six impacts on single-family residences west of 112th Avenue SE, near SE 17th and SE 14th Streets, and nine moderate noise impacts at the Bellefield Residential Park Condominiums. Finally, there would be 10 moderate impacts at single-family residences along 111th Avenue SE just south of Surrey Downs Park.

Noise impacts with *Preferred Alternative B2M to C9T* would occur for the same reasons as with *Preferred Alternative B2M to C11A*, although some impacts would occur in different locations and with different severity. There are no roadway modifications that would move traffic closer to any noise-sensitive properties; therefore, no traffic noise impacts were identified under either of the *Preferred Alternative B2M* connection options.

Under *Preferred Alternative B2M to C9T* with the C9T - East Main Station Design Option, the SE 8th Station would be relocated to the north in Segment C, and a crossover from Segment C would be relocated to the SE 8th Station site in Segment B, just north of SE 8th Street. This change would increase the noise levels at several homes along 111th Place SE by 1 to 4 dB over the default station location. In addition, two of the moderate noise impacts would now be considered severe under the FTA criteria. The overall results under *Preferred Alternative B2M to C9T* with the C9T - East Main Station Design Option are 64 moderate impacts and 2 severe impacts. Table 6-3 summarizes a comparison between the two *Preferred Alternative* connections and the connection to the C9T – East Main Station Design Option based on land use type.

TABLE 6-3
Noise Impact Comparison for Preferred Alternative B2M to Preferred Alternative C11A, C9T, and C9T – East Main Station Design Option

Land Use Type	***To Preferred Alternative C9T***		***To Preferred Alternative C11A***		***To Preferred Alternative C9T with East Main Station Design Option***	
	Moderate	**Severe**	**Moderate**	**Severe**	**Moderate**	**Severe**
Single-family	57	0	60	0	55	2
Multifamily	9	0	19	0	9	0
Hotel	0	0	0	0	0	0
Hospital	0	0	0	0	0	0
School	0	0	0	0	0	0
Recording/concert (FTA Category-1)	0	0	0	0	0	0
Parks and recreation (FTA Category-3)	0	0	0	0	0	0
Church	0	0	0	0	0	0
Sensitive medical facilities (nonsleeping)	0	0	0	0	0	0
Total Impact Before Mitigation	**66**	**0**	**79**	**0**	**64**	**2**

6.1.4.2 Bellevue Way Alternative (B1)

In Segment B, 260 residential units and 3 church buildings were evaluated for noise impacts; the analysis projected an overall total of 141 noise impacts under Alternative B1. This includes 128 moderate light rail impacts, 4 severe light rail noise impacts, and 136 traffic noise impacts. It is important to note that all but nine of the units identified with traffic noise impacts would also have noise impacts related to light rail. The four sites identified with severe light rail noise impacts are all located near a crossover at SE 30th Street. Light rail noise levels under this alternative ranged from 52 to 75 dBA Ldn, with the highest noise levels, and severe impacts, occurring near the crossover near SE 30th Street.

6.1.4.3 112th SE At-Grade Alternative (B2A)

For Alternative B2A, a total of 78 light rail noise impacts were identified, including one severe impact near the crossover at SE 30th Street. Light rail operational noise levels are projected to range from 53 to 69 dBA Ldn at noise-sensitive properties along Bellevue Way SE and 112th Avenue SE, with one receiver near the crossover where noise levels are projected to reach 72 dBA Ldn before any mitigation measures are applied.

Alternative B2A would require some roadway widening along Bellevue Way SE, between the South Bellevue Station and the 112th Avenue SE intersection. Along 112th Avenue SE, Alternative B2A would replace the existing median, and minimal roadway modifications would be required. Future traffic noise levels with the project along Bellevue Way are projected to increase by up to 6 dBA, with future traffic noise levels of 66 to 72 dBA Leq during peak hours at affected residences. Under Alternative B2A, 17 residences are projected to have traffic noise impacts because of the roadway widening. The East Link Project would be required to consider mitigation for these residences.

6.1.4.4 112th SE Elevated Alternative (B2E)

Under Alternative B2E, 85 moderate and 21 severe noise impacts are projected. One severe impact occurs at a single-family residence near the crossover at SE 30th Street. North of the South Bellevue Transit Station, the proximity of the elevated structure to homes near SE 23rd Street and 109th Avenue SE would result in an additional 15 severe impacts. The remaining five severe impacts would be just south of Bellefield Residential Park Condominiums at a group of single-family residences off of SE 17th Street. Light rail-related noise levels range from 53 to 74 dBA Ldn at the 148 locations used in the noise analysis. Alternative B2E would require no substantial changes in the roadway alignments; therefore, no traffic noise impacts are projected.

6.1.4.5 112th SE Bypass Alternative (B3)

There were 79 moderate and 4 severe noise impacts identified for Alternative B3. One of the severe impacts would be due to the crossover at SE 30th Street. The remaining severe impacts would be to single-family residences just south of Surrey Downs Park, along 111th Avenue SE, because of the added noise associated with the elevated structure. Light rail-related noise levels at the 148 residences evaluated under this alternative ranged from 53 to 72 dBA Ldn.

Traffic noise impacts under Alternative B3 would be at the same 17 residences predicted with traffic noise impacts under Alternative B2A.

There were 76 moderate noise impacts and 1 severe impact identified for the B3 - 114th Extension Design Option. As with Alternative B3, a severe impact would occur due to the crossover at SE 30th Street. The other residences that would have severe impacts under Alternative B3 would not have a severe impact with this design option because of the added distance between the elevated guideway and the homes. Light rail-related noise levels at the 148 residences evaluated under this design option ranged from 53 to 72 dBA Ldn. Traffic noise impacts under B3 – 114th Extension Design Option would be the same as those described above for Alternative B2A.

6.1.4.6 BNSF Alternative (B7)

For Alternative B7, 108 moderate and 68 severe light rail noise impacts are projected along the corridor. Sixteen single-family residences near I-90, west of Bellevue Way SE, were identified with moderate noise impacts. Along the west side of the light rail route along 118th Avenue SE, there would be 160 noise impacts, of which 68 are projected to be in the FTA severe category, with the other 92 being moderate. Thirty of the severe noise impacts would be due to the nearby crossover, while the other 38 would result from the proximity to the tracks and the higher train speed under this alternative. Maps of the impacts are provided in Appendix A. Complete tabulated modeled noise levels for Alternative B7 are provided in Appendix E of this report. Alternative B7 would require no substantial changes in the roadway alignments; therefore, no traffic noise impacts are projected.

6.1.5 Segment C

Table 6-4 summarizes light rail noise impacts in Segment C, and a detailed description of the impacts for each alternative follows. The two preferred alternatives in Segment C, *Preferred 108th At-Grade Alternative (C11A)* and *Preferred 110th Tunnel Alternative (C9T)* (both from *Preferred Alternative B2M*) are compared in Table 6-5, and each alternative is discussed after that. Note that *Preferred Alternatives C11A* and *C9T* can also be connected to Alternative B3, B3 – 114th Extension Design Option, or B7; those connections are discussed below and included in Table 6-4. Traffic noise impacts were identified for the Bellevue Way Alternative (C1T) only and are discussed with that alternative. The remaining Segment C alternatives will not substantially change the existing roadway alignments, and therefore no traffic noise impacts were identified for these alternatives.

There are several parks and parklands in Segment C, including the Surrey Downs Park, Downtown Park, Ashwood Park, and McCormick Park. Surrey Downs Park is located along 112th Avenue SE, an established transportation corridor. The Downtown Park, as its name implies, is located in Downtown Bellevue near NE 2nd Street. Ashwood Park and McCormick Park are both located near NE 12th Street, which is also an established transportation corridor. These parks were all reviewed for sensitivity to noise. Since these parks do not have noise-sensitive uses and are located along established transportation corridors, none meet the FTA criteria for a noise-sensitive use; therefore, no light rail operational noise impacts were identified in Segment C.

Complete maps and tabulated modeled noise levels for Segment C alternatives are included in Appendices A and E of this report.

TABLE 6-4
Summary of Potential Noise Impacts for Segment C

Alternative	Connection (from Alternative)	Moderate Light Rail Impacts	Severe Light Rail Impacts	Traffic Noise Impacts
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred 112th SE Modified Alternative (B2M)*	119	65	0
	112th SE Bypass (B3), B3 – 114th Extension Design Option, or BNSF (B7) Alternative	152	52	0
Preferred 110th NE Tunnel Alternative (C9T)	*Preferred 112th SE Modified Alternative (B2M)*	62	57	0
	Alternative B3, B3 – Design Option, or B7	88	52	0
C9T – East Main Station Design Option	*Preferred 112th SE Modified Alternative (B2M)*	67	52	0
Bellevue Way Tunnel Alternative (C1T) [a]	Bellevue Way Alternative (B1)	48	52	18
106th NE Tunnel Alternative (C2T)	112th SE At-Grade Alternative (B2A)	48	52	0
	112th SE Elevated Alternative (B2E)	113	66	0
	Alternative B3 or B7	66	70	0
108th NE Tunnel Alternative (C3T)	Alternative B2A	26	0	0
	Alternative B2E	91	14	0
	Alternative B3 or B7	44	18	0
Couplet Alternative (C4A)	Alternative B2A	435	15	0
	Alternative B2E			
	Alternative B3 or B7	420	19	0

TABLE 6-4 CONTINUED
Summary of Potential Noise Impacts for Segment C

Alternative	Connection (from Alternative)	Moderate Light Rail Impacts	Severe Light Rail Impacts	Traffic Noise Impacts
112th SE Elevated Alternative (C7E)	Alternative B2A or B2E	270	12	0
	Alternative B3 or B7	208	0	0
110th NE Elevated Alternative (C8E)	Alternative B3 or B7	353	72	0
110th NE At-Grade Alternative (C9A)	Alternative B2A	185	56	0
	Alternative B3, B3 – Design Option, or B7	145	54	0
114th NE Elevated Alternative (C14E)	Alternative B3, B3 – Design Option, or B7	36	112	0

[a] Under Alternative C1T all the traffic noise impacts are separate from light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 118; 100 would be impacted by light rail noise only, 18 would be impacted by traffic noise only, and 0 would be impacted by both traffic noise and light rail noise.

6.1.5.1 Preferred 108th NE At-Grade Alternative (C11A)

Under *Preferred Alternative C11A* from *Preferred Alternative B2M*, 119 moderate and 65 severe light rail noise impacts are predicted. Some of the severe impacts would occur at single-family homes along 111th Avenue SE because of a nearby crossover and loss of shielding from displaced buildings. Severe impacts, which are predicted at several multifamily units along 108th Avenue NE, would occur because of bells and proximity to the tracks. Finally, the severe noise impacts at the Lake Bellevue Village Condominiums would be due to lower impact criteria because this area has lower ambient noise levels. Severe impacts are also projected at the Coast Bellevue Hotel because of a nearby crossover and the proximity of the tracks to the hotel rooms. Along the at-grade segment through Downtown Bellevue, an additional 108 moderate noise impacts were identified. No roadway modifications would be required nor would there be any traffic noise impacts. Overall, the project-related noise levels were projected to range from 53 to 69 dBA Ldn, with the Coast Bellevue Hotel projected to have a severe impact and a projected 80 dBA Ldn due to a crossover and high train speed on the structure. No roadway realignment is planned as part of this alternative; therefore, no project-related traffic noise impacts are anticipated.

Preferred Alternative C11A from Alternatives B3, B7, or B3 – 114th Extension Design Option would result in 152 moderate and 52 severe light rail noise impacts. The severe impacts that would occur at the single-family residences along 111th Avenue SE would not occur under the Alternatives B3 or B7 connection options. Instead, there would be 36 new moderate noise impacts at the Hilton Hotel and 8 moderate impacts at single-family residences south of Main Street. Noise impacts in the downtown corridor, at the Coast Bellevue Hotel, and at Lake Bellevue Condominiums would be the same with connection options to Alternative B3, B3 – 114th Extension Design Option, or B7. The change in the number and severity of impacts under Alternatives B3, B7, or B3 – 114th Extension Design Option when compared to *Preferred Alternative B2M* is due to changes in the alignment related to the different alternative connection. The range of noise levels with the Alternative B3 or B7 connections would be the same as given under the *Preferred Alternative B2M* connection.

6.1.5.2 Preferred 110th NE Tunnel Alternative (C9T)

Noise levels under *Preferred Alternative C9T* from *Preferred Alternative B2M* would range from 48 to 79 dBA Ldn with 62 moderate and 57 severe impacts. The severe impacts would occur at five single family homes along 111th Place SE, a multifamily building on NE 6th Street in Downtown Bellevue and the Lake Bellevue Village

Condominiums. Depending on the location, the severe impacts would result from one or more of the following: proximity to the track, bells at crossings, and crossovers.

Under the C9T – East Main Station Design Option from *Preferred Alternative B2M*, the relocation of the crossover and insertion of the new station site would reduce the number of severe impacts when compared to the scenario with the SE 8th Street Station. The reduced noise from relocating the crossover is the reason for the reduction in the severity of impacts. There would still be a total of 119 noise impacts, however, with the East Main Station—52 severe and 67 moderate. No roadway modifications are predicted to result in a noticeable increase in traffic noise levels, and therefore no project-related traffic noise impacts are predicted.

Preferred Alternative C9T from Alternatives B3, B7, or B3 – 114th Extension Design Option would result in 88 moderate and 52 severe light rail noise impacts. With *Preferred Alternative B2M,* the total number of impacts would increase from 119 to 140. The change in the number of impacts, as with *Preferred Alternative C11A*, would be due to reduced noise impacts along 112th Avenue SE and an increase in noise impacts at the Hilton Hotel rooms facing toward the tracks. Impacts at the Coast Bellevue Hotel and the Lake Bellevue Condominiums would remain, along with impacts at four single-family homes south of Main Street. Table 6-5 compares the two Segment C *Preferred Alternatives*. This table summarizes in detail the number of moderate and severe impacts for each alternative by type of land use. As would be expected, the at-grade *Preferred Alternative C11A* would have more noise impacts than the tunnel *Preferred Alternative C9T*. The increased impacts would be along the at-grade segment on 108th Avenue NE in Downtown Bellevue.

TABLE 6-5
Noise Impact Comparison for Preferred Alternatives C11A or C9T from Preferred Alternative B2M

Land Use Type	***Preferred Alternative C11A***		***Preferred Alternative C9T***		***Preferred Alternative C9T* with C9T - East Main Station Design Option**	
	Moderate	**Severe**	**Moderate**	**Severe**	**Moderate**	**Severe**
Single-family	11	13	14	5	19	0
Multifamily	108	16	48	16	48	16
Hotel	0	36	0	36	0	36
Hospital	0	0	0	0	0	0
School	0	0	0	0	0	0
Recording/concert (FTA Category 1)	0	0	0	0	0	0
Parks and recreation (FTA Category 3)	0	0	0	0	0	0
Church	0	0	0	0	0	0
Sensitive Medical Facilities (Non-sleeping)	0	0	0	0	0	0
Total Impact Pre-Mitigation	**119**	**65**	**62**	**57**	**67**	**52**

6.1.5.3 Bellevue Way Tunnel Alternative (C1T)

There are 48 moderate and 52 severe light-rail-related noise impacts projected for the Bellevue Way Tunnel Alternative (C1T). The impacts would occur at multifamily units at The Bravern and Lake Bellevue Condominiums, and at the Coast Bellevue Hotel. Up to 16 units are projected to exceed the FTA severe impact criteria at Lake Bellevue Village Condominiums, and 48 units are projected to experience moderate impacts at The Bravern.

With Alternative C1T, the roadway would be widened, thereby moving the traffic lanes closer to several properties; this would result in traffic noise impacts on 18 multifamily units along Bellevue Way near the connection to Segment B. All 18 units are on the west side of Bellevue Way, between the retained-cut section and just north of the tunnel portal.

6.1.5.4 106th NE Tunnel Alternative (C2T)

Under Alternative C2T, the number of impacts would vary with the connection alternative. Connecting from Alternative B2A, there would be 48 moderate and 52 severe light rail noise impacts. The impacts would occur at multifamily units at Lake Bellevue, The Bravern, and the Coast Bellevue Hotel.

Connecting from Alternative B2E, the number of impacts would increase from a total of 100 under Alternative B2A to 179. The increased number of impacts is due to the elevated structure along 112th Avenue SE, where 47 impacts were identified, including 14 severe impacts due to the proximity to a crossover.

When connecting from Alternative B3 or B7, Alternative C2T would have moderate noise impacts on 48 multifamily units and 18 hotel rooms and severe impacts on 16 multifamily units and an additional 54 hotel rooms.

6.1.5.5 108th NE Tunnel Alternative (C3T)

Twenty-six moderate light rail noise impacts were identified under the 108th NE Tunnel Alternative (C3T) connecting from Alternative B2A. All 26 impacts would be near the tunnel portal along NE 12th Street. With Alternative C3T from Alternative B2E, there would be severe noise impacts at 2 single-family units and 12 multifamily units. The 14 severe impacts would be all along 112th Avenue SE and due to a double crossover. There would be 59 moderate impacts, comprised of 13 single-family and 46 multifamily units. The noise analysis also predicts 32 moderate impacts on the Bellevue Club hotel rooms facing 112th Avenue SE. Impacts with Alternative C3T from Alternative B2E would occur along 112th Avenue SE and near the tunnel portal along NE 12th Street.

When connecting from Alternative B3 or B7, Alternative C3T would have severe noise impacts on 18 hotel rooms and moderate impacts on 5 single-family units, 21 multifamily units, and 18 more hotel rooms. Alternative C3T would require no substantial changes in the roadway alignments; therefore, no traffic noise impacts are projected.

6.1.5.6 Couplet Alternative (C4A)

For the Couplet Alternative (C4A) connecting from Alternative B2A or B2E, there would be 15 severe noise impacts and 435 moderate noise impacts. The high numbers of noise impacts would be due to the dense multifamily units along the at-grade sections along 110th and 108th Avenues NE and NE 12th Street.

For the connections from Alternative B3 or B7, there would be moderate impacts on 13 single-family units, 365 multifamily units, and 42 hotel rooms along with severe impacts on 1 single-family unit and 18 hotel rooms. The severe noise impact at the single-family unit would be due to added noise from bells at the at-grade crossings.

6.1.5.7 112th NE Elevated Alternative (C7E)

Several noise impacts are projected for the 112th NE Elevated Alternative (C7E), and they vary depending on connection. Under the connection to Alternatives B2A or B2E, there would be severe noise impacts at 12 multifamily residential units south of Main Street due to crossovers. In addition to the 12 severe impacts, there are also moderate noise impacts at 40 single- and multifamily units south of Main Street and along 112th Avenue SE. As the alignment continues along 112th Avenue NE, an additional 228 moderate impacts were identified at multifamily units and hotels along the corridor. Finally, there are also 6 single-family residences north of NE 12th Street that would also exceed the FTA moderate criteria.

When connecting to Alternative B3 or B7, Alternative C7E would have moderate noise impacts at 208 single and multifamily residences, and several hotel rooms. There are no severe impacts projected under Alternative C7E from Alternatives B3 or B7. Maps of analysis and impact locations are provided in Appendix A.

6.1.5.8 110th NE Elevated Alternative (C8E)

Alternative C8E only connects to Alternative B3 or B7. Under Alternative C8E, 72 multifamily residences near NE 2nd Street are projected to have severe noise impacts due to the proximity of the elevated structure to the units. Moderate light rail-related noise impacts were also identified at an estimated 9 single-family units, 224 multifamily units, and 120 hotel rooms along elevated structure.

6.1.5.9 110th NE At-Grade Alternative (C9A)

Alternative C9A connecting to Alternative B2A is projected to have 56 severe impacts and 185 moderate impacts. Severe impacts at 4 single-family residences would be due to crossovers and bells, while the 16 multifamily severe impacts at the Lake Bellevue Condominiums would be due to the low existing noise levels in this area. The remaining 36 severe impacts would be at the Coast Bellevue Hotel, due to a double crossover and higher train speed.

With a connection from Alternative B3, B3 – 114th Extension Design Option, or B7, the total number of impacts would be reduced from 241 to 199, with 54 severe impacts. The severe impacts are related to bells south of Main Street, proximity and speed at the Coast Bellevue Hotel, and impacts at the same units as described above at the Lake Bellevue Condominiums.

6.1.5.10 114th NE Elevated Alternative (C14E)

Alternative C14E only connects to Alternative B3, B3 – 114th Extension Design Option, or B7 and remains near I-405 along 114th Avenue NE. It connects to Segment D near the Lake Bellevue Condominiums, where 16 severe impacts are projected. Alternative C14E would also have severe impacts at 96 hotel rooms and moderate impacts at an additional 36 hotel rooms.

6.1.6 Segment D

Table 6-6 summarizes light rail noise impacts in Segment D, and the impacts for each alternative are then described in detail. There would be no substantial changes to the existing roadway alignments in Segment D; therefore, no traffic noise impacts were identified for these alternatives. There are no noise-sensitive parks located near any of the project alternatives in Segment D. For each Segment D alternative, detailed impact figures are provided in Appendix A, and noise level tables are provided in Appendix E.

TABLE 6-6
Summary of Potential Noise Impacts for Segment D

Alternative	Connection (from Alternative)	Moderate Light Rail Impacts	Severe Light Rail Impacts	Traffic Noise Impacts
Preferred NE 16th At-Grade Alternative (D2A)	*C11A*, *C9T*, C1T, C2T, C9A, and C14E (former BNSF Railway corridor)	0	0	0
D2A - 120th Station Design Option or D2A - NE 24th Design Option	*C11A*, *C9T*, C1T, C2T, C9A, and C14E (former BNSF Railway corridor)	0	0	0
NE 16th Elevated Alternative (D2E)	*C11A*, *C9T*, C1T, C2T, C9A, and C14E (former BNSF Railway corridor)	1	0	0
	C3T, C4A, C7E, or C8E (NE 12th Street)	2	0	0
NE 20th Alternative (D3)	*C11A*, *C9T*, C1T, C2T, C9A, and C14E (former BNSF Railway corridor)	0	0	0
	C3T, C4A, C7E, or C8E (NE 12th Street)	1	0	0
SR 520 Alternative (D5)	*C11A*, *C9T*, C1T, C2T, C9A, and C14E (former BNSF Railway corridor)	0	10	0
	C3T, C4A, C7E, or C8E (NE 12th Street)	1	10	0

6.1.6.1 Preferred NE 16th At-Grade Alternative (D2A)

Under *Preferred NE 16th At-Grade Alternative (D2A)* connecting to *Preferred Alternative C11A* or *C9T* and Alternative C1T, C2T, C9A, or C14E (the former BNSF Railway corridor alternatives), there are no noise impacts projected because the alternatives are located along commercial and industrial land uses in Segment D. The only noise-sensitive land use is the Pacific Northwest Ballet School, located in an industrial building at the intersection of NE 16th Street and 136th Place NE. Noise levels from light rail operations at the school are predicted to be 62 dBA Leq during peak hour operations, which is below the impact criteria of 63 dBA Leq. Noise impacts with the D2A design options (120th Station or D2A - NE 24th, with or without the 130th Station) would be the same as with *Preferred Alternative D2A*.

6.1.6.2 NE 16th Elevated Alternative (D2E)

Noise impacts under the NE 16th Elevated Alternative (D2E) would include a moderate impact at the Pacific Northwest Ballet School because of the added noise from the elevated structure. If connected to the alternatives along the former BNSF Railway corridor, then there would be no other noise impacts; however, with a connection to the NE 12th Street alternatives, there would be an additional moderate noise impact at the Children's Hospital BCSC.

6.1.6.3 NE 20th Alternative (D3)

There would be no noise impacts with the NE 20th Alternative (D3) if connecting from Segment C alternatives along the former BNSF Railway corridor. However, with a connection to the NE 12th Street alternatives, there would be one moderate noise impact at the Children's Hospital BCSC. There would be no impact on the Pacific Northwest Ballet School.

6.1.6.4 SR 520 Alternative (D5)

Severe noise impacts under the SR 520 Alternative (D5) are predicted at 10 multifamily units just south of SR 520 near Northup Way. Additionally, if Alternative D5 were connected to the NE 12th Street alternatives, then there would be one moderate noise impact at the Children's Hospital BCSC. If, however, Alternative D5 were connected to Segment C alternatives along the former BNSF Railway corridor, then there would be no additional noise impacts besides those 10 at the multifamily units near SR 520.

6.1.7 Segment E

Light rail noise impacts in Segment E would occur under all Segment E alternatives, as shown in Table 6-7. The Segment E alternatives would not substantially change the existing roadway alignments; therefore, no traffic noise impacts were identified for these alternatives.

Parks and trails in Segment E include Marymoor Park, Luke McRedmond Landing Park, Dudley Carter Park, the Edge Skate Park, and the Sammamish River, East Lake Sammamish, and Bear Creek trails. Marymoor Park could be divided into three distinct sections: the section along SR 520, the central section, and the portion near Lake Sammamish. The section near SR 520 and the central section of Marymoor Park are primarily used for active sports; concerts; major events, such as circuses; and other events with large crowds, and/or amplified music or entertainment. These sections of the park are also located near SR 520 and adjacent to a commercial and industrial area to the east. Therefore, the sections of Marymoor Park along SR 520 and the central section would not be considered noise-sensitive under FTA criteria. Only the southern section of the Marymoor Park, near Lake Sammamish, was determined to meet the FTA criteria for a noise-sensitive area in a park. Because the project alternatives are approximately 2,500 to 3,000 feet or more from this section of the park, project noise levels are predicted to be below ambient noise levels and below FTA criteria, and no noise impacts are projected. The Luke McRedmond Landing Park, Dudley Carter Park, Edge Skate Park, and the Sammamish River, East Lake Sammamish, and Bear Creek trails parks are located along established transportation corridors, and therefore none meets the FTA criteria for a noise-sensitive use.

Maps of the Segment E alternatives impacts are in Appendix A, and complete tabulated modeled noise levels are included in Appendix E.

TABLE 6-7
Summary of Potential Noise Impacts for Segment E

Alternative	Connection (from Alternative)	Moderate Light Rail Impacts	Severe Light Rail Impacts	Traffic Noise Impacts
Preferred Marymoor Alternative (E2)	All Segment D alternatives	33	148	0
E2 - Redmond Transit Center Design Option	All Segment D alternatives	81	100	0
Redmond Way Alternative (E1)	All Segment D alternatives	167	150	0
Leary Way Alternative (E4)	All Segment D alternatives	66	32	0

6.1.7.1 Preferred Marymoor Alternative (E2)

Under *Preferred Alternative E2* there would be 148 severe and 33 moderate noise impacts; these include 9 moderate and 4 severe single-family impacts near SR 520 at West Lake Sammamish Parkway NE, 144 severe impacts at newly constructed multifamily units, and 24 moderate impacts at a hotel. The four single-family severe noise impacts would be due the higher speed and the elevated structure. The remaining 144 severe noise impacts would be related to multiple gated crossings and station bells along the former BNSF Railway corridor. No traffic noise impacts are projected because there would be no roadway alignment changes in this segment.

The total number of noise impacts under the E2 - Redmond Transit Center Design Option would be the same as *Preferred Alternative E2*; however, under this design option, 81 of the impacts would be moderate and 100 would be severe. This difference is because one of the newly constructed multifamily buildings would not have noise impacts as it would under *Preferred Alternative E2*; however, another multifamily building near the Redmond Transit Center terminus would have the same number (48) moderate noise impacts.

6.1.7.2 Redmond Way Alternative (E1)

Under Alternative E1, light rail noise impacts were identified at 9 single-family units, 236 multifamily units, and 72 hotel rooms; these include severe impacts at two single-family residences and 148 multifamily units. As with *Preferred Alternative E2*, the severe impacts at the multifamily units would be due to multiple gated crossings and station bells along the former BNSF Railway corridor.

6.1.7.3 Leary Way Alternative (E4)

Alternative E4 would have 66 moderate impacts and 32 severe impacts related to light rail operations. The 8 multifamily severe impacts would be due to the extra noise from the elevated structure, while the 24 severe impacts at the Residence Inn Hotel would be due to bells at gated crossing. No traffic impacts were identified.

6.1.8 Wheel Squeal

Wheel squeal is caused by the oscillation of the wheel against the rail on curved sections of rail. Wheel squeal noise levels were measured at several different locations along the Central Link corridor and were used for reference. Based on these measurements, curves with a radius of less than 600 feet can produce maximum noise levels of 83 to 85 dBA at 50 feet. The highest noise levels typically occur on tight radii curves of less than 100 to 300 feet.

Substantial research into methods of reducing wheel squeal noise, including using lubricants that are not oil-based (such as water), has found such methods to effectively reduce or eliminate wheel squeal. The lubricants can be applied by personnel working trackside or by an automated applicator. Because the East Link Project would maintain a method of reducing or eliminating wheel squeal if it were to occur, no wheel squeal impacts are projected.

6.1.8.1 Preferred Alternative Wheel Squeal Analysis

The *Preferred Alternative* (*Preferred Alternatives A1, B2M, C11A* or *C9T, D2A,* and *E2*) was evaluated for any curves where, based on experience on the existing Central Link light rail system, wheel squeal could result. During final design, these curves will be reevaluated and have wayside lubricators installed as part of project construction. Table 6-8 lists the locations of curves to be evaluated for lubricator installation. Also, note that if any additional curves are planned during final design, then they will be evaluated for potential wheel squeal and treated with wayside lubricators as necessary.

6.1.8.2 Wheel Squeal under Other Alternatives

The project corridor was evaluated for locations with tight radii curves where wheel squeal could occur. In Segment B, there are no curves with a radius of less than 300 feet, so no wheel squeal is projected. Segment A has one location, and Segment C has several locations with tight radius curves, including Alternatives C4A, C7E, and C8E. Areas with tight radii curves in Segment D include Alternatives D2E and D3 connecting from Alternative C1T or C2T. Alternatives D2E and D3 also could experience wheel squeal on 136th Place NE and at the intersection of NE 20th Street and 152nd Avenue NE, respectively. Segment E could experience wheel squeal near Redmond Way at SR 520 with all Segment E alternatives. Table 6-9 provides a summary of curves for the other alternatives. Two design options are not listed in this table because curves with the C9T – East Main Station

Design Option would not differ from *Preferred Alternative C9T*, and curves with the D2A – 120th Station Design Option would not differ from *Preferred Alternative D2A*.

TABLE 6-8
Preferred Alternative Curves where Wayside Lubrication would be Evaluated and Installed as Part of the Project Construction

Preferred Alternative	Area	Radius (feet)	Lubricator Notes
Preferred Interstate 90 Alternative (A1)	Entry to I-90 express lanes	235	Potential – no receivers
	I-90 near South Dearborn Street	586	Potential – no receivers
	I-90 at Rainier Avenue South	990	No
	Mercer Island west end	More than 1,000	No – in tunnel
Preferred 112th SE Modified Alternative (B2M) with connections to *Preferred Alternative C11A* or *C9T*	I-90 near Bellevue Way and SE 34th Avenue	510	Yes
	Bellevue Way, south of SE 30th Street	780	Potential – reevaluation during design
	Bellevue Way at 112th Avenue SE	1,200	No
	112th Avenue SE north of SE 15th Street	900	Potential – reevaluation during design
Preferred 108th NE At-Grade Alternative (C11A)	112th Avenue SE at Main Street	300	Yes
	Main Street at 108th Avenue NE	120	Yes
	108th Avenue NE at NE 6th Street	120	Yes
	116th Avenue NE to NE 8th Street	510	Yes
Preferred 110th NE Tunnel Alternative (C9T)	112th Avenue SE at Main Street	300	Yes
	Main Street at 108th Avenue NE	120	No – in tunnel
	108th Avenue NE at NE 6th Street	120	No – in tunnel
	116th Avenue NE to NE 8th Street	510	Yes
Preferred NE 16th At-Grade Alternative (D2A)	BNSF Railway east toward 120th Avenue NE and NE 16th Street	510	Yes
	NE 16th Street to 136th Place NW	400	Yes
	136th Place NW to SR 520	510	Potential – reevaluation during design
Preferred Marymoor Alternative (E2)	SR 520 to Marymoor Park	1,800	No
	Redmond Way to old freight corridor	300	Yes

TABLE 6-9
Summary of Curves with Potential Wheel Squeal with Non-Preferred Alternatives

Alternative	**Curves with Radius of 600 feet or less**
Segment B	
Bellevue Way Alternative (B1)	I-90 to Bellevue Way
112th SE At-Grade Alternative (B2A)	I-90 to Bellevue Way
112th SE Elevated Alternative (B2E)	I-90 to Bellevue Way
112th SE Bypass Alternative (B3)	I-90 to Bellevue Way; SE 8th Street to I-405
B3 - 114th SE Design Option	I-90 to Bellevue Way; 112th Avenue SE to the commercial area
BNSF Alternative (B7)	I-90 to I-405/118th Avenue SE
Segment C[a]	
Bellevue Way Tunnel Alternative (C1T)	NE 6th Street to the former BNSF Railway corridor
106th NE Tunnel Alternative (C2T)	Main Street (B2A, B3, B7); NE 6th Street to the former BNSF Railway corridor

TABLE 6-9 CONTINUED
Summary of Curves with Potential Wheel Squeal with Non-Preferred Alternatives

Alternative	**Curves with Radius of 600 feet or less**
108th NE Tunnel Alternative (C3T)	Main Street (B2A, B3, B7); 112th Avenue NE at NE 12th Street
Couplet Alternative (C4A)	Main Street (B2A, B3, B7); Main Street and 110th Avenue NE; Main Street and 108th Avenue NE; NE 12th Street and 110th Avenue NE; NE 12th Street and 108th Avenue NE; 112th Avenue NE along NE 12th Street
112th NE Elevated Alternative (C7E)	112th Avenue NE along NE 12th Street (all connections); t112th Avenue SE south of Main Street (B3 and B7)
110th NE Elevated Alternative (C8E)	114th Avenue NE to NE 2nd Street; NE 2nd Street to 108th Avenue NE; 108th Avenue NE to NE 12th Street; 112th Avenue NE along NE 12th Street (all connections)
110th NE At-Grade Alternative (C9A)	Main Street from 112th Avenue SE; Main Street to 108th Avenue NE; 108th Avenue NE to NE 6th Street; NE 6th Street to the former BNSF Railway corridor; south of the Hilton Hotel under B3 - 114th Extension Design Option
114th NE Elevated Alternative (C14E)	I-405 at NE 7th Street; NE 7th Street to the former BNSF Railway corridor; South of the Hilton Hotel under B3 - 114th Extension Design Option
Segment D[b]	
D2A – NE 24th Design Option	Former BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE to SR 520; NE 24th Street to 152nd Avenue NE; 152nd Avenue NE to SR 520
NE 16th Elevated Alternative (D2E)	Former BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE to SR 520; NE 24th Street and 152nd Avenue NE; 152nd Avenue NE and SR 520
NE 20th Alternative (D3)	Former BNSF Railway corridor to NE 16th Street; NE 16th Street to 134th Avenue NE; 134th Avenue NE and NE 20th Street; NE 20th Street and 152nd Avenue NE; 152nd Avenue NE and SR 520
SR 520 Alternative (D5)	NE 12th Street (C3T, C4A, C7E, and C8E); two curves between NE 16th Street and SR 520; 152nd Avenue NE; 152nd Avenue NE to SR 520
Maintenance Facilities	All alternatives
Segment E	
E2 - Redmond Transit Center Design Option	SR 520 and Redmond Way; 161st Avenue NE to the Redmond Transit Center
Redmond Way Alternative (E1)	SR 520 to the elevated structure; Redmond Way; former BNSF Railway corridor
Leary Way Alternative (E4)	“S” curves from SR 520 to Leary Way; Leary Way to the former BNSF Railway corridor
Maintenance Facilities	All alternatives

[a] Curves with the C9T – East Main Station Design Option would not differ from *Preferred Alternative C9T*. See Table 6-8.
[b] Curves with the D2A – 120th Station Design Option would not differ from *Preferred Alternative D2A*. See Table 6-8.

6.1.9 Maintenance Facility Alternatives

There are three maintenance facility alternative sites in Segment D: 116th Maintenance Facility (MF1), BNSF Maintenance Facility (MF2), and SR 520 Maintenance Facility (MF3). MF1 is located along 116th Avenue NE, just west of the former BNSF Railway corridor. MF2 is located just east of MF1 in an established industrial area. MF3 is located along the south side of SR 520, also in an established industrial area. MF1 is the only potential maintenance facility located near residential properties because there are several single-family residences to the west of the proposed site. The new Seattle Children’s Hospital BCSC is also located south of the MF1 site. There are also several other residential-style structures along 116th Avenue NE that have been converted to office spaces.

Because light rail maintenance facilities would be in operation 24 hours a day, 7 days a week, with much of the services being performed at night when the system is not in operation, nighttime noise can be an issue. Because a maintenance facility is considered a stationary transit facility and fixed commercial use (WAC 173-60 Class B EDNA), it would be required to meet the City of Bellevue noise regulations for industrial properties. When a final maintenance facility site is selected, a full site design with the location of noise-producing sources would be completed, and a detailed noise analysis would be performed to ensure compliance with the City of Bellevue noise control ordinance. However, because MF1 is near residences and a hospital, a detailed noise analysis of the operations was conducted. The following information and assumptions, consistent with the FTA methods and criteria, were used for the MF1 noise analysis:

- Measured noise levels taken at the existing Sound Transit maintenance facility in South Seattle were used as baseline data.
- Train speeds would be limited to 5 mph inside the facility and horns would be sounded for at-grade employee crossings for safety.
- Wheel squeal noise on the tight radius curves would not be as severe as noise from normal train operations outside the maintenance facility because of the slower speed and because some form of lubrication or friction modifier would be used to contain noise from wheel squeal.
- The majority of noise-producing maintenance operations would occur inside the facility building, shielding nearby properties from the operations.
- The typical maximum number of trains at the facility is based on the proposed size and is not likely to exceed 40 to 50 light rail vehicles at any one time.

Using the above assumptions, worst-case operational noise levels were projected at six single-family residences along 116th Avenue NE and the Children’s Hospital BCSC. The projected 24-hour Ldn ranged from 48 to 57 dBA at the sensitive receivers near MF1. A moderate noise impact was identified under the FTA criteria at the rear of the Children’s Hospital BCSC. The impact would be due to the lower existing Ldn at the rear of the building, which results from the shielding the building provides from traffic noise along NE 12th Street. The noise analysis also included two single-family residences that are located immediately west of MF1 across 116th Avenue NE, and four single-family residences located slightly farther west, and no noise impacts were identified at these six residences. It is important to note that most of the structures along 116th Avenue NE have been converted to commercial use.

A noise analysis was not conducted for the other two Segment D maintenance facility alternatives (MF2 and MF3) because there are no noise-sensitive properties nearby. Therefore, no noise impacts related to the operation of MF2 or MF3 are anticipated.

If one of these maintenance facility alternatives were selected, then a full site design with the location of noise-producing sources would be completed, and a detailed noise analysis would be performed to ensure compliance with the City of Bellevue noise control ordinance. It is assumed that because this is a fixed site, with most noise-producing activities occurring indoors, any potential noise-related issues would be remedied through design modifications or treatments.

There is one maintenance facility alternative in Segment E, the SE Redmond Maintenance Facility (MF5), with two potential site locations. Both of the MF5 sites are located near the end of SR 520, in an established industrial area, with no nearby noise-sensitive properties. Due to the location of Alternative MF5, no noise analysis was conducted and no impacts are anticipated; however, when the site design is finalized, a detailed noise analysis would be performed to ensure compliance with the City of Redmond noise control ordinance.

6.1.10 Park-and-Ride Facilities

Most park-and-ride lots proposed as part of the East Link Project are at or near existing park–and-ride lots, and no noise impacts are projected. In Segment A, no new park-and-rides are planned, and all light rail stations are along I-90. Therefore, there no noise-related impacts would result from park-and-rides in Segment A.

The only park-and-ride with *Preferred Alternative B2M* is the park-and-ride lot at the South Bellevue Station, which is the same regardless of the connection to Segment C, and would be part of all Segment B alternatives except Alternative B7. The South Bellevue Park-and-Ride Lot is an existing facility, and under the proposed project, the facility would be improved to hold approximately 1,400 vehicles. Noise levels for park-and-ride operations were predicted using worst-case operational assumptions that all 1,400 parking spots would be used, and that approximately 450 buses would serve the facility in addition to light rail. The nearest residential properties to the park-and-ride lot are located west of the facility at 100 to 200 feet from the entrance and bus access areas. The projected Ldn at 100 feet from the park–and-ride is 60 dBA Ldn. Based on the existing Ldn noise levels of 67 to 69 dBA, the FTA criteria of 63 to 64 dBA Ldn is not predicted to be exceeded, and no noise impacts were identified. During final design, final station layout and bus route and light rail operations will be reviewed to ensure compliance with the City of Bellevue noise control ordinance. Under Alternative B7, a new park-and-ride lot would be constructed at the 118th Avenue Station. The station would be located along I-405, and no noise impacts were identified because of the high existing noise levels and lack of adjacent noise-sensitive receivers.

There are no new park-and-rides planned in Segment C. Noise from station activities, including bells from trains arriving and departing, are included in the segment analysis (Section 6.1.5).

There are three potential park-and–ride lots with *Preferred Alternative D2A*: a new park-and-ride near the 120th Station; a new park-and-ride near the 130th Station; and expansion of the existing park-and-ride at the Overlake Transit Center Station near SR 520 and NE 40th Street. The new park-and-ride lots near the 120th and 130th Stations are both in existing industrial and commercial areas where no noise-sensitive receivers were identified; therefore, no noise impacts are projected. The expanded park-and-ride at Overlake Transit Center has no noise-sensitive receivers that would be impacted by facility operation. Under Alternatives D2E and D3, the park-and-ride lot at the 130th Station would have no noise impacts, similar to *Preferred Alternative D2A*. An existing park-and-ride lot near the Overlake Village Station on 152nd Avenue NE would remain under Alternatives D2E and D3, and no noise impacts are predicted. Alternatives D2E, D3, and D5 would have a park-and-ride at the Overlake Transit Center Station at the existing Overlake Transit Center near SR 520 and NE 40th Street. The Overlake Transit Center is an existing facility, and no noise-sensitive receivers are predicted to have impacts related to the new park-and-ride operations.

The park-and-ride lot with *Preferred Alternative E2* is located near an established commercial and industrial area east of Marymoor Park. No noise impacts are predicted at this site because of the existing land use, high existing noise levels from SR 520, and the commercial and industrial uses near the site.

6.1.11 Freeway Noise at Proposed Freeway Stations

One additional noise assessment was conducted due to the unique position of some proposed stations in the center of or above a freeway in locations where freeway traffic noise might affect East Link patrons. This noise assessment only pertains to the Rainier and Mercer Island Stations in Segment A and the Ashwood/Hospital Station in Segment C, where the station is directly above I-405. The detailed analysis is provided in Appendix F.

There are no federal standards for noise exposure from traffic noise on patrons at stations. Sound Transit has generally used a design goal of 78 dBA Leq (15-minute and 1-hour) for noise from exterior sources at station platforms. The National Institute for Occupations Safety and Health (NIOSHA) standard for workplace noise exposure is 85 dBA for up to 8 hours or 100 dBA for 15 minutes (NIOSHA, 1998). For comparison, measurements taken at the SR 520 Montlake and Evergreen Road flyer stops ranged from 76 to 89 dBA Leq at the Montlake flyer stop and 72 to 75 dBA Leq at the Evergreen flyer stop. The EPA states that communication at close proximity (2 to 4 feet) can be understood, even with ambient noise levels of 72 to 78 dBA (EPA, 1974). It is unlikely that a patron would spend more than 15 minutes at an East Link station platform.

Based on bus flyer stop measurements and the short amount of time a person would spend at the station, Sound Transit will use a 78 dBA 15-minute Leq platform noise level goal for stations that are not able to meet the 72-dBA design goal due to traffic noise.

Traffic noise levels on I-90 and I-405 are loudest during the midday from 11 a.m. to 3 p.m. due to the higher speeds and level of truck traffic. Peak commute traffic noise levels on these same highways are typically lower (by 2 to 3 dBA) due to reduced speeds associated with congested highways. Based on these factors, the maximum traffic noise levels during the daytime were used in the analysis. The analysis also assumes the worst-case, 15-minute headways for the maximum time a person would spend at a platform.

Using typical daytime traffic volumes and speed provided by traffic engineers, a noise model was constructed using the FHWA traffic noise model (TNM), which produces hourly Leq noise levels based on hourly traffic volumes. For transit stations near major highways, a short-term Leq measurement of 10 minutes is typically long enough to provide an accurate reading of the noise exposure. This is due to the relatively steady noise from passing vehicles on major highways such as I-90. Measurements at the Mercer Island and Ashwood/Hospital stations verified this, as the running Leq stabilized after only 2 minutes of measurements and varied by less than 1 dBA after 5 minutes, even during heavy truck passbys where 1-second Leq sound levels exceeded 92 dBA. Because of the constant traffic volumes on a major highway like I-90, the short-term Leq experienced by patrons at the stations would be the same as the hourly Leq.

6.1.11.1 Rainier Station

Noise readings were taken at the proposed station location below the 23rd Avenue South overpass. The 15-minute Leq was measured at 86.3 dBA Leq. Five receivers were modeled along the proposed platform, with two at each end and one in the middle. The modeled noise levels ranged from 84.6 to 85.3 dBA Leq, which verified the accuracy of the model against the noise reading but also exceeded the 78 dBA goal for platform noise.

Ten-foot sound walls were modeled on the outside of the light rail station, along the edge the I-90 mainlines. With the walls in place, the noise levels along the platform were reduced by 8.2 to 9.7 dBA. Table 6-10 summarizes the noise model results along five points (Receivers R1 through R5) of the station platform with and without the sound walls.

TABLE 6-10
Rainier Station Noise Analysis

Receiver No.	Measured Levels (dBA)	Modeled Levels (dBA)	Modeled Levels with Sound Walls (dBA)	Sound Wall Reduction (dBA)	Wall Details
R1	N/A	85.3	76.4	8.9	These are 10-foot walls along the outside of the tracks, between the rail alignment and the I-90 traffic lanes; they could be integrated with the crash barriers to save room.
R2	N/A	85.1	76.9	8.2	
R3	N/A	85.0	75.8	9.2	
R4	N/A	84.9	75.2	9.7	
R5	86.3	84.6	75.4	9.2	

With sound walls, the platform would have noise levels below 78 dBA. The walls are proposed to extend approximately 800 feet west of the Mount Baker Tunnel portals. Sound walls would be designed during project final design.

6.1.11.2 Mercer Island Station

Noise readings were taken at the proposed Mercer Island Station location below the 77th Avenue SE overpass. Two receivers located along the platform (R2 and R3) were modeled, and the modeled noise at both locations was 88 dBA Leq (Table 6-11).

TABLE 6-11
Mercer Island Station Noise Analysis

Receiver No.	Measured Levels (dBA)	Modeled Levels[a] (dBA)	Modeled Levels with Sound Walls (dBA)	Sound Wall Reduction (dBA)	Wall Details
R2	N/A	87.9	77.6	10.3	These are 10-foot walls along the outside of the tracks, with the base of the wall at the same elevation as the tracks.
R3	N/A	87.9	78.3	9.6	

[a] The 87-dBA Leq is an average of the two measurement sessions.

By adding 10-foot sound walls on the outside of the light rail route along the edge nearest the train tracks, physically blocking the traffic noise on both sides of I-90 (see Appendix F for more information), the modeled noise levels along the platform were reduced by 10 dBA at the center of the platform. Table 6-11 summarizes the noise modeling results with and without the sound walls.

6.1.11.3 Ashwood/Hospital Station

Noise modeling for the proposed Ashwood/Hospital Station was performed using projected 2030 traffic data and speeds for I-405. For patrons on the station platforms, noise levels would range from 75 to 78 dBA Leq. The lower noise levels on the platform would be due to the noise-reducing effects of the light rail route and bridge over I-405. Because the noise levels at the platform are projected to remain below 78 dBA Leq, no noise-reducing design improvements were investigated.

6.1.11.4 Overlake Station and Overlake Transit Center

Both of Overlake and Overlake Transit Center Stations are located along SR 520, and the highway is the dominant noise source at each location. Existing noise levels from traffic along this section of the corridor were recently measured at 60 to 69 dBA Leq and remain below the 72 dBA Leq design criteria, and no additional noise mitigation would be required at either location.

6.2 Light Rail Vibration and Groundborne Noise Impact Assessment

The approach used for assessing vibration impact uses many of the same inputs as the noise impact assessment, such as speed, frequency of vehicle events, and distance from the receiver to the tracks. The vibration impact assessment combines vehicle characteristics with soil propagation properties to estimate vibration levels at sensitive receptors. The FTA impact threshold for residential (Category 2) nighttime vibration is 72 VdB in each 1/3-octave band for a detailed vibration assessment. There is only one Category 3 receptor (the Winters House) identified with groundborne noise impact along any of the proposed segments. The FTA impact threshold for residential groundborne noise is 35 dBA. As stated in Chapter 3 of this report, groundborne noise is only assessed for tunnel sections or for buildings that have sensitive interior spaces that are well-insulated from exterior noise.

For each East Link segment, a table is provided below that lists the locations, the distance to the nearest track, and the projected speed at each location. In addition, the projected project vibration level or groundborne noise level and the impact criterion level are indicated along with the number of impacts (single-family or multifamily buildings) projected for each receptor. The number of actual impacts in each building will be determined during final engineering and design. All impacts described in this section are shown in Appendix A of this report, with individual maps for each alternative that would have noise and/or vibration impacts. In multistory buildings, vibration levels generally decrease as the vibration travels up through the building, and therefore impacts are not likely to be felt above the first few floors, depending on the type of building construction.

The impacts reported in this section are before mitigation and do not include mitigation measures for potential vibration and groundborne noise levels and impacts reported in this section. Mitigation for potential impacts is discussed in Section 7.5.

6.2.1 Segment A, *Preferred Interstate 90 Alternative (A1)*

Table 6-12 provides the estimated vibration-velocity levels for sensitive receptors at representative distances. No vibration impacts were identified in Segment A. Table 6-13 shows the estimated groundborne noise levels for sensitive receptors. The project vibration or groundborne noise level listed is the maximum for that location. In many cases, the vibration or groundborne noise levels for other receptors would be much lower than the reported value. The following section provides a brief description of the Category 2 land use area impacted by groundborne noise, identified in Table 6-13.

TABLE 6-12
Segment A Vibration Impacts

Location	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
12th Avenue South to 23rd Avenue South	288	55	56	40	72	0
23rd Avenue South to Martin Luther King, Jr. Way South	134	55	61	40	72	0
Martin Luther King, Jr. Way South to Lake Washington	146	55	66	40	72	0
Mercer Island to West Mercer Way	160	50	57	12.5	72	0
West Mercer Way to 76th Avenue SE	202	50	56	12.5	72	0
76th Avenue SE to SE Shorewood Drive	187	55	59	12.5	72	0
SE Shorewood Drive to Lake Washington	179	55	60	12.5	72	0
					Total	**0**

Notes:
Vibration levels are measured in VdB referenced to 1 microinch per second.
The reported vibration level represents the maximum vibration level for each location.
The maximum vibration level reported is for the 1/3-octave band noted.
All reported distances are slant distances from the top of rail for tunnel sections.

TABLE 6-13
Segment A Groundborne Noise Impacts

Location	Distance to Near Track (feet)	Speed (mph)	Maximum Groundborne Noise Level (dBA)	Impact Criterion (dBA)	No. of Impacts
Martin Luther King, Jr. Way South to Lake Washington	146	55	41	35	25 single-family
				Total	**25 single-family**

Notes:
The reported groundborne noise level represents the maximum level for each location.
All reported distances are slant distances from the top of rail for tunnel sections.

Martin Luther King Jr. Way south to Lake Washington: There are 25 buildings with projected groundborne noise impact; these 25 single-family residences are located above the I-90 Mount Baker Tunnel. Groundborne noise impacts are projected at this location because of efficient propagation of high-frequency vibration. However, the impact assessment at this location is based on a surface propagation test above the tunnel. During further engineering and design of the project, propagation testing should be conducted in the Mount Baker Tunnel to determine if the propagation of groundborne noise from the tunnel would occur as projected.

At the East Link Project connection with the Central Link light rail system, there will be four new switches introduced to allow trains to operate on both light rail systems. These would be located under residential and mixed-use buildings. In order to keep East Link vibration levels the same as from Central Link system operations, special trackwork, such as movable point or spring rail frogs, would be needed at this location.

6.2.2 Segment B

6.2.2.1 Preferred 112th SE Modified Alternative (B2M)

Table 6-14 provides the estimated vibration velocity levels and impacts in Segment B for sensitive receptors at representative distances. Under *Preferred Alternative B2M*, there would be no vibration impacts and only one groundborne noise impact (see Table 6-15) at the Winters House. The Winters House is no longer used as a residence and is occupied by the Eastside Heritage Center; therefore, it is considered a Category 3 land use—an institutional land use with primarily daytime use—for purposes of vibration and groundborne noise analysis. The FTA impact criteria for groundborne noise, measured in weighted decibels (dBA), are 40 dBA. A groundborne noise impact is projected at the Winters House because of the proximity of the alignment to the foundation of the building. The projected groundborne noise levels would range from 44 to 54 dBA.

For the Winters House, the operational vibration levels, measured in VdB, are projected to be 76 VdB, which would be below the FTA detailed impact criteria of 78 VdB for human annoyance. In addition, the projected operational vibration levels would be well below even the most stringent criteria for damage to structures, which is 90 VdB for buildings extremely susceptible to vibration. The Winters House is in a slightly less susceptible category, which is for nonengineered timber and masonry buildings, with a 94 VdB criteria for damage.

Under *Preferred Alternative B2M* with the C9T – East Main Station Design Option, there would be one vibration impact at a single-family residence due to the relocated crossover at SE 8th Street as well as the same groundborne noise impact at the Winters House as described in the previous paragraphs.

6.2.2.2 Other Segment B Alternatives

Table 6-14 identifies a vibration impact at one Category 2 building with Alternative B1, as described below. No groundborne noise impacts were identified because there are no tunnels in this segment.

Bellevue Way SE and 112th Avenue SE to SE 10th Street: There is one single-family residence at this location that is projected to have a vibration impact. The impact would be due to the proximity of the residence and the efficient propagation of vibration through the soil at this location.

No vibration impacts were identified for the remaining Segment B alternatives.

TABLE 6-14
Segment B Vibration Impacts

Alternative	Location	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Preferred 112th SE Modified Alternative (B2M)	Beginning of Segment B to Bellevue Way SE	163	45	50	16	72	0
	Bellevue Way SE to South Bellevue Park-and-Ride	212	30	35	16	72	0
	South Bellevue Park-and-Ride to Bellevue Way SE and 112th Avenue SE	103	45	52	16	72	0
	Winters House	18	45	76	63	78	0
	Bellevue Way SE and 112th Avenue SE to SE 8th Street	146	45	67	31.5	72	0
	SE 8th Street to end of Segment B (SE 6th Street)	294	45	60	16	72	0
Preferred 112th SE Modified Alternative (B2M) with C9T - East Main Station Design Option	Beginning of Segment B to Bellevue Way SE	163	45	50	16	72	0
	Bellevue Way SE to South Bellevue Park-and-Ride	212	30	35	16	72	0
	South Bellevue Park-and-Ride to Bellevue Way SE and 112th Avenue SE	103	45	52	16	72	0

TABLE 6-14 CONTINUED
Segment B Vibration Impacts

Alternative	Location	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
	Winters House	18	45	77	63	78	0
	Bellevue Way SE and 112th Avenue SE to SE 8th Street	146	45	67	31.5	72	0
	SE 8th Street to end of Segment B (SE 6th Street)	120	45	83	80	72	1 single-family
Bellevue Way Alternative (B1)	Beginning of Segment B to Bellevue Way SE	165	50	57	12.5	72	0
	Bellevue Way SE to South Bellevue Park-and-Ride	103	55	67	12.5	72	0
	South Bellevue Park-and-Ride Lot to Bellevue Way SE and 112th Avenue	31	35	66	63	72	0
	Bellevue Way SE and 112th Avenue to SE 10th Street	46	35	73	80	72	1 single-family
	SE 10th Street to end of Segment B (SE 6th Street)	50	35	71	80	72	0
112th SE At-Grade Alternative (B2A)	Beginning of Segment B to Bellevue Way SE	164	50	57	12.5	72	0
	Bellevue Way SE to South Bellevue Park-and-Ride Lot	117	30	43	20	72	0
	South Bellevue Park-and-Ride Lot to Bellevue Way SE and 112th Avenue SE	41	35	59	50	72	0
	Bellevue Way SE and 112th Avenue SE to SE 8th Street	76	35	64	80	72	0
	SE 8th Street to end of Segment B (SE 6th Street)	59	20	69	80	72	0
112th SE Elevated Alternative (B2E)	Beginning of Segment B to Bellevue Way SE	164	50	57	12.5	72	0
	Bellevue Way SE to South Bellevue Park-and-Ride	174	55	45	12.5	72	0
	South Bellevue Park-and-Ride to Bellevue Way SE and 112th Avenue SE	20	55	70	63	72	0
	Bellevue Way SE and 112th Avenue SE to SE 8th Street	119	55	51	63	72	0
	SE 8th Street to end of Segment B (SE 6th Street)	102	55	53	63	72	0
112th SE Bypass Alternative (B3)[a]	Beginning of Segment B to Bellevue Way SE	164	50	57	12.5	72	0
	Bellevue Way SE to South Bellevue Park-and-Ride Lot	193	55	49	12.5	72	0
	South Bellevue Park-and-Ride Lot to Bellevue Way SE and 112th Avenue SE	41	35	59	50	72	0
	Bellevue Way SE and 112th Avenue SE to SE 8th Street	80	35	63	80	72	0

TABLE 6-14 CONTINUED
Segment B Vibration Impacts

Alternative	Location	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
	SE 8th Street to end of Segment B (SE 6th Street)	166	25	43	50	72	0
BNSF Alternative (B7)	Beginning of Segment B to Mercer Slough	164	50	57	12.5	72	0
	Mercer Slough to SE 32nd Street/Henry Bock Road	231	55	43	12.5	72	0
	SE 32nd Street/Henry Bock Road to 118th Street crossing/118th Station	35	55	67	63	72	0

Notes:

Vibration levels are measured in VdB referenced to 1 microinch per second.

The reported vibration level represents the maximum vibration level for each location.

The maximum vibration level reported is for the 1/3-octave band noted.

[a] The vibration impacts for the B3 – 114th Extension Design Option are the same as for Alternative B3.

TABLE 6-15
Segment B Groundborne Noise Impacts

Alternative	Location	Distance To Near Track (feet)	Speed (mph)	Maximum Groundborne Noise Level (dBA)	Impact Criterion (dBA)	No. of Impacts
Preferred 112th SE Modified Alternative (B2M) with *Preferred Alternative C9T* and C9T - East Main Station Design Option	Winters House	18	45	54	40	1
					Total	**1**

Note:

The reported groundborne noise level represents the maximum level for each location.

6.2.3 Segment C

Tables 6-16 and -17 show the estimated vibration velocity and groundborne noise levels for sensitive receptors at representative distances in Segment C. However, for highly sensitive locations, such as hospital and theater locations, additional analyses were required. This analysis follows the standard vibration analysis located in Section 6.2.3.4. Each impacted Category 2 land use area is described by alternative below.

TABLE 6-16
Segment C Vibration Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Preferred 108th NE At-Grade Alternative (C11A)	Beginning of Segment C to 112th Avenue NE and Main Street	*Preferred 112th SE Modified Alternative (B2M)*	85	35	75	63	72	1 single-family
	112th Avenue NE and Main Street to 108th Avenue NE	All	34	20	80	63	72	1 single-family
	108th Avenue NE from Main Street to NE 6th Street	All	37	30	87	63	72	3 multifamily
	I-405 to end of Segment C	All	27	30	95	63	72	1 hotel

TABLE 6-16 CONTINUED
Segment C Vibration Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Preferred 110th NE Tunnel Alternative (C9T)	Beginning of Segment C to Main Street Tunnel Entrance	*Preferred Alternative B2M*	87	35	81	63	72	6 single-family
	112th Avenue NE and Main Street to 110th Avenue NE	All	37	20	87	63	72	1 single-family
	I-405 to end of Segment C	All	22	35	96	63	72	1 hotel
C9T – East Main Station Design Option	Beginning of Segment C to Main Street Tunnel Entrance	*Preferred Alternative B2M*	87	35	75	63	72	1 single-family
	112th Avenue NE and Main Street to 110th Avenue NE	*Preferred Alternative B2M*	37	20	87	63	72	1 single-family
	I-405 to end of Segment C	*Preferred Alternative B2M*	22	35	96	63	72	1 hotel
Bellevue Way Tunnel Alternative (C1T)	Beginning of Segment C to Main Street	Bellevue Way Alternative (B1)	46	35	73	80	72	1 single-family
	Main Street to Bellevue Way and NE 6th Street	Alternative B1	105	55	48	10	72	0
	I-405 to NE 8th Street	Alternative B1	26	55	75	80	72	1 hotel
	NE 8th Street to end of Segment C	Alternative B1	161	20	53	63	72	0
106th NE Tunnel Alternative (C2T)	Beginning of Segment C to Main Street	112th SE At-Grade Alternative (B2A)	86	55	48	8	72	0
		112th SE Elevated Alternative (B2E)	48	55	65	63	72	0
		112th SE Bypass (B3) or BNSF (B7) Alternative	15	55	65	100	72	0
	Main Street to 106th Avenue NE	Alternative B2A	162	55	48	10	72	0
		Alternative B2E	56	55	62	63	72	0
		Alternative B3 or B7	52	55	50	80	72	0
	I-405 to NE 8th Street	All	26	30	71	80	72	0
	NE 8th Street to end of Segment C	All	161	20	53	63	72	0
108th NE Tunnel Alternative (C3T)	Beginning of Segment C to 108th Avenue NE	Alternative B2A	80	55	49	63	72	0
	108th Avenue NE to Main Street		57	55	49	80	72	0
	Main Street to NE 6th Street/Bellevue Transit Center		88	55	48	10	72	0
	Beginning of Segment C to 112th Avenue NE and Main Street	Alternative B2E	48	55	65	63	72	0
		Alternative B3 or B7	15	30	65	100	72	0
	112th Avenue NE and Main Street to 108th Avenue NE	Alternative B2E	138	55	59	63	72	0
		Alternative B2E	202	55	48	10	72	0
		Alternative B7	85	55	48	63	72	0

TABLE 6-16 CONTINUED
Segment C Vibration Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
108th NE Tunnel Alternative (C3T)	108th Avenue NE to NE 4th Street	Alternative B2E	109	55	48	10	72	0
		Alternative B3 or B7	148	55	48	10	72	0
	6th Street/Bellevue Transit Center to NE 10th Street	All	92	55	48	10	72	0
	NE 10th Street to NE 12th Street	All	101	55	48	10	72	0
	NE 12th Street to 110th Avenue NE	All	39	55	53	40	72	0
	110th Avenue NE to 112th Avenue NE	All	85	55	66	63	72	0
	112th Avenue NE to I-405/Ashwood/Hospital Station	All	31	20	70	80	72	0
	I-405/Ashwood/Hospital Station to End of Segment C (116th Avenue NE)	All	257	20	38	50	72	0
Couplet Alternative (C4A)	Beginning of Segment C to 112th Avenue NE and Main Street (eastbound)	Alternative B2E	76	20	55	63	72	0
	Base connect to NE 2nd Street (eastbound)	All	159	20	43	63	72	0
	NE 2nd Street to NE 4th Street (eastbound)	All	44	20	69	80	72	0
	NE 8th Street to NE 10th Street (eastbound)	All	32	20	73	80	72	2 multifamily
	NE 10th Street to 110th Avenue NE and NE 12th Street (eastbound)	All	34	20	72	80	72	2 multifamily
	Eastbound/westbound matchline to 112th Avenue NE (eastbound)	All	106	20	49	63	72	0
	I-405/Hospital Station to end of Segment C (eastbound)	All	182	20	33	31.5	72	0
	Beginning of Segment C to 112th Avenue SE and Main Street (westbound)	Alternative B2A or B2E	51	55	61	80	72	0
		Alternative B3 or B7	15	25	65	100	72	0
	112th Avenue SE and Main Street to beginning of Segment C (westbound)	Alternative B2A or B2E	89	20	52	63	72	0
		Alternative B3 or B7	94	20	51	63	72	0
	Begin Westbound Segment C to 108th Avenue NE (westbound)	All	82	20	63	63	72	0
	108th Avenue NE to NE 2nd Street (westbound)	All	24	20	85	80	72	2 multifamily
	NE 2nd Street to NE 4th Street (westbound)	All	61	20	68	80	72	0

TABLE 6-16 CONTINUED
Segment C Vibration Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
	NE 8th Street to NE 10th Street (westbound)	All	51	20	71	80	72	0
	NE 10th Street to NE 12th Street (westbound)	All	52	20	71	80	72	0
	NE 12th Street to 110th Avenue NE (westbound)	All	27	20	83	80	72	1 single-family
	110th Avenue NE to eastbound/westbound matchline (westbound)	All	95	20	61	63	72	0
	Eastbound/westbound matchline to 112th Avenue NE (westbound)	All	31	20	70	80	72	0
	112th Avenue NE to end of Segment C (westbound)	All	278	20	37	50	72	0
112th NE Elevated Alternative (C7E)	Beginning of Segment C to 112th Avenue NE and Main Street	Alternative B2A or B2E	70	55	59	63	72	0
		Alternative B3 or B7	15	20	65	100	72	0
	112th Avenue NE and Main Street to base connect	All	113	55	52	63	72	0
	Base connect to NE 2nd Street		89	55	55	63	72	0
	NE 2nd Street to NE 4th Street		74	45	54	63	72	0
	NE 10th Street to NE 12th Street		76	55	58	63	72	0
	NE 12th Street to end of Segment C		152	20	44	63	72	0
110th NE Elevated Alternative (C8E)	Beginning of Segment C to 112th Avenue NE and Main Street	All	26	55	65	100	72	0
	112th Avenue NE and Main Street to base connect		41	55	67	63	72	0
	Main Street to NE 2nd Street between 114th and 112th Avenues NE		2 [a]	55	100 [a]	160	72	1 hotel
	NE 2nd Street between 110th and 112th Avenues NE to NE 4th Street		30	55	72	80	72	1 multifamily
	NE 4th Street to NE 6th Street		51	55	64	63	72	0
	NE 8th Street to NE 10th Street		29	55	73	80	72	1 multifamily
	NE 10th Street to NE 12th Street		11	55	90	80	72	1 multifamily
	NE 12th Street to 112th Avenue NE		21	20	77	80	72	1 single-family

TABLE 6-16 CONTINUED
Segment C Vibration Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
	112th Avenue NE to end of Segment C		16	55	83	80	72	1 single-family
110th NE At-Grade Alternative (C9A)	112th Avenue NE and Main Street to 110th Avenue NE	All	54	20	80	63	72	2 single-family
	110th Avenue NE from Main Street to NE 6th Street	All	30	30	94	63	72	3 multifamily
	I-405 to end of Segment C	All	15	30	96	63	72	1 hotel
114th NE Extended Alternative (C14E)	Begin Segment C to Main Street	Alternative B3, B3 – Design Option, or B7	36	55	85	63	72	1 hotel
	Main Street to NE 4th Street	Alternative B3, B3 – Design Option, or B7	39	55	84	63	72	1 hotel
	I-405 Crossing to end of Segment C	Alternative B3, B3 – Design Option, or B7	44	20	73	63	72	1 hotel

Notes: Vibration levels are measured in VdB referenced to 1 microinch per second.

The reported vibration level represents the maximum vibration level for each location.

The maximum vibration level reported is for the 1/3-octave band noted. All reported distances are slant distances from the top of rail for tunnel sections.

Base connect = point between Main Street and NE 2nd Street

[a] The vibration impact at this location is based on the close distance projected from the preliminary alignment location. The alignment location would need to be verified to provide an accurate projection at this location. However, based on testing at the Hilton Hotel, the vibration levels would be much lower than projected.

TABLE 6-17
Segment C Groundborne Noise Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Groundborne Noise Level (dBA)	Impact Criterion (dBA)	No. of Impacts
Preferred 110th NE Tunnel Alternative (C9T)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C9T – East Main Station Design Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bellevue Way Tunnel Alternative (C1T)	Beginning of Segment C to Main Street	N/A	59	35	35	35	1 single-family
	Main Street to Bellevue Way and NE 6th Street		105	55	32	35	0
106th NE Tunnel Alternative (C2T)	Beginning of Segment C to 106th Avenue NE	All	78	35	34	35	0
	106th Avenue NE to Main Street	112th SE At-Grade Alternative (B2A)	162	55	29	35	0
		112th SE Elevated Alternative (B2E)	62	55	35	35	1 single-family
		112th SE Bypass (B3) or BNSF (B7) Alternative	100	55	33	35	0

TABLE 6-17 CONTINUED
Segment C Groundborne Noise Impacts (Does Not Include Highly Sensitive Locations)

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Groundborne Noise Level (dBA)	Impact Criterion (dBA)	No. of Impacts
108th NE Tunnel Alternative (C3T)	Beginning of Segment C to 108th Avenue NE	Alternative B2A	71	35	36	35	2 single-family
	108th Avenue NE to Main Street		57	55	36	35	9 single-family
	Main Street to NE 6th Street/Bellevue Transit Center		88	55	34	35	0
	Beginning of Segment C to 112th Avenue NE and Main Street	Alternative B3 or B7	104	55	30	35	0
	112th Avenue NE and Main Street to 108th Avenue NE	Alternative B2E	60	55	36	35	1 single-family
		Alternative B3	79	55	33	35	0
		Alternative B7	85	55	34	35	0
	108th Avenue NE to NE 4th Street	Alternative B2E	109	55	32	35	0
		Alternative B3 or B7	118	20	30	35	0
	6th Street/Bellevue Transit Center to NE 10th Street		92	55	33	35	0
	NE 10th Street to NE 12th Street	All	101	55	32	35	0
	NE 12th Street to 110th Avenue NE	All	40	30	39	35	1 single-family

6.2.3.1 Preferred 108th NE At-Grade Alternative (C11A)

Impacts from *Preferred Alternative C11A* would be due to the proximity of the alternative and to the speed of the light rail vehicles.

Beginning of Segment C to Main Street: A vibration impact is projected at one single-family residence at this location.

112th Avenue NE and Main Street to 108th Avenue NE: A vibration impact is projected at one single-family residence at this location.

108th Avenue NE from Main Street to NE 6th Street: Vibration impact is projected at three multifamily residences along the at this location.

I-405 to the end of Segment C: Vibration impacts are projected at the Coast Bellevue Hotel.

6.2.3.2 Preferred 110th NE Tunnel Alternative (C9T)

Impacts from *Preferred Alternative C9T* would be due to the proximity of the alternative and to the speed of the light rail vehicles.

Beginning of Segment C to Main Street: Vibration impact is projected at six single-family residences at this location. Five of the impacts would be due to the presence of the crossover near Main Street.

112th Avenue NE and Main Street to 110th Avenue NE: A vibration impact is projected at one single-family residence at this location.

I-405 to the end of Segment C: Vibration impacts are projected at the Coast Bellevue Hotel.

Impacts from the C9T – East Main Station Design Option would be due to the proximity of the alternative and to the speed of the light rail vehicles.

Beginning of Segment C to Main Street: A vibration impact is projected at one single-family residence at this location.

112th Avenue NE and Main Street to 110th Avenue NE: A vibration impact is projected at one single-family residence at this location.

I-405 to the end of Segment C: Vibration impacts are projected at the Coast Bellevue Hotel.

6.2.3.3 Bellevue Way Tunnel Alternative (C1T)

Impacts from Alternative C1T would result from its proximity to and the speed of the light rail vehicles.

Beginning of Segment C to Main Street: With Alternative C1T, one single-family residence at this location is projected to have vibration impacts and one with a groundborne noise impact.

I-405 to NE 8th Street: Vibration impacts are projected at the Coast Bellevue Hotel.

6.2.3.4 106th NE Tunnel Alternative (C2T)

Impacts from Alternative C2T would result from its proximity to and the speed of the light rail vehicles. There would be no vibration or groundborne noise impacts from the connector to Alternative B2A, B3, or B7.

Main Street to 106th Avenue NE (connecting to Alternative B2E): Groundborne noise impact is projected at one single-family residence on the south side of Main Street at this location.

6.2.3.5 108th NE Tunnel Alternative (C3T)

Impacts from Alternative C3T would result from its proximity to and the speed of the light rail vehicles.

Beginning of Segment C to 108th Avenue NE (connecting to Alternative B2A): A groundborne noise impact is projected at two single-family residences just south of 110th Avenue SE at this location.

108th Avenue NE to Main Street (connecting to B2A): A groundborne noise impact is projected at nine single-family residences along NE 108th Avenue at this location.

NE 12th Street to 110th Avenue NE: A groundborne noise impact is projected at one single-family residence north of NE 12th Street for all four connectors to Alternative C3T.

112th Avenue NE and Main Street to 108th Avenue NE (connecting Alternative B2E): A groundborne noise impact is projected at one single-family residence on the south side of Main Street at this location.

6.2.3.6 Couplet Alternative (C4A)

Impacts from Alternative C4A would result from its proximity to the buildings along its route.

NE 8th Street to NE 10th Street: A vibration impact is projected at two multifamily buildings along the northbound couplet at this location for all connections to Segment B.

NE 10th Street to 110th Avenue NE and NE 12th Street: A vibration impact is projected at two multifamily residences along the northbound couplet at this location for all connections to Segment B.

NE 12th Street to 110th Avenue NE: A vibration impact is projected at one single-family residence along the northbound couplet for all four alternatives. The impact would be a result of the residence's very close proximity to Alternative C4A.

108th Avenue NE to NE 2nd Street: A vibration impact is projected at two multifamily residences along the southbound couplet at this location for all connections to Segment B.

6.2.3.7 112th NE Elevated Alternative (C7E)

No vibration or groundborne noise impacts are projected for this alternative.

6.2.3.8 110th NE Elevated Alternative (C8E)

The impacts from Alternative C8E would result from its proximity to the Sheraton Hotel and from the speed of the light rail vehicles.

Main Street to NE 2nd Street between 114th Avenue NE and 112th Avenue NE: A vibration impact is projected at the Sheraton Hotel due to its extremely close projected distance from the alternative. The alignment location would need to be further refined to determine the level of impact. Additional testing could also be performed at this location to determine the response of the building foundation; the results of this testing would likely reduce the projected vibration levels. In addition, the building needs to be surveyed to determine the specific locations of vibration-sensitive uses within the structure. Based on testing at the Hilton Hotel, which is a similar building type nearby, the projected vibration levels likely would be significantly lower, depending on the distance from the alignment to the hotel.

NE 2nd Street between 110th Avenue NE and 112th Avenue NE to NE 4th Street: A vibration impact is projected at one multifamily residence at this location.

NE 8th Street to NE 10th Street: A vibration impact is projected at one multifamily residence at this location.

NE 10th Street to NE 12th Street: A vibration impact is projected at one multifamily residence at this location.

NE 12th Street to 112th Avenue NE: A vibration impact is projected at one single-family residence to the north of NE 12th Street at this location.

112th Avenue NE to the end of Segment C: A vibration impact is projected at one single-family residence to the north of NE 12th Street at this location.

6.2.3.9 110th NE At-Grade Alternative (C9A)

The impacts from Alternative C9A would be due to the proximity of the alternative to the hotel and to the speed of the light rail vehicles.

112th Avenue NE and Main Street to 110th Avenue NE: A vibration impact is projected at two single-family residences at this location.

110th Avenue NE from Main Street to NE 6th Street: Vibration impact is projected at three multifamily residences at this location.

I-405 to the end of Segment C: Vibration impacts are projected at the Coast Bellevue Hotel.

6.2.3.10 114th NE Elevated Alternative (C14E)

The impacts from Alternative C14E would result from its proximity to the hotel and from the speed of the light rail vehicles.

Beginning of Segment C to Main Street: Vibration impacts are projected at the Red Lion Hotel.

Main Street to NE 4th Street: Vibration impacts are projected at the Sheraton Hotel.

I-405 crossing to the end of Segment C: Vibration impacts are projected at the Coast Bellevue Hotel.

6.2.3.12 Highly Sensitive Locations Analysis

In addition to sensitive residential land uses, vibration and groundborne noise impacts were assessed for other sensitive locations, including the Bellevue Arts Museum, the theater at Meydenbauer Center, and the Overlake Hospital MRI and Optical Surgery Unit. For this assessment, the museum was treated as an auditorium because quiet is important to the use of a museum (see Table 4-3). In addition, groundborne noise was also assessed for the Bellevue Arts Museum and the theater at Meydenbauer Center. Hospital equipment is not sensitive to groundborne noise. The MRI and optical surgery unit impact levels are based on the criteria for highly sensitive sites (see Section 4.3, Transit Vibration and Groundborne Noise Criteria). The potential for vibration impacts on the new Group Health Bellevue Medical Center was evaluated, but all alternatives would be located at a great enough distance to prevent impacts to sensitive equipment within the facility.

The results presented in Table 6-18 identify no vibration impacts at any of the highly sensitive locations under any of the Segment C alternatives. Table 6-19 shows that a groundborne noise impact is projected at the theater at Meydenbauer Center with *Preferred Alternative C9T* and the C9T – East Main Station Design Option. The groundborne noise impact under this alternative and the design option would be due to the at-grade track in front of the theater. All other alternatives are on elevated guideway structures in front of the theater, which would significantly reduce vibration and groundborne noise levels.

TABLE 6-18
Segment C Vibration Impacts for Highly Sensitive Locations

Location	Alternative	Distance to Near Track (feet)	Speed (mph)	Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Bellevue Arts Museum	Bellevue Way Tunnel Alternative (C1T)	65	20	51	N/A	72	0
Meydenbauer Center Theater	*Preferred 108th NE At-Grade Alternative (C11A)*	50	30	55	N/A	72	0
	Preferred 110th NE Tunnel Alternative (C9T)	50	20	65	N/A	72	0
	Bellevue Way Tunnel Alternative (C1T)	50	45	63	N.A	72	0
	106th NE Tunnel Alternative (C2T)	50	45	63	N/A	72	0
	110th NE At-Grade Alternative (C9A)	50	20	55	N/A	72	0
Overlake Hospital MRI	108th NE Tunnel (C3T), Couplet (C4A), 112th NE Elevated (C7E), or 110th NE Elevated (C8E) Alternative	196	20	33	31.5	60	0
Overlake Hospital Optical Surgery Unit	108th NE Tunnel (C3T), Couplet (C4A), 112th NE Elevated (C7E), or 110th NE Elevated (C8E) Alternative	208	20	33	31.5	54	0

Notes:
Vibration levels are measured in VdB referenced to 1 microinch per second.
The reported vibration level represents the maximum vibration level for each location.
The maximum vibration level reported is for the 1/3-octave band noted.

TABLE 6-19
Segment C Groundborne Noise Impacts for Highly Sensitive Locations

Location	Alternative	Distance to Near Track (feet)	Speed (mph)	Groundborne Noise Level (dBA)	Impact Criterion (dBA)	No. of Impacts
Bellevue Arts Museum	Bellevue Way Tunnel Alternative (C1T)	65	20	34	35	0
Meydenbauer Center	*Preferred 108th NE At-Grade Alternative (C11A)*	50	30	26	35	0
	Preferred 110th NE Tunnel Alternative (C9T)	50	20	36	35	1
	110th NE Tunnel Alternative (C9T) - East Main Station Design Option	50	20	36	35	1
	Bellevue Way Tunnel Alternative (C1T)	50	45	27	35	0
	106th NE Tunnel Alternative (C2T)	50	45	27	35	0
	110th NE At-Grade Alternative (C9A)	50	20	26	35	0

Note: The reported groundborne noise level represents the maximum level for each location.

6.2.4 Segment D

Table 6-20 provides the estimated vibration velocity levels for sensitive receptors at representative distances in Segment D. An additional analysis of the potential for vibration impacts on the new Children's Hospital BCSC was conducted and the results are provided in Table 6-21. No impacts were identified from the Segment D alternatives.

6.2.5 Segment E

Table 6-22 provides the estimated vibration velocity levels for sensitive receptors at representative distances in Segment E. Each impacted Category 2 land use area is described by alternative below.

TABLE 6-20
Segment D Vibration Impacts

Alternative	Location	Connector	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Preferred NE 16th At-Grade Alternative (D2A) [a]	Beginning of Segment D to BNSF Railway line route split	Former BNSF Railway	203	55	53	25	72	0
	Overlake Village Station to Overlake Transit Center Station	All	270	35	53	25	72	0
D2A - NE 24th Design Option	NE 24th Street and 152nd Avenue NE	Former BNSF Railway	151	30	63	31.5	72	0
NE 16th Elevated Alternative (D2E)	Beginning of Segment D to BNSF Railway line route split	BNSF Railway	203	35	55	25	72	0
		NE 12th Street	83	55	51	40	72	0
	Overlake Village Station to Overlake Transit Center Station	All	270	35	53	25	72	0
NE 20th Alternative (D3)	Beginning of Segment D to BNSF Railway line route split	BNSF Railway	203	55	53	25	72	0
		NE 12th Street	83	45	55	31.5	72	0
	136th Place NE and NE 20th Street to 140th Avenue NE	All	158	35	57	25	72	0
	148th Avenue NE to 152nd Avenue NE	All	40	20	65	40	72	0
	152nd Avenue NE to NE 24th Street	All	182	35	56	25	72	0
	NE 24th Street to SR 520	All	219	35	55	25	72	0
SR 520 Alternative (D5)	Beginning of Segment D to BNSF Railway line route split	BNSF Railway	145	55	55	25	72	0
		NE 12th Street	125	55	56	25	72	0
	124th Avenue NE to 130th Avenue NE	All	33	50	66	31.5	72	0
	NE 24th Street and 152nd Avenue NE to SR 520	All	234	35	54	25	72	0

Notes:
Vibration levels are measured in VdB referenced to 1 microinch per second.
The reported vibration level represents the maximum vibration level for each location.
The maximum vibration level reported is for the 1/3-octave band noted.
[a] The vibration impacts for the D2A – 120th Station Design Option are the same as for *Preferred Alternative D2A*.

TABLE 6-21
Segment D Vibration Impacts for Highly Sensitive Locations

Location	Alternative	Distance to Near Track (feet)	Speed (mph)	Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Children's Hospital	*Preferred NE 16th At-Grade Alternative (D2A)*	600	55	49	80	60	0
	NE 16th Elevated Alternative (D2E)	160	55	41	80	60	0
	NE 20th Alternative (D3)	160	55	51	80	60	0
	SR 520 Alternative (D5)	300	55	49	80	60	0

Notes:

Vibration levels are measured in VdB referenced to 1 microinch per second.

The reported vibration level represents the maximum vibration level for each location.

The maximum vibration level reported is for the 1/3-octave band noted.

TABLE 6-22
Segment E Vibration Impacts

Alternative	Location	Distance to Near Track (feet)	Speed (mph)	Maximum Vibration Level	1/3-Octave Band	Vibration Impact Criterion	No. of Impacts
Preferred Marymoor Alternative (E2) [a]	NE 51st Street to NE 60th Street	37	55	77	63	72	1 single-family
	NE 60th Street to West Lake Sammamish Parkway	28	55	82	40	72	2 single-family
	166th Avenue NE to Leary Way	78	55	54	63	72	0
	Leary Way to 162nd Avenue NE	73	55	56	63	72	0
Redmond Way Alternative (E1)	NE 51st Street to NE 60th Street	37	55	77	63	72	1 single-family
	NE 60th Street to West Lake Sammamish Parkway	31	55	80	40	72	2 single-family
	West Lake Sammamish Parkway to 154th Avenue NE	21	25	65	63	72	0
	154th Avenue NE to BNSF Railway corridor	286	25	30	20	72	0
	BNSF Railway corridor to Leary Way	252	55	48	12.5	72	0
	Leary Way to 166th Avenue NE	73	55	56	63	72	0
	SR 520 to NE 70th Street	76	20	42	63	72	0
Leary Way Alternative (E4)	NE 51st Street to NE 60th Street	37	55	77	63	72	1 single-family
	NE 60th Street to West Lake Sammamish Parkway	57	55	72	63	72	0
	West Lake Sammamish Parkway to NE Leary Way	209	25	31	20	72	0
	NE Leary Way to NE 76th Street	5	55	96	63	72	1 multifamily, 1 hotel
	SR5 20 to NE 70th Street	76	20	52	63	72	0

Notes:

Vibration levels are measured in VdB referenced to 1 microinch per second.

The reported vibration level represents the maximum vibration level for each location.

The maximum vibration level reported is for the 1/3-octave band noted.

[a] The vibration impacts for the E2 - Redmond Transit Center Design Option would not differ from those under *Preferred Alternative E2*.

6.2.5.1 Preferred Marymoor Alternative (E2)

The impacts from *Preferred Alternative E2* would be a result of the speed of the light rail vehicles.

NE 51st Street to NE 60th Street: One single-family residence at this location, just to the south of NE 60th Street, would have a projected vibration impact.

NE 60th Street to West Lake Sammamish Parkway: Vibration impacts are projected at two single-family residences located in the residential community just before the alternative crosses SR 520.

The impacts from the E2 - Redmond Transit Center Design Option are the same as for *Preferred Alternative E2*.

6.2.5.2 Redmond Way Alternative (E1)

The impacts from Alternative E1 would result from the speed of the light rail vehicles.

NE 51st Street to NE 60th Street: One single-family residence at this location, located just to the south of NE 60th Street, would have a vibration impact.

NE 60th Street to West Lake Sammamish Parkway: There would be impacts on two single-family residences in the residential community at this location, just before the alternative crosses SR 520.

6.2.5.3 Leary Way Alternative (E4)

The impacts from Alternative E4 would be a result of its proximity to the Residence Inn Hotel and of the speed of the light rail vehicles.

NE 51st Street to NE 60th Street: One single-family residence at this location, located just to the south of NE 60th Street, would have a vibration impact.

NE Leary Way to NE 76th Street: There are two projected impacts at this location. One would be at the Residence Inn Hotel at the Redmond Town Center, which is within 5 feet of the alternative, and the other would be on the south side of NE Leary Way, where a multifamily building is located within 20 feet of the alternative.

6.2.6 Maintenance Facility Alternatives

No vibration impacts are projected to occur from operation and maintenance activities.

6.3 Construction Noise Assessment

Several construction phases would be required to complete the East Link Project. The analysis assumes the worst-case noise levels based on three major types of construction described below and shown in Table 6-23. The actual noise levels experienced during construction would generally be lower than those given in this report. The noise levels presented here are for periods of maximum construction activity and would occur for a limited period of time.

TABLE 6-23
Noise Levels for Typical Construction Phases[a]

Scenario[b]	Equipment[c]	Lm[d]	Leq[e]
Utilities preparation and relocation	Air compressors, backhoe, concrete pumps, crane, excavator, forklifts, haul trucks, loader, pumps, power plants, service trucks, tractor trailers, utility trucks, vibratory equipment	94	87
Structures construction, track installation, and paving activities	Air compressors, backhoe, cement mixers, concrete pumps, crane, forklifts, haul trucks, loader, pavers, pumps, power plants, service trucks, tractor trailers, utility trucks, vibratory equipment, welders	94	88
Miscellaneous activities	Air compressors, backhoe, crane, forklifts, haul trucks, loader, pumps, service trucks, tractor trailers, utility trucks, welders	91	83

[a] Combined worst-case noise levels for all equipment at a distance of 50 feet from work site.

[b] Operational conditions under which the noise levels are projected.

[c] Normal equipment in operation under the given scenario.

[d] Lm (dBA) is an average maximum noise emission for the construction equipment under the given scenario; for this type of equipment and activities, the Lm is slightly less than the Lmax.

[e] Leq (dBA) is an energy average noise emission for construction equipment operating under the given scenario.

6.3.1 Demolition, Site Preparation, and Utilities Relocation

Major noise-producing equipment used during the construction preparation stage could include saw cutters, concrete pumps, cranes, excavator, haul trucks, loader, tractor-trailers, and vibratory equipment. Maximum noise levels could reach 82 to 86 dBA at the nearest residences (i.e., within 50 to 100 feet) for normal construction activities during this phase. Other, less notable noise-producing equipment expected during this phase includes backhoes, air compressors, forklifts, pumps, power plants, service trucks, and utility trucks.

6.3.2 Structures Construction, Track Installation, and Paving Activities

The loudest noise sources in use during construction of elevated structures would include cement mixers, concrete pumps, cranes, pavers, haul trucks, and tractor-trailers. The cement mixers, cranes, and concrete pumps would be required for construction of the light rail superstructure. The pavers and haul trucks would be used to provide the final surface on the roadway. Maximum noise levels would range from 82 to 94 dBA at the closest receiver locations.

6.3.3 Miscellaneous Activities

Following the heavy construction, general construction such as installation of bridge railing, signage, roadway striping, communication and power systems, and other general activities would still need to occur. These less intensive activities are not expected to produce noise levels above 80 dBA at 50 feet except during rare occasions, and even then only for short periods of time. Using the information in Table 6-23, typical construction noise levels were projected for several distances from the project work area. Exhibit 6-1 is a graph of general construction noise level versus distance for project phases of construction.

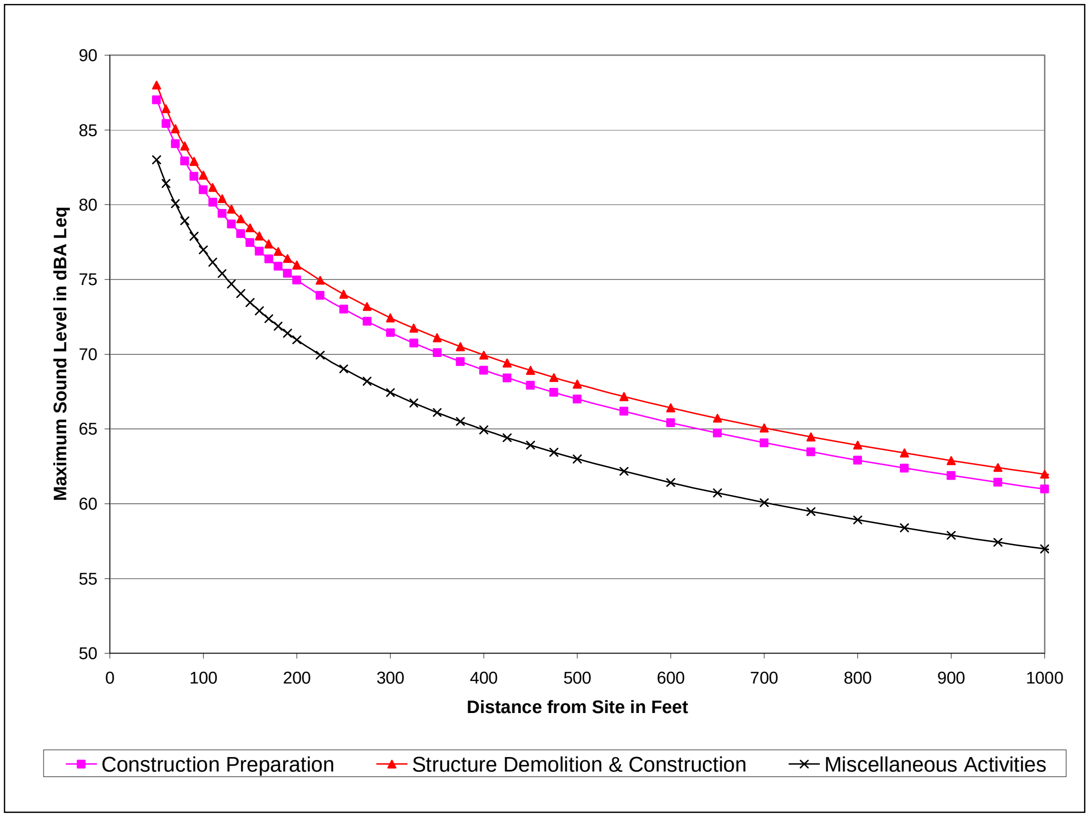


EXHIBIT 6-1
Maximum Noise Level Versus Distance for Typical Construction Phases

6.3.4 Pile-Driving

Pile-driving would likely be required to support permanent structures such as piers for elevated structures and cut-and-cover tunnel walls. Pile-driving can produce maximum short-term noise levels of 99 to 105 dBA at 50 feet. Actual levels can vary and would depend on the distance and topographical conditions between the pile-driving location and the receiver location. Exhibit 6-2 is a graph of maximum pile-driving noise levels versus distance.

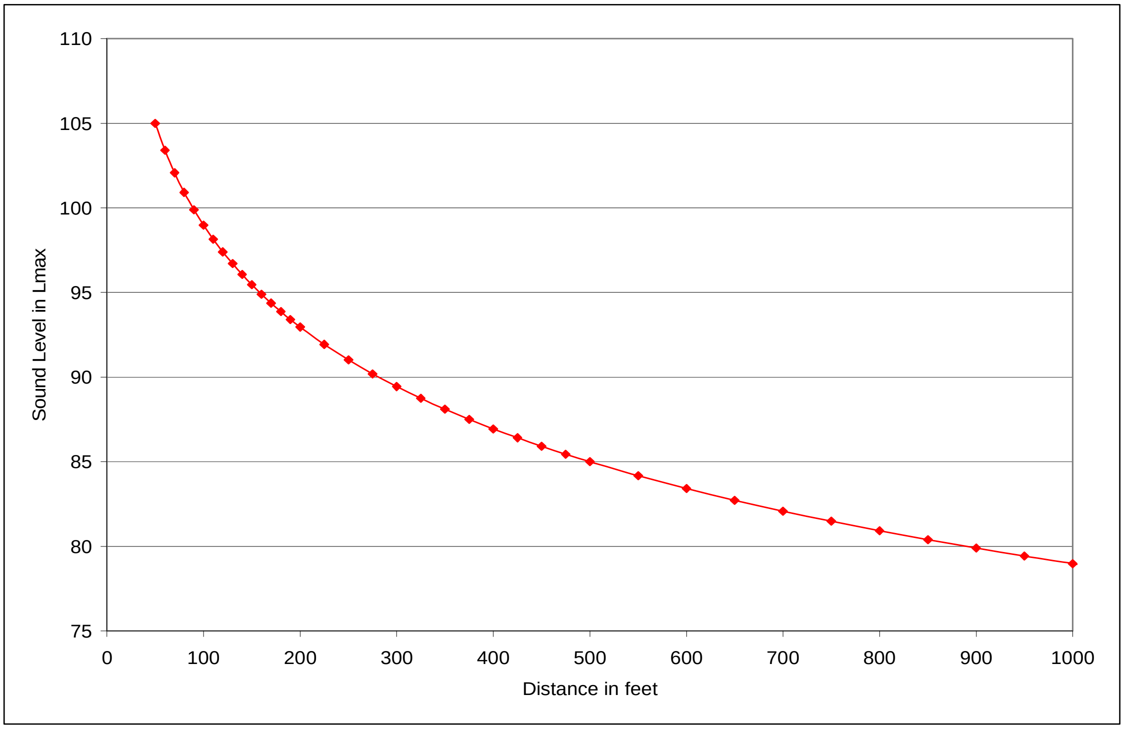


EXHIBIT 6-2
Pile-Driving Noise Level Versus Distance

6.3.5 Nighttime Construction Activities

Some construction activities might be required during nighttime hours because of the nature of the construction or to avoid daytime traffic impacts or impacts to some adjacent land uses. In order to perform construction at night, a noise variance from the local governing agency would be required. When a final alternative is selected, Sound Transit would work with the local governments and agencies to provide a construction plan that would allow the project to be constructed cost-effectively with minimal disruption to local areas and traffic flow. If nighttime construction is deemed necessary, then Sound Transit would work with each governing agency to obtain any necessary noise variance specific to project construction.

6.3.6 Segment A Construction Noise

Because much of the light rail alternative in Segment A would be in commercial and industrial areas or in the I-90 highway corridor, many noise-sensitive areas would be shielded from much of the construction noise sources.

Construction in the I-90 corridor, west of the Mount Baker Tunnel, would result in increased noise levels at the residential areas along Sturgus Avenue South and south of I-90 near the tunnel portal. Maximum noise levels from construction at these homes should not exceed 75 to 78 dBA under any phase of construction. Maximum construction noise levels at residential locations on the east end of the Mount Baker Tunnel, near 35th Avenue South, are projected to reach up to 85 dBA Lmax during brief periods of heavy construction. Typical construction noise during daytime hours would be approximately the same as the existing traffic noise levels in this area.

On Mercer Island, most of the *Preferred Alternative A1* route would be in a deep, retained cut with I-90, and the construction sites would be well shielded from noise-sensitive land uses. Residences located near the connection to the I-90 floating bridge and the East Channel bridge would likely notice an increase in noise from construction activities for short periods of time. There would also be construction activities for the station platforms and access; however, station construction would likely be during the daytime and would meet the local noise ordinance.

6.3.7 Segment B Construction Noise

There are a large number of single-family and multifamily residences along the Segment B alternatives. Under the Bellevue Way alternatives (i.e., *Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3 and B3 – 114th Extension Design Option), noise levels at adjacent residences would have short periods of time with maximum noise levels exceeding 80 dBA Lmax. Major construction noise would occur when relocating utilities, installing retaining walls (where required), repaving Bellevue Way, and constructing the Alternative B2E, B3, or B3 – 114th Extension Design Option elevated guideway structures. Pile-driving and sheet-pile installation might also be required. Pile-driving could produce Lmax noise levels of 105 dBA at 50 feet. Although there would be periods of relatively loud construction, noise levels would decrease as tasks are completed and construction activities move to other areas.

Under Alternative B1, the impacts and noise levels described above would continue to the tunnel portal in Segment C. Alternatives B2A, B2E, B3, and B3 – 114th Extension Design Option would be located on 112th Avenue SE, where residences in some areas are set back farther from the construction sites than they are on Bellevue Way. Therefore, noise levels on 112th Avenue SE would have a lower impact. The highest noise levels would occur when relocating utilities, repaving, and constructing the Alternatives B2E, B3, and B3 – 114th Extension Design Option elevated guideway structures.

Under Alternative B7, noise levels at the multifamily apartments and condominiums adjacent to the alternative in the former BNSF Railway corridor could reach 80 dBA Lmax for short periods. Because this alternative would not be on a major roadway, it would be less likely that nighttime work would be required near the noise-sensitive units. Pile-driving might also be required under this alternative along the I-90 corridor to SE 32nd Street. Noise from the pile-driver could exceed 85 dBA Lmax at the nearby multifamily residences south of SE 32nd Street. The pile-driving would also increase noise levels in the southern section of the Mercer Slough Nature Park. Worst-case noise levels of up to 100 dBA Lmax can be expected within 100 feet of the construction site, as shown on Exhibit 6-2.

There are also several commercial structures that would be affected by construction noise in Segment B. Businesses located along Bellevue Way SE would have short periods of time with maximum noise levels exceeding 80 dBA Lmax under Alternative B1. The business parks located south of 112th Avenue SE would also experience elevated noise levels under Alternatives B2A, B2E, B3, and B3 – 114th Extension Design Option. Alternative B7 would also increase noise at some commercial structures; however, traffic noise from I-405 would remain a significant noise source at commercial structures along this alternative.

6.3.8 Segment C Construction Noise

Construction in downtown areas is often difficult due to high traffic volumes and general congestion. Major noise sources would include haul truck traffic to and from tunnel-staging areas, pile-driving for elevated structures, cement-pumping trucks, and cement delivery trucks. Major noise-producing activities would include utilities relocation, repaving project roadways, and construction of elevated structures. The projected construction noise levels are typical for transportation construction projects, such as roadway paving projects. The main differences between a typical paving operation and the tunnel construction are the length of time to complete the project and the level of haul truck activity.

Noise levels at residences near tunnel portals, at-grade alignments, and staging areas on Bellevue Way, 112th Avenue SE, Main Street along NE 6th Street and on 110th Avenue NE between NE 3rd Street and NE 2nd Place could exceed 80 dBA Lmax during heavy construction periods for all alternatives. Typical daytime noise levels from the staging areas are projected to be 73 to 84 dBA, depending on the level and type of activity at the time. Maximum noise levels of over 80 dBA Lmax could still occur in locations where the homes are directly on 112th Avenue SE, such as for the single-family and multifamily homes between SE 6th Street and Main Street, for all alternatives except C1T. Noise levels would also exceed 80 dBA Lmax along the residential area on 110th Avenue NE for *Preferred Alternative C11A* or *C9T*, C9T – East Main Station Design Option, and Alternatives C3T, C4A, and C8E. Alternatives C3T, C4A, and C8E would also result in noise levels exceeding 80 dBA Lmax at the single-family residences north of NE 12th Street. Noise levels at the residential area on Lake Bellevue are not projected to exceed 80 dBA Lmax, except during pile-driving, structure construction, or utilities relocations.

Noise levels near the tunnel portal and staging areas along Main Street are also projected to range from 73 to 84 dBA Lmax at 50 feet from the site. Construction noise levels at residences in the Surrey Downs neighborhood would vary and depend on how close the residence is to the site and the level of shielding the residence has from existing homes. The highest levels would be at residences directly adjacent to the construction site. Similar construction noise levels are also projected for the tunnel portal and staging areas near McCormick Park under

Alternatives C3T, C4A, and C8E. Constructing the elevated structure under Alternative C7E would also result in construction noise at residential and commercial land uses along 112th Avenue NE.

Alternatives C3T, C4A, C7E, and C8E would require construction along NE 12th Street near the Overlake Medical Center, the Children's Hospital BCSC, and nearby supporting offices. Maximum noise levels at the hospital are projected to reach up to 82 dBA Lmax, with typical noise levels ranging from 71 to 75 dBA. The parking structure at both hospitals is expected to act as a sound wall and provide some noise reduction from construction activities. Construction noise through Downtown Bellevue under the two at-grade alternatives (Alternatives C4A and C9A) would be similar to those described for *Preferred Alternative C11A*, although Alternative C4A noise would occur along 108th and 110th Avenues NE, and Alternative C9A noise would occur along 110th Avenue NE.

Commercial land uses in Segment C would also experience elevated noise levels during construction. With Alternatives C1T and C2T, elevated noise levels would be experienced along the entire corridor due to cut-and-cover construction methods. With Alternative C3T, which would use bored tunneling construction methods, most construction-related noise would be at the portals and the Bellevue Transit Center Station. Alternative C4A would require heavy at-grade construction along 108th and 110th Avenues NE, including relocating utilities, installing track, and paving. Maximum levels could exceed 80 dBA Lmax during periods of heavy construction. Alternatives C7E and C8E are both elevated and would install the elevated structure along 110th Avenue NE (C8E) or 112th Avenue NE (C7E), resulting in maximum levels of 80 to 85 dBA at 50 feet from the project work site.

6.3.9 Segment D Construction Noise

Segment D has a limited number of residential land uses that would be affected by East Link Project construction noise. There would be an increase in noise at the residential area on Lake Bellevue when connecting to Alternative C1T or C2T. Construction noise would also affect the multifamily building on NE 21st Place, just south of SR 520, and the Children's Hospital BCSC on 116th Avenue NE.

The former Group Health Eastside Hospital Campus is currently being redeveloped to mixed residential commercial land use. Constructing *Preferred Alternative D2A* or Alternative D2E or D3 would have the highest impact on the new mixed-use development planned for this site, due to the proximity of these alternatives. Maximum noise levels are projected to reach up to 82 dBA Lmax, with typical noise levels ranging from 69 to 78 dBA. Commercial and retail land uses along the proposed corridors would also experience maximum levels of 80 to 85 dBA at 50 feet from the project work site during periods of heavy construction.

6.3.10 Segment E Construction Noise

Removing and replacing existing sound walls adjacent to SR 520 could be required from the beginning of Segment E to West Lake Sammamish Parkway. During wall replacement, noise levels at the residences would increase not only from construction noise but also from traffic noise on SR 520. During heavy periods of construction, noise levels could reach 85 dBA Lmax, with typical hourly average noise levels ranging from 70 to 80 dBA. When the sound walls are replaced, work on the light rail construction would be mostly shielded by the walls, and noise levels should not exceed 60 to 70 dBA.

Constructing the elevated portion of Alternative E4 near the Redmond Town Center would result in noise-level increases at the multifamily units along Leary Way. Maximum noise levels are projected to range from 80 to 85 dBA Lmax during the heaviest construction periods. Pile-driving might also be required for the elevated structures, which could result in peak noise levels exceeding 100 dBA. Construction of the at-grade portions of all alternatives through Downtown Redmond would increase noise levels during utilities relocations, paving, and track installation, with maximum noise levels of 80 to 85 dBA Lmax. Construction noise levels in Marymoor Park are projected to reach 80 to 85 dBA Lmax during heavy construction for *Preferred Alternative E2* and E2 – Redmond Transit Center Design Option. Pile-driving might be required for the Sammamish River crossing, which could result in peak noise levels exceeding 100 dBA.

6.3.11 Maintenance Facility and Park-and-Ride Lot Construction Noise

Except for the 116th Maintenance Facility (MF1), the maintenance facility alternatives are not near residential land uses that would be affected by construction noise. Some residences are present on the west side of 116th Avenue NE, near MF1, and the Children's Hospital BCSC is just south of the site. Construction of the maintenance bases and park-and-ride lots is projected to produce maximum noise levels of 75 to 85 dBA Lmax at 50 feet during periods of heavy construction. The loudest noise sources would include cement mixers, concrete pumps, cranes, and haul trucks. Cement mixers, cranes, and concrete pumps would be required for construction of multistory parking facilities and maintenance buildings. For surface lots and station construction, the loudest construction noise sources are pavers and haul trucks that would be used to apply the asphalt and construct access roads. Other, less notable noise-producing equipment would include backhoes, air compressors, forklifts, pumps, power plants, service trucks, and utility trucks.

6.4 Construction Vibration Assessment

Based on the damage criteria described in Section 4.5, the only activity likely to cause vibration damage would be impact pile-driving at locations within 25 feet of structures. However, many of the alternatives would require impact pile-driving. The Coast Bellevue Hotel is the only structure within 25 feet of *Preferred Alternative C9T* and Alternative C9A. If pile driving were performed at this location, there would be the potential for damage. The locations of where there would be piles will not be available until final design for the project, but they would likely be at elevated structures or retained cuts approaching tunnels. As specific locations of piles are developed, more analysis should be conducted. To prevent damage, care should be taken to avoid pile-driving too close to buildings.

Constructing a retained cut near the Winters House, including construction of underground piles to structurally support the cut, could result in vibration impacts. Because of the property’s age and type, damage to the building could occur without construction vibration-minimization techniques. The criteria for damage for this type of structure are 94 VdB or 0.2 peak particle velocity (PPV); construction vibration is projected to be 0.2 PPV. Using the techniques and construction methods described in Section 7.7 below as mitigation would prevent vibration damage or limit damage to minor cosmetic damage.

To assess the potential for temporary, short-term construction vibration impacts, construction vibration levels were projected for tunnel construction operations in Segment C and for piling and vibratory rolling along the entire corridor. Reference vibration levels have been collected from other environmental vibration studies. Data for tunnel-boring machines include tunneling in rock and in soil. However, based on the geotechnical investigations to date, the East Link Project would not require tunneling in rock. Table 6-24 shows the reference vibration levels for these sources at 25 feet.

TABLE 6-24
Vibration Levels for Construction Equipment

Construction Equipment	Maximum Lv at 25 feet (VdB)
Tunnel-boring machine (in rock)	85
Tunnel-boring machine (in soil)	69
Muck trains	72
Vibratory roller	94
Impact pile-driving	112

Vibration levels are projected on the ground floors inside buildings. This assumes no coupling attenuation (i.e., reduction in vibration level due to the foundation) for single-family residences, a 10-dB building coupling attenuation for large masonry buildings, and no floor-to-floor attenuation. Table 6-25 shows the distances at which groundborne vibration impacts would occur for single-family residences and large masonry buildings for each piece of construction equipment. These distances correspond to vibration in any 1/3-octave band between 8 and 80 Hz that exceeds the criterion (see Section 4.3).

The results of this analysis show that temporary, short-term vibration impact would not be an issue for tunnel construction. As discussed in Section 4.5, criteria levels for impacts to buildings range from 94 VdB for nonengineered timber and masonry buildings to 102 VdB for reinforced concrete, steel, or timber buildings. The maximum VdBs provided in Table 6-24 are at or below the lowest impact criteria level. The only likely source of construction vibration annoyance would be pile-driving. If alternative methods of pile-driving can be employed, then the distance to vibration impact can be greatly reduced.

TABLE 6-25
Distances from Sources to Groundborne Vibration Impact

Construction Equipment	Distance to Groundborne Vibration Impact (feet)
Tunnel-boring machine in rock (large masonry buildings)	17
Tunnel-boring machine in rock (single-family residences)	36
Tunnel-boring machine in soil (large masonry buildings)	6
Tunnel-boring machine in soil (single-family residences)	13
Muck trains (large masonry buildings)	8
Muck trains (single-family residences)	16
Vibratory roller (large masonry buildings)	18
Vibratory roller (single-family residences)	36
Impact pile-driving (large masonry buildings)	70
Impact Pile-driving (single-family residences)	150

Table 6-26 shows the range of distances from various sources to the threshold for groundborne noise impact for both single-family residences and large masonry buildings. The groundborne noise impact criterion is 40 dBA, based on frequent events for Category 3 land uses (see Table 4-2 in Section 4.3). These results show that groundborne noise impact could result from muck-train activities; however, this would depend on the depth of the tunnel at any particular location. It is important to note that these are temporary impacts, and the annoyance from these activities would be limited in duration. For most activities, including tunneling, the duration would be a few days to a few weeks for each activity. The only activity with a longer duration would be using muck trains near the tunnel portals, which could be required for between 1 month and 18 months, depending on the tunnel alternative chosen and the speed of tunneling.

TABLE 6-26
Distances from Sources to Groundborne Noise Impact

Construction Equipment	Distance to Groundborne Noise Impact (feet)
Tunnel-boring machine in soil (large masonry buildings)	7
Tunnel-boring machine in soil (single-family residences)	14
Muck trains (large masonry buildings)	24
Muck trains (single-family residences)	51

7.0 Potential Mitigation of Noise and Vibration Impacts

Sound Transit has developed and adopted the Sound Transit Noise Mitigation Policy, Motion M2004-08 (Sound Transit Policy, 2004). This policy (Sound Transit Policy, 2004), was designed to provide guidance on the analysis and mitigation of noise impact associated with Link light rail projects. The following policies shall guide Sound Transit's assessment and control of potential Link noise impacts:

A. Sound Transit shall comply with applicable federal, state, and local noise requirements in evaluating noise impacts, determining appropriate mitigation measures, and implementing Link projects.

B. Sound Transit will seek to identify potential noise impacts and potential mitigation measures early in the project development process, as practicable.

C. Sound Transit will seek to reduce expected noise impacts, as practicable, through reductions in source emissions and project design.

D. Sound Transit will seek to work with local jurisdictions to provide that development that occurs is compatible with expected or existing project operational noise.

It is also important to note that during final design, all impacts and mitigation measures will be reviewed to verify projections. If, at that time, it is discovered that mitigation can be achieved by a less costly means through more detailed testing, or that the noise impact at the location would not occur even without mitigation, then the mitigation measure may be eliminated.

7.1 Potential Light Rail Noise Mitigation Options

One of the most effective forms of noise mitigation is to attempt to reduce noise at the source. Source noise reduction is normally accomplished through vehicle specifications. Sound Transit has purchased state-of-the-art, low-noise vehicles equipped with noise-reducing wheel skirts covering the wheel-rail interface. Several additional operational measures can also be used to reduce noise levels at the source. Table 7-1 lists operational and maintenance measures that Sound Transit would perform on a regular basis and the benefit that each measure would provide.

TABLE 7-1
Systemwide Light Rail Operational Mitigation

Operational Measure	System Benefit
Rail grinding and replacement	As rails wear, both noise and vibration levels from light rail operations can increase. By grinding or replacing worn rails, noise and vibration levels will remain at the projected levels. Rail grinding or replacement is normally performed every 3 to 5 years.
Wheel truing and replacement	Wheel truing is a method of grinding down flat spots (commonly called "wheel flats") on the vehicle wheels. Flat spots occur primarily because of hard braking. When flat spots occur they can cause increases in both the noise and vibration levels produced by the light rail vehicles.
Vehicle maintenance	Vehicle maintenance includes performing scheduled and general maintenance on items such as air conditioning units, bearings, wheel skirts, and other mechanical units on the light rail vehicles. Keeping the mechanical systems on the light rail vehicles in top condition will also help to maintain the projected levels of noise and vibration.
Operator training	Operators will be trained to operate light rail vehicles at the speeds given in the operation plan that was used for the analysis and to avoid "hard-braking," which can cause wheel flats and may also damage the track. Furthermore, by training operators to identify potential wheel flats and other mechanical problems with the trains, proper maintenance can be performed in a more timely manner.

For locations where potential noise impacts have been identified, mitigation measures would be considered and reviewed using Sound Transit's Mitigation Policy (Sound Transit Policy, 2004). Under the Sound Transit Mitigation Policy, mitigation measures would be considered for all noise impacts. As described above, source treatments that Sound Transit is currently using to minimize noise impacts include requiring wheel skirts, maintaining smooth tracks, vehicle maintenance and wheel truing, and operator training.

For any noise impacts predicted using the baseline information on light rail operations, the next type of mitigation considered would be applied between the noise source and receiver. Typical path mitigation includes sound walls, earth berms, and buffer zones. Constructing sound walls between the light rail tracks and the affected receivers would reduce noise levels by physically blocking the transmission of noise generated by light rail. Barriers can be constructed as walls or earthen berms. Earthen berms require more right-of-way than walls and are usually constructed with a 3-to-1 slope. For the East Link Project, berms would not generally be feasible due to topographical conditions and limited right-of-way. For at-grade or elevated guideway structures, sound walls should be high enough to break the line of sight between the noise source and the receiver. Typical height for at-grade sound walls is 6 to 8 feet and 4 to 6 feet when on elevated structures. Sound walls must also be long enough to prevent flanking of noise around the ends of the walls. Openings in sound walls for driveway connections or intersecting streets greatly reduce the effectiveness of these walls.

Buffer zones are undeveloped, open spaces between the noise source and receiver. Buffer zones are created when an agency purchases land or development rights in addition to the normal right-of-way, so that future dwellings cannot be constructed close to the noise source. This prevents the possibility of constructing dwellings that would otherwise experience an excessive noise levels. However, because the East Link Project is in an urban setting where land is at a premium, creating buffer zones is not a feasible form of noise mitigation.

For situations where path mitigation is either not feasible or ineffective, building sound insulation would be considered. Sound insulation programs are developed to make sure that the interior noise levels in sleeping and living quarters in residential land uses or in noise-sensitive areas of schools and other institutional uses remain within the guidelines set by the Department of Housing and Urban Development (HUD). Under these guidelines, noise levels in sensitive areas of residential land uses should not exceed 45 dBA Ldn and some form of fresh air exchange must be maintained. The air exchange can be achieved by opening a window or using some form of ventilation system. Sound insulation is normally only used on older dwellings with single-pane windows, or in buildings with double-pane windows that are no longer effective due to leakage. Sound insulation would not reduce exterior noise levels.

Finally, when a light rail vehicle travels over a crossover, there is a loud clicking noise as the steel wheels go over the gap between the tracks. This can increase noise levels from the train by as much as 10 dBA compared to a smooth track with no gaps. Mitigation for noise impacts from crossover tracks can include relocating the crossover away from noise-sensitive properties, or the use of special trackwork, such as special frogs that include gap-closing mechanisms, or using movable point frogs. A "frog" in this context is a rail-crossing structure at track crossovers, which allows the train to cross over to another track or continue moving on the same track. A gap is provided on top of the frog so that vehicle wheels can pass regardless of which track is in use. With standard rigid frogs, vibration occurs when the wheels pass over the gap, but a moveable point frog eliminates the gap and one end of the frog moves in the direction of train travel. Other similar options are spring-rail or flange-bearing frogs.

The FTA considers impacts in the severe category as those requiring the most thorough noise mitigation consideration if the project cannot avoid the impact. Sound Transit is committed to reducing or eliminating severe impacts. For impacts in the moderate category, the FTA provides more leeway regarding required mitigation, and several factors can be considered, such as the existing noise levels, existing and future land use, and the severity of the moderate impact. Finally, any proposed noise mitigation measure must be considered reasonable and feasible to be included with the project. Feasibility includes two main factors: the overall noise-reduction of the mitigation and its constructibility. The reasonability criteria of noise mitigation are related to the cost and noise-reduction of the proposed mitigation. Other items that may be considered include community input, land use, whether the impact occurs on a ground floor or upper floor, and safety.

Although the mitigation measures presented above provide for reduced noise levels from all forms of light rail operation, including audible warning devices such as train-mounted horns and bells at crossing gates, Sound Transit is currently evaluating additional methods to assist in reducing noise from audible warning devices. For example, Sound Transit recently modified their train-mounted bell policy. Under the new policy, train-mounted bells would be sounded two to three times as a train approaches and passes through an at-grade crossing, producing maximum levels of 80 dBA Lmax at 50 feet between 6:00 a.m. and 10:00 p.m. and reducing to 72 dBA Lmax between 10:00 p.m. and 6:00 a.m. This is a reduction of 5 dBA Lmax during the daytime and a reduction of 13 dBA between 10:00 p.m. and 6:00 a.m. when compared to the initial bell policy. This change reduces the overall bell noise levels and reduces bell noise levels even further during hours when the bells could have the most negative impact on nearby residential uses.

Sound Transit is also evaluating the use of reduced noise levels from the warning bells used for gated at-grade crossings. For this analysis, the gate bells were analyzed using the default methods from the FTA Manual (2006), which assumes a typical Lmax of 85 to 86 dBA at 10 feet (single event level [SEL] of 109 dBA at 50 feet), 360 degree directional sound output, and that the bells would sound for approximately 25 seconds per train (10 to 13 seconds while raising gates and 10 to 13 seconds when lowering gates). Sound Transit is considering the use of lower bell noise levels. Depending on the location of the gates and background ambient noise levels, gate warning bells noise levels could be reduced by up to 10 dBA Lmax (from 85 dBA to 75 dBA). Sound Transit is also considering the use of bell shrouds, which are mechanical devices used to modify bells and direct the sound from the bells at the traffic and pedestrian areas of concern. The shrouds thereby reduce bell-related noise to the sides, where there are often noise-sensitive properties. Because these bell noise mitigation measures are still under investigation, they were not assumed in the noise projections; therefore, the gated bells analysis used in this environmental document is a worst-case projection of operational noise levels. These methods of further reducing noise from system operations are being reviewed. If they are found to be effective at reducing noise, while not jeopardizing operational safety, these methods could be included in the project during final design. It is important to note that operational safety is of the utmost importance and cannot be jeopardized.

7.2 Potential Traffic Noise Mitigation Options

For locations with traffic-noise impacts caused by the East Link Project, Sound Transit may consider sound insulation if no other form of mitigation is found to be reasonable and effective at reducing the noise impact. Use of FHWA or WSDOT funds for sound insulation of residences for traffic noise abatement is allowed only in specific situations. WSDOT and FHWA policies and procedures, and 23 CFR 772.13(c)(6), limit sound insulation for traffic-noise abatement to public use or nonprofit institutional structures and only in situations where a barrier is ineffective, unreasonable, and/or infeasible and interior noise levels are above the impact criteria. Sound insulation of residences is allowed only when noise impacts are severe (i.e., above 80 dBA exterior or above 60 dBA interior) and no other type of abatement is possible. In contrast, Sound Transit considers residential sound insulation for any noise impacts related to light rail projects if a barrier is ineffective, unreasonable, and/or infeasible, including impacts from traffic caused by road realignment or additional lanes constructed during light rail construction. The mitigation proposed follows Sound Transit policy.

Several different traffic-noise abatement measures are evaluated whenever noise impacts are expected. These include traffic management measures, highway design measures, and sound walls such as earthen berms. Other mitigation measures, such as property acquisition, were not considered for the East Link Project. Specific mitigation measures recommended as part of the project must be feasible and reasonable. Possible mitigation measures are provided below.

7.2.1 Traffic Management Measures

Traffic management measures include modification of speed limits and restricting or prohibiting truck traffic. Restricting truck use on the project roadways would reduce noise levels at nearby receivers because trucks are louder than cars. However, displacing truck traffic from one roadway to another would only shift noise impacts from one area to another and conflict with the project objective.

7.2.2 Highway Design Measures

Highway design measures include altering the roadway alignment and depressing roadways in cut sections. Alteration of a roadway alignment could decrease noise levels by moving the noise source farther away from the affected receivers. Topographical and built-environment considerations determine the proposed project profile. There are no opportunities on the East Link Project for highway design options that could be used to provide noise mitigation.

7.2.3 Sound Walls

Construction of sound walls between the roadways and the affected receivers would reduce noise levels by physically blocking the transmission of traffic-generated noise. Barriers can be constructed as walls or earthen berms. Earthen berms require more right-of-way than walls and are usually constructed with a 3-to-1 slope. For the East Link Project, berms would generally not be feasible because of the right-of-way requirements.

Sound walls should be high enough to break the line-of-sight between the noise source and the receiver. They must also be long enough to prevent substantial flanking of noise around the ends of the walls. For a sound wall to be considered feasible, 60 percent of the first-row receivers must have a minimum 5-dB noise reduction and at least one receiver must have a 7-dB reduction. Openings in the sound walls for driveways and walkways can considerably reduce the barrier effectiveness.

The relationship of the location of a sound wall to the receptors to be protected would be considered in making a reasonableness determination. Very tall barriers located close to the receptors can have a negative visual impact.

For locations where there is a potential for traffic noise to reflect off the sound walls, Sound Transit would propose to use absorptive treatments to remedy this issue.

7.3 Potential Noise Mitigation Measures

This section provides general details on the potential noise mitigation measures that would be used for the different alternatives. The noise mitigation commitments herein are firm commitments to meet the FTA and FHWA noise criterion applicable at each location. However, if during final design Sound Transit determines that the relevant noise criterion can be achieved by a less costly means, or that the noise impact at that location would not occur even without mitigation, then the mitigation measure might be eliminated or modified as needed. Conversely, if any additional noise impacts are identified during final design, then Sound Transit would make every attempt to provide mitigation that is consistent with the Sound Transit Policy (2004).

Appendix E provides complete details on mitigation, including projected noise levels with the proposed noise mitigation measures for each receiver. Alternative specific mitigation measures are presented below, and Table 7-2 provides a complete summary of mitigation measures.

TABLE 7-2
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	Connection Alternatives	Light Rail Impacts		Traffic Noise Impacts[c]	Proposed Mitigation	Locations Considered for Sound Insulation
		Moderate[a]	Severe[b]			
Segment A						
Preferred Interstate 90 Alternative (A1)	N/A	1	0	0	Potential sound wall	0
Segment B						
Preferred 112th SE Modified Alternative (B2M)	*Preferred Alternative C11A*	79	0	0	Sound walls, special trackwork, and building insulation	10
	Preferred Alternative C9T	66				
	Preferred Alternative C9T with C9T - East Main Station Design Option	64	2	0		
Bellevue Way Alternative (B1)[d]	N/A	128	4	136	Special trackwork, and building insulation	141
112th SE At-Grade Alternative (B2A)[e]	N/A	77	1	17	Sound walls, special trackwork, and building insulation	17
112th SE Elevated Alternative (B2E)	N/A	85	21	0	Sound walls, special trackwork, and building insulation	5

TABLE 7-2 CONTINUED
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	**Connection Alternatives**	**Light Rail Impacts**		**Traffic Noise Impacts**[c]	**Proposed Mitigation**	**Locations Considered for Sound Insulation**
		Moderate[a]	**Severe**[b]			
112th SE Bypass Alternative (B3)[f]	N/A	79	4	17	Sound walls, special trackwork, and building insulation	17
B3 - 114th Extension Design Option[f]	N/A	76	1	17	Sound walls, special trackwork, and building insulation	31
BNSF Alternative (B7)	N/A	108	68	0	Sound walls and special trackwork	0
Segment C						
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred Alternative B2M*	119	65	0	Sound walls, special trackwork, and building insulation	108
	Alternative B3, B3 – 114th Extension Design Option, or B7	152	52			144
Preferred 110th NE Tunnel Alternative (C9T)	*Preferred Alternative B2M*	62	57	0	Sound walls, special trackwork, and building insulation	50
	Alternative B3, B3 – 114th Extension Design Option, or B7	88	52			84
C9T – East Main Station Design Option	*Preferred Alternative B2M*	67	52	0	Sound walls, special trackwork, and building insulation	50
Bellevue Way Tunnel Alternative (C1T)[g]	Alternative B1	48	52	18	Sound walls, special trackwork, and building insulation	69
106th NE Tunnel Alternative (C2T)	Alternative B2A	48	52	0	Sound walls, special trackwork, and building insulation	48
	Alternative B2E	113	66			
	Alternative B3 or B7	66	70			
108th NE Tunnel Alternative (C3T)	Alternative B2A	26	0	0	Sound walls	0
	Alternative B2E	91	14		Sound walls and special trackwork	32
	Alternative B3 or B7	44	18		Sound walls	0
Couplet Alternative (C4A)	Alternative B2A or B2E	435	15	0	Sound walls, special trackwork, and building insulation	364
	Alternative B3 or B7	420	19	0	Sound walls and building insulation	400
112th SE Elevated Alternative (C7E)	Alternative B2A or B2E	270	12	0	Sound walls and special trackwork	0
	Alternative B3 or B7	208	0		Sound walls	
110th NE Elevated Alternative (C8E)	Alternative B3 or B7	353	72	0	Sound walls	0
110th Avenue NE At-Grade Alternative (C9A)	Alternative B2A	185	56	0	Sound walls, special trackwork, and building insulation	120
	Alternative B3, B3 – 114th Extension Design Option, or B7	145	54			156
114th Avenue NE Elevated Alternative (C14E)	Alternative B3, B3 – 114th Extension Design Option, or B7	36	112	0	Sound walls and special trackwork	0

TABLE 7-2 CONTINUED
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	**Connection Alternatives**	**Light Rail Impacts**		**Traffic Noise Impacts**[c]	**Proposed Mitigation**	**Locations Considered for Sound Insulation**
		Moderate[a]	**Severe**[b]			
Segment D						
Preferred NE 16th At-Grade Alternative (D2A)	*Preferred Alternative C11A* or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
D2A - 120th Station Design Option	*Preferred Alternative C11A* or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
D2A - NE 24th Design Option	*Preferred Alternative C11A* or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
NE 16th Elevated Alternative (D2E)	Alternative C3T, C4A, C7E, or C8E	2	0	0	Sound wall and potential building insulation	1
	Preferred Alternative C11A or *C9T*, Alternative C1T, C2T, C9A or C14E	1	0	0	Sound wall and potential building insulation	1
NE 20th Alternative (D3)	Alternative C3T, C4A, C7E, or C8E	1	0	0	Sound wall	0
	Preferred Alternative C11A or *C9T*, Alternative C1T, C2T, C9A or C14E	0	0	0	None	0
SR 520 Alternative (D5)	Alternative C3T, C4A, C7E, or C8E	1	10	0	Sound wall	0
	Preferred Alternative C11A or *C9T*, Alternative C1T, C2T, C9A or C14E	0	10	0	Sound wall	0
Segment E						
Preferred Marymoor Alternative (E2)	All Segment D alternatives	33	148	0	Sound wall, special trackwork, and building insulation	168
E2 - Redmond Transit Center Design Option	All Segment D alternatives	81	100	0	Sound wall, special trackwork, and building insulation	168
Redmond Way Alternative (E1)	All Segment D alternatives	167	150	0	Sound wall, special trackwork, and building insulation	288
Leary Way Alternative (E4)	All Segment D alternatives	66	32	0	Sound wall, special trackwork, and building insulation	48

[a] **Moderate impact:** In this range of noise impact, the change in the cumulative noise level is noticeable to most people but might not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing noise level, the projected level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views, and the cost of mitigating noise to more acceptable levels.

[b] **Severe impact:** Project-generated noise in the severe impact range can be expected to cause a substantial percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation will normally be specified for severe impact areas unless there are truly extenuating circumstances that prevent it.

[c] These traffic noise impacts are based on the Federal Highway Administration 66 A-weighted decibel (dBA) equivalent continuous sound level (L_{eq}) impact criteria.

[d] Under Alternative B1 all but nine of the traffic noise impacts would also have light rail noise impacts; conversely, there are only five light rail impacts that would not have traffic noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 141; 5 would be impacted by light rail noise only, 9 would be impacted by traffic noise only, and 127 would be impacted by both traffic noise and light rail noise.

TABLE 7-2 CONTINUED
Summary of Potential Noise Impacts and Mitigation Measures

Alternative	Connection Alternatives	Light Rail Impacts		Traffic Noise Impacts[c]	Proposed Mitigation	Locations Considered for Sound Insulation
		Moderate[a]	Severe[b]			

[e] Under Alternative B2A all but one of the traffic noise impacts would also have light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 79; 62 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[f] Under Alternatives B3 and B3 – 114th Extension Design Option all but one of the traffic noise impacts would also have light rail noise impacts. For B3, the total number of residences impacted (single- and multifamily) would be 84; 67 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise. For B3 – 114th Extension Design Option, the total number of residences impacted (single- and multifamily) would be 78; 61 would be impacted by light rail noise only, 1 would be impacted by traffic noise only, and 16 would be impacted by both traffic noise and light rail noise.

[g] Under Alternative C1T all the traffic noise impacts are separate from light rail noise impacts. The total number of residences impacted (single- and multifamily) under this alternative would be 118; 100 would be impacted by light rail noise only, 18 would be impacted by traffic noise only, and 0 would be impacted by both traffic noise and light rail noise.

7.3.1 Segment A

The only noise impact in Segment A would be near the transition from the Mount Baker Tunnel to the floating bridge structure. An expansion joint is required to allow for bridge movement, and increased noise related to the expansion joint could result. If the expansion joint were determined to cause an increased noise level that resulted in a noise impact, then mitigation would likely be a short absorbent sound wall along the side of the structure or absorbent material applied to the existing traffic safety barriers. There would be no traffic-related noise impacts in Segment A.

7.3.2 Segment B

In Segment B, light rail and traffic noise impact would vary with alternative and segment connection. All Segment B alternatives would have light rail noise impacts along the corridor. Alternatives B1, B2A, B3, and B3 – 114th Extension Design Option would have traffic noise impacts in addition to light rail-related noise impacts. *Preferred Alternative B2M* and Alternatives B2E and B7 are designed with no roadway modifications projected to increase noise levels at any noise-sensitive properties and, therefore, would have no traffic noise impacts.

7.3.2.1 Preferred 112th SE Modified Alternative (B2M)

The impacts and mitigation under each of the two *Preferred Alternative B2M* design options would be slightly different. Under *Preferred Alternative B2M* connecting to *Preferred Alternative C11A,* there would be 79 moderate light rail noise impacts projected; 41 of the impacts would occur along the elevated segment from I-90 to the intersection with 112th Avenue SE. These 41 impacts would occur to single-family residences that border SE 34th Street and Bellevue Way, and all would be mitigated with 4- to 6-foot reflective sound walls or 3- to 5-foot acoustical sound walls installed along the elevated structure. When the alternative transitions from the elevated guideway structure to a retained fill, the sound wall would also make a similar transition and might change to an at-grade-style reflective wall, with heights ranging from 6 to 8 feet. The wall would continue reducing in size to ground level where the light rail descends into a retained cut.

North of the 112th Avenue SE intersection, there would be an additional seven noise impacts projected at the single-family residences west of 112th Avenue SE, near SE 17th and SE 14th Streets. There would also be 19 moderate noise impacts identified at the Bellefield Residential Park Condominiums and 12 moderate impacts at single-family residences along 111th Avenue SE just south of the Surrey Downs Park. A continuous sound wall would be installed along the west side of the alternative, beginning just south of the end of the retained cut segment and ending just south of the transition of the alignment to the center of 112th Avenue SE. A second sound wall would begin along the west side of SE 112th Avenue SE, just south of the Bellefield Residential Park Condominiums, continuing to Surrey Downs Park. The sound wall heights would vary as the topographical conditions vary, but is expected to range from 8 to 12 feet in the southern section and could increase to 16 to 18 feet, or taller, near Surrey Downs Park. This wall would also help to reduce traffic noise levels at the single- and multifamily residences in the Bellefield Residential Park Condominiums and the single-family residences along 111th Avenue SE. Building insulation would be considered for up to 10 single- and multifamily homes located near openings in the sound wall for the at-grade crossings at SE 15th Street and SE 8th Street and near Surrey Downs Park .

Under *Preferred Alternative B2M* connecting to *Preferred Alternative C9T*, there would be 66 moderate light rail noise impacts. Noise impacts from I-90 to 112th Avenue SE would be the same as noted above with the connection to *Preferred Alternative C11A*, with 41 moderate impacts. Noise mitigation for this area of the corridor would also be the same as described above for *Preferred Alternative B2M* to *Preferred Alternative C11A*.

North of the intersection of Bellevue Way and 112th Avenue SE, there would be also six impacts at single-family residences west of 112th Avenue SE, near SE 17th and SE 14th Streets, and nine moderate noise impacts identified at the Bellefield Residential Park Condominiums. In addition, there would be 10 moderate impacts at single-family residences along 111th Avenue SE just south of Surrey Downs Park. Mitigation for all of these impacts would include installing a sound wall along the west side of the tracks, beginning just south of the retained cut, and ending just south of SE 8th Street. A second sound wall would be placed along the west side of the station and continue to just south of the 112th Avenue SE at-grade crossing. Openings in the wall would also be required at SE 15th Street for access to the business park.

Impacts under *Preferred Alternative B2M* connecting to Alternative C9T – East Main Station Design Option would be similar to the connection to *Preferred Alternative C9T*, and consequently the proposed mitigation for the connection to this design option would be similar to the connection to *Preferred Alternative C9T*.

Under *Preferred Alternative B2M* connections to *Preferred Alternatives C11A* or *C9T*, or the C9T – East Main Station Design Option, up to 10 single- and multifamily homes located near openings in the sound wall for the at-grade crossings at SE 15th Street and SE 8th Street and near Surrey Downs Park would be evaluated for sound insulation.

7.3.2.2 Bellevue Way Alternative (B1)

With Alternative B1 there would be 4 severe light rail noise impacts, 128 moderate noise impacts, and 136 traffic noise impacts. The severe light rail noise impacts would be near SE 30th Street, due in part to a nearby crossover track. The traffic noise impacts, which would occur along Bellevue Way beginning near SE 30th Street, would be due to roadway widening and would occur at single- and multifamily structures along the entire project corridor. The total number of residences (single- and multifamily) affected with Alternative B1 would be 141, which would include the 128 moderate and 4 severe light rail noise impacts along with the 136 traffic noise impacts, as the vast majority of residences are projected to have both light rail and traffic noise impacts.

Mitigation measures for Alternative B1 would include a variety of mitigation measures, including sound insulation of structures as needed, special trackwork at the crossovers, and potentially some sound walls, if it is determined that they would be effective at reducing noise. One of the primary issues of using sound walls along Alternative B1 is the required openings for driveways and vehicle and pedestrian access at intersections and for access to many of the single- and multifamily units along the corridor. In order to evaluate the worst-case scenario, Sound Transit determined, after reviewing the corridor and location of intersections and driveways, that sound walls would not be a feasible form of mitigation in most of the corridor; therefore, sound insulation is assumed to be the main form of mitigation. Based on this assumption, there are up to 141 units that would be considered for sound insulation. If, during final design, Sound Transit determines that sound walls could be installed, then the number of buildings considered for insulation could be lower.

7.3.2.3 116th SE Tunnel Alternative (B2A)

With Alternative B2A, there would be 78 light rail noise impacts and along with 17 traffic noise impacts. Light rail noise impacts would occur along the elevated section from I-90, past the South Bellevue Park-and-Ride, and continue to the at-grade segment just south of the 112th Avenue SE intersection. There would also be light rail noise impacts along 112th Avenue SE at the single- and multifamily residences from SE 17th Street to Surrey Downs Park. Traffic noise impacts are only projected to occur between the South Bellevue Station and 112th Avenue SE due to road widening.

Mitigation for Alternative B2A would include sound walls, sound insulation, and special trackwork at the crossovers. Sound walls would be used along the elevated segment near I-90 and along Bellevue Way. When the alternative profile transitions to at-grade, sound walls might not be feasible due to pedestrian and vehicle access requirements; in those areas, sound insulation would be used to provide mitigation to the single- and multifamily residences. An estimated 17 residences, along the at-grade segment on Bellevue Way, would be considered for sound insulation. If, during final design, Sound Transit determines that sound walls could be installed, then this number could be reduced.

7.3.2.4 112th SE Elevated Alternative (B2E)

Light rail noise impacts were identified at 106 single- and multifamily residences under Alternative B2E; this includes 21 impacts considered severe under the FTA criteria. There would be no traffic noise impacts under Alternative B2E. For Alternative B2E, sound walls and special trackwork would be effective at mitigating all but five of the projected noise impacts. The remaining five impacts, all along Bellevue Way SE, would be further evaluated during final design and could receive sound insulation, taller sound walls, or other mitigation methods to assist in reducing the noise levels.

7.3.2.5 112th SE Elevated Alternative (B3)

Project noise impacts from Alternative B3 would be very similar to those described for Alternative B2A and would include 79 moderate and 4 severe light rail noise impacts, along with 17 traffic noise impacts. Mitigation for Alternative B3 would include sound walls, sound insulation, and special trackwork at the crossovers. There would be an estimated 17 residences evaluated for sound insulation, all located along the at-grade segment on Bellevue Way SE. These 17 residences are projected to have noise impacts from traffic noise, with 16 of those also meeting or exceeding the FTA criteria for light rail noise. If, during final design, Sound Transit determines that sound walls could be installed, then this number could be reduced.

Proposed mitigation for the B3 – 114th Extension Design Option would be similar to that proposed for Alternative B3.

7.3.2.6 BNSF Alternative (B7)

Alternative B7 along the former BNSF Railway corridor would result in 176 light rail noise impacts, including 68 severe impacts. The severe impacts would be a result of the alternative’s crossover near the Emerald Apartments and the trains’ high speed and proximity to the Brookshire Condominiums. Mitigation for Alternative B7 would include sound walls and special trackwork at the crossovers. With the proposed mitigation measures, all noise impacts would be mitigated and no sound insulation would be needed.

7.3.3 Segment C

In Segment C, light rail noise impacts would vary with alternative and segment connection. All of the Segment C alternatives would have light rail noise impacts along the corridor, although only Alternative C1T would have traffic noise impacts. The design of *Preferred Alternatives C11A* and *C9T* have no roadway modifications that are projected to increase noise levels at any noise-sensitive properties and, therefore, would have no traffic noise impacts.

7.3.3.1 Preferred 108th NE At-Grade Alternative (C11A)

Under *Preferred Alternative C11A* connecting from *Preferred Alternative B2M* there would be 119 moderate light rail noise impacts and 65 severe impacts projected. The severe impacts would occur to several homes along 111th Avenue SE due to a nearby crossover and loss of shielding from existing buildings. The other severe impacts would occur at several multifamily units along 108th Avenue NE from bells and proximity to the tracks, and at the Lake Bellevue Village Condominiums. Severe impacts are also projected at the Coast Bellevue Hotel from a nearby crossover and the proximity of the tracks to the hotel rooms. There would be no roadway modifications and no traffic noise impacts associated with this alternative.

Mitigation measures would include a sound wall along the west side of the alignment beginning near SE 6th Street and continue as a sound barrier to 108th Avenue NE, just south of Main Street. The wall would be located near the tracks on the retained fill and elevated structure to the 108th Station. The sound wall/barrier, along with special trackwork at the crossover along 112th Avenue SE, would mitigate all impacts along this section of the corridor. Sound walls and special trackwork for the crossover would also be used to mitigate impacts on the Coast Bellevue Hotel and Lake Bellevue Village Condominiums. Multifamily units located on Main Street, 108th Avenue NE, and NE 6th Street would be mitigated with sound insulation where necessary. Based on the current analysis, up to 108 units would be evaluated for sound insulation.

If *Preferred Alternative C11A* were connected to Alternative B3, B3 - 114th Extension Design Option, or Alternative B7, then the noise mitigation measures would be similar to those described above. Because this alternative connection is not along 112th Avenue SE, however, the sound wall along this section would not be needed, but an elevated sound wall would be required near the Hilton Hotel. Under this alternative connection, 144 units would be evaluated for sound insulation.

7.3.3.2 Preferred 110th NE Tunnel Alternative (C9T)

Preferred Alternative C9T connecting from *Preferred Alternative B2M* is projected to result in 119 light rail noise impacts, including 62 moderate and 57 severe. The severe impacts would occur at a multifamily building in Downtown Bellevue, one hotel, and the Lake Bellevue Village Condominiums, and depending on the location, would be a result of the proximity to the tracks and crossovers, and bells related to at-grade crossings.

Mitigation measures would be the same as those described for *Preferred Alternative C11A*. Through most of the downtown area, however, the alternative profile is in a tunnel, and therefore the total number of noise impacts would be reduced. The only units requiring sound insulation evaluation would be two single-family residences because of their proximity to an at-grade crossing with gates and warning bells, and at a newly constructed highrise on NE 6th Street where the only feasible form of mitigation would be sound insulation.

If *Preferred Alternative C9T* connected to Alternative B3, B3 - 114th Extension Design Option, or Alternative B7, then the noise mitigation measures would be similar to those described above. Because the alternative route would not travel along 112th Avenue SE with these connections, however, the sound wall along this section would not be needed, but a sound wall on the elevated guideway would be required near the Hilton Hotel. The revised alternative connection is still projected to result in 84 residential units being evaluated for sound insulation.

Proposed mitigation for Alternative C9T – East Main Station Design Option would be similar to that proposed for *Preferred Alternative C9T*, with 50 residential units being evaluated for sound insulation.

7.3.3.3 Bellevue Way Tunnel Alternative (C1T)

South of Main Street, Alternative C1T would be the only Segment C alternative with traffic noise impacts, which would result from roadway modifications on Bellevue Way that would impact 18 multifamily units. Light rail related-impacts under Alternative C1T would result in 48 moderate and 52 severe impacts. Mitigation for the 18 multifamily units with traffic noise impacts would likely be sound insulation, although if this alternative were selected, sound walls would be evaluated during final design. Given the requirements for pedestrian and vehicle access, upper floor units, balconies, and lanais, however, sound walls would not likely be a feasible form of mitigation in this area. In addition, 51 units, for a total of 69 units, would be evaluated for sound insulation. Sound walls and special trackwork would be used to mitigate noise levels at the Coast Bellevue Hotel and the Lake Bellevue Village Condominiums.

7.3.3.4 106th NE Tunnel Alternative (C2T)

Alternative C2T connecting from Alternative B2A is projected to have the same light rail impacts as Alternative C1T but without any traffic noise impacts. When connecting from Alternative B2E, Alternative C2T would have severe light rail noise impacts at 2 single-family residences, 28 multifamily residences, and 36 hotel rooms, in addition to 113 moderate light rail noise impacts. When connecting to Alternative B3 or B7, Alternative C2T would have 48 moderate light rail noise impacts and 16 severe light rail noise impacts at multifamily residences. There would also be 54 severe impacts and 18 moderate impacts at hotel rooms, for a total of 136 impacts. There would be no traffic noise impacts under any of the Alternative C2T connection options.

Mitigation measures for Alternative C2T, under all connections, would include sound walls, special trackwork at crossovers, and sound insulation. Sound walls and special trackwork would be used to mitigate impacts for the connections from Alternative B2E, B3, or B7 south of Main Street. The 48 multifamily impacts along NE 6th Street would receive sound insulation, and sound walls and special trackwork would be used to mitigate noise levels at the Coast Bellevue Hotel and the Lake Bellevue Village Condominiums.

7.3.3.5 108th NE Tunnel Alternative (C3T)

Alternative C3T would result in a total of 26 light rail impacts when connecting to Alternative B2A, 105 impacts when connecting to Alternative B2E, and 62 impacts when connecting to Alternative B3 or B7. The connection to Alternative B2A would have the fewest impacts due to the tunnel, with 21 multifamily impacts and 5 single-family impacts, all located along NE 12th Street near 112th Avenue NE. With the connection to Alternative B2E, there would be an additional 79 impacts, including severe impacts at 2 single- and 12 multifamily residences and 91 moderate impacts along the project corridor. Finally, Alternative C3T connecting to Alternative B3 or B7 is projected to have 62 light rail noise impacts, including 18 severe impacts at the Bellevue Hilton Hotel along the side of the structure facing I-405.

Mitigation measures under Alternative C3T would vary slightly, depending on the connection alternative. When connecting to Alternative B2A, the primary mitigation measure would be sound walls along 112th Avenue SE and on NE 12th Street. Sound walls, along with special trackwork and building insulation, would be required to mitigate the impacts under the connection to Alternative B2E. Finally, impacts with the connection to Alternative B3 or B7 could be fully mitigated with sound walls. Therefore, all noise impacts under Alternative C3T would be mitigated regardless of the Segment B connection alternative.

7.3.3.6 Couplet Alternative (C4A)

Alternative C4A connecting from Alternative B2A would have the highest number of noise impacts because of the highrise apartments along 108th and 110th Avenues NE, with 435 moderate and 15 severe impacts throughout the alternative corridor. When connecting from Alternative B2E, Alternative C4A would have a similar level of noise impacts, with a potential for a slight change, depending on the location of a crossover. When connecting to Alternative B3 or B7, Alternative C4A would have moderate light rail noise impacts at 420 residences and hotels and an additional severe impact at one single-family residence and 18 hotel rooms.

Mitigation measures for Alternative C4A would combine sound walls, special trackwork at crossovers, and sound insulation. Sound walls along the elevated guideway structure would effectively mitigate impacts south of Main Street under all Segment B connection alternatives. North of Main Street, the large number of highrise apartments and condominiums would be mitigated with sound insulation. Finally, there are possible locations for sound walls along the at-grade segment north of NE 12th Street; however, an opening in the sound wall for the gated crossing at 110th Avenue NE and SE 12th Street, could allow noise to be transmitted back into the single-family residential area north of NE 12th Street. Due to the large number of highrise apartments and condominiums along 108th and 110th Avenues NE, there would be approximately 364 units under the connections to Alternatives B2A or B2E, and 400 units under the connection to Alternatives B3 or B7, that would be evaluated for sound insulation.

7.3.3.7 112th NE Elevated Alternative (C7E)

Under Alternative C7E, the connector from Alternative B2A would cause severe light rail noise impacts at 12 multifamily units and moderate impacts at 13 single-family residences, 197 multifamily residences, and 60 hotel rooms. With the elevated connection to Alternative B2E, the number of impacts would be the same as those from Alternative B2A. When connecting to Alternative B3 or B7, Alternative C7E would have moderate light rail noise impacts at 4 single-family residences, 168 multifamily residences, and at 36 hotel rooms along 114th Avenue SE.

For an elevated alternative such as Alternative C7E, all noise impacts could be mitigated by using sound walls and special trackwork at crossovers. With the proposed acoustical sound walls on the elevated structure and special trackwork at crossovers, all noise impacts could be mitigated.

7.3.3.8 110th NE Elevated Alternative (C8E)

Alternative (C8E) would have 425 impacts, including severe impacts at 72 multifamily units and moderate light rail noise impacts at 120 hotel rooms, 224 multifamily, and 9 single-family residences.

Mitigation for Alternative C8E would include acoustical sound walls on the elevated guideway. With the proposed mitigation measures, all noise impacts would be mitigated.

7.3.3.9 110th NE At-Grade Alternative (C9A)

Alternative C9A only connects to Alternative B2A, B3, B7, or B3 – 114th Extension Design Option. With the connection to Alternative B2A, 185 moderate and 56 severe light rail noise impacts are projected. With a connection to Alternative B3, B3 – 114th Extension Design Option, or B7, those numbers would be reduced to 145 moderate and 54 severe light rail impacts. Mitigation for Alternative C9A would include sound walls, special trackwork, and sound insulation. Sound walls would be used along the retained fill and elevated section from Alternative B2A, and the elevated section from Alternative B3, B3 – 114th Extension Design Option, or B7, along with special trackwork at crossovers. Sound walls, along with special trackwork at crossovers, would also be used to mitigate noise levels at the Coast Bellevue Hotel and the Lake Bellevue Village Condominiums. Under the connection to Alternative B2A, 120 units would be evaluated for sound insulation. Under the connection to Alternatives B3, B3 – 114th Extension Design Option, or B7, 156 units would be evaluated for sound insulation.

7.3.3.10 112th NE Elevated Alternative (C14E)

Alternative C14E, which is elevated along 114th Avenue NE, is projected to have 16 severe impacts at multifamily residences along with 96 severe and 36 moderate impacts at hotel rooms.

Mitigation for Alternative C14E would include acoustical sound walls on the elevated structure and special trackwork at crossovers. With the proposed mitigation measures, all noise impacts would be mitigated.

7.3.4 Segment D

In Segment D there would be noise impacts only under Alternatives D2E, D3, and D5. No roadway modifications are planned that would increase noise levels at any noise-sensitive properties; therefore, no traffic noise impacts were identified.

7.3.4.1 Preferred NE 16th At-Grade Alternative (D2A)

No noise impacts were identified for *Preferred Alternative D2A*; therefore, no noise mitigation is proposed.

7.3.4.2 D2A - 120th Station or NE 24th Design Option

No noise impacts were identified for the D2A - 120th Station or D2A - NE 24th Design Options, so no noise mitigation is proposed.

7.3.4.3 NE 16th Elevated Alternative (D2E)

Under the connections from NE 12th Street (Alternatives C3T, C4A, C7E, and C8E), noise impacts are projected under Alternative D2E at the new Children's Hospital BCSC on 116th Avenue NE and to the exterior of the Pacific Northwest Ballet School on NE 16th Street and 136th Place NE. The noise impact on the hospital would be mitigated with a sound wall along the north side of the tracks. Noise mitigation for the school would be evaluated during final design, and could include building sound insulation, if needed.

Under Alternative D2E when connected to the alternatives along the former BNSF Railway corridor (Alternatives C1T and C2T), the only noise impact would be at the exterior of the Pacific Northwest Ballet School. Noise mitigation would be evaluated during final design and could include building sound insulation, if needed. No further noise mitigation would be required for Alternative D2E.

7.3.4.4 NE 20th Alternative (D3)

With the connections from NE 12th Street (Alternatives C3T, C4A, C7E, and C8E), noise impacts are projected under Alternative D3 at the new Children's Hospital BCSC on 116th Avenue NE. The noise impacts would be mitigated with a sound wall along the north side of the tracks. No noise impacts are projected under Alternative D3 when connected to the alternatives along the former BNSF Railway corridor (Alternatives C1T and C2T), and no further mitigation would be required.

7.3.4.5 SR 520 Alternative (D5)

Severe noise impacts were identified under Alternative D5 for 10 units at an apartment building near SR 520, off of Northup Way. These 10 severe impacts would occur regardless of the connection options. Under the connections from NE 12th Street (Alternatives C3T, C4A, C7E, and C8E), noise impacts are also projected at the new Children's Hospital BCSC on 116th Avenue NE. All impacts would be mitigated with sound walls. For the 10 apartment units, the sound wall would be on the south side of the tracks, and the Children's Hospital BCSC on 116th Avenue NE would be mitigated with a sound wall along the north side of the tracks.

7.3.5 Segment E

In Segment E, light rail noise impacts were identified for all build alternatives. Because of the variance in the locations of the alternatives, the impacts and mitigation would vary when the route is north of the West Sammamish Parkway exit from SR 520. No roadway modifications are planned that increase noise levels at any noise-sensitive properties, and therefore, no traffic noise impacts were identified.

7.3.5.1 Preferred Marymoor Alternative (E2)

Under *Preferred Alternative E2,* 148 severe and 33 moderate noise impacts were identified; this includes 9 moderate and 4 severe single-family impacts near SR 520 at West Lake Sammamish Parkway NE, 144 severe impacts at newly constructed multifamily units, and 24 moderate impacts at a hotel. Mitigation for *Preferred Alternative E2* includes sound walls near SR 520 at West Lake Sammamish Parkway NE, special trackwork at crossovers, and sound insulation at several multifamily buildings and a hotel. Based on the current analysis, up to 144 residential units and 24 hotel rooms could be evaluated for sound insulation.

Noise impacts under the E2 - Redmond Transit Center Design Option would be the same as *Preferred Alternative E2*; however, under this design option, 81 of the impacts would be moderate and 100 would be severe. This difference is because one of the newly constructed multifamily buildings would not have a noise impact as it would under the *Preferred Alternative E2*; however, another building near the terminus would have the same number of moderate impacts. Mitigation would still include sound walls near SR 520 at West Lake Sammamish Parkway NE, special trackwork at crossovers, and sound insulation at several multifamily buildings and a hotel.

7.3.5.2 Redmond Way Alternative (E1)

Under Alternative E1, light rail noise impacts were identified at 9 single-family units, 236 multifamily units, and 72 hotel rooms; these include severe impacts at two single-family residences and 148 multifamily units. Mitigation would include sound walls near SR 520 at West Lake Sammamish Parkway NE, special trackwork at crossovers, and sound insulation at several multifamily buildings and a hotel. An estimated 288 noise impacts at a hotel and multifamily structures adjacent to the corridor would be considered for sound insulation.

7.3.5.1 Leary Way Alternative (E4)

Alternative E4 would have 66 moderate impacts and 32 severe impacts related to light rail operations; no traffic or other noise impacts were identified in Segment E. Mitigation would include sound walls near SR 520 at West Lake Sammamish Parkway NE continuing along the elevated trackway to Leary Way, special trackwork at crossovers, and sound insulation at several multifamily buildings and a hotel.

7.3.6 Station Noise Mitigation

To reduce noise levels at station platforms, Sound Transit would incorporate design measures to reduce freeway noise for patrons waiting at station platforms. These design measures would be considered at any station where Sound Transit's design goal of 78 dBA Leq (15-minute and 1-hour) for noise from exterior sources at station platforms is exceeded.

7.3.7 Maintenance Facility Noise Mitigation

The only maintenance facility alternative located in an area with nearby noise-sensitive uses is MF1. Noise impacts were identified at the Children's Hospital BCSC under the FTA impact criteria. Because the maintenance facilities are fixed sites, with most noise-producing activities occurring indoors, the potential noise impacts would all be due to train activity along the tracks in the facility. Noise impacts would be mitigated through the installation of a sound wall approximately 12 feet tall along southern side of the site. The proposed sound wall would mitigate the noise impacts at the hospital.

7.4 Potential Light Rail Vibration Mitigation Options

This assessment assumes that the vehicle wheels and track would be maintained in good condition with regular wheel truing and rail grinding, in accordance with Sound Transit maintenance procedures. Beyond this, there are several approaches to reduce groundborne vibration from light rail operation, described in the following subsections. In almost all cases, vibration mitigation is possible with either ballast mats or resilient rail fasteners. At some locations, however, the tracks are within less than 20 feet of buildings, and the vibration levels are too high for mitigation to be completely effective. At these locations, project design modification and additional information on affected buildings could eliminate these impacts. For example, the type of building foundation might reduce vibration impacts; therefore, these residual impacts might be eliminated.

7.4.1 Ballast Mats

A ballast mat consists of a pad made of rubber or rubber-like material placed on an asphalt or concrete base with the normal ballast, ties, and rail on top. The reduction in groundborne vibration provided by a ballast mat strongly depends on the vibration frequency content and the design and support of the mat.

7.4.2 Resilient Rail Fasteners

Resilient fasteners can be used to provide vibration isolation between rails and concrete slabs for direct fixation track typically on elevated structures or in tunnels. These fasteners include a soft, resilient element to provide greater vibration isolation than standard rail fasteners in the vertical direction. This type of mitigation can be used in tunnels instead of floating slabs, where appropriate.

7.4.3 Tire-Derived Aggregate

Also known as shredded tires, a typical tire-derived aggregate (TDA) installation consists of an underlayer of 12 inches of nominally 3-inch-size tire shreds or chips wrapped with filter fabric, covered with 12 inches of subballast, and 12 inches of ballast above that to the base of the ties. This type of mitigation can only be used on ballast and tie track. Tests suggest that the vibration-attenuation properties of this treatment are midway between that of ballast mats and floating slab track. While this is a low-cost option, it has only recently been installed on two U.S. light rail transit systems—in San Jose and Denver—and its long-term performance is unknown.

7.4.4 Floating Slabs

Floating slabs consist of thick concrete slabs supported by resilient pads on a concrete foundation; the tracks are mounted on top of the floating slab. Although floating slabs are designed to provide vibration reduction at lower frequencies than ballast mats, they are extremely expensive and are rarely used, except in the most extreme situations. Most successful floating-slab installations are in subways, and their use for at-grade track is less common and often not reasonable.

7.4.5 Special Trackwork

Because the impacts of vehicle wheels over rail gaps at track turnout locations increases groundborne vibration by about 10 VdB, turnouts are a major source of vibration impact when they are located in sensitive areas. If turnouts cannot be relocated away from sensitive areas, then another approach is to use spring-rail, flange-bearing or moveable-point frogs in place of standard rigid frogs at turnouts. These devices allow the flangeway gap to remain closed in the main traffic direction for revenue service trains.

7.5 Potential Light Rail Vibration Mitigation Measures

Vibration and groundborne noise impacts that exceed FTA criteria are considered to be significant and warrant mitigation, if reasonable and feasible. In almost all cases, vibration mitigation is possible with either ballast mats or resilient rail fasteners. Table 7-3 lists the number of proposed light rail vibration and groundborne noise impacts and the distances of contiguous locations along each alternative where mitigation measures are recommended.

TABLE 7-3
Vibration Mitigation Locations

Alternative	Connection	Length of Mitigation Locations (feet)	Before Mitigation		With Mitigation	
			No. of Vibration Impacts	No. of Groundborne Noise Impacts	No. of Vibration Impacts	No. of Groundborne Noise Impacts
Segment A						
Preferred Interstate 90 Alternative (A1)	N/A	1,900	0	25 single-family	0	0

TABLE 7-3 CONTINUED
Vibration Mitigation Locations

Alternative	Connection	Length of Mitigation Locations (feet)	Before Mitigation		With Mitigation	
			No. of Vibration Impacts	No. of Groundborne Noise Impacts	No. of Vibration Impacts	No. of Groundborne Noise Impacts
Segment B						
Preferred 112th SE Modified Alternative (B2M)	*Preferred NE At-Grade (C11A) or Preferred 110th NE Tunnel (C9T) Alternative*	600	0	1 (Winters House)	0	0
Preferred 112th SE Modified Alternative (B2M)	C9T - East Main Station Design Option	600	1 single-family	1 (Winters House)	0	0
Bellevue Way Alternative (B1)	N/A	200	1 single-family	0	0	0
Segment C						
Preferred NE At-Grade Alternative (C11A)	*Preferred Alternative (B2M)*	300	1 single-family	0	0	0
		300	1 single-family	0	0	0
		1,200	3 multifamily	0	0	0
		600	1 hotel	0	1 hotel	0
	Alternative B3 or B7	300	1 single-family	0	0	0
		1,200	3 multifamily	0	0	0
		600	1 hotel	0	1 hotel	0
Preferred 110th NE Tunnel Alternative (C9T)[a]	*Preferred Alternative (B2M)*	300	1 single-family	0	0	0
		300	1 single-family	0	0	0
		500	0	1 theater	0	0
		600	1 hotel	0	1 hotel	0
	Alternative B3 or B7	300	1 single-family	0	0	0
		500	0	1 theater	0	0
		600	1 hotel	0	1 hotel	0
C9T - East Main Station Design Option	*Preferred Alternative (B2M)*	300	1 single-family	0	0	0
		300	1 single-family	0	0	0
		500	0	1 theater	0	0
		600	1 hotel	0	1 hotel	0
Bellevue Way Tunnel Alternative (C1T)	Alternative B1	1,200	0	1 single-family	0	0
		700	1 single-family	0	0	0
		600	1 hotel	0	0	0
106th NE Tunnel Alternative (C2T)	Alternative B2A	None	0	0	0	0
	Alternative B2E	200	0	1 single-family	0	0
	Alternative B3 or B7	None	0	0	0	0

TABLE 7-3 CONTINUED
Vibration Mitigation Locations

Alternative	Connection	Length of Mitigation Locations (feet)	Before Mitigation: No. of Vibration Impacts	Before Mitigation: No. of Groundborne Noise Impacts	With Mitigation: No. of Vibration Impacts	With Mitigation: No. of Groundborne Noise Impacts
108th NE Tunnel Alternative (C3T)	Alternative B2A	300	0	2 single-family	0	0
		900	0	9 single-family	0	0
		700	0	1 single-family	0	0
	Alternative B2E	300	0	1 single-family	0	0
		200	0	1 single-family	0	0
	Alternative B3 or B7	300	0	1 single-family	0	0
Couplet Alternative (C4A)	Alternative B2A or B2E	400	4 multifamily	0	2 multifamily	0
		1,200	1 single-family, 2 multifamily	0	0	0
	Alternative B3 or B7	400	4 multifamily	0	2 multifamily	0
		1,200	1 single-family, 2 multifamily	0	0	0
112th NE Elevated Alternative (C7E)	Alternative B2A or B2E	None	0	0	0	0
	Alternative B3 or B7	None	0	0	0	0
110th NE Elevated Alternative (C8E)	Alternative B3 or B7	1,100	1 multifamily, 1 hotel	0	1 hotel	0
		1,800	2 single-family, 2 multifamily	0	1 multifamily	0
110th NE At-Grade Alternative (C9A)	Alternative B2A, B2E, B3, or B7	600	2 single-family	0	0	0
		1,500	3 multifamily	0	2 multifamily	0
		600	1 hotel	0	1 hotel	0
114th NE Elevated Alternative (C14E)	Alternative B3 or B7	600	1 hotel	0	0	0
		600	1 hotel	0	0	0
		600	1 hotel	0	1 hotel	0
Segment D	There would be no vibration impacts in Segment D.	N/A	0	0	0	0
Segment E						
Preferred Marymoor Alternative (E2)	N/A	300	1 single-family	0	0	0
		400	2 single-family	0	1 single-family	0
E2 – Redmond Transit Center Design Option	N/A	300	1 single-family	0	0	0
		400	2 single-family	0	1 single-family	0
Redmond Way Alternative (E1)	N/A	300	1 single-family	0	0	0
		400	2 single-family	0	1 single-family	0

TABLE 7-3 CONTINUED
Vibration Mitigation Locations

Alternative	Connection	Length of Mitigation Locations (feet)	Before Mitigation		With Mitigation	
			No. of Vibration Impacts	No. of Groundborne Noise Impacts	No. of Vibration Impacts	No. of Groundborne Noise Impacts
Leary Way Alternative (E4)	N/A	300	1 single-family	0	0	0
		200	1 multifamily	0	0	0
		400	1 hotel	0	0	0

[a] Mitigation for *Preferred Alternative C9T* connecting to *Preferred Alternative B2M* would include either relocating the crossover on 112th Avenue SE or using special track work to eliminate the impact from the crossover. This would eliminate five vibration impacts.

At some locations, light rail trackways or guideways would be within 20 feet of buildings and vibration mitigation would not be effective at reducing the vibration level to below the FTA criteria. At these locations, project design modification and additional information on affected buildings could eliminate these impacts. For instance, the type of building foundation might reduce vibration impacts and therefore, these residual impacts might be eliminated.

In addition, each building would need to be examined in detail to determine where the vibration-sensitive uses are located. For example, the side of a building nearest the proposed alternative might be a vibration-sensitive use. Buildings that are mixed-use might not have sensitive uses on lower floors where impacts would occur, and the vibration would not be noticeable by the time it reached higher floors with sensitive uses, such as sleeping quarters. Outdoor-to-indoor vibration testing, which tests how the vibration changes from the soil outside to a sensitive space inside a building, would also help to refine the vibration projections at these locations. A summary of segment-specific vibration mitigation is provided below.

In Segment A, approximately 1,900 feet of vibration mitigation would be required along the Mount Baker Tunnel area to mitigate groundborne noise impacts at single-family homes along the top of the hillside. No other vibration impacts were identified in Segment A.

In Segment B, mitigation measures under *Preferred Alternative B2M* connecting to *Preferred Alternatives C11A* or *C9T* would include up to 600 feet of vibration isolation at the Winters House. Standard vibration mitigation methods, such as resilient fasteners or ballast mats, would reduce the groundborne noise level at the Winters House, but may not eliminate the impact and would be determined in final design. A floating slab might be needed to eliminate the groundborne noise impact. For *Preferred Alternative B2M* connecting to the C9T – East Main Station Design Option, the crossover at SE 8th Street would need to be relocated or special trackwork would need to be used to eliminate the gap due to the crossover. The only other vibration impact in Segment B would be with Alternative B1, where vibration mitigation would be required at one single-family residence near SE 13th Street.

In Segment C, under *Preferred Alternative C11A*, vibration mitigation would be required at two single-family residences south of Main Street, three multifamily structures along 108th Avenue NE, and the elevated structure by the Coast Bellevue Hotel. Under *Preferred Alternative C9T*, vibration mitigation would also be required at the same two single-family residences and the Coast Bellevue Hotel identified under *Preferred Alternative C11A*, along with five single-family residences near the crossover on 112th Avenue SE. These five single-family residential impacts could be eliminated by the relocation of the crossover or the use of special trackwork to eliminate the gap. *Preferred Alternative C9T* would have groundborne noise impacts at the Meydenbauer Center, a highly sensitive location, where impacts would be mitigated using ballast mats or resilient rail fasteners. For the C9T – East Main Station Design Option, the impacts and required mitigation would be identical to that described above for *Preferred Alternative C9T*, except for the five single-family residences on 112th Avenue SE, which would not have vibration impacts with this design option because the crossover would be relocated to Segment B and replaced with the East Main Station.

Vibration mitigation under Alternative C1T would be included near the tunnel portal and tunnel segment along Bellevue Way for one single-family residence, and on the elevated structure for the Coast Bellevue Hotel. Under Alternative C2T mitigation would only be required at one single-family residence south of Main Street when connecting to Alternative B2E. No other vibration or groundborne noise impacts were identified under Alternative C2T.

With Alternative C3T, the connection to Alternative B2A would require mitigation for groundborne noise at 12 single-family residences. All except one of the impacts are located on top of the tunnel south of Main Street. Under the Alternative C3T connection to Alternative B2E, one single-family residence on the south side of Main Street is identified as having groundborne noise impacts. Under the Alternative C3T connection to Alternative B2E, B3, or B7, one single-family residence near McCormick Park is identified as having groundborne noise impacts. Alternative C4A would require vibration mitigation for six multifamily residences and one single-family residence, regardless of the connection options. The multifamily impacts are along 108th and 110th Avenues NE, while the single-family impact is just south of Main Street.

With Alternative C7E no vibration or groundborne noise impacts are predicted. Alternative C8E would have vibration mitigation along the elevated guideway just north of Main Street for a hotel and multifamily residence, and again along 108th Avenue NE for two additional multifamily units. There would also be vibration mitigation north of NE 12th Street to mitigate two single-family residences with vibration impacts. Alternative C9A would require vibration mitigation for two single-family residences south of Main Street, three multifamily residences along 110th Avenue NE, and at the Coast Bellevue Hotel. Alternative C14E would also require vibration mitigation along the elevated guideway for impacts predicted at three hotels.

For *Preferred Alternatives C11A* and *C9T*, and the C9T – East Main Station Design Option, the only residual vibration impact would at the Coast Bellevue Hotel. For Alternative C4A, residual vibration impacts would include two multifamily buildings on the southbound couplet track. For Alternative C8E, residual vibration impacts would occur at the Sheraton Hotel and one multifamily building. Additional testing could be performed at these locations to determine the response of the building foundations to light rail vibration, which would likely reduce the projected vibration levels. In addition, a survey of the buildings needs to be performed to determine the specific locations of vibration sensitive uses within the structures to assess actual impacts. For Alternative C9A, there would be a residual vibration impact at two multifamily buildings and at the Coast Bellevue Hotel. For Alternative C14E, there would be a residual vibration impact at the Sheraton Hotel.

There would be no vibration or groundborne noise impacts in Segment D, and no vibration mitigation is recommended.

With *Preferred Alternative E2* and the E2 – Redmond Transit Center Design Option, an estimated 700 feet of vibration mitigation would be required along SR 520 to mitigate vibration impacts on three single-family residences. Vibration impacts and mitigation would be the same under Alternative E1 as described for *Preferred Alternative E2*. With Alternative E4, vibration mitigation would be required at one single-family residence along SR 520, a group of multifamily units off Leary Way, and the Residence Inn Hotel. For *Preferred Alternative E2*, the E2 – Redmond Transit Center Design Option, and Alternative E1, one single-family residence would be a residual impact after mitigation.

7.5.1 Potential Vibration Mitigation for Highly Sensitive Locations

The groundborne noise impact on the Meydenbauer Center from *Preferred Alternative C9T* and the C9T – East Main Station Design Option could be mitigated through the installation of ballast mats or resilient rail fasteners.

7.6 Potential Construction Noise Mitigation Measures

Sound Transit has developed a Construction Noise Mitigation Policy. Under this policy, Sound Transit would seek to limit construction noise levels and impacts and meet applicable noise regulations and ordinances. Typical mitigation measures that could be applied are discussed below, and a specific construction noise analysis will be performed with the selection of the *Preferred Alternative*. Contractors would be required to meet the criteria in city noise ordinances.

Several noise-mitigation measures can be implemented to limit construction noise impacts. Sound Transit would, as practical, limit construction activities that produce the highest noise levels during daytime hours, or when disturbance to sensitive receivers would be minimized. For operation of construction equipment that could exceed allowable noise limits during nighttime hours (between 10 p.m. and 7 a.m.) or on Sundays or legal holidays, Sound Transit would obtain the appropriate noise variance from the City of Seattle, the City of Mercer Island, the City of Bellevue, or the City or Redmond. Sound Transit would control nighttime construction noise levels by applying noise-level limits and noise-control measures where necessary. The contractor would have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise-control measures to meet these noise limits. Noise-control mitigation might include the following measures, as necessary, to meet required noise limits:

- Install construction site sound wall by noise-sensitive receivers.
- During nighttime work, use smart back-up alarms that automatically adjusts or lowers the alarm level or tone based on the background noise level, or switch off back-up alarms and replace with spotters.
- Use low-noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Conduct monitoring and maintenance of equipment to meet noise limits.
- Use lined or covered storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Install high-grade engine exhaust silencers and engine-casing sound insulation.
- Prohibit aboveground jack-hammering and impact pile driving during nighttime hours.
- Minimize the use of generators or use whisper quiet generators to power equipment.
- Limit use of public address systems.
- Use movable noise barriers at the source of the construction activity.
- Limit or avoid certain noisy activities during nighttime hours.

To mitigate noise related to pile-driving, using an augur to install the piles instead of a pile-driver would greatly reduce the noise levels. If pile-driving is necessary, then the only mitigation would be to limit the time of day the activity can occur. Pile-driving is not expected at most construction locations.

7.6.1 Segment A Construction Noise Mitigation

Construction noise mitigation for Segment A would include the mitigation measures described above. No additional noise mitigation other than those provide should be required.

7.6.2 Segment B Construction Noise Mitigation

Construction noise mitigation for Segment B would include the mitigation measures described above. No additional noise mitigation other than those provide should be required.

7.6.3 Segment C Construction Noise Mitigation

Construction noise mitigation for Segment C would include the mitigation measures described above. Because of the staging areas and tunnel portals along Bellevue Way, 112th Avenue SE, Main Street, and NE 12th Street, temporary sound walls could be constructed near tunnel staging areas to reduce noise levels at nearby residential land uses in the Surrey Downs neighborhood and near McCormick Park.

7.6.4 Segment D Construction Noise Mitigation

Construction noise mitigation for Segment D would include the mitigation measures described above. No additional noise mitigation other than those provide should be required.

7.6.5 Segment E Construction Noise Mitigation

Construction noise mitigation for Segment E would include the mitigation measures described above. Constructing the East Link route along SR 520 near 51st Street NE could move existing sound walls; every attempt should be made to replace the wall early in the project to minimize impacts on nearby residents before track construction.

7.7 Potential Construction Vibration Mitigation Measures

In general, building damage from construction vibration would only be anticipated from impact pile driving close to buildings. If piling is more than 50 to 100 feet from buildings, or if alternate methods, such as auger cast piling or drilled shafts are used, then damage from construction would not be anticipated. Other sources of construction vibration, including potential ground improvement activities in Segment B such as construction of subsurface stone columns, could generate high enough vibration levels for localized damage to occur, depending on the soil type and distance between the source of vibration and the nearest building. In any locations of concern, preconstruction surveys would be conducted to document the existing condition of buildings, in case there was an issue during or after construction, and vibration monitoring would be implemented during construction to establish levels of vibration. Where levels of vibration exceed preset limits for damage, the contractor would be required to stop work and switch to alternate construction methods.

Measures to minimize short-term annoyance from groundborne vibration and groundborne noise from construction activities such as pile installation or compaction of earth fills include use of alternate methods that result in less vibration or noise, such as auger cast piles or drilled shafts in place of driven piles, or use of static roller compactors rather than vibratory compactors. The hours and duration of these types of activities can also be restricted to hours when vibrations and noise are less noticeable. Vibration monitoring would be considered for pile driving, tunnel boring, vibratory sheet installation, and other construction activities that have the potential to cause high levels of vibration.

Sound Transit would minimize vibration at the Winters House during construction and prevent damage or limit to minor cosmetic damage by using the following methods:

- Install monitoring equipment and monitor vibration during construction.
- Place limits on the construction vibration levels for the contractor, with the contractor selecting one or more of the following measures or other measures of equivalent effectiveness to limit construction:
  - Using auger-drilling methods
  - Using low vibration or nonimpact methods of installing steel casing required to support construction of drilled shaft or secant pile foundations
  - Using slurry confinement (i.e., temporarily filling the cavity with slurry material to replace the removed soil)
  - Underpinning foundation and employing structural support or soil stabilization if needed
  - Adjusting excavation methods based on monitoring results
  - Installing a shallow temporary supporting wall
  - Monitoring vibration levels associated with equipment to be used for the East Link Project at other construction sites with similar soils before project construction to determine which vibration-minimization method would be necessary
  - Beginning vibration-inducing construction at the site at points more distant from the Winters House to enable the contractor to determine which vibration-minimization method would be necessary
- Photographing and inventorying the building to establish existing conditions to determine if any damage is caused by construction, and repair the building in a manner consistent with the U.S. Department of the Interior Secretary’s standards for treating historic properties.

8.0 References

Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment.* Report FTA-VA-90-1003-06. May 2006.

Sound Transit. 2004 *Link Noise Mitigation Policy.* Sound Transit Board Motion M2004-08, February 2004.

National Institute of Occupational Safety Health Association (NIOSHA). 1998. *Publication No. 98-126, Occupational Noise Exposure,* June 1998.

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Swiss Consultants for Road Construction Association, "Effects of Vibration on Construction," VSS-SN640-312a, Zurich, Switzerland, April 1992.

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Appendix H
History of I-90 Agreements and Studies

Interstate 90 Transportation Studies

This appendix summarizes and compares the East Link Environmental Impact Statement (EIS) transportation analysis of the I-90 corridor across Lake Washington with two previous operational studies of HCT in this corridor. Using Interstate 90 (I-90) as the primary corridor for cross-Lake Washington high-capacity transit (HCT) in the Puget Sound region has been identified and evaluated for the last 40 years. The history of this analysis is summarized in Chapter 2 of this Final EIS and fully documented in the *East Corridor High Capacity Transit Mode History* report (August 2006). Coupled with this was an understanding, dating back to the 1960s, that rail would be the preferred transit service mode between Seattle and Bellevue. The 1976 I-90 Memorandum Agreement (amended in 2004) was one of the first documents that specified that the I-90 reversible center roadway be designed for and permanently committed to future transit use, including the potential to convert all or part of the transit roadway to fixed guideway. In the 1980s, the current Metropolitan Planning Organization (Puget Sound Council of Governments [PSCOG]) conducted various studies that recommended rail service on I-90. In 1996, with voter approval of Sound Move and with the formation of Sound Transit, the Long Range Vision (1996) identified the development of HCT across I-90 with future rail. Concurrently, the Trans-Lake Washington Study (Washington State Department of Transportation [WSDOT] and Sound Transit) analyzed HCT and found rail to be a viable option. Most recently, in July 2005, the Sound Transit Board identified light rail as the preferred mode across I-90 serving the East Corridor, and in July 2008, included the East Link Light Rail Project in the ST2 Program. Most recently, the East Link project received a finding of engineering and operational acceptability from Federal Highway Administration (FHWA) through the Project's Interchange Justification Report (IJR) process in June 2011. All of these studies have endorsed an objective of placing fixed guideway transit within I-90's center roadway. Implementation of this objective has included three operational analysis studies:

- I-90 Two-Way Transit and HOV Operations EIS (WSDOT, Sound Transit, Federal Highway Administration [FHWA]) – This study considered five alternatives and confirmed the need for two-way transit/high-occupancy vehicle (HOV) operations across I-90.
- I-90 Center Roadway Study (WSDOT) – This study considered three alternatives and confirmed the utility of the center roadway as an HCT facility with no center roadway access for vehicles.
- East Link Project EIS (Sound Transit) - This project considered light rail alternatives on I-90 and potentially confirms the need for light rail transit in the center roadway linking the Eastside and Seattle.

The I-90 Two Way Transit and HOV Operations Project was conducted in the early 2000s with an adopted EIS in 2002. This study recommended an alternative (Alternative R-8A) to put HOV lanes on both the eastbound and westbound roadways between Mercer Island and Seattle. The next study, I-90 Center Roadway study, completed in 2006, evaluated various Alternative R-8A scenarios and a form of HCT on I-90. Lastly, the East Link EIS evaluates a similar set of scenarios as the I-90 Center Roadway study but with different assumed conditions.

With the quickly changing state of the transportation analysis practice, the evolution and use of analytical models, and shifting background assumptions, many elements in each of these three studies are different (see Table H-1 at the end of this appendix). Not only are the measures of effectiveness different but as a result of changing baseline parameters, results are different. Beginning with the first study, evaluation of the SR 520 bridge replacement was ongoing without any published environmental document and therefore no defined set of improvements were assumed. Since then, the two following studies both assumed some form of a new SR 520 facility. Further demonstrating the complexity in comparing the results from these studies, the I-90 Center Roadway Study did not any assume a form of congestion pricing, while the East Link project includes SR 520 tolling general-purpose vehicles and two-person HOV. This is based on the recent SR 520 Draft EIS, which assumes tolling on SR 520; this tolling has been incorporated into East Link's project assumptions.

Between the Center Roadway Study and the East Link Project, not only are the SR 520 tolling strategies different, but also the assumed use of the I-90 HOV lanes and travel demand modeling approaches vary. The East Link Project technically assume for the traffic analysis that Mercer Island residents would be eligible to use the HOV lanes between Seattle and Mercer Island with light rail in the reversible center roadway. Also while the two studies use the Puget Sound Regional Council travel demand model, the Sound Transit East Link project incorporates the latest PSRC model update available when the analysis began in 2007, and the project's transit usage is derived from Sound Transit's transit ridership model. Review the table (Table H-1) below for a further list of key assumptions and methods between each of these three studies.

References

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Washington State Department of Transportation (WSDOT). 2004. *Amendment to the 1976 I-90 Memorandum Agreement*.

Washington State Department of Transportation (WSDOT) and Sound Transit. 2004. *I-90 Two Way Transit and HOV Operations: Volume I, Final Environmental Impact Statement*. May 21, 2004.

Washington State Department of Transportation (WSDOT). 2006. *I-90 Center Roadway Study.*

TABLE H-1
Comparison of I-90 studies

	I-90 Two Way Transit and HOV Operations Project	**Center Roadway Study**	**East Link Project**	**Comments**
Analysis Parameters				
Demand Model(s)	PSRC, 2001	PSRC, 2005	PSRC, 2006 and Sound Transit Ridership Model	Each study utilized the most recent model versions from the PSRC.
Software Tools	FREQ	VISSIM	VISSIM	
I-90 Study limits	Bellevue Way to I-5 (WB) I-5 to I-405 (EB)	Western terminus to east of I-405	Western terminus to east of I-405	
Analysis Years	2005/2025	2005/2015/2030	2007/2020/2030	
Analysis Periods	AM and PM Peak Hour	AM and PM Peak Periods	AM and PM Peak Periods	
Project & Traffic Assumptions				
SR 520	No capacity expansion	6 lane facility	6 lane facility with tolling	
I-405	No capacity expansion	TPA and Nickel Projects	TPA and Nickel Projects	
I-90 HOV Eligibility	2+ persons until 2025 when 3+ persons. Alternative R8A would remain 2+ persons.	2+ persons	2+ persons and Mercer Island residents in Build (light rail) alternative only	For East Link Project, the traffic analysis assumed Mercer Island single occupant vehicles would be able to use the HOV lanes in both directions of I-90 between Seattle and Island Crest Way to demonstrate that it does not affect the results of the East Link analysis and represents a worst case condition. This assumption does not represent approval of SOVs using the outer roadway HOV lanes or the eastbound left-side off-ramp to Island Crest Way. Any changes to the HOV lane eligibility such as tolling or managed lanes or Mercer Island single occupant vehicle use would be addressed in a future analysis, approval and agreement.
Key I-90 Operations Measures of Effectiveness				
	- Density/Level of Service - Travel Times - Person Throughput - Duration of Congestion	- Travel Time (by modes) - Vehicle Throughput	- Travel Time (by modes) - Person and Vehicle Throughput and Capacity - Density/Level of Service	As these studies have different purposes, the measures of effectiveness changed. Comparable results are documented below.

TABLE H-1
Comparison of I-90 studies

	I-90 Two Way Transit and HOV Operations Project	Center Roadway Study	East Link Project	Comments
Key Results				
2030 AM and PM Hour I-90 Vehicle Throughput (across Lake Washington)	N/A	Non-Exclusive: AM Peak: 12,200 PM Peak: 12,900 Exclusive: AM Peak: 11,100 PM Peak: 11,900	No-Build: AM Peak: 13,900 PM Peak: 14,450 Build: AM Peak: 13,550 PM Peak: 13,550	There is about a 15 percent difference in throughput between the two studies. This is attributed to the different HOV lane assumptions and SR 520 tolling. For comparison purposes, the differences between the Non-Exclusive to Exclusive and No-Build to Build conditions in the two studies are similar. This measure only compares vehicles because person throughput was not analyzed for the Center Roadway Study. Based on the East Link analysis, person throughput is higher in both AM and PM peak periods with the Build alternative. Westbound and eastbound throughput is combined in these values.
2030 General-Purpose Travel Times between Seattle and Eastgate (in minutes)	R8A Alternative: AM Peak: 9 / 10 (WB/EB) PM Peak: 12 / 9 (WB/EB)	Non-Exclusive: AM Peak: 35 / 12 (WB/EB) PM Peak: 38 / 10 (WB/EB) Exclusive: AM Peak: 41 / 16 (WB/EB) PM Peak: 38 / 12 (WB/EB)	No-Build: AM Peak: 25 / 21 (WB/EB) PM Peak: 29 / 19 (WB/EB) Build: AM Peak: 22 / 20 (WB/EB) PM Peak: 23 / 17 (WB/EB)	Travel times between the Center Roadway study and East Link vary as assumptions and existing data and software calibration techniques vary. A factor contributing to travel time differences is the location of the ends points where the travel times are measured from. The largest difference between the two studies is in the eastbound direction where the study limits in East Link are slightly over 1.75 miles longer than in the Center Roadway Study. It was also assumed that Mercer Island traffic would be eligible to use the HOV lane in the East Link project which would provide some travel time improvements for the general-purpose. Travel times for the I-90 Two-Way transit and HOV project are for 2025.

MEMORANDUM AGREEMENT

City of Seattle
City of Mercer Island
City of Bellevue
King County
Metro
Washington State Highway Commission

December, 1976

MEMORANDUM AGREEMENT

WHEREAS, the cities of Seattle, Mercer Island and Bellevue; the Municipality of Metropolitan Seattle (hereinafter "Metro"); and King County by and through their respective councils and the Washington State Highway Commission (hereinafter "the Commission") desire to resolve the disputes which have surrounded the plans to construct an improved Interstate 90 (I-90) facility between Interstate 405 (I-405) and Interstate 5 (I-5); and

WHEREAS, there is a desire to create an environment of cooperation in which agreement is reached among all parties concerned relative to the design of the I-90 facility and related transportation projects; and

WHEREAS, the decisions of the Ninth Circuit Court of Appeals of the United States District Court for the Western District of Washington have required that all alternatives to the proposed highway be studied; and

WHEREAS, all parties hereto state that they have reviewed the proposed highway development and all currently available alternatives to it, including the option of withdrawal and substitution; and

WHEREAS, the I-90 facility from I-405 to I-5, when constructed, must contain all of the social and environmental amenities included in the Commission's previously adopted plans and modifications thereof contained in the Findings and Order of the Board of Review in order to be acceptable to all jurisdictions; and

WHEREAS, the parties believe that construction of the agreed upon I-90 facility will be of definite advantage to all four local jurisdictions because it will provide an excellent transit way between Seattle, Mercer Island and Bellevue; it will eliminate the dangerous three-one reversible lane operation presently employed in that corridor; it will provide improved truck access from the east to Seattle's south industrial/commercial area and port; it will provide improved capacity in the off-peak direction; it will probably provide an improved facility sooner than other approaches; it will provide access to and from I-90 and I-5 south of downtown Seattle eliminating traffic presently going through Beacon Hill residential areas; it will provide many jobs for our citizens during the period of construction; and it will repair the corridor and help knit together the communities now split by U.S. 10 west of the Mount Baker ridge and across Mercer Island; and

WHEREAS, the parties have concluded that withdrawal and substitution is not a desirable option because it would double the local matching monies required and because Mercer Island and Seattle find unacceptable a major highway/transit I-90 facility without extensive environmental amenities which amenities might not be funded under the withdrawal and substitution alternative; and

WHEREAS, it is in the best interest of the citizens of the Puget Sound area and the State of Washington that this segment of I-90 be completed in an expeditious manner; and

WHEREAS, all jurisdictions believe that sufficient public hearings have been held on the project and that no further hearings should be held unless legally required; and

WHEREAS, the parties desire to identify and establish a reasonable assurance of construction of certain priority public transportation facilities which are contained in the 1990 Transportation System Plan for the Central Puget Sound Region and which serve to ensure that I-90 functions as an integral part of the region's transportation system; and

WHEREAS, the parties desire to ensure that these future improvements are consistent with the goals and policies for regional development presently under consideration by the Puget Sound Council of Governments (hereinafter "PSCOG") and the subsequent subregional land use element of the Regional Development Plan for the Central Puget Sound Region;

NOW THEREFORE, in consideration of the mutual and reciprocal benefits accruing to each of the parties hereto, it is hereby agreed as follows:

1. The Cities of Seattle, Mercer Island and Bellevue; King County; Metro and the Commission support the construction of a facility which will accommodate no more than eight motor vehicle lanes which are arranged in the following general manner:
   (a) Three general-purpose motor-vehicle lanes in each direction shall be constructed between the South Bellevue Interchange and I-5. In addition, there will be provision for necessary weaving lanes and possible local access across the East Channel, to be determined in accordance with paragraph 1(e) below.

(b) The facility shall also contain provision for two lanes designed for and permanently committed to transit use. The eastern and western termini for these lanes shall be designed to facilitate uninterrupted transit and carpool access to downtown Seattle and to downtown Bellevue in accordance with paragraph 3 hereinbelow. The design shall be such as to accommodate the operation of the two transit lanes in either a reversible or in a two-way directional mode.

(c) The facility shall be designed in a manner which, as much as practicable, minimizes the width of the roadway and the taking of land.

(d) To the extent practical, the facility shall provide priority by-pass access for local transit to the general purpose motor-vehicle lanes.

(e) The parties agree that the transit lanes shall operate initially in a two-way directional mode, at no less than 45 mph average speed, with the first priority to transit, the second to carpools, and the third to Mercer Island traffic. In the direction of minor flow, the transit lane shall be restricted to busses. The parties further agree that the initial operation of the East Channel bridge shall consist of only three general purpose auto lanes in each direction in addition to the transit lanes. In addition, there will be an acceleration lane from the South Bellevue Interchange which will terminate prior to the exit ramp at the East Mercer Interchange. The subsequent mode of operation of the facility shall be based upon existing needs as determined by the Commission in consultation with the affected jurisdictions, pursuant to paragraph 14 of this agreement. That determination will consider efficient transit flow, equitable access for Mercer Island and Bellevue traffic, and traffic-related impacts on Seattle.

2. The I-90 facility shall be designed and constructed so that conversion of all or part of the transit roadway to fixed guideway is possible.

3. The parties recognize that the planning, design and construction of efficient access at the eastern terminus and western terminus of this facility will enhance the operation of I-90 as a regional transportation facility. Therefore, the Commission, jointly with Seattle, Mercer Island, Bellevue, King County, and Metro, as their respective interests and responsibilities may dictate, shall immediately upon execution of this agreement undertake the development of the necessary plans and designs for, and shall further proceed, with

the required public hearings and the preparation of the necessary environmental impact statements in order to obtain maximum eligibility for Federal Interstate funding for the construction of the following projects:

(a) Transit access from I-90 to downtown Seattle:

(b) Transit access from I-90 to I-405 and to the Bellevue central business district;

(c) Transit and general-purpose access from I-90 to the King County Stadium area; and

(d) Transit and general-purpose access from I-90 to arterials serving the north Duwamish industrial/commercial area and the Seattle waterfront;

(e) Transit access from I-90 transit lanes to I-5;

For any of the above projects or portions thereof which are not eligible for Federal Interstate funding, the Cities, the County and Metro with full support of the Commission, shall seek any available funding for such projects and shall make reasonable effort to complete the construction thereof prior to the completion of I-90.

4. The parties further agree, except as otherwise provided in this agreement, that the modified design of the facility will preserve and incorporate all of the provisions for community amenities and for reducing adverse environmental impacts as contained in limited access plans adopted by the State Highway Commission for

(a) the segment of I-90 from the West Shore of Mercer Island to the East Channel Bridge and for

(b) the segment from I-5 to the West Shore of Mercer Island (modified by the Findings and Order of the Board of Review dated March 26, 1973, and the Stipulation to Resolve Certain Issues incorporated therein, including but not limited to the provisions for a full lid tying affected Seattle neighborhoods together. The lid shall be constructed to permit park and/or two-story residential or business construction (not industrial uses) to take place on top of the highway between the Mt. Baker tunnel and 23rd Avenue South. Additional loads may be acceptable following specific agreement between the Commission and the City of Seattle. The Commission agrees to fund the landscaping of the lid and the maintenance thereof except as may be agreed to by other parties.

5. The parties agree that the design of the entire facility shall include the following additional features:

(a) a transit station permitting transfer of transit passengers at Empire Way South or 23rd Avenue South as more particularly set forth in the Findings and Order of the Board of Review.

(b) a direct Highway connection for Rainier Valley to and from the east.

(c) the Commission's plan for preserving access between Seattle communities over adjacent local city streets shall include improvements of South Norman Street between 20th Avenue South and 23rd Avenue South to provide access to the Judkins neighborhood, this being done in lieu of the development of South Judkins Street as provided in the Commission's adopted plan as modified by the Findings and Order of the Board of Review.

(d) a continuous park/pedestrian link between Judkins Park and the lid over I-90 west of the Mt. Baker Ridge Tunnel.

6. The Commission agrees to participate jointly with the City of Seattle in an I-90 corridor area planning study for the purpose of designing alternative means of redeveloping areas adjacent to the I-90 project in Seattle. The extent of such study shall be defined and agreed to by Seattle and the Commission, and to the extent that the study relates to the effects of the I-90 facility in the corridor, it shall be funded by the Commission.

7. At the option of the local jurisdictions to be exercised within a reasonable time, the Commission shall transfer to the appropriate jurisdiction fee title of all state-purchased lands acquired for the I-90 project but which are outside the finally determined right-of-way lines of I-90 to the fullest extent and at the lowest cost legally possible.

8. The parties hereto agree that they will proceed under established legal processes, including regional transportation planning procedures of PSCOG and consistent with the approved Regional Development Plan of PSCOG, to determine those projects which are of highest priority in the Transportation System Plan and the Transportation

Improvement Program as the Plan and Program apply to the King County subregion. The parties hereby agree that projects (a) through (g) listed below are of highest priority and shall so indicate in the process of establishing the King County Subregional Transportation Improvement Program, the Regional 1990 Transportation System Plan, and Metro's Comprehensive Public Transportation Plan. The Commission and Metro shall work with the local jurisdictions in undertaking location and design studies for these projects at the earliest possible date commensurate with state, regional, metropolitan and local planning and priority programming practices. Projects to be considered through these processes shall include, but not be limited to, the following regional components of PSCOG 1990 Transportation Plan:

(a) Transit/carpool lanes and/or Surveilance Control and Driver Information Systems (SC&DI) on I-5 from I-405 at Tukwila to the King County Snohomish County line:

(b) The park-and-ride lots and flyer stops contained in the approved 1980 Plan as may be modified by Metro:

(c) Provision for a busway or exclusive transit/carpool lane(s) as a part of the SR 99 and SR 509 corridor including a crossing of the First Avenue South Bridge, consistent with Metro's transition planning for this corridor;

(d) Provision for a busway or exclusive transit/carpool lane(s) and/or SC&DI as a part of SR 520 from I-5 to I-405;

(e) Redesign, in a manner acceptable to the City of Seattle, of the lanes where SR 520 meets I-5 and at the Mercer Street egress from I-5 in order to improve transit flow and reduce the congestion on I-5 between Mercer Street and Roanoke Street;

(f) Provision for a busway or exclusive transit/carpool lane(s) and/or SC&DI as a part of I-405 from Bothell to Renton

(g) Provision for exclusive transit lane(s) on I-405 through Bellevue which shall also include provision for a freeway flyer stop and a park-and-ride facility on I-405 between Main Street and N.E. 8th in Bellevue and provision for I-405 access improvements to the Bellevue central business district as determined by the Joint State Legislative/Highway Commission and City of Bellevue I-405 Access Study.

9. The parties agree that the I-90 facility should be operated in such a manner as to encourage growth and development in the presently urbanized areas of King County rather than in undeveloped areas. Therefore, the Commission shall conduct a study in coordination with the parties to this agreement to determine the feasibility and means of metering and controlling local access to I-90 east of Bellevue during peak hours.

10. Seattle, Bellevue, Mercer Island, King County and Metro agree that dedicated public transit rights-of-way through downtown Seattle and through downtown Bellevue are compatible with the public transportation plans of this area and are desirable to be implemented in conjunction with the completion of the I-90 facility.

11. Immediately upon the issuance of the environmental impact statement, another review team comprised of representatives chosen by each of the parties to this agreement shall be established to further monitor and advise the Commission on the development of the design and the implementation of the entire I-90 facility and the I-90 transit access provisions listed in paragraph 3 above. In addition, review teams including elected officials and citizens from Seattle, Bellevue, Mercer Island and King County may be established to further monitor and advise the Commission upon the implementation and design of the I-90 facility.

12. Upon execution of this agreement, the Commission becomes responsible for the design and construction of the facilities described in this agreement that can be funded with federal interstate funds as well as any other facilities referred to in this agreement for which the Commission, by law, has the sole responsibility; and the several parties to this agreement become responsible for the design and construction of the remaining facilities referred to in this agreement; provided that all such undertakings are subject to available funding and legal and procedural requirements. Seattle,

Bellevue, Mercer Island, King County and the Commission agree to process any permits required for construction of the agreed upon facilities in a timely and expeditious manner, as provided by law.

13. It is expressly understood that agreement to the above by the Commission is tentative pending review of (1) the final environmental impact statement to be filed in connection with the project and (2) the hearing record being prepared in connection with the corridor-design hearing held in January and February 1976. It is also understood that the parties have reached this agreement under the assumption and on the condition that the funding for the project, in accordance with the modified design of said project as referred to in paragraphs 1, 2 and 4 and those eligible portions under paragraph 3 which will qualify for Federal Aid Interstate monies, is approved prior to the initiation of construction and shall be funded from federal and state funds, except as agreed to by the affected jurisdiction(s).

14. This agreement represents substantial accommodations by the parties of positions held heretofore. Such accommodations were made in order to achieve a unanimous agreement upon which to proceed with the design and construction of I-90 and related projects. This agreement, therefore, sets forth the express intent of the existing governing bodies that the parties to this agreement understand that their respective governing bodies are limited in the degree to which they can bind their successors with respect to the exercise of govern-

mental powers vested in those governing bodies by law. Accordingly, the Commission will take no action which would result in a major change in either the operation or the capacity of the I-90 facility without prior consultation with and involvement of the other parties to this agreement, with the intent that concurrence of the parties be a prerequisite to Commission action to the greatest extent possible under law.

Dated this 21st day of December, 1976

COUNTY OF KING

By: ____________________

CITY OF SEATTLE

By: ____________________

MUNICIPALITY OF METROPOLITAN
SEATTLE

By: C Carey Donworth

CITY OF MERCER ISLAND

By: ____________________

WASHINGTON STATE HIGHWAY
COMMISSION

By: ____________________

CITY OF BELLEVUE

By: ____________________

AMENDMENT To The I-90
MEMORANDUM AGREEMENT

AUGUST, 2004

Central Puget Sound Regional Transit Authority
City of Bellevue
City of Mercer Island
City of Seattle
King County
Washington State Transportation Commission

August 2004
Amendment to 1976 Memorandum Agreement

WHEREAS, the Cities of Seattle, Mercer Island, and Bellevue; King County; by and through their respective governing bodies and the Washington State Transportation Commission (hereinafter "the Commission") desire to amend the existing Memorandum Agreement (the Agreement) signed by all parties in 1976 to reflect current and future conditions and demands along the Interstate 90 (I-90) corridor between Bellevue and Seattle crossing Lake Washington via Mercer Island (the "I-90 Corridor"), including increased travel growth, changes in travel patterns, and a reduction in transit reliability; and

WHEREAS, there is a desire among the parties and Sound Transit to add Sound Transit as the Regional Transit Authority with responsibility for High Capacity Transit as a signatory to this 2004 Amendment, but not to the underlying 1976 Agreement, given its role in the region generally and the I-90 Corridor specifically; and

WHEREAS, all parties recognize the I-90 facility as a key interstate corridor connecting the East and West Coasts, Eastern and Western Washington, and recognize its importance as a critical link between major urban centers in King County, and the only means of mobility to and from Mercer Island; and

WHEREAS, all parties acknowledge I-90 as a critical transportation link vital to the economy of the region and the state by providing for the movement of people and goods within the region; and

WHEREAS, all parties agree that the current configuration and operation of I-90 between Bellevue, Mercer Island, and Seattle does not address today's demands and expected growth in the region; and a new configuration that helps move more people and goods is imperative to manage congestion on what is the busiest east-west corridor in the region; and

WHEREAS, all parties recognize the importance of the environment and thereby seek to preserve and enhance its quality; and

WHEREAS, all parties agree that the ultimate configuration for I-90 between Bellevue, Mercer Island, and Seattle should be defined as High Capacity Transit in the center roadway and HOV lanes in the outer roadways; and further agree that High Capacity Transit for this purpose is defined as a transit system operating in dedicated right-of-way such as light rail, monorail, or a substantially equivalent system; and

WHEREAS, all parties agree to work cooperatively to secure funding at local, regional, state, and federal levels to fully fund both parts of the ultimate configuration of the "I-90 Corridor" (HOV lanes on the outer roadway and High Capacity Transit in the center roadway); and

WHEREAS, all parties have studied many alternatives as participants on the Steering Committee for Sound Transit and the Washington State Department of Transportation's (WSDOT) I-90 Two-Way Transit and HOV Operations Project (Project), and all parties agree that building HOV lanes on the outer roadways as identified as Alternative R-8A as set forth in the April 25, 2003 Draft Environmental Impact Statement (DEIS) prepared for the project, is an essential first step toward achieving the ultimate configuration; and

WHEREAS, all parties acknowledge that the ultimate configuration is consistent with the region's transportation action plan, Destination 2030, which focuses on integrated multi-modal transportation systems; describing facilities that weave parts of the region together by crossing county or city boundaries or access major regional activity centers as critical to the region's transportation system; and specifically calls for safety, maintenance, and capacity investments on I-90 between I-5 and I-405; and high capacity transit in the "I-90 Corridor" between Seattle and Bellevue; and

WHEREAS, all parties agree that I-90 is an integral piece of the regional bike network, providing the only bicycle-pedestrian path across Lake Washington; that the preferred alternative maintains a ten foot bicycle lane as part of providing optimal multi-modal travel in the I-90 corridor for cyclists and pedestrians; and

WHEREAS, the Cities of Bellevue, Mercer Island, and Seattle; King County; Sound Transit, and the Washington State Transportation Commission, as participants of the I-90 Steering Committee, having conducted a thorough evaluation of the performance and benefits of the alternatives, agree that Alternative R-8A has been shown to improve regional mobility by providing reliable and safe two-way transit and high occupancy vehicle operations on I-90 between Bellevue, Mercer Island, and Seattle, and mobility for Mercer Island, while minimizing impacts to the environment, to other users, and to other transportation modes; and is an essential first step toward implementing High Capacity Transit in the I-90 corridor;

NOW THEREFORE BE IT RESOLVED, the parties to this 2004 Amendment agree to the following principles regarding future development of the I-90 Corridor between Seattle and Bellevue:

1. Alternative R-8A with High Capacity Transit deployed in the center lanes is the ultimate configuration for I-90 in this segment;
2. Construction of R-8A should occur as soon as possible as a first step to the ultimate configuration;
3. Upon completion of R-8A, move as quickly as possible to construct High Capacity Transit in the center lanes;
4. Commit to the earliest possible conversion of center roadway to two-way High Capacity Transit operation based on outcome of studies and funding approvals.
5. Minimize construction impacts to the existing bicycle/pedestrian path, and maintain safe access to the path during construction;

6. Maintain the existing width of the bicycle/pedestrian path and to install screen treatments to create a safe barrier between the path users and vehicular traffic; and
7. To the extent of any loss of mobility to and from Mercer Island based on the outcome of studies, additional transit facilities and services such as additional bus service, parking available for Mercer Island residents, and other measures shall be identified and satisfactorily addressed by the Commission, in consultation with the affected jurisdictions pursuant to paragraph 14 of the Agreement, prior to the time the center roadway converts to High Capacity Transit.

King County
By:
Its: King County Executive

City of Bellevue
By: Connie Marshall
Its: Mayor

City of Mercer Island
By:
Its: MAyor

Washington State
Transportation Commission
By:
Its: Chairman

City of Seattle
By:
Its: Mayor

Central Puget Sound
Regional Transit Authority
By: Joan M Earl
Its: Chief Executive Officer

STATE OF WASHINGTON

December 22, 2006

The Honorable Bryan Cairns, Mayor
City of Mercer Island
9611 SE 36th Street
Mercer Island, WA 98040

Dear Mayor Cairns:

Thank you for your letter of November 13 concerning access for single occupancy vehicles from Mercer Island to the HOV lane on I-90 after conversion of the center roadway to high capacity transit.

The Governor's Office and the Washington State Department of Transportation intend to honor our understanding of the agreement reached by the signatories regarding Mercer Island access to HOV lanes. We have concluded that when the center roadway is converted to high capacity transit, Mercer Island residents should be permitted HOV lane access until the HOV lanes are converted to high occupancy toll (HOT) lanes or another tolling regimen. It is important to emphasize that we do not know how long the lanes would operate as HOV lanes, and it is possible that those lanes may be operated as tolled lanes from the time of or even before the conversion of the center roadway occurs.

We would also note that other issues apart from Mercer Island considerations are involved in HOV lane access for Mercer Island. An equitable outcome must take into account the reasonable expectations of all the users of the corridor, including users of transit and other high occupancy vehicles who must be assured that the lane meets performance standards. In addition, the access and mobility opportunities provided for Mercer Island residents include new high capacity transit uses of the corridor as well as the private passenger vehicle uses.

Thank you again for your letter. Please let us know if you have additional questions or concerns.

Sincerely,

Douglas B MacDonald

Tom Fitzsimmons, Chief of Staff
Office of the Governor

Doug MacDonald, Secretary
Washington State Department
of Transportation

U.S. Department
of Transportation

**Federal Highway
Administration**

Washington Division

Suite 501 Evergreen Plaza
711 South Capitol Way
Olympia, Washington 98501-1284
(360) 753-9480
(360) 753-9889 (FAX)
http://www.fhwa.dot.gov/wadiv

June 22, 2011

HDE-WA/560/WA 624

Ms. Paula J. Hammond
Secretary of Transportation
Department of Transportation
Olympia, Washington

Attention: Barb De Ste Croix

**Sound Transit – I-90 East Link Project
Final Interchange Justification Report**

Dear Ms. Hammond:

This letter is in response to your June 20, 2011, request for a finding of engineering and operational acceptability for the Sound Transit I-90 East Link Interchange Justification Report (IJR). The project, in part, incorporates interchange modifications and closures within the I-90 center roadway to allow Sound Transit's East Link light rail project to use the I-90 reversible express lanes from MP 1.99 to MP 9.44. In addition, part of this project, incorporates comprehensive changes to I-90, including HOV access and lane modifications resulting from the I-90 Two-Way Transit and HOV Operations Project that form the ultimate configuration of I-90 between the cities of Seattle and Bellevue. We have compared the final IJR to previous drafts and find that it satisfies the requirements of the FHWA Interstate Added Access Policy.

Based on an engineering and operations review, the access request is considered acceptable. However; the general purpose left-hand on ramp connecting Island Crest Way to the WB I-90 HOV lane is a safety issue. The AASHTO Greenbook, ***A Policy on Geometric Design of Highways and Streets,*** discourages the use of left-hand on and off ramps. This access point should be monitored and closed to single occupant vehicles use if significant collision frequency and severity begin to occur. In addition, ramp metering must continue at this location.

If there are no major changes in the design of the proposal, final approval may be given upon the completion of the environmental process. Please submit a request for final IJR approval at the completion of the NEPA process.

Sincerely,

DANIEL M. MATHIS, P.E.
Division Administrator

Donald A Petersen

By: Donald A. Petersen
Division Safety/Design Engineer

Enclosure

cc: Ed Barry, MS TB-85, LeRoy Patterson, MS 47336

Appendix A

Best Management Practices for Sensitive Ecosystem Resources

Appendix A

Best Management Practices for Sensitive Ecosystem Resources

The following list of measures is a compilation of best management practices (BMPs) that can be used to avoid and minimize temporary construction and permanent operational impacts of the East Link project on sensitive ecosystem resources. These BMPs are either required by state or federal agencies to obtain permits required for the project or may be required to comply with typical permit conditions. They are based on Sound Transit's knowledge of permit requirements and experience with conducting environmental compliance and permitting for numerous other projects in the Puget Sound area.

Construction-Related BMPs

General BMPs for All Sensitive Areas

The project would delineate construction limits for vegetated and habitat areas that may be disturbed during construction. The intent is to prevent unintended impacts on riparian vegetation, wetlands, woodlands, and other sensitive sites outside of the construction limits. The construction limits would be clearly marked with high-visibility construction fencing prior to any ground-disturbing or construction-related activities. There would be no direct site disturbance outside of the construction limits.

Soil or rock stockpiles, excavated materials, or excess soil materials would be prevented from eroding into sensitive habitats, including stream channels, wetlands, and riparian areas outside of the construction limits by high water or storm runoff. Sound Transit or its construction contractor would develop a Temporary Erosion and Sediment Control plan that would be implemented during construction. This TESC plan would address potential erosion during construction. The contractor would implement the plan before discharging or allowing runoff from the site. Monitoring requirements specified in the TESC would provide feedback to make sure that the erosion control practices are operating properly and effectively. BMPs would be implemented to limit soil compaction in sensitive areas.

Fish and Aquatic Habitat Protection

All work would comply with the terms and conditions set forth in the Hydraulic Project Approval (HPA) issued for the project by the Washington Department of Fish and Wildlife (WDFW). The HPA program is the vehicle through which WDFW regulates activities that affect the bed or flow of waters of the state for the protection of fish life. An HPA is required for construction or structural work associated with any bridge structure or culvert construction within or below the ordinary high water mark (OHWM) of waters of the state.

Seasonal restrictions (i.e., work windows) applied to work conducted below the OHWM would be as required by an HPA issued by WDFW and by the Section 404 permit issued by the U.S. Army Corps of Engineers (USACE).

In accordance with typical requirements of an HPA, when large woody debris must be moved to allow the reasonable use of an over-water or in-water facility, the large woody debris would be returned to the water downstream, where it would continue to provide aquatic habitat function.

All newly installed culverts would be in compliance with Washington Administrative Code (WAC) 220-110-070 (http://wdfw.wa.gov/hab/engineer/w2201170.htm) regarding fish passage requirements. Any affected streambeds, stream banks adjacent to culverts, and at the stream relocation reach, would be permanently restored after in-water work with plantings of native or approved woody and herbaceous species within one year of completion of each phase of construction. Bank protection would follow the guidelines set forth in WDFW's *Integrated Streambank Protection Guidelines* (http://wdfw.wa.gov/hab/ahg/ispgdoc.htm).

Water Quality

The federal Clean Water Act (CWA) (1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permit program, which is administered by the U.S. Environmental Protection Agency (EPA). EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 of the Revised Code of Washington (RCW), which defines the Washington State Department of Ecology (Ecology) authority and obligations in administering the wastewater discharge permit program.

Ecology's construction stormwater general permit is required for certain construction activities. The goal of the permit is to reduce or eliminate stormwater pollution and other impacts on surface waters from construction sites.

The project must complete a Notice of Intent (NOI) for coverage under the permit. The project must also develop a Stormwater Pollution Prevention Plan that implements BMPs for identifying, reducing, eliminating, or preventing sediment and erosion problems on site.

Any materials placed below the OHWM (e.g., cobble or boulders for energy dissipation at culvert ends, streambed gravel or other substrates) would be relatively clean and handled in a way to minimize turbidity. Methods would be used such that it is not expected the project would exceed state water quality standards at the point of compliance (WAC chapter 173-201A) when flow is restored to the work site. To the fullest extent practicable, culverts would be installed, modified, and/or replaced in isolation from stream flow (if there is flow during the work window) by means of a temporary bypass flume, diversion culvert, or by temporarily pumping flow around the in-water work zone. Any temporary dewatering of the in-water work zone would be preceded by work area isolation and fish removal/relocation (as necessary). Fish handling would be conducted by a trained and qualified biologist. Turbid water produced during the course of in-water work would be prevented from discharging to fish-bearing waters or wetlands. Turbid wastewater may be routed to temporary or permanent detention facilities, or to upland areas that provide adequate rates of infiltration.

In accordance with conditions of a typical HPA, heavy equipment used during the course of in-water work would operate from above the OHWM wherever possible. Use of equipment below the OHWM would be limited to that necessary to gain position for work. Drive mechanisms would not enter or operate below the OHWM, except under the terms of the HPA issued by WDFW.

Uncured concrete and/or concrete byproducts would be prevented from coming in contact with streams or water conveyed directly to streams during construction. Any water having direct contact with uncured concrete would be contained and treated or removed from the site (as appropriate) to prevent discharge to streams or wetlands.

Installation of permanent footings and all drilled or pile-driven shafts (and excavated spread footings) below the OHWM (e.g., for culvert endwalls) would be conducted in a manner consistent with Section 404 and other permits issued for the project by the USACE and other parties (as applicable). When constructing drilled shafts, the contractor would ensure that all drilling equipment, drill recovery and recycling pits, and any waste or spoil produced are properly contained to prevent discharge of drill wastes or fluids to any surface water or wetlands.

In accordance with typical Section 401 permit requirements, turbidity would be monitored if in-water work occurs when water is flowing in the streams. Equipment (excluding track-mounted equipment, large cranes, and other relatively immobile equipment) would be refueled and maintenance activities conducted at a distance from the nearest wetlands, ditches, and flowing or standing water approved by regulatory permits. Appropriate spill prevention measures and fuel containment systems would be designed and implemented to completely contain a potential spill as specified in the Spill Prevention and Control Countermeasure plan. If flooding of the work area is expected to occur within 24 hours, all equipment and material would be evacuated from near-stream construction sites. An exception would be for efforts to avoid or minimize resource damage. All equipment that is used for in-stream or in-wetland work would be cleaned prior to operations below the OHWM. Wash-water would not be discharged directly into any water body without pretreatment.

Weed Control

If herbicide use is required during the monitoring period, the type and application of the pesticide should be chosen based upon City of Seattle Tier Tables (http://www.seattle.gov/environment/Pesticides.htm) or other locally accepted methodology. Additionally, Sound Transit's Integrated Pest management Plan (IPM) would provide guidance regarding pesticide use and IPM practices.

Design and Operation BMPs

The project would install permanent storm water runoff treatment and flow control facilities where needed according to the requirements of the 2004 Ecology *Stormwater Management Manual for Western Washington* or the most recently adopted manual.

The project would incorporate stormwater conveyance and management facilities that promote infiltration where applicable.

The project would select, design, and install runoff treatment BMPs that are best suited to the site conditions and best capable of achieving the required levels of treatment (subject to negotiation with the local jurisdiction and/or Ecology). These would or may include natural or engineered dispersion BMPs; biofiltration BMPs such as vegetated filter strips, biofiltration swales, or ecology embankments; wet-pool BMPs; and infiltration BMPs.

The project would not reroute existing drainage configurations to the extent that stormwater from one basin or subbasins is conveyed and discharged to another.

The project would implement IPM techniques, in accordance with current Ecology water quality agreements, to minimize the impact on aquatic and terrestrial environments.

Appendix B

Wildlife Function Field Data Form

Sound Transit East Link Wildlife Functions Field Data Form

(Adapted from WSDOT's Best Professional Judgment [BPJ] Characterization)

Project: ____________________ Date: ____________________

Site ID: ____________________ Biologist: ____________________

Function	Likely or Not Likely to Provide (State Your Rationale), Yes/No, or Number
F. General Habitat Suitability	
1. Area is not fragmented by development.	
2. Upland surrounding area is undeveloped.	
3. Area has connectivity with other habitat types.	
4. Diversity of plant species is high.	
5. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps present.	
6. Distance to disturbance source and type.	
H. Habitat for Amphibians	
1. Cover (i.e., woody debris, rocks, and leaf litter) present.	
2. Woody debris present within area.	
3. Proximity to wetland habitats – distance and type.	
4. Lands within 1 km (0.6 mi) of area are > or = 40% undeveloped.	
5. Wetlands and/or an intermittent or perennial stream within 1 km (0.6 mi) of area.	
6. Presence of movement barrier between above wetland or stream and site being evaluated	
I. Habitat for Mammals	
1. Permanent water present within the area.	
2. Presence of emergent vegetation in areas of permanent water.	
3. Areas containing dense shrubs and/or trees are present.	
4. Interspersion between different strata of vegetation.	
5. Presence of slopes / banks suitable for denning.	
6. Evidence of wildlife use, e.g., dens, tracks, scat, gnawed stumps, etc.	
J. Habitat for Birds	
1. Forested and scrub-shrub classes present within the area.	
2. Average tree height.	
3. Average DBH.	

Function	Likely or Not Likely to Provide (State Your Rationale), Yes/No, or Number
4. Largest DBH and percent of trees in this class.	
5. Relative tree species diversity (L, M, H).	
6. Snags present in area.	
7. Cavities present in trees.	
8. Tree % canopy estimate.	
9. Shrub % canopy estimate.	
10. Adjacent area contains relatively undisturbed grassland or wetland shrub and/or forest habitats.	
11. Lands within 1 km (0.6 mi) of the area are greater than or = 40% undeveloped.	
L. Native Plant Richness	
1. Dominant and co-dominant plants are native.	
2. Area has three or more strata of vegetation.	
3. Area has mature trees (conifer, deciduous?).	
4. Number of species of trees.	
5. Area has well developed shrub layer.	
6. Number of species of shrubs.	
N. Uniqueness and Heritage	
1. Area contains documented occurrence of a state or federally listed threatened or endangered species.	
2. Area contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the USFWS, the WDNR's NHP, or WDFW's Priority Habitats and Species Program.	
3. Area has biological, geological, or other features that are determined rare by the local jurisdiction.	
4. Area has been determined significant by the local jurisdiction because it provides functions scarce for the area	

Appendix C

Priority Species Found in Western Washington and Potential Occurrence in the East Link Affected Habitats

TABLE C-1
Priority Species Found in Western Washington and Potential Occurrence in the East Link Affected Habitats

Common Name	Scientific Name	Family	Federal Status[a]	State Status[b]	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
					Likely Present	Possibly Present	
Species with Federal Endangered Species Act Status							
Marbled Murrelet	*Brachyramphus marmoratus*	Bird	FT	ST		X	Requires conifer forests with trees >28-inch diameter at breast high (dbh) with platforms for nesting. Spends the winter in marine waters offshore. Rare and infrequent visitors to Lake Washington during the nonbreeding season. There has been only one sighting of marbled murrelets in the project vicinity in the last 50 years and they are not expected to be present in the future.
Taylor's Checkerspot	*Euphydryas editha taylori*	Butterfly	FCo	SoC		X	Parent species Edith's checkerspot (*Euphydryas editha*) listed as occurring in King County. *E. editha taylori* likely does not occur in study area due to a lack of grasslands. *Plantago* is only host plant likely growing in study area. Grasslands in Puget Sound lowlands, San Juans, and Olympic Coast. Larval host plants: paintbrush (*Castilleja*), beardtongues (*Penstemon*), lousewort (*Pedicularis*), owl's clover (*Orthocarpus*), Chinese houses (*Collinsia*), and plantain (*Plantago*).
Federal Species of Concern—No Endangered Species Act Status							
Townsend's Big-eared Bat	*Corynorhinus townsendii*	Bat	FCo	SC		X	Areas with a mosaic of woodland/grassland and/or shrubland, esp. coniferous mosaics. Found in Pierce County, Fort Lewis.
Yuma Myotis	*Myotis yumanensis*	Bat	FCo	NONE		X	Closely associated with water. Moist woodlands, forests, desert scrub. Forages over water and in open, uncluttered habitats. Mapped in Puget Sound.
Western Toad	*Bufo boreas*	Amphibian	FCo	SC	X		Found in a variety of habitats, including slow-moving rivers and streams, and near ponds and lakes. Large population declines in the Northwest. Listed as occurring in the Lake Washington Basin.
Additional Washington Listed Species, and Species of Concern							
Monarch	*Danaus plexippus*	Butterfly	None	SoC	Known in the study		Listed as occurring in King County. Variety of open habitats: fields, meadows, weedy areas, marshes, and along

TABLE C-1
Priority Species Found in Western Washington and Potential Occurrence in the East Link Affected Habitats

Common Name	Scientific Name	Family	Federal Status[a]	State Status[b]	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
					Likely Present	Possibly Present	
					area		roadsides. Larval and adult food plants are milkweeds.
Bald Eagle	*Haliaeetus leucocephalus*	Bird	FCo	SM	Known in the study area		Nests in wooded areas with larger trees within a half mile of large bodies of water. Highly territorial of nesting tree. May have more than one nest tree per territory, as well as roost and perch trees. Several known territories in Segments A, B, and E.
Peregrine Falcon	*Falco peregrinus*	Bird	FCo	SM	Known in the study area		Two historical and recent eyries in Segment A. Nests in sheltered cliff areas naturally, has adapted to using bridges and buildings for nesting sites.
Pileated Woodpecker	*Dryocopus pileatus*	Bird	None	SC	Known in the study area		Requires wooded forests with a component of dead and dying trees and snags for foraging and nesting. Prefers deciduous forests. Will occur in conifer forests with some deciduous tree component. Found at Marymoor Park. One bird observed in WR-5.
Purple Martin	*Progne subis*	Bird	None	SC	Known in the study area		Nests in structures over waterbodies, including natural cavities, pilings, and man-made housing structures. Forages over open water or wet areas for insects while in flight. Nesting observed at Marymoor Park in 2003, but no activity since. Population believed to be in decline throughout its range.
Common Loon	*Gavia immer*	Bird	None	SS		X	Population has declined due to acid rain, pollution, industrial contamination of waterbodies and lead poisoning. Artificial floating nesting platforms have reduced the negative impact of fluctuating water levels from human activities to nests.
Western Grebe	*Aechmophorus occidentalis*	Bird	None	SC	Known in the study area		Nests in colonies numbering up to several hundred birds on large inland lakes or in coastal marshes of the western United States. Birds breeding in the northern extent of their range migrate to the western coastal ocean to spend the winter.
Merlin	*Falco columbarius*	Bird	None	SC	X		Seen during the nesting season at Marymoor Park.

TABLE C-1
Priority Species Found in Western Washington and Potential Occurrence in the East Link Affected Habitats

Common Name	Scientific Name	Family	Federal Status[a]	State Status[b]	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
					Likely Present	Possibly Present	
Vaux's Swift	*Chaetura vauxi*	Bird	None	SC		X	Nests and forages in groups with 30 or more birds. Nest is a cup shaped nest placed in a dark, confined cavity. Breeds in mountains and foothills, usually >700 meters in elevation. Forages over wooded areas and more open habitats, including towns.
Olive-sided Flycatcher	*Contopus borealis*	Bird	FCo	SM	X		Breeds in coniferous forests in North America. Population is declining due to loss of winter habitat in Central America and the Andes region of South America.
Willow Flycatcher	*Empidonax traillii*	Bird	FCo	SM	Known in the study area		Breeds in deciduous thickets, especially in willow thickets. Nest site often close to water.

[a] **Federal Status:**

FT=Federal Threatened

FC=Federal Candidate

FCo=Federal Species of Concern (no formal ESA status)

[b] **State of Washington Status:**

The Washington Species of Concern list is published by the Wildlife Management Program and includes only native Washington fish and wildlife species that are listed as Endangered, Threatened, or Sensitive, or as Candidates for these designations. Endangered, Threatened, and Sensitive species are legally established in Washington Administrative Codes.

SE=State Endangered

ST=State Threatened

SC=State Candidate

SS=State Sensitive

SoC=State Species of Concern

SM=State Monitor Species (this is the “lowest level” of species classification afforded to fish and wildlife species in the state of Washington. State Monitor Species are not considered Species of Concern, but are monitored for status and distribution in a particular area.

Appendix D

WDFW-Recommended Management Buffer Distances for Bald Eagles

Appendix D

WDFW-Recommended Management Buffer Distances for Bald Eagles

This information is summarized from the Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species Management Recommendations for Bald Eagles (Watson and Roderick, 2004).

Nest Area

When developing site management plans, WDFW recommends buffering bald eagle nests with a two-zone management system that mimics a strategy designed by the U.S. Fish and Wildlife Service (USFWS, 1981). The following guidelines for these zones are based on the research cited in WDFW's Priority Habitat and Species Management Recommendations for bald eagles (Watson and Roderick, 2004):

- Protected Zone (Primary Zone). This zone protects and screens the nest tree and should extend at least 400 feet from the nest tree. Its size and shape will vary with site conditions such as topography, prevailing winds, and screening vegetation, as well as on the eagles' tolerance to human activities. In areas where vegetation and/or topography do not provide adequate screening within 400 feet of the nest, consider increasing the size of the protected zone. Retain all existing large trees and existing forest structure within the protected zone.
- Conditioned Zone (Secondary Zone). The conditioned zone further screens and protects nest sites in the protected zone and should extend from 330 to 800 feet beyond the edge of the protected zone. Alternate nest locations, perch trees, and feeding sites should be included in this zone and will influence its size and shape (Stalmaster, 1987). Depending on screening vegetation, prevailing winds, topography, and the sensitivity of the nesting eagles to human activities, this zone may need to be expanded up to 2,640 feet from the edge of the protected zone. Avoid constructing roads or trails within sight of the nest that would facilitate human or predator access to the nest. Construction activities (e.g., homes, roads, and power lines) that take place out of sight of the nest should be postponed until after the young eagles have fledged, as should forest practice activities.

Roosting Habitat (Communal Roosts)

Activities that produce noise or visual effects within 400 feet of the edges of communal roost trees or staging trees should be conducted outside of the critical roosting period (November 15 to March 15). This corresponds to the time when most eagles begin to arrive in eastern and western Washington, with numbers peaking in December and January and declining rapidly by mid-March (Fielder and Starkey, 1980; Garrett, et al., 1988; Stalmaster, 1989). There are no known communal roosts in the project vicinity.

Perching and Foraging Habitat

Perches along shorelines near winter roosts or in nesting territories are important to foraging eagles. Tree structure, and the distance between habitat alterations and shorelines should be considered when managing for bald eagle wintering habitat.

Perch Structure and Location

In Washington, protect known bald eagle perch trees and potential foraging perches greater than 20 inches diameter at breast height (dbh) and within 246 feet of the top of a bank or shoreline. Chandler et al. (1995) recommend protecting patches of shoreline forest, and specifically protecting live and dead trees over 8 inches dbh for future habitat.

Human Disturbance

Bald eagles often feed on the ground, in open areas where food resources are concentrated. They should be allowed a distance of at least 1,500 feet from human activity and permanent structures. Buffer zones of 800 to 1,000 feet have been recommended in perching areas where little screening cover is present (Stalmaster and Newman, 1978). Stalmaster and Newman (1979) found that 50 percent of wintering eagles in open areas flushed at 500 feet, but 98 percent would tolerate human activities at 1,000 feet. Activities that disturb eagles while feeding, especially during winter, can cause them to expend more energy, which increases their susceptibility to disease and poor health (Stalmaster, 1987).

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Appendix E

Management Recommendations for Locally Important Species Found in the East Link Project Area

Management Recommendations for Locally Important Species Found in the East Link Project Area

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Introduction

Title 21A of the Growth Management Act (GMA) requires counties and cities in Washington to designate and protect critical areas, in accordance with RCW 36.70A.170. The GMA requires local jurisdictions to designate and protect critical areas, using the best available science (BAS) in developing policies and regulations to protect critical area functions and values. The purpose of the GMA is to avoid the possibility of uncoordinated and unplanned growth as the population in the state continues to rise and development increases. The GMA is intended to protect the public's health and safety by requiring county and city governments to create local based plans and regulations that are centered on land use and natural resource issues as guided by the state legislature. Critical areas are one of the two primary natural resource areas addressed in the GMA planning process. Critical areas include wetlands, critical recharge areas for potable water aquifers, frequently flooded areas, geologically hazard areas, and Fish and Wildlife habitat conservation areas.

Fish and Wildlife Habitat Conservation Areas

Fish and Wildlife habitat conservation areas are the primary way the Washington Department of Fish and Wildlife (WDFW) works to conserve wildlife habitat in Washington State. While WDFW is charged with protecting and maintaining fish and wildlife populations, WDFW has little authority over the habitats used by fish and wildlife species. Protection is primarily achieved through the voluntary actions of landowners and through existing state regulations, including the State Environmental Policy Act (SEPA), the Growth Management Act, the Forest Practices Act (FPA), and the Shoreline Management Act (SMA). WDFW primarily serves an advisory role, by reviewing proposals for development and offering guidelines for species management on private property. WDFW has written management guidelines for all state and priority listed species. Priority species include species and wildlife congregations that are priorities for conservation due to their population status, sensitivity to disturbance, economic, recreational or tribal importance. These species may or may not be listed as an endangered, threatened, sensitive, or candidate species by the state or federal government. The management recommendations are generalized guidelines and are not enforceable regulations. They are based on the needs of fish and wildlife species, and are not based on land use objectives.

Fish and Wildlife Habitat Conservation Areas are lands that are managed for perpetuating species in suitable habitats within their natural range, and to prevent the creation of isolated subpopulations. As set forth in the WAC guidelines, Fish and Wildlife Habitat Conservation Areas include:

a. Areas with which federal and state endangered, threatened, and sensitive species, and state candidate species, have a primary association;

b. Habitats and species of local importance;

c. Commercial and recreational shellfish areas;

d. Kelp and eel grass beds; herring and smelt spawning areas;

e. Naturally occurring ponds under 20 acres and their submerged aquatic beds that

f. Provide fish or wildlife habitat;

g. Waters of the state;

h. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal

i. Entity; or

j. State natural area preserves and natural resource conservation areas.

In order to meet the requirements established by the GMA, King County and the Cities of Bellevue, Mercer Island and Redmond created Critical Areas Ordinances to ensure the management and protection of lands used by listed and locally important species. Species of Local Importance include native species that are in danger of becoming federally or state listed or extirpated if current population trends continue. The long-term preservation of the species is dependent on the protection it receives. Without the additional protection, the species or habitat is likely to decline in the future. Localized populations that are vulnerable or in decline, or species or habitats that offer some special value may also be considered locally important. Fish and Wildlife Habitat Conservation Areas also include areas associated with state priority species, and areas critical for habitat connectivity. These wildlife habitats are classified and rated by a variety of internal (site specific) and external (contextual) habitat conditions.

King County Comprehensive Plan

The King County code protects critical areas as well as their buffers in order to protect the health and safety of the County’s residents and its environment. In October of 2006, King County adopted ordinances 15605-15607, amending the 2004 Updated Comprehensive Plan. Chapter 4 of the King County Comprehensive Plan establishes recommendations for protecting listed and locally important wildlife and their breeding habitats. Protection is given to species of local importance using regulations, incentive programs, land purchases, networking of wildlife corridors, and development clustering. Species considered to be locally important in King County are shown in Table 1. In addition, King County is required to protect designated wildlife corridors, riparian corridors, and the breeding sites of two species of raptors and herons. These four species and their breeding habitats are shown in Table 2.

TABLE 1
King County Designated Locally Important Species

Common Name	Scientific Name	Family	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
			Likely Present	**Possibly Present**	
Locally Important Species listed by King County (King County Comprehensive Code Chapter 4)					
Trumpeter Swan	*Cygnus buccinator*	Bird		Known in the study area	Rare visitor to Marymoor Park during the winter. Seen fewer then 10x at Marymoor Park. Trumpeter Swans spend the winter from November to April in the open fields and estuaries of Skagit and Whatcom Counties. Recently, their range has expanded to Grays Harbor and other areas of western Washington. There are currently no trumpeter swans breeding in Washington
Tundra Swan	*Cygnus columbianus*	Bird		Known in the study area	Rare visitor to Marymoor Park during the winter. Seen fewer then 10x at Marymoor Park. Tundra Swans are common in fresh- and saltwater habitats throughout the lowlands of northwestern Washington from November to April. Almost 2,000 winter in Skagit County.
Snow Goose	*Chen caerulescens*	Bird		Known in the study area	Rare visitor to Marymoor Park during the winter. Seen fewer then 10x at Marymoor Park. Typically observed in large flocks. Up to 55,000 winter in western Washington. Most gather in the Skagit River Delta from mid-October to early May.
Band-tailed Pigeon	*Patagioenas fasciata*	Bird	Known in the study area		Found in low- and mid-elevation conifer and mixed conifer/deciduous forests. Requires a component of mature conifers. Band-tailed Pigeons prefer forest edges, especially open sites bordered by tall conifers.
Harlequin Duck	*Histrionicus histrionicus*	Bird		May Occur	In western Washington, harlequins historically bred in the Olympic and Cascade mountains. Wintering areas include northern Puget Sound, northern Hood Canal, the Strait of Juan de Fuca, San Juan Islands, and the Pacific coast. In winter they are common in marine waters along rocky shorelines and jetties. They are more common in northern Puget Sound then in southern portions of the Sound.
Western Bluebird	*Sialia Mexicana*	Bird		Known in the study area	Rare visitor to Marymoor Park. Seen fewer then 10x at Marymoor Park. In western Washington, Mountain Bluebirds

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King County Designated Locally Important Species

Common Name	Scientific Name	Family	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
			Likely Present	**Possibly Present**	
					are uncommon in the Fort Lewis area, and rare in forest clearings in King, Pierce, Thurston, and Mason Counties.
Brant Goose	*Branta bernicla nigricans*	Bird	No	No	Found in estuaries, beaches, bays and spits where they feed and rest before their migration north to Arctic breeding grounds. Ninety-five percent of their diet is composed on eelgrass (*Zostera marina* and *Zostera japonica*) which grow on inter-tidal mudflats.
Black-crowned Night Heron	*Nycticorax nycticorax*	Bird	No	No	Black-crowned Night-herons have been known to breed in western Washington's eastern Puget Trough lowlands. Frequently nest on island and in large trees in small colonies. Usually found in fresh and saltwater wetlands. In spring and fall, they can be found in wetlands flanking large river basins.
Blue Grouse	*Dendragapus obscurus*	Bird	No	No	In Washington, blue grouse are found in three distinct areas east of the Cascades. Blue grouse are found in mountainous areas wherever open coniferous forests are present. They are closely associated with true fir (*Abies* spp.) and Douglas fir *(Pseudotsuga menziesii*) forests.
Mountain Quail	*Oreortyx pictus*	Bird	No	No	Found on mountain slopes and foothills, in areas with dense cover supporting scattered open areas. Often found in dense thickets created by fires or clear cuts.
Mountain Goat	*Oreamnos americanus*	Mammal	No	No	Found in the Cascade Mountain range.
Columbian Black-tailed Deer	*Odocoileus hemionus columbianus*	Mammal	None	Locally Important	Found along the Pacific Coast from Alaska to northern California.
Elk	*Cervus elaphus*	Mammal	No	No	Found in the mountain ranges and shrub lands of the Olympic and Cascade mountains.
Marten	*Martes americana*	Mammal	No	No	Strongly associated with mature conifer forests. Historically found throughout the mountains of Washington, Oregon and California.
Mink	*Mustela vison*	Mammal	Known in the study area		Rare visitor to Marymoor Park. Seen fewer then 10x at Marymoor Park.

In addition, King County wrote local guidelines for ten terrestrial species most often encountered during proposal reviews in the County (Table 3). Section 198 of the King County Comprehensive Plan requires the county to protect the active breeding sites of these species, as well as the immediate area surrounding each site to prevent any disturbance to breeding activities. All ten species are either listed by the State as an endangered, threatened, sensitive, candidate or monitor species, or are listed as a locally important species by King County. The species include the bald eagle (*Haliaeetus leucocephalus)*, great blue heron (*Ardea herodias*), osprey (*Pandion haliaetus)*, peregrine falcon (*Falco peregrinus*), northern spotted owl (*Strix occidentalis*), marbled murrelet (*Brachyramphus marmoratus*) , Townsend's big eared bat (*Corynorhinus townsendii)*, Vaux's swift (*Chaetura vauxi)*, red-tailed hawk (*Buteo jamaicensis)*, and goshawk (*Accipiter gentilis*).

For all other species included in the King County Comprehensive Plan, the County is required to establish protective standards if a breeding site is discovered during a project review. The protective standards are based on management guidelines and recommendations established by WDFW. Most of the species listed in the King County Comprehensive Plan do not occur in the East Link project area, as they are not found in urban or commercially developed areas. In some cases however, their breeding habitat is still protected, even though the species itself is not actively breeding or occurring at the location.

TABLE 2
Wildlife Breeding Habitats Designated as having Local Importance in King County

Common Name	**Scientific Name**	**Family**	**Expected Occurrence in Study Area**		**Preferred Habitat / Basis for Occurrence Determination**
			Likely Present	**Possibly Present**	
Species Whose Breeding Habitats are Included in King County's Fish and Wildlife Habitat Conservation Areas (King County Comprehensive Code Chapter 4)					
Great Blue Heron	*Ardea Herodias*	Bird	Known in the study area		Nests in small to medium sized colonies ranging from 3 to 30 nests. Colonies usually in secluded deciduous forests, but can adapt to some levels of disturbance gradually, over time. Will use conifer forests occasionally. Colonies often <1mile away from wetlands or large water bodies. Listed due to its sensitivity to disturbances and dependence on wetlands, wet meadows, and water bodies.
Black-crowned Night Heron	*Nycticorax nycticorax*	Bird	No	No	Black-crowned Night-herons have been known to breed in western Washington's eastern Puget Trough lowlands. Usually nest on island and in large trees in small colonies. Often found in fresh and saltwater wetlands. In spring and fall, they can be found in wetlands flanking large river basins.
Red-tailed Hawk	*Buteo jamaicensis*	Bird	Known in the study area		Found in areas with a mix of forests and open spaces, including agricultural land, grasslands, wetlands and meadows. Small mammals, especially rodents, are their

TABLE 2
Wildlife Breeding Habitats Designated as having Local Importance in King County

Common Name	**Scientific Name**	**Family**	**Expected Occurrence in Study Area**		**Preferred Habitat / Basis for Occurrence Determination**
			Likely Present	**Possibly Present**	
					primary prey.
Osprey	*Pandion haliaetus*	Bird	Known in the study area		Nests in exposed trees or platforms that provide a clear, unobstructed view of surrounding area. Nests close to large bodies of water. Territorial. Several known active nests and territories in Segments B, C, and E.

TABLE 3
King County Designated Wildlife Habitat Conservation Area Breeding Areas

Common Name	**Scientific Name**	**Fish and Wildlife Habitat Conservation Area**	**Protective Nesting Habitat Recommendations when Active Nesting or Breeding is Determined for a Site:**
Bald Eagle	Haliaeetus leucocephalus	400-foot radius from active nest	• No alterations within 800 feet from March 15 through April 30 (incubation and first three weeks of brooding). • Maintain a 400 foot radius around nest trees. • Prohibit use of land-clearing machinery within 800 feet from January 1 through August 31.
Great Blue Heron	Ardea herodias	820-foot radius from the rookery. WDFW can increase radius up to an additional 164 feet if population of rookery is declining	• No clearing or grading disturbance from January 1 through July 31 within 924 feet around existing rookeries. • Maintain 820 foot radius around existing rookeries that are known to be stable; buffer may be increased by 164 feet if population of rookery is declining.
Marbeled Murrelet	Bracyrhampus marmuratus	One-half mile radius around an active nest	• Protect area within 0.5 mile of nest trees.
Northern Spotted Owl	Strix Occidentalis	3,700-foot radius from an active nest	• Protect 3,700 foot radius from nest tree.
Goshawk	Accipter gentilis	1,500-foot radius around an active nest located outside of the Urban Growth Area (UGA)	• Maintain 1,500 foot radius around active nest sites located outside the urban growth area.
Osprey	Pandion haliaetus	230-foot radius around an active nest	• No disturbance within 660 feet from April 1 through September 30. • Maintain 230 foot radius around active nest.

TABLE 3
King County Designated Wildlife Habitat Conservation Area Breeding Areas

Common Name	**Scientific Name**	**Fish and Wildlife Habitat Conservation Area**	**Protective Nesting Habitat Recommendations when Active Nesting or Breeding is Determined for a Site:**
Peregrine Falcon	Falco peregrinus	Extending 1,000 feet of an eyrie on a cliff face, the area immediately above the eyrie on the rim of the cliff, and the area immediately below the cliff	• No human activity along the nest cliff rim, immediately below nest cliffs, or on the cliff face within 1,000 feet at any time of year. • No surface-disturbing activities that would produce loud noises (e.g. blasting, operation of chainsaws and heavy machinery) from March 1 through June 30 within .5 miles of nest. • Route power lines 1,000 feet from eyries.
Red-tailed Hawk	Buteo jamaicensis	325-foot radius from an active nest located outside of the UGA	• Maintain an area with a radius of 325 feet from an active nest located outside the urban growth area. • Clearing and grading is not allowed within 660 feet of an active nest located outside of the urban growth area from March 1-July 31
Common Name	Scientific Name	Fish and Wildlife Habitat Conservation Area	Protective Nesting Habitat Recommendations when Active Nesting or Breeding is Determined for a Site:
Vaux's Swift	Chaetura vauxi	300-foot radius around an active nest located outside of the UGA	• Maintain a 300 foot radius around active nest sites outside the urban growth area. • No clearing or construction activities within 400 feet of active or potential nest trees from April 1 through October 31, unless potential nest tree is proved to contain no nests.
Townsend's Big-eared Bat	Corynorhinus townsendii	June 1-Oct 1 – 450-foot radius around from entrance to a cave or mine located outside of the UGA, within an active nursery colony Nov. 1-March 31 – 450-foot radius around the entrance to a cave or mine located outside the UGA serving as a winter hibernacula	• Maintain a minimum 450' radius in all directions from the entrance of a cave or mine of an active and alternate nursery sites located outside of the urban growth area from June 1-October 1 • Establish 450 foot radius around the entrance to the cave or mine serving as winter hibernacula November 1 - March 31 outside of the urban growth boundary • A building, bridge or tunnel, or other structure used solely for day or night roosting shall not be altered from March 1-November 30 • The entrance to a cave or mine that is

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King County Designated Wildlife Habitat Conservation Area Breeding Areas

Common Name	Scientific Name	Fish and Wildlife Habitat Conservation Area	Protective Nesting Habitat Recommendations when Active Nesting or Breeding is Determined for a Site:
			protected because of bat presence is protected from human entry May 1 – September 15 • Gate entrance to cave or mine that is protected because of bat presence must be designed to allow bats to enter and exit.

Specifically, King County is required to protect:

1. habitat for all federally and state listed endangered, threatened, and sensitive species, and state candidate species
2. habitat used by locally important species
3. designated WDFW wildlife corridors
4. riparian corridors
5. locally important salmonid habitats
6. commercial and recreational shellfish beds
7. kelp and eelgrass beds
8. herring, sand lance and smelt spawning areas
9. habitat used by nesting red-tailed hawks
10. habitat for raptors and herons of local importance: osprey, great blue heron and black-crowned heron, and
11. habitat used by locally important marine species: freshwater mussels, geoduck clam, Pacific oyster, Dungeness crab, Pandalid shrimp, red urchins, white sturgeon, Pacific herring, channel catfish, longfin smelt, surfsmelt, Pacific cod, Pacific whiting, black rockfish, copper rockfish, quillback rockfish, yelloweye rockfish, lingcod, Pacific sand lance, English sole and rock sole.

Bellevue Ordinance #5680

Bellevue updated its Land Use Code in 2001 to incorporate critical area regulations. Under LUC 20.25H.025, any habitat associated with a species of local importance is designated a critical area. Furthermore, if a habitat associated with a species of local importance is impacted by a proposed development, the proposal shall implement the WDFW wildlife management plan designed for that species. If the habitat does not include a critical area or critical area buffer, but is occupied by a locally important species, then only the guidelines in the wildlife management plan need to be followed. Updating the Land Use Code also led to the creation of a Critical Areas Overlay District. This district excludes downtown Bellevue, as it focuses on the recognition of natural, sensitive and hazard areas and imposes regulations on the use and development of these properties. Locally important species in Bellevue are show in Table 4.

TABLE 4
Designated Locally Important Wildlife in the City of Bellevue

Common Name	**Scientific Name**	**Animal Group**	**Expected Occurrence in Study Area**		**Preferred Habitat / Basis for Occurrence Determination**
			Likely Present	**Possibly Present**	
Locally Important Species listed by the City of Bellevue (LUC 20.25H.150)					
Bald Eagle	*Haliaeetus leucocephalus*	Bird	Known in the study area		Nests in wooded areas with larger trees within a half mile of large bodies of water. Highly territorial of nesting tree. May have more than one nest tree per territory, as well as roost and perch trees. Several known territories in Segments A, B, and E.
Peregrine Falcon	*Falco peregrinus*	Bird	Known in the study area		Two historical and recent eyries in Segment A. Nests in sheltered cliff areas naturally, has adapted to using bridges and buildings for nesting sites.
Common Loon	*Gavia immer*	Bird		Known in the study area	Population has declined due to acid rain, pollution, industrial contamination of water bodies and lead poisoning. Artificial floating nesting platforms have reduced the negative impact of fluctuating water levels from human activities to nests.
Pileated Woodpecker	*Dryocopus pileatus*	Bird	Known in the study area		Requires wooded forests with a component of dead and dying trees and snags for foraging and nesting. Prefers deciduous forests. Will occur in conifer forests with some deciduous tree component. Found at Marymoor Park. One bird observed in WR-5.
Vaux's Swift	*Chaetura vauxi*	Bird		Known in the study area	Nests and forages in groups with 30 or more birds. Nest is a cup shaped nest placed in a dark, confined cavity. Breeds in mountains and foothills, usually >700 meters in elevation. Forages over wooded areas and more open habitats, including towns.
Merlin	*Falco columbarius*	Bird	Known in the study area		Seen during the nesting season at Marymoor Park.
Purple Martin	*Progne subis*	Bird	Known in the study area		Nests in structures over water bodies, including natural cavities, pilings, and man-made housing structures. Forages over open water or wet areas for insects while in flight. Nesting

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Common Name	**Scientific Name**	**Animal Group**	**Expected Occurrence in Study Area**		**Preferred Habitat / Basis for Occurrence Determination**
			Likely Present	**Possibly Present**	
					observed at Marymoor Park in 2003, but no activity since. Population believed to be in decline throughout its range.
Western Grebe	*Aechmophorus occidentalis*	Bird	Known in the study area		Nests in colonies numbering up to several hundred birds on large inland lakes or in coastal marshes of the western United States. Birds breeding in the northern extent of their range migrate to the western coastal ocean to spend the winter.
Great Blue Heron	*Ardea herodias*	Bird	Known in the study area		Nests in small to medium sized colonies ranging from 3 to 30 nests. Colonies usually in secluded deciduous forests, but can adapt to some levels of disturbance gradually, over time. Will use conifer forests occasionally. Colonies often <1mile away from wetland or large water bodies. Listed due to its sensitivity to disturbances and dependence on wetlands, wet meadows, and water bodies.
Osprey	*Pandion haliaetus*	Bird	Known in the study area		Nests in exposed trees or platforms that provide a clear, unobstructed view of surrounding area. Nests close to large bodies of water. Territorial. Several known active nests and territories in Segments B, C, and E.
Green Heron	*Butorides virescens*	Bird	Known in the study area		Breeds in small wetlands on a platform built nest that is either in a tree or shrub, close to the water. Feeds on small fish, insects, and amphibians. Nests at Marymoor Park.
Red-tailed Hawk	*Buteo jamaicensis*	Bird	Known in the study area		Found in areas with a mix of forests and open spaces, including agricultural land, grasslands, wetlands and meadows. Small mammals, especially rodents, are their primary prey.
Townsend's western Big-eared Bat	*Corynorhinus townsendii townsendii*	Bat		May Occur	Areas with a mosaic of woodland/grassland and/or shrub land, esp. coniferous mosaics. Found in Pierce County, Fort Lewis.

TABLE 4
Designated Locally Important Wildlife in the City of Bellevue

Common Name	Scientific Name	Animal Group	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
			Likely Present	**Possibly Present**	
Keen's myotis	(*Myotis keenii*	Bat		Unlikely to occur in the study area.	Keen's myotis has one of the most limited ranges of any bat species in North America**.** Habitat use is restricted to dense forests with old growth characteristics. Range is limited to the Olympia Peninsula and low elevation conifer forests in Puget Sound region.
Long-legged myotis	*Myotis volans*	Bat		May occur	Occurs in forested areas statewide. Prefers mountainous, coniferous forests. Often found along forest edges, can occur at high elevations in cool, wet forests.
Long-eared myotis	*Myotis evoti*	Bat		May occur	Found in wooded areas statewide; however, it is most common in eastern Washington lodgepole pine forests. Does occur in humid coastal forests with good ground cover. Will occur in any forested habitat except those with no ground cover or in mid-to-high density developments.
Oregon spotted frog	*Rana pretios*)	Amphibian		Unlikely to occur in the study area.	Highly aquatic amphibian, usually found in or near permanent bodies of still water 9 acres in size or more, including lakes, marshes, and wetlands, and vegetated, slow-flowing perennial streams. Population has experienced heavy declines in the last 20 years. In 1997, only three known populations remained in Washington.
Western Toad	*Bufo boreas*	Amphibian		May Occur	Found in a variety of habitats, including slow-moving rivers and streams, and near ponds and lakes. Large population declines in the Northwest. Listed as occurring in the Lake Washington Basin.
Western pond turtle	*Clemmys marmorata*	Amphibian		Unlikely to occur in the study area.	The western pond turtle is a highly aquatic turtle that has been extirpated from almost all of its Washington range. The Washington population consists of a few isolated and scattered populations. The range historically included streams, ponds, lakes, and permanent and ephemeral wetlands throughout the Puget Sound lowlands

TABLE 4
Designated Locally Important Wildlife in the City of Bellevue

Common Name	Scientific Name	Animal Group	Expected Occurrence in Study Area		Preferred Habitat / Basis for Occurrence Determination
			Likely Present	**Possibly Present**	
Chinook salmon	*Oncorhynchus tshawytscha*	Fish	Known in the study area		Found in Lake Washington, Sammamish River, and Bear Creek, Mercer Slough, Kelsey Creek, Sturtevant Creek, West Tributary to Kelsey Creek, Goff Creek, Valley Creek, and Sears Creek. Found in Segments A, B, D, and E.
bull trout	*Salvelinus confluentus*	Fish	Known in the study area		Found in Lake Washington, and possibly in Sammamish River and Bear Creek, but rare in all cases. Found in Segment A, and possibly in Segment E.
Coho salmon	*Oncorhynchus kisutch*	Fish	Known in the study area		Found in Lake Washington, Sammamish River, and Bear Creek, Mercer Slough, Kelsey Creek, West Tributary to Kelsey Creek, Goff Creek, Valley Creek, and Sears Creek. Found in Segments A, B, D, and E.
River lamprey	*Lampetra fluviatilis*	Fish	Known in the study area		Found in Mercer Slough, Kelsey Creek, Sammamish River, and Bear Creek. Found in Segments A, B, and E.

City of Mercer Island Locally Important Species

The City of Mercer Island Comprehensive Land Use Plan includes Ordinance No. 05C-12, which details their critical areas regulations. In order to streamline their critical areas regulations, the City of Mercer Island adopted WDFW's Priority Habitat and Species program in its entirety in 1998. The City of Mercer Island relies solely on the United State Fish and Wildlife Service (USFWS) and WDFW for species listings. WDFW management guidelines and recommendations for state listed species are followed. In addition, the City of Mercer Island's City Council has not designated any species as having local importance.

City of Redmond Locally Important Species

The City of Redmond's Critical Areas Ordinance (Ordinance #2259) applies species protection to State Species of Concern, Priority Species designated by WDFW, and locally important species. Only one species, the great blue heron, is currently listed as a locally important species in Redmond. The red-tailed hawk was listed as a locally important species until 2004.

Redmond's critical areas ordinance established a set of recommendations for development within the urban growth boundaries of the city. These recommendations focus on using incentive programs, density transfers and existing state regulations to minimize impacts to natural areas. This is accomplished by clustering developments and, when possible, avoiding development in critical areas or their buffers. The primary framework of habitat management in the City of Redmond is the creation of habitat reserves and linking these reserves together using wildlife corridors. Following guidelines established in NE-79 and NE-90, the City of Redmond recommends using reserves and corridors to reduce the effects of habitat fragmentation. Section NE-84 also calls for protecting habitats having a primary association with state and federally listed species and candidate species, and species of local importance.

Conclusion

Locally important wildlife species do occur in the East Link project area. WDFW has been contacted in regards to any mitigation or conservation measures they may require for the East Link project. Any conservation measures will follow the management guidelines established by WDFW for those specific species. These guidelines and recommendations may be enforceable if they fall under the guidance of state regulations such as SEPA. In addition, WDFW or King County may also require management guidelines to lessen the impact to locally important species as detailed in their critical areas ordinances.

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Appendix F

Wetland and Wetland Buffer Impact Data and Maps

TABLE F1-1
Temporary Construction Impacts on Wetlands by Project Alternative

Project Alternative	**Wetland Name**	**Wetland Category**	**Wetland Area Affected (acres)** [a]
SEGMENT B			
Preferred B2M	**Connecting to *C11A* or *C9T***		
	WR-1/2—Mercer Slough Wetland	2	0.5
***Preferred B2M* Total**			**0.5**
B1			
	WR-1/2—Mercer Slough Wetland	2	0.9
B1 Total			**0.9**
B2A			
	WR-1/2—Mercer Slough Wetland	2	0.5
	WR-3—Sturtevant Creek Wetland	2	0.1
B2A Total			**0.7**
B2E			
	WR-1/2—Mercer Slough Wetland	2	0.4
	WR-3—Sturtevant Creek Wetland	2	0.1
B2E Total			**0.6**
B3			
	WR-1/2—Mercer Slough Wetland	2	0.5
	WR-3—Sturtevant Creek Wetland	2	0.7
B3 Total			**1.2**
B3-Design Option			
	WR-1/2—Mercer Slough Wetland	2	0.6
B3-Design Option Total			**0.6**
B7			
	WR-1/2—Mercer Slough Wetland	2	2.3
	WR-3—Sturtevant Creek Wetland	2	0.1
	WR-4—Mercer Slough/I-90 Wetland	4	<0.1
	WR-5—118th Avenue SE Wetland	2	0.5
B7 Total			**2.9**
SEGMENT C			
C14E-B3			
	WR-16—Hilton Stormwater Pond	3	0.1
C14E Total			**0.1**
C9A-B3			
	WR-16—Hilton Stormwater Pond	3	0.1

TABLE F1-1
Temporary Construction Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Area Affected (acres) [a]
C9A Total			**0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
	WR-17—120th Avenue NE/NE 12th Street Wetland	3	0.2
***Preferred D2A* Total**			**0.5**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via 12th Total			**0.3**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via BNSF total			**0.2**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D3 via 12th Total			**0.1**
D3 via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1

TABLE F1-1
Temporary Construction Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Area Affected (acres) [a]
D3 via BNSF total			**0.1**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.2
D5 via 12th Total			**0.4**
D5 via BNSF	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.2
D5 via BNSF total			**0.4**
SEGMENT E			
Preferred E2			
	WR-12—Bear Creek Wetland	2	0.1
***Preferred E2* Total**			**0.1**
E2-Redmond Transit Center Design Option			
	WR-12—Bear Creek Wetland	2	0.2
E2-Redmond Transit Center Design Option Total			**0.2**
E1			
	WR-12—Bear Creek Wetland	2	0.1
E1 Total			**0.1**
E4			
	WR-12—Bear Creek Wetland	2	<0.1
E4 Total			**<0.1**

[a] Totals for each alternative rounded to the nearest 0.1 acre.
[b] Impacts with D2A – 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT B			
Preferred B2M-C11A	**Connecting to *C11A***		
	WR-1/2—Mercer Slough Wetland	2	4.0
***Preferred B2M-C11A* Total**			**4.0**
Preferred B2M-C9T	**Connecting to *C9T***		
	WR-1/2—Mercer Slough Wetland	2	3.6
	WR-3—Sturtevant Creek Wetland	2	0.1
***Preferred B2M-C9T* Total**			**3.7**
B1			
	WR-1/2—Mercer Slough Wetland	2	3.0
B1 Total			**3.0**
B2A			
	WR-1/2—Mercer Slough Wetland	2	3.5
	WR-3—Sturtevant Creek Wetland	2	0.2
B2A Total			**3.7**
B2E			
	WR-1/2—Mercer Slough Wetland	2	3.4
	WR-3—Sturtevant Creek Wetland	2	0.2
B2E Total			**3.5**
B3			
	WR-1/2—Mercer Slough Wetland	2	3.6
	WR-3—Sturtevant Creek Wetland	2	0.3
B3 Total			**3.9**
B3 Design Option			
	WR-1/2—Mercer Slough Wetland	2	4.8
	WR-3—Sturtevant Creek Wetland	2	<0.1
B3 Design Option Total			**4.8**
B7			
	WR-1/2—Mercer Slough Wetland	2	0.3
	WR-3—Sturtevant Creek Wetland	2	0.1
	WR-5—118th Avenue SE Wetland	2	0.1
B7 Total			**0.6**

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT C			
***Preferred C11A*-B3, B7** ***Preferred C9T*, *C9T*-B3, B7** **C2T-B3, B7** **C3T-B3, B7** **C4A-B3, B7** **C7E-B3, B7** **C8E-B3, B7** **C9A-B3, B7** **C14E-B3, B7**			
	WR-16—Hilton Stormwater Pond	3	0.1
C-B3/B7 Total			**0.1**
Preferred C9T-B2M			
	WR-16—Hilton Stormwater Pond	3	,0.1
Preferred C9T-B2M Total			**<0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.5
	WR-8—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-9—Allied Waste Wetland	3	0.3
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR-15— Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
	WR-17—120th Avenue NE/NE 12th Street Wetland	3	0.3
***Preferred D2A* Total**			**1.7**
D2A-NE 24th Design Option			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.5
	WR-8—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-9—Allied Waste Wetland	3	0.3
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	0.1

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR-15— Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
	WR-17—120th Avenue NE/NE 12th Street Wetland	3	0.3
D2A-NE 24th Design Option Total			**1.7**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR-15— Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via 12th Total			**0.7**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
	WR-10W—West of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR- 15 –Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via BNSF Total			**0.6**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
D3 via 12th Total			**0.1**
D3 via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
D3 via BNSF Total			**0.1**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via 12th Total			**0.8**
D5 via BNSF			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via BNSF Total			**0.8**
SEGMENT E			
***Preferred* E2**			
	WR-12—Bear Creek Wetland	2	0.6
	WR-13—Marymoor Park Wetland	3	0.3
***Preferred* E2 Total**			**0.9**
E2- Design Option			
	WR-12—Bear Creek Wetland	2	0.6
	WR-13—Marymoor Park Wetland	3	0.3
E2- Design OptionTotal			**0.9**
E1			
	WR-12—Bear Creek Wetland	2	0.3
E1 Total			**0.3**
E4			
	WR-12—Bear Creek Wetland	2	0.2
E4 Total			**0.2**

[a] Totals for each alternative rounded to the nearest 0.1 acre.

[b] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

TABLE F1-3
Permanent Operational Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Category	Wetland Area Affected (acres) [a]
SEGMENT B			
Preferred B2M	**Connecting to *Preferred C11A* or *C9T***		
	WR-1/2—Mercer Slough Wetland	2	0.1
***Preferred B2M* Total**			**0.1**
B1			
	WR-1/2—Mercer Slough Wetland	2	0.2
B1 Total			**0.2**
B2A			
	WR-1/2—Mercer Slough Wetland	2	0.2
B2A Total			**0.2**
B2E			
	WR-1/2—Mercer Slough Wetland	2	0.2
B2E Total			**0.2**
B3			
	WR-1/2—Mercer Slough Wetland	2	0.2
	WR-3—Sturtevant Creek Wetland	2	0.5
B3 Total			**0.7**
B3-Design Option			
	WR-1/2—Mercer Slough Wetland	2	0.2
B3-Design Option Total			**0.2**
B7			
	WR-1/2—Mercer Slough Wetland	2	1.3
	WR-3—Sturtevant Creek Wetland	2	<0.1
	WR-4—WSDOT 118th Ave SE Wetland	4	<0.1
	WR-5—118th Avenue SE Wetland	2	0.5
B7 Total			**1.9**
SEGMENT C			
All C Alts			
	WR-16—Hilton Stormwater Pond	3	0 or <0.1
C Total			**0 or <0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.4
	WR-8SE—West Tributary to Kelsey Creek Riparian	3	<0.1

TABLE F1-3
Permanent Operational Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Category	Wetland Area Affected (acres) [a]
	Wetland		
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
***Preferred D2A* Total**			**0.5**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D2E Total			**0.3**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D2E via BNSF Total			**0.2**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D3 via 12thTotal			**0.2**
D3 via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D3 via BNSF Total			**0.2**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	<0.1
D5 Total			**0.3**

TABLE F1-3
Permanent Operational Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Category	Wetland Area Affected (acres) [a]
D5 via BNSF			
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
D5 via BNSF Total			**0.2**
SEGMENT E			
Preferred E2[c]			
	WR-12—Bear Creek Wetland	2	<0.1
	WR-13—Marymoor Park Wetland	3	0.1
***Preferred E2* Total**			**0.1**
E1			
	WR-12—Bear Creek Wetland	2	0.1
E1 Total			**0.1**
E4			
	WR-12—Bear Creek Wetland	2	<0.1
E4 Total			**<0.1**

[a] Totals for each alternative rounded to the nearest 0.1 acre.
[b] Impacts with D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.
[c] Impacts with E2 - Redmond Transit Center Design Option would not vary from those of *Preferred Alternative E2*.

TABLE F1-4
Permanent Operational Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT B			
Preferred B2M-C11A	**Connecting to *C11A***		
	WR-1/2—Mercer Slough Wetland	2	3.3
***Preferred B2M-C11A* Total**			**3.3**
Preferred B2M-C9T	**Connecting to *C9T***		
	WR-1/2—Mercer Slough Wetland	2	4.4
	WR-3—Sturtevant Creek Wetland	2	<0.1
***Preferred B2M-C9T* Total**			**4.5**
B1			
	WR-1/2—Mercer Slough Wetland	2	1.8
B1 Total			**1.8**
B2A			
	WR-1/2—Mercer Slough Wetland	2	3.3
	WR-3—Sturtevant Creek Wetland	2	0.1
B2A Total			**3.4**
B2E			
	WR-1/2—Mercer Slough Wetland	2	2.8
	WR-3—Sturtevant Creek Wetland	2	0.1
B2E Total			**2.8**
B3			
	WR-1/2—Mercer Slough Wetland	2	3.3
	WR-3—Sturtevant Creek Wetland	2	<0.1
B3 Total			**3.4**
B3-Design Option			
	WR-1/2—Mercer Slough Wetland	2	3.6
B3-Design Option Total			**3.6**
B7			
	WR-1/2—Mercer Slough Wetland	2	0.2
	WR-3—Sturtevant Creek Wetland	2	0.1
	WR-5—118th Avenue SE Wetland	2	0.1
B7 Total			**0.4**

TABLE F1-4
Permanent Operational Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT C			
All C Alts			
	WR-16—Hilton Stormwater Pond	3	0.1
C Total			**0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-9—Allied Waste Wetland	3	<0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-11—West of 140th Avenue NE Wetland	3	0.3
Preferred D2A **Total**			**0.6**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E-- East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
D2E via 12th Total			**0.5**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E-- East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
D2E via BNSF Total			**0.5**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D3 Total			**0.1**
D3 via BNSF			

TABLE F1-4
Permanent Operational Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D3 via BNSF Total			**0.1**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via 12th Total			**0.7**
D5 via BNSF			
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via BNSF Total			**0.6**
SEGMENT E			
Preferred E2			
	WR-12—Bear Creek Wetland	2	0.1
	WR-13—Marymoor Park Wetland	3	0.3
***Preferred E2* Total**			**0.4**
E2-Design Option			
	WR-12—Bear Creek Wetland	2	0.2
	WR-13—Marymoor Park Wetland	3	0.3
E2-Design Option Total			**0.5**
E1			
	WR-12—Bear Creek Wetland	2	0.2
E1 Total			**0.2**
E4			
	WR-12—Bear Creek Wetland	2	0.2
E4 Total			**0.2**

[a] Totals for each alternative rounded to the nearest 0.1 acre.
[b] Impacts with D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.

Appendix F

Wetland and Wetland Buffer Impact Data and Maps

TABLE F1-1
Temporary Construction Impacts on Wetlands by Project Alternative

Project Alternative	**Wetland Name**	**Wetland Category**	**Wetland Area Affected (acres)** [a]
SEGMENT B			
Preferred B2M	**Connecting to *C11A* or *C9T***		
	WR-1/2—Mercer Slough Wetland	2	0.5
***Preferred B2M* Total**			**0.5**
B1			
	WR-1/2—Mercer Slough Wetland	2	0.9
B1 Total			**0.9**
B2A			
	WR-1/2—Mercer Slough Wetland	2	0.5
	WR-3—Sturtevant Creek Wetland	2	0.1
B2A Total			**0.7**
B2E			
	WR-1/2—Mercer Slough Wetland	2	0.4
	WR-3—Sturtevant Creek Wetland	2	0.1
B2E Total			**0.6**
B3			
	WR-1/2—Mercer Slough Wetland	2	0.5
	WR-3—Sturtevant Creek Wetland	2	0.7
B3 Total			**1.2**
B3-Design Option			
	WR-1/2—Mercer Slough Wetland	2	0.6
B3-Design Option Total			**0.6**
B7			
	WR-1/2—Mercer Slough Wetland	2	2.3
	WR-3—Sturtevant Creek Wetland	2	0.1
	WR-4—Mercer Slough/I-90 Wetland	4	<0.1
	WR-5—118th Avenue SE Wetland	2	0.5
B7 Total			**2.9**
SEGMENT C			
C14E-B3			
	WR-16—Hilton Stormwater Pond	3	0.1
C14E Total			**0.1**
C9A-B3			
	WR-16—Hilton Stormwater Pond	3	0.1

TABLE F1-1
Temporary Construction Impacts on Wetlands by Project Alternative

Project Alternative	**Wetland Name**	**Wetland Category**	**Wetland Area Affected (acres)** [a]
C9A Total			**0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
	WR-17—120th Avenue NE/NE 12th Street Wetland	3	0.2
Preferred D2A **Total**			**0.5**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via 12th Total			**0.3**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via BNSF total			**0.2**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D3 via 12th Total			**0.1**
D3 via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1

TABLE F1-1
Temporary Construction Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Area Affected (acres) [a]
D3 via BNSF total			**0.1**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.2
D5 via 12th Total			**0.4**
D5 via BNSF	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.2
D5 via BNSF total			**0.4**
SEGMENT E			
Preferred E2			
	WR-12—Bear Creek Wetland	2	0.1
***Preferred E2* Total**			**0.1**
E2-Redmond Transit Center Design Option			
	WR-12—Bear Creek Wetland	2	0.2
E2-Redmond Transit Center Design Option Total			**0.2**
E1			
	WR-12—Bear Creek Wetland	2	0.1
E1 Total			**0.1**
E4			
	WR-12—Bear Creek Wetland	2	<0.1
E4 Total			**<0.1**

[a] Totals for each alternative rounded to the nearest 0.1 acre.
[b] Impacts with D2A – 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT B			
Preferred B2M-C11A	**Connecting to *C11A***		
	WR-1/2—Mercer Slough Wetland	2	4.0
***Preferred B2M-C11A* Total**			**4.0**
Preferred B2M-C9T	**Connecting to *C9T***		
	WR-1/2—Mercer Slough Wetland	2	3.6
	WR-3—Sturtevant Creek Wetland	2	0.1
***Preferred B2M-C9T* Total**			**3.7**
B1			
	WR-1/2—Mercer Slough Wetland	2	3.0
B1 Total			**3.0**
B2A			
	WR-1/2—Mercer Slough Wetland	2	3.5
	WR-3—Sturtevant Creek Wetland	2	0.2
B2A Total			**3.7**
B2E			
	WR-1/2—Mercer Slough Wetland	2	3.4
	WR-3—Sturtevant Creek Wetland	2	0.2
B2E Total			**3.5**
B3			
	WR-1/2—Mercer Slough Wetland	2	3.6
	WR-3—Sturtevant Creek Wetland	2	0.3
B3 Total			**3.9**
B3 Design Option			
	WR-1/2—Mercer Slough Wetland	2	4.8
	WR-3—Sturtevant Creek Wetland	2	<0.1
B3 Design Option Total			**4.8**
B7			
	WR-1/2—Mercer Slough Wetland	2	0.3
	WR-3—Sturtevant Creek Wetland	2	0.1
	WR-5—118th Avenue SE Wetland	2	0.1
B7 Total			**0.6**

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT C			
***Preferred C11A*-B3, B7** ***Preferred C9T*, *C9T*-B3, B7** **C2T-B3, B7** **C3T-B3, B7** **C4A-B3, B7** **C7E-B3, B7** **C8E-B3, B7** **C9A-B3, B7** **C14E-B3, B7**			
	WR-16—Hilton Stormwater Pond	3	0.1
C-B3/B7 Total			**0.1**
Preferred C9T-B2M			
	WR-16—Hilton Stormwater Pond	3	,0.1
Preferred C9T-B2M Total			**<0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.5
	WR-8—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-9—Allied Waste Wetland	3	0.3
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR-15— Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
	WR-17—120th Avenue NE/NE 12th Street Wetland	3	0.3
***Preferred D2A* Total**			**1.7**
D2A-NE 24th Design Option			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.5
	WR-8—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-9—Allied Waste Wetland	3	0.3
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	0.1

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR-15— Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
	WR-17—120th Avenue NE/NE 12th Street Wetland	3	0.3
D2A-NE 24th Design Option Total			**1.7**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR-15— Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via 12th Total			**0.7**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
	WR-10W—West of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
	WR- 15 –Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D2E via BNSF Total			**0.6**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
D3 via 12th Total			**0.1**
D3 via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland Southeast	3	0.1
D3 via BNSF Total			**0.1**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2

TABLE F1-2
Temporary Construction Impacts on Wetland Buffers by Project Alternative

Project Alternative	**Wetland Name**	**Wetland Category**	**Wetland Buffer Area Affected (acres)** [a]
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via 12th Total			**0.8**
D5 via BNSF			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via BNSF Total			**0.8**
SEGMENT E			
***Preferred* E2**			
	WR-12—Bear Creek Wetland	2	0.6
	WR-13—Marymoor Park Wetland	3	0.3
***Preferred* E2 Total**			**0.9**
E2- Design Option			
	WR-12—Bear Creek Wetland	2	0.6
	WR-13—Marymoor Park Wetland	3	0.3
E2- Design OptionTotal			**0.9**
E1			
	WR-12—Bear Creek Wetland	2	0.3
E1 Total			**0.3**
E4			
	WR-12—Bear Creek Wetland	2	0.2
E4 Total			**0.2**

[a] Totals for each alternative rounded to the nearest 0.1 acre.

[b] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

TABLE F1-3
Permanent Operational Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Category	Wetland Area Affected (acres) [a]
SEGMENT B			
Preferred B2M	**Connecting to *Preferred C11A* or *C9T***		
	WR-1/2—Mercer Slough Wetland	2	0.1
***Preferred B2M* Total**			**0.1**
B1			
	WR-1/2—Mercer Slough Wetland	2	0.2
B1 Total			**0.2**
B2A			
	WR-1/2—Mercer Slough Wetland	2	0.2
B2A Total			**0.2**
B2E			
	WR-1/2—Mercer Slough Wetland	2	0.2
B2E Total			**0.2**
B3			
	WR-1/2—Mercer Slough Wetland	2	0.2
	WR-3—Sturtevant Creek Wetland	2	0.5
B3 Total			**0.7**
B3-Design Option			
	WR-1/2—Mercer Slough Wetland	2	0.2
B3-Design Option Total			**0.2**
B7			
	WR-1/2—Mercer Slough Wetland	2	1.3
	WR-3—Sturtevant Creek Wetland	2	<0.1
	WR-4—WSDOT 118th Ave SE Wetland	4	<0.1
	WR-5—118th Avenue SE Wetland	2	0.5
B7 Total			**1.9**
SEGMENT C			
All C Alts			
	WR-16—Hilton Stormwater Pond	3	0 or <0.1
C Total			**0 or <0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.4
	WR-8SE—West Tributary to Kelsey Creek Riparian	3	<0.1

TABLE F1-3
Permanent Operational Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Category	Wetland Area Affected (acres) [a]
	Wetland		
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
***Preferred D2A* Total**			**0.5**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D2E Total			**0.3**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D2E via BNSF Total			**0.2**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D3 via 12thTotal			**0.2**
D3 via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	0.1
D3 via BNSF Total			**0.2**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	<0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	<0.1
D5 Total			**0.3**

TABLE F1-3
Permanent Operational Impacts on Wetlands by Project Alternative

Project Alternative	Wetland Name	Category	Wetland Area Affected (acres) [a]
D5 via BNSF			
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.1
D5 via BNSF Total			**0.2**
SEGMENT E			
***Preferred E2*[c]**			
	WR-12—Bear Creek Wetland	2	<0.1
	WR-13—Marymoor Park Wetland	3	0.1
***Preferred E2* Total**			**0.1**
E1			
	WR-12—Bear Creek Wetland	2	0.1
E1 Total			**0.1**
E4			
	WR-12—Bear Creek Wetland	2	<0.1
E4 Total			**<0.1**

[a] Totals for each alternative rounded to the nearest 0.1 acre.
[b] Impacts with D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.
[c] Impacts with E2 - Redmond Transit Center Design Option would not vary from those of *Preferred Alternative E2*.

TABLE F1-4
Permanent Operational Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT B			
Preferred B2M-C11A	**Connecting to *C11A***		
	WR-1/2—Mercer Slough Wetland	2	3.3
***Preferred B2M-C11A* Total**			**3.3**
Preferred B2M-C9T	**Connecting to *C9T***		
	WR-1/2—Mercer Slough Wetland	2	4.4
	WR-3—Sturtevant Creek Wetland	2	<0.1
***Preferred B2M-C9T* Total**			**4.5**
B1			
	WR-1/2—Mercer Slough Wetland	2	1.8
B1 Total			**1.8**
B2A			
	WR-1/2—Mercer Slough Wetland	2	3.3
	WR-3—Sturtevant Creek Wetland	2	0.1
B2A Total			**3.4**
B2E			
	WR-1/2—Mercer Slough Wetland	2	2.8
	WR-3—Sturtevant Creek Wetland	2	0.1
B2E Total			**2.8**
B3			
	WR-1/2—Mercer Slough Wetland	2	3.3
	WR-3—Sturtevant Creek Wetland	2	<0.1
B3 Total			**3.4**
B3-Design Option			
	WR-1/2—Mercer Slough Wetland	2	3.6
B3-Design Option Total			**3.6**
B7			
	WR-1/2—Mercer Slough Wetland	2	0.2
	WR-3—Sturtevant Creek Wetland	2	0.1
	WR-5—118th Avenue SE Wetland	2	0.1
B7 Total			**0.4**

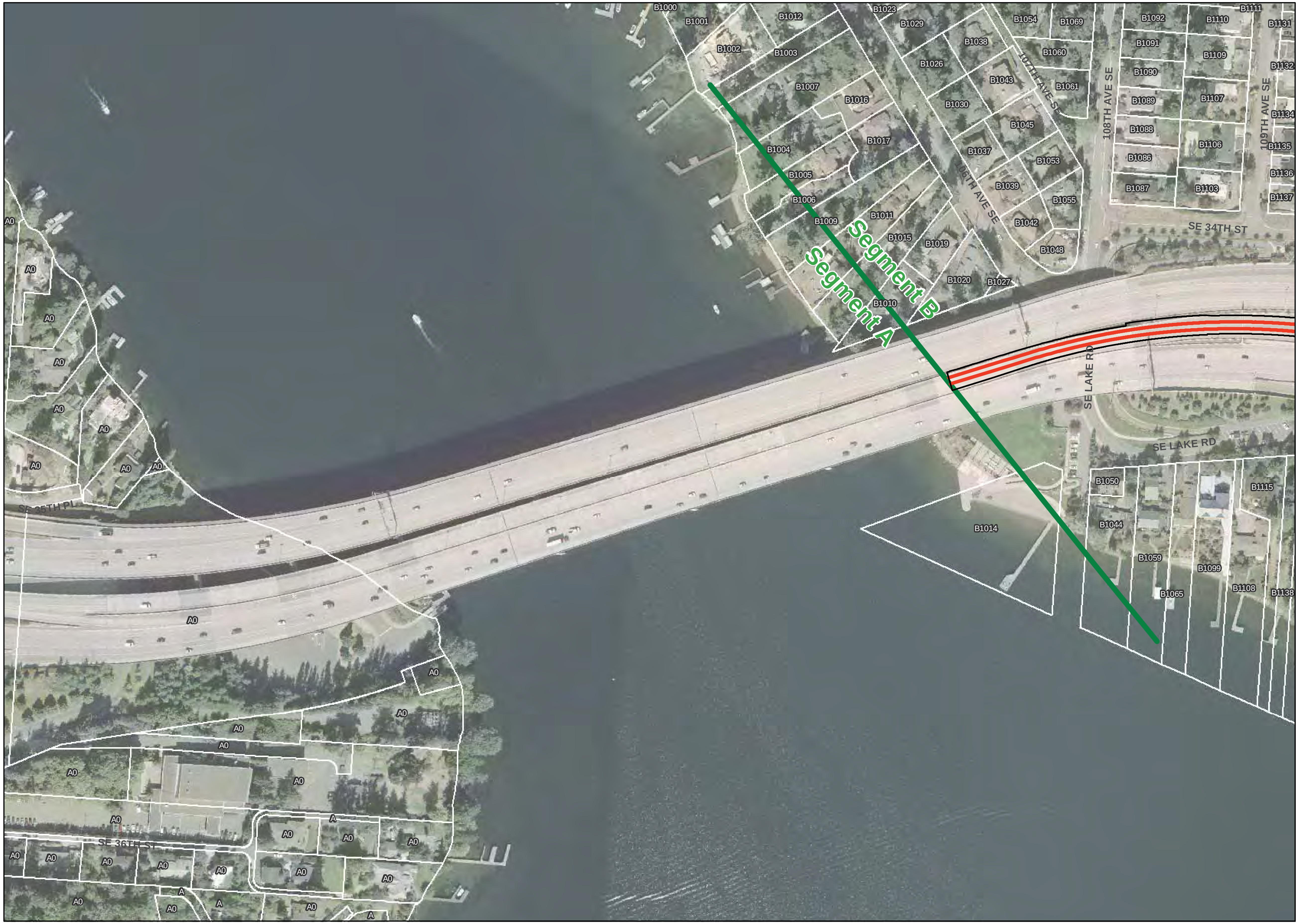
TABLE F1-4
Permanent Operational Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
SEGMENT C			
All C Alts			
	WR-16—Hilton Stormwater Pond	3	0.1
C Total			**0.1**
SEGMENT D			
Preferred D2A [b]			
	WR-7—West Tributary to Kelsey Creek Ponded Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-9—Allied Waste Wetland	3	<0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.2
	WR-11—West of 140th Avenue NE Wetland	3	0.3
***Preferred D2A* Total**			**0.6**
D2E via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E-- East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
D2E via 12th Total			**0.5**
D2E via BNSF			
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E-- East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.3
D2E via BNSF Total			**0.5**
D3 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D3 Total			**0.1**
D3 via BNSF			

TABLE F1-4
Permanent Operational Impacts on Wetland Buffers by Project Alternative

Project Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) [a]
	WR-8SE—West Tributary to Kelsey Creek Riparian Wetland	3	0.1
	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1
D3 via BNSF Total			**0.1**
D5 via 12th			
	WR-6—BNSF Matrix Wetland	3	0.1
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via 12th Total			**0.7**
D5 via BNSF			
	WR-8NW—West Tributary to Kelsey Creek Riparian Wetland	3	<0.1
	WR-10W—East of 140th Avenue NE Wetland	2	0.1
	WR-10E—East of 140th Avenue NE Wetland	4	<0.1
	WR-11—West of 140th Avenue NE Wetland	3	0.4
D5 via BNSF Total			**0.6**
SEGMENT E			
Preferred E2			
	WR-12—Bear Creek Wetland	2	0.1
	WR-13—Marymoor Park Wetland	3	0.3
***Preferred E2* Total**			**0.4**
E2-Design Option			
	WR-12—Bear Creek Wetland	2	0.2
	WR-13—Marymoor Park Wetland	3	0.3
E2-Design Option Total			**0.5**
E1			
	WR-12—Bear Creek Wetland	2	0.2
E1 Total			**0.2**
E4			
	WR-12—Bear Creek Wetland	2	0.2
E4 Total			**0.2**

[a] Totals for each alternative rounded to the nearest 0.1 acre.
[b] Impacts with D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.



Segment A
Segment B
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B1001
B1002
B1003
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B1108
B1109
B1110
B1111
B1115
B1131
B1132
B1134
B1135
B1136
B1137
B1138
A0
A
107TH AVE SE
106TH AVE SE
108TH AVE SE
109TH AVE SE
SE 34TH ST
SE LAKE RD
SE 35TH PL
SE 36TH ST

Exhibit F-1
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C11A
Sheet 1

East Link Project

🟥 At-Grade Route

▬ ▬ Elevated Route

● ● ● ● Retained-Cut Route

● ● ● ● Retained-Fill Route

▬ ▬ Tunnel Route

Operational Footprint

☐ ROW

☐ Park and Ride

Construction Footprint

☐ Construction Footprint

☐ Staging Area

▨ Station

▨ Maintenance Facility

🟩 Wetland

▭ Wetland Buffer

▭ Wetland Mitigation Site (WSDOT)

🟪 Operational Wetland Impact

🟧 Construction Wetland Impact

🟩 Operational Wetland Buffer Impact

🟦 Construction Wetland Buffer Impact

/// Wetland Mitigation Impact

▨ Stream Buffer

— Open Channel

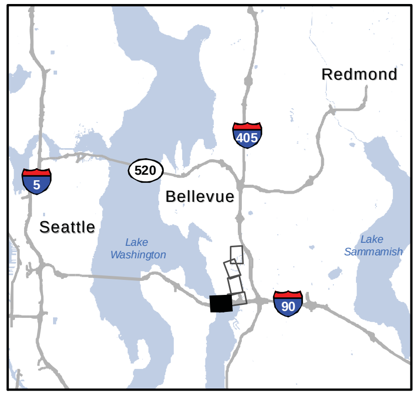
— Piped Stream

☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

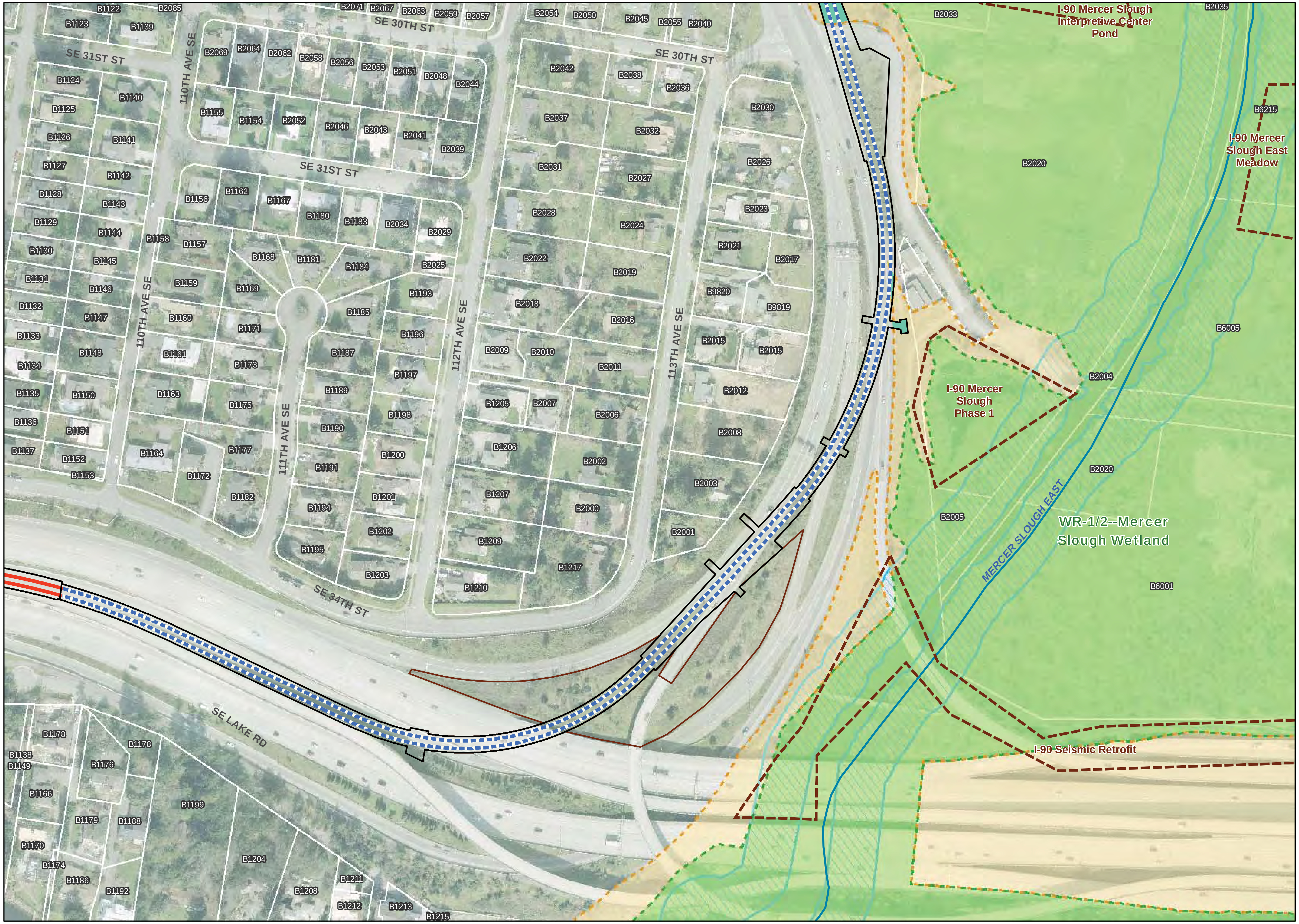
N

0 100 200 Feet



Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B2M-C11A.MXD RGRABARE 3/4/11 07:19:01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SE 31ST ST
SE 31ST ST
SE 30TH ST
110TH AVE SE
110TH AVE SE
111TH AVE SE
112TH AVE SE
113TH AVE SE
SE 34TH ST
SE LAKE RD
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
WR-1/2--Mercer Slough Wetland
MERCER SLOUGH EAST
I-90 Seismic Retrofit
B1122
B2085
B1123
B1139
B2071
B2067
B2063
B2059
B2057
B2054
B2050
B2045
B2055
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B2035
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B2042
B2038
B2036
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Exhibit F-2
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C11A
Sheet 2

East Link Project

🟥	At-Grade Route
▪▪▪	Elevated Route
●●●	Retained-Cut Route
●●●	Retained-Fill Route
▬ ▬	Tunnel Route

Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
☐	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
■	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
■	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
—	Open Channel
—	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)

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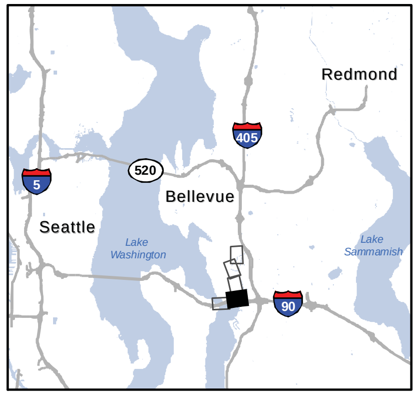
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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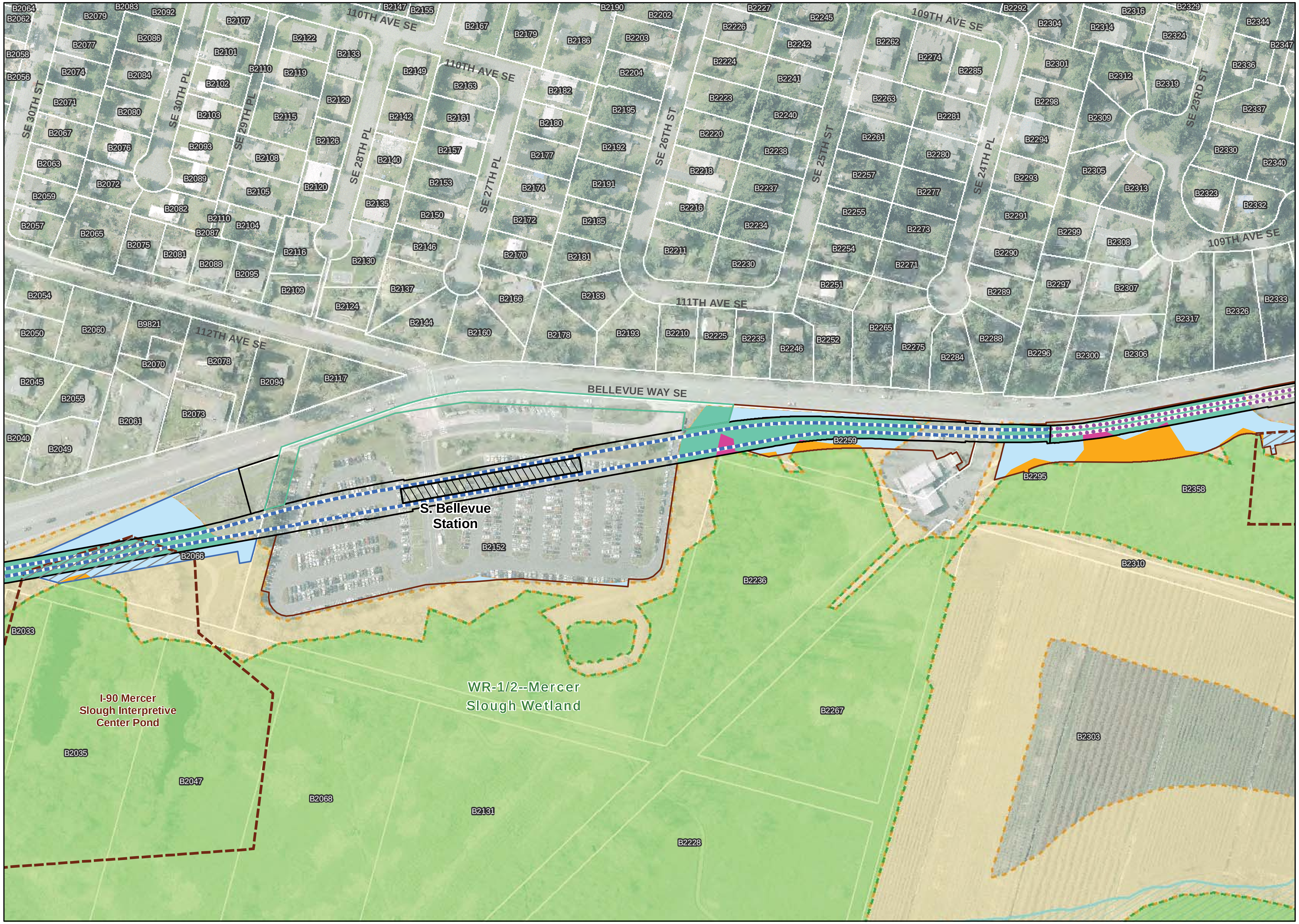

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111TH AVE SE
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SE 23RD ST
S. Bellevue Station
WR-1/2--Mercer Slough Wetland
I-90 Mercer Slough Interpretive Center Pond
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B2131
B2228

Exhibit F-3
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C11A
Sheet 3
East Link Project

— At-Grade Route
▪▪▪ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

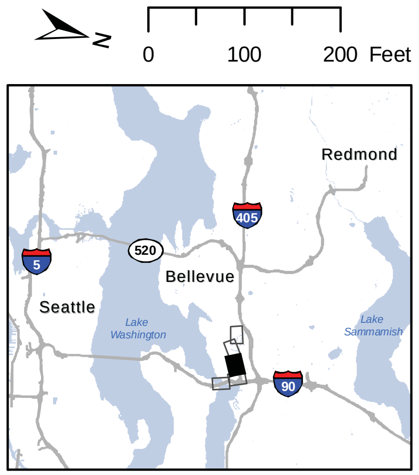
Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
🟨 Wetland Buffer
☐ Wetland Mitigation Site (WSDOT)
🟪 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
🟦 Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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Seattle
Lake Washington
Lake Sammamish
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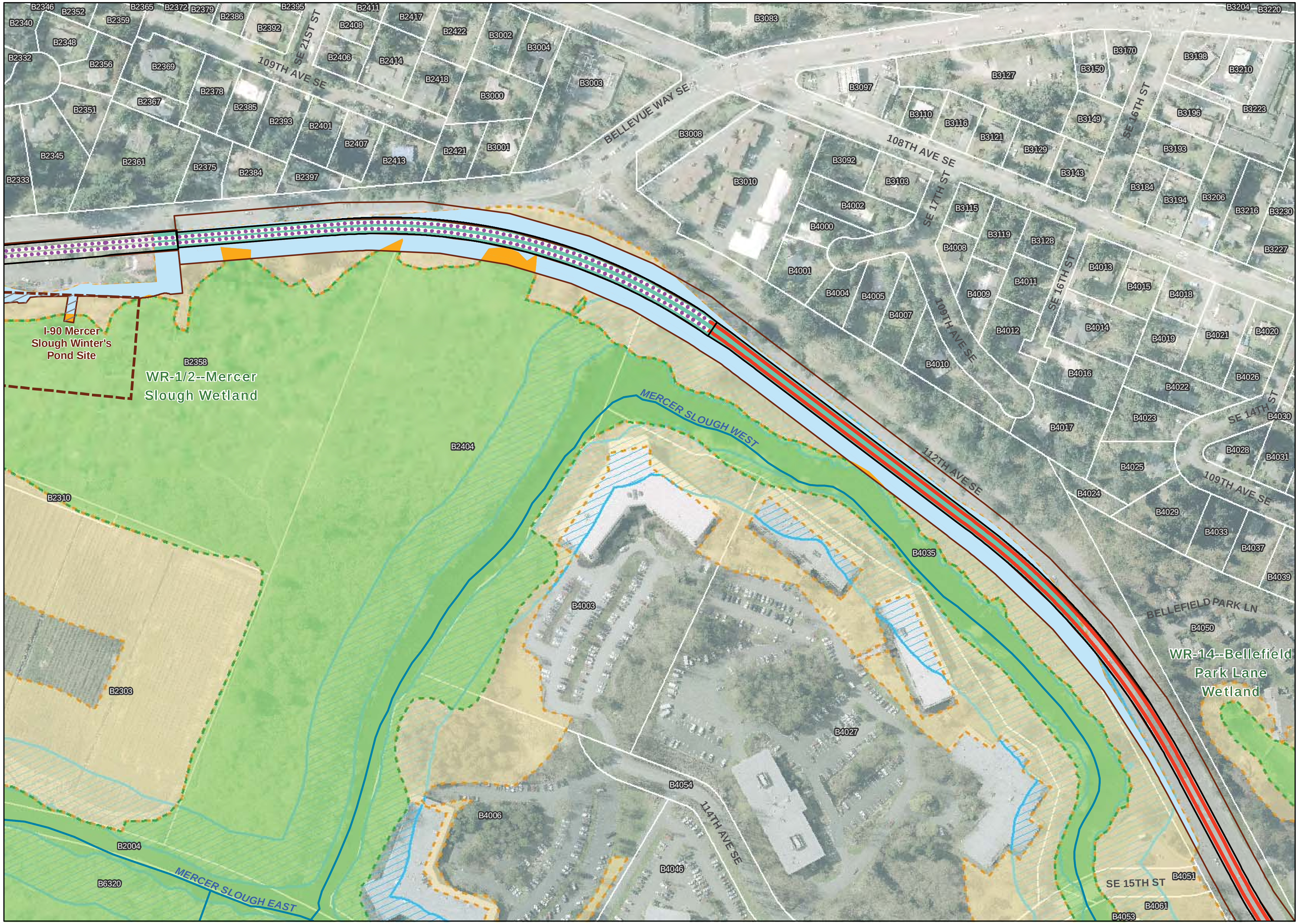
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WR-14--Bellefield Park Lane Wetland
I-90 Mercer Slough Winter's Pond Site
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WR-1/2--Mercer Slough Wetland
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MERCER SLOUGH EAST
SE 15TH ST
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Exhibit F-4
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C11A
Sheet 4
East Link Project

🟥 At-Grade Route
▬ ▬ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

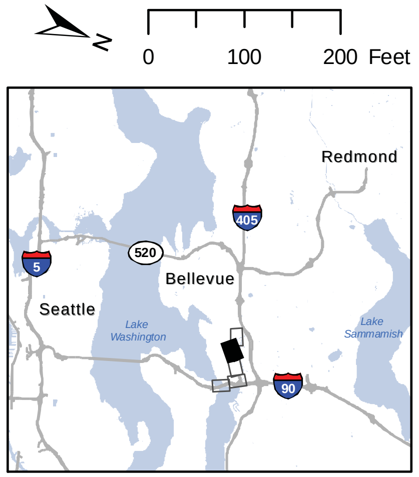
Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
🟨 Wetland Buffer
☐ Wetland Mitigation Site (WSDOT)
🟪 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
🟦 Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Lake Washington
Lake Sammamish
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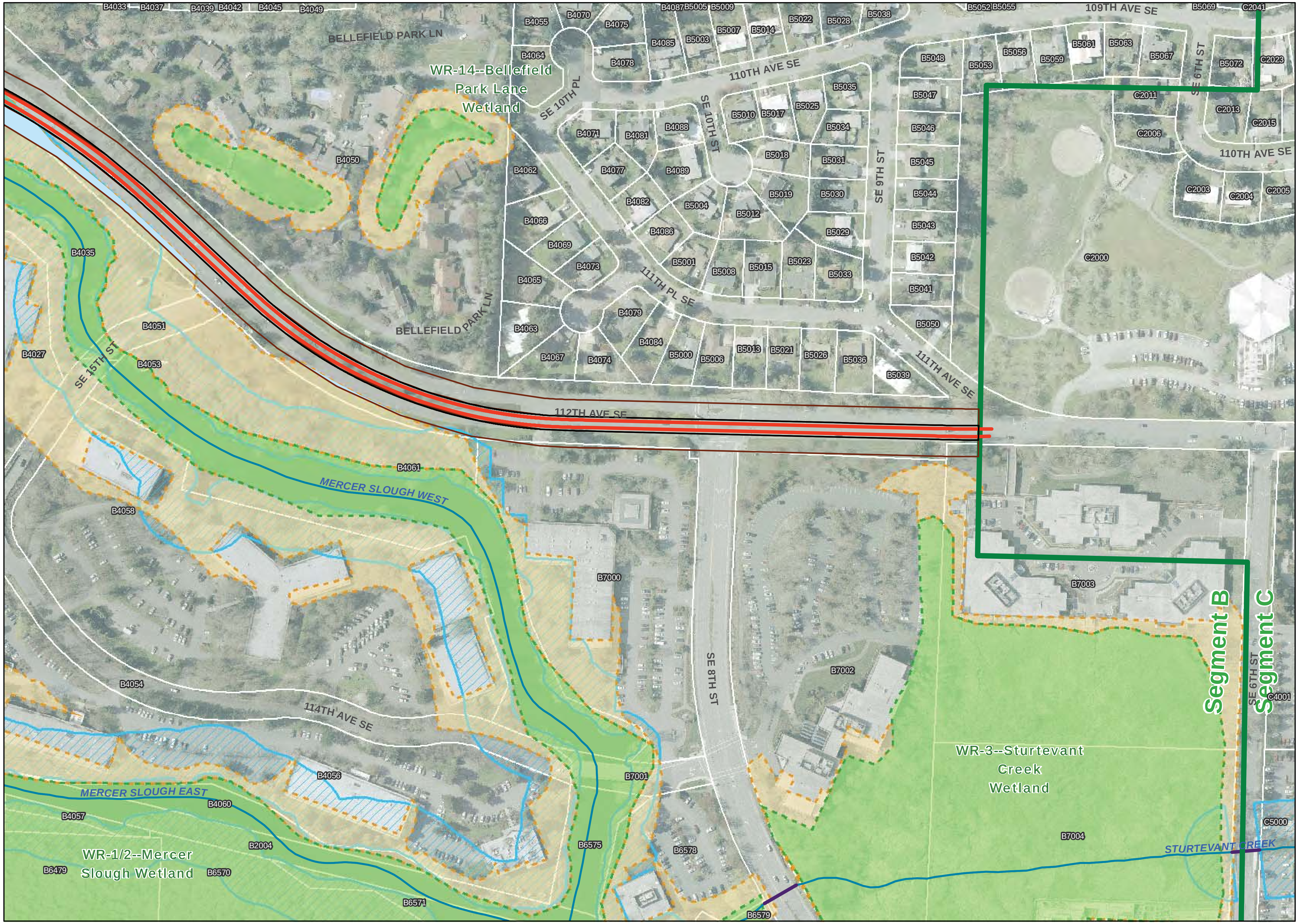
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Segment B
Segment C
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SE 6TH ST
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STURTEVANT CREEK
WR-1/2--Mercer Slough Wetland
B6479
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B6571
B6579

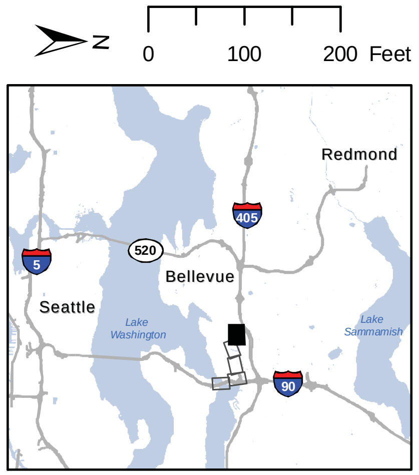
Exhibit F-5
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C11A
Sheet 5
East Link Project

- ▬ At-Grade Route
- ╍ Elevated Route
- ••• Retained-Cut Route
- ••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint
- ☐ ROW
- ☐ Park and Ride

Construction Footprint
- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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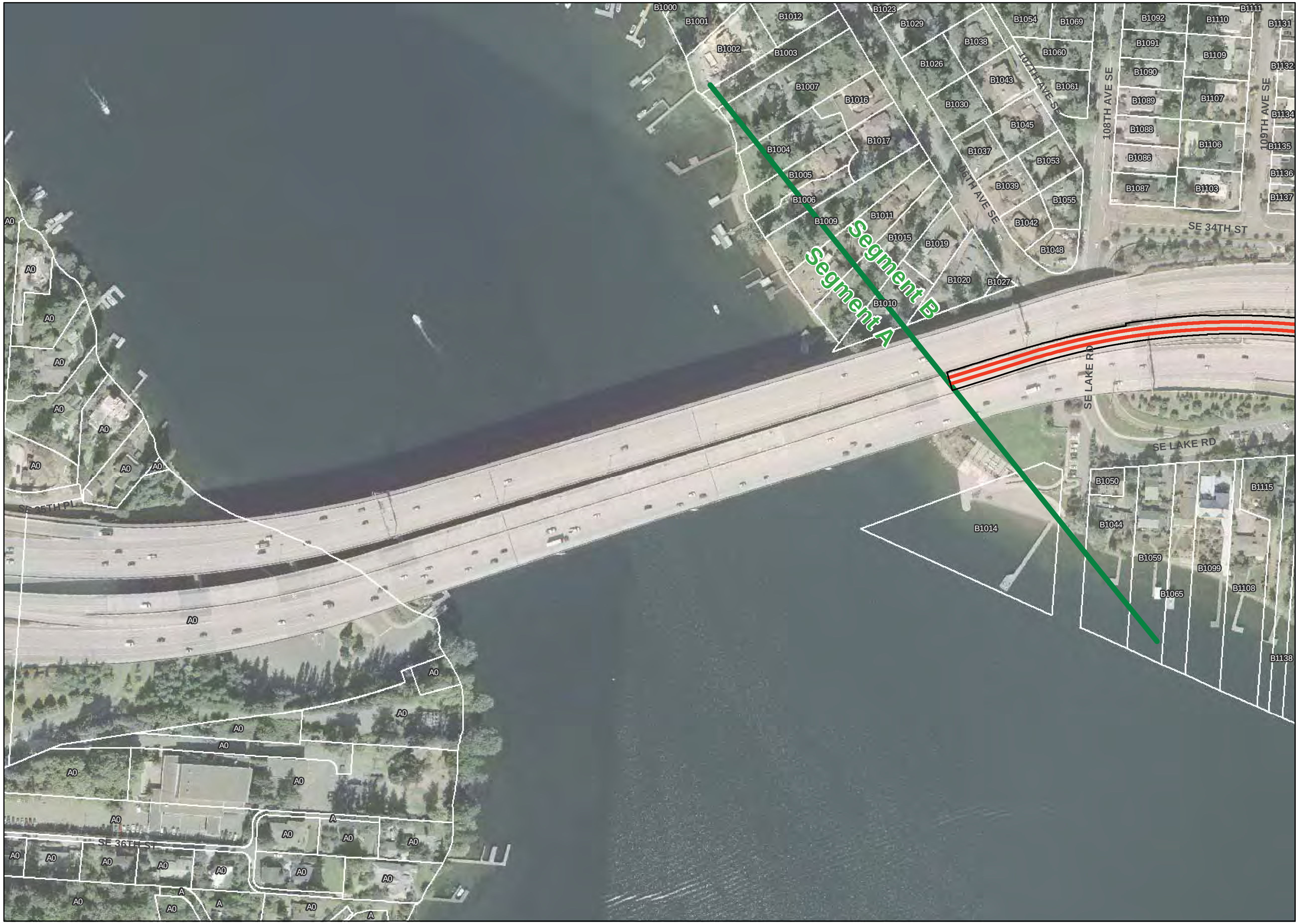
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Exhibit F-6
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C9T
Sheet 1

East Link Project

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Operational Footprint

ROW
Park and Ride

Construction Footprint

Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)

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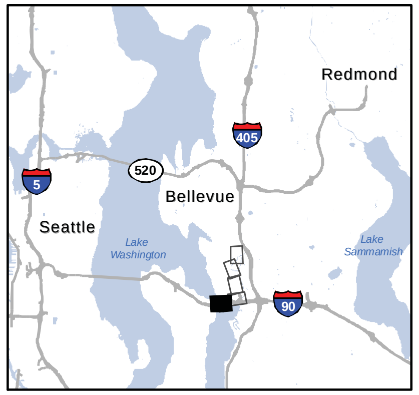
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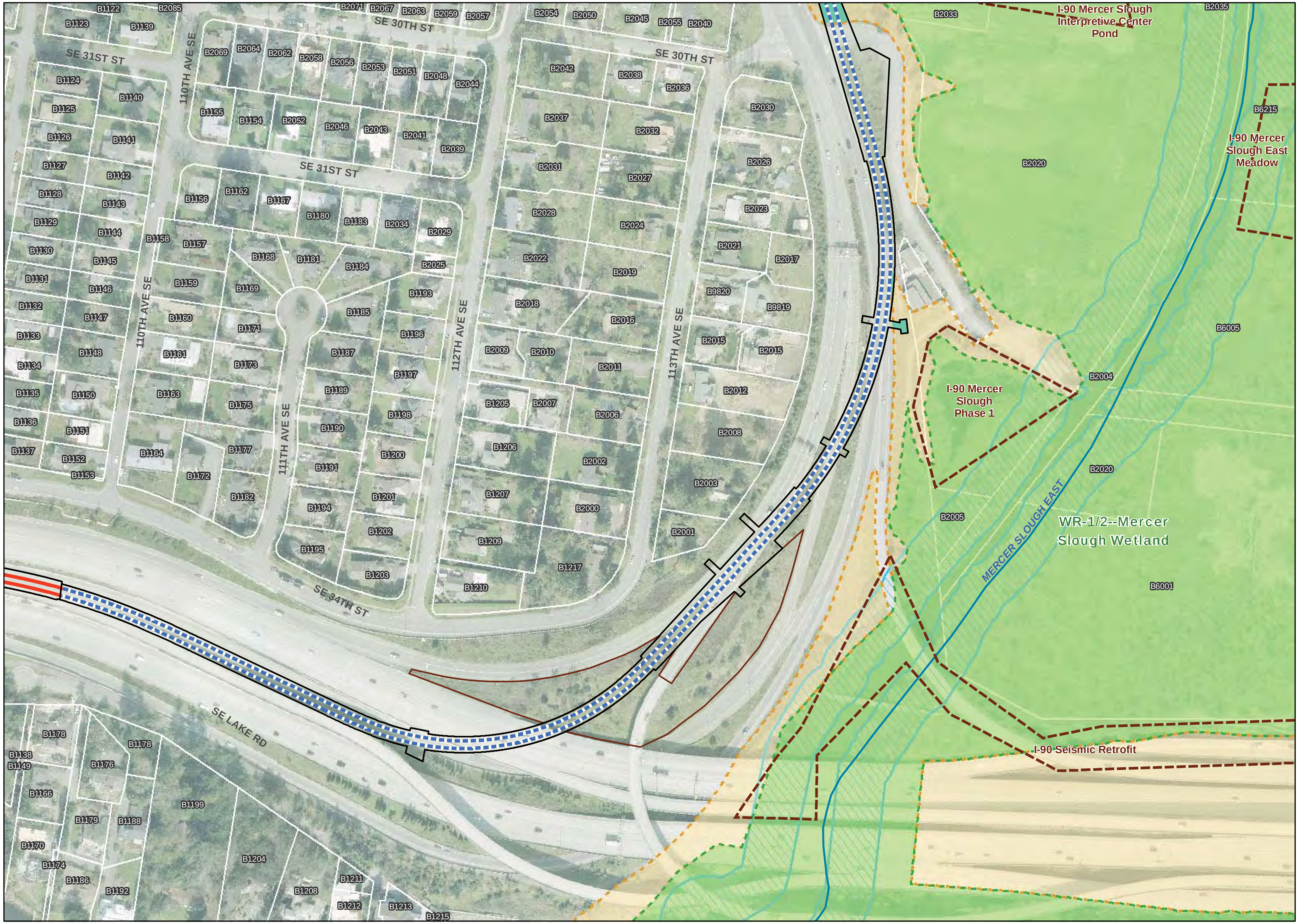
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I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
WR-1/2--Mercer Slough Wetland
MERCER SLOUGH EAST
I-90 Seismic Retrofit
SE 30TH ST
SE 30TH ST
SE 31ST ST
SE 31ST ST
SE 34TH ST
SE LAKE RD
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Exhibit F-7
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C9T
Sheet 2
East Link Project

- 🟥 At-Grade Route
- ▬ Elevated Route
- ●●● Retained-Cut Route
- ●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

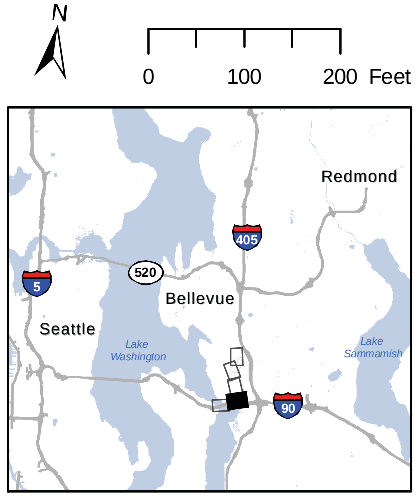
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
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Lake Sammamish
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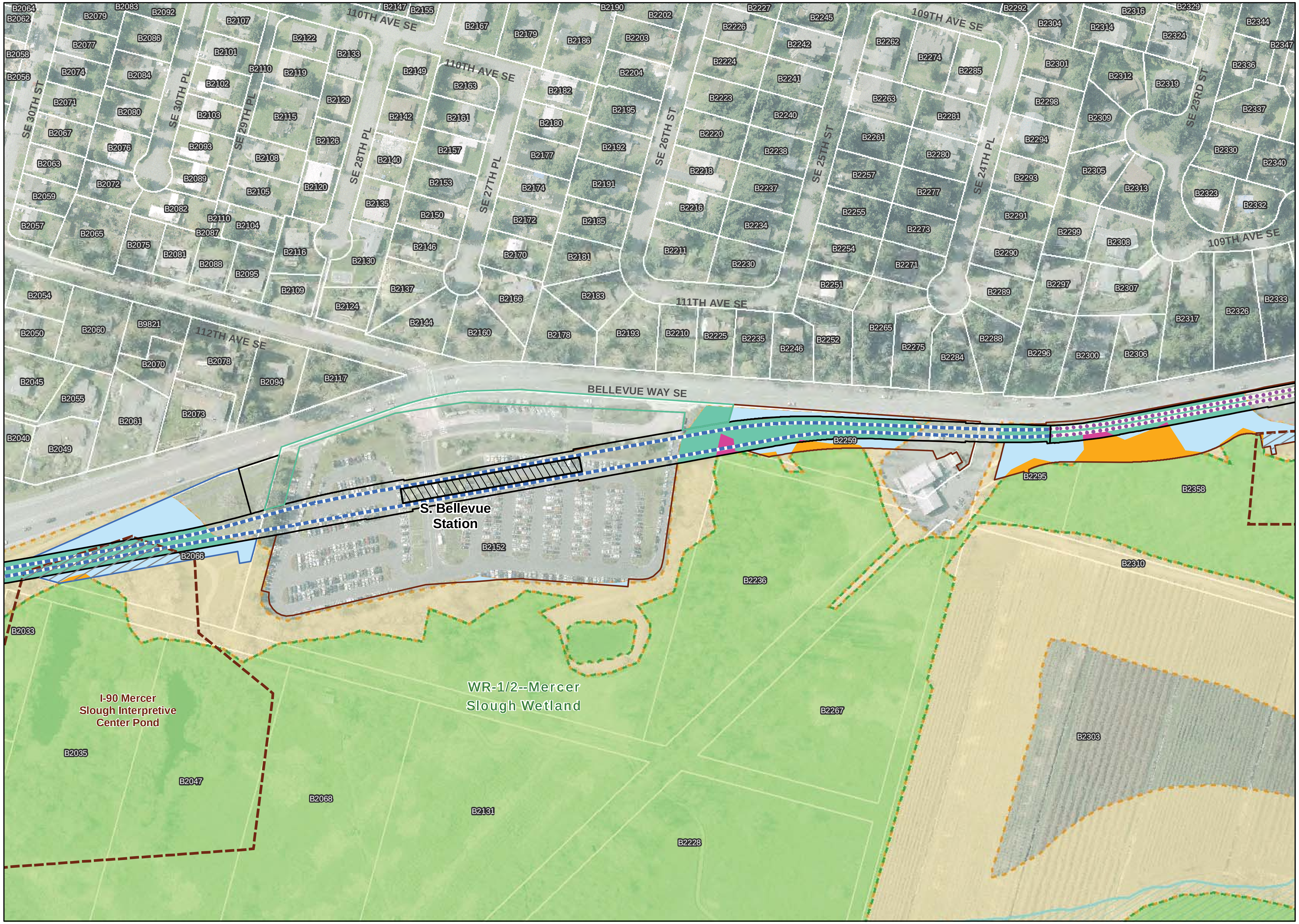
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111TH AVE SE
112TH AVE SE
SE 30TH ST
SE 30TH PL
SE 29TH PL
SE 28TH PL
SE 27TH PL
SE 26TH ST
SE 25TH ST
SE 24TH PL
SE 23RD ST
BELLEVUE WAY SE
S. Bellevue
Station
WR-1/2--Mercer
Slough Wetland
I-90 Mercer
Slough Interpretive
Center Pond
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Exhibit F-8
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C9T
Sheet 3
East Link Project

▬ At-Grade Route
┅ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

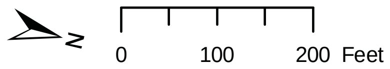
Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
🟨 Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
🟥 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
🟦 Construction Wetland Buffer Impact
//// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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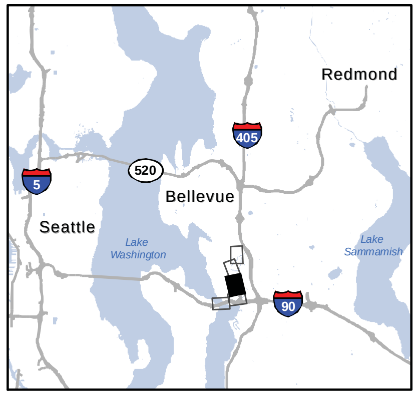
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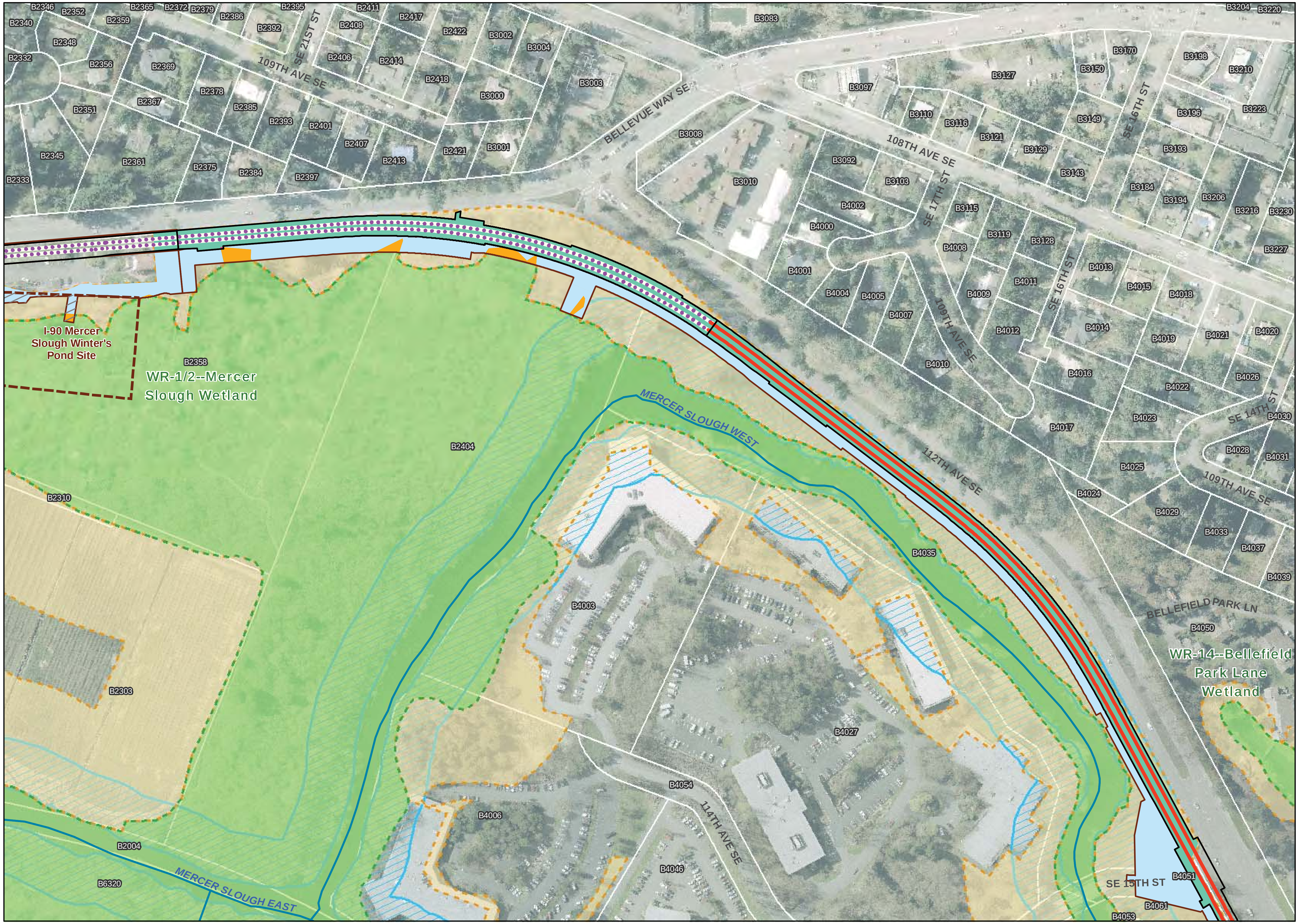
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109TH AVE SE
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BELLEVUE WAY SE
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SE 14TH ST
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112TH AVE SE
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B4039
BELLEFIELD PARK LN
B4050
WR-14--Bellefield Park Lane Wetland
I-90 Mercer Slough Winter's Pond Site
B2358
WR-1/2--Mercer Slough Wetland
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114TH AVE SE
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MERCER SLOUGH EAST
B6320
SE 15TH ST
B4051
B4061
B4053

Exhibit F-9
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C9T
Sheet 4
East Link Project

- ▬ At-Grade Route
- ╍ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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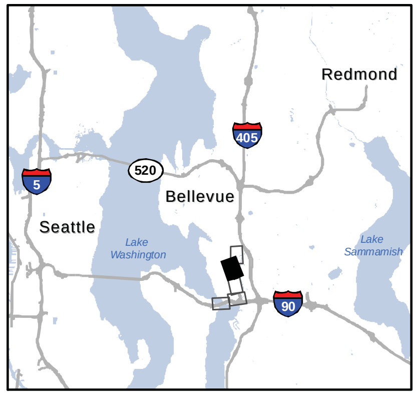
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Seattle
Lake Washington
Lake Sammamish
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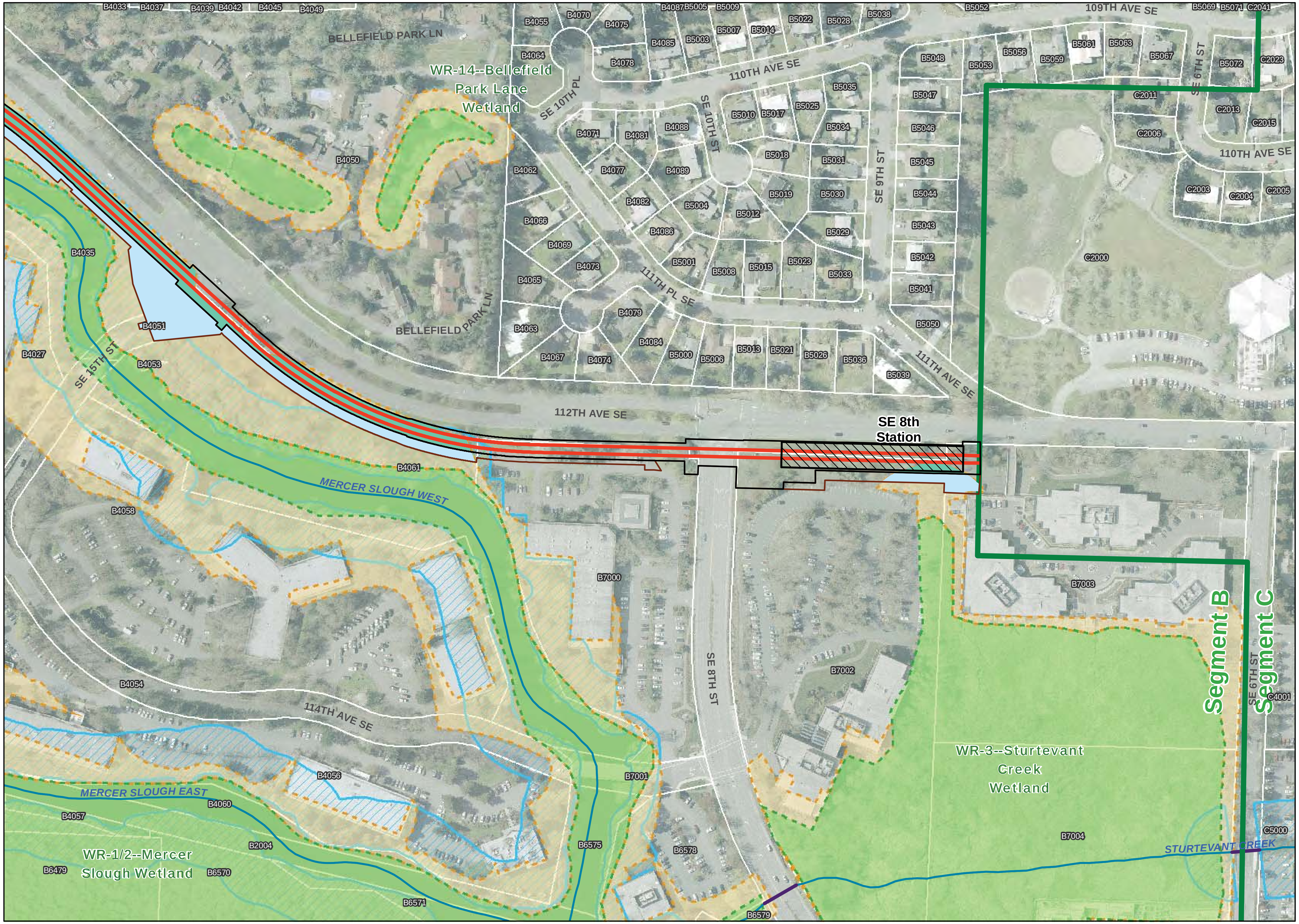
Exhibit F-10
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2M to C9T
Sheet 5

East Link Project



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WR-14--Bellefield Park Lane Wetland
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110TH AVE SE
SE 10TH ST
SE 9TH ST
109TH AVE SE
SE 6TH ST
111TH PL SE
111TH AVE SE
BELLEFIELD PARK LN
112TH AVE SE
SE 8th Station
SE 15TH ST
MERCER SLOUGH WEST
114TH AVE SE
SE 8TH ST
MERCER SLOUGH EAST
WR-1/2--Mercer Slough Wetland
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
Segment B
Segment C
C2000
B4051
B4061
B7000
B7001
B7002
B7003
B7004

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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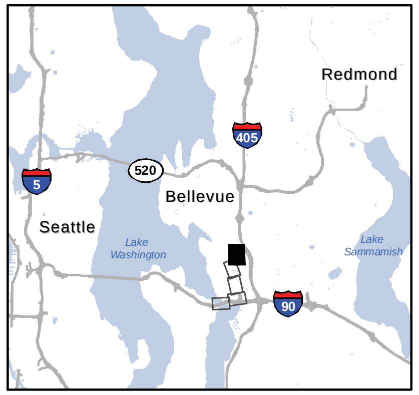

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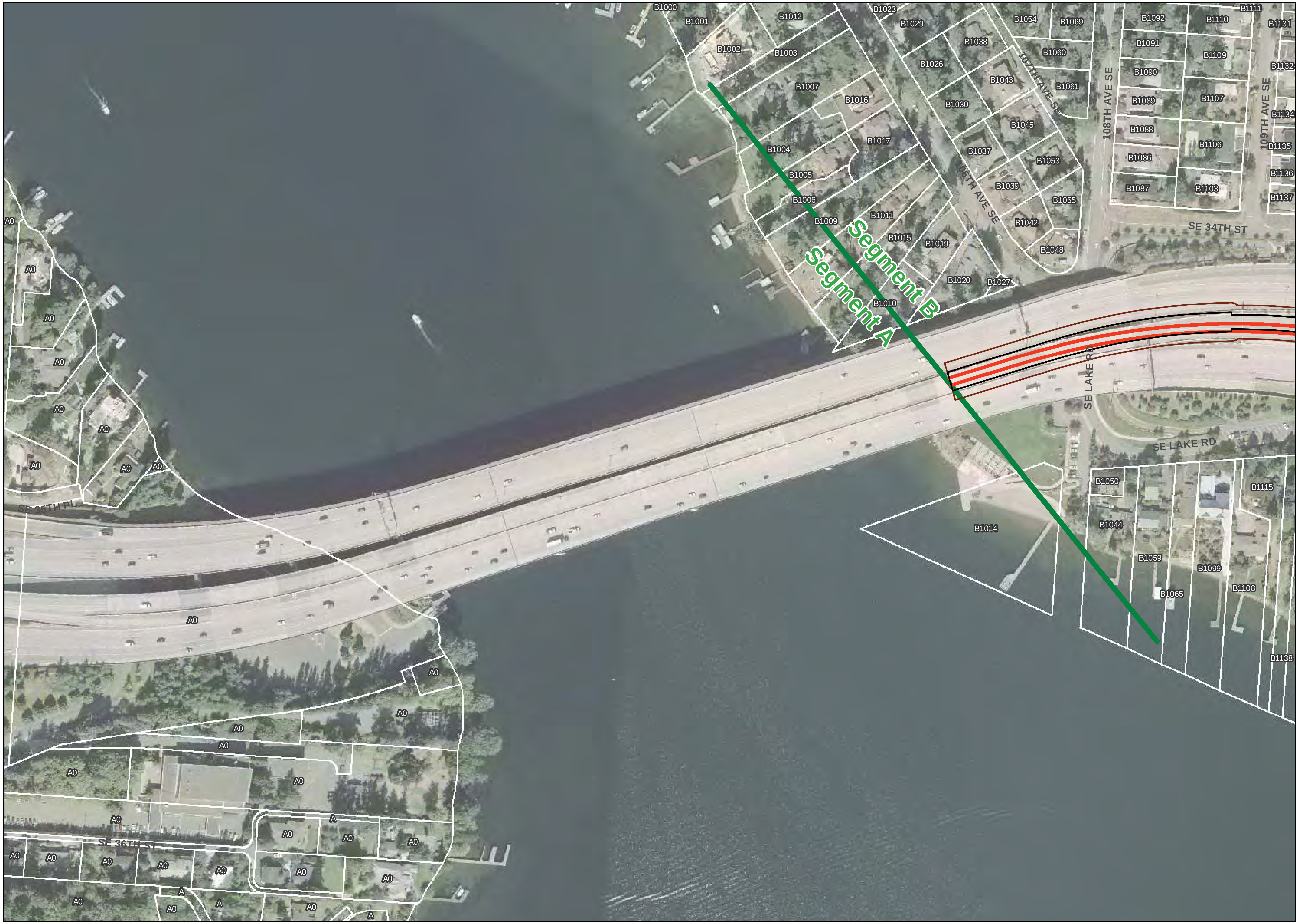
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A
107TH AVE SE
106TH AVE SE
108TH AVE SE
109TH AVE SE
SE 34TH ST
SE LAKE RD
SE 35TH PL
SE 36TH ST

Exhibit F-11
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B1
Sheet 1

East Link Project

━ At-Grade Route
╍ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
╌ Tunnel Route

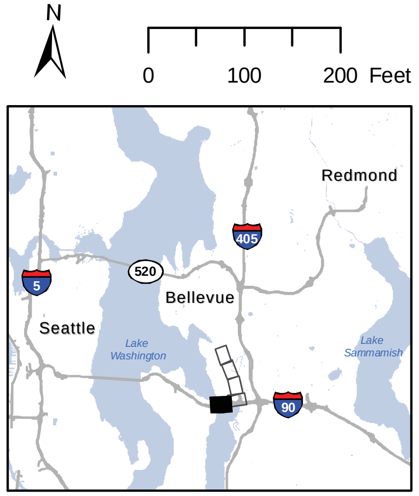
Operational Footprint

▭ ROW
▭ Park and Ride

Construction Footprint

▭ Construction Footprint
▭ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
▭ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
🟪 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
🟦 Construction Wetland Buffer Impact
▨ Wetland Mitigation Impact
▨ Stream Buffer
━ Open Channel
━ Piped Stream
▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
Seattle
Lake Washington
Lake Sammamish
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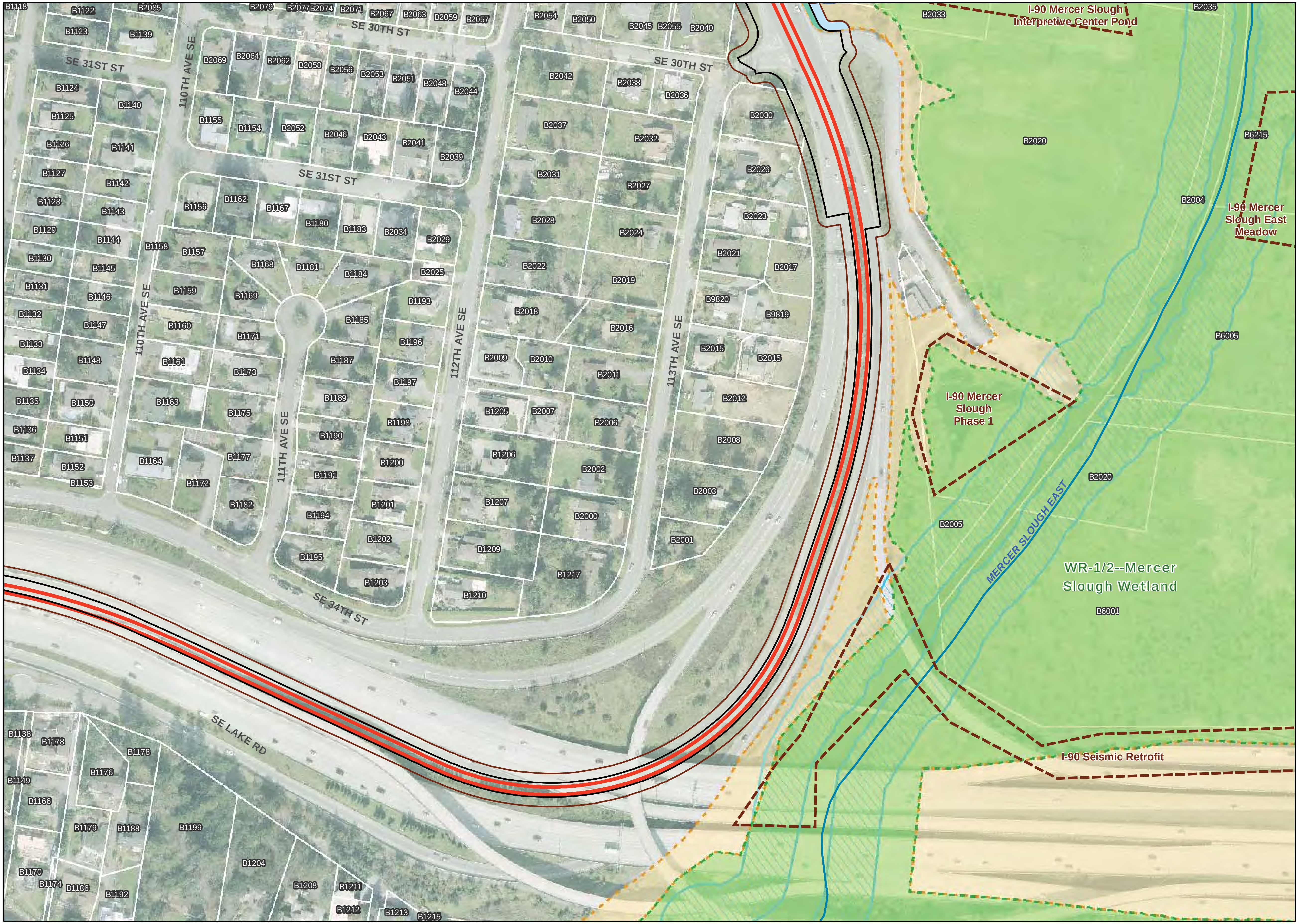
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SE 34TH ST
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112TH AVE SE
113TH AVE SE
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
MERCER SLOUGH EAST
WR-1/2--Mercer Slough Wetland
I-90 Seismic Retrofit
B1118
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Exhibit F-12
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B1
Sheet 2

East Link Project

🟥 At-Grade Route
- - - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
- - Tunnel Route

Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
▭ Wetland Buffer
☐ Wetland Mitigation Site (WSDOT)
▬ Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
▭ Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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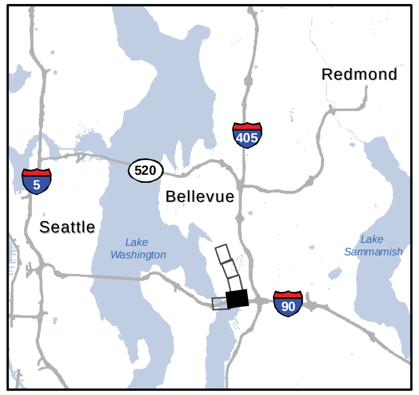
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Seattle
Lake Washington
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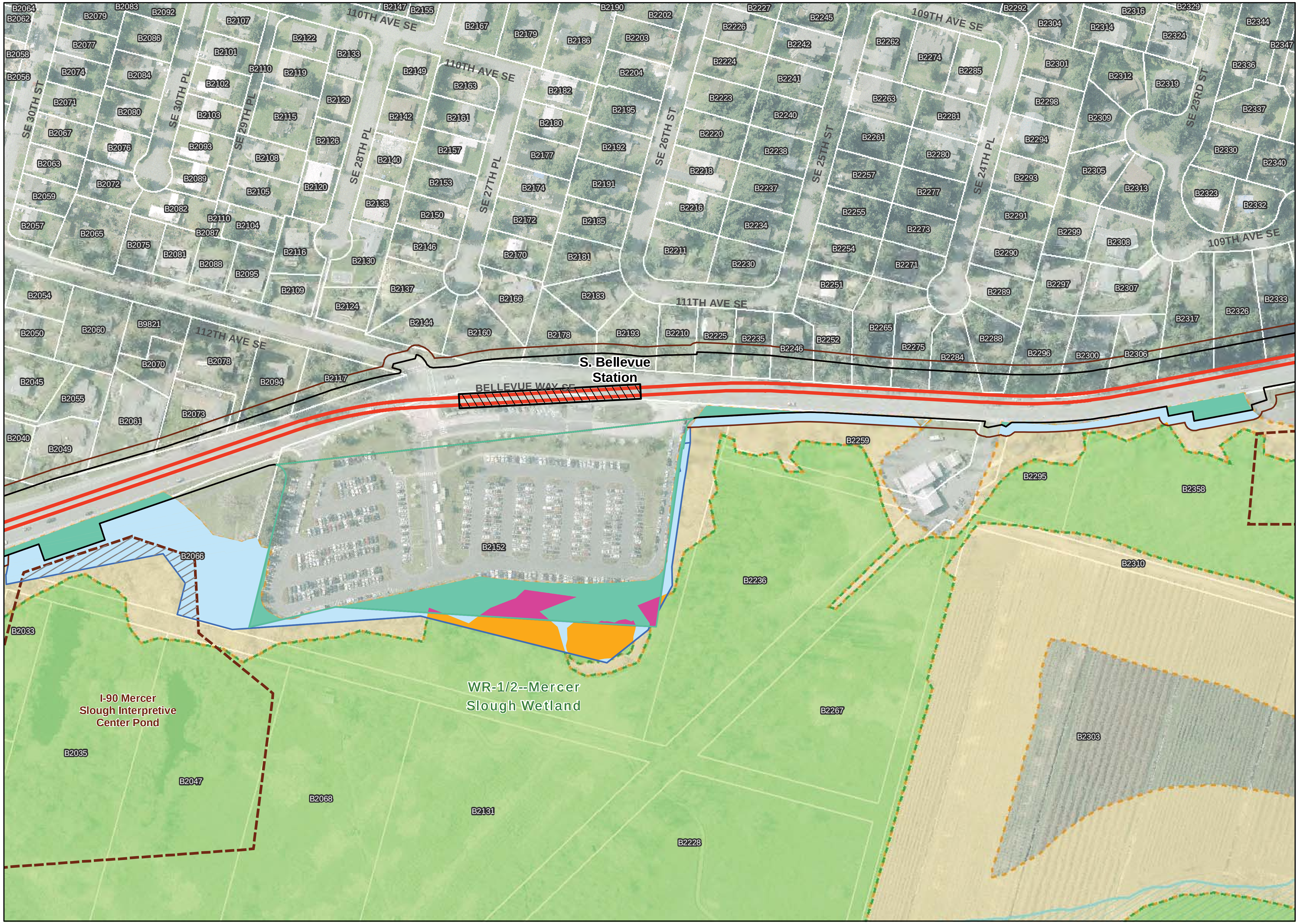
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SE 23RD ST
111TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
S. Bellevue Station
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I-90 Mercer Slough Interpretive Center Pond
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B2083
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Exhibit F-13
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B1
Sheet 3

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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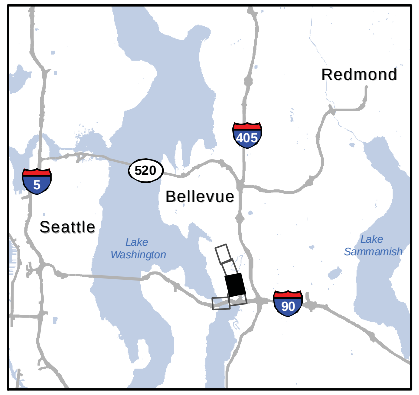
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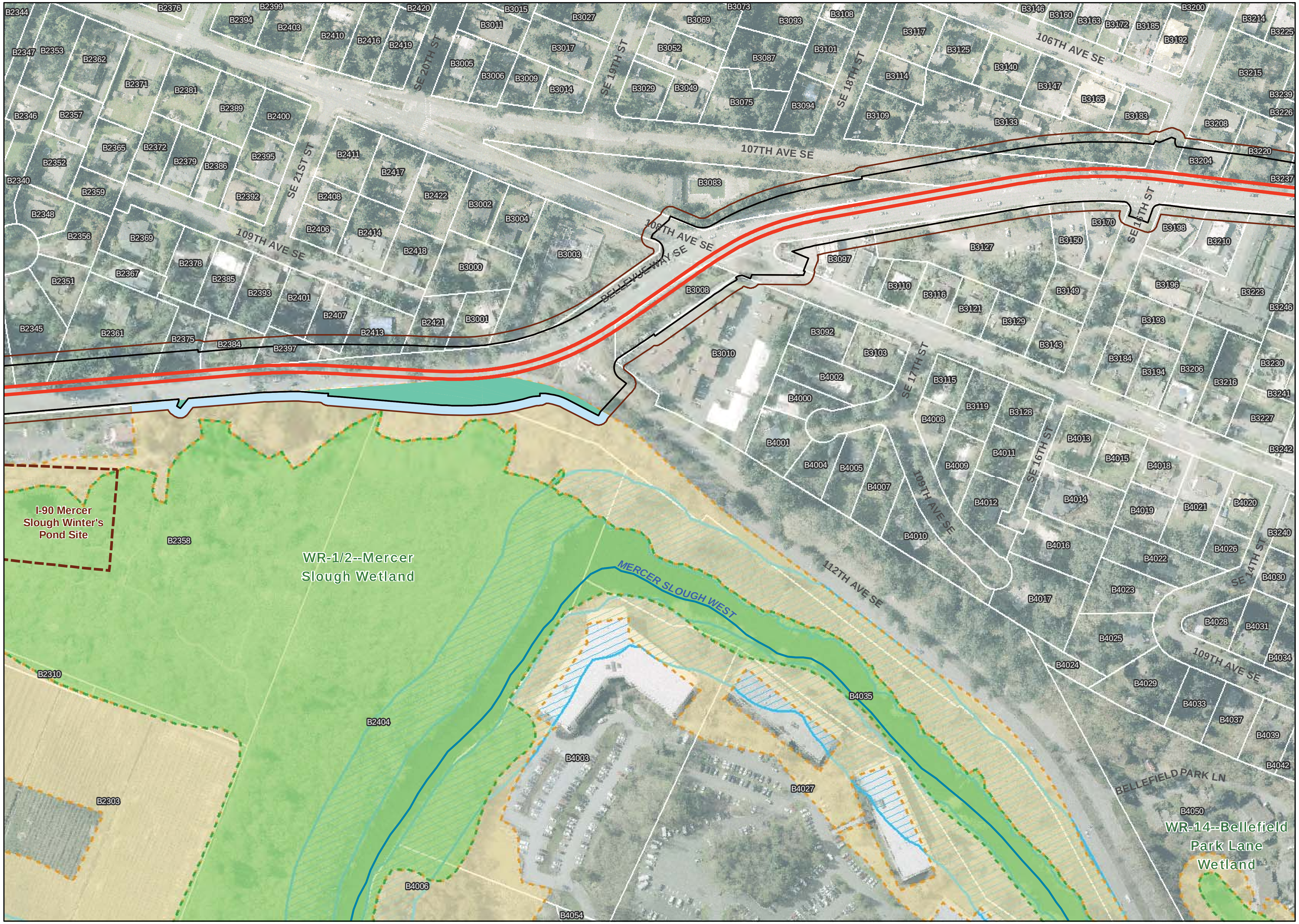
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SE 18TH ST
SE 17TH ST
SE 16TH ST
SE 14TH ST
BELLEFIELD PARK LN
MERCER SLOUGH WEST
I-90 Mercer Slough Winter's Pond Site
WR-1/2--Mercer Slough Wetland
WR-14--Bellefield Park Lane Wetland
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B4006
B4054

Exhibit F-14
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B1
Sheet 4

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

N

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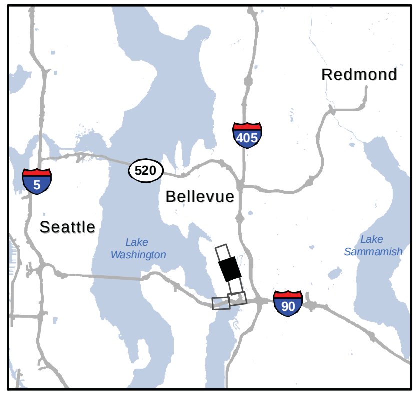
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405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

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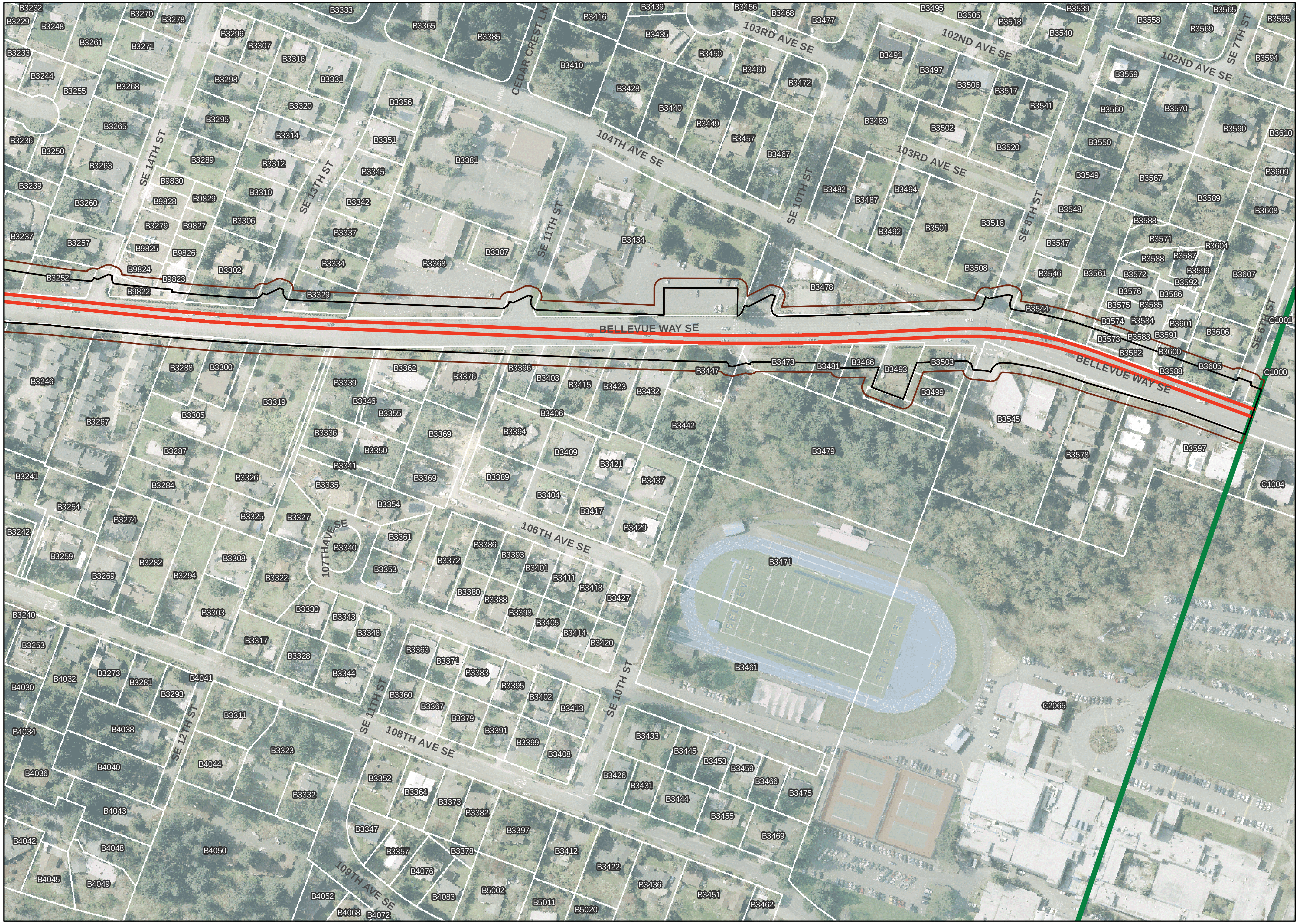
Exhibit F-15
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B1
Sheet 5

East Link Project



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103RD AVE SE
102ND AVE SE
106TH AVE SE
107TH AVE SE
108TH AVE SE
109TH AVE SE
CEDAR CREST LN
SE 14TH ST
SE 13TH ST
SE 12TH ST
SE 11TH ST
SE 10TH ST
SE 8TH ST
SE 7TH ST
SE 6TH ST

━	At-Grade Route
┅	Elevated Route
⋯	Retained-Cut Route
⋯	Retained-Fill Route
╍	Tunnel Route

Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
🟨	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
🟪	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
🟦	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
─	Open Channel
━	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)

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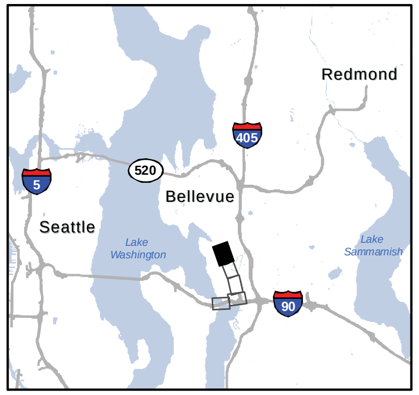

Redmond
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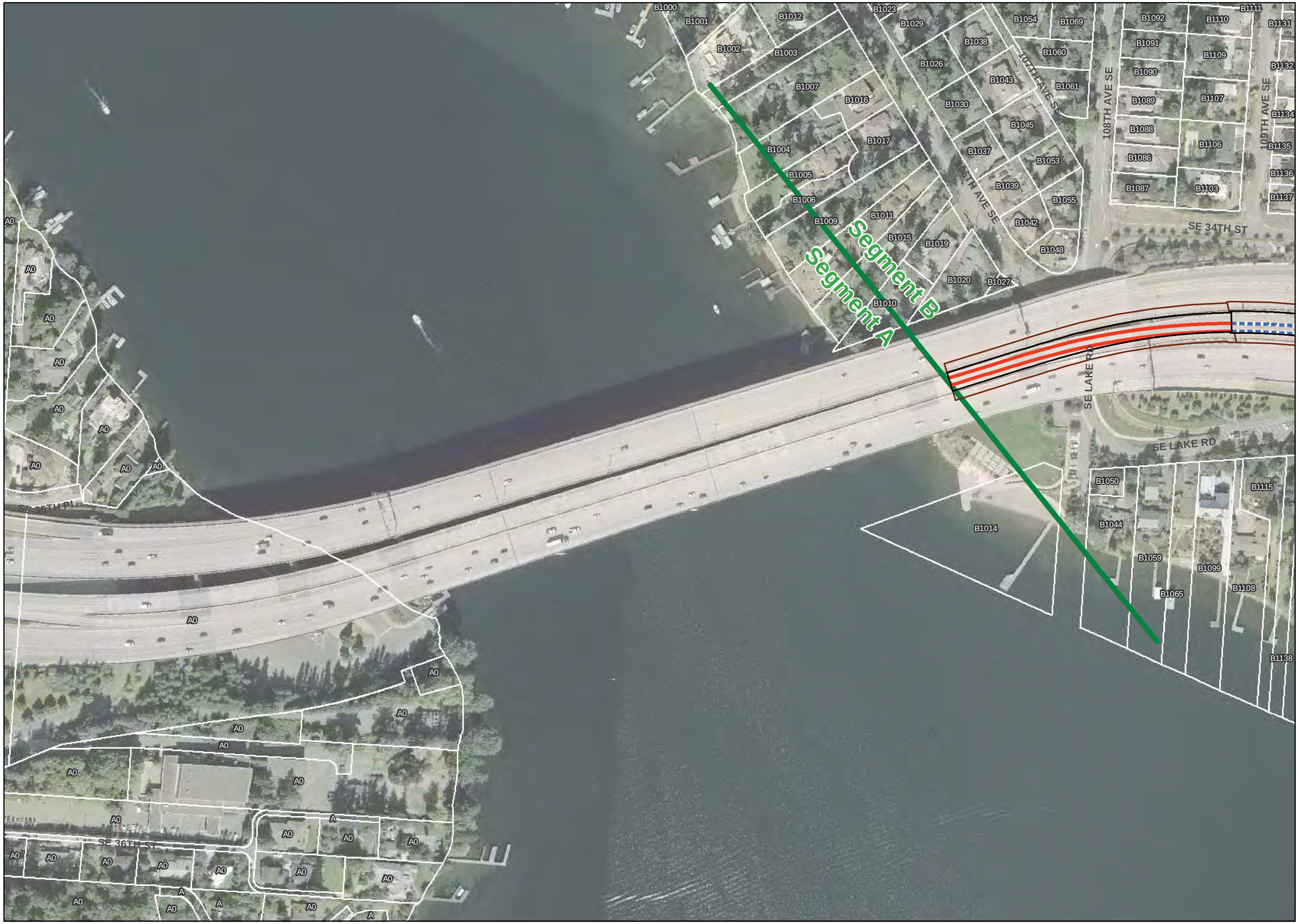
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B1.MXD RGRABARE 3/4/11 07:13:01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Segment B
SE 34TH ST
SE LAKE RD
108TH AVE SE
109TH AVE SE
107TH AVE SE
106TH AVE SE
SE 35TH PL
SE 36TH ST
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B1002
B1003
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B1007
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B1089
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B1108
B1109
B1110
B1111
B1115
B1131
B1132
B1134
B1135
B1136
B1137
B1138
A0
A

Exhibit F-16
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2A
Sheet 1
East Link Project

- 🟥 At-Grade Route
- ▪ ▪ ▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

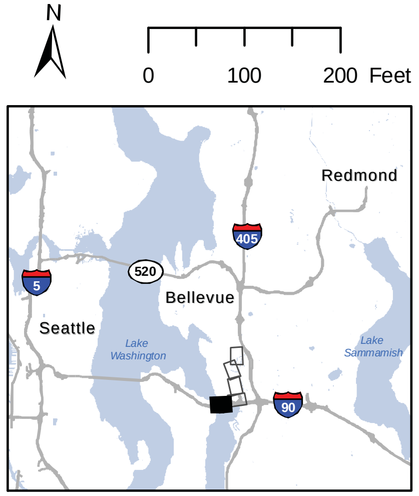
Operational Footprint

- ▭ ROW
- ▭ Park and Ride

Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet
Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
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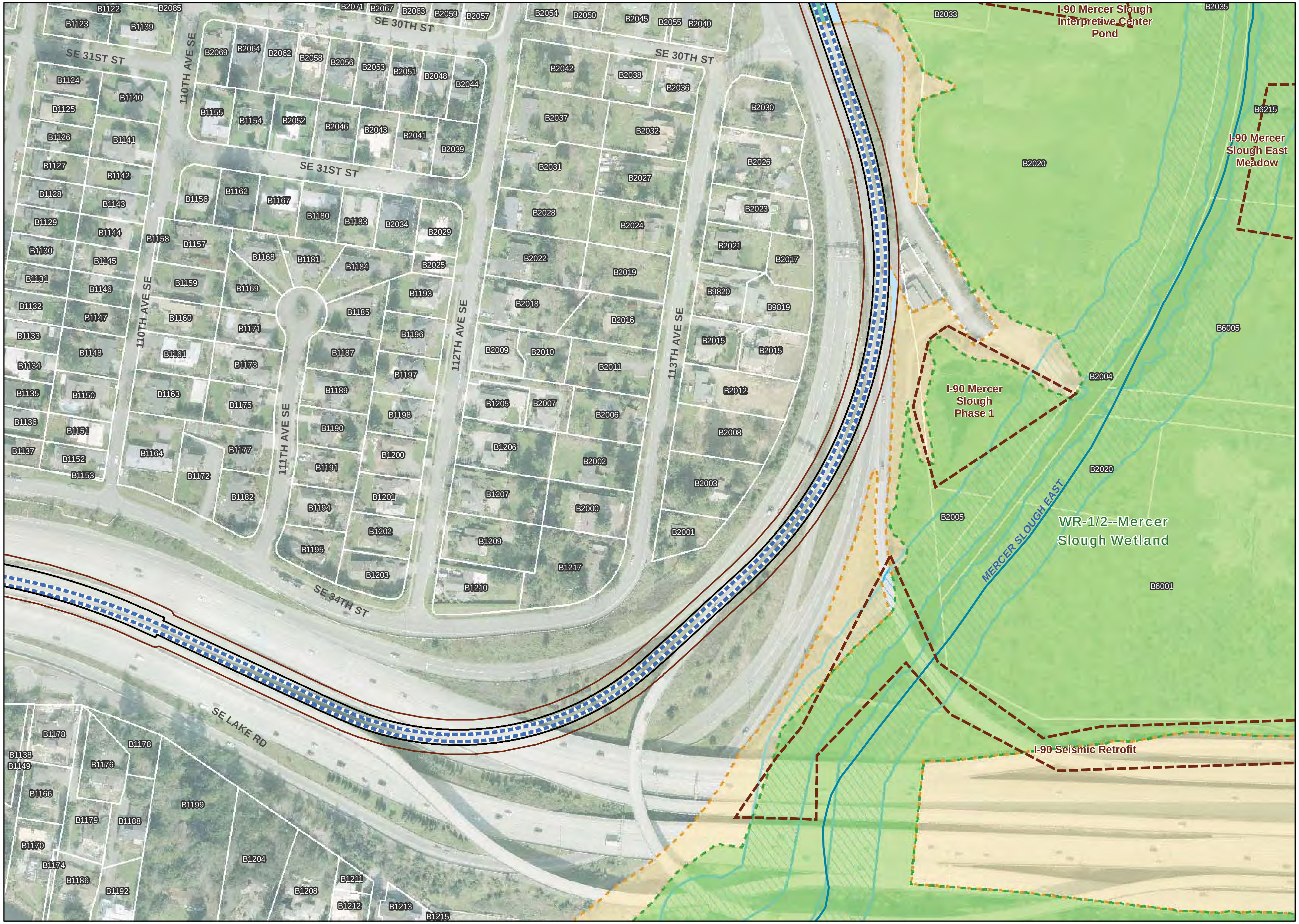
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SE 31ST ST
110TH AVE SE
111TH AVE SE
112TH AVE SE
113TH AVE SE
SE 34TH ST
SE LAKE RD
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
WR-1/2--Mercer Slough Wetland
MERCER SLOUGH EAST
I-90 Seismic Retrofit
B2020
B2004
B2005
B6005
B6001
B6215
B2033
B2035

Exhibit F-17
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2A
Sheet 2

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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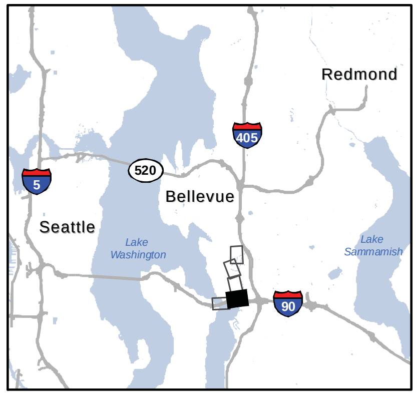
0 100 200 Feet


Redmond
405
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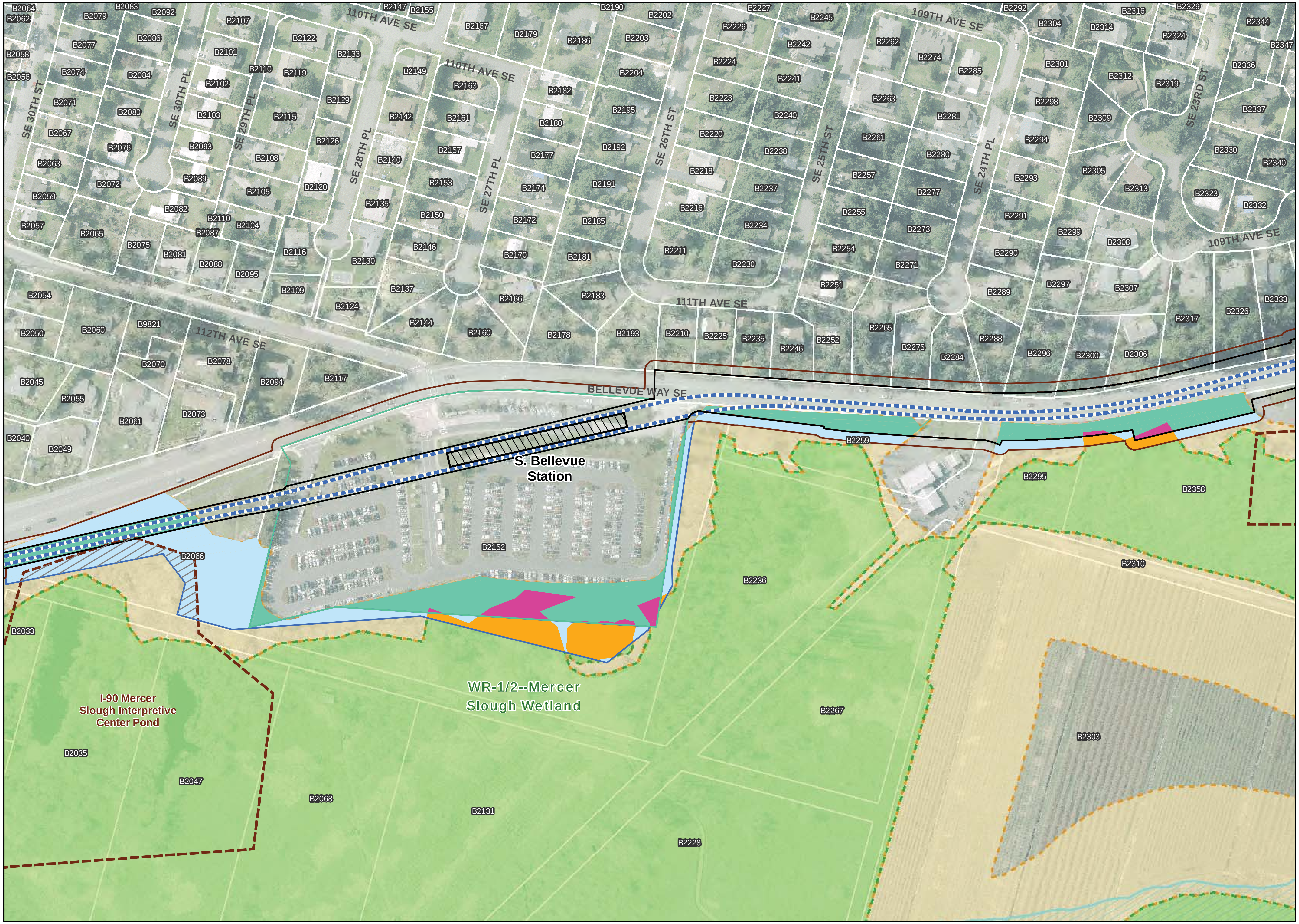
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B2A.MXD RGRABARE 3/4/11 07:16:30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B2155
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B2167
B2179
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B2202
B2227
B2245
109TH AVE SE
B2292
B2304
B2316
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B2347
B2058
B2077
B2086
B2101
B2122
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B2119
B2149
110TH AVE SE
B2163
B2182
B2204
B2224
B2241
B2285
B2301
B2312
B2319
B2336
SE 30TH ST
SE 30TH PL
SE 29TH PL
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B2080
B2103
B2115
B2129
B2142
B2161
B2195
B2223
B2240
B2263
B2281
B2298
B2309
SE 23RD ST
B2337
B2067
B2076
B2093
B2126
SE 28TH PL
B2140
B2157
B2180
B2192
SE 26TH ST
B2220
B2238
SE 25TH ST
B2261
B2280
SE 24TH PL
B2294
B2330
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B2108
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B2218
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B2305
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B2120
B2153
SE 27TH PL
B2174
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109TH AVE SE
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111TH AVE SE
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112TH AVE SE
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B2275
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B2296
B2300
B2306
B2045
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B2117
B2055
BELLEVUE WAY SE
B2061
B2073
B2040
B2049
S. Bellevue Station
B2259
B2295
B2358
B2152
B2066
B2236
B2310
B2033
WR-1/2--Mercer Slough Wetland
I-90 Mercer Slough Interpretive Center Pond
B2267
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B2035
B2047
B2068
B2131
B2228

Exhibit F-18
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2A
Sheet 3
East Link Project

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

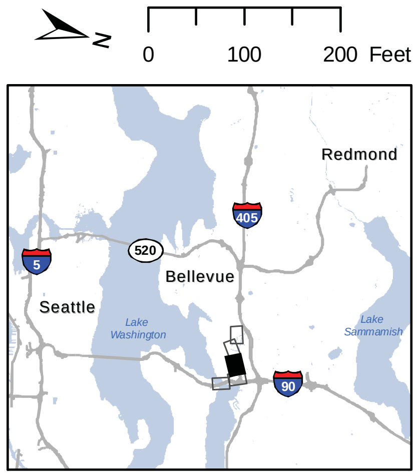
Operational Footprint

- ▭ ROW
- ▭ Park and Ride

Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟥 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)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100
200 Feet
Redmond
405
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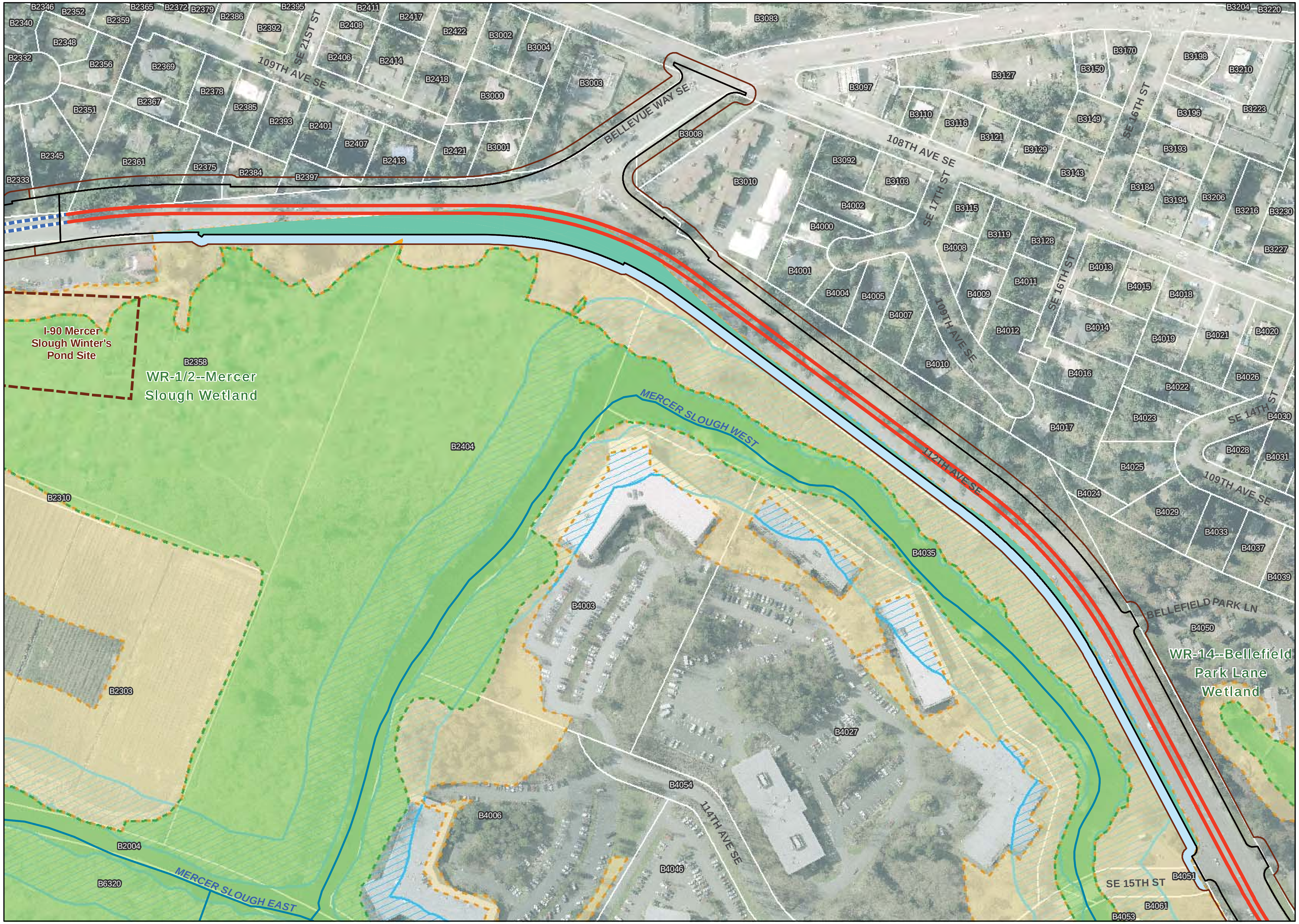
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B2A.MXD RGRABARE 3/4/11 07:16:30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SE 21ST ST
108TH AVE SE
SE 17TH ST
SE 16TH ST
SE 16TH ST
109TH AVE SE
SE 14TH ST
109TH AVE SE
112TH AVE SE
BELLEFIELD PARK LN
114TH AVE SE
SE 15TH ST
MERCER SLOUGH WEST
MERCER SLOUGH EAST
I-90 Mercer Slough Winter's Pond Site
WR-1/2--Mercer Slough Wetland
WR-14--Bellefield Park Lane Wetland
B2346
B2352
B2365
B2372
B2379
B2395
B2411
B2417
B3083
B3204
B3220
B2340
B2359
B2386
B2392
B2408
B2422
B3002
B3004
B2348
B2332
B2356
B2369
B2406
B2414
B2418
B3003
B3000
B2378
B2367
B2385
B2351
B2393
B2401
B2407
B2421
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B4061
B4053

Exhibit F-19
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2A
Sheet 4
East Link Project

- 🟥 At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

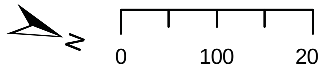
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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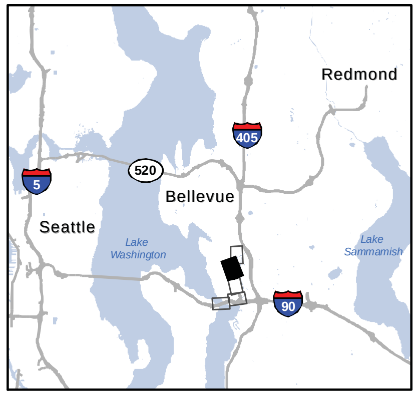
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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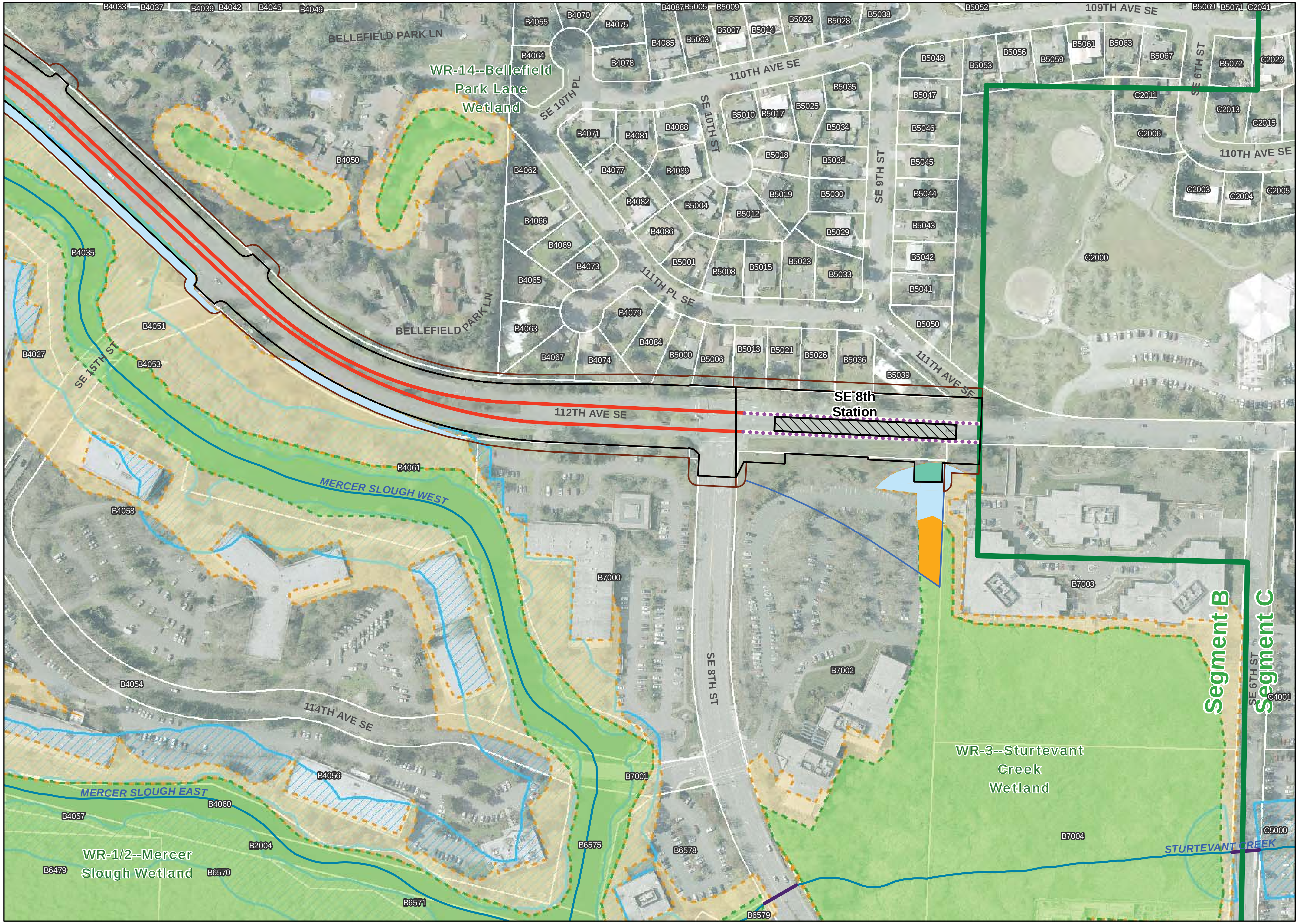
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BELLEFIELD PARK LN
SE 10TH PL
110TH AVE SE
109TH AVE SE
SE 10TH ST
SE 9TH ST
SE 6TH ST
111TH PL SE
111TH AVE SE
SE 15TH ST
112TH AVE SE
SE 8th Station
MERCER SLOUGH WEST
MERCER SLOUGH EAST
114TH AVE SE
SE 8TH ST
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
WR-1/2--Mercer Slough Wetland
Segment B
Segment C
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B4087
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B6479
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B6571
B6579

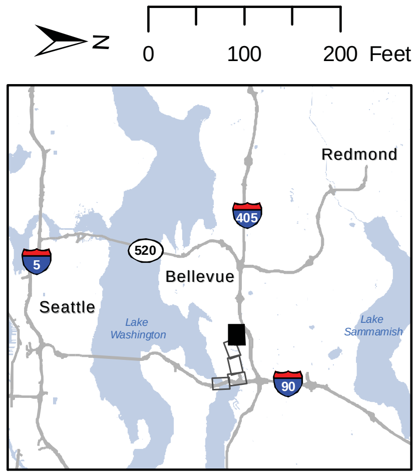
Exhibit F-20
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2A
Sheet 5
East Link Project

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Operational Footprint
ROW
Park and Ride

Construction Footprint
Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet
Redmond
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Bellevue
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Seattle
Lake Washington
Lake Sammamish
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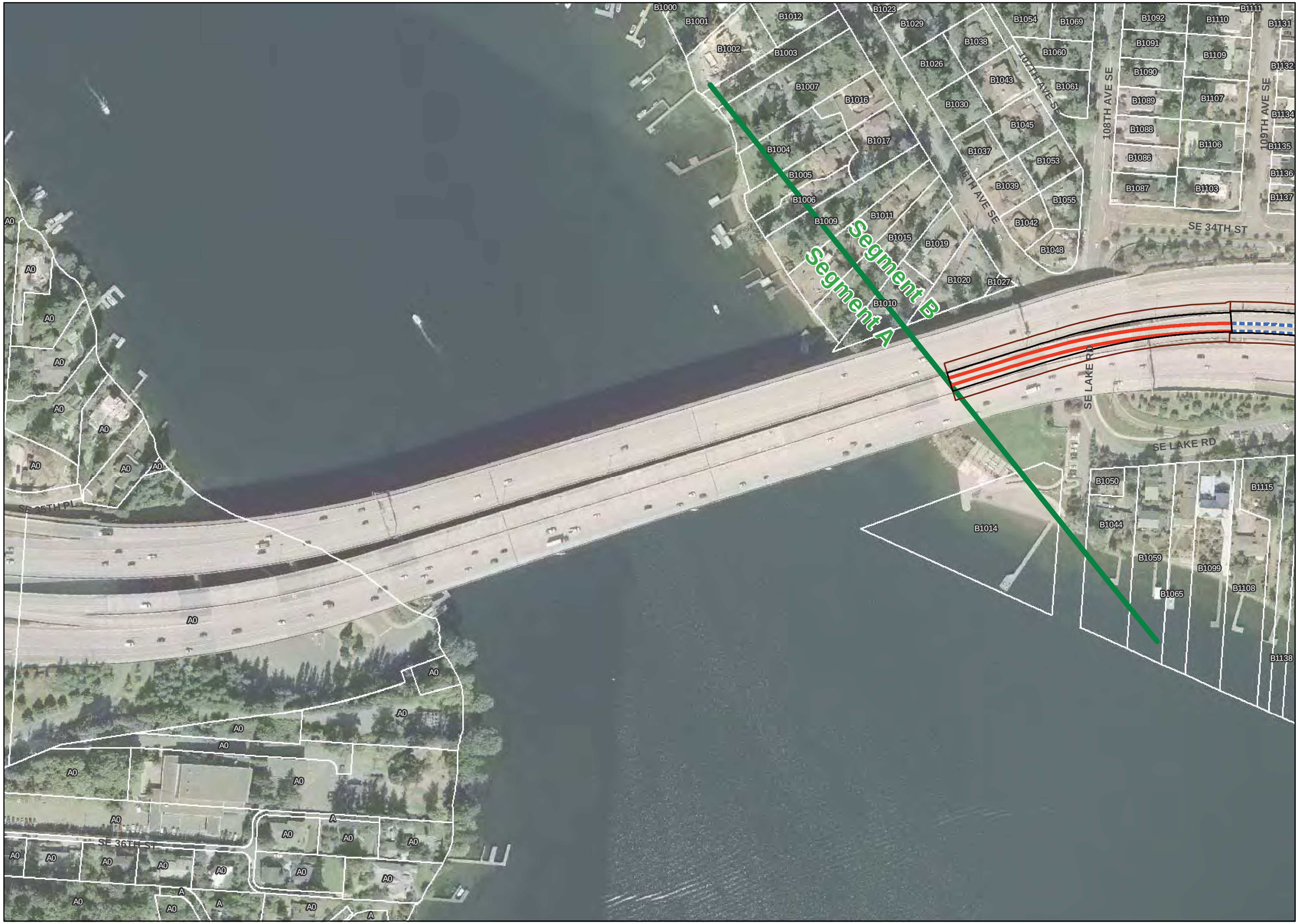
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B2A.MXD RGRABARE 3/4/11 07:16:30

Exhibit F-21
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2E
Sheet 1

East Link Project



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109TH AVE SE
107TH AVE SE
106TH AVE SE
SE 35TH PL
SE 36TH ST
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B1001
B1002
B1003
B1004
B1005
B1006
B1007
B1009
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B1012
B1014
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- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

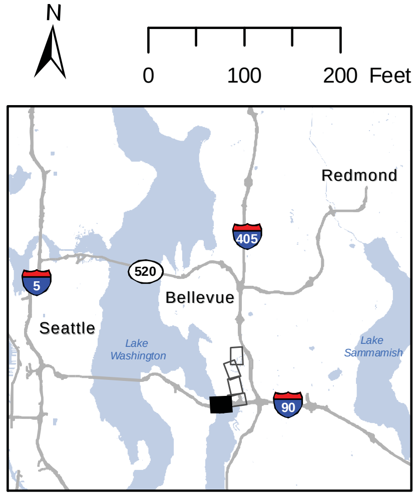
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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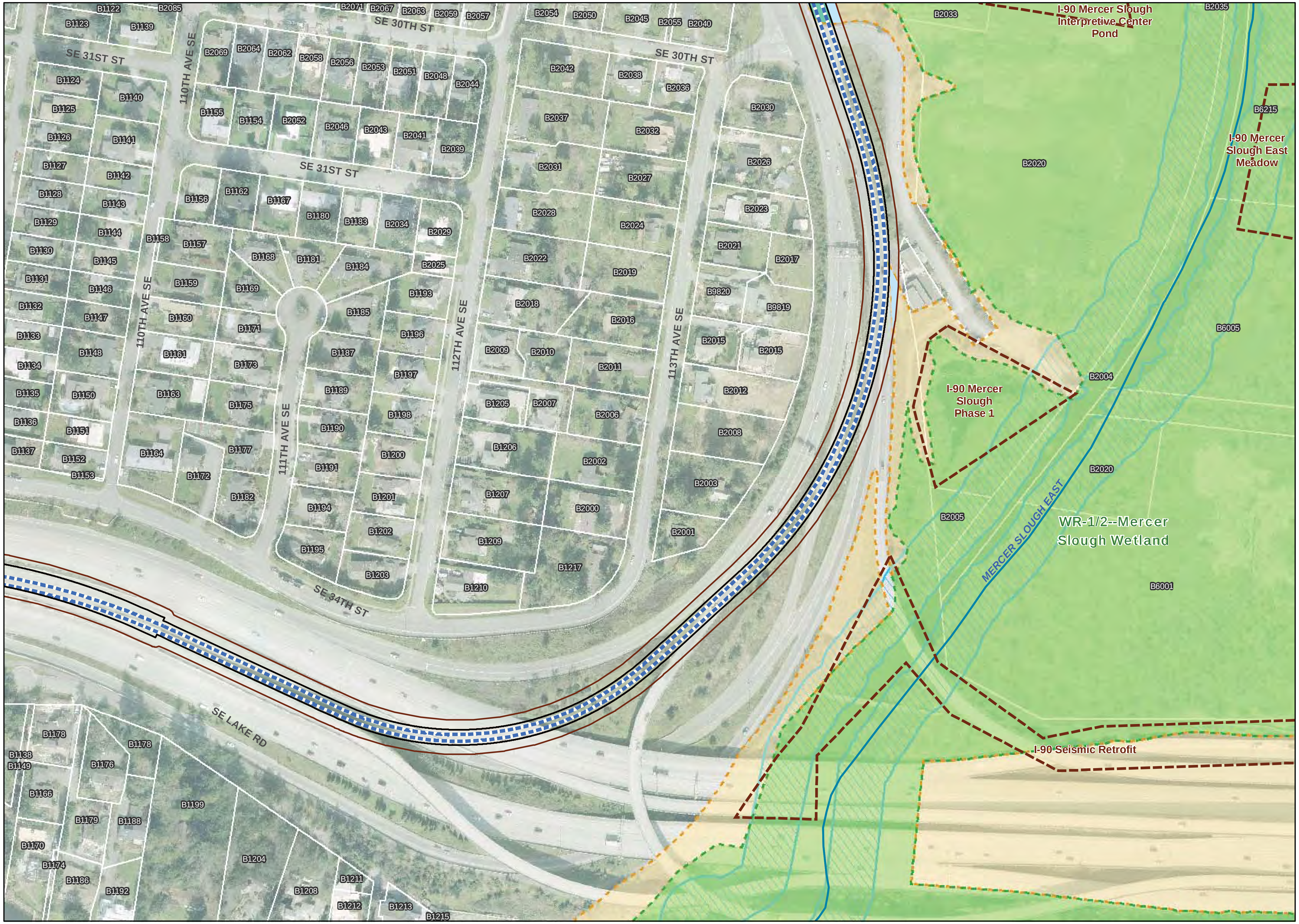

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113TH AVE SE
SE LAKE RD
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
I-90 Seismic Retrofit
MERCER SLOUGH EAST
WR-1/2--Mercer Slough Wetland
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Exhibit F-22
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2E
Sheet 2
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

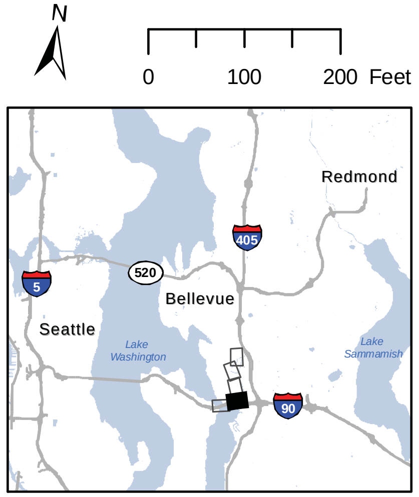
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)



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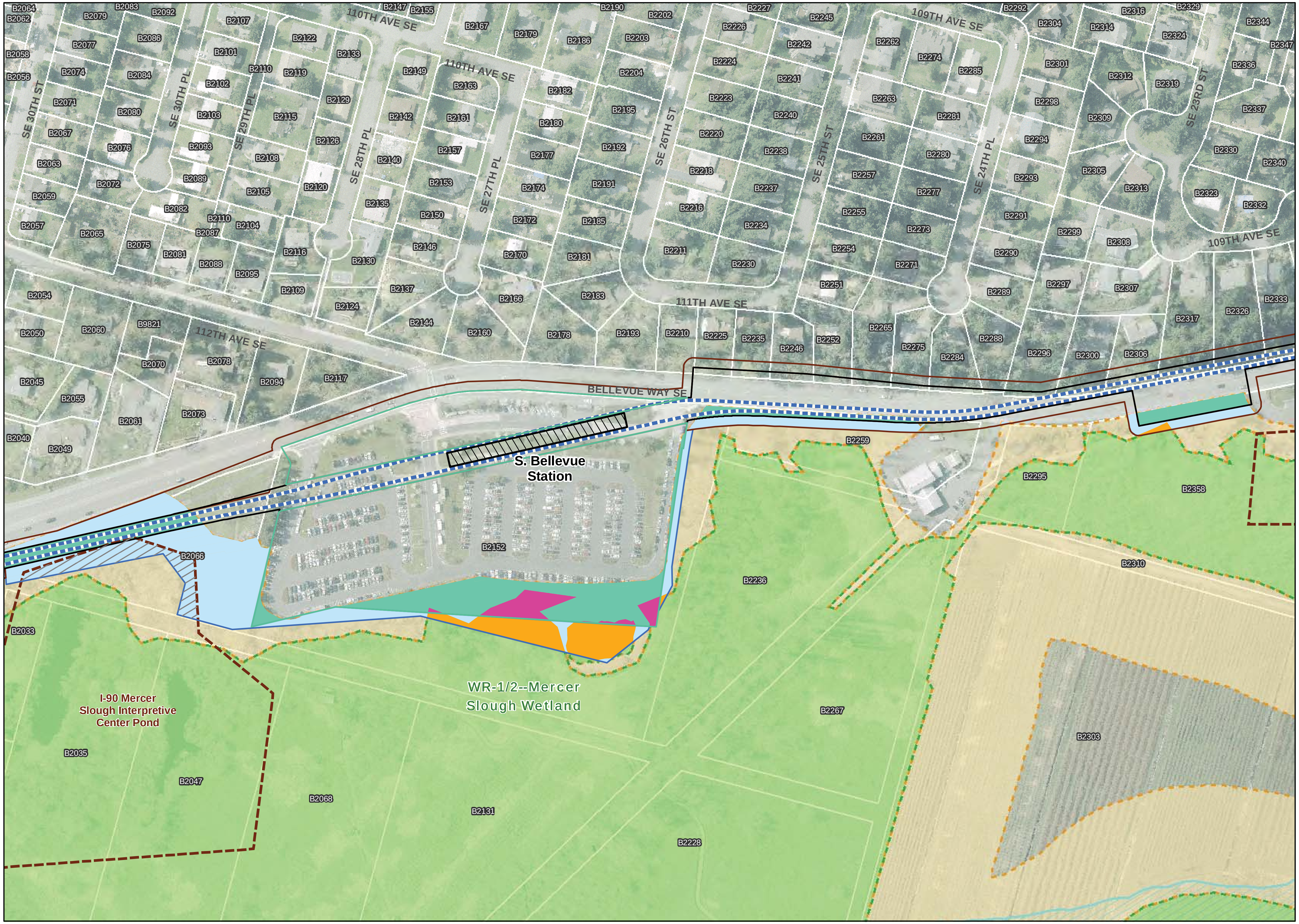
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SE 25TH ST
SE 24TH PL
SE 23RD ST
111TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
S. Bellevue Station
WR-1/2--Mercer Slough Wetland
I-90 Mercer Slough Interpretive Center Pond
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Exhibit F-23
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2E
Sheet 3
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

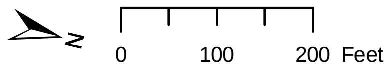
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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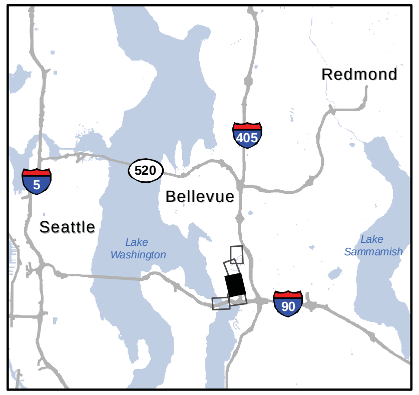
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Lake Sammamish
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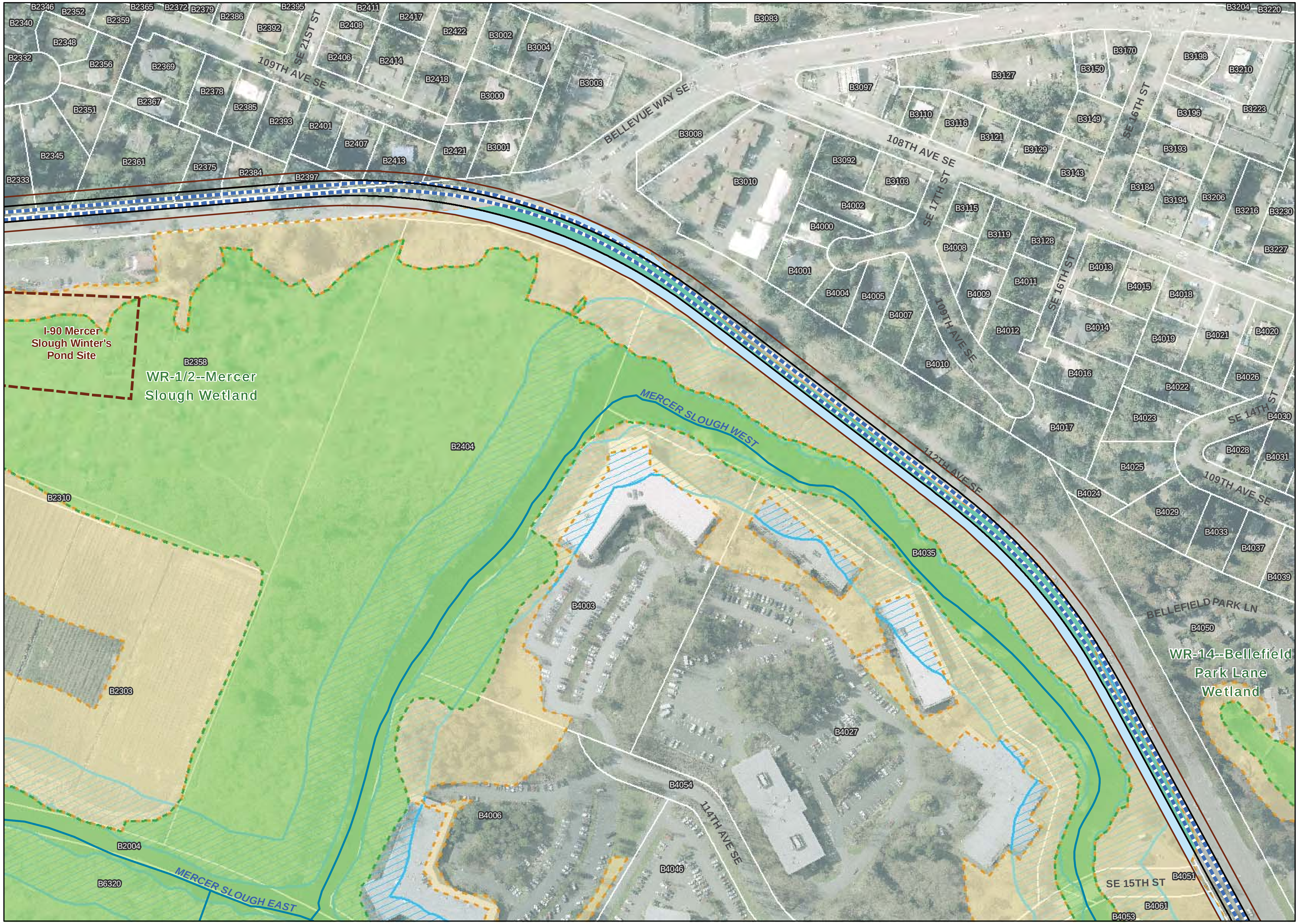
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108TH AVE SE
SE 16TH ST
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SE 16TH ST
109TH AVE SE
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SE 14TH ST
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109TH AVE SE
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112TH AVE SE
I-90 Mercer Slough Winter's Pond Site
B2358
WR-1/2--Mercer Slough Wetland
MERCER SLOUGH WEST
B2404
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BELLEFIELD PARK LN
B4050
WR-14--Bellefield Park Lane Wetland
B2303
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B4054
114TH AVE SE
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B2004
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MERCER SLOUGH EAST
B4046
SE 15TH ST
B4051
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B4053

Exhibit F-24
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2E
Sheet 4

East Link Project

- 🟥 At-Grade Route
- ▬ ▬ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

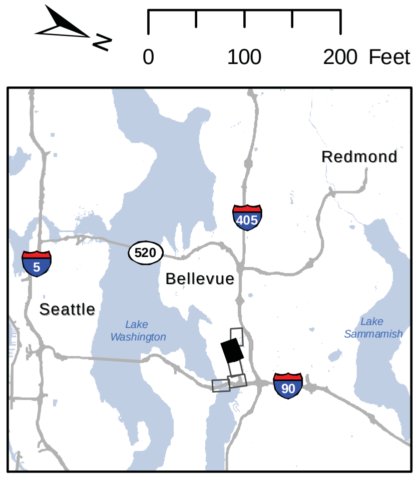
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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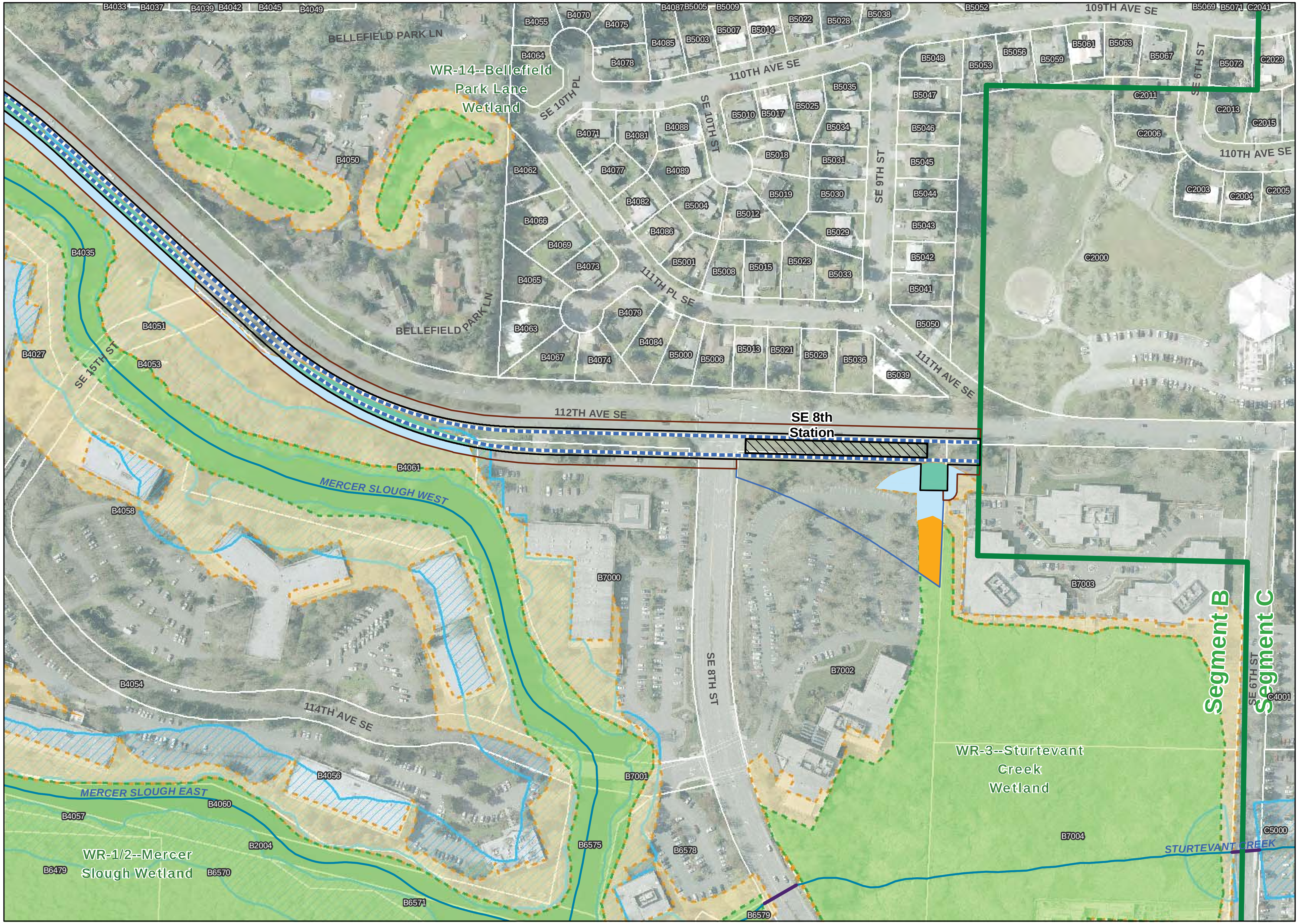
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111TH PL SE
111TH AVE SE
BELLEFIELD PARK LN
SE 15TH ST
112TH AVE SE
SE 8th Station
MERCER SLOUGH WEST
SE 8TH ST
114TH AVE SE
MERCER SLOUGH EAST
WR-1/2--Mercer Slough Wetland
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
Segment B
Segment C
SE 6TH ST
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Exhibit F-25
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B2E
Sheet 5

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟥 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ☐ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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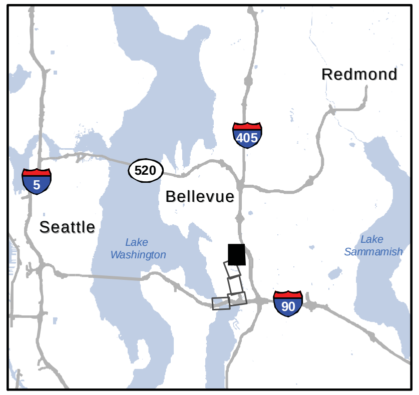
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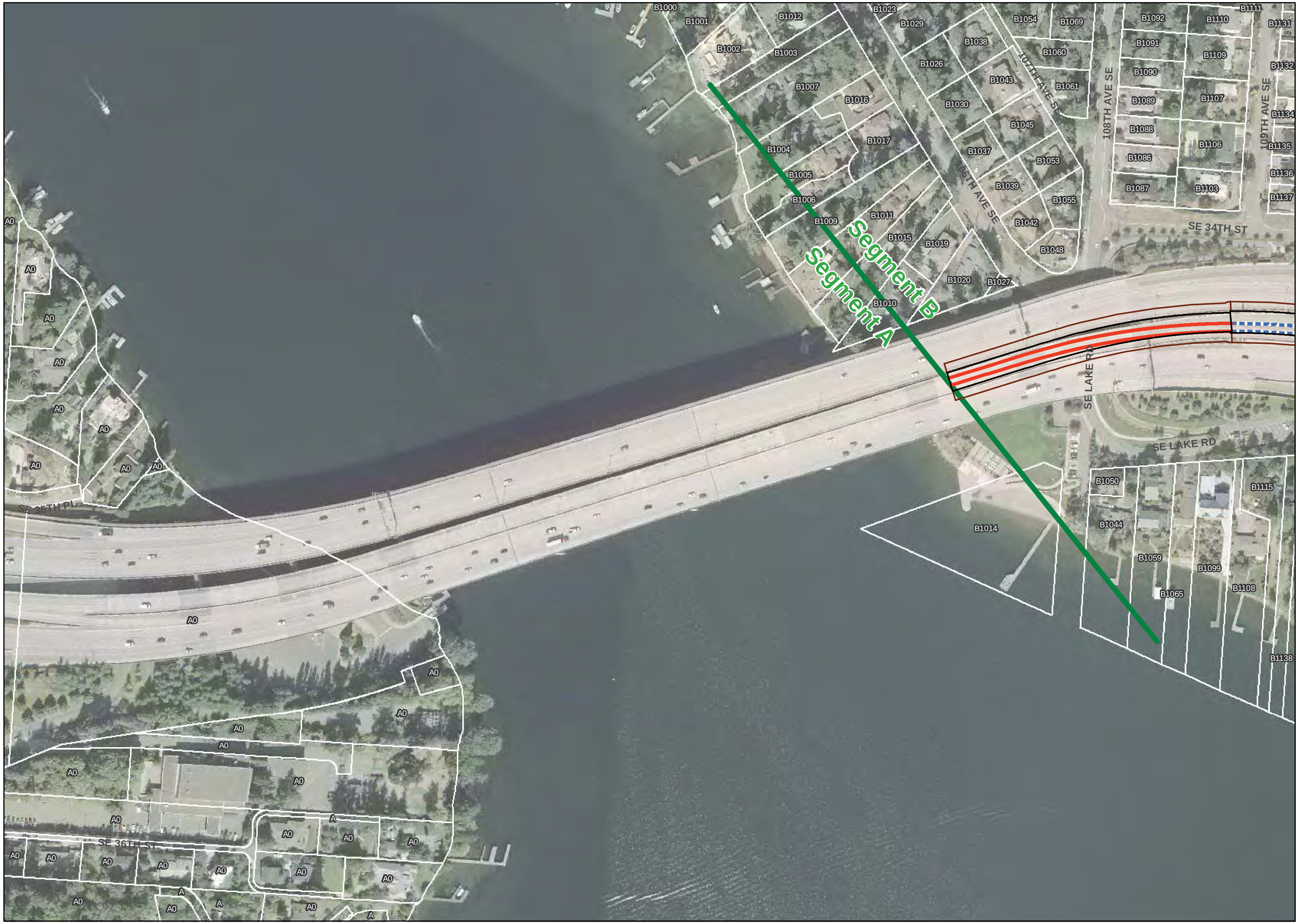
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Exhibit F-26
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3
Sheet 1

East Link Project

- 🟥 At-Grade Route
- ▬ ▬ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

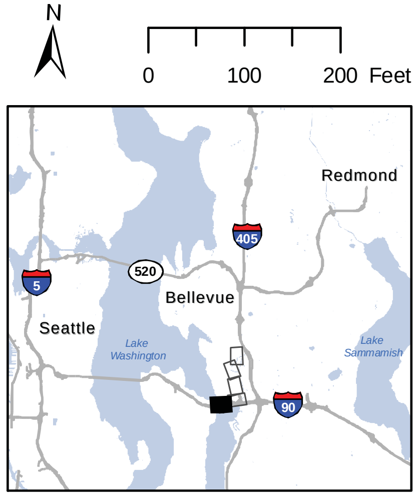
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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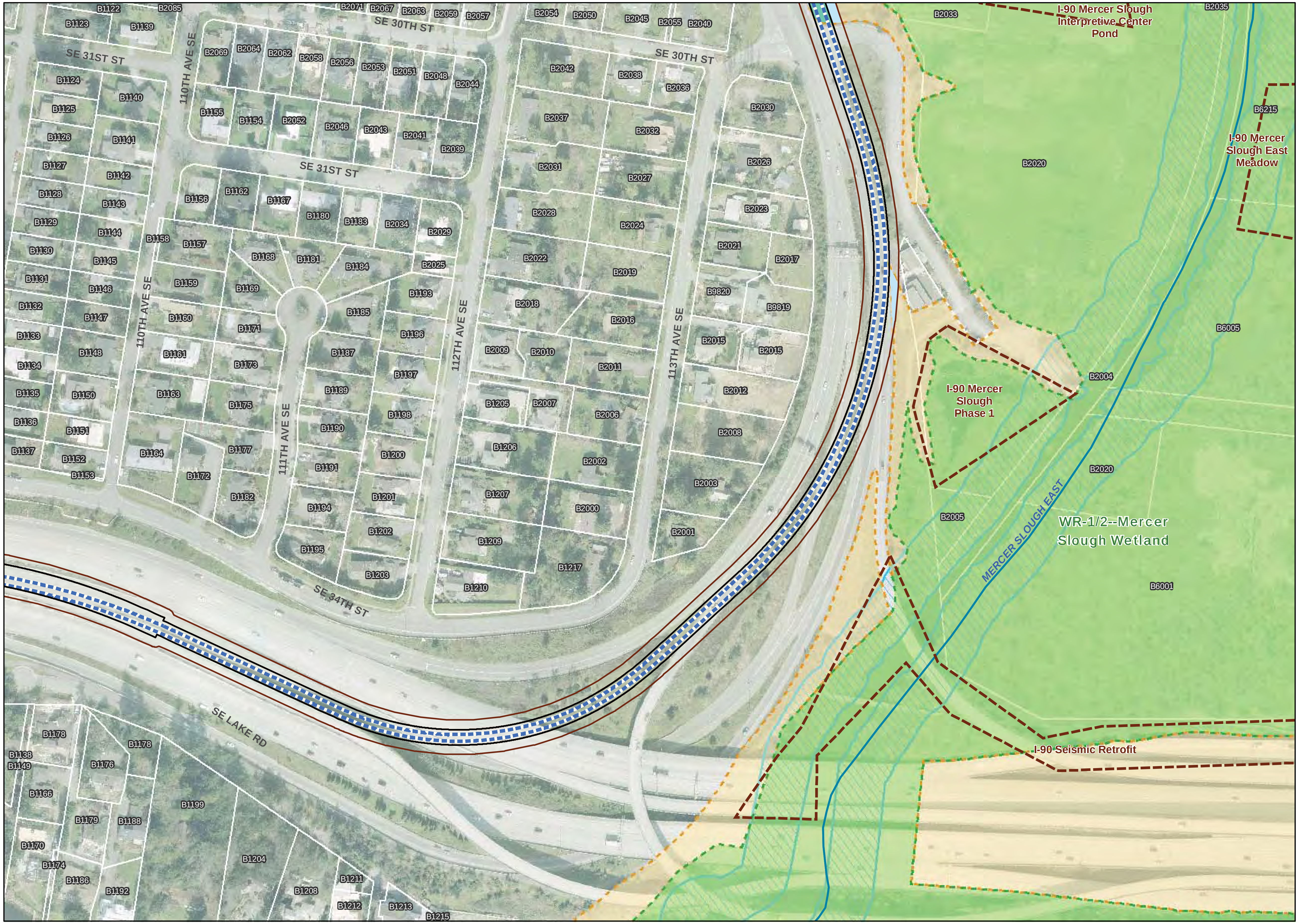
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
WR-1/2--Mercer Slough Wetland
MERCER SLOUGH EAST
I-90 Seismic Retrofit
SE 30TH ST
SE 30TH ST
SE 31ST ST
SE 31ST ST
SE 34TH ST
SE LAKE RD
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110TH AVE SE
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B1200
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B1192
B1208
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B1213
B1215

Exhibit F-27
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3
Sheet 2

East Link Project

━	At-Grade Route
▪▪▪	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route

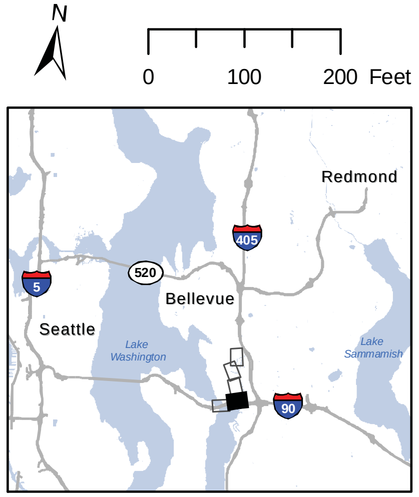
Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
🟨	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
🟪	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
🟦	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
━	Open Channel
━	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)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Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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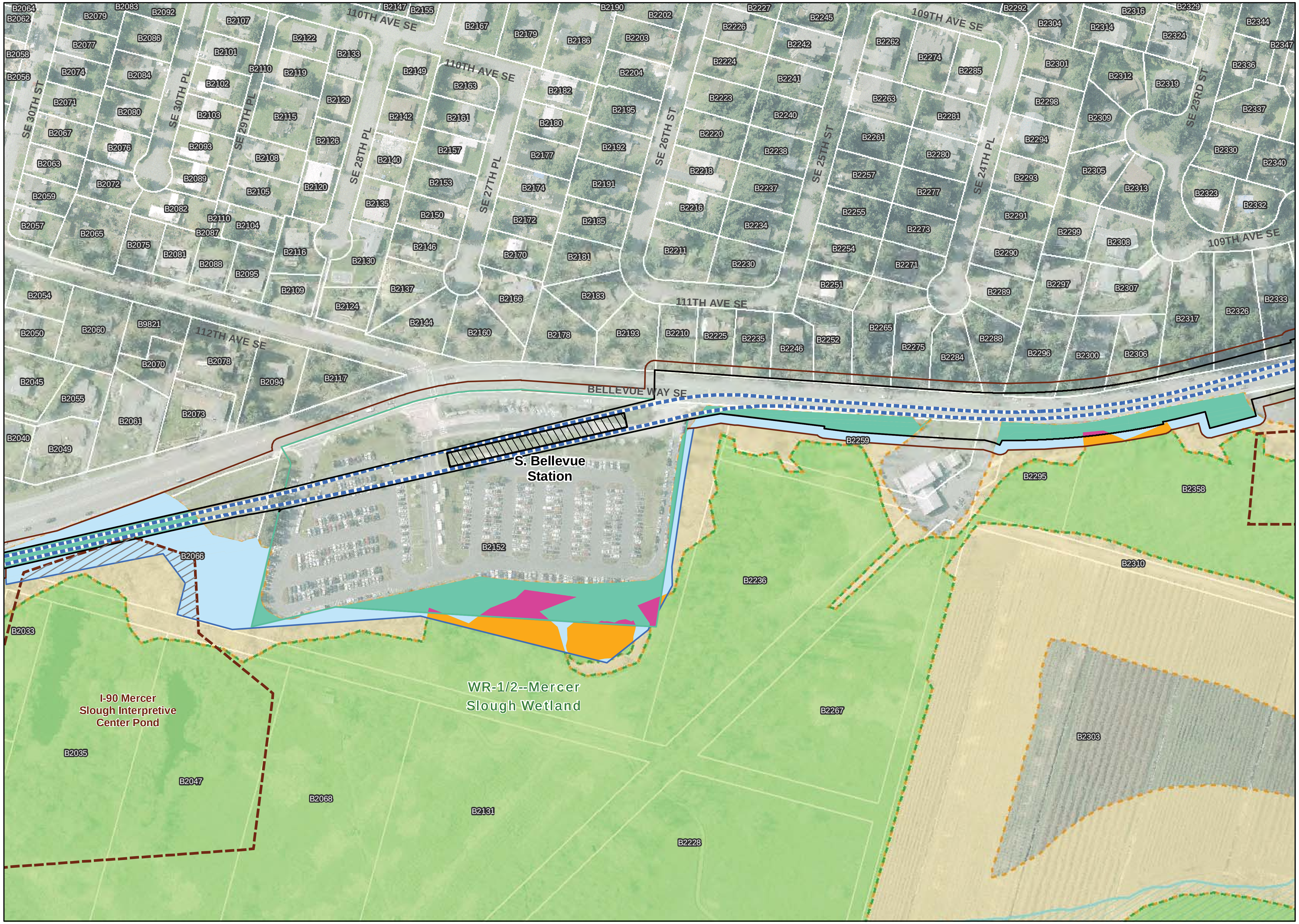

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109TH AVE SE
111TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
SE 30TH ST
SE 30TH PL
SE 29TH PL
SE 28TH PL
SE 27TH PL
SE 26TH ST
SE 25TH ST
SE 24TH PL
SE 23RD ST
S. Bellevue Station
WR-1/2--Mercer Slough Wetland
I-90 Mercer Slough Interpretive Center Pond
B2064
B2062
B2079
B2083
B2092
B2107
B2147
B2155
B2167
B2179
B2190
B2202
B2227
B2245
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B2316
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B2101
B2122
B2133
B2186
B2203
B2226
B2242
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B2056
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B2084
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B2163
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B2071
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B2078
B2045
B2055
B2094
B2117
B2061
B2073
B2040
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B2295
B2358
B2152
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B2033
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B2303
B2035
B2047
B2068
B2131
B2228

Exhibit F-28
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3
Sheet 3
East Link Project

— At-Grade Route
▪▪▪ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

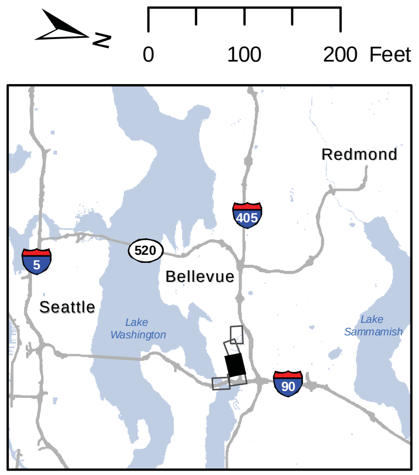
Operational Footprint

▭ ROW
▭ Park and Ride

Construction Footprint

▭ Construction Footprint
▭ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
■ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
■ Operational Wetland Impact
🟧 Construction Wetland Impact
■ Operational Wetland Buffer Impact
■ Construction Wetland Buffer Impact
//// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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Redmond
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Bellevue
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Seattle
Lake Washington
Lake Sammamish
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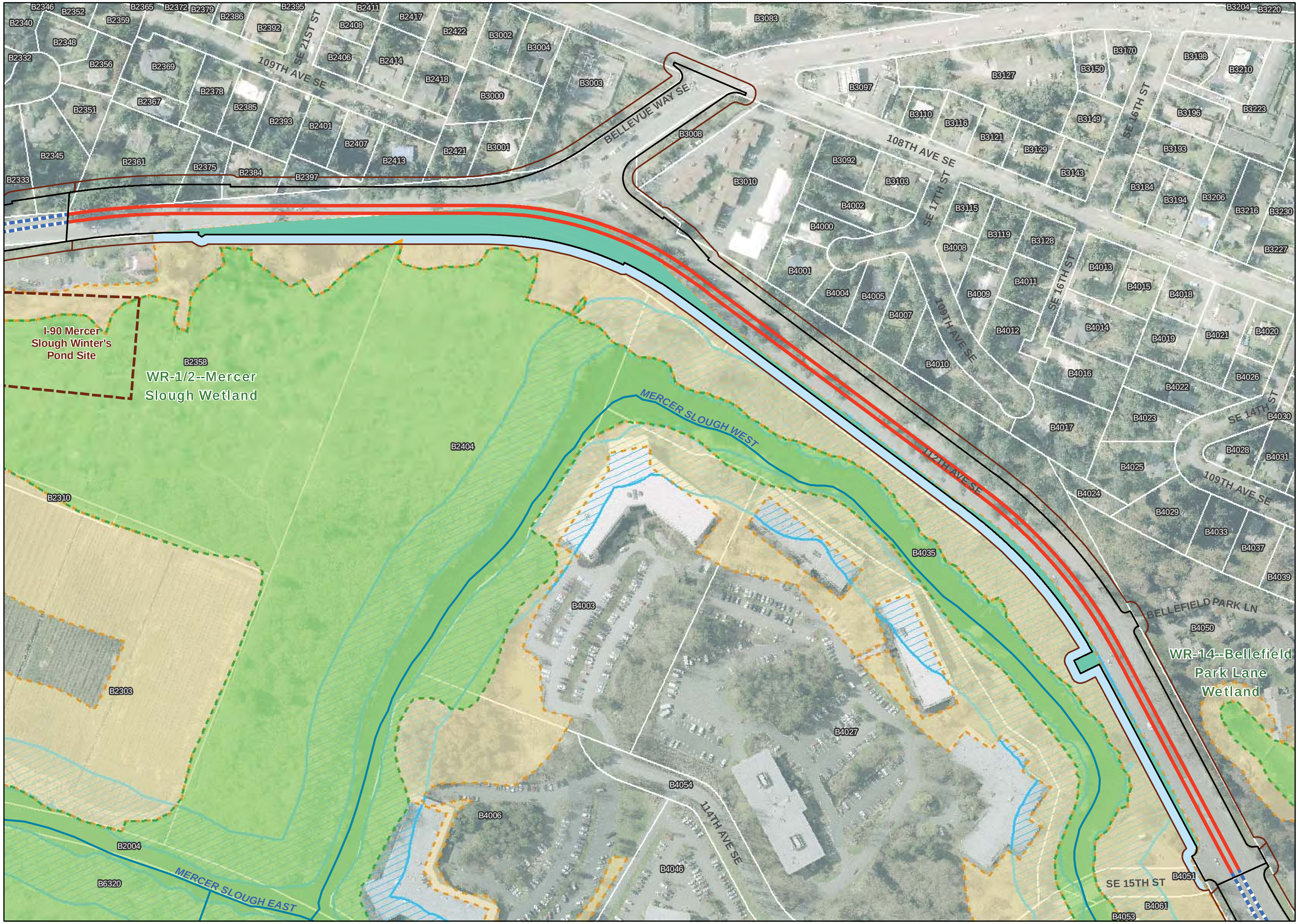
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B3.MXD RGRABARE 3/4/11 07:21:33

Exhibit F-29
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3
Sheet 4
East Link Project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SE 21ST ST
BELLEVUE WAY SE
108TH AVE SE
SE 17TH ST
SE 16TH ST
109TH AVE SE
SE 14TH ST
112TH AVE SE
BELLEFIELD PARK LN
SE 15TH ST
114TH AVE SE
MERCER SLOUGH WEST
MERCER SLOUGH EAST
I-90 Mercer Slough Winter's Pond Site
WR-1/2--Mercer Slough Wetland
WR-14--Bellefield Park Lane Wetland
B2358
B2404
B2310
B2303
B2004
B6320
B4003
B4006
B4027
B4035
B4046
B4054
B4050
B4051
B4053
B4061

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint
- ☐ ROW
- ☐ Park and Ride

Construction Footprint
- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ▬ Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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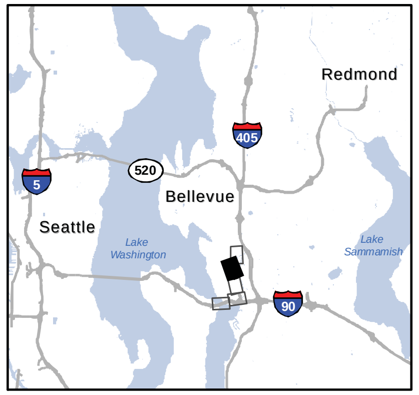
Redmond
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Lake Washington
Lake Sammamish
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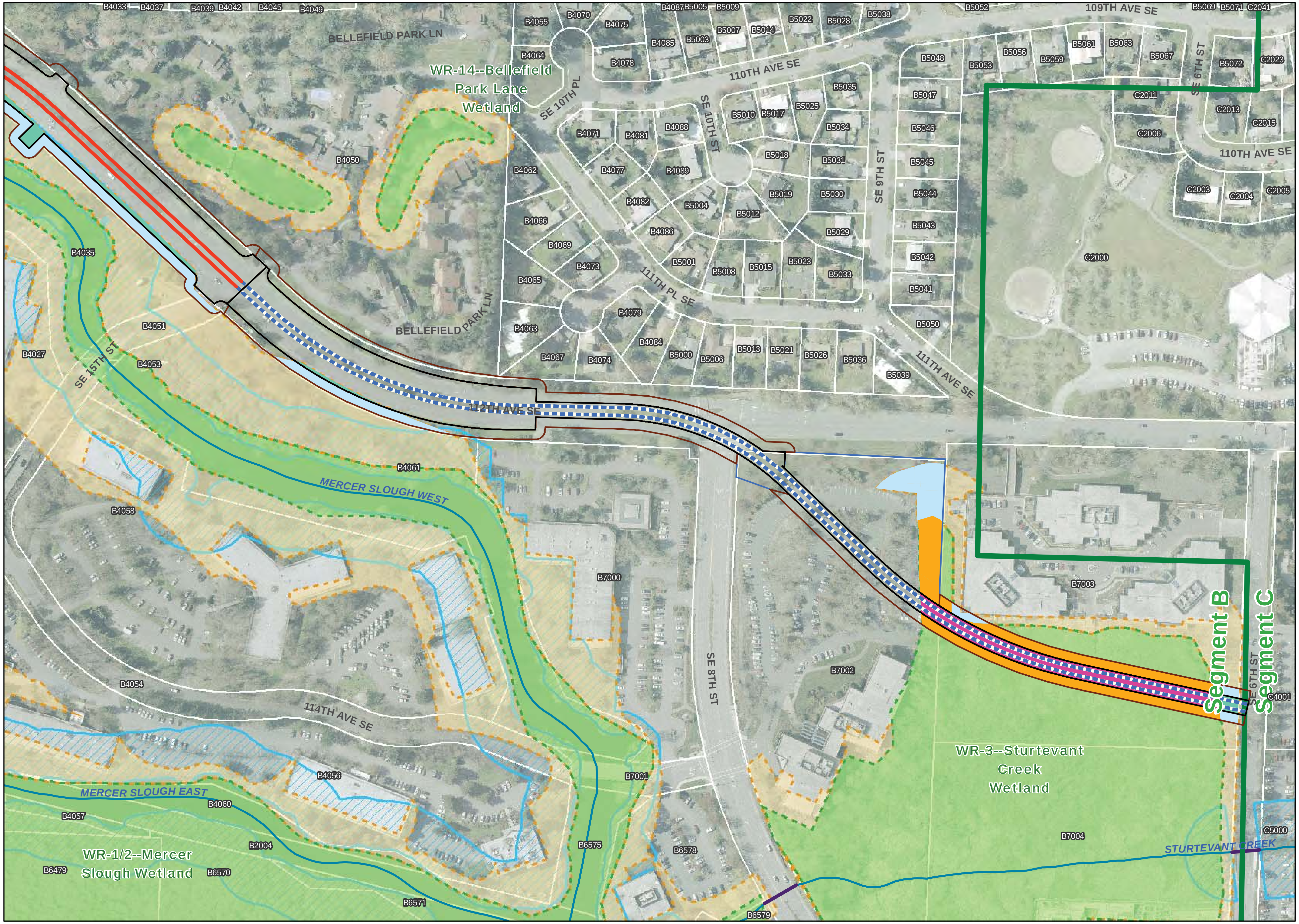
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B3.MXD RGRABARE 3/4/11 07:21:33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WR-14--Bellefield Park Lane Wetland
SE 10TH PL
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109TH AVE SE
SE 9TH ST
SE 6TH ST
111TH PL SE
111TH AVE SE
112TH AVE SE
BELLEFIELD PARK LN
SE 15TH ST
MERCER SLOUGH WEST
MERCER SLOUGH EAST
114TH AVE SE
SE 8TH ST
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
WR-1/2--Mercer Slough Wetland
Segment B
Segment C
SE 6TH ST
B4033
B4037
B4039
B4042
B4045
B4049
B4055
B4070
B4075
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B5038
B5052
B5069
B5071
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B4064
B4085
B5003
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B5014
B4078
B5048
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B6571
B6579

Exhibit F-30
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3
Sheet 5
East Link Project

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

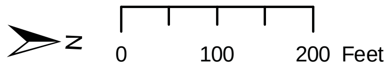
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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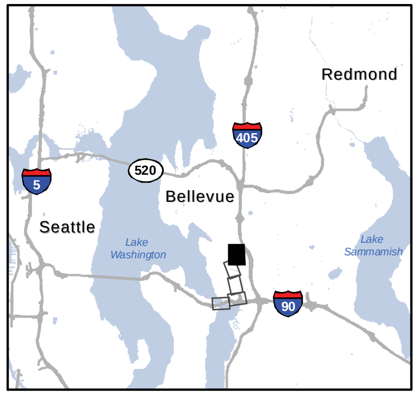
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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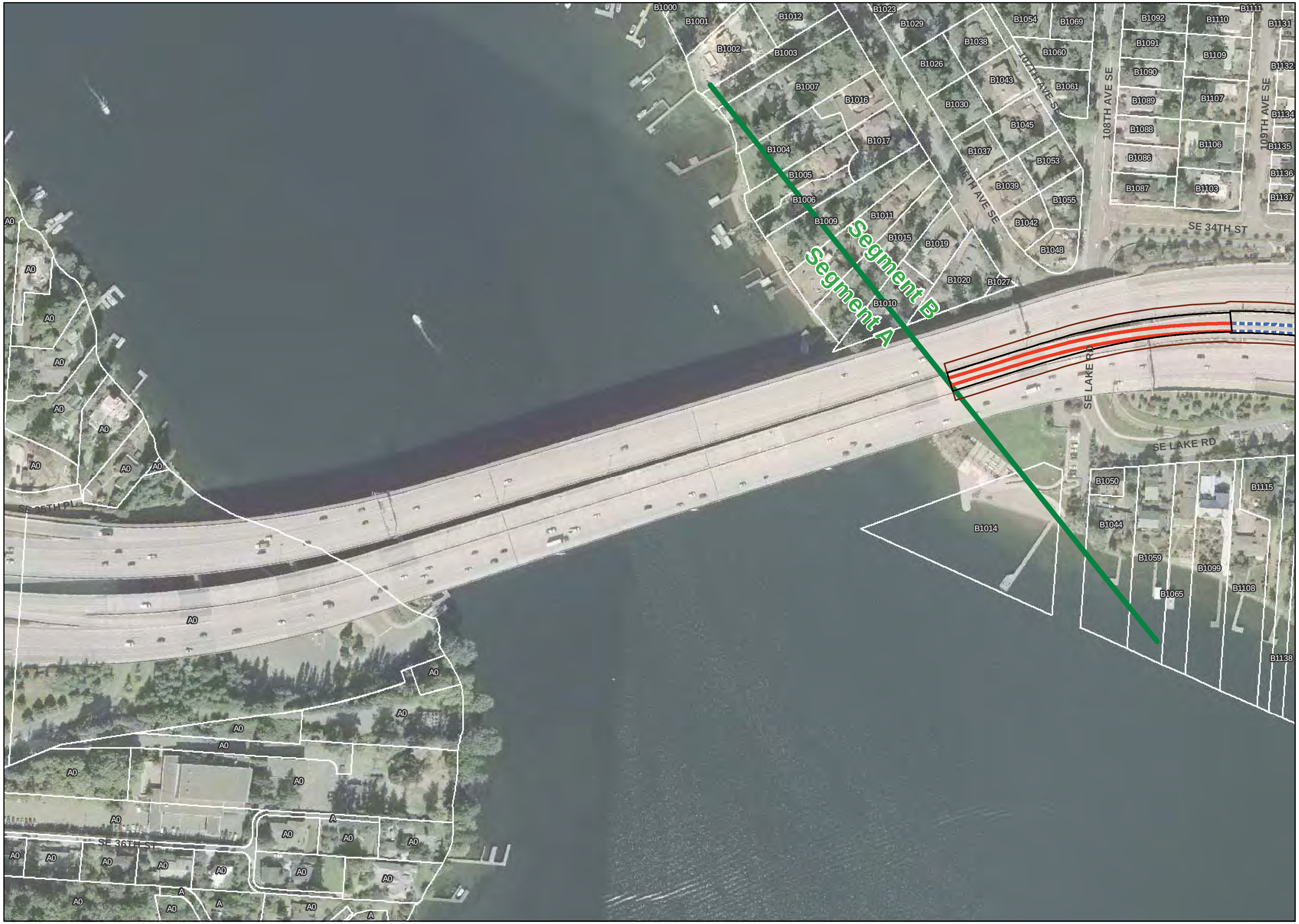
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Segment B
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SE LAKE RD
108TH AVE SE
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106TH AVE SE
SE 35TH PL
SE 36TH ST
B1000
B1001
B1002
B1003
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B1006
B1007
B1009
B1010
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B1099
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B1106
B1107
B1108
B1109
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B1111
B1115
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A0
A

Exhibit F-31
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3, 114th Design Option, Sheet 1

East Link Project

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B3-JOG.MXD RGRABARE 3/4/11 07:21:59

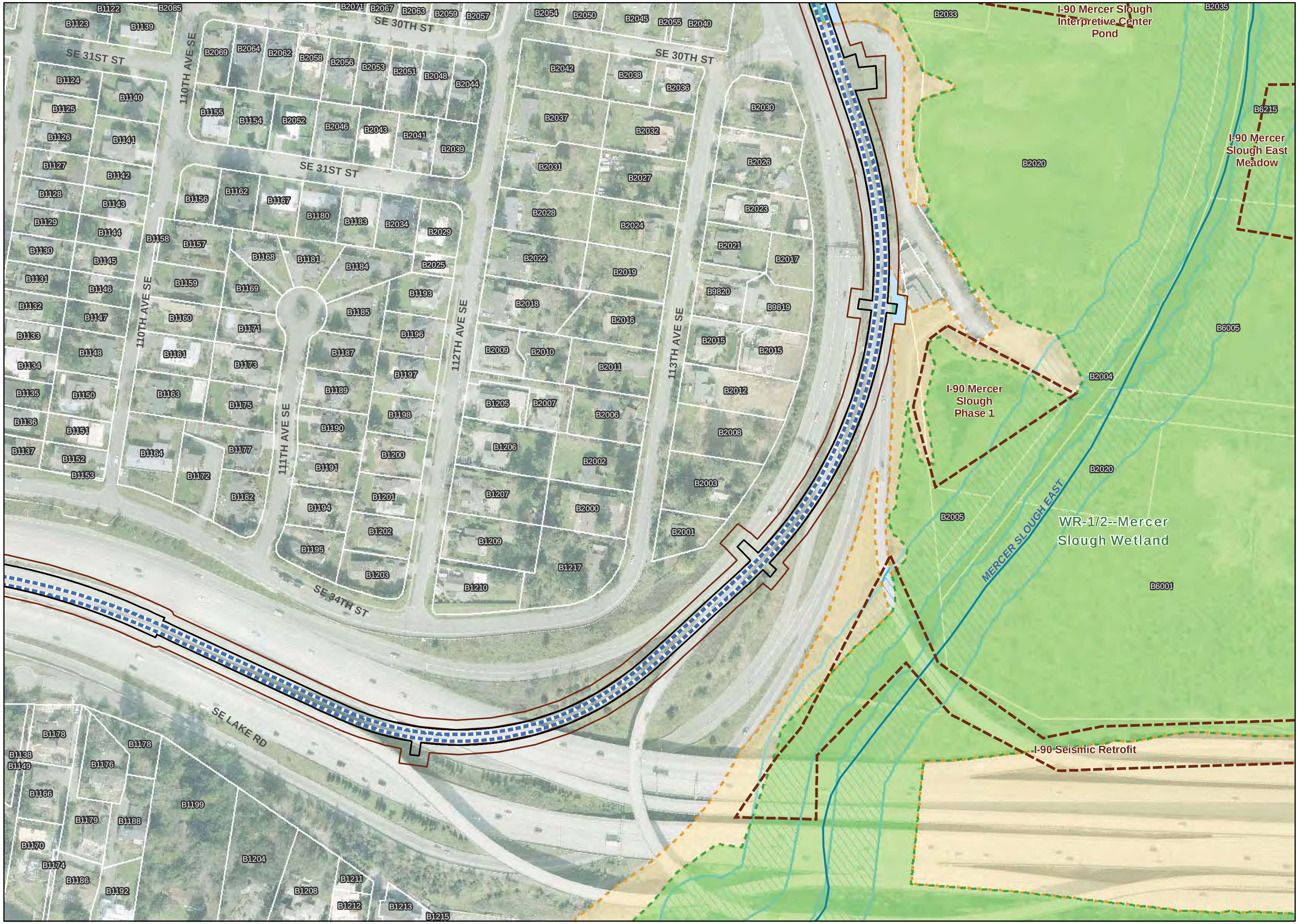
SE 30TH ST
SE 31ST ST
SE 34TH ST
SE LAKE RD
110TH AVE SE
111TH AVE SE
112TH AVE SE
113TH AVE SE
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
WR-1/2--Mercer Slough Wetland
MERCER SLOUGH EAST
I-90 Seismic Retrofit
B2033
B2035
B6215
B2020
B6005
B2004
B2005
B6001
B2030
B2026
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Exhibit F-32
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3, 114th Design Option, Sheet 2

East Link Project

▬	At-Grade Route
▪▪▪	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route

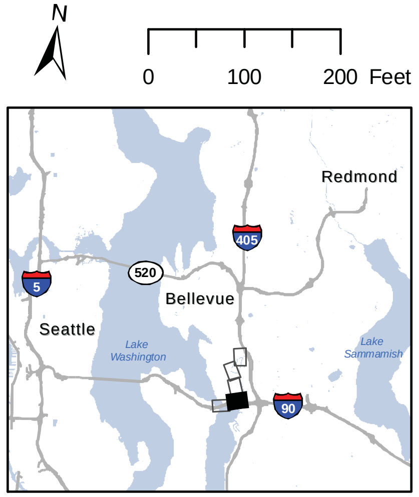
Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
■	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
■	Operational Wetland Impact
🟧	Construction Wetland Impact
■	Operational Wetland Buffer Impact
■	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
—	Open Channel
—	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
Lake Washington
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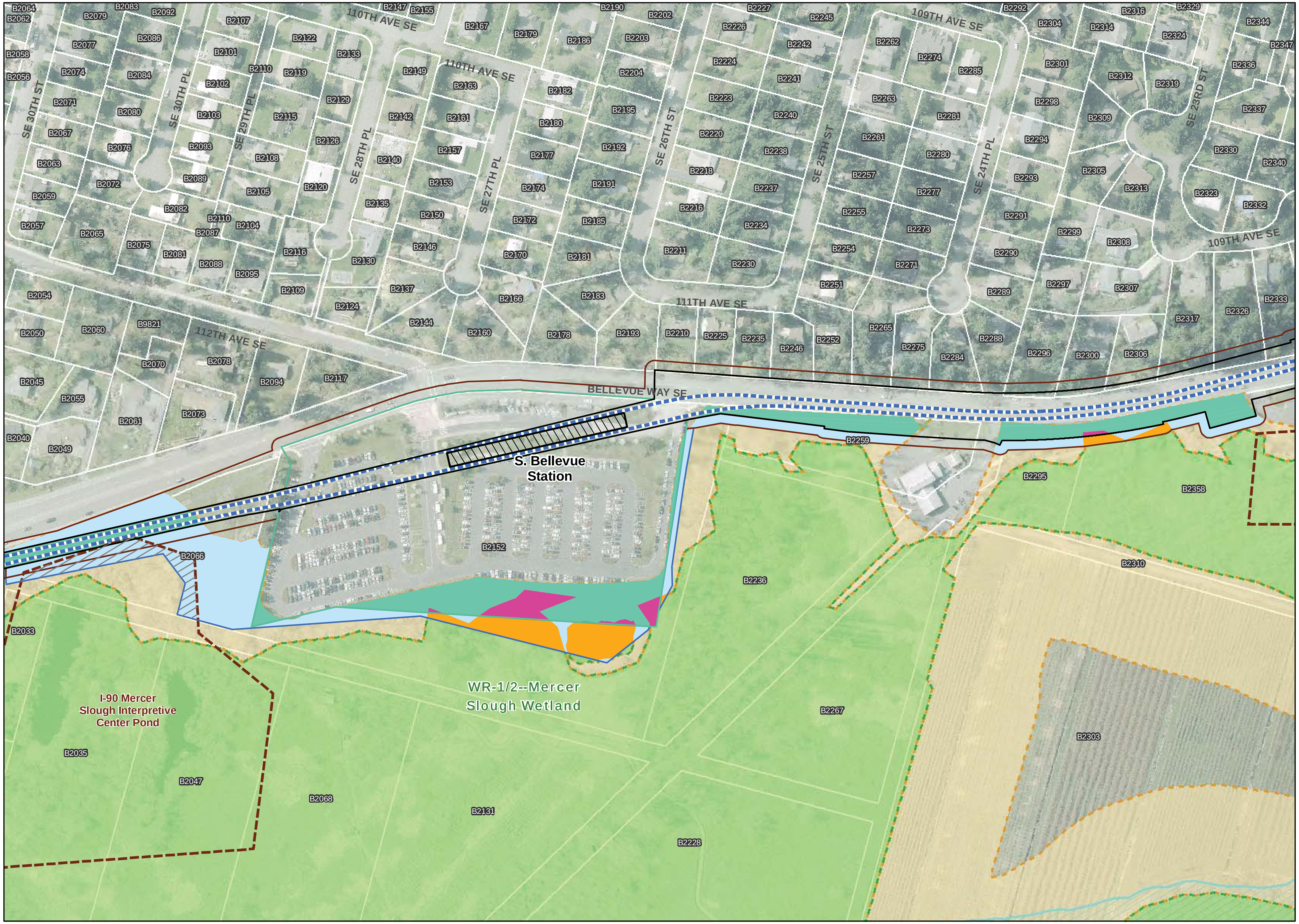
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B3-JOG.MXD RGRABARE 3/4/11 07:21:59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109TH AVE SE
SE 30TH ST
SE 30TH PL
SE 29TH PL
SE 28TH PL
SE 27TH PL
SE 26TH ST
SE 25TH ST
SE 24TH PL
SE 23RD ST
111TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
S. Bellevue Station
WR-1/2--Mercer Slough Wetland
I-90 Mercer Slough Interpretive Center Pond

Exhibit F-33
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3, 114th Design Option, Sheet 3

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

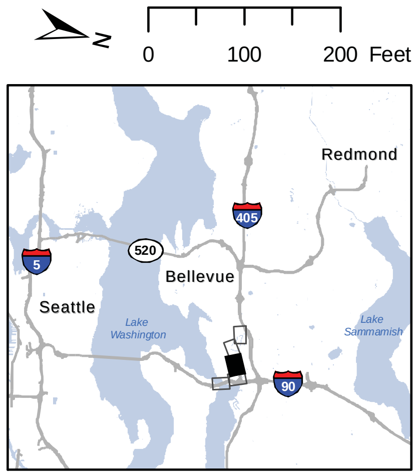
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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Redmond
Bellevue
Seattle
Lake Washington
Lake Sammamish
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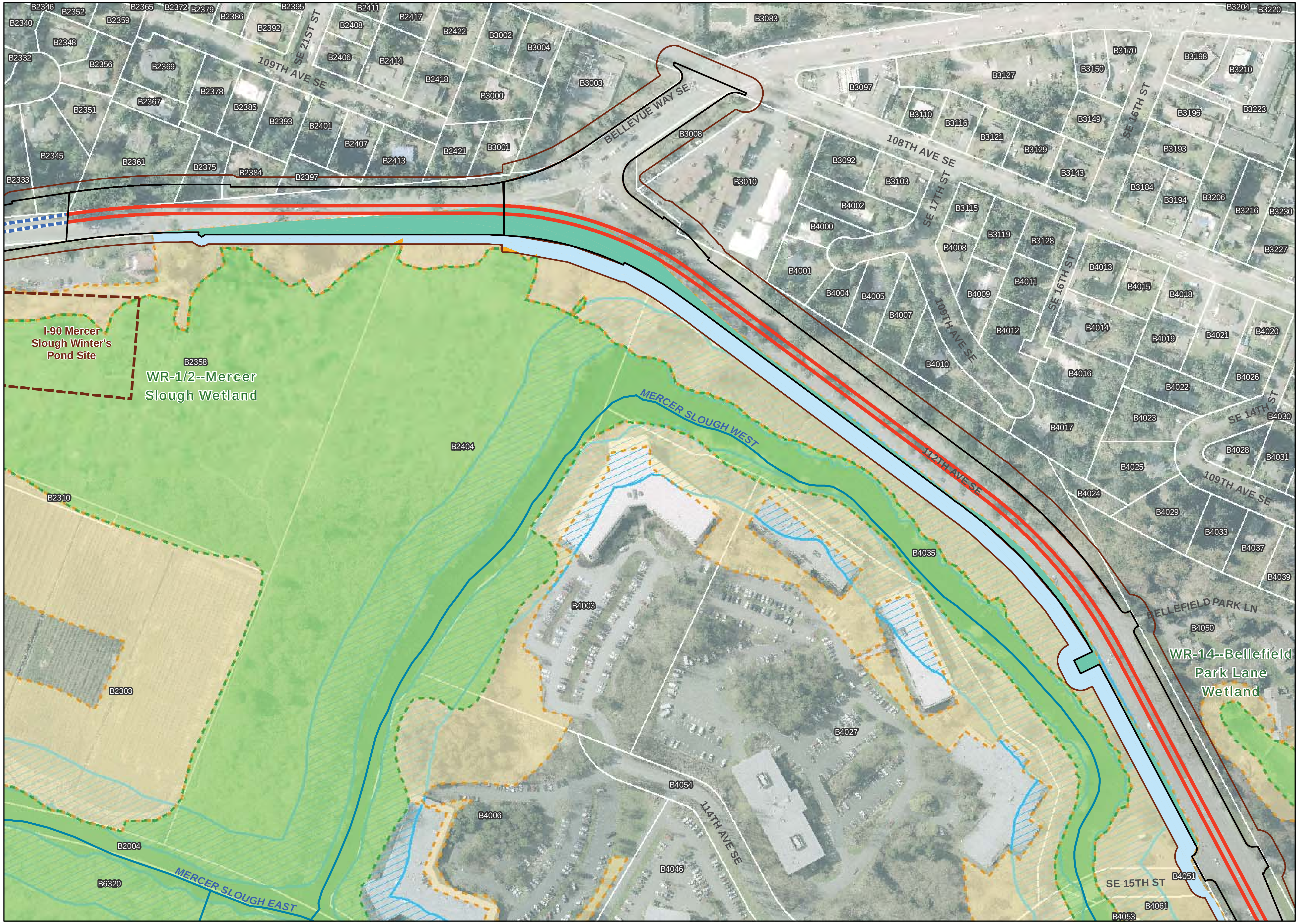
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_B3-JOG.MXD RGRABARE 3/4/11 07:21:59

Exhibit F-34
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3, 114th Design Option, Sheet 4

East Link Project



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109TH AVE SE
SE 21ST ST
SE 17TH ST
SE 16TH ST
SE 14TH ST
112TH AVE SE
BELLEFIELD PARK LN
114TH AVE SE
SE 15TH ST
MERCER SLOUGH WEST
MERCER SLOUGH EAST
I-90 Mercer Slough Winter's Pond Site
WR-1/2--Mercer Slough Wetland
WR-14--Bellefield Park Lane Wetland
B2358
B2404
B2310
B2303
B2004
B6320
B4003
B4006
B4027
B4035
B4046
B4054
B4050
B4051
B4053
B4061

- 🟥 At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- 🟧 Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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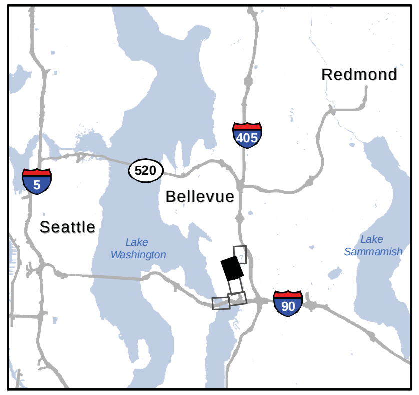

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Bellevue
Seattle
Lake Washington
Lake Sammamish
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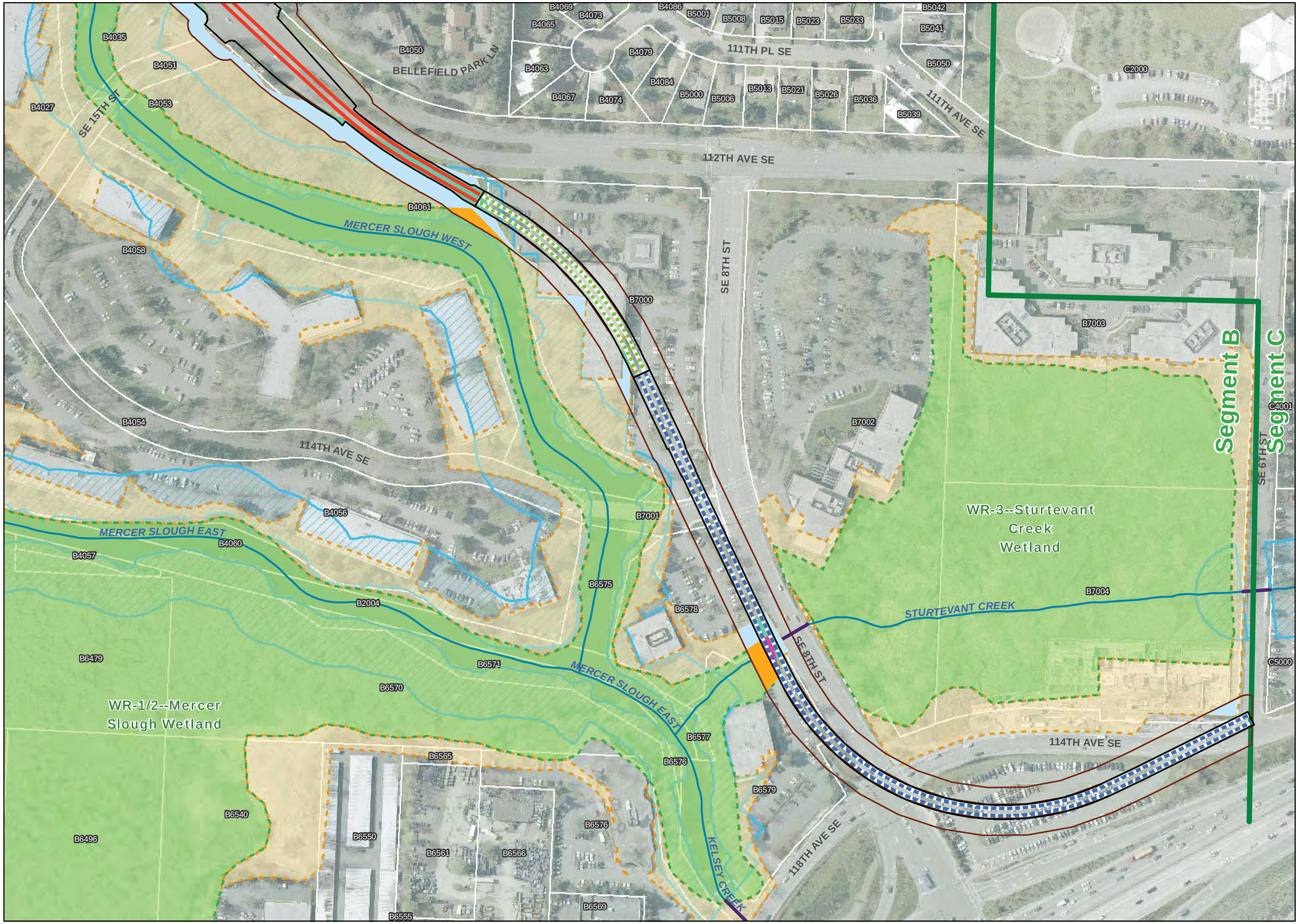
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111TH PL SE
B5050
B4035
BELLEFIELD PARK LN
B4063
B4084
B5013
B5021
B5026
B5036
C2000
B4051
B4067
B4074
B5000
B5006
111TH AVE SE
B5039
B4027
SE 15TH ST
B4053
112TH AVE SE
B4061
MERCER SLOUGH WEST
B4058
SE 8TH ST
B7000
B7003
B7002
B4054
114TH AVE SE
Segment B
Segment C
C4001
SE 6TH ST
B4056
B7001
WR-3--Sturtevant Creek Wetland
MERCER SLOUGH EAST
B4060
B4057
B6575
B7004
B2004
B6578
STURTEVANT CREEK
SE 8TH ST
C5000
B6479
B6571
MERCER SLOUGH EAST
B6570
WR-1/2--Mercer Slough Wetland
B6577
114TH AVE SE
B6565
B6576
B6579
B6540
118TH AVE SE
B6496
B6550
B6576
B6561
B6566
KELSEY CREEK
B6569
B6555

Exhibit F-35
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B3, 114th Design Option, Sheet 5

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

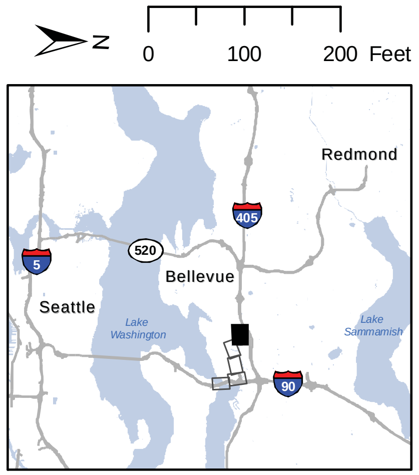
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
5
Seattle
Lake Washington
Lake Sammamish
90

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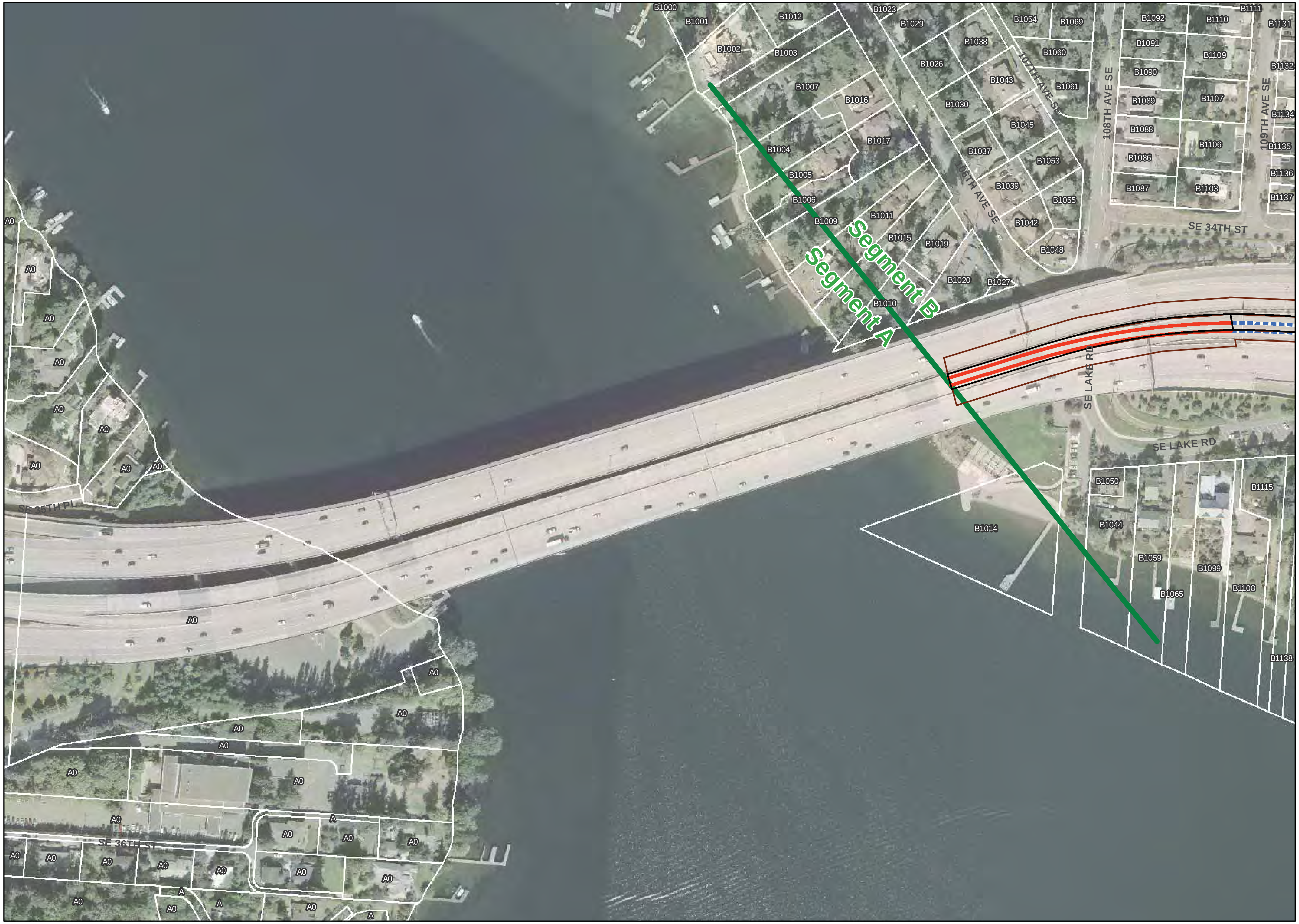
Exhibit F-36
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B7
Sheet 1

East Link Project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Segment B
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109TH AVE SE
107TH AVE SE
106TH AVE SE
SE 34TH ST
SE LAKE RD
SE 35TH PL
SE 36TH ST
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B1001
B1002
B1003
B1004
B1005
B1006
B1007
B1009
B1010
B1011
B1012
B1014
B1015
B1016
B1017
B1019
B1020
B1023
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B1030
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B1038
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B1042
B1043
B1044
B1045
B1048
B1050
B1053
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B1055
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B1060
B1061
B1065
B1069
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B1087
B1088
B1089
B1090
B1091
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B1108
B1109
B1110
B1111
B1115
B1131
B1132
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B1136
B1137
B1138
A0
A

- ▬ At-Grade Route
- ▬ ▬ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Bellevue
Seattle
Lake Washington
Lake Sammamish
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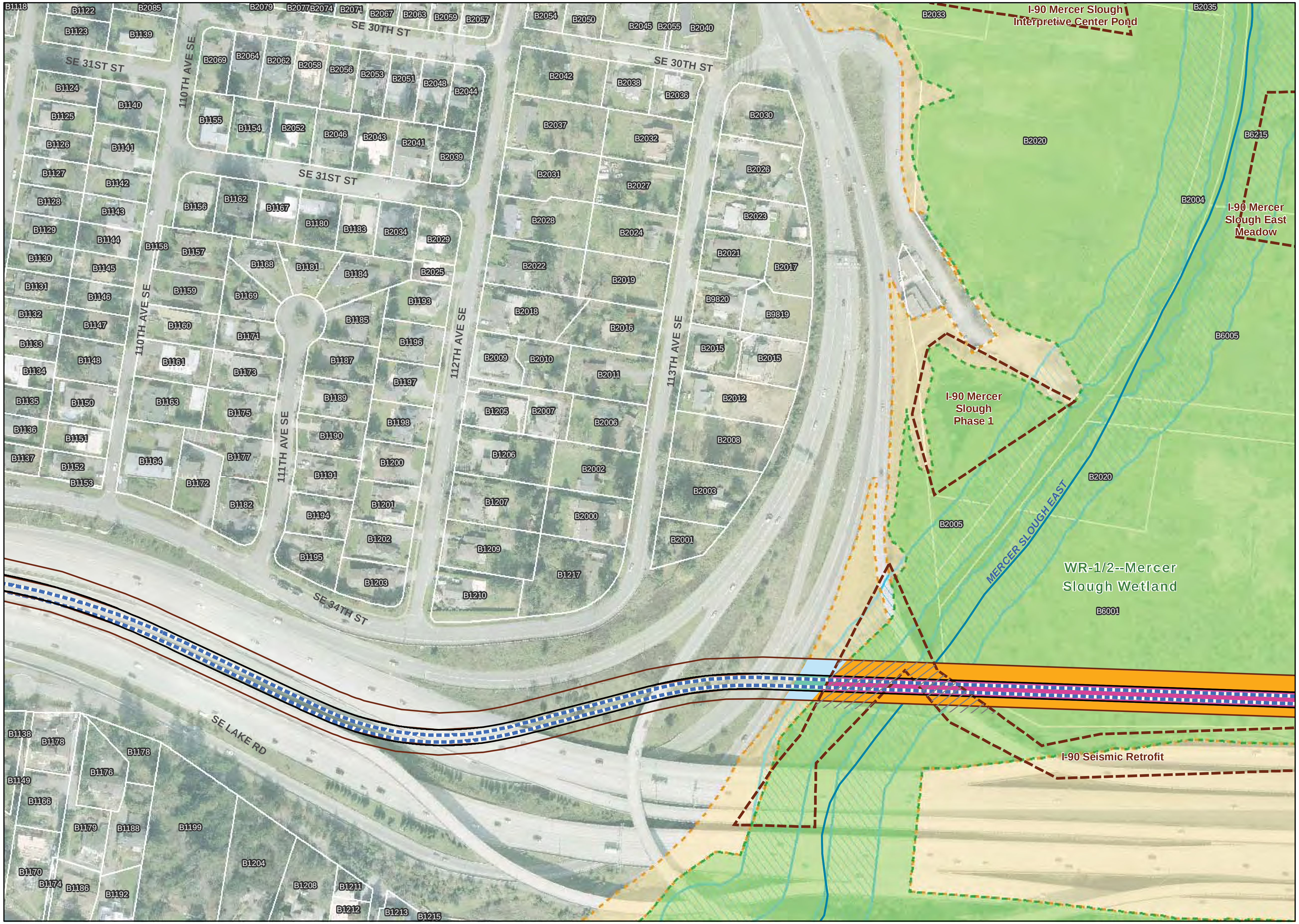
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SE 31ST ST
SE 34TH ST
SE LAKE RD
110TH AVE SE
111TH AVE SE
112TH AVE SE
113TH AVE SE
I-90 Mercer Slough Interpretive Center Pond
I-90 Mercer Slough East Meadow
I-90 Mercer Slough Phase 1
MERCER SLOUGH EAST
WR-1/2--Mercer Slough Wetland
I-90 Seismic Retrofit

Exhibit F-37
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B7
Sheet 2

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

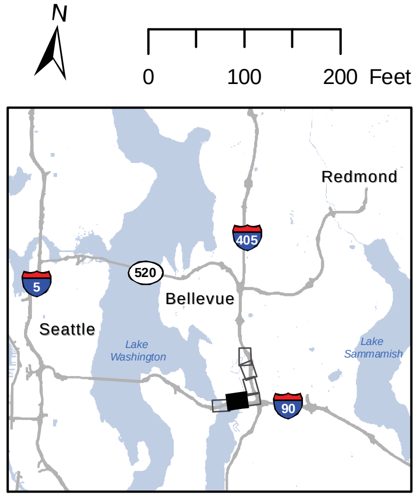
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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Lake Washington
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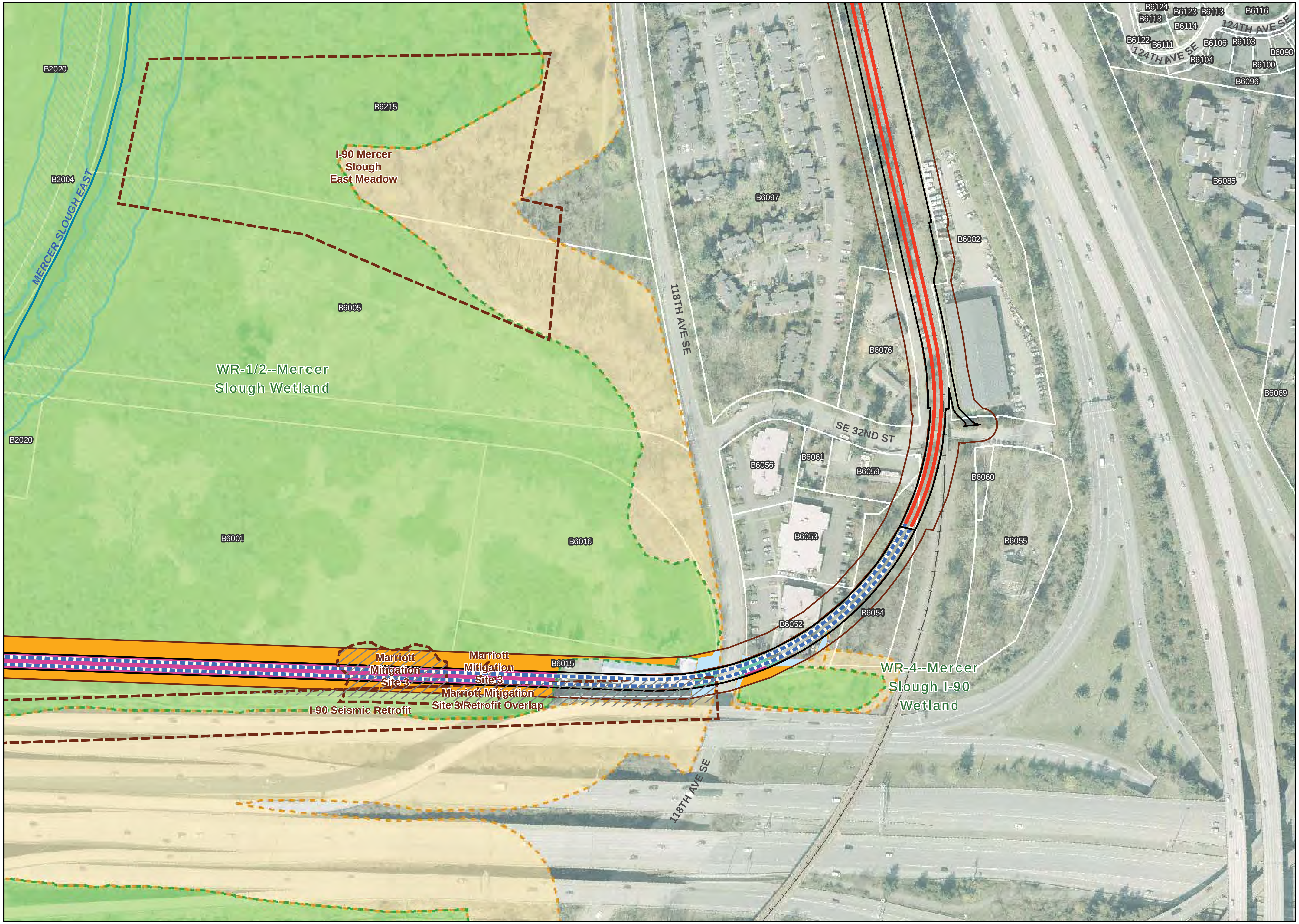
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I-90 Mercer Slough East Meadow
B2004
MERCER SLOUGH EAST
B6005
WR-1/2--Mercer Slough Wetland
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B6016
B6097
B6082
B6076
118TH AVE SE
SE 32ND ST
B6056
B6061
B6059
B6060
B6053
B6055
B6054
B6052
B6015
Marriott Mitigation Site 3
Marriott Mitigation Site 3
Marriott Mitigation Site 3/Retrofit Overlap
I-90 Seismic Retrofit
WR-4--Mercer Slough I-90 Wetland
118TH AVE SE
B6124
B6123
B6113
B6116
B6118
B6114
124TH AVE SE
B6122
B6111
B6106
B6103
B6098
124TH AVE SE
B6104
B6100
B6096
B6085
B6069

Exhibit F-38
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B7
Sheet 3

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

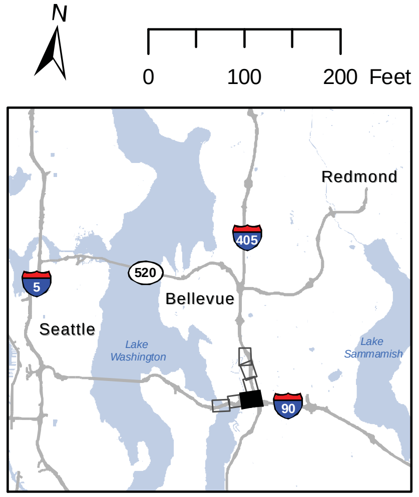
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
Lake Sammamish
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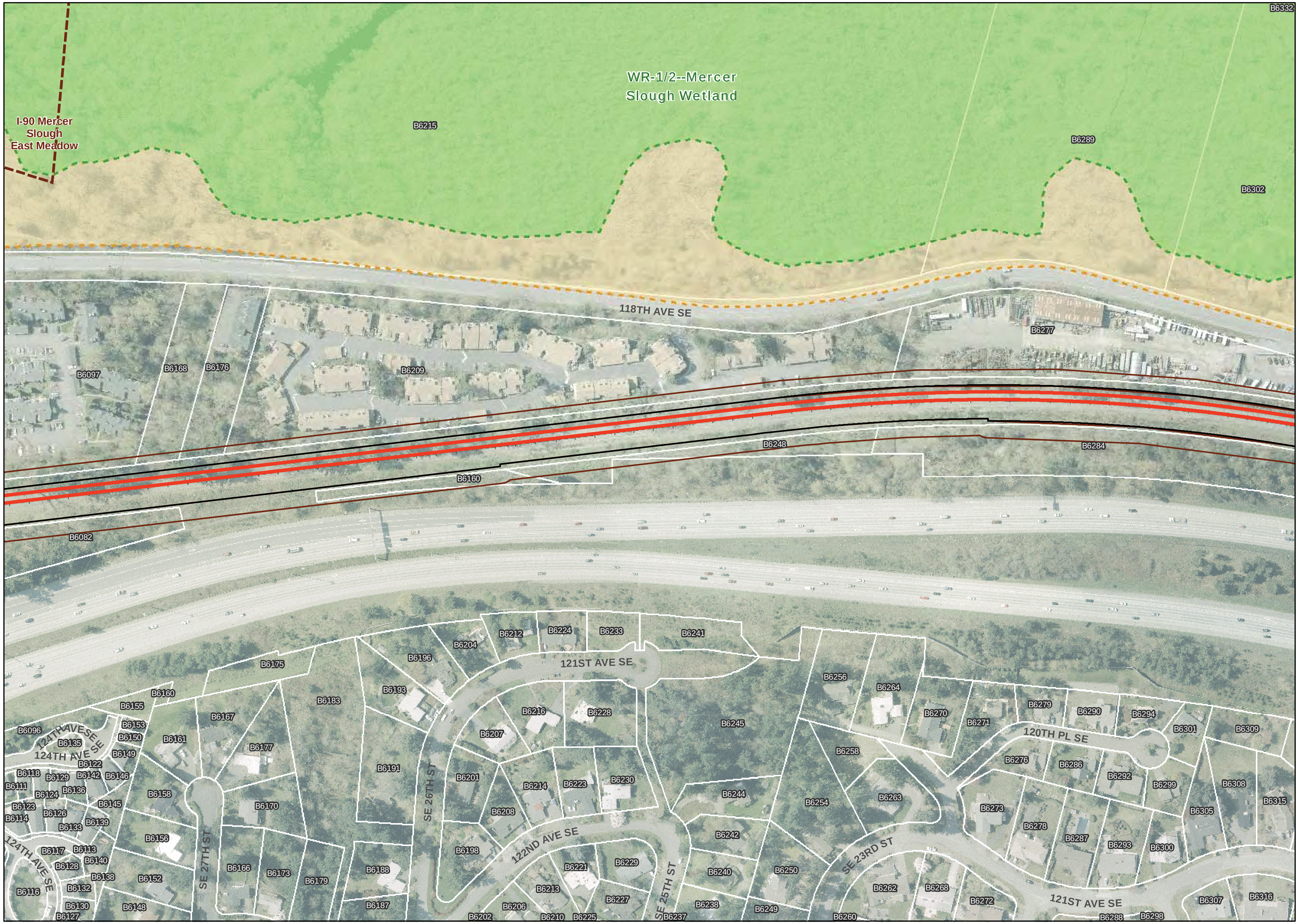
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B6209
B6248
B6284
B6160
B6082
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B6224
B6233
B6241
B6204
B6196
121ST AVE SE
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B6160
B6183
B6193
B6256
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B6245
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124TH AVE SE
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120TH PL SE
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B6298

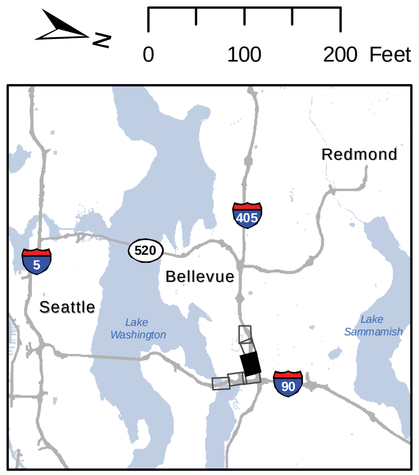
Exhibit F-39
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B7
Sheet 4
East Link Project

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Operational Footprint
ROW
Park and Ride

Construction Footprint
Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
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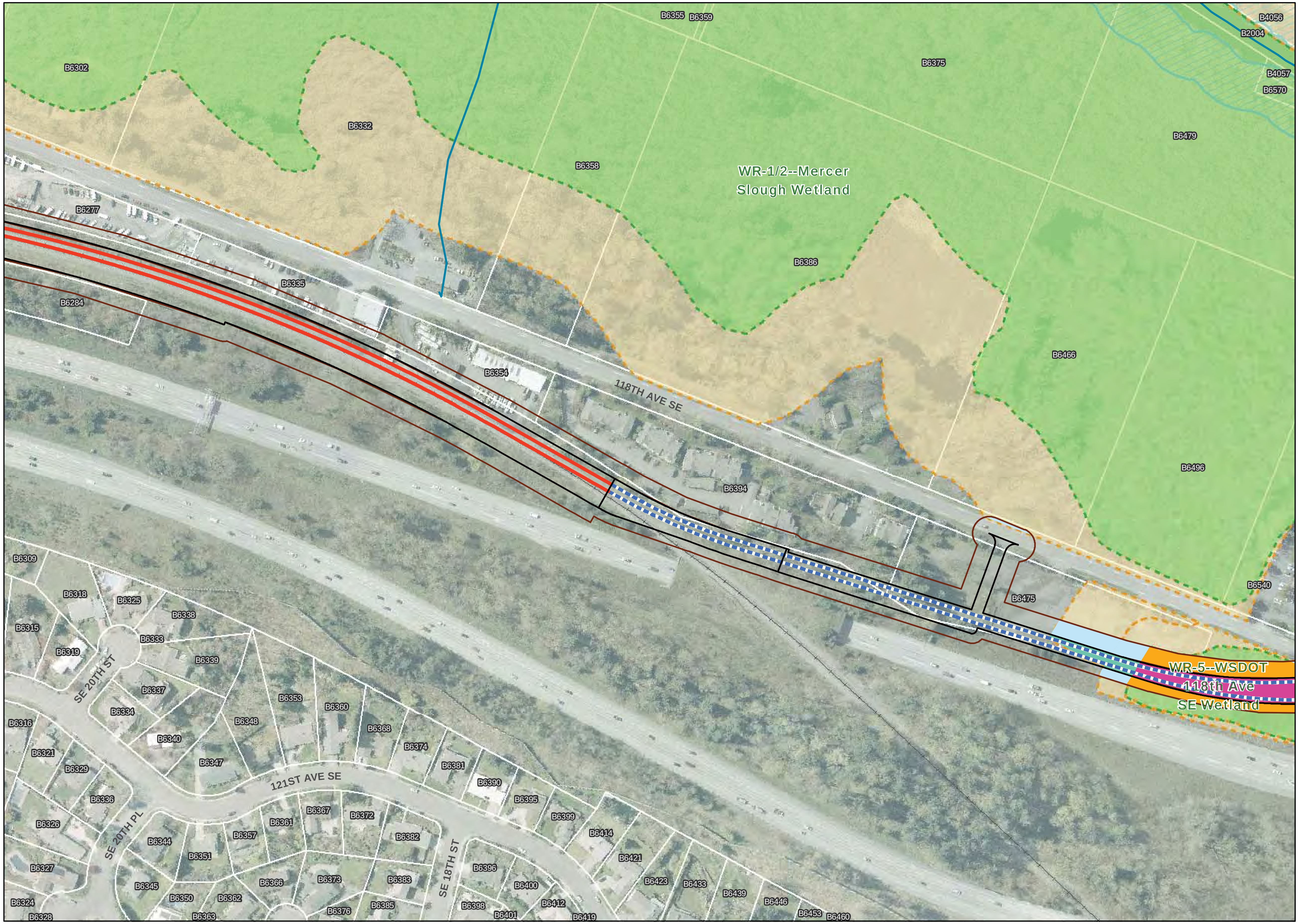
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B6386
B6335
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B6354
118TH AVE SE
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B6309
B6475
B6540
B6318
B6325
B6338
B6315
B6333
B6319
B6339
SE 20TH ST
B6337
WR-5--WSDOT 118th Ave SE Wetland
B6334
B6353
B6360
B6316
B6348
B6368
B6340
B6321
B6374
B6347
B6329
B6381
121ST AVE SE
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SE 20TH PL
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SE 18TH ST
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B6460
B6328
B6363

Exhibit F-40
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B7
Sheet 5
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

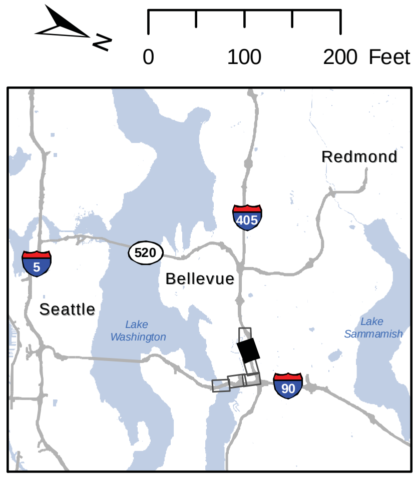
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Lake Washington
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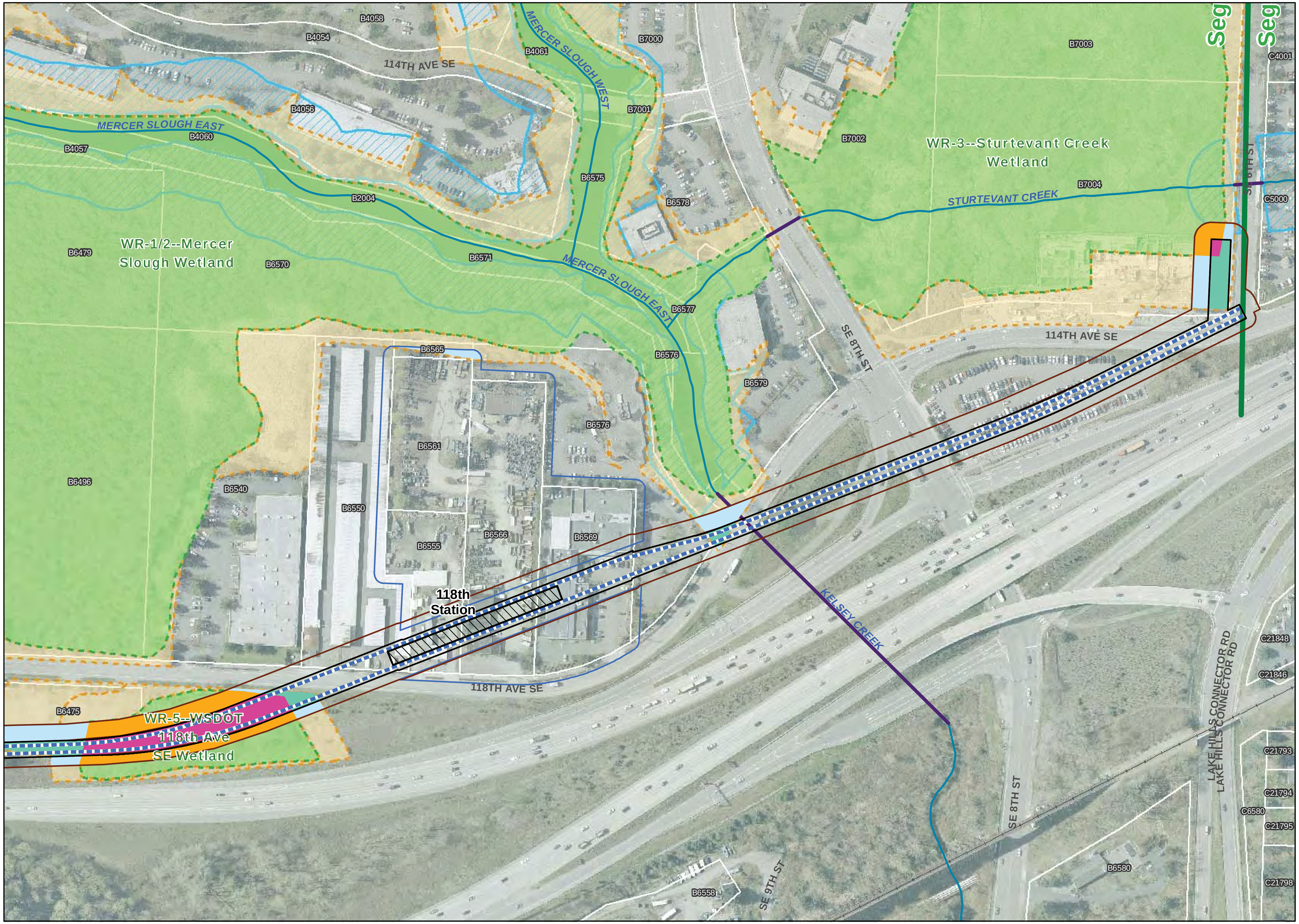
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MERCER SLOUGH WEST
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B7000
B7001
Seg
Seg
C4001
B7003
B4056
MERCER SLOUGH EAST
B4060
B4057
B6575
B7002
WR-3--Sturtevant Creek Wetland
B2004
B6578
B7004
STURTEVANT CREEK
C5000
WR-1/2--Mercer Slough Wetland
B6479
B6570
B6571
MERCER SLOUGH EAST
B6577
SE 8TH ST
114TH AVE SE
B6565
B6576
B6579
B6576
B6561
B6496
B6540
B6550
B6566
B6569
B6555
118th Station
KELSEY CREEK
118TH AVE SE
B6475
WR-5--WSDOT 118th Ave SE Wetland
C21848
C21846
LAKE HILLS CONNECTOR RD
LAKE HILLS CONNECTOR RD
C21793
C21794
SE 8TH ST
C6580
C21795
B6580
C21798
SE 9TH ST
B6558

Exhibit F-41
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative B7
Sheet 6
East Link Project

— At-Grade Route
- - - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
⬜ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
🟪 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
🟦 Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Bellevue
Seattle
Lake Washington
Lake Sammamish
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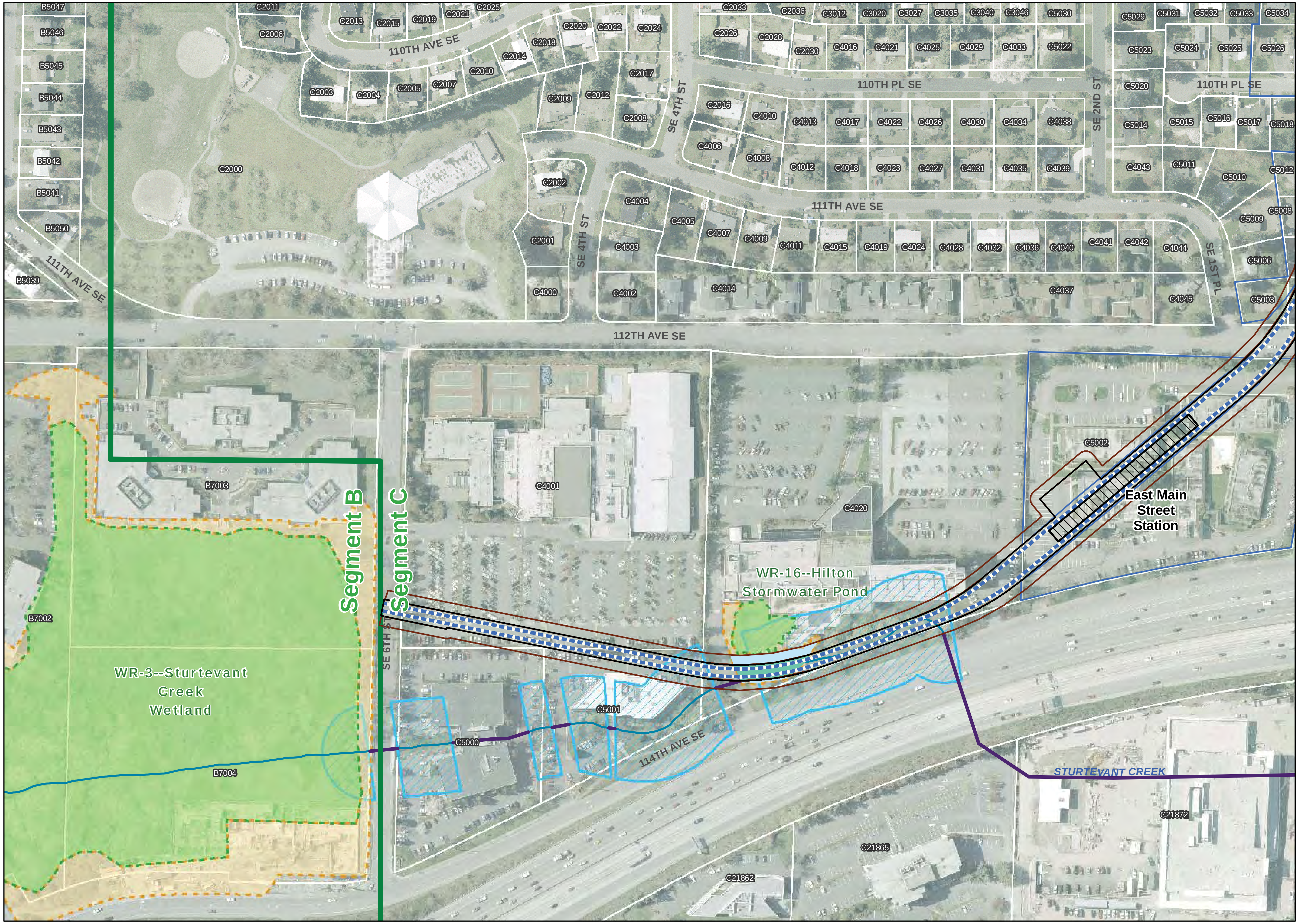
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112TH AVE SE
114TH AVE SE
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SE 2ND ST
SE 1ST PL
SE 6TH ST
Segment B
Segment C
WR-3--Sturtevant Creek Wetland
WR-16--Hilton Stormwater Pond
East Main Street Station
STURTEVANT CREEK
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C2002
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C4002
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C5001
C5002
B7002
B7003
B7004
C21862
C21865
C21872

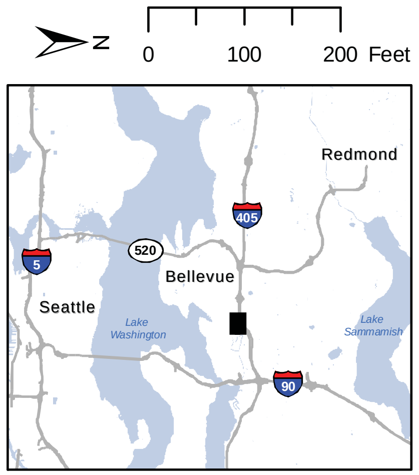
Exhibit F-42
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C11A from B3
East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ━ ━ Tunnel Route

Operational Footprint
- ☐ ROW
- ☐ Park and Ride

Construction Footprint
- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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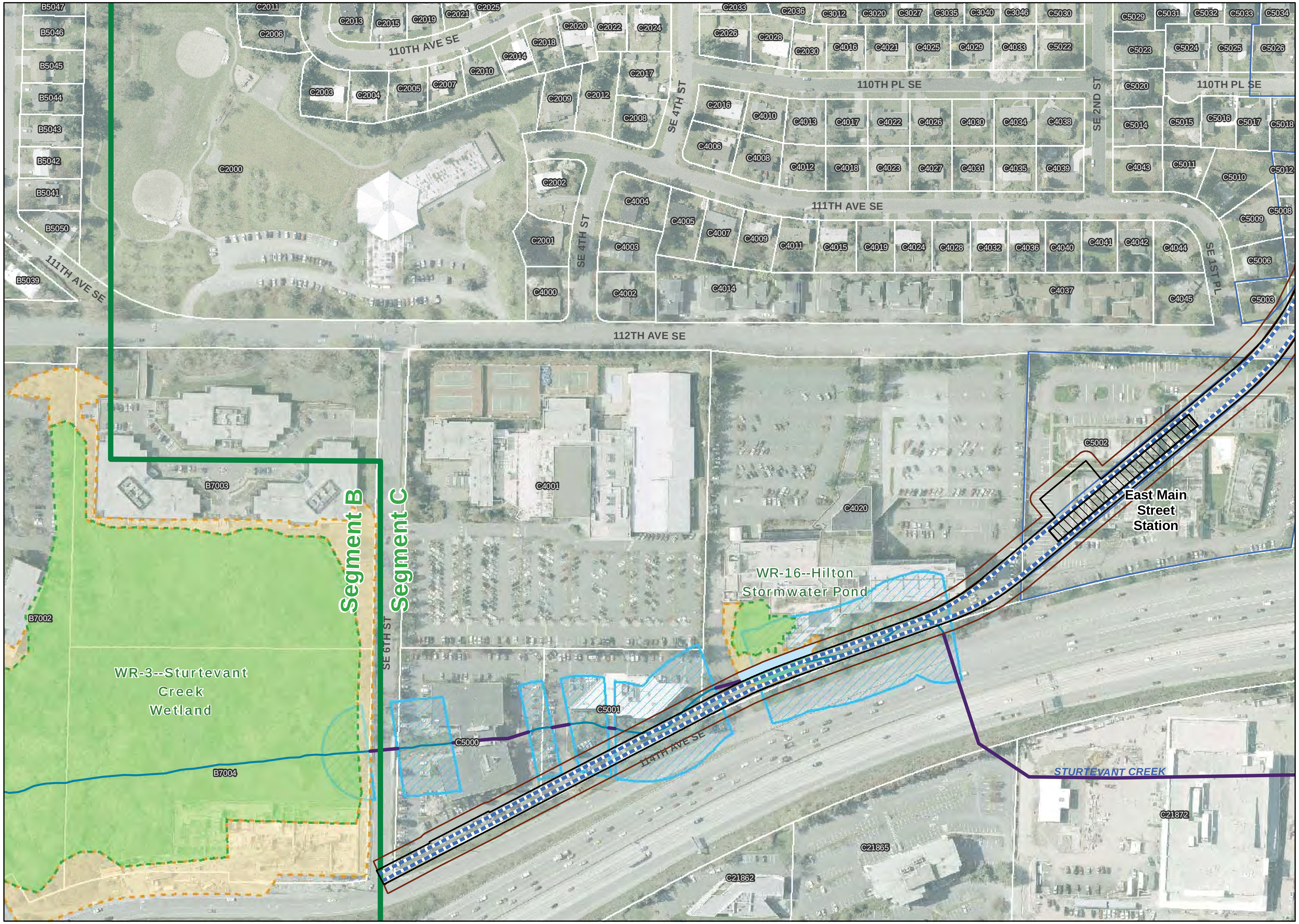
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C2020
C2022
C2024
C2026
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C5025
C5026
110TH AVE SE
C2018
C2014
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SE 4TH ST
110TH PL SE
SE 2ND ST
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SE 4TH ST
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SE 1ST PL
C5006
111TH AVE SE
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C5003
112TH AVE SE
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B7003
C4001
C4020
East Main Street Station
Segment B
Segment C
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
C5000
114TH AVE SE
B7004
STURTEVANT CREEK
C21872
C21865
C21862

Exhibit F-43
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C11A from B3 Design Option/B7

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ☐ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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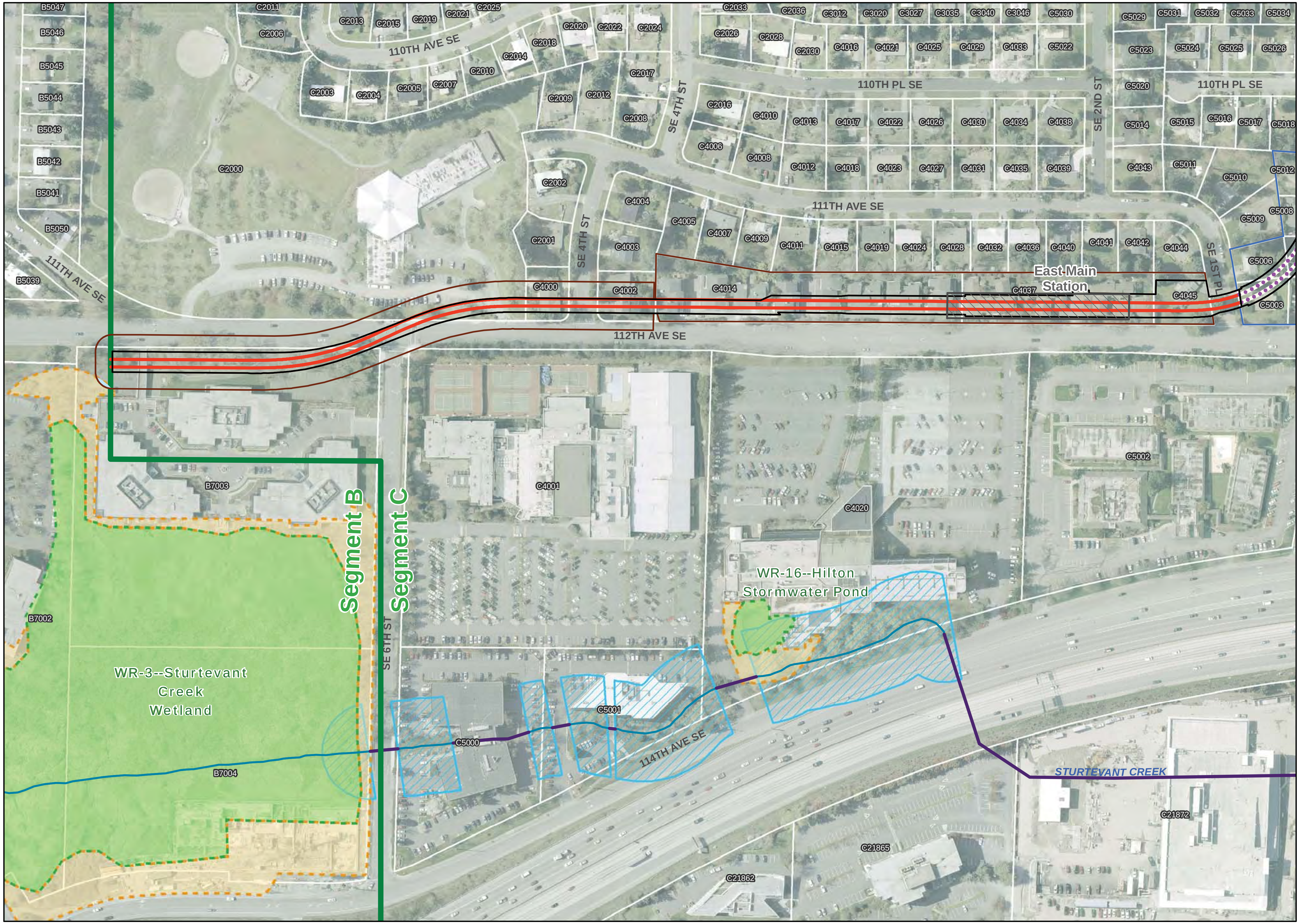
Exhibit F-44
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C9T from B2M

East Link Project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C4044
SE 1ST PL
C5006
111TH AVE SE
B5039
C4000
C4002
C4014
East Main Station
C4037
C4045
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112TH AVE SE
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C4020
Segment B
Segment C
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
114TH AVE SE
C5000
B7004
STURTEVANT CREEK
C21872
C21865
C21862

- 🟥 At-Grade Route
- ▬ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

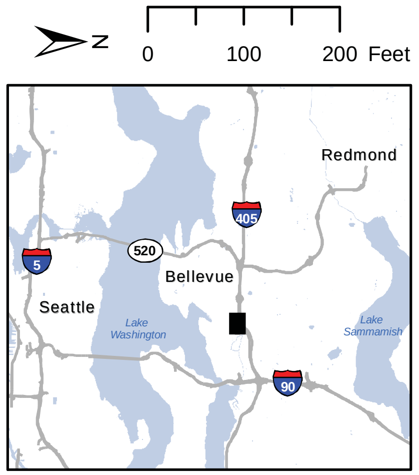
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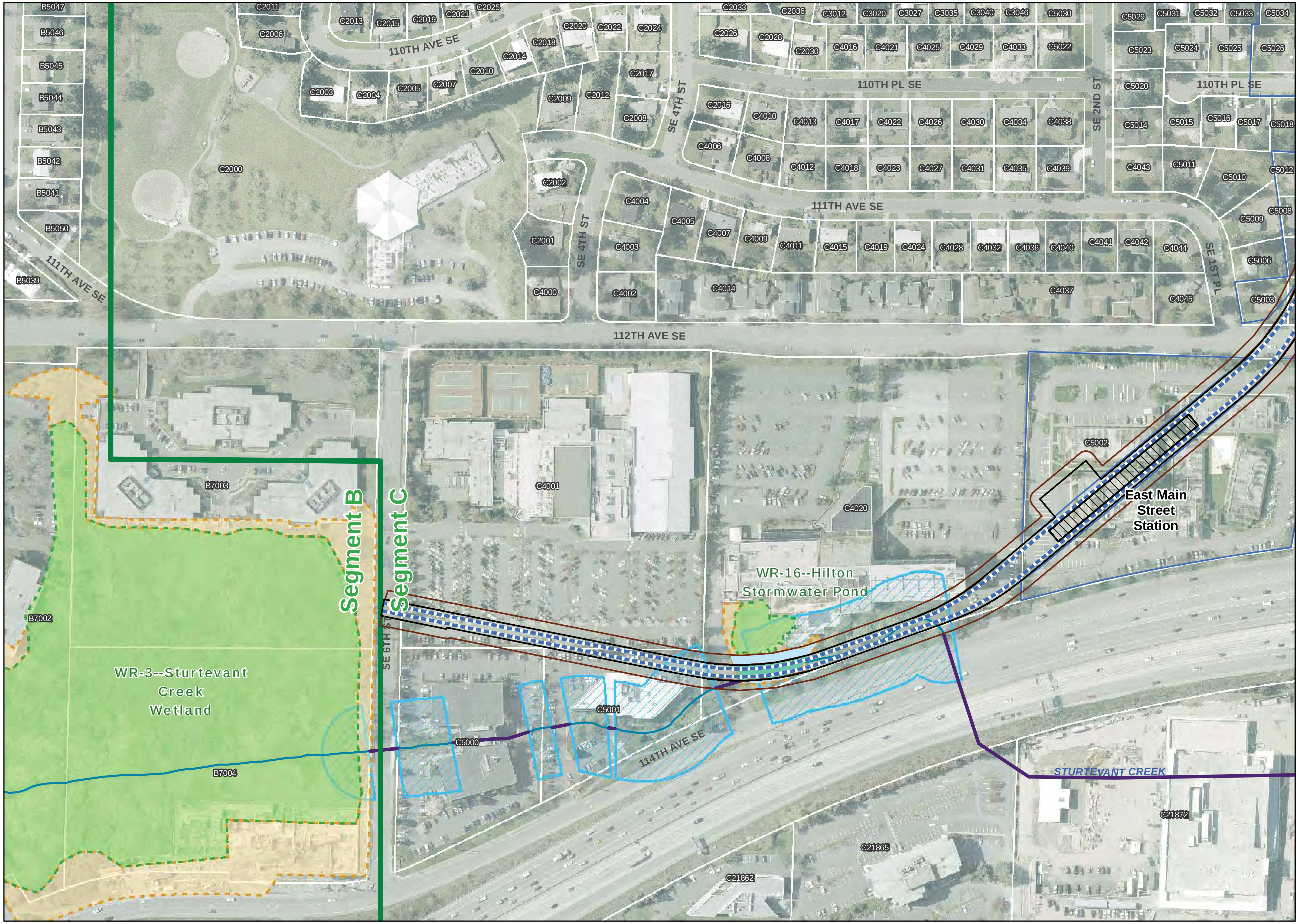
Exhibit F-45
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C9T from B3
East Link Project



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110TH PL SE
111TH AVE SE
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112TH AVE SE
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SE 4TH ST
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Segment B
Segment C
East Main Street Station
WR-16--Hilton Stormwater Pond
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
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C21872

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

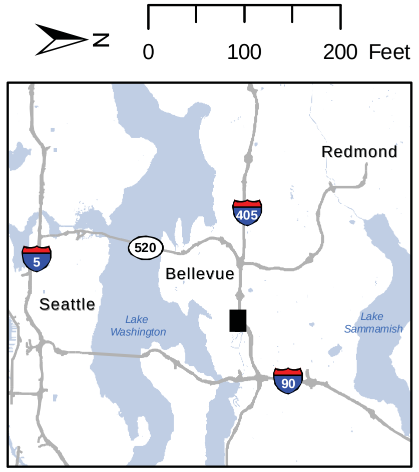
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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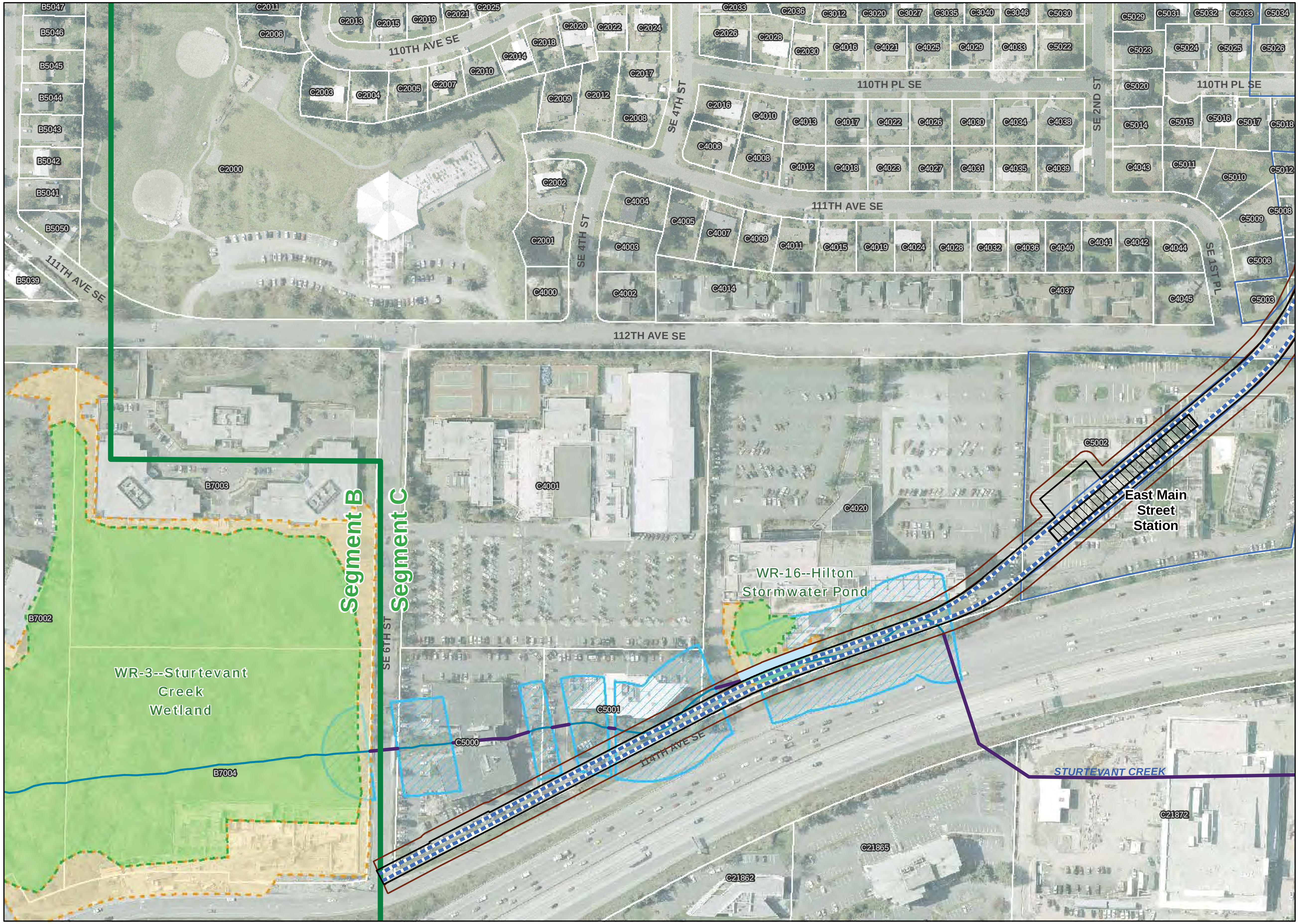
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111TH AVE SE
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SE 4TH ST
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114TH AVE SE
Segment B
Segment C
WR-3--Sturtevant Creek Wetland
WR-16--Hilton Stormwater Pond
East Main Street Station
STURTEVANT CREEK
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Exhibit F-46
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C9T from B3 Design Option/B7

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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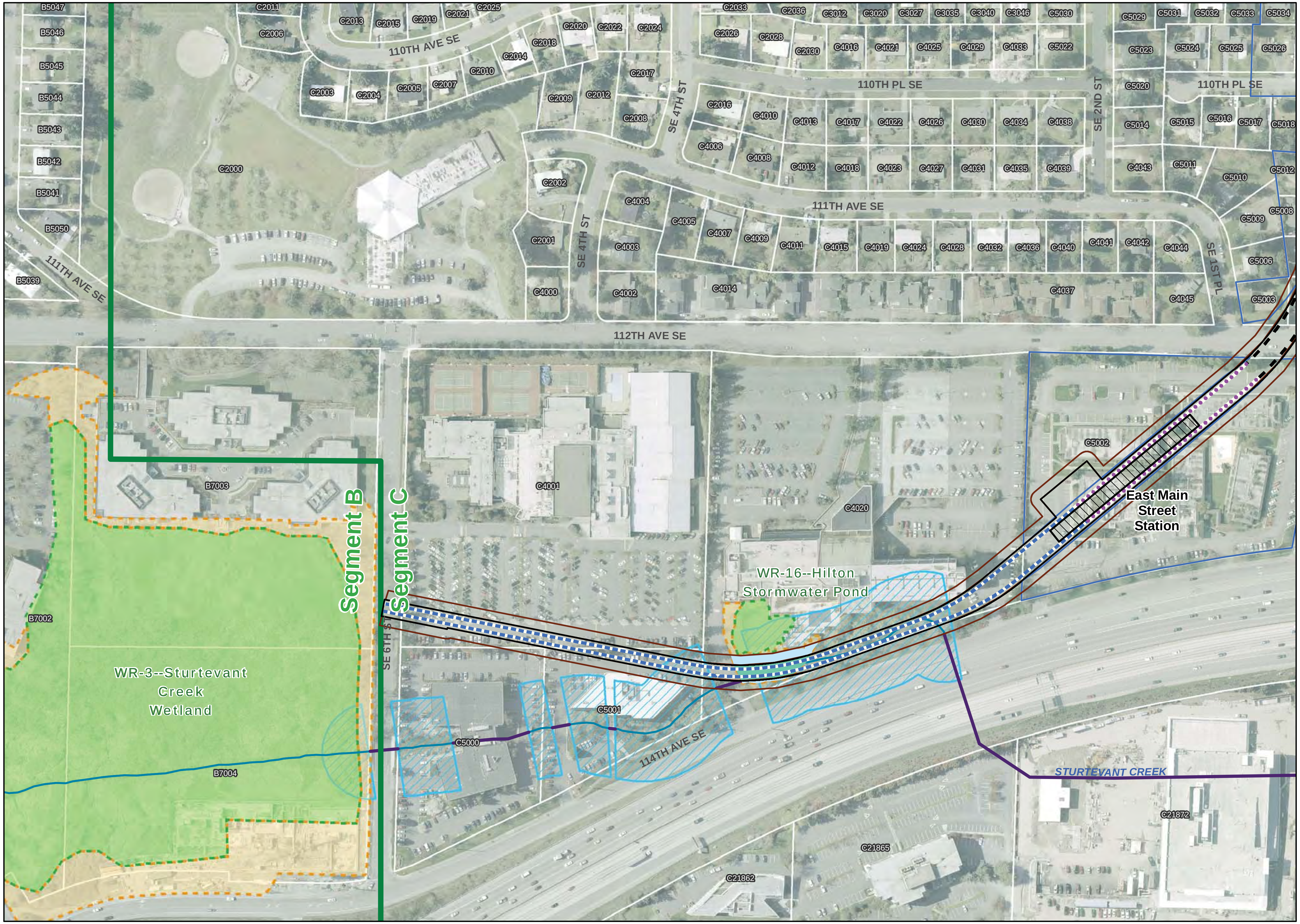
Exhibit F-47
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C2T from B3
East Link Project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111TH AVE SE
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SE 1ST PL
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111TH AVE SE
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112TH AVE SE
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B7003
Segment B
Segment C
C4001
C4020
East Main Street Station
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
C5000
114TH AVE SE
B7004
STURTEVANT CREEK
C21872
C21865
C21862

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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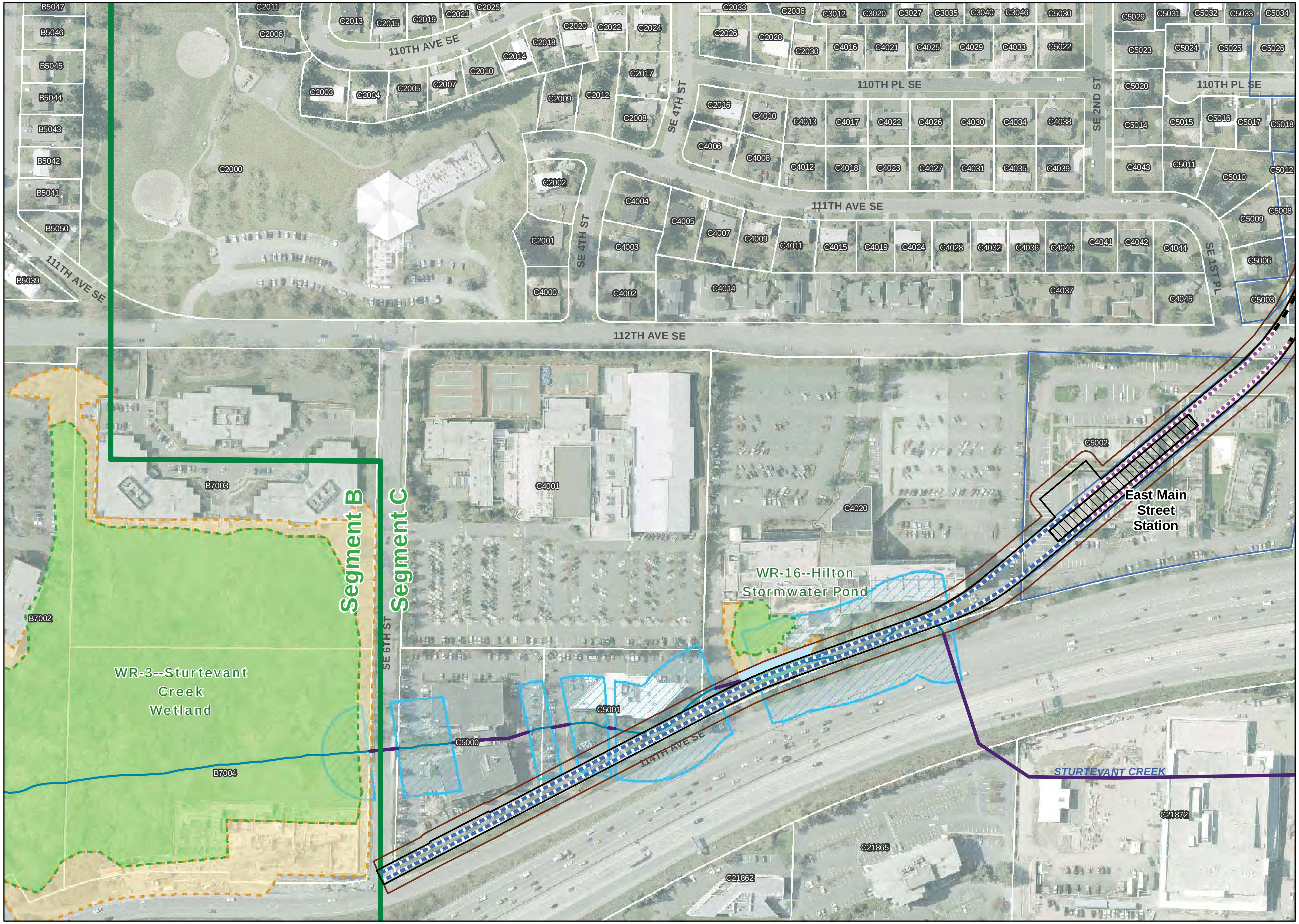
Exhibit F-48
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C2T from B7

East Link Project



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Segment B
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WR-3--Sturtevant Creek Wetland
WR-16--Hilton Stormwater Pond
East Main Street Station
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- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

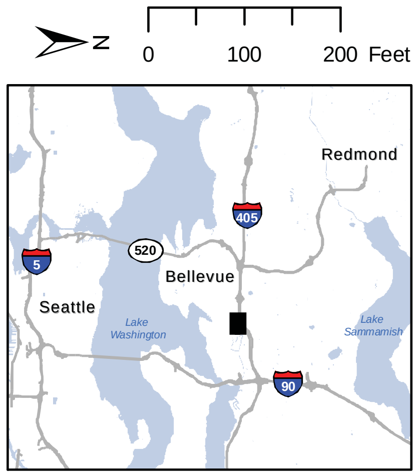

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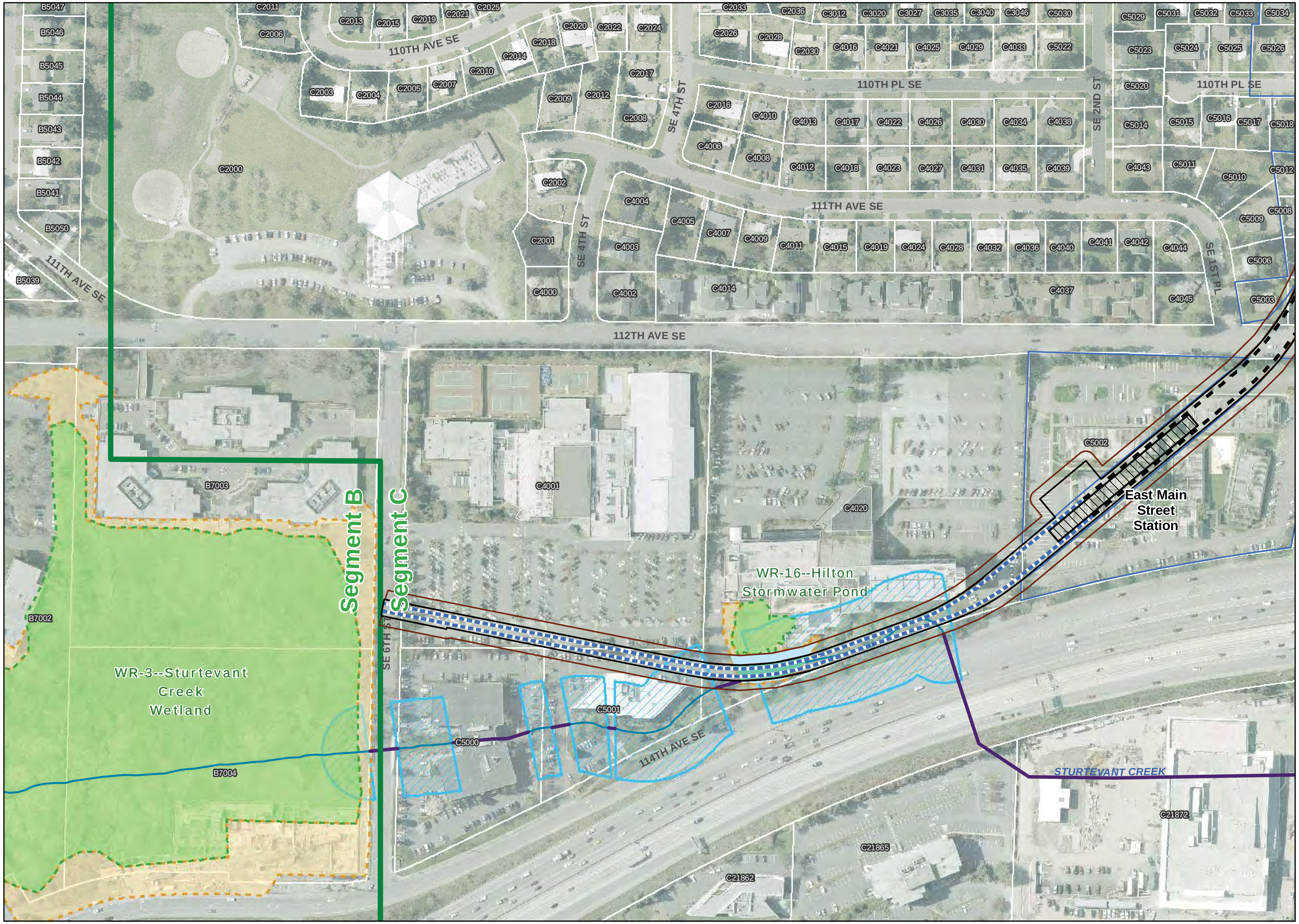
Exhibit F-49
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C3T from B3

East Link Project



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Segment B
Segment C
East Main Street Station
C4020
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
114TH AVE SE
C5000
B7004
STURTEVANT CREEK
C21872
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- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Lake Sammamish
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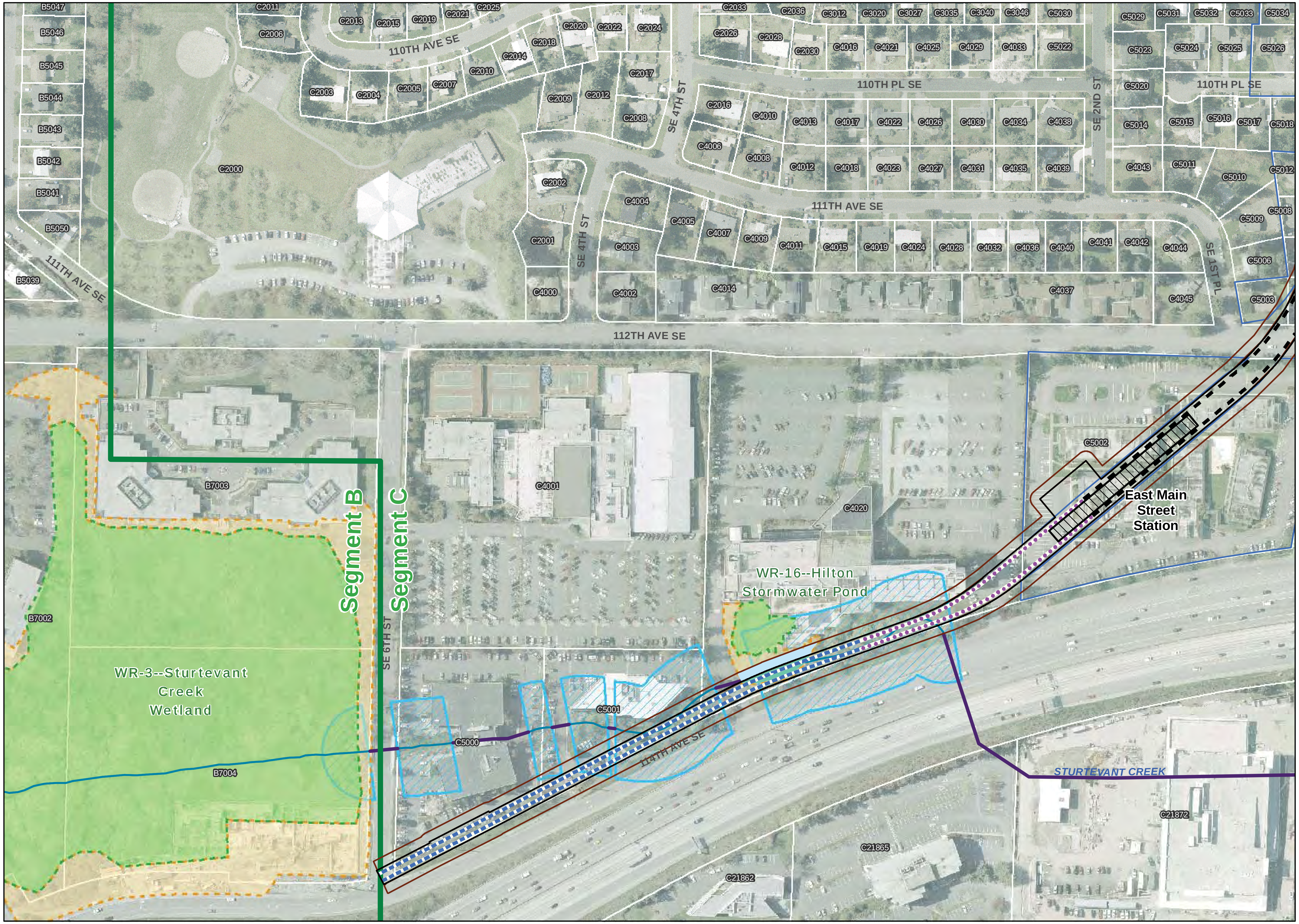
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_C3T-B3.MXD RGRABARE 3/3/11 09:34:50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SE 1ST PL
SE 6TH ST
114TH AVE SE
Segment B
Segment C
WR-3--Sturtevant Creek Wetland
WR-16--Hilton Stormwater Pond
East Main Street Station
STURTEVANT CREEK
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Exhibit F-50
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C3T from B7
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Redmond
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Seattle
Lake Washington
Lake Sammamish
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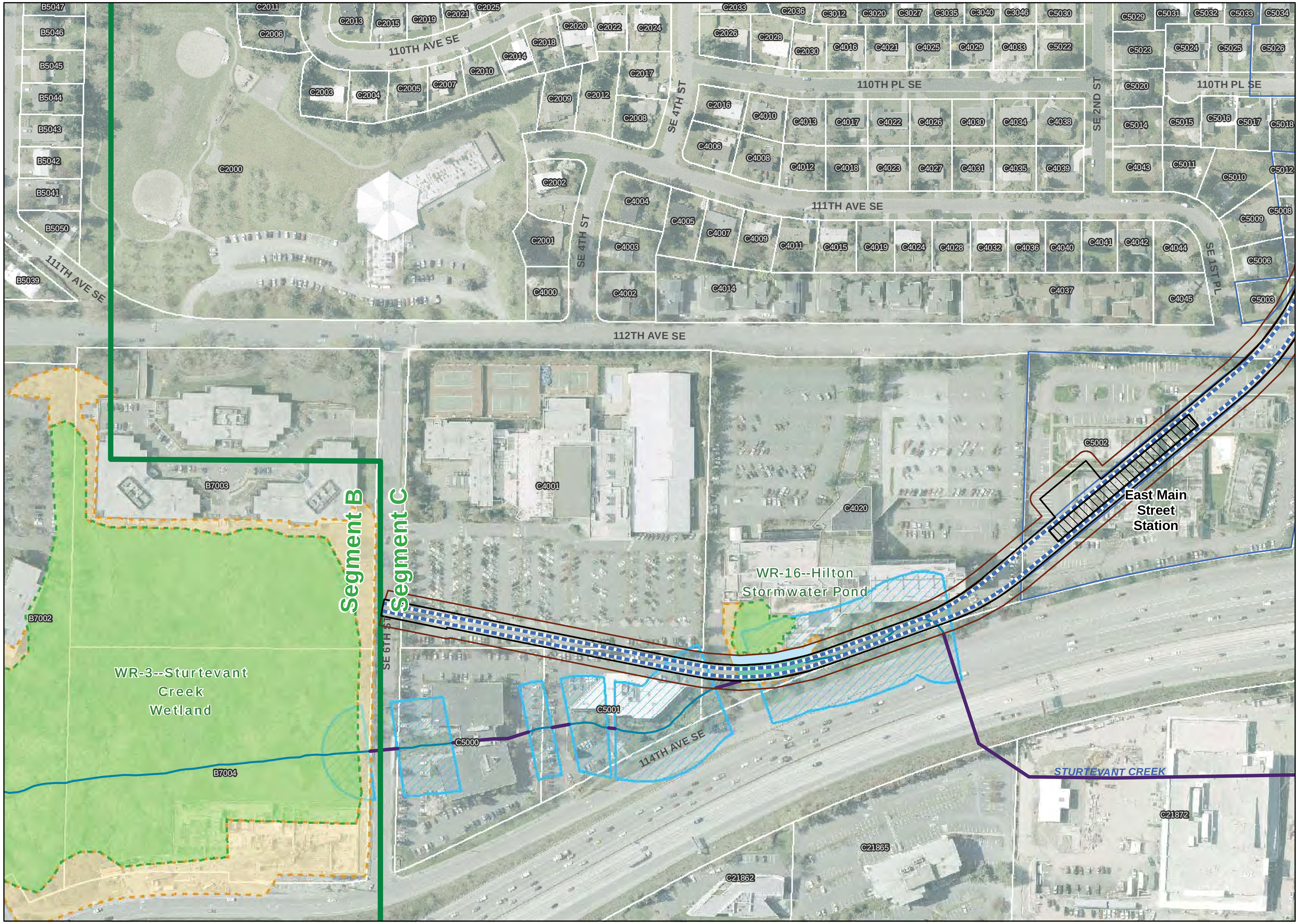
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_C3T-B7.MXD RGRABARE 3/3/11 09:35:45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111TH AVE SE
B5039
C4000
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112TH AVE SE
C5002
B7003
C4001
C4020
East Main Street Station
Segment B
Segment C
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
C5000
114TH AVE SE
B7004
STURTEVANT CREEK
C21872
C21865
C21862

Exhibit F-51
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C4A from B3

East Link Project

- ▬ At-Grade Route
- ▪▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ╱╱╱ Wetland Mitigation Impact
- ▨ Stream Buffer
- ▬ Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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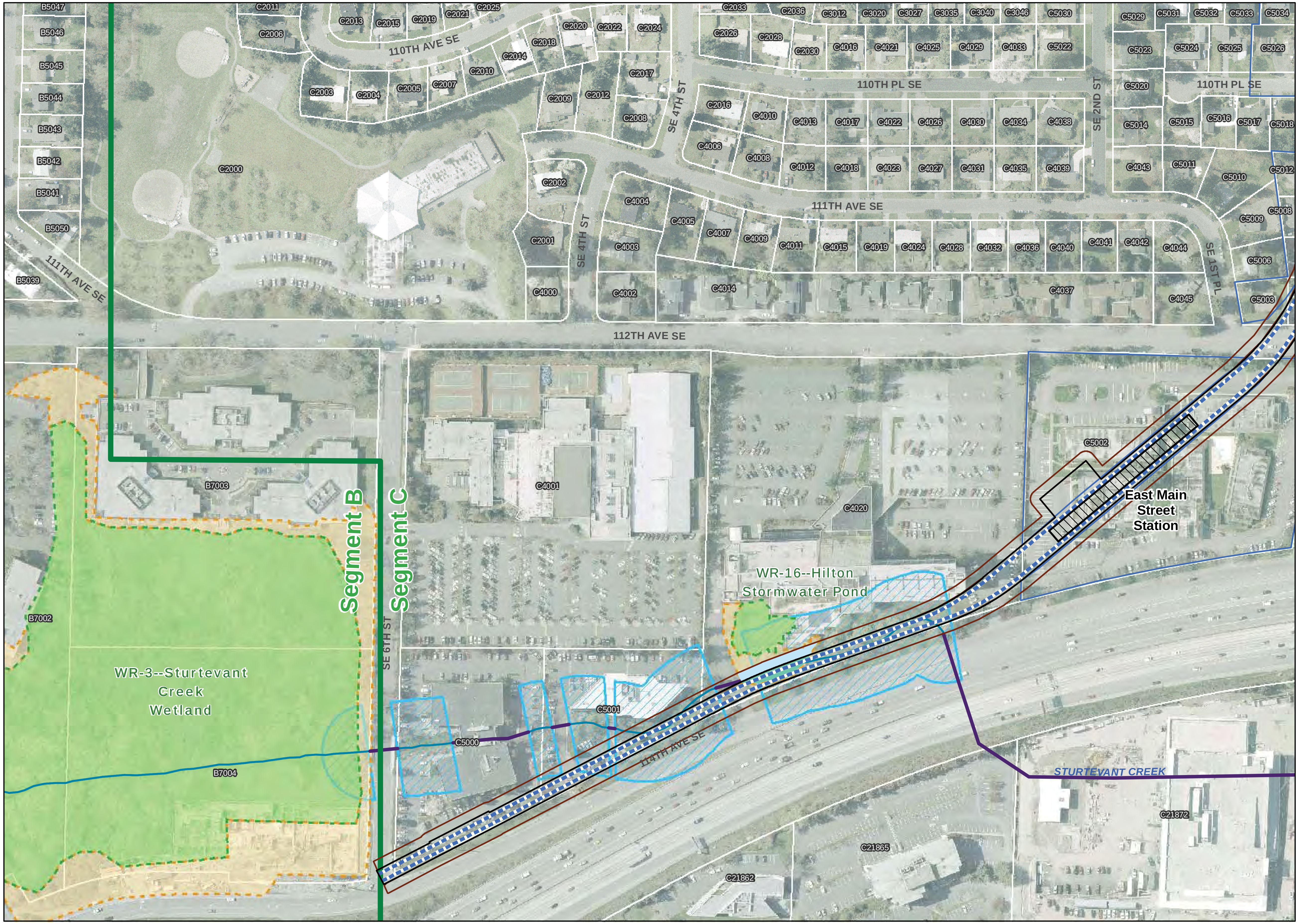
Exhibit F-52
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C4A from B7
East Link Project



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SE 4TH ST
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SE 6TH ST
114TH AVE SE
Segment B
Segment C
East Main Street Station
WR-16--Hilton Stormwater Pond
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
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- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ⁄⁄⁄ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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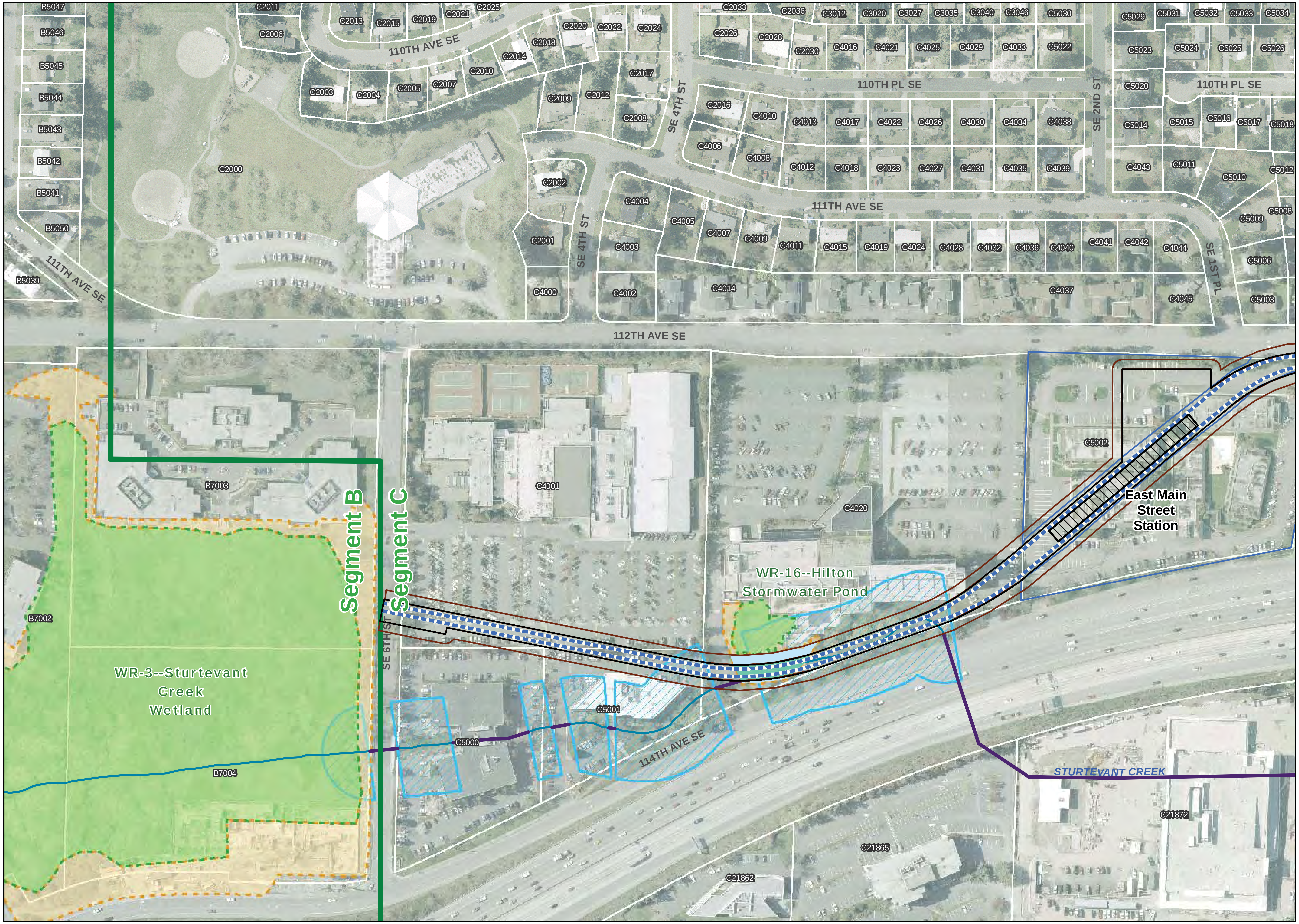
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Segment B
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WR-3--Sturtevant Creek Wetland
WR-16--Hilton Stormwater Pond
East Main Street Station
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Exhibit F-53
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C7E from B3

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

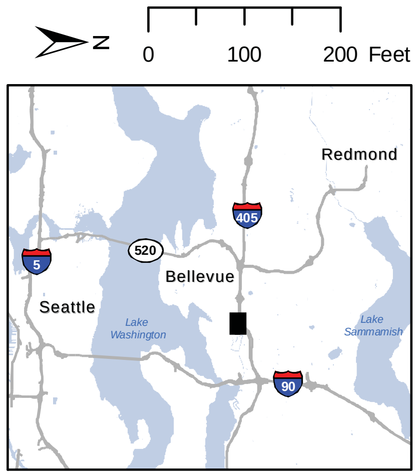
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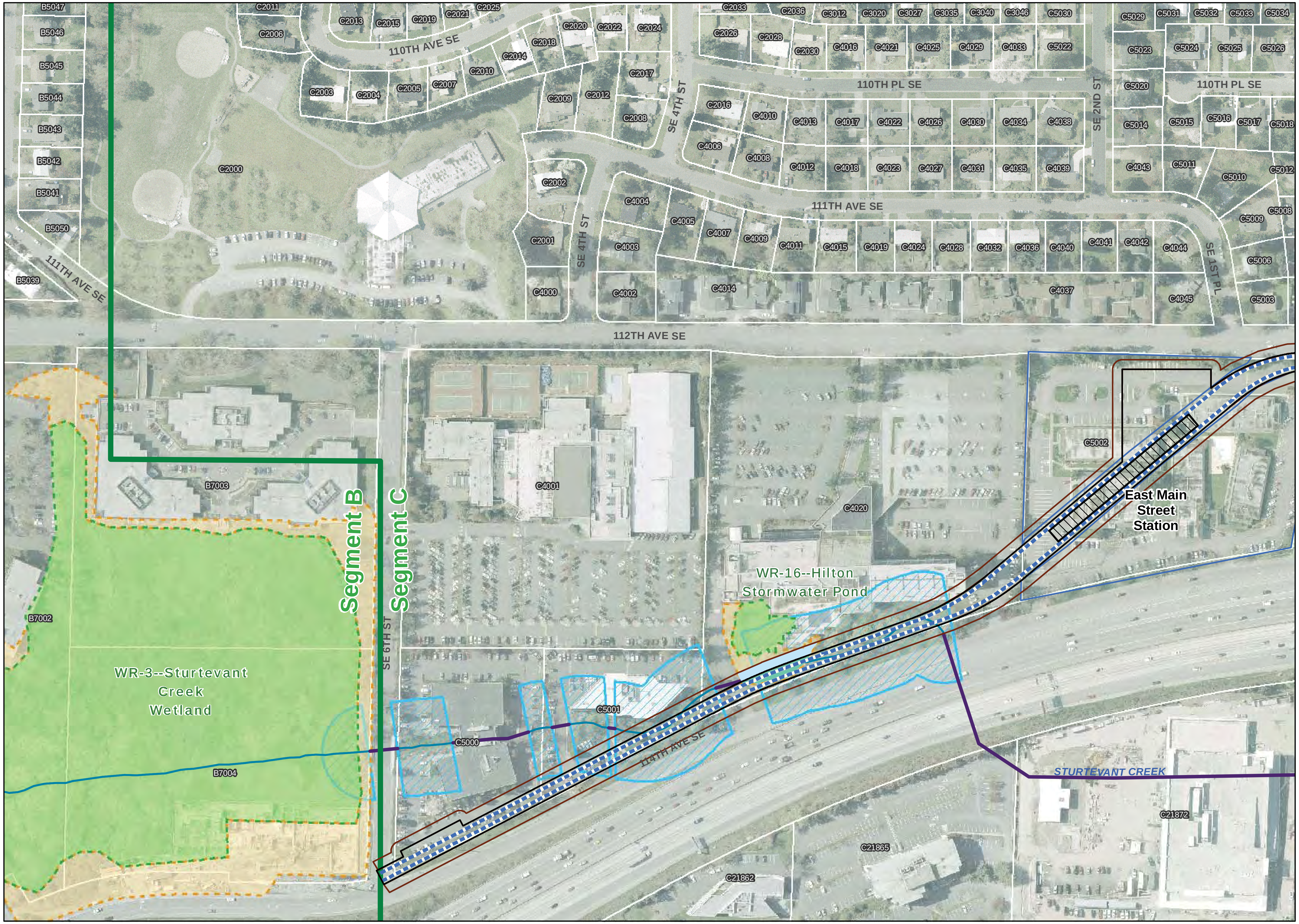
Exhibit F-54
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C7E from B7
East Link Project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C4020
East Main Street Station
Segment B
Segment C
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
114TH AVE SE
C5000
B7004
STURTEVANT CREEK
C21872
C21865
C21862

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- 🟧 Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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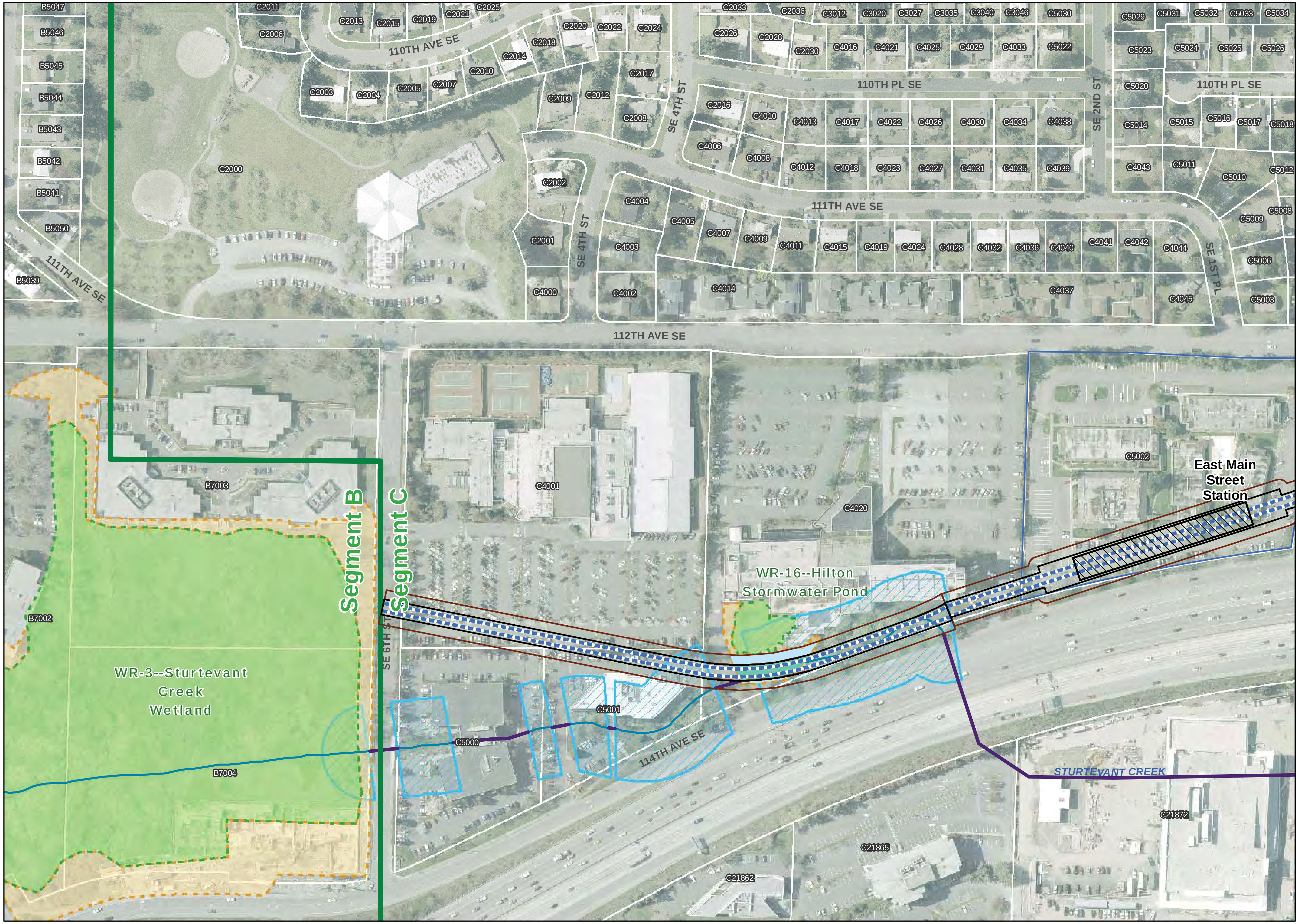
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East Main Street Station
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Segment B
Segment C
WR-16--Hilton Stormwater Pond
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WR-3--Sturtevant Creek Wetland
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114TH AVE SE
STURTEVANT CREEK
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Exhibit F-55
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C8E from B3

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

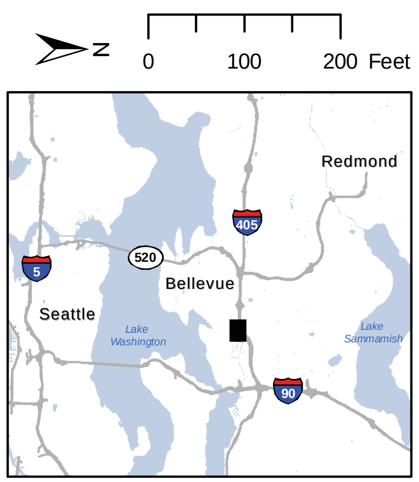
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ─ Open Channel
- ─ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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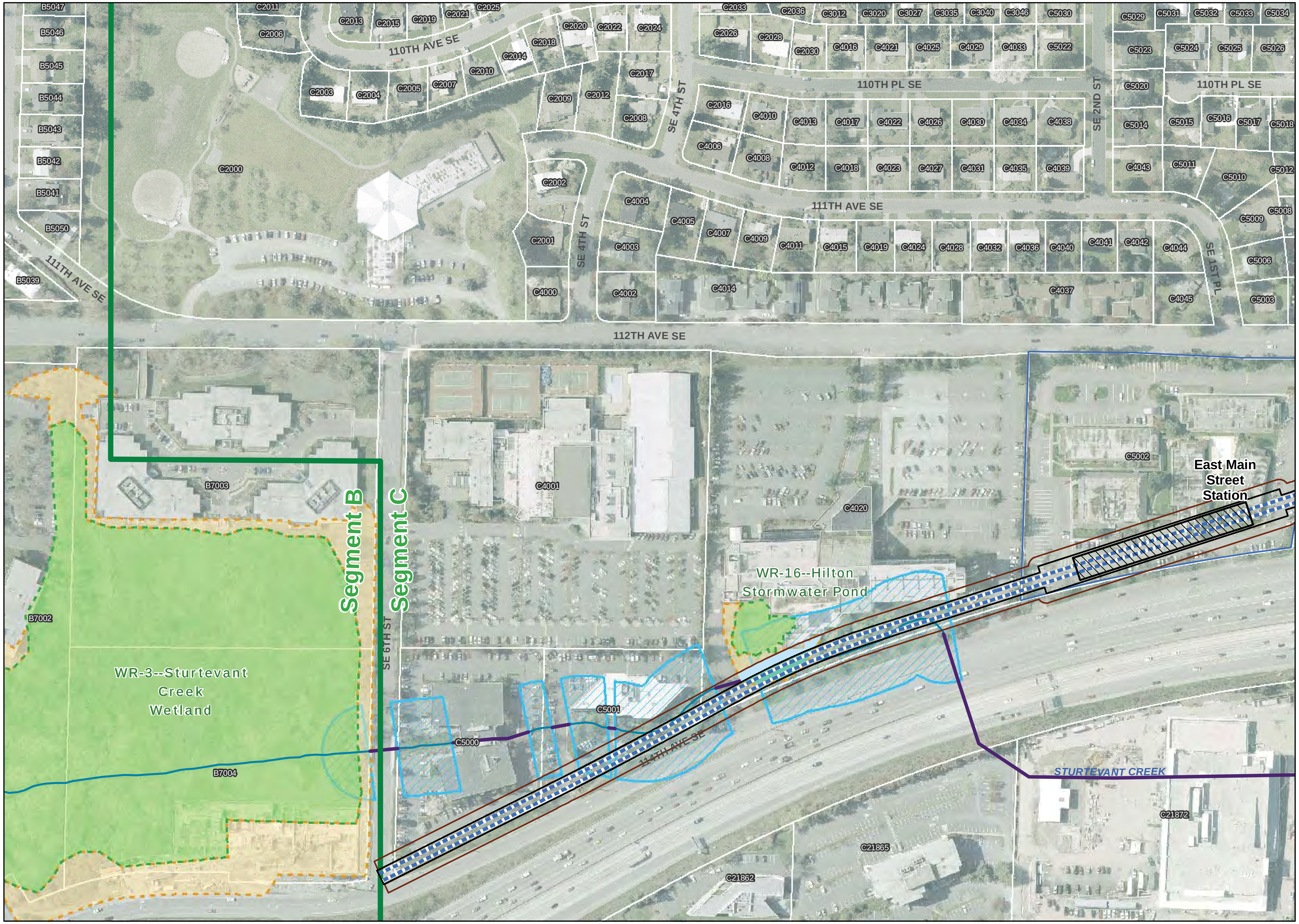
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SE 1ST PL
111TH AVE SE
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C4000
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C5003
112TH AVE SE
C5002
East Main Street Station
B7003
C4001
C4020
Segment B
Segment C
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
114TH AVE SE
C5000
B7004
STURTEVANT CREEK
C21872
C21865
C21862

Exhibit F-56
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C8E from B7

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Lake Washington
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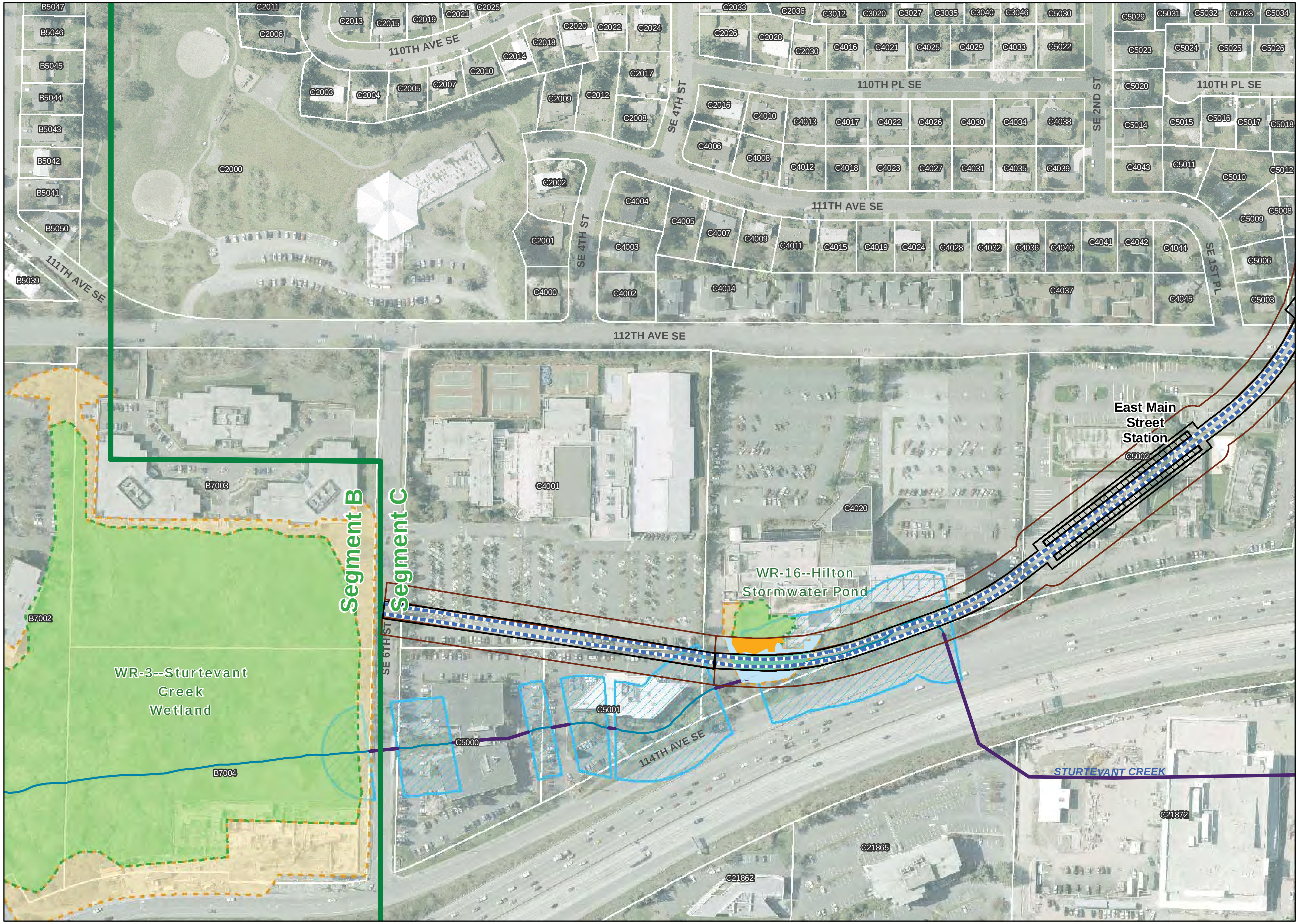
B5047
B5046
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111TH AVE SE
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112TH AVE SE
East Main Street Station
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Segment B
Segment C
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
C5000
114TH AVE SE
B7004
STURTEVANT CREEK
C21872
C21865
C21862

Exhibit F-57
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C9A from B3

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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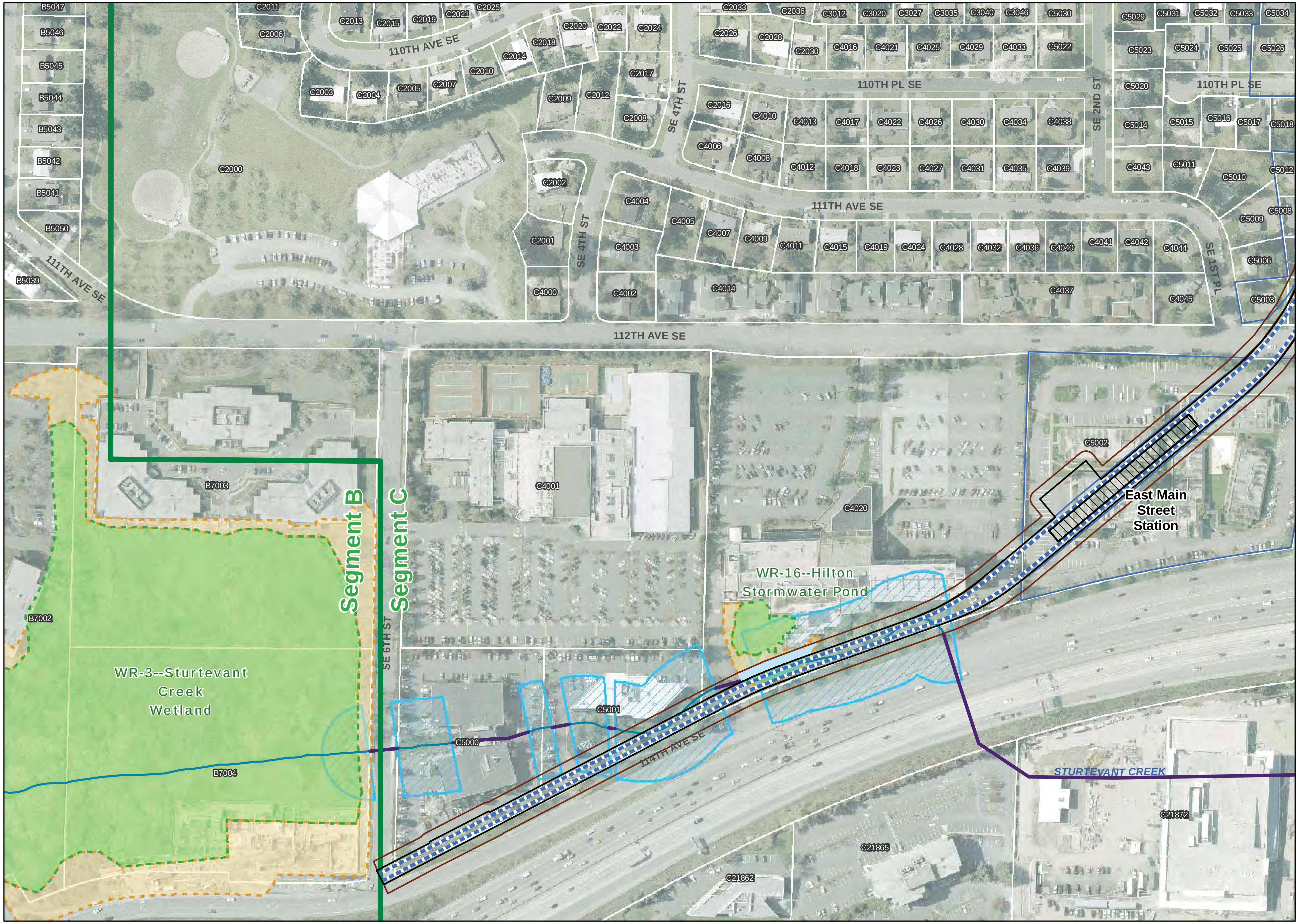
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110TH PL SE
110TH PL SE
SE 4TH ST
SE 2ND ST
111TH AVE SE
111TH AVE SE
SE 4TH ST
SE 1ST PL
112TH AVE SE
SE 6TH ST
114TH AVE SE
Segment B
Segment C
WR-3--Sturtevant Creek Wetland
WR-16--Hilton Stormwater Pond
East Main Street Station
STURTEVANT CREEK
B5047
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C21862
C21865
C21872

Exhibit F-58
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C9A from B3 Design Option/B7

East Link Project

- 🟥 At-Grade Route
- ▬ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

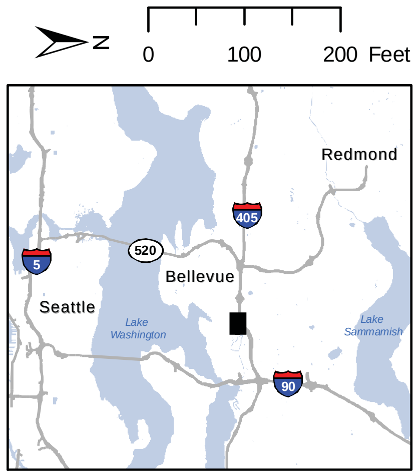
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
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Lake Washington
Lake Sammamish
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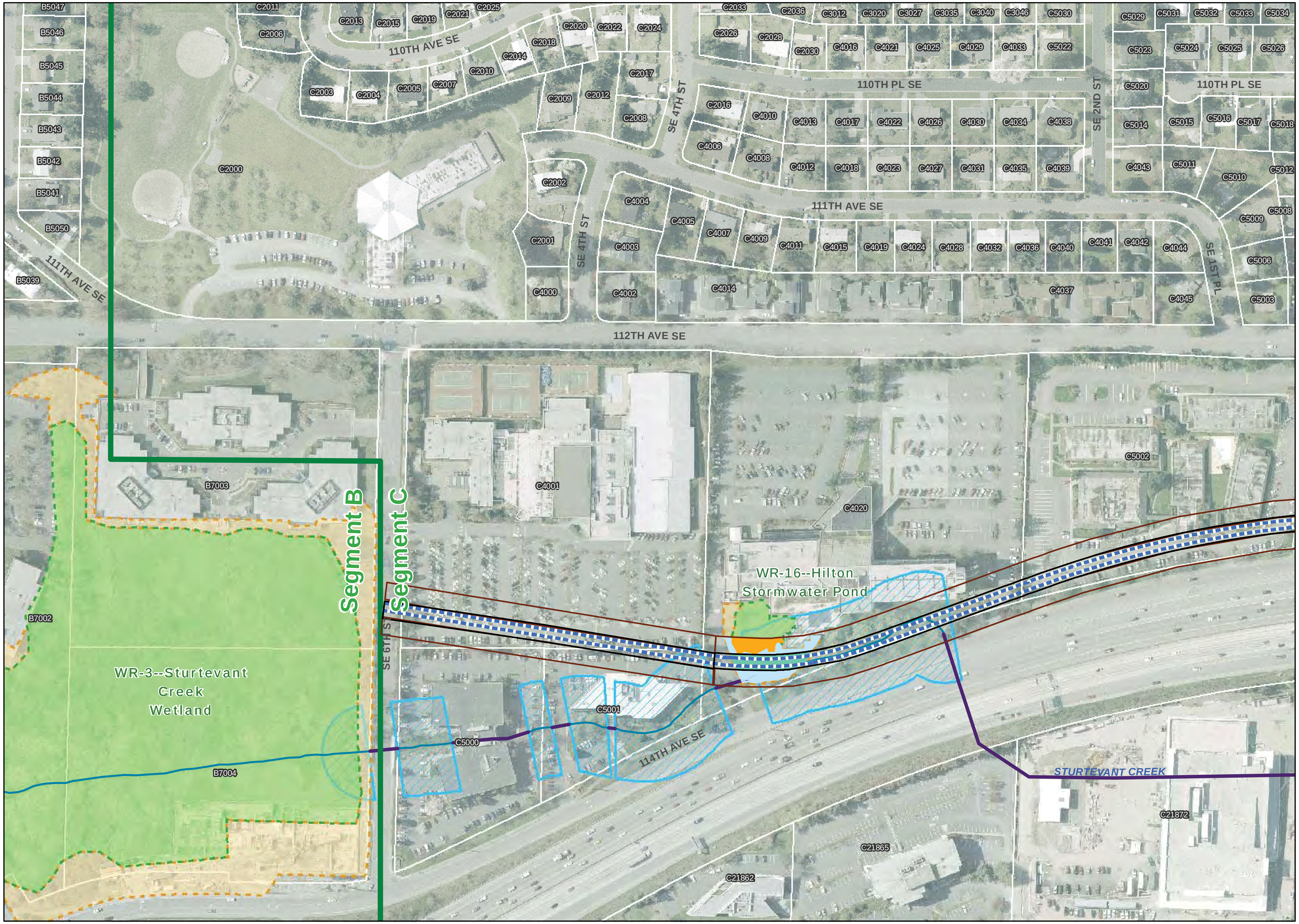
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110TH PL SE
111TH AVE SE
111TH AVE SE
112TH AVE SE
SE 4TH ST
SE 4TH ST
SE 2ND ST
SE 1ST PL
SE 6TH ST
114TH AVE SE
Segment B
Segment C
WR-16--Hilton Stormwater Pond
WR-3--Sturtevant Creek Wetland
STURTEVANT CREEK
B5047
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C5009
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C5001
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C21872
C21865
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Exhibit F-59
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C14E from B3

East Link Project

- ━ At-Grade Route
- ┅ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ━ ━ Tunnel Route

Operational Footprint

- ▭ ROW
- ▭ Park and Ride

Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- ■ Wetland
- ■ Wetland Buffer
- ⬚ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- ■ Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ╱╱╱ Wetland Mitigation Impact
- ▨ Stream Buffer
- ━ Open Channel
- ━ Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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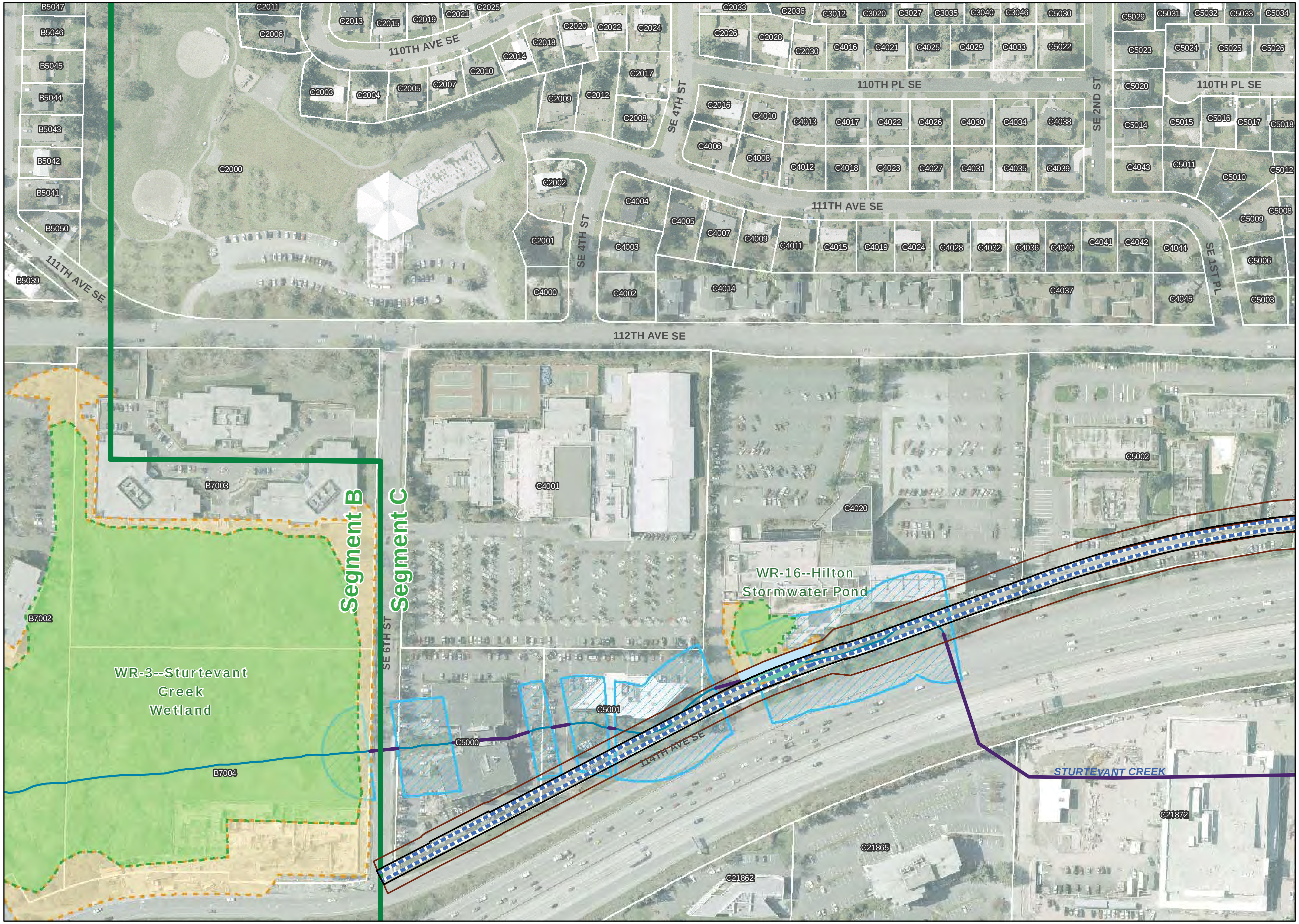
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B5045
B5044
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B5042
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B5039
111TH AVE SE
C2011
C2013
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110TH AVE SE
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C5022
110TH PL SE
SE 4TH ST
C2016
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110TH PL SE
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111TH AVE SE
SE 4TH ST
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C4044
SE 1ST PL
C5009
C5008
C5006
C4000
C4002
C4014
C4037
C4045
C5003
112TH AVE SE
B7003
Segment B
Segment C
C4001
C4020
C5002
WR-16--Hilton Stormwater Pond
B7002
SE 6TH ST
WR-3--Sturtevant Creek Wetland
C5001
C5000
114TH AVE SE
B7004
STURTEVANT CREEK
C21872
C21865
C21862

Exhibit F-60
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative C14E from B3 Design Option/B7

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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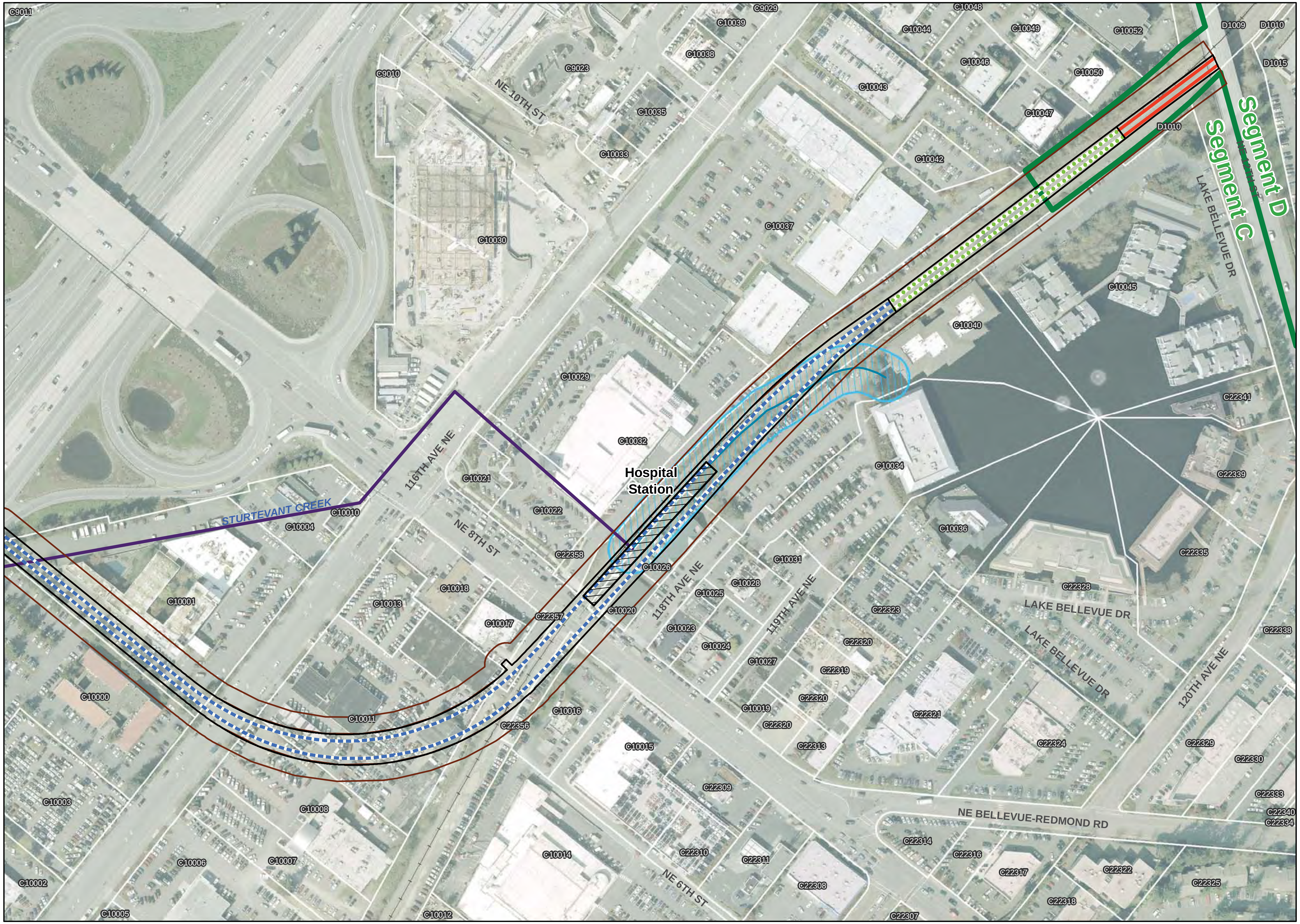
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Segment C
Hospital Station
STURTEVANT CREEK
NE 10TH ST
116TH AVE NE
NE 8TH ST
118TH AVE NE
119TH AVE NE
120TH AVE NE
LAKE BELLEVUE DR
NE BELLEVUE-REDMOND RD
NE 6TH ST
NE 12TH ST
C9011
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C22340
C22341
C22356
C22357
C22358
D1009
D1010
D1015
D1016

Exhibit F-61
Wetland, Wetland Buffer, and Wetland Mitigation Impacts Hospital Station Area for the Preferred Alternative

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- ••• Retained-Cut Route
- ••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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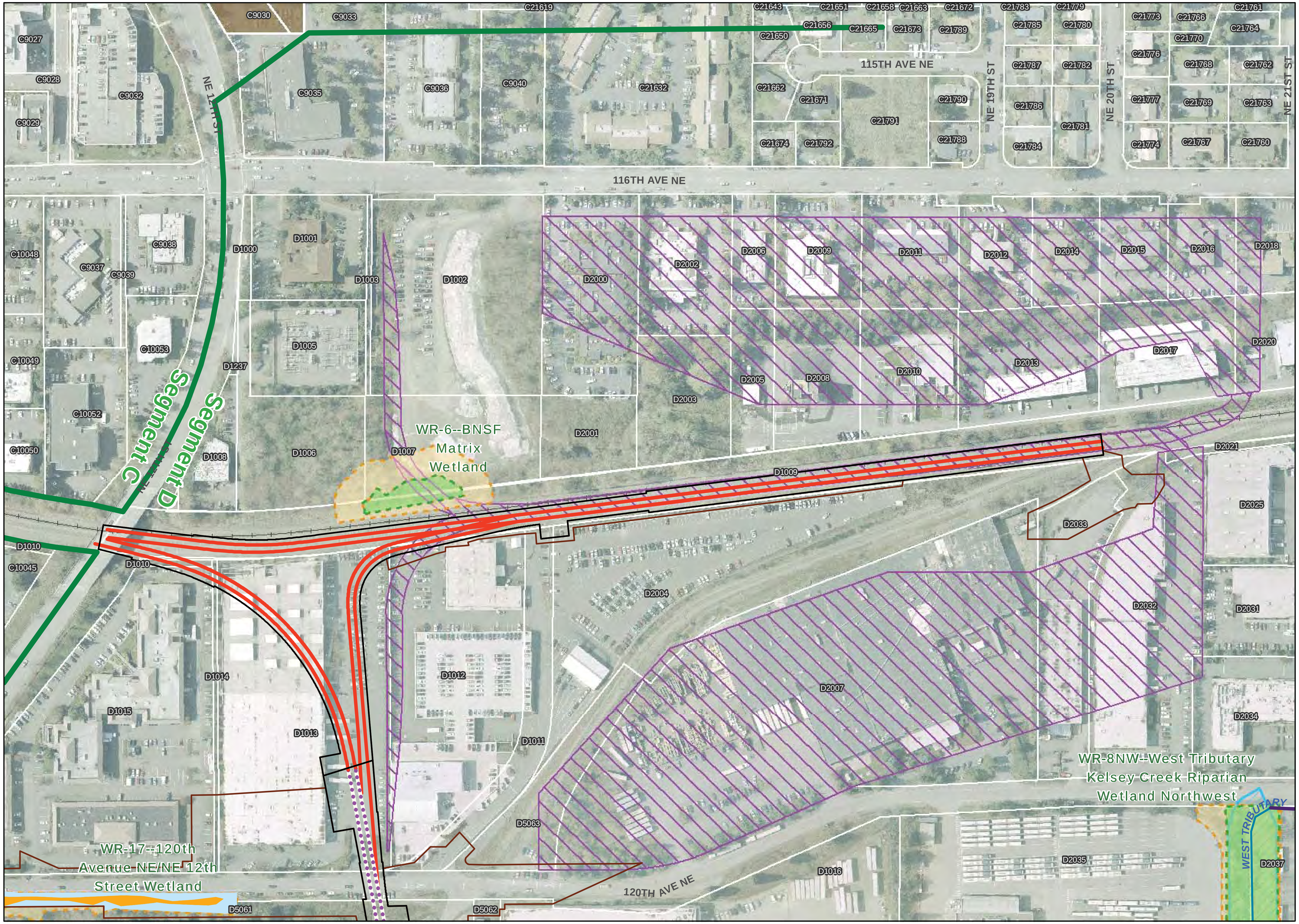

116TH AVE NE
115TH AVE NE
NE 12TH ST
NE 19TH ST
NE 20TH ST
NE 21ST ST
120TH AVE NE
Segment C
Segment D
WR-6--BNSF Matrix Wetland
WR-8NW--West Tributary Kelsey Creek Riparian Wetland Northwest
WR-17--120th Avenue NE/NE 12th Street Wetland
WEST TRIBUTARY
C9027
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D5063

Exhibit F-62
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A
Sheet 1

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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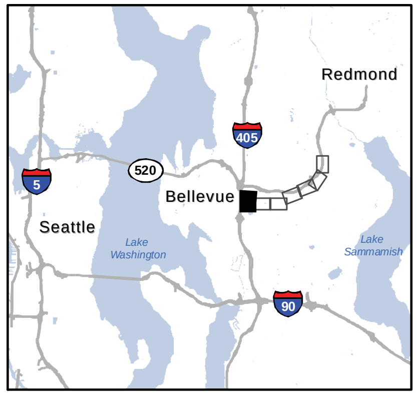

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Seattle
Bellevue
Lake Washington
Lake Sammamish
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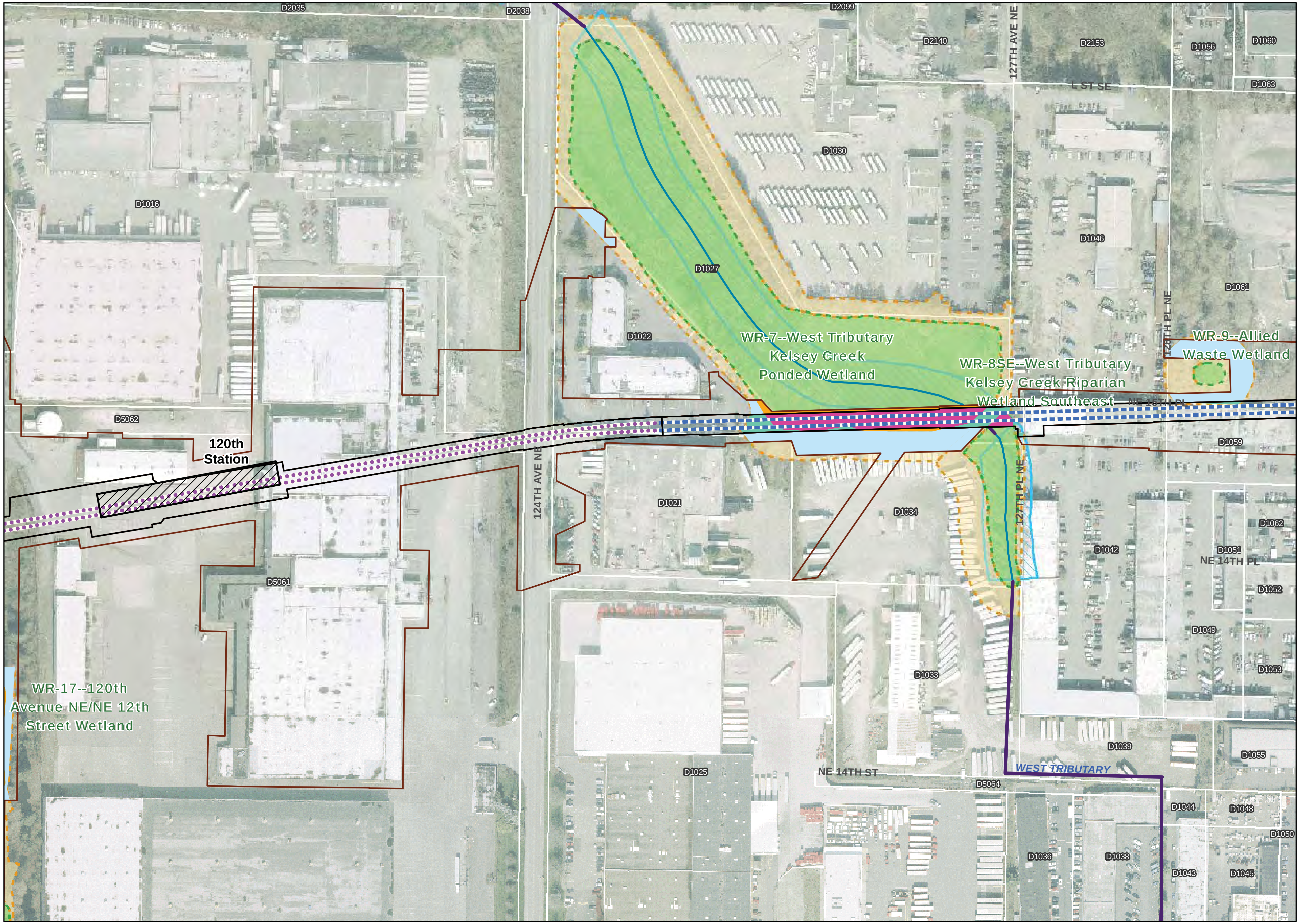
D2035
D2038
D2099
D2140
D2153
D1056
D1060
D1063
127TH AVE NE
L ST SE
D1016
D1030
D1046
D1027
D1061
D1022
WR-7--West Tributary
Kelsey Creek
Ponded Wetland
WR-8SE--West Tributary
Kelsey Creek Riparian
Wetland Southeast
WR-9--Allied
Waste Wetland
128TH PL NE
NE 15TH PL
D5062
120th
Station
124TH AVE NE
D1059
D1021
D1034
127TH PL NE
D1062
D1042
D1051
NE 14TH PL
D1052
D5061
D1049
D1053
WR-17--120th
Avenue NE/NE 12th
Street Wetland
D1033
D1039
D1055
D1025
NE 14TH ST
WEST TRIBUTARY
D5064
D1044
D1048
D1050
D1036
D1038
D1043
D1045

Exhibit F-63 Wetland, Wetland Buffer, and Wetland Mitigation Impacts Alternative D2A Sheet 2

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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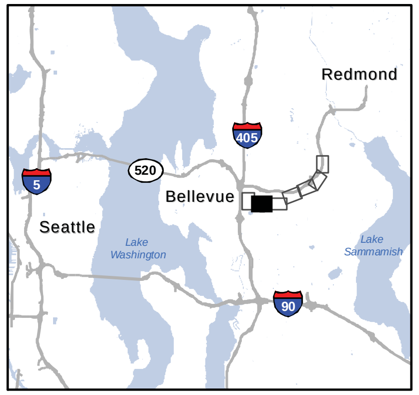
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Bellevue
Seattle
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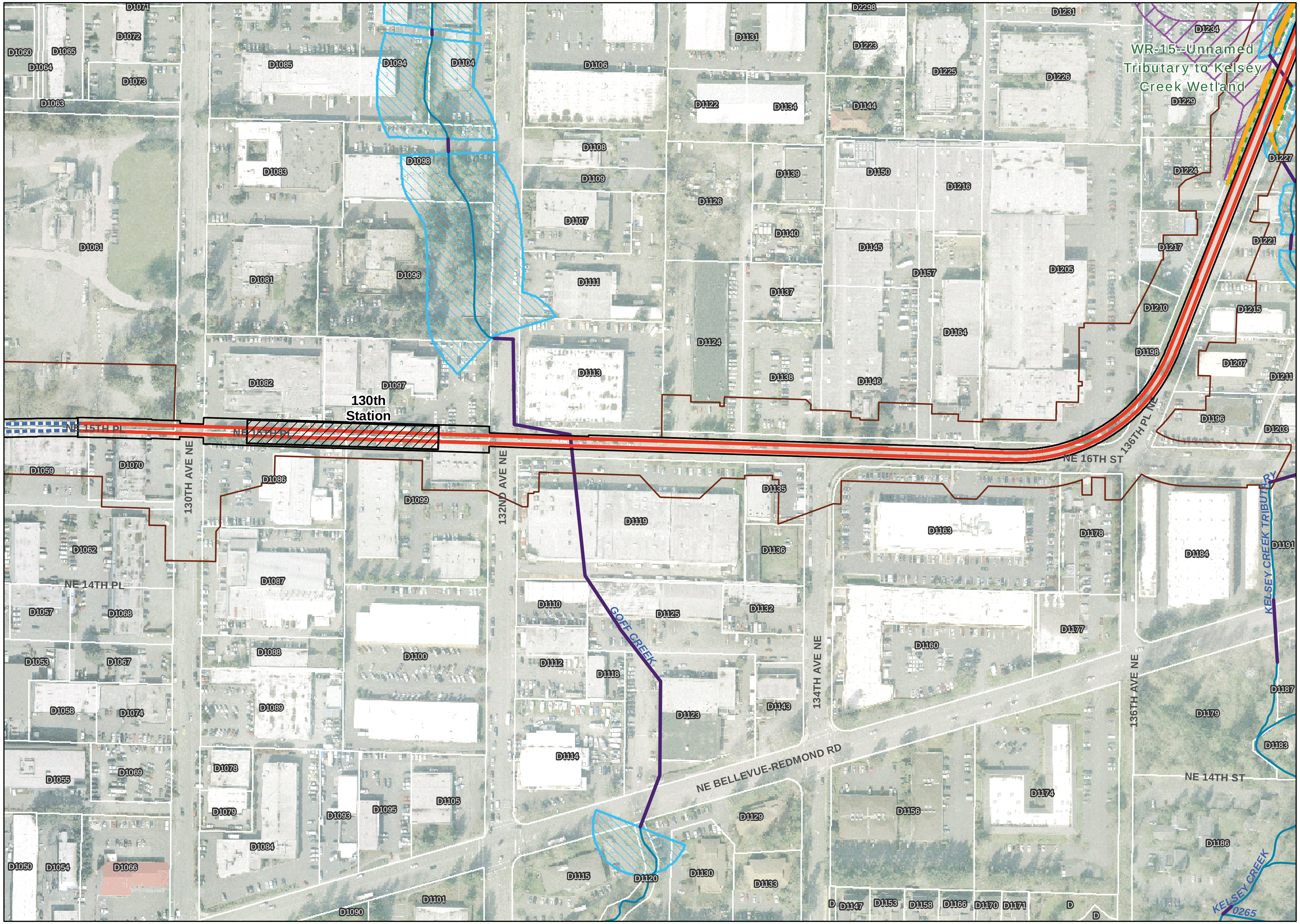
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NE 16TH ST
136TH PL NE
NE 14TH PL
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
NE BELLEVUE-REDMOND RD
NE 14TH ST
GOFF CREEK
KELSEY CREEK TRIBUTARY
KELSEY CREEK
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Feet

Exhibit F-64
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A
Sheet 3

East Link Project

▬	At-Grade Route
▪▪▪	Elevated Route
•••	Retained-Cut Route
•••	Retained-Fill Route
▬ ▬	Tunnel Route

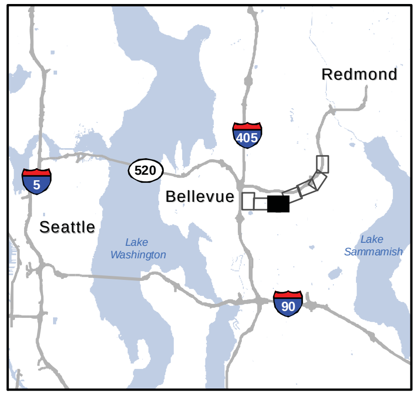
Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
🟨	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
🟪	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
🟦	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
▬	Open Channel
▬	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)


Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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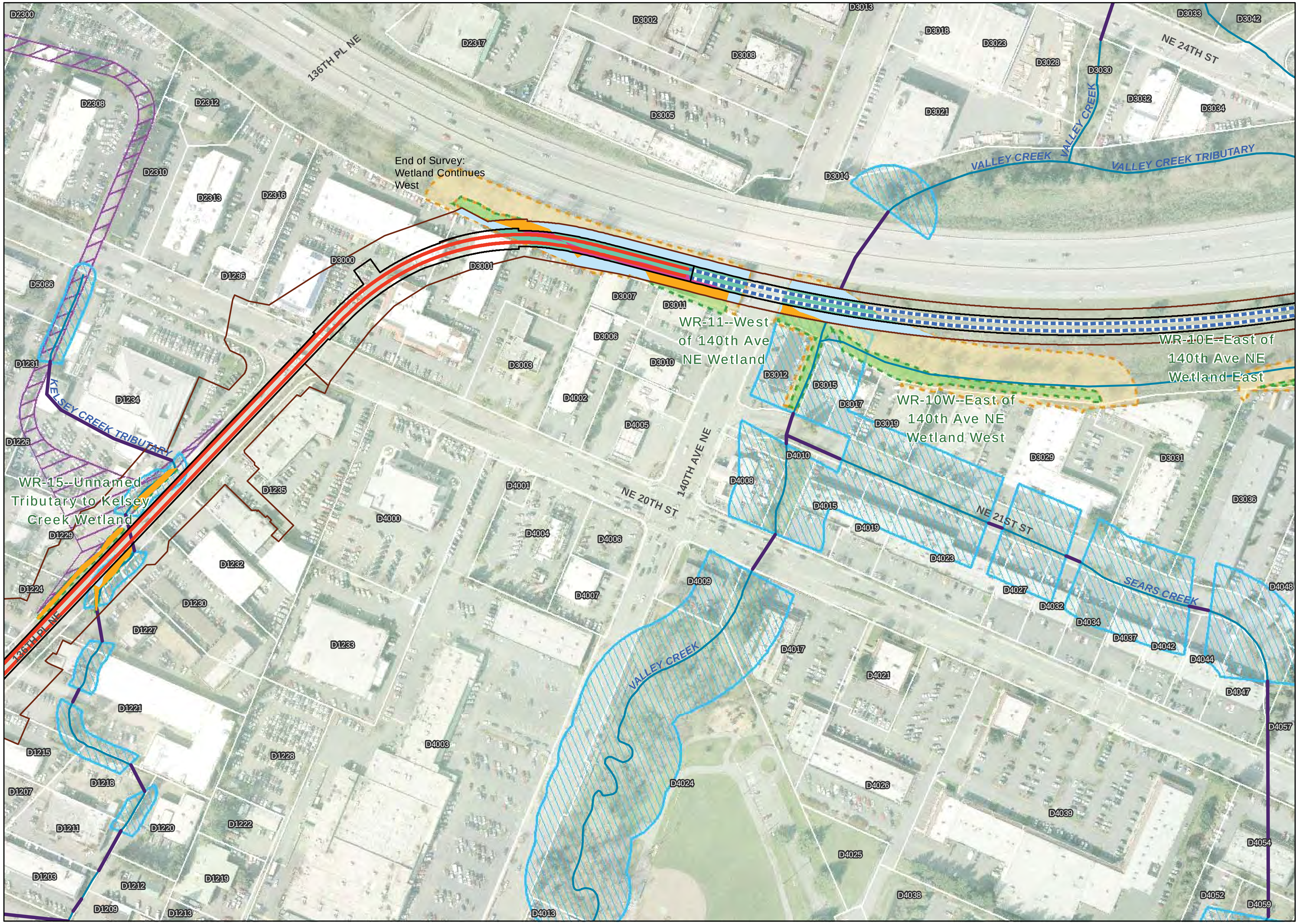
136TH PL NE
NE 24TH ST
VALLEY CREEK
VALLEY CREEK TRIBUTARY
End of Survey: Wetland Continues West
WR-11--West of 140th Ave NE Wetland
WR-10E--East of 140th Ave NE Wetland East
WR-10W--East of 140th Ave NE Wetland West
WR-15--Unnamed Tributary to Kelsey Creek Wetland
KELSEY CREEK TRIBUTARY
140TH AVE NE
NE 20TH ST
NE 21ST ST
SEARS CREEK
D2300
D2317
D3002
D3013
D3018
D3023
D3033
D3042
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D2313
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D4052
D1209
D1213
D4013
D4059

Exhibit F-65
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A
Sheet 4

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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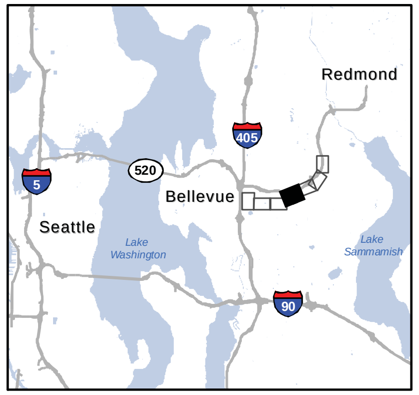
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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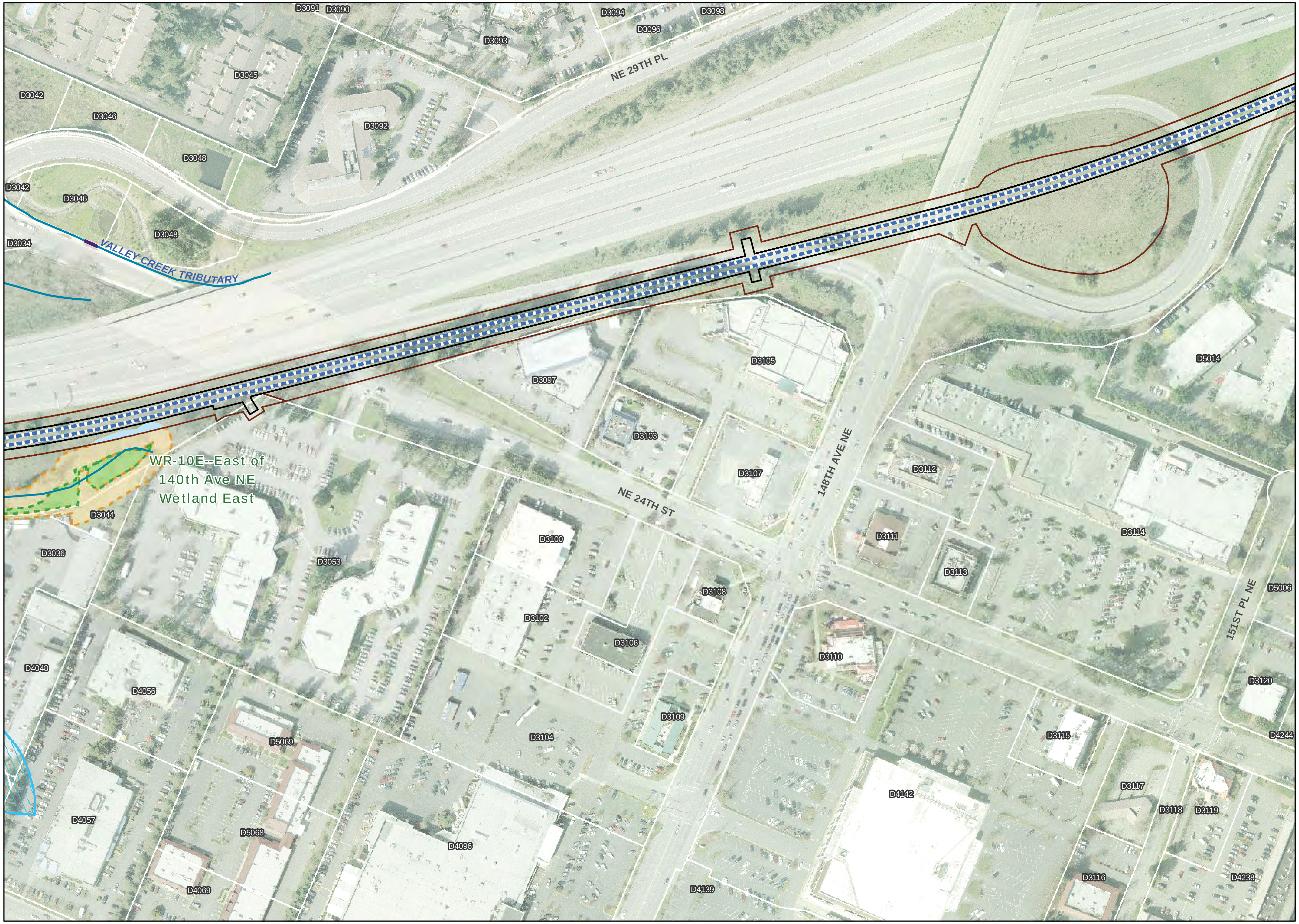
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D2A.MXD RGRABARE 4/20/11 07:23:06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D3090
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D3098
D3096
D3093
NE 29TH PL
D3045
D3042
D3046
D3092
D3048
D3042
D3046
D3048
D3034
VALLEY CREEK TRIBUTARY
D3097
D3105
D5014
D3103
D3107
D3112
148TH AVE NE
WR-10E--East of
140th Ave NE
Wetland East
NE 24TH ST
D3044
D3036
D3100
D3111
D3114
D3113
D3053
D3108
D3102
D3106
D5006
151ST PL NE
D4048
D4056
D3110
D3120
D3109
D3104
D5069
D3115
D4244
D4142
D3117
D3118
D3119
D4057
D5068
D4096
D3116
D4238
D4069
D4139

Exhibit F-66
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A
Sheet 5

East Link Project

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

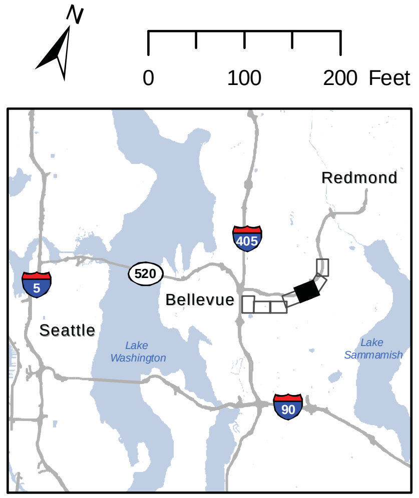
Operational Footprint

ROW
Park and Ride

Construction Footprint

Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
Seattle
Lake Washington
Lake Sammamish
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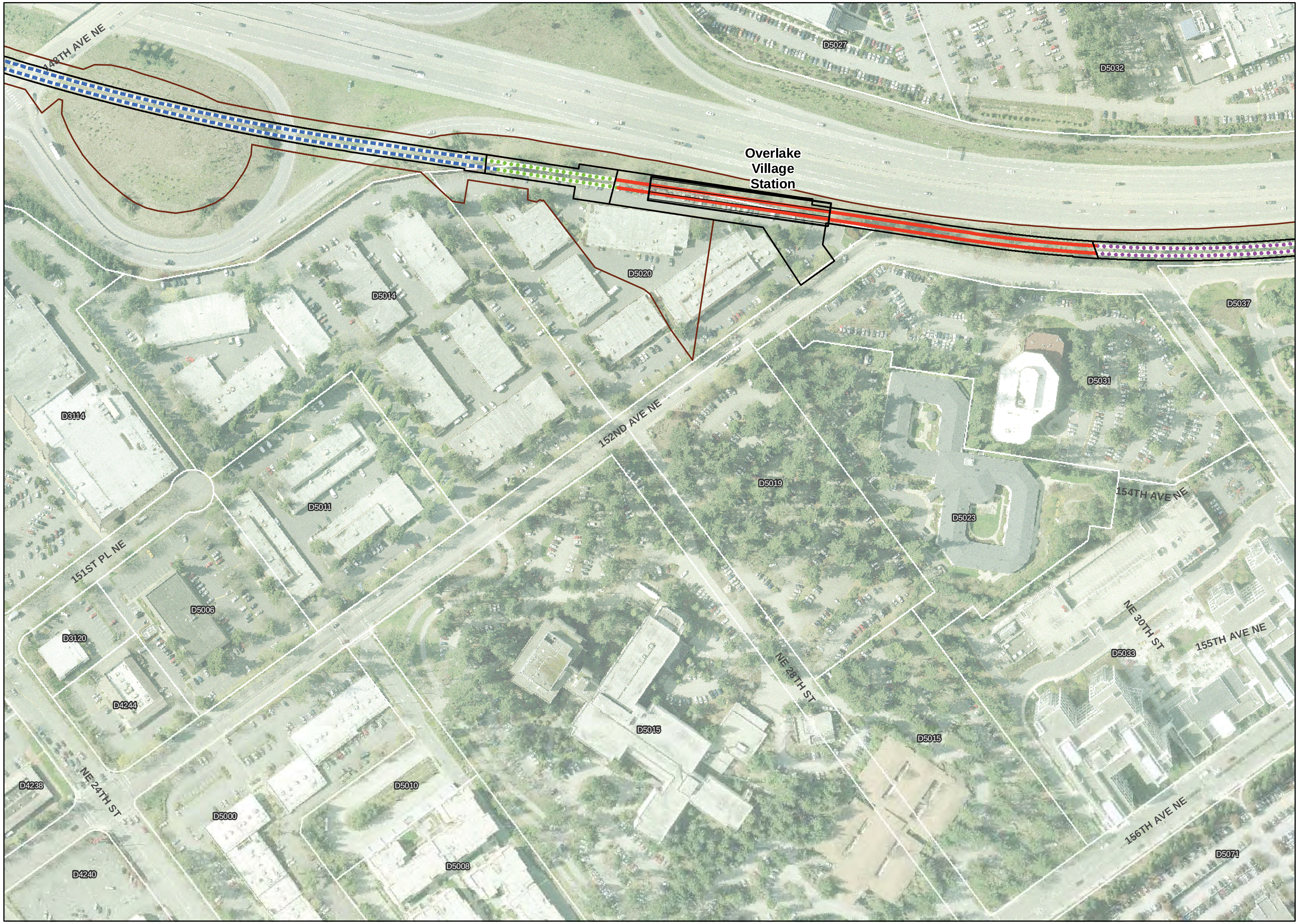
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D2A.MXD RGRABARE 4/20/11 07:23:06

Exhibit F-67
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A
Sheet 6
East Link Project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D5027
D5032
Overlake Village Station
D5020
D5014
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D5031
D3114
152ND AVE NE
D5019
D5023
154TH AVE NE
D5011
151ST PL NE
D5006
D3120
NE 30TH ST
155TH AVE NE
D5033
NE 28TH ST
D4244
D5015
D5015
D4238
D5010
NE 24TH ST
D5000
156TH AVE NE
D5071
D5008
D4240

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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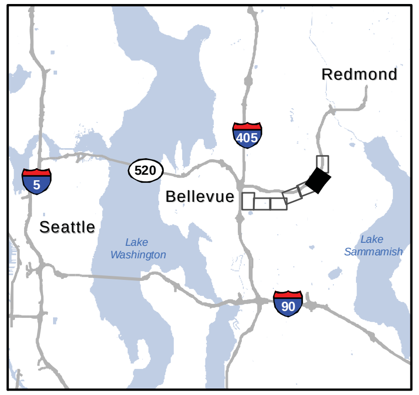
0 100 200 Feet


Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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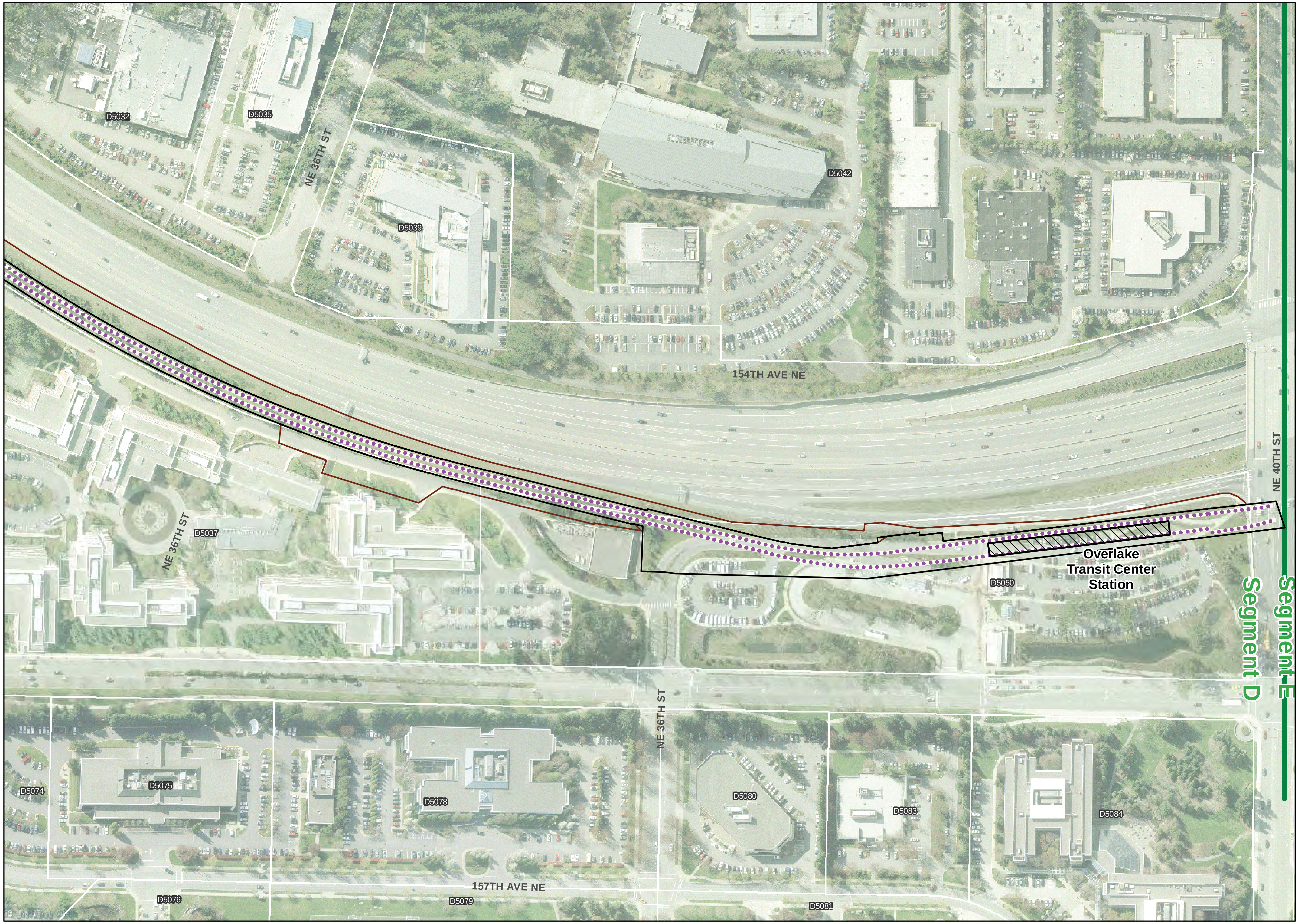
D5032
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NE 36TH ST
D5039
D5042
154TH AVE NE
NE 40TH ST
D5037
NE 36TH ST
Overlake Transit Center Station
D5050
Segment D
Segment E
NE 36TH ST
D5074
D5075
D5078
D5080
D5083
D5084
157TH AVE NE
D5076
D5079
D5081

Exhibit F-68 Wetland, Wetland Buffer, and Wetland Mitigation Impacts Alternative D2A Sheet 7

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

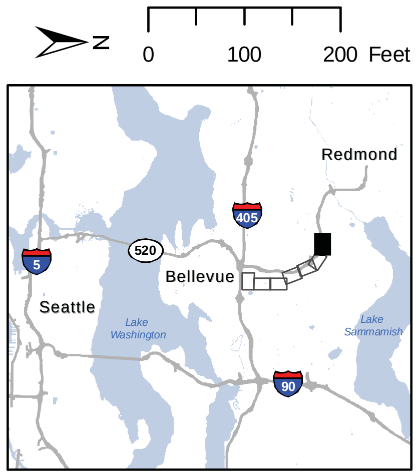
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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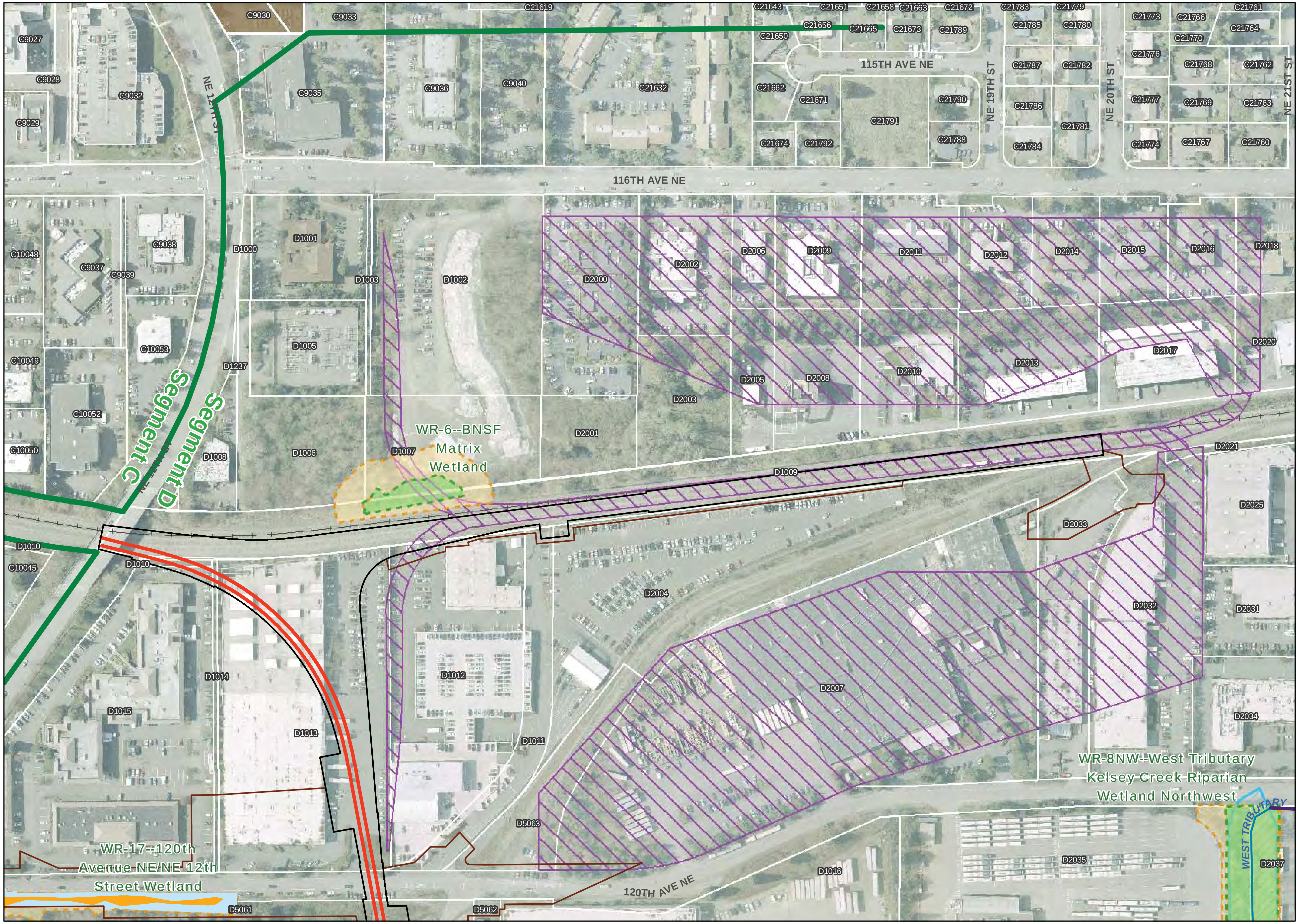
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D2A.MXD RGRABARE 4/20/11 07:23:06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115TH AVE NE
NE 12TH ST
NE 19TH ST
NE 20TH ST
NE 21ST ST
120TH AVE NE
Segment C
Segment D
WR-6--BNSF Matrix Wetland
WR-8NW--West Tributary Kelsey Creek Riparian Wetland Northwest
WR-17--120th Avenue NE/NE 12th Street Wetland
WEST TRIBUTARY
C9027
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C9030
C9032
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D5062
D5063

Exhibit F-69
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 1

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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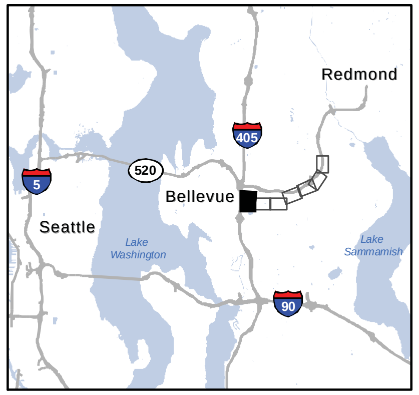
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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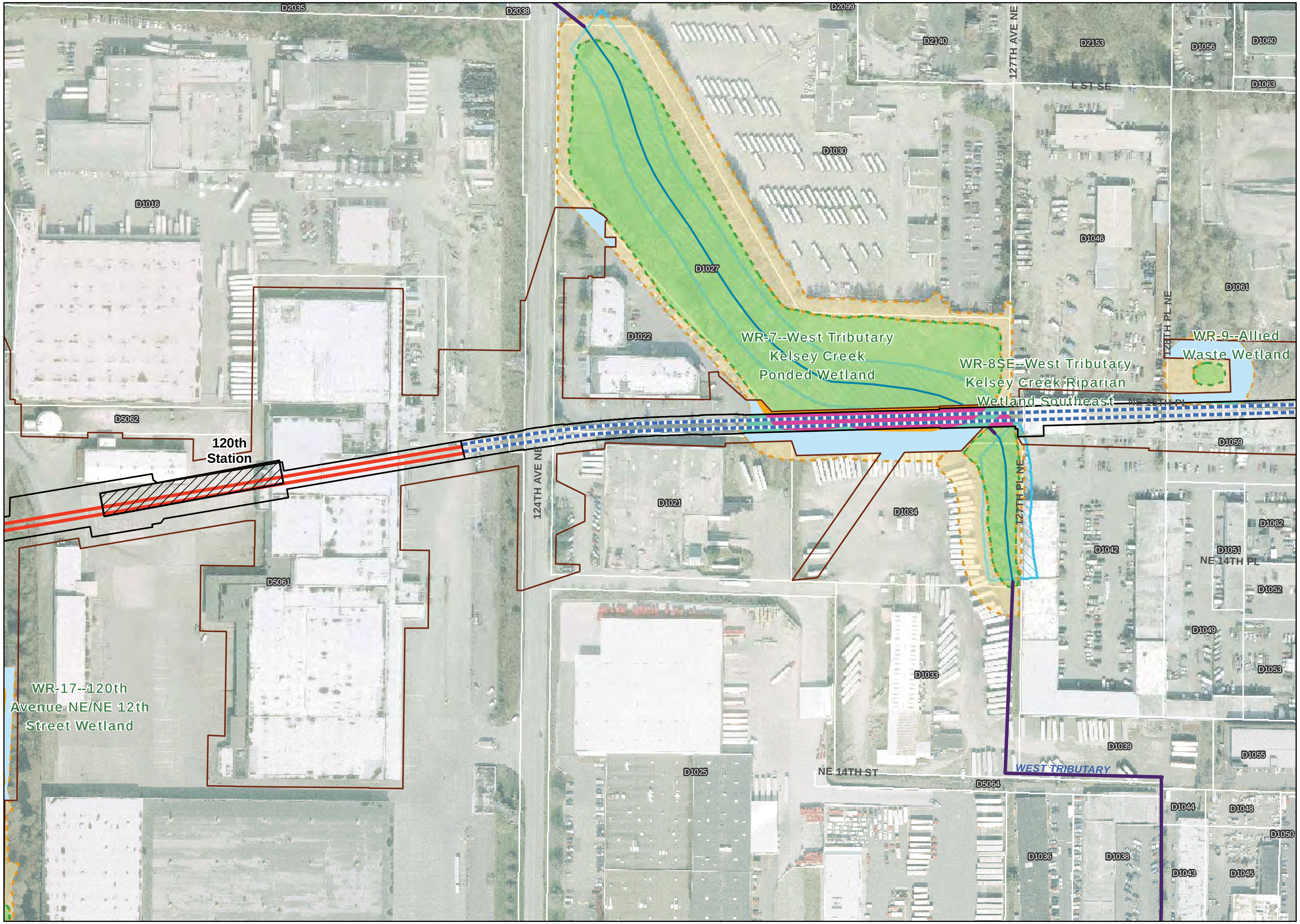
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D2A-DO.MXD RGRABARE 3/3/11 10:00:25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127TH AVE NE
L ST SE
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D1016
D1046
D1027
D1061
128TH PL NE
D1022
WR-7--West Tributary Kelsey Creek Ponded Wetland
WR-8SE--West Tributary Kelsey Creek Riparian Wetland Southeast
WR-9--Allied Waste Wetland
NE 16TH PL
D5062
120th Station
D1059
124TH AVE NE
D1021
D1034
127TH PL NE
D1062
D1042
D1051
NE 14TH PL
D5061
D1052
D1049
D1053
WR-17--120th Avenue NE/NE 12th Street Wetland
D1033
D1039
D1055
D1025
NE 14TH ST
WEST TRIBUTARY
D5064
D1044
D1048
D1050
D1036
D1038
D1043
D1045

Exhibit F-70
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 2
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

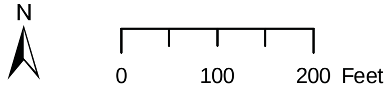
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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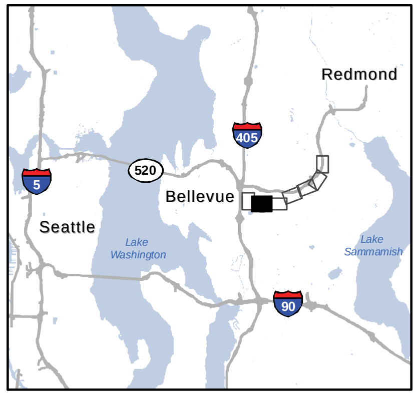
Redmond
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Lake Sammamish
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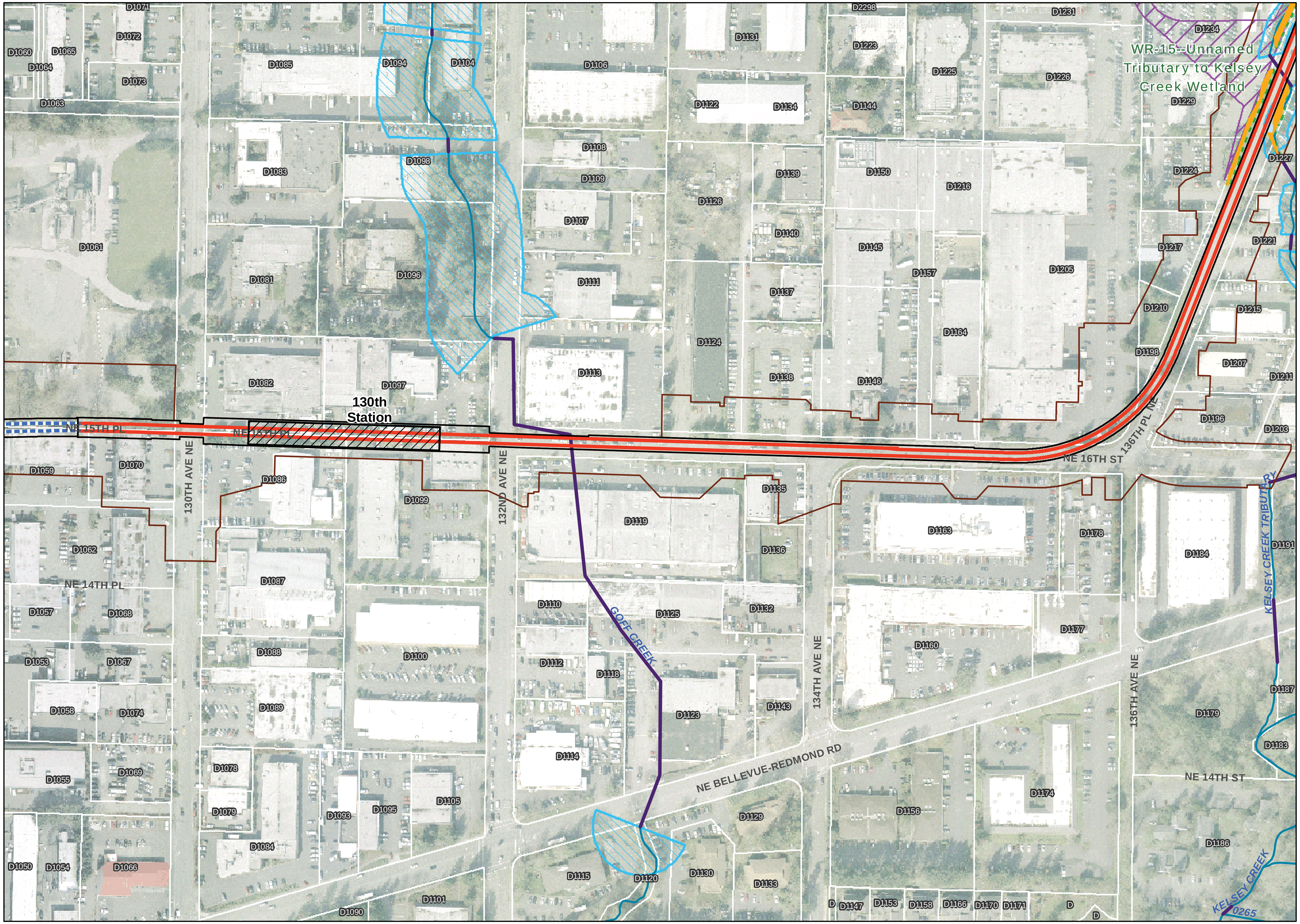
WR-15--Unnamed Tributary to Kelsey Creek Wetland
130th Station
NE 15TH PL
NE 16TH ST
136TH PL NE
NE 14TH PL
NE 14TH ST
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
NE BELLEVUE-REDMOND RD
GOFF CREEK
KELSEY CREEK TRIBUTARY
KELSEY CREEK
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Exhibit F-71
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 3
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

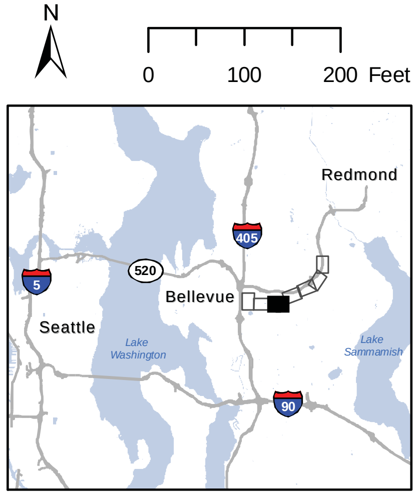
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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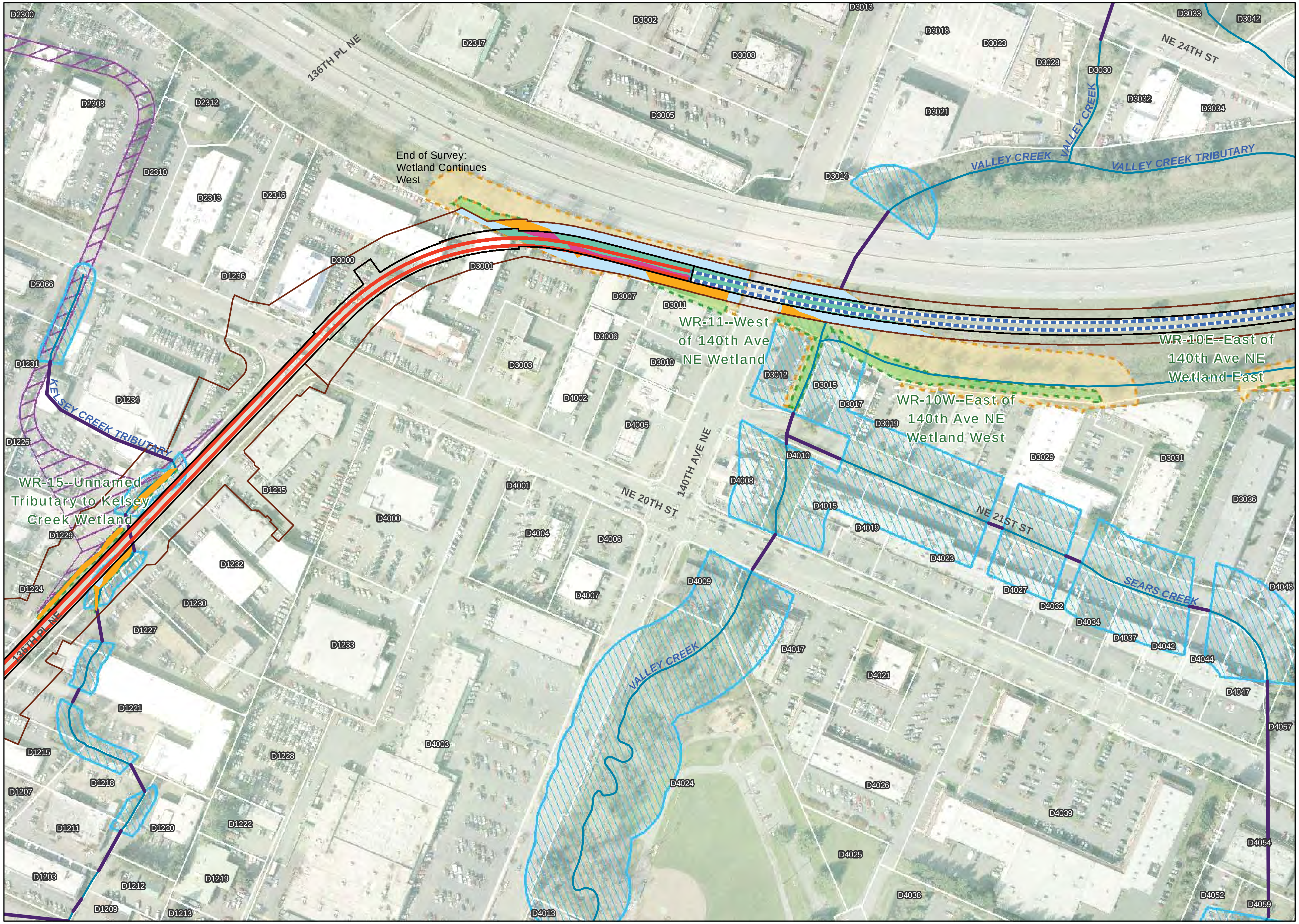

136TH PL NE
NE 24TH ST
VALLEY CREEK
VALLEY CREEK TRIBUTARY
End of Survey: Wetland Continues West
WR-11--West of 140th Ave NE Wetland
WR-10E--East of 140th Ave NE Wetland East
WR-10W--East of 140th Ave NE Wetland West
WR-15--Unnamed Tributary to Kelsey Creek Wetland
KELSEY CREEK TRIBUTARY
140TH AVE NE
NE 20TH ST
NE 21ST ST
SEARS CREEK
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Exhibit F-72
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 4
East Link Project

- ━ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ━ ━ Tunnel Route

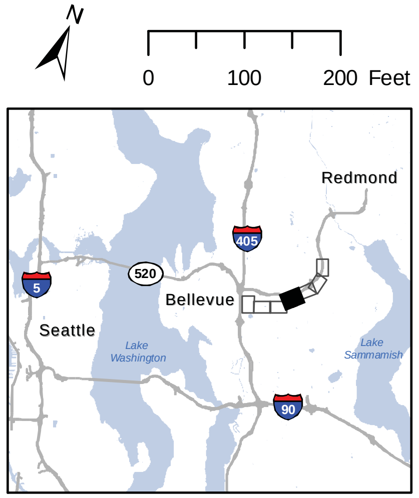
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ━ Open Channel
- ━ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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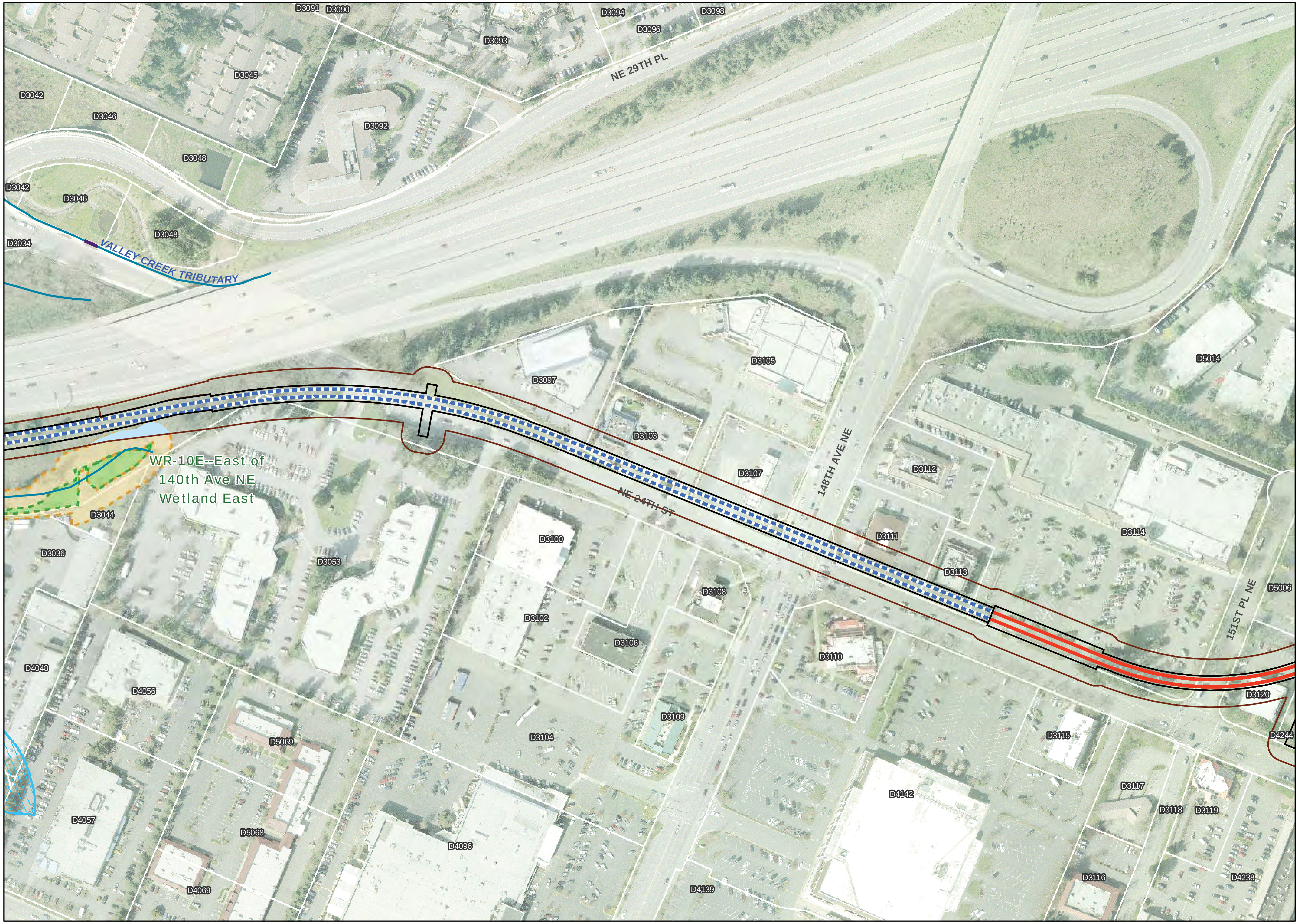
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NE 29TH PL
D3045
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D3042
D3046
D3048
D3034
VALLEY CREEK TRIBUTARY
D3105
D3097
D5014
D3103
D3107
148TH AVE NE
D3112
WR-10E--East of 140th Ave NE Wetland East
NE 24TH ST
D3044
D3111
D3114
D3036
D3100
D3053
D3113
D3108
D5006
151ST PL NE
D3102
D3106
D3110
D4048
D4056
D3120
D3109
D3104
D3115
D4244
D5069
D3117
D4142
D3118
D3119
D4057
D5068
D4096
D3116
D4238
D4069
D4139

Exhibit F-73
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 5
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

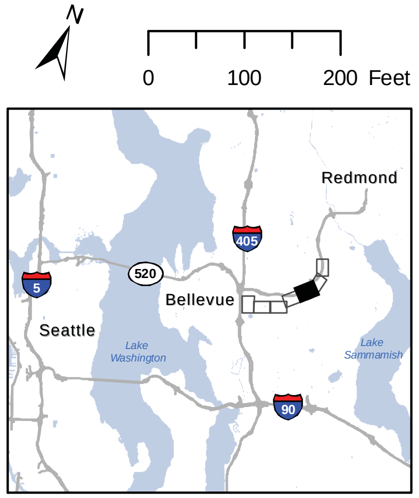
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- ■ Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- ■ Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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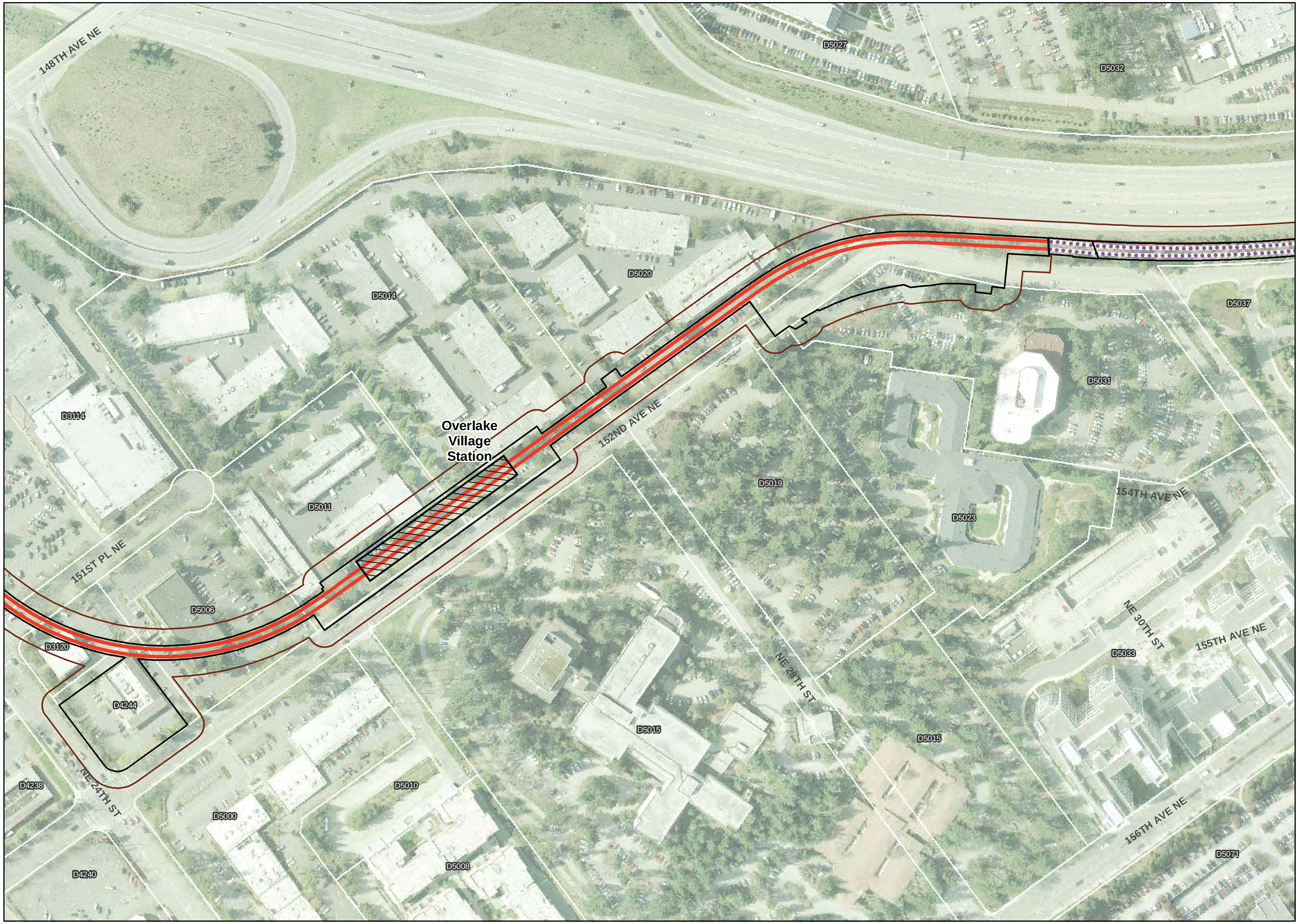
148TH AVE NE
D5027
D5032
D5037
D5020
D5014
D3114
Overlake Village Station
152ND AVE NE
D5031
D5019
D5011
D5023
154TH AVE NE
151ST PL NE
D5006
D3120
D4244
NE 30TH ST
155TH AVE NE
D5033
NE 28TH ST
D5015
D5015
D4238
NE 24TH ST
D5010
D5000
D5008
156TH AVE NE
D5071
D4240

Exhibit F-74
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 6

East Link Project

━ At-Grade Route
┅ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
╍ Tunnel Route

Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
■ Wetland
■ Wetland Buffer
☐ Wetland Mitigation Site (WSDOT)
■ Operational Wetland Impact
■ Construction Wetland Impact
■ Operational Wetland Buffer Impact
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☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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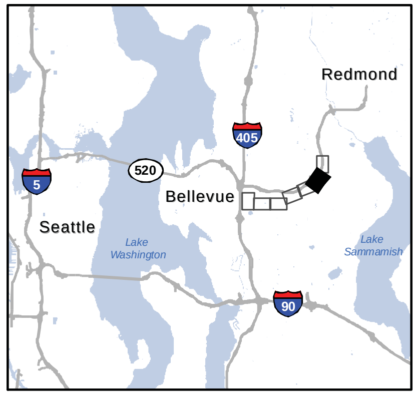
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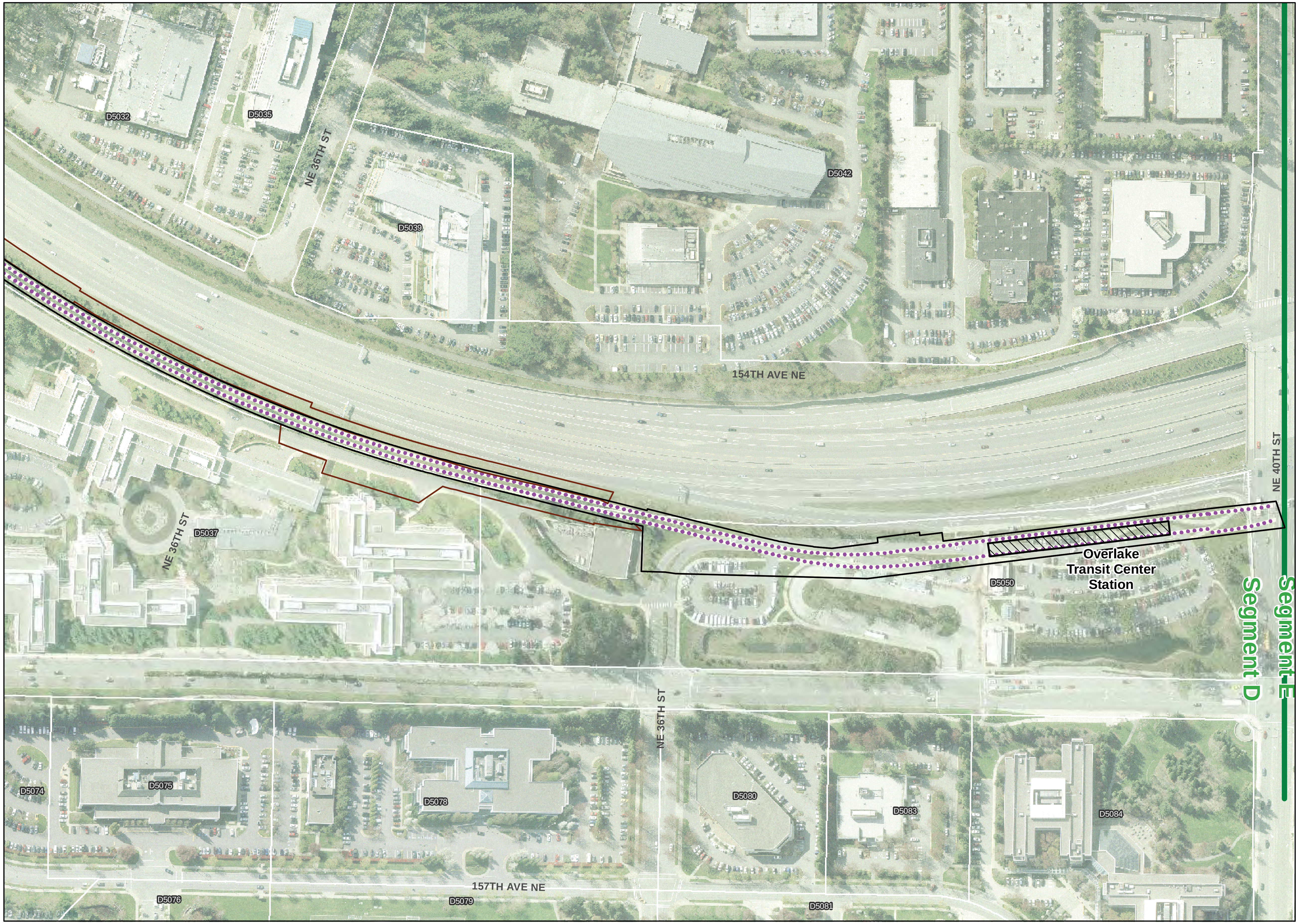
Exhibit F-75
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2A 120th Station and NE 24th Design Options
Sheet 7

East Link Project



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D5035
NE 36TH ST
D5039
D5042
154TH AVE NE
NE 40TH ST
D5037
NE 36TH ST
Overlake Transit Center Station
D5050
Segment D
Segment E
NE 36TH ST
D5074
D5075
D5078
D5080
D5083
D5084
D5076
D5079
157TH AVE NE
D5081

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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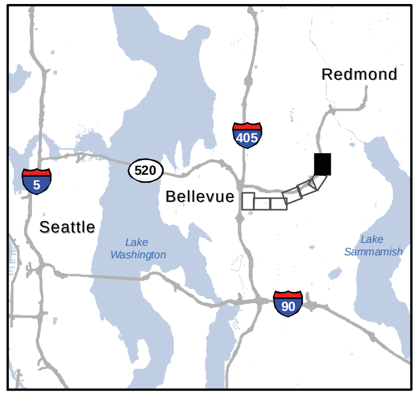

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Exhibit F-76
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2E
Sheet 1
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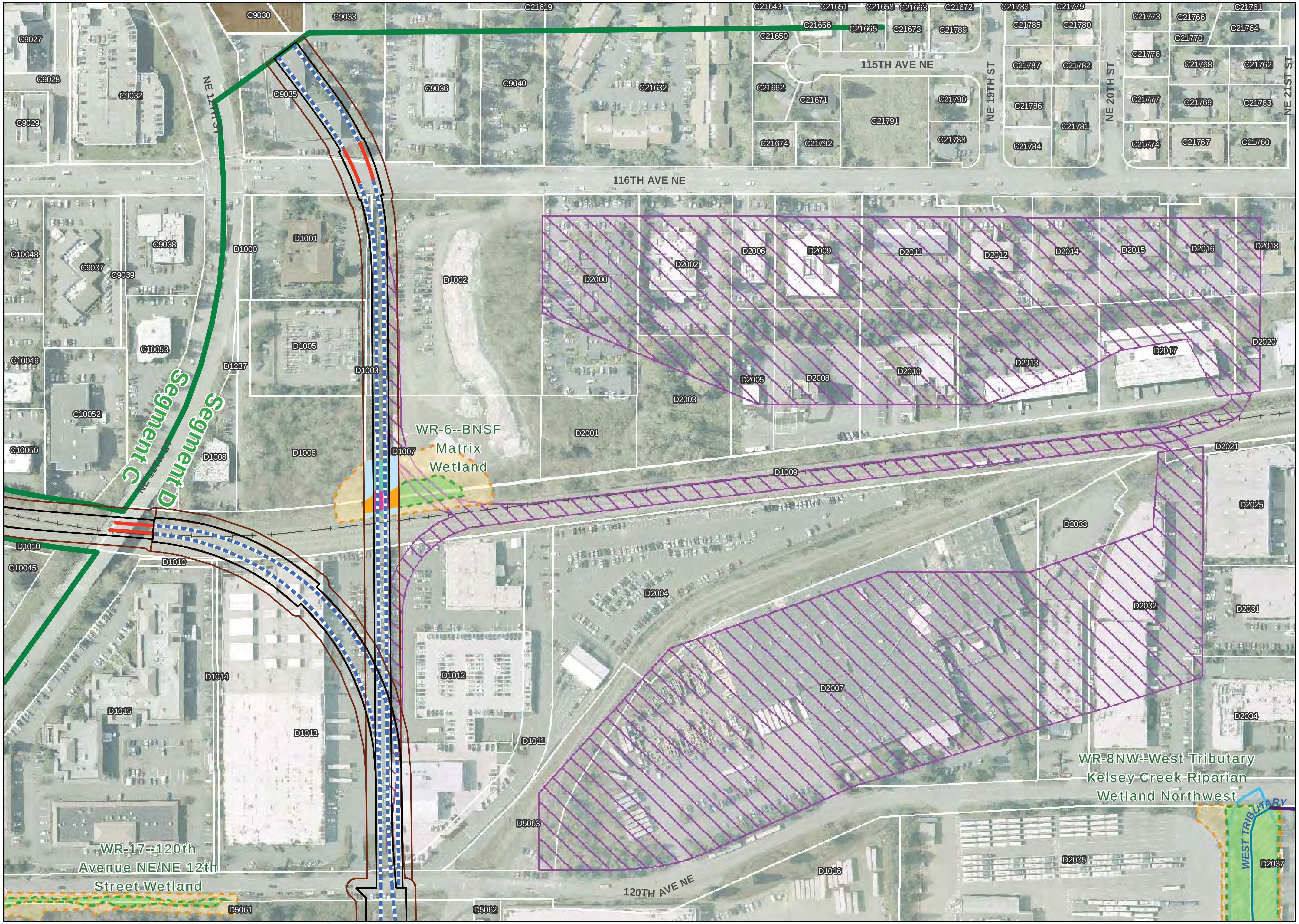
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NE 12TH ST
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C21673
C21789
C21785
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C21764
115TH AVE NE
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NE 19TH ST
C21787
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C21762
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116TH AVE NE
C10048
C9038
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D1000
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C10053
C10049
D1237
D1005
D1003
D2005
D2008
D2010
D2013
D2017
D2020
Segment C
Segment D
C10052
C10050
D1008
D1006
D1007
WR-6--BNSF Matrix Wetland
D2003
D2001
D1009
D2021
D1010
C10045
D2033
D2025
D2004
D2032
D2031
D1014
D1012
D1015
D1013
D2007
D1011
D2034
WR-8NW--West Tributary Kelsey Creek Riparian Wetland Northwest
WEST TRIBUTARY
D5063
WR-17--120th Avenue NE/NE 12th Street Wetland
D1016
D2035
D2037
120TH AVE NE
D5061
D5062

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint
- ☐ ROW
- ☐ Park and Ride

Construction Footprint
- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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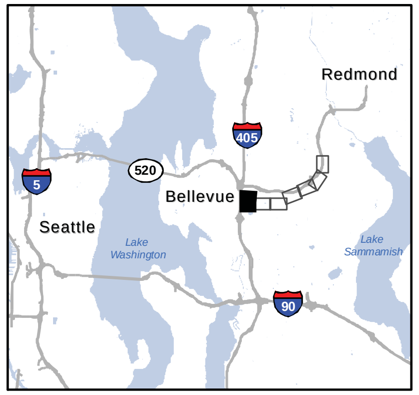
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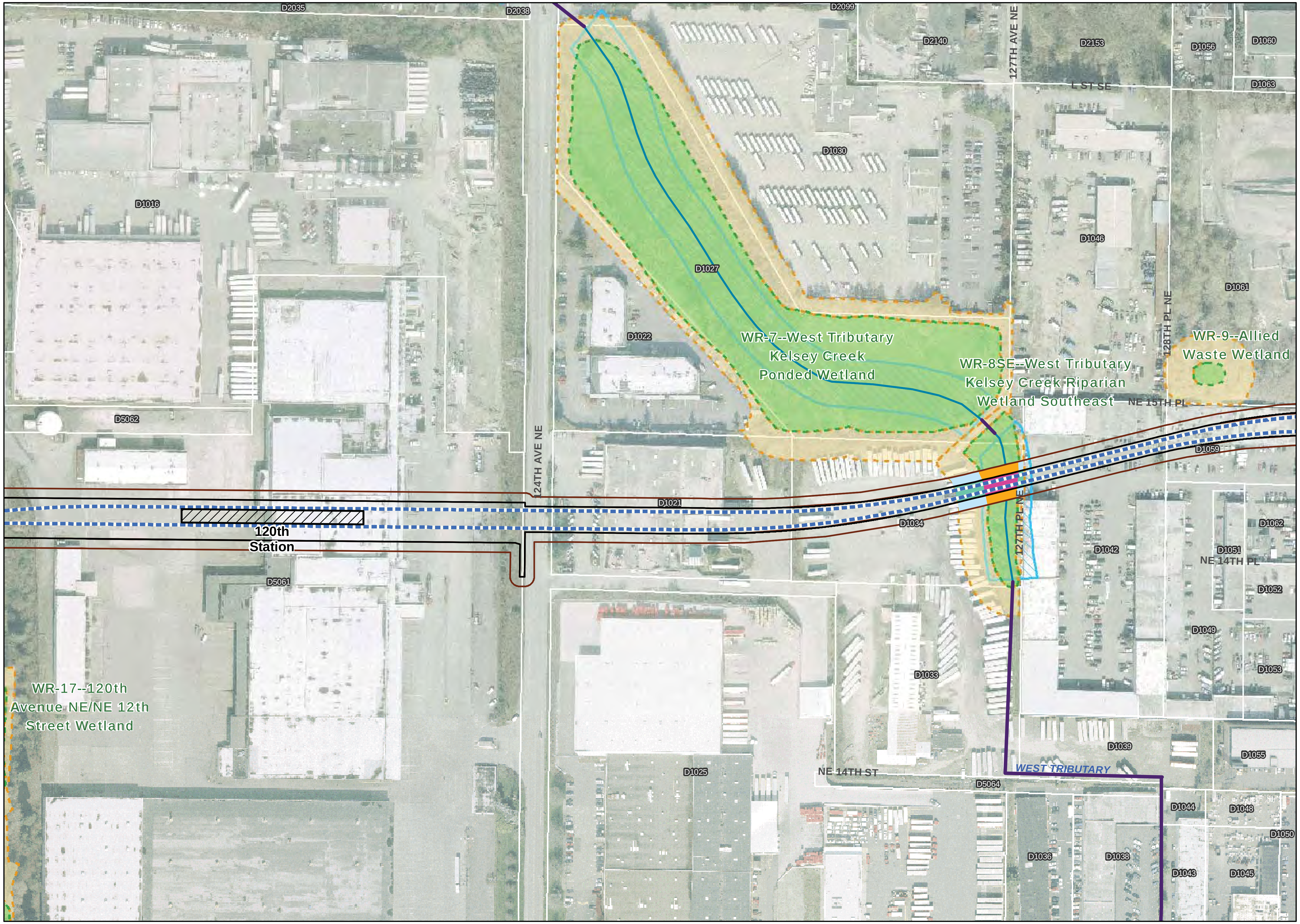
Exhibit F-77
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2E
Sheet 2
East Link Project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D1056
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D1063
127TH AVE NE
L ST SE
D1030
D1016
D1046
D1027
D1061
D1022
WR-7--West Tributary Kelsey Creek Ponded Wetland
WR-8SE--West Tributary Kelsey Creek Riparian Wetland Southeast
128TH PL NE
WR-9--Allied Waste Wetland
NE 15TH PL
D5062
124TH AVE NE
D1059
D1021
120th Station
D1034
127TH PL NE
D1062
D1042
D1051
NE 14TH PL
D5061
D1052
D1049
D1033
D1053
WR-17--120th Avenue NE/NE 12th Street Wetland
D1039
D1055
D1025
NE 14TH ST
WEST TRIBUTARY
D5064
D1044
D1048
D1050
D1036
D1038
D1043
D1045

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

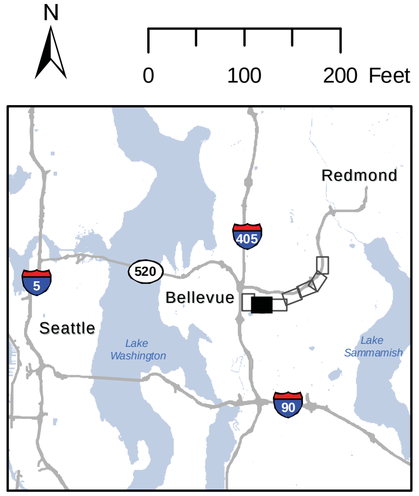
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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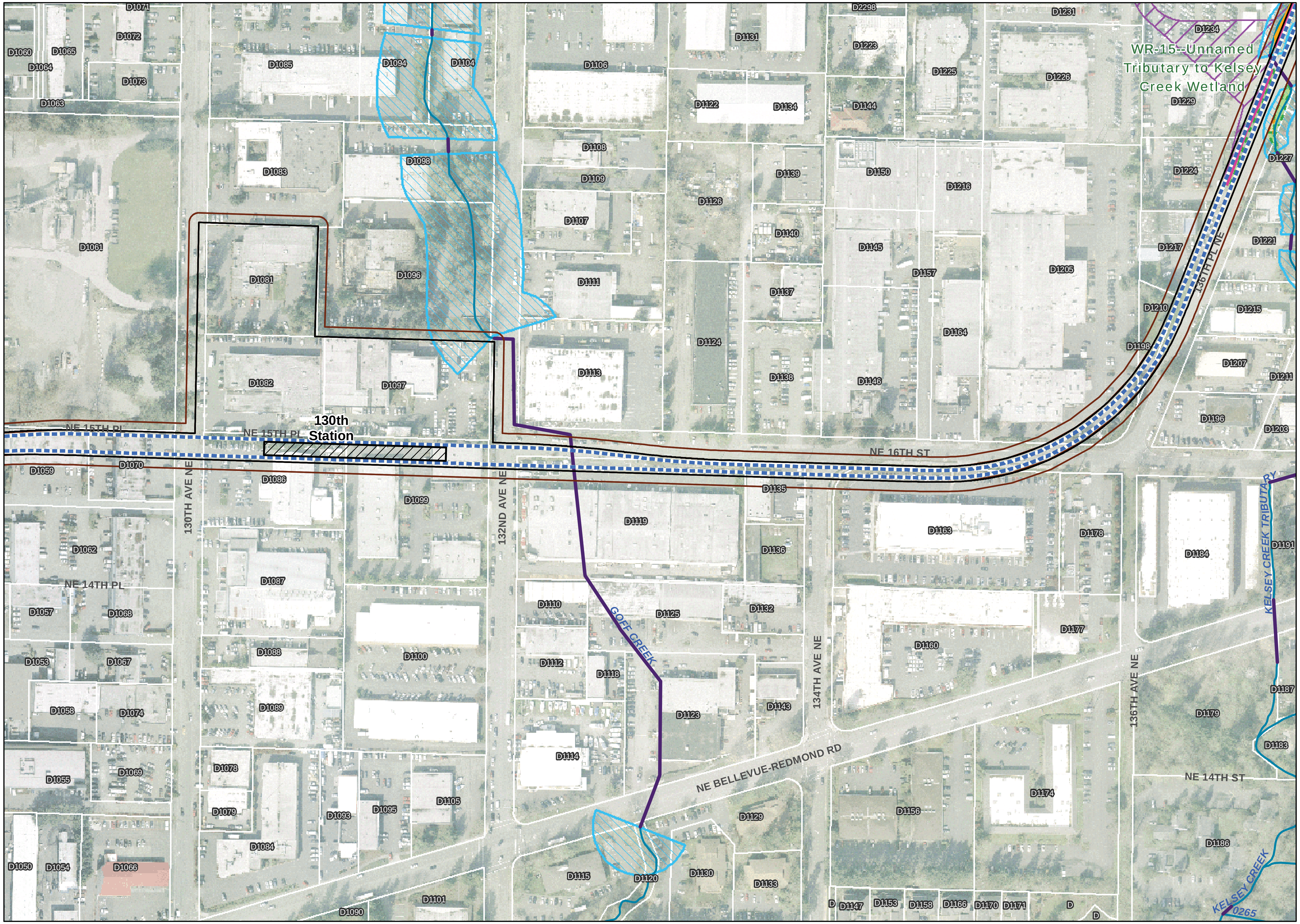
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NE 16TH ST
NE 14TH PL
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
136TH PL NE
NE BELLEVUE-REDMOND RD
NE 14TH ST
GOFF CREEK
KELSEY CREEK TRIBUTARY
KELSEY CREEK
0265

Exhibit F-78
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2E
Sheet 3

East Link Project

- 🟥 At-Grade Route
- ▬ Elevated Route
- ●●● Retained-Cut Route
- ●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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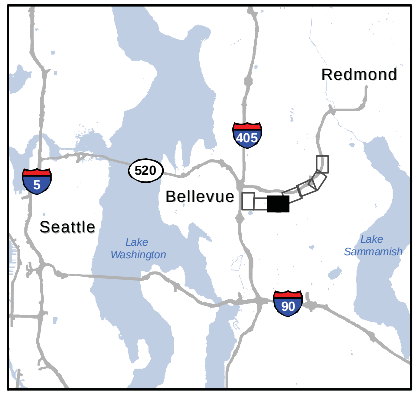
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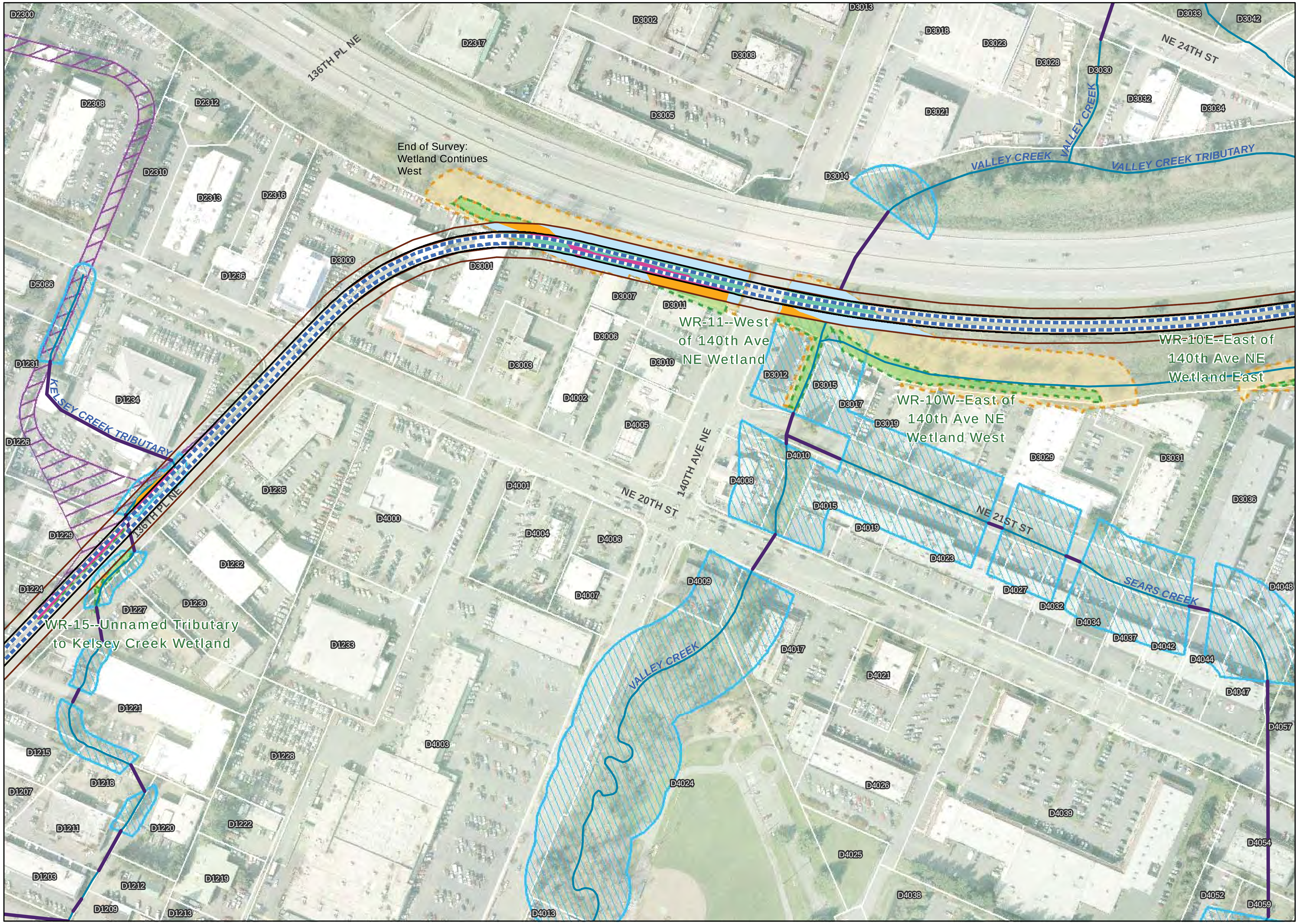
Exhibit F-79
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2E
Sheet 4
East Link Project



End of Survey: Wetland Continues West
136TH PL NE
NE 24TH ST
VALLEY CREEK
VALLEY CREEK TRIBUTARY
KELSEY CREEK TRIBUTARY
WR-11--West of 140th Ave NE Wetland
WR-10E--East of 140th Ave NE Wetland East
WR-10W--East of 140th Ave NE Wetland West
WR-15--Unnamed Tributary to Kelsey Creek Wetland
NE 20TH ST
140TH AVE NE
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- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
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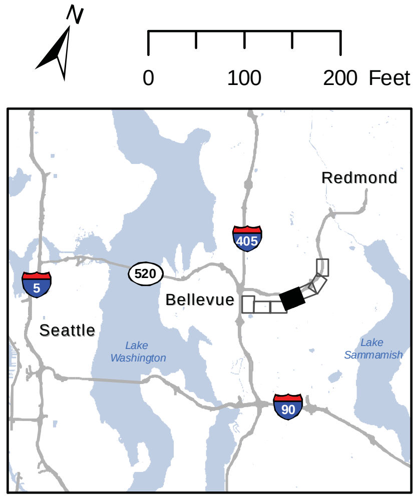
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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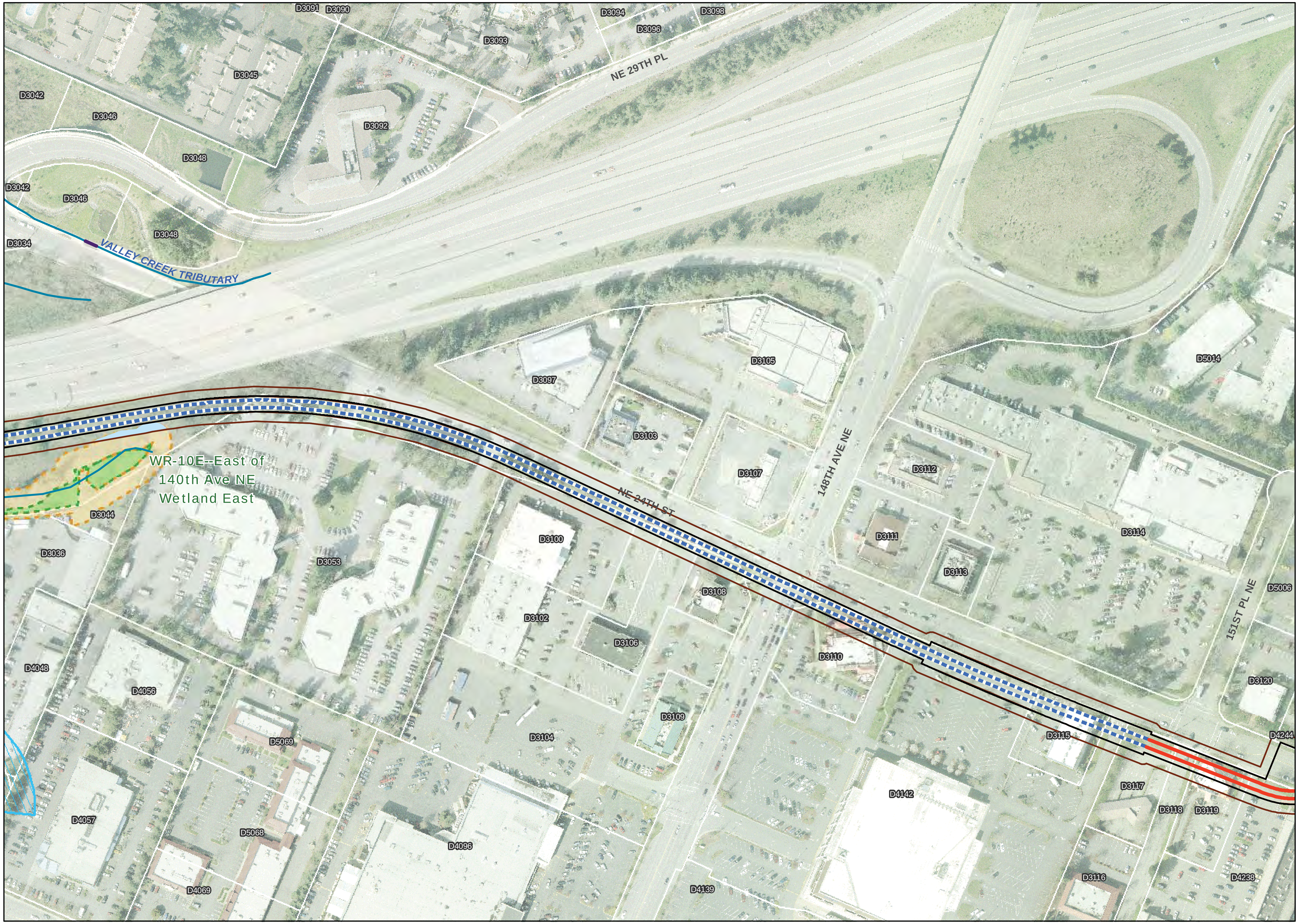
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D3090
D3094
D3098
D3096
D3093
NE 29TH PL
D3045
D3042
D3046
D3092
D3048
D3042
D3046
D3048
D3034
VALLEY CREEK TRIBUTARY
D3105
D5014
D3097
D3103
148TH AVE NE
WR-10E--East of
140th Ave NE
Wetland East
D3107
D3112
NE 24TH ST
D3044
D3100
D3111
D3114
D3036
D3053
D3113
D5006
151ST PL NE
D3108
D3102
D3106
D3110
D4048
D4056
D3120
D3109
D3104
D3115
D4244
D5069
D3117
D4142
D3118
D3119
D4057
D5068
D4096
D3116
D4069
D4139
D4238

Exhibit F-80
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2E
Sheet 5

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

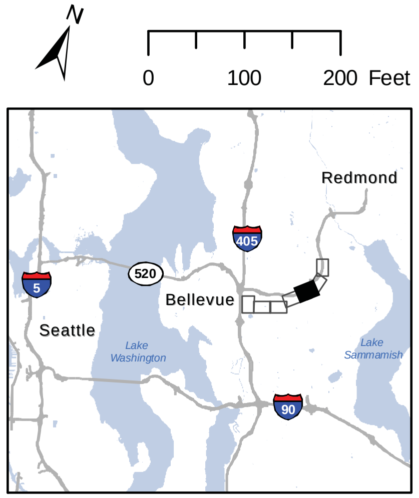
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)


N
0
100
200 Feet
Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D2E.MXD RGRABARE 4/20/11 07:39:37

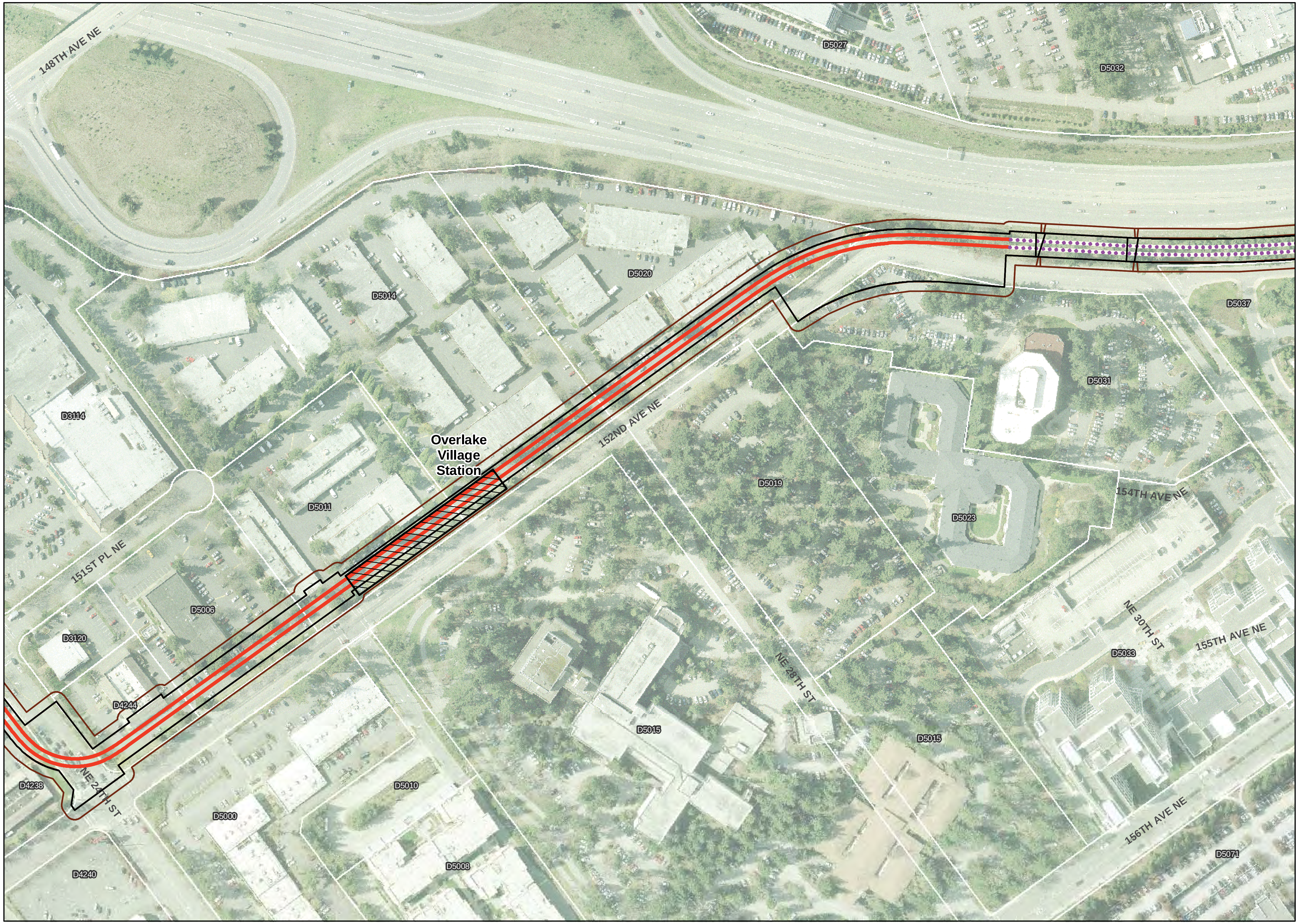

148TH AVE NE
D5027
D5032
D5020
D5014
D5037
D5031
D3114
Overlake Village Station
152ND AVE NE
D5019
D5023
154TH AVE NE
D5011
151ST PL NE
D5006
D3120
NE 30TH ST
155TH AVE NE
D5033
NE 28TH ST
D4244
D5015
D5015
D4238
NE 24TH ST
D5010
D5000
156TH AVE NE
D5008
D5071
D4240

Exhibit F-81 Wetland, Wetland Buffer, and Wetland Mitigation Impacts Alternative D2E Sheet 6

East Link Project

- ▬ At-Grade Route
- ■■■ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

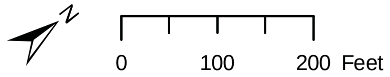
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- ■ Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- ■ Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ⁄⁄⁄ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet

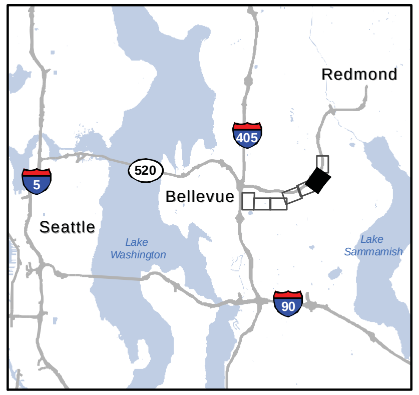
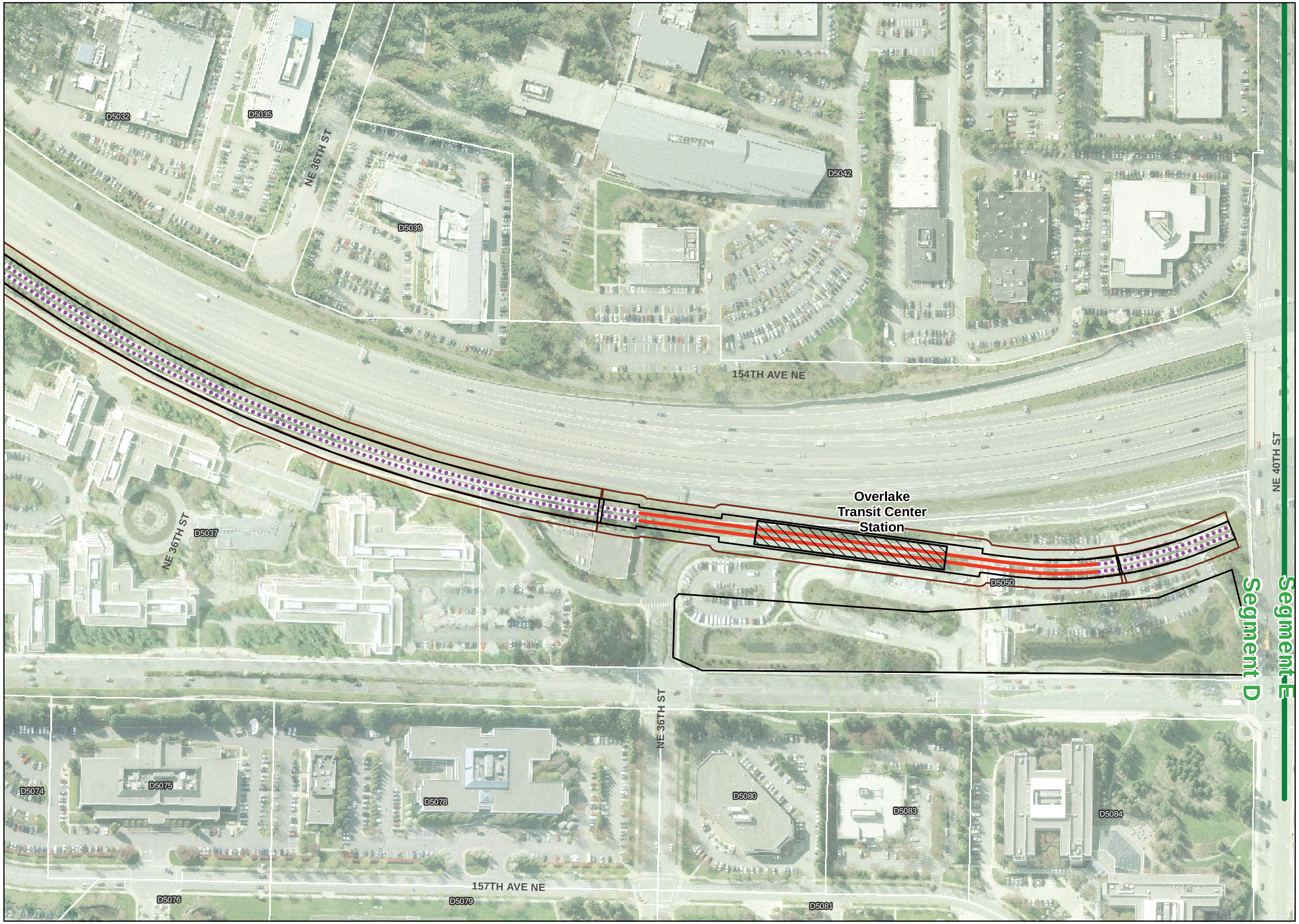

Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

Exhibit F-82
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D2E
Sheet 7
East Link Project


D5032
D5035
NE 36TH ST
D5039
D5042
154TH AVE NE
NE 40TH ST
Overlake Transit Center Station
D5037
NE 36TH ST
D5050
Segment D
Segment E
NE 36TH ST
D5074
D5075
D5078
D5080
D5083
D5084
157TH AVE NE
D5076
D5079
D5081

- ▬ At-Grade Route
- ╍ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ▭ ROW
- ▭ Park and Ride

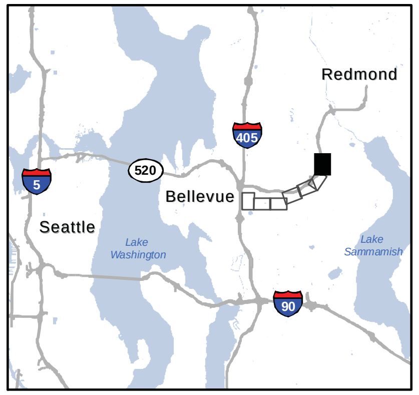
Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ─ Open Channel
- ─ Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)

N

0 100 200 Feet


Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

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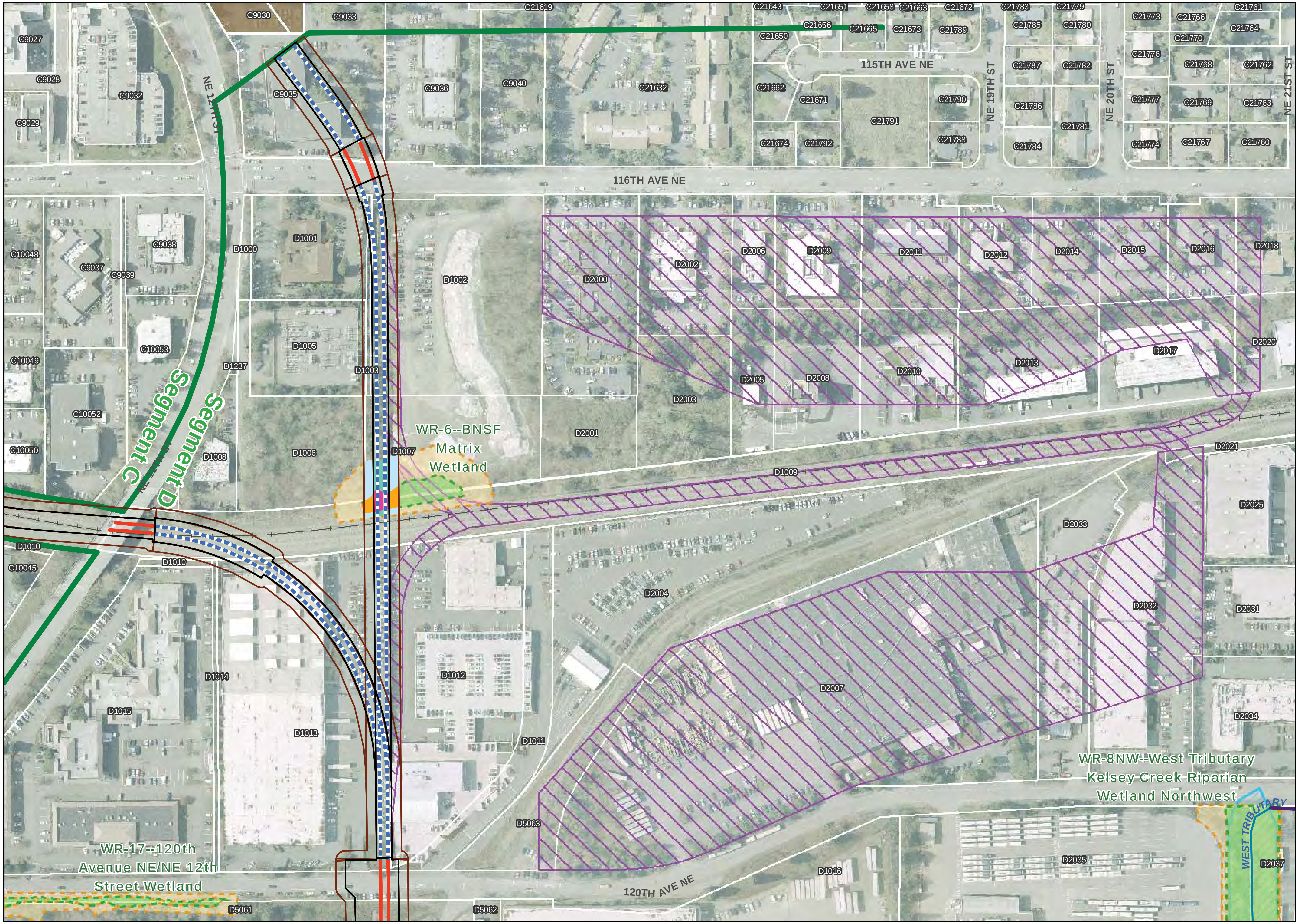
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C21619
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C21651
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C21663
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C21673
C21789
C21785
C21780
C21650
C21770
C21764
C9028
C9036
C9040
C21632
115TH AVE NE
C21787
C21782
C21776
C21768
C21762
C9032
C9035
C21662
C21671
C21790
C21786
C21777
C21769
C21763
C9029
C21791
C21781
C21674
C21792
C21788
C21784
C21774
C21767
C21760
NE 12TH ST
NE 19TH ST
NE 20TH ST
NE 21ST ST
116TH AVE NE
D1001
D1000
C9038
C10048
C9037
C9039
D1002
D2000
D2002
D2006
D2009
D2011
D2012
D2014
D2015
D2016
D2018
C10053
D1005
C10049
D1237
D1003
D2005
D2008
D2010
D2013
D2017
D2020
D2003
C10052
Segment C
Segment D
WR-6--BNSF Matrix Wetland
D1007
D2001
D1008
D1006
C10050
D1009
D2021
D2025
D1010
C10045
D1010
D2033
D2004
D2032
D2031
D1014
D1012
D2007
D1015
D1013
D1011
D2034
WR-8NW--West Tributary Kelsey Creek Riparian Wetland Northwest
WEST TRIBUTARY
D5063
D2035
D2037
WR-17--120th Avenue NE/NE 12th Street Wetland
D1016
120TH AVE NE
D5061
D5062

Exhibit F-83
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D3
Sheet 1

East Link Project

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

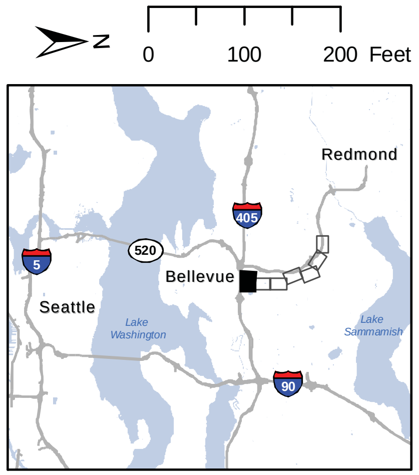
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ╱╱╱ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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0
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200 Feet
Redmond
405
520
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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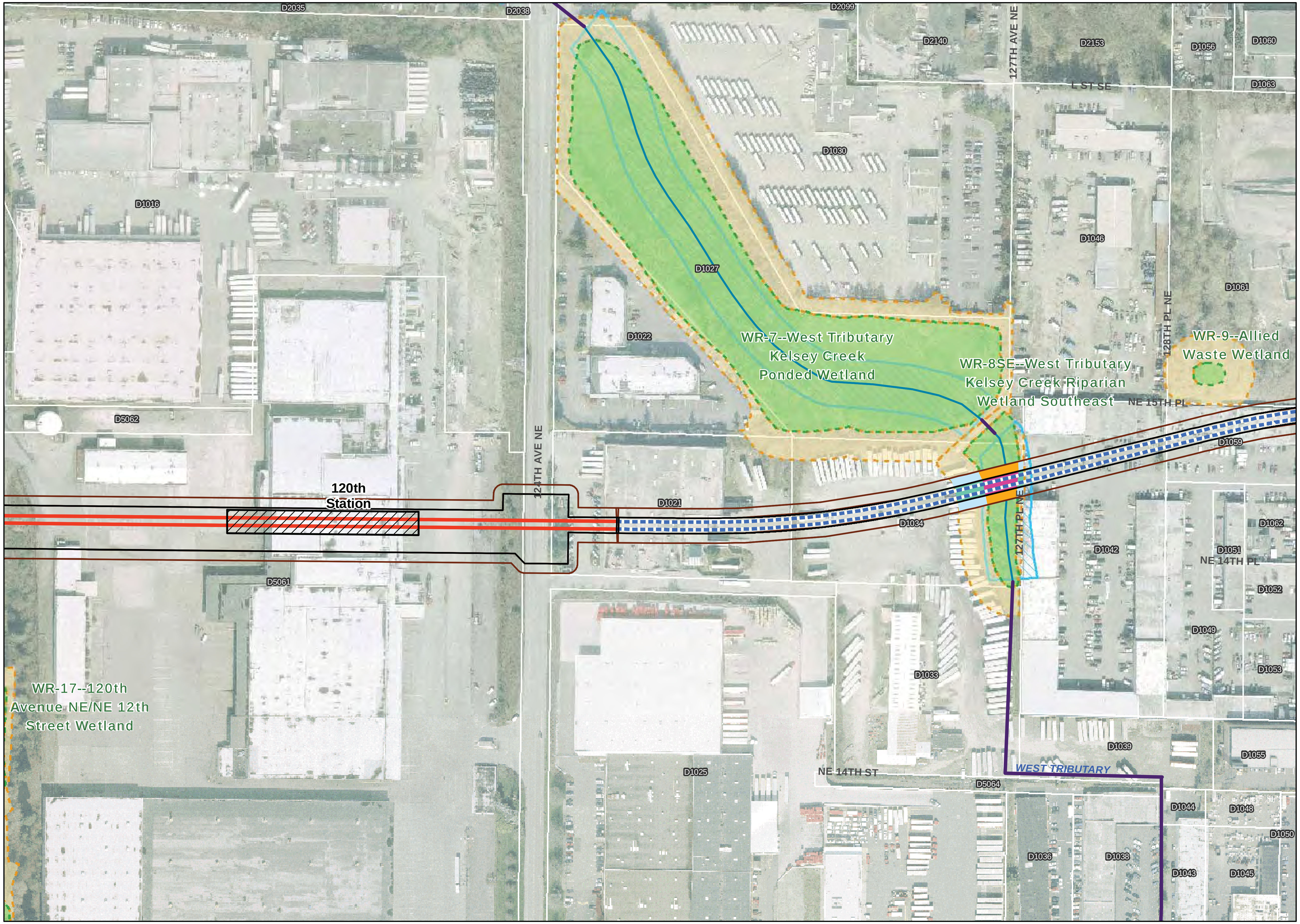
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D2038
D2099
D2140
D2153
127TH AVE NE
D1056
D1060
L ST SE
D1063
D1030
D1016
D1046
D1027
D1061
D1022
128TH PL NE
WR-7--West Tributary Kelsey Creek Ponded Wetland
WR-8SE--West Tributary Kelsey Creek Riparian Wetland Southeast
WR-9--Allied Waste Wetland
NE 15TH PL
D5062
124TH AVE NE
D1059
120th Station
D1021
D1034
127TH PL NE
D1062
D1042
D1051
NE 14TH PL
D5061
D1052
D1049
D1033
D1053
WR-17--120th Avenue NE/NE 12th Street Wetland
D1039
D1055
D1025
NE 14TH ST
WEST TRIBUTARY
D5064
D1044
D1048
D1050
D1036
D1038
D1043
D1045

Exhibit F-84 Wetland, Wetland Buffer, and Wetland Mitigation Impacts Alternative D3 Sheet 2

East Link Project

- ━ At-Grade Route
- ┅ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ╍ Tunnel Route

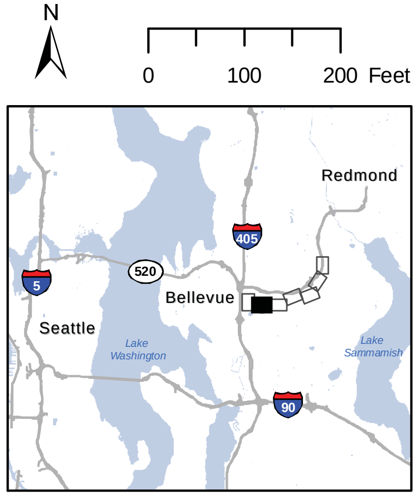
Operational Footprint

- ▭ ROW
- ▭ Park and Ride

Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ━ Open Channel
- ━ Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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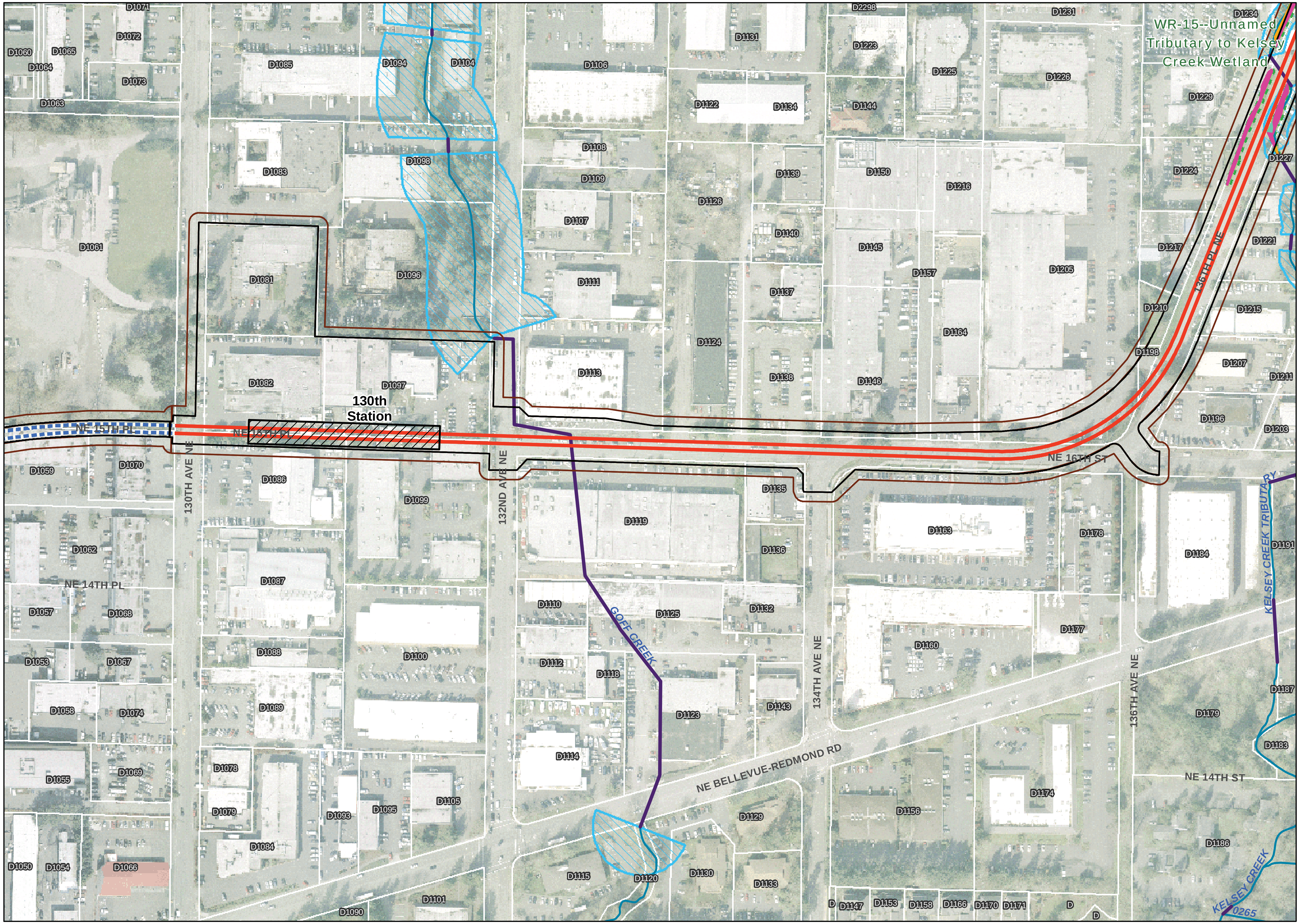
\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D3.MXD RGRABARE 4/20/11 07:42:14


WR-15--Unnamed Tributary to Kelsey Creek Wetland
130th Station
NE 15TH PL
NE 16TH ST
NE 14TH PL
NE 14TH ST
130TH AVE NE
132ND AVE NE
134TH AVE NE
136TH AVE NE
136TH PL NE
NE BELLEVUE-REDMOND RD
GOFF CREEK
KELSEY CREEK TRIBUTARY
KELSEY CREEK
0265
D1071
D1072
D1060
D1065
D1064
D1073
D1063
D1085
D1094
D1104
D1106
D1131
D2298
D1223
D1231
D1234
D1225
D1226
D1122
D1134
D1144
D1229
D1083
D1098
D1108
D1109
D1139
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D1126
D1061
D1107
D1140
D1145
D1221
D1217
D1081
D1096
D1111
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D1137
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D1062
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D1133
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N
0
100
200 Feet

Exhibit F-85
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D3
Sheet 3
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

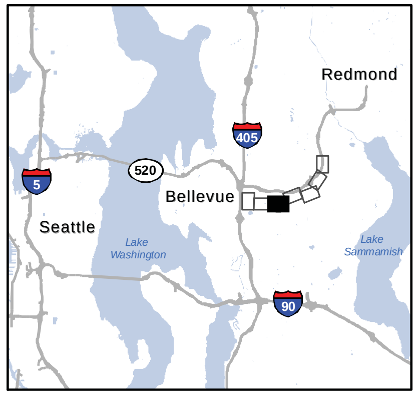
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- ▨ Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)


Redmond
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520
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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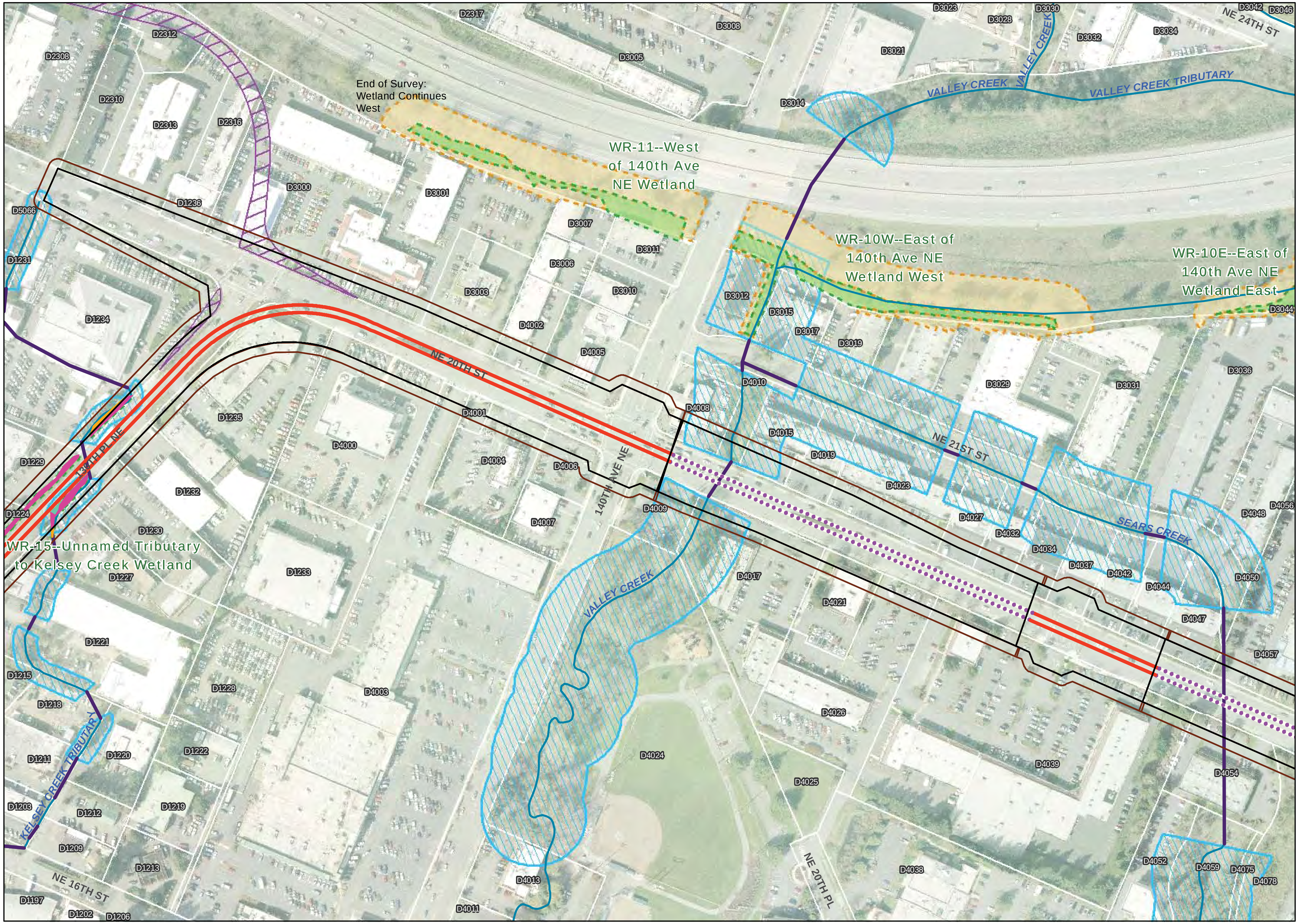
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WR-11--West of 140th Ave NE Wetland
WR-10W--East of 140th Ave NE Wetland West
WR-10E--East of 140th Ave NE Wetland East
WR-15--Unnamed Tributary to Kelsey Creek Wetland
VALLEY CREEK
VALLEY CREEK TRIBUTARY
SEARS CREEK
KELSEY CREEK TRIBUTARY
NE 24TH ST
NE 20TH ST
NE 21ST ST
140TH AVE NE
136TH PL NE
NE 16TH ST
NE 20TH PL
D2317
D2312
D2308
D2310
D2313
D2316
D3008
D3005
D3023
D3028
D3030
D3042
D3046
D3021
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D3000
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D3006
D1231
D3003
D3010
D3012
D3015
D3017
D3019
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D4005
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D4038
D4078
D4013
D1197
D1202
D1206
D4011
N
0
100
200 Feet

Exhibit F-86
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D3
Sheet 4
East Link Project

🟥	At-Grade Route
▪▪▪	Elevated Route
•••	Retained-Cut Route
•••	Retained-Fill Route
▬ ▬	Tunnel Route

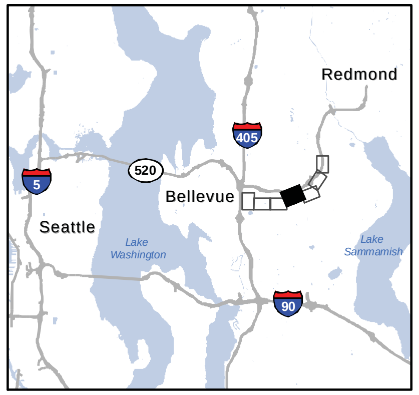
Operational Footprint

☐	ROW
☐	Park and Ride

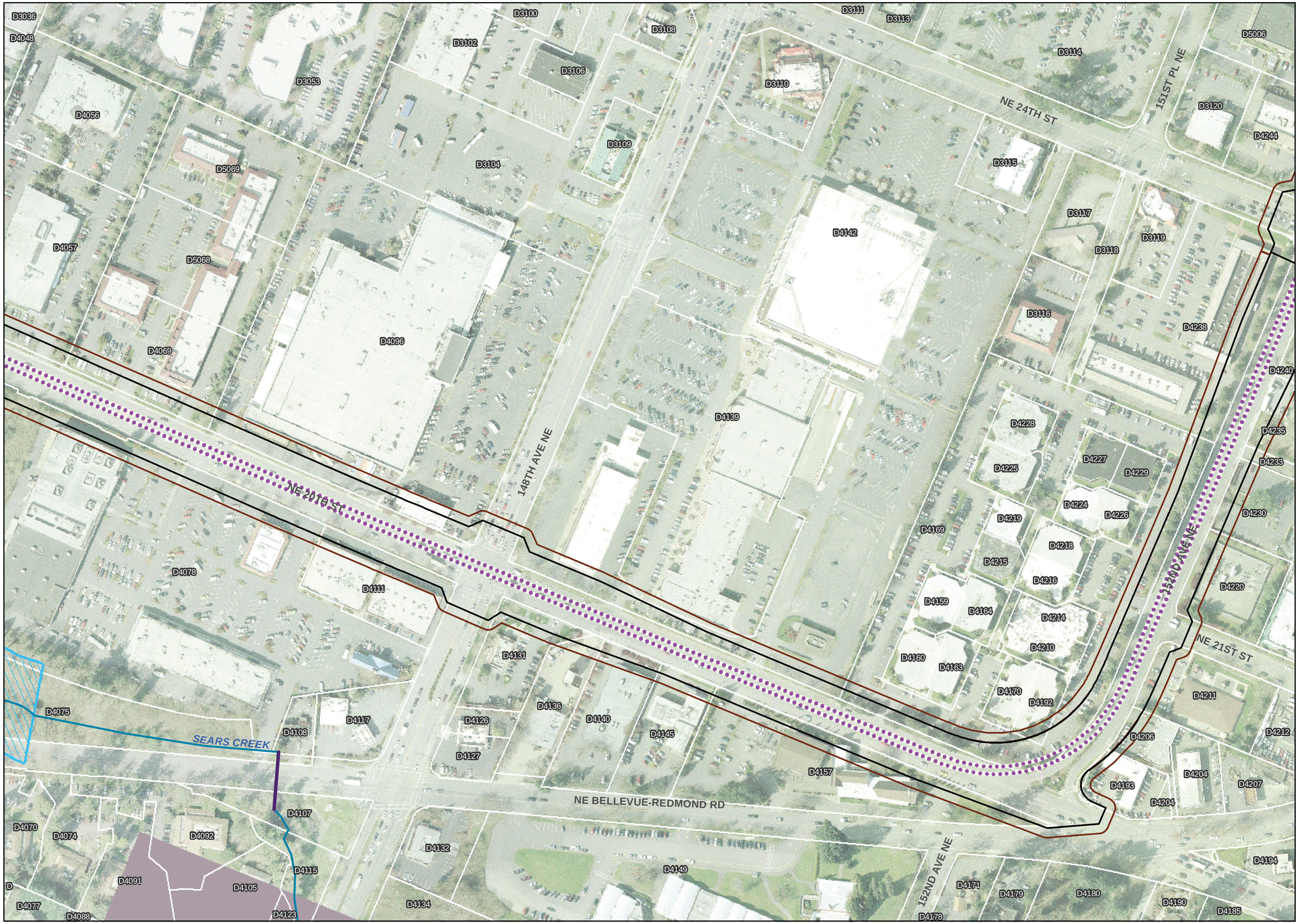
Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
▭	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
🟪	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
🟦	Construction Wetland Buffer Impact
╱╱╱	Wetland Mitigation Impact
▨	Stream Buffer
─	Open Channel
─	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)


Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D3.MXD RGRABARE 4/20/11 07:42:14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D4048
D3100
D3108
D3111
D3113
D5006
D3102
D3106
D3114
D3053
D3110
NE 24TH ST
151ST PL NE
D3120
D4056
D4244
D3109
D5069
D3104
D3115
D3117
D4142
D3119
D4057
D5068
D3118
D3116
D4238
D4096
D4069
D4240
D4139
D4228
D4235
148TH AVE NE
D4227
D4229
D4233
D4225
NE 20TH ST
D4224
D4226
D4219
D4230
D4169
D4218
D4078
D4215
D4216
D4111
152ND AVE NE
D4220
D4159
D4164
D4214
D4210
NE 21ST ST
D4131
D4160
D4163
D4170
D4192
D4211
D4075
D4136
D4117
D4126
D4140
D4145
D4212
D4108
SEARS CREEK
D4127
D4206
D4157
D4204
D4207
D4193
D4107
NE BELLEVUE-REDMOND RD
D4204
D4070
D4074
D4092
D4132
D4115
D4091
D4149
D4105
D4194
D4077
D4088
D4123
D4134
D4178
152ND AVE NE
D4171
D4179
D4180
D4190
D4185

Exhibit F-87
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D3
Sheet 5

East Link Project

- ━ At-Grade Route
- ┅ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ━ ━ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

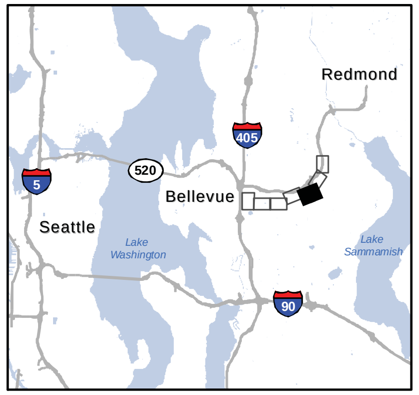
Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- ━ Open Channel
- ━ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

N

0 100 200 Feet


Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

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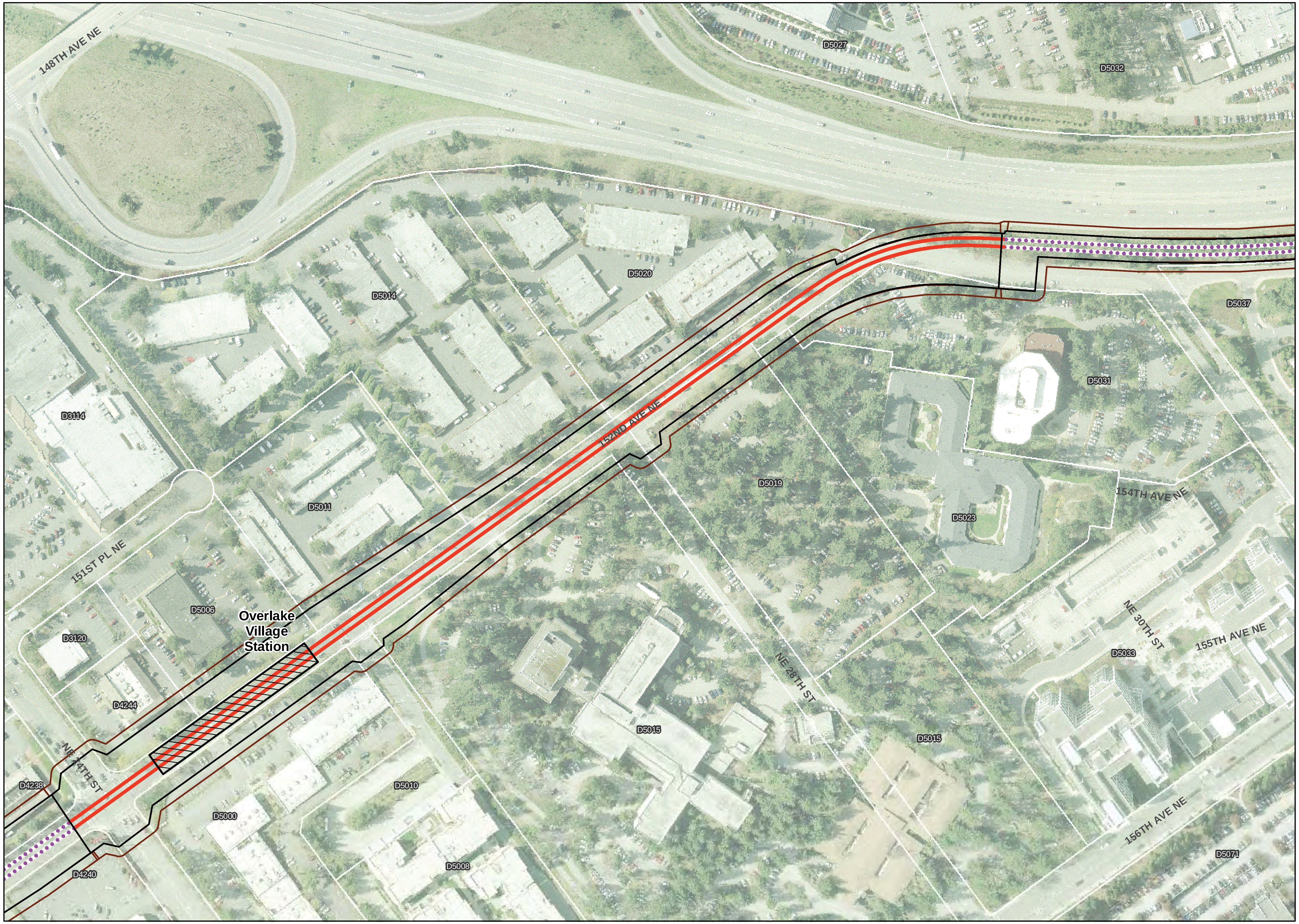
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D5020
D5014
D5037
D5031
152ND AVE NE
D3114
D5019
154TH AVE NE
D5023
D5011
151ST PL NE
D5006
Overlake Village Station
D3120
NE 30TH ST
155TH AVE NE
D5033
NE 28TH ST
D4244
D5015
D5015
NE 24TH ST
D4238
D5010
D5000
156TH AVE NE
D5008
D5071
D4240

Exhibit F-88 Wetland, Wetland Buffer, and Wetland Mitigation Impacts Alternative D3 Sheet 6

East Link Project

- ━ At-Grade Route
- ╍ Elevated Route
- ••• Retained-Cut Route
- ••• Retained-Fill Route
- ━ ━ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- ─ Open Channel
- ━ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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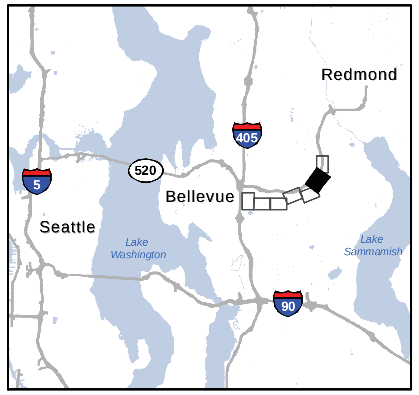
0 100 200 Feet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Bellevue
Seattle
Lake Washington
Lake Sammamish
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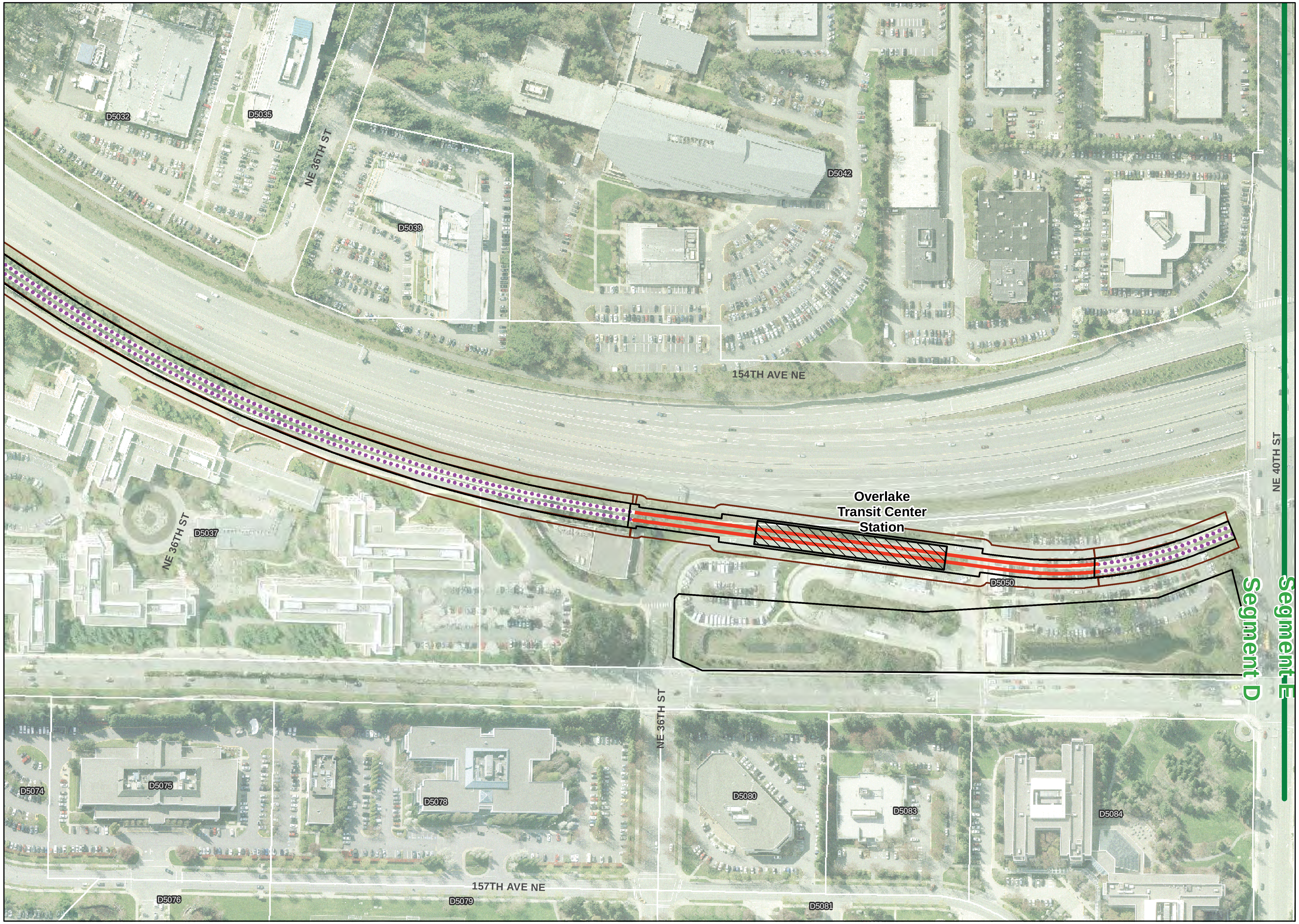
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D5035
NE 36TH ST
D5042
D5039
154TH AVE NE
NE 40TH ST
Overlake
Transit Center
Station
D5037
NE 36TH ST
D5050
Segment D
Segment E
NE 36TH ST
D5074
D5075
D5078
D5080
D5083
D5084
157TH AVE NE
D5076
D5079
D5081

Exhibit F-89
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D3
Sheet 7

East Link Project

━ At-Grade Route
┅ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

Operational Footprint

▭ ROW
▭ Park and Ride

Construction Footprint

▭ Construction Footprint
▭ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
▭ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
🟥 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
▭ Construction Wetland Buffer Impact
▨ Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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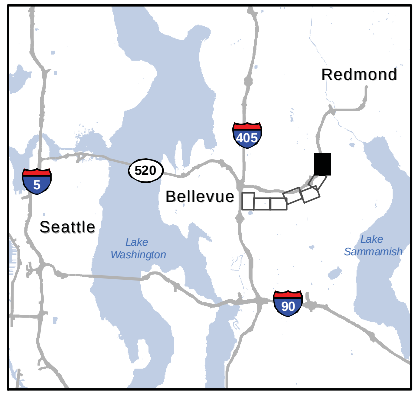
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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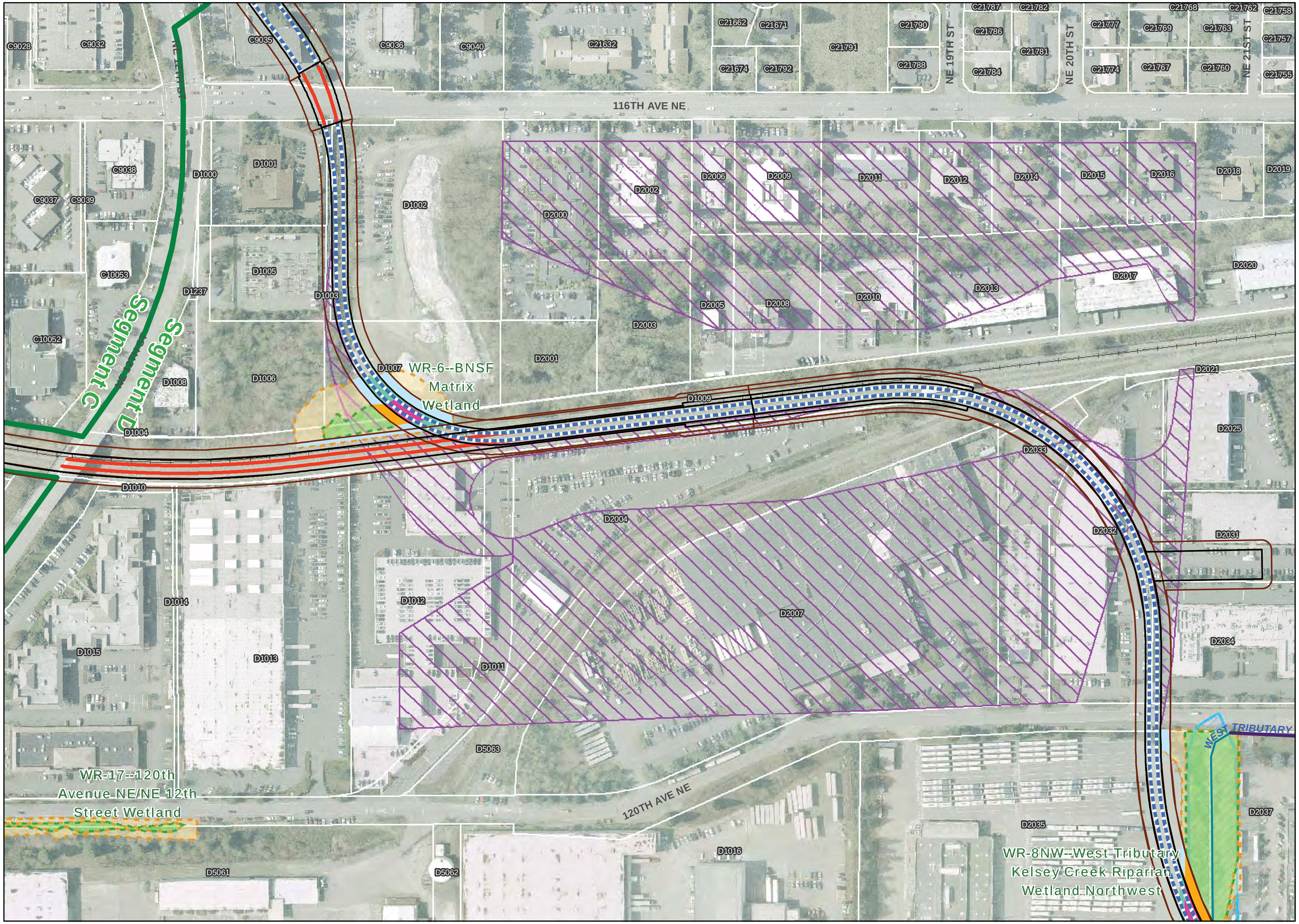
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NE 19TH ST
NE 20TH ST
NE 21ST ST
NE 12TH ST
120TH AVE NE
Segment C
Segment D
WR-6--BNSF Matrix Wetland
WR-17--120th Avenue NE/NE 12th Street Wetland
WR-8NW--West Tributary Kelsey Creek Riparian Wetland Northwest
WEST TRIBUTARY
C9028
C9032
C9035
C9036
C9040
C21662
C21671
C21632
C21674
C21792
C21791
C21790
C21788
C21787
C21786
C21784
C21782
C21781
C21777
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C21760
C21762
C21758
C21757
C21755
C9038
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C9039
C10053
C10052
D1000
D1001
D1002
D1003
D1004
D1005
D1006
D1007
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D1016
D1237
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D2019
D2020
D2021
D2025
D2031
D2032
D2033
D2034
D2035
D2037
D5061
D5062
D5063

Exhibit F-90
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 1
East Link Project

▬	At-Grade Route
▪▪▪	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route

Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
■	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
■	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
🟦	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
―	Open Channel
―	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)

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200 Feet
Redmond
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520
5
Seattle
Bellevue
Lake Washington
Lake Sammamish
90

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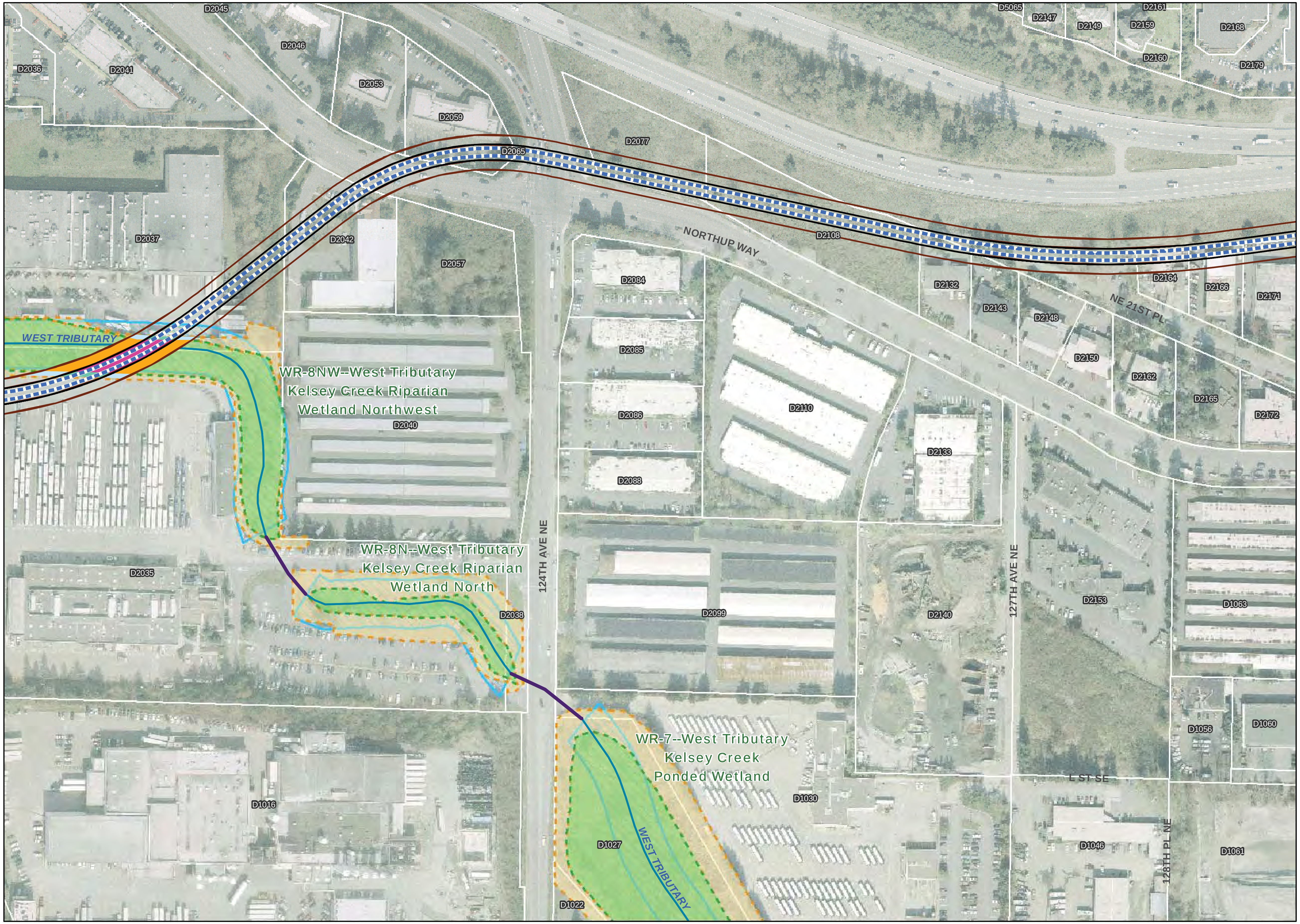
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D5065
D2147
D2161
D2149
D2159
D2168
D2036
D2041
D2046
D2053
D2160
D2179
D2059
D2077
D2065
D2037
D2042
NORTHUP WAY
D2108
D2057
D2084
D2132
D2164
D2166
D2171
NE 21ST PL
D2143
D2148
WEST TRIBUTARY
D2085
WR-8NW--West Tributary
Kelsey Creek Riparian
Wetland Northwest
D2110
D2150
D2162
D2165
D2040
D2086
D2172
D2133
D2088
WR-8N--West Tributary
Kelsey Creek Riparian
Wetland North
124TH AVE NE
127TH AVE NE
D2035
D2153
D1063
D2099
D2140
D2038
WR-7--West Tributary
Kelsey Creek
Ponded Wetland
D1060
D1056
L ST SE
D1016
D1030
D1027
D1046
D1061
128TH PL NE
WEST TRIBUTARY
D1022

Exhibit F-91
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 2

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

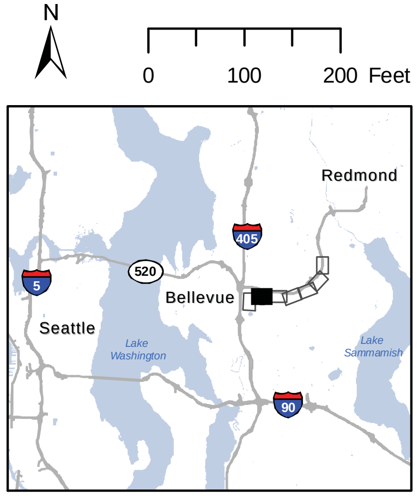
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
Lake Sammamish
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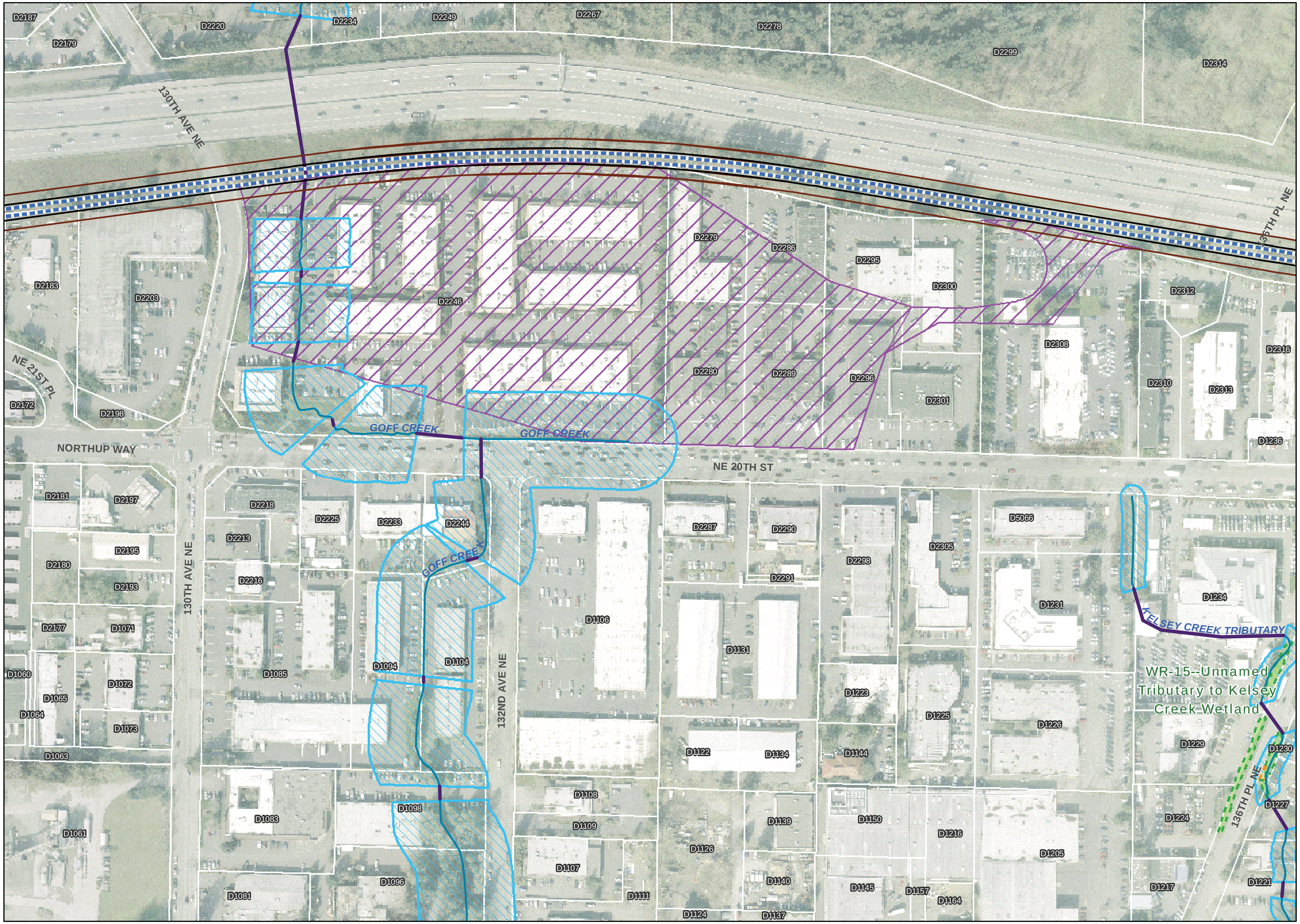
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D2299
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130TH AVE NE
136TH PL NE
D2183
D2203
D2246
D2279
D2286
D2295
D2300
D2312
D2308
D2316
D2310
D2313
D2280
D2289
D2296
D2301
D1236
NE 21ST PL
D2172
D2198
GOFF CREEK
GOFF CREEK
NORTHUP WAY
NE 20TH ST
D2181
D2197
D2218
D2225
D2233
D2244
D2287
D2290
D5066
D2305
D2298
D2213
D2195
D2180
D2193
D2216
GOFF CREEK
D2291
D1234
D1231
D1106
D2177
D1071
130TH AVE NE
D1094
D1104
132ND AVE NE
D1131
KELSEY CREEK TRIBUTARY
D1060
D1085
D1072
D1065
D1064
D1073
D1063
D1123
D1225
D1226
WR-15--Unnamed
Tributary to Kelsey
Creek Wetland
D1229
D1230
D1122
D1134
D1144
D1108
D1098
D1083
D1061
D1109
D1139
D1150
D1216
D1224
136TH PL NE
D1227
D1126
D1107
D1205
D1140
D1096
D1145
D1157
D1164
D1081
D1111
D1217
D1221
D1124
D1137

Exhibit F-92
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 3

East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)

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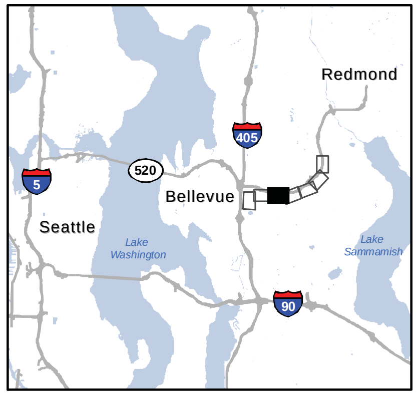
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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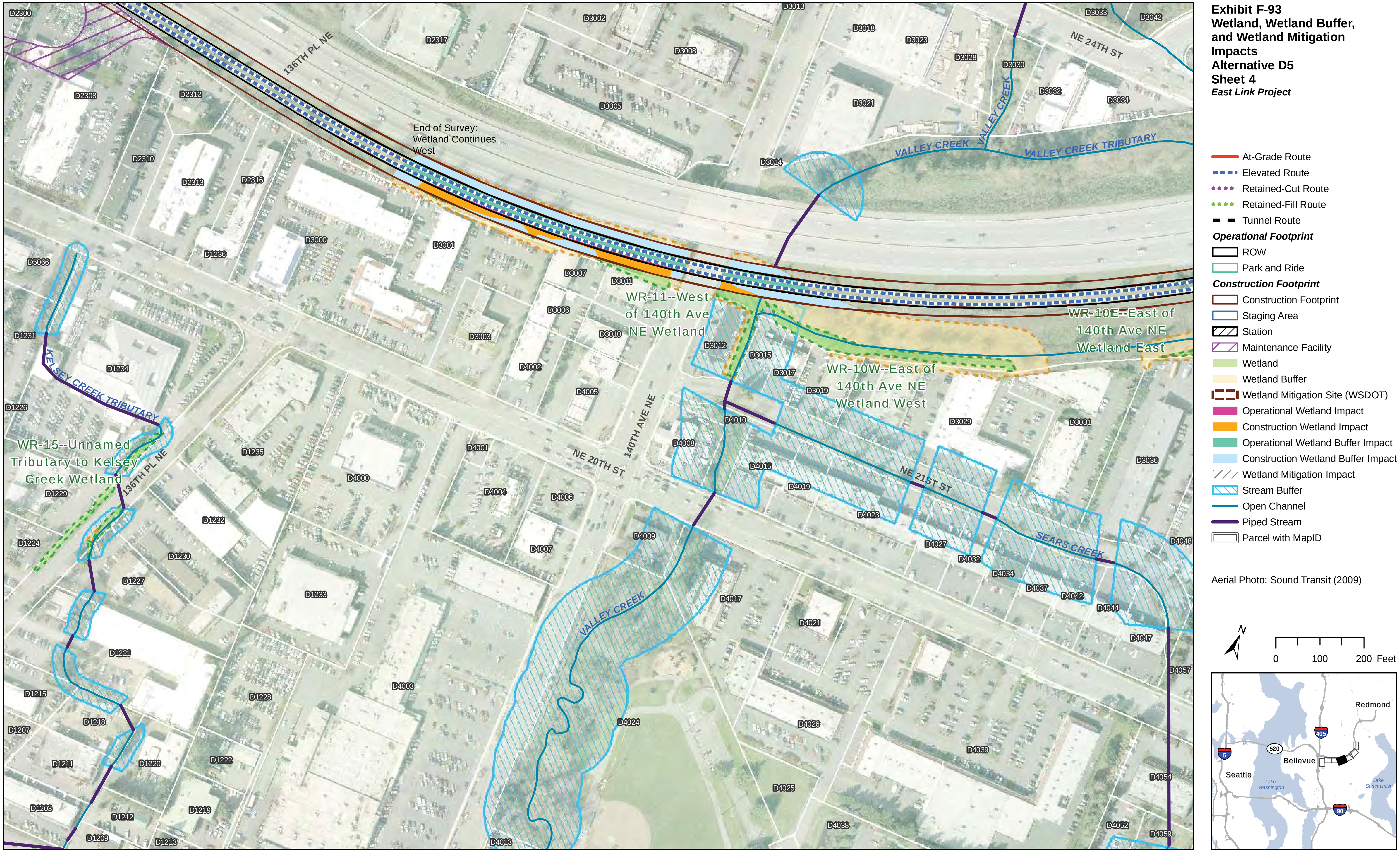
Exhibit F-93
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 4
East Link Project


End of Survey: Wetland Continues West
WR-11--West of 140th Ave NE Wetland
WR-10E--East of 140th Ave NE Wetland East
WR-10W--East of 140th Ave NE Wetland West
WR-15--Unnamed Tributary to Kelsey Creek Wetland
136TH PL NE
NE 24TH ST
NE 20TH ST
NE 21ST ST
140TH AVE NE
VALLEY CREEK
VALLEY CREEK TRIBUTARY
KELSEY CREEK TRIBUTARY
SEARS CREEK
D2300
D3002
D3013
D3018
D3023
D3033
D3042
D2317
D3008
D3028
D3030
D2308
D2312
D3005
D3021
D3032
D3034
D2310
D3014
D2313
D2316
D3000
D3001
D1236
D5066
D3007
D3011
D3006
D3003
D3010
D3012
D3015
D3017
D3019
D1231
D1234
D4002
D4005
D4010
D3029
D3031
D1226
D4001
D4008
D4015
D1235
D4000
D4019
D3036
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D4006
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D1221
D1215
D4003
D1228
D4057
D1218
D4024
D4026
D1207
D4039
D1222
D1211
D1220
D4054
D4025
D1203
D1219
D1212
D4038
D4052
D4059
D1209
D1213
D4013
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Operational Footprint
ROW
Park and Ride
Construction Footprint
Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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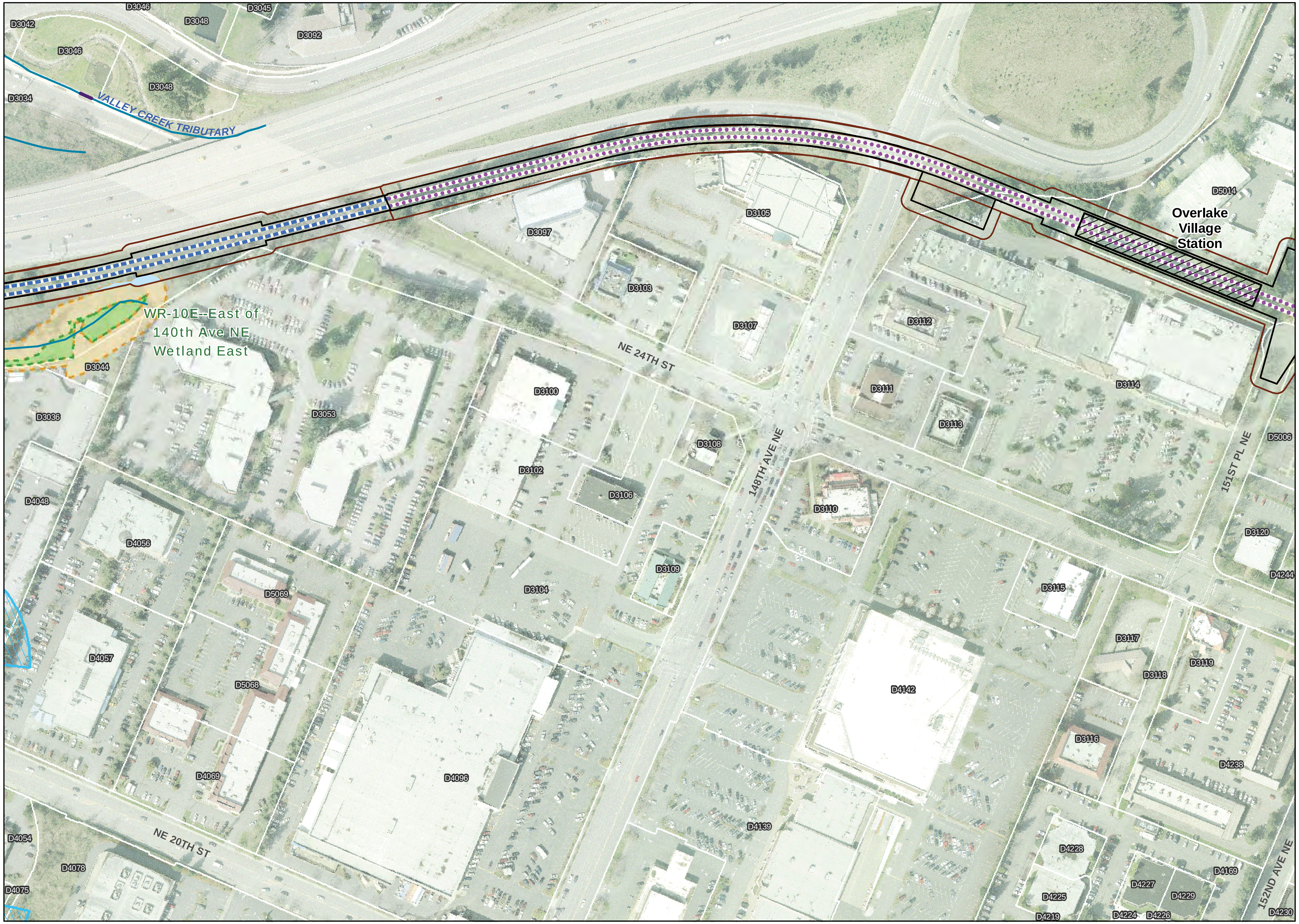
Aerial Photo: Sound Transit (2009)

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\ECOSYSTEMS\MAPBOOKS\FEIS_ECOS_MB_WETLANDIMPACTS_D5.MXD RGRABARE 4/20/11 07:47:12


D3042
D3046
D3048
D3045
D3092
D3046
D3048
D3034
VALLEY CREEK TRIBUTARY
D3097
D3105
Overlake
Village
Station
D5014
D3103
D3107
D3112
WR-10E--East of 140th Ave NE Wetland East
NE 24TH ST
D3044
D3100
D3111
D3114
D3036
D3053
D3113
D5006
D3108
D3102
148TH AVE NE
151ST PL NE
D4048
D3106
D3110
D4056
D3120
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D3115
D4244
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D4057
D3119
D3118
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D3116
D4238
D4069
D4096
D4139
NE 20TH ST
D4054
D4078
D4228
D4169
D4075
D4227
152ND AVE NE
D4225
D4229
D4219
D4224
D4226
D4230

Exhibit F-94
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 5
East Link Project

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

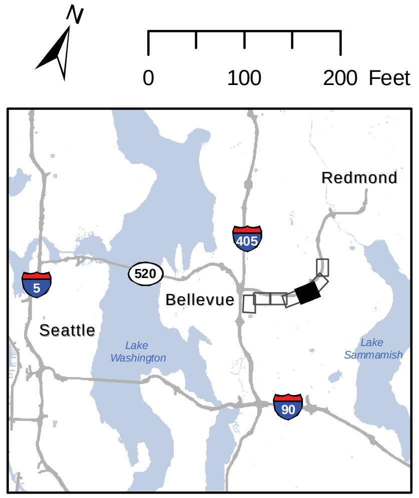
Operational Footprint

ROW
Park and Ride

Construction Footprint

Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
Seattle
Lake Washington
Lake Sammamish
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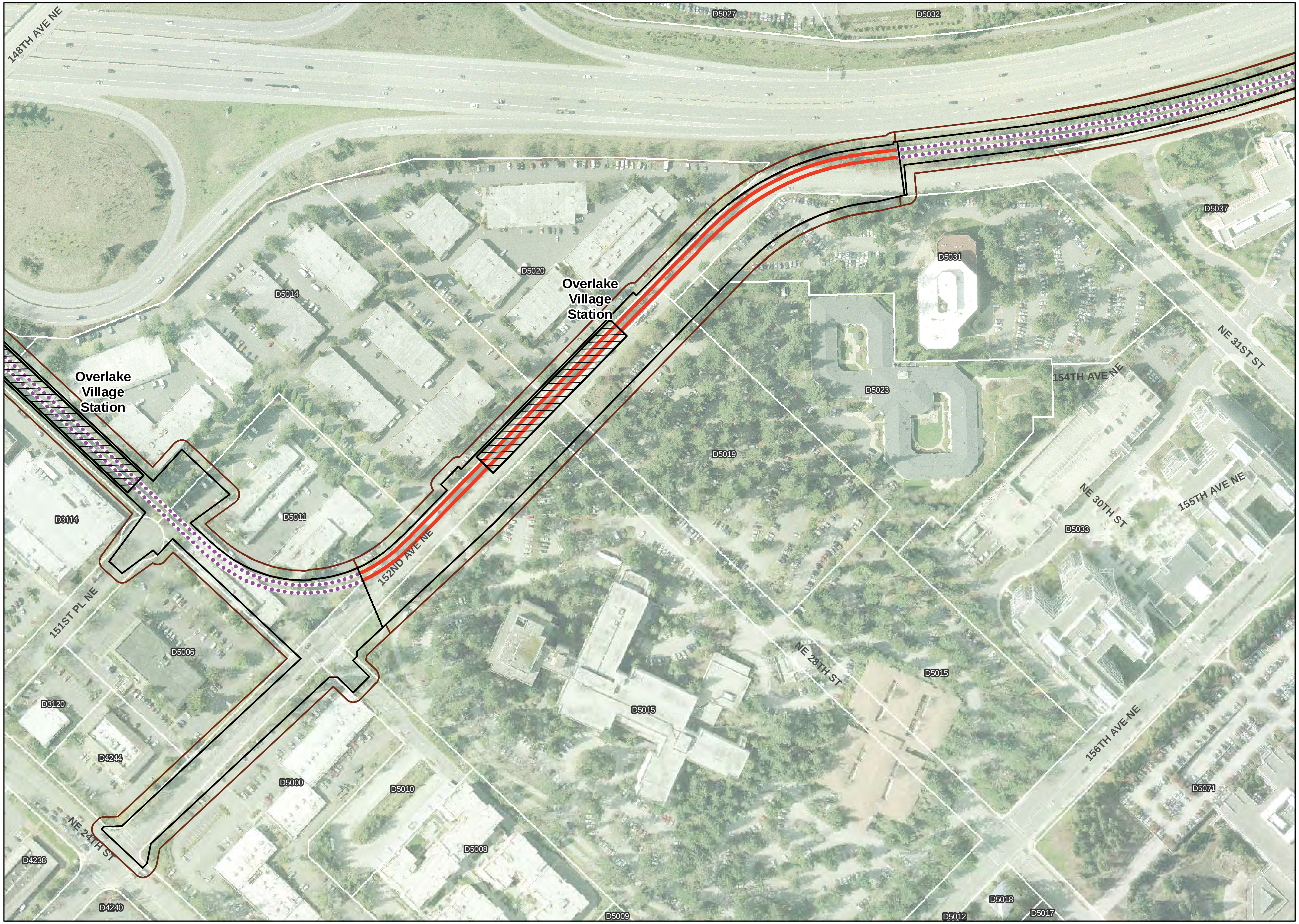
Exhibit F-95
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 6

East Link Project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D5027
D5032
D5037
D5031
D5020
D5014
Overlake Village Station
Overlake Village Station
154TH AVE NE
NE 31ST ST
D5023
D5019
D5011
D3114
152ND AVE NE
NE 30TH ST
155TH AVE NE
D5033
151ST PL NE
D5006
NE 28TH ST
D5015
D5015
D3120
D4244
D5000
D5010
156TH AVE NE
D5071
NE 24TH ST
D4238
D5008
D4240
D5009
D5018
D5012
D5017

- ▬ At-Grade Route
- ┅ Elevated Route
- ●●● Retained-Cut Route
- ●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

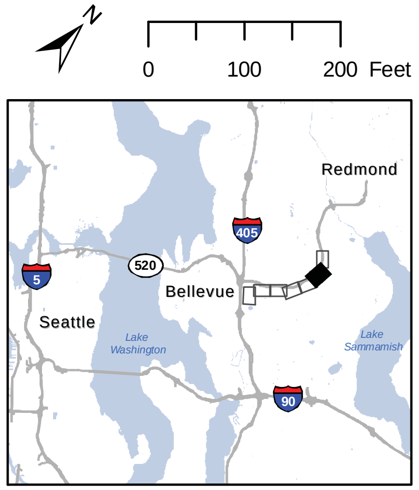
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ▬ Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
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Lake Washington
Lake Sammamish
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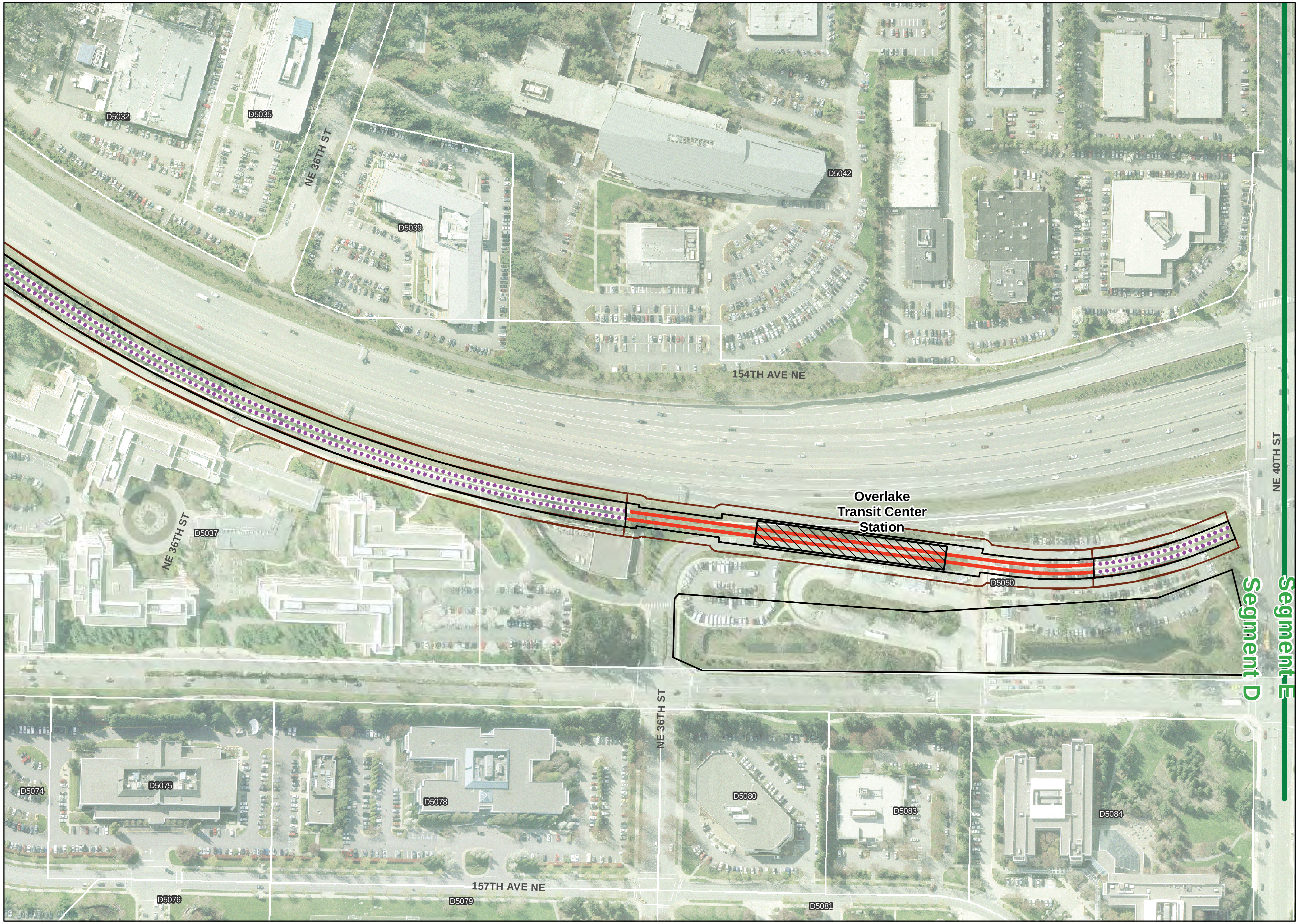

D5032
D5035
NE 36TH ST
D5039
D5042
154TH AVE NE
NE 40TH ST
Overlake
Transit Center
Station
D5037
NE 36TH ST
D5050
Segment D
Segment E
NE 36TH ST
D5074
D5075
D5078
D5080
D5083
D5084
157TH AVE NE
D5076
D5079
D5081

Exhibit F-96
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative D5
Sheet 7
East Link Project

- 🟥 At-Grade Route
- ▬ ▬ Elevated Route
- ● ● ● ● Retained-Cut Route
- ● ● ● ● Retained-Fill Route
- ▬ ▬ Tunnel Route

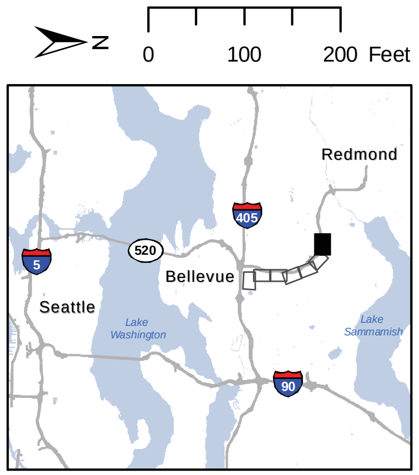
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ▬ Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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0
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200 Feet
Redmond
405
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520
Bellevue
Seattle
Lake Washington
Lake Sammamish
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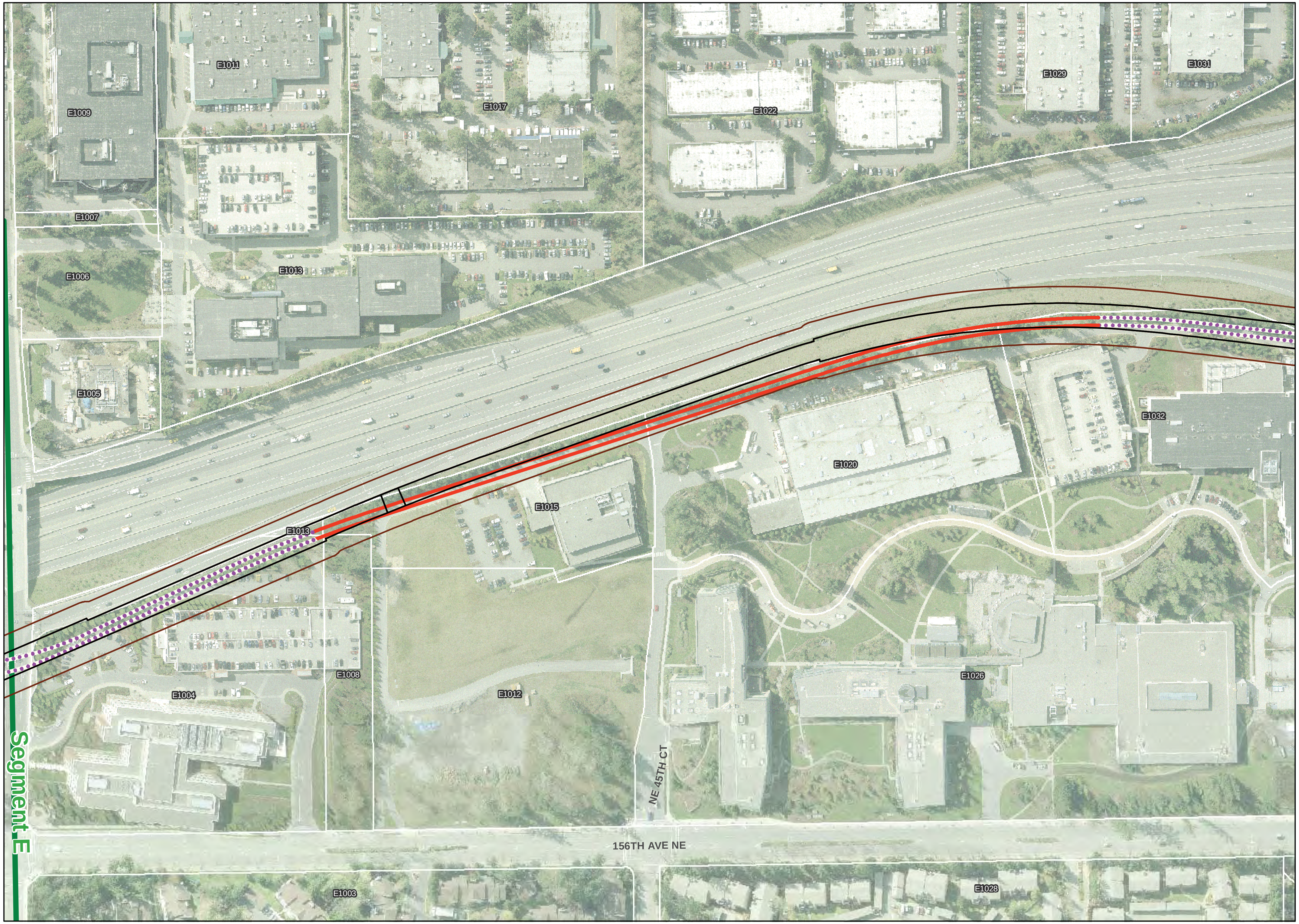
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E1013
E1008
E1004
E1012
E1026
NE 45TH CT
156TH AVE NE
E1003
E1028
Segment E

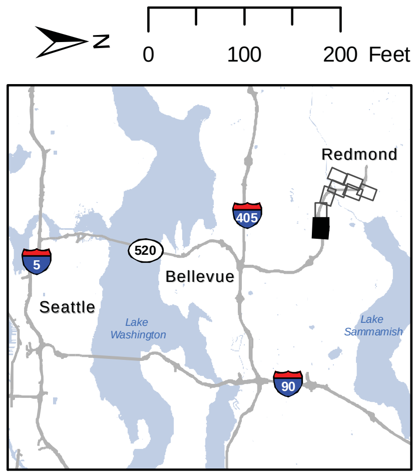
Exhibit F-97
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 1
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint
- ROW
- Park and Ride

Construction Footprint
- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
Seattle
Lake Washington
Lake Sammamish
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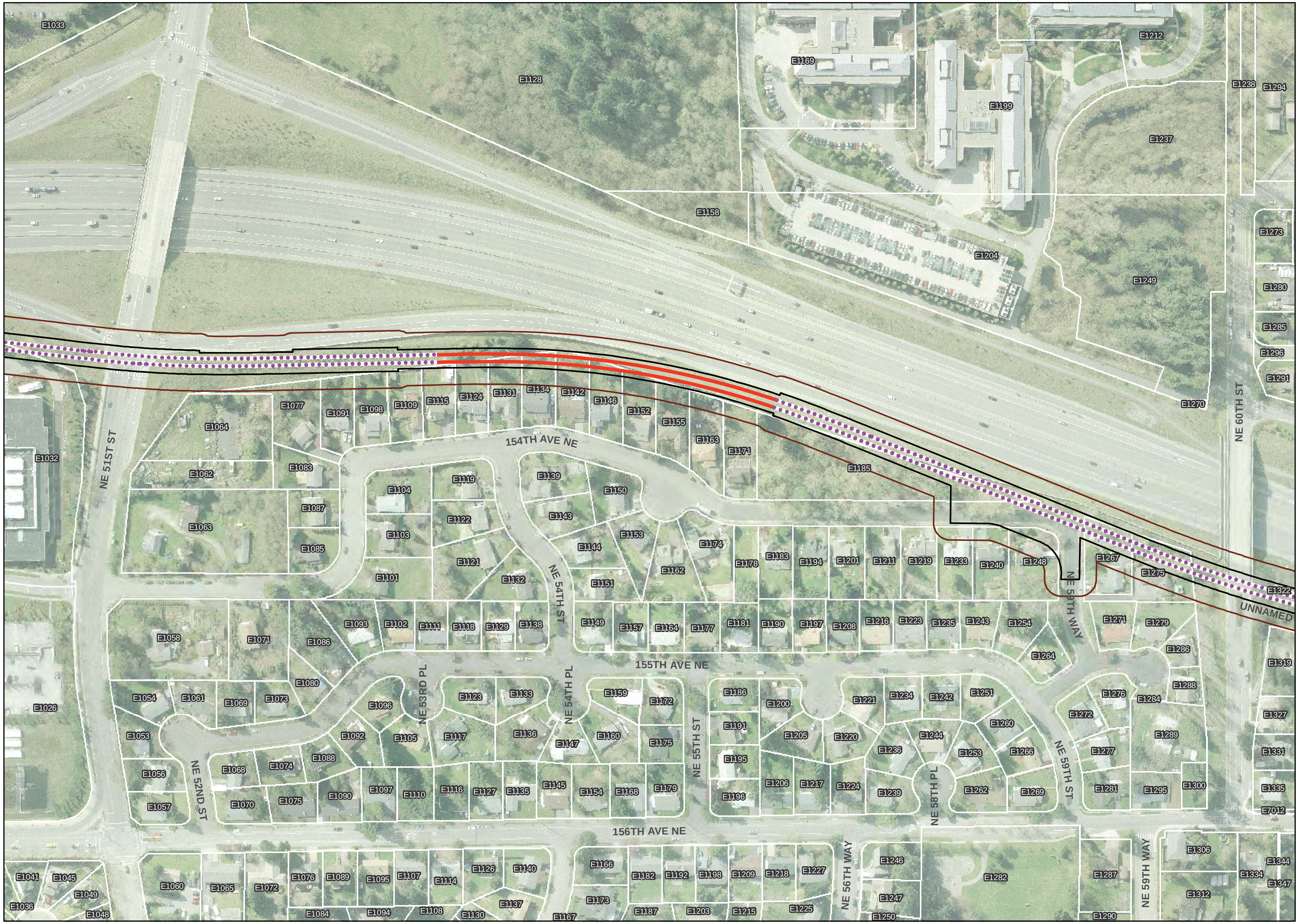
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NE 60TH ST
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155TH AVE NE
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NE 54TH PL
NE 55TH ST
NE 52ND ST
NE 58TH PL
NE 59TH ST
156TH AVE NE
NE 56TH WAY
NE 59TH WAY

Exhibit F-98
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 2

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

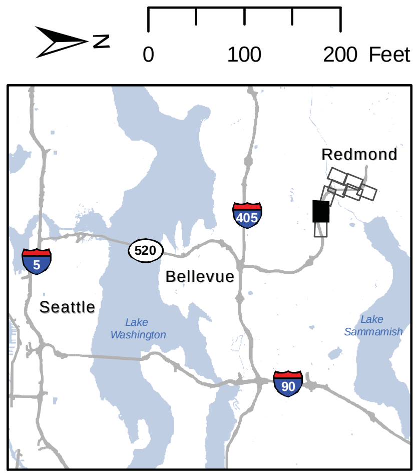
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Lake Washington
Lake Sammamish
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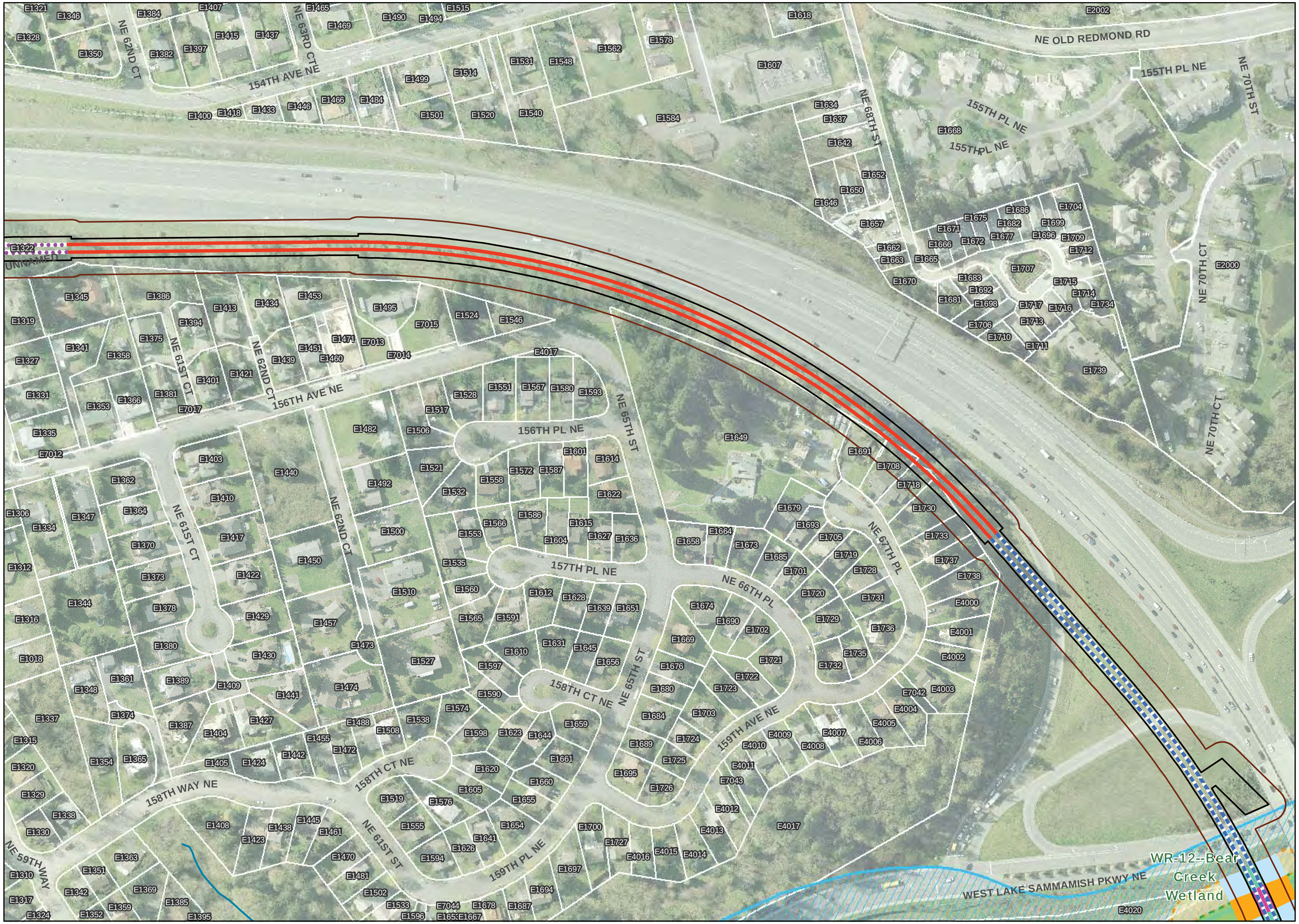
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NE 68TH ST
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NE 70TH CT
NE 70TH CT
UNNAMED
NE 61ST CT
NE 62ND CT
156TH AVE NE
156TH PL NE
NE 65TH ST
NE 61ST CT
NE 62ND CT
157TH PL NE
NE 66TH PL
NE 67TH PL
158TH CT NE
NE 65TH ST
159TH AVE NE
158TH CT NE
158TH WAY NE
NE 61ST ST
159TH PL NE
NE 59TH WAY
WEST LAKE SAMMAMISH PKWY NE
WR-12--Bear Creek Wetland

Exhibit F-99
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 3
East Link Project

- 🟥 At-Grade Route
- ▬ Elevated Route
- ● Retained-Cut Route
- ● Retained-Fill Route
- ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ▬ Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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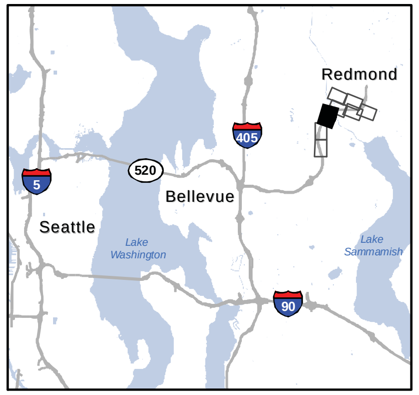
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Lake Washington
Lake Sammamish
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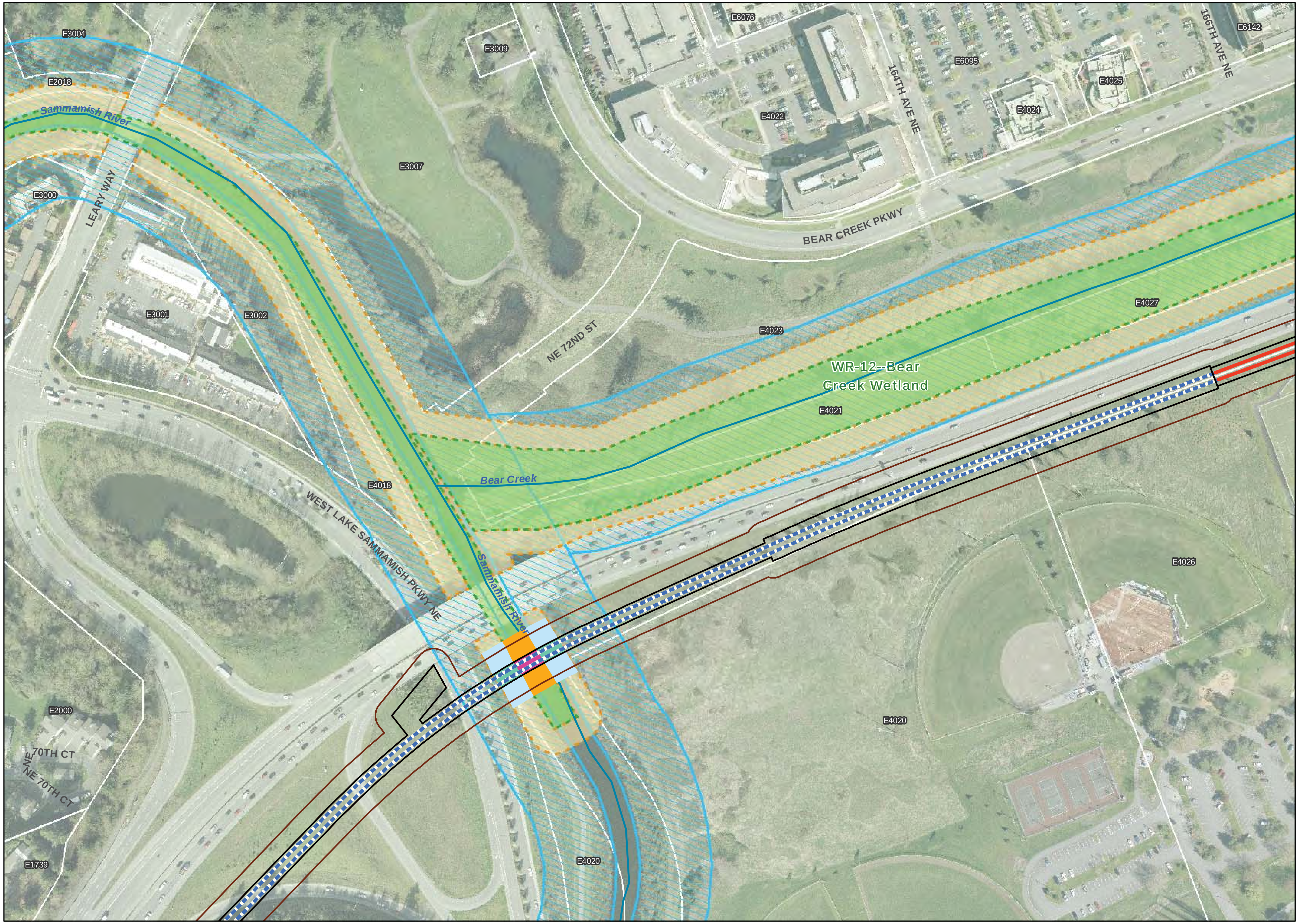
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E6095
E6142
E2018
Sammamish River
E3007
E4022
164TH AVE NE
E4025
E4024
166TH AVE NE
E3000
LEARY WAY
BEAR CREEK PKWY
E3001
E3002
NE 72ND ST
E4023
E4027
WR-12--Bear Creek Wetland
E4021
Bear Creek
E4018
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
E4026
E2000
E4020
70TH CT
NE 70TH CT
NE
E1739
E4020

Exhibit F-100
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 4
East Link Project

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Operational Footprint

ROW
Park and Ride

Construction Footprint

Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Lake Washington
Lake Sammamish
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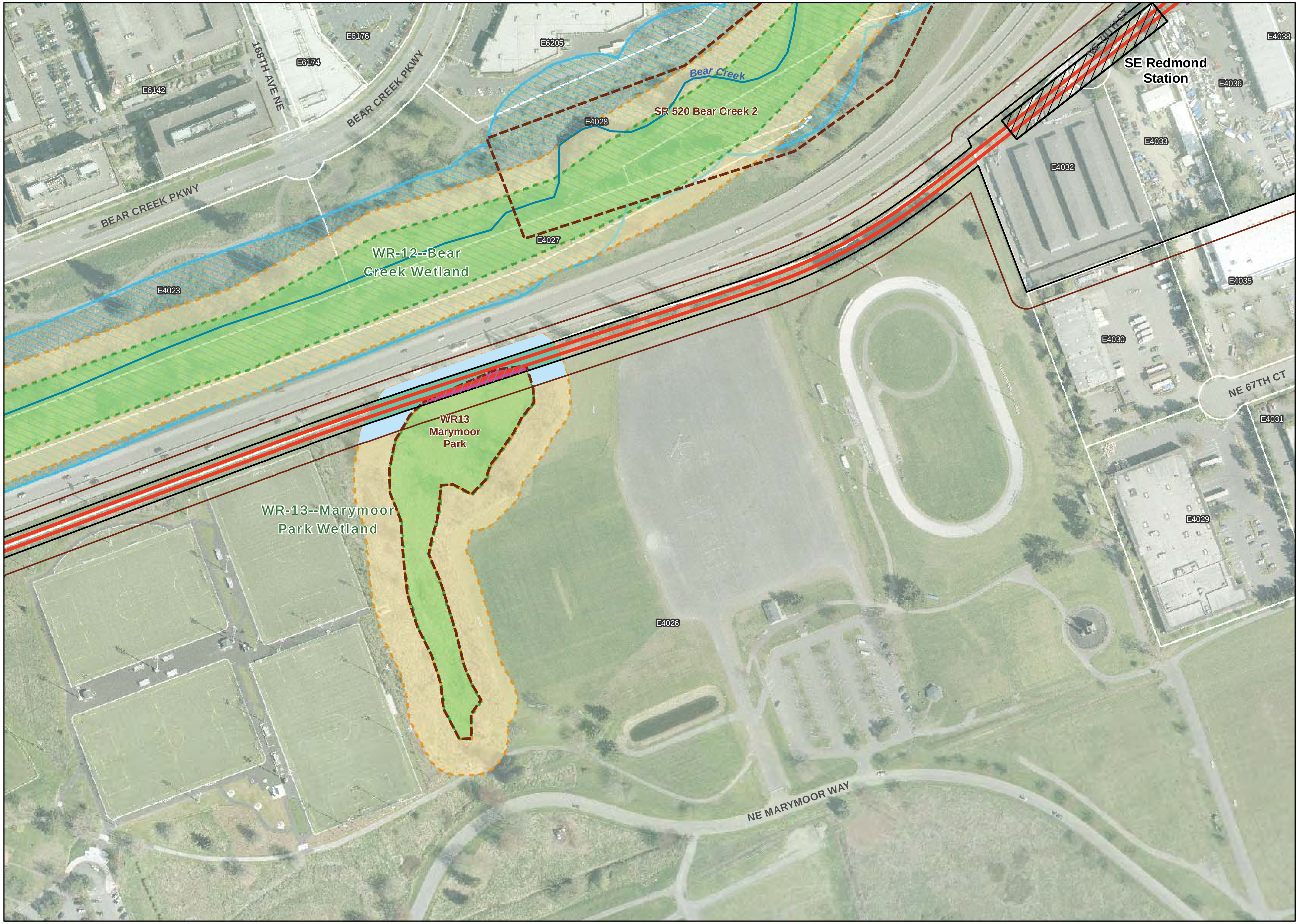
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E6205
E6174
E6142
168TH AVE NE
BEAR CREEK PKWY
BEAR CREEK PKWY
Bear Creek
SR 520 Bear Creek 2
E4028
E4027
NE 70TH ST
SE Redmond Station
E4038
E4036
E4033
E4032
E4035
E4030
NE 67TH CT
E4031
E4029
E4023
WR-12--Bear Creek Wetland
WR13 Marymoor Park
WR-13--Marymoor Park Wetland
E4026
NE MARYMOOR WAY

Exhibit F-101
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 5
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

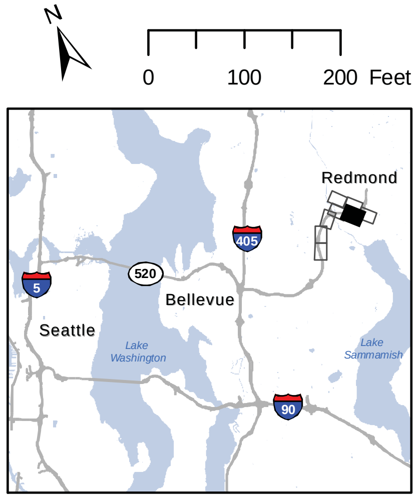
Operational Footprint

- ROW
- Park and Ride

Construction Footprint

- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
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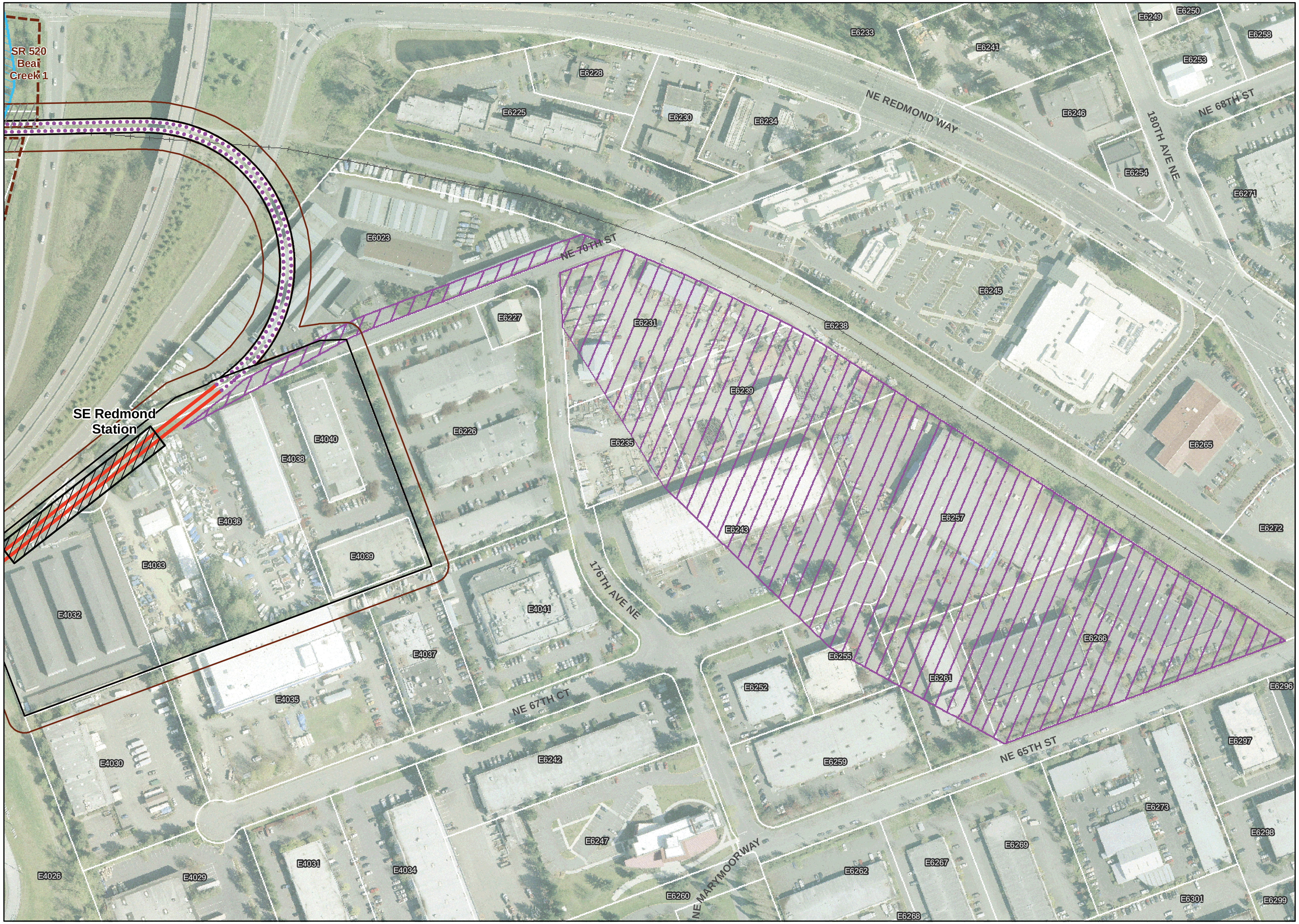
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Beaver Creek 1
SE Redmond Station
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NE 68TH ST
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176TH AVE NE
NE 67TH CT
NE 65TH ST
NE MARYMOOR WAY
E6233
E6249
E6250
E6258
E6241
E6253
E6228
E6225
E6230
E6234
E6246
E6254
E6271
E6023
E6227
E6231
E6238
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E6226
E6235
E6265
E4040
E4038
E4036
E4039
E4033
E4032
E6243
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E4041
E4037
E4035
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E6255
E6261
E6252
E6296
E6297
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E6247
E6269
E4031
E4034
E6262
E6267
E4026
E4029
E6260
E6268
E6301
E6299

Exhibit F-102
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 6

East Link Project

━ At-Grade Route
┅ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

Operational Footprint

▭ ROW
▭ Park and Ride

Construction Footprint

▭ Construction Footprint
▭ Staging Area
▨ Station
▨ Maintenance Facility
■ Wetland
■ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
■ Operational Wetland Impact
■ Construction Wetland Impact
■ Operational Wetland Buffer Impact
■ Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Seattle
Lake Washington
Lake Sammamish
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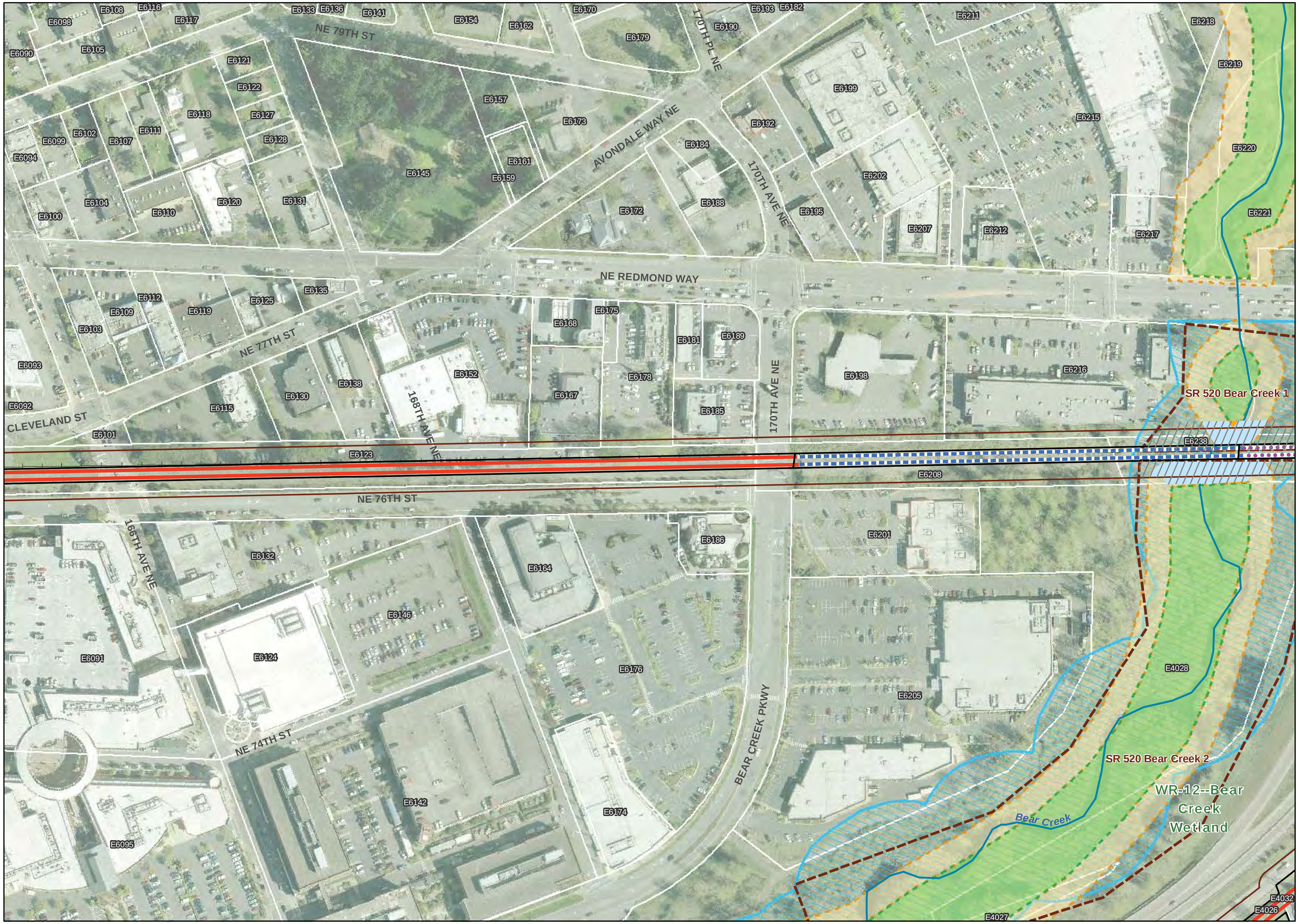
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E6162
E6170
170TH PL NE
E6179
E6190
E6193
E6182
E6211
E6218
E6090
E6105
E6121
E6122
E6118
E6127
E6111
E6128
E6102
E6099
E6107
E6094
E6145
E6157
E6161
E6159
E6173
AVONDALE WAY NE
E6184
E6192
E6199
E6215
E6219
E6220
E6104
E6120
E6131
E6110
E6100
E6172
E6188
170TH AVE NE
E6195
E6202
E6207
E6212
E6217
E6221
NE REDMOND WAY
E6112
E6125
E6135
E6109
E6119
E6103
NE 77TH ST
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E6181
E6189
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E6138
E6152
E6130
E6178
E6167
E6198
E6216
E6092
E6115
168TH AVE NE
E6185
170TH AVE NE
CLEVELAND ST
E6101
E6123
SR 520 Bear Creek 1
E6238
E6208
NE 76TH ST
166TH AVE NE
E6186
E6201
E6132
E6164
E6146
E6091
E6124
E6176
E4028
E6205
BEAR CREEK PKWY
NE 74TH ST
SR 520 Bear Creek 2
WR-12--Bear Creek Wetland
Bear Creek
E6142
E6174
E6095
E4027
E4032
E4026

Exhibit F-103
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 7
East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

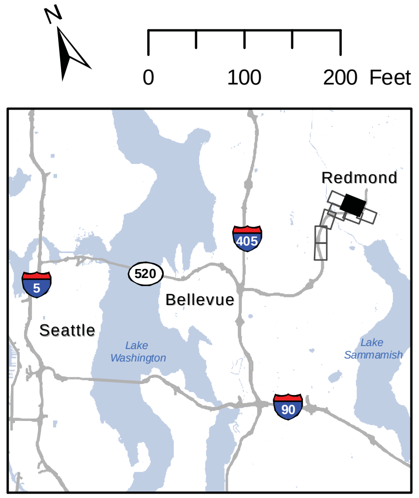
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Lake Washington
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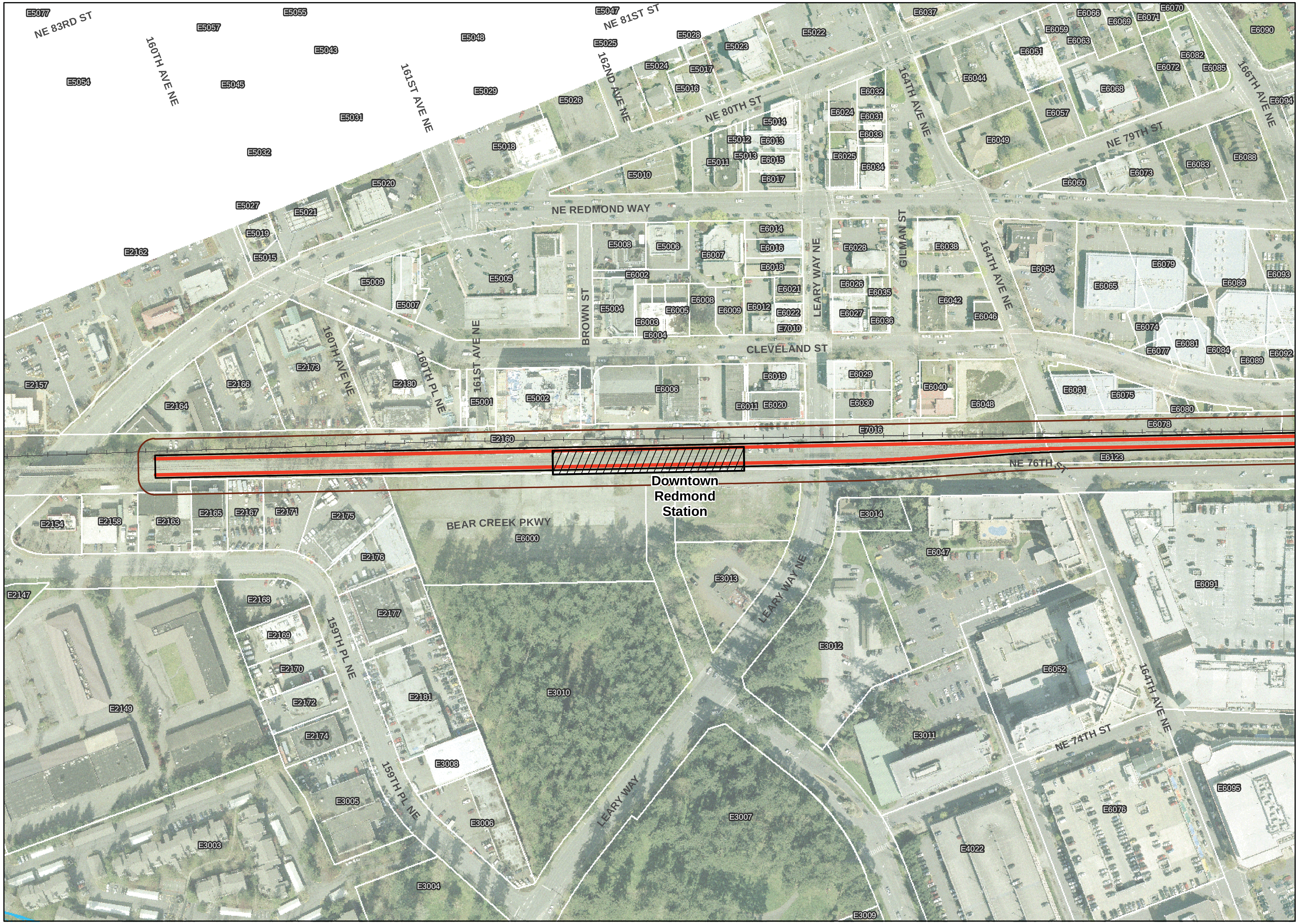
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162ND AVE NE
NE 81ST ST
NE 80TH ST
164TH AVE NE
NE 79TH ST
166TH AVE NE
NE REDMOND WAY
BROWN ST
LEARY WAY NE
GILMAN ST
CLEVELAND ST
160TH PL NE
161ST AVE NE
NE 76TH ST
Downtown Redmond Station
BEAR CREEK PKWY
159TH PL NE
LEARY WAY
NE 74TH ST

Exhibit F-104
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2
Sheet 8
East Link Project

- ▬ At-Grade Route
- ‒ ‒ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- /// Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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Redmond
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Seattle
Lake Washington
Lake Sammamish
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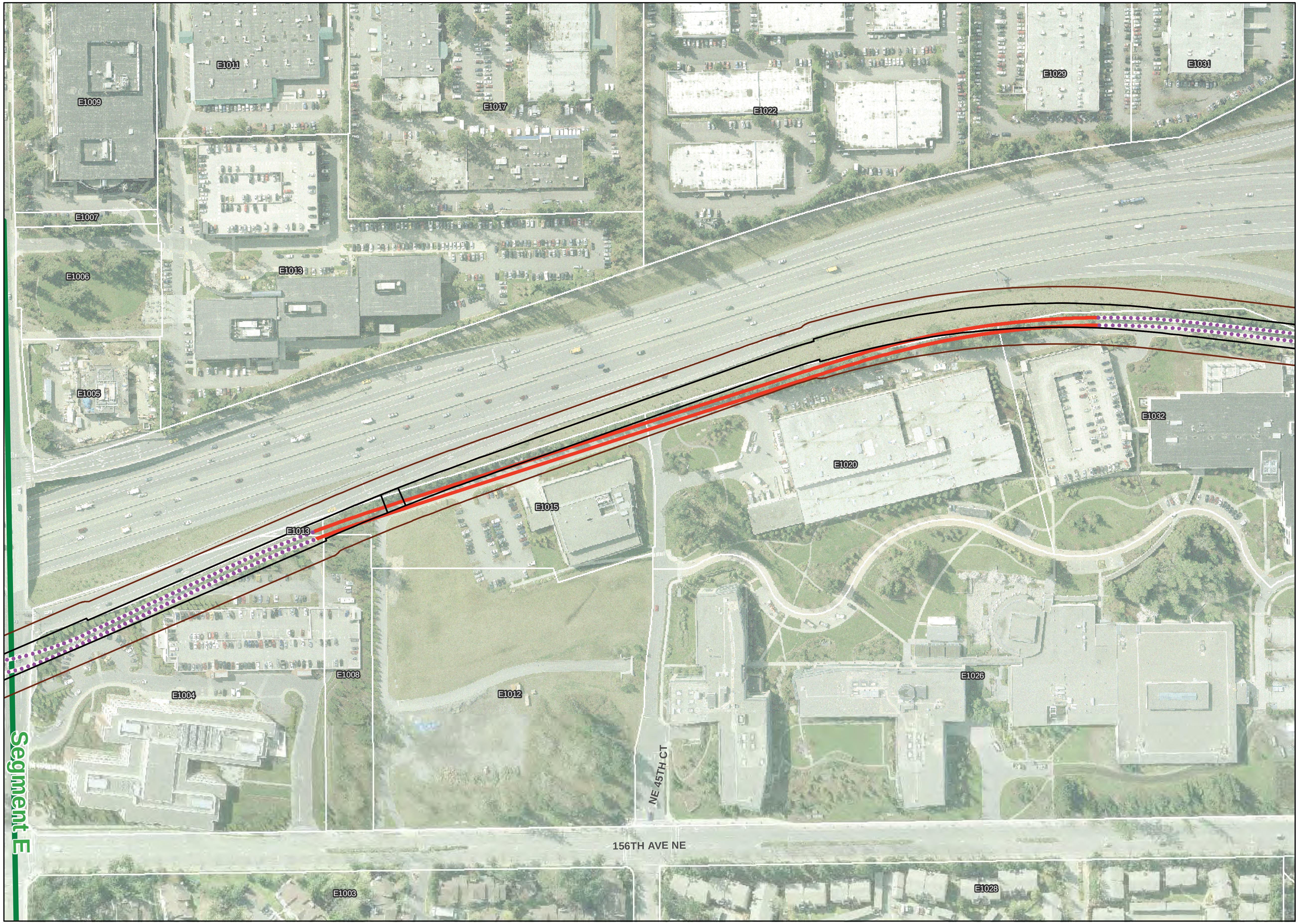
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E1008
E1004
E1012
E1026
NE 45TH CT
156TH AVE NE
E1003
E1028
Segment E

Exhibit F-105
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 1
East Link Project

━ At-Grade Route
┅ Elevated Route
●●●● Retained-Cut Route
●●●● Retained-Fill Route
▬ ▬ Tunnel Route

Operational Footprint

▭ ROW
▭ Park and Ride

Construction Footprint

▭ Construction Footprint
▭ Staging Area
▨ Station
▨ Maintenance Facility
■ Wetland
■ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
■ Operational Wetland Impact
■ Construction Wetland Impact
■ Operational Wetland Buffer Impact
■ Construction Wetland Buffer Impact
▨ Wetland Mitigation Impact
▨ Stream Buffer
━ Open Channel
━ Piped Stream
▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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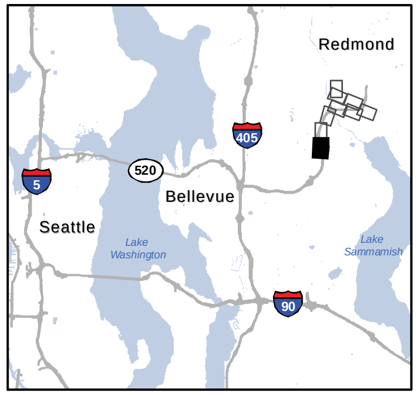
Redmond
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Bellevue
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Seattle
Lake Washington
Lake Sammamish
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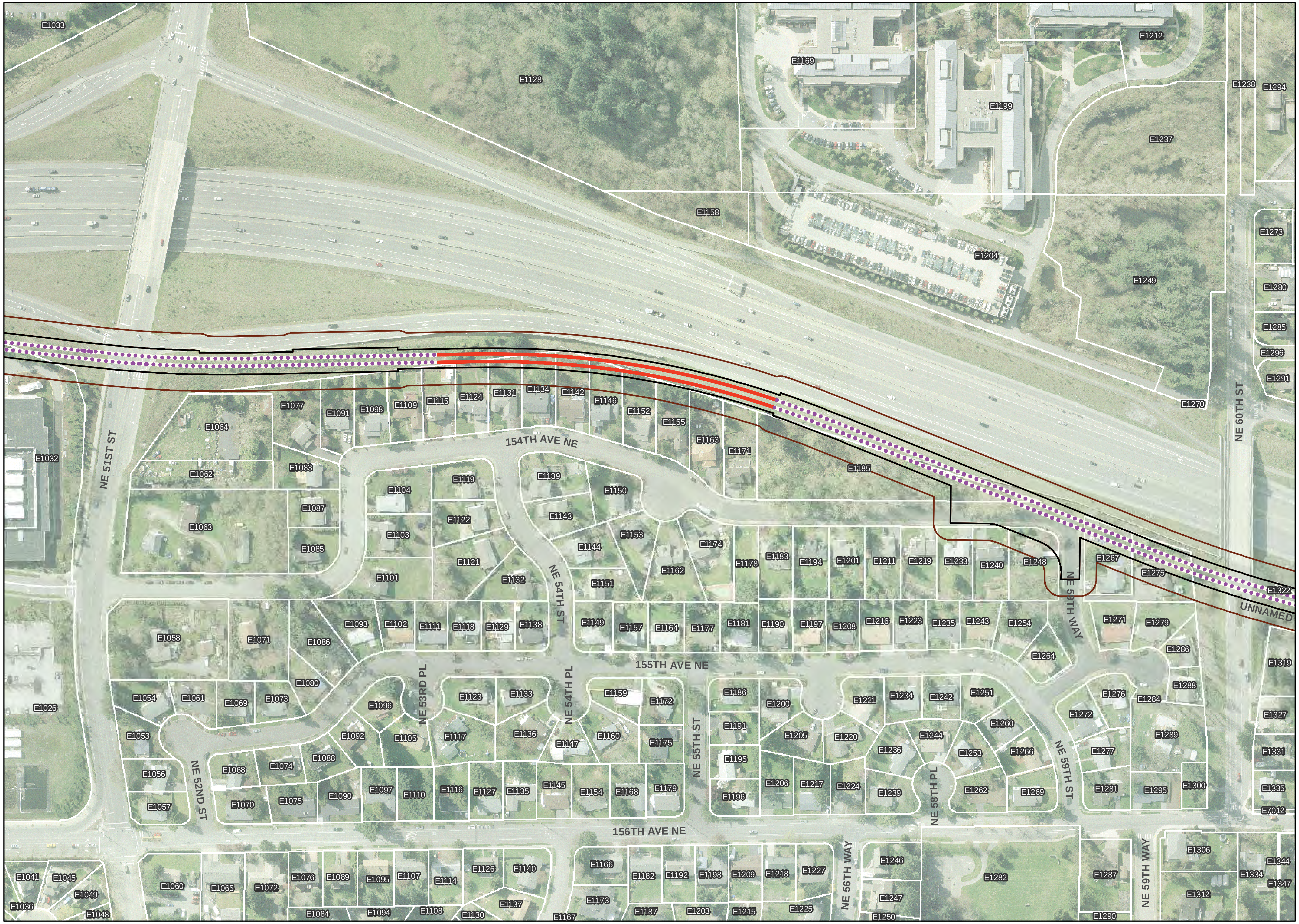
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E1285
E1296
E1291
E1270
NE 60TH ST
E1077
E1091
E1098
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E1124
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E1064
E1163
E1171
154TH AVE NE
E1032
NE 51ST ST
E1185
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E1062
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E1104
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E1122
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E1177
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E1190
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NE 55TH ST
NE 52ND ST
E1206
E1217
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E1173
E1187
E1203
E1215
E1225
E1247
E1250
E1290
E1312

Exhibit F-106 Wetland, Wetland Buffer, and Wetland Mitigation Impacts Alternative E2 Redmond Transit Center Design Option Sheet 2

East Link Project

▬	At-Grade Route
┅	Elevated Route
●●●●	Retained-Cut Route
●●●●	Retained-Fill Route
▬ ▬	Tunnel Route

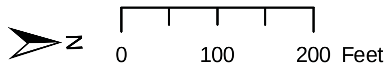
Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
■	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
■	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
■	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
―	Open Channel
―	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)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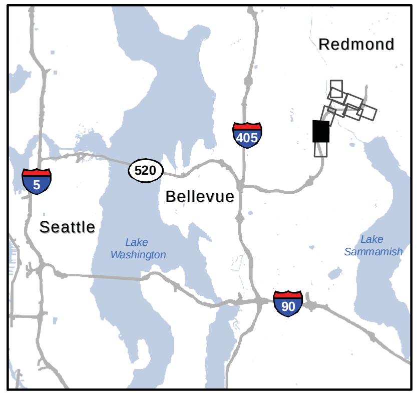
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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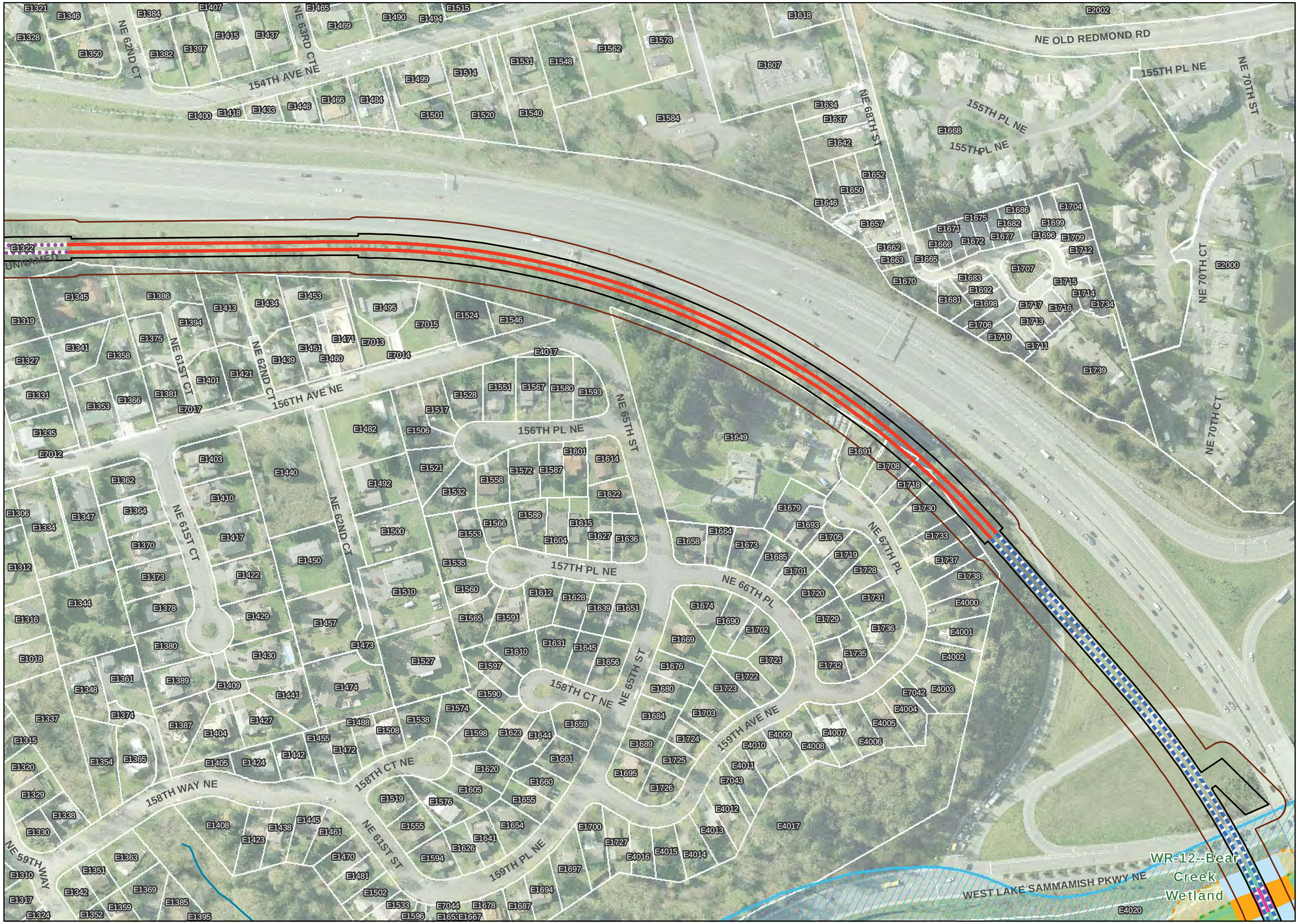
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NE 62ND CT
NE 63RD CT
NE 68TH ST
155TH PL NE
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155TH PL NE
NE 70TH ST
NE 70TH CT
NE 70TH CT
UNNAMED
156TH AVE NE
NE 61ST CT
NE 62ND CT
NE 65TH ST
156TH PL NE
NE 61ST CT
NE 62ND CT
157TH PL NE
NE 66TH PL
NE 67TH PL
158TH CT NE
NE 65TH ST
159TH AVE NE
158TH CT NE
158TH WAY NE
NE 61ST ST
159TH PL NE
NE 59TH WAY
WEST LAKE SAMMAMISH PKWY NE
WR-12--Bear Creek Wetland

Exhibit F-107
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 3
East Link Project

- ━ At-Grade Route
- ┅ Elevated Route
- ••• Retained-Cut Route
- ••• Retained-Fill Route
- ╍ Tunnel Route

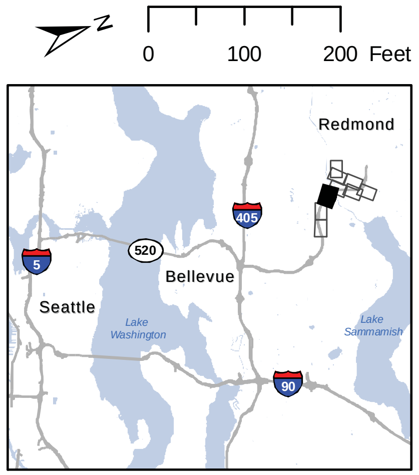
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ─ Open Channel
- ─ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Bellevue
Seattle
Lake Washington
Lake Sammamish
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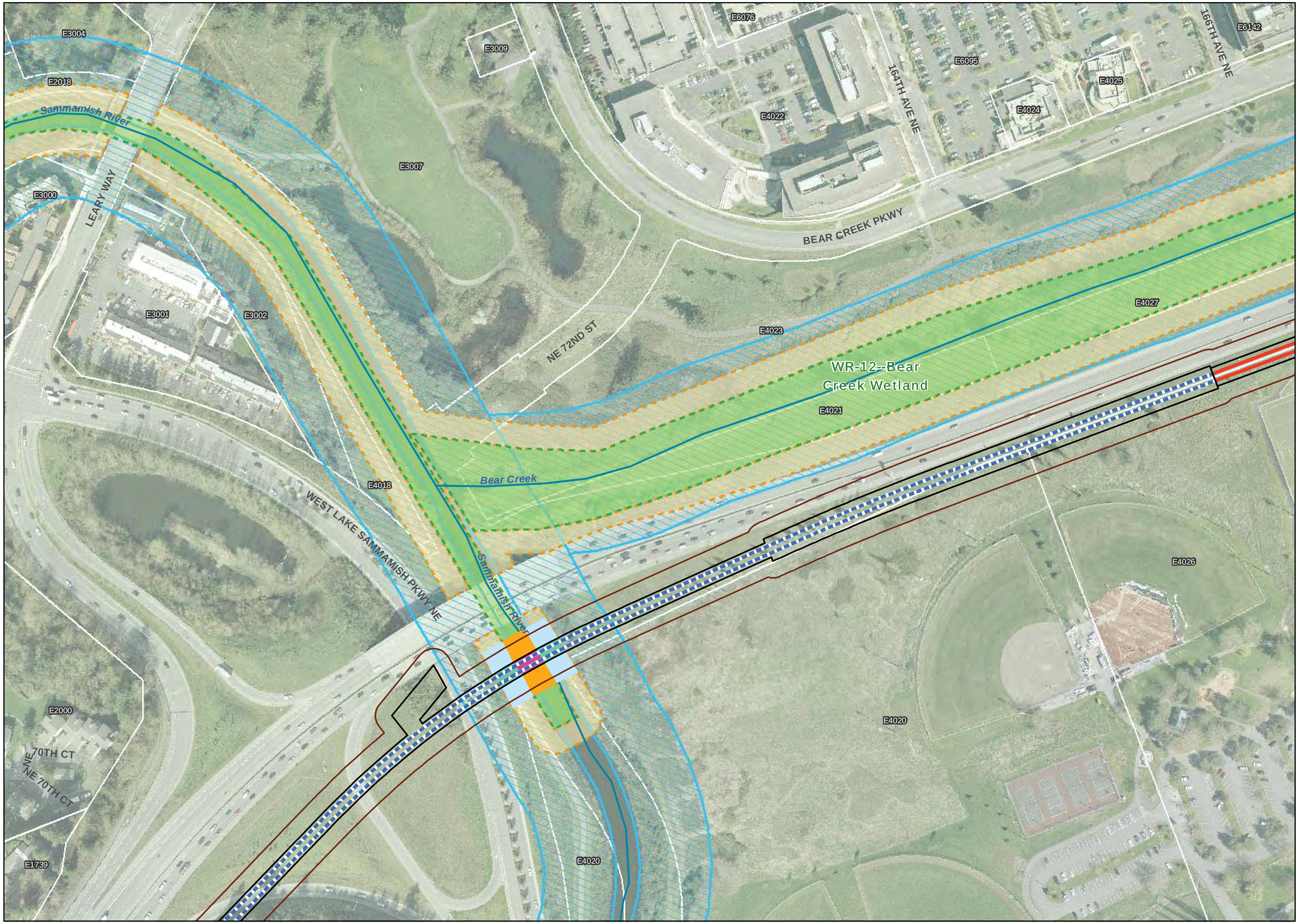
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E6076
E6142
E2018
Sammamish River
E6095
E4025
E4022
E4024
164TH AVE NE
166TH AVE NE
E3007
E3000
LEARY WAY
BEAR CREEK PKWY
E3001
E3002
NE 72ND ST
E4023
E4027
WR-12--Bear Creek Wetland
E4021
Bear Creek
E4018
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
E4026
E2000
E4020
70TH CT
NE 70TH CT
E1739
E4020

Exhibit F-108
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 4
East Link Project

🟥 At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

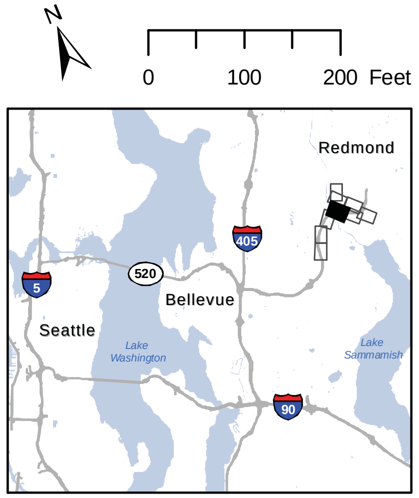
Operational Footprint

ROW
Park and Ride

Construction Footprint

Construction Footprint
Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
Open Channel
Piped Stream
Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
Lake Sammamish
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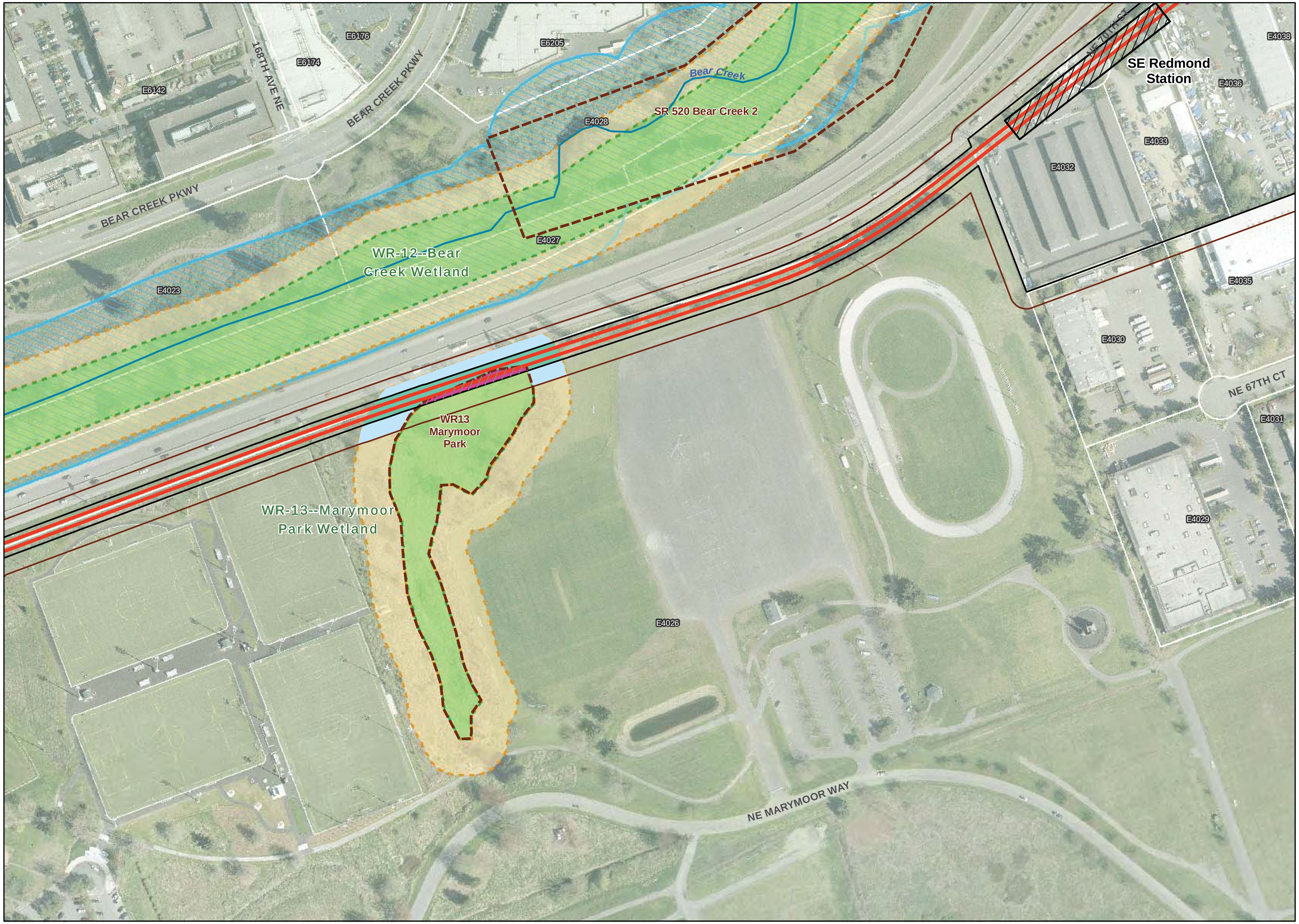
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E6205
E6174
E6142
168TH AVE NE
BEAR CREEK PKWY
BEAR CREEK PKWY
Bear Creek
E4028
SR 520 Bear Creek 2
E4027
WR-12--Bear Creek Wetland
E4023
WR13 Marymoor Park
WR-13--Marymoor Park Wetland
E4026
NE MARYMOOR WAY
NE 70TH ST
SE Redmond Station
E4038
E4036
E4033
E4032
E4035
E4030
NE 67TH CT
E4031
E4029

Exhibit F-109
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 5

East Link Project

— At-Grade Route
- - Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
- - Tunnel Route

Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
▭ Wetland Buffer
▭ Wetland Mitigation Site (WSDOT)
■ Operational Wetland Impact
🟧 Construction Wetland Impact
■ Operational Wetland Buffer Impact
■ Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

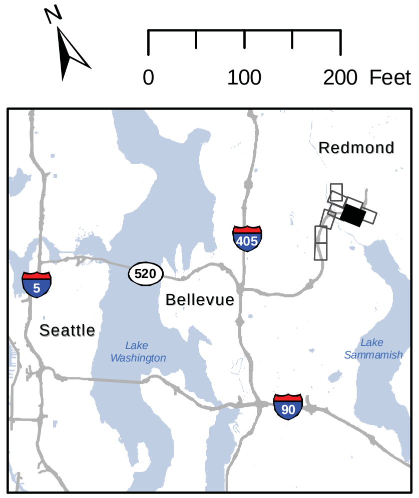
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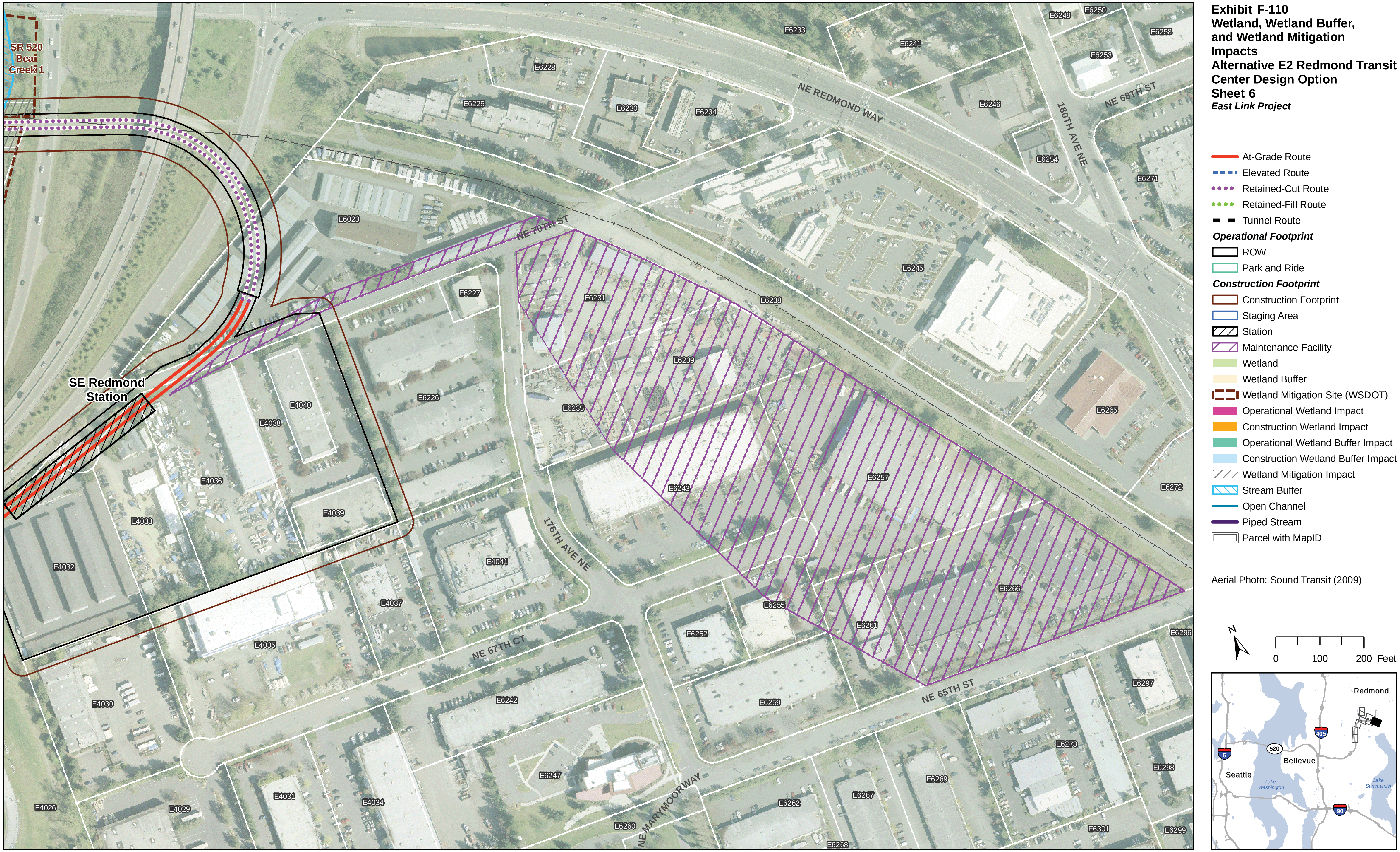
Exhibit F-110
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 6

East Link Project


SR 520 Bear Creek 1
SE Redmond Station
NE REDMOND WAY
NE 70TH ST
NE 68TH ST
180TH AVE NE
176TH AVE NE
NE 67TH CT
NE 65TH ST
NE MARYMOOR WAY
E6233
E6249
E6250
E6258
E6241
E6253
E6228
E6225
E6230
E6234
E6246
E6254
E6271
E6023
E6245
E6227
E6231
E6238
E6239
E6226
E6235
E6265
E4040
E4038
E6257
E6243
E6272
E4036
E4039
E4033
E4032
E4041
E6266
E4037
E6255
E6261
E6252
E6296
E4035
E6242
E6259
E6297
E4030
E6273
E6298
E6247
E6269
E4026
E4029
E4031
E4034
E6262
E6267
E6260
E6268
E6301
E6299
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Operational Footprint
ROW
Park and Ride
Construction Footprint
Construction Footprint
Staging Area
Station
Maintenance Facility
Wetland
Wetland Buffer
Wetland Mitigation Site (WSDOT)
Operational Wetland Impact
Construction Wetland Impact
Operational Wetland Buffer Impact
Construction Wetland Buffer Impact
Wetland Mitigation Impact
Stream Buffer
Open Channel
Piped Stream
Parcel with MapID
Aerial Photo: Sound Transit (2009)
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Bellevue
Seattle
Lake Washington
Lake Sammamish

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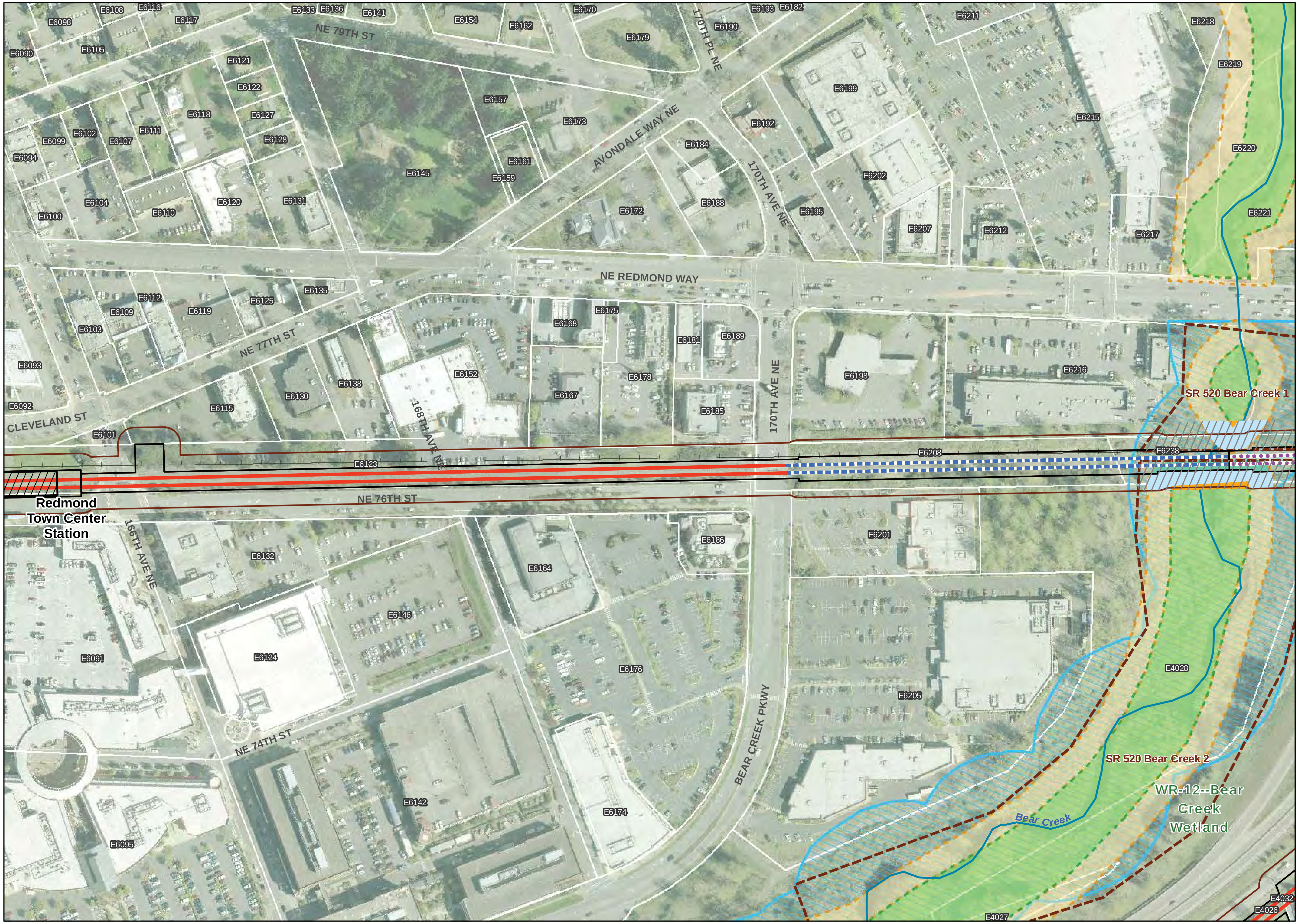
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E6193
E6182
E6211
E6218
E6098
E6117
E6154
E6162
E6190
NE 79TH ST
170TH PL NE
E6179
E6090
E6105
E6121
E6122
E6157
E6199
E6219
E6118
E6127
E6173
E6192
E6215
E6099
E6102
E6107
E6111
E6128
AVONDALE WAY NE
E6184
E6094
E6161
E6159
E6145
170TH AVE NE
E6202
E6220
E6120
E6131
E6188
E6104
E6110
E6172
E6195
E6100
E6207
E6212
E6217
E6221
NE REDMOND WAY
E6112
E6125
E6135
E6109
E6119
E6175
E6168
E6189
E6103
E6181
NE 77TH ST
E6093
E6138
E6152
E6198
E6216
E6178
E6130
E6167
SR 520 Bear Creek 1
E6092
E6115
168TH AVE NE
E6185
170TH AVE NE
CLEVELAND ST
E6101
E6208
E6238
E6123
NE 76TH ST
Redmond Town Center Station
166TH AVE NE
E6186
E6201
E6132
E6164
E6146
E6091
E6124
E6176
E4028
E6205
BEAR CREEK PKWY
NE 74TH ST
SR 520 Bear Creek 2
WR-12--Bear Creek Wetland
E6142
E6174
Bear Creek
E6095
E4032
E4026
E4027

Exhibit F-111
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 7

East Link Project

- ▬ At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

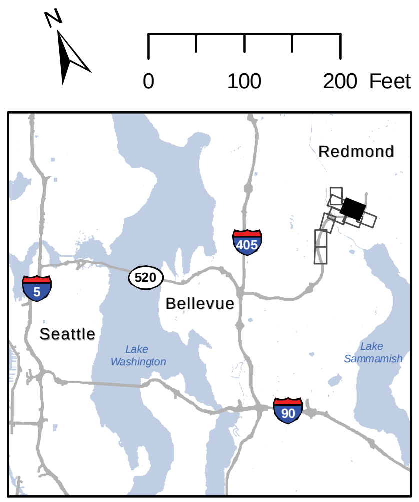
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
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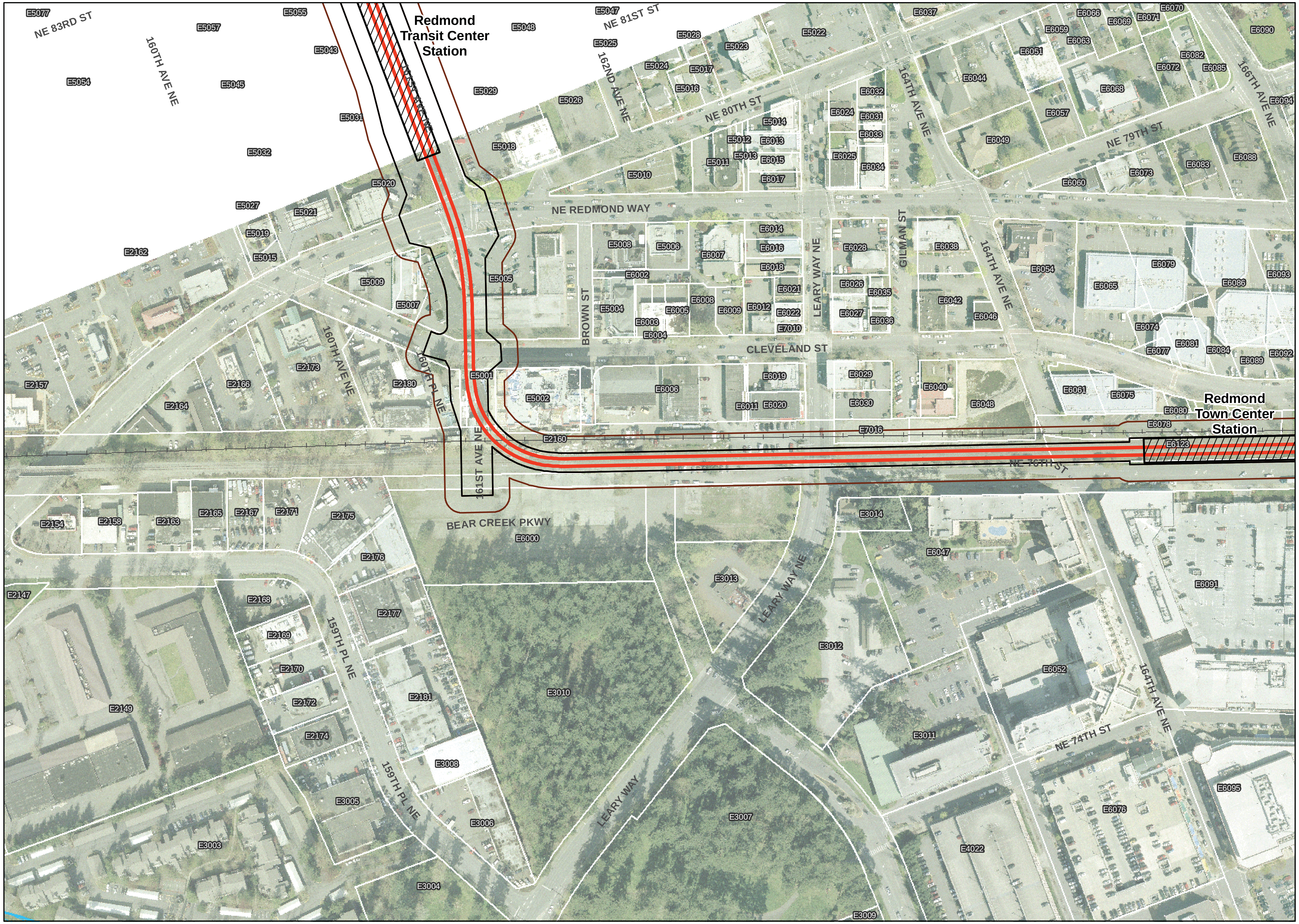
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Redmond Town Center Station
NE 83RD ST
160TH AVE NE
NE 81ST ST
162ND AVE NE
NE 80TH ST
164TH AVE NE
166TH AVE NE
NE 79TH ST
NE REDMOND WAY
BROWN ST
LEARY WAY NE
GILMAN ST
CLEVELAND ST
160TH PL NE
161ST AVE NE
NE 76TH ST
BEAR CREEK PKWY
159TH PL NE
LEARY WAY
NE 74TH ST
E5077
E5055
E5057
E5043
E5048
E5047
E5025
E5028
E5023
E5022
E6037
E6066
E6069
E6071
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E6090
E5054
E5045
E5029
E5024
E5017
E5016
E5026
E6059
E6063
E6051
E6082
E6072
E6085
E6044
E6068
E6094
E5031
E5032
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E5014
E5012
E6013
E5011
E5013
E6015
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E6014
E6016
E6028
E6038
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E6086
E5009
E5005
E6002
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E6026
E6035
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E5004
E6005
E6008
E6009
E6012
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E6006
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E6076
E3003
E4022
E3004
E3009

Exhibit F-112
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 8

East Link Project

- ━ At-Grade Route
- ┅ Elevated Route
- ⋯ Retained-Cut Route
- ⋯ Retained-Fill Route
- ╍ Tunnel Route

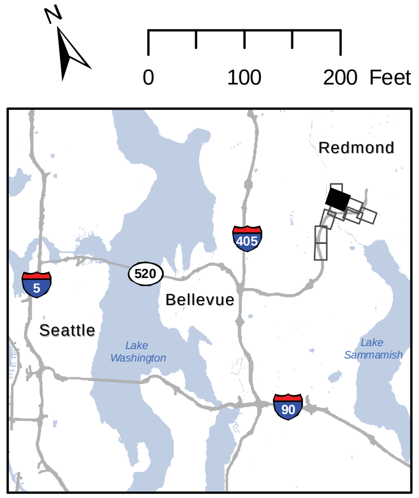
Operational Footprint

- ▭ ROW
- ▭ Park and Ride

Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- 🟨 Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ━ Open Channel
- ━ Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Seattle
Lake Washington
Lake Sammamish
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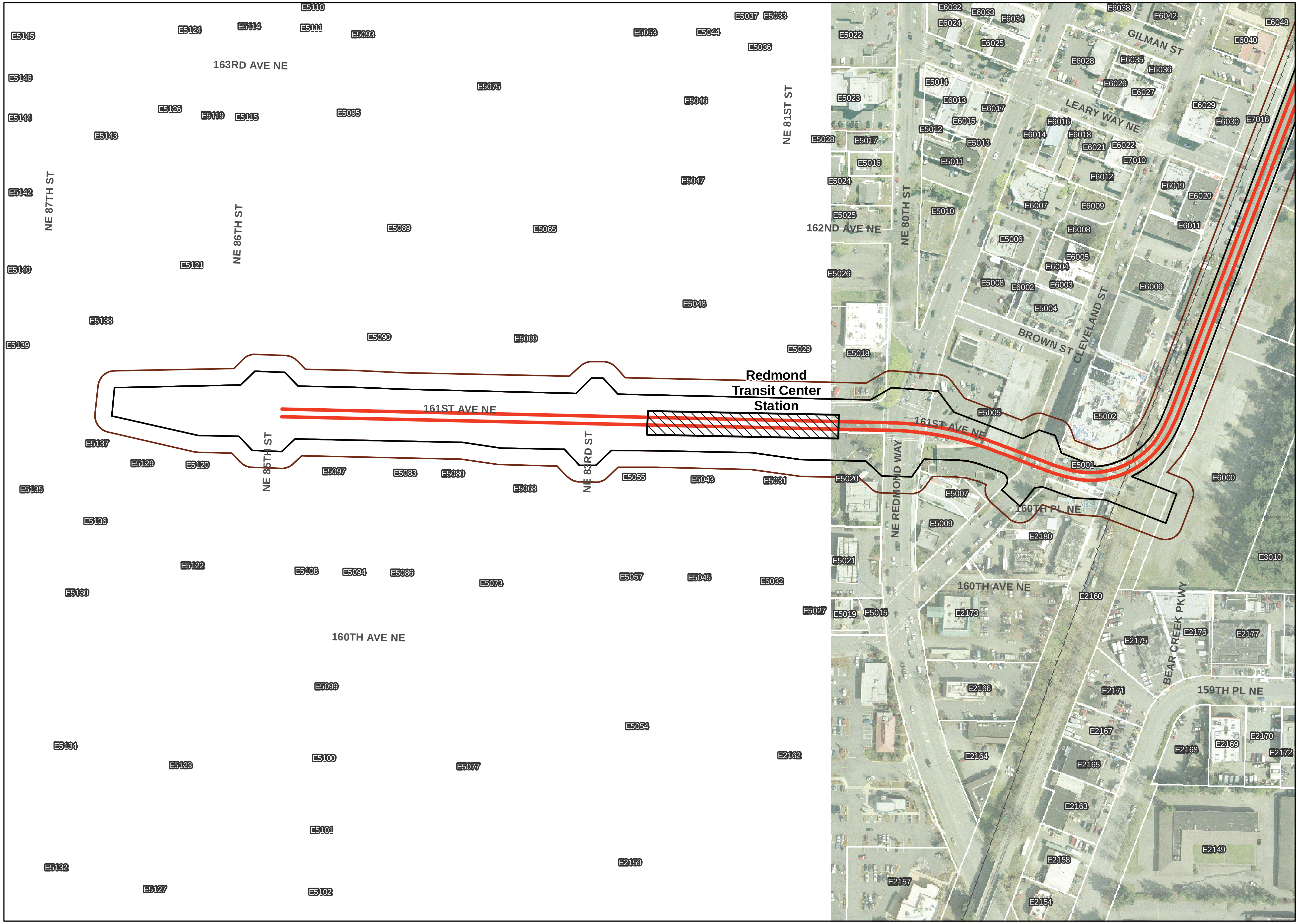
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162ND AVE NE
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E6003
E6006
E5048
E5004
CLEVELAND ST
E5138
BROWN ST
E5090
E5069
E5029
E5018
E5139
Redmond Transit Center Station
161ST AVE NE
E5005
E5002
161ST AVE NE
E5137
NE 85TH ST
NE 83RD ST
E5001
E5129
E5120
E5097
E5083
E5080
E5068
E5055
E5043
E5031
E5020
NE REDMOND WAY
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160TH PL NE
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E5015
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E2177
160TH AVE NE
E2175
E5099
E2166
E2171
159TH PL NE
E5054
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E5127
E5102
E2157
E2154

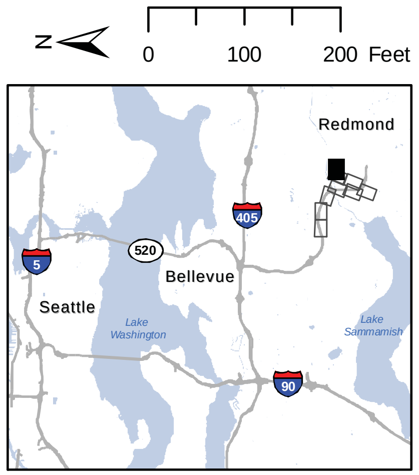
Exhibit F-113
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E2 Redmond Transit Center Design Option
Sheet 9
East Link Project

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Operational Footprint
- ROW
- Park and Ride

Construction Footprint
- Construction Footprint
- Staging Area
- Station
- Maintenance Facility
- Wetland
- Wetland Buffer
- Wetland Mitigation Site (WSDOT)
- Operational Wetland Impact
- Construction Wetland Impact
- Operational Wetland Buffer Impact
- Construction Wetland Buffer Impact
- Wetland Mitigation Impact
- Stream Buffer
- Open Channel
- Piped Stream
- Parcel with MapID

Aerial Photo: Sound Transit (2009)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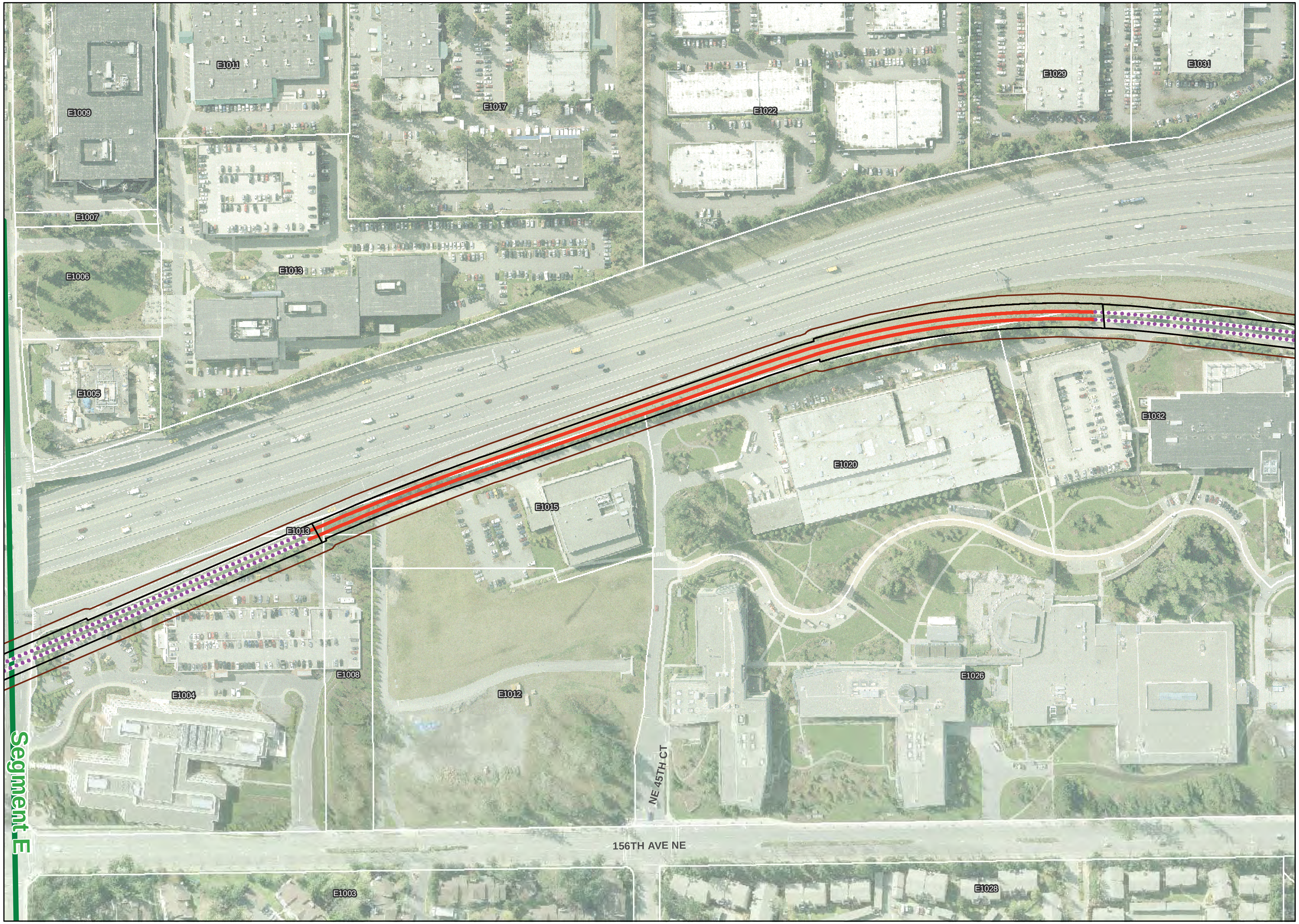
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E1013
E1008
E1004
E1012
E1026
NE 45TH CT
156TH AVE NE
E1003
E1028
Segment E

Exhibit F-114
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 1
East Link Project

▬	At-Grade Route
▬ ▬	Elevated Route
• • • •	Retained-Cut Route
• • • •	Retained-Fill Route
▬ ▬	Tunnel Route

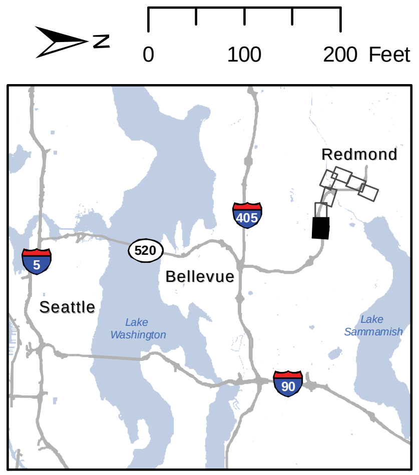
Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
■	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
■	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
■	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
—	Open Channel
▬	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)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100
200 Feet
Redmond
405
520
5
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

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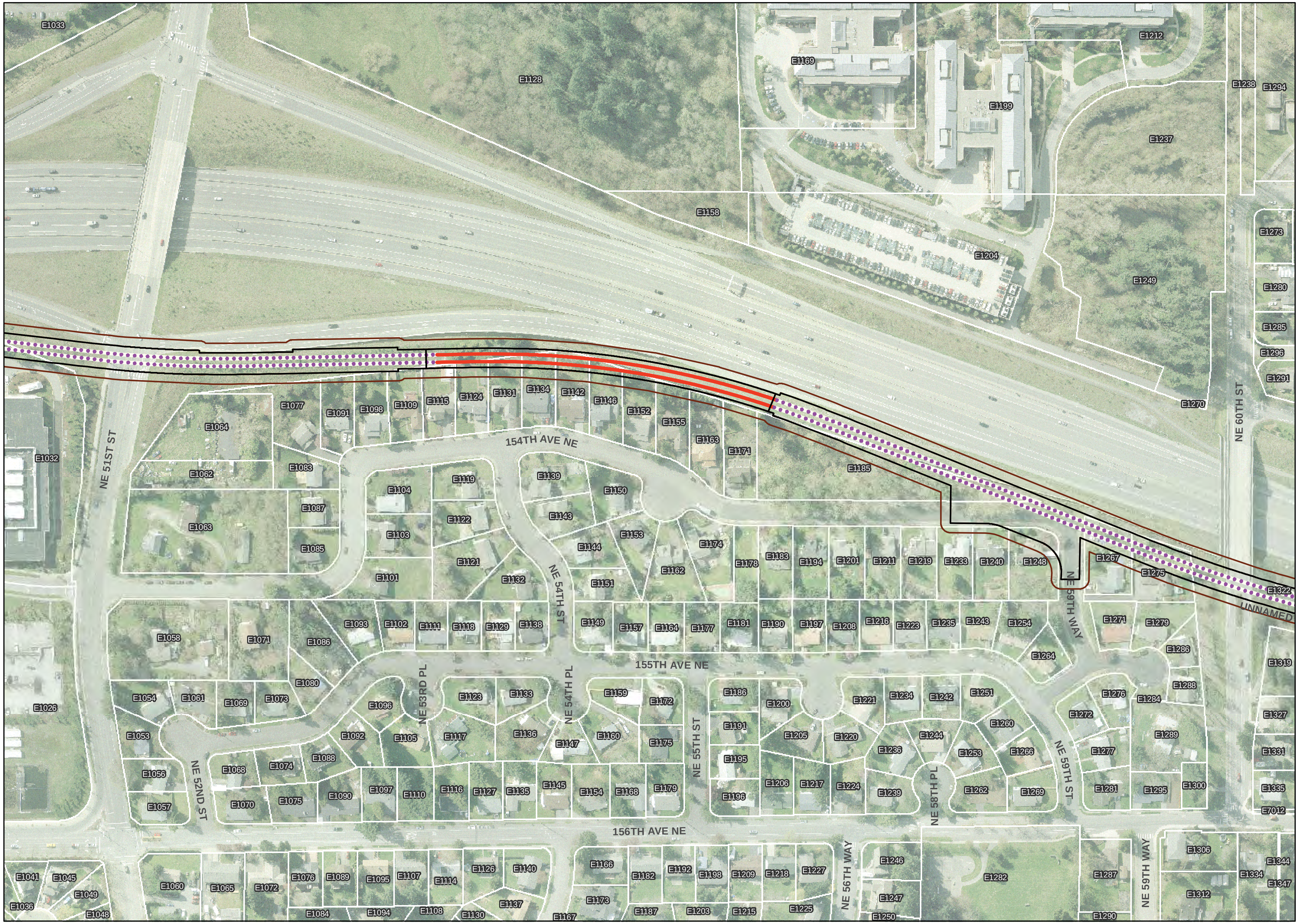
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154TH AVE NE
NE 54TH ST
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NE 53RD PL
NE 54TH PL
NE 55TH ST
NE 52ND ST
156TH AVE NE
NE 56TH WAY
NE 58TH PL
NE 59TH ST
NE 59TH WAY
NE 60TH ST
UNNAMED

Exhibit F-115
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 2
East Link Project

- ▬ At-Grade Route
- ▬ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

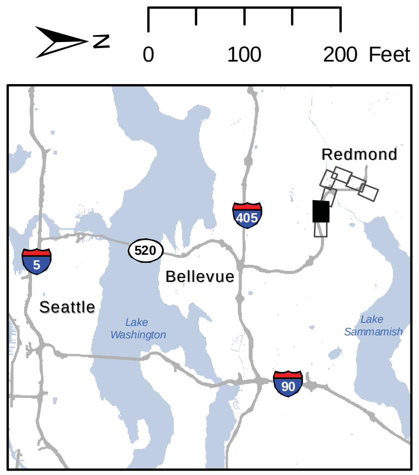
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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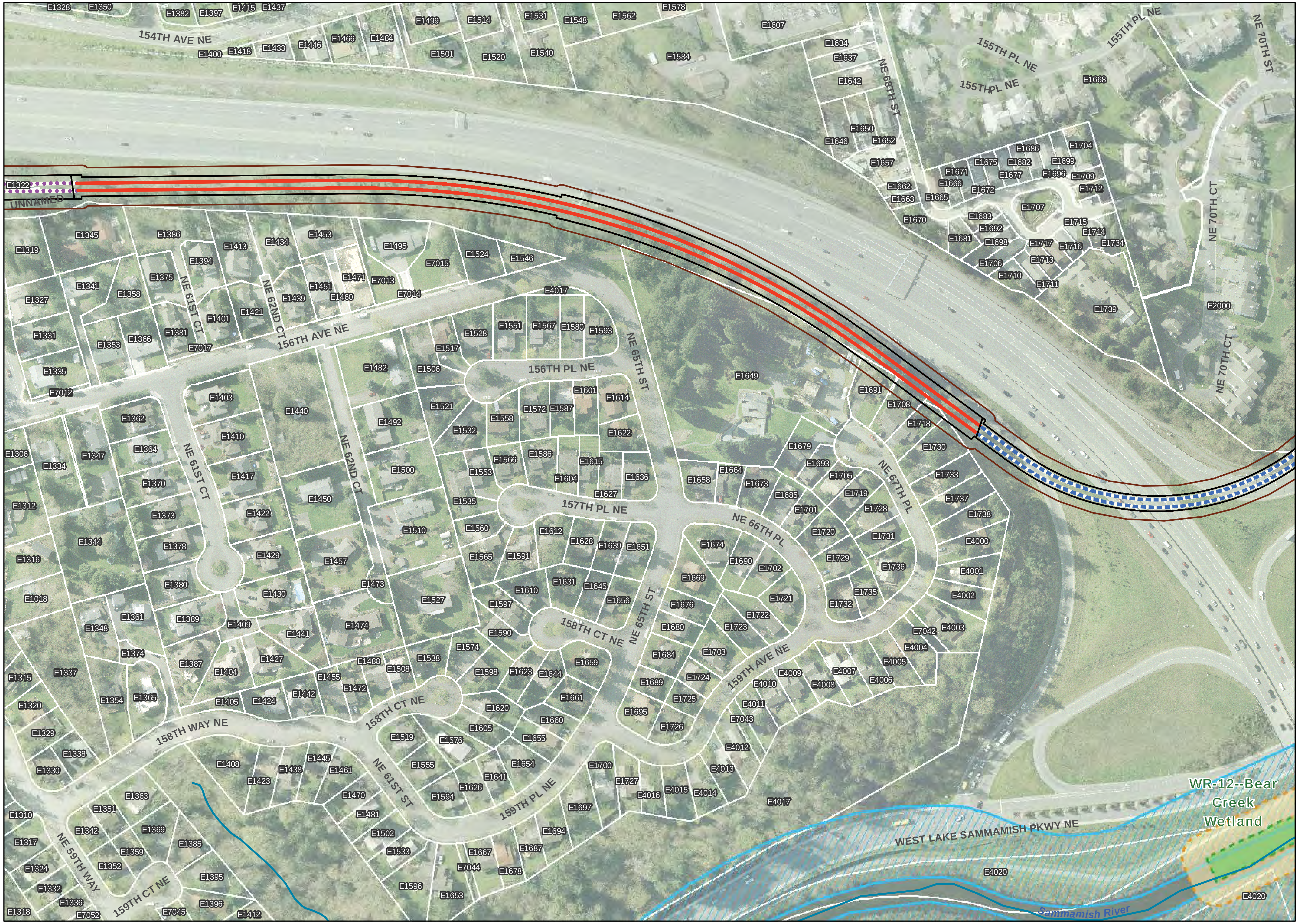
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155TH PL NE
155TH PL NE
155TH PL NE
NE 68TH ST
NE 70TH ST
NE 70TH CT
NE 70TH CT
UNNAMED
NE 61ST CT
NE 62ND CT
156TH AVE NE
156TH PL NE
NE 65TH ST
NE 61ST CT
NE 62ND CT
157TH PL NE
NE 66TH PL
NE 67TH PL
158TH CT NE
NE 65TH ST
159TH AVE NE
158TH CT NE
158TH WAY NE
NE 61ST ST
159TH PL NE
NE 59TH WAY
159TH CT NE
WEST LAKE SAMMAMISH PKWY NE
WR-12--Bear Creek Wetland
Sammamish River

Exhibit F-116
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 3
East Link Project

- 🟥 At-Grade Route
- ▬ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

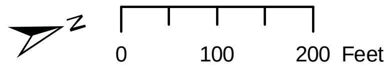
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟪 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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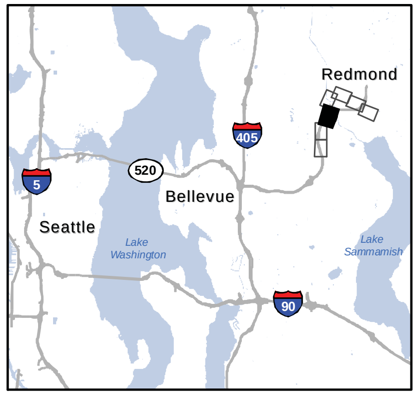
Redmond
405
5
520
Bellevue
Seattle
Lake Washington
Lake Sammamish
90

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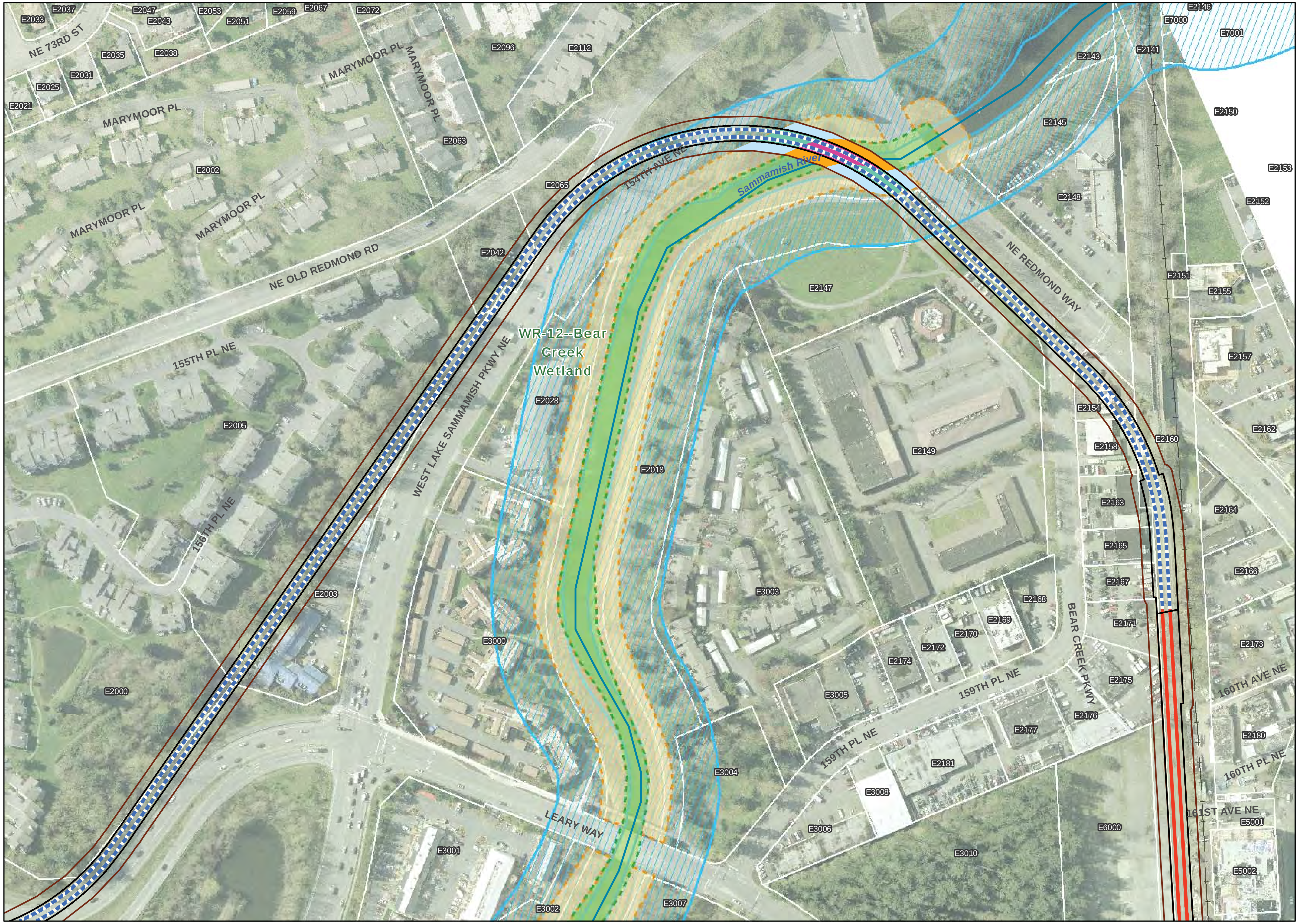
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NE 73RD ST
E2035
E2038
E2031
E2025
E2021
MARYMOOR PL
MARYMOOR PL
MARYMOOR PL
E2096
E2112
E2063
E2002
MARYMOOR PL
MARYMOOR PL
NE OLD REDMOND RD
E2065
154TH AVE NE
Sammamish River
E2042
E2146
E7000
E7001
E2141
E2143
E2150
E2145
E2153
E2148
E2152
NE REDMOND WAY
E2147
E2151
E2155
E2157
WR-12--Bear Creek Wetland
155TH PL NE
WEST LAKE SAMMAMISH PKWY NE
E2028
E2005
E2154
E2162
E2158
E2160
E2149
E2018
156TH PL NE
E2163
E2164
E2165
E2003
E3003
E2167
E2166
E2168
E2169
E2171
BEAR CREEK PKWY
E3000
E2170
E2172
E2173
E2174
160TH AVE NE
E2000
E3005
159TH PL NE
E2175
E2176
E2177
E2180
159TH PL NE
E2181
160TH PL NE
E3004
E3008
161ST AVE NE
LEARY WAY
E3006
E6000
E5001
E3001
E3010
E5002
E3002
E3007

Exhibit F-117
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 4

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ☐ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- 🟥 Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- 🟦 Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- — Open Channel
- — Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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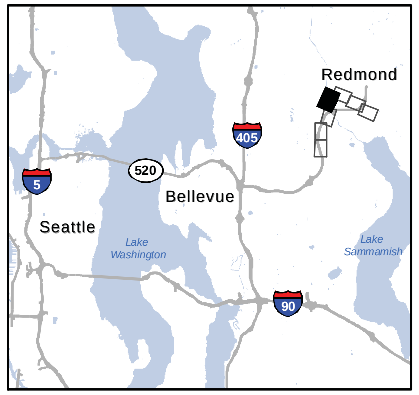
Redmond
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Bellevue
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Seattle
Lake Washington
Lake Sammamish
90

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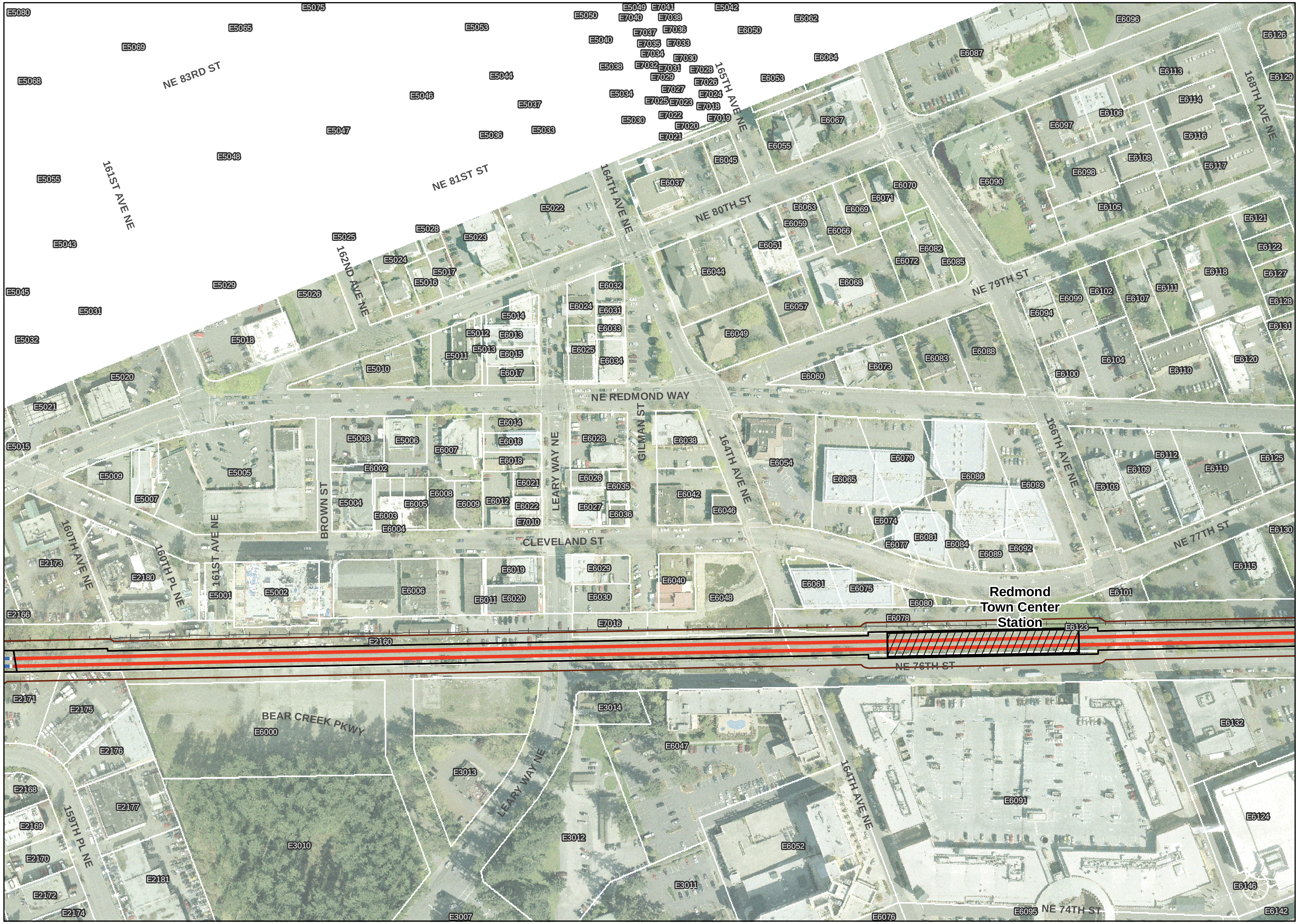
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164TH AVE NE
165TH AVE NE
NE 80TH ST
NE 79TH ST
168TH AVE NE
NE REDMOND WAY
GILMAN ST
LEARY WAY NE
BROWN ST
161ST AVE NE
160TH AVE NE
160TH PL NE
CLEVELAND ST
166TH AVE NE
NE 77TH ST
Redmond Town Center Station
NE 76TH ST
BEAR CREEK PKWY
159TH PL NE
NE 74TH ST
E5080
E5075
E5065
E5069
E5068
E5053
E5050
E5049
E7041
E7040
E7038
E5042
E6062
E6096
E6126
E7037
E7036
E6050
E5040
E7035
E7033
E7034
E7030
E6064
E6087
E6113
E6129
E5044
E5038
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E5018
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E5013
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E7010
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E6052
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E2181
E3011
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E2172
E2174
E3007
E6095
E6076
E6142

Exhibit F-118
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 5

East Link Project

- ━ At-Grade Route
- ┅ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ━ ━ Tunnel Route

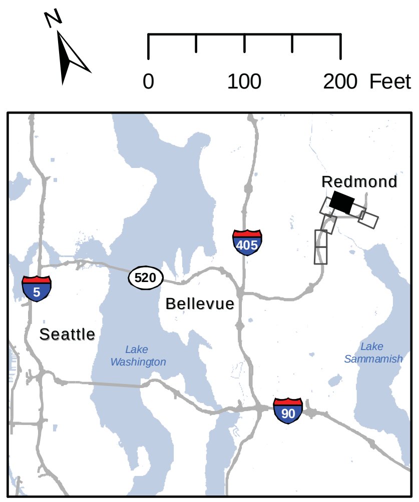
Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- 🟩 Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- 🟧 Construction Wetland Impact
- 🟩 Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ╱╱╱ Wetland Mitigation Impact
- ▨ Stream Buffer
- ─ Open Channel
- ━ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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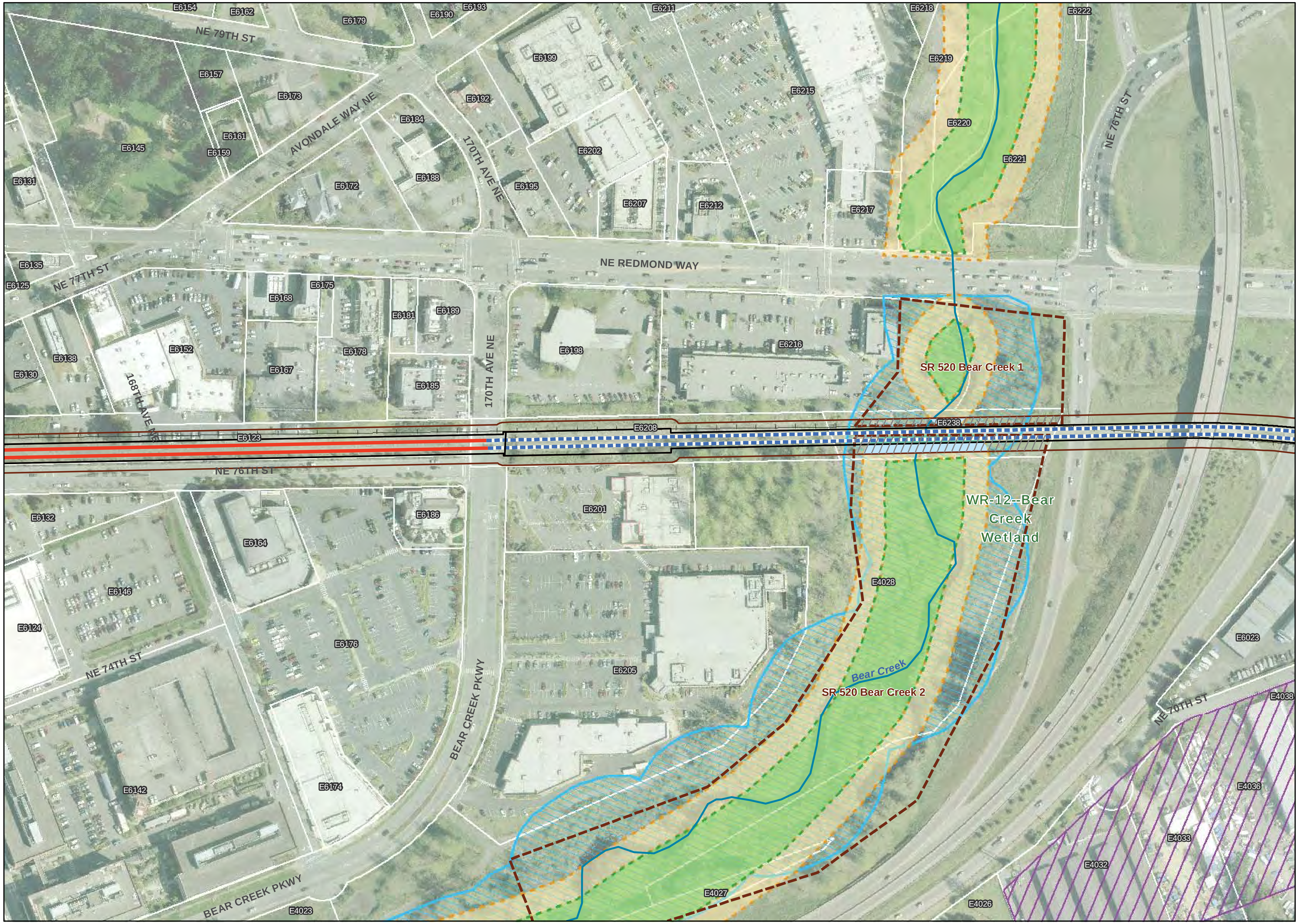
200 Feet
Redmond
405
520
Bellevue
5
Seattle
Lake Washington
Lake Sammamish
90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170TH AVE NE
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NE 77TH ST
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NE 76TH ST
NE 76TH ST
NE 74TH ST
BEAR CREEK PKWY
BEAR CREEK PKWY
NE 70TH ST
SR 520 Bear Creek 1
SR 520 Bear Creek 2
WR-12 - Bear Creek Wetland
Bear Creek
E6154
E6162
E6179
E6190
E6193
E6211
E6218
E6222
E6199
E6219
E6157
E6173
E6192
E6215
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E6172
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E6174
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E4033
E4032
E4027
E4026
E4023

Exhibit F-119
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 6
East Link Project

🟥 At-Grade Route
▪▪▪ Elevated Route
•••• Retained-Cut Route
•••• Retained-Fill Route
▬ ▬ Tunnel Route

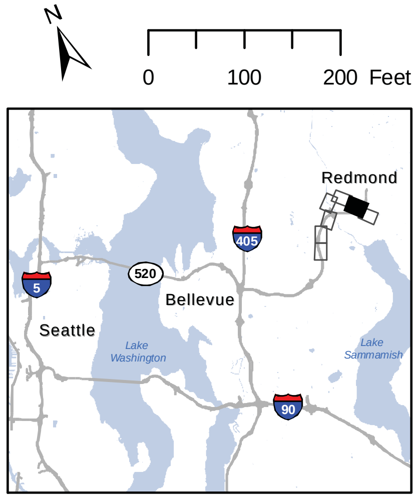
Operational Footprint

☐ ROW
☐ Park and Ride

Construction Footprint

☐ Construction Footprint
☐ Staging Area
▨ Station
▨ Maintenance Facility
🟩 Wetland
🟨 Wetland Buffer
☐ Wetland Mitigation Site (WSDOT)
🟪 Operational Wetland Impact
🟧 Construction Wetland Impact
🟩 Operational Wetland Buffer Impact
🟦 Construction Wetland Buffer Impact
/// Wetland Mitigation Impact
▨ Stream Buffer
— Open Channel
— Piped Stream
☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
90

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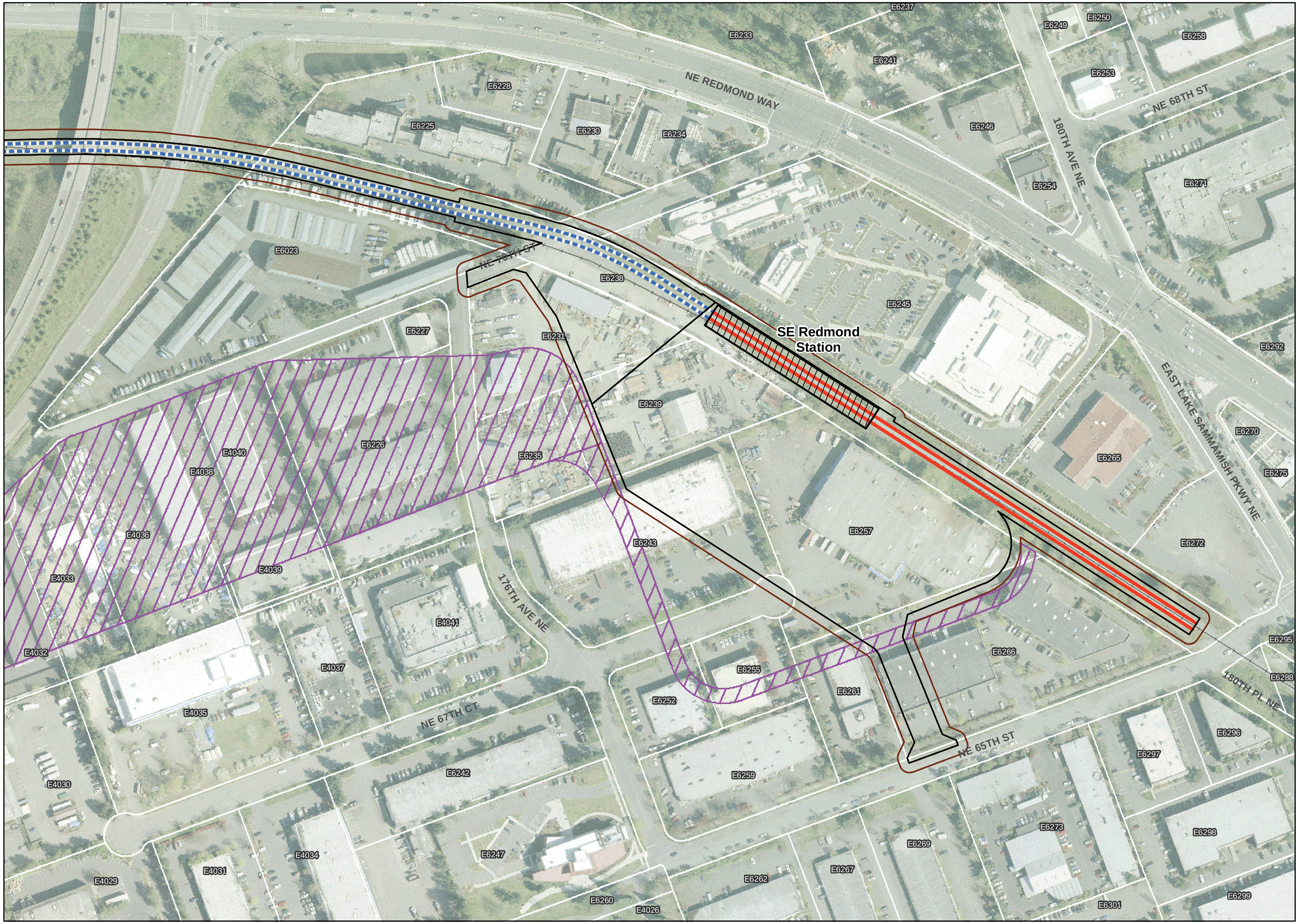
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E6225
E6230
E6234
180TH AVE NE
E6254
E6271
E6023
NE 70TH ST
E6238
E6245
SE Redmond Station
E6227
E6231
E6292
EAST LAKE SAMMAMISH PKWY NE
E6239
E6270
E6040
E6226
E6265
E6275
E6038
E6235
E6036
E6243
E6257
E6272
E6033
E6039
176TH AVE NE
E6041
E6295
E6266
E4032
E6037
E6255
E6288
180TH PL NE
E6261
E6252
E4035
NE 67TH CT
E6296
NE 65TH ST
E6297
E6242
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E4030
E6273
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E6262
E4029
E6260
E4026
E6301
E6299

Exhibit F-120
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E1
Sheet 7

East Link Project

- ▬ At-Grade Route
- ┅ Elevated Route
- ···· Retained-Cut Route
- ···· Retained-Fill Route
- ╍ Tunnel Route

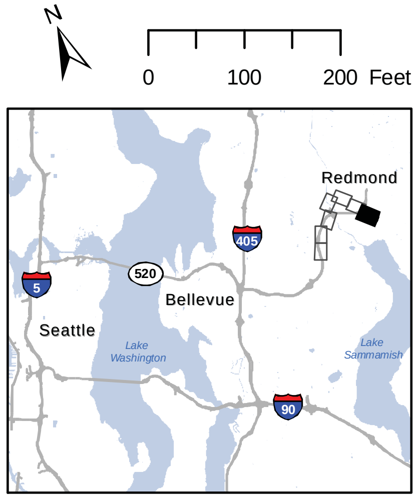
Operational Footprint

- ▭ ROW
- ▭ Park and Ride

Construction Footprint

- ▭ Construction Footprint
- ▭ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- ■ Wetland
- ■ Wetland Buffer
- ▭ Wetland Mitigation Site (WSDOT)
- ■ Operational Wetland Impact
- ■ Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ― Open Channel
- ― Piped Stream
- ▭ Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet
Redmond
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Bellevue
Seattle
Lake Washington
Lake Sammamish
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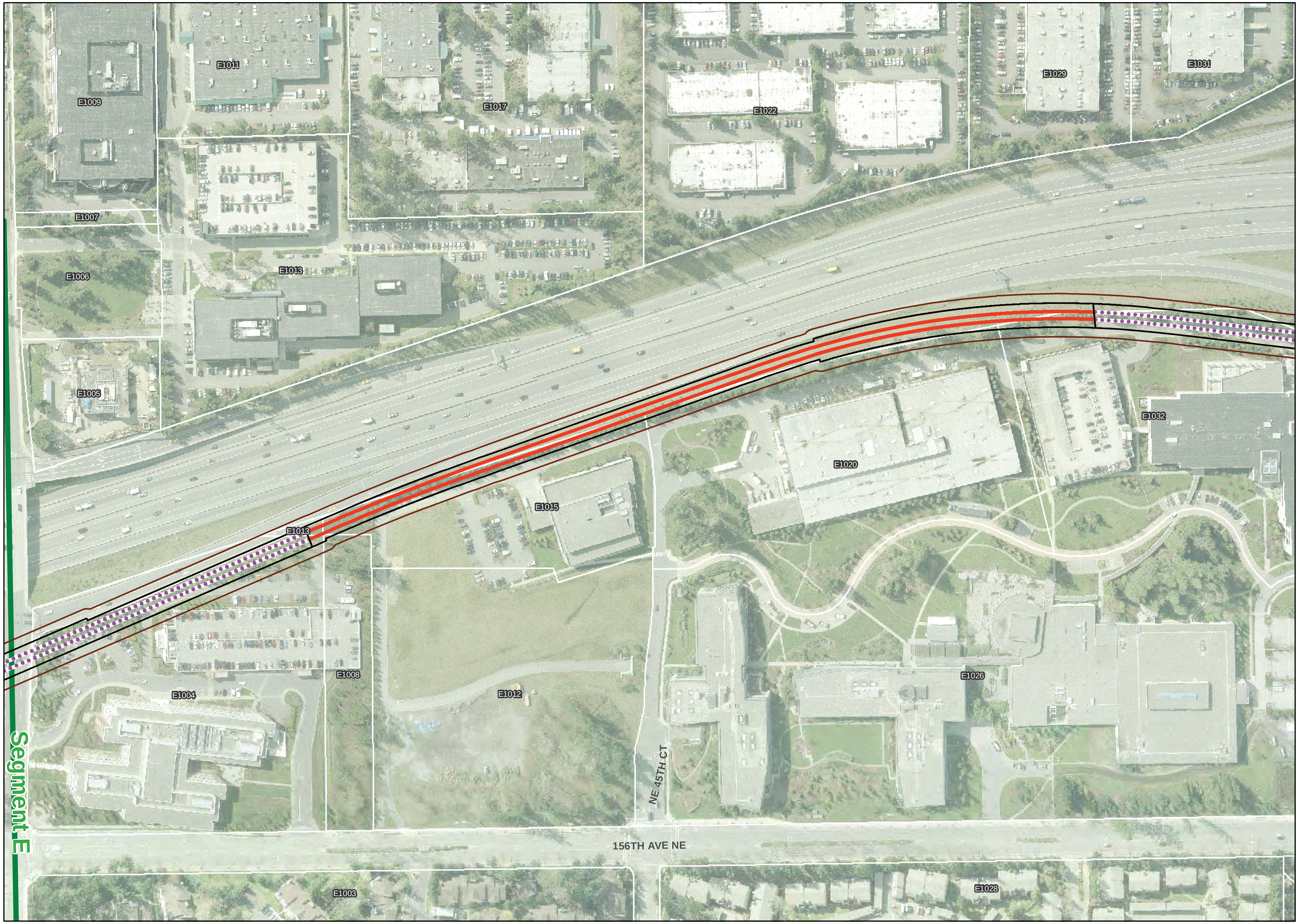
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E1011
E1017
E1022
E1029
E1031
E1007
E1006
E1013
E1005
E1032
E1020
E1015
E1013
E1008
E1004
E1012
E1026
NE 45TH CT
156TH AVE NE
E1003
E1028
Segment E

Exhibit F-121
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 1

East Link Project

🟥	At-Grade Route
▬ ▬	Elevated Route
••••	Retained-Cut Route
••••	Retained-Fill Route
▬ ▬	Tunnel Route

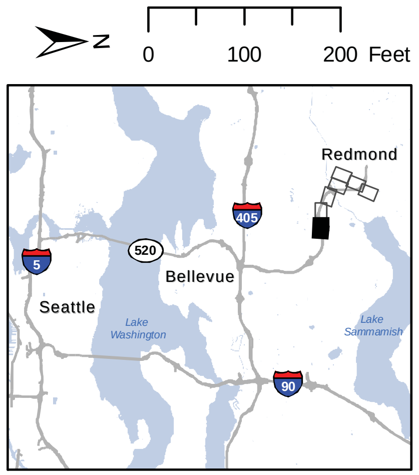
Operational Footprint

☐	ROW
☐	Park and Ride

Construction Footprint

☐	Construction Footprint
☐	Staging Area
▨	Station
▨	Maintenance Facility
🟩	Wetland
☐	Wetland Buffer
☐	Wetland Mitigation Site (WSDOT)
🟪	Operational Wetland Impact
🟧	Construction Wetland Impact
🟩	Operational Wetland Buffer Impact
🟦	Construction Wetland Buffer Impact
▨	Wetland Mitigation Impact
▨	Stream Buffer
—	Open Channel
—	Piped Stream
☐	Parcel with MapID

Aerial Photo: Sound Transit (2009)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200 Feet
Redmond
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Bellevue
5
Seattle
Lake Washington
Lake Sammamish
90

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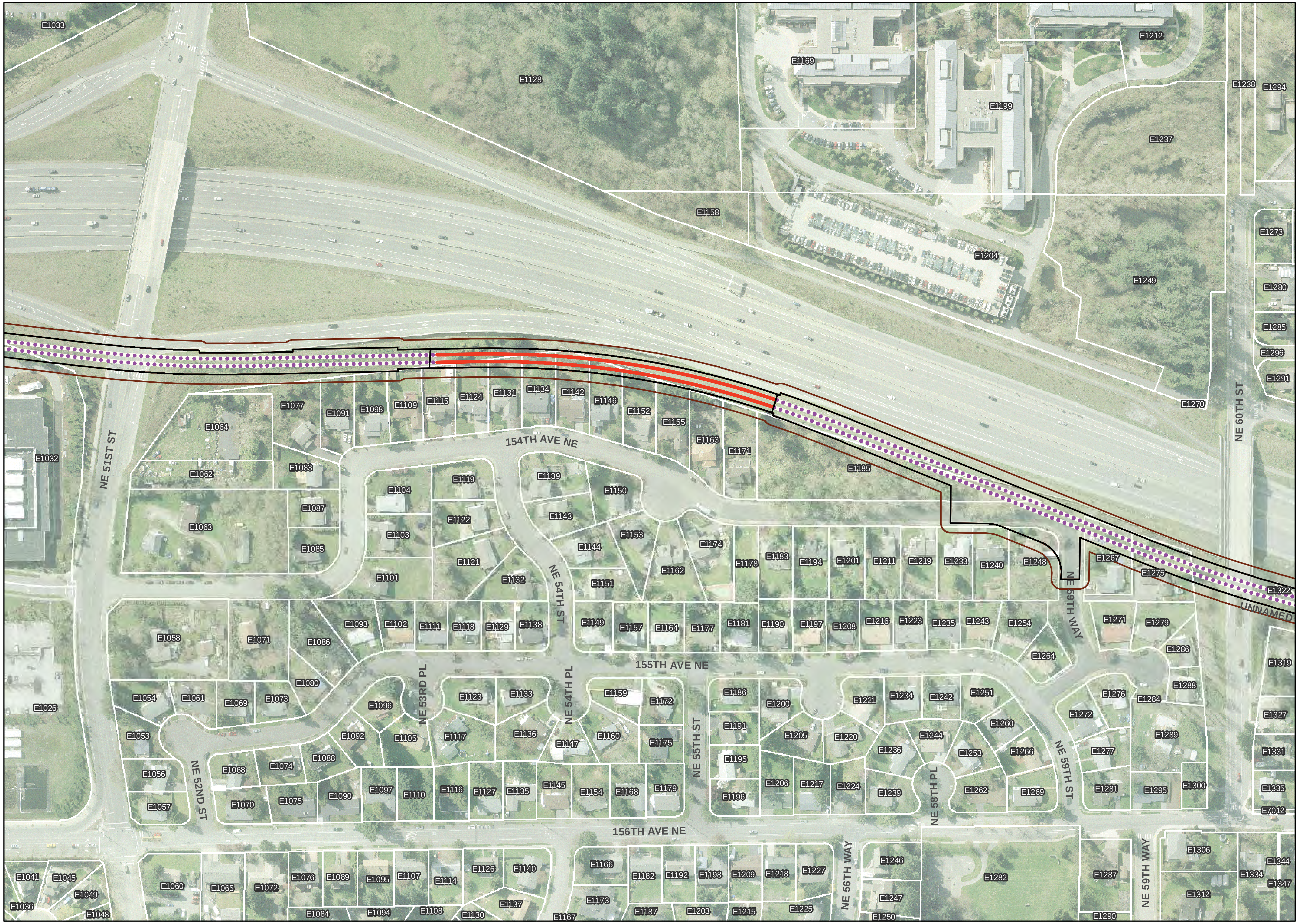

NE 51ST ST
154TH AVE NE
NE 54TH ST
NE 59TH WAY
NE 60TH ST
UNNAMED
155TH AVE NE
NE 53RD PL
NE 54TH PL
NE 55TH ST
NE 58TH PL
NE 59TH ST
NE 52ND ST
156TH AVE NE
NE 56TH WAY
NE 59TH WAY

Exhibit F-122
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 2

East Link Project

- 🟥 At-Grade Route
- ▬ ▬ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
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- ▨ Wetland Mitigation Impact
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- — Open Channel
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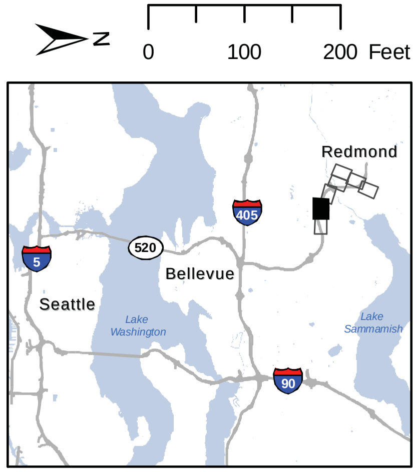
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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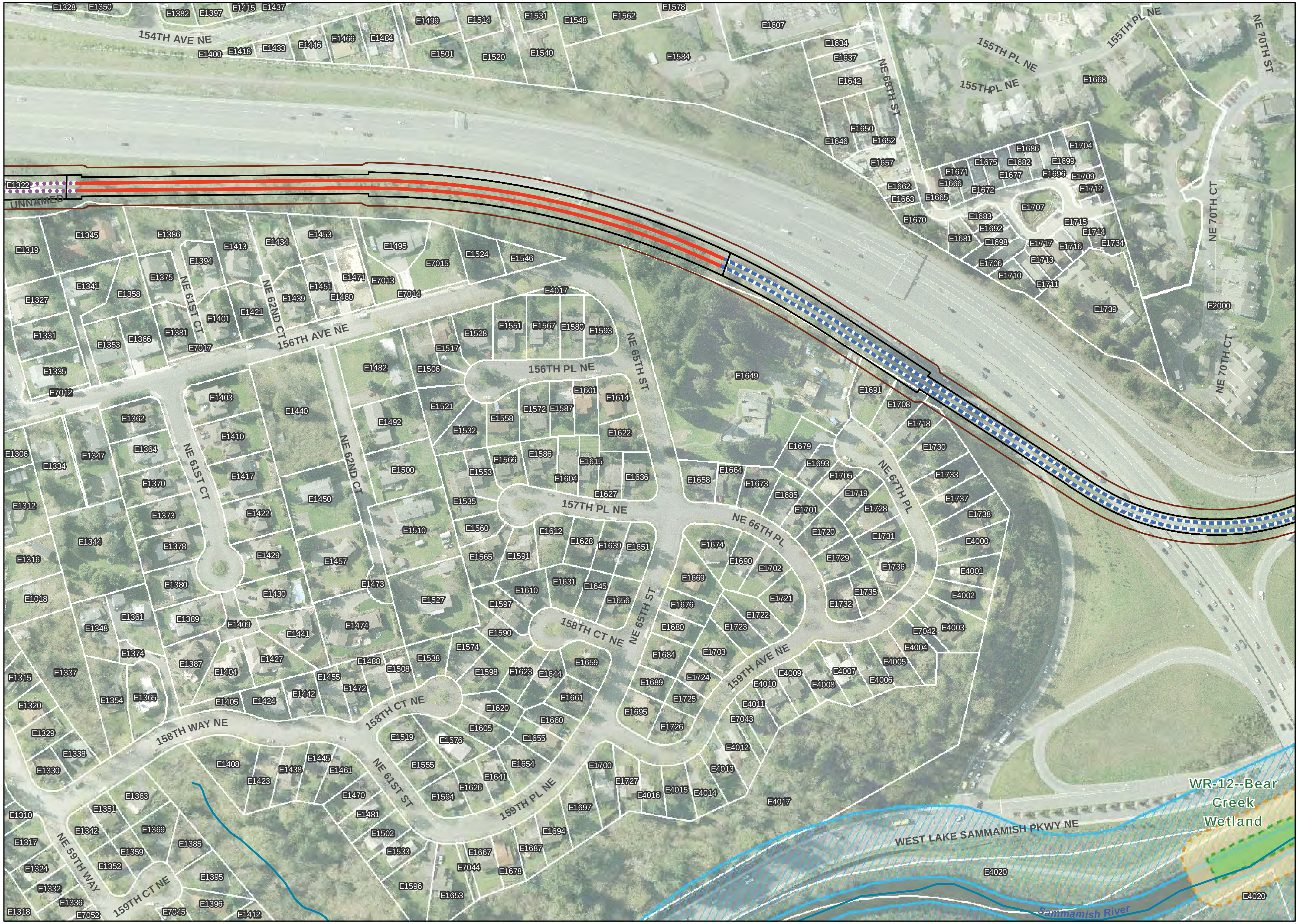
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Sammamish River

Exhibit F-123
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 3
East Link Project

- 🟥 At-Grade Route
- ▬ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint
- ☐ ROW
- ☐ Park and Ride

Construction Footprint
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- ☐ Staging Area
- ▨ Station
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- 🟩 Wetland
- ▭ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
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- ■ Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
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- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

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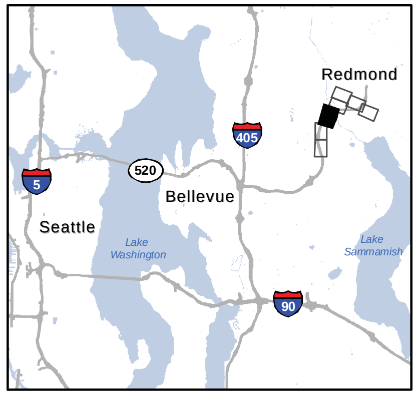
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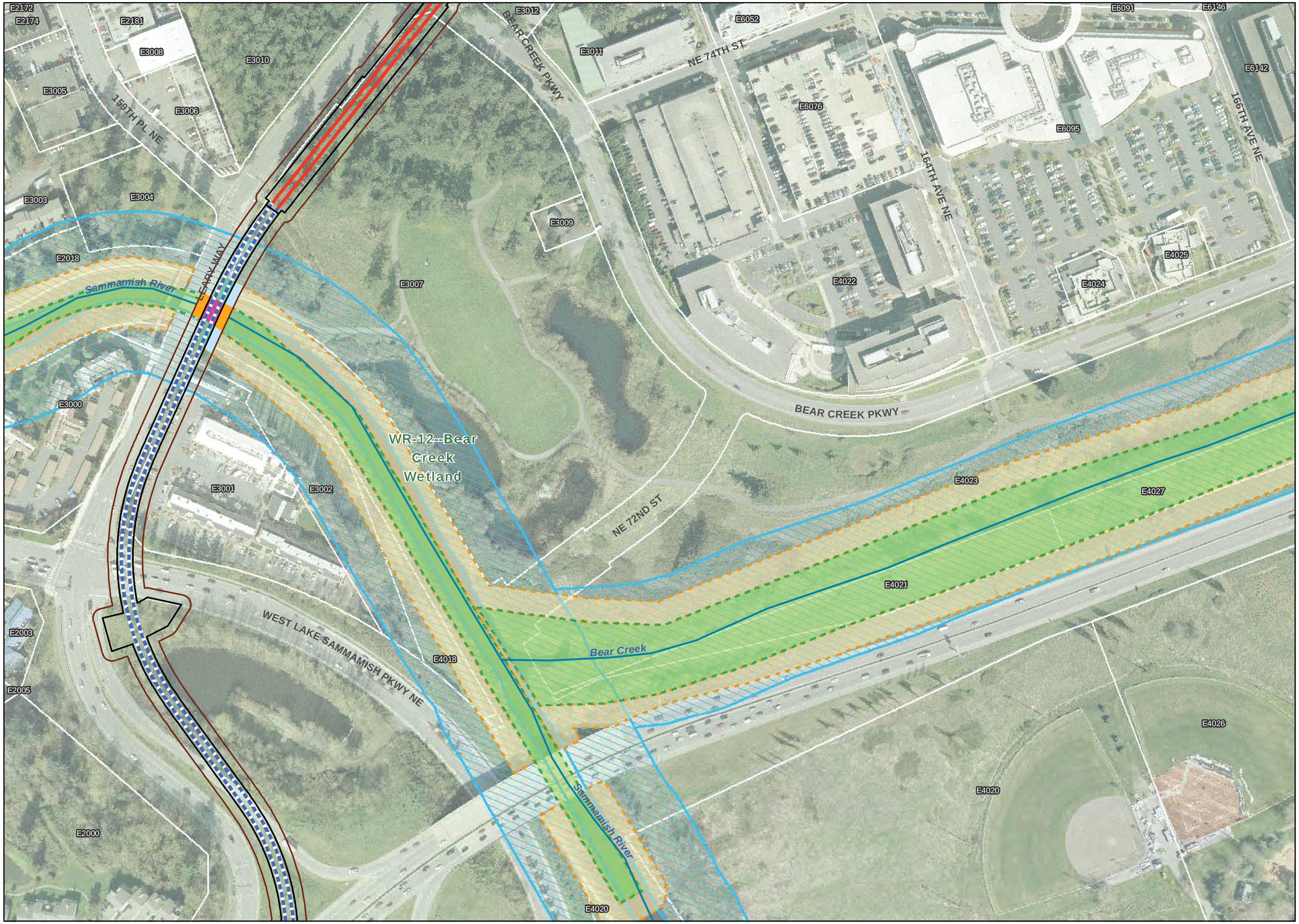
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Exhibit F-124
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 4

East Link Project

- 🟥 At-Grade Route
- ▪▪▪ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
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Aerial Photo: Sound Transit (2009)

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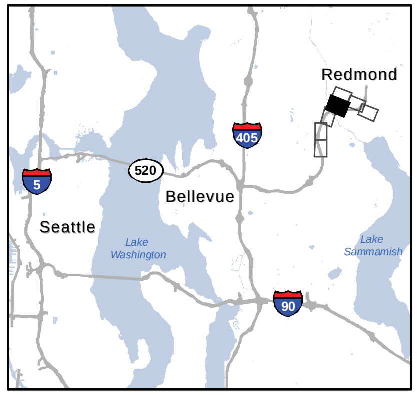
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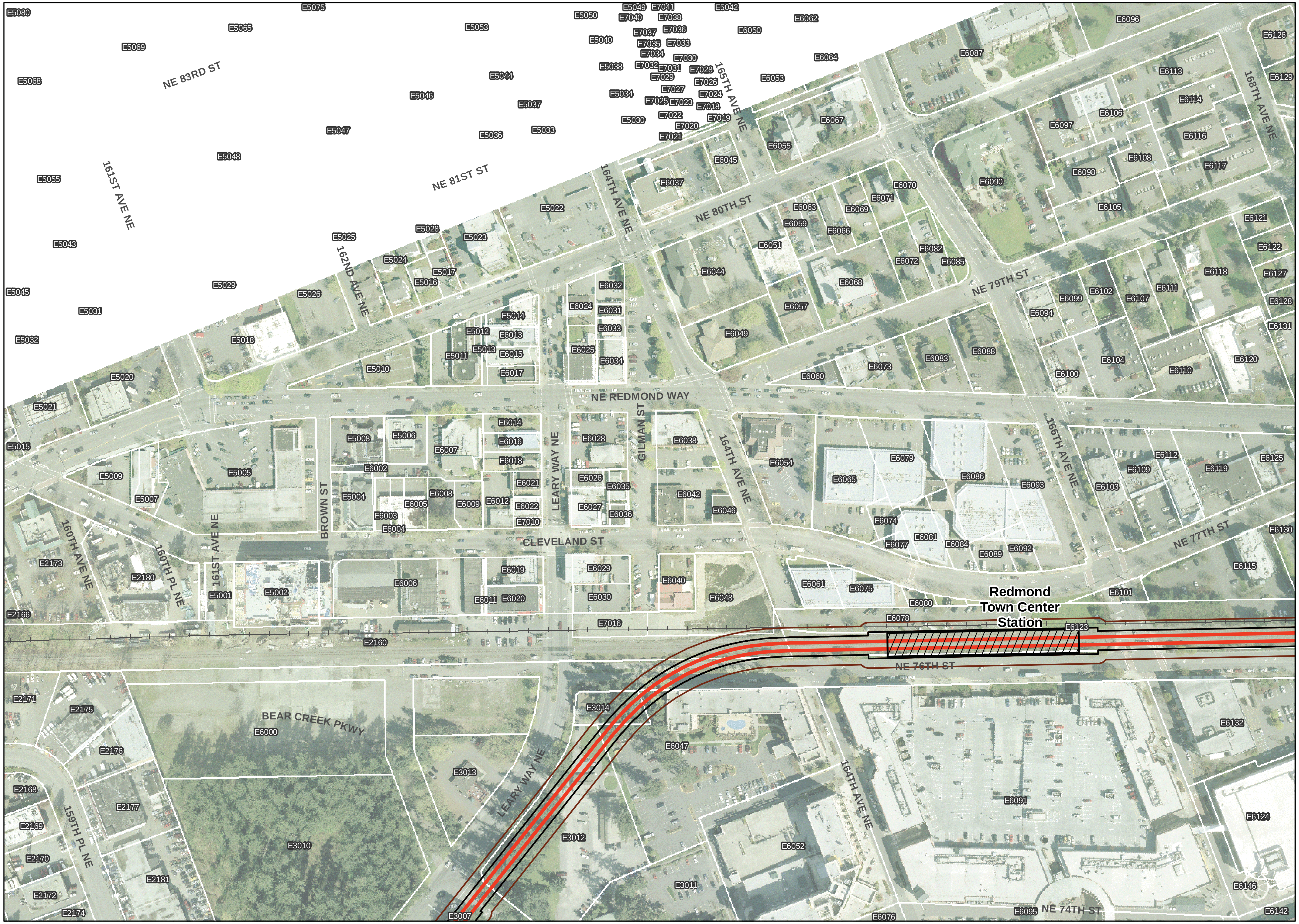
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Exhibit F-125
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 5

East Link Project

- ▬ At-Grade Route
- ▬ Elevated Route
- ●●●● Retained-Cut Route
- ●●●● Retained-Fill Route
- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
- ▨ Station
- ▨ Maintenance Facility
- ■ Wetland
- ■ Wetland Buffer
- ☐ Wetland Mitigation Site (WSDOT)
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- ■ Construction Wetland Impact
- ■ Operational Wetland Buffer Impact
- ■ Construction Wetland Buffer Impact
- ▨ Wetland Mitigation Impact
- ▨ Stream Buffer
- ▬ Open Channel
- ▬ Piped Stream
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)

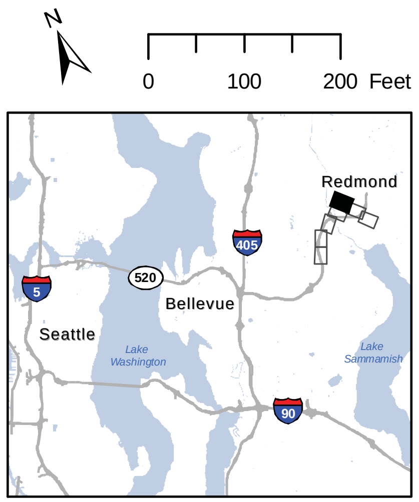
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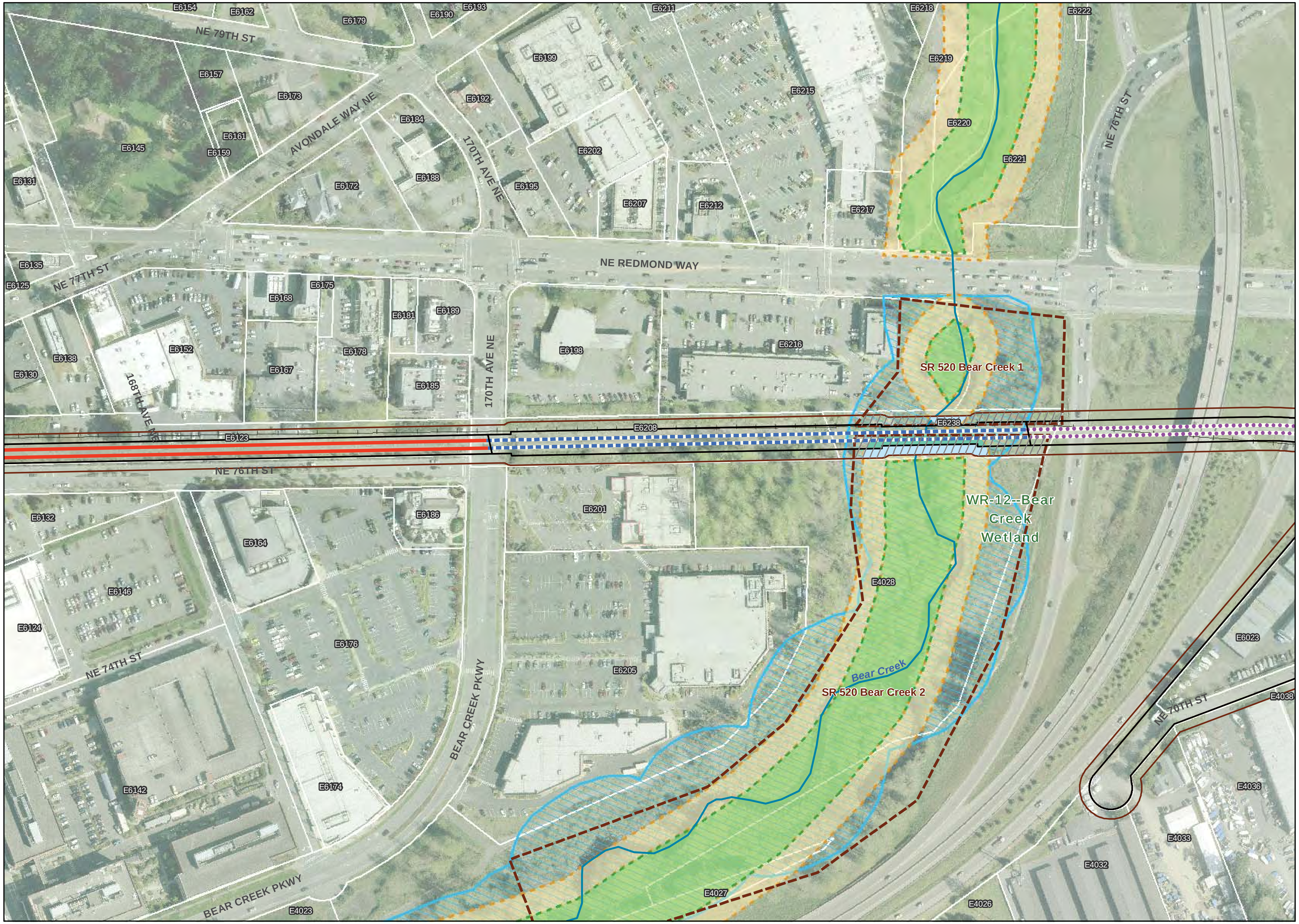
Exhibit F-126
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 6

East Link Project



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- ●●●● Retained-Cut Route
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- ▬ ▬ Tunnel Route

Operational Footprint

- ☐ ROW
- ☐ Park and Ride

Construction Footprint

- ☐ Construction Footprint
- ☐ Staging Area
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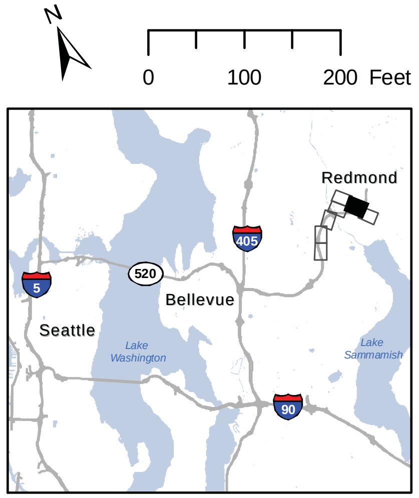
- ☐ Parcel with MapID

Aerial Photo: Sound Transit (2009)



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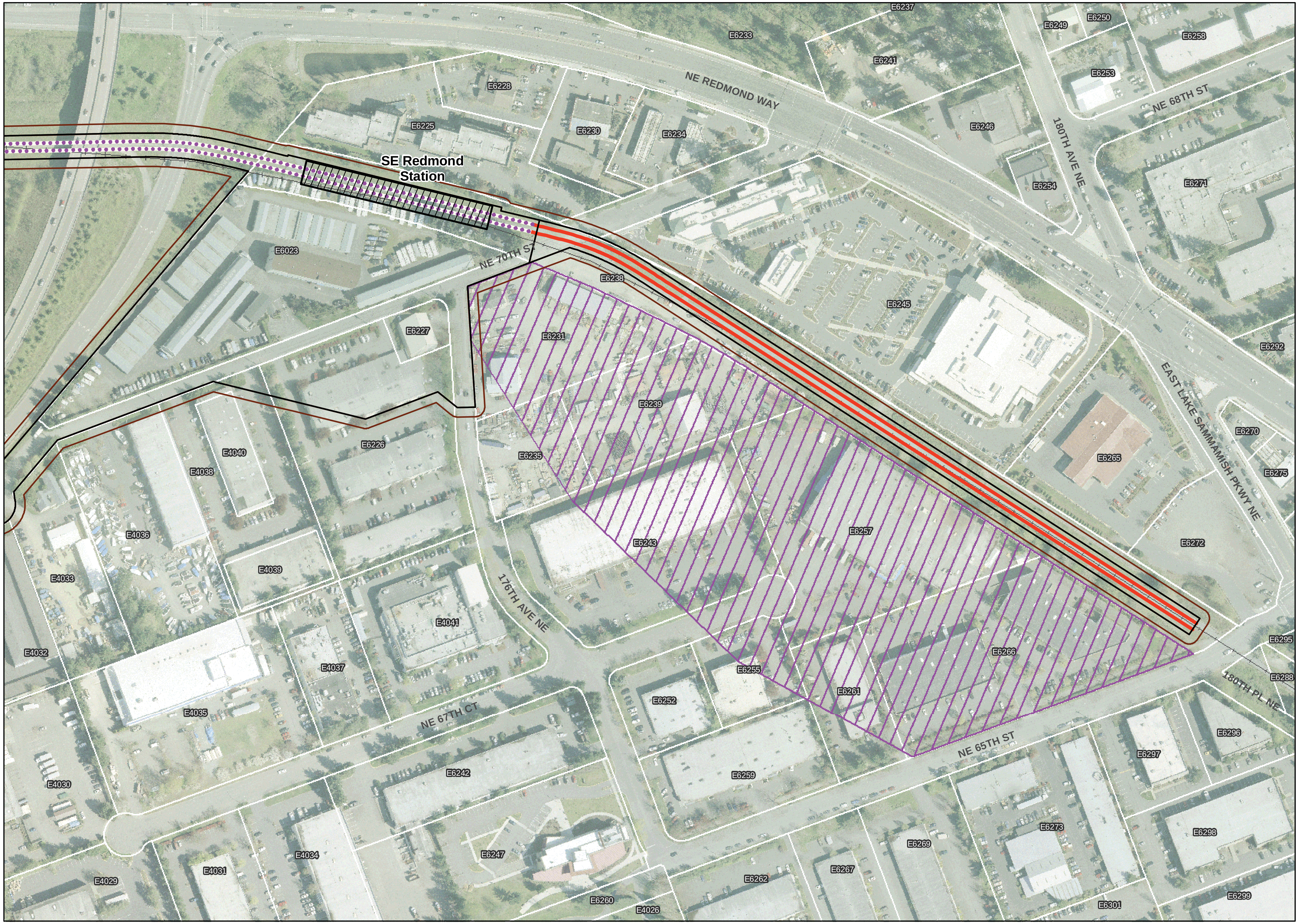
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Exhibit F-127
Wetland, Wetland Buffer, and Wetland Mitigation Impacts
Alternative E4
Sheet 7
East Link Project

- ▬ At-Grade Route
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- •••• Retained-Cut Route
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- ▬ ▬ Tunnel Route

Operational Footprint
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Construction Footprint
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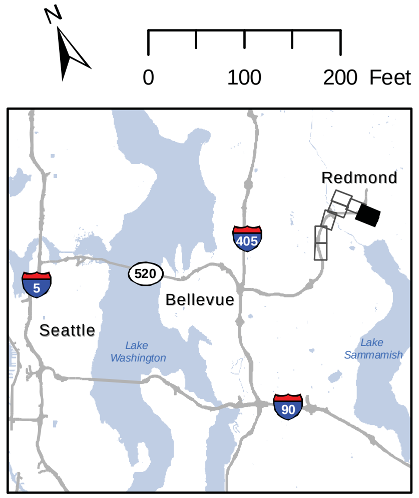
Aerial Photo: Sound Transit (2009)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Appendix G

Interstate 90/Homer Hadley Bridge, Light Rail Transit Stray Current—Assessment of Potential Effects on Fish Memorandum

Herrera Environmental Consultants, Inc.

Memorandum

To Marti Louther, James Irish, Sue Comis – Sound Transit
cc Ed Wetzel - Universal Technical Resource Services, Inc
From José Carrasquero, Eric Doyle - Herrera Environmental Consultants
Date June 13, 2008
Subject Interstate 90/Homer Hadley Bridge, light rail transit (LRT) stray current - Assessment of potential effects on fish

Sound Transit retained Herrera Environmental Consultants (Herrera) to conduct a preliminary investigation into the potential effects of changes in the stray electrical current field associated with the Interstate 90 Homer Hadley Bridge over Lake Washington (referred to hereafter as the I-90 bridge). Specifically, Sound Transit is proposing to build the East Link light rail transit (LRT) line on the I-90 bridge. Operation of the LRT system could discharge stray electrical current into Lake Washington. This weak direct (DC) current would leak into the environment through various conductive pathways along the bridge alignment, creating one or more small electrical current fields around the span. Possible current leakage pathways include the bridge's existing cathodic corrosion protection system, and the stray current mitigation system planned as part of LRT expansion. The intent of this assessment is to investigate if the change in stray electrical current conditions is of sufficient magnitude to pose potential adverse effects on aquatic species.

The findings of this assessment are summarized as follows:

1. The proposed LRT system will produce stray electrical current fields that are essentially negligible relative to existing conditions.

2. Expected field intensity produced by leakage from the LRT is difficult to calculate with precision, but will be very low in intensity, ranging from tenths to hundredths of a microvolt per centimeter direct current (µV/cm DC) (Wetzel 2008).

3. These values are one to two orders of magnitude below established physiological detection and behavioral response thresholds for even the most sensitive species of potential concern.

On this basis, it appears reasonable to conclude that any change in stray DC electrical current emissions resulting from LRT operation would be unlikely to result in adverse effects on fish species of potential concern in the Lake Washington system.

The assessment approach and the findings are described in the following sections.

Assessment Approach

The screening level assessment of potential stray current effects consisted of the following steps:

1. Confirm that fish species of potential concern may be present in the study area. (These include but are not limited to species listed under the Endangered Species Act [ESA]; species listed at the state level as species of concern; and game fish.)

2. Identify known biological response thresholds for these or sufficiently similar species in the available scientific literature.

3. Identify the strength, dimension, and configuration of the stray current field under existing and proposed conditions.

4. Compare the existing and proposed electrical field conditions to these known response thresholds and determine the likelihood of potential effects.

Fish Presence in the I-90 Bridge Vicinity

For the purpose of this assessment, fish species of potential concern include the following: resident and anadromous salmonids native to the Lake Washington basin (including ESA listed species); Pacific and river lamprey; longfin smelt; forage fish species; and other native and introduced game fish species. These species are referred to hereafter as Lake Washington species.

The potential presence of these species in the general vicinity was determined by consulting with two experts on Lake Washington fisheries investigations: Kurt Fresh, a research scientist with the NOAA Fisheries Northwest Fisheries Science Center; and Roger Tabor, a research scientist with the U.S. Fish and Wildlife Service. While both agreed that specific studies of fish habitat utilization in the immediate vicinity of the I-90 bridge are lacking, they confirmed that several Lake Washington species either utilize habitats in the vicinity of the bridge, or must pass under the structure when migrating between spawning and rearing habitats. As such, it is apparent that a number of Lake Washington species could occur within the area of potential effects.

Fish Response to Electrical Field Exposure: A General Review

To aid in interpreting the findings of this assessment, it is desirable to provide a general review how fish interact with and respond to electrical fields. Weak electrical fields are common in nature, and many organisms have evolved specialized means of detecting and orienting to these fields. Organisms with this specialized capability are referred to as electroreceptive, meaning they have the ability to detect, orient to, or even produce and navigate by an electrical field. Not all fish species are electroreceptive, and for most species that are this ability is limited to short-range sensory awareness used to locate prey species or detect objects at close range. However, certain fish species, including the sharks, lampreys, and other specialized higher fish, have specialized electroreceptive organ systems that greatly increase sensitivity to weak electrical fields (Hopkins 1983, New 1999, Smith 1991, Gibbs 2004, Von Der Emde 2007, Alves-Gomes 2001).

Electroreceptivity confers a number of useful abilities. For example, electroreceptive predators like sharks and rays are able to detect the weak electrical signals produced by muscle activity in their prey (Kalmjin 1982). Some fish species, such as eels, are able to detect and orient to the weak electrical fields generated by ocean currents, using these fields as a means of navigation (McCleave and Power 1978). Certain fish species that live in highly turbid water environments where eyesight is useless have evolved the ability to produce weak electrical fields that are used like sonar systems to communicate, navigate, and detect predators and prey (Knudsen 1974). Species like lamprey have evolved specialized electroreceptive organ systems to detect prey organisms (Bodznick and Preston 1983). Because of their specialized ability to detect weak electrical fields, electroreceptive fish species are by nature more susceptible to weak electrical fields, like those produced by stray current from LRT systems. Weak fields can stimulate or confuse their sensory systems, potentially altering behavior and physiology in ways that are difficult to observe and detect.

Most of the fish species common to Lake Washington, such as the trout, salmon, perch, and bass, lack specialized electroreceptive organ systems. As such they are unable to detect very weak electrical fields and are thereby relatively insensitive to weak field exposure.

Electroreceptivity should not be confused with behavioral and physiological responses that all fish exhibit in the presence of strong electrical fields. All organisms are susceptible to the effects of electrical shocks, which essentially "short-circuit" physiological systems. Responses to strong electrical field exposure can range from attraction or avoidance, to altered feeding behavior, or even unconsciousness. A sufficiently large electrical exposure can cause seizure, injury, and even direct mortality. Responses to strong electrical field exposure can vary widely, based on the species and size of the fish exposed, site specific conditions, and the nature of the electrical field (Snyder 2003).

For example, the orientation of a fish's body relative to an electrical field is a determining factor in amount of voltage exposure a fish will receive. A fish swimming parallel to an electrical field (i.e., directly towards or away from the source) will experience a larger exposure than one swimming perpendicular to the field. This is because the longest body axis is oriented to the increasing field strength, creating the greatest electrical gradient from end to end and thereby a large voltage potential. The fish oriented perpendicular to field strength presents a minimal aspect to the field, creating much smaller electrical potential from one side of the body to the other, minimal voltage exposure, and little or no effect. Larger fish are inherently more sensitive to strong electrical fields because a bigger body has inherently greater potential voltage gradient.

Literature Review Methods

Available information on the relevant biological response thresholds of Lake Washington fish species or similar organisms was derived from available scientific literature. Literature sources were identified using the Google Scholar online search engine. The studies relied upon in this assessment express electrical field strength in units of Volts per meter (V/M), volts per centimeter (V/cm), or microvolts per centimeter (µV/cm). These metrics are commonly used to characterize the response of biological organisms to electrical field exposure.

The types of threshold responses reported in this assessment range from physiological detection of the electrical field (e.g., measured changes in cardiac response), to behavioral detection (e.g., attraction, avoidance, twitching), to marked physiological responses including paralysis and injury. When considering this information, it is important to note that electrical fields capable of causing paralysis or injury are many orders of magnitude stronger than what is expected from the I-90 stray current field. The intent of providing this information is to present a basis of comparison to the expected strength of the I-90 stray current field.

Physiological and Behavioral Response Thresholds for Electrical Field Exposure

The literature review identified several exposure response thresholds that are relevant to Lake Washington species. This information is summarized in Table 1. The range of response thresholds shown varies from the smallest observed physiological and behavioral detection limits, to electrical field strength sufficient to cause injury and incapacitation. The intent of providing this broad range of threshold values is to provide a broader context for interpreting the potential effects of the I-90 stray current field.

Stray Current Field Strength and Dimensions Under Existing and Proposed Conditions

The strength and dimensions of the stray current field under existing and proposed conditions was characterized for Sound Transit by Mr. Ed Wetzel of Universal Technical Resource Services, Inc (UTRS) (Wetzel 2008). Per request from Herrera staff, these values were provided in the same units commonly used to characterize biological effects (µV/cm). The maximum strength of the I-90 stray current field under existing and potential future conditions is shown in Table 2. These estimates represent the worst-case stray electrical current field strength and size expected to occur under each condition.

While the LRT system will produce a stray current field, the proposed system design and additional shielding mechanisms will limit the intensity of this field to very low levels. The cathodic protection system is expected to be the dominant source of electrical current emanating from the I-90 bridge. The positioning and orientation of the cathodic protection system and the intensity of the field it produces are not expected to vary measurably under proposed conditions with LRT operation.

Table 1. Electrical field strength associated with observed responses in various fish species.

Response Type	Species Type	Environment Type Where the Response was Observed	Electrical Field or Source Strength Associated with Observed Response	Source
Attraction/avoidance (attraction to the anode, avoidance or repulsion from the cathode)	Lamprey	Marine	1–10 µV/cm	Bodznick and Preston 1983
Twitch response to field exposure	Lamprey	Marine	10-60 µV/cm @ 0.05-0.5 Hz	Muraveiko 1984
Observed physiological detection limit (measurable change in heart rate or the electrical pattern of the heartbeat)	Atlantic salmon, American eel	Freshwater	7-70 µV/cm @ 60-75 Hz	McCleave et al. 1974
Theoretical limit above which chronic electrical field exposure could alter cellular biochemical systems.	n/a	General	90 µV/cm	Weaver et al. 1998
Attraction (anodic taxis)	Rainbow trout (21 to 50 cm fork length)	Freshwater (conductivity 530 µS/cm @ 18ºC)	0.13-0.19 V/cm pulsed DC @ 15 Hz 0.05-0.09 V/cm pulsed DC @ 60 Hz	Meismer 1999 (as cited in Snyder 2003)
	Colorado pike minnow (30 to 39 cm fork length)	Freshwater (conductivity 530 µS/cm @ 18ºC)	0.16-0.21 V/cm pulsed DC @ 15 Hz 0.09-0.20 V/cm pulsed DC @ 60 Hz	Meismer 1999 (as cited in Snyder 2003)
Twitch response to field exposure	Rainbow trout (31 to 48 cm fork length)	Freshwater (conductivity 103 µS/cm @ 11ºC)	0.19-0.43 V/cm pulsed DC @ 20 Hz 0.15-0.71 V/cm pulsed DC @ 30 Hz 0.11-0.97 V/cm pulsed DC @ 60 Hz	Taube 1992 (as cited in Snyder 2003)
	Rainbow trout (21 to 50 cm fork length)	Freshwater (conductivity 530 µS/cm @ 18ºC)	0.06-0.10 V/cm pulsed DC @ 15 Hz 0.03-0.05 V/cm pulsed DC @ 60 Hz	Meismer 1999 (as cited in Snyder 2003)
	Colorado pike minnow (30 to 39 cm fork length)	Freshwater (conductivity 530 µS/cm @ 18ºC)	0.08-0.13 V/cm pulsed DC @ 15 Hz 0.02-0.10 V/cm pulsed DC @ 60 Hz	Meismer 1999 (as cited in Snyder 2003)
Altered migratory behavior (changed orientation relative to electrical field)	American eel elvers (juveniles)	Marine	1 µA/cm^2 to 100 µA/cm^2	McCleave and Power 1978
Observed avoidance responses (electrofishing voltage used to direct fish out of an in-water work area)	Salmonids (adult and juvenile), other resident fish species	Freshwater (riverine ~1-6 ft. depth)	500 to 1,000 V pulsed DC @ 7.5 Hz	Johnson and Hoffman 2000
Observed avoidance responses (electrical fish barrier used to prevent access to an in-water work area)	Salmonids (adult and juvenile)	Freshwater (riverine ~1-6 ft. depth)	~0.5 to 100 V/M pulsed DC @ 2 Hz	Johnson and Hoffman 2000

Table 1 (continued). Electrical field strength associated with observed responses in various fish species.

Response Type	Species Type	Environment Type Where the Response was Observed	Electrical Field or Source Strength Associated with Observed Response	Source
Recommended voltage settings for electrofishing equipment to avoid fish injury (voltage requirements dependent on conductivity)	Salmonids (juvenile)	Freshwater	100 to 800 V pulsed DC @ ≤30Hz	WSDOT 2006
Electrofishing injury (electrofishing voltage settings associated with spinal and tissue injury)	Rainbow trout (juvenile)	Freshwater	300 V pulsed DC @ 30 Hz	McMichael et al. 1998
			1-9 V/cm within 100 cm of anode (produced by electrofishing at a setting of 350-400 V @ 60 Hz)	Dalbey et al. 1996
Stunning or unconsciousness	Rainbow trout (31 to 48 cm fork length)	Freshwater (conductivity 103 µS/cm @ 11ºC)	0.53-10.4 V/cm pulsed DC @ 20 Hz 0.92-6.5 V/cm pulsed DC @ 30 Hz 0.61-6.4 V/cm pulsed DC @ 60 Hz	Taube 1992 (as cited in Snyder 2003)
	Rainbow trout (21 to 50 cm fork length)	Freshwater (conductivity 530 µS/cm @ 18ºC)	0.54-0.70 V/cm pulsed DC @ 15 Hz 0.14-0.20 V/cm pulsed DC @ 60 Hz	Meismer 1999 (as cited in Snyder 2003)
Stunning or unconsciousness (continued)	Colorado pike minnow (30 to 39 cm fork length)	Freshwater (conductivity 530 µS/cm @ 18ºC)	0.25-0.36 V/cm pulsed DC @ 15 Hz 0.18-0.27 V/cm pulsed DC @ 60 Hz	Meismer 1999 (as cited in Snyder 2003)
	Atlantic salmon (adult)	Marine	15-250 V/M @ 50 Hz AC (depending on duration of exposure)	Roth et al. 2003

µV/cm = microvolts per centimeter
V/cm = volts per centimeter
V/M = volts per meter
µS/cm = microsiemens per centimeter (measure of electrical conductivity)
DC = direct current
Hz = Hertz
V = volts
ºC = degrees Celcius
Fork length = the length of a fish from the tip of the nose to the indent, or fork, in the middle of the tail fin

Table 2. Stray electrical current field strength under the I-90 bridge, under existing and proposed conditions

Source	Parameter	Existing Conditions	Proposed LRT Conditions	Notes
Existing cathodic corrosion protection system	Electrical field intensity	Maximum: 26.2 µV/cm DC Typical: 13.1 µV/cm DC	Similar to existing conditions.	LRT operation will have little impact on the potential strength of the stray current field. Maximum rectifier output is the limit of the rectifier specifications. Most units are operating about half the rated output. Planned upgrades in rectifier and anode design will maintain current conditions, or possibly reduce field intensity.
	Maximum electrical field size around each cathode/anode	30 meters (horizontal) 21 meters (vertical)	30 meters (horizontal) 21 meters (vertical)	The electric field will be concentrated between the cathode (anchor cable) and the anode, which are spaced approximately 30 meters apart. Each anode is suspended 10 to 11 meters below the surface and is between 10 to 21 meters in length.
	Minimum horizontal distance between each field	10 meters (horizontal) Pontoons A & R; 5 meters pontoon J; 100 meters remaining pontoons.	10 meters (horizontal) Pontoons A & R; 5 meters pontoon J; 100 meters remaining pontoons.	
Stray electrical current from LRT system	Maximum electrical field intensity	n/a	Uncertain but will most likely range from 10^{-1} to 10^{-2} µV/cm DC	The proposed LRT system will produce a stray DC current field, but the design and additional shielding mechanisms will limit the intensity of this field to very low levels (essentially negligible in comparison to the existing cathodic corrosion protection system). The size and orientation of the potential stray DC current field is difficult to determine. Stray current could leak to the aquatic system through a number of pathways on the structure, including drainpipes, power lines, the cathodic protection system, and even the concrete structure itself when wet with rain. It is not practical to analyze each of these potential pathways for the purpose of this analysis. Given the limited intensity of the field however, its size and orientation would appear to be irrelevant with regards to potential effects.
	Field size and orientation	n/a	Unknown	

Source: Wetzel 2008.
AC = alternating current
DC = direct current
LRT = light rail transit

As shown in Table 2, operation of the LRT system on the I-90 bridge will not change the output of the cathodic corrosion protection system in any significant way, meaning that the existing electrical field intensity and orientation associated with this feature will remain unchanged under proposed conditions (Wetzel 2008).

The LRT system is expected to produce a stray electrical current field in and around the I-90 bridge. Because this current can discharge along any conduction pathway, the location and extent of this field is difficult to predict. However, much of the discharge is likely to occur from the stray current mitigation system. The intensity of this stray current field is expected to be on the order of 10^{-1} to 10^{-2} μV/cm DC (Wetzel 2008).

Comparison of Stray Current Field Intensity to Established Response Thresholds

Retrofitting of the I-90 bridge to support the LRT system could conceivably alter the electrical field associated with the structure through two pathways: 1) modification of the cathodic corrosion protection system; and 2) creation of a stray electrical current field leaking from the DC electrical system used to power the trains. As shown in Table 2, the size and intensity of the electrical field produced by the existing cathodic protection system is not expected to change under the proposed conditions. As there is no related change in stressor exposure for fish Lake Washington species, there is no further need to consider this particular issue.

The stray current field produced by the LRT system will result in a change in potential electrical exposure from the existing conditions. However, the range of electrical field intensity likely to occur from stray current leakage appears to be lower than levels necessary for sensory detection or physiological effects in Lake Washington species. The intensity of the stray current field will range between 10^{-1} to 10^{-2} μV/cm DC. These levels are one to three orders of magnitude lower than observed physiological response limits in Atlantic salmon and American eel (7-70 μV/cm DC) (McCleave et al. 1974). These species are representative of the likely sensitivity of the majority of Lake Washington species exposed to stray electrical current.

Lamprey are the most electroreceptive, and thereby the most potentially sensitive of the Lake Washington fish species to stray current field exposure. At least one and possibly two species of lamprey (Pacific and river lamprey) are known to occur in the Lake Washington basin (a third species, western brook lamprey, may also be present). Even in the case of lamprey however, the anticipated stray current field appears to be at least one to as much as two orders of magnitude below known physiological and behavioral response thresholds (Bodznick and Preston 1983; Muraveiko 1984).

In recent years, concerns have emerged regarding the potential health effects of long-term exposure to low intensity electro-magnetic fields. Theoretically, long-term exposure even at levels below behavioral response thresholds could lead to adverse effects that would otherwise go undetected. Considerable research effort has been devoted to this concern. For example, Weaver et al. (1998) examined the biochemical response profile of various cellular systems to electromagnetic field exposure in order to evaluate the potential for human health effects. They developed a model to estimate the minimum threshold limits at which an electromagnetic field could potentially cause harmful changes in cellular level physiological systems. They determined that 90 µV/cm was the minimum field intensity necessary to alter physiological systems at the cellular level in species lacking specialized electroreceptive organ systems. Like the physiological and behavioral response thresholds discussed previously, the anticipated I-90 stray DC current field is well below this threshold.

Conclusions

The East Link project proposal to locate LRT on the I-90 bridge is likely to create a low intensity stray current field around the bridge structure. The size and intensity of this field cannot practically be determined with accuracy. However the best possible estimate indicates that stray current intensity will be one to three orders of magnitude below physiological or behavioral response thresholds for even the most sensitive Lake Washington fish species. Given these findings, the conclusion of this screening level assessment is that stray current from LRT operation is unlikely to lead to adverse effects on aquatic life, and there is no need to investigate the issue further.

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FINAL EIS

EAST LINK PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

Appendix H3
Ecosystems Technical Report

SOUND TRANSIT
102B
Link
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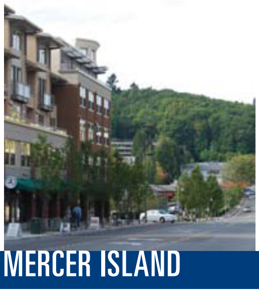
SEATTLE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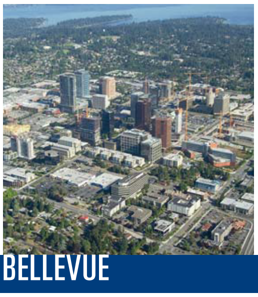
BELLEVUE

OVERLAKE

REDMOND

SOUNDTRANSIT

CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State
Department of Transportation

U.S. Department of Transportation
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July 2011

SOUNDTRANSIT

SOUND TRANSIT EAST LINK PROJECT

Appendix H3

Ecosystems Technical Report

Prepared for:
Sound Transit

Prepared by:
CH2M HILL

July 2011

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Acronyms and Abbreviations

BMPs	best management practices
BNSF	Burlington Northern Santa Fe
CAO	critical areas ordinance
CWA	Clean Water Act
DDT	dichloro-diphenyl-trichloroethane
DNR	Washington Department of Natural Resources
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FAC	facultative plants
FACU	facultative upland plants
FACW	facultative wetland plants
GIS	geographic information system
GMA	Growth Management Act
HGM	hydrogeomorphic classification
I-405	Interstate 405
I-90	Interstate 90
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NCCS	National Soil Survey Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetlands Inventory

OBL	obligate wetland plants
OHWM	ordinary high water mark
PEM	palustrine emergent marsh
PFO	palustrine forested
PGIS	pollutant-generating impervious surface
PHS	Priority Habitat and Species
ppt	parts per thousand
PSS	palustrine scrub shrub
RCW	Revised Code of Washington
SCS	United State Soil Conservation Service
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SR	State Route
TFW	Timber Fish And Wildlife
UPL	obligate upland plants
USACE	United State Army Corps of Engineers
USBEM	Urban Stream Baseline Assessment Evaluation Method
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WNHP	Washington Natural Heritage Program
WR	wetland resource
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

Chapter 1

Introduction

An ecosystem is the interaction between plants, animals, microorganisms, and the physical environment in which they live. Ecosystems are made up of living organisms, including humans, and the environment they inhabit. Understanding this relationship is basic to the environmental review process and the assessment of impacts on ecosystems. This technical report addresses the ecosystem components—aquatic resources, vegetation and wildlife, and wetlands—in the vicinity of the East Link Project alternatives. The report describes the affected environment as well as the expected temporary construction impacts and permanent operational impacts on these ecosystem resources for each of the project alternatives. It also discusses measures intended to avoid and minimize impacts and compensatory mitigation for unavoidable impacts. This report is organized into five main parts, beginning with a summary of data-gathering activities, identification of related laws and regulations, definition of the study area, and assumptions (Section 1.0); followed by Section 2.0, Study Objectives and Methods; Section 3.0, Affected Environment; Section 4.0, Environmental Consequences; and Section 5.0, Potential Mitigation Measures. Section 6.0 provides reference information.

1.1 Data Gathered

Sound Transit conducted a literature and data review to identify and characterize potentially affected resources in and near the project vicinity. Existing documentation and information was compiled and reviewed first so that the field reconnaissance effort could focus on filling information gaps. Existing natural resource information was gathered from many local, state, and federal agencies. This information included published and unpublished reports, maps, websites, aerial photographs, and interviews with agency staff familiar with resources within the project vicinity. The data sources are listed in the following subsections.

1.1.1 Agency and Public Contacts

Sound Transit contacted the following local jurisdictions, agencies, organizations, and individuals for up-to-date information on ecosystems resources:

- City of Bellevue Development Services, Transportation, Utilities, and Parks departments
- City of Redmond Planning and Community Development and Public Works departments
- East Lake Washington Chapter of the Audubon Society
- Friends of Marymoor Park
- Friends of Mercer Slough
- King County Department of Natural Resources, Parks Department, and Water Resource Inventory Area (WRIA) planning group
- Muckleshoot Indian Tribe
- Snoqualmie Tribe
- Suquamish Tribe
- Tulalip Tribe
- Yakama Tribe
- Duwamish Tribe
- National Marine Fisheries Service (NMFS)
- U.S. Army Corps of Engineers (USACE)

- U.S. Fish and Wildlife Service (USFWS)
- Washington Department of Fish and Wildlife (WDFW)
- Washington Department of Natural Resources (DNR) Natural Heritage Program
- Washington State Department of Ecology (Ecology)

1.1.2 Maps and Existing Documentation

Maps and other existing reports were an important resource used to identify ecosystem features within the project vicinity. The following map resources were used:

- Aerial photography of the project corridor
- Bear Creek Basin Plan (King County, 1992)
- Bear Creek Parkway Extension Final Supplemental Environmental Impact Statement (EIS) (City of Redmond, 2004)
- Bel-Red Corridor Project Draft EIS (City of Bellevue, 2007b)
- Bel-Red Corridor Project Final EIS (City of Bellevue, 2007)
- Best Available Science Review for King County, City of Redmond, and City of Bellevue
- Catalog of Washington Streams and Salmon Utilization maps
- Cities of Bellevue, Mercer Island, and Redmond for sensitive and protected species and habitat information
- Comprehensive plans for the Cities of Bellevue, Mercer Island, Redmond, and Seattle (2007)
- Draft Puget Sound Salmon Recovery Plan (Shared Strategy Development Committee, 2005)
- Hydric Soils of King County (Natural Resources Conservation Service [NRCS])
- I-405 Corridor Program: NEPA/SEPA Draft EIS and Draft Preliminary Section 4(f) Evaluation (June 2002)
- I-405 Bellevue Nickel Improvement Project: Wetlands Discipline Report (WSDOT, 2006)
- I-90 Two-Way Transit and HOV Operations EIS (Sound Transit and WSDOT, 2004)
- Information from reports, maps, and personal communications from local WDFW habitat biologists
- King County Conservation District (KCD) Soil Descriptions and Soil Report (KCD, 2000)
- King County sensitive areas map folio and wetland inventory (King County, 1990)
- Mapping information from sources such as wetland delineation reports and stream studies by other consulting firms, as available
- Publications of the Washington Natural Heritage Program (WNHP), available at http://www.dnr.wa.gov/nhp/refdesk/pubs/index.html
- Reports, maps, and personal communications from City of Bellevue and WRIA sources
- Salmon and Steelhead Habitat Limiting Factors Report for the Lake Washington Watershed (WRIA 8) (Kerwin, 2001)
- Sammamish River Corridor Conditions and Enhancement Opportunities Report (King County, 1993)
- Sound Transit Central Link Light Rail EIS (Sound Transit, 1999)
- Sound Transit Technical Back-up on Ecosystems: Central Link Light Rail Final EIS (Sound Transit, 1999)
- Stream inventory maps for the City of Bellevue
- U.S. Geological Survey (USGS) topographic maps (1:24,000)

- U.S. Soil Conservation Service (SCS) soil survey maps of King County (U.S. Department of Agriculture [USDA] SCS, 2008)
- USFWS National Wetlands Inventory (NWI) maps (1:24,000)
- WDFW fish distribution database (http://wdfw.wa.gov/fish-sh.htm)
- WDFW Priority Habitats and Species (PHS) maps (1:24,000)
- Wetland and stream inventory maps for the Cities of Bellevue, Mercer Island, Redmond, and Seattle, as available
- Shoreline Inventory Report – Technical Appendix Volume I, Wetlands (City of Bellevue, 2008)
- Shoreline Inventory Report – Technical Appendix Volume II, Habitat (City of Bellevue, 2008)
- Wildlife Habitat Profile (King County, 1987)
- Kelsey Creek and Tributaries 2006 Salmon Spawner Surveys (City of Bellevue, 2007a)
- Kelsey Creek and Tributaries 2008 Salmon Spawner Surveys (City of Bellevue, 2009)

1.2 Related Laws and Regulations

The following federal, state, and local laws, regulations, and agency jurisdiction and management guidance describe the applicable requirements for wetlands; threatened and endangered species, wildlife, and aquatic species and habitat for these species; and high-value habitats and species:

- Critical Area Ordinances (CAOs) for the Cities of Bellevue, Mercer Island, Redmond, and Seattle and King County
- Endangered Species Act (ESA)
- Executive Orders 89-10, 90-40, and 11990
- Growth Management Act (GMA) (Revised Code of Washington [RCW] 36.70A)
- Migratory Bird Treaty Act (MBTA)
- Bald and Golden Eagle Protection Act
- Local agency Shoreline Master Programs (SMPs)
- Magnuson-Stevens Fishery Conservation and Management Act (MSA)
- National Environmental Policy Act (NEPA)
- Sections 404, 402, and 401 of the Clean Water Act (CWA)
- Washington State Water Pollution Control Act
- Shoreline Management Act (SMA)
- State Environmental Policy Act (SEPA)
- Washington State Hydraulic code (Washington Administrative Code [WAC] Chapter 222-110)
- WDFW PHS Management Recommendations

1.3 Study Areas

Each resource required a specific study area, described below.

1.3.1 Aquatic Resources

Aquatic habitats include ponds, lakes, rivers, and streams. The study area for aquatic resources is defined as 100 feet upstream and 300 feet downstream from where project limits cross a stream and the entire stretch of any stream, then runs parallel to a project alternative within 200 feet of the edge of the alternative. The 300-foot downstream limit is based on WAC 73-201A-400 and reflects the length of mixing zones in streams and rivers as agreed to by NMFS and USWFS for ESA consultation.

1.3.2 Vegetation and Wildlife Resources

Sound Transit has established distinct study areas for vegetation and wildlife resources.

For vegetation, the study area is within 100 feet of either side of the project alternatives and the area within the vicinity of stations, maintenance facilities, park-and-ride lots, traction power substations, and roadway widening, including any trees of significance (as defined by the applicable jurisdiction) within these areas.

For wildlife, the study area was determined by the types of species known to exist near the project.

1.3.3 Wetland Resources

Wetlands are defined by soil characteristics, presence or absence of hydrology, and dominance of vegetation adapted to wet environments. Many wetlands in the study area are considered jurisdictional waters of the United States by the USACE and are protected by federal regulations and local CAOs. The wetland study area is defined as wetlands and wetland buffers within 200 feet of either side of the project alternatives and the area within the project limits, including the trackway, stations, maintenance facilities, park-and-ride lots, traction power substations, and roadway widening. Wetland buffers, which are necessary to evaluate project impacts, may extend beyond the wetland study area.

1.4 Assumptions

1.4.1 Impact Assessment

The process of analyzing and estimating project impacts requires a series of assumptions regarding the physical extent of impacts, the duration of impacts, site restoration following construction, and measures that would be implemented to avoid or minimize potential impacts. This includes temporary construction impacts (between the permanent project right-of-way and the construction limits), and permanent operational impacts within the project right-of-way. The following subsections identify these assumptions.

1.4.1.1 Temporary Construction Impacts

Sedimentation Risk on Aquatic Resources

The spatial extent of water bodies and aquatic resources that may be adversely affected by construction activities varies depending on the type and magnitude of impact. The primary temporary construction impacts would be from sediment-related inputs to streams. Minor inputs would likely affect relatively short sections of stream before sediment settles out of suspension. Major inputs of sediment may be carried for longer distances. A short distance might be approximately 100 feet, while a major sedimentation event might affect a stream for 1,000 feet or more. Impacts from temporary turbidity are generally less than for sediment deposition. However, the distance the impact might cover is greater. The lighter the suspended particulates are, the longer it stays in suspension. Clay particulates settle out the slowest.

In this context, risk is the inherent potential for sediment–related impacts on aquatic resources, such as sedimentation or turbidity, and is site specific (hereafter referred to as sedimentation risk). Table 1-1 describes several example situations for assessing sedimentation risk. The greatest sedimentation risk would be where earthwork is conducted close to a stream or river, or on steep slopes with unstable soils, while the lowest risk would be from earthwork conducted at a greater distance from a stream on flat ground.

Erosion is caused when water from rain or snowmelt flows over ground surfaces that have bare or erodible soil that is not bound by plant roots. The more highly vegetated a surface is, the less likely that erosion will occur. The looser or inherently unstable a soil is, the more likely that erosion will occur for any given precipitation rate. The steeper the slope is, the more likely that erosion or even landslides might occur. The closer that erosion occurs to streams or other water bodies, the more likely that erosion-transported sediment will reach those water bodies.

TABLE 1-1
Example Situations for Assessing Sedimentation Risk to Aquatic Resources within the Study Area

High Sedimentation Risk	Moderate Sedimentation Risk	Low Sedimentation Risk
Earthwork that is done: • Within OHWM • Very close to water body • On steep slopes next to water body • On bare or erodible soil types on moderate to steep slopes • During wet season	Earthwork that is done: • Moderately close to water body • On level ground next to water body • On bare or erodible soil types on shallow slopes	Earthwork that is done: • Distant from water body • Separated from water body by vegetated buffer • Adjacent to piped water body • With minimal earthwork or soil disturbance

OHWM – ordinary high water mark

Measures to minimize sedimentation risk at a given site would be commensurate with risk, such as protecting exposed soils, constructing during the dry season, and implementing erosion controls. This may require multiple best management practices (BMPs) in some situations. Ultimately, BMP performance would determine the degree of impacts, if any.

Limits of Construction and Right-of-Way

For wetlands, and vegetation and wildlife, the construction limit is the area that would be disturbed during construction. This area is typically the 35-foot-wide strip on each side of the 30-foot-wide permanent right-of-way, which totals 100 feet wide. However, for many areas, the project engineers defined the specific construction footprint, which varies from the 100-foot (typically more narrow). In these areas, the engineers provided the construction limits. For analysis purposes, Sound Transit assumed that all lands within the construction limit would be disturbed during construction and that all vegetation would be removed.

Definition of Temporary Impacts

The duration of temporary construction impacts on wetlands would vary depending on the vegetation type and associated habitat functions that would be affected. As defined by Ecology et al. (2006a), temporary impacts are defined as follows:

- Short-term temporary impacts last for a limited time, and functions return to pre-impact performance fairly soon (about one year or within one growing season of the impact). For example, clearing emergent vegetation (e.g., cattails, rushes, sedges, or grasses) for temporary construction impacts associated with a road (for example, for a short-term staging area) changes how the wetland functions for a short time. Emergent vegetation might return within one growing season if the disturbance is not severe. Compensatory mitigation is often not required for short-term temporary impacts.

- Long-term temporary impacts affect wetland functions in such a way that they can be restored, or will eventually be restored over time, but not within a year or so. Long-term temporary impacts or alterations carry a risk of permanent loss, such as when soil is compacted by equipment, deep excavation is required, or pipeline trenches alter the water regime. Clearing a forested wetland for a temporary access road changes the plant community and degrades functions, such as songbird habitat provided by the tree canopy. It may take many years to grow back and re-establish the previous level of function. Long-term temporary impacts normally require compensatory mitigation but at a lower ratio than permanent impacts.

Wetland Impacts under Elevated Guideway

Since the Draft EIS was released in 2008, impacts on wetlands have been updated to reflect additional design input and updated information on construction techniques based on experience from the Sound Transit Central Link project. Additionally, the Draft EIS conservatively assumed that the area under the elevated guideway would be a permanent operational impact on wetlands because of possible shading from the structure. However, as learned from the Sound Transit Central Link project, in most cases, the shading impacts on wetlands are minimal (and at times beneficial) because the guideway structure would be relatively narrow (30 feet wide) and high enough above the ground surface (generally 15 feet or greater) to allow wetland herbaceous plants and shrubs to grow underneath. Height estimates of the elevated guideway refer to the distance from the existing ground surface to the bottom of the guideway structure. Beneficial impacts sometimes occur in the first summer following planting and perhaps for some time afterwards, from shading preventing the young, shallow-rooted plantings from drying out and dying.

The construction limits for all alternatives was limited to a total width of 100 feet, which includes the 30-foot-wide permanent right-of-way and a 35-foot-wide construction impact on each side of the right-of-way.

Wetland Buffer Impacts

Impacts on wetland buffers within the 35-foot-wide construction corridors and staging areas would be temporary. These buffers would be restored and replanted with native vegetation, which may often be an improvement over existing non-native weeds such as Himalayan blackberry. For purposes of the Final EIS, impacts on buffer areas within the 30-foot-wide operational right-of-way under the elevated guideway are included as a permanent impact. Sound Transit would re-evaluate this assumption during the permitting phase of the project to identify specific situations where buffer vegetation under the elevated guideway structure could be restored (where the guideway would be high enough to allow rain during the growing season).

Vegetation within buffer areas receives water directly from precipitation. Therefore, the elevated guideway may create a rainshadow effect and in some cases may have a low clearance that could also limit sunlight. At several locations along Sound Transit's Central Link route, project wetland specialists observed places where vegetation within buffers under the elevated guideway was having difficulty re-establishing because of limited summer water and/or light.

Estimating this impact is complicated and depends on multiple variables, such as slope, aspect, soil conditions, and stormwater dispersion from the elevated guideway. All these variables make for a complicated buffer impact analysis that exceeds the site and design information available during the Final EIS.

A 2009 study on shading impacts on vegetation was conducted for the SR 520 I-5 to Medina: Bridge Replacement and HOV Project (Parametrix et al., 2009). The study synthesized the results of four previous studies, including in situ light and vegetation measurements at several locations on SR 520 and I-90. The study was specific to two wide interstate bridge structures across Lake Washington, which are considerably wider than the elevated guideways proposed for the light rail system. However, some general conclusions from the study can be applied to the East Link Project. For example, the study found that the low, wide SR 520 bridge decks create deep shade beneath the bridge. The study also concluded that higher, narrower bridge decks can let in substantial amounts of light and more light reaches the ground or water surface area underneath these structures; vegetation cover (including trees and dense shrubs) can be quite high in these areas. The elevated guideways will generally be higher and much narrower than the SR 520 bridges studied. Therefore, substantial vegetation growth is expected to be possible under the high elevated guideway sections.

1.4.1.2 Permanent Operational Impacts

The permanent impacts on aquatic resources may include beneficial impacts (improved habitat conditions or fish passage) and adverse impacts when stream channels are either enclosed within new culverts or shaded by overhead guideways (i.e., riparian function impacts). Sound Transit assumes that an overhead structure 30 feet wide extending over stream channels or riparian vegetation could result in potential shading. The width of riparian vegetation used to calculate the area of impact is defined by the Cities of Bellevue and Redmond CAOs and varies by stream type. Additional permanent impacts may include stormwater runoff to surface waters and accidental spills during operation of the maintenance facilities.

For vegetation and wildlife resources, the permanent project limit is the width of the trackway (30 feet) and stations (approximately 60 feet by 380 feet) after construction. Removal of high-quality habitat supporting wildlife functions within the project limit would be permanently affected by project facilities and considered to have direct permanent impacts. Impacts of operational noise on wildlife would likely be relatively minor compared to existing traffic noise. To prevent trees and branches from interfering with operation of the light rail, existing high-quality, forest-dominated vegetation and wildlife habitat under and within 20 feet of each side of the elevated guideways would be converted to shrub and short-tree habitat, which may become high-quality habitat for some species. Existing low-quality, weed-dominated and disturbed vegetation and wildlife habitat under and within 20 feet of each side of the elevated guideways would be converted to shrub and short-tree habitat, which would be a substantial environmental improvement.

Permanent wetland impacts resulting from removal of wetland area and function are those that would occur within the project limits of the project alternatives (i.e., at-grade alternatives, columns for elevated alternatives, stations, maintenance facilities, park-and-ride lots, traction power substations, permanent access roads, stormwater facilities, and road widening). Sound Transit assumes that these areas would be permanently affected and all wetlands and/or buffers within these areas would be lost. Additional permanent impacts might also include stormwater runoff to surface waters during operation of the light rail facilities (see Section 4.9, Water Resources, in the Final EIS).

1.4.2 Site Restoration

For purposes of analysis and discussion of temporary impacts, Sound Transit assumed that areas supporting native upland or wetland vegetation and streambanks located outside of the project limits would be restored to their former condition after completion of construction. Site restoration features would be installed immediately following construction in each project segment. As noted above, the length of time that would be required for site restoration to effectively replace pre-project wetland functions would vary.

1.4.3 Avoiding and Minimizing Impacts on Sensitive Ecosystem Resources

Appendix A of this report provides a compilation of BMPs that could be used to avoid or minimize project construction and operational impacts on sensitive natural resources, including state and federal protected species and their habitats, wetlands, and aquatic resources. These BMPs are either required by state or federal agencies to obtain the permits that would be necessary for the project or may be required to comply with permit conditions. Sound Transit assumes that these BMPs would be implemented at appropriate locations and that they would perform as intended to avoid or minimize impacts.

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Chapter 2

Study Objectives and Methods

This chapter describes the objectives and methods used to study the aquatic resources (Section 2.1), vegetation and wildlife resources (Section 2.2), and wetland resources (Section 2.3).

2.1 Aquatic Resources

This section describes the objectives of the aquatic resources investigations and the methods used to characterize aquatic resources within the study area and identify potential impacts on those habitats.

2.1.1 Aquatic Resources Study Objectives

The purpose of the aquatic resources investigation was to describe the aquatic resources in the East Link Project vicinity and the potential impacts on these resources. Objectives included the following:

- Identify important fisheries resources, such as anadromous and resident species reported to inhabit water bodies within the study area. Describe relevant aspects of salmonid seasonal use and life histories.
- Identify any federal- or state-listed endangered, threatened, or candidate aquatic species reported to inhabit water bodies within the study area.
- Conduct a reconnaissance-level physical habitat survey of water bodies within the study area that may potentially be affected by all project alternatives to describe fish and amphibian habitats and riparian conditions.
- Conduct a quantitative physical habitat survey of streams within the study area that may be affected by the preferred alternative routes.
- Describe potential impacts on aquatic resources that may result from the project alternatives, including temporary construction impacts and permanent operational impacts.
- Propose mitigation measures to avoid, minimize, and compensate for any adverse impacts.

2.1.2 Aquatic Resources Methods

2.1.2.1 Review of Existing Information

Sound Transit performed a literature and data review to identify and characterize potentially affected resources in the study area. Sound Transit reviewed the sources listed in Section 1.1 to collect information regarding the presence of streams, rivers, and lakes and the resident and anadromous fish species and habitat within and near the study area. Existing documentation and information were compiled and reviewed first so that the field reconnaissance effort could focus on filling information gaps.

2.1.2.2 Agency Coordination

Federal, state, and local agencies were contacted for information regarding existing conditions in the study area. For example, WDFW was contacted for information on PHS. The Washington Conservation Commission provided a copy of the Lake Washington watershed habitat limiting factors report (Kerwin, 2001). Kit Paulson with the City of Bellevue provided information on species occurrence, habitat, watershed conditions, spawner surveys, and fish passage assessments at culverts for streams in the Kelsey Creek watershed.

2.1.2.3 Reconnaissance of Water Bodies

Sound Transit conducted reconnaissance-level aquatic habitat surveys during March 2007 at least 100 feet upstream and 300 feet downstream from each of the study area water-body crossings and along the entire reach of any stream running parallel to the project within 200 feet from the edge of the alternative and facilities. Aquatic habitat suitability (i.e., functional status) was evaluated based on the fish life histories, spawning and rearing habitat requirements, seasonal use, and field observations. The following stream habitat information was assessed during field reconnaissance:

- Overall habitat quality rating
- Habitat quality trend
- Water quality
- In-stream habitat
- Riparian habitat

2.1.2.4 Anthropogenic factors

The habitat quality rating was subjective. The fisheries biologists who determined the ratings have extensive experience doing quantitative stream habitat surveys using King County methods (1991); the Urban Stream Baseline Assessment Evaluation Method (USBEM); Timber, Fish, and Wildlife (TFW) methodology (Scheuett-Hames et al., 1994); and other methods. They have experience applying data to rating systems such as USBEM, National Oceanic and Atmospheric Administration (NOAA) Fisheries Pathways and Indicators, and others. The USBEM method was developed for King, Snohomish, and Pierce counties for ESA compliance purposes (R2 Consultants et al., 2000). In addition, aquatic resources were described, when possible and applicable, in a subbasin or drainage area context. Culverts were described and visually assessed for fish passage.

2.1.2.5 Detailed Analysis of Preferred Alternative

Sound Transit conducted quantitative aquatic habitat surveys in September 2009 at the stream crossings along the preferred alternative routes. Two methods were used:

- Crossings without anticipated impacts were assessed using the King County level one method with a Wolman pebble count added (King County, 1991).
- Crossings where impacts were anticipated were assessed using the watershed assessment method developed for the TFW program by Scheuett-Hames et al. (1994).

The King County method was used because it is the most widely used method in urban settings within King County and thus has the best comparative value. The TFW method was used at the request of the Muckleshoot Indian Tribe. Both methods give a quantitative assessment of stream habitat conditions.

2.1.2.6 Water Body Classification and Stream Buffer Width Designations

Water body classification was determined based on the King County, DNR, City of Redmond, and City of Bellevue classification systems. The King County system is hierarchical and based on stream flow and salmonid usage. The King County system categories are as follows:

- Class 1: Streams that are designated as “Shorelines of the State”
- Class 2: Streams that are smaller than Class 1 and flow year-round during years of normal rainfall, or those used by salmonids
- Class 3: Streams that are intermittent or ephemeral during years of normal rainfall and are not used by salmonids
- Unclassified: A watercourse that has been identified but has not been classified

The DNR classification system categories are as follows:

- Type S: Shorelines of the State or Shorelines of Statewide Significance
- Type F: Fish
- Type Np: Nonfish – Perennial
- Type Ns: Nonfish – Seasonal
- Letter U: Unknown

The City of Bellevue classification system categories are as follows:

- Type S water: All waters, within their bankfull width, as inventoried as “shorelines of the state,” including periodically inundated areas of their associated wetlands

- Type F waters: Segments of waters that are not Type S waters and that contain fish or fish habitat, including waters used by hatcheries
- Type N waters: All segments of waters that are not Type S or F waters and that are physically connected to Type S or F waters by an aboveground channel system, stream, or wetland
- Type O waters: All segments of waters that are not Type S, F, or N waters and that are not physically connected to Type S, F, or N waters by an aboveground channel system, stream, or wetland

The City of Redmond classification system categories are as follows:

- Class I: Streams identified as Shorelines of the State under the City of Redmond Shoreline Master Program
- Class II: Natural streams that are not Class I and are either perennial or intermittent and have salmonid fish use or the potential for salmonid fish use
- Class III: Natural streams that are not Class I or Class II and are either perennial or intermittent and have one of the following characteristics:
- Non-salmonid fish use or the potential for non-salmonid fish use
- Headwater streams with a surface water connection to salmon-bearing or potentially salmon-bearing streams (Class I or II)
- Class IV: Natural streams that are not Class I, Class II, or Class III and are either perennial or intermittent, do not have fish or the potential for fish, and are non-headwater streams
- Intentionally Created Streams: Manmade streams defined as such in these regulations, and which do not include streams created as mitigation; purposeful creation must be demonstrated to the City of Redmond through documentation, photographs, statements, and/or other evidence; intentionally created streams may include irrigation and drainage ditches, grass-lined swales, or other artificial watercourses unless they are used by salmonid fish or created for the purpose of stream mitigation.

Cities and counties (in areas that are not incorporated) have jurisdiction over stream buffers, which are regulated through the city's CAOs. Table 2-1 lists the stream buffer widths for the various stream classifications. The City of Redmond has different restrictions in the "inner" and "outer" portions of regulated buffers.

TABLE 2-1
Classification and Buffer Requirements for Streams Located in the Study Area

Stream Classification System	Stream Type/Class	Stream Buffer Requirements (feet)
City of Bellevue	Type S	100
	Type F	100
	Type N	50
	Type O	25
City of Redmond	Class I	150 (inner), 50 (outer)
	Class II	100 (inner), 50 (outer)
	Class III	100
	Class IV perennial	36
	Class IV intermittent	25

City of Bellevue Critical Areas Ordinance (2006) (Land Use Code 20.25H.025).
City of Redmond Critical Areas Ordinance (2005)

2.1.2.7 Impact Assessment

Sound Transit evaluated potential impacts of the East Link Project on aquatic resources by overlaying the map of the project design on the habitat characterization map created for the project; including the location and size of storm drain pipes and stormwater treatment/detention ponds. Sound Transit reviewed proposed construction staging areas and construction methods to determine where erosion, dust, and vegetation disturbance/removal would directly or indirectly affect tributaries in the study area. Sound Transit also evaluated reports and assessments of similar projects.

2.2 Vegetation and Wildlife Resources

This section describes the objectives of the vegetation and wildlife investigations and the methods used to characterize the vegetation and wildlife habitats within the East Link Project vicinity and to identify potential impacts on those habitats. It includes a discussion of threatened and endangered species, species of concern, and high-value habitats within the vegetation and wildlife study areas.

2.2.1 Vegetation and Wildlife Resources Study Objectives

The purpose of the vegetation and wildlife investigations was to describe the ecological resources in the study area and identify and describe potential impacts of the light rail system on them. Objectives included the following:

- Identify important terrestrial habitats and wildlife resources, such as migratory and resident species reported to occupy habitats within and adjacent to the project
- Identify any federal- or state-listed endangered, threatened, or candidate species that may occur within the study area
- Identify suitable habitat for any federal-or state-listed endangered, threatened, or candidate species that may occur within the study area
- Conduct a reconnaissance-level survey of terrestrial habitats to describe plant communities and wildlife habitats within the study area that might be affected by the project
- Describe potential impacts from the project's build alternatives on plant communities and wildlife habitats, including temporary construction impacts and permanent operational impacts
- Propose mitigation measures to avoid, minimize, or compensate for any adverse impacts

2.2.2 Vegetation and Wildlife Resources Methods

2.2.2.1 Review of Existing Information

Sound Transit obtained and reviewed existing data on study area plant communities, wildlife, and wildlife habitat from several sources, including local, state, and federal agencies. Sound Transit also obtained and reviewed existing maps and aerial photographs of the study area.

General wildlife guides, including Peterson guides to mammals, birds, and butterflies, were used to obtain basic distribution maps and general habitat requirements. More detailed distribution and status information was gathered from gap analysis data from the University of Washington (Smith, et al., 1997), *Wildlife-Habitat Relationships in Oregon and Washington* (Johnson and O'Neil, 2001), *Atlas of Oregon Wildlife* (Csuti et al., 1997), and *Ecology and Conservation of the Marbled Murrelet* (Ralph et al., 1995). Wildlife and plant databases were also accessed using internet resources; the NatureServe database (NatureServe, 2007) was one of the primary sources of information for plants and wildlife. Other sites used include the University of Montana's Butterflies and Moths of North America website (2007), the WDNR (2005), and the plant database for the United States Department of Agriculture (2007).

2.2.2.2 Identification of Threatened and Endangered Species and Species of Concern

Sound Transit analyzed the likely presence or absence of listed wildlife and plant species based on their known distributions and the presence of suitable habitat within the project vicinity, referred to as high-value habitat in this analysis. This process was also conducted to narrow the list of federally and state-listed species present in each of the project segments.

USFWS was contacted regarding federally listed plants and animals that may occur in the project vicinity. Data regarding the distribution of ESA-protected species were obtained from the USFWS online database (2007c).

Publications and general occurrence and distribution data for rare wildlife and plants were obtained from the WNHP website (2007). WNHP maintains site-specific data regarding rare, endangered, threatened, and sensitive wildlife, plants, and important ecological communities. WNHP publications that were reviewed included the currently updated version of the 1997 *Endangered, Threatened and Sensitive Vascular Plants of Washington* (WNHP, 1997), *Plant Associations in Washington's Puget Trough Ecoregion* (WNHP, 2007a), *Known High-Quality Rare Ecological*

Communities by (Washington) County (WNHP, 2007b), and *Washington Herp Atlas* (an online atlas of information on rare amphibians and reptiles) (DNR et al., 2005).

Priority species in Washington include all state endangered, threatened, sensitive, and candidate species, as well as federal endangered, threatened, candidate, and species of concern. State monitor species are not considered priority species but are monitored for status and distribution. They are managed by the WDFW, as needed, to prevent them from becoming endangered, threatened, or sensitive. WDFW maintains several geographic information system (GIS) databases that contain information on priority species in Washington. Sound Transit obtained data regarding rare species and habitats from the WDFW PHS database. In addition to publicly available information, WDFW provided site-specific data regarding the occurrence of rare plant communities, plants, wildlife, and wildlife habitat in the project vicinity in response to a project-specific request for these data. WDFW publications that were reviewed included *Priority Species and Habitats* and several volumes of *Management Recommendations for Washington's Priority Species* (WSFW, 1991).

Further literature reviews were required to determine whether habitat suitable for any state priority or listed species occurred within the project vicinity. This research was necessary because of the nature of PHS wildlife distribution data, which typically are very complete for larger, higher-profile species that are easily monitored and for which there are active monitoring efforts, but are often less comprehensive for lower-profile species.

Sound Transit used additional literature review combined with general habitat determinations for each affected potential habitat area to evaluate habitat suitability and potential presence for all PHS wildlife species occurring and likely occurring within the study area. Species that are not likely to occur in the study area were removed from consideration. Species occurrence in the study area was further assessed based on the habitat requirements of that species, habitats present in the study area, the location of known populations, and whether any historical or recent sightings of that species have occurred in King County. Any species that fit those criteria were added as either known to occur in the study area, likely present (i.e., having known historical or recent sightings and suitable habitat present), possibly occurring (i.e., habitat requirements fulfilled at the site and populations known to occur in the study area), or rare in the study area.

High-value habitats are identified as areas with unique or significant value to many species. These areas are not protected by state regulations. However, WDFW has developed management guidelines for land use activities that may affect high-value habitats. Field investigations were conducted in March and April 2007 to verify any priority species or habitats identified by WDFW and to assess potential impacts on these resources from the East Link Project.

Field investigators also surveyed low- and moderate-value habitats to assess their use to wildlife species, and cumulative impacts within the study area for low- and moderate-value habitats. These habitats might potentially be used by a variety of wildlife species, including priority species, though their expected occurrence is lower than for high-value habitats. Research indicates that low- and moderate-value habitats in an urban setting may still be important for some wildlife as they are often used to meet a specific need or life cycle (Marzluff et al., 2001).

2.2.2.3 Coordination with Agencies and Interest Groups

Local, state, and federal agencies were contacted for information regarding existing site conditions for areas located within the study area. The King County DNR, the King County Parks Department, the City of Bellevue Parks Department, WDFW, and USFWS were contacted for information regarding the presence of sensitive or protected habitats, wildlife, and plant species. Sound Transit met with representatives of the Muckleshoot and Snoqualmie Tribes to discuss their concerns regarding the project.

Robert Schafer from the City of Bellevue Parks and Community Services Department provided a list of special-status and listed species for Mercer Slough (Schafer, 2007). Sharon Claussen of the King County Parks Department provided design maps of the mitigation wetland located in Marymoor Park (Claussen, 2007). Bill Ritchie of WDFW was contacted for additional information regarding the protective buffers for bald eagle (*Haliaeetus leucocephalus*) nests located in the study area (Ritchie, 2007). Cathy Beam from the City of Redmond offered information on the status listing and management of red-tailed hawks and great blue herons within their jurisdictional boundaries (Beam, 2007).

Sound Transit also discussed the East Link Project with interest groups such as Friends of Mercer Slough and Friends of Marymoor Park to obtain additional information about the particular area and potential impacts.

Michael Hobbs from Friends of Marymoor Park provided a detailed history on the two bald eagle nests and the status of the purple martin *(Progne subis)* and osprey *(Pandion haliaetus)* nests at Marymoor Park (Hobbs, 2007a and b). In addition, Don Norman from Norman Wildlife Consulting and Herons Forever provided information regarding the status of the historical heronry on SE Leary Way in Redmond (Norman, 2007a and b).

2.2.2.4 Vegetation Classification, Mapping, and Field Investigations

The system used to classify vegetation types within the study area was based on the accepted vegetation classification system used for Sound Transit's Central Link Project (Sound Transit, 1999), which was developed from the King County Wildlife Habitat Profile (1987). However, there are several differences between the basic characteristics of the vegetation types used for the East Link Project and those described by Sound Transit for the Central Link Project. For the East Link Project, the mapped vegetation types included the following and described in Table 2-2 (for more description, see Section 3.2 of this report):

- Riparian forest
- Urban mostly vegetated – coniferous forest
- Urban mostly vegetated – deciduous forest
- Urban mostly vegetated – mixed forest
- Urban moderately vegetated
- Urban sparsely vegetated
- Blackberry

TABLE 2-2
Vegetation Types and Associated Wildlife Habitat Value for East Link Project

Vegetation/Habitat Type[a]	Description	Habitat Value
Riparian forest	Vegetated banks along river and stream edges. Often dominated by willow and red alder. Large big-leaf maple, black cottonwood, and red alder trees might occur. Non-native shrubs (Himalayan blackberry and Scot's broom), grasses, thistles, and other weeds are common.	High
Urban mostly vegetated – coniferous forest	Forest patches generally dominated by Douglas-fir with lesser amounts of black cottonwood, big-leaf maple, red alder in the overstory. Occasionally shore pine and red cedar. Canopy cover variable but generally greater than 40 percent. Douglas-fir trees mostly taller than 50 feet. Shrub layer often dominated by Himalayan blackberry but also includes salmonberry, snowberry, salal, Indian plum, rhododendron, and others. Herb layer, when present, includes grasses, sword fern, fringe cup, and nettles.	High
Urban mostly vegetated – deciduous forest	Forest patches with black cottonwood, big-leaf maple, red alder (40 to 70 feet tall), and few conifers in the overstory. Canopy cover 40 to 80 percent. Understory tree cover may include big-leaf maple, black cottonwood, red alder, and Pacific madrone. Shrubs similar to those of coniferous forest type.	High
Urban mostly vegetated – mixed forest (coniferous/deciduous)	A few small areas with a roughly even mix of deciduous trees and conifers in the overstory.	High
Urban moderately vegetated	Dominated by open mowed lawns. Large native and ornamental trees (generally 40 to 70 feet tall) also present. Some patches of ornamental and native shrubs may occur. Tree and shrub canopy cover values generally less than 30 percent.	Moderate
Urban sparsely vegetated	Commercial and industrial properties, road rights-of-way, and neighborhoods with a few or small patches of ornamental and native trees and considerable human activities.	Low
Blackberry	Areas dominated by blackberry were classified separately from riparian forest because of the much lower habitat value of blackberry-dominated areas.	Low
Open water	Highly variable community including saline and fresh waters, deep or shallow waters, rivers, creeks, and large water bodies.	High (except for Lake Bellevue)

[a] East Link vegetation types adapted from designations developed for the Central Link study area by Sound Transit (1999) from the King County (1987) Wildlife Habitat Profile.
[b] East Link wildlife values were modified from those assigned to the Central Link Project based on field observations.

Other habitat types, such as open waters and wetlands, are also mapped and addressed in other sections of this report. The first four vegetation types (riparian and urban mostly vegetated) are viewed as offering high-value habitat for a variety of wildlife species. For purposes of wildlife habitat, the last three vegetation types (moderately, sparsely, and blackberry vegetation) offer only moderate- or low-value habitat.

There are minor differences between the vegetation types used for East Link and those used for Central Link. For Central Link, Sound Transit described the urban, mostly vegetated type as "dominated by open mowed lawns; large native and ornamental trees (generally 40–70 feet tall); some patches of ornamental and native shrubs may occur" and assigned a high habitat value rating to these areas (Sound Transit, 1999). During the East Link study, however, Sound Transit did not find areas with mowed lawns and enough of an overstory of trees and shrubs to allow the areas to be classified as "mostly vegetated." Identified areas with characteristics approaching this condition were classified instead as urban, moderately vegetated for several reasons. First, Sound Transit mapped smaller polygons for East Link than were mapped for the Central Link analysis. This allowed areas with mowed lawns to be distinguished from areas with a more natural understory or ground cover. Second, and more important, the canopy cover of trees and shrubs described in Sound Transit's 1999 Central Link Project EIS was considerably lower than the canopy cover of more natural areas. These were classified for East Link as urban mostly vegetated—coniferous forest, urban mostly vegetated—deciduous forest, and riparian forest. Most of the areas classified as urban, moderately vegetated for East Link have higher habitat values than those classified by Sound Transit in 1999 because of the location of these areas and their connectivity or association with larger habitat patches.

Wildlife habitat values were not attributed to each occurrence of a vegetation type along the project corridor but instead were assigned to the vegetation type as a whole. Habitat value within a vegetation type at a specific location can vary and depends on several factors, such as size of the area; presence of (or proximity to) other valuable habitat; level and type of human disturbance; diversity of plant species; presence of multiple vegetation layers (i.e., tree, shrub, forb, and emergent layers); presence of threatened, endangered, or sensitive species; and extent of invasive weeds.

Areas within 100 feet of either side of the project alternatives that appeared to provide some level of potential value for wildlife were initially mapped using 1 inch = 200 feet scale color aerial orthophotographs (i.e., aerial photographs adjusted for topography, lens distortion, and camera tilt). Vegetation type polygons were classified and mapped regardless of size or upland/wetland designation. Vegetation type polygons were digitized onto aerial photographs (scaled at 1 inch = 200 feet) for subsequent use in field reconnaissance of the study area.

All vegetation polygons were visited during the field reconnaissance to verify the initial classification. The initial vegetation classification and polygon boundary was modified if needed based on the field review.

2.2.2.5 General Wildlife Habitat Value

Aerial photographs were used to locate all forested areas, which Sound Transit then assessed for plant diversity, plant density, and signs of wildlife use. Each of the urban mostly vegetated types (coniferous forest, deciduous forest, and mixed forest) and riparian forest polygons were assessed in the field by two biologists. A qualitative wildlife habitat functional value assessment form was adapted from the Washington State Department of Transportation (WSDOT) *Wetland Functions Characterization Tool for Linear Projects* (WSDOT, 2000) for use in evaluating general wildlife habitat value in the study area. The template for the data form is provided in Appendix B, and completed forms are available upon request. The qualitative functional value form assessed factors such as the following:

- Relative vegetation density, age, and growth form, and species and structural diversity
- Dominant plant species composition
- Location relative to sources of human disturbance
- General levels of development in the vicinity of the site
- Connectivity to other areas of valuable wildlife habitat
- Presence of movement barriers
- Presence of water and, if present, water type
- Specific factors affecting the potential habitat value for amphibians, mammals, and birds

These qualitative wildlife habitat assessment forms were not completed for wetlands because a separate wetland functional assessment form was used for those areas (see Section 2.3, Wetland Resources). The results of the wetland delineation and wetland functional assessment were used to identify important wildlife habitats of wetlands. These data were used to supplement information received from WNHP and WDFW, which covered both upland and wetland species.

2.2.2.6 Impact Analysis

Vegetation and Habitat

Expected impacts from project construction and operations on vegetation and wildlife habitat were determined by evaluating the acreage of major vegetation types that would be directly or indirectly impacted by the alternatives.

Wildlife

Sound Transit assessed impacts on wildlife using several approaches, including quantitative and qualitative methods, and measured direct habitat loss based on the extent of impacts to various plant communities. The qualitative assessment was accomplished based on factors, such as the regional significance of the habitat, its value (such as a site's role as a wildlife movement corridor), the degree of fragmentation and loss of the habitat following project implementation, overall habitat quality, and the potential for enhancing or restoring unique plant communities or wildlife habitat or connectivity.

Temporary construction and permanent operational impacts on wildlife, including disturbances from increases in human access, noise, light, and habitat fragmentation, were also evaluated. Information presented by the USFWS regarding the impacts of noise on wildlife was used to assist in this aspect of the analysis (USFWS, 2007a). The potential for the introduction and/or removal of noxious and/or invasive species invasions because of the project were also evaluated. Impacts on rare species were assessed by considering both direct habitat loss and indirect impacts from habitat loss and human disturbance.

A program called VIEWSHED GIS was used to determine potential impacts on bald eagles. The program predicts whether project construction activities occurring with the one-half-mile nest buffer could be seen from each of the eagle nest sites. Recorded features include the presence of large hills or open areas and the position of the nest or roost in the landscape. The program also considers topographic features to conduct the analysis. When the required data are gathered, viewsheds are created using the VIEWSHED GIS software. These viewsheds show the lands within one-half mile that are visible from each bald eagle nest or roost. Potential impacts are assessed based on distances between bald eagle nests or roosts and construction areas and whether there is an unobstructed line-of-sight between the nest or roost and construction areas.

2.3 Wetland Resources

2.3.1 Wetland Resources Study Objectives

Earlier project reconnaissance findings show that wetlands are located within the construction limits for several project alternatives. As a result, specific objectives of this analysis include the following:

- Catalog the existing conditions of the wetlands and wetland buffers located within 200 feet of either side of the proposed project alternatives.
- Determine each project alternative's temporary construction and permanent operational impacts on wetlands.
- Describe measures to avoid, minimize, or compensate for impacts.

2.3.2 Wetland Resources Methods

Wetlands were identified through existing mapping inventories and published documents, field evaluations, and communications from various agencies. Federal, state, and local regulations were referred to assist in classifying and rating wetlands and to confirm project compliance with existing laws.

2.3.2.1 Review of Existing Information

Existing wetland data were gathered from a variety of sources—including federal, state, and local agencies—reviewed in the office, and then evaluated in the field. Existing digital GIS information was obtained from the

Cities of Bellevue and Redmond, and the USFWS National Wetlands Inventory (NWI). The NWI database was the primary wetland mapping tool used.

2.3.2.2 Agency Coordination

During this review, several state and local agencies were contacted. The Cities of Bellevue and Redmond were contacted regarding their wetland map inventories. WSDOT was contacted for permission to access the Mercer Slough wetlands along the Interstate 90 (I-90) overpass and for information regarding the wetland existing on the old WSDOT property adjacent to 118th Avenue SE in Bellevue. The King County Parks Department was contacted for information regarding the Marymoor Park mitigation wetland. Construction plans for the mitigation wetland were obtained and permission granted for accessing the site for evaluation.

2.3.2.3 Wetland Determination

General field reconnaissance work was completed in February and March 2007 for the East Link Project using aerial photographs from 2005. The aerial photographs were at a scale of 1:24,000 (1 inch = 200 feet) and were used to evaluate existing mapped wetlands and to help pinpoint potential sensitive areas that were not included in any of the wetland maps or inventories. To determine whether wetlands were present, potential existing wetland data were plotted onto the aerial photograph map books created for the project, and the East Link Project alternatives were then added to the map books with 100-foot boundaries from the centerline. The boundary widths were placed on either side of the centerline to expand the study area in case the centerlines were shifted or adjusted along their route. In addition, Sound Transit examined an additional 200 feet on either side of the project alternatives to locate any additional wetland resources that might have been omitted from the existing wetland inventories and maps and that might have included buffers that intersect the study area.

The *2004 Washington State Wetland Rating System for Western Washington Manual* (Ecology publication #04-06-025) (Hruby, 2004) was used to determine the presence, class, and category of wetlands in the study area. For the Draft EIS, reconnaissance-level wetland assessments were completed for all alternative routes. Formal wetland delineation was conducted in 2009 for the *Preferred Alternative* routes identified as part of the Final EIS. Using the Ecology manual, each of the potential wetland sites was evaluated for the presence or absence of hydric soils, the dominance of hydrophytic vegetation, and the presence or absence of wetland hydrology. A discussion of these three wetland criteria is included in the methodology sections below. Once the sites were visited, if they were classified as wetlands, they were added into the project database and identified on project maps.

Soils

To help locate potentially missed wetland sites, Sound Transit used data obtained from the USDA Natural Resources Conservation Service (2008) and from King County (King County GIS Data, 2007)) to create 1:2,400 mapbooks that show the different soil boundaries and soil types within the study area. Before entering a site, the mapped soil types were verified to be either hydric or nonhydric soils. This information was especially useful for areas in the City of Bellevue and Bel-Red corridor area because access to several properties was not allowed. Wetland soil determinations were based on existing soil classification for the following known wetland complexes: Bear Creek (WR-12), West Tributary to Kelsey Creek Ponded (WR-7), West Tributary to Kelsey Creek Riparian (WR-8NW, WR-8N, and WR-8SE), 118th Avenue SE (WR-5), and Mercer Slough/I-90 (WR-4) wetlands.

In areas where property access was allowed, Sound Transit dug 16-inch-deep soil pits to view the soil profile. Soil matrix color was noted using a Munsell Soil Color Chart (Greytag Macbeth, 2000). Matrix texture was also noted. Within the upper 12 inches of the soil profile, soils were only considered wetland soils if the soil chroma had a value of 2 or lower with redoximorphic features on the Munsell Soil Color Chart, or with a value of 1 or lower without such features. If redoximorphic features were present in the soil, the color, size, abundance, and texture were noted. Soil pits were dug in 8 of the 13 wetlands located within the study area. Soil pits were not dug in the other wetlands because access restrictions were not resolved at the time of the Draft and/or Final EIS. Wetland data at the WSDOT property located east of 118th Avenue SE were obtained from the *I-405 Bellevue Nickel Improvement Project Wetlands Discipline Report* (WSDOT, 2006).

Vegetation

Plant communities were evaluated in February and March 2007 to determine the presence and dominance of hydrophytic vegetation. Deciduous and herbaceous species were still dormant during this time of year, so dormant shrubs and trees were identified by bark, branch growth patterns, and fallen leaves around the base of the plant. Herbaceous vegetation was identified by last year's growth, which was still evident on most species.

Hydrophytic vegetation exists when more than 50 percent of the dominant plants in each strata (i.e., tree layer, shrub layer, and/or herb layer) are either obligate, facultative wetland, or facultative indicator plants (Table 2-3). Wetland indicator status was determined using the 1996 *National List of Vascular Plant Species That Occur in Wetlands* (Reed, 1988).

TABLE 2-3
Wetland Plant Indicator Status

Indicator Status	Indicator Symbol	Wetland Definition
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability >99%) in wetlands under natural conditions, but which might also occur rarely (estimated <1%) in nonwetlands
Facultative Wetland Plants	FACW	Plants that occur usually (estimated probability >67 to 99%) in wetlands, but which also occur (estimated probability 1 to 33%) in nonwetlands
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability33 to 67%) of occurring in wetlands and nonwetlands
Facultative Upland Plants	FACU	Plants that occur sometimes (estimated probability 1 to <33%) in wetlands, but which occur more often (estimated probability >67 to 99%) in nonwetlands
Obligate Upland Plants	UPL	Plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always (estimated probability >99%) in nonwetlands under natural conditions

Source: Reed, 1988

Hydrology

The hydrology of each site was also evaluated during February and March 2007. Signs of water were followed toward their sources. Indicators of wetland hydrology, including water-stained vegetation and debris dams, were noted. Aerial maps were used to determine the water sources and where to extend the search.

2.3.2.4 Wetland Functions and Classification

Wetlands were classified following federal and state guidelines. The Cowardin system (Cowardin et al., 1979) was used to define and describe the vegetation characteristics of wetlands in the study area (Table 2-4). In addition, the Hydrogeomorphic Classification (HGM) (Brinson, 1993) for each wetland was ascertained using guidance found in the *Washington State Wetland Rating System for Western Washington Revised* (Hruby, 2004). The HGM classification system breaks wetlands down into categories based on their hydrodynamics, hydrologic source, and geographic setting (such as depressional, riverine, or slope).

TABLE 2-4
Cowardin Classifications of Wetlands Located within the East Link Study Area

Cowardin Classification	Definition
Palustrine Emergent (PEM)	Vegetation standing in a few inches to 3 feet of water. PEM are dominated by erect, rooted herbaceous freshwater hydrophytic vegetation.
Palustrine Scrub-Shrub (PSS)	Areas dominated by woody vegetation <6 meters (20 feet) tall. Woody shrub component consisting of shrubs and small trees.
Palustrine Forested (PFO)	Areas dominated by woody vegetation >6 meters (20 feet) tall.

Ecology's *Rating System for Western Washington* (Hruby, 2004) as adopted by local CAOs was used to determine the category of each wetland based on functional capabilities. Higher quality functions result in higher ratings, with Category 1 being the highest functioning wetlands and Category 4 the lowest. Wetland-buffer width varies with a given wetland category, which also varies with the specific jurisdiction (Table 2-5). Wetland buffers are not given their own category but are associated with the category of wetland they abut.

TABLE 2-5
Wetland Categories and Buffer Requirements for Wetlands Located in the East Link Study Area

Classification System	Wetland Category	Buffer Requirements[a,b]
City of Bellevue[b]	Category 1: Category 2: Category 3: Category 4:	75 – 225 feet 75 – 225 feet 60 – 110 feet 40 feet with no setback
City of Redmond [c]	Category 1: Category 2: Category 3: Category 4:	75 – 300 feet 75 – 300 feet 60 – 150 feet 40 – 50 feet

[a] Variations in buffer width are due to functional scores and other criteria for each jurisdiction. Similarly, variations in mitigation ratios are based upon the type of mitigation offered (e.g., creation, restoration, re-establishment) and the Cowardin class affected.
[b] All Category 1, 2, and 3 Wetlands in Bellevue have a 20-foot setback that prohibits placement of any structure within 20 feet of the wetland boundary.
[c] The impact of adjacent land use anywhere in the City of Redmond is at least moderate, so the narrowest possible buffers shown in the City of Redmond CAO would not apply.

Wetland buffers were added to mapped wetlands and shown on aerial maps to display the total wetland footprint (including both wetland and buffer) occurring within the construction limits of each project alternative. In some cases, existing buildings, parking lots, and roads within wetland buffer areas reduced buffer widths.

2.3.2.5 Wetland Functional Assessment

The functions and values that exist in each wetland and their level of performance were evaluated during site visits. The presence and quality of functions provided by each wetland resource were assessed using the *Washington State Wetland Rating System for Western Washington Revised* (Hruby, 2006). The rating system defines three main wetland functional categories (i.e., hydrologic, water quality, and habitat). The wetland rating scores for each function group can be converted into general groups (low, moderate, or high) according to the *Focus Sheet: Using the Wetland Rating System in Compensatory Mitigation* (Ecology, 2008).

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Chapter 3

Affected Environment

The East Link Project would be constructed in a generally urban area with variable levels of existing human activity. Portions of the project would be constructed in highly urbanized cities such as Seattle, Bellevue, and Redmond or along heavily traveled highways, including I-90, I-405, and State Route (SR) 520. This chapter describes the affected environments for aquatic resources (Section 3.1), vegetation and wildlife resources (Section 3.2), and wetland resources (Section 3.3).

3.1 Aquatic Resources

The East Link Project would be constructed in an urban area that has already experienced a moderate to high degree of alteration to aquatic habitats. The degree of alteration varies from water body to water body, with the greatest alteration occurring where urban development is the greatest, such as some of the tributaries to Kelsey Creek and Sturtevant Creek in Bellevue. Some of the smaller streams and headwater reaches have been placed in long pipe systems. The least-altered stream in the study area is Bear Creek in Redmond. However, recent development in that watershed has been extensive.

3.1.1 Drainage System Configuration

The Lake Washington Watershed (i.e., WRIA 8) is composed of two major subbasins: the Sammamish River and the Cedar River. Table 3-1 lists the water bodies that would be potentially affected by the East Link Project. The Kelsey Creek system, the primary watershed with associated potential impacts from the project, is located in Segments B, C, and D. Exhibit 3-1 shows the water bodies in and around the study area.

3.1.2 Fish and Other Aquatic Species and Habitat

This section describes the aquatic species and habitat in the study area by segment. Exhibits 3-2 through 3-5 show streams and fish passage features along and nearby Segments B through E, respectively, within each related segment subsection in this chapter. (This results in some exhibits appearing out of sequence in this section.)

3.1.2.1 Segment A

Lake Washington is the second largest lake in Washington, with a surface area of 22,138 acres. The lake lies at an elevation of 22 feet. The lake is about 20 miles long, averages about 1.5 miles wide, and is oriented in a north-south direction. The maximum depth is 214 feet. The major sources of water that enter the lake are the Cedar River (55 percent of the average inflow) and the Sammamish River (27 percent of the average inflow). The remainder of inflow comes from May Creek, Kelsey Creek, Juanita Creek, Thornton Creek, Lyon Creek, and other, smaller creeks. The lake drains to Puget Sound through the Lake Washington Ship Canal, an artificial waterway constructed in 1916. The ship canal was built to allow ship traffic to access freshwater moorage in Lake Union and Lake Washington via the Hiram Chittenden (Ballard) Locks, which were built at the same time as the ship canal.

Many species of resident fish, both native and introduced, inhabit Lake Washington (Table 3-2). Several species of introduced fish are very abundant, such as yellow perch (*Perca flavescens*) and smallmouth bass (*Micropterus dolomeiui*). Many of these species were introduced when the live fish exhibit at the 1909 Alaska-Yukon-Pacific Exposition was released into Lake Washington. These include tench (*Tinca tinca*) and common carp *(Cyprinus carpio)*, both native to Europe.

TABLE 3-1
Description of Water Bodies Potentially Affected by the East Link Project

Water Body	Alternatives Crossing or Adjacent to Water Body[a]	WRIA Number	King County Class	WDNR Class	Local CAO Stream Class or Type and Buffer Width (ft)	Stream Length (miles)	Drainage Area (square miles)	Comments
Cedar River Subbasin								
Lake Washington	*Preferred A1*	8	1	S	NA:	NA	692	A regionally important lake and designated as a Shoreline of Statewide Significance.
Mercer Slough	*Preferred B2M*, B1, B2A, B2E, B3, B3 Design Option, B7	8-0059	1	S	Class Type S: Buffer: 100	1.2	2.1	Chinook gather at the mouth of Mercer Slough under the I-90 crossing. All salmonids destined for Kelsey Creek pass through Mercer Slough. Designated as a Shoreline of Statewide Significance.
Mercer Slough West	*Preferred B2M*, B1, B3, B3 Design Option, B2A, B2E	8-0059	1	S	Type F: Buffer: 100	1.2	2.1	Western channel between 112th Avenue SE and Bellefield Office Park. Designated as a Shoreline of Statewide Significance.
Sturtevant Creek	B3 Design Option, *Preferred C11A, C9T,* C1T, C2T, C3T, C4A, C7E, C8E, C9A, C14E	8-0262	2	F	Type: F Buffer: 100	1.0	1.2	Urbanized area results in rapidly fluctuating flow regimes.
Kelsey Creek	B7	8-0259	2	F	Type: F Buffer: 100	8.6	11.4	The largest stream in Bellevue. This is an urban stream of regional significance due to high presence of Chinook.
West Tributary to Kelsey Creek	*Preferred D2A*, D2E, D3, D5	8-0264	2	F	Type: N Buffer: 50	2.8	1.6	Pacific giant salamander documented. Urbanized area results in rapidly fluctuating flow regimes. Impassable culvert at Bel-Red Road, below the project study area.
Goff Creek	*Preferred D2A*, D2E, D3, D5, MF3	None	2	F	Type: F Buffer: 100	1.5	1.1	Impassable culvert at Bel-Red Road, below the project study area. Urbanized area results in rapidly fluctuating flow regimes.
Unnamed Tributary to Kelsey Creek	*Preferred D2A*, D2E, D3	None	3	Ns	Type: O Buffer: 25	Unk	Unk	Very small, intermittent. Urbanized area results in rapidly fluctuating flow regimes. Impassable culvert at Bel-Red Road, below the project study area.
Valley Creek	*Preferred D2A*, D2E, D3, D5	8-0266	2	F	Type: F Buffer: 100	2.5	2.2	Urbanized area results in rapidly fluctuating flow regimes.

TABLE 3-1 CONTINUED
Description of Water Bodies Potentially Affected by the East Link Project

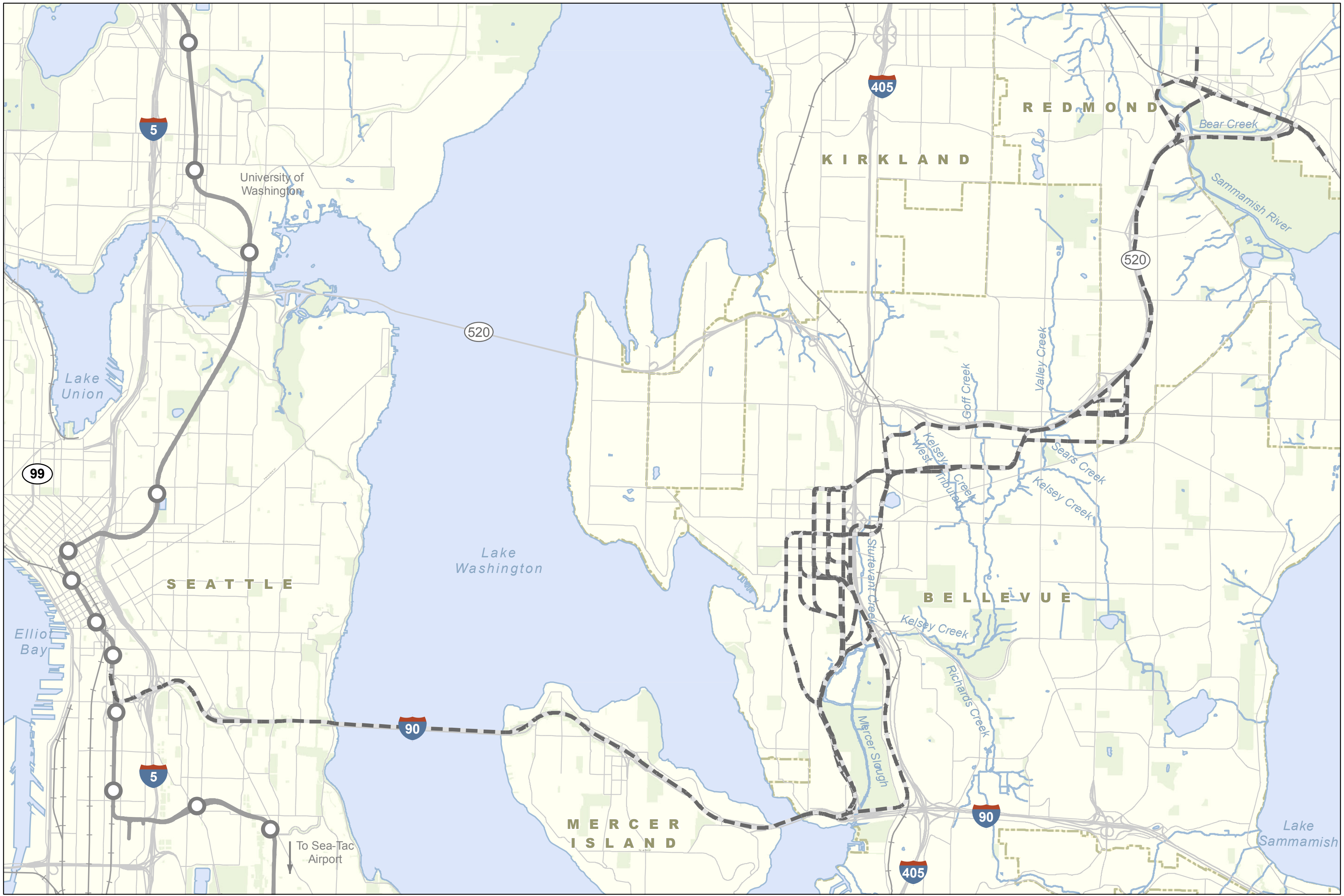
Water Body	Alternatives Crossing or Adjacent to Water Body[a]	WRIA Number	King County Class	WDNR Class	Local CAO Stream Class or Type and Buffer Width (ft)	Stream Length (miles)	Drainage Area (square miles)	Comments
Sears Creek	D3	8-0267	2	F	Type: F Buffer: 100	0.6	0.9	Most of drainage is piped. Urbanized area results in rapidly fluctuating flow regimes.
Sammamish River Subbasin								
Sammamish River	*Preferred E2*, E1, E4	8-0057	1	S	Class: I Buffer: 150	13.8	240	All salmonids destined for Bear and Issaquah creeks pass through the Sammamish River.
Bear Creek	*Preferred E2*, E1, E4	8-0105	1	S	Class: I Buffer: 150		50	Identified as one of the top six natural resource drainages in King County. Designated as a Shoreline of Statewide Significance.

Note: Alternatives not listed would not affect any water bodies.

[a] Alternative names:
Preferred A1 = I-90
Preferred B2M = 112th SE Modified
B1 = Bellevue Way
B2A = 112th SE At-Grade
B2E = 112th SE Elevated
B3 = 112th SE Bypass
B3 Design Option = 114th Extension Design Option
B7 = BNSF
C11A = *Preferred 108th NE At-Grade*
C9T = Preferred 110th NE Tunnel
C1T = Bellevue Way Tunnel
C2T = 106th NE Tunnel
C3T = 108th NE Tunnel
C4A = At-Grade Couplet
C7E = 112th NE Elevated
C8E = 110th NE Elevated
C9A = 110th NE At-Grade
C14E = 114th NE Elevated
Preferred D2A = NE 16th At-Grade
D2E = NE 16th Elevated
D3 = NE 20th
D5 = SR 520
Preferred E2 = Marymoor
E1 = Redmond Way
E4 = Leary Way
MF3 = Maintenance Facility 3

Five species of anadromous salmonids are resident to the Lake Washington Watershed (sockeye, Chinook, coho, steelhead, and sea-run cutthroat trout). Table 3-3 lists the species present and their stock status. Anadromous fish are those species that begin their life in freshwater, migrate to the ocean to rear, and then return to freshwater as adults to spawn. The most abundant of these is sockeye salmon (*Oncorhynchus nerka*). Sockeye is the only species to rear in the lake for a whole year as juveniles. Sockeye enter the lake as adults starting in June and remain until September, when temperatures drop in the tributary streams where they spawn. The primary spawning areas are in the Cedar River, Issaquah Creek, and Bear Creek, but substantial numbers also use nearly all of the larger tributary streams, including Kelsey Creek. Juveniles enter the lake as fry during late winter and early spring, and most rear in the lake for one year. Sockeye smolts leave the lake in spring to enter Puget Sound, and then migrate to the open ocean. A resident form of sockeye, called Kokanee, does not migrate out to sea but remains in fresh water throughout its life cycle.

Adult spawner Chinook salmon (*Oncorhynchus tshawytscha*) enter Lake Washington from early July through the end of October. Their residence time in the lake is thought to be relatively brief, although the early-arriving fish may linger if tributary temperatures are too high. When tributary temperatures drop in fall, Chinook migrate up into the tributary streams and rivers to spawn. There is a major hatchery program for Chinook at the Issaquah Creek hatchery and a smaller program at the University of Washington. All Chinook in the Lake Washington system are “ocean-type,” meaning they rear in freshwater as juveniles for only 3 to 6 months. There are two juvenile life-history variants in the population. One variant enters the lake as fry and rears in the lake until late spring/early summer before entering Puget Sound. The second variant rears in streams until late spring/early summer before migrating into and through the lake and out to sea. This second, and most common, variant does not spend much time in the lake.


University of Washington
405
5
520
R E D M O N D
K I R K L A N D
Bear Creek
Sammamish River
Lake Union
99
Valley Creek
Goff Creek
Sears Creek
Kelsey Creek
West Tributary
Kelsey Creek
S E A T T L E
Lake Washington
Sturtevant Creek
B E L L E V U E
Elliott Bay
Kelsey Creek
Richards Creek
90
Mercer Slough
5
M E R C E R
I S L A N D
To Sea-Tac Airport
90
Lake Sammamish
405

Source: Data from King County (2006) and Sound Transit (2007).

Stream

East Link Alternative

Central Link Alignment and Station

City Limits

N

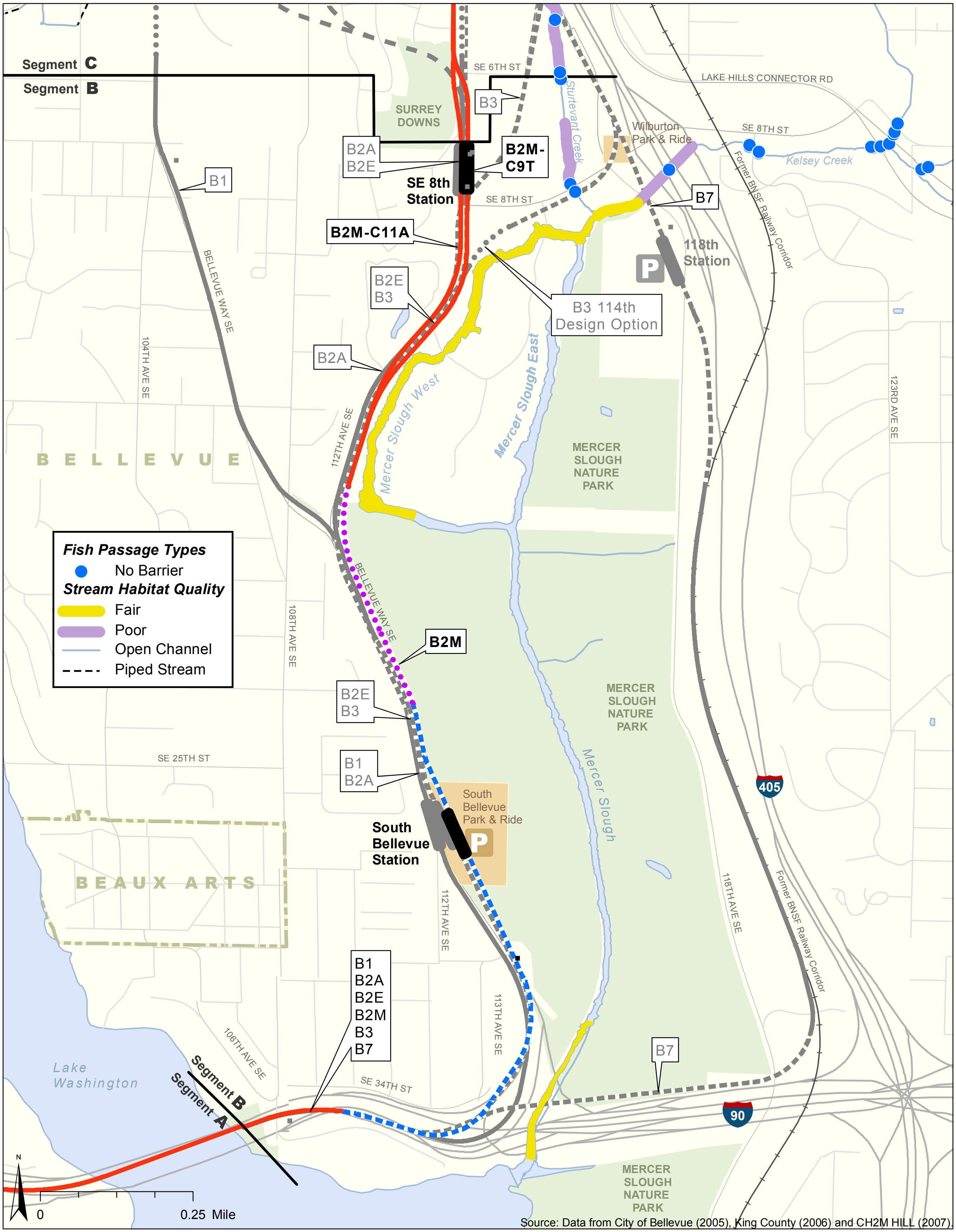
0 1 Miles

Exhibit 3-1

Waterbody Features

Segments A, B, C, D, and E

East Link Project


Segment C
Segment B
SURREY DOWNS
SE 6TH ST
B3
B2A
B2E
B2M-C9T
SE 8th Station
SE 8TH ST
B1
B2M-C11A
B2E
B3
B3 114th Design Option
B2A
Sturtevant Creek
Wilburton Park & Ride
LAKE HILLS CONNECTOR RD
SE 8TH ST
Kelsey Creek
Former BNSF Railway Corridor
B7
118th Station
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
BELLEVUE
Fish Passage Types
No Barrier
Stream Habitat Quality
Fair
Poor
Open Channel
Piped Stream
BELLEVUE WAY SE
108TH AVE SE
B2M
B2E
B3
MERCER SLOUGH NATURE PARK
Mercer Slough
SE 25TH ST
B1
B2A
South Bellevue Park & Ride
South Bellevue Station
405
BEAUX ARTS
112TH AVE SE
118TH AVE SE
Former BNSF Railway Corridor
B1
B2A
B2E
B2M
B3
B7
113TH AVE SE
106TH AVE SE
SE 34TH ST
B7
Lake Washington
Segment B
Segment A
90
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile

Source: Data from City of Bellevue (2005), King County (2006) and CH2M HILL (2007).

Preferred Alternative **B2M**

At-Grade Route

Elevated Route

Retained-Cut Route

Retained-Fill Route

Tunnel Route

Other Alternatives B2A

At-Grade Route

Elevated Route

Retained-Cut or Retained-Fill Route

Tunnel Route

Traction Power Substation

Proposed Station

New and/or Expanded Park-and-Ride Lot

Exhibit 3-2 **Streams and Fish Passage Features Segment B**

East Link Project

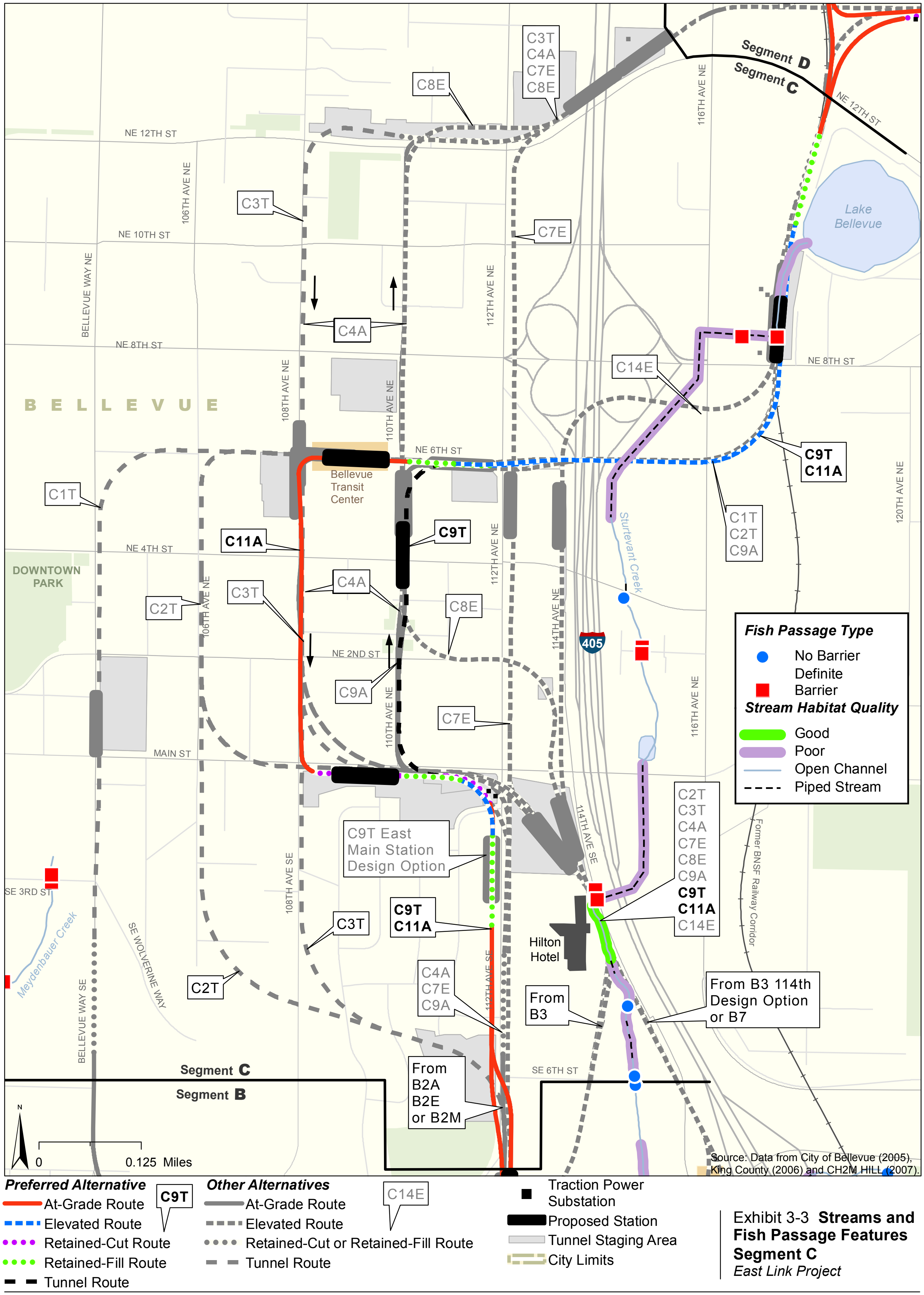
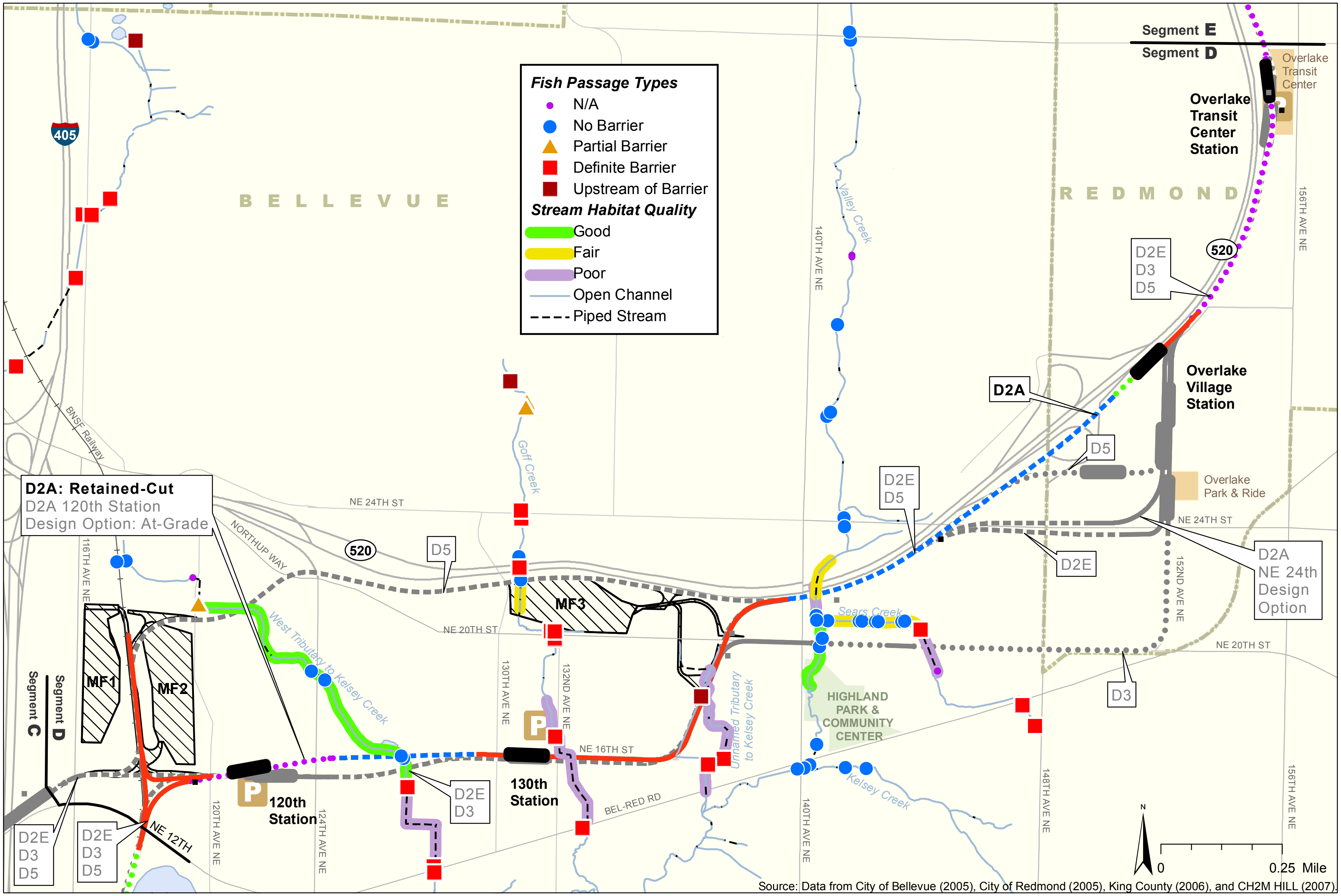

Segment D
Segment C
NE 12TH ST
116TH AVE NE
C3T
C4A
C7E
C8E
C8E
NE 12TH ST
106TH AVE NE
C3T
Lake Bellevue
NE 10TH ST
C7E
BELLEVUE WAY NE
112TH AVE NE
C4A
NE 8TH ST
C14E
NE 8TH ST
BELLEVUE
108TH AVE NE
110TH AVE NE
NE 6TH ST
C9T
C11A
Bellevue Transit Center
C1T
C9T
C1T
C2T
C9A
C11A
120TH AVE NE
NE 4TH ST
112TH AVE NE
Sturtevant Creek
DOWNTOWN PARK
C4A
C3T
C8E
C2T
106TH AVE NE
114TH AVE NE
405
NE 2ND ST
C9A
116TH AVE NE
C7E
110TH AVE NE
MAIN ST
Fish Passage Type
No Barrier
Definite Barrier
Stream Habitat Quality
Good
Poor
Open Channel
Piped Stream
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
C9T East Main Station Design Option
114TH AVE SE
SE 3RD ST
108TH AVE SE
C3T
C9T
C11A
Former BNSF Railway Corridor
Hilton Hotel
Meydenbauer Creek
SE WOLVERINE WAY
C2T
C4A
C7E
C9A
112TH AVE SE
From B3
From B3 114th Design Option or B7
BELLEVUE WAY SE
Segment C
Segment B
SE 6TH ST
From B2A B2E or B2M
N
0
0.125 Miles
Source: Data from City of Bellevue (2005), King County (2006) and CH2M HILL (2007).
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C14E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Tunnel Staging Area
City Limits

Exhibit 3-3 **Streams and Fish Passage Features Segment C**
East Link Project


Fish Passage Types
N/A
No Barrier
Partial Barrier
Definite Barrier
Upstream of Barrier
Stream Habitat Quality
Good
Fair
Poor
Open Channel
Piped Stream
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
BELLEVUE
REDMOND
405
520
D2E D3 D5
D2A
Overlake Village Station
D5
D2E D5
Overlake Park & Ride
NE 24TH ST
D2E
D2A NE 24th Design Option
152ND AVE NE
156TH AVE NE
140TH AVE NE
Valley Creek
Goff Creek
BNSF Railway
D2A: Retained-Cut
D2A 120th Station
Design Option: At-Grade
NORTHUP WAY
D5
116TH AVE NE
MF1
MF2
MF3
West Tributary to Kelsey Creek
NE 20TH ST
130TH AVE NE
132ND AVE NE
Sears Creek
Unnamed Tributary to Kelsey Creek
HIGHLAND PARK & COMMUNITY CENTER
NE 20TH ST
D3
Segment C
Segment D
NE 16TH ST
130th Station
120th Station
D2E D3
BEL-RED RD
Kelsey Creek
148TH AVE NE
156TH AVE NE
120TH AVE NE
124TH AVE NE
NE 12TH
D2E D3 D5
D2E D3 D5
N
0
0.25 Mile

Source: Data from City of Bellevue (2005), City of Redmond (2005), King County (2006), and CH2M HILL (2007).

Preferred Alternative

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

D2A

Other Alternatives

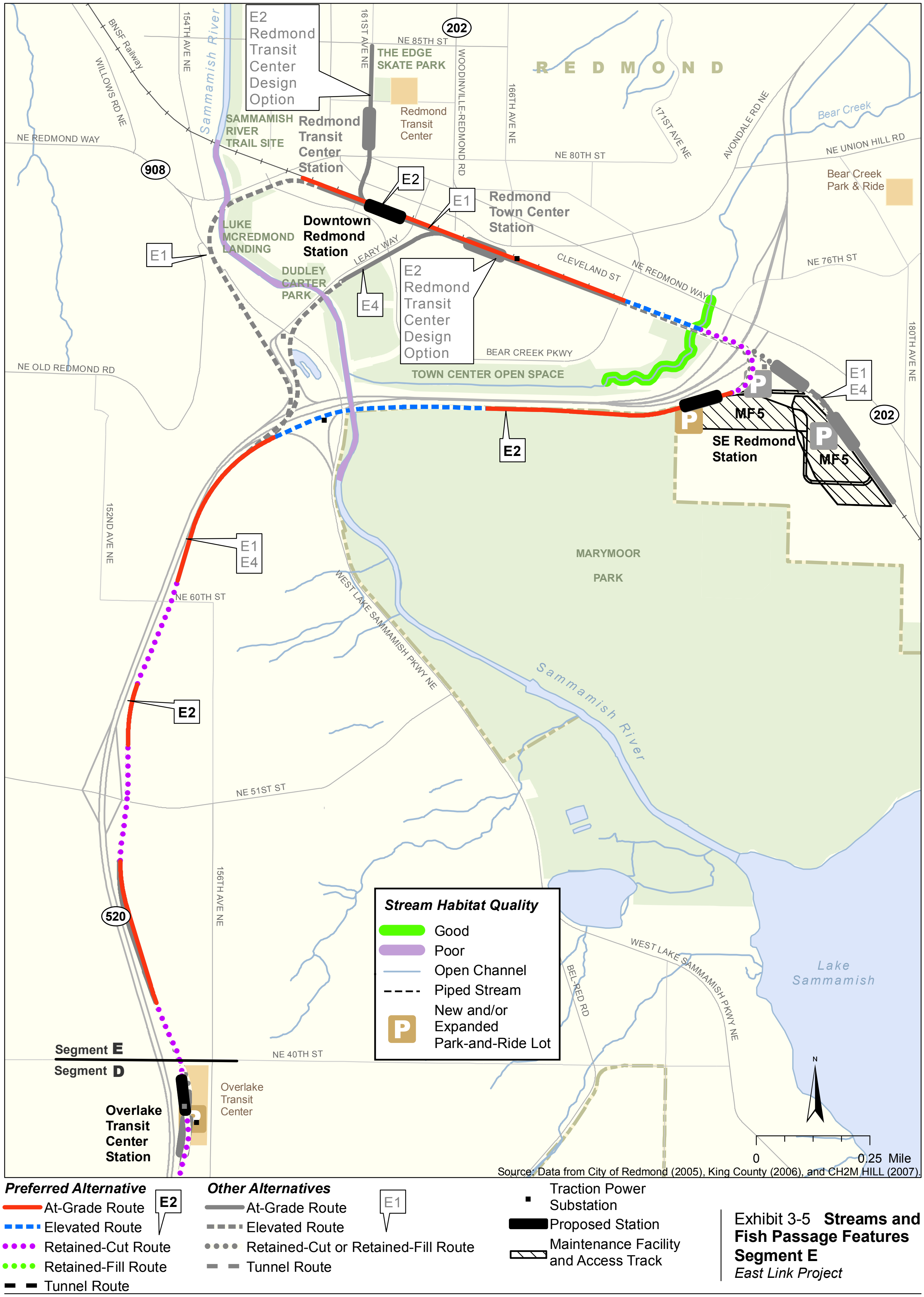
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

D3

■ Traction Power Substation
Proposed Station
▨ Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Exhibit 3-4 **Streams and Fish Passage Features Segment D**
East Link Project


E2 Redmond Transit Center Design Option
202
NE 85TH ST
THE EDGE SKATE PARK
R E D M O N D
BNSF Railway
154TH AVE NE
Sammamish River
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
WILLOWS RD NE
NE REDMOND WAY
SAMMAMISH RIVER TRAIL SITE
Redmond Transit Center Station
Redmond Transit Center
NE 80TH ST
Bear Creek Park & Ride
908
E2
E1
Redmond Town Center Station
LUKE MCREDMOND LANDING
Downtown Redmond Station
E1
LEARY WAY
DUDLEY CARTER PARK
E4
E2 Redmond Transit Center Design Option
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
180TH AVE NE
NE OLD REDMOND RD
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
E1
E4
202
MF5
SE Redmond Station
MF5
E2
152ND AVE NE
E1
E4
MARYMOOR PARK
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
E2
Sammamish River
NE 51ST ST
520
156TH AVE NE
WEST LAKE SAMMAMISH PKWY NE
BEL-RED RD
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Overlake Transit Center Station
Overlake Transit Center
N
0
0.25 Mile
Stream Habitat Quality
Good
Poor
Open Channel
Piped Stream
New and/or Expanded Park-and-Ride Lot
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track

Source: Data from City of Redmond (2005), King County (2006), and CH2M HILL (2007).

Exhibit 3-5 Streams and Fish Passage Features Segment E

East Link Project

TABLE 3-2
Resident Fish Species Found in Lake Washington

Common Name	Scientific Name	Resident Fish Status
Kokanee salmon	*Oncorhynchus nerka*	Native
Cutthroat trout	*Oncorhynchus clarki*	Native
Rainbow trout	*Oncorhynchus mykiss*	Native
Northern pikeminnow	*Ptychocheilus oregonensis*	Native
Rocky Mountain whitefish	*Prosopium williamsoni*	Native
Peamouth	*Mylocheilus caurinus*	Native
Large-scale sucker	*Catostomus macrocheilus*	Native
Coast range sculpin	*Cottus aleuticus*	Native
Prickly sculpin	*Cottus asper*	Native
Riffle sculpin	*Cottus gulosus*	Native
Three-spined stickleback	*Gasterosteus aculeatus*	Native
Longfin smelt	*Spirinchus thaleichthys*	Native
Pacific lamprey	*Entosphenus tridentatus*	Native
Brook lamprey	*Lampetra planeria*	Native
River lamprey	*Lampetra fluviatilis*	Native
Redside shiner	*Richardsonius balteatus*	Native
Largemouth bass	*Micropterus salmoides*	Introduced (non-native)
Smallmouth bass	*Micropterus dolomeiui*	Introduced (non-native)
Yellow perch	*Perca flavescens*	Introduced (non-native)
Common carp	*Cyprinus carpio*	Introduced (non-native)
Brown bullhead	*Ictalurus nebulosus*	Introduced (non-native)
Black crappie	*Pomoxis nigromaculatus*	Introduced (non-native)
White crappie	*Pomoxis annularis*	Introduced (non-native)
Bluegill	*Lepomis macrocheilus*	Introduced (non-native)
Tench	*Tinca tinca*	Introduced (non-native)
Atlantic salmon	*Salmo salar*	Introduced (non-native)
Goldfish	*Carassius auratus*	Introduced (non-native)
Pumpkinseed sunfish	*Lepomis gibbosus*	Introduced (non-native)

Source: Pfeifer and Bradbury, 1992.

TABLE 3-3
Summary of Stock Status in Lake Washington Watershed: Anadromous Salmonids

Species	Stock[a]	Stock Status	Stock Origin	Escapement Range[b]	Escapement Average	Production Notes
Summer/fall Chinook	Issaquah	Healthy	Non-native	500 – 5,000	2,000	Composite production[c]
Summer/fall Chinook	Cedar River	Unknown	Native	600 – 4,300	1,900	Wild production
Sockeye	Lake Washington	Healthy	Non-native	76,000 – 625,000	275,000	Wild production
Coho	Lake Washington/ Sammamish tributaries	Depressed	Mixed	Unknown	Unknown	Composite production[c]
Coho	Cedar River	Healthy	Mixed	Unknown	Unknown	Wild production
Steelhead	Lake Washington Basin	Depressed	Mixed	470 – 1,820	Unknown	Composite production
Cutthroat trout	Lake Washington Basin	Healthy	Native	Unknown	Unknown	Wild production

Source: WDFW et al. (1992); Kerwin (2001)
[a] A stock is an interbreeding population.
[b] Escapement = Number of fish that make it to the spawning grounds.
[c] Composite production: Hatchery plus wild production. Hatchery production is at the WDFW hatchery in Issaquah and to a lesser degree at the University of Washington hatchery.

Adult spawner coho (*Oncorhynchus kisutch*) begin entering Lake Washington around mid-August and continue through the end of January. Their residence time is variable. Spawning occurs in nearly all tributaries, including Bear Creek, Kelsey Creek, and Kelsey Creek tributaries. Juveniles enter the lake in April and May on their way out of the system after rearing in streams for 1.5 years. A few juveniles are thought to rear in the lake as well. A large number of coho are produced at the WDFW salmon hatchery in Issaquah, but most coho in the system are from natural production.

Steelhead and resident rainbow trout *(Oncorhynchus mykiss)* are present in the Lake Washington system but are not abundant. Adult spawner steelhead enter the lake starting in December and continue to enter the lake until April. They spawn in late winter and spring in tributary streams and rivers, including Bear Creek. Wild juvenile steelhead rear in tributaries for two years. Hatchery steelhead reared in the Issaquah hatchery rear for one year. Steelhead smolts move into Lake Washington from tributary streams in April on their way out of the system. They stay in the lake for a month or two, migrating out before mid-June (Kerwin, 2001). Resident rainbow trout are present in the lake all year long.

Coastal cutthroat trout in both resident and anadromous forms are present in Lake Washington in moderate abundance. Resident fish are present in the lake all year long. Sea-run cutthroat enter the lake in late winter and early spring to spawn in spring in tributary streams. Juveniles return to the lake at one to two years of age. The resident fish stay, and the anadromous smolts migrate out later in spring and early summer to rear in Puget Sound. Resident cutthroat trout are found in the smallest streams that can support salmonids.

Bull trout (*Salvelinus confluentus*) have been observed entering Lake Washington through the fish ladder viewing area at the locks, where every year, one or two fish are seen traveling into the lake. Many researchers believe that these fish are seasonal transient strays (i.e., not residents) rather than fish produced within the system. However, the USFWS assumes for regulatory purposes that natural production is possible in the system.

3.1.2.2 Segment B

Exhibit 3-2 shows the streams and fish passage features in Segment B. The primary features are discussed in the following subsections.

Mercer Slough

Mercer Slough is a remnant of a much larger embayment that was left after Lake Washington was drawn down 10 feet when the Montlake Cut connection between Lake Washington and Lake Union was established in 1916. Exhibit 3-2 shows the current location and extent of the slough. The Mercer Slough Nature Park (which contains most of the Mercer Slough water body and associated wetland complex) was part of this former bay of Lake Washington. The upper half mile of the slough is split into two channels—Mercer Slough East and West—by a large island with an office park on it. The distance from the Kelsey Creek outlet to Lake Washington is about 1.75 miles. The area that drains into Mercer Slough through Kelsey Creek is about 19,200 acres. The impervious surface area ranges from 32 to 68 percent of the drainage area. The slough is at the same elevation as Lake Washington, so the water input from Kelsey Creek does not result in any perceptible flow.

EXHIBIT 3-6
Mercer Slough along 112th Avenue SE

Mercer Slough averages about 40 feet wide and is probably no more than 8 feet deep (Exhibit 3-6). Although the bottom could not be observed due to turbidity during the study, it is reasonable to assume that the bottom is composed largely of organic material and silt. The upper end of Mercer Slough, just downstream of the Kelsey Creek outlet, may have some gravel and sand deposits from the creek. The habitat character would be better described as lake or lacustrine habitat rather than pool habitat morphology. There are no riffles, runs, or glides. The riparian area on the west side of Mercer Slough West is narrow in the vicinity of the office park (along 112th Avenue SE), averaging about 30 to 200 feet wide. Along the western bank of Mercer Slough West, the dominant vegetation is Himalayan blackberry (*Rubus armeniacus*), which is a state-listed noxious weed, and mowed lawn with only a few scattered shrubs and trees such as red alder (*Alnus rubra*), big-leaf maple (*Acer macrophyllum*), willow (*Salix* sp.), and Douglas-fir (*Pseudostuga menziesii*) or Sitka spruce (*Picea sitchensis*). The eastern bank of Mercer Slough West closest to the office park is dominated by lawn or a very narrow strip of vegetation such as Douglas spirea (*Spiraea douglasii*) and weeds such as reed canarygrass (*Phalaris arundinacea*). In the lower mainstem of the slough, south of where the east and west channels join, Mercer Slough is bordered on both sides by the Nature Park and the riparian area is very wide and largely dominated by native trees, shrubs, emergents, and some non-native noxious weeds.

Overall salmonid habitat quality, however, is poor due to the lack of riffles and gravel as well as high summer water temperatures. Salmon runs throughout the Kelsey Creek drainage pass through Mercer Slough as a migratory corridor. Some rearing function is possible, especially for coho during the cooler months. Run size varies from year to year. In 2006, escapement (the number of fish returning to the stream) was 229 Chinook, 503 sockeye, and 5 coho. Steelhead and cutthroat numbers are unknown because they were not surveyed.

Kelsey Creek

Kelsey Creek is one of the largest independent tributaries to Lake Washington. It has a drainage area of 2,816 acres. The mainstem is about 8.6 miles long, with headwaters at Phantom Lake in east Bellevue. Including tributaries, there are about 19 miles of open stream channels in the drainage. Kelsey Creek first flows north until the vicinity of Bel-Red Road, where it turns west, then south before flowing into Mercer Slough in south Bellevue. The impervious surface area is about 42 percent of the drainage area. Topographic relief through the drainage is 300 feet for an average slope of 0.7 percent, which is fairly gradual. Kelsey Creek has a number of tributaries, including the West Tributary, Goff Creek, Unnamed Tributary, Valley Creek, Sears Creek, Sunset Creek, and Richards Creek.

Kelsey Creek supports runs of anadromous salmonids, including Chinook salmon, coho salmon, sockeye salmon, and sea-run cutthroat trout. Steelhead are presumed to be present in this system, but this has not been confirmed. Resident fish include rainbow trout, cutthroat trout, sculpins, lampreys, and suckers. Peamouth migrate in from Lake Washington to spawn in lower Kelsey Creek, numbering in the thousands. Chinook are known to occur as far upstream as Larson Lake. Coho salmon are known to occur where Chinook occur, and probably farther upstream as well. Sockeye are known to spawn up to river mile 5.0 (which is upstream of the study area). A 2006 spawner survey for Kelsey Creek and tributaries estimated run size at 200 Chinook, 5 coho, and 503 sockeye (Watershed Company, 2007). Factors limiting the production of salmonids in Kelsey Creek and all its tributaries are those common to urban streams. Fine sediment levels are high in spawning riffles, which impairs egg survival and aquatic insect production. Logging and urban development have lowered pool density and channel complexity. Hydrology has been altered due to an increase in the amount of impervious surfaces, which causes higher peak flows and lower summer base flows. Stormwater draining from roadways and degraded riparian areas, which reduces shading, have caused water temperature to increase. Kelsey Creek is on the Ecology 303(d) list of streams with impaired water quality for exceeding allowable levels of fecal coliform bacteria and three pesticides: dieldrin, heptachlor epoxide, and dichloro-diphenyl-trichloroethane (DDT).

Overall salmonid habitat quality, however, is only fair due to sand embeddedness in riffles and gravel, low abundance of large woody debris (LWD), and high summer water temperatures. Salmon runs throughout the Kelsey Creek drainage pass through Mercer Slough as a migratory corridor.

In the vicinity of where the proposed BNSF Alternative (B7) would cross Kelsey Creek at 118 Avenue SE, the creek is in a culvert (Exhibit 3-7). On the upstream side of the Alternative B7 crossing, the creek is in a long but fish-passable culvert under I-405. On the downstream side of the crossing at 118th Avenue SE, the culvert outlet drops into a concrete fish ladder that empties directly into Mercer Slough. Habitat value in this reach is limited to a fish migratory corridor and is considered poor.

EXHIBIT 3-7
Kelsey Creek Fish Ladder downstream of culvert at 118th Avenue SE and I-405

Sturtevant Creek

Sturtevant Creek is a small, highly urbanized stream draining 773 acres of Bellevue, including much of the downtown area. This drainage is 1.9 miles long, starting in the vicinity of Lake Bellevue. The stream flows generally south, with its outlet at Mercer Slough. The topographic drop is 120 feet. All tributary inflow is through piped systems. The impervious surface area is 68 percent of the drainage area. As a result of the high percentage of impervious surface area and general lack of stormwater detention facilities, Sturtevant Creek has a highly “flashy” flow regime, meaning it is quick to peak after a rainfall event then a quick to drop back to base flow. Much of the drainage, including the mainstem, is in pipes and culverts. Chinook salmon, sockeye salmon, and cutthroat trout are known to use Sturtevant Creek up to I-405, where there is an impassable culvert next to the Hilton Hotel. The stream also supports peamouth spawning.

The SE 8th Street crossing is through a large-diameter, fish-passable culvert set into grade with a flat gradient and natural sand/silt substrate surface. The reach downstream is a short, deep glide backwatered by Mercer Slough. Banks are stable, and the narrow riparian area is moderately thick with mixed conifer and alder trees. The reach upstream between SE 8th Street and SE 6th Street is largely an unstable, narrow, incised glide with a silty bottom. It has the appearance of a channel that was once channelized straight through a wetland area then no longer maintained, and it is readjusting to site conditions by side-cutting to meander. It breaks into multiple channels in the wetland as a result of beaver activity. Riparian vegetation is patchy, alternating between willow and reed canarygrass. Spawning and rearing habitat quality is poor in this reach.

3.1.2.3 Segment C

Exhibit 3-3 shows the main streams and fish passage features in Segment C.

Sturtevant Creek

The reach of Sturtevant Creek beginning from SE 6th Street and moving northward up to I-405 improves in habitat quality steadily in the upstream direction until reaching the impassable culvert at I-405. Just upstream from the SE 6th Street crossing, the creek is generally a shallow, wide glide on sandy substrate. In this reach, the creek flows next to one office building and under another. There is no riparian vegetation in much of this reach. Spawning and rearing habitat quality is poor. Large woody debris is generally absent (one piece observed).

In the short reach adjacent to the Hilton Hotel, north of the SE 6th Street crossing (see Exhibits 3-3 and 3-8, where an elevated guideway might be located depending on alternative, the gradient increases and transforms into a pool/riffle complex (Exhibit 3-8). There is abundant gravel in the riffles, although the gravel is embedded 25 to 50 percent with sand, which reduces the quality of this spawning area. Although there is ample shade due to large bordering trees, all of the streamside cover of trees or shrubs have been cleared and lawn has been established on both sides. Despite this, stream habitat quality is considered good because there are pools and riffles with moderately clean gravel. This reach represents virtually the only usable spawning habitat in Sturtevant Creek for salmonids. The upstream end of this reach ends at the impassable I-405 culvert. Also, peamouth are known to spawn in Sturtevant Creek. The habitat components are as follows: 32 percent riffle, 42 percent glide, 12 percent pool, and 14 percent culvert. Most of the glide habitat is in the reach downstream of the Hilton Hotel (Exhibit 3-8).

EXHIBIT 3-8
Sturtevant Creek upstream of NE 8th Street

Sturtevant Creek leaves Lake Bellevue as a featureless glide in the ditch alongside of the former BNSF Railway tracks (Exhibit 3-9). Riparian vegetation is sparse and mostly grasses or blackberries. There is also a group of willows and cottonwood just below Lake Bellevue. The bottom substrate composition is silt and organic material. Habitat quality is poor. This reach is above two fish passage blocks.

09/25/2009 12:32

EXHIBIT 3-9
Sturtevant Creek next to Hilton Hotel at 114th Avenue SE

Lake Bellevue

Lake Bellevue is a small lake that forms the headwaters to Sturtevant Creek. It is entirely surrounded by offices and businesses, most of which are built on pilings in the lake. The only fish species known to be present in the lake is goldfish (*Carassius auratus*).

3.1.2.4 Segment D

Exhibit 3-4 shows the streams and fish passage features in Segment D.

West Tributary to Kelsey Creek

The West Tributary to Kelsey Creek starts in the vicinity of the I-405/SR 520 interchange. It flows southeast, then south, entering Kelsey Creek at river mile 2.6. There are 2.8 miles of open channel with many long culverts in this 1,001-acre drainage area. The average channel slope is gradual at 0.8 percent. The drainage is close to completely built out, with industrial areas in the upper reaches and residential developments elsewhere. The impervious surface area is 44 percent of the drainage area. Chinook salmon, coho salmon, sockeye salmon, and cutthroat trout have been reported in the lower reaches of the West Tributary. The current upstream limit to migratory fish is at Bel-Red Road. The City of Bellevue conducted electro-fishing at two upstream locations and caught no fish. They did, however, catch a Pacific giant salamander (*Dicamptodon tenebrus*).

09/28/2009 12:36

EXHIBIT 3-10
West Tributary to Kelsey Creek at detention pond (also Wetland WR-7)

Preferred NE 16th At-Grade Alternative (D2A) Crossing

Preferred Alternative D2A would cross the West Tributary to Kelsey Creek along the southern edge of a stormwater detention facility pond (Exhibit 3-10). The stormwater detention facility consists of a large concrete dam and associated spillway. The area upstream of the dam floods periodically and has abundant signs of beaver activity. There is a narrow strip of riparian willow and alder trees bordering the southern edge of the pond. The depth of water along the proposed guideway ranges from zero to several feet, depending on how the facility is managed at any given time. There is no salmonid spawning habitat in this reach. If fish have access, rearing habitat is good.

NE 16th Elevated (D2E) and NE 20th (D3) Alternatives Crossing

Alternatives D2E and D3 would cross the West Tributary to Kelsey Creek at a location downstream of the *Preferred Alternative* between the flood control dam and a concrete weir (Exhibit 3-11). The weir is about 3 feet high and causes the channel to pond in this reach. The weir is an impassable barrier to fish movement. The water in the pond is 2 to 3 feet deep with a bottom composition of silt and organic material. The riparian vegetation is composed of medium to large red alder and willow. The width of the riparian area is very narrow, with a building on one side and a commercial parking lot on the other. There is no salmonid spawning in this reach, but rearing habitat quality is good if fish have access to it. The West Tributary enters a culvert immediately downstream of the concrete weir and remains in a pipe system the remaining distance downstream to Bel-Red Road.

09/28/2009 12:44

EXHIBIT 3-11
West Tributary to Kelsey Creek at weir, which forms the southern end of Wetland WR-8SE

SR 520 Alternative (D5) Crossing

Alternative D5 would cross the West Tributary to Kelsey Creek in a narrow ponded reach with a riparian area that is tightly confined (i.e., 100 feet wide) between a bus parking lot and a Safeway bakery (Exhibit 3-12). The riparian area, while narrow, is forested with mature alder and willow. The channel is completely impounded by beaver dams throughout the entire reach, and during field reconnaissance, a beaver was observed swimming in a pond. The bottom of the West Tributary in this area could not be seen, so the depth is unknown but is at least 3 feet. The bottom is probably silt and organic material. There is no spawning habitat for salmonids. Rearing habitat is good, if salmonids have access to it.

EXHIBIT 3-12
West Tributary to Kelsey Creek (also Wetland WR-8NW) at the proposed crossing of Alternative D5

Goff Creek

The 680-acre Goff Creek drainage is small and narrow. Its headwaters are in Bridle Trails State Park. The stream flows south for about 1.4 miles, entering the West Tributary to Kelsey Creek just south of Bel-Red Road. The drainage is suburban/rural in the upper reach, residential in the middle reach, and commercial in the reach south of SR 520. The impervious surface area is 30 percent of the drainage area. The drainage overall has a slope of 2 percent.

Cutthroat trout are known to inhabit Goff Creek throughout its length. Sockeye and Chinook salmon use the lower reach for spawning. During the 2006 spawner survey, 12 live Chinook and 8 carcasses were observed in Goff Creek (City of Bellevue, 2007a). An impassable culvert at Bel-Red Road prevents fish access to upstream reaches.

Preferred NE 16th At-Grade Alternative D2A, NE 16th Elevated (D2E), and NE 20th (D3) Alternatives Crossing

Goff Creek is confined in a culvert for over 200 feet in either direction of the crossing centerline of *Preferred Alternative D2A* and Alternatives D2E and D3. The City of Bellevue lists this piped segment as impassable. Habitat for salmonids was rated as poor in this reach.

SR 520 Alternative (D5) Crossing

Alternative D5 crosses Goff Creek on the highway fill slope of SR 520 (Exhibit 3-13). The culvert under the crossing is perched with a 5-foot drop and is thus impassable to fish. The 200-foot reach upstream from the crossing is all in a culvert under SR 520. The reach downstream from the crossing is tightly confined between a parking lot and a commercial building. The stream is confined on each side with 4- to 6-foot-high rock walls because the streambed is set below the parking lot and building. There is no riparian vegetation other than planted ornamental ivy and a few low shrubs, but the channel receives afternoon shading from the building. Channel morphology is mostly riffle on fairly clean small gravel. Substrate conditions are suitable for trout spawning. There are only two pools in the survey reach. Overall spawning and rearing habitat quality was rated as fair during the survey.

EXHIBIT 3-13
Goff Creek downstream of SR 520

Unnamed Tributary to Kelsey Creek

The Unnamed Tributary to Kelsey Creek is very small (with a channel less than 4 feet wide) and sometimes intermittent. It is located between Goff Creek and Valley Creek and runs north-south parallel to them. This watercourse's base flow is greater than 0.05 cubic feet per second (cfs). The entire drainage lies within a commercial district. The creek exits a pipe system just south of NE 20th Street on the shoulder of 136th Place NE. The creek then flows south for about 500 feet, where it enters a piped system. It remains in that piped system most of the way to its confluence with Kelsey Creek at Bel-Red Road. With no spawning habitat and a fish passage blockage at the confluence with Kelsey Creek, the Unnamed Tributary cannot currently support salmonids.

Preferred NE 16th At-Grade Alternative D2A, NE 16th Elevated (D2E), and NE 20th (D3) Alternatives Crossing

In the vicinity of the *Preferred Alternative D2A* and Alternatives D2E and D3 crossings, this watercourse is a grass-lined ditch (Exhibit 3-14). There are no habitat features such as pools or riffles. The gradient is flat, and substrates consist of grass, silt, and sand. Riparian vegetation consists of mowed grasses. There are a few pools downstream of culvert outlets. The habitat components are 76 percent glide, 2 percent pool, and 22 percent culvert. The 849 feet surveyed represent the entire open channel in this stream system. Spawning habitat is absent and rearing habitat was rated as poor. As the creek flow crosses 136th Place, most but not all of the water is intercepted by a pipe system that conveys the water south to NE 16th Street, then east until it reconnects with the creek's natural channel.

09/22/2009 15:05

EXHIBIT 3-14
Unnamed Tributary to Kelsey Creek at 136th Place NE

Valley Creek

Valley Creek originates in Redmond just north of the Bellevue/Redmond city limits. The drainage area is 1,391 acres. The creek flows through commercial areas between SR 520 and Bel-Red Road. It flows in a southerly direction for 2.5 miles to enter Kelsey Creek at Bel-Red Road and 140th Avenue NE. The drainage is mostly built out, with single-family residences dominating the land use. The impervious surface area is approximately 32 percent of the drainage area. The drainage slope is gradual at 1.1 percent. Historical information shows sockeye, Chinook, and coho salmon present throughout the mainstem of Valley Creek as far upstream as the Bellevue Municipal Golf Course outfall culvert. Cutthroat and steelhead trout are assumed to be present throughout the drainage as well.

NE 20th Alternative (D3) Crossing

The Alternative D3 route crosses Valley Creek at NE 20th Street (Exhibit 3-15). The reach downstream of the crossing is riffle/run morphology with a few pools. The wetted width was about 6 to 10 feet at the time of survey in March 2007. Substrate character is mostly small gravel with excessive sand, thus making spawning conditions marginal to poor. Riparian vegetation is mature red alder and willow, starting at 20 feet wide and getting much wider in the downstream direction. Bank condition is good and overall spawning and rearing habitat quality is rated as good.

Preferred NE 16th At-Grade (D2A), NE 16th Elevated (D2E), and SR 520 (D5) Alternatives Crossing

These alternatives' routes cross Valley Creek over the SR 520 culvert. The reach downstream from SR 520 is confined between buildings and parking lots. The reach between SR 520 and NE 21st Street is a shallow, featureless glide with a sand/silt bottom. There are no pools, riffles, or LWD. The riparian community is mostly mowed grasses with building structure or asphalt within 10 to 20 feet of the channel. Part of the reach has a 10-foot-wide cluster of willow shrubs on the west side of the channel. Spawning and rearing habitat quality is poor in this reach.

09/21/2009 14:29

EXHIBIT 3-15
Valley Creek downstream of SR 520

The reach between NE 21st Street and NE 20th Street is a diverse mixture of habitat types (Exhibit 3-16). The stream has a meandering character, thereby forming a few good pools; at the pools, the banks are undercut. There is a riffle with clean gravel of a size suitable for salmon (Exhibit 3-17). The riparian community on the west side of the creek is almost entirely dominated by blackberries, with some small alder trees. The riparian community on the east side is mostly reed canary grass, with a few blackberry patches. A mayfly hatch occurred while the survey was being conducted. Mayflies are an indicator of good water quality conditions. Habitat in this reach is considered to be good.

EXHIBIT 3-16
Valley Creek downstream of NE 20th Street

Overall, the two reaches together have fairly good spawning and rearing habitat based on the in-stream characteristics. The pool/riffle ratio is 50/50, which is considered optimal. The habitat components are 35 percent pool, 31 percent riffle, 7 percent run, 15 percent glide, and 12 percent culvert.

Sears Creek

Sears Creek is a small, 577-acre drainage. Most of the drainage's surface water flows through a piped system, with only a small fraction in an open channel. Although the drainage is 1.5 miles long, the length of open channel is only about 1,100 feet. The impervious surface is 64 percent of the drainage area. The average slope in the drainage is 4.3 percent. Considerable use by Chinook salmon, coho salmon, and cutthroat trout occurs up to the NE 20th Street culvert.

09/21/2009 15:26

EXHIBIT 3-17
Valley Creek between NE 20th and NE 21st Streets

NE 20th Alternative (D3) Crossing

The Alternative D3 route would cross Sears Creek at NE 20th Street. The culvert under NE 20th is approximately 450 feet long. The outlet is about 150 feet downstream from the street and about 8 to 10 feet lower than the street. The City of Bellevue GIS database indicates that this culvert is a fish passage blockage. The stream in this reach is tightly confined between NE 21st Street and a parking lot for a strip mall; NE 21st Street is only about 15 feet from the channel and the parking lot is only 3 to 5 feet from the channel (Exhibit 3-18). The riparian area is composed of bare, bark-mulched ground and a few small, scattered alder trees and blackberry vines. The banks in this reach consist entirely of riprap. Despite these deficiencies, the reach was rated as fair spawning and rearing habitat quality because there are several pools formed intentionally with riprap boulders, and there are patches of clean gravel in short riffles. The channel is straight, but there is a fair amount of channel complexity.

EXHIBIT 3-18
Sears Creek downstream of NE 20th Street

3.1.2.5 Segment E

Exhibit 3-5 shows the streams and fish passage features in Segment E.

Sammamish River

The Sammamish River is 13.8 miles long, extending from the outlet of Lake Sammamish in Redmond to the inlet of Lake Washington in Kenmore. The subbasin drains 240 square miles, of which 97 are in the Lake Sammamish drainage, 50 in the Bear Creek drainage, and the balance in the Swamp Creek, North Creek, and Little Bear Creek drainages. The Sammamish River once looked very different from how it does today. Prior to Euro-American settlement, the Sammamish River was twice as long and had a complex, highly sinuous, meandering channel with abundant associated forested wetlands. Much of the lower river was backwater from Lake Washington. The area was logged from the 1870s through the early twentieth century. When Lake Washington was lowered by 10 feet in 1916, the overall gradient in the Sammamish River was increased accordingly, and many wetland areas were drained. As agriculture expanded in the Sammamish Valley, more wetlands were drained and turned into farmed fields. Farmers began to straighten the channel around 1911. In 1962, the USACE deepened and channelized the river to its present location.

At present, habitat in the Sammamish River is highly degraded. In the vicinity of the three potential river crossings, river character is essentially the same. Channel morphology is all glide habitat, which is one of the least desirable habitat types for salmonids. Glides make up 98.2 percent of the river’s length (R2 Resource Consultants, 1999). When the river was dredged, all of the LWD was removed, and the only LWD present today was installed in a few locations. When the land was cleared, the riparian trees were removed as well. The current riparian community is composed primarily of Himalayan blackberry vines and reed canarygrass, both of which are non-native and invasive. The trees are mostly young alder. This leaves the river exposed to sunlight, which causes high temperatures in the summer. The river is on Ecology’s 303(d) list for violation of state temperature and oxygen standards. Substrate consists of sand and silt, and it probably never contained much gravel due to the low gradient and position below Lake Sammamish.

The Sammamish River provides little rearing or spawning function for salmonids but serves as an important migratory corridor for tributaries. Holly Coccli, Muckleshoot Indian Tribe biologist, cites a personal communication with Jim Mattila as reporting that cutthroat trout spawn at the mouths of tributaries where there is gravel (Muckleshoot Indian Tribe, 2009). The river is known to seasonally contain Chinook salmon, coho salmon, sockeye salmon, and Kokanee salmon, steelhead, and cutthroat trout. Most of the sockeye are bound for Bear Creek and most of the Chinook are bound for the WDFW hatchery in Issaquah.

Preferred Marymoor Alternative (E2) Crossing

The *Preferred Alternative E2* route would cross the Sammamish River to the south and just upstream of the SR 520 bridge (Exhibit 3-19). Most of the habitat found in the vicinity of this

EXHIBIT 3-19
Sammamish River at SR 520

crossing is glide, which is typical for the entire Sammamish River. The exception to this is 200 feet upstream of the Bear Creek confluence, where there is a large pool. Substrates are uniformly sand and silt except directly under the SR 520 Bridge, where it is cobble and riprap. The banks under the bridge are also riprap. The riparian area is about 30 to 50 feet wide and mostly vegetated by blackberry vines and young alder trees. There are some young conifer plantings on the north side of the bridge. Overall spawning and rearing habitat conditions are poor. Some afternoon shade would be provided in the future when the young riparian trees grow taller.

Redmond Way Alternative (E1) Crossing
The Alternative E1 crossing is located on the upstream (south) side of the Redmond Way bridge (Exhibit 3-20). Habitat is all glide except for a short riffle on either side of a manmade gravel bar. The gravel bar is enhanced by two large rootwads. There are other log clusters on the banks as well, which has the appearance of a habitat enhancement project. The riparian area is a narrow band of mixed deciduous trees on the west bank of the river and a narrow band of blackberries or grasses on the east bank. Except for the gravel bar, bottom composition is sand and silt and overall spawning and rearing habitat quality is poor.

EXHIBIT 3-20
Sammamish River at Redmond Way

Leary Way Alternative (E4) Crossing
The Alternative E4 crossing is located to the south and upstream of the Leary Way bridge (Exhibit 3-21). As elsewhere in the Sammamish River, glide habitat is dominant in this reach. However, there is a short, manmade riffle composed of riprap on the north, downstream side of the existing bridge. Other than this artificial riffle, substrate is composed of sand and silt. The riparian area is narrow with asphalt trails on either side of the river and has only 40 to 50 feet of width on steep banks. The riparian vegetation is composed almost entirely of blackberry vines with a few scattered small alder trees. Just upstream from the bridge, there is a group of larger red alder trees on the south bank that provides some afternoon shade. Overall spawning and rearing habitat quality in this reach is poor.

EXHIBIT 3-21
Sammamish River at Leary Way

Bear Creek

The Bear Creek drainage drains about 50 square miles of suburban and rural land. The drainage has three subdrainages: Bear Creek, Cottage Lake Creek, and Evans Creek. Throughout the drainage, there are more than 100 miles of streams, 9 lakes, and over 2,000 acres of wetlands. Urban development is spreading throughout the drainage, with an associated shift from forest to impervious surfaces and landscaped areas; however, Bear Creek remains one of the most productive systems in the region. The diversity and number of aquatic resources in the Bear Creek drainage distinguished it as one of the top six natural resource areas in King County in the Waterways 2000 Program (Kerwin, 2001).

The Bear Creek drainage is known to support Chinook salmon, coho salmon, sockeye salmon, Kokanee salmon, steelhead, and cutthroat trout. The drainage also might support bull trout, although none have been found to date. Spawner counts have not been made in the drainage, but WDFW operates a smolt trap at the location of the potential rail crossing under the East Link Project Segment E alternatives. In 1999, the estimated number of smolt or fry outmigrants was 14,525 Chinook smolts, 1,772 steelhead smolts, 3,413 cutthroat smolts, and 1,514,669 sockeye fry; the count for coho in 1997 was 64,102 smolts (Seiler, 2000).

Preferred Marymoor Alternative (E2), Redmond Way (E1), and Leary Way (E4) Alternatives Crossing

The crossing of Bear Creek by *Preferred Alternative E2* and Alternatives E1 and E4 is at the same location as the existing abandoned former BNSF Railway timber bridge (Exhibit 3-22). Habitat in the vicinity is a mixture of pools and runs. Substrates are gravel and cobble. This is a known sockeye spawning area. Blackberry vines dominate the riparian area upstream of the bridge. Downstream from the crossing, riparian vegetation on the north bank is medium-sized mixed conifer and deciduous trees. On the south bank, vegetation is patchy mixed conifer and deciduous trees and grassy areas planted with willow and conifer trees. This area serves as an overflow channel/wetland area. It was built in association with a major channel relocation/habitat enhancement project downstream of the crossing. There are more than 100 logs with rootwads embedded in the banks of the meandering channel. Beaver activity is apparent, and the willow plantings are suffering from it. Habitat values of the riparian community will be good when the plantings mature. Overall spawning and rearing habitat quality in this reach is good.

EXHIBIT 3-22
Bear Creek at former BNSF Railway crossing

3.1.3 Tribal Fishing

There are no non-tribal commercial fisheries in the study area, but there are tribal fisheries, most of which are commercial in nature. Sound Transit consulted with the Muckleshoot Indian Tribe about Usual and Accustomed Treaty Rights that provide Tribes with unique fishing, hunting, and gathering rights. The Tribe expressed concern about the effects of the project on their fisheries (Walter, 2008). Their fisheries are set (species, harvest numbers, and dates) through consultation with the Pacific Salmon Fisheries Commission and can span between July and December. The Tribe asked to be notified if and when in-water work was planned in Lake Washington.

3.1.4 Federal and State Threatened, Endangered, and Candidate Species

Table 3-4 lists the federal- and state-threatened, endangered, and candidate aquatic species known to occur in the study area. The following subsections describe the distribution of these species.

TABLE 3-4
Federal and State Threatened, Endangered, and Candidate Aquatic Species Known to Occur in the Study Area

Species	Federal Status	State Status
Puget Sound Chinook salmon	Threatened	Candidate
Puget Sound steelhead	Threatened	None
Coastal-Puget Sound bull trout	Threatened	Candidate
River lamprey	Species of concern	Candidate
Western toad	Species of concern	Candidate

3.1.4.1 Puget Sound Chinook Salmon

Chinook salmon are present in a number of the larger streams in the study area. Their known distribution in the project vicinity is as follows:

- Lake Washington
- Mercer Slough
- Kelsey Creek: At outlet, in Mercer Slough, and upstream of study area
- Sturtevant Creek up to the I-405 culvert

- West Tributary to Kelsey Creek: Up to Goff Creek
- Goff Creek: Up to Bel-Red Road
- Valley Creek: Up to the Bellevue Golf Course (above SR 520)
- Sears Creek: Up to NE 20th Street
- Sammamish River
- Bear Creek: In and north of the study area

3.1.4.2 Puget Sound Steelhead

Steelhead are present in low numbers throughout the Lake Washington basin in the larger tributaries. Their known distribution within the study area is as follows:

- Lake Washington
- Mercer Slough
- Kelsey Creek: Currently not known to be present in the entire drainage; however, their presence historically is probable and assumed for purposes of ESA consultation
- Sammamish River: Throughout the study area and upstream
- Bear Creek: In and upstream from the study area

3.1.4.3 Coastal-Puget Sound Bull Trout

Bull trout are only known to use Lake Washington and possibly tributaries as seasonal rearing areas. Spawning and early rearing areas have not been found to date. Such areas may be present, however, in upper tributaries to the Cedar River and possibly coldwater tributaries to Bear Creek.

3.1.4.4 River Lamprey

Although there are no direct observations of river lampreys in the study area, their presence is likely. They are known to exist in tributaries to Lake Washington and Lake Sammamish such as the Cedar River and Issaquah Creek.

3.1.4.5 Western Toad

Western toads (*Bufo boreas*) use three different types of habitat: breeding habitats, terrestrial summer range habitat, and winter hibernation sites. Their preferred breeding sites are permanent or temporary water bodies that have shallow sandy bottoms. After breeding, adult western toads disperse into terrestrial habitats such as forests and grasslands. They may roam far from standing water, but they prefer damp conditions. Western toads spend much of their time underground; although they are capable of digging their own burrows in loose soils, they generally shelter in small mammal burrows, beneath logs, and within rock crevices. They hibernate in burrows below the frost line, up to 3.6 feet underground. The PHS database for the study area did not have sighting evidence for the western toad. However, they are known to exist in the region and may be present in small numbers within the study area. Suitable habitats may exist in Mercer Slough; along larger, low-gradient rivers and streams; and in adjacent undeveloped uplands.

3.1.5 WDFW Priority Habitats and Species

The list of WDFW priority species and habitats shown in Table 3-5 was obtained from the WDFW PHS database. The list was reduced to species documented or believed to be present in water bodies in the study area. Reports of green sturgeon *(Acipenser medirostris)* in Lake Washington are old. Channel catfish *(Ictalurus punctatus)* are rare and non-native. Only a few bull trout have been documented in Lake Washington, and they were observed entering the lake through the fish ladder at the locks.

TABLE 3-5
WDFW Priority Species and Habitats Occurring in Specific Water Bodies in the Study Area

	Present in Specific Water Body[a]										
Species	**LW**	**MS**	**KC**	**StC**	**WT**	**GC**	**UT**	**VC**	**SrC**	**SR**	**BC**
River lamprey *(Lampetra fluviatilis)*		X	X							X	X
Green sturgeon *(Acipense medirostris)*	X										
Channel catfish *(Ictalurus punctatus)*	X	X									
Longfin smelt *(Spirinchus thaleichthys)*	X										
Bull trout *(Salvelinus confluentus)*	X									Unk	Unk
Dolly Varden char *(S. malma malma)*	X									Unk	Unk
Chinook salmon *(Oncorhynchus tshawytscha)*	X	x	X	X	X	X		X	X	X	X
Coho salmon *(O. kisutch)*	X	X	X	X	X	X		X	X	X	X
Sockeye salmon *(O. nerka)*	X	X	X		X	X				X	X
Kokanee salmon *(O. nerka)*	X									X	X
Cutthroat trout *(O. clarki)*	X	X	X	X	X	X		X	X	X	X
Rainbow trout/Steelhead *(O. mykiss)*	X	X	X					X		X	X
Western toad *(Bufo boreas)*	X	Unk	Unk	Unk	Unk	Unk	Unk	Unk	Unk	Unk	Unk
Habitats											
In-stream	X	X	X	X	X	X	X	X	X	X	X
Riparian	X	X	X	X	X	X	X	X	X	X	X

[a] Water body codes: LW= Lake Washington; MS = Mercer Slough; KC = Kelsey Creek; StC = Sturtevant Creek; WT = West Tributary to Kelsey Creek; GC = Goff Creek; UT = Unnamed Tributary to Kelsey Creek; VC = Valley Creek; SrC = Sears Creek; SR = Sammamish River; BC = Bear Creek.

Unk – Possible presence of species, but verification is unknown.

3.2 Vegetation and Wildlife Resources

The urban nature of the project vicinity negatively affects species diversity, thus favoring species that can use altered environments and are more tolerant of human activity. However, the project vicinity also includes a few areas with large, established habitats that support an array of wildlife species, more than are typically found in highly urbanized areas.

The investigation identified nine vegetation types, including wetlands and open water, within the East Link study area, using color aerial photographs and field verification. Table 3-6 provides descriptions of these vegetation types and examples of where they occur within the study area. Exhibits 3-23 to 3-26 show the mapped vegetation types.

TABLE 3-6
Vegetation Types Identified in East Link Vegetation and Wildlife Study Area

Vegetation Type	Habitat Value	Examples of Occurrence	Description
Riparian forest	High	South end of Mercer Slough Nature Park	Vegetated banks along river edges. Often dominated by willow and red alder. Large big-leaf maple, black cottonwood, and red alder trees may occur. Non-native shrubs (Himalayan blackberry and Scot's broom), grasses, thistles, and other weeds are common. Areas dominated by blackberry were classified separately from riparian forest because of the much lower habitat value of blackberry-dominated areas.
Urban mostly vegetated – Coniferous forest	High	West side of Bellevue Way	Forest patches generally dominated by Douglas-fir with lesser amounts of black cottonwood, big-leaf maple, red alder in the overstory, and occasionally shore pine and red cedar. Canopy cover variable but generally greater than 40 percent. Douglas-fir trees mostly taller than 50 feet. Shrub layer often dominated by Himalayan blackberry but also includes salmonberry, snowberry, salal, Indian plum, rhododendron, and other shrubs. Herb layer, when present, includes grasses, sword fern, fringe cup, and nettles.
Urban mostly vegetated – Deciduous forest	High	East side of Bellevue Way	Forest patches with black cottonwood, big-leaf maple, red alder (40 to 70 feet tall) and few conifers in the overstory. Canopy cover 40 to 80 percent. Understory tree cover may include big-leaf maple, black cottonwood, red alder, and Pacific madrone. Shrubs similar to those of coniferous forest type.
Urban mostly vegetated – Mixed forest (deciduous/coniferous)	High	East side of the BNSF Railway	A few small areas with a roughly even mix of deciduous trees and conifers in the overstory.
Urban moderately vegetated	Moderate	Areas of parks that have been planted with trees and shrubs, as in Marymoor Park	Dominated by open mowed lawns. Large native and ornamental trees (generally 40 to 70 feet tall) also present. Some patches of ornamental and native shrubs may occur. Tree and shrub canopy cover values generally less than 30 percent.
Urban sparsely vegetated	Low	Landscaping along highways	Commercial and industrial properties, road rights-of-way, and neighborhoods with a few or small patches of ornamental and native trees and considerable human activities.
Blackberry	Low	Along roads and highways	Areas dominated by blackberry with little or no tree canopy.
Open water	High	Lake Washington	Highly variable community including saline and fresh waters, deep or shallow waters, rivers, creeks, and large water bodies.

- The relative function of each vegetation type in providing habitat for wildlife are described based on reconnaissance-level field observations, literature review (including *Wildlife-Habitat Relationships in Oregon and Washington* [Johnson and O'Neil, 2001]), professional opinion, and agency consultation. The following habitats provide high-value habitat:
- Urban mostly vegetated – coniferous forest
- Urban mostly vegetated – deciduous forest
- Urban mostly vegetated – mixed forest (deciduous/coniferous)
- Riparian forest

3.2.1 Beneficial Habitats

Wildlife use of urban habitats depends on the general location of the habitat, the size and type of undisturbed habitats, the degree of connectivity and extent of travel corridors between and among these habitats, and the types and levels of human activity. Much of the East Link Project would occur in commercial, industrial, and residential areas that provide habitat only for adaptable species such as sparrows, finches, doves, rats, mice, raccoons, opossums, and squirrels. Larger habitat patches and those connected to other natural areas or heavily vegetated residential neighborhoods support a larger variety of species, including several species of songbirds, black-tailed deer, and raptors such as American kestrel *(Falco sparverius)*, red-tailed hawk *(Buteo jamaicensis)*, and great horned owl *(Bubo virginianus)*. Species such as the American robin *(Turdus migratorius)*, song sparrow *(Melospiza melodia)*, Steller's jay *(Cyanocitta stelleri)*, American crow *(Corvus brachyrhynchos)*, spotted towhee *(Pipilo maculates)*, black-capped chickadee *(Poecile atricapillus)*, white-crowned sparrow *(Zonotrichia leucophrys)*, northern flicker *(Colaptes auratus)*, Bewick's wren *(Thryomanes bewickii)*, and red and white breasted nuthatches *(Sitta spp.)* are also fairly common. Streams and larger water bodies provide habitat for many waterfowl species, including Canada goose *(Branta canadensis)*, belted kingfisher *(Megaceryle alcyon)*, red-breasted merganser *(Mergus serrator)*, common merganser *(M. merganser)*, western grebe *(Aechmophorus occidentalis)*, double-crested cormorant *(Phalacrocorax auritus)*, mallard *(Anas platyrhynchos)*, lesser scaup *(Aythya affinis)*, American coot *(Fulica Americana)*, as well as many of the species associated with wetlands.

There are several large areas of native habitat in East Link Project study area, the largest of which is Mercer Slough Nature Park. However, this park is surrounded on all sides by residential and commercial developments, roads, and highways, which limits its value for wildlife species that require large undisturbed areas and undeveloped travel corridors.

Patches of deciduous, coniferous, and mixed forests occur in Segments B, D, and E. Most of these areas are fragmented and separated from surrounding habitat areas by commercial, urban, and residential developments and roads. Despite their isolation, these areas still provide habitat for forest-associated resident and migratory songbirds, as well as for hawks, owls, great blue herons *(Ardea herodias)*, woodpeckers, reptiles, and small mammals. These areas include the Mercer Slough I-90 wetland (WR-4) in Segment B, the forested area located in the southern portion of the BNSF Matrix wetland (WR-6) in Segment D, the Redmond Center forest in Segment E, and small forested patches along SE Leary Way and West Sammamish Parkway in Segment E. These habitat areas are described below and shown in Exhibits 3-23 to 3-26 and Exhibits 3-1 to 3-5 in Section 3.1. Many of these sites are recognized as WDFW priority habitats. There is no beneficial habitat in Segment C; therefore, it is not discussed in the following sections.

3.2.1.1 Segment A

Lake Washington supports a wide variety of aquatic and semi-aquatic fish and wildlife species. More than 15 species of waterfowl use the lake at different times of the year. It is also used by foraging bald eagles, osprey, peregrine falcons *(Falco peregrinus)*, and great blue herons, among many other species.

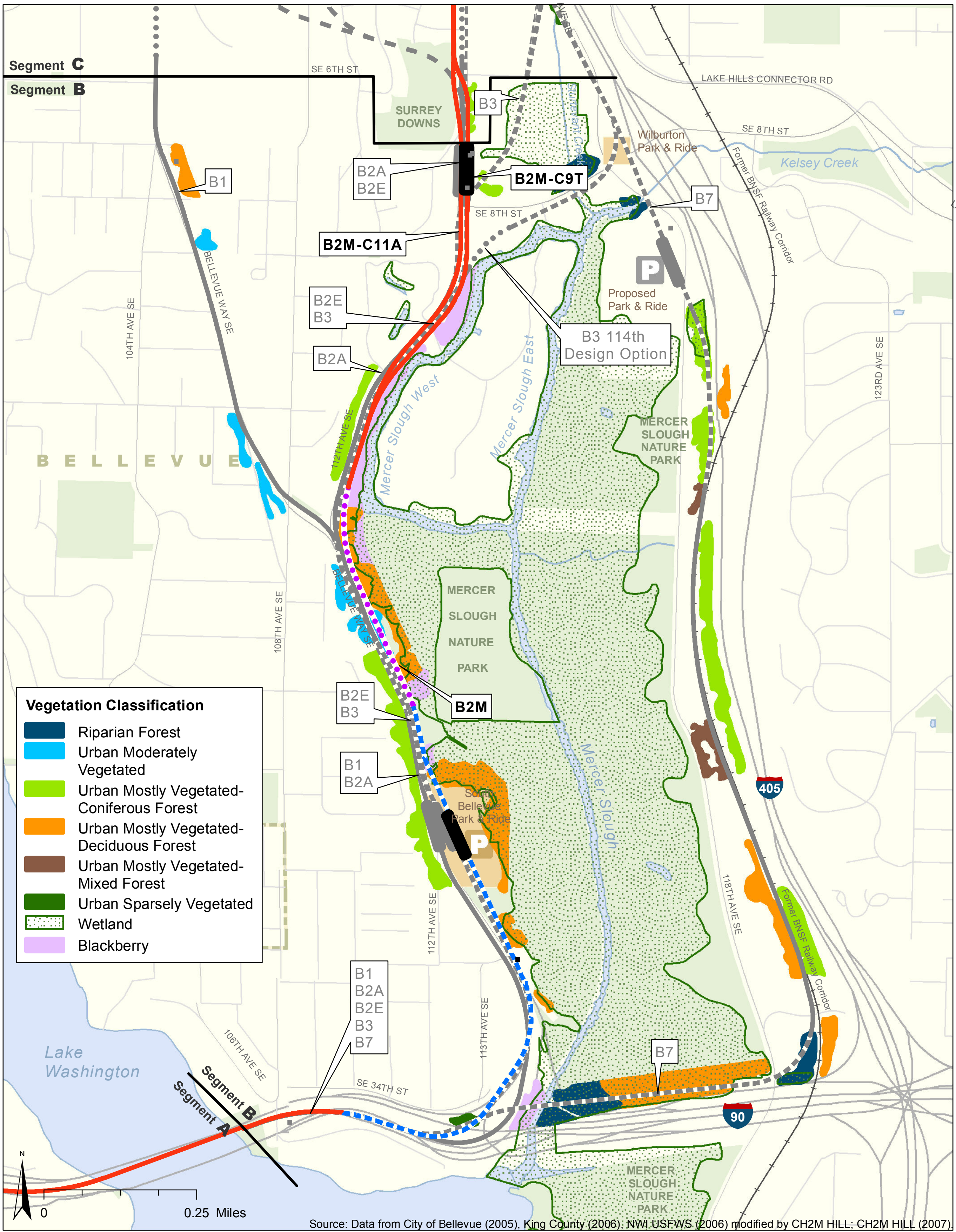
3.2.1.2 Segment B

Mercer Slough Nature Park in Segment B is the largest freshwater wetland remaining along the shores of Lake Washington. The park encompasses 320 acres and is composed of herbaceous, scrub-shrub, and forested wetlands; upland forests; meadows; and a blueberry farm. More than 170 bird species are listed as breeding, foraging, or migrating through the park. Amphibians, reptiles, and a number of small mammal species, including red-winged blackbird *(Agelaius phoeniceus)*, yellow-rumped warbler *(Dendroica coronata)*, common yellowthroat *(Geothlypis trichas)*, violet-green swallow *(Tachycineta thalassina)*, cliff swallow *(Petrochelidon pyrrhonota)*, barn swallow *(Hirundo rustica)*, Anna's hummingbird *(Calypte anna)*, and several species of wading birds, in addition to several bat species, are also found within the park's boundaries. Red-tailed hawks and great blue herons are also regularly seen in this area.

3.2.1.3 Segment D

Wetlands with some ponding water and riparian areas with small-stemmed emergent vegetation provide habitat for amphibians. In Segment D, these areas include West Tributary to Kelsey Creek Ponded (WR-7), West Tributary to Kelsey Creek Riparian (WR-8NW, WR-8N, and WR-8SE), East of 140th Avenue NE (WR-10W), West of 140th NE (WR-11), and BNSF Matrix (WR-6) wetlands (see Exhibit 3-28 in Section 3.3, Wetlands).

The West Tributary to Kelsey Creek runs through the study area, eventually flowing into Kelsey Creek. The Creek is surrounded by commercial and urban development for most of its length. A flood control dam next to the Metro bus maintenance facility off of 124th Avenue NE creates a large ponded area before the creek exits the other side of the road. An active beaver dam is located just upstream from the dam in a forested riparian corridor, dominated by deciduous trees. The habitat just downstream from the water control device is a mixed emergent, scrub-shrub, and riparian area. This area supports breeding and migratory songbirds and waterfowl and likely supports amphibians and small mammals.


Segment C
Segment B
SE 6TH ST
114TH AVE SE
LAKE HILLS CONNECTOR RD
SURREY DOWNS
B3
SE 8TH ST
Wilburton Park & Ride
Kelsey Creek
B1
B2A
B2E
B2M-C9T
B7
Former BNSF Railway Corridor
LAKE HILLS CONNECTOR R
SE 8TH ST
B2M-C11A
BELLEVUE WAY SE
Proposed Park & Ride
B2E
B3
B3 114th Design Option
104TH AVE SE
B2A
Mercer Slough West
Mercer Slough East
123RD AVE SE
112TH AVE SE
MERCER SLOUGH NATURE PARK
B E L L E V U E
BELLEVUE WAY SE
108TH AVE SE
MERCER SLOUGH NATURE PARK
B2M
B2E
B3
B1
B2A
South Bellevue Park & Ride
Mercer Slough
405
118TH AVE SE
Former BNSF Railway Corridor
112TH AVE SE
B1
B2A
B2E
B3
B7
113TH AVE SE
106TH AVE SE
B7
Lake Washington
Segment B
Segment A
SE 34TH ST
90
MERCER SLOUGH NATURE PARK
N
0
0.25 Miles
Vegetation Classification
Riparian Forest
Urban Moderately Vegetated
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Urban Sparsely Vegetated
Wetland
Blackberry

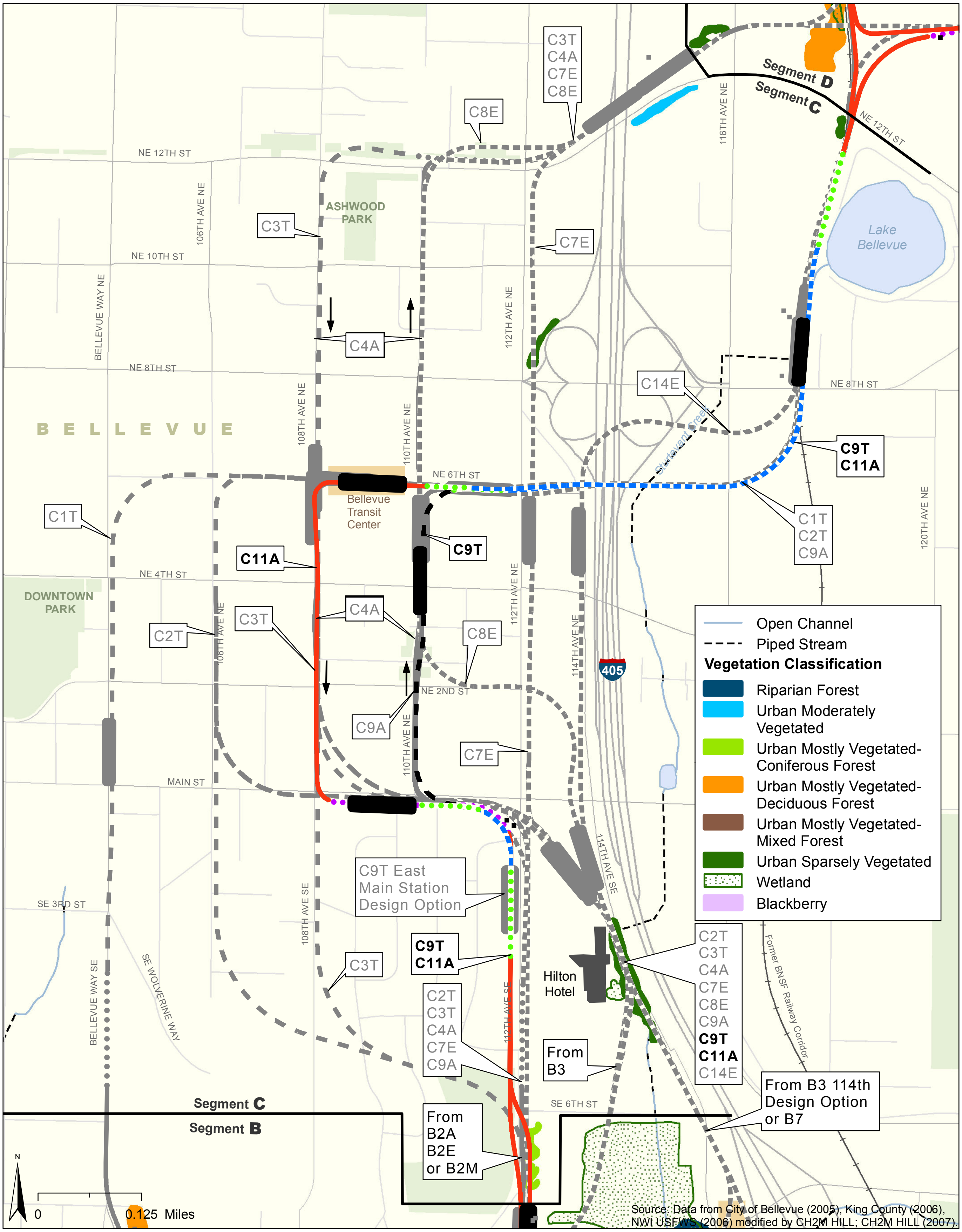
Source: Data from City of Bellevue (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007).

Preferred Alternative **B2M**
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Other Alternatives B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

■ Traction Power Substation
Proposed Station
City Limits

Exhibit 3-23
Vegetation and Wildlife Habitat
Segment B
East Link Project



C3T
C4A
C7E
C8E
C8E
Segment D
Segment C
NE 12TH ST
116TH AVE NE
NE 12TH ST
Lake Bellevue
ASHWOOD PARK
C3T
106TH AVE NE
NE 10TH ST
C7E
BELLEVUE WAY NE
C4A
112TH AVE NE
NE 8TH ST
C14E
NE 8TH ST
B E L L E V U E
108TH AVE NE
110TH AVE NE
Sturtevant Creek
C9T
C11A
NE 6TH ST
Bellevue Transit Center
C1T
C9T
C1T
C2T
C9A
C11A
NE 4TH ST
120TH AVE NE
DOWNTOWN PARK
C4A
C3T
C8E
C2T
106TH AVE NE
112TH AVE NE
114TH AVE NE
405
NE 2ND ST
C9A
110TH AVE NE
C7E
MAIN ST
114TH AVE SE
C9T East Main Station Design Option
SE 3RD ST
108TH AVE SE
C9T
C11A
Hilton Hotel
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
Former BNSF Railway Corridor
C3T
BELLEVUE WAY SE
SE WOLVERINE WAY
C2T
C3T
C4A
C7E
C9A
112TH AVE SE
From B3
SE 6TH ST
From B3 114th Design Option or B7
Segment C
Segment B
From B2A B2E or B2M
N
0
0.125 Miles
Open Channel
Piped Stream
Vegetation Classification
Riparian Forest
Urban Moderately Vegetated
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Urban Sparsely Vegetated
Wetland
Blackberry

Source: Data from City of Bellevue (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007).

Preferred Alternative **C9T**

At-Grade Route

Elevated Route

Retained-Cut Route

Retained-Fill Route

Tunnel Route

Other Alternatives C14E

At-Grade Route

Elevated Route

Retained-Cut or Retained-Fill Route

Tunnel Route

■ Traction Power Substation

Proposed Station

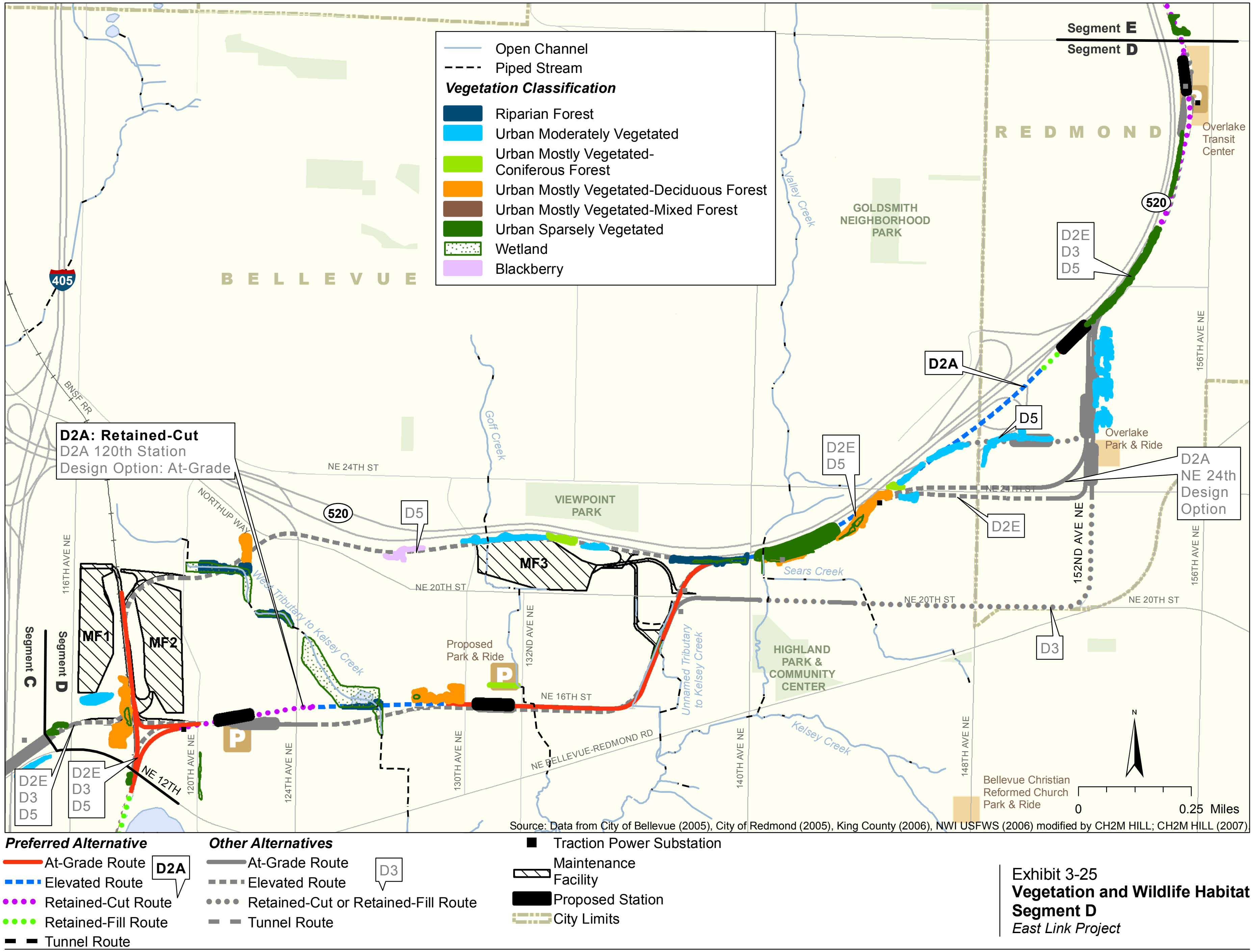
City Limits

Exhibit 3-24

Vegetation and Wildlife Habitat

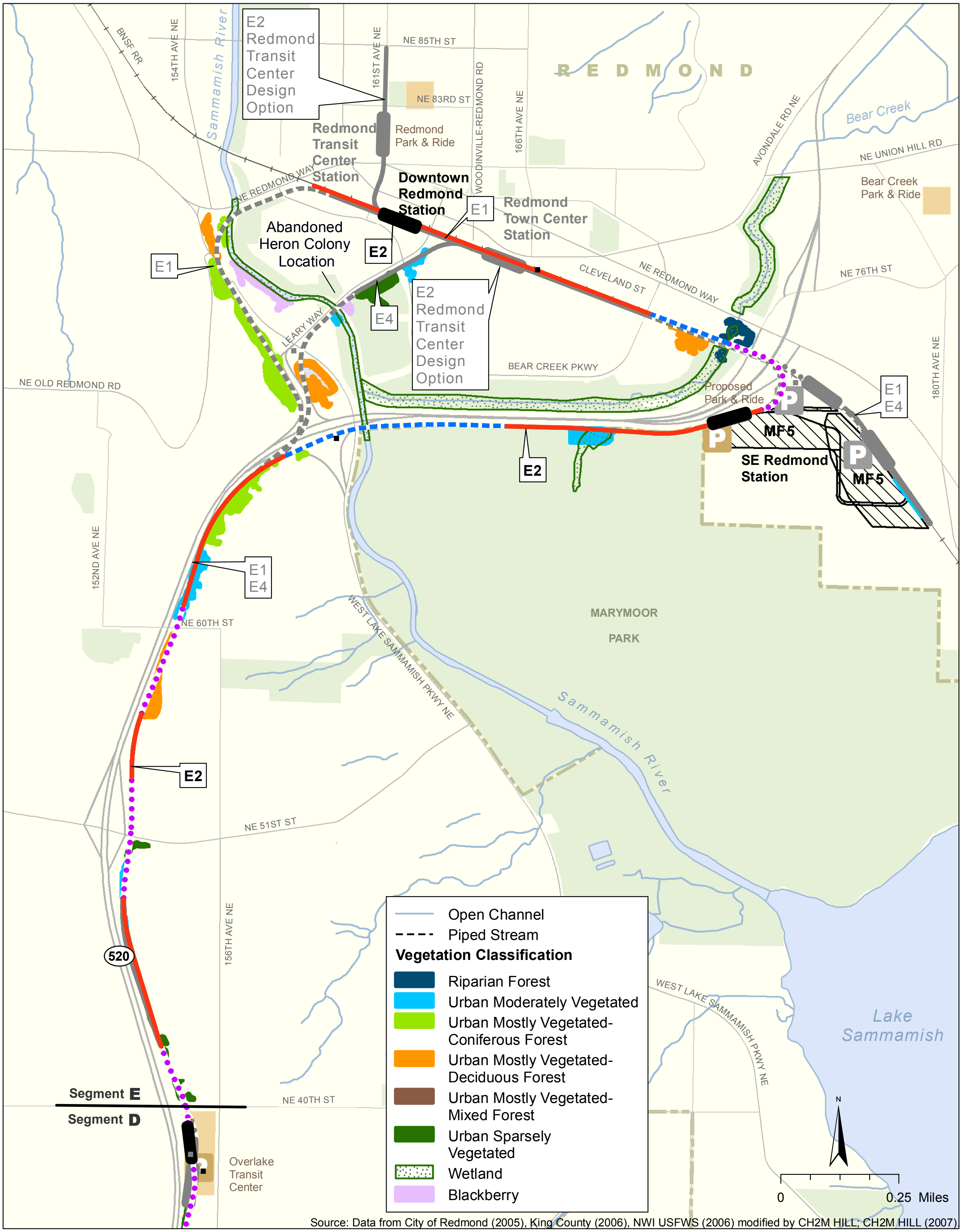
Segment C

East Link Project


Open Channel
Piped Stream
Vegetation Classification
Riparian Forest
Urban Moderately Vegetated
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Urban Sparsely Vegetated
Wetland
Blackberry
Segment E
Segment D
R E D M O N D
B E L L E V U E
405
520
Overlake Transit Center
GOLDSMITH NEIGHBORHOOD PARK
Valley Creek
D2E
D3
D5
D2A
D5
Overlake Park & Ride
D2E
D5
D2A
NE 24th
Design
Option
D2E
156TH AVE NE
152ND AVE NE
NE 24TH ST
NE 20TH ST
D3
D2A: Retained-Cut
D2A 120th Station
Design Option: At-Grade
BNSF RR
NORTHUP WAY
NE 24TH ST
Goff Creek
D5
VIEWPOINT PARK
MF3
NE 20TH ST
Sears Creek
West Tributary to Kelsey Creek
MF1
MF2
Segment C
Segment D
116TH AVE NE
Proposed Park & Ride
132ND AVE NE
NE 16TH ST
Unnamed Tributary to Kelsey Creek
HIGHLAND PARK & COMMUNITY CENTER
NE BELLEVUE-REDMOND RD
Kelsey Creek
140TH AVE NE
148TH AVE NE
130TH AVE NE
124TH AVE NE
120TH AVE NE
NE 12TH
D2E
D3
D5
D2E
D3
D5
Bellevue Christian Reformed Church Park & Ride
N
0
0.25 Miles
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
D2A
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
D3
Traction Power Substation
Maintenance Facility
Proposed Station
City Limits

Source: Data from City of Bellevue (2005), City of Redmond (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007)

Exhibit 3-25
Vegetation and Wildlife Habitat
Segment D
East Link Project


E2 Redmond Transit Center Design Option
Redmond Transit Center Station
Redmond Park & Ride
Downtown Redmond Station
E1
Redmond Town Center Station
Abandoned Heron Colony Location
E2
E1
E4
E2 Redmond Transit Center Design Option
R E D M O N D
Bear Creek
Bear Creek Park & Ride
NE UNION HILL RD
AVONDALE RD NE
NE 76TH ST
NE REDMOND WAY
CLEVELAND ST
BEAR CREEK PKWY
Proposed Park & Ride
E1
E4
MF5
SE Redmond Station
MF5
180TH AVE NE
E2
BNSF RR
154TH AVE NE
Sammamish River
161ST AVE NE
NE 85TH ST
NE 83RD ST
WOODINVILLE-REDMOND RD
166TH AVE NE
NE REDMOND WAY
LEARY WAY
NE OLD REDMOND RD
152ND AVE NE
E1
E4
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
MARYMOOR PARK
Sammamish River
E2
NE 51ST ST
520
156TH AVE NE
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
N
0
0.25 Miles
Open Channel
Piped Stream
Vegetation Classification
Riparian Forest
Urban Moderately Vegetated
Urban Mostly Vegetated-Coniferous Forest
Urban Mostly Vegetated-Deciduous Forest
Urban Mostly Vegetated-Mixed Forest
Urban Sparsely Vegetated
Wetland
Blackberry

Source: Data from City of Redmond (2005), King County (2006), NWI USFWS (2006) modified by CH2M HILL; CH2M HILL (2007)

Preferred Alternative E2

At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Other Alternatives E1

At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

■ Traction Power Substation
Proposed Station
▨ Maintenance Facility
City Limits

Exhibit 3-26
Vegetation and Wildlife Habitat
Segment E
East Link Project

3.2.1.4 Segment E

In Segment E, the Sammamish River (also known as Sammamish Slough) is bordered by a mowed grass park with widely planted ornamental trees to the east and by roads and residential and commercial development to the west. The riparian corridor south of the NE Redmond Way Bridge is dominated by Himalayan blackberry from the top of the bank down to the water's edge. Although the bank offers little habitat for wildlife, the watercourse is still used by a variety of waterfowl. Canada geese, mallards, great blue herons, and double-crested cormorants were observed in the slough during visits in May 2007. Signs of beaver activity were also observed along the slough near the NE Redmond Way Bridge. South of the SR 520 bridge, a red-breasted merganser, common merganser, belted kingfisher, and lesser scaup were observed during site visits in mid-April 2007. In addition, approximately 36 double-crested cormorants use two cottonwood trees behind SE Leary Way as a winter roost. The roost is located just above the western bank of the Sammamish River.

There is a small coniferous forested area located adjacent to SE Leary Way and the Sammamish River. The Redmond Center heronry was located in this forested section until its abandonment in 2004 due to bald eagle harassment and the increase in development immediately adjacent to the forest stand. The forest is dominated by Douglas-fir trees and has an understory of Indian plum and Himalayan blackberry. Since 2004, portions of the forested stand have been cleared for road improvements and building construction. Continuing development adjacent to the forested stand, coupled with the continued presence of bald eagles in the area, have discouraged the birds from returning.

Beaver and other small mammals, as well as woodpeckers, forest- and wetland-associated songbirds, common waterfowl, hawks, and owls occur along Bear creek and its associated riparian habitats. Special-status avian species observed at Bear Creek include great blue heron, osprey, and bald eagle. One or more bat species may forage in and around the creek and riparian area. A restoration project along the banks of Bear Creek exists downstream from the proposed light rail crossing of the creek. Non-native vegetation has been removed and replanted with native shrubs and tree saplings.

Marymoor Park was once part of the floodplain of Lake Sammamish. Currently, the Sammamish River runs through a portion of the park and enters Lake Sammamish at the southern boundary of the park. Marymoor Park is 640 acres and has a variety of habitats, including herbaceous, scrub-shrub and forested wetlands, riparian corridors, deciduous upland forests, and grassy fields. Two bald eagle nests, an osprey nest, and a red-tailed hawk nest are located within the park's boundaries. Three pairs of red-tailed hawks were observed at several locations at Marymoor Park during the vegetation surveys conducted in April 2007. Several nest boxes are set up for purple martins at the south end of the park, and they have used these nest boxes in the past. However, since 2008, use of these boxes by purple martins is uncertain (Hobbs, 2011). More than 195 bird species have been recorded, primarily breeding and migratory songbirds and waterfowl. Reptiles and a variety of small mammals and deer also occur in the park. Although habitat exists within the park boundaries for several bat species, none are listed as occurring at Marymoor Park and no formal bat surveys have been conducted. Salmon migrate up the Sammamish River destined for spawning areas upstream. During the salmon spawning runs, groups of juvenile bald eagles congregate in Marymoor Park along the Lake Sammamish shoreline. Approximately 31 juvenile bald eagles were counted one evening in September 2006. A small mitigation wetland is located on the northern end of the park, abutting the park's boundary with SR 520.

3.2.2 WDFW Priority Habitats and Vegetation Types

Table 3-7 lists the types of WDFW-designated priority habitats that occur in the East Link Project study area and the location of key habitats.

TABLE 3-7
WDFW Priority Habitats That Occur in East Link Project Study Area

WDFW Priority Habitat Type	WDFW Criteria for Designation as a Priority Habitat Type	Corresponding Project Vegetation Types and Locations[a]
Freshwater Wetlands and Fresh Deepwater	Comparatively high fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important fish and wildlife seasonal ranges, limited availability, high vulnerability to habitat alteration	Wetland and open water, including Lake Washington (*Preferred A1*) and much of Mercer Slough Nature Park (*Preferred B2M*, B1, B2A, B2E, B3, B7)
In-stream	Comparatively high fish and wildlife density and species diversity, important fish and wildlife seasonal ranges, limited availability, high vulnerability to habitat alteration, dependent species	Kelsey Creek, West Tributary to Kelsey Creek, Valley Creek (*Preferred D2A*, D2E, D3, D5) Goff Creek (D5) Bear Creek and Sammamish River (*Preferred E2*, E1, E4)
Riparian	High fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important wildlife seasonal ranges, important fish and wildlife movement corridors, high vulnerability to habitat alteration, unique or dependent species	Riparian areas along: Mercer Slough (B7) West Tributary to Kelsey Creek (*Preferred D2A*, D2E, D3, D5) Bear Creek *(Preferred E2*, E1, E4)
Biodiversity Areas and Corridors	Areas of habitat that are relatively important to various species of native fish and wildlife.	Urban mostly vegetated – coniferous forest and deciduous forest (*Preferred B2M*, B1, B2A, B2E, B3, B7)

Source: WDFW Priority Habitats and Species (http://wdfw.wa.gov/conservation/phs/)

[a]Alternative Designations:

Preferred A1 = I-90
Preferred B2M =112th SE Modified
B1 = Bellevue Way
B2A = 112th SE At-Grade
B2E = 112th SE Elevated
B3 = 112th SE Bypass
B7 = BNSF
Preferred D2A = NE 16th At-Grade
D2E = NE 16th Elevated
D3 = NE 20th
D5 = SR 520
Preferred E2 = Marymoor
E1 = Redmond Way
E4 = Leary Way

3.2.3 Federal and State Threatened, Endangered, and Candidate Species and Species of Concern

Other than the aquatic species discussed in Section 3.1 of this report, there is one ESA-listed species (marbled murrelet *[Brachyramphus marmoratus]*), which is listed but not likely present, and four federal candidate or species of concern that are likely to be present in the study area. These species are described herein. Other state-priority species known or likely to be present in the study are identified in Table 3-8. Appendix C lists the ESA-listed and state-priority species that are known in the study area and that are likely present and possibly present within the project vicinity based on the known or general distribution of the species, their habitat preferences, and the presence of potentially suitable habitat for the species. This report does not discuss wildlife species “possibly present” other than by way of addressing the high-value habitats that may be suitable habitat for these species.

Site-specific distribution data are available for only a few of these species, and no species-specific surveys or habitat assessments were conducted for this project. The USWFS Threatened and Endangered Species System website for species and habitats listed in King County indicated that there is a federally threatened wildlife species under the ESA: the marbled murrelet. ESA-listed fisheries resources that may potentially occur within the study area were addressed in Section 3.1, Aquatic Resources, of this report. Database searches indicated that there are no federal-listed nor state-listed plants in the study area. Based on the available known and general distribution data, habitat requirements, and habitats present in the vicinity of the study area, no priority terrestrial small mammal, large mammal, reptile, or insect species other than butterflies occur or are likely to occur within a half mile of any of the project segments.

TABLE 3-8
State Priority Species Likely or Known to Occur in East Link Project Study Area

Name	State Status[a]	Presence, Preferred Habitat, and Probable Location in Study Area
Bird		
Pileated woodpecker (*Dryocopus pileatus*)	State candidate	Known in the study area. Typically found in forests with a component of dead and dying trees and snags for foraging and nesting. Found at Marymoor Park and throughout the study area. One bird observed near I-405 south of SE 8th Street. Likely habitat along the BNSF (B7) and *Preferred Marymoor (E2)* alternatives due to larger clusters of larger trees and snags.
Purple martin (*Progne subis*)	State species of concern	Known in the study area. Nests in structures over water bodies, including natural cavities, pilings, and manmade housing structures. Forages over open water or wet areas for insects while in flight. Nesting observed at Marymoor Park in 2003 (*Preferred Alternative E2*). Habitat may also be present in Segment B.
Western grebe (*Aechmophorus occidentalis*)	State species of concern	Known in the study area. Nests in colonies numbering up to several hundred birds east of the Cascade Mountains and is a winter resident on Lake Washington and Puget Sound The highest likelihood of occurrence is in Segment A.
Merlin (*Falco columbarius*)	State species of concern	Likely present in the study area. Seen during the nesting season at Marymoor Park. Commonly found throughout western Washington, including urban areas, in winter and during migration. Might occur in Segments A, B, D, and E.

[a] Washington priority species include only native Washington fish and wildlife species that are listed as endangered, threatened, or sensitive, or as candidates for these designations as established in the Washington Administrative Code.

3.2.3.1 Marbled Murrelet

The marbled murrelet is listed as a federal and state threatened species and might occur in Segment A. The population is rapidly declining, and the USFWS has determined that the population is currently not self-sustaining (Csuti et al., 1991; Ralph et al., 1995; Wahl et al., 2005). During the nonbreeding season, marbled murrelets are rare and infrequent visitors to Lake Washington that have been observed on the lake in the past but have not been documented to use the lake since the early 1990s and only once in the last 50 years. As such, they are not expected to be in the project vicinity.

3.2.3.2 Bald Eagle

Bald eagles were listed as threatened under the ESA until July 2007, when they were delisted because the successful recovery efforts. However, bald eagles are still protected by two other federal laws: the Bald and Golden Eagle Protection Act and the MBTA. Both laws prohibit killing, selling, or otherwise harming eagles, their nests, or eggs. On June 5, 2007, the USFWS clarified its regulations implementing the Bald and Golden Eagle Protection Act and published a set of National Bald Eagle Management Guidelines. These actions are designed to give landowners and others clear guidance that actions they take on their property are consistent with the Bald and Golden Eagle Protection Act and the MBTA. The Bald Eagle Protection Act requires the establishment of rules defining buffers around bald eagle nest and roost sites. If the activity is within a half mile of an eagle nest or within a quarter mile of an eagle roost, WDFW is notified and works with the landowner to develop a Bald Eagle Management Plan (see WAC 232-12-292, Section 4.4).

There are no communal bald eagle roosts, winter concentration areas, or buffers for such areas within a half mile of any of the proposed alternatives or project elements. However, there are five active eagle territories located within a half mile of one or more of the alternatives (eagle territories vary in size depending upon the amount of food available and the density of eagles in the area). Three of the territories were known to be active with incubating adults in April 2007. The other two territories were active in 2006, but their status for 2007 is unknown. Bald eagles have strong site fidelity, so it is likely the birds are still within their territories and may have built new nests nearby. Therefore, all five nesting territories were included in this analysis. Table 3-9 presents the location of bald eagle nests in relation to the project alternatives and the results of the VIEWSHED analysis.

Four bald eagle nests are located either on the shoreline of Lake Washington or near the lake. Bald eagles are sighted in Segments A, B, and E. WDFW and the bald eagle recovery plan designated 800-foot-wide buffers around nests and shoreline foraging areas (see Appendix D for detailed WDFW management recommendations). The USFWS also designated larger territories around bald eagle nests and foraging areas. The buffers and territorial designations include relatively large areas of Lake Washington shoreline. None of the alternatives is located within any of the 800-foot-wide nest or shoreline buffers. *Preferred Interstate 90 Alternative (A1)* and Bellevue Way (B1), 112th SE At-Grade (B2A), 112th SE Elevated (B2E), 112th SE Bypass (B3), and BNSF (B7) Alternatives are within the larger territories of three nests.

TABLE 3-9
Location of Bald Eagle Nests in Relation to Project Alternatives, Visibility from Nests, and Distance from Nest to Alternative

WDFW PHS Bald Eagle Nest Number	Segments Within Half Mile of Nest	Shortest Distance, Nest to Segment (miles)	Segments Likely Visible from Nest	Minimum Distance to Visible Part of Segment (miles)	Area Visible from Nest
4712252059	*Preferred A1*, I-90	0.4	*Preferred A1*, I-90	0.4	Short sections of Mercer Island
4712252952	*Preferred A1*, I-90	0.6	*Preferred A1*, I-90	0.6	Short sections of Mercer Island
4712252056	*Preferred A1*, I-90 B1, Bellevue Way	0.5	*Preferred A1*, I-90	0.5	Much of Mercer Island
4712252017	B1, Bellevue Way	0.5	None	> 1	Much of Mercer Island and east quarter of Lake Washington
4712261026	E1, Redmond Way E4, Leary Way	0.5	None	> 1	None

There is an additional bald eagle nest located just over a half mile from SR 520 and *Preferred Marymoor Alternative (E2)*. This nest is very hard to see because it is hidden in a fork in a large maple or cottonwood tree in a densely forested area of Marymoor Park. Neither the highway nor *Preferred Alternative E2* would be visible from this nest site because of its location below the top of the forest canopy and the dense surrounding forest.

As many as 33 bald eagles, all but 2 of them juveniles, and several herons have been reported foraging along the shore of Lake Sammamish during the fall period (Norman, 2007b). The shortest distance between the study area and Lake Sammamish is about 0.75 mile, and there is no direct line of sight between the lake and the study area. Bald eagles are suspected of foraging for salmon along Bear Creek during the fall and winter.

3.2.3.3 Peregrine Falcon

Peregrine falcons are a federal-species of concern and state-monitored species. The WDFW PHS database indicates that there are three peregrine falcon nests within a half mile of the study area. One is located under the I-90 bridge across Lake Washington just above the Seattle shoreline, and the second is located under the East Channel bridge on the Mercer Island side. This nest was confirmed in 2006 and 2009 by WDFW (WDFW, 2010). Recent nesting activity is unknown. A third nest is located in Downtown Bellevue (WDFW, 2010). Sightings and potential viable habitat occur in Segments A, B, and E.

3.2.3.4 Olive-Sided Flycatcher

The olive-sided flycatcher (*Contopus borealis*) is a federal species of concern. It nests in coniferous forest and mixed coniferous-deciduous forests and woodland, often with service berry and mountain-mahogany. They also are attracted to burned-over areas with standing dead trees. Most nesting sites contain dead standing trees, which are used as singing and feeding perches. The cause of precipitous declines in their populations across known distributions is not fully understood. The small brood size, climate changes, deforestation in wintering areas, and declines in insect populations might all play a role in olive-sided flycatcher decline. It breeds in coniferous forests in North America. The olive-sided flycatcher is common in most forest openings throughout Washington and is sometimes found in city parks or suburban areas, especially during migration. This species might have potential habitat in Segments B and E.

3.2.3.5 Willow Flycatcher

Willow flycatchers *(Empidonax traillii)* are a federal species of concern. Willow flycatchers are strongly tied to brushy areas of willow, alder, and similar dense stands of riparian shrubs, especially where such riparian areas are bordered by open stands of cottonwood. They prefer thickets, open second growth with brush, swamps, wetlands, stream sides, and open woodlands. Water and deciduous shrubs appear to be their essential habitat elements for nesting areas. This species is declining because of several factors, including loss of riparian vegetation cover from recreational uses and grazing pressure, and heavy nest parasitism by cowbirds. Water diversions and flood control that prevent willow and alder regeneration and deforestation on wintering grounds are also likely factors in their long-term population instability. The willow flycatcher breeds in deciduous thickets, especially in willow thickets. Nest sites are often close to water. They are known to be present in Segments B and E.

3.2.4 Critical Area Ordinances

Title 21A of the GMA requires counties and cities in Washington to designate and protect critical areas, in accordance with RCW 36.70A.170. The GMA requires local jurisdictions to designate and protect critical areas using the best available science in developing policies and regulations to protect critical area functions and values. The GMA is intended to protect the public's health and safety by requiring county and city governments to create locally based plans and regulations that are centered on land use and natural resource issues as guided by the state legislature. Critical areas are one of the two primary natural resource areas addressed in the GMA planning process. Critical areas include wetlands, critical recharge areas for potable water aquifers, frequently flooded areas, geological hazard areas, and fish and wildlife habitat conservation areas.

Fish and wildlife habitat conservation areas are the primary way the WDFW works to conserve wildlife habitat in Washington. While WDFW is charged with protecting and maintaining fish and wildlife populations, WDFW has little authority over the habitats used by fish and wildlife species. Protection is primarily achieved through the voluntary actions of landowners and through existing state regulations, including SEPA, the GMA, the Forest Practices Act, and the SMA. WDFW primarily serves an advisory role by reviewing proposals for development and offering guidelines for species management on private property. WDFW has written management guidelines for all state- and priority-listed species. Priority species include species and wildlife congregations that are priorities for conservation due to their population status, sensitivity to disturbance, and economic, recreational, or tribal importance. These species may or may not be listed as an endangered, threatened, sensitive, or candidate species by the state or federal government. The management recommendations are generalized guidelines and are not enforceable regulations, except through CAOs enforced by local jurisdictions.

In order to meet the requirements established by the GMA, King County and the Cities of Bellevue, Mercer Island, and Redmond created CAOs to ensure the management and protection of lands used by listed and locally important species. The details of these ordinances and management recommendations are available in Appendix E.

The following paragraphs summarize applicable ordinances within the study area:

- Section 198 of the King County Comprehensive Plan requires the county to protect the active breeding sites of these species, as well as the immediate area surrounding each site to prevent any disturbance to breeding activities. The species include the bald eagle, great blue heron, osprey, peregrine falcon, northern spotted owl (*Strix occidentalis*), marbled murrelet, Townsend's big eared bat (*Corynorhinus townsendii)*, Vaux's swift, red-tailed hawk, and goshawk (*Accipiter gentilis*).
- The City of Mercer Island Comprehensive Land Use Plan includes Ordinance No. 05C-12, which details its critical areas regulations. In order to streamline its critical areas regulations, the City of Mercer Island adopted WDFW's PHS program in its entirety in 1998.
- Under Bellevue's Land Use Code 20.25H.025, any habitat associated with a species of local importance is to be designated a critical area. Furthermore, if a habitat associated with a species of local importance is impacted by a proposed development, the proposal shall implement the WDFW wildlife management recommendations designed for that species. If the habitat does not include a critical area or critical area buffer, but is occupied by a locally important species, then only the guidelines in the wildlife management recommendations need to be followed. Species of local importance include great blue heron, red-tailed hawk, bald eagle, peregrine falcon, osprey, pileated woodpecker, purple martin, common loon (*Gavia immer*), western grebe, merlin, great egret, green heron, Vaux's swift, Townsend's big-eared bat, and western toad.
- The City of Redmond's Critical Areas Ordinance (Ordinance #2259) applies species protection to state species of concern, Priority species designated by WDFW, and locally important species. The only locally important species is the great blue heron.

3.3 Wetland Resources

The 17 wetlands identified in the study area are discussed in Section 3.3.2. No wetlands were found in Segment A, so this segment is not included in exhibits or discussions of wetlands. Exhibits 3-27 through 3-29 illustrate the wetlands found in the study area. Most of these wetlands are associated with Mercer Slough, Sturtevant Creek, the West Tributary to Kelsey Creek, or Bear Creek. In addition to these larger systems, several smaller wetlands were found in the study area in the vicinity of Valley Creek and near the former BNSF Railway corridor in the Bel-Red corridor. All wetlands in the study area have been altered and are surrounded by urban and residential environments.

3.3.1 Analysis of Wetland Determinations

3.3.1.1 Soils

The Natural Resources Conservation Service (NRCS) soil survey map for King County lists 20 soil series in the study area (Table 3-10). Of these 20 series, six are classified as hydric soils: Bellingham silt loam, Norma sandy loam, Puget silty clay Loam, Seattle muck, Snohomish silt loam, and Tukwila muck (USDA SCS, 1988).

TABLE 3-10
Soil Series Found within East Link Project Study Area

Soil ID	Soil Name and Description	Soil Location	Hydric?
AgC	Alderwood gravelly sandy loam 6 – 15% slope	Steep slope west of West Sammamish Parkway	No
AgD	Alderwood gravelly sandy loam 15 – 30% slope	118th Avenue SE	No
AmC	Arents, Alderwood material 6 – 15% slope	Bus parking lot	No
Bh	Bellingham Silt Loam	Between 152nd Avenue NE and 156th Avenue NE in Overlake	Yes
Ea	Earlmont silt loam	Along Bear Creek Parkway	No
EvB	Everett gravelly sandy loam 0 – 15% slope	Redmond	No
EwC	Everett-Alderwood gravelly sandy loams 6 – 15% slope	West of Bellevue Way	No
InA	Indianola loamy fine sand 0 – 4% slope	Along 520 in Redmond	No
KpB	Kitsap silt loam 0 – 8% slope	118th Avenue SE	No
KpC	Kitsap silt loam 8 – 15% slope	118th Avenue SE	No
KpD	Kitsap silt loam 15 – 30% slope	118th Avenue SE	No
No	Norma sandy loam	Downtown Bellevue	Yes
Ur	Urban land	Bellevue, Overlake, Redmond	No
Pc	Pilchuck loamy fine sand	On the upper banks of the Sammamish River	No
Pu	Puget silty clay loam	Bellevue, Redmond	Yes
Re	Renton silt loam	Segment C west of Lake Bellevue	No
Sk	Seattle muck	West Tributary to Kelsey Creek Riparian area, Mercer Slough	Yes
So	Snohomish silt loam	Southwest Mercer Slough	Yes
Su	Renton silt loam	By the horseshoe-shaped detention pond	No
Tu	Tukwila muck	BNSF Matrix Wetland and north of Sturtevant Creek	Yes

Source: USDA (2008).

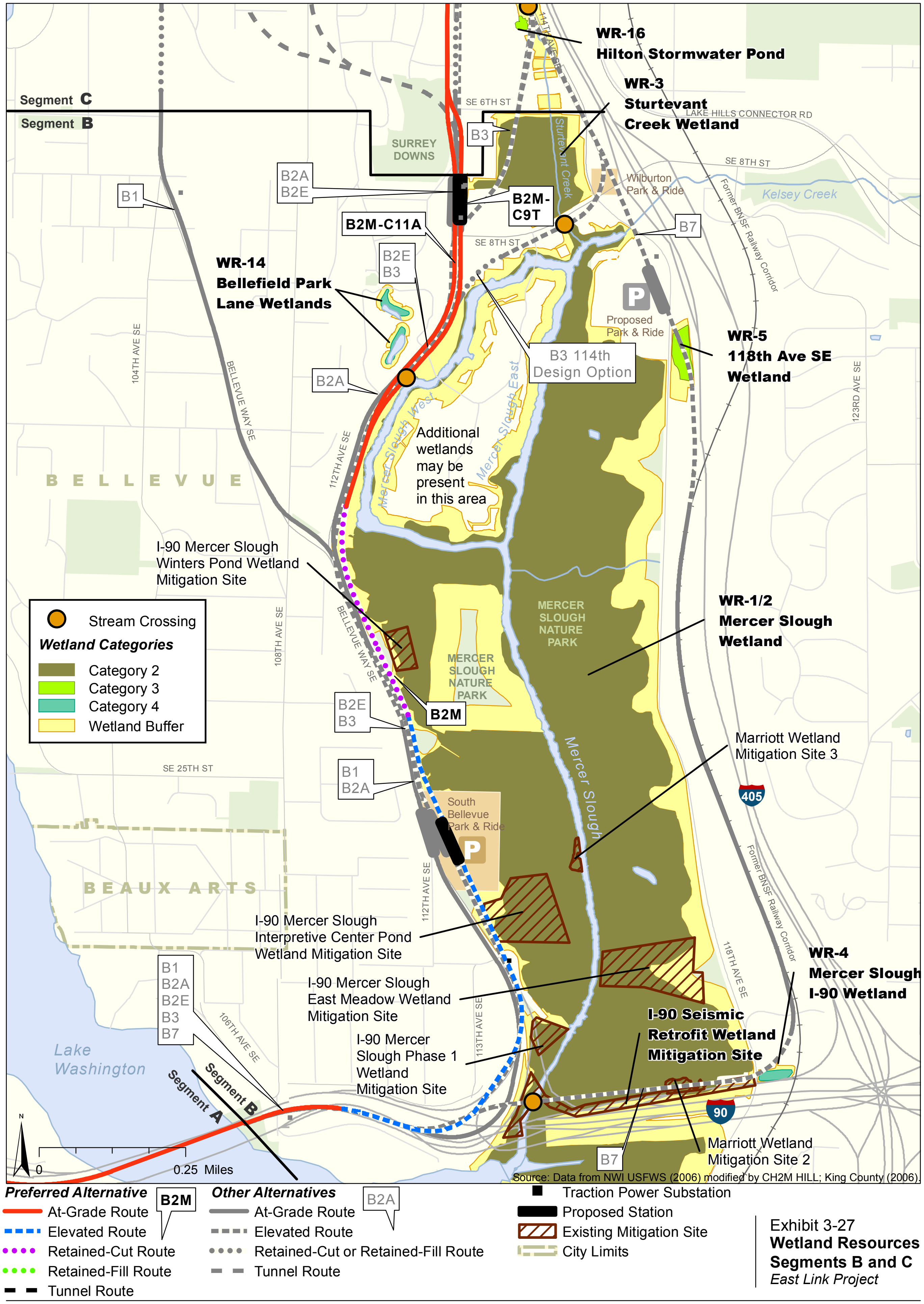
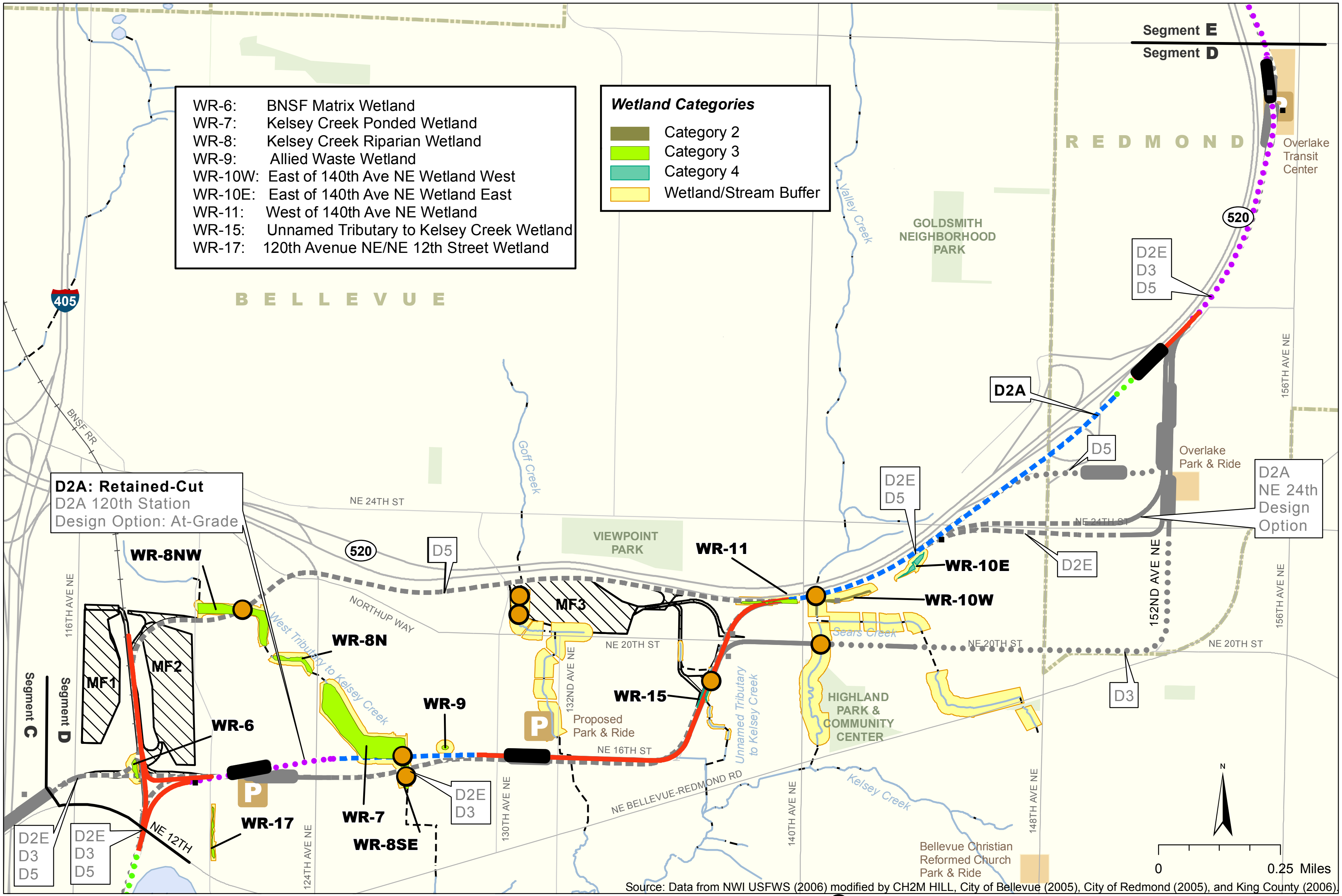

WR-16
Hilton Stormwater Pond
WR-3
Sturtevant
Creek Wetland
Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
SE 8TH ST
SURREY
DOWNS
B3
Sturtevant Creek
Wilburton
Park & Ride
Kelsey Creek
B1
B2A
B2E
B2M-
C9T
B2M-C11A
B7
SE 8TH ST
Former BNSF Railway Corridor
WR-14
Bellefield Park
Lane Wetlands
B2E
B3
Proposed
Park & Ride
WR-5
118th Ave SE
Wetland
B3 114th
Design Option
104TH AVE SE
BELLEVUE WAY SE
B2A
123RD AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
Additional
wetlands
may be
present
in this area
BELLEVUE
I-90 Mercer Slough
Winters Pond Wetland
Mitigation Site
MERCER
SLOUGH
NATURE
PARK
WR-1/2
Mercer Slough
Wetland
Stream Crossing
Wetland Categories
Category 2
Category 3
Category 4
Wetland Buffer
108TH AVE SE
BELLEVUE WAY SE
MERCER
SLOUGH
NATURE
PARK
B2M
B2E
B3
Marriott Wetland
Mitigation Site 3
Mercer Slough
SE 25TH ST
B1
B2A
405
South
Bellevue
Park & Ride
BEAUX ARTS
112TH AVE SE
I-90 Mercer Slough
Interpretive Center Pond
Wetland Mitigation Site
Former BNSF Railway Corridor
WR-4
Mercer Slough
I-90 Wetland
118TH AVE SE
B1
B2A
B2E
B3
B7
I-90 Mercer Slough
East Meadow Wetland
Mitigation Site
I-90 Seismic
Retrofit Wetland
Mitigation Site
106TH AVE SE
113TH AVE SE
I-90 Mercer
Slough Phase 1
Wetland
Mitigation Site
Lake
Washington
Segment B
Segment A
90
Marriott Wetland
Mitigation Site 2
B7
N
0
0.25 Miles
Source: Data from NWI USFWS (2006) modified by CH2M HILL; King County (2006).
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Traction Power Substation
Proposed Station
Existing Mitigation Site
City Limits

Exhibit 3-27
Wetland Resources
Segments B and C
East Link Project


WR-6: BNSF Matrix Wetland
WR-7: Kelsey Creek Ponded Wetland
WR-8: Kelsey Creek Riparian Wetland
WR-9: Allied Waste Wetland
WR-10W: East of 140th Ave NE Wetland West
WR-10E: East of 140th Ave NE Wetland East
WR-11: West of 140th Ave NE Wetland
WR-15: Unnamed Tributary to Kelsey Creek Wetland
WR-17: 120th Avenue NE/NE 12th Street Wetland
Wetland Categories
Category 2
Category 3
Category 4
Wetland/Stream Buffer
Segment E
Segment D
REDMOND
Overlake Transit Center
520
GOLDSMITH NEIGHBORHOOD PARK
Valley Creek
BELLEVUE
405
D2E D3 D5
D2A
D5
BNSF RR
Goff Creek
Overlake Park & Ride
D2A NE 24th Design Option
D2A: Retained-Cut
D2A 120th Station Design Option: At-Grade
NE 24TH ST
VIEWPOINT PARK
WR-11
D2E D5
WR-10E
D2E
156TH AVE NE
NE 24TH ST
520
D5
WR-8NW
NORTHUP WAY
MF3
WR-10W
152ND AVE NE
Sears Creek
NE 20TH ST
NE 20TH ST
116TH AVE NE
WR-8N
West Tributary to Kelsey Creek
MF2
MF1
Segment C
Segment D
WR-9
WR-6
132ND AVE NE
Proposed Park & Ride
WR-15
Unnamed Tributary to Kelsey Creek
HIGHLAND PARK & COMMUNITY CENTER
D3
NE 16TH ST
NE BELLEVUE-REDMOND RD
Kelsey Creek
WR-17
WR-7
WR-8SE
D2E D3
130TH AVE NE
124TH AVE NE
140TH AVE NE
148TH AVE NE
NE 12TH
D2E D3 D5
D2E D3 D5
Bellevue Christian Reformed Church Park & Ride
N
0
0.25 Miles

Source: Data from NWI USFWS (2006) modified by CH2M HILL, City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

D2A

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

D3

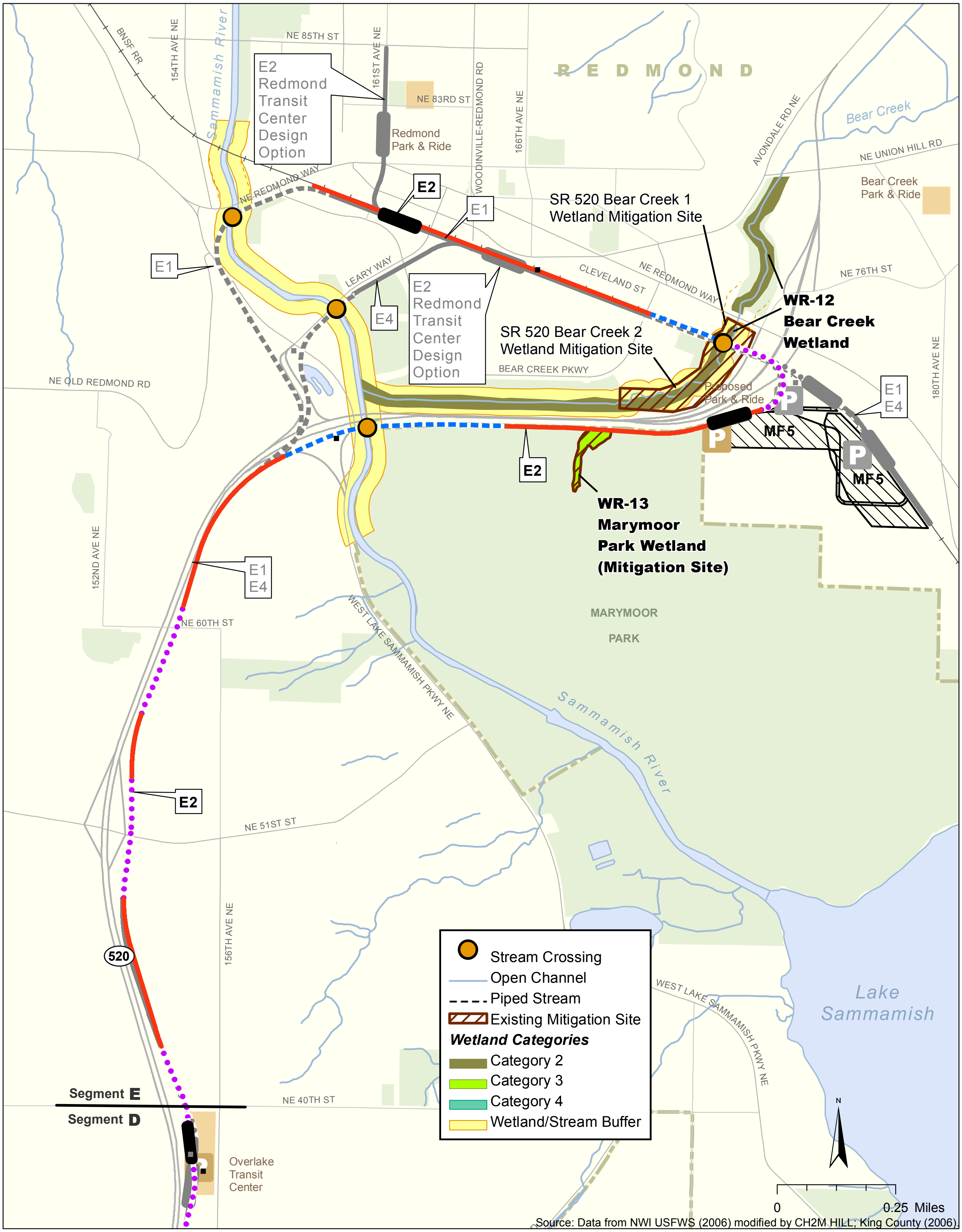
- ■ Traction Power Substation
- ▨ Maintenance Facility
- Proposed Station
- City Limits
- ● Stream Crossing
- Open Channel
- Piped Stream

Exhibit 3-28

Wetland Resources

Segment D

East Link Project


REDMOND
BNSF RR
154TH AVE NE
Sammamish River
NE 85TH ST
161ST AVE NE
NE 83RD ST
Redmond Park & Ride
WOODINVILLE-REDMOND RD
166TH AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
E2 Redmond Transit Center Design Option
NE REDMOND WAY
E2
E1
SR 520 Bear Creek 1 Wetland Mitigation Site
E1
LEARY WAY
E4
E2 Redmond Transit Center Design Option
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
WR-12
Bear Creek
Wetland
SR 520 Bear Creek 2 Wetland Mitigation Site
BEAR CREEK PKWY
Proposed Park & Ride
NE OLD REDMOND RD
E1
E4
180TH AVE NE
MF5
MF5
E2
WR-13
Marymoor
Park Wetland
(Mitigation Site)
152ND AVE NE
E1
E4
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
MARYMOOR
PARK
Sammamish River
E2
NE 51ST ST
156TH AVE NE
520
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
N
0
0.25 Miles
Stream Crossing
Open Channel
Piped Stream
Existing Mitigation Site
Wetland Categories
Category 2
Category 3
Category 4
Wetland/Stream Buffer
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
E2
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
E1
Traction Power Substation
Proposed Station
Maintenance Facility
City Limits

Source: Data from NWI USFWS (2006) modified by CH2M HILL; King County (2006).

Exhibit 3-29
Wetland Resources
Segment E
East Link Project

All the hydric soils listed in Table 3-10 have a seasonal water table that reaches above or just below the surface. Runoff is slow for these soils, and available water capacity is high. In addition, the hazard of stream overflow is severe. Soil descriptions can be found at the King County Conservation District website (http://www.kingcd.org/pub_soil_des.htm) and the USDA website that is the source for Table 3-10.

3.3.1.2 Vegetation

Invasive non-native and opportunistic native plant species dominate the wetlands within the study area. These species tolerate many disturbances and can out-compete less tolerant native species and thus dominate a wetland. This cycle lowers wetland diversity, habitat complexity, and the range and level of functions the wetland provides. Disturbances that can lead to wetland dominance by invasive non-native and opportunistic native plant species include altered water regimes, filling, and disturbance to soils. Non-native species that are dominant in the study area include Himalayan blackberry, evergreen blackberry *(Rubus laciniatus)*, reed canarygrass, and purple loosestrife *(Lythrum salicaria)*. Portions of Mercer Slough and Bear Creek, and the small Mercer Slough tributary is dominated by a solid Himalayan blackberry monoculture. The riparian emergent stratum at Sturtevant Creek is solid reed canarygrass that reaches nearly 4 feet in height. Native opportunistic plant species include soft rush (*Juncus effusus*) and horsetail (*Equisetum arvense* and *E. telmatiea*). Both of these species were present in most of the wetlands surveyed.

3.3.1.3 Hydrology

Signs of altered hydrology were evident throughout the study area. Along Segment B, portions of wetland that were once a part of the main Mercer Slough complex are separated by paved roads, office complexes, and medium-density residential communities. Hydrologic connection between these wetlands and Mercer Slough still exists via culverts that run beneath 118th Avenue SE as well as via groundwater movement. In addition, several wetland complexes have been created or enlarged due to human activities in the study area. Both drainage wetlands adjacent to Valley Creek in Segment D (WR-10E, WR-10W, and WR-11) receive most of their source water from SR 520 runoff and other impervious surface runoff from surrounding office and retail buildings and parking lots. In Segment E, the Marymoor Park mitigation wetland (WR-13) was built in a historic floodplain area of Bear Creek. The surface and floodwater connection between the area south of SR 520 and Bear Creek, however, has been severed due to road and building construction in the Redmond area.

3.3.1.4 Jurisdictional Determination

Sound Transit has not requested formal wetland jurisdictional determinations from the local, state, or federal regulatory agencies. Some jurisdictions may not regulate all the wetlands. During permitting of the preferred alternatives, Sound Transit will request jurisdictional determinations of those wetlands that are likely to be affected along the preferred alternative routes.

3.3.2 Wetland Descriptions

The following section describes the wetland complexes located in the study area by segment as illustrated in Exhibits 3-27 through 3-29 and listed in Table 3-11.

3.3.2.1 Segment B

Mercer Slough Wetland (WR-1/2)

The Mercer Slough wetland complex is located in the southwestern quadrant of Bellevue. One hundred and fifty years ago, Mercer Slough and its wetlands were a mix of swamps, marshes, and shallow watered areas along Lake Washington. When the Lake Washington Ship Canal and Hiram Chittenden Locks were completed in 1916, the water level in Lake Washington dropped approximately 10 feet, exposing most of the banks now seen along Mercer Slough. Today, the 326-acre Mercer Slough Nature Park encompasses most of the remaining wetland complex and the slough. For this study, the Mercer Slough wetland includes WR-1/2, and four smaller sub-wetlands that are hydrologically connected to Mercer Slough and exist outside the park's boundaries—Sturtevant Creek wetland (WR-3) to the north, 118th Avenue SE wetland (WR-5) to the east, the Mercer Slough/I-90 wetland (WR-4) to the southeast near 118th Avenue SE and I-90 overpass, and the Bellefield Lane Park wetland (WR-14) to the northwest. Bellevue (2008) prepared an inventory of the shoreline-associated wetlands surrounding Mercer Slough as part of an update to their Shoreline Master Plan (SMP).

EXHIBIT 3-30
Mercer Slough Wetland (WR-1/2)

The Mercer Slough wetland is a mixture of palustrine forested (PFO), palustrine scrub-shrub (PSS), and palustrine emergent marsh (PEM) wetlands. Many, if not most, of the wetlands in the Mercer Slough complex grow in deep organic soils. PEM dominates the east and west tributaries of Mercer Slough. Throughout Mercer Slough Nature Park, reed canarygrass dominates the understory. Dominant tree species of PFO/PSS include black cottonwood (*Populus balsamifera*) and red alder, with an understory of willow (*Salix* spp.), red-osier dogwood (*Cornus sericea*), and salmonberry (*Rubus spectabilis*). In disturbed areas, Himalayan blackberry is also common in the shrub layer, primarily along the West Tributary to Mercer Slough, near the I-90 overpass at the southern end of the park, and along the park boundary adjacent to Bellevue Way SE (see Exhibit 3-30).

The southern and mid-section of Mercer Slough Nature Park support several different wetland types. Lake Washington forms the southern boundary of the park. Emergent vegetation with patches of shrubs and small trees dominate the wetlands just north of the lake. Labrador tea (*Ledum groenlandicum*) with a shrub overstory of Pacific willow (*Salix lasiandra*) dominates the PEM/PSS situated in the central portion of the park. Soils found in this area of Mercer Slough Nature Park are peat and Seattle muck.

The northern section of the park is highly fragmented and disturbed. Office complexes are located within 20 feet of Mercer Slough West. Himalayan blackberry and other non-native plant species dominate the banks of the slough. A portion of the wetland on the west side of the park remains drained and pumped for the production of blueberries. The City of Bellevue (2008) rated Mercer Slough wetland as Category 2. In addition there are five WSDOT wetland mitigation sites and two Marriott mitigation sites within Mercer Slough Nature Park (see Table 3-12 and Exhibit 3-27).

Mercer Slough/I-90 Wetland (WR-4)

Located where I-90 crosses 118th Avenue SE, the Mercer Slough/I-90 wetland receives runoff from I-90 and an office park complex adjacent to the wetland. Water quality observed during field visits in March 2007 was low. The water emitted a faint sulfidic odor, and thick mats of orange bacteria were present throughout the length of the watercourse. Salmonberry is the dominant shrub, and the forest canopy is well established with red alder and black cottonwood. This site has patches of Japanese knotweed *(Polygonum cuspidatum)* along its southern bank. Sound Transit rated this wetland as Category 4 (see Exhibit 3-31).

EXHIBIT 3-31
Mercer Slough/I-90 Wetland (WR-4)

118th Avenue SE Wetland (WR-5)

This forested depressional wetland is located between I-405 and 118th Avenue SE on property that formerly housed a WSDOT facility. The wetland discharges to Mercer Slough through a culvert under 118th Avenue SE. As part of the *I-405 Bellevue Nickel Improvement Project* in 2006, WSDOT (2006) rated this wetland as Category 2 (referred to in their document as Wetland 12.4L). Willow and red alder dominate the wetland, and it also contains reed canarygrass (see Exhibit 3-32).

EXHIBIT 3-32
118th Avenue SE Wetland (WR-5)

Sturtevant Creek Wetland (WR-3)

Sturtevant Creek emerges from Lake Bellevue and travels southwest towards Mercer Slough. Just north of Mercer Slough, a riparian wetland complex has developed on the east and west banks of Sturtevant Creek. This wetland complex has good diversity of shrubs established within its boundary, including Pacific ninebark (*Physocarpus capitatus*), Douglas spirea, red-osier dogwood, Indian plum *(Oemleria cerasiformis)*, salmonberry, willow, and cottonwood and alder saplings. The herbaceous layer is a monoculture of reed canarygrass. Himalayan blackberry is also found in several thickets. Bellevue (2008) rated this wetland as Category 2 (see Exhibit 3-33).

Bellefield Park Lane Wetland (WR-14)

According to the City of Bellevue (2008), the Bellefield Park Lane Wetland is an approximately 0.6-acre depressional wetland surrounded by an apartment complex. It is located west of 112th Avenue SE, which separates the wetland from the Mercer Slough wetland. Water drains from the wetland through a culvert beneath 112th Avenue SE and cascades approximately 10 to 15 vertical feet down a channel into Mercer Slough West. The wetland contains a large, permanently inundated pond, surrounded by saturated areas. Reed canarygrass, buttercup, and lady fern grow along banks of the inundated area with some black cottonwood, weeping willow, and alder interspersed occasionally. Bellevue (2008) rated this wetland as Category 4.

EXHIBIT 3-33
Sturtevant Creek Wetland (WR-3)

3.3.2.2 Segment C

Hilton Stormwater Pond (WR-16)

This small (0.2-acre) depressional stormwater pond is located between the Hilton Hotel and Sturtevant Creek (Exhibit 3-34). Wetland characteristics were observed around the pond. Vegetation consists of a band of unmowed, thick-stemmed emergent and mowed bird’s foot trefoil (*Lotus corniculatus*) around three sides of the open water pond. One red alder tree is located on the west side of the pond. Water marks observed on the wall that forms the northern side of the pond indicate that the water surface elevation rises approximately 18 inches above the summer low. The wetland offers no special habitat features and has only mowed park-like and developed

EXHIBIT 3-34
Hilton Hotel Stormwater Pond (WR-16)

buffers. Sound Transit rated the wetland as Category 3. Some or all of the jurisdictions may not regulate this pond as a wetland. Sound Transit will discuss the jurisdictional determination of this pond with the regulatory agencies during the permitting process.

3.3.2.3 Segment D

BNSF Matrix Wetland (WR-6)

In January 2008 the Watershed Company (2008a) conducted a wetland delineation study for the Children's Hospital project that has been constructed and is now operating. This wetland information was incorporated into the database for the East Link Final EIS because it is more current and more detailed than the initial reconnaissance that Sound Transit conducted for the Draft EIS. According to the report prepared by the Watershed Company (2008a), WR-6 is a depressional palustrine forested wetland, which flows to an adjacent drainage ditch east of the property boundary along the neighboring former BNSF Railway corridor (Exhibit 3-35). Groundwater and precipitation are the primary sources of hydrology. Dominant vegetation in the wetland consists of black cottonwood, Pacific willow, hardhack, and Himalayan blackberry. The Watershed Company (2008a) rated this wetland as Category 3.

EXHIBIT 3-35
BNSF Matrix Wetland (WR-6)

120th Avenue NE/NE 12th Street Wetland (WR-17)

In July of 2010, the City of Bellevue conducted a delineation of the 120th Avenue NE/NE 12th Street wetland (WR-17) on the east side of 120th Avenue NE and immediately north of NE 12th Street (City of Bellevue, 2010a). This long, narrow depressional wetland is located at the toe of a disturbed slope between 120th Avenue NE and an industrial building (see Exhibit 3-36). Moist, hydric soils were found in the wetland. Hydrology appears to enter the wetland via surface and ground water and drain slowly through culverts to the south into Lake Bellevue. Dominant vegetation in this scrub-shrub wetland includes Pacific willow (*Salix lasiandra*), Douglas spirea, and an emergent stratum of bentgrass (*Agrostis* sp.). The wetland is roughly 0.2 acre in size and was rated Category 3.

EXHIBIT 3-36
120th Avenue NE/NE 12th Street Wetland (WR-17)

West Tributary to Kelsey Creek Riparian (WR-8NW, WR-8N, and WR-8SE) and Ponded (WR-7) Wetlands

The four wetlands identified in the study area along the West Tributary to Kelsey Creek are largely narrow, fringe wetlands growing along the creek and encroached by surrounding development. Riparian uplands extend for several more feet upslope of the fringe riparian wetlands.

Four ponds exist along the West Tributary to Kelsey Creek in the study area near the King County Metro Maintenance Base along 124th Avenue NE. A beaver dam at the road culvert forms a small pond to the west of 124th Avenue NE (wetland WR-8N). Just northwest of this wetland and upstream from a private road, is another similar riparian wetland (WR-8NW), which is formed by a beaver dam at the culvert that crosses under the private road (Exhibit 3-12). To the east of 124th Avenue NE, a flood control dam installed at the south end of the pond system has converted this reach of the West Tributary to Kelsey Creek into a stormwater detention pond (wetland WR-7), and several snags and weakened trees remain in the center of this pond (Exhibit 3-10). Shallow water and low-lying banks of the detention pond support a thick growth of reed canarygrass, while the upper banks are covered with shrubs and trees. Downstream of the detention pond dam, water collects in a small pond with an associated PEM/PSS wetland WR-8SE dominated by reed canarygrass, red-osier dogwood, and black cottonwood. The creek flows out of this pond over a weir and into a pipe system (Exhibit 3-11). All three ponded sections of the West Tributary are rated as Category 3 wetlands (see Exhibit 3-37).

Allied Waste Wetland (WR-9)

During field investigations, a small Category 4 wetland was located to the east of the Allied Waste Facilities parking lot. The wetland is located behind a retail office complex between 124th Avenue NE and 130th Avenue NE, and heavy industrial and retail development surround the site. The wetland measures roughly 30 feet by 30 feet and is dominated by reed canarygrass and Himalayan blackberry. Stormwater from the surrounding buildings drains into the wetland by following a 1- to 3-foot-wide drainage channel. The drainage ditch supports wetland plants tolerant of disturbances, including horsetail and soft rush. Soils in the canarygrass/blackberry patch were fill soils that met hydric soil criteria because mottles were present within 10 inches of the surface.

EXHIBIT 3-37
West Tributary to Kelsey Creek Riparian Wetland (WR-8SE)

East of 140th Avenue NE Wetlands (WR-10E and WR-10W)

In May 2009, Sound Transit delineated two separate wetlands east of 140th Avenue NE. The western wetland (WR-10W) is a riverine wetland with forested, shrub, and emergent vegetation classes associated with Valley Creek that flows from the north through two culverts under SR 520, and a small drainage swale that enters from the east (Exhibit 3-38). Valley Creek is the primary source of hydrology for the side of this wetland west of Valley Creek; the drainage swale receives stormwater runoff from adjacent parking lots, office buildings, and retail complexes. Dominant vegetation in the wetland included black cottonwood, red alder, Sitka and Pacific willow, Douglas spirea, and reed canarygrass. An unusual building at this location was constructed within the Valley Creek floodplain. The structure is built to allow floodwaters to flow under the building, although shading prevents vegetation from growing. The emergent vegetation in this wetland is regularly mowed. Sound Transit rated wetland WR-10W as Category 2.

EXHIBIT 3-38
East of 140th Avenue NE Wetland (WR-10W)

The eastern wetland (WR-10E) is a long, narrow, forested depression that forms a drainage swale between the SR 520 embankment and the fill from parking lots and building foundations (Exhibit 3-39). The drainage swale receives stormwater runoff from adjacent parking lots, office buildings, and retail complexes. Dominant vegetation in the wetland includes black cottonwood, red alder, Sitka willow, Douglas spirea, salmonberry, and reed canarygrass. Sound Transit rated wetland WR-10E as Category 4.

EXHIBIT 3-39
East of 140th Avenue NE Wetland (WR-10E)

West of 140th Avenue NE Wetland (WR-11)

In May 2009, Sound Transit delineated a long, narrow, forested depressional wetland west of 140th Avenue NE that forms a drainage between the SR 520 embankment and the fill from parking lots and building foundations (Exhibit 3-40). Dominant vegetation in the wetland included black cottonwood, red alder, Sitka and willow, Douglas spirea, red-osier dogwood, salmonberry, and reed canarygrass.

No surface connection of this wetland to Valley Creek was observed. Brown water observed in the wetland suggests water quality concerns. Trash was also abundant in the wetland, the likely result of stormwater draining directly to the wetland, and/or littering from adjacent business parking lots. Sound Transit rated this wetland as Category 3.

EXHIBIT 3-40
West of 140th Avenue NE Wetland (WR-11)

Unnamed Tributary to Kelsey Creek Wetland (WR-15)

In October 2009, Sound Transit delineated several narrow riverine emergent wetlands associated with the roadside ditches along 136th Place NE that convey the Unnamed Tributary to Kelsey Creek (Exhibits 3-41 and 42). Water was flowing in the ditches at the time of the field visit. These ditches appeared to be connected by several culverts under 136th Place NE. In ditch segments that were mowed, vegetation was dominated by reed canarygrass, bird's-foot trefoil, and buttercup. Japanese knotweed was also observed. Woody vegetation was generally absent. At the time of the field visit, BMW of Bellevue was under permit to widen an existing vehicle entry off of 136th Place NE, and this affected a portion of a roadside biofiltration swale. Mapping of this riparian bioswale was obtained from the Sensitive Areas Study prepared for that project by Talasaea Consultants (2007).

3.3.2.4 Segment E

Bear Creek Wetland (WR-12)

Bear Creek is part of the greater Lake Washington-Cedar River drainage, which includes Lake Sammamish and the Sammamish River and extends to Lake Washington. The Bear Creek drainage is 14,300 acres, and the creek itself is 12.4 miles long. Wetlands along the creek receive floodwaters regularly during the winter as well as during spring rain and snowmelt events. There are extensive restoration and flood detention projects along Bear Creek. The wetland and buffer areas along the creek where the *Preferred Alternative E2* and Redmond Way (E1) and Leary Way (E4) Alternatives are proposed to cross are heavily infested with reed canarygrass and Himalayan blackberry. In several areas, these two plant species exclude all other plant growth. Restoration activities downstream have removed the blackberry and most of the canarygrass and replaced non-native plants with native shrubs and tree saplings. A floodplain enhancement project along the south side of Bear Creek at the former BNSF Railway crossing buffers the creek from SR 520 and prevents any overbank flooding into surrounding upland areas. Willow cuttings and other shrubs have been planted to slow water flow through the detention area during flood events. The Bear Creek wetland is a Category 2 wetland.

EXHIBIT 3-41
Unnamed Tributary to Kelsey Creek Wetland (WR-15)

EXHIBIT 3-42
View of Unnamed Tributary to Kelsey Creek Wetland (WR-15)

Marymoor Park Mitigation Wetland (WR-13)

Historically, Marymoor Park received flood water from Bear Creek. In the late 1800s, pioneers drained and farmed the area. Today, Marymoor Park is a 630-acre facility with several natural wetlands and a mitigated wetland located on the property. The park's mitigation wetland is located adjacent to the Velodrome and is bordered to the north by SR 520. The wetland was created to compensate for impacts on a natural wetland that occurred in the early 1990s during the widening of the SR 520. The mitigation wetland was planted with a variety of native trees and shrubs, and site visits in March and April of 2007 found the plantings thriving and in good health, with red alder, black cottonwood, and wild rose dominating the site. However, reed canarygrass is invading the site and competing with the native plants for resources. The Marymoor Park mitigation wetland is a Category 3 wetland.

3.3.3 Wetland Mapping

The 17 wetlands identified in the East Link Project wetland analysis are expected to be jurisdictional wetlands regulated by the local jurisdictions, Department of Ecology, and/or the USACE. Exhibits 3-27 to 3-29 show the 17 wetlands. Table 3-11 shows the location for each wetland resource and indicates where each resource is located in reference to the project alternatives. In Appendix F, Attachment 1, the wetlands are labeled as WR-1 through WR-17.

3.3.4 Wetland Ratings

Of the 17 delineated wetlands in the study area, five are Category 2, eight are Category 3, and four are Category 4 (Table 3-12).

Listed below are the highest category wetlands in the study area (Category 2), which are the larger, more complex wetlands and are mostly associated with streams:

- Mercer Slough Wetland (WR-1/2)
- Sturtevant Creek Wetland (WR-3)
- 118th Avenue SE Wetland (WR-5)
- East of 140th Avenue NE Wetland (WR-10W)
- Bear Creek Wetland (WR-12)

3.4 Wetland Function Assessment

The existing functions and attribute levels vary among project wetlands for several reasons: the location of the wetland in the landscape, the surrounding land use activities, and the past type and level of disturbances the wetland experienced. The scores for each wetland function (i.e., hydrologic, water quality, and habitat) are shown in Table 3-13.

Based on the *Rating System*, most of the wetlands that would be affected generally provide a moderate "potential" to improve water quality, and all have the "opportunity" to provide this function. These wetlands on average have a moderate potential to provide hydrologic functions, and the majority have the opportunity to provide these functions. All these wetlands have a moderate potential to provide habitat functions, and vary from low to moderate in their opportunity to provide habitat functions. Table 3-13 summarizes the potential and opportunity for each wetland to provide these functions. Using the scores obtained from the rating forms for each wetland, a qualitative functional rating (high, moderate, or low as defined in Table 3-14) is included in Table 3-13 and was based on the supplemental guidance provided by Ecology (2006a).

TABLE 3-11
List of Wetlands and Wetland Buffers Located within the East Link Project Study Area by Alternative

		Wetland and Buffer Located along Proposed Alternatives													
Segment B															
		Preferred B2M		***Preferred B2M***		**B1**		**B2A/B2E**		**B3**		**B3 114th DO**		**B7**	
Wetland #/Name	**Location**	***Preferred C11A* Wetland**	***Preferred C11A* Buffer**	***Preferred C9T* Wetland**	***Preferred C9T* Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**
WR-1/2 Mercer Slough Wetland (includes existing mitigation sites: I-90 Mercer Slough interpretative center pond, I-90 Mercer Slough East Meadow, I-90 Mercer Slough Phase 1, and I-90 seismic retrofit)	Mercer Slough	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WR-3 Sturtevant Creek	Mercer Slough									X	X				
WR-4 Mercer Slough/I-90	Mercer Slough													X	X
WR-5 118th Avenue SE	Mercer Slough													X	X
WR-14 Bellefield Park Lane	Mercer Slough														
Segment C															
Wetland #/Name	**Location**	**C3T-B3 Wetland**	**C4A-B3 Wetland**	**C9A Wetland**	**C14E Wetland**										
WR-16 Hilton Stormwater Pond	Sturtevant Creek	X	X	X	X										

TABLE 3-11 CONTINUED
List of Wetlands and Wetland Buffers Located within the East Link Project Study Area by Alternative

		Wetland and Buffer Located along Proposed Alternatives													
Segment D															
		Preferred D2A **6th and 12th**		***Preferred D2A*** **with 120th Station Design Option**		***Preferred D2A*** **with NE 24th Design Option**		**D2E 6th and 12th**		**D3 6th and 12th**		**D5 6th and 12th**			
Wetland #/Name	**Location**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**		
WR-6 BNSF Matrix	Mercer Slough	X	X	X	X	X	X	X	X	X	X	X	X		
WR-7 West Tributary to Kelsey Creek – Ponded	Kelsey Creek	X	X	X	X	X	X								
WR-8 (NW, N, SE) West Tributary to Kelsey Creek – Riparian	Kelsey Creek	X	X	X	X	X	X	X	X	X	X	X	X		
WR-9 Allied Waste	NE 15th Place Wetland		X		X		X								
WR-10E WR-10W East of 140th Avenue NE	Valley Creek	X	X	X	X	X	X	X	X			X	X		
WR-11 West of 140th Avenue NE	Valley Creek	X	X	X	X	X	X	X	X			X	X		
WR-15 Unnamed Tributary to Kelsey Creek	136th Place NE	X	X	X	X	X	X	X	X	X	X				
WR-17 120th Avenue NE/NE 12th Street	120th Avenue NE /NE 12th Street	X	X				X								

TABLE 3-11 CONTINUED
List of Wetlands and Wetland Buffers Located within the East Link Project Study Area by Alternative

		Wetland and Buffer Located along Proposed Alternatives													
Segment E															
Wetland #/Name	**Location**	***Preferred E2***		***Preferred E2* with Redmond Transit Center Station Design Option**		**E1**		**E4**		**E1**					
		Wetland	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**	**Wetland**	**Buffer**				
WR-12 Bear Creek (includes SR 520 Bear Creek 1 and 2 wetland mitigation sites)	Bear Creek	X	X			X	X	X	X	X	X				

Wetlands assumed to be regulated by local jurisdiction (City of Bellevue or Redmond), Department of Ecology, and U.S. Army Corps of Engineers

A/E = At grade and elevated
WR = Wetland Resource
Project Alternatives:

Segment B
Preferred B2M = 112th SE Modified
B3 = 112th SE Bypass
B3 - 114th Extension Design Option
B1 = Bellevue Way
B2A = 112th SE At-Grade
B2E = 112th SE Elevated
B7 = BNSF

Segment C
Preferred C11A = 108th NE At-Grade
Preferred C9T = 110th NE Tunnel
C3T = 108th NE Tunnel
C4A = Couplet
C9A = 110th NE At-Grade
C14E = 114th NE Elevated

Segment D
Preferred D2A = NE 16th At-Grade
D2A -120th Station Design Option
D2A - NE 24th Design Option
D2E =NE 16th Elevated
D3 = NE 20th
D5 = SR 520

Segment E
Preferred E2 = Marymoor Alternative
E2 - Redmond Transit Center Station Design Option
E1 = Redmond Way
E4 = Leary Way

TABLE 3-12
Cowardin Classification, HGM Classifications, Category, and Acreage of Wetlands Located in the Study Area

Locator	Wetland	Cowardin Class	HGM Class	Category[a]	CAO Buffer Width (feet)[b]	Acreage
WR-1/2	Mercer Slough	PEM/PSS/PFO	Riverine Depressional Lacustrine Fringe	2	225	301
WR-3	Sturtevant Creek	PEM/PSS/PFO	Riverine	2	110	12.2
WR-4	Mercer Slough/I-90	PSS	Depressional	4	40	0.5
WR-5	118th Avenue SE	PFO	Depressional	2	75	1.5
WR-6	BNSF Matrix	PFO	Depressional	3	60	0.2
WR-7	West Tributary to Kelsey Creek – Ponded	PEM	Depressional	3	60	5.8
WR-8 (NW, N, SE)	West Tributary to Kelsey Creek – Riparian	PEM/PSS	Riverine	3	60	3.1
WR-9	Allied Waste	PEM	Depressional	3	60	0.1
WR-10E	East of 140th Avenue NE	PFO	Depressional	4	40	0.2
WR-10W	East of 140th Avenue NE	PEM/PSS/PFO	Riverine	2	75	0.4
WR-11	West of 140th Avenue NE	PFO	Depressional	3	60	0.3
WR-12	Bear Creek	PSS	Riverine	2	50	25
WR-13	Marymoor Park	PSS	Depressional	3	75	2.0
WR-14	Bellefield Park Lane	PEM	Depressional	4	40	1.0
WR-15	Unnamed Tributary to Kelsey Creek	PEM	Riverine	4	40	0.1
WR-16	Hilton Stormwater Pond	PEM	Depressional	3	60	0.2
WR-17	120th Avenue NE/NE 12th Street	PSS	Depressional	3	60	0.2

[a] Category is based on Ecology's rating system (Hruby, 2006), which the cities of Bellevue and Redmond adopted without modification.
[b] Buffer width required by Critical Areas Ordinance for City of Bellevue or Redmond.
PEM = palustrine emergent marsh; PSS = palustrine scrub-shrub; PFO= palustrine forested

TABLE 3-13
Functions of Wetlands within the Project Study Area – Rating System

Wetland	Water Quality Functions—Qualitative Rating (numerical score in parentheses)[a]		Hydrologic Functions—Qualitative Rating (numerical score in parentheses)[a]		Habitat Functions—Qualitative Rating (numerical score in parentheses)[a]		Total Score	Ecology Rating [b]
	Potential	Opportunity	Potential	Opportunity	Potential	Opportunity		
WR-1/2	moderate (10)	Yes	moderate (7)	No	high (17)	moderate (12)	56	2
WR-3	high (12)	Yes	high (13)	No	high (15)	moderate (8)	60	2
WR-4	moderate (7)	Yes	low (3)	No	moderate (8)	low (4)	29	4
WR-5	moderate (9)	Yes	moderate (8)	Yes	moderate (13)	low (4)	51	2
WR-6	moderate (9)	Yes	moderate (8)	Yes	low (6)	moderate (6)	46	3
WR-7	low (5)	Yes	moderate (9)	Yes	moderate (8)	low (5)	41	3
WR-8 (NW, N, SE)	moderate (8)	Yes	low (5)	Yes	moderate (9)	low (4)	39	3
WR-9	moderate (10)	Yes	low (2)	No	low (4)	low (4)	30	3
WR-10E	low (5)	Yes	low (2)	No	low (6)	moderate (6)	26	4
WR-10W	moderate (8)	Yes	high (13)	Yes	moderate (7)	moderate (9)	58	2
WR-11	moderate (7)	Yes	moderate (5)	No	moderate (7)	moderate (6)	37	3
WR-12	moderate (8)	Yes	moderate (9)	Yes	moderate (10)	moderate (8)	52	2
WR-13	moderate (10)	Yes	low (4)	Yes	moderate (10)	moderate (10)	48	3
WR-14	low (2)	Yes	low (4)	Yes	moderate (7)	moderate (8)	27	4
WR-15	low (3)	Yes	low (4)	Yes	low (3)	moderate (7)	24	4
WR-16	moderate (7)	Yes	low (5)	Yes	low (4)	moderate (8)	36	3
WR-17	high (12)	Yes	moderate (8)	No	moderate (7)	moderate (7)	46	3
Total	132	N/A	109	N/A	141	118	650	N/A
Average Score	7.8 (moderate)	N/A	6.4 (moderate)	N/A	8.3 (moderate)	6.9 (moderate)	38.2	3

[a] See Table 3-14 for definitions of qualitative grouping of wetland functions.
[b] Hruby (2004)

TABLE 3-14
Qualitative Grouping of Wetland Functions Based on Numerical Scores from Washington State Wetland Rating System

Qualitative Grouping of Wetland Function	Improving Water Quality POTENTIAL (Total for Question D1, R1, L1, or S1 on the rating form depending on HGM Class)	Hydrologic Functions POTENTIAL (Total for Question D3, R3, L3, or S3 on the rating form depending on HGM Class)	Habitat POTENTIAL (Total for H1 on the rating form)	Habitat OPPORTUNITY (Total for H2 on the rating form)
High	12-16	12-16	15-18	14-18
Moderate	6-11	6-11	7-14	6-13
Low	0-5	0-5	0-6	0-5

HGM = hydrogeomorphic classification
Source: Ecology (2008)

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Chapter 4

Environmental Consequences

This section describes the expected temporary construction and permanent operational impacts of the East Link Project on the following resources:

- Aquatic resources (see Section 4.1)
- Vegetation, wildlife habitat, and wildlife resources, including Washington PHS, threatened and endangered species, and species of concern (see Section 4.2)
- Wetland resources (see Section 4.3)

The discussion of project impacts assumes that the BMPs described in Appendix A would be implemented and performed as expected to avoid and minimize certain impacts during construction. For potential mitigation measures, see Chapter 5.

During the Final EIS process, Sound Transit prepared a Biological Assessment for ESA consultation. Sound Transit expects that the Biological Assessment's effects determination for ESA-listed species will be a "may affect, not likely to adversely affect" and that there will be no adverse effects to Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

4.1 Aquatic Resources

Sound Transit considered the following potential impacts on aquatic resources:

- Direct fish mortality
- Permanent loss of physical habitat
- Permanent degradation of in-stream physical habitat, such as shading, chronic sedimentation, removal of boulders or LWD from the channel, and loss of riparian vegetation function (loss of nutrient inputs, LWD recruitment, and shade)
- Temporary loss of physical habitat (dewatering)
- Temporary degradation of habitat (sedimentation, removal of riparian vegetation, disturbance to stream banks)
- Altered hydrology (higher peak flows = increased scour/deposition downstream; decreased percolation from impervious surfaces = lower base flows)
- Permanent degradation of water quality (increased temperature, increased turbidity, increased loading of heavy metals and hydrocarbons)
- Lighting
- Temporary or permanent degradation of water quality (turbidity, temperature, toxicants)
- Impacts on fish passage at culverts and new culverts
- Facilitation of urban development
- Stray electric current field in Lake Washington
- Beneficial impacts associated with in-stream and riparian restoration, and daylighting existing culverts

Not all of these types of potential impacts would occur from the East Link Project. Impacts that are not discussed in this section are not expected to occur.

The analysis focuses on salmonids because it is the group of species of greatest concern in Pacific Northwest freshwater environments. Because the habitat requirements and mode of potential impacts are so similar for the salmonid species present, the analysis is generic and combined for all salmonid species. Species-specific impacts are identified where appropriate. The federally listed threatened and endangered aquatic species present in the study area are all salmonids and covered under in the combined analysis. The discussion herein is thus limited to the potential for impacts to each species based on the proximity of their known habitat in the project vicinity to sources of potential impacts from the project. A discussion of impacts relative to the MSA is similarly lumped into the generic analysis and not discussed separately.

4.1.1 Impacts Common to Most or All Build Alternatives

Table 4-1 summarizes potential temporary construction and permanent operational impacts, by segment and alternative, common to most or all the build alternatives.

4.1.1.1 Temporary Construction Impacts

Sedimentation and Turbidity

Any earthwork conducted within a watershed has the potential to cause sedimentation that would adversely affect the streams in the watershed downstream of the work. The most obvious situation in which sedimentation could occur is where earthwork construction occurs in or next to a stream channel. However, any earthwork in a watershed might contribute to the already serious sedimentation problems that exist in the streams in the project vicinity. This is because most stormwater in urban settings is collected in a system of pipes or ditches and conveyed directly to the nearest stream. An exception to this is in newer developments, where stormwater detention facilities trap much of the sediment carried by upstream sources before discharging into streams. But even in these developments, some of the finer particulates might be discharged to streams as the ponds fill with stormwater and overflow.

As defined in Section 1.4.1.1, sedimentation risk is the inherent potential for erosion to cause sediment-related impacts on aquatic resources based on the proximity of earthwork to streams and site conditions. The closer the earthwork is to a stream, the higher the risk of sediment delivery into the stream. In addition, earthwork that occurs during the wet season has a higher risk of delivering sediment to streams. The likelihood of sedimentation impact is the inherent risk at a given site minus the performance of the BMPs implemented to contain the risk. Impacts from turbidity are lesser than sediment deposition but cover greater areas due to the slower rate of settling out of the water column.

The types of adverse impacts from excessive sediment in streams are well documented, and the range of adverse impacts on salmonid ecosystems is wide. For example, excessive sediment might preclude salmonid spawning or successful egg incubation, or it might lower egg survival. The production and diversity of macrobenthic invertebrates, the primary food source of juvenile salmon and resident trout, is reduced as sediment loading increases. Shelter for juvenile salmonids is decreased as the voids between rocks are filled with sediment. Pools may become full of sediment if loading is high.

Alternatives with more earthworks, such as the alternatives with the most elevated guideways, which require more access roads, have higher sedimentation risk. In addition to more and wider access roads, elevated guideway sections are often required due to traversing steep terrain. Earthwork in steep terrain has the highest sedimentation risk. Tunneling alternatives, where the earthwork is sheltered and isolated from rainfall and stormwater runoff, have the lowest sedimentation risk. However, tunnels are not without sedimentation risk. Tunnels must be dewatered to remove groundwater seepage. This water can be treated to remove most of the particulates, but some may still be present after treatment. After treatment, the water is either discharged; ultimately ending up in streams through stormwater systems, or it is injected back into the ground. The at-grade alternatives, where there would be minimal road widening and access often from paved surfaces, have an intermediate level of sedimentation risk.

Erosion control BMPs are designed to avoid or minimize sediment delivery to streams. The degree to which they are effective depends on correct installation but also on unpredictable circumstances. For instance, conventional BMPs may fail when subjected to extreme rainfall or rain-on-snow events. Examples of BMPs are delineated construction limits; silt fences; protective ground covers such as straw, plastic sheeting, or jute mats; and straw bales in drainage features.

TABLE 4-1
Summary of Temporary Construction and Permanent Operational Impacts on Aquatic Resources

Segment/Alternative/ Connection	Water Body Affected	Type of Construction Activities and Locations	Potential Temporary Construction Impacts	Potential Permanent Operational Impacts
Segment A				
Preferred Interstate 90 Alternative (A1)	Lake Washington	Bridge joint replacement, track installation, possible in-water work for bridge upgrades.	Small potential fuel spilled from heavy equipment.	None.
Segment B				
Preferred 112th SE Modified Alternative (B2M) to C11A	Mercer Slough	Elevated and at-grade construction along Bellevue Way, 112th Avenue SE, and SE 8th Street.	Moderate potential for water quality degradation from runoff of sediment and pollutants at Mercer Slough. Stream buffer clearing for 1,690 linear feet (1.2 acre).	Worsened stream buffer encroachment along Mercer Slough for approximately 960 feet. A loss of 0.4 acre of stream buffer. Low-quality vegetation replaced by high-quality vegetation in the remaining buffer.
Preferred Alternative112th SE Modified Alternative (B2M) to C11A	Mercer Slough	Elevated and at-grade track construction along Bellevue Way and 112th Avenue SE.	Potential water quality degradation from runoff of sediment and pollutants.	Worsened stream buffer encroachment along Mercer Slough for about 350 feet.
Preferred 112th SE Modified Alternative (B2M) to C9T	Mercer Slough	Elevated and at-grade construction along Bellevue Way and 112th Avenue SE.	Moderate potential for water quality degradation from runoff of sediment and pollutants. Stream buffer clearing for linear 2,110 feet (1.0 acre).	Worsened stream buffer encroachment along Mercer Slough for approximately 1,660 feet. A loss of 1.1 acre of stream buffer. Blackberries replaced by quality vegetation in the remaining buffer.
Bellevue Way Alternative (B1)	Mercer Slough	At-grade track installation and the widening of Bellevue Way SE between I-90 and 12th Street intersection.	None.	None.
112th SE At-Grade Alternative (B2A)	Mercer Slough	Elevated and at-grade track construction along Bellevue Way SE and at grade construction along 112th Avenue SE.	Small potential water quality degradation from runoff of sediment and pollutants. Stream buffer clearing for 1,380 feet (0.5 acre).	Worsened stream buffer encroachment along Mercer Slough for about 710 feet. A loss of 0.1 acre of stream buffer. Low-quality vegetation replaced by high-quality vegetation in the remaining buffer.
112th SE Elevated Alternative (B2E)	Mercer Slough	Elevated track construction along Bellevue Way and112th Avenue SE.	Small potential water quality degradation from runoff of sediment and pollutants. Clearing 1,540 linear feet of stream buffer (0.7 acre).	Worsened stream buffer encroachment along Mercer Slough for about 1,580 feet. A loss of 0.4 acre of stream buffer. Low-quality vegetation replaced by high-quality vegetation in the remaining buffer.
112th SE Bypass Alternative (B3)	Mercer Slough	Elevated and at-grade track construction along Bellevue Way and 112th Avenue SE.	Small potential water quality degradation from runoff of sediment and pollutants. Stream buffer clearing for 1,260 feet (0.5 acre).	Worsened stream buffer encroachment along Mercer Slough for about 750 feet. A loss of 0.1 acre of stream buffer. Low-quality vegetation replaced by high-quality vegetation in the remaining buffer.

TABLE 4-1 CONTINUED
Summary of Temporary Construction and Permanent Operational Impacts on Aquatic Resources

Segment/ Alternative/ Connection	Water Body Affected	Type of Construction Activities and Locations	Potential Temporary Construction Impacts	Potential Permanent Operational Impacts
B3 - 114th Extension Design Option	Mercer Slough, Sturtevant Creek	At-grade construction along Mercer Slough, Elevated crossing of Sturtevant Creek.	Moderate potential water quality degradation from runoff of sediment and pollutants. Stream buffer clearing for 1,970 linear feet (1.3 acre).	Worsened stream buffer encroachment along Mercer Slough for about 1,000 feet. A loss of 0.3 acre of stream buffer. Low-quality vegetation replaced by high-quality vegetation in the remaining buffer. Elevated structure over water.
BNSF Alternative (B7)	Mercer Slough and Kelsey Creek	Elevated and at-grade track construction between113th Avenue SE and SE 8th Street.	Moderate potential for water quality degradation from runoff of sediment and pollutants. Stream buffer clearing for 300 feet (0.3 acre).	Loss of 0.2 acre of stream buffer. Elevated structure over water.
Segment C				
Preferred 108th NE At-Grade Alternative (C11A) from B2M	Sturtevant Creek	At-grade track installation, elevated track construction in the watershed. The channel would be diverted under the BNSF tracks and relocated next to the Hospital Station for approximately 300 feet.	Moderate potential for water quality degradation from runoff of sediment and pollutants.	Channel relocation next to the Hospital Station would be an improvement.
Preferred 108th NE At-Grade Alternative (C11A) from B3	Sturtevant Creek	Street widening and elevated track construction within watershed. Elevated guideway construction close to the creek for 420 feet and crosses it twice next to the Hilton Hotel. The channel would be diverted under the BNSF tracks and relocated next to the Hospital Station for approximately 300 feet.	Moderate potential water quality degradation from runoff of sediment and pollutants.	Impacts on stream buffer at creek crossings and where the guideway is close and parallel to the channel. Channel relocation next to the Hospital Station would be an improvement.
Preferred 108th NE At-Grade Alternative (C11A) from B3 Design Option or B7	Sturtevant Creek	Street widening and elevated track construction within watershed. Elevated guideway construction close to the creek for 720 feet and crosses it when next to the Hilton Hotel. The channel would be diverted under the former BNSF Railway tracks and relocated next to the Hospital Station for approximately 300 feet.	Moderate potential for water quality degradation from runoff of sediment and pollutants.	Impacts on stream buffer at creek crossings and where the guideway is close and parallel to the channel. Channel relocation next to the Hospital Station would be an improvement.
Preferred 110th NE Tunnel Alternative (C9T) from B2M	Sturtevant Creek	Same as *Preferred Alternative C11A* from *B2M.*	Same as *Preferred Alternative C11A* from *B2M.*	Same as *Preferred Alternative C11A* from *B2M.*
Preferred 110th NE Tunnel Alternative (C9T) from B3	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.
Preferred 110th NE Tunnel Alternative (C9T), including East Main Station Design Option, from B3 Design Option or B7	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.

TABLE 4-1 CONTINUED
Summary of Temporary Construction and Permanent Operational Impacts on Aquatic Resources

Segment/ Alternative/ Connection	Water Body Affected	Type of Construction Activities and Locations	Potential Temporary Construction Impacts	Potential Permanent Operational Impacts
Bellevue Way Tunnel Alternative (C1T)	Sturtevant Creek	Same as *Preferred Alternative C11A* from *B2M*.	Same as *Preferred Alternative C11A* from *B2M*.	Same as *Preferred Alternative C11A* from *B2M*.
106th NE Tunnel Alternative (C2T) from B2A or B2E	Sturtevant Creek	Same as *Preferred Alternative C11A* from *B2M*	Same as *Preferred Alternative C11A* from *B2M*.	Same as *Preferred Alternative C11A* from *B2M*.
106th NE Tunnel Alternative (C2T) from B3 112th SE	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.
106th NE Tunnel Alternative (C2T) from B7	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.
108th NE Tunnel Alternative (C3T) from B2A or B2E	Sturtevant Creek	Tunneling or elevated guideway distant from water bodies.	Negligible.	None.
108th NE Tunnel Alternative (C3T) from B3	Sturtevant Creek	Tunneling and elevated guideway construction close to the creek for 420 feet and crosses creek twice next to the Hilton Hotel.	Moderate potential water quality degradation from runoff of sediment and pollutants.	Impacts on stream buffer at creek crossings and where the guideway is close and parallel to the channel.
108th NE Tunnel Alternative (C3T) from B7	Sturtevant Creek	Tunneling and elevated track construction within watershed. Elevated guideway construction close to the creek for 720 feet and crosses creek once next to the Hilton Hotel.	Moderate potential for water quality degradation from runoff of sediment and pollutants.	Impacts on stream buffer at creek crossings and where the guideway is close and parallel to the channel.
At-Grade Couplet Alternative (C4A) from B2A or B2E	Sturtevant Creek	Street widening and elevated track construction within watershed.	Minimal potential for water quality degradation from runoff of sediment and pollutants.	None.
At-Grade Couplet Alternative (C4A) from B3	Sturtevant Creek	Street widening and elevated track construction within watershed. Elevated guideway construction close to the creek for 420 feet and crosses it twice next to the Hilton Hotel.	Same as C3T from B3.	Same as C3T from B3.
At-Grade Couplet Alternative (C4A) from B7	Sturtevant Creek	Street widening and elevated track construction within watershed. Elevated guideway construction close to the creek for 720 feet and crosses it once next to the Hilton Hotel.	Same as C3T from B7.	Same as C3T from B7.
112th NE Elevated Alternative (C7E) from B2A or B2E	Sturtevant Creek	Elevated guideway construction in the watershed away from streams.	Minimal potential for water quality degradation from runoff of sediment and pollutants.	None.

TABLE 4-1 CONTINUED
Summary of Temporary Construction and Permanent Operational Impacts on Aquatic Resources

Segment/ Alternative/ Connection	Water Body Affected	Type of Construction Activities and Locations	Potential Temporary Construction Impacts	Potential Permanent Operational Impacts
110th NE Elevated Alternative (C8E) from B3	Sturtevant Creek	Elevated guideway construction close to the creek for 420 feet and crosses it twice next to the Hilton Hotel.	Same as C3T from B3.	Same as C3T from B3.
110th NE Elevated Alternative (C8E) from B7	Sturtevant Creek	Elevated guideway construction close to the creek for 720 feet and crosses creek twice next to the Hilton Hotel.	Same as C3T from B7.	Same as C3T from B7.
110th NE At-Grade Alternative (C9A) from B2A or B2E	Sturtevant Creek	Same as *Preferred Alternative C11A* from *B2M*.	Same as *Preferred Alternative C11A* from *B2M*.	Same as *Preferred Alternative C11A* from *B2M*.
110th NE At-Grade Alternative (C9A) from B3	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.
110th NE At-Grade Alternative (C9A) from B7 or B3 - 114th Design Option	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.
114th Avenue NE Elevated Alternative (C14E) from B3	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.	Same as *Preferred Alternative C11A* from B3.
114th Avenue NE Elevated Alternative (C14E) from B7 or B3 - 114th Design Option	Sturtevant Creek	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.	Same as *Preferred Alternative C11A* from B3 Design Option or B7.
Segment D				
Preferred NE 16th At-Grade Alternative (D2A) via BNSF (C1T, C2T), including both D2A – 120th Station and NE 24th Design Options	West Tributary to Kelsey Creek, Goff Creek, Unnamed Tributary to Kelsey Creek, Valley Creek	Elevated and at-grade earthwork in watersheds; elevated crossings at West Tributary; crossing a piped section of Goff Creek; lengthening of a culvert on the Unnamed Tributary.	Minor potential water quality degradation from runoff of sediment and pollutants at the West Tributary. Minimal potential at Unnamed Tributary and Valley Creek.	Impacts on stream buffer on West Tributary. 130 feet of new culvert on the Unnamed Tributary.
NE 16th Elevated Alternative (D2E), NE 12th (C3T, C4A, C7E, C14E) and via former BNSF (C1T, C2T)	West Tributary to Kelsey Creek, Goff Creek, Unnamed Tributary to Kelsey Creek, Valley Creek	Same as *Preferred Alternative D2A.*	Same as *Preferred Alternative D2A* except only a minimal potential for sedimentation impacts.	Same as *Preferred Alternative D2A.*
NE 20th Alternative (D3), NE 12th (C3T, C4A, C7E, C8E) and via former BNSF (C1T, C2T)	West Tributary to Kelsey Creek, Goff Creek, Unnamed Tributary to Kelsey Creek, Valley Creek	Elevated and at-grade earthwork in watersheds; elevated crossing at West Tributary; at-grade crossing a piped section of Goff Creek; lengthening of a culvert on the Unnamed Tributary; culvert lengthening of Valley Creek and a retained cut crossing over a piped section of Sears Creek.	Minimal potential for water quality degradation from runoff of sediment and pollutants at the West Tributary and Unnamed Tributary. Minor potential impacts at Valley Creek.	Impacts on stream buffer on West Tributary. Loss of all stream function and habitat for 30 feet on Valley Creek. About 130 feet of new culvert on the Unnamed Tributary.

TABLE 4-1 CONTINUED
Summary of Temporary Construction and Permanent Operational Impacts on Aquatic Resources

Segment/ Alternative/ Connection	Water Body Affected	Type of Construction Activities and Locations	Potential Temporary Construction Impacts	Potential Permanent Operational Impacts
SR 520 Alternative (D5), NE 12th (C3T, C4A, C7E, C8E) and via former BNSF (C1T, C2T)	West Tributary to Kelsey Creek, Goff Creek, and Valley Creek	Elevated structure earthwork in watersheds; elevated crossings at West Tributary.	Minimal potential for water quality degradation from runoff of sediment and pollutants at the West Tributary, Goff Creek and Valley Creek.	Impacts on stream buffer on West Tributary.
Segment E				
*Preferred Marymoor Alternative (E2),*including E2 - Redmond Transit Center Station Design Option	Sammamish River, Bear Creek	Elevated and at-grade construction in watersheds; elevated crossings at the Sammamish River and Bear Creek.	Minimal potential water quality degradation from runoff of sediment and pollutants.	Impacts on stream buffer at Sammamish River and Bear Creek crossings.
Redmond Way Alternative (E1)	Sammamish River, Bear Creek	Same as *Preferred Alternative E2.*	Same as *Preferred Alternative E2.*	Same as *Preferred Alternative E2.*
Leary Way Alternative (E4)	Sammamish River, Bear Creek	Same as *Preferred Alternative E2.*	Same as *Preferred Alternative E2.*	Same as *Preferred Alternative E2.*
Maintenance Facilities				
116th Maintenance Facility (MF1)	West Tributary	Earthwork in watershed.	Negligible potential for water quality degradation from runoff of sediment and pollutants.	Few, but potential impacts from hazardous materials spills from facility. New PGIS[a] inputs.
BNSF Maintenance Facility (MF2)	West Tributary	Earthwork in watershed.	Negligible potential for water quality degradation from runoff of sediment and pollutants.	Few, but potential impacts from hazardous materials spills from facility. New PGIS[a] inputs.
SR 520 Maintenance Facility (MF3)	Goff Creek	Two culverts replaced by two shorter culverts and channel restoration.	Moderate potential for water quality degradation from runoff of sediment.	Gain of 42 feet of new channel function. Low, but potential impacts from hazardous materials spills from facility. New PGIS[a] inputs.
SE Redmond Maintenance Facility (MF5)	Bear Creek	Earthwork in watershed.	Negligible potential for water quality degradation from runoff of sediment and pollutants.	Few, but potential impacts from hazardous materials spills from facility. New PGIS[a] inputs.

[a] PGIS = pollutant-generating impervious surface

Pollutant Spills

Anywhere heavy equipment is fueled or hydraulic systems are used during construction, fuel or hydraulic fluid has the potential to be spilled. Even though a spill prevention plan would be implemented, there is still a small potential that some of this material could be carried by stormwater and enter a stream. Because stormwater throughout a watershed ends up in a stream, stormwater entering a storm drain far from a stream is eventually carried to it. Spill prevention BMPs are designed to avoid or minimize construction-related pollutants from entering streams; however, despite precautions, there would still be a small potential.

4.1.1.2 Permanent Operational Impacts

The light rail system would not be pollution-generating; however, overall, the project would increase the amount of impervious surface area in the study area, and impervious surfaces can, without mitigation measures, increase stormwater runoff rates, volumes, and pollutant loads. These, in turn, can cause higher flows and degrade water quality in streams. However, the project would provide stormwater detention to a level that mimics pristine forested conditions. As a result, flows are not expected to increase in any of the streams in the study area as a result of this project. Project impervious areas include new tracks and guideways, stations, park-and-ride lots, maintenance facilities, and roads. Relocated roads to accommodate the project were also counted as project-associated impervious area. In general, elevated alternatives would result in less new impervious area than at-grade alternatives because they would retain the pervious ground underneath them for the most part. Tunnel alternatives do not add impervious area. Project-related parking lots and road realignments are subject to motor vehicle traffic and are considered to be pollution-generating impervious surfaces (PGIS). The guideway and stations would not be subject to motor vehicle traffic or other sources of potential pollution (except at crossing locations) and are therefore classified as non-PGIS.

The project would essentially retrofit most or all of any roadway that is widened to accommodate the at-grade trackways. Although the light rail system would not cause an increase in pollutant loads, stormwater from roadways relocated as a result of at-grade trackway would be treated as well as other project-related PGIS areas, such as the maintenance facility. Project-related stormwater would receive one of two levels of treatment: basic or enhanced. Basic stormwater treatment removes at least 80 percent of suspended solids, and enhanced treatment removes heavy metals that are toxic to fish and aquatic invertebrates. Basic and enhanced treatments reduce but do not eliminate heavy metal and hydrocarbon contaminants in stormwater.

Stormwater from project-related PGIS would receive at least basic stormwater treatment. The maintenance facility and roadways with traffic volumes greater than 7,500 average daily vehicle trips would receive enhanced treatment. High-traffic street intersections would receive treatment to remove oil. None of the alternatives would substantially degrade water quality compared to existing conditions. The project would result in a reduction of 51.7 acres of PGIS. Much of this reduction would be due to shifting vehicle traffic to the non-HOV lanes of I-90. WSDOT would add stormwater treatment facilities to I-90 to accommodate the new pollutant loading associated with the shift in vehicular traffic. With updated stormwater treatment, retrofitted treatment of existing untreated surfaces, and reduction of PGIS, water quality could improve slightly.

Another more general and nonquantifiable aspect is the nature of the project itself. The light rail system would reduce traffic volume in the study area by an estimated 200,000 vehicle miles per year, thus reducing pollutant inputs associated with motor vehicles. All these factors would more than offset the new PGIS, which include the new park-and-ride lot facilities, other minor parking lots, and the maintenance facility.

Sound Transit's preliminary engineering for the East Link Project includes development of a conceptual layout for major stormwater facilities that are sized to comply with the Ecology's Stormwater Manual. These facilities include stormwater ponds and underground vaults. Additional measures to reduce stormwater runoff, such as low-impact development or other on-site measures would be considered at a more advanced phase of project development.

Peak stream flows would not increase because the stormwater systems built for the project would be designed to simulate predevelopment hydrology. Impervious surfaces, however, preclude natural infiltration of precipitation into the ground and result in less groundwater recharge. There is no practical means for compensating for this loss of infiltration. Less precipitation entering the groundwater aquifers might decrease dry-season base flows by decreasing water inputs to streams from groundwater sources such as springs. Dry-season base flows have been identified as one of the most important natural limiting factors controlling salmonid production in lowland Puget Sound streams.

The less impervious surface an alternative has, the less impact it would be likely to have on base flows in a given watershed. Thus alternatives with tunnels or elevated tracks would likely have less impact on base flows. Alternatives with at-grade tracks and/or road widening would have more impact. Comparisons of impervious surface areas between alternatives are made in Section 4.9, Water Resources, of the Final EIS. The worst-case alternative impact would, however, have only a small impact at a basin-wide level due to the small proportion of the watershed affected by the project relative to the existing impervious surfaces within the watershed.

Permanent impacts would also occur when stream channels are either enclosed within new or lengthened culverts, or where riparian vegetation under elevated guideways might be within the "rain shadow" or have low vertical clearance (less than 15 feet). It is assumed that shading impacts cover an area represented by the surface area of an overhead structure 30 feet wide extending over riparian vegetation. Generally, the higher an elevated guideway is off the ground, the less impact it would have on the vegetation below it.

4.1.2 Specific Impacts of Alternatives in Each Segment

4.1.2.1 Fish and Aquatic Species and Habitats

High-value habitats in Washington include all lakes, ponds, streams, and rivers. Special-status species include all salmonids, which are the focus of the analysis described above.

Temporary Construction Impacts

The following discussion of potential impacts is segment- and alternative-specific. Potential impacts common to most or all project alternatives (which are covered above) are not listed or discussed below.

Segment A

Preferred Interstate 90 Alternative (A1)

In Segment A, light rail would be installed on existing road and interstate highway surfaces. The only water body potentially affected would be Lake Washington. There could be a small, temporary direct impact from concrete dust entering Lake Washington while modifying the bridge to accommodate the rail. BMPs such as containment booms and other measure should provide adequate protection.

Sound Transit would need to implement special seismic upgrades to the I-90 floating bridge and I-90 East Channel bridge during the construction period. The seismic upgrades would be in the form of steel jackets installed around the perimeter of the support columns. They would extend from the top of the columns to the top of the footings. The steel jacket sections would be lowered into position by a crane and either bolted or welded together. On the west side of Mercer Island, the support columns of the two non-floating bridge sections (highrises) have footings at or within 1 foot of the water surface of the lake. The East Channel bridge has footings at the bottom of the lake. Divers would fasten the jacket sections on the East Channel bridge on the underwater portion of the columns. This in-water work would need to be conducted during the in-water work window from July 16 to July 31 and from November 16 to December 31. The work window for the floating bridge and its east and west highrises is from July 16 through December 31. Construction activities in this segment would have a very low potential to result in impacts on ESA-listed fish and should not impede the construction schedule. There would be no temporary indirect impacts.

Segment B

Preferred 112th SE Modified Alternative (B2M) to Preferred Alternative C11A

The *Preferred Alternative B2M to C11A* is similar to *Preferred Alternative B2M to C9T* but would be set farther away from Mercer Slough. Thus the linear distance of stream buffer clearing would less, at 1,600 linear feet. The route does not get as close to the water's edge as described for *Preferred Alternative B2M to C9T. Preferred Alternative B2M to C11A* would not have any direct temporary impacts on Mercer Slough West or Sturtevant Creek, but it could result in indirect temporary impacts from vegetation clearing.

Preferred 112th SE Modified Alternative (B2M) to Preferred Alternative C9T

*Preferred Alternative B2M to C9T*would have no direct temporary impacts on fish and aquatic species and habitats but it could have some indirect temporary impacts. *Preferred Alternative B2M to C9T* would be closer to the western part of Mercer Slough than most of the other alternatives, and thus would have a higher risk than most of adding sediment to the slough compared with the other alternatives in Segment B. There would be approximately

1,860 linear feet of vegetation-clearing within the 100-foot-wide stream buffer of the slough (Table 4-2). At one location (the Mercer Slough alcove near SE 15th Street) the vegetation would be cleared to the water's edge. Sound Transit would replant approximately 0.5 acre with native riparian vegetation. With BMPs, the short-term temporary impact on the slough should be minimal. Long-term temporary impacts during the tree grow-out period would also be minimal because few riparian trees would be cut, while many would be planted to replace the abundant blackberries that currently form most of the riparian stream buffer.

TABLE 4-2
Potential Temporary Construction Impacts on Stream Buffers along Mercer Slough West or Mercer Slough

Alternative	Stream Buffer Impact Area of Clearing (acre) [a]	Linear Feet of Clearing within the Stream Buffer during Construction
Preferred 112th SE Modified Alternative (B2M)		
to Preferred Alternative C11A	1.2	1,680
to Preferred Alternative C9T[b]	1.0	2,100
Bellevue Way Alternative (B1)	0	0
112th SE At-Grade Alternative (B2A)	0.5	1,380
112th SE Elevated Alternative (B2E)	0.7	1,580
112th SE Bypass Alternative (B3)	0.5	1,260
B3 - 114th Extension Design Option	1.3	1,970
BNSF Alternative (B7)	0.3	300

[a] Some of the impacts on stream buffers overlap with impacts on some wetland buffers. Refer to Table 4-9 and Appendix F.
[b] Impacts for C9T - East Main Station Design Option would not vary from those of *Preferred Alternative C9T*.

Bellevue Way Alternative (B1)

This alternative would not have any direct temporary impacts on fish and aquatic species and habitats. This alternative would have the least temporary indirect impacts of any of the South Bellevue (Segment B) alternatives because construction would not occur near water. The one area where Alternative B1 is somewhat near water (at the ramp off of I-90) is isolated by another freeway ramp embankment.

112th SE At-Grade (B2A) and 112th SE Bypass (B3) Alternatives

Alternatives B2A and B3 would not have any direct temporary impacts but could have indirect temporary impacts on fish and aquatic species and habitats. The potential impact of these alternatives would be intermediate among the Segment B alternatives impacts because the section running along 112th Avenue SE would be in the middle of the roadway, while Alternatives B2E and B3, and *Preferred Alternative B2M* would be closer to the water. While 112th Avenue SE would still have to be widened, it would be to both the east and west as opposed to the construction limit being entirely on the east side of 112th Avenue SE. Alternative B2A would clear 1,330 linear feet of stream buffer, and Alternative B3 would clear 1,280 linear feet.

112th SE Elevated (B2E) Alternative

Alternative B2E would not have any direct temporary impacts on fish and aquatic species and habitats. This alternative could, however, have indirect temporary impacts from being entirely elevated, thus having more earthwork than alternatives with more at-grade construction such as Alternatives B1 and B2A. The section with the highest sedimentation risk would be the area close to Mercer Slough along 112th Avenue SE. Approximately 1,540 linear feet of stream buffer would be cleared and replanted. Appropriate BMPs would be implemented to reduce this risk, so short-term construction impacts should be minimal.

B3 - 114th Extension Design Option

This design option is similar to Alternative B3 except that instead of crossing the Sturtevant Creek wetland, the route curves east just north of SE 15th Street, thereby avoiding the wetland, but instead requires an additional elevated crossing of Sturtevant Creek on the south side of SE 8th Street. Assuming that the light rail would cross Sturtevant Creek with a free-spanning guideway structure with the support column borings located outside of the ordinary high water mark (OHWM), impacts would be minimal on aquatic resources. Construction would, however, be close to the water and would damage existing vegetation within the riparian stream buffer and pose a moderate sedimentation risk to Sturtevant Creek. This alternative is routed closer to Mercer Slough than most alternatives, and would result in 1,770 linear feet of vegetation being cleared within the stream buffer.

BNSF Alternative (B7)
Alternative B7 would not have any direct temporary impacts on fish and aquatic species and habitats. It could result in indirect temporary impacts. Alternative B7 would cross over the mouth of Mercer Slough as an elevated structure. Assuming the slough would be crossed with a free-spanning structure with the support column borings located outside of the OHWM, impacts would be minimal on aquatic ecosystems. Construction would, however, be close to the water and damage riparian vegetation as well as still pose a moderate sedimentation risk to Mercer Slough. A temporary work trestle might be constructed over Mercer Slough to accommodate construction, and a 100-foot-wide corridor would be cleared of vegetation for 240 linear feet of stream buffer. Implementation of appropriate BMPs to isolate the work area would largely avoid impacts. The elevated guideway would cross a portion of Kelsey Creek contained within a culvert, but no impacts on the creek are expected.

Segment C

Preferred 108th NE At-Grade Alternative (C11A) and Preferred 110th NE Tunnel Alternative (C9T), both from Preferred Alternative B2M
Preferred Alternatives C11A and *C9T* from *Preferred Alternative B2M* would connect to the Hospital Station, which would be located on top of the existing Sturtevant Creek channel just north of NE 8th Street. The channel would be relocated to the west side of the station with a fish-passable culvert under the former BNSF Railway tracks for about 300 feet. The new channel would release a short pulse of suspended sediment when the stream flow is reintroduced into the channel. This would be a minor impact on fish and aquatic species and habitats because the flow would be very low at the time of year this action would occur. The route also crosses Sturtevant Creek just south of the NE 8th Street/ I-405 interchange. A bridge column would be placed in the location where the pipe makes a sharp turn. The pipe would be relocated out of the way, resulting in a shorter length. The construction sequence and time of year this would be done makes it highly unlikely that this would result in sediment input to Sturtevant Creek. Impacts would not be different with the C9T - East Main Station Design Option because there are no lakes, ponds, streams, or rivers in the construction area associated with this station.

Preferred Alternatives C11A and C9T from Alternative B3
In addition to the potential impact described above at the Hospital Station, these alternatives have a section of elevated guideway that would run close to Sturtevant Creek adjacent to the Bellevue Hilton Hotel. In this short reach of Sturtevant Creek, the guideway would cross the creek twice and run parallel to it for about 420 linear feet. All of the existing, mostly native riparian trees would be removed in this reach during construction and replanted with suitable native riparian vegetation after construction, resulting in a temporary loss of riparian functions such as shade, nutrient inputs from leaf litter and terrestrial insects. Normally these functions would also include LWD recruitment, which would add the habitat complexity and provide in-stream cover. At present, LWD recruitment is precluded due to maintenance activity by the hotel. If a tree falls, it would be cut up and hauled away. This reach is the only productive spawning and rearing habitat in Sturtevant Creek that is accessible to anadromous salmonids due to the presence of gravel, cobble, and pools.

Based on the current preliminary design, there would be no in-water work with this alternative. Three columns would be placed within 15 feet of the stream channel OHWM, and a fourth column within approximately 30 feet of the OHWM. The construction area would be as close as 5 feet to the channel. Although the sedimentation risk would be high, Sound Transit would implement strict BMP measures. If the contractor is careful, they could construct the guideway without directly affecting the channel.

Preferred Alternatives C11A or *C9T* from B3 – 114th Design Option or Alternative B7 would have potential impacts identical to the one described above but would add approximately 300 feet of construction close to the stream channel in the reach just downstream of the Hilton Hotel. This reach would also be cleared of riparian vegetation prior to construction and replanted with suitable vegetation after construction. The potential for sedimentation is high at this location due to steep slopes but should be able to be contained with BMPs as described above.

Bellevue Way Tunnel Alternative (C1T)
Alternative C1T would avoid potential impacts on fish and aquatic species and habitats in Sturtevant Creek in the vicinity of the Hilton Hotel and downstream but have the temporary pulse of sediment at the Hospital Station as described above for *Preferred Alternatives C11A* and *C9T*.

106th NE Tunnel (C2T), 110th Avenue NE At-Grade (C9A), and 114th NE Elevated (C14E) Alternatives
Alternatives C2T, C9A, and C14E would have the same potential impacts as described for *Preferred Alternatives C11A* and *C9T* and their various connectors to Segment B with one exception: Alternative C14E does not have an alternate connection to Alternatives B2A or B2E and thus does not avoid the Hilton Hotel reach.

108th NE Tunnel (C3T), At-Grade Couplet (C4A), and 110th NE Elevated (C8E) Alternatives
Except for two differences, Alternatives C3T, C4A, and C8E would have the same potential impacts on Sturtevant Creek as *Preferred Alternatives C11A* and *C9T* with their various Segment B connectors in the vicinity of the Hilton Hotel and downstream. These alternatives would bypass the Hospital Station, and with connections from Alternatives B2A and B2E, these alternatives bypass Sturtevant Creek altogether.

112th SE Elevated Alternative (C7E)
Alternative C7E would have no potential impacts on aquatic habitats under any condition.

Segment D
Preferred NE 16th At-Grade Alternative (D2A)
Preferred Alternative D2A would cross the West Tributary to Kelsey Creek as an elevated guideway where the stream is impounded by a regional stormwater detention facility. Direct temporary impacts on fish and aquatic species and habitats would occur as a result of in-water construction. Up to five support columns would be placed within the OHWM. Sediment transport and turbidity would be contained within cofferdams or an equivalent, which Sound Transit would remove after construction and when the suspended sediment has settled. The ponded water currently extends downstream for approximately 500 feet. While the sedimentation risk is high, the impacts are likely to be minimal as long as the appropriate BMPs are implemented.

Indirect temporary impacts would occur from vegetation clearing within the stream buffer. Approximately 450 linear feet of riparian vegetation would be cleared and replanted. Sedimentation risk would be moderate to high because some of the areas that would be cleared are steep embankment slopes. Only minimal impacts are expected, however, because the adjacent waters are ponded and still.

The *Preferred Alternative D2A* route crosses Goff Creek at a point where the creek runs through a long pipe system; therefore, Sound Transit expects no stream impacts at this location. Sound Transit would construct a three-sided box culvert over the piped section of Goff Creek at the crossing. The purpose of this action would be to allow a fish-friendly crossing to be created if the City of Bellevue's plan to daylight this section of Goff Creek is realized.

The *Preferred Alternative D2A* route crosses the Unnamed Tributary to Kelsey Creek at-grade along 136th Place NE just south of NE 20th Street. There could be a direct temporary impact due to in-channel work. Sound Transit would lengthen the street culvert by 130 feet to accommodate both 136th Place NE and the guideway. Some sediment release could likely occur as a result. However, during the in-water construction window, the creek would have almost no flow, and sediment containment BMPs would likely limit sediment transport to a minimal amount. This stream is not known to support salmonids. There would not be any indirect impacts because the rest of the work area is paved.

Preferred Alternative D2A would cross Valley Creek by elevated guideway with no direct impacts. The southern edge of the guideway would be about 20 feet north of the SR 520 culvert outlet, and the rest of the guideway crosses over the culvert on the embankment of SR 520. Sedimentation risk is moderate to high at this location because construction would occur on a steep slope directly adjacent to the stream channel, except it is unlikely that a support column would be placed close to the culvert due to the position of the culvert to the NE 140th Street bridge. Sound Transit would implement BMPs commensurate to the risk, thereby resulting in minimal impacts. Some riparian trees (willow) might be removed, but Sound Transit would replace the trees with the same species after construction.

The potential impacts under the D2A - NE 24th and 120th Station Design Options would be identical to those described for *Preferred Alternative D2A.*

None of the Segment D connection options from Segment C would have differentiable impacts between the alternatives and are thus not discussed below. Construction over streams might affect suitable western toad habitat; these streams are the West Tributary to Kelsey Creek (with *Preferred Alternative D2A* and Alternatives D2E, D3, and D5), and Valley Creek (with *Preferred Alternative D2A* and Alternatives D2E and D5).

NE 16th Elevated Alternative (D2E)
Alternative D2E would have similar impacts on fish and aquatic species and habitats at the Goff Creek and Valley Creek crossings as *Preferred Alternative D2A*. At the West Tributary to Kelsey Creek crossing, Alternative D2E crosses as an elevated guideway at a location south of where *Preferred Alternative D2A* would cross, where the riparian area and channel are relatively narrow. As a result, the impacts would be less. Seventy linear feet of riparian trees would be cleared then replanted after construction. Support column construction could be well away from the water; therefore, potential sedimentation would be minimal. The potential impacts of Alternative D2E would be the same as with *Preferred Alternative D2A* at the Unnamed Tributary to Kelsey Creek.

NE 20th Alternative (D3)
Alternative D3 would have impacts on fish and aquatic species and habitats similar to Alternative D2E at the West Tributary to Kelsey Creek and Goff Creek crossings. Alternative D3 would result in direct temporary impacts on Valley Creek due to in-water work. The channel would be crossed at-grade and would require adding approximately 30 feet of length to the existing culvert under NE 20th Street and replacing the existing culvert with a new, lower, and wider profile. The reason for the new culvert design is that this alternative is a retained cut at the Valley Creek crossing. There would likely be a small pulse of sediment released even with the full implementation of BMPs. The amount would be small and temporary in nature. Valley Creek has anadromous salmonid access to this point and above. The reach potentially affected was rated as good during the habitat survey. Alternative D3 would also cross Sears Creek where the creek is in a long culvert under NE 20th Street. Despite the fact that the route is a retained cut at this location, the culvert is deep enough that the project would not affect it.

SR 520 Alternative (D5)
Alternative D5 would have the same potential impacts as *Preferred Alternative D2A* at Valley Creek. It would cross the West Tributary to Kelsey Creek in a different location but would have similar impacts as described above for Alternatives D2E and D3. It would cross Goff Creek just north of the SR 520 culvert outlet. The potential for sedimentation is moderate because the slope above the culvert is steep. However, there is little woody vegetation to clear upslope, and columns would have to be placed to either side, thus making BMPs effective to contain potential sediment from entering the channel.

Segment E

Preferred Marymoor Alternative (E2)
Preferred Alternative E2 would cross the Sammamish River as an elevated guideway next to the SR 520 bridge. Large-volume earthwork, such as retained fill or retained cut activities, would occur at least 500 feet from the river. Support columns would be placed no closer than the top of the riverbank, which is outside of the OHWM. On this flat ground, the erosion sedimentation risk is low. It is assumed that a 100-foot-wide corridor through the existing riparian vegetation (dominated by blackberry and a few small conifer trees) would be cleared within the stream buffer of the Sammamish River to construct the elevated cast-in-place guideway.

Preferred Alternative E2 would cross Bear Creek as an elevated guideway. No in-water work would be necessary. The ground is flat on either side of the crossing; therefore, the sedimentation risk during construction would be low. No riparian vegetation would need to be cleared, and construction impacts should be minimal.

Potential impacts under the E2 - Redmond Transit Center Station Design Option would be identical to those described for *Preferred Alternative E2*.

Redmond Way Alternative (E1)
Alternative E1 would cross the Sammamish River on a new bridge. The river is narrow enough to be spanned with the support columns outside of the OHWM. Alternative E1 would cross Bear Creek on a new bridge that would be wider than the existing railroad bridge. No in-water work would be necessary at either crossing. Both crossings would have the same potential impacts on fish and aquatic species and habitats as *Preferred Alternative E2*.

Leary Way Alternative (E4)
Alternative E4 would cross the Sammamish River on a new bridge next to the Leary Way bridge. The river is narrow enough to be spanned with the support columns outside of the OHWM. No in-water work would be necessary at either crossing. Both crossings would have the same potential impacts as *Preferred Alternative E2*.

Maintenance Facility

116th Maintenance Facility (MF1)

MF1 would be sited in a commercial district well away from the nearest water body. The sedimentation risk would be low because the receiving water (i.e., the upper reaches of the West Tributary to Kelsey Creek) is well away from construction activities and the creek in that area is a series of beaver ponds that would detain and deposit sediment inputs. No riparian vegetation would be disturbed.

BNSF Maintenance Facility (MF2)

Construction impacts on fish and aquatic species and habitats from the MF2 would be similar to those described for MF1.

SR 520 Maintenance Facility (MF3)

The footprint of MF3 would surround approximately 370 feet of the existing Goff Creek channel. There would be direct temporary impacts on fish and aquatic species and habitats due to in-water work. A 56-foot-long culvert would be removed and replaced with a 19-foot-long culvert. In addition, a 43-foot-long culvert would be replaced with two 19-foot-long culverts. The result would be an increase in fish habitat of 42 feet of channel. There would be some sedimentation risk to the channel as a result of in-stream work. No riparian vegetation other than mowed grass and English ivy is present in this reach. Impacts to the Unnamed Tributary to Kelsey Creek would be similar to that described for *Preferred Alternative D2A*.

SE Redmond Maintenance Facility (MF5)

MF5 would be placed on the opposite side of SR 520 from Bear Creek. Stormwater from the facility drains to the Sammamish River some distance away, thus minimizing sediment delivery to the river. Bear Creek would be unaffected.

Permanent Operational Impacts

Segment A

Preferred Interstate 90 Alternative (A1)

Because electrically powered light rail systems do not generate any pollutants, stormwater—from both water volume and water quality perspectives—is not an issue for the East Link Project. Operation of rail could discharge stray electrical current into Lake Washington and create electric current fields around the bridge, in addition to fields that would be already possibly created from the bridge's existing cathodic corrosion protection system. Sound Transit estimates that stray current intensity would be one to three orders of magnitude below physiological or behavioral response thresholds for even the most sensitive Lake Washington fish species (see Appendix G). No permanent operational impacts on fish and aquatic species and habitats are expected as a result of *Preferred Alternative A1*.

Segment B

Preferred 112th SE Modified Alternative B2M to Preferred Alternative C11A

Preferred Alternative B2M to C11A would have a small, direct permanent impact on aquatic habitat. It would require the installation of a short bridge over a small, narrow alcove in the shoreline of Mercer Slough West in the vicinity of SE 15th Street. This would cover and shade approximately 18 square feet of water. Permanent indirect impacts would occur due to loss of vegetation within the stream buffer of Mercer Slough West along 112th Avenue SE, north of Bellevue Way (0.4 acre [Table 4-3]). The vegetation in the buffer that would be affected is low-quality habitat because it is dominated by Himalayan blackberry (a state-listed noxious weed) and mowed lawn (see Exhibit 4-1), with few native trees or shrubs. The proposed at-grade footprint (south of SE 15th Street) would permanently affect an approximately 30-foot-wide area of this buffer that ranges in width by approximately 50 to 200 feet. However, the area of construction clearing would be replaced with much higher quality vegetation. At this location there is an opportunity to remove low-quality riparian vegetation (mostly blackberries) and replace it with high-quality,

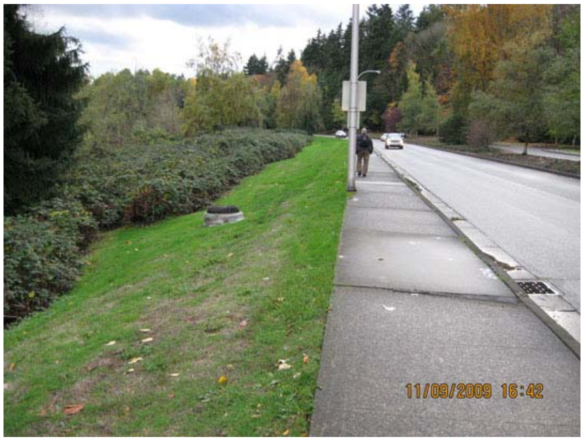

EXHIBIT 4-1
Mercer Slough buffer along 112th Avenue SE

native woody riparian vegetation, including conifer species that could shade the water as the trees grow, nutrient inputs to the slough from leaf litter and terrestrial insect inputs, pollutant removal, and erosion control. The Bellevue Parks Department has developed a restoration plan to remove the blackberry and restore this buffer area with native trees and shrubs. Implementing this design to restore the buffer area could mitigate for the permanent (and any temporary) buffer impacts on fish and aquatic species and habitats and result in high-quality buffer habitat that would benefit Mercer Slough.

Preferred 112th SE Modified Alternative (B2M) to Preferred Alternative C9T

Preferred Alternative B2M to C9T would have similar impacts as those described for *Preferred Alternative B2M to C11A* except that more stream buffer would be lost (0.9 acre).

TABLE 4-3
Potential Permanent Operational Impacts on Stream Buffers at Mercer Slough West or Mercer Slough

Alternative	Stream Buffer Impact Area[a] (acre)
Preferred Alternative B2M	
to C11A	0.4
to C9T[b]	1.1
Bellevue Avenue Alternative (B1)	0
112th SE At-Grade Alternative (B2A)	0.1
112th SE Elevated Alternative (B2E)	0.4
112th SE Bypass Alternative (B3)	0.1
B3 - 114th Extension Design Option	0.3
BNSF Alternative (B7)	0.2

[a] Some of the impacts on stream buffers overlap with impacts on some wetland buffers. See Table 4-10 later in this section and Appendix F.
[b] Impacts for C9T - East Main Station Design Option would not vary from those of *Preferred Alternative C9T*.

Bellevue Way Alternative (B1)

Alternative B1 should have no permanent operational impacts on fish and aquatic species and habitats.

112th SE Bypass (B3) and 112th SE At-Grade (B2A) Alternatives

Alternatives B2A and B3 would have no direct permanent impacts on fish and aquatic species and habitats. Indirect permanent impacts would occur due to the increased existing encroachment of 112th Avenue SE into the Bellevue's 100-foot CAO stream buffer along Mercer Slough (0.1 acre each) between Bellevue Way SE and SE 8th Street. This area has few trees and is almost entirely Himalayan blackberries. The impacts would be the same as described for *Preferred Alternative B2M to C11A* but less so in proportion to the acreage involved. The B3 - 114th Extension Design Option would have no direct permanent impacts on fish and aquatic species and habitats. Indirect permanent impacts would occur due to stream buffer loss from the guideway footprint. This loss (1.3 acres) would be the greatest of all the Segment B alternatives. Otherwise, impacts would be similar to *Preferred Alternative B2M to C11A*. The difference in stream buffer loss is due to the curve near the intersection of 112th Avenue SE and SE 8th Street.

112th SE Elevated Alternative (B2E)

The elevated track section along 112th Avenue SE would have no direct permanent impacts on fish and aquatic species and habitats. Indirect impacts from loss of stream buffer would be an improvement due to the replanting plan described for *Preferred Alternative B2M to C11A*. While the guideway might cast shade on the riparian vegetation bordering Mercer Slough, the height of the guideway (approximately 25 feet) would allow enough light for normal tree growth as found along the elevated guideways in Sound Transit's Central Link. The permanent loss of stream buffer would be 0.4 acre. The impact would be more than offset by the improvements made from replanting with native riparian vegetation.

BNSF Alternative (B7)
The elevated track section crossing Mercer Slough would have no direct permanent impacts on fish and aquatic species and habitats**.** While some shade would be cast on the adjacent riparian vegetation, the height of the guideway (65 feet) would allow enough light for normal tree growth. There would be a permanent loss of riparian vegetation in the footprint of two support columns (200 square feet). A loss of riparian function would occur where riparian vegetation would be cleared and replanted (0.2 acre). This area is composed of willow trees and would be replanted with the same. The trees could grow back to the present condition in approximately 10 years.

Segment C
Preferred 108th NE At-Grade Alternative (C11A) and Preferred 110th NE Tunnel Alternative (C9T), from B2M
With *Preferred Alternatives C11A* or *C9T*, the Hospital Station would be positioned over the top of the existing Sturtevant Creek channel just north of NE 8th Street. To minimize impacts on the creek, the channel would be shifted to the west side of the former BNSF Railway tracks in a new culvert, thereby realigning the channel to the west approximately 30 feet into a landscaped strip next to the station. This reach is approximately 300 feet long. The new channel would be a substantial improvement compared to the existing channel, which is straight, featureless, and lacking any riparian vegetation. The new channel would have riparian vegetative cover, a gravel streambed, and a more natural form. The riparian area would also provide nutrient inputs from leaf litter and insects. However, salmonid presence in this reach is uncertain because the reach is above several fish-passage blockages.

Preferred Alternatives C11A and *C9T* from Alternative B3 pass through the Hilton Hotel reach, running along Sturtevant Creek for 420 feet adjacent to the hotel and crossing the channel twice. The existing vegetation along this stream reach, which is a mixture of mature conifer and deciduous trees, would be cleared during construction and replanted with short-growing native species, such as Sitka willow and vine maple. About 150 feet of channel is below the guideway and the rest is adjacent to it. The elevated guideway would be approximately 45 feet above the ground and not effectively shade this riparian area. There would be a temporal loss of riparian function while the new riparian trees re-establish. Because Sound Transit would not alter the creek channel, it would still provide spawning habitat. Even though the riparian trees would be smaller, LWD recruitment potential would not be diminished because this area is an intensively managed landscape. Fallen trees would be removed by hotel landscaping contractors either way.

Preferred Alternatives C11A or *C9T* from the B3 – 114th Extension Design Option or Alternative B7 would have the same impacts as described in the prior paragraph but would add approximately 300 feet of clearing within 20 feet of the stream channel to that described for the connection to Alternative B3, 140 feet of clearing to the water’s edge, and 130 feet of guideway approximately 25 feet off the ground above the channel. Potential impacts on riparian function would be the same as described above for this additional reach, except that landscaping is not actively managed to the water’s edge as it is on the Hilton Hotel property. Because there are no ponds, streams, or rivers in the area of the C9T- East Main Station Design Option, no additional impacts would occur if this option is selected.

Bellevue Way Tunnel Alternative (C1T)
Alternative C1T would avoid potential impacts on fish and aquatic species and habitats in Sturtevant Creek in the vicinity of the Hilton Hotel and immediately downstream. But this alternative would result in the same potential improvements on Sturtevant Creek at the Hospital Station as described above for *Preferred Alternative C11A*.

106th NE Tunnel Alternative (C2T) and 110th NE At-Grade Alternative (C9A)
Alternatives C2T and C9A would have the same potential impacts on fish and aquatic habitat as described for *Preferred Alternatives C11A* and *C9T* connecting to *Preferred Alternatives B2M*. Impacts from Alternatives C2T or C9A connecting to Alternatives B3, B3 – 114th Extension Design Option (with C9A only), or B7 would be similar to that described for *Preferred Alternatives C11A* and *C9T*, except that the guideway would be lower with Alternative C2T and thus cast a shadow on the channel that would likely result in a minor reduction of primary productivity in the reach adjacent to the Hilton Hotel. Approximately 140 linear feet of channel would be under the guideway with an elevation of 15 to 16 feet.

108th NE Tunnel (C3T), At-Grade Couplet (C4A), and 112th SE Elevated (C7E) Alternatives
Alternatives C3T, C4A, and C7E connecting to Alternatives B2E or B2A would avoid aquatic impacts in Segment C entirely. These alternatives when connected to Alternatives B3 or B7 would have the same potential impacts on

fish and aquatic species and habitats in Sturtevant Creek in the vicinity of the Hilton Hotel and immediately downstream as *Preferred Alternatives C11A* and *C9T* connecting to their various Segment B connectors.

110th NE Elevated Alternative (C8E)
This alternative would have potential impacts in the vicinity of the Hilton Hotel similar to those described for *Preferred Alternatives C11A* and *C9T* with connections to B3 or B7.

114th Avenue NE Elevated Alternative (C14E)
This alternative would have potential impacts at the Hospital Station similar to those described for *Preferred Alternatives C11A* and *C9T*. It would have potential impacts in the vicinity of the Hilton Hotel similar to those described for *Preferred Alternatives C11A* and *C9T* connecting to B3, B3 – 114th Design Option, and B7.

Segment D

Preferred NE 16th At-Grade Alternative (D2A)
Preferred Alternative D2A would have a negligible, direct permanent impact on fish and aquatic species and habitats in the West Tributary to Kelsey Creek caused by the placement of approximately five support columns (500 square feet) in the regional stormwater detention pond. The pond does not support salmonids because there are numerous passage blocks downstream and no spawning areas above. This area is artificially flooded for the stormwater detention facility and sometimes is dry. There would be a small, indirect permanent reduction of riparian function where it crosses the West Tributary to Kelsey Creek in a 0.2-acre area. Large trees would be removed and replaced with shorter growing trees and other understory vegetation. There would be a temporal loss of riparian function as well. The new vegetation would likely grow well because shading would be minimal from the guideway, and it would be north of most of the affected riparian vegetation. The loss of shade on the pond from the taller trees would likely be offset by the shadow of the elevated guideway.

During operation of *Preferred Alternative D2A*, there would be no permanent impacts on Goff Creek.

There would be a negligible, direct permanent impact on the Unnamed Tributary to Kelsey Creek from culvert lengthening (130 feet). The existing stream channel is basically a roadside ditch with no riparian vegetation other than grasses. This tributary currently cannot support salmonids because it has no spawning habitat and has an impassable blockage at its confluence with Kelsey Creek.

At Valley Creek, *Preferred Alternative D2A* would result in no permanent impacts. The southern edge of the guideway would be 27 feet above and about 20 feet to the north of the culvert outlet, and the rest of the guideway would be to the north. As a result, there would be no shadow cast on the stream or riparian vegetation close to the channel and thus no shading impacts.

Both D2A - 120th Station and NE 24th Design Options would have potential impacts identical to those described for *Preferred Alternative D2A*.

NE 16th Elevated Alternative (D2E)
Alternative D2E would have no direct permanent impact on the West Tributary to Kelsey Creek because it would span the creek as an elevated guideway 50 to 60 feet off the ground at this location. Indirect permanent impacts on the stream buffer from this alternative at the West Tributary would be similar to those described for *Preferred Alternative D2A* except that the much less area (0.1 acre) would be involved. Impacts at Goff Creek, the Unnamed Tributary to Kelsey Creek, and Valley Creek would be the same as that described for *Preferred Alternative D2A*.

NE 20th Alternative (D3)
In addition to the impacts described above for Alternative D2E, Alternative D3 would have direct permanent impacts at Valley Creek and NE 20th Street. Valley Creek would lose aquatic habitat and riparian function for the 30 linear feet of channel enclosed in the lengthened culvert at 20th Street. This reach of Valley Creek was rated as good habitat. Sears Creek would be unaffected.

SR 520 Alternative (D5)
Alternative D5 would have impacts from the elevated guideway crossing at the West Tributary to Kelsey Creek similar to those described for Alternative D2E. There would be no impact on aquatic habitat at Goff Creek and Valley Creek. It is assumed that the Unnamed Tributary to Kelsey Creek is currently in a pipe where the elevated guideway would cross; therefore, this alternative would not impact aquatic habitat.

Segment E

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 would have no direct permanent impacts. This alternative would affect riparian vegetation at the Sammamish River crossing. The guideway would be elevated approximately 55 feet over the west bank, 45 feet over the east bank, and 60 feet over the water. Assuming a cast-in-place bridge, the existing riparian vegetation (dominated by blackberry and a few small conifer trees) would be cleared and replanted after construction with shrubs and shorter-growing trees. This would result in a permanent reduction of potential future LWD input to the river. The guideway would be high enough that tree growth would not be hampered by shading from the guideway. There would be a temporal loss of nutrient inputs to the river while the newly planted trees are growing up. With regard to river temperature, the proposed guideway would provide more shade than the few existing small conifer trees and blackberries provide. The Sammamish River is on the State's 303(d) list for water temperature, so temperature concerns are more important than losing primary vegetation productivity from shade at this location.

With *Preferred Alternative E2*, there would be a permanent loss of riparian vegetation functions for approximately 5 feet on either side of the former BNSF Railway bridge over Bear Creek because the guideway would only be 8 feet above the banks with the sun aspect oblique to the guideway. The primary riparian vegetation productivity would be less under the shadow of the guideway, which would be 15 feet above the water surface.

The E2 - Redmond Transit Center Design Option would have the same potential impacts as *Preferred Alternative E2*.

Redmond Way Alternative (E1)

Alternative E1 would have the same impacts as *Preferred Alternative E2* at the Sammamish River crossing except that more (0.2 acre) riparian vegetation would be affected. At the Bear Creek crossing, there would be no impacts on riparian vegetation because the guideway would be 48 feet above the top of the stream bank and 53 feet above the water surface. There are no tall-growing tree species present.

Leary Way Alternative (E4)

Alternative E4 would have the same impacts as *Preferred Alternative E2* at the Sammamish River crossing. Impacts on the riparian community would be similar to but slightly less than *Preferred Alternative E2* at the Bear Creek crossing because the elevated guideway would be 3 feet higher (18 feet above the water surface).

Maintenance Facilities

116th Maintenance Facility (MF1)

MF1 might cause negligible, permanent operational impacts from pollutant loading in the West Tributary to Kelsey Creek.

BNSF Maintenance Facility (MF2)

Impacts with MF2 would be the same as with MF1.

SR 520 Maintenance Facility (MF3)

MF3 would create 42 feet of new fish habitat from culvert replacement in Goff Creek and shortening the length of the culvert. The reach could be improved with the construction of a few pools. The riparian area is currently lacking vegetation other than mowed grass and English ivy; this would be improved with appropriate native vegetation. Pollutant loading impacts would be negligible in Goff Creek.

SE Redmond Maintenance Facility (MF5)

MF5 might cause negligible, permanent operational impacts from minor pollutant loading in the Sammamish River.

4.1.2.2 Federal-Listed Threatened and Endangered Species

The ESA offers protection for three species of fish known to be present in the project vicinity: Puget Sound steelhead, Puget Sound Chinook salmon, and bull trout. NMFS and WDFW have established in-water construction work windows for water bodies that must be adhered to in order to protect ESA species. Table 4-4 shows applicable in-water work windows for these salmonid resources in the project vicinity.

TABLE 4-4
Construction Work Windows for Listed Species

Water Body	Applicable Alternative	ESA Work Window
Lake Washington	Segment A Alternative	July 16 – December 31 (I-90 floating bridge and east and west highrises) July 16 – 31 and November 16 – December 31 (East Channel bridge)
Kelsey Creek watershed and Bear Creek	All Segment C Alternatives	July 1 – August 31
Sammamish River and lower Bear Creek	All Segment D Alternatives	July 16 – July 31 and November 16 – March 15

Although a detailed construction schedule has not been developed yet, the allowable construction work windows should not affect the overall project schedule. The potential impacts apply to the degree that the species or their habitats are found in proximity to project activities. The following text describes the likelihood of exposure and potential impacts of project activities and structures on protected species by project segment.

Segment A

Chinook salmon, steelhead, and bull trout could be exposed to construction activities. However, construction activities in Segment A would have a very low potential for impacts on these fish. In addition, work window restrictions would minimize their exposure to construction activities.

Segment B

Construction activities in Segment B would have a low potential impact on Chinook salmon or steelhead because this segment contains no spawning or primary rearing habitat and because there would be no in-water work.

Segment C

Bull trout are not present in Segment C. Chinook salmon are present in Sturtevant Creek. Steelhead presence is possible. Near-water (but not in-water) work would occur. The appropriate level of BMPs would be implemented to prevent adverse effects on listed species.

Segment D

Potential impacts on Chinook salmon or steelhead occurring in West Tributary Kelsey Creek would be isolated from downstream habitats by long stretches of ponded water. Potential impacts that might occur in Goff Creek would be far enough upstream from areas of Chinook salmon or steelhead use that impacts would be diminished before reaching downstream habitats. Kelsey Creek, the most important Chinook salmon habitat in this segment, is at least 0.25 mile downstream of the closest project construction.

Segment E

Potential impacts on both Chinook salmon and steelhead would be low in the Sammamish River because it is only a migratory corridor and the crossings are elevated structures that would not involve in-water work. The Bear Creek crossing would be the most sensitive project element because it is close to Chinook salmon and steelhead rearing habitat.

4.2 Vegetation and Wildlife

Construction of the East Link Project could have permanent operational and temporary construction impacts on vegetation and wildlife in the study area. These include mostly direct and some potential indirect impacts. The following sections outline the range of potential impacts that could occur for each segment and alternative. Actual impacts would depend on the final alternative selection and design, construction footprint and methods, BMPs implemented during construction, and performance of post-construction wetland restoration.

Vegetation polygons were classified and mapped regardless of size or upland/wetland designation. As a result, the vegetation polygons might include upland and/or wetland vegetation. Vegetation polygons might overlap with wetland polygons; therefore, affected acreage numbers for wetlands and vegetation/wildlife habitat cannot be added together. This overlap is depicted on Exhibits 3-23 to 3-26.

4.2.1 Temporary Construction and Related Impacts

Project construction would require clearing and removal of vegetation from within the construction limits. Affected areas (and associated species) within the construction limits that would be permanently altered by project facilities are addressed under permanent operational impacts in Section 4.2.2. As described in Section 1.4.1.1, the duration of temporary construction impacts would vary depending on the vegetation type and associated habitat functions that would be affected. Impacts associated with disturbance and displacement of wildlife are also described in this section. Alternatives that would result in some level of temporary wildlife displacement are listed in Table 4-5. Alternatives not listed in Table 4-5 would have few or no displacement-related impacts. Impacts on cities' critical areas are noted only in terms of the impacts on high-value habitats that support multiple special-status species. These high-value habitats are described in Section 2.2.2.4.

Construction activities would also temporarily affect wildlife in the general area. Impacts would occur from vegetation and habitat loss, disruption of travel corridors, noise impacts, and displacement of wildlife into potentially less suitable habitats where they might not thrive. Wildlife would likely be displaced when construction begins. Species displaced by construction noise would likely return after construction is complete. However, reestablishing native vegetation would require 2 to 4 years for herbaceous upland and wetland types, and decades for mature forest types. Species that forage on or near the ground, for example, urban-dwelling small mammals or birds such as juncos and song sparrows, would use their preferred habitats first. Species that require mature vegetation, and especially those that use large shrubs and trees, such as wrens, chickadees, and woodpecker, would recolonize their preferred habitats last.

TABLE 4-5
Alternatives with Temporary Wildlife Displacement Expected During Construction

Alternative	Basis for Determination
Alternatives with Relatively Higher Expected Levels of Wildlife Displacement	
Preferred 112th SE Modified Alternative (B2M) Bellevue Way Alternative (B1) 112th SE At-Grade Alternative (B2A) 112th SE Elevated Alternative (B2E) 112th SE Bypass Alternative (B3) B3 - 114th Extension Design Option	Location along Bellevue Way (relatively quieter than near I-405 or I-90) and adjacent to Mercer Slough might result in greater increase in noise over existing conditions compared to Alternative B7.
Preferred Alternative B2M Alternative B2E Elevated portion of Alternative B7 Alternative B3 (along SE 8th Street) B3 - 114th Extension Design Option	Elevated structures adjacent to Mercer Slough Nature Park or through Sturtevant Creek wetland mighty result in more noise near high-value wildlife area.
Alternatives with Intermediate Expected Levels of Wildlife Displacement	
Alternative (B7), at-grade along former BNSF Railway corridor	Farther from Mercer Slough Nature Park than other Segment B alternatives and proximity to noisier I-405 and I-90 reduces potential impacts compared to alternatives on the west side of the park.
SR 520 Alternative (D5)	Passes through several relatively large patches of coniferous and deciduous forest.
Redmond Way Alternative (E1)	Passes through several relatively large patches of coniferous forest.
Alternatives with Relatively Lower Expected Levels of Wildlife Displacement	
Elevated portion of: *Preferred NE 16th At-Grade Alternative (D2A)* NE 16th Elevated Alternative (D2E) NE 20th Alternative (D3)	Short distance near West Tributary to Kelsey Creek.
Preferred Marymoor Alternative (E2)	Passes through a few relatively large patches of coniferous forest. Borders on Marymoor Park with large grassy areas and poplar trees.
Leary Way Alternative (E4)	Passes through a few relatively large patches of coniferous forest.
Alternatives with very Low Expected Wildlife Displacement	
All Segment C Alternatives	Highly urbanized corridors.

4.2.1.1 Impacts Common to All or Most Build Alternatives

Impacts that would occur under all or most of the build alternatives are those related to noxious weeds and those resulting from construction noise and human activity. These impacts would occur in all areas where construction occurs.

Noxious Weeds

Noxious weeds and exotic plants rapidly colonize disturbed sites such as construction areas. They prevent native species from being re-established following ground disturbance, spread into undisturbed areas where they can affect habitat value on additional lands, and provide very poor wildlife habitat or forage. Several BMPs (included in Appendix A) are intended to avoid, reduce, and control new infestations of noxious weeds through a variety of actions. Consistent and successful application of these measures would reduce potential habitat disturbance and improve existing already-disturbed habitats. However, it is likely that some especially invasive weeds such as Himalayan blackberry would become established in some areas disturbed during construction. This invasive species prevents the re-establishment of native riparian species along streams and substantially reduces wildlife habitat value.

However, the East Link Project could also improve conditions where, in many cases, existing noxious weeds such as Himalayan blackberry, reed canarygrass, and/or Japanese knotweed dominate vegetated areas within the study area. In areas of permanent impact, these weedy areas would be removed. In areas of temporary impact, these weedy areas would likely be restored by native vegetation.

Impacts of Noise and Human Activity on Wildlife

Both noise and human activity have been demonstrated to displace wildlife from occupied habitats, interfere with the ability to hear territorial songs in birds, interfere with mating and alarm calls in amphibians and ground squirrels, and interfere with raptor foraging activities. There are numerous studies documenting wildlife avoidance of roads and facilities and wildlife disturbance from human activity at varying distances (Madsen, 1985; Van der Zande, et al., 1980; Fyfe and Olendorff, 1976).

However, most of these and similar studies have considered the impacts of new construction or facilities and human activities in areas where none or few of these facilities or human activities previously existed. This is not the case in the East Link study area, where roads, numerous transit corridors, residential and commercial development, and regular human activity are common features of most of the landscape. Wildlife that use habitats adjacent to the project alternatives are more or less accustomed to some level of human activity and noise. Impacts would be related to changes in noise levels and the types of human activities.

Measured constant day-time noise levels along I-90 and I-405 average about 70 to 72 A-weighted decibels (dBA) Leq (“equivalent” continuous sound level) at a distance of 100 feet from the roads. Noise levels along the I-90 bridge are projected to be 72 dBA Leq at 50 feet from the roadway, with maximum noise levels between 80 and 87 dBA Lmax (maximum noise level) when heavy trucks pass by, such as dump trucks and long-haul tractor trailers. This is typical for major interstate highways. Measured average noise levels along Bellevue Way SE are between 65 and 69 dBA Leq for front-line residences (less than 50 feet from the road) and between 60 and 64 dBA Leq for second-line homes (about 100 feet from the road). Some wildlife species undoubtedly already avoid noisier areas such as along I-90 and I-405. The potential temporary impacts on wildlife from increased noise and human activity during construction would be less than what would occur if the East Link Project were located in a rural area. However, some displacement of wildlife from otherwise useable habitat could occur. The degree of displacement would generally be proportional to the change in noise levels over background conditions; the distance of the construction activity from occupied habitats; the frequency, duration, and types of noise and human activity; and changes in the types of human activity during construction.

4.2.1.2 Specific Impacts of Alternatives by Segment

Vegetation and Wildlife

Project construction would require clearing and removal of vegetation from within the construction limits (approximately 35-foot-wide corridors along both sides of the 30-foot-wide operational right-of-way). The temporary construction disturbance would include the area beyond what would be required to accommodate the permanent facility. The estimated extent of the potential temporary construction impacts on vegetation is listed in Table 4-6, as most of the impact would occur to high-value habitats. Alternatives that are not listed would not affect these vegetation types.

Within the construction limits, animals of all types occupying areas that would be cleared would lose breeding, foraging, and roosting habitat. Less mobile species and those that retreat to burrows would likely be killed during this initial site work. More mobile species would likely flee to adjacent areas where they may not survive, depending on the availability of nearby suitable and unoccupied habitat. Suitable habitat for these species may be re-established within the construction limits over time, but increased noise and human presence combined with increased soil compaction may render some areas unsuitable for future re-occupancy by the affected species.

Affected Habitats and Species with Special Status

Affected Habitats

Table 4-6 includes an estimate of potential temporary construction impacts on vegetation and habitat types. The loss of these habitats would persist for varying lengths of time. It was assumed that areas supporting native upland or wetland vegetation and streambanks would be restored to their former condition following construction. These temporary, long-term impacts on shrub and forest habitats would persist for many years because of the time required for woody vegetation to grow enough to restore preconstruction functions.

TABLE 4-6
Potential Temporary Construction Impacts on Vegetation and Habitat Types in the Study Area

	Area of Affected Vegetation (acres)[a]								
	High-Value Habitat [b]					**Marginal Habitat**			
Alternative	**Riparian Forest**	**Urban Mostly Vegetated – Coniferous Forest**	**Urban Mostly Vegetated – Deciduous Forest**	**Urban Mostly Vegetated – Mixed Forest**	**Subtotal**	**Urban Moderately Vegetated**	**Blackberry**	**Urban Sparsely Vegetated**	**Grand Total** [c]
Segment B									
Preferred 112th SE Modified Alternative (B2M)									
to C11A	0	0	1.1	0	**1.1**	0.1	1.3	0.3	**2.8**
to C9T[d]	0	0	1.0	0	**1.0**	0.1	1.2	0.3	**2.6**
Bellevue Way Alternative (B1)	0	0.8	1.2	<0.1	**2.1**	0.6	<0.1	0	**2.7**
112th SE At-Grade Alternative (B2A)	0	0.9	0.9	0.1	**1.9**	0.3	0.5	0.1	**2.8**
112th SE Elevated Alternative (B2E)	0	0.6	0.7	0	**1.3**	0.2	0.8	0.1	**2.4**
112th SE Bypass Alternative (B3)	0	0.9	0.9	0.1	**1.9**	0.3	0.6	0.1	**2.9**
B3 - 114th Extension Design Option	0	1.2	1.0	0.2	**2.4**	0.3	1.3	0.1	**4.1**
BNSF Alternative (B7)	0.9	1.2	2.1	0.4	**4.6**	0	0.2	0.2	**4.9**
Segment C									
Preferred 108th NE At-Grade Alternative (C11A) – from B2M	0	<0.1	0	0	**<0.1**	0	0	<0.1	**0.1**
Preferred Alternative C11A – from B3	0	0	0	0	**0**	0	0	0.4	**0.4**
Preferred Alternative C11A – from B3 Design Option and B7	0	0	0	0	**0**	0	0	0.5	**0.5**
Preferred 110th NE Tunnel Alternative (C9T) – from B2M[d]	0	0.2	0	0	**0.2**	0	0	<0.1	**0.2**
Preferred Alternative C9T – from B3	0	0	0	0	**0**	0	0	0.4	**0.4**
Preferred Alternative C9T – from B3 Design Option and B7	0	0	0	0	**0**	0	0	0.5	**0.5**
106th NE Tunnel Alternative (C2T) – from B3 or B7	0	0	0	0	**0**	0	0	0.5	**0.5**

TABLE 4-6 CONTINUED
Potential Temporary Construction Impacts on Vegetation and Habitat Types in the Study Area

	Area of Affected Vegetation (acres)[a]								
	High-Value Habitat [b]					Marginal Habitat			
Alternative	**Riparian Forest**	**Urban Mostly Vegetated – Coniferous Forest**	**Urban Mostly Vegeted – Deciduous Forest**	**Urban Mostly Vegeted – Mixed Forest**	**Subtotal**	**Urban Moderately Vegetated**	**Blackberry**	**Urban Sparsely Vegetated**	**Grand Total [c]**
108th NE Tunnel Alternative (C3T) – from B3 or B7	0	0	0	0	**0**	0	0	0.5	**4.2.2 0 .5**
At-Grade Couplet Alternative (C4A) – from B3 or B7	0	0	0	0	**0**	0	0	0.5	**0.5**
112th NE Elevated Alternative (C7E) – from B3 or B7	0	0	0	0	**0**	0	0	0.5	**0.5**
110th NE Elevated Alternative (C8E) – from B3 or B7	0	0	0	0	**0**	0	0	0.5	**0.5**
110th NE At-Grade Alternative (C9A) – from B2A	0	0.2	0	0	**0.2**	0	0	0.1	**0.3**
Alternative (C9A) – from B3, B3 Design Option, or B7	0	0	0	0	**0**	0	0	0.6	**0.6**
114th NE Elevated Alternative (C14E) – from B3, B3 Design Option, or B7	0	0	0	0	**0**	0	0	0.5	**0.5**
Segment D									
Preferred Alternative NE 16th At-Grade (D2A)	0.4	0.1	1.4	0	**1.9**	0.2	0	1.2	**3.3**
D2A - 120th Station Design Option	0.4	0.1	1.4	0	**1.9**	0.2	0	1.2	**3.3**
D2A - NE 24th Design Option	0.4	0	1.6	0	**2.0**	0.1	0	1.3	**3.5**
NE 16th Elevated Alternative (D2E) via 12th (C3T, C4A, C7E, C14E)	0.3	0.1	0.4	0	**0.8**	0.1	0	1.4	**2.2**
Alternative D2E via BNSF (C1T and C2T)	0.3	0.1	0.3	0	**0.7**	0.1	0	1.3	**2.1**
NE 20th Alternative (D3) via 12th (C3T, C4A, C7E, C8E)	0	0.1	0.2	0	**0.3**	0.2	0	0.4	**1.0**
Alternative D3 via BNSF (C1T and C2T)	0	0.1	0.1	0	**0.2**	0.2	0	0.4	**0.8**
SR 520 Alternative (D5) via 12th (C3T, C4A, C7E, C8E)	0.6	0.2	0.5	0	**1.3**	1.0	0.2	1.4	**3.8**
Alternative D5 via BNSF (C1T and C2T)	0.6	0.2	0.4	0	**1.2**	1.0	0.2	1.3	**3.7**
Segment E									
Preferred Marymoor Alternative (E2)	0.1	0.9	0.5	0	**1.5**	1.2	0	0.3	**2.9**
E2 - Redmond Transit Center Design Option	0.1	0.9	0.6	0	**1.6**	1.2	0	0.3	**3.1**
Redmond Way Alternative (E1)	0	1.7	0.4	0	**2.1**	0.8	0	0.2	**3.6**
Leary Way Alternative (E4)	0	0.5	0.6	0	**1.1**	1.1	<0.1	0.5	**2.7**

TABLE 4-6 CONTINUED
Potential Temporary Construction Impacts on Vegetation and Habitat Types in the Study Area

Alternative	Area of Affected Vegetation (acres)[a]								
	High-Value Habitat [b]					Marginal Habitat			Grand Total [c]
	Riparian Forest	Urban Mostly Vegetated – Coniferous Forest	Urban Mostly Vegetated – Deciduous Forest	Urban Mostly Vegetated – Mixed Forest	Subtotal	Urban Moderately Vegetated	Blackberry	Urban Sparsely Vegetated	

Alternatives that are not listed would not affect these vegetation types.

[a] Vegetation polygons were classified and mapped regardless of size or upland/wetland designation. As a result, the vegetation polygons may include upland and/or wetland vegetation. Vegetation polygons may overlap with wetland polygons; therefore, affected acreage numbers for wetlands and vegetation/wildlife habitat cannot be added together. This overlap is depicted on Exhibits 3-23 to 3-26.
[b] Impacts on high-value habitats would require compliance with the Bellevue and Redmond CAOs.
Subtotals were added before rounding and therefore reflect true impacted area.
[c] Grand totals were added before rounding and therefore reflect the true impacted area.
[d] Impacts for C9T - East Main Station Design Option would not vary from those of *Preferred Alternative C9T*.

High-value habitats that would be temporarily affected within the construction limits and their locations include the following:

- Wetland and open water including Mercer Slough (Alternative B7) (see Section 4.3 for wetland impacts discussion)
- Riparian forest associated with Mercer Slough (Alternative B7)
- Urban Natural Open Space including Urban Mostly Vegetated - deciduous forest (all Segment B alternatives).

Segment B
The estimated area of high-value habitat that would be directly affected during clearing for construction in Segment B varies from approximately 1 acre (*Preferred Alterative B2M from C9T*) to approximately 4.6 acres (Alternative B7). Alternative B7 would affect more area of each high-value habitat than the other Segment B alternatives. Riparian forest is the highest value wildlife habitat type in the study area, followed by the deciduous and coniferous forest types. Wetlands, along with riparian forest, are the highest value wildlife habitat type in the project vicinity. While wetland impacts are addressed in Section 4.3 of this report, Alternative B7 would also temporarily affect more wetland area than the other Segment B alternatives.

All the Bellevue Way alternative routes would have a similar total impact on high-value habitat.

Preferred Alternative B2M would temporarily affect approximately 1 acre of high-value deciduous forest habitat, which includes the removal of some mature deciduous trees near the Bellevue Way SE and 112th Avenue SE intersection. Impacts on this area would be minimized to the maximum extent possible by limiting the temporary clearing of mature vegetation to the 35-foot-wide construction area on each side of the guideway. Due to the amount of similar available habitat in the Mercer Slough vicinity, impacts on wildlife would not be significant. This impact would be mitigated as required by the CAO.

Segment C
There would be relatively few temporary impacts on high-value habitat along Segment C.

Segment D
The estimated area of high-value habitat that would be directly affected during clearing for construction along Segment D varies from approximately 0.3 acre (Alterative D3) to approximately 2.0 acres (D2A - NE 24th Design Option).

Segment E
The estimated area of high-value habitat that would be directly affected during clearing for construction in Segment E varies from approximately 1.1 acres (Alterative E4) to approximately 2.1 acres (Alternative E1).

Federal and State Threatened and Endangered, and Candidate Species, and Species of Concern

Marbled Murrelet
During the nonbreeding season, marbled murrelets are rare and infrequent visitors to Lake Washington. They have been observed on the lake in the past but have not been documented to use the lake since the early 1990s. No impacts are expected because only one sighting has been observed in the last 50 years. As such, impacts are considered discountable.

Bald Eagle
None of the five bald eagle nests are located closer than 0.3 mile (about 1,580 feet) from any of the alternatives (see Table 3-9), and the shortest line-of-sight distance from a nest to a construction area would be 0.4 mile (about 2,110 feet). These distances are substantially greater than the recommended minimum of 660 feet. Therefore, according to the USFWS (2007b) bald eagle management guidance, potential impacts on nesting bald eagles during project construction would be minimized because disturbance levels would be lower than those specified in the guidelines.

Depending on screening vegetation, prevailing winds, topography, and the sensitivity of the nesting eagles to human activities, WDFW (2001) recommends possible expansion of the conditioned zone, or secondary zone, up to 2,640 feet from the edge of the protected zone, for a total distance of 3,640 feet. The shortest line-of sight distance from a nest to a construction area would be 2,112 feet under *Preferred Alternative A1* (see Table 3-9). The line-of sight distances from the other nests to the nearest construction area would be about 2,650 feet, 3,080 feet, and greater than 1 mile (two nests), respectively. Given the general location of these bald eagle nests in an urban area with relatively high levels of human activity, it is very unlikely that construction activities would directly or indirectly affect any of the existing bald eagle nest sites.

There are no known communal roosts within a half mile of any of the alternatives.

The change and increase in human activity from passing construction vehicles and people on foot outside of vehicles could displace eagles farther from the I-90 construction area. A study of bald eagles found that 50 percent of wintering eagles in open areas flushed at 500 feet from the source of human activity but that 98 percent will tolerate human activities at 1,000 feet (Stalmaster and Newman, 1979). Therefore, any increase in displacement in the vicinity of *Preferred Alternative A1* along I-90 would likely occur within 1,000 feet of the construction area. Given the large areas available for foraging, it is unlikely that this would result in impacts on bald eagle foraging and perching.

Bald eagles are suspected of foraging for salmon along Bear Creek during the fall and winter. Although specific foraging locations are not known, construction of *Preferred Alternative E2* or Alternatives E1or E4 across Bear Creek could temporarily displace bald eagles from the construction area.

Peregrine Falcon
Peregrine falcons still using the nest on the I-90 East Channel bridge might abandon the nest during construction. There is no way to estimate whether these birds would nest elsewhere during construction or whether they would reoccupy this nest after construction is complete.

Olive-Sided Flycatcher
The olive-sided flycatcher breeds in coniferous forests and might be present along the study area in Segments B and E, although none were recorded before or during surveys. There would be no temporary construction impacts on this species because only narrow strips of conifer forest would be affected by construction.

Willow Flycatcher
These birds typically breed in deciduous thickets, especially in willow thickets. Willow flycatcher nest sites are often close to water. There could be impacts on willow flycatcher habitat due to minor loss of scrub-shrub riparian habitat that could occur at Mercer Slough Wetland and Sturtevant Creek Wetland from any of the Segment B alternatives except Alternative B1.

State Candidate Species

Several other priority species are known to occur in the project vicinity. Aquatic species were addressed in Section 4.1 of this report. Table 4-7 lists these species and potential construction impacts on the species or their habitat. Stream crossings are specifically called out as an impact due to the loss of riparian habitat to occur as well as changes in other stream characteristics (see Section 4.1, Aquatic Resources).

TABLE 4-7
Potential Temporary Construction Impacts on State Candidate Species Likely or Known to Occur in the Study Area

Species[a]	Preferred Habitat	Potential Project Impacts
Pileated woodpecker	Requires wooded forests with a component of dead and dying trees and snags for foraging and nesting. Prefers deciduous forests but would use conifer forests with some deciduous tree component. Found at Marymoor Park. One bird observed in WR-5.	Signs of pileated woodpecker activity were observed in some larger forest stands. Some loss of forest habitat might occur. Any loss would persist for many years (*Preferred B2M*, B3, B3 - Design Option, B1, B2A, B2E, and B7).
Western grebe	Nests in colonies numbering up to several hundred birds on large inland lakes or in coastal marshes of the western United States.	This species could be displaced from some foraging area near I-90 during construction (*Preferred A1*).
Merlin	Seen during the nesting season at Marymoor Park. Unlikely to nest in the study area.	Impacts on this species would be very unlikely. Foraging areas would not be affected.
Purple martin	Nests in structures over water bodies. Forages for insects over open water or wet areas. Nesting observed at Marymoor Park in 2003.	There are no purple martin nests close enough to any of the alternatives to be affected by construction.

[a] Includes only those species not discussed in text.

Alternative Designations:
Preferred A1 = I-90
Preferred B2M = 112th SE Modified
B1 = Bellevue Way
B2A = 112th SE At-Grade
B2E = 112th SE Elevated
B3 = 112th SE Bypass
B3 - Design Option = 114th Extension
B7 = BNSF

4.2.3 Permanent Operational Impacts

Operational impacts are those that cause permanent displacement by the project alternatives, stations, maintenance facilities, traction power substations, and road widening. These impacts would occur during the early stages of construction within each segment and would be permanent.

4.2.3.1 Impacts Common to Most or All Action Alternatives

Many amphibian annual life cycles require seasonal migration between habitats with different ecological properties. These species' populations depend on dispersal connections and landscape links (Gibbs, 1998). Simple linear structures such as roads and at-grade tracks can act as physical and psychological barriers for amphibian movement (Mader, 1984; Gibbs, 1998). Areas where such movements may occur are between Mercer Slough Nature Park and forest remnants to the east and west of the park and between Bear Creek and Marymoor Park. However, the project vicinity already includes many roads that function as partial or complete physical barriers to seasonal amphibian movements between areas of suitable habitat. Few, if any, amphibians are likely to successfully cross the former BNSF Railway tracks and I-405 to the east of Mercer Slough Nature Park, or Bellevue Way to reach the coniferous patch west of the nature park.

Permanent indirect and qualitative impacts might also occur as a result of construction and operation activities. Potential permanent indirect impacts for each of the project alternatives may include the following:

- Conversion of existing high-quality, forest-dominated vegetation and wildlife habitat under and within 20 feet of each side of the elevated guideways to shrub and short-tree habitat, which may become high-quality habitat for some species, to prevent trees and branches from interfering with operation of the light rail
- Conversion of existing low-quality, weed-dominated, and disturbed vegetation and wildlife habitat under and within 20 feet of each side of the elevated guideways to shrub and short-tree habitat, which would be a substantial environmental improvement
- Light and habitat fragmentation

Impacts of Noise and Human Activity on Wildlife

The East Link project vicinity is predominantly urbanized, and the open spaces and open waters include high volumes of human activity with noise from adjacent roadways. East Link operations along elevated track sections adjacent to Mercer Slough (i.e., *Preferred Alternative B2M* and Alternatives B3, B3 - 114th Design Option, B2E, and B7) might result in noise impacts on wildlife above existing noise impacts from adjacent roadways. Noise from at-grade sections would not be expected to cause additional wildlife disturbance or displacement.

4.2.3.2 Specific Impacts of Alternatives by Segment

Vegetation and Wildlife

Table 4-8 provides estimates of the potential permanent operational impacts of the project on vegetation types in each of the segments.

Segment B

The potential area of high-value habitat that could be permanently affected in Segment B varies from approximately 0.8 acre (Alterative B2E) to approximately 3.2 acres (Alternative B7). Alternative B7 would affect the most area of riparian forest (0.6 acre). Alternatives B1 and B7 would affect the most high-value coniferous forest (1.2 acres each). Alternative B7 would affect the largest area of high-value deciduous forest (0.8 acre).

Preferred Alternative B2M to C11A and *B2M to C9T* would permanently affect 0.6 to 0.7 acre of high-value deciduous forest habitat, respectively, which includes the removal of some mature deciduous trees near the Bellevue Way SE/112th Avenue SE intersection. Due to the amount of similar available habitat in the Mercer Slough vicinity, impacts on wildlife would not be significant and would be mitigated as required by local Critical Area regulations.

Segment C

There would be relatively few permanent impacts on high-value habitat in Segment C.

TABLE 4-8
Potential Permanent Operational Impacts on Vegetation and Habitat Types within the Study Area

	Area of Affected Vegetation (acres) [a]								
	High-Value Habitat[b]					**Marginal Habitat**			
Alternative and Connection	**Riparian Forest**	**Urban Mostly Vegetated – Coniferous Forest**	**Urban Mostly Vegetated – Deciduous Forest**	**Urban Mostly Vegetated – Mixed Forest**	**Subtotal**	**Urban Moderately Vegetated**	**Blackberry**	**Urban Sparsely Vegetated**	**Grand Total**
Segment A									
Preferred Interstate 90 Alternative (A1)	0	0	0	0	0	0	0	0	**0**
Segment B									
Preferred 112th SE Modified Alternative (B2M)									
to C11A	0	0	0.6	0	**0.6**	0.3	0.7	0.1	**1.7**
to C9T[c]	0	0	0.7	0	**0.7**	0.3	1.3	0.1	**2.4**
Bellevue Way Alternative (B1)	0	1.2	0.5	0	**1.7**	0.7	0	0	**2.4**
112th SE At-Grade Alternative (B2A)	0	0.2	0.5	0	**0.7**	0.3	0.1	0.1	**1.2**
112th SE Elevated Alternative (B2E)	0	0.2	0.2	0	**0.4**	0.1	0.2	0.1	**0.8**
112th SE Bypass Alternative (B3)	0	0.2	0.5	0	**0.7**	0.3	0.1	0.1	**1.2**
B3 - 114th Extension Design Option	0	0.2	0.5	0	**0.7**	0.3	0.2	0.1	**1.2**
BNSF Alternative (B7)	0.5	1.2	0.8	0.4	**3.0**	0	0.1	0.1	**3.2**
Segment C									
Preferred 108th NE At-Grade Alternative (C11A) from B2M	0	0	0	0	**0**	0	0	0	**0**
Preferred Alternative C11A from B3	0	0	0	0	**0**	0	0	0.4	**0.4**

TABLE 4-8 CONTINUED
Potential Permanent Operational Impacts on Vegetation and Habitat Types within the Study Area

	Area of Affected Vegetation (acres) [a]								
	High-Value Habitat[b]					**Marginal Habitat**			**Grand Total**
Alternative and Connection	**Riparian Forest**	**Urban Mostly Vegetated – Coniferous Forest**	**Urban Mostly Vegetated – Deciduous Forest**	**Urban Mostly Vegetated – Mixed Forest**	**Subtotal**	**Urban Moderately Vegetated**	**Blackberry**	**Urban Sparsely Vegetated**	
Preferred Alternative C11A from B3 - Design Option and B7	0	0	0	0	**0**	0	0	0.6	**0.6**
Preferred 110th NE Tunnel Alternative (C9T) from B2M[c]	0	0.3	0	0	**0.3**	0	0	0	**0.3**
Preferred Alternative C9T from B3	0	0	0	0	**0**	0	0	0.4	**0.4**
Preferred Alternative C9T from B3 - Design Option and B7	0	0	0	0	**0**	0	0	0.6	**0.6**
106th NE Tunnel Alternative (C2T) from B2A	0	0.1	0	0	**0.1**	0	0	0	**0.1**
Alternative C2T from B2E	0	0.2	0	0	**0.2**	0	0	0	**0.2**
Alternative C2T from B3	0	0	0	0	**0**	0	0	0.4	**0.4**
Alternative C2T from B7	0	0	0	0	**0**	0	0	0.6	**0.6**
108th NE Tunnel Alternative (C3T) from B2A	0	0.1	0	0	**0.1**	0.1	0	0	**0.2**
Alternative C3T from B2E	0	0.2	0	0	**0.2**	0.1	0	0	**0.4**
Alternative C3Tfrom B3	0	0	0	0	**0**	0.1	0	0.4	**0.5**
Alternative C3T from B7	0	0	0	0	**0**	0.1	0	0.6	**0.8**
At-Grade Couplet Alternative (C4A) from B2A	0	0.2	0	0	**0.2**	0.1	0	0	**0.3**
Alternative C4A from B2E	0	0.2	0	0	**0.2**	0.1	0	0	**0.3**
Alternative C4A from B3	0	0	0	0	**0**	0.1	0	0.4	**0.4**
Alternative C4A from B7	0	0	0	0	**0**	0.1	0	0.6	**0.6**
112th NE Elevated Alternative (C7E) from B2A	0	0.2	0	0	**0.2**	0.1	0	0.1	**0.3**
Alternative C7E from B2E	0	0.2	0	0	**0.2**	0.1	0	0.1	**0.3**
Alternative C7E from B3	0	0	0	0	**0**	0.1	0	0.4	**0.5**
Alternative C7E from B7	0	0	0	0	**0**	0.1	0	0.6	**0.7**
110th NE Elevated Alternative (C8E) from B3	0	0	0	0	**0**	0.1	0	0.3	**0.4**
Alternative C8E from B7	0	0	0	0	**0**	0.1	0	0.5	**0.6**
110th NE At-Grade Alternative (C9A) from B2A	0	<0.1	0	0	**0**	0	0	<0.1	**<0.1**
Alternative C9A from B3	0	0	0	0	**0**	0	0	0.3	**0.3**
Alternative C9A from B3 - Design Option and B7	0	0	0	0	**0**	0	0	0.6	**0.6**
114th NE Elevated Alternative (C14E) from B3	0	0	0	0	**0**	0	0	0.3	**0.3**
Alternative C14E from B3 - Design Option and B7	0	0	0	0	**0**	0	0	0.6	**0.6**
Segment D									
Preferred NE 16th At-Grade Alternative (D2A)[d]	0.5	0.1	0.4	0	**0.9**	0.4	0	2.1	**3.4**
D2A - NE 24th Design Option	0.5	0	0.3	0	**0.8**	<0.1	0	2.1	**2.9**
NE 16th Elevated Alternative (D2E) via 12th (C3T, C4A, C7E, C14E)	0.2	0	0.3	0	**0.5**	<0.1	0	2.5	**3.0**
Alternative D2E via BNSF (C1T, C2T)	0.2	0	0.2	0	**0.5**	<0.1	0	2.4	**2.9**
NE 20th Alternative (D3) via 12th (C3T, C4A, C7E, C8E)	0	0	0.1	0	**0.1**	0.5	0	1.7	**2.2**
Alternative D3 via BNSF	0	0	<0.1		**<0.1**	0.5	0	1.6	**2.1**

TABLE 4-8 CONTINUED
Potential Permanent Operational Impacts on Vegetation and Habitat Types within the Study Area

Alternative and Connection	Area of Affected Vegetation (acres)[a]								
	High-Value Habitat[b]					Marginal Habitat			Grand Total
	Riparian Forest	Urban Mostly Vegetated – Coniferous Forest	Urban Mostly Vegetated – Deciduous Forest	Urban Mostly Vegetated – Mixed Forest	Subtotal	Urban Moderately Vegetated	Blackberry	Urban Sparsely Vegetated	
SR 520 Alternative (D5) via 12th (C3T, C4A, C7E, C8E)	0.6	0.3	0.6	0	**1.4**	2.3	0.1	2.4	**6.2**
Alternative D5 via BNSF (C1T, C2T)	0.6	0.3	0.5		**1.3**	2.2	0.1	2.3	**5.9**
Segment E									
Preferred Marymoor Alternative (E2)	0	0.6	0.5	0	**1.1**	1.1	0	0.5	**2.7**
E2 - Redmond Transit Center Design Option	0	0.6	0.5	0	**1.2**	1.1	0	0.5	**2.8**
Redmond Way Alternative (E1)	0	1.5	0.6	0	**2.1**	1.0	0	0.5	**3.6**
Leary Way Alternative (E4)	0	0.5	0.7	0	**1.2**	1.1	0.1	0.9	**3.2**
Maintenance Facilities									
MF1, 116th (*D2A*, D2E, D3)	0	0	0.1	0	**0.1**	0	0	0	**0.1**
MF1, 116th (D5)	0	0	0	0	**0**	0	0	0	**0**
MF2, BNSF (*D2A*, D2E, D3)	0	0	0.1	0	**0.1**	0	0	0	**0.2**
MF2, BNSF (D5)	0	0	0.2	0	**0.2**	0	0	0	**0.2**
MF3, SR 520 (all Segment D Alternatives)	0	0	0	0	**0**	0	0	0	**0**
MF5, SE Redmond (E1, *E2*, E4)	0	0	0	0	**0**	0	0	0	**0**

Alternatives that are not listed would not affect these vegetation types.

[a] Vegetation polygons were classified and mapped regardless of size or upland/wetland designation. As a result, the vegetation polygons may include upland and/or wetland vegetation. Vegetation polygons may overlap with wetland polygons; therefore, impact acreage numbers for wetlands and vegetation/wildlife habitat cannot be added together. This overlap is depicted on Exhibits 3-23 to 3-26.

[b] These are high-value habitats and therefore effects on these areas would require adherence to the Bellevue and Redmond Critical Area ordinances.

[c] Impacts for C9T - East Main Station Design Option would not vary from those of *Preferred Alternative C9T*.

[d] Impacts for D2A - 120th Station Design Option would not vary from those of *Preferred Alternative D2A*.

Segment D

The estimated area of high-value habitat that would be directly affected during project operation in Segment D varies from approximately <0.1 acre (Alterative D3 via BNSF [C1T or C2T]) to approximately 1.3 acres (Alternative D5 via BNSF).

Preferred Alternative D2A would permanently affect approximately 0.9 acre of high-value habitat, including mostly riparian forest and deciduous forest. Alternative D5 would affect the most area of riparian forest, coniferous forest, and deciduous forest, with a total of up to 1.4 acres of high-value habitat permanently affected.

Segment E

The estimated area of high-value habitat that would be directly affected during permanent operation in Segment E varies from approximately 1.1 acres (*Preferred Alternative E2*) to approximately 2.1 acres (Alternative E1). Alternative E1 would affect the most area of high-value coniferous forest.

Maintenance Facilities

Potential permanent operational impacts on vegetation and habitat types from the maintenance facilities would be minor. Impacts would range from 0.1 acre with MF1 to 0.2 acre with MF2 from Alternative D5. MF3 and MF5 would result in no impacts.

Affected Habitats and Species

High-Value Habitats

Animals of all types that lose breeding, foraging, and roosting habitat within the project vicinity would be permanently lost unless they were able to occupy suitable unoccupied habitat nearby.

The loss of high-value habitats within the project vicinity would persist because lands would be occupied by project facilities. High-value habitats that would be permanently affected by the project, and their locations, include the following:

- In-stream habitats (see Section 4.1, Aquatic Resources)
- Wetlands (see Section 4.3) (all Segment B, D, and E alternatives)
- Riparian forest associated with Mercer Slough (Alternative B7) and along several streams in Segment D (*Preferred Alternative D2A* and Alternatives D2E and D5)
- Urban natural open space, including urban mostly vegetated—coniferous forest (all Segment B alternatives, small areas along several alternatives in Segments C and D, and all Segment E alternatives) and urban mostly vegetated – deciduous forest (all Segment B alternatives, areas along several alternatives in Segment D, and all Segment E alternatives).

Federal and State Threatened and Endangered, and Candidate Species, and Species of Concern

Marbled Murrelet

Project operations are not expected to permanently affect marbled murrelets because of the project's location along the existing I-90 bridge and because marbled murrelets are extremely rare in the study area (one sighting in the past 50 years on Lake Washington). Furthermore, the maximum operating noise levels are projected to be far below the injury and disturbance thresholds for murrelets established by the USFWS. Therefore, no operational impacts are expected.

Bald Eagle

Because of local bald eagle acclimation and distances to eagle nests, no impacts on bald eagles would be expected from operation of this project.

Peregrine Falcon

Because there is an existing active nest on I-90 that experiences vehicular noise, no permanent operational impacts on the peregrine pair or nest would be expected from operation of this project.

Olive-Sided Flycatcher

Because the potential habitat areas suitable for the olive-sided flycatcher are already adjacent to noisy arterial roadways habitats, no permanent impacts on the olive-sided flycatcher are expected from project operation.

Willow Flycatcher

Because the potential habitat areas suitable for the willow flycatcher are already near or being crossed by noisy arterial roadways and the project would not introduce more human activities near these habitats, no operational impacts on the willow flycatcher are expected.

Other State Species

Loss of high-value habitat and foraging as a result of project operation might affect some priority species.

4.3 Wetland Resources

Construction of the East Link Project could have permanent operational and temporary construction impacts on wetlands in the project vicinity. These include mostly direct and some potential indirect impacts. The following sections outline the range of potential impacts that could occur for each segment and alternative. Actual impacts would depend on the final alternative selection and design, construction footprint and methods, BMPs implemented during construction, and performance of post-construction wetland and buffer restoration.

No wetland resources were identified in Segment A, so this segment is not discussed in the text or shown on exhibits. The potential temporary construction and permanent operational impacts by alternative are summarized below. More detailed maps and tables listing the potential temporary construction and permanent operational impacts by alternative for individual wetlands and wetland buffers affected are included in Appendix F.

Vegetation polygons were classified and mapped regardless of size or upland/wetland designation. As a result, the vegetation polygons might include upland and/or wetland vegetation. Vegetation polygons might overlap with wetland polygons; therefore, affected acreage numbers for wetlands and vegetation/wildlife habitat cannot be added together. This overlap is depicted on Exhibits 3-23 to 3-26.

4.3.1 Temporary Construction Impacts

4.3.1.1 Types of Impacts Common to All Project Alternatives

It is assumed that construction areas would be only temporarily affected and that they would be restored to pre-project conditions after construction.

All vegetation within the construction limits (which varies by project alternative to a maximum of 100-foot-wide corridor) would be cleared. A temporary access road would be constructed using BMPs to avoid impacts on the remaining portions of the wetland. After construction the access road would be removed to restore the original wetland contours, and native shrubs and emergent vegetation would be planted, maintained, and monitored to achieve performance standards. Trees would not be planted under or within 20 feet on either side of the elevated guideway to prevent development of tall vegetation that could interfere with operation and safety of the light rail.

Short-term and long-term temporary impacts were previously defined in Section 1.4.1.1 of this report. The duration of temporary impacts can vary depending on the type of vegetation that is affected. For instance, temporary impacts on emergent wetlands are generally short-term, lasting for a limited time, with functions returning to pre-impact performance fairly soon (about 1 year or within one growing season of the impact).

Temporary impacts on woody vegetation (shrubs and trees) are generally long-term because functions can be restored over time, but not within a year or so due to the time required for shrubs and/or trees to grow enough to regain preconstruction functions.

Determining the boundaries of wetland vegetation types (such as emergent, scrub-shrub, forest) in order to calculate short-term and long term temporary direct impacts is beyond the scope of the analysis performed for all the alternatives evaluated in the Final EIS. This information would be developed during preparation of the permit application for the selected alternatives of the East Link Project.

According to Ecology et al. (2006), impacts on sites containing existing compensatory wetland mitigation projects should be avoided if possible. Unavoidable impacts on active mitigation sites (i.e., still under construction or being monitored) may require a greater amount of mitigation to address additional temporal loss of the original wetland's functions and area. Unavoidable impacts on a completed mitigation site (monitoring is completed and the permit requirements have been fulfilled) would be viewed similar to an impact on any other natural wetland.

Temporary impacts from construction activities can be either direct and quantifiable, or indirect and qualitative. Potential temporary direct impacts include the following:

- Vegetation clearing and temporary site grading and filling for access. After construction, contours in these areas would be restored to pre-project conditions and typically planted with native vegetation. In those areas of the study area where existing vegetation is dominated by weeds (such as blackberry, Japanese knotweed, and/or reed canarygrass), vegetation clearing would be an essential first step for restoration, such as what Bellevue Parks Department has been planning for the disturbed weedy area between 112th Avenue SE and Mercer Slough West (Bradley, 2009).

Temporary indirect impacts on the qualitative function of wetlands that could potentially occur with and/or adjacent to the construction limits include the following:

- Soil compaction during construction activities that contributes to a decrease in soil permeability, infiltration, water-storage capacity, and vegetation regrowth
- Accidental spills of fuel oils, chemicals, and/or concrete leachate used during construction that impact aquatic species
- Noise and human activity associated with construction activities that temporarily displace wildlife
- Some increase in sediment loading and turbidity from grading and filling activities that could allow runoff into wetlands and affect water quality

- Temporary changes in wetland hydrology due to soil compaction or access road construction
- Introduction of invasive species as a result of disturbance
- Management of existing invasive species as a result of disturbance and revegetation

4.3.1.2 Specific Impacts of the Alternatives in Each Segment

Table 4-9 shows potential temporary direct impacts on wetlands and wetland buffers for each segment and project alternative. These impacts are also shown graphically in Appendix F. There would be no temporary direct or indirect impacts on wetlands in Segment A. These temporary impacts would be in addition to the permanent operational impacts resulting from the project as described in Section 4.3.2.

TABLE 4-9
Potential Temporary Construction Direct Impacts on Wetlands and Wetland Buffers by Project Alternative[a]

Project Alternative	Wetland Category	Wetland Area Affected (acres)	Wetland Buffer Area Affected (acres)[b]
Segment B			
Preferred 112th SE Modified Alternative (B2M)			
to C11A	2	0.5 (Mitigation site: <0.1)	4.0 (Mitigation site: 0.2)
to C9T [c]	2	0.5 (Mitigation site: <0.1)	3.7 (Mitigation site: 0.2)
Bellevue Way Alternative (B1)	2	0.9	3.0 (Mitigation site: 0.3)
112th SE At-Grade Alternative (B2A)	2	0.7	3.7 (Mitigation site: 0.3)
112th SE Elevated Alternative (B2E)	2	0.6	3.5 (Mitigation site: 0.3)
112th SE Bypass Alternative (B3)	2	1.2	3.9 (Mitigation site: 0.3)
B3 - 114th Extension Design Option	2	0.6	4.8 (Mitigation site: 0.3)
BNSF Alternative (B7)	2, 4	2.9 (Mitigation site: 0.7)	0.6 (Mitigation site: <0.1)
Segment C **(Alternatives with connections to Alternatives B3, B3 - Design Option, or B7 only)**			
Preferred 108th NE At-Grade Alternative (C11A)	3	0	0.1
Preferred 110th NE Tunnel Alternative (C9T)[c]	3	0	0.1
106th NE Tunnel Alternative (C2T)	3	0	0.1
108th NE Tunnel Alternative (C3T)	3	0	0.1
At-Grade Couplet Alternative (C4A)	3	0	0.1
112th NE Elevated Alternative (C7E)	3	0	0.1
110th NE Elevated Alternative (C8E)	3	0	0.1
110th NE At-Grade Alternative (C9A)	3	0.1 (for B3 connection only)	0.1
114th NE Elevated Alternative (C14E)	3	0.1 (for B3 connection only)	0.1
Segment C **(Alternatives with connections to *Preferred B2M* only)**			
Preferred 110th NE Tunnel Alternative (C9T)[c]	2	0	<0.1

TABLE 4-9 CONTINUED
Potential Temporary Construction Direct Impacts on Wetlands and Wetland Buffers by Project Alternative[a]

Project Alternative	Wetland Category	Wetland Area Affected (acres)	Wetland Buffer Area Affected (acres)[b]
Segment D			
Preferred NE 16th At-Grade Alternative (D2A)[d]	2, 3, 4	0.5	1.7
NE 16th Elevated Alternative (D2E)– connecting from NE 6th (C1T, C2T)	2, 3, 4	0.2	0.6
Alternative D2E, NE 16th Elevated – connecting from NE 12th (C3T, C4A, C7E, C14E)	2, 3, 4	0.3	0.7
NE 20th Alternative (D3) – connecting from NE 6th (C1T, C2T)	3, 4	0.1	0.1
Alternative D3, NE 20th – connecting from NE 12th (C3T, C4A, C7E, C8E)	3, 4	0.1	0.1
SR 520 Alternative (D5) – connecting from NE 6th (C1T, C2T)	2, 3	0.4	0.8
Alternative D5, SR 520 – connecting from NE 12th (C3T, C4A, C7E, C8E)	2, 3	0.4	0.8
Segment E			
Preferred Marymoor Alternative (E2)	2, 3	0.1 (Mitigation site: <0.1)	0.9 (Mitigation site: 0.4)
E2 - Redmond Transit Center Design Option	2, 3	0.1 (Mitigation site: <0.1)	0.9 (Mitigation site: 0.3)
Redmond Way Alternative (E1)	2	0.1	0.3 (Mitigation site: 0.1)
Leary Way Alternative (E4)	2	<0.1	0.2 (Mitigation site: 0.1)

Values in parentheses are the portion of the total impact for each alternative that affect existing mitigation sites.
[a] Alternatives not listed would not have temporary construction impacts on wetlands or wetland buffers.
[b] Some of the impacts on stream buffers would overlap with impacts on some wetland buffers. Refer to Table 4-2 and Appendix F.
[c] Impacts for C9T - East Main Station Design Option would not vary from those of *Preferred Alternative C9T*.
[d] Impacts for D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.

Segment B Direct Temporary Construction Impacts

Segment B Alternatives would have the greatest potential for unavoidable temporary impacts on wetlands and wetland buffers due to the proximity of existing transportation corridors to Mercer Slough wetlands and buffers (see Table 4-9). An existing stormwater pond located near the northeastern corner of the South Bellevue Park-and-Ride Lot was delineated and included as part of the Mercer Slough Wetlands (WR-1/2). All the alternatives that are routed along Bellevue Way SE have the potential for temporary construction impacts on this pond. During permitting, the regulatory agencies would be asked whether they would regulate this stormwater pond as a wetland. This pond provides necessary stormwater storage and treatment functions that would need to be replaced during construction if impacts could not be avoided.

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M could temporarily impact 0.5 acre of Category 2 wetland located next to Bellevue Way SE and 112th Avenue SE (WR-1/2). Several existing wetland mitigation sites are located within Mercer Slough Nature Park. Of the area affected, a small portion (<0.1 acre) could be temporarily affected by *Preferred Alternative B2M* (see Table 4-9 and Appendix F).

The potential temporary impacts on wetlands would be primarily related to the following:

- Construction staging and access within the 35-foot-wide construction corridor east of the permanent Sound Transit right-of-way along Bellevue Way SE and 112th Avenue SE.
- Construction staging near the South Bellevue Park-and-Ride Lot, which would affect a portion of the Mercer Slough Wetland (WR-1/2), including the existing stormwater pond.

- Because *Preferred Alternative B2M* would be located immediately east of Bellevue Way SE and 112th Avenue SE, the potential temporary impacts on wetland buffers would be greatest compared to the other alternative routes along Bellevue Way SE. The potential temporary impacts on wetland buffers would be 4.0 and 3.7 acres for options connecting to *Preferred Alternatives C11A* or *C9T*, respectively (see Table 4-9).
- The condition of the wetland buffers that would be affected by construction includes unvegetated areas, areas of blackberry, lawn, and some deciduous forest (often with an understory of weeds such as Himalayan blackberry and patches of Japanese knotweed). The potential temporary impacts on wetland buffers would be primarily related to the following:
- Construction staging near the South Bellevue Park-and-Ride Lot
- Construction of the elevated guideway near the intersection of Bellevue Way SE and 112th Avenue SE, which would affect an area of deciduous forest with high-quality habitat
- Construction staging and access within the 35-foot-wide corridor located east of the operational right-of-way
- Construction impacts would occur on an existing mitigation site located immediately south of the South Bellevue Park-and-Ride Lot.
- Restoration of these affected buffers following construction could improve buffer function by replacing existing areas that are dominated by noxious and invasive weeds or lawn. This could improve the functions of the existing wetland and stream buffers and result in beneficial environmental impacts.

BNSF Alternative (B7)
Of all the alternatives evaluated, Alternative B7 has the potential for the largest temporary impact on wetlands (2.9 acres, see Table 4-9). The majority of this impact would result from crossing the Mercer Slough Wetland (WR-1/2), which would also include the largest impacts (1.1 acres) on several existing wetland mitigation sites. Alternative B7 would also affect a portion of the I-90 Mercer Slough Wetland (WR-4) and would bisect the WSDOT 118th Avenue SE Wetland (WR-5). In order to construct the guideway across Mercer Slough, a temporary work trestle might need to be built. The option of constructing the guideway with an overhead gantry could reduce temporary impacts and would be explored during final design. Alternative B7 would have the lowest potential temporary impact on wetland buffers of all the Segment B alternatives (0.6 acre).

Bellevue Way (B1), 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) Alternatives
All the other Segment B alternatives along Bellevue Way SE would have considerably lower temporary impacts on wetlands than Alternative B7. The other Bellevue Way alternatives would have higher temporary impacts on wetlands compared to *Preferred Alternative B2M*. Other than Alternative B7, Alternative B3 would have the highest temporary wetland impacts of the Segment B alternative because it bisects the Sturtevant Creek Wetland (WR-3). The other alternatives traveling along Bellevue Way SE would avoid wetland impacts on existing mitigation sites.

Alternatives B1, B2A, and B2E would have relatively low and similar potential impacts on wetlands and similar potential impacts on wetland buffers. Alternatives B2A, B2E, and B3 would have relatively similar potential buffers impacts that would primarily affect wetland buffers along 112th Avenue SE, which consist of disturbed vegetation dominated by Himalayan blackberry. Alternative B1 would have the lowest impact on wetland buffers of all the Bellevue Way alternatives.

The B3 - 114th Extension Design Option would avoid the temporary impact (approximately 0.6 acre) that Alternative B3 would have on the Sturtevant Creek wetland. This design option also would tie with Alternative B2E for the lowest wetland area affected (0.6 acre). However, this design option would include several additional small impacts on wetlands near the shoreline of Mercer Slough West, and involve an additional elevated crossing of Sturtevant Creek along the south side of SE 8th Street that might temporarily affect streamside wetlands and buffers. The B3 - 114th Extension Design Option would have the greatest impact on wetland buffers (4.8 acres).

Segment B Indirect Temporary Construction Impacts

Construction of Alternative B3 could have indirect temporary impacts on the Sturtevant Creek Wetland (WR-3) if construction activities hydrologically disconnect the northwest portion of this wetland from the remainder of the Sturtevant Creek wetland. Similarly, hydrologically disconnected portions of the Mercer Slough Wetland

(WR-1/2) and 118th Avenue SE Wetland (WR-5) could be indirectly affected during construction of Alternative B7, which would bisect these wetlands.

Segment C Direct Temporary Construction Impacts

The only potential wetland identified within Segment C is the Hilton Stormwater Pond (WR-16). The current design for alternatives proposed along 114th Avenue SE only with connections to Alternative B3 and B7 shows potential temporary construction impacts on this pond. The regulatory agencies would be asked during permitting whether they would regulate this stormwater pond as a wetland. This pond, which provides necessary stormwater storage and treatment functions, would need to be replaced during construction if impacts could not be avoided.

Preferred 108th NE At-Grade Alternative (C11A) and *Preferred 110th NE Tunnel Alternative (C9T)*

Preferred Alternative C11A connecting to *Preferred Alternative B2M* would avoid impacts on wetlands and wetland buffers. *Preferred Alternative C9T* connecting to *Preferred Alternative B2M* would have no impacts on wetlands but would have a small, temporary construction impact (less than 0.1 acre) on the Sturtevant Creek wetland buffer (WR-3) during construction.

Preferred Alternatives C11A or *C9T* connecting to Alternative B3, B3 - 114th Design Option, or B7 might have potential temporary construction impacts on the Hilton Stormwater Pond (WR-16) wetland buffer. Impacts on the pond buffer would overlap with the impacts on the stream buffer and are therefore not further described here to avoid double counting this buffer impact. The potential temporary impacts on wetland buffer would be primarily related to construction of the elevated guideway over Sturtevant Creek.

Other Segment C Alternatives

Other Segment C alternatives proposed along 114th Avenue SE connecting to Alternative B3 or B7 (Alternatives C2T, C3T, C4A, C7E, C8E, C9A, and C14 E) would have similar potential temporary impacts on the Hilton Stormwater Pond (WR-16) wetland buffer as described for *Preferred Alternatives C11A* and *C9T* connecting to Alternative B3. Alternatives C9A and C14E might also have a potential temporary construction impact on the WR-16wetland itself. The current design for Alternatives C9A and C14E shows a temporary impact on the portion of the pond at its outlet. For purposes of the East Link Project EIS, it was assumed that the function of the entire 0.1-acre pond would be temporarily disturbed (see Table 4.8-7 in Chapter 4, Section 4.8 of the Final EIS). Segment C alternatives that connect from Alternatives B2A or B2E would not affect WR-16.

Segment C Indirect Temporary Construction Impacts

No indirect temporary construction impacts on wetlands are expected in Segment C.

Segment D Direct Temporary Construction Impacts

In Segment D, the potential temporary construction impacts on wetlands and wetland buffers would vary by alternative but in general would be relatively small (see Table 4-9).

Preferred NE 16th At-Grade Alternative (D2A)

To construct *Preferred Alternative D2A*, elevated crossings over five wetlands (WR-7, WR-8SE, WR-11, WR-10W, and WR-15) and road construction related to the retained cut across 120th Avenue NE (WR-17) would result in potential temporary impacts on 0.5 acre of wetland and 1.7 acres of wetland buffer. This alternative would have the largest temporary impact on wetlands and wetland buffers compared to the other Segment D alternatives; however, the total impact would be relatively low. The potential temporary impacts on wetlands and wetland buffers would be primarily related to staging and access necessary to construct the elevated guideway and would affect mostly Category 3 wetlands, a very small amount of one Category 2 forested wetland, and buffers that are currently disturbed by surrounding development, noxious weeds, stormwater from parking lots and buildings, and litter.

No existing mitigation sites are located within the Segment D study area.

Direct temporary construction impacts on wetland resources would be the same with either the D2A - 120th Station Design Option or NE 24th Design Option, and would be the same as described for *Preferred Alternative D2A*.

NE 20th Alternative (D3)

Alternative D3 would result in the smallest temporary impacts on wetlands (0.1 acre) and wetland buffers (0.1 acre, for either connection from NE 6th or NE 12th) compared to all the Segment D alternatives (see Table 4-9). This alternative would completely avoid all impacts on the wetlands east and west of 140th Avenue NE (WR-10E, WR-10W, and WR-11). This alternative would have minor temporary impacts on wetlands WR-6, WR-8, and WR-15. In addition, connecting from Segment C via Alternative B7 (rather than via NE 12th Street) would further avoid a small impact on the BNSF Matrix Wetland (WR-6).

NE 16th Elevated (D2E) and SR 520 (D5) Alternatives
The amount of temporary impact on wetlands and wetland buffers from Alternatives D2E and D5 would be less than *Preferred Alternative D2A* but more than Alternative D3 (see Table 4-9).

Alternative D5, which is also completely elevated, would have temporary impacts primarily on the West Tributary to Kelsey Creek Riparian Wetland Northwest (WR-8NW) and the wetland west of 140th Avenue NE (WR-11).

Segment D Indirect Temporary Construction Impacts
Construction of *Preferred Alternative D2A* with either design option and Alternatives D2E and D5 could indirectly affect wetland WR-11 if construction activities hydrologically disconnect the southeastern portion of this wetland from the remainder of the wetland.

Segment E Direct Temporary Construction Impacts
Preferred Marymoor Alternative (E2)
Construction of *Preferred Alternative E2* would result in potential temporary impacts on 0.1 acre of wetland and 0.9 acre of wetland buffer. An unavoidable temporary impact on Marymoor Park Wetland (WR-13) would result from the at-grade route along SR 520 and elevated crossing over Bear Creek Wetland (WR-12). These impacts include a potential minor (< 0.1 acre) temporary disturbance to existing mitigation wetlands at the Marymoor Park Wetland (WR-13) and a potential minor (0.4 acre) temporary disturbance to buffers at the Marymoor Park Wetland and at SR 520 Bear Creek 1 and 2 mitigation sites at NE 76th Street.

Construction of the E2 - Redmond Transit Center Design Option would result in potential temporary impacts similar to *Preferred Alternative E2*. Potential temporary impacts on wetlands would be 0.1 acre, and 0.9 acre on wetland buffer.

Other Segment E Alternatives
Potential impacts on wetlands and wetland buffers from Alternative E1 would be the same for wetlands and slightly less for wetland buffers than those described for *Preferred Alternative E2*, as shown in Table 4-9. Potential impacts on wetlands and wetland buffers from Alternative E4 would be slightly less than those described for *Preferred Alternative E2.*

Segment E Indirect Temporary Construction Impacts
No indirect temporary construction impacts on wetlands are expected in Segment E.

4.3.2 Permanent Operational Impacts

4.3.2.1 Types of Impacts Common to All Alternatives
Permanent direct impacts are those that occur inside the project limits where the permanent alternatives (i.e., at-grade alternatives, columns for elevated structures), stations, maintenance facilities, park-and-ride lots, traction power substations, permanent access roads, stormwater facilities, and road widening would occur. It is assumed that these areas would be permanently affected and all wetlands or buffers within these areas would be lost. For purposes of the Final EIS, this also includes wetlands and wetland buffers under the elevated guideway. During future design and permitting, impacts on wetlands under elevated structures would be evaluated more closely to determine whether the expected vertical clearance over wetlands would allow sufficient sunlight and precipitation to restore some of these wetlands and buffers.

Wetlands typically receive water from groundwater or surface water sources. Vegetation within buffer areas receives water directly from precipitation. Therefore, the elevated guideway might create a rainshadow effect and in some cases might also have a low clearance that could also limit sunlight. Situations were observed at several locations along Sound Transit's Central Link route where vegetation replanted within buffers under the elevated guideway was having difficulty re-establishing due to limited summer water and/or light. Estimating this impact is complicated and depends on multiple variables, such as slope, aspect, soil conditions, and stormwater dispersion from the elevated guideway. All these variables make for a complicated buffer impact analysis that exceeds the site and design information available during the Final EIS. It is expected, therefore, that permanent impacts on wetlands associated with elevated sections of the alternatives can be avoided or further minimized during final design and during construction.

Permanent indirect and qualitative impacts might also occur as a result of construction and operation activities. Potential permanent indirect impacts for each of the project alternatives include the following:

- Conversion of forest-dominated wetlands to shrub-dominated wetlands and buffers under and within 20 feet of each side of the elevated guideways to prevent trees and branches from interfering with operation of the light rail
- Partial shading of areas of wetlands and buffers from shadows cast beyond the elevated structure footprint
- Trackway and paved area runoff to surface waters or wetlands that degrade water quality
- Hydrologic disconnection

4.3.2.2 Specific Impacts of the Alternatives in Each Segment

Table 4-10 shows potential direct, permanent operational impacts on wetlands and wetland buffers for each segment and project alternative. These impacts are also shown graphically in the figures in Appendix F. There would be no direct or indirect permanent wetland impacts from Segments A or C. Attachment 2 in Appendix F contains tables of the quantitative impact information by alternative.

Segment B Direct Permanent Impacts

Compared to other segments, Segment B alternatives would have a slightly greater potential for unavoidable permanent impacts on wetlands and wetland buffers due to the constraints from and proximity of existing transportation corridors to Mercer Slough wetlands and buffers (see Table 4-10).

Preferred 112th SE Modified Alternative (B2M)

Preferred Alternative B2M would be located along the east side of Bellevue Way SE and 112th Avenue SE, but its route almost entirely avoids permanent impacts on wetlands (0.1 acre) (see Table 4-10). The impacts would be to Category 2 wetlands.

TABLE 4-10
Permanent Operational Direct Impacts on Wetlands and Wetland Buffers by Project Alternative[a]

Alternative and Connection	Category	Wetland Area Affected (acres)	Wetland Buffer Area Affected[b] (acres)
Segment B			
Preferred 112th SE Modified Alternative (B2M) to C11A, 112th SE Modified	2	0.1	3.3 (Mitigation site: 0.2)
Preferred Alternative B2M to C9T [c]	2	0.1	4.5 (Mitigation site: 0.2)
Bellevue Way Alternative (B1)	2	0.2	1.8
112th SE At-Grade Alternative (B2A)	2	0.2	3.4 (Mitigation site: <0.1)
112th SE Elevated Alternative (B2E)	2	0.2	2.8 (Mitigation site: <0.1)
112th SE Bypass Alternative (B3)	2	0.7	3.4 (Mitigation site: <0.1)
B3 - 114th Extension Design Option	2	0.2	3.6 (Mitigation site: <0.1)
BNSF Alternative (B7)	2, 4	1.9 (Mitigation site: 0.4)	0.4 (Mitigation site: <0.1)
Segment C (Alternatives with connections to Alternatives B3, B3 – 114th Design Option, or B7 only)			
Preferred 108th NE At-Grade Alternative (C11A)	3	0	0.1
Preferred 110th NE Tunnel Alternative (C9T)[c]	3	0	0.1
106th NE Tunnel Alternative (C2T)	3	0	0.1
108th NE Tunnel Alternative (C3T)	3	0	0.1
At-Grade Couplet Alternative (C4A)	3	0	0.1

TABLE 4-10 CONTINUED
Permanent Operational Direct Impacts on Wetlands and Wetland Buffers by Project Alternative[a]

Alternative and Connection	**Category**	**Wetland Area Affected (acres)**	**Wetland Buffer Area Affected[b] (acres)**
112th NE Elevated Alternative (C7E)	3	0	0.1
110th NE Elevated Alternative (C8E)	3	0	0.1
110th NE At-Grade Alternative (C9A)	3	0 (<0.1 for B3 connection only)	0.1
114th NE Elevated Alternative (C14E)	3	0 (<0.1 for B3 connection only)	0
Segment D			
Preferred NE 16th At-Grade Alternative (D2A)[d]	*2, 3, 4*	*0.5*	*0.6*
NE 16th Elevated Alternative (D2E) from NE 6th (C1T, C2T)	2, 3, 4	0.2	0.5
Alternative D2E, NE 16th Elevated from NE 12th (C3T, C4A, C7E, C14E)	2, 3, 4	0.3	0.5
NE 20th Alternative (D3) from NE 6th (C1T, C2T)	3, 4	0.2	0.1
Alternative D3, NE 20th from NE 12th (C3T, C4A, C7E, C8E)	3, 4	0.2	0.1
SR 520 Alternative (D5) from NE 6th (C1T, C2T)	2, 3, 4	0.2	0.6
Alternative D5, SR 520 from NE 12th (C3T, C4A, C7E, C8E)	2, 3, 4	0.3	0.7
Segment E			
Preferred Marymoor Alternative (E2)	2, 3	0.1 (Mitigation site: 0.1)	0.4 (Mitigation site: <0.1)
E2 - Redmond Transit Center Design Option	2, 3	0.1 (Mitigation site: 0.1)	0.5 (Mitigation site: <0.1)
Redmond Way Alternative (E1)	2	0.1	0.2 (Mitigation site: 0.1)
Leary Way Alternative (E4)	2	< 0.1	0.2 (Mitigation site: 0.1)

Values in parentheses are the portion of the total impact for each alternative that affect existing mitigation sites.
[a] Alternatives not listed do not have direct short-term wetland or wetland buffer impacts.
[b] Some of the impacts on stream buffers overlap with impacts to some wetland buffers. Refer to Table 4-2 and Appendix F.
[c] Impacts for C9T - East Main Station Design Option would not vary from those of *Preferred Alternative C9T*.
[d] Impacts for D2A - 120th Station and NE 24th Design Options would not vary from those of *Preferred Alternative D2A*.

The potential permanent impacts on wetlands would be primarily related to the following:

- Sections of elevated guideway (this situation will be evaluated further during future design phases to evaluate potential to restore buffer under the elevated guideway).
- Retained cut immediately north of the blueberry farm. During future design, Sound Transit will continue to evaluate the potential for impacts on wetlands from this retained cut.

Unlike the other alternatives routes along Bellevue Way SE, *Preferred Alternative B2M* would not involve permanent impacts on wetlands from a new stormwater pond near the South Bellevue Station.

The potential impacts on wetland buffers range from 3.3 acres for *Preferred Alternative B2M to C11A* to 4.5 acres for *Preferred Alternative B2M to C9T*. The impact on wetland buffers from *Preferred Alternative B2M to C9T* would be the largest of all the Segment B alternatives. The condition of the wetland buffers that would be permanently affected by light rail operation includes existing unvegetated areas, disturbed areas with blackberry, maintained lawn, and some deciduous forest (often with an understory of weeds such as Himalayan blackberry and Japanese knotweed). The potential permanent impacts on wetland buffers would be primarily related to the following:

- Sections of at-grade guideway along 112th Avenue SE.

- Sections of elevated guideway. (This situation will be evaluated further during future design phases to evaluate the potential to restore buffer under the elevated guideway.)
- Section of retained cut immediately north of the Winters House. This would affect a forested area with high-quality habitat.

Other Segment B Alternatives
All the other Segment B alternatives would have some permanent operational impact on wetlands.

Alternative B7 has the potential for the greatest permanent impacts on wetlands (1.9 acres, see Table 4-10). Nearly one-quarter of this impact would be on existing mitigation sites. Alternative B7 would have the smallest permanent impact on wetland buffers.

The other Segment B alternative routes along Bellevue Way SE (Alternatives B1, B2A, and B2E) would all permanently affect approximately 0.2 acre of wetland, which would largely result from the new stormwater pond proposed immediately east of the South Bellevue Station. All of these Segment B alternatives would avoid permanent wetland impacts on existing mitigation sites within the Mercer Slough Nature Park.

Alternative B3 could potentially impact 0.7 acre of wetlands. It would have similar impacts on wetlands along Bellevue Way SE as the other alternative routes that travel along Bellevue Way. However, construction of the elevated guideway through the Sturtevant Creek Wetland (WR-3) would also disturb 0.5 acre of shrub and emergent Category 2 wetlands dominated by reed canarygrass (a state-listed noxious weed).

Implementing the B3 - 114th Extension Design Option would reduce the potential permanent operational impacts on wetlands by avoiding the Sturtevant Creek Wetland (WR-3). Therefore, this design option would have similar permanent impacts on wetlands as the other alternatives along Bellevue Way SE.

These other Segment B alternatives would have varying degrees of potential permanent impacts on wetland buffers. Among the other Segment B alternatives along Bellevue Way SE, Alternative B7 would have the least permanent impacts on wetland buffers (0.4 acres). Alternatives B2A, B2E, and B3 would have relatively similar potential permanent impacts on buffers that would partially affect the disturbed area immediately east of the existing South Bellevue Park-and-Ride Lot, a portion of which is maintained as access to the existing stormwater pond, and a portion of which is existing forest. All of these Segment B alternatives (except Alternative B1) would permanently affect wetland buffers of existing mitigation sites within the Mercer Slough Nature Park.

Segment B Indirect Permanent Impacts

Indirect permanent impacts may include the potential for shading impacts from Alternative B7 along the north side of I-90 due to the effect that the existing I-90 roadway already has on southerly sun exposure. Also, Alternative B7 would further increase the effective width of the combined transportation footprint (I-90 elevated roadway plus East Link elevated guideway) that bisects the Mercer Slough wetlands. Also, Alternative B7 would permanently bisect the 118th Ave SE Wetland (WR-5), which could reduce the functions of this wetland and increase the overall impact on this wetland.

Portions of *Preferred Alternative B2M* would be constructed in retained cuts along Mercer Way SE. The concrete-lined retain cuts could intercept and redirect local groundwater flow with resulting adverse impacts to down-gradient wetlands. However, mitigation would be designed to alleviate such impacts (see Section 5.3.1). Similarly, track foundations in many places along this section of *Preferred Alternative B2M* would be improved with subsurface stone columns; however, these columns would not affect groundwater flow because they are pervious to groundwater movement.

Also, unavoidable indirect permanent impacts on wetlands would result after restoration of the temporary impacts on wetlands (described in Section 4.3.1). These wetlands would be restored after construction and would continue to function as wetlands. However, an associated permanent impact would result from converting existing forest-dominated wetlands to future shrub-dominated wetlands under and within 20 feet of each side of the elevated guideways to prevent trees and branches from interfering with operation of the light rail. This change in vegetation type (forest to shrub) is considered a vegetation conversion impact.

Forested wetland vegetation that cannot be restored with trees because of safety concerns would generally be planted with woody shrub vegetation to minimize any loss of function related to vegetation conversion. A vegetation conversion from trees to shrubs would result in a smaller loss of function than a vegetation conversion from trees to emergent plants. During future design and permitting, Sound Transit will evaluate the potential impact of vegetation conversion and maximize the wetland functions at the restored construction sites. Sound Transit might propose other habitat improvements (such as adding downed logs and managing noxious weeds) as mitigation for the loss of function from converting the vegetation in some wetlands from trees to shrubs.

See Section 4.1, Aquatic Resources, for potential indirect permanent impacts on Mercer Slough, Kelsey Creek, and Sturtevant Creek.

Segment C Permanent Impacts

The only direct or indirect permanent impacts on wetlands or wetland buffers from Segment C alternatives would occur at the Hilton Hotel stormwater pond (WR-16). Alternatives C9A and C14E connecting to Alternative B3 would impact less than 0.1 acre of wetlands at the Hilton Hotel stormwater pond. A 0.1 acre impact on wetland buffers at the Hilton Hotel stormwater pond (WR-16 would occur with Alternatives C2T, C3T, C4A, C7E, C8E, C9A, and C14E with connections to either Alternative B3, B3 – 114th Extension Design Option, or B7.

Segment D Direct Permanent Impacts

Preferred NE 16th At-Grade Alternative (D2A)

Preferred Alternative D2A would avoid permanent operational impacts on wetlands except for WR-11 and WR-15 (resulting from fill for the at-grade trackway) and WR-7 and WR-8 SE where the elevated guideway would cross over. Potential permanent operational impacts on wetlands and buffers would be 0.5 and 0.6 acre, respectively. This would be a small, permanent operational impact on these Category 3 and 4 wetlands. The primary impact would be on WR-7.

Impacts on wetlands and wetland buffers from both D2A design options (120th Station and NE 24th) would essentially be the same as with *Preferred Alternative D2A*.

The storage track along the former BNSF Railway corridor north of Lake Bellevue would result in impacts of approximately 0.1 acre on wetlands and 0.1 acre on wetland buffers to accommodate an access path adjacent to the storage tracks.

Other Segment D Alternatives

The other Segment D alternatives and connection options would have approximately half of the permanent operational impacts on wetlands compared to *Preferred Alternative D2A*, primarily because they would avoid impacts on Wetland WR-7. Alternative D2E would permanently affect 0.2 to 0.3 acre of wetland (depending on connection option) because of the elevated guideway over Wetlands WR-6, WR-8SE, WR-11, and WR-15. Alternative D3 would permanently affect 0.2 acre of wetland from the fill used to widen 136th Place NE for the at-grade trackway at Wetland WR-15 and the elevated guideway over Wetlands WR-6 and WR-8SE. Alternative D5 would permanently affect 0.2 to 0.3 acre of wetland (depending on connection option) due to elevated guideway over Wetlands WR-6, WR-8NW, and WR-11.

Potential permanent impacts on wetland buffers would be lowest (0.1 acre) for Alternative D3 and would be slightly greater for Alternatives D2E and D5.

Table 4-11 shows the potential direct permanent wetland and wetland buffer impacts associated with the four maintenance facility locations in Segment D. MF1, MF2, and MF2 (D5) would have minor impacts on the Category 3 WR-6 wetland and its buffers. MF3 (*Preferred Alternative D2A* and Alternatives D2E and D3) would have minor permanent impacts on the Category 4 WR-15 wetland.

Segment D Indirect Permanent Impacts

Fill from the at-grade portion of *Preferred Alternative D2A* and both D2A design options, or from the elevated section of Alternative D2E, could result in indirect permanent impacts on Wetland WR-11 by disconnecting hydrology in the remaining western portions of the wetland.

TABLE 4-11
Permanent Operational Impacts on Wetlands and Wetland Buffers by Maintenance Facility Placement

Maintenance Facility	Wetland Locator – Wetland Name	Category	Wetland Affected Area (acres)	Wetland Buffer Affected Area (acres)
MF1, 116th (*Preferred D2A*, D2E, D3)	WR-6—BNSF Matrix Wetland	3	0.1	0.1
MF2, BNSF (*Preferred D2A*, D2E, D3)	WR-6—BNSF Matrix Wetland	3	0.1	0.1
MF2, BNSF (D5)	WR-6—BNSF Matrix Wetland	3	0.1	0.2
MF3, SR520 (*Preferred D2A*, D2E, D3)	WR-15—Unnamed Tributary to Kelsey Creek Wetland	4	<0.1	0

Also, unavoidable indirect permanent impacts on wetlands would result following restoration of the temporary wetlands impacts (described in Section 4.3.1). These wetlands would be restored after construction and would continue to function as wetlands. However, an associated permanent impact would result from converting existing forest-dominated wetlands to future shrub-dominated wetlands under and within 20 feet of each side of the elevated guideways to prevent trees and branches from interfering with operation of the light rail. This change in vegetation type (forest to shrub) would be a vegetation conversion impact.

See Section 4.1, Aquatic Resources, for potential indirect permanent impacts on the West Tributary to Kelsey Creek, Unnamed Tributary to Kelsey Creek, and Valley Creek.

Segment E Direct Permanent Impacts

Preferred Marymoor Alternative (E2)

Preferred Alternative E2 has the potential to permanently affect up to 0.1 acre of wetland and 0.4 acre of wetland buffer. *Preferred Alternative E2* would affect the existing mitigation wetland and buffers at the Marymoor Park Wetland (WR-13) and the wetland and stream buffer at the railroad crossing at the Bear Creek Wetland (WR-12). Approximately 0.1 acre of wetland and less than 0.1 acre of buffer in the northern portion of the mitigation wetland (WR-13) would be lost due to the construction of the at-grade section of *Preferred Alternative E2* through the mitigation site.

Impacts on wetlands with the E2 - Redmond Transit Center Design Option would be the same as described above for *Preferred Alternative E2*. Impacts on wetland buffers with this design option would be slightly more than with *Preferred Alternative E2*.

Other Segment E Alternatives

Alternatives E1 and E4 would have comparable direct, permanent impacts on wetlands and wetland buffers.

Segment E Indirect Permanent Impacts

Unavoidable indirect permanent impacts on wetlands would result following restoration of the temporary wetlands impacts (described in Section 4.3.1). These wetlands would be restored after construction and continue to function as wetlands. However, an associated permanent impact would result from converting existing forest-dominated wetlands to future shrub-dominated wetlands under and within 20 feet of each side of the elevated guideways to prevent trees and branches from interfering with light rail operations. This change in vegetation type (forest to shrub) is considered a vegetation conversion impact.

See Section 4.1, Aquatic Resources, for potential indirect permanent impacts on Sammamish River and Bear Creek.

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Chapter 5

Potential Mitigation Measures

Appendix A (Best Management Practices for Sensitive Ecosystem Resources) identifies the typical regulatory requirements for avoidance and minimization of impacts on ecosystem resources during design and construction. Sound Transit might also take additional measures to avoid and minimize impacts on sensitive natural resources as needed. The Biological Assessment (Sound Transit, 2010) prepared for ESA consultation also outlines conservation measures and proposed aquatic habitat improvements that would become conditions of federal approvals for the project. Based on this analysis, and the mitigation measures proposed herein, the NMFS and the USFWS concurred that the determination for ESA-listed species is "**May Affect, Not Likely to Adversely Affect"** and the determination for Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act would be "**No Adverse Effect**."It is important to note that the Biological Assessment only covers the *Preferred Alternative*.

To the extent that impacts cannot be avoided or minimized through BMPs, Sound Transit would implement the compensatory mitigation measures described in Sections 5.1 through 5.3.

5.1 Aquatic Resources Mitigation Measures

- On Sturtevant Creek at the Hospital Station where realignment of the stream channel would be required (with *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, or C14E), Sound Transit would reconstruct the new channel with natural stream habitat features. Riparian habitat functions would be improved with native riparian plantings. This reach is currently lacking shade. The newly shaded reach would help lower stream temperatures in the downstream reaches that support salmonids. Specific requirements and details of these measures would be established during final design and project permitting.
- For Alternatives D3 or D5, which have culvert lengthening or shortening (Goff Creek [D5] and Valley Creek [D3]), habitat might be improved by placing LWD. For maximum benefit to fisheries, habitat improvements could be done in either Goff Creek, Valley Creek, or West Tributary to Kelsey Creek below the anadromous fish barriers, wherever the best improvements and access exist. Along the West Tributary to Kelsey Creek, enhancement could include creating wider buffers for habitat and open space, environmental education, and stormwater management.
- As mitigation for the increased culvert length on the Unnamed Tributary to Kelsey Creek (with *Preferred Alternative D2A* and Alternatives D3 and D2E), Sound Transit proposes to coordinate with the City of Bellevue to find and develop instream habitat improvements on Goff Creek in coordination with the City of Bellevue's larger plans to restore and daylight the creek.
- Riparian plantings to mitigate impacts in riparian areas from shading by elevated tracks or bridges would be possible in a number of locations, such as in Mercer Slough, West Tributary to Kelsey Creek, Valley Creek, Bear Creek, and Sammamish River. The Sammamish River would receive the most benefit from this mitigation.
- Sound Transit would consult with the Tribes to avoid impacts on Tribal fisheries from construction work in Lake Washington, barge/boat transit through the Lake Washington ship canal, or barge/boat approaches to the Ballard Locks.
- In-water work would be conducted during approved in-water construction windows. Where ESA-listed species might be present, stream crossings would not require in-water work and the project would not install infrastructure below the OHWM. If over-water construction is conducted over Mercer Slough (with Alternative B7) or the Sammamish River (all Segment E alternatives) during the migratory period of ESA-protected species, nighttime lighting would be shielded from the waters below.

5.2 Vegetation and Wildlife Resources Mitigation Measures

- Areas disturbed in the construction staging areas would be revegetated with native vegetation within one year of construction completion.
- Sound Transit would update its survey of bird nests during final design. If a bald eagle nest is found within a half mile of the proposed construction limits, a bald eagle management plan would be prepared. Under the MBTA, nesting migratory bird nests cannot be destroyed during the breeding season. Sound Transit would consult with the USFWS on methods to implement during construction to avoid impacts on migratory birds consistent with the MBTA and the Bald and Golden Eagle Protection Act. Such methods would include clearing in the Mercer Slough buffer outside the nesting season for migratory birds.
- High-value habitat regulated by local agency regulations that are affected by the project would be mitigated with habitat replacement or enhancement. The type of habitat to be established would depend on the affected species. The type of habitat to be replaced and mitigation ratios would be determined through discussions with local permitting agencies during final design and project permitting.
- Sound Transit would adhere to local ordinances regarding tree replacement ratios.

5.3 Wetland Resources Compensatory Mitigation Measures

Sound Transit is committed to achieving no net loss of wetland function and area on a project-wide basis. Sound Transit would apply appropriate current available agency guidance developed jointly by the Washington Department of Ecology, U.S. Army Corps of Engineers Seattle District, and the U.S. Environmental Protection Agency Region 10 (Ecology et al., 2006a and 2006b) and applicable Critical Areas Ordinances for the Cities of Bellevue and Redmond. To the extent possible, compensatory mitigation sites would be identified and compensate for lost values in-kind. Sound Transit determined there are several opportunities for wetland mitigation in the study area that are expected to meet required mitigation ratios. The specific compensatory mitigation for the selected alternative would be determined during final design and project permitting.

The *Preferred Alternatives* for the proposed East Link Project would permanently affect approximately 0.7 acre of various wetlands (see Table 5-1). This relatively small amount of impact for an 18-mile-long project reflects Sound Transit's commitment to avoid and minimize environmental impacts. To compensate for these unavoidable permanent impacts, several mitigation strategies are available. Agency guidance developed jointly by Ecology, USACE Seattle District, and U.S. Environmental Protection Agency Region 10 (referred to hereafter as the Joint Guidance) (Ecology et al., 2006a and 2006b) allows for strategies that include wetland re-establishment (combined with creation), rehabilitation, and enhancement.

TABLE 5-1
Summary of Permanent Direct Impacts from the Preferred Alternatives by Segment

Segment (Preferred Alternative)	Permanent Wetland Impacts (acres)	Permanent Buffer Impacts (acres)
Segment A – *A1*	0	0
Segment B – *B2M*	0.1	3.3 to 4.5
Segment C – *C11A* or *C9T*	0 to <0.1	0
Segment D – *D2A*	0.6	0.6
Segment E – *E2*	0.1	0.4
Total[a]	**0.7**	**4.2 to 5.4**

[a] The totals in this row might not add up because the impact acreage numbers are rounded up or down.

Mitigation ratios are guidelines from which case-by-case considerations start. To determine the appropriate mitigation ratios for this project, the project team may propose adjustments to these guidelines to take into consideration unique project circumstances.

The *Preferred Alternatives* for the proposed East Link Project would temporarily affect approximately 6.3 to 6.6 acres of various wetlands and 1.1 to 1.2 acres of wetland buffer (see Table 5-2). These wetlands would be restored after construction and continue to function as wetlands. However, an associated permanent impact would result from converting existing forest-dominated wetlands to future shrub-dominated wetlands under and within 20 feet of each side of the elevated guideways to prevent trees and branches from interfering with operation of the light rail. This change in vegetation type (forest to shrub) is considered a vegetation conversion impact.

To estimate the mitigation required, Sound Transit currently assumes that all the wetlands that are temporarily affected during construction would have a vegetation conversion impact. The actual vegetation conversion impact areas will be determined during future design when more detailed information along the selected alternative routes is available for the existing wetland vegetation types, railway design, and associated construction impacts. Sound Transit would conduct detailed site surveys to establish existing topography and would conduct hydrologic monitoring to reestablish the topography after project construction. Restoration would need to amend the soil and replace vegetation.

TABLE 5-2
Summary of Potential Temporary Construction Direct Impacts from the Preferred Alternatives by Segment

Segment (Preferred Alternative)	Temporary Wetland Impacts (acres)	Temporary Buffer Impacts (acres)
Segment A – *A1*	0	0
Segment B – *B2M*	0.5	3.7 to 4.0
Segment C – *C11A or C9T*	0	0 to <0.1
Segment D – *D2A*	0.5	1.7
Segment E – *E2*	0.1	0.9
Total[a]	**1.1 to 1.2**	**6.3 to 6.6**

[a] The totals in this row might not add up because the impact acreage numbers are rounded up or down.

Forested wetland vegetation that cannot be restored with trees due to safety concerns would generally be planted with woody shrub vegetation to minimize any loss of function related to vegetation conversion. A vegetation conversion from trees to shrubs would result in a smaller loss of function than a vegetation conversion from trees to emergent plants. During future design and permitting, Sound Transit would evaluate the potential impact of vegetation conversion and maximize the wetland functions at the restored construction sites. Sound Transit might propose other habitat improvements (such as adding downed logs and managing noxious weeds) as mitigation for the loss of function from converting the vegetation in some wetlands from trees to shrubs.

In addition, the City of Bellevue's critical areas ordinance requires that critical area buffers disturbed or affected shall be replaced at a ratio of one-to-one (1:1). Other mitigation requirements may also result from potential impacts on aquatic resources. It is environmentally and economically desirable to maximize the ecological functions at sites by consolidating as many mitigation requirements as possible at the least number of mitigation sites. Due to the size of the proposed East Link Project, the variety of impacts on critical areas, and the complexity of identifying mitigation opportunities and satisfying the mitigation requirements, it may be necessary to use several sites and approaches to mitigation.

The existing conditions of each potential mitigation site would be used to develop an estimate of proposed mitigation value. The estimated mitigation value would inform the process of mitigation site selection and the value received for conducting mitigation at that site.

5.3.1 Conceptual Mitigation Framework

The expected impacts from the East Link Project that would occur in Bellevue would be within the Kelsey Creek subbasin, and the affected areas that drain to Mercer Slough/Lake Washington. It is possible that one mitigation site could be used to compensate for all wetland impacts related to Segments B, C, and D. The expected impacts within Segment E in Redmond would be within the Lake Sammamish subbasin.

Permanent impacts on wetlands could be mitigated by one or more of the following approaches, which are described in the text that follows:

- King County In-Lieu Fee Program
- Approved Mitigation Bank
- Project-specific mitigation developed by Sound Transit
- Also, Sound Transit would consider opportunities to establish mitigation in advance of the impacts from future construction of East Link Project. Advance mitigation is a form of permittee-responsible compensatory mitigation performed in advance of a permitted impact (USACE et al., 2010)

5.3.1.1 King County In-Lieu Fee Program (Mitigation Reserves Program)

King County is in the process of developing an in-lieu fee program called the Mitigation Reserves Program (King County, 2010). The program includes service areas for the Cedar River-Lake Washington and Lake Sammamish basins. This program should be available by the time the East Link Project is ready for permitting. However, many questions are unanswered at this time. Sound Transit would discuss this program with the Cities of Bellevue and Redmond to determine whether this could be applicable to the East Link Project or not.

5.3.1.2 Approved Mitigation Bank

There are no existing approved mitigation banks in the Kelsey Creek subbasin. However, it is possible that a bank could become certified in the project study area in the future. However, mitigation banking projects take considerable lead time for planning and approval.

5.3.1.3 Project-Specific Mitigation Developed by Sound Transit

Recent guidance developed by Ecology (Hruby et al., 2009) recommends the implementation of a watershed approach to selecting mitigation sites. This approach allows for a greater degree of flexibility in selecting mitigation sites and potentially greater value created for the watershed than the previous regulatory focus of on-site mitigation.

Current potential sites under consideration for project-specific mitigation are described below.

Wetland Hydrology along Bellevue Way SE

Regarding the interception of groundwater by the retained cut proposed for *Preferred Alternative B2M*, Sound Transit is addressing this issue by designing a sealed system for the trackway where it is below groundwater to eliminate the need for draining groundwater and thereby preserving the wetlands. The sealed system would allow the water to continue to flow around the retained cut to the wetland. The retained cut along Bellevue Way SE would intercept flows from groundwater flowing into Mercer Slough wetlands from the west, but the retained cut would be sealed and allow for groundwater to flow below and around it and would continue to reach the wetlands. The primary sources of hydrology for the Mercer Slough wetlands are the controlled water fluctuation of Lake Washington; input from Kelsey Creek and other small drainages; groundwater from the hill slopes to the west and east of Mercer Slough wetlands and culverts that enter these wetlands from the north, west, and east sides; and precipitation. As a result, no impact on hydrology of the Mercer Slough wetland is expected.

Wetland and Buffer Restoration at 112th Avenue SE and Mercer Slough West

The Watershed Company (2008b) prepared design drawings for the Wetland and Buffer Restoration at 112th Avenue SE and Mercer Slough West (see Exhibit 5-1) for the City of Bellevue Department of Parks and Community Services. This site would potentially enhance

EXHIBIT 5-1
View of Existing Potential Wetland and Buffer Restoration Area at 112th Avenue SE and Mercer Slough West

a narrow fringe of wetland along the west side of Mercer Slough West. The site would provide substantial stream (riparian), wetland, and shoreline buffer enhancement.

An advantage of this site is that a preliminary design and use agreement with the private landowner already exists. Bellevue Parks Department is interested in implementing this restoration project, but put it on hold when they learned that construction of the East Link route in Segment B could disturb this area.

Implementing this restoration project would be a logical consequence of restoring the temporary construction impacts in this area with direct benefits to wetlands and Mercer Slough West. Acquisition may not be needed to implement this restoration project. Wetland re-establishment would not likely result at this site, and therefore, would not contribute toward meeting Sound Transit's commitment of no-net-loss of wetland area.

Bel-Red / Springs District

West Tributary to Kelsey Creek

The West Tributary to Kelsey Creek site includes two parcels in the Springs District that the City of Bellevue acquired in Fall 2009 with funding from King County. This fits into Bellevue's planned Bel-Red vision for a restored West Tributary to Kelsey Creek with new community and neighborhood parks and public trail (City of Bellevue, 2010b) (see Exhibit 5-2).

Sound Transit would consider partnering with Bellevue to develop a restoration plan for these parcels that could occur concurrently with or in advance of the proposed light rail through this area. Unlike the 112th Avenue SE and Mercer Slough West site, this site could likely provide wetland re-establishment and therefore would contribute toward meeting Sound Transit's commitment of no-net-loss of wetland area. Acquisition may not be needed to implement this restoration project.

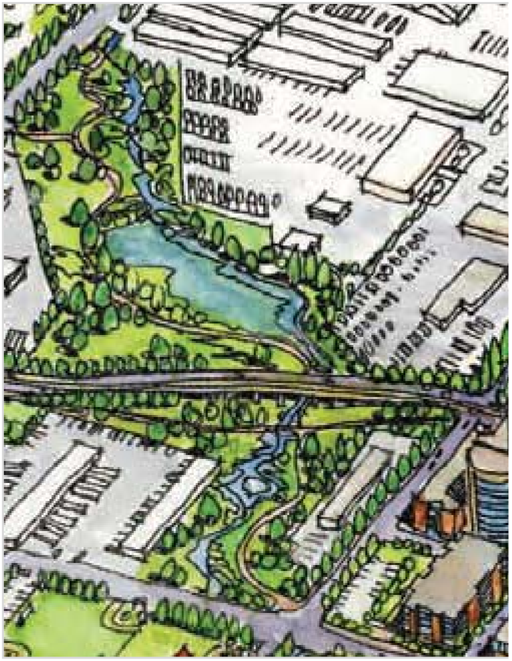

EXHIBIT 5-2
City of Bellevue's Conceptual Future Vision of West Tributary to Kelsey Creek in the Bel-Red area (City of Bellevue, 2010)

Goff Creek

Sound Transit met with the City of Bellevue to discuss impacts and mitigation for various aspects of the East Link Project and discussed the culvert lengthening of the Unnamed Tributary to Kelsey Creek. Sound Transit will continue to coordinate with the City of Bellevue to find and develop instream habitat improvements on Goff Creek in coordination with the City of Bellevue's larger plans to restore and daylight the creek.

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Chapter 6

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APPENDIX A

Archaeological Survey Plan

Final Report

HRA
HISTORICAL RESEARCH ASSOCIATES, INC.

Sound Transit East Link: Archaeological Survey Strategy of Preferred Alternative for FEIS and Project Design

Submitted to	Submitted by
CH2M Hill	**Historical Research Associates** Gail Thompson, Ph.D. Jennifer Gilpin, M.A.
Bellevue, Washington	Seattle, Washington

January 13, 2010

This report was prepared by HRA Principal Investigator Gail Thompson, Ph.D., and HRA Research Archaeologist Jennifer Gilpin, M.A., who meet the Secretary of the Interior's professional qualifications standards for archaeology. This report is intended for the exclusive use of the Client and its representatives. It contains professional conclusions and recommendations concerning the potential for project-related impacts to archaeological resources based on the results of HRA's investigation. It should not be considered to constitute project clearance with regard to the treatment of cultural resources or permission to proceed with the project described in lieu of review by the appropriate reviewing or permitting agency. This report should be submitted to the appropriate state and local review agencies for their comments prior to the commencement of the project.

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1.0 Overview to FEIS Survey Strategy

In response to the Department of Archaeology and Historic Preservation's (DAHP) comment on the 2008 Draft EIS requesting additional archaeological survey, HRA has developed an expanded the cultural resources survey strategy to identify potential prehistoric and historical archaeological sites along the preferred alternative for East Link. To develop the survey strategy, HRA used information gathered about known archaeological resources and the patterns of prehistoric, ethnographic, and historic use of the area, along with the results of the previous cultural resources assessment, which was conducted in advance of the Draft EIS (DEIS) (Thompson et al. 2007). Archaeological field survey is intended to target a reasonably representative sample of the Project's preferred alternative. HRA intends to include a systematic examination of a number of parcels, concentrating on high probability areas, but also including some lower probability areas; some open and undeveloped areas; more developed, urbanized areas; and some public and private ownership areas, within the APE of the preferred alternative.

Project archaeologists first identified areas of greater or lesser archaeological probability by reference to models developed by HRA for the East Link Project, and by the DAHP. Section 2.0 provides a brief summary of these sensitivity models, their origin, and how they were utilized in developing the survey strategy.

HRA initially examined Sound Transit's lists of potential locations for geo-technical exploratory borings, in Project Segments A through D, to determine if the drilling equipment could impact high probability areas, which should be included in the survey. The methods used in this process are outlined in Section 3.0. Concurrently, the archaeological team selected a number of survey tracts, largely in high probability areas, but also in moderate- to low-probability areas. Section 4.0 includes a description of the methods used to select these tracts for archaeological survey.

Due to varying accessibility in terms of ownership and development (which often results in paved ground surfaces), the archaeologists propose to examine the survey tracts in two stages. The Stage 1 archaeological survey will occur as part of the Final EIS. Stage 1 tracts are:

- highly sensitive, archaeologically;
- largely publicly accessible (i.e., owned by the Cities of Bellevue or Redmond [Cities], King County, or Washington Department of Transportation [WSDOT]); and
- mostly unpaved and not covered by a hard surface.

Figures 1 through 4 (Appendix A) depict 11 areas for Stage. Based on information from this survey, a second pre-construction survey (Stage 2) would be prepared, refined and implemented. Survey tracts associated with Stage 2 are outside of public ownership, or are paved or otherwise less accessible at the time of Final EIS preparation. Portions of several Stage 1 tracts extend onto private property, and these portions will be noted and potentially surveyed in Stage 2. As Sound Transit acquires parcels for the project to be built, which will occur after the issuance of FEIS and Record of Decision (ROD), Stage 2 would be implemented. Information gathered from these surveys will inform the preparation of the Archaeological Resources Monitoring and Treatment

Plan (ARMT). Section 5.0 outlines the methods of archaeological inquiry that HRA proposes to utilize in Stage 1 and 2.

2.0 Archaeological Sensitivity Models

HRA's archaeological predictive model, developed for the Draft EIS, defines areas as having either high or low sensitivity for prehistoric and historical archaeological materials. HRA's sensitivity model was based on local environmental and cultural variables, assisted by a windshield survey in confirming areas of varying environmental characteristics. Environmental variables taken into account included slope, topographic position, distance to permanent water sources/channels, and vegetation ecotone, while cultural variables included locational and land-use information gleaned from ethnohistoric information on Native American use of the area (e.g., Hilbert et al. 2001) and historic-period maps (e.g. General Land Office [GLO] plats and Sanborn Fire Insurance maps). Figures 1 through 4 (Appendix A) show the areas of high sensitivity in Segments B through E, as recommended by HRA. Segment A is not included because it consists primarily of the highly developed Interstate 90.

The DAHP's archaeological predictive model, prepared for their use by GeoEngineers, used standardized and repeatable statistical methods (Bayesian and Kriging) with statewide environmental and cultural resources data. Data on geology, soils, landform, and information gleaned from historic-period GLO plats, were correlated with locations of known archaeological sites to "…determine the probability that, under a particular set of environmental conditions, another location would be expected to contain an archaeological site." (Kauhi and Markert 2009:2-3)

DAHP's model combines local information from field surveys to identify locations with five resulting sensitivity management groups: Very High (5), High (4), Moderate (3), Low (2) and Very Low (1). These were refined for management purposes, with groups (1) and (2) Archaeological Survey Contingent upon Project Parameters, group (3) Archaeological Survey Recommended; and groups (4) and (5) Archaeological Survey Required.

3.0 Selection of Geotechnical Boring Locations for Archaeological Survey

As part of preliminary engineering for the project's FEIS, geotechnical borings will be conducted for the project. The borings will assess general subsurface soil and groundwater conditions. The borings measure up to 8 inches in diameter and can extend from 50 to 200 feet deep. HRA has determined that these borings would provide relatively little useful archaeological data because of the methods that are used in drilling. As a result, FTA proposed and DAHP concurred that no archaeological monitoring would be conducted during this exploratory work. However, HRA has reviewed available information and recommends "pre-excavation archaeological surveys" to be conducted on three boring locations. Survey of these borings will be included as part of Stage 1. The methods and results for selecting the three borings are described below.

3.2 Methods

Several sources of information were examined during the selection process, pertaining to potentially sensitive boring locations. HRA archaeologists first examined archaeological sensitivity maps of the Project APE developed for the DEIS (see Section 2.0, above), comparing these data with GIS maps showing the locations of proposed bore holes plotted on an aerial photograph background. HRA then utilized a table which outlined the identification (i.e., designation), locations, and several additional characteristics of each proposed boring. These characteristics included: proposed depth overall, depth to a hard (i.e., glacial, bedrock) surface, whether the bore would be placed on pavement or grass, and the potential for disruption of traffic.

HRA used these three documents, in combination with the results of HRA's previous archaeological survey for the Project, to winnow the list of potentially sensitive probe locations to those for which HRA would propose a pre-drilling archaeological survey. The major concern at this point in the process is that the act of drilling itself (e.g., moving equipment, storage) could impact an unknown and unrecorded archaeological site. This would most likely occur on a soft surface, such as grass, that has not previously received an archaeological survey.

As a final cross-check, to potentially further refine boring locations, HRA examined the data for eight geotechnical borings excavated for the Project DEIS (Jacobs Associates 2007) and 18 previously-excavated borings along the Project alignment in Segment B (http://geomapnw.ess.washington.edu/index.php?toc=maintoc&body=services/onlinemap/main.htm). The eight borings described by Jacobs Associates (2007: Appendix A) are all located in Segment C, and were therefore of low relevance in developing the survey strategy. However, 18 bores – the results of which are available on the website operated by the Pacific Northwest Center for Geologic Mapping Studies – were drilled in the direct vicinity of the Project alignment in Segment B.

The high-sensitivity boreholes chosen by HRA are located in Segments B, C, and D. Segment A was not included because it consists largely of Interstate 90, and no borings are presently planned for Segment E. The selected borehole locations are:

- Located in the previously-mapped zones of higher archaeological sensitivity;
- Proposed to be excavated on a grassy surface. This narrowed down the probe locations to several in Segment B, with none in Segments C or D, in which the borings in sensitive areas, archaeologically, are proposed to be drilled on pavement;
- Situated on as little estimated fill depth as possible. This step eliminated several probes that are located close to the I-90 on/off ramps to Bellevue Way SE; and
- Located outside of HRA's previously-surveyed tracts of Segment B.

Appendix B includes a table, narrowing down to the most sensitive boring locations and providing rationale for why several were not selected for archaeological survey.

3.3 Results

Table 1 lists the locations and relevant characteristics of the borings proposed for pre-excavation archaeological survey. These locations (shown in Figure 1) will be surveyed as a part of Stage 1 archaeological investigations of the Project APE. As was mentioned above, portions of several Stage 1 tracts extend onto private property. All geotechnical boring locations are located within larger proposed Stage 1 Survey Tract 5.

Table 1. Geotechnical Boring Locations Selected by HRA for Survey and Probing Pre-Drill.

Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Archaeological Observations/ Comments	Est. Depth to V. Dense (feet)	Surface	HRA Stage 1 Survey Tract	Exploration Location (Parcel Number)
B-B-ES-12p	120	New information	Possibility for pre-bore check - immediately to west of Mercer Slough West	40?	Grass	Tract 5	PRIVATE PROPERTY (066288TRCT)
B-B-AG-5p	120	New information	Possibility for pre-bore check - immediately to west of Mercer Slough West	40?	Grass	Tract 5	PRIVATE PROPERTY (066288TRCT)
B-B-AG-6p	120	New information	Possibility for pre-bore check - immediately to west of Mercer Slough West	40?	Grass	Tract 5	PRIVATE PROPERTY (066288TRCT)

4.0 Methods for Survey Tract Selection

HRA created a color-coded priority system to aid in the selection of archaeological survey tracts. The process of prioritizing was undertaken with reference to the HRA and DAHP sensitivity models, and by taking into account perceived local ground disturbance. Table 2 outlines this color-based priority system, with the general guidelines applied by HRA while coding each proposed survey segment. Based on this method, 11 tracts were identified for Stage 1 survey (Appendix C). Additional tracts were also identified using this method. However, because there are uncertainties about the project, including the fact that the FEIS and ROD have yet to be issued, and the final corridor has yet to be selected, this report does not include a full description of the Stage 2 tracts.

Table 2. Description Of Colors Used To 'Code' HRA Proposed Final EIS Survey Tracts

Flag Color	HRA Sensitivity (Approximate)	DAHP Sensitivity (Approximate)	Additional Factors
Red	High	5 (Survey Highly Advised: Very High Risk) Can be 4 Survey Highly Advised: High Risk)	Generally, fewer disturbances seen (i.e., vegetated), but largely a factor of very high sensitivity.
Yellow	High	5 (Survey Highly Advised: Very High Risk) 4 Survey Highly Advised: High Risk) Can be 3 (Survey Recommended: Moderate Risk)	Generally showing more developed and/or paved surfaces, but still recommended for survey due to high sensitivity
Green	Low	4 Survey Highly Advised: High Risk) 3 (Survey Recommended: Moderate Risk) Can be 2 (Survey Contingent Upon Project Parameters: Moderately Low Risk)	Generally, fairly developed and/or paved surfaces; some moderate risk. These can be used as control or comparison areas for lower probability
Blue	Low	2 (Survey Contingent Upon Project Parameters: Moderately Low Risk) 1 (Survey Contingent Upon Project Parameters: Low Risk)	Generally, very developed and/or disturbed, with lowest archaeological sensitivity

HRA coded the proposed tract as "Red" when both sensitivity models classified the area as "High" to "Very High" risk, and it appeared (using aerial photographs) that the vicinity showed few obvious disturbances (i.e., much of the area shows vegetation). "Yellow" survey tracts are those with generally high sensitivity (HRA and/or DAHP), but usually with increased disturbance; for instance, development or paved surfaces. HRA coded tracts as "green" when, (a) archaeological probability was high to moderate (generally, by the DAHP's model) and predicted disturbances were quite extensive, or (b) archaeological probability was more moderate, but fewer disturbances were evident while examining aerial photographs of the alignment. "Blue" survey tracts are those in low-probability areas for archaeological resources, and they are, generally, also perceived to be at least moderately impacted by development. This color coding system was then used as a basis for assigning proposed survey tracts to Stage 1 and 2 as described below.

Based on HRA’s color-coded priority system, 11 tracks have been identified for survey as part of the FEIS because these are:

- Identified as high probability for archaeological resources under both HRA and DAHP models;
- Mostly owned by a public agency; and

- Not paved or otherwise readily accessible.

Based on the information gained from Stage 1 research and archaeological investigations, including as geotechnical borings, and after the Final EIS and ROD have been issued, a second pre-construction survey plan (Stage 2) would be refined and implemented. Stage 2 tracts are outside of public ownership or are paved or otherwise less accessible at the time of Final EIS preparation. Portions of several Stage 1 tracts extend onto private property (for example, in Segment B), and these portions will be noted and potentially surveyed in Stage 2.

5.0 Staged Archaeological Survey

5.1 Stage 1 Archaeological Survey Methods

The goal of Stage 1 survey is to provide additional information about areas of high archaeological sensitivity. Therefore, more emphasis is placed in Segments B and E than other segments with less sensitivity. HRA selected 11 tracts for archaeological survey in Stage 1: the first 7 are located in Segment B and the remaining 4 are located in Segment E. Figures 1 through 4 (Appendix A) depict areas for Stage 1 survey overlaid on DAHP and HRA sensitivity model results. In addition, three locations associated with the drilling of geotechnical borings are proposed for Stage 1 survey, based on the location and surface characteristics (see Section 3.2 above) of these borings. All boring locations are situated within larger proposed Stage 1 Survey Tract 5; however, these borings are located on private property in these tracts, and additional permits will be required prior to archaeological survey. The table presented in Appendix C provides details regarding the proposed Stage 1 survey tracts.

Stage 1 work will be divided into three tasks: Stage 1a will consist of rechecking GLO maps, and examining available historical topographic maps, to compare the historical and modern topographic features of survey tracts. This will help verify sensitive landforms, such as stream terraces, and will identify areas where historical disturbance has altered the landform. Stage 1b will consist of a windshield examination of the survey tracts to verify sensitivity characteristics, as well as aspects of the survey tracts identified during their selection and Stage 1a review. It is possible that the Stage 1a and 1b work may drop some tracts from the Stage 1a field survey.

The cultural resources field survey in Stage 1c will be accomplished by the use of systematic pedestrian transects performed at intervals not exceeding 20-meter (m) (66-foot [ft]). The field director will take into account local disturbances, topography, and field conditions (i.e., large amounts of fill or other recent disturbances, standing water) to determine where the archeologists will excavate auger or shovel probes, or other standard manual excavation techniques. These will also be placed at about 20-m (66-ft) intervals, down to sterile materials or about 2 m (7 ft) depth (depending on the vertical depth for the APE in each survey area).

Excavated matrix will be screened through ¼-inch mesh and examined for prehistoric- and historic-period artifacts. Cultural items found will be documented on HRA shovel probe forms and, if diagnostic, by digital photography, before being returned to the excavated hole; no artifacts will be collected.

The sediments observed in each positive probe hole will be described on the shovel probe form and in the field director's field notes, including evidence of subsurface disturbances and cultural material integrity. The shovel probes will be immediately backfilled following their termination and recording, and the turf will be replaced, as appropriate.

Included in the above-described regimen of strategic shovel probes are three locations where Sound Transit plans to drill geotechnical borings (Table 1, above). Prior to the borings, HRA proposes to examine the grassy (or otherwise unpaved) ground surface surrounding these drill locations, and to excavate a shovel probe at the approximate drill location, to determine if the drilling (including the movement of drill-related machinery) will disturb an unrecorded archaeological site.

The location of survey transects and shovel probes will be recorded using a handheld Trimble® Global Positioning System (GPS) unit loaded with ArcGIS® software. Prehistoric and historical archaeological isolates and sites that are discovered during the Stage 1c survey will be mapped, photographed, and recorded using Washington Archaeological Isolate and Site Inventory forms. During Stage 1, HRA will conduct a preliminary assessment of each archaeological site encountered regarding its eligibility for inclusion in the National Register of Historic Places (NRHP); however, depending on the perceived integrity of the site, HRA may recommend additional testing (to be conducted at a later phase).

The information on local sediments and disturbances gathered by HRA during Stage 1c archaeological survey will be used to inform, and potentially refine, survey locations and strategy during the Final EIS archaeological assessment. A summary report will be prepared as a result of Stage 1, describing findings and results. The summary report will include recommendations for refining Stage 2 archaeological work.

5.2 Stage 2 Archaeological Survey Methods

Based on findings of Stage 1 and after the Final EIS and ROD have been issued, a more detailed archaeological survey plan will be developed for Stage 2, in consultation with DAHP. Stage 2 archaeological survey will be implemented during the Final Design and before project construction starts. Stage 2 tracts are areas of archaeological sensitivity (based on DAHP and HRA's models) and where hardened surfaces or deeper fill will need to be removed with mechanical equipment prior to archaeological survey. Portions of Stage 1 tracts that extend onto private property may also be included in Stage 2 survey. The Stage 2 survey is anticipated to take place as such tracts become available for work. Results of Stage 2 work would provide guidance as Sound Transit prepares the Archaeological Monitoring and Treatment Plan.

In several areas, most notably the vicinity of Mercer Slough in Segment B, and the Sammamish River and Bear Creek in Segment E, HRA proposes that mechanical test pits (TPs) be excavated at selected intervals. The depositional environment in these locations is alluvial, and, as such, archaeological sites may be more deeply buried than on the surrounding topography (formed in compacted glacial till and outwash). A precedent for using the mechanical excavation method locally was set during Northwest Archaeological Associates' (NWAA) 2008 cultural resources assessment for proposed rehabilitation of Lower Bear Creek in Redmond (northeast of the confluence of Bear Creek with the Sammamish River). During this project, cultural materials, likely dating to several thousand years old, were observed below silty, clayey 'diatomaceous' earth, in association with deposits of peat, at 4.3 to 5.9 ft (1.3 to 1.8 m) below surface (Hodges et al. 2009).

In the vicinity of Mercer Slough, the Sammamish River, and Bear Creek, where cultural materials may be buried more deeply than can be reached using hand excavation, HRA recommends following the proposed regimen of shovel probes with the excavation of mechanical test pits (TPs) and, as required, backhoe trenches (BT) along the preferred alternative. Test pits will be dug by a backhoe equipped with a 3- to 4-ft (1- to 1.2-m) bucket, measuring approximately 10 ft (3 m) long, and initially excavated to a depth at which cultural deposits are observed, or a depth of 4 ft (1.2 m) – generally, this is the accepted trench depth in which an individual can work without additional benching or shoring of the side walls (according to the Occupational Safety and Health Administration [OSHA]). At this point, the wall profiles will be cleaned and examined, soils will be described, and the pit will be recorded by the monitoring archaeologist (both long walls photographed and sketched). Excavation will continue until cultural deposits are observed, until sterile sediments (i.e., glacial outwash or till) are reached, or as deeply as feasible. As long as a cultural layer is not reached, the monitoring archaeologist will continue to record the characteristics and depths of excavated sediments as clearly as feasible, examining back dirt, as it is removed, for the presence of potentially cultural horizons and archaeological materials. Archaeological equipment will include, as appropriate, a shovel, trowel, and screens of 1/4- and 1/8-inch mesh.

A backhoe will be used to remove layers of asphalt, concrete, and potentially fill, in targeted locations within the proposed survey tracts. Once hardened surfaces and fill sediments are removed, initially only to a depth of 4 ft (1.2 m) (to meet OSHA standards), shovel probes may be placed within excavated trenches. The procedures for pedestrian transects and shovel probing outlined for Stage 1c will also apply to those areas surveyed in the Stage 2 archaeological investigation. Samples for tephra analysis and/or radiocarbon dating will be collected, as appropriate, during Stage 1 and later stage archaeological investigations, upon the discovery of cultural materials and/or features within any archaeological sites in the APE.

6.0 References

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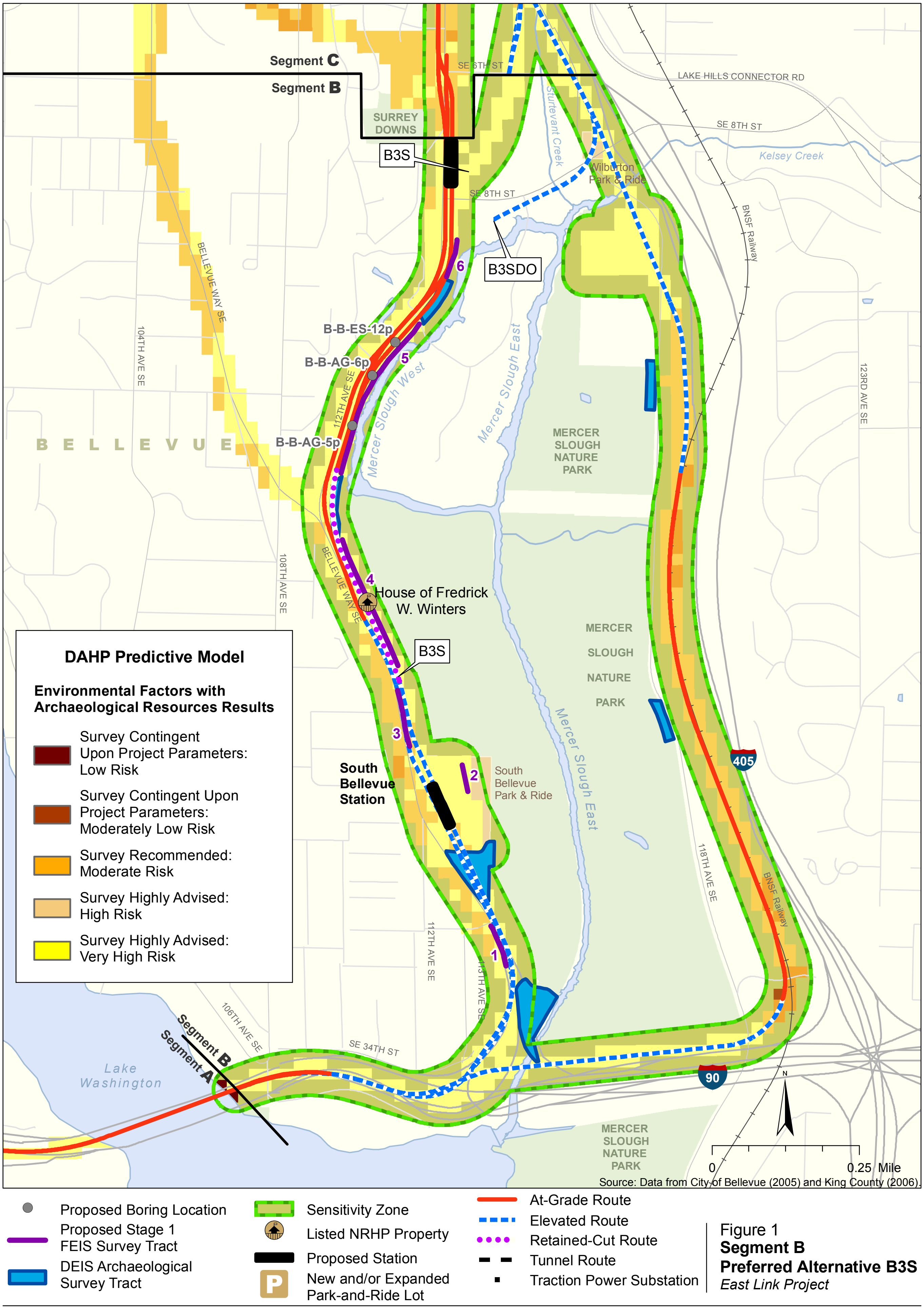
Hodges, Charles M., Brandy A. Rinck, and Amber Earley
2009 *Cultural Resource Assessment for the Lower Bear Creek Rehabilitation Project, King County, Washington*. Prepared for David Evans and Associates, Inc., Bellevue, by Northwest Archaeological Associates, Inc., Seattle.

Kauhi Tonya C. and Joanne L. Markert
2009 *Washington Statewide Archaeology Predictive Model Report*. Prepared for the Washington Department of Archaeology and Historic Preservation, Olympia by GeoEngineers, Inc., Tacoma, Washington.

Thompson, Gail, Ann Gillespie, and Gretchen Kaehler
2007 Draft Technical Report: East Link Light Rail Transit Project Seattle, Mercer Island, Bellevue, and Redmond, Washington: Prehistoric and Archaeological Sites, Historical Buildings and Structures, Native American Traditional Cultural Properties. Submitted to Central Puget Sound Regional Transit Authority (Sound Transit), Seattle, by Historical Research Associates, Inc., Seattle.

HRA
HISTORICAL RESEARCH ASSOCIATES, INC.

Appendix A
Archaeological Sensitivity Maps Showing Survey Tracts & Proposed Geotechnical Boring Locations


Segment C
Segment B
SE 6TH ST
LAKE HILLS CONNECTOR RD
SURREY DOWNS
Sturtevant Creek
SE 8TH ST
Kelsey Creek
B3S
Wilburton Park & Ride
SE 8TH ST
BNSF Railway
B3SDO
BELLEVUE WAY SE
6
B-B-ES-12p
104TH AVE SE
B-B-AG-6p
5
Mercer Slough West
Mercer Slough East
123RD AVE SE
112TH AVE SE
MERCER SLOUGH NATURE PARK
BELLEVUE
B-B-AG-5p
108TH AVE SE
BELLEVUE WAY SE
4
House of Fredrick W. Winters
MERCER SLOUGH NATURE PARK
B3S
DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
3
405
South Bellevue Station
2
South Bellevue Park & Ride
Mercer Slough East
118TH AVE SE
BNSF Railway
112TH AVE SE
113TH AVE SE
1
106TH AVE SE
SE 34TH ST
Segment B
Segment A
Lake Washington
90
N
MERCER SLOUGH NATURE PARK
0
0.25 Mile
Proposed Boring Location
Proposed Stage 1 FEIS Survey Tract
DEIS Archaeological Survey Tract
Sensitivity Zone
Listed NRHP Property
Proposed Station
P
New and/or Expanded Park-and-Ride Lot
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
Traction Power Substation

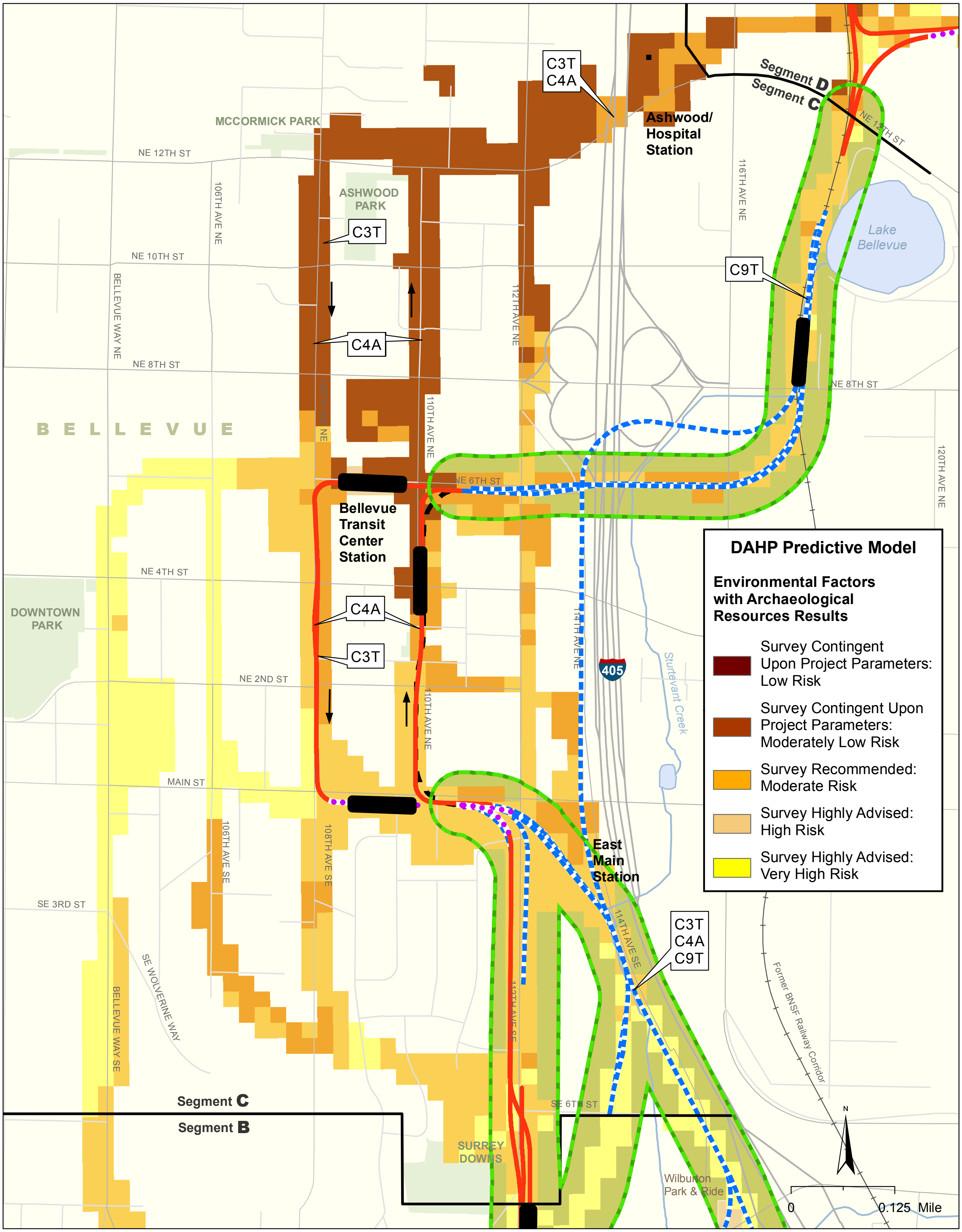
Source: Data from City of Bellevue (2005) and King County (2006).

Figure 1

Segment B

Preferred Alternative B3S

East Link Project


C3T
C4A
Ashwood/ Hospital Station
Segment D
Segment C
NE 12TH ST
MCCORMICK PARK
NE 12TH ST
ASHWOOD PARK
C3T
106TH AVE NE
116TH AVE NE
Lake Bellevue
C9T
NE 10TH ST
BELLEVUE WAY NE
112TH AVE NE
C4A
NE 8TH ST
NE 8TH ST
108TH AVE NE
110TH AVE NE
BELLEVUE
120TH AVE NE
NE 6TH ST
Bellevue Transit Center Station
NE 4TH ST
DOWNTOWN PARK
C4A
C3T
114TH AVE NE
405
Sturtevant Creek
NE 2ND ST
110TH AVE NE
MAIN ST
106TH AVE SE
108TH AVE SE
East Main Station
SE 3RD ST
114TH AVE SE
C3T
C4A
C9T
SE WOLVERINE WAY
Former BNSF Railway Corridor
BELLEVUE WAY SE
112TH AVE SE
Segment C
Segment B
SE 6TH ST
SURREY DOWNS
Wilburton Park & Ride
N
0
0.125 Mile
DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk

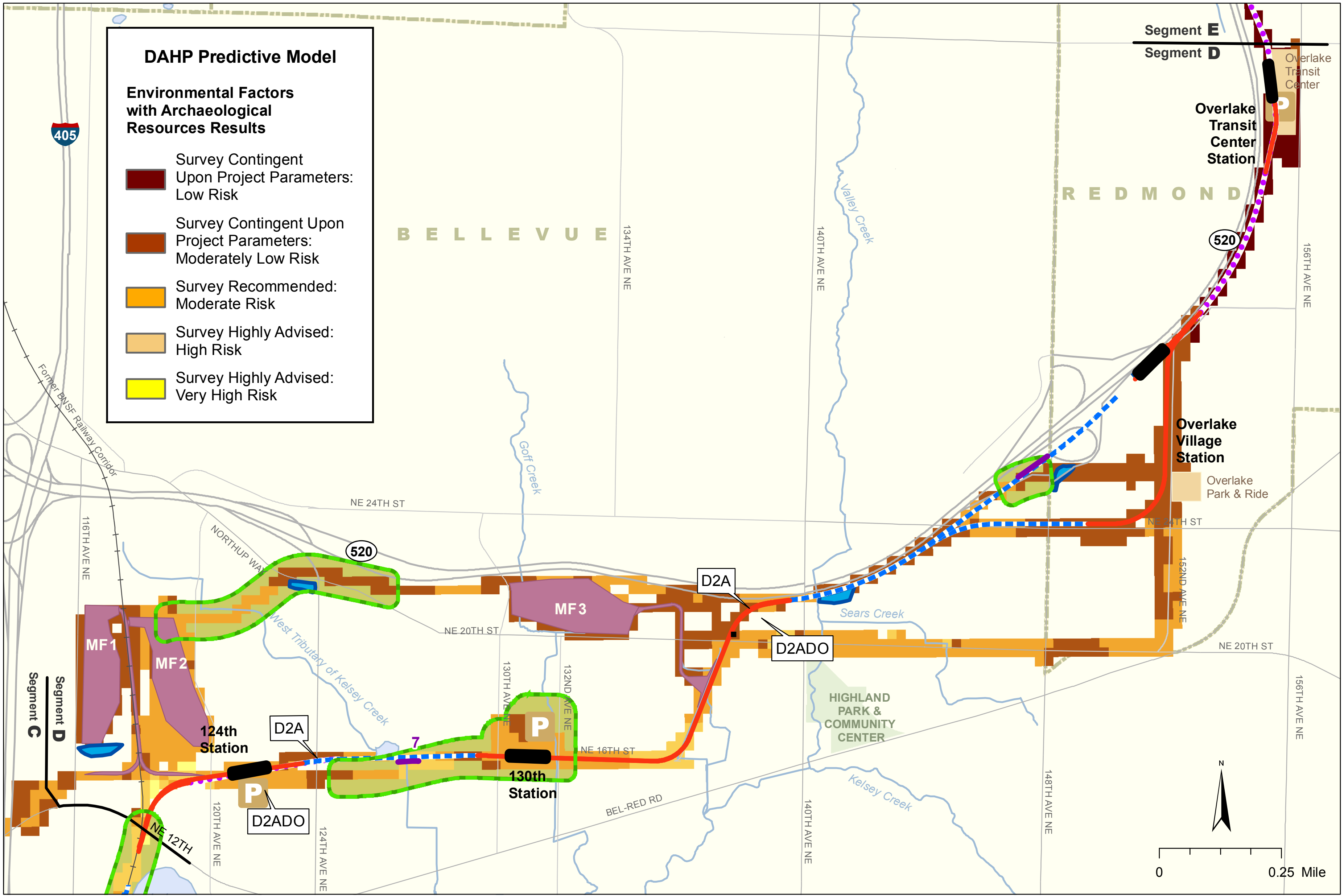
Source: Data from City of Bellevue (2005) and King County (2006).

🟦 DEIS Archaeological Survey Tract
🟩 Sensitivity Zone

At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route

Proposed Station
P New and/or Expanded Park-and-Ride Lot

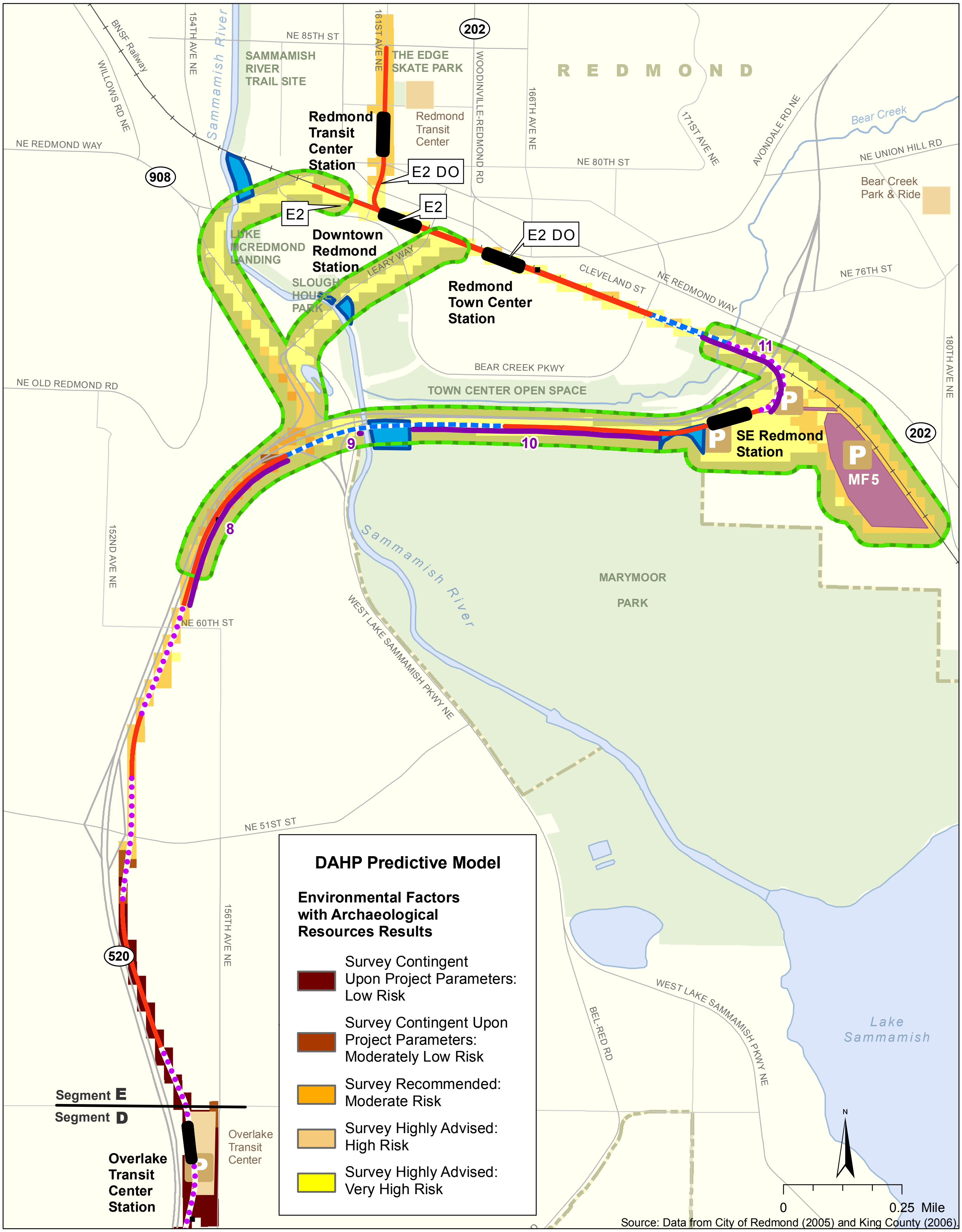
Figure 2
Segment C
Alternatives C3T, C4A & C9T
East Link Project


DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
R E D M O N D
B E L L E V U E
405
520
134TH AVE NE
140TH AVE NE
Valley Creek
156TH AVE NE
Former BNSF Railway Corridor
Goff Creek
Overlake Village Station
Overlake Park & Ride
NE 24TH ST
NORTHUP WAY
NE 20TH ST
D2A
D2ADO
MF 3
Sears Creek
152ND AVE NE
116TH AVE NE
MF 1
MF 2
Segment C
Segment D
West Tributary of Kelsey Creek
124th Station
130TH AVE NE
132ND AVE NE
7
P
NE 16TH ST
130th Station
HIGHLAND PARK & COMMUNITY CENTER
BEL-RED RD
Kelsey Creek
NE 12TH
120TH AVE NE
124TH AVE NE
140TH AVE NE
148TH AVE NE
N
0
0.25 Mile

Source: Data from City of Bellevue (2005), City of Redmond (2005), and King County (2006).

Proposed Stage 1 FEIS Survey Tract
DEIS Archaeological Survey Tract
Sensitivity Zone
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P
New and/or Expanded Park-and-Ride Lot

Figure 3
Segment D
Preferred Alternative D2A
East Link Project


NE 85TH ST
161ST AVE NE
202
THE EDGE SKATE PARK
SAMMAMISH RIVER TRAIL SITE
154TH AVE NE
Sammamish River
BNSF Railway
WILLOWS RD NE
WOODINVILLE-REDMOND RD
166TH AVE NE
R E D M O N D
Redmond Transit Center
Redmond Transit Center Station
E2 DO
E2
NE REDMOND WAY
908
NE 80TH ST
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
LAKE MCREDMOND LANDING
Downtown Redmond Station
LEARY WAY
E2
E2 DO
Redmond Town Center Station
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
SLOUGH HOUSE PARK
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
11
180TH AVE NE
SE Redmond Station
202
MF 5
9
10
8
152ND AVE NE
Sammamish River
MARYMOOR PARK
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
NE 51ST ST
156TH AVE NE
520
BEL-RED RD
WEST LAKE SAMMAMISH PKWY NE
Lake Sammamish
Segment E
Segment D
Overlake Transit Center Station
Overlake Transit Center
DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
N
0
0.25 Mile

Source: Data from City of Redmond (2005) and King County (2006).

Proposed Stage 1 FEIS Survey Tract
DEIS Archaeological Survey Tract
Sensitivity Zone
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
▪ Traction Power Substation
Proposed Station
Maintenance Facility and Access Track
P New and/or Expanded Park-and-Ride Lot

Figure 4
Prefered Alternative
Segment E - E2
East Link Project

Appendix B
Rationale for Selecting Geotechnical Boring Locations

Most Sensitive Boring Locations
Sound Transit Eastlink Project

Sound Transit, East Link, Proposed Segments A through D Exploration Plan for 100% Design													
Modified for HRA:	**16-Oct-09**	**(J. Gilpin)**											
🟨	Grassy or vegetated surface: shallow undiscovered resources may be damaged by equipment												
🟧	Grassy surface, but: likely fill (i.e., close to highway) or possibility to park on nearby paved?												
🟥	Possibility for Pre-Drill Survey (grassy surface and NOT in previous HRA survey tract)												
Segment	**Structure Name/ID**	**Exploration Number (shown on maps)**	**Planned Depth (feet)**	**Purpose**	**Archaeological Observations/Comments**	**Est. Depth to V. Dense (feet)**	**Days to Complete Drilling**	**Surface**	**Color Code Explanation**	**Est Rig Type**	**Exploration Locaton**	**Traffic Control?**	**Piezometer & Special Testing**
Segment B	Elevated Structure/ ES	B-B-ES-1DST	200	New information	Near highway	20?	3	Grass	At highway interchange: likely fill	Truck or track	WSDOT ROW	Limited	Downhole Seismic
Segment B		B-B-ES-2p	150	New information	Near highway	20?	3	Grass	At highway interchange: likely fill	Truck or track	WSDOT ROW	Limited	Piezo
Segment B		B-B-ES-3p	100	New information	Near highway	20?	2	Grass	Between highway offramp and surface	Truck or track	WSDOT or City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-7	100	New information	In Survey Tract 2: historic-period artifacts to 32 cmbs (high water table)	20?	1.5	Grass	Far off-paved	Truck	City of Bellevue ROW	Limited	NO
Segment B		B-B-ES-9p	120	New information	Possibility for pre-bore check - north of obviously disturbed park and ride, but looks to be near residence	30?	2.5	Grass NOW IN PARKING LOT	Off paved area	Truck	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-11p	120	New information	In Survey Tract 3: appears to be largely modern 'artifacts' in nearby shovel probes to 80 cmbs (so likely disturbed and/or fill)	40?	2.5	Vegetated	Far off-paved	Track	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-12p	120	New information	Possibility for pre-bore check - immediately to west of Mercer Slough West	40?	2.5	Grass	Off paved area? May park on paved	Truck or Track	CITY PARK? (was classified as City of Bellevue ROW)	Limited	Piezo
Segment B		B-B-ES-13p	120	New information	In Survey Tract 4: described as fill to 60 cmbs	40?	2.5	Grass	Off paved area? May park on paved	Truck or Track	City of Bellevue ROW	YES	Piezo
Segment B		B-B-BPR-2p	100	New information	In Survey Tract 2: historic-period artifacts to 32 cmbs (high water table)	20?	2	Grass	Far off-paved	Truck	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-BPR-7p	100	New information	Appears to be in immediate vicinity of park-and-ride (turf and possible fill)	20?	2	Grass	Off paved area? May park on paved	Truck	WSDOT ROW	Limited	Piezo
Segment B		B-B-BPR-9p	100	New information	Appears to be in immediate vicinity of park-and-ride (turf and possible fill)	20?	2	Grass	Off paved area? May park on paved	Truck	WSDOT ROW	Limited	Piezo

Most Sensitive Boring Locations
Sound Transit Eastlink Project

Segment	Structure Name/ID	Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Archaeological Observations/Comments	Est. Depth to V. Dense (feet)	Days to Complete Drilling	Surface	Color Code Explanation	Est Rig Type	Exploration Locaton	Traffic Control?	Piezometer & Special Testing
Segment B	At-Grade or Retained Fill/ AG	B-B-AG-1p	120	New information	Possibility for pre-bore check - north of park and ride	40?	2.5	Grass or Pavement		Truck or Track	CITY PARK? (was classified as City of Bellevue ROW)	Limited	Piezo
Segment B		B-B-AG-2	120	New information	Possibility for pre-bore check - approaching Fredrick W. Winters House	40?	2	Grass NOW IN PARKING LOT		Truck or Track	City of Bellevue ROW	Limited	NO
Segment B		B-B-AG-3p	120	New information	Possibility for pre-bore check - approaching Fredrick W. Winters House	40?	2.5	Grass NOW IN PARKING LOT		Truck or Track	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-AG-5p	120	New information	Possibility for pre-bore check - immediately to west of Mercer Slough West	40?	2.5	Grass	Off paved area? May park on paved	Track or Truck	NOW PRIVATE PROPERTY (was classified as City of Bellevue ROW)	Limited	Piezo
Segment B		B-B-AG-6p	120	New information	Possibility for pre-bore check - immediately to west of Mercer Slough West	40?	1.5	Grass	Off paved area? May park on paved	Track or Truck	NOW PRIVATE PROPERTY (was classified as City of Bellevue ROW)	Limited	Piezo

Borings in Potentially Sensitive Locations
Sound Transit Eastlink Project

Sound Transit, East Link, Proposed Segments A through D Exploration Plan for 100% Design											
Modified for HRA:	**15-Oct-09**	**(J. Gilpin)**									
Segment	**Structure Name/ID**	**Exploration Number (shown on maps)**	**Planned Depth (feet)**	**Purpose**	**Est. Depth to V. Dense (feet)**	**Days to Complete Drilling**	**Surface**	**Est Rig Type**	**Exploration Locaton**	**Traffic Control?**	**Piezometer & Special Testing**
Segment A	East Channel Bridge/ ECB	B-A-ECB-3DST	150	Verification, limited information	60?	3	Gravel	Truck	WSDOT or City of Bellevue ROW	Limited	Downhole Seismic
Segment A		B-A-ECB-4p	120	Verification, limited information (Alternative Location)	60?	2.5	Asphalt Pavement	Truck	WSDOT or City of Bellevue ROW	Limited	Piezo
Segment B	Elevated Structure/ ES	B-B-ES-1DST	200	New information	20?	3	Grass	Truck or track	WSDOT ROW	Limited	Downhole Seismic
Segment B		B-B-ES-2p	150	New information	20?	3	Grass	Truck or track	WSDOT ROW	Limited	Piezo
Segment B		B-B-ES-3p	100	New information	20?	2	Grass	Truck or track	WSDOT or City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-4	100	New information	20?	1.5	Pavement	Truck	WSDOT or City of Bellevue ROW	YES	NO
Segment B		B-B-ES-5	100	New information	20?	1.5	Pavement	Truck	City of Bellevue ROW	Limited	NO
Segment B		B-B-ES-6p	100	New information	20?	2	Pavement	Truck	City of Bellevue ROW	YES	Piezo
Segment B		B-B-ES-7	100	New information	20?	1.5	Grass	Truck	City of Bellevue ROW	Limited	NO

Borings in Potentially Sensitive Locations
Sound Transit Eastlink Project

Segment	Structure Name/ID	Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Est. Depth to V. Dense (feet)	Days to Complete Drilling	Surface	Est Rig Type	Exploration Locaton	Traffic Control?	Piezometer & Special Testing
Segment B		B-B-ES-9p	120	New information	30?	2.5	Grass	Truck	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-10p	120	New information	40?	2.5	Pavement	Truck	City of Bellevue ROW	YES	Piezo
Segment B		B-B-ES-11p	120	New information	40?	2.5	Vegetated	Track	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-12p	120	New information	40?	2.5	Grass	Truck or Track	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-ES-13p	120	New information	40?	2.5	Grass	Truck or Track	City of Bellevue ROW	YES	Piezo
Segment B		B-B-ES-14	120	New information	30?	2	Pavement	Truck	Private Property	Limited	NO
Segment B		B-B-ES-15p	120	New information	20?	2.5	Pavement	Truck	Private Property	Limited	Piezo
Segment B		B-B-ES-16p	120	New information	20?	2.5	Pavement	Truck	Private Property	Limited	Piezo
Segment B	Station and Parking Structure/ BPR	B-B-BPR-1p	100	New information	20?	2	Pavement	Truck	WSDOT	Limited	Piezo
Segment B		B-B-BPR-2p	100	New information	20?	2	Grass	Truck	City of Bellevue ROW	Limited	Piezo

Borings in Potentially Sensitive Locations
Sound Transit Eastlink Project

Segment	Structure Name/ID	Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Est. Depth to V. Dense (feet)	Days to Complete Drilling	Surface	Est Rig Type	Exploration Locaton	Traffic Control?	Piezometer & Special Testing
Segment B		B-B-BPR-3	100	New information	20?	1.5	Pavement	Truck	WSDOT ROW	Limited	NO
Segment B		B-B-BPR-4p	100	New information	20?	2	Pavement	Truck	WSDOT ROW	Limited	Piezo
Segment B		B-B-BPR-5p	150	New information	20?	3	Pavement	Truck	WSDOT ROW	Limited	Downhole Seismic ?
Segment B		B-B-BPR-6	100	New information	20?	1.5	Pavement	Truck	WSDOT ROW	Limited	NO
Segment B		B-B-BPR-7p	100	New information	20?	2	Grass	Truck	WSDOT ROW	Limited	Piezo
Segment B		B-B-BPR-8p	100	New information	20?	2	Pavement	Truck	WSDOT ROW	Limited	Piezo
Segment B		B-B-BPR-9p	100	New information	20?	2	Grass	Truck	WSDOT ROW	Limited	Piezo
Segment B		B-B-BPR-10	100	New information	20?	1.5	Pavement	Truck	WSDOT ROW	Limited	NO
Segment B	Retaining Wall/ RW	B-B-RW-1p	35	New information	20?	1	Pavement	Truck	City of Bellevue ROW	YES	Piezo
Segment B	At-Grade or Retained Fill/ AG	B-B-AG-1p	120	New information	40?	2.5	Grass or Pave	Truck or Track	City of Bellevue ROW	Limited	Piezo

Borings in Potentially Sensitive Locations
Sound Transit Eastlink Project

Segment	Structure Name/ID	Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Est. Depth to V. Dense (feet)	Days to Complete Drilling	Surface	Est Rig Type	Exploration Locaton	Traffic Control?	Piezometer & Special Testing
Segment B		B-B-AG-2	120	New information	40?	2	Grass or Pave	Truck or Track	City of Bellevue ROW	Limited	NO
Segment B		B-B-AG-3p	120	New information	40?	2.5	Grass or Pave	Truck or Track	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-AG-4p	120	New information	40?	2.5	Pavement	Track or Truck	City of Bellevue ROW	YES	Piezo
Segment B		B-B-AG-5p	120	New information	40?	2.5	Grass	Track or Truck	City of Bellevue ROW	Limited	Piezo
Segment B		B-B-AG-6p	120	New information	40?	1.5	Grass	Track or Truck	City of Bellevue ROW	Limited	Piezo
Segment C	Elevated Structure/ ES	B-C-ES-1p	80	New information	20?	2	Pavement	Truck	City of Bellevue ROW	Yes	Piezo
Segment C		B-C-ES-2	80	New information	20?	1.5	Pavement	Truck	Private Property	Limited	NO
Segment C		B-C-ES-3	80	New information	20?	1.5	Pavement	Truck	Private Property	Limited	NO
Segment C		B-C-ES-4p	80	New information	20?	2	Pavement	Truck	Private Property	Limited	Piezo
Segment C	East Main Street Station/ EMS	B-C-EMS-1	80	New information	20?	1.5	Pavement	Truck	Private Property	Limited	NO

Borings in Potentially Sensitive Locations
Sound Transit Eastlink Project

Segment	Structure Name/ID	Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Est. Depth to V. Dense (feet)	Days to Complete Drilling	Surface	Est Rig Type	Exploration Locaton	Traffic Control?	Piezometer & Special Testing
Segment C		B-C-EMS-2p	80	New information	20?	2	Pavement	Truck	Private Property	Limited	Piezo
Segment C	Tunnel Portal/ PT	B-C-PT-1p	120	New information	20?	2.5	Pavement	Truck	City of Bellevue ROW	Yes	Piezo
Segment C		B-C-PT-2p	120	New information	20?	2.5	Pavement	Truck	City of Bellevue ROW	Yes	Piezo
Segment C	Bored Tunnel/ BT	B-C-BT-1p	150	New information	20?	3	Pavement	Truck	City of Bellevue ROW	Yes	Piezo
Segment C	Bellevue Transit Center Station/BTC	B-C-BTC-3p (JUST ADJACENT TO SENSITIVE ZONE)	150	New information	20?	3	Pavement	Truck	City of Bellevue ROW	Yes	Piezo
Segment C		B-C-BTC-4p (JUST ADJACENT TO SENSITIVE ZONE)	150	New information	20?	3	Pavement	Truck	City of Bellevue ROW	Yes	Piezo
Segment D		B-D-ES-3p	70	New Information	20?	1.5	Pavement	Truck	Private Property	Limited	Piezo
Segment D		B-D-ES-4p	70	New Information	20?	1.5	Pavement	Truck	Private Property	Limited	Piezo
Segment D		B-D-ES-5 (UNSURE LOCATION)	70	New Information	20?	1.5	Pavement	Truck	Private Property	Limited	NO
Segment D		B-D-ES-6p (UNSURE)	70	New Information	20?	1.5	Pavement	Truck	City of Bellevue ROW	YES	Piezo

Borings in Potentially Sensitive Locations
Sound Transit Eastlink Project

Segment	Structure Name/ID	Exploration Number (shown on maps)	Planned Depth (feet)	Purpose	Est. Depth to V. Dense (feet)	Days to Complete Drilling	Surface	Est Rig Type	Exploration Locaton	Traffic Control?	Piezometer & Special Testing
Segment D	130th Ave Station Side Platform/	B-D-130ST-1p	40	New Information	20?	1	Pavement	Truck	Private Property	Limited	Piezo

HRA
HISTORICAL RESEARCH ASSOCIATES, INC.

Appendix C
Stage 1 Survey Tract Table

HRA Proposed Stage 1 FEIS Archaeological Survey Tracts

Map Sheet*	FEIS First Stage Designation	HRA Designation	HRA Probability	Color Code	DAHP Probability**	Approx. Length (feet/ meters)	Approx. Width (feet)	Approx. Area (acres)	Parcel ID (on map - see Map Sheet designation)	Parcel ID (assessor parcel)	Ownership	Survey Method***	Approx. # of SPs (at ~25-m intervals): Stage 1	Survey ahead of Geotechnical Boring?	Comments	Estimated Accessibility
14 (2009 All)	1	HRA B3S-3	High	Red	5	500/ 152	80	0.9	Unknown	Unknown	City of Bellevue?	SP?; trench?	6		Just to side of Bellevue Way. Trenching may be necessary in this and subsequent survey tracts along Segment B alignment due to the presence of peat	Good
16 (2009 All)	2	HRA B3S-4	High	Red	5	300/ 92	100	0.7	2152	7000100360	WSDOT	SP; trench?		5	New(?) area just east of Park and Ride - possibly equipment storage?	Good
16 (2009 All)	3	HRA B3S-5	High	Red	5	400/ 122	80	0.7	2259	824059278	City of Bellevue Parks	SP; trench?	5		To north of Park and Ride, looks vegetated. Borings will tell us more about this area (i.e., how much fill)	Good
16 (2009 All)	4	HRA B3S-6a	High	Red	5	200/ 61	80	0.4	2295	524059254	City of Bellevue Parks	SP; trench?	3		To north of Park and Ride, looks vegetated. Borings will tell us more about this area (i.e., how much fill). Width can be cut down to 50 ft if necessary	Good
16, 18 (2009 All)	4	HRA B3S-6b	High	Red	5	1,200/ 366	80	2.2	2358	524059084	City of Bellevue Parks	SP; trench?	15	Yes - survey and SP at Soil Boring B-B-AG-1p	Looks vegetated - and survey as much as possible. Some places will not be feasible, i.e., around Winters House. Borings will tell us more about this area (i.e., how much fill). Width can be cut down to 50 ft if necessary	Good
18 (2009 All)	4	HRA B3S-6c	High	Red	5	500/ 152	80	0.9	2404	662870090	City of Bellevue Parks	SP; trench?	6		Looks vegetated. Borings will tell us more about this area (i.e., how much fill). May extend into City of Belleuve Road parcel at west edge	Good
18, 20 (2009 All)	5	HRA B3S-7	High	Red	5	1,200/ 366	100	2.7	Unknown and 4035	Unknown and 066288TRCT	City of Bellevue? TRCT is unavailable	SP; trench?	15	Yes - survey and SP at Soil Borings B-B-AG-5p, B-B-AG-6p, and B-B-ES-12p	ROW widens slightly here. Surface appears vegetated. Borings will tell us more about this area (i.e., how much fill). Previous HRA survey tract 3 just to south of this proposed survey area - HRA observed some disturbance in upper levels, and two shovel probes saw peat-like lens starting between 20 and 60 cmbs.	Good
20 (2009 All)	6	HRA B3S-8a	High	Red	5	600/ 183	100	1.4	Unknown and 4061	Unknown and 066288TRCT	City of Bellevue? TRCT is unavailable	SP; trench?	10		ROW widens slightly here. Surface appears vegetated. Borings will tell us more about this area (i.e., how much fill).	Good
25 (PA Map)	7	HRA D2A-4	High	Red	4	250/ 76	80	0.5	2825059296, 2825059240	2825059296, 2825059240	City	SP; trench?	3		Covers the proposed D2A ROW surrounding a ponded portion of 'West Tributary' Kelsey Creek. Assumes that the 'retained cut' D2A route is not chosen	Good to Moderate (Likely high water table here)
32, 33 (PA Map)	8	HRA E2-3	Low into High	Green	4	2200/ 67	80	4	Unknown (roads); 943530UNKN, 9435300123, 5422560680, 5422560670, 5422560660, 5422560650, 5422560640	Unknown (roads); 943530UNKN, 9435300123	WSDOT (road, 0123) and City of Redmond (road?); unknown (UNKN); remainder private	SP; trench?	27		Vegetated area north of NE 60th St and along SR 520. Portions appear less visibly disturbed than vicinity, and likely will target these portions of this stretch, based on field observations	Good to Moderate
34 (PA Map)	9	HRA E2-4	High	Red	5	500/ 152	80	0.9	Unknown (SR 520, W Lake Sammammish)	Unknown (SR 520, W Lake Sammammish)	WSDOT, City of Redmond	SP; Trenches	6		Vicinity of Sammammish River. Paleo archy site within ~600 ft NE of this location. Deep trenching, if possible, for elevated route. Possible SPs, especially closer to the river	Poor at highway; Moderate to Good closer to River

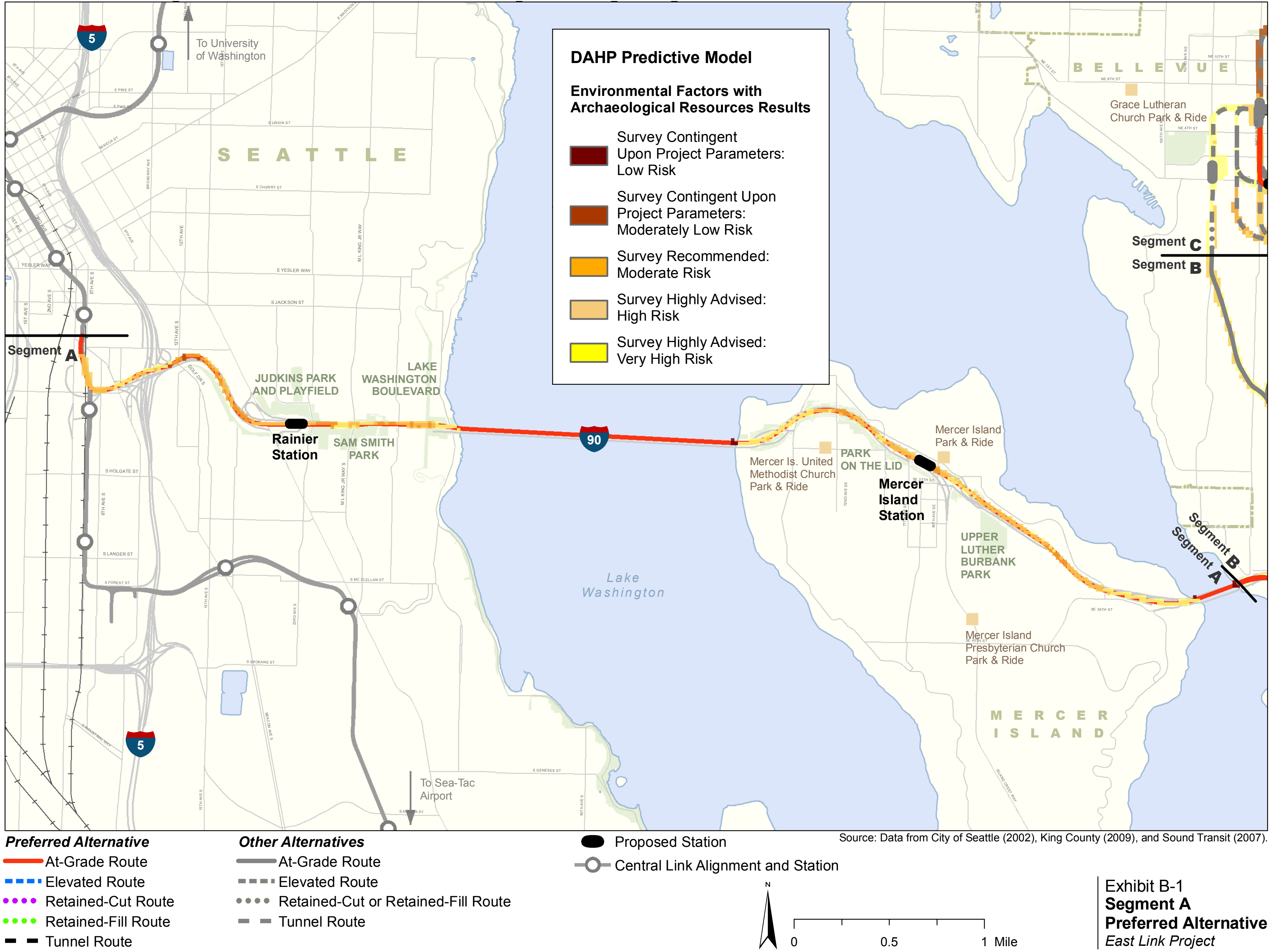
Map Sheet*	FEIS First Stage Designation	HRA Designation	HRA Probability	Color Code	DAHP Probability**	Approx. Length (feet/ meters)	Approx. Width (feet)	Approx. Area (acres)	Parcel ID (on map - see Map Sheet designation)	Parcel ID (assessor parcel)	Ownership	Survey Method***	Approx. # of SPs (at ~25-m intervals): Stage 1	Survey ahead of Geotechnical Boring?	Comments	Estimated Accessibility
34 (PA Map)	10	HRA E2-5a	High	🟥 Red	5	1450/ 442	80	2.7	Unknown (SR 520), 1125059016, 1125059037	Unknown (SR 520), 1125059016, 1125059037	WSDOT (SR 520); King County (Marymoor Park)	SP; Trenches	18		Elevated track here. Vicinity of Sammammish River and Bear Creek. Paleo archy site within ~400 ft N of this location. Deep trenching, if possible, depending on APE depth due to elevated route. Systematic SPs, especially closer to the river, and depending on levels of fill. No boring locations planned at this time for this location	Good to Moderate
34, 35 (PA Map)	10	HRA E2-5b	High	🟥 Red	5	1800/ 549	80	3.3	Unknown (SR 520); 1125059037	Unknown (SR 520); 1125059037	WSDOT (SR 520); King County (Marymoor Park)	SP; Trenches	22		At-grade track here. Vicinity of Sammammish River and Bear Creek. Deep trenching, depending on depth of APE. Systematic SPs and depending on levels of fill (previous HRA Survey Tract 16 to East showed historic fill). No boring locations planned at this time for this location	Good to Moderate
36 (PA Map)	11	HRA E2-7	High	🟨 Yellow	5	600/ 183	80	1.1	Unknown	2439705555	Unknown (WSDOT?); King County owns RR ROW	SP; trench	8		Approaching and along RR ROW (owned by King County) in 'retained cut'. May be able to trench and place shovel probes along edges of RR ROW. Since retained cut, and approaching Bear Creek, should plan to trench as move west	Poor to moderate (close to highway)
37 (PA Map)	11	HRA E2-8	High	🟥 Red	5	1100/ 335	80	2	1225059266, 1225059265	1225059266, 1225059265	King County (9265); BNSF (9266)	SP; trench	13		Short 'retained cut' and then elevated over Bear Creek. Need to plan for systematic probing and likely trenching in this segment, particularly around Bear Creek	Good to moderate (BNSF)

* "2009 All" = FEIS All Alternatives Map Book (Segment B only), received by HRA in November, 2009
"C9T Map" = Alternative C9T Map Book, received by HRA in November, 2009
"PA Map" = Preferred Alternative Map Book, received by HRA in November 2009
** DAHP 5 = Survey Highly Advised: Very High Risk
DAHP 4 = Survey Highly Advised, High Risk
DAHP 3 = Survey Recommended: Moderate Risk
DAHP 2 = Survey Contingent Upon Project Parameters: Moderately Low Risk
DAHP 1 = Survey Contingent Upon Project Parameters: Low Risk
*** SP = shovel probe (generally ~12-18" in diameter, using shovels and 4-in augers).
The size (horizontal and vertical dimensions) of trenches will depend on a number of variables, including the built environment surrounding the trench (i.e.
Survey methods are suggested, based on sensitivity levels and estimated amounts of disturbance, as deduced from aerial photographs and previous

APPENDIX B

Archaeological Survey Maps and Table

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\HISTARCH_SURVEYTRACTS_SEGMENT_A.MXD RGRABARE 4/14/11 09:55:08


DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
5
To University of Washington
SEATTLE
BELLEVUE
Grace Lutheran Church Park & Ride
Segment C
Segment B
Segment A
JUDKINS PARK AND PLAYFIELD
LAKE WASHINGTON BOULEVARD
Rainier Station
SAM SMITH PARK
90
Mercer Is. United Methodist Church Park & Ride
PARK ON THE LID
Mercer Island Park & Ride
Mercer Island Station
UPPER LUTHER BURBANK PARK
Segment B
Segment A
Lake Washington
Mercer Island Presbyterian Church Park & Ride
MERCER ISLAND
To Sea-Tac Airport
5
Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Proposed Station
Central Link Alignment and Station
N
0
0.5
1 Mile

Source: Data from City of Seattle (2002), King County (2009), and Sound Transit (2007).

Exhibit B-1
Segment A
Preferred Alternative
East Link Project

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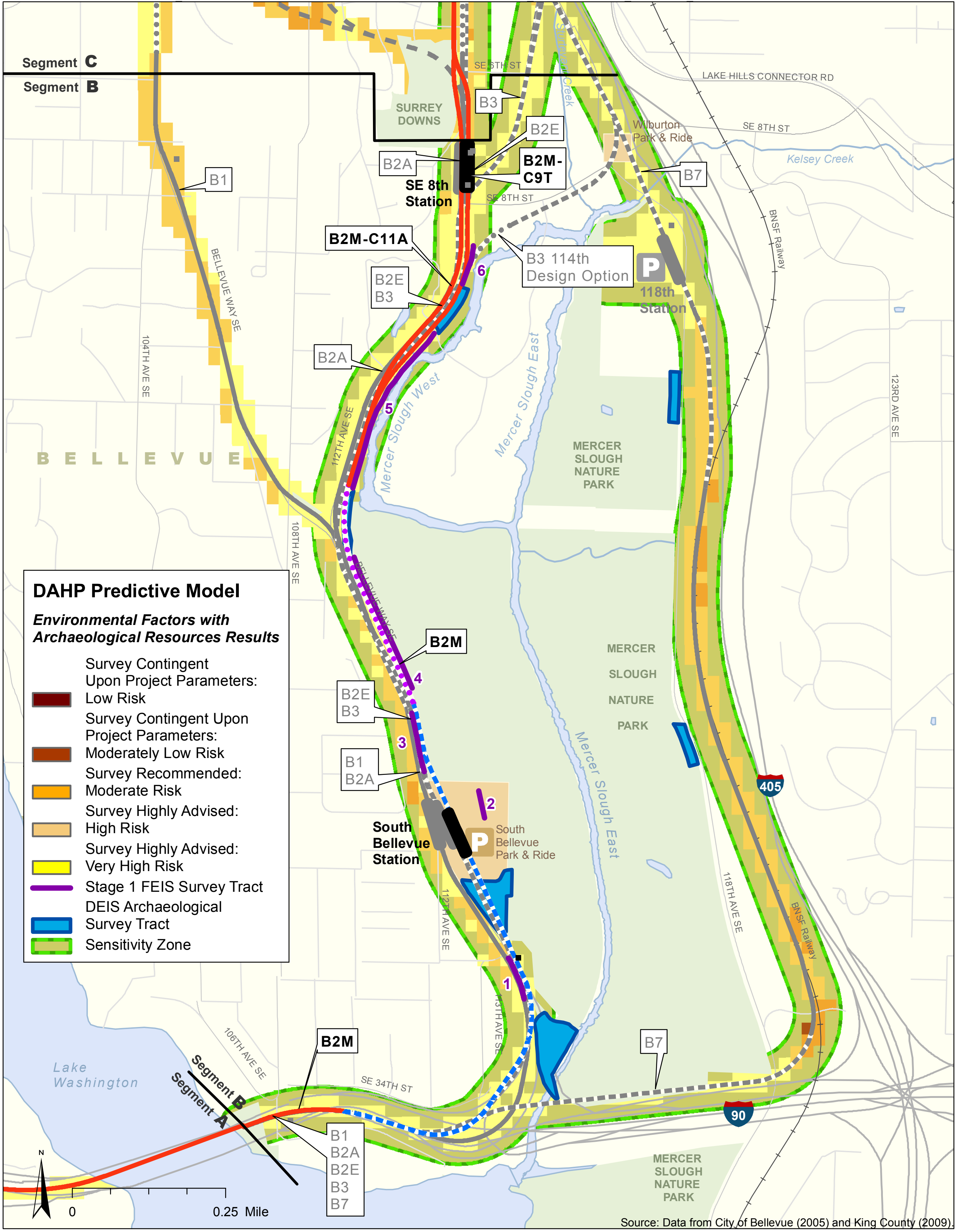
Segment C
Segment B
SURREY DOWNS
SE 6TH ST
B3
B2E
B2A
B2M-C9T
SE 8th Station
SE 8TH ST
LAKE HILLS CONNECTOR RD
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
B7
Sturtevant Creek
B1
B2M-C11A
B3 114th Design Option
118th Station
BNSF Railway
B2E
B3
6
B2A
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
5
BELLEVUE
MERCER SLOUGH NATURE PARK
123RD AVE SE
108TH AVE SE
BELLEVUE WAY SE
B2M
4
B2E
B3
3
B1
B2A
2
South Bellevue Station
South Bellevue Park & Ride
MERCER SLOUGH NATURE PARK
Mercer Slough East
405
118TH AVE SE
BNSF Railway
112TH AVE SE
113TH AVE SE
1
B7
Lake Washington
106TH AVE SE
Segment B
Segment A
B2M
SE 34TH ST
90
B1
B2A
B2E
B3
B7
MERCER SLOUGH NATURE PARK
N
0
0.25 Mile
DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
Stage 1 FEIS Survey Tract
DEIS Archaeological Survey Tract
Sensitivity Zone

Source: Data from City of Bellevue (2005) and King County (2009).

Preferred Alternative **B2M**
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route

Other Alternatives B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route

■ Traction Power Substation
Proposed Station
P New and/or Expanded Park-and-Ride Lot

Exhibit B-2
Segment B
Preferred Alternative
East Link Project

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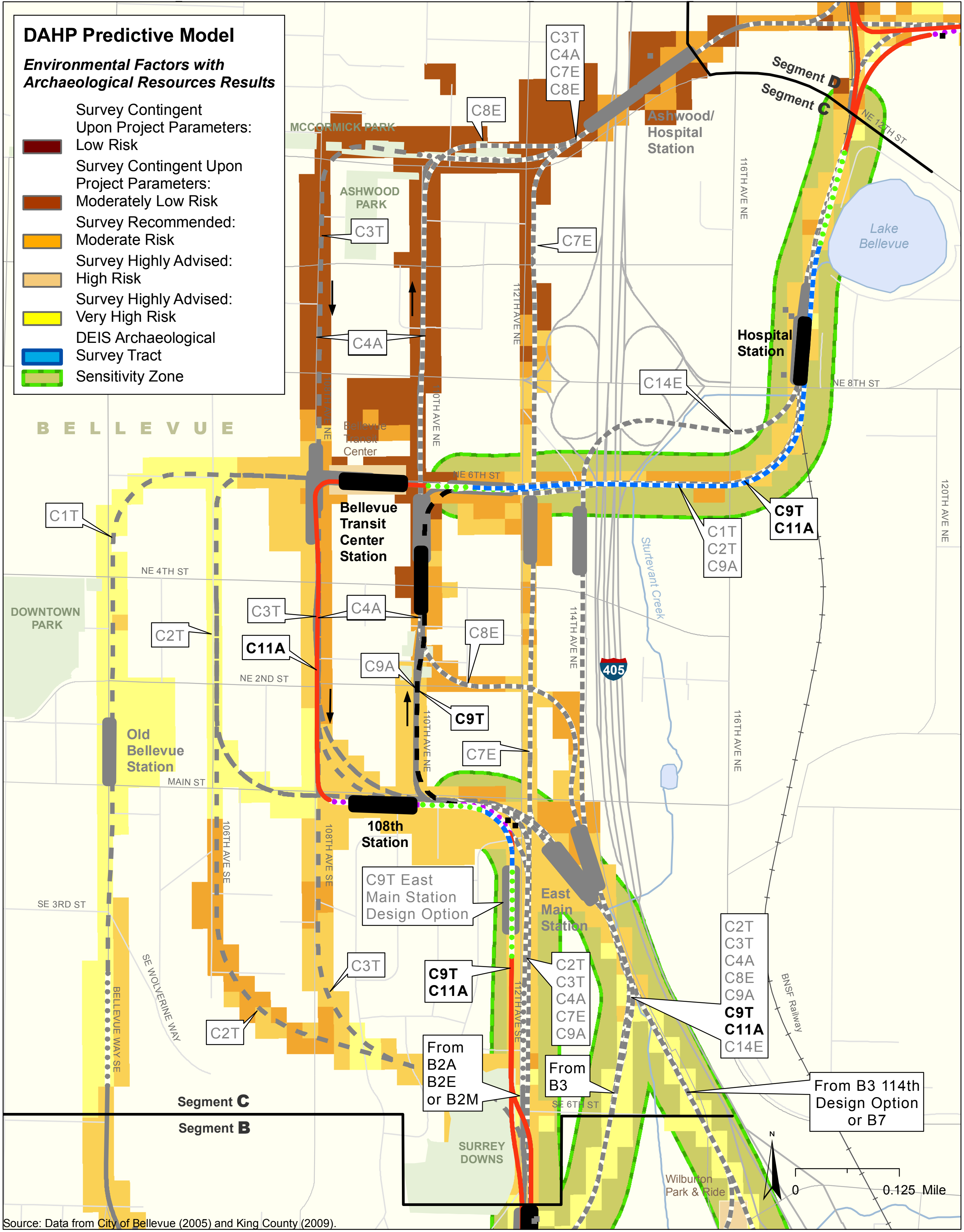
DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
DEIS Archaeological Survey Tract
Sensitivity Zone
B E L L E V U E
MCCORMICK PARK
ASHWOOD PARK
DOWNTOWN PARK
SURREY DOWNS
Lake Bellevue
Ashwood/ Hospital Station
Hospital Station
Bellevue Transit Center
Bellevue Transit Center Station
Old Bellevue Station
108th Station
East Main Station
C9T East Main Station Design Option
Wilburton Park & Ride
Segment D
Segment C
Segment B
NE 12TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 3RD ST
SE 6TH ST
SE WOLVERINE WAY
BELLEVUE WAY SE
106TH AVE SE
108TH AVE SE
110TH AVE NE
112TH AVE NE
112TH AVE SE
114TH AVE NE
116TH AVE NE
120TH AVE NE
Sturtevant Creek
BNSF Railway
405
C1T
C2T
C3T
C4A
C7E
C8E
C9A
C9T
C11A
C14E
C3T C4A C7E C8E
C1T C2T C9A
C9T C11A
C2T C3T C4A C7E C9A
C2T C3T C4A C8E C9A C9T C11A C14E
From B2A B2E or B2M
From B3
From B3 114th Design Option or B7
N
0
0.125 Mile

Source: Data from City of Bellevue (2005) and King County (2009).

Preferred Alternative **C9T**	*Other Alternatives* C14E	
At-Grade Route	At-Grade Route	▪ Traction Power Substation
Elevated Route	Elevated Route	▬ Proposed Station
Retained-Cut Route	Retained-Cut or Retained-Fill Route	P New and/or Expanded Park-and-Ride Lot
Retained-Fill Route	Tunnel Route	
Tunnel Route		

Exhibit B-3
Segment C
Preferred Alternative
East Link Project

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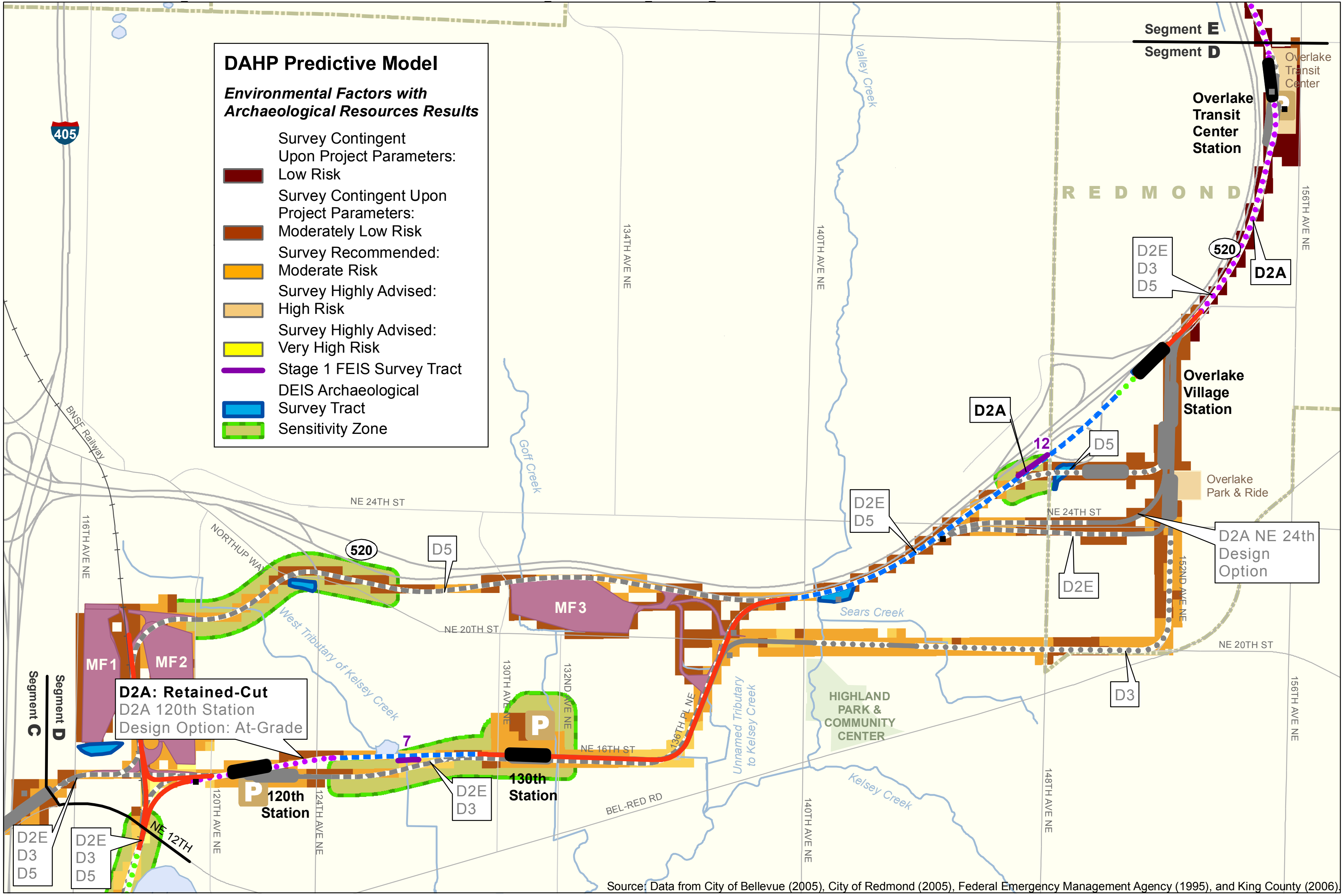

DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
Stage 1 FEIS Survey Tract
DEIS Archaeological Survey Tract
Sensitivity Zone
405
520
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
REDMOND
156TH AVE NE
D2E
D3
D5
D2A
Overlake Village Station
12
Overlake Park & Ride
NE 24TH ST
D2A NE 24th Design Option
152ND AVE NE
NE 20TH ST
Valley Creek
134TH AVE NE
140TH AVE NE
Goff Creek
BNSF Railway
116TH AVE NE
NORTHUP WAY
MF 3
MF 1
MF 2
NE 20TH ST
West Tributary of Kelsey Creek
Sears Creek
Segment C
Segment D
D2A: Retained-Cut
D2A 120th Station Design Option: At-Grade
130TH AVE NE
132ND AVE NE
NE 16TH ST
136TH PL NE
Unnamed Tributary to Kelsey Creek
HIGHLAND PARK & COMMUNITY CENTER
7
P
120th Station
130th Station
120TH AVE NE
124TH AVE NE
NE 12TH
BEL-RED RD
Kelsey Creek
140TH AVE NE
148TH AVE NE
156TH AVE NE

Source: Data from City of Bellevue (2005), City of Redmond (2005), Federal Emergency Management Agency (1995), and King County (2006).

Preferred Alternative **D2A**

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

Other Alternatives D3

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

■ Traction Power Substation

▬ Proposed Station

▬ Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

N

0 0.25 Mile

Exhibit B-4

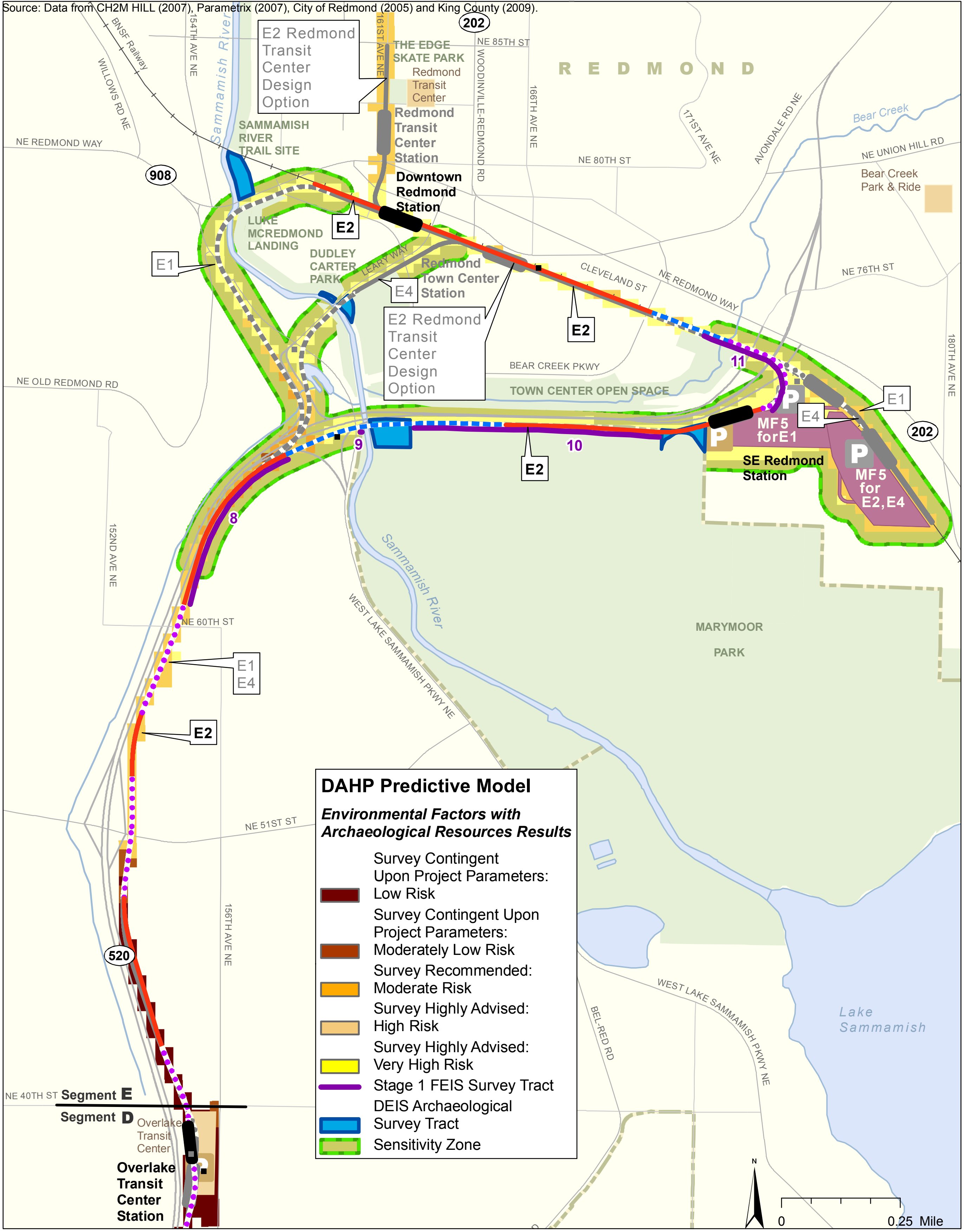
Segment D

Preferred Alternative D2A

East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\HISTARCH_SURVEYTRACTS_SEGMENT_E.MXD RGRABARE 4/14/11 10:03:00

Source: Data from CH2M HILL (2007), Parametrix (2007), City of Redmond (2005) and King County (2009).


E2 Redmond Transit Center Design Option
202
NE 85TH ST
THE EDGE SKATE PARK
Redmond Transit Center
R E D M O N D
Redmond Transit Center Station
BNSF Railway
154TH AVE NE
Sammamish River
161ST AVE NE
WOODINVILLE-REDMOND RD
166TH AVE NE
WILLOWS RD NE
SAMMAMISH RIVER TRAIL SITE
NE REDMOND WAY
908
Downtown Redmond Station
NE 80TH ST
171ST AVE NE
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
LUKE MCREDMOND LANDING
E2
E1
DUDLEY CARTER PARK
LEARY WAY
Redmond Town Center Station
E4
CLEVELAND ST
NE REDMOND WAY
NE 76TH ST
E2
E2 Redmond Transit Center Design Option
11
BEAR CREEK PKWY
TOWN CENTER OPEN SPACE
NE OLD REDMOND RD
E1
E4
MF5 for E1
202
180TH AVE NE
9
10
E2
SE Redmond Station
MF5 for E2, E4
8
152ND AVE NE
Sammamish River
NE 60TH ST
WEST LAKE SAMMAMISH PKWY NE
MARYMOOR PARK
E1
E4
E2
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
BEL-RED RD
WEST LAKE SAMMAMISH PKWY NE
NE 40TH ST
Segment E
Segment D
Overlake Transit Center
Overlake Transit Center Station
N
0
0.25 Mile
DAHP Predictive Model
Environmental Factors with Archaeological Resources Results
Survey Contingent Upon Project Parameters: Low Risk
Survey Contingent Upon Project Parameters: Moderately Low Risk
Survey Recommended: Moderate Risk
Survey Highly Advised: High Risk
Survey Highly Advised: Very High Risk
Stage 1 FEIS Survey Tract
DEIS Archaeological Survey Tract
Sensitivity Zone

Preferred Alternative E2

At-Grade Route

Elevated Route

Retained-Cut Route

Retained-Fill Route

Tunnel Route

Other Alternatives E1

At-Grade Route

Elevated Route

Retained-Cut or Retained-Fill Route

Tunnel Route

▪ Traction Power Substation

Proposed Station

Maintenance Facility and Access Track

P New and/or Expanded Park-and-Ride Lot

Exhibit B-5

Prefered Alternative

Segment E - E2

East Link Project

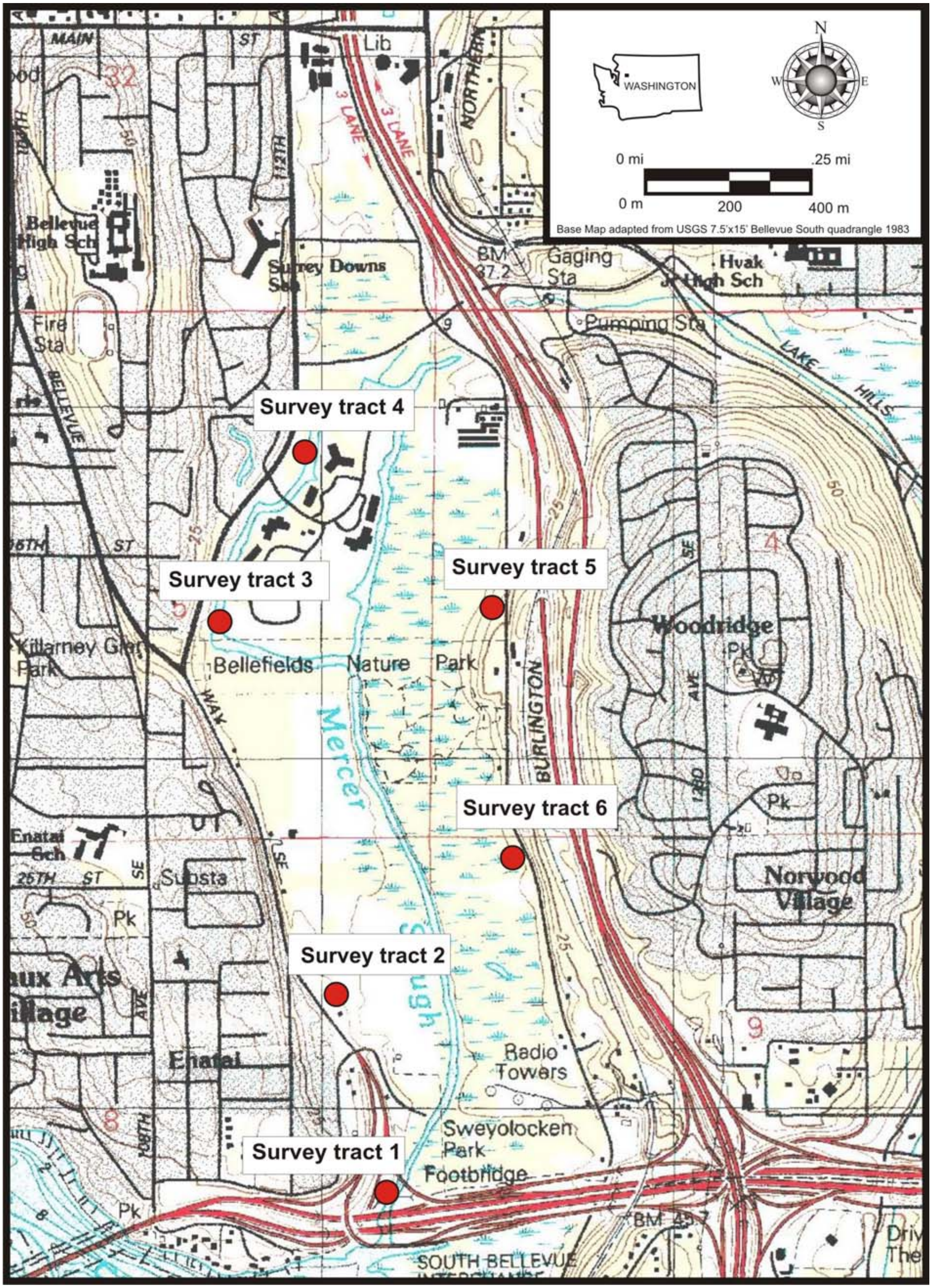

WASHINGTON
N
E
S
W
0 mi
.25 mi
0 m
200
400 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983
Survey tract 1
Survey tract 2
Survey tract 3
Survey tract 4
Survey tract 5
Survey tract 6
Bellefields Nature Park
Mercer Slough
Sweyolocken Park
Footbridge
Radio Towers
Surrey Downs
Bellevue High Sch
Woodridge
Norwood Village
Hvak Jr High Sch
Gaging Sta
Pumping Sta
Killarney Glen Park
Enatai
Enatai Sch
Beaux Arts Village
Substa
Burlington Northern
Lake Hills
South Bellevue Interchange
Lib
Fire Sta

EXHIBIT B-6
Locations of Survey Tracts 1-6

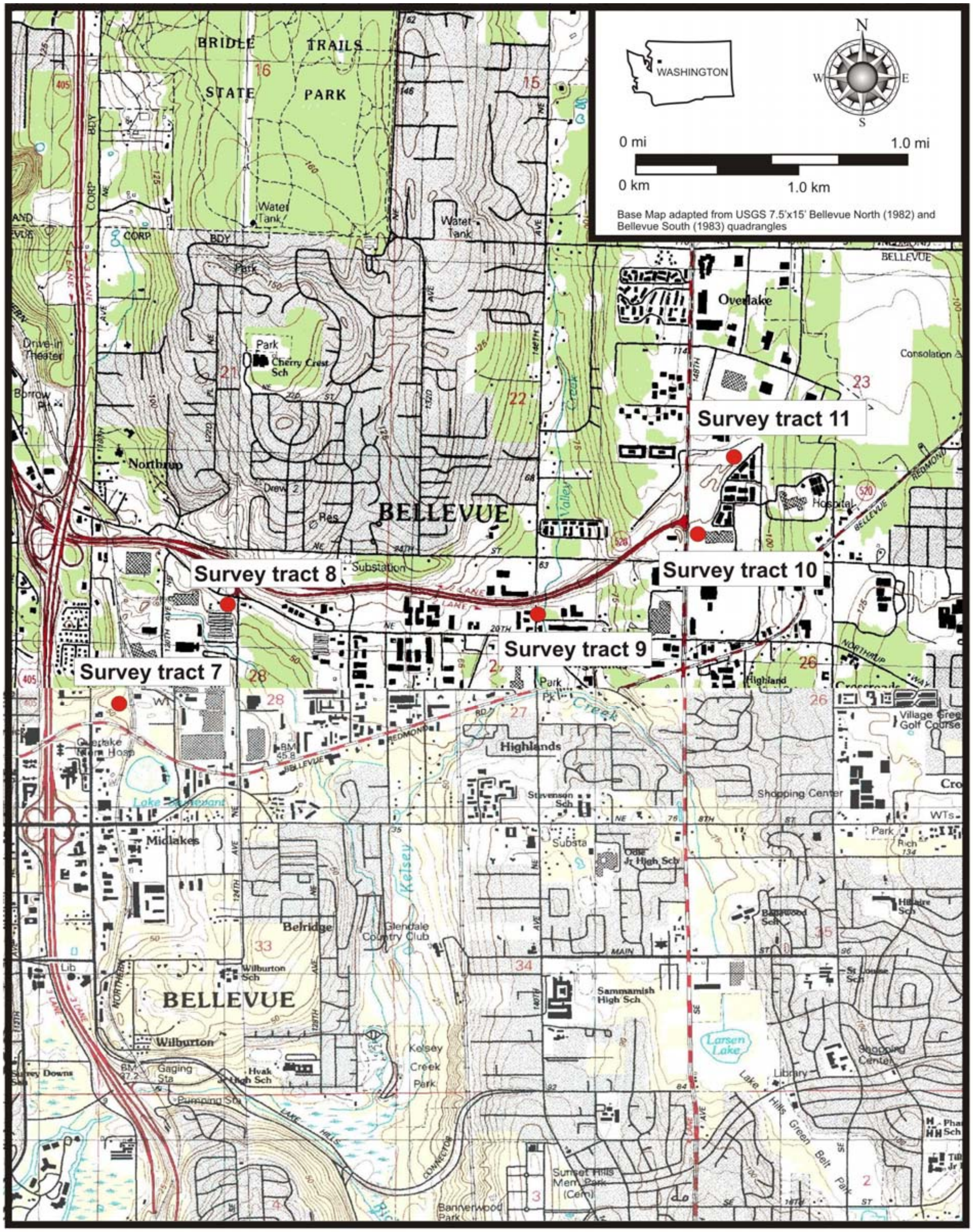

WASHINGTON
N
S
E
W
0 mi
1.0 mi
0 km
1.0 km
Base Map adapted from USGS 7.5'x15' Bellevue North (1982) and Bellevue South (1983) quadrangles
Survey tract 7
Survey tract 8
Survey tract 9
Survey tract 10
Survey tract 11
BRIDLE TRAILS STATE PARK
BELLEVUE
Overlake
Northrup
Midlakes
Belridge
Highlands
Wilburton
Lake Hills Green Belt Park

EXHIBIT B-7
Locations of Survey Tracts 7-11

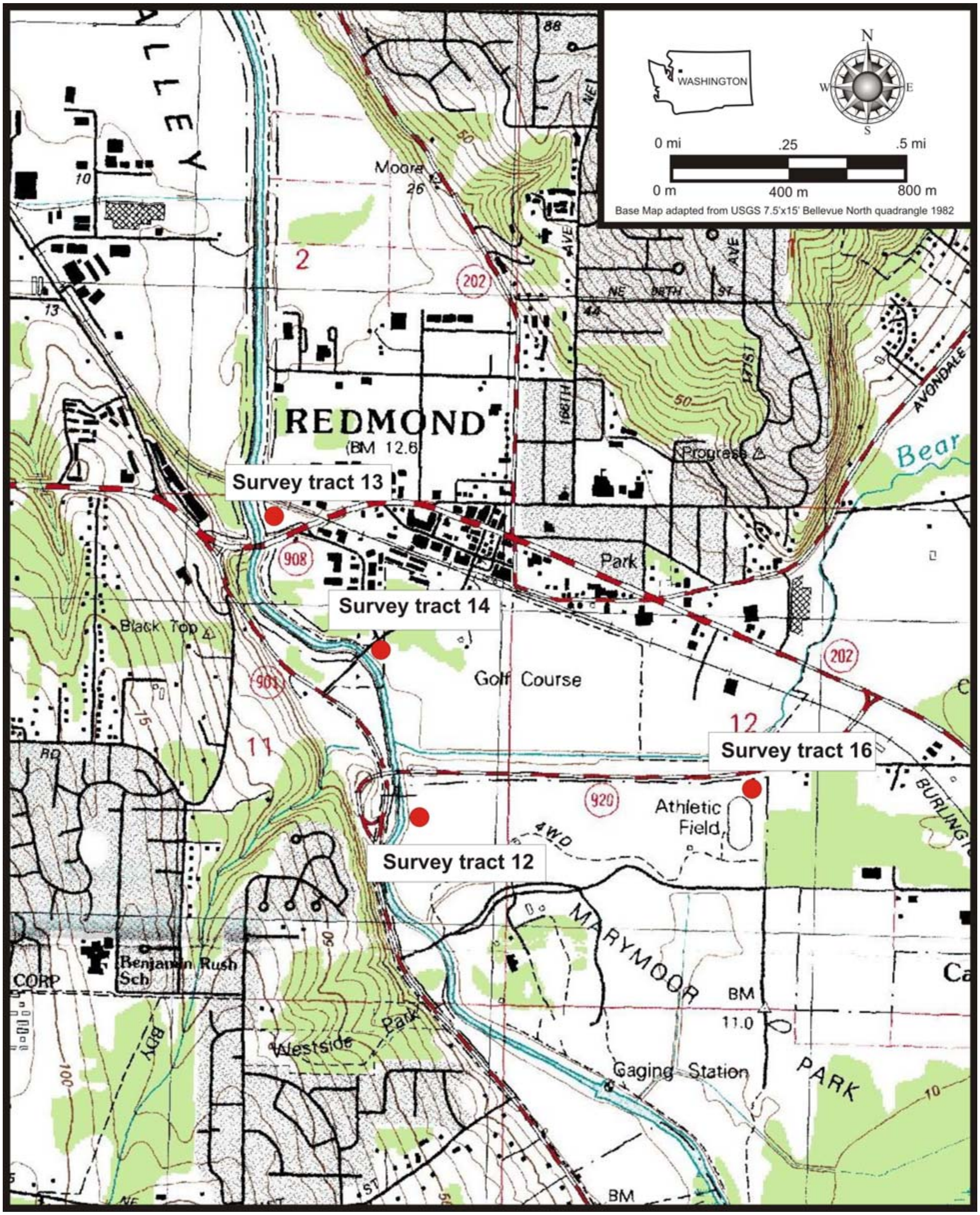

WASHINGTON
N
S
E
W
0 mi
.25
.5 mi
0 m
400 m
800 m
Base Map adapted from USGS 7.5'x15' Bellevue North quadrangle 1982
REDMOND
(BM 12.6)
Moore
Survey tract 13
Survey tract 14
Survey tract 12
Survey tract 16
Golf Course
Athletic Field
Park
Black Top
Progress
Bear
AVONDALE
MARYMOOR
PARK
Gaging Station
Westside Park
Benjamin Rush Sch
CORP
202
908
901
920
BM
11.0

EXHIBIT B-8
Locations of Survey Tracts 12-14 and 16 (No. 15 not used)

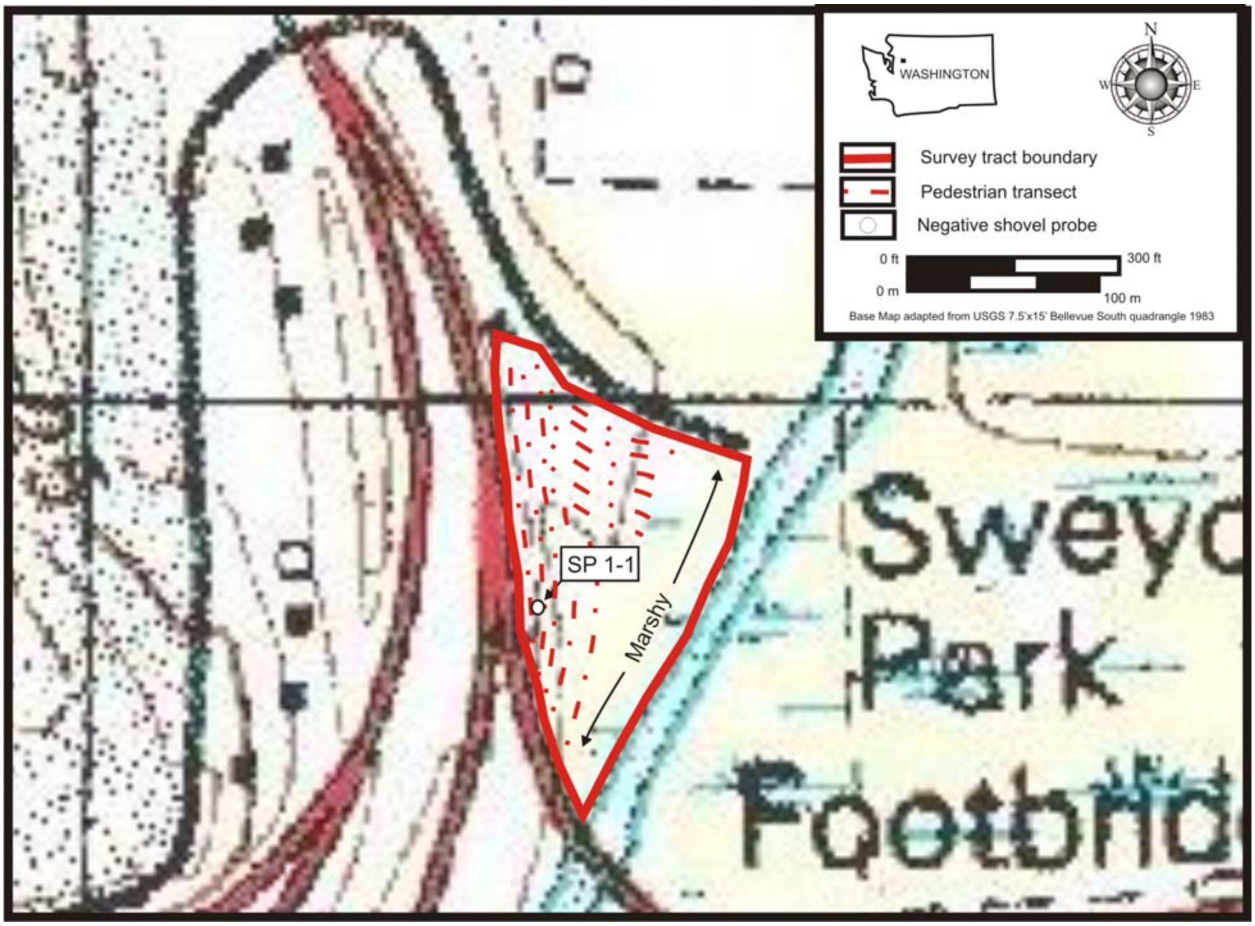

WASHINGTON
N
E
S
W
Survey tract boundary
Pedestrian transect
Negative shovel probe
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983
SP 1-1
Marshy
Sweyo
Park
Footbrid

EXHIBIT B-9
Survey Tract 1 Transects and Shovel Probes

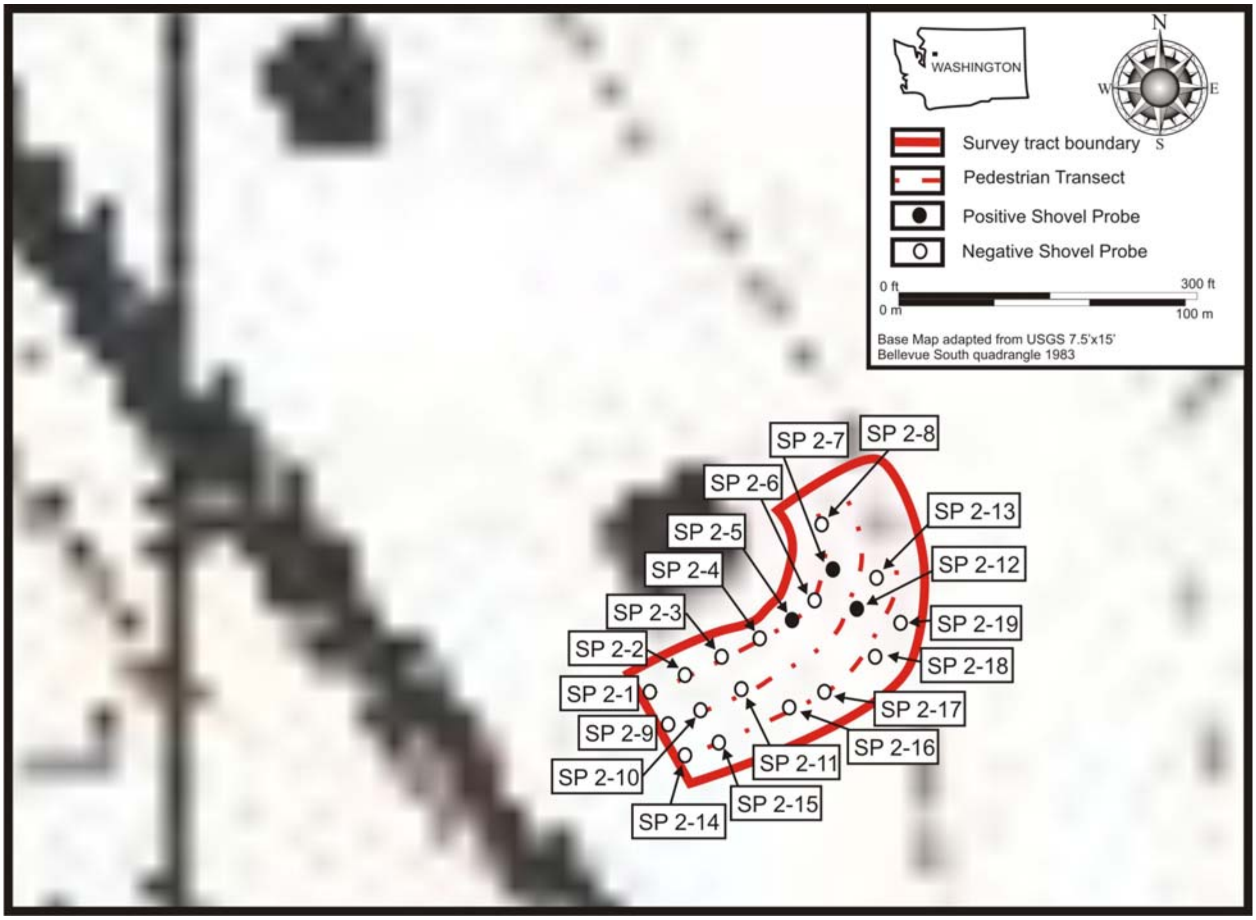

WASHINGTON
N
E
S
W
Survey tract boundary
Pedestrian Transect
Positive Shovel Probe
Negative Shovel Probe
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15'
Bellevue South quadrangle 1983
SP 2-7
SP 2-8
SP 2-6
SP 2-13
SP 2-5
SP 2-12
SP 2-4
SP 2-3
SP 2-19
SP 2-2
SP 2-18
SP 2-1
SP 2-17
SP 2-9
SP 2-16
SP 2-11
SP 2-10
SP 2-15
SP 2-14

EXHIBIT B-10
Survey Tract 2 Transects and Shovel Probes

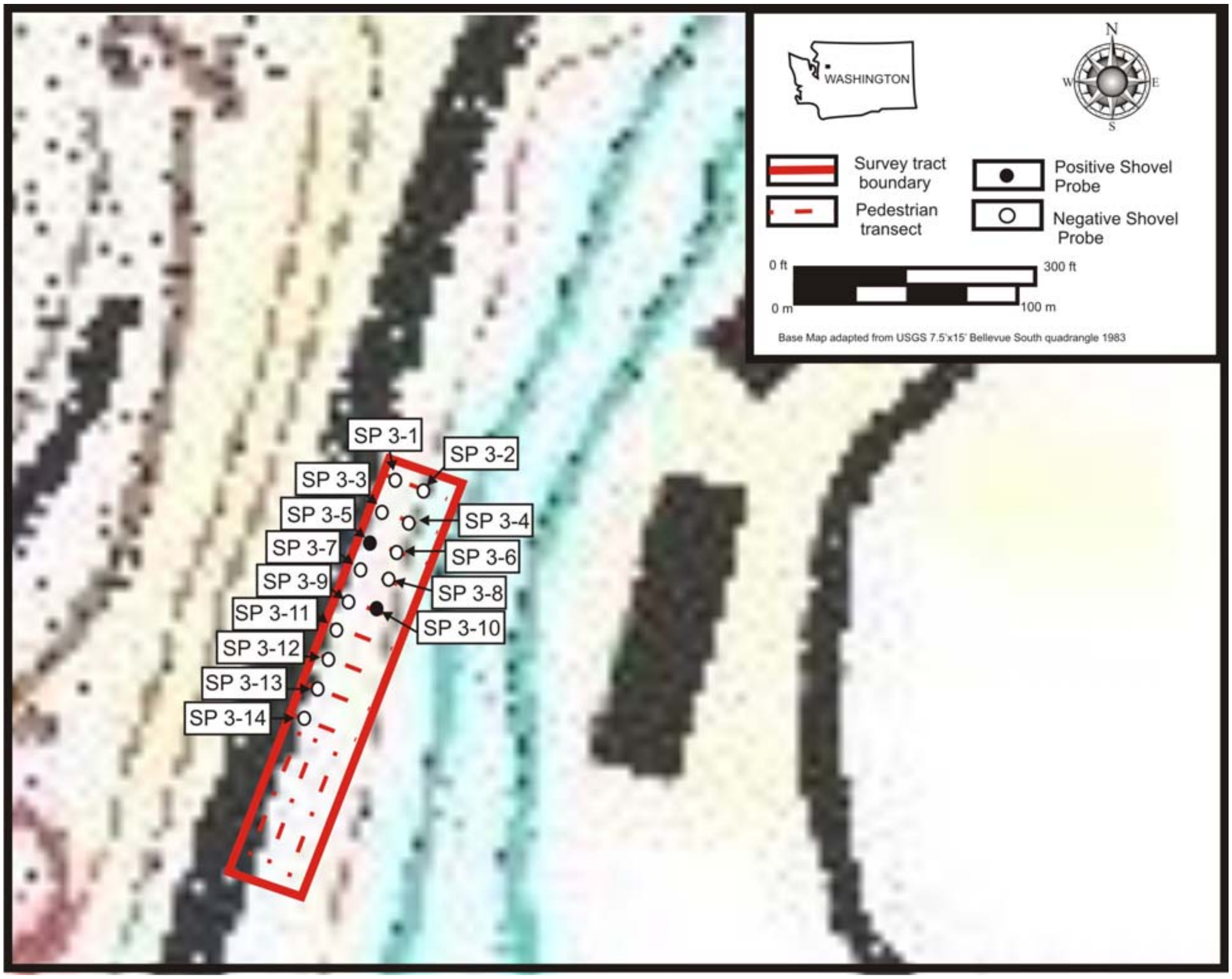

SP 3-1
SP 3-2
SP 3-3
SP 3-4
SP 3-5
SP 3-6
SP 3-7
SP 3-8
SP 3-9
SP 3-10
SP 3-11
SP 3-12
SP 3-13
SP 3-14
WASHINGTON
N
W
E
S
Survey tract boundary
Pedestrian transect
Positive Shovel Probe
Negative Shovel Probe
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983

EXHIBIT B-11
Survey Tract 3 Transects and Shovel Probes

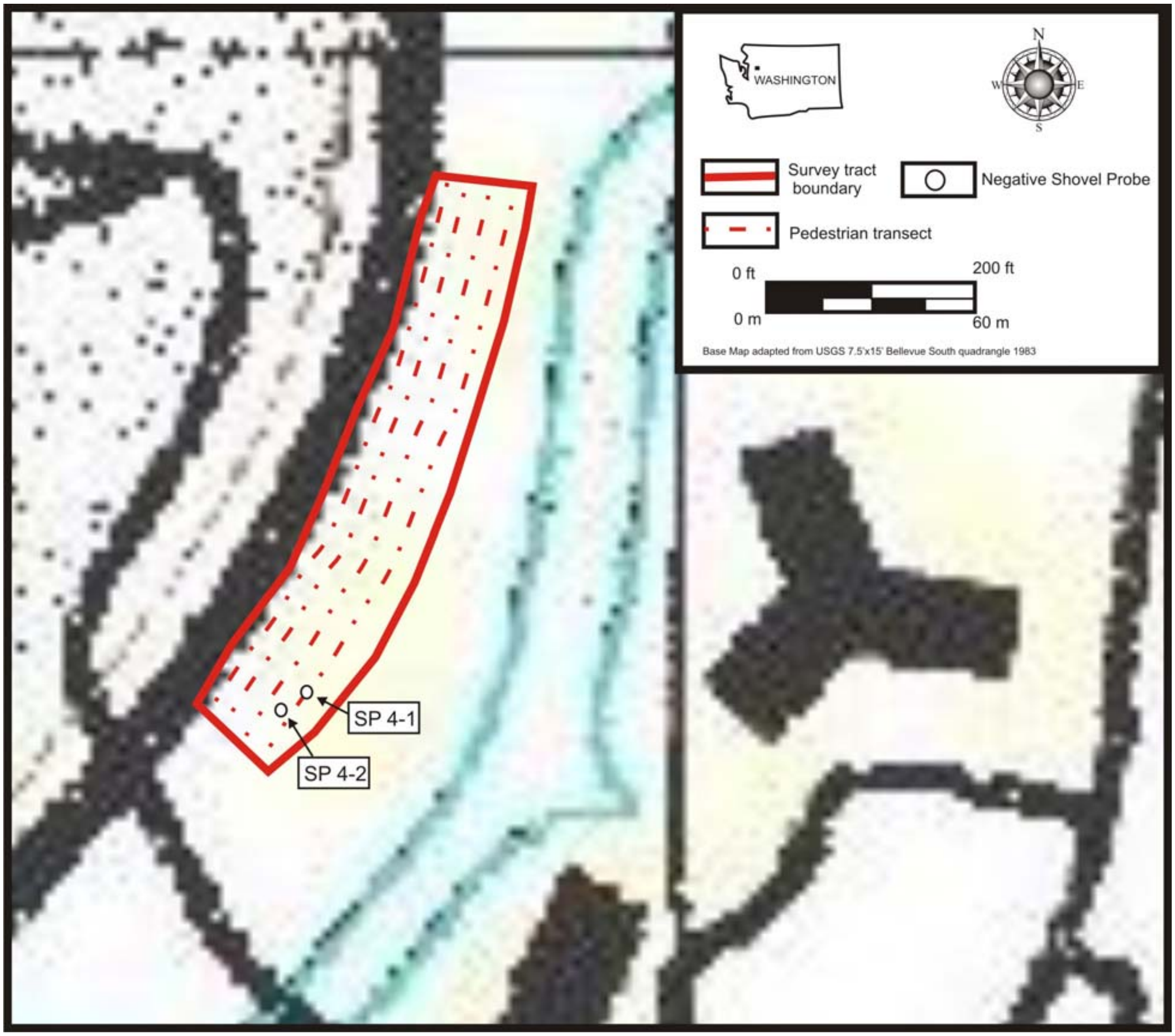

WASHINGTON
N
E
S
W
Survey tract boundary
Negative Shovel Probe
Pedestrian transect
0 ft
200 ft
0 m
60 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983
SP 4-1
SP 4-2

EXHIBIT B-12
Survey Tract 4 Transects and Shovel Probes

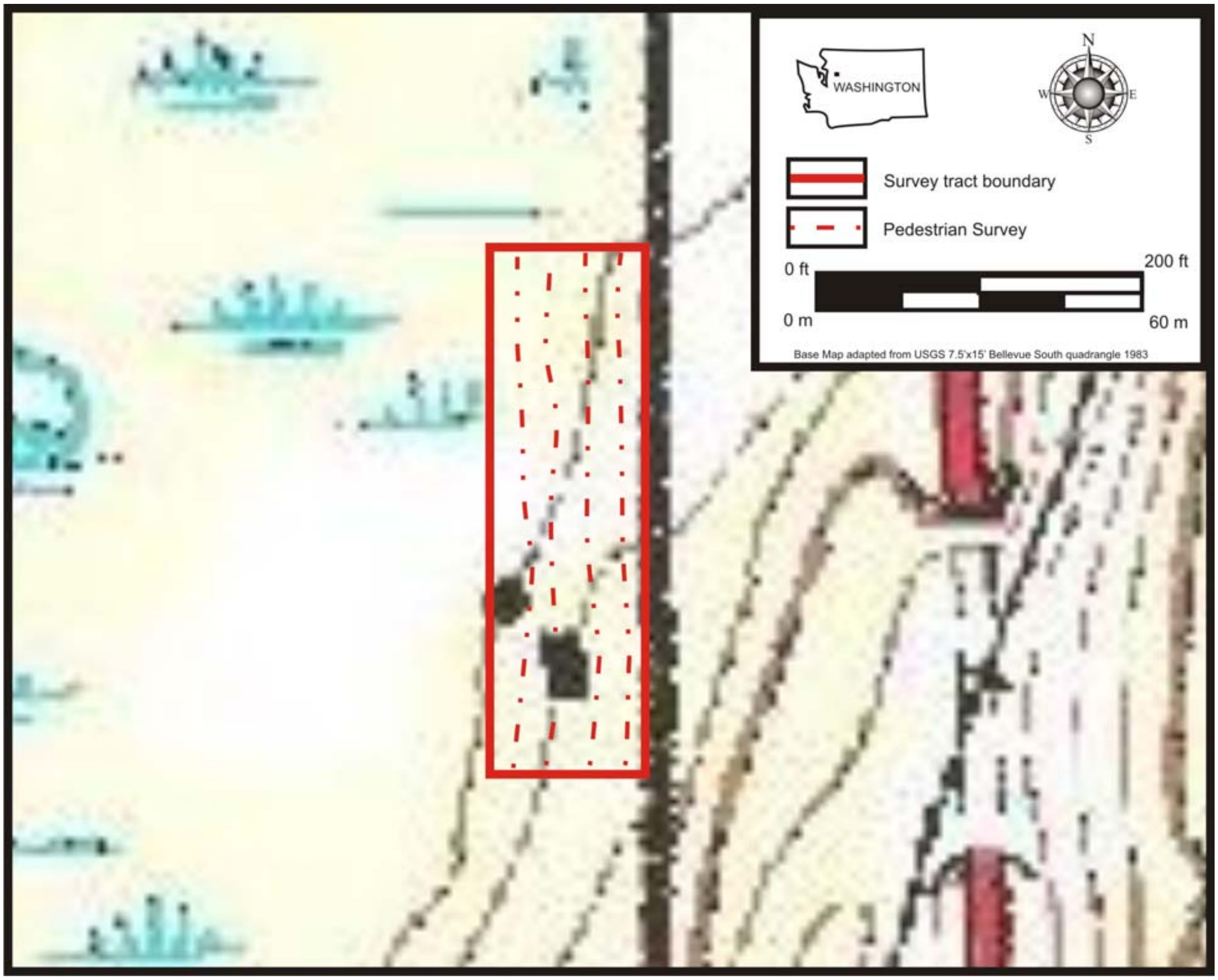

WASHINGTON
N
W
E
S
Survey tract boundary
Pedestrian Survey
0 ft
200 ft
0 m
60 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983

EXHIBIT B-13
Survey Tract 5 Transects

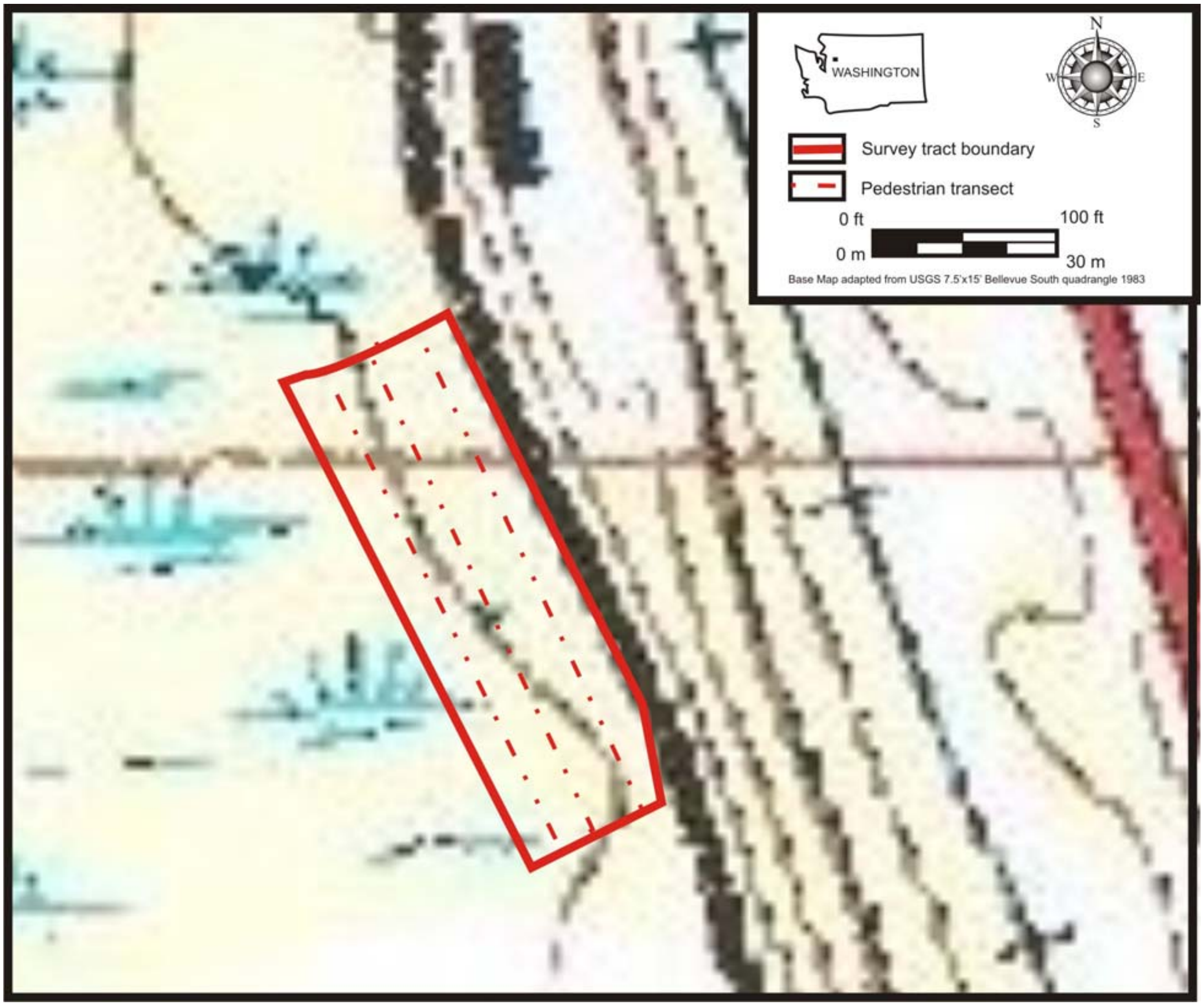

WASHINGTON
N
S
E
W
Survey tract boundary
Pedestrian transect
0 ft
100 ft
0 m
30 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983

EXHIBIT B-14
Survey Tract 6 Transects

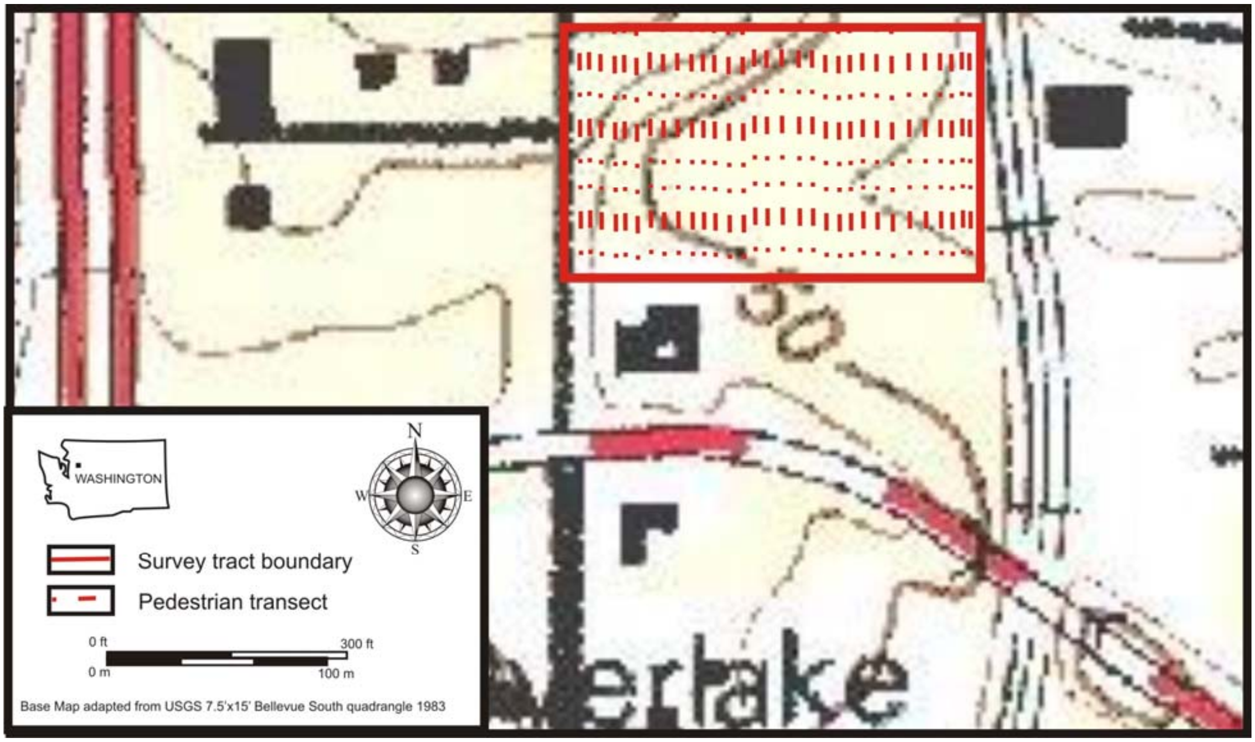

WASHINGTON
N
W
E
S
Survey tract boundary
Pedestrian transect
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15' Bellevue South quadrangle 1983
50
erlake

EXHIBIT B-15
Survey Tract 7 Transects

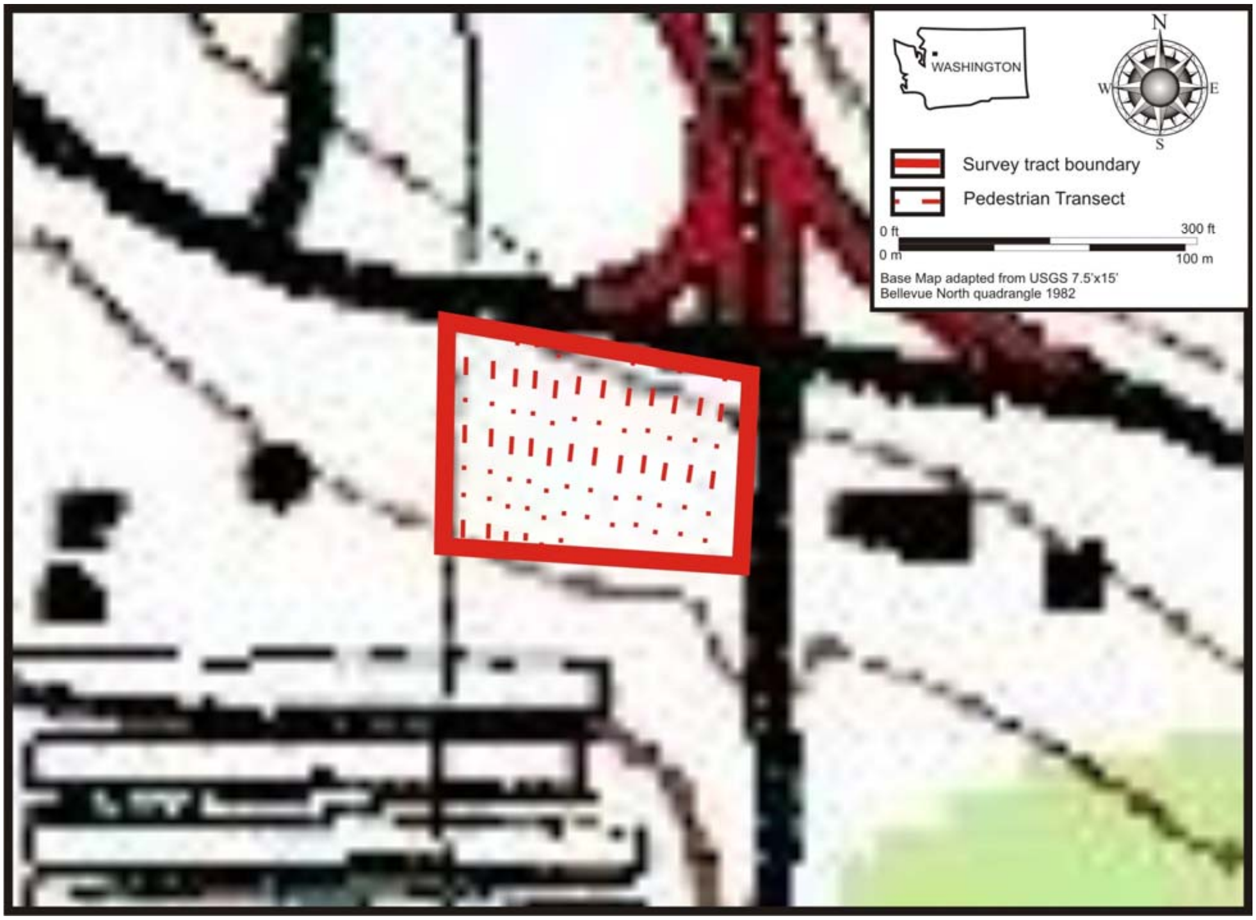

WASHINGTON
N
S
E
W
Survey tract boundary
Pedestrian Transect
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15'
Bellevue North quadrangle 1982

EXHIBIT B-16
Survey Tract 8 Transects

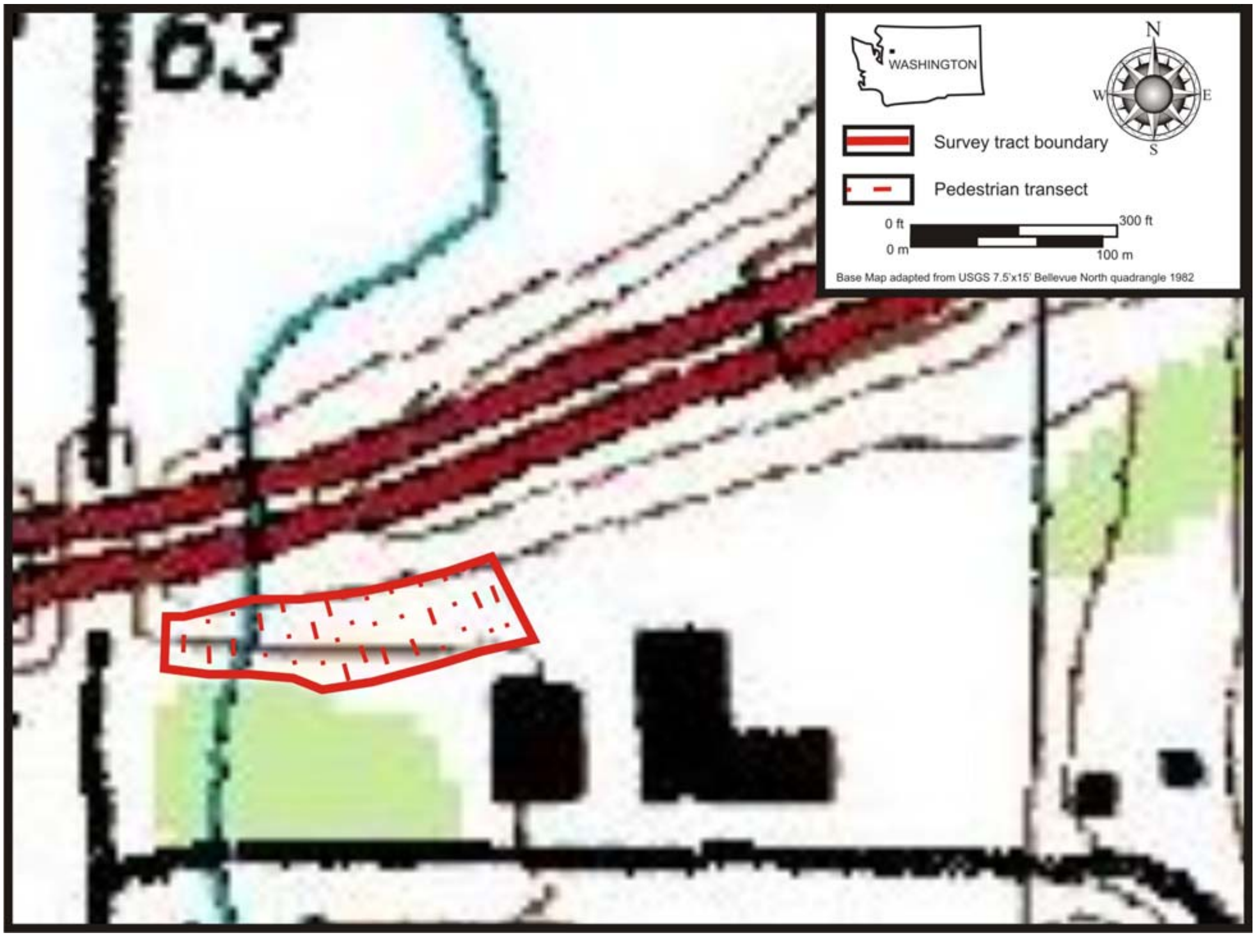

63
WASHINGTON
N
W
E
S
Survey tract boundary
Pedestrian transect
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15' Bellevue North quadrangle 1982

EXHIBIT B-17
Survey Tract 9 Transects

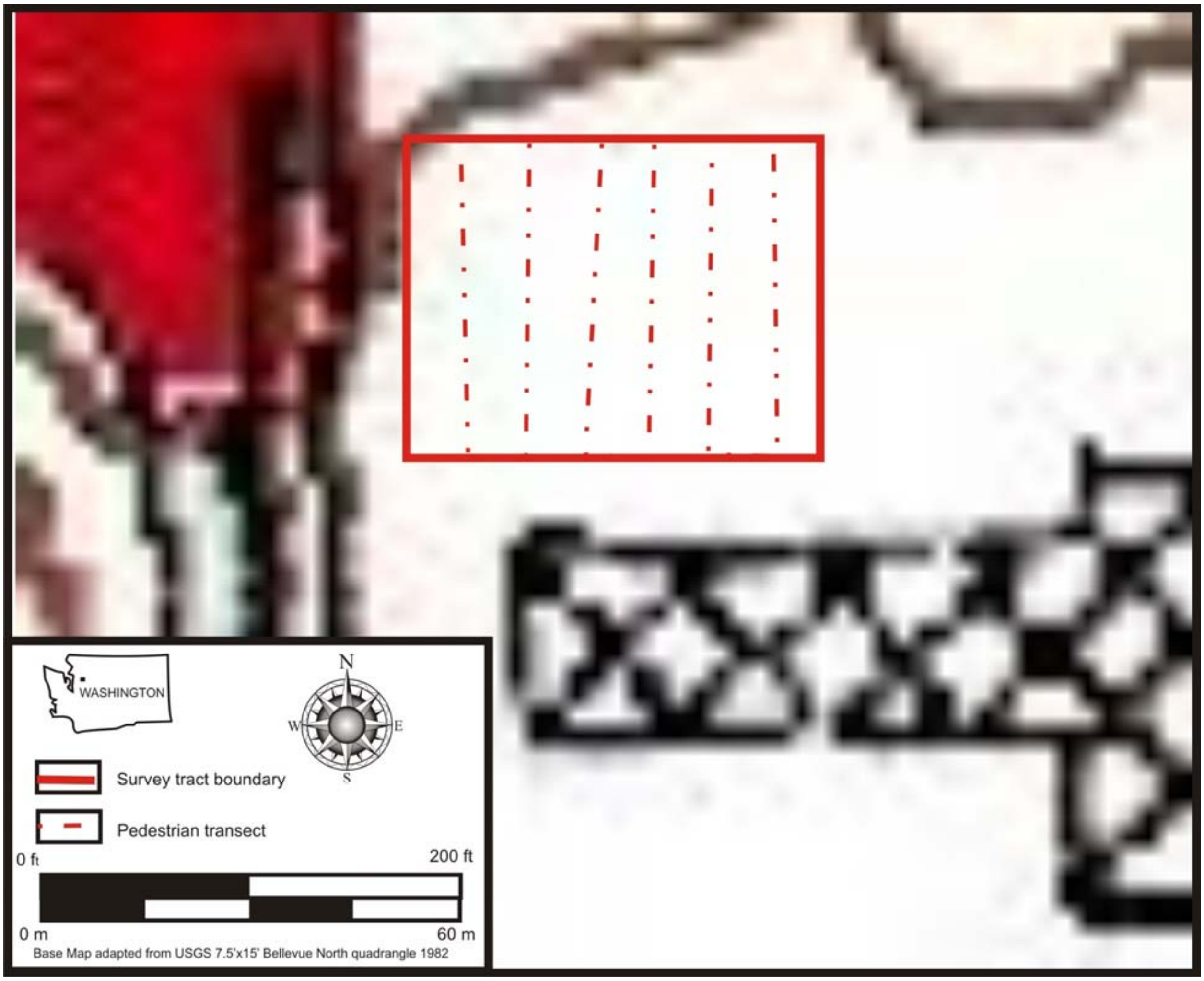

WASHINGTON
N
E
S
W
Survey tract boundary
Pedestrian transect
0 ft
200 ft
0 m
60 m
Base Map adapted from USGS 7.5'x15' Bellevue North quadrangle 1982

EXHIBIT B-18
Survey Tract 10 Transects

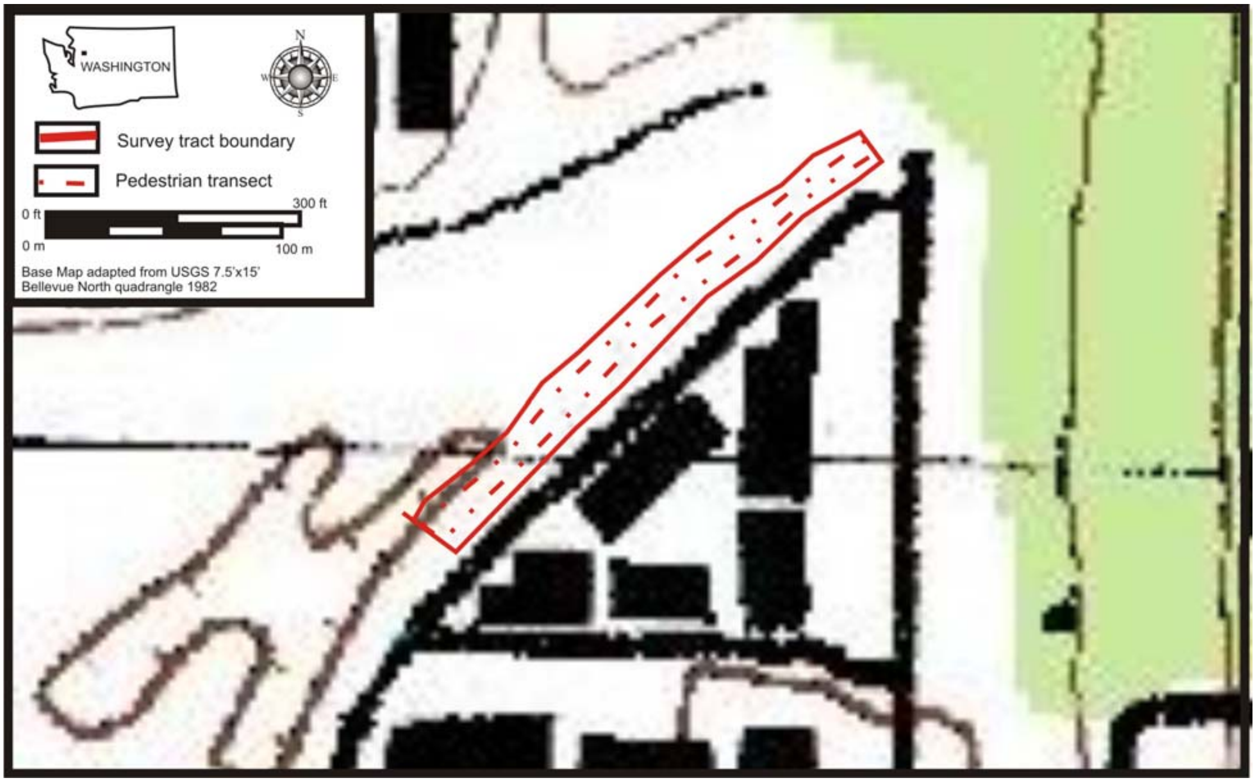

WASHINGTON
N
S
E
W
Survey tract boundary
Pedestrian transect
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15'
Bellevue North quadrangle 1982

EXHIBIT B-19
Survey Tract 11 Transects

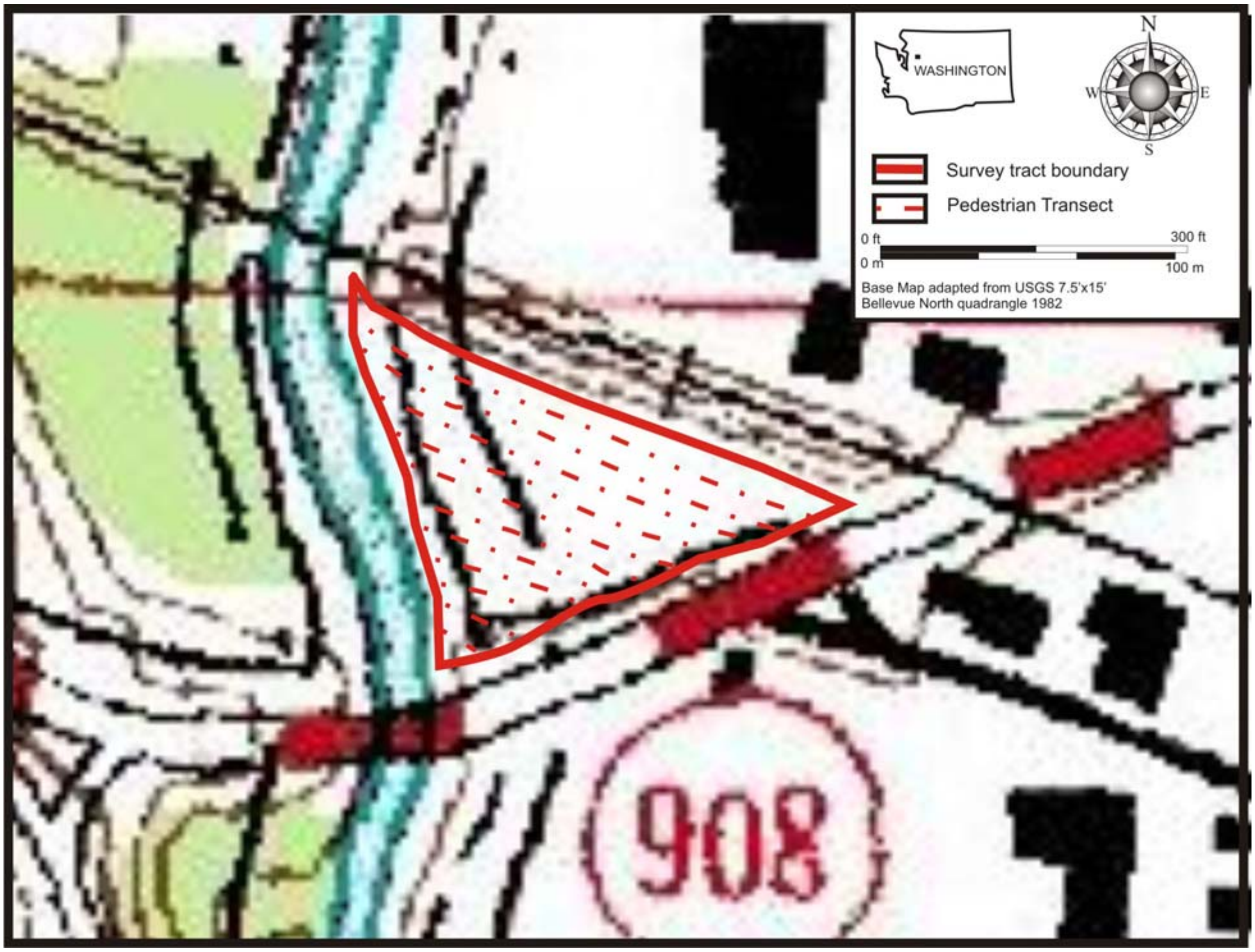

WASHINGTON
N
S
E
W
Survey tract boundary
Pedestrian Transect
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15'
Bellevue North quadrangle 1982
908

EXHIBIT B-20
Survey Tract 13 Transects

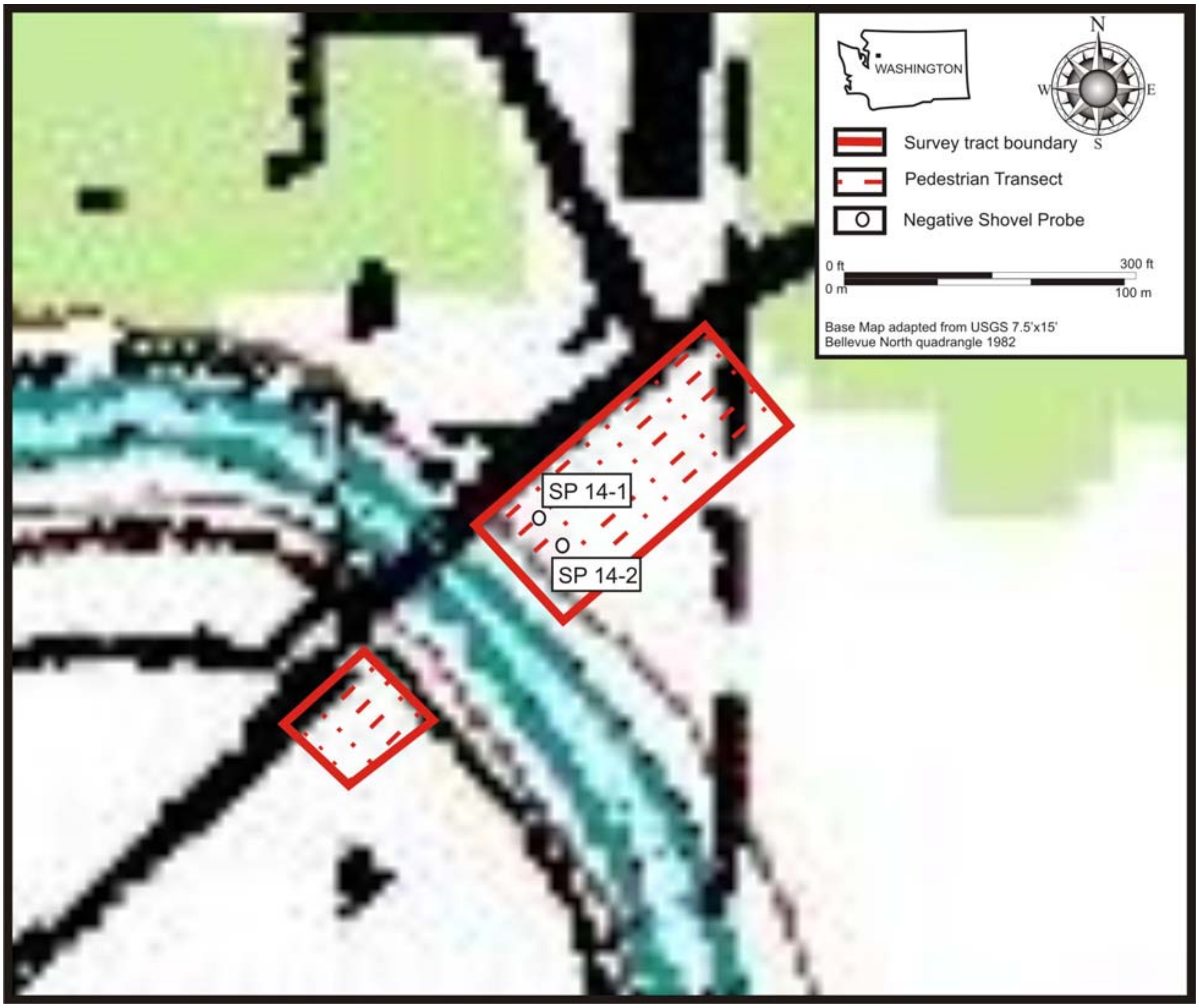

WASHINGTON
N
E
S
W
Survey tract boundary
Pedestrian Transect
Negative Shovel Probe
0 ft
300 ft
0 m
100 m
Base Map adapted from USGS 7.5'x15' Bellevue North quadrangle 1982
SP 14-1
SP 14-2

EXHIBIT B-21
Survey Tract 14 Transects and Shovel Probes

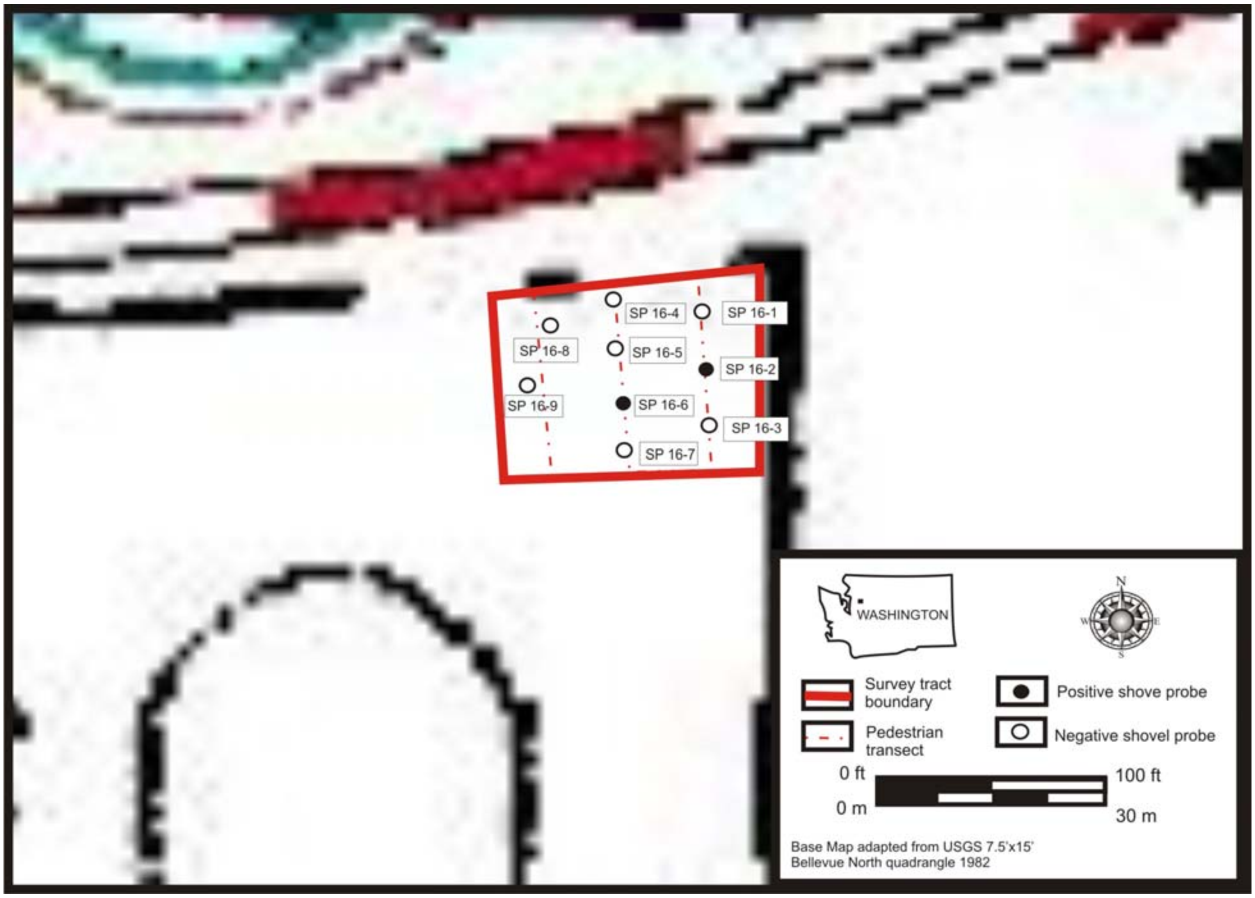

SP 16-1
SP 16-2
SP 16-3
SP 16-4
SP 16-5
SP 16-6
SP 16-7
SP 16-8
SP 16-9
WASHINGTON
N
S
E
W
Survey tract boundary
Pedestrian transect
Positive shove probe
Negative shovel probe
0 ft
100 ft
0 m
30 m
Base Map adapted from USGS 7.5'x15'
Bellevue North quadrangle 1982

EXHIBIT B-22
Survey Tract 16 Transects and Shovel Probes

TABLE B-1
Summary Information on Archaeological Shovel Probes

Alignment Segment	Test Area	Probe	Maximum Depth (cmbs)	Soil Description	Cultural Materials Identified
B	1	SP 1-1	41	0-15 cmbs:10YR 4/2 dark grayish brown sandy silty loam with 58% subrounded and subangular cobbles; 15-41 cmbs: 10YR 3/2 very dark grayish brown moist to saturated silt loam with < 5% subrounded pebbles with 1% subrounded cobbles. Terminated at 41 cmbs because of high water table	None
B	2	SP 2-1	30	0-10 cmbs thick duff layer; 10-30 cmbs highly compacted 10YR 5/1 gray clay with 2% subrounded pebbles and 3% cobbles, Terminated at 30 cmbs because of water table	None
B	2	SP 2-2	22	0-22 cmbs: 10YR 5/1 brown compact, wet silty clay, water table at 22 cmbs	None
B	2	SP 2-3	25	0-10 cmbs thick duff layer; 10-25 cmbs highly compacted 10YR 5/1 gray clay with 2% subrounded pebbles and 3% cobbles, Terminated at 25 cmbs because of water table	None
B	2	SP 2-4	27	0-12 cmbs thick duff layer; 12-27 cmbs highly compacted 10YR 5/1 gray clay with 2% subrounded pebbles and 3% cobbles, Terminated at 27 cmbs because of water table	None
B	2	SP 2-5	20	0-2 cmbs thick forest duff layer; 2-20 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	Two colorless glass bottle fragments
B	2	SP 2-6	25	0-2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-7	29	0-2 cmbs thick forest duff layer; 2-29 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	Milkglass, terra cotta fragment, orange brick fragment
B	2	SP 2-8	24	0-2 cmbs thick forest duff layer; 2-24 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-9	27	0-2 cmbs thick forest duff layer; 2-27 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-10	39	0-2 cmbs thick forest duff layer; 2-39 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-11	40	0-2 cmbs thick forest duff layer; 2-40 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-12	32	0-2 cmbs thick forest duff layer; 2-32 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	Undecorated white earthenware fragment
B	2	SP 2-13	25	0-2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-14	27	0-2 cmbs thick forest duff layer; 2-27 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None

TABLE B-1
Summary Information on Archaeological Shovel Probes

Alignment Segment	Test Area	Probe	Maximum Depth (cmbs)	Soil Description	Cultural Materials Identified
B	2	SP 2-15	32	0-2 cmbs thick forest duff layer; 2-32 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-16	40	0-2 cmbs thick forest duff layer; 2-40 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-17	25	0-2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-18	23	0-2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	2	SP 2-19	39	0-2 cmbs thick forest duff layer; 2-39 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	3	SP 3-1		0-2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	3	SP 3-2		02 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	3	SP 3-3	85	0-5 cmbs duff layer; 20-50 cmbs very moist mottled 10YR 3/2 very dark grayish brown with 10YR 3/1 very dark gray moist silt loam with clumps of decaying vegetation; 50-85 cmbs 10YR 3/4 dark yellowish brown clayey silt with <1% subangular gravels	None
B	3	SP-3-4		2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	3	SP 3-5	38	0-7 cmbs: sod layer; 7-38 cmbs: 10YR 2/2 to 10YR 2/1 very dark brown to black silty loam.	Glass fragments; possible broken utility pipe
B	3	SP 3-6	86	0-40 cmbs: loose 10YR 3/2 to 10Y 2/1 very dark grayish brown to black loam with roots and <1% subangular gravels; 40-45 cmbs: 10YR 4/3 brown slightly sandy loam with <1% subangular gravels; 45-86 cmbs: 10YR 4/2 dark grayish brown moist silt "peat-like" with chunks of decomposing vegetation	None
B	3	SP 3-7	92	0-17cmbs thick sod layer; 17-92 cmbs homogenous 10YR 3/2 very dark grayish brown silt loam with clumps of decomposed vegetation and 2% subrounded pebbles, some charcoal	None
B	3	SP 3-8	55	2 cmbs thick forest duff layer; 2-25 cmbs 10YR 3/2 very dark grayish brown silt loam, moist to saturated with <3% subrounded cobbles and gravels. Terminated at water table.	None
B	3	SP 3-9	44	0-5 cmbs organic layer 5-44 cmbs 10YR 2/1 black organic layer, mulch of decomposed plant remains mixed with silt.	None

TABLE B-1
Summary Information on Archaeological Shovel Probes

Alignment Segment	Test Area	Probe	Maximum Depth (cmbs)	Soil Description	Cultural Materials Identified
B	3	SP 3-10	80	0-80 cmbs: 10YR 6/3 pale brown silt loam with 5% subrounded pebbles	Brown glass fragment at 40 cmbs
B	3	SP 3-11	92	0-30 cmbs 10YR 4/2 dark grayish brown moist silty sand with 30% subrounded cobblees and pebbles; 30-60 cmbs 10YR 2/1 black crumbly silt loam with <10% subangular to subrounded pebbles, 60-92 cmbs 10YR 2/1 to 2/2 black to very dark brown "peat-like" organic layer with decomposing vegetation	None
B	3	SP 3-12	70	0- 70 cmbs organic layer; 9-40 cmbs 10YR 6/3 pale brown fine silty clay with subrounded to subangular pebbles to cobbles, 40 to 70 cmbs fine 10YR 4/2 dark grayish brown silty clay with 4% cobbles	None
B	3	SP 3-14	77	0-77 cmbs: 10YR 2/2 to 2/1 very dark brown to black organic silt loam with abundant decomposing vegetation and hard compacted clumps of 10YR 4/2 dark grayish brown sandy silt. Disturbed soils.	None
B	4	SP 4-1	62	0-62 cmbs: 10YR 5/3 brown silt loam with coarse sands and 5% cobbles, fill.	None
B	4	SP 4-2	57	0-57 cmbs: 10YR 5/3 brown silt loam with coarse sands and 5% cobbles, fill.	None
E	14	SP 14-1		0-74 cmbs: 10YR 5/3 brown silt loam with coarse sands and 10 % gravels to cobbles, fill.	None
E	14	SP 14-2	74	0-74 cmbs: 10YR 5/3 brown silt loam with coarse sands and 10 % gravels to cobbles, fill.	None
E	16	SP 16-1	82	0-11 cmbs: 10YR 4/3 brown powdery silt loam with some 10YR 5/3 brown mottling with 10% subrounded pebbles to cobbles; 22-70 cmbs: 10YR 5/2 grayish brown silt loam; 50-82 cmbs: 10YR 4/1 dark gray fine sandy silt. Historic fill	None
E	16	SP 16-2	70	0-3 sod layer; 3-50 cmbs: 10YR 3/2 very dark grayish brown silt with 7% subrounded pebbles some charcoal. Layer of broken glass at 25 cmbs, metal fragments at 30 cmbs; 50-70 cmbs: 10YR 4/1 dark gray fine sandy silt. Historic fill	Glass and metal fragments
E	16	SP 16-3	92	0-11 cmbs: sod layer; 10YR 5/3 brown silt loam with 10% gravels to pebbles; 11-26 cmbs: 10YR 5/1 brown silt loam with 10% subrounded pebbles to cobbles; 26-87 cmbs: 10YR 6/1 fine gray sand; 87-92 cmbs: 10YR 3/3 reddish brown loam with coarse, gritty sands	None
E	16	SP 16-4	97	0-5 cmbs: sod layer; 5-13 cmbs: 10YR 3/2 very dark grayish brown silt loam with 3% subrounded pebbles; 13-97 cmbs: 5YR 4/2 dark reddish gray very fine sandy silt with <1% subrounded pebbles. Some 10YR 5/6 to 10YR 4/6 yellowish brown to dark yellowish brown sandy silt	None
E	16	SP 16-5	82	0-5 cmbs: sod layer; 5-13 cmbs: 10YR 3/2 very dark grayish brown silt loam with 3% subrounded pebbles; 13-82 cmbs: 5YR 4/2 dark reddish gray very fine sandy silt with <1% subrounded pebbles.	None

TABLE B-1
Summary Information on Archaeological Shovel Probes

Alignment Segment	Test Area	Probe	Maximum Depth (cmbs)	Soil Description	Cultural Materials Identified
E	16	SP 16-6	95	0-12 cmbs sod layer; 12-45 cmbs 10YR 6/3 pale brown silt loam with glass fragments mixed throughout; 45-80 cmbs: 10YR 5/1 gray mottled with 10YR 3/6 dark yellowish brown sandy clay; 80-95 cmbs 10YR 5/3 brown sand with 70% subangular pebbles, fill.	Glass fragments
E	16	SP 16-7	102	0-7 cmbs: ; 7-29 cmbs: 10YR 5/2 grayish brown silt loam with 10% subrounded gravels ; 29-85: 10YR 5/1 fine gray sand; 85-102 cmbs: 10YR 3/3 reddish brown loam with coarse, gritty sands	None
E	16	16-8	120	0-5 cmbs: sod layer; 5-20 cmbs: 10YR 3/2 very dark grayish brown silt loam; 20-118 cmbs: 5YR 4/2dark reddish gray very fine sandy silt; 118-120 cmbs: 5YR 4/2 dark reddish gray very fine sandy silt mottle with 10YR 5/1gray coarse sands	None
E	16	16-9	115	0-8 cmbs: sod layer; 8-24 cmbs: 10YR 3/2 very dark grayish brown silt loam; 20-115 cmbs: 5YR 4/2 dark reddish gray very fine sandy silt	None

cmbs centimeters below surface

APPENDIX C

Historic Property Inventory Forms List and Maps

City of Seattle Historic Property Inventory Forms List

Field Site No.	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-132	A	Yes	7669800045	1930	815 Airport Way S 98134
1256-133	A	No	7666203380	1920	1101 Airport Way S 98134
1256-134	A	No	7666202740	1928	1002 Airport Way S 98134
1256-135	A	No	7666204800	1922, 1928	1021 6th Ave S
1256-136	A	No	7666203360	1937	1022 6TH AVE S 98134
1256-137	A	No	7666204820	1913	830 4TH AVE S 98134
1256-138	A	No	7666204745	1930	1000 4TH AVE S 98134
1256-139	A	No	7666204795	1910	1064 4TH AVE S 98134
1256-140	A	No	7666202750	1951	707 S Plummer St 98134
1256-141	A	No	6834700175	1950, 1954, 1967(2), 1975, 1984	801 S Dearborn St 98134
1256-142	A	No	7134300390	1952	1421 S Dean St 98144
1256-143	A	No	7134300440	1952	851 Poplar Pl S 98144
1256-144	A	No	3644100510	1907	1361 30th Ave S 98144
1256-145	A	No	3644100505	1933	1359 30th Ave S 98144
1256-146	A	No	6909200330	1949	1358 31st Ave S 98144
1256-147	A	No	6909200445	1924	1359 31st Ave S 98144
1256-148	A	No	6909200440	1907	1363 31st Ave S 98144
1256-149	A	No	6909200435	1964	1367 31st Ave S 98143
1256-150	A	No	6909200530	1931	1400 31st Ave S 98144
1256-151	A	No	6909200525	1960	1401 31st Ave S 98144
1256-152	A	No	6909200535	1900	1404 31st Ave S 98144
1256-153	A	No	6909200375	1910	1353 32nd Ave S 98144
1256-154	A	No	6909200370	1938	1363 32nd Ave S 98144
1256-155	A	No	6909200365	1920	1367 32nd Ave S 98144
1256-156	A	No	6909200605	1908	1402 32nd Ave S 98144
1256-157	A	No	6909200615	1922	1408 32nd Ave S 98144
1256-158	A	No	6909200590	1912	1409 32nd Ave S 98144
1256-159	A	No	6909200585	1900	1413 32nd Ave S 98144
1256-160	A	No	6909200620	1955	1414 32nd Ave S 98144
1256-161	A	No	1250202520	1925	1378 33rd Ave S 98144
1256-162	A	No	1250202530	1925	1382 33rd Ave S 98144
1256-163	A	No	1250202110	1909	1385 33rd Ave S 98144
1256-164	A	No	1250202115	1954	1401 33rd Ave S 98144
1256-165	A	No	1250202470	1908	3303 S Irving St 98144
1256-166	A	Yes	6909200595	1894	3119 S. Day St
1256-167	A	No	1250202390	1953	3301 S Day St 98144
1256-168	A	No	1250202515	1924	3308 S Day St 98144
1256-169	A	No	1250202595	1920	1351 Lake Washington Blvd S 98144
1256-170	A	No	1250202579	1904	1355 Lake Washington Blvd S 98144
1256-171	A	No	1250202575	1909	1363 Lake Washington Blvd S 98144
1256-172	A	No	1250204665	1941	1404 Lakeside Ave S 98144
1256-275	A	No	7666204760	1982	1000 4th Ave S 98134
1256-276	A	No	7666203387	1979	1333 Airport Way 98134
1256-277	A	No	1250202465	1978	1403 Lake Washington Blvd 98144
1256-303	A	Yes		1912	12th Avenue South over Dearborn Street
1256-304	A	Yes		1940	I-90
1256-376	A	Yes	5247801655	1928	504 5th Ave S 98104
1256-377	A	No	5247801660	1959	519 6th Ave S 98104
1256-I90	A	Yes		1979-1993	I-90 (Lake WA Segment Mileposts 3.4-8.9)

City of Mercer Island Historic Property Inventory Forms List

Field Site No.	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-173	A	No	4099500010	1918	2403 60th Ave SE 98040
1256-174	A	No	5315100110	1920	7436 N Mercer Way 98040
1256-175	A	No	5315101867	1946	2224 76th Ave SE 98040
1256-176	A	No	1224049040	1948	8206 N Mercer Way 98040
1256-177	A	No	8106100100	1957	8636 N Mercer Way 98040
1256-178	A	No	0647100120	1958	3217 90th PL SE 98040
1256-179	A	No	0647100135	1961	3235 90th PL SE 98040
1256-180	A	No	0647100231	1954	3240 90th PL SE 98040
1256-181	A	No	0647100237	1962	9095 N Mercer Way 98040
1256-182	A	No	4139300045	1949	3508 96th AVE SE 98040
1256-183	A	No	0724059092	1942	3434 97th AVE NE 98040
1256-305	A	No	3307700050	1948	2221 66th Ave SE
1256-306	A	No	5442300850	1955	6314 SE 22nd ST

HRA ID	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-2	B	No	7000100850	1950	3244 113TH AVE SE 98004
1256-3	B	No	7000100840	1920	3236 113TH AVE SE 98004
1256-4	B	No	7000100810	1940	3218 113TH AVE SE 98004
1256-5	B	No	7000100770	1950	3018 113TH AVE SE 98004
1256-6	B	No	7000100760	1950	3014 113TH AVE SE 98004
1256-7	B	No	7000100750	1919	3005 BELLEVUE WAY SE 98004
1256-8	B	No	7000100492	1958	11234 SE 30TH ST 98004
1256-9	B	No	7000100475	1957	11230 SE 30TH ST 98004
1256-10	B	No	7000100460	1921	2841 BELLEVUE WAY SE 98004
1256-11	B	No	7000100441	1915	2821 BELLEVUE WAY SE 98004
1256-12	B	No	0685400040	1955	11043 SE 27TH PL 98004
1256-13	B	No	0685400035	1955	11047 SE 27TH PL 98004
1256-14	B	No	0685400030	1955	11048 SE 27TH PL 98004
1256-15	B	No	0685400025	1955	11044 SE 27TH PL 98004
1256-16	B	Listed	0524059084	1929	2102 Bellevue Way SE
1256-17	B	No	0524059027	1950	2128 109TH AVE SE 98004
1256-18	B	No	7324900073	1954	2110 109TH AVE SE 98004
1256-19	B	No	7324900072	1958	2106 109TH AVE SE 98004
1256-20	B	No	7324900076	1950	2100 109TH AVE SE 98004
1256-21	B	No	7324900080	1955	1936 109TH AVE SE 98004
1256-22	B	No	7324900081	1955	1928 109TH AVE SE 98004
1256-23	B	No	7324900085	1956	1922 109TH AVE SE 98004
1256-24	B	No	0524059205	1954	1914 109TH AVE SE 98004
1256-25	B	No	0524059208	1954	1906 109TH AVE SE 98004
1256-26	B	No	0524059192	1954	1911 109TH AVE SE 98004
1256-27	B	No	5326100100	1947	1641 108TH AVE SE 98004
1256-28	B	No	5326100105	1947	1631 108TH AVE SE 98004
1256-29	B	No	5326100110	1947	1621 108TH AVE SE 98004
1256-30	B	No	5326100115	1946	1615 108TH AVE SE 98004
1256-31	B	No	5326100125	1946	10715 SE 16TH ST 98004
1256-32	B	No	0524059047	1958	10640 SE 16th St 98004
1256-33	B	No	0524059220	1957	10627 SE 18TH ST 98004
1256-34	B	No	5326100041	1947	10623 SE 18TH ST 98004
1256-35	B	No	5326100015	1947	1626 106TH AVE SE 98004
1256-36	B	No	5326100005	1947	1606 106TH AVE SE 98004
1256-37	B	No	0524059189	1952	1435 SE 16TH ST 98004
1256-38	B	No	0524059144	1957	1800 108th Ave SE
1256-39	B	No	2425100060	1958	1651 109TH AVE SE 98004
1256-40	B	No	2425100055	1953	1650 109TH AVE SE 98004
1256-41	B	No	2425100050	1957	1638 109TH AVE SE 98004
1256-42	B	No	2425100045	1954	1632 109TH AVE SE 98004
1256-43	B	No	2425100040	1958	1624 109TH AVE SE 98004
1256-44	B	No	2425100035	1957	1612 109TH AVE SE 98004
1256-45	B	No	2425100030	1954	1600 109TH AVE SE 98004
1256-46	B	No	2425700015	1951	10839 SE 14TH ST 98004
1256-47	B	No	2425700020	1955	1432 109TH AVE SE 98004
1256-48	B	No	0524059011	1950	10463 SE 14TH ST 98004
1256-49	B	No	0524059135	1949	10445 SE 14TH ST 98004
1256-50	B	No	2213000070	1949	10441 SE 13TH ST 98004
1256-51	B	No	0524059176	1952	1310 BELLEVUE WAY SE 98004
1256-52	B	No	0524059213	1955	1312 BELLEVUE WAY SE 98004
1256-53	B	No	0524059149	1921	1220 BELLEVUE WAY SE 98004
1256-54	B	No	2213000035	1952	10450 SE 13TH ST 98004
1256-55	B	No	2213000030	1950	10442 SE 13TH ST 98004
1256-56	B	No	2213000025	1950	10436 SE 13TH ST 98004
1256-57	B	No	0524059227	1958	1114 BELLEVUE WAY SE 98004
1256-58	B	No	0524059066	1914	1124 LAKE WASHINGTON BLVD SE 98004
1256-59	B	No	0524059242	1959	1110 Bellevue Way SE
1256-60	B	No	0524059230	1959	1108 Bellevue Way SE
1256-61	B	No	0524059009	1965	1100 Bellevue Way SE
1256-62	B	No	0524059233	1958	10431 SE 11TH ST 98004

City of Bellevue Historic Property Inventory Forms List - Segment B

Field Site No.	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-63	B	Yes	5739601390	1962	10420 SE 11th St 98004
1256-64	B	No	5739601450	1954	842 104th Ave SE 98004
1256-65	B	No	5739601500	1958	834 Lake Washington Blvd SE 98004
1256-66	B	No	5739601510	1952	824 Lake Washington Blvd SE 98004
1256-67	B	No	5739601520	1952	814 Lake Washington Blvd SE 98004
1256-68	B	No	0666000221	1960	10256 SE 8th St 98004
1256-69	B	No	0666000219	1950	10250 SE 8th St 98004
1256-70	B	No	0666000215	1950	637 104th Ave SE 98004
1256-71	B	No	0666000200	1952	10255 SE 6th St 98004
1256-72	B	No	0666000203	1952	10245 SE 6th St 98004
1256-73	B	No	0666000202	1923	10235 SE 6th St 98004
1256-74	B	No	3210600200	1959	906 111th Pl SE 98004
1256-75	B	No	3210600190	1959	900 111th Pl SE 98004
1256-76	B	No	3225059140	1960	675 112th Ave SE 98004
1256-77	B	No	0424059073	1960	1015 118th Ave SE 98004
1256-78	B	No	9399700820	1959	969 118th Ave SE 98004
1256-184	B	No	2344300030	1945	3251 106th Ave SE 98004
1256-185	B	No	2344300025	1950	3257 106th Ave SE 98004
1256-186	B	No	2344300211	1949	3266 106th Ave SE 98004
1256-187	B	No	2344300213	1952	3270 106th Ave SE 98004
1256-188	B	No	2344300015	1940	3273 106th Ave SE 98004
1256-189	B	No	2450000275	1959	3230 108th Ave SE 98004
1256-190	B	No	2450000235	1948	3247 109th Ave SE 98004
1256-191	B	No	5326100035	1947	10614 SE 18th St 98004
1256-192	B	No	5326100016	1947	1636 106th Ave SE 98004
1256-193	B	No	0524059080	1930	10536 SE 16th St 98004
1256-194	B	No	2425100070	1955	1718 108th Ave SE 98004
1256-195	B	No	0524059194	1954	1906 108th Ave SE 98004
1256-196	B	No	0524059134	1949	10441 SE 14th St 98004
1256-197	B	No	5739601615	1954	1012 Bellevue Way SE 98004
1256-198	B	No	5739601625	1954	1020 Bellevue Way SE 98004
1256-199	B	No	5739601675	1956	1026 Bellevue Way SE 98004
1256-200	B	No	0524059229	1958	1112 Bellevue Way SE 98004
1256-201	B	No	5739601300	1952	827 104th Ave SE 98004
1256-202	B	No	5739601310	1952	833 104th Ave SE 98004
1256-203	B	No	5739601320	1952	839 104th Ave SE 98004
1256-307	B	No	2344300214	1952	3461 108th Ave SE 98004
1256-308	B	No	2450000070	1951	3245 110th Ave SE 98004
1256-309	B	No	7000100465	1964	2831 Bellevue Way SE 98004
1256-310	B	No	0644200030	1964	11041 SE 26th ST 98004
1256-311	B	No	3210600180	1962	807 111th Pl SE 98004
1256-312	B	No	3210600210	1966	912 111th Pl SE 98004
1256-313	B	No	3210600220	1966	918 111th Pl SE 98004
1256-314	B	No	3210700010	1966	924 111th Pl SE 98004
1256-3083	B	No	524059239	1961	1919 108th Ave SE 98004
1256-3150	B	No	532610-0071	1966	1614 Bellevue Way 98004
1256-3170	B	No	532610-0070	1949	10407 SE 16th St 98004
1256-3198	B	No	052405-9282	1951	1540 Bellevue Way 98004
1256-3210	B	No	524059164	1960	1530 Bellevue Way 98004
1256-3237	B	No	524059081	1946	1429 Lake Washington Blvd 98004
1256-1016	B	No	1099100100	1968	Bellevue 98004
1256-6059	B	No	924059097	1935	11831 SE 32nd St 98005

City of Bellevue Historic Property Inventory Forms List - Segment C

HRA ID	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-1	C	Potential District	8146100585	1954	106 110th Ave SE
1256-79	C	No	0666000190	1959	545 Bellevue Way SE 98004
1256-80	C	No	0682000030	1955	335 105TH AVE SE 98004
1256-81	C	No	0682000025	1955	325 105TH AVE SE 98004
1256-82	C	No	0682000020	1955	231 105TH AVE SE 98004
1256-83	C	No	0682000015	1955	225 105TH AVE SE 98004
1256-84	C	No	3225059094	1950	306 111TH AVE NE 98004
1256-85	C	No	3225059054	1928	10838 MAIN ST 98004
1256-86	C	No	3225059197	1952	752 108TH AVE NE 98004
1256-87	C	No	3225059141	1960	10827 NE 8TH ST 98004
1256-88	C	No	2925059183	1952	1209 112TH AVE NE 98004
1256-89	C	No	2925059188	1952	1211 112TH AVE NE 98004
1256-90	C	No	2925059181	1952	1213 112TH AVE NE 98004
1256-91	C	No	4348800010	1952	1210 111TH AVE NE 98004
1256-92	C	No	4348800015	1952	1216 111TH AVE NE 98004
1256-93	C	No	4348800020	1952	1222 111TH AVE NE 98004
1256-94	C	No	4348800090	1952	1209 111TH AVE NE 98004
1256-95	C	No	4348800085	1952	1215 111TH AVE NE 98004
1256-96	C	No	4348800080	1952	1221 111TH AVE NE 98004
1256-97	C	No	2925059139	1947	10856 NE 12TH ST 98004
1256-98	C	No	2925059238	1958	10810 NE 12TH ST 98004
1256-99	C	No	2925059236	1958	10818 NE 12TH ST 98004
1256-100	C	No	2925059237	1958	10812 NE 12TH ST 98004
1256-101	C	No	2925059140	1956	1216 108TH AVE NE 98004
1256-119	C	Potential District	8146100595	1954	122 110th Ave SE
1256-120	C	Potential District	8146100605	1954	11022 SE 2nd St
1256-121	C	Potential District	8146100355	1955	128 109th Ave SE
1256-122	C	No	8146100360	1955	134 109th Ave SE
1256-123	C	Potential District	8146100590	1954	114 110th Ave SE
1256-124	C	No	3225059136	1947	113 110th Pl SE 98004
1256-125	C	No	3225059145	1938	131 110th Pl SE 98004
1256-126	C	No	3225059038	1952	115 110th Pl SE 98004
1256-127	C	No	6729700025	1953	130 110th Pl SE 98004
1256-128	C	No	6729700020	1953	124 110th Pl SE 98004
1256-129	C	No	6729700015	1952	118 110th PL SE 98004
1256-130	C	No	6729700010	1952	112 110th PL SE 98004
1256-131	C	No	6729700005	1952	106 110th PL SE 98004
1256-204	C	No	8146300055	1959	11106 SE 4th St 98004
1256-205	C	No	8146300060	1959	11116 SE 4th St 98004
1256-206	C	No	8146300280	1959	11121 SE 4th St 98004
1256-207	C	No	8146100670	1953	104 111th Ave SE 98004
1256-208	C	No	8146100620	1953	105 111th Ave SE 98004
1256-209	C	No	8146100675	1953	112 111th Ave SE 98004
1256-210	C	No	8146100680	1953	200 111th Ave SE 98004
1256-211	C	No	8146100685	1953	204 111th Ave SE 98004
1256-212	C	No	8146300005	1959	212 111th Ave SE 98004
1256-213	C	No	8146300010	1959	220 111th Ave SE 98004
1256-214	C	No	8146300015	1959	226 111th Ave SE 98004
1256-215	C	No	8146300020	1959	236 111th Ave SE 98004
1256-216	C	No	8146300025	1958	240 111th Ave SE 98004
1256-217	C	No	8146300030	1959	248 111th Ave SE 98004
1256-218	C	No	8146300035	1958	300 111th Ave SE 98004
1256-219	C	No	8146300040	1958	308 111th Ave SE 98004
1256-220	C	No	8146300045	1958	314 111th Ave SE 98004
1256-221	C	No	8146300050	1958	322 111th Ave SE 98004
1256-222	C	No	8146300285	1958	418 111th Ave SE 98004
1256-223	C	No	8146100625	1953	11102 1st Pl 98004
1256-224	C	No	8146100630	1953	11110 1st Pl 98004
1256-225	C	No	8146100635	1953	11118 1st Pl 98004
1256-226	C	No	8146100665	1953	11123 1st Pl 98004

HRA ID	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-227	C	No	8146100640	1953	11126 1st Pl 98004
1256-228	C	No	3225059082	1960	125 108th Ave SE 98004
1256-229	C	No	8682800065	1955	126 107th Ave SE 98004
1256-230	C	No	1544100365	1966	10429 NE 2nd St 98004
1256-231	C	No	1544100364	1950	102 104th Ave NE 98004
1256-232	C	No	0666000175	1965	433 Bellevue Way SE 98004
1256-233	C	No	5223300125	1965	520 104th Ave SE 98004
1256-234	C	No	5223300135	1964	540 104th Ave SE 98004
1256-235	C	No	3225059166	1965	222 112th Ave NE 98004
1256-236	C	No	1544100250	1943	437 108th Ave NE 98004
1256-237	C	No	1544100259	1964	515 108th Ave NE 98004
1256-238	C	No	1544100252	1965	545 108th Ave NE 98004
1256-239	C	No	1544100251	1941	555 108th Ave NE 98004
1256-240	C	No	3225059076	1965	700 108th Ave NE 98004
1256-241	C	No	4348800025	1952	1226 111th Ave NE 98004
1256-242	C	No	2925059239	1958	10816 NE 12th St 98004
1256-243	C	No	727500005	1955	1221 108th Ave NE 98004
1256-244	C	No	2925059171	1955	1226 108th Ave NE 98004
1256-245	C	No	727500020	1956	10618 NE 12th Pl 98004
1256-246	C	No	2925059223	1955	10814 SE 12th PL 98004
1256-247	C	No	3325059010	1954	11635 NE 8th St 98004
1256-248	C	No	3325059124	1960	600 116th Ave NE 98004
1256-249	C	No	3325059036	1962, 1963(3)	614 116th Ave NE 98004
1256-268	C	No	8146100010	1950	10833 Main St
1256-269	C	No	8146100570	1950	11005 Main St
1256-270	C	No	8146100660	1953	11041 Main St
1256-271	C	No	8146100655	1953	11105 Main St
1256-272	C	No	8146100650	1953	11113 Main St
1256-273	C	No	8146100645	1953	11121 Main St
1256-274	C	No	8146100005	1954	69 110th Ave SE
1256-291	C	Potential District	8146100580	1954	88 110th Ave SE
1256-292	C	Potential District	8146100095	1955	10904 SE 1st St
1256-293	C	Potential District	8146100090	1955	103 109th Ave SE
1256-294	C	Potential District	8146100345	1955	114 109th Ave SE
1256-295	C	Potential District	8146100350	1955	122 109th Ave SE
1256-296	C	Potential District	8146100445	1954	10915 SE 1st St
1256-297	C	Potential District	8146100440	1954	115 110th Ave SE
1256-298	C	Potential District	8146100435	1954	121 110th Ave SE
1256-299	C	Potential District	8146100430	1954	125 110th Ave SE
1256-300	C	Potential District	8146100710	1955	214 110th Ave SE
1256-301	C	Potential District	8146100700	1954	203 110TH PL SE
1256-302	C	Potential District	8146100690	1954	11039 SE 2nd St
1256-315	C	No	8146100105	1954	79 110TH AVE SE
1256-316	C	No	8146100575	1954	80 110TH AVE SE
1256-317	C	Potential District	8146100420	1955	215 110TH AVE SE
1256-318	C	No	8146100425	1954	203 110th Ave SE
1256-319	C	Potential District	8146100695	1954	204 110TH PL SE
1256-320	C	Potential District	8146100705	1954	11005 SE 2ND ST
1256-321	C	Potential District	8146100600	1954	11014 SE 2ND ST
1256-322	C	Potential District	8146100610	1954	11030 SE 2ND ST
1256-323	C	Potential District	8146100615	1954	11040 SE 2ND ST
1256-324	C	No	8146100340	1955	10905 SE 1ST ST
1256-325	C	Potential District	8146100100	1955	10910 SE 1ST ST
1256-327	C	No	8146100060	1955	10810 SE 2ND ST 98004
1256-328	C	No	8146100110	1955	10811 SE 2ND ST 98004
1256-329	C	No	6779700010	1959	10712 SE 3RD ST 98004
1256-330	C	No	6779700005	1958	10722 SE 3RD ST 98004
1256-331	C	No	0650000095	1950	10601 SE 4TH ST 98004
1256-332	C	No	0650000005	1951	10602 SE 4TH ST 98004
1256-333	C	No	0650000090	1950	10607 SE 4TH ST 98004

City of Bellevue Historic Property Inventory Forms List - Segment C

HRA ID	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-334	C	No	0650000010	1951	10608 SE 4TH ST 98004
1256-335	C	No	0650000085	1951	10613 SE 4TH ST 98004
1256-336	C	No	0650000015	1951	10614 SE 4TH ST 98004
1256-337	C	No	0650000080	1950	10619 SE 4TH ST 98004
1256-338	C	No	0650000075	1950	10625 SE 4TH ST 98004
1256-339	C	No	0650000070	1950	10631 SE 4TH ST 98004
1256-340	C	No	0267700000	1959	130 105th Ave SE
1256-341	C	No	8682800030	1958	198 106th Ave SE
1256-342	C	No	3225059099	1952	208 106TH AVE SE 98004
1256-343	C	No	3225059114	1952	216 106TH AVE SE 98004
1256-344	C	No	3225059117	1952	222 106TH AVE SE 98004
1256-345	C	No	0682000070	1953	329 106TH AVE SE 98004
1256-346	C	No	0682000075	1953	333 106TH AVE SE 98004
1256-347	C	No	5223300460	1943	317 106TH AVE SE 98004
1256-348	C	No	8682800015	1954	119 107th Ave SE
1256-349	C	No	8682800025	1951	233 107th Ave SE
1256-350	C	No	3225059081	1966	129 108TH AVE SE 98004
1256-351	C	No	3225059202	1951	187 108TH AVE SE 98004
1256-352	C	No	6779700030	1956	307 108TH AVE SE 98004
1256-353	C	No	0650000040	1951	327 108TH AVE SE 98004
1256-354	C	No	0650000045	1951	333 108TH AVE SE 98004
1256-355	C	No	0650000050	1951	339 108TH AVE SE 98004
1256-356	C	No	0650000055	1951	345 108TH AVE SE 98004
1256-357	C	No	0650000060	1951	351 108TH AVE SE 98004
1256-358	C	No	8146100320	1961	231 109TH AVE SE 98004
1256-359	C	Potential District	8146100315	1961	241 109TH AVE SE 98004
1256-360	C	Potential District	8146100310	1961	301 109TH AVE SE 98004
1256-361	C	Potential District	8146100305	1961	313 109TH AVE SE 98004
1256-362	C	No	8146100300	1961	317 109TH AVE SE 98004
1256-363	C	Potential District	8146100295	1961	401 109TH AVE SE 98004
1256-364	C	No	8146100450	1961	404 109TH AVE SE 98004
1256-365	C	Potential District	8146100290	1961	409 109TH AVE SE 98004
1256-366	C	Potential District	8146100455	1961	412 109TH AVE SE 98004
1256-367	C	No	8146100285	1961	417 109TH AVE SE 98004
1256-368	C	No	8146100460	1961	420 109TH AVE SE 98004
1256-369	C	No	8146100280	1962	423 109TH AVE SE 98004
1256-370	C	Potential District	8146100465	1961	428 109TH AVE SE 98004
1256-371	C	Potential District	8146100275	1961	431 109TH AVE SE 98004
1256-372	C	Potential District	8146100470	1962	436 109TH AVE SE 98004
1256-373	C	Potential District	8146100475	1962	442 109TH AVE SE 98004
1256-374	C	No	8146100530	1961	415 110TH AVE SE 98004
1256-375	C	Potential District	8146100525	1961	423 110TH AVE SE 98004
1256-386	C	No	679000150	1664	10575 NE 4TH ST 98004
1256-389	C	No	1545100026	1955	139 104TH AVE NE 98004
1256-390	C	No	679000115	1958	221 106TH AVE NE 98004
1256-391	C	No	679000120	1966	225 106TH AVE NE 98004
1256-392	C	No	679000110	1925	227 106TH AVE NE 98004
1256-393	C	No	679000125	1956	233 106TH AVE NE 98004
1256-394	C	No	3063100031	1946	303 104TH AVE NE 98004
1256-395	C	No	679000140	1953	315 106TH AVE NE 98004
1256-396	C	No	3063100020	1951	317 104TH AVE NE 98004
1256-397	C	No	3063100015	1961	321 104TH AVE NE 98004
1256-400	C	No	1544600143	1963	833 108TH AVE NE 98004
1256-401	C	No	1266200245	1953	11007 NE 14TH ST 98004
1256-402	C	No	1266200250	1953	11013 NE 14TH ST 98004
1256-403	C	No	4348800060	1952	1245 111TH AVE NE 98004
1256-404	C	No	4348800050	1952	1256 111TH AVE NE 98004
1256-406	C	Potential District	8146100085	1955	115 109TH AVE SE 98004
1256-407	C	Potential District	8146100080	1955	109 109TH AVE SE 98004
1256-408	C	No	1544100217	1961	600 106TH AVE NE 98004
1256-379	C	No	1099100496	1954	11660 NE 8TH ST 98004

City of Bellevue Historic Property Inventory Forms List - Segment C

HRA ID	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-1097	C	No	1544100274	1962	414, 424, 456 104TH AVE NE 98004
1256-5060	C	No	1544100334	1953	10600 MAIN ST 98004
1256-6039	C	No	1544600148	1955	10676 NE 8TH ST 98004
1256-8011	C	No	369900085	1952	110017 NE 2ND PL 98004
1256-8015	C	No	3699800090	1953	11024 NE 2ND ST 98004
1256-21539	C	No	4348800055	1952	1251 111TH AVE NE 98004
1256-2004	C	No	8146200140	1963	528 110TH AVE SE 98004
1256-2005	C	No	8146200130	1963	522 110TH AVE SE 98004
1256-2007	C	No	8146100810	1961	448 110TH AVE SE 98004
1256-2010	C	No	8146100805	1961	442 110TH AVE SE 98004
1256-2014	C	No	8146100800	1961	434 110TH AVE SE 98004
1256-2018	C	No	8146100795	1961	426 110TH AVE SE 98004
1256-2009	C	No	8146300270	1959	423 111TH AVE SE 98004
1256-1046	C	No	666000120	1965	117 104TH AVE SE 98004
1256-5057	C	No	5223300005	1946	10525 MAIN ST 98004
1256-5056	C	No	8682800004	1961	10625 MAIN ST 98004
1256-5054	C	No	8682800075	1957	10705 MAIN ST 98004
1256-5055	C	No	1544100333	1955	10646 MAIN ST 98004
1256-5062	C	No	1544100331	1962	120 106TH AVE NE 98004
1256-5063	C	No	1544100352	1962	117 106TH AVE NE 98004
1256-6002	C	No	1047000030	1947	129 108TH AVE NE 98004
1256-1070	C	No	1545600041	1956	31 104TH AVE NE 98004

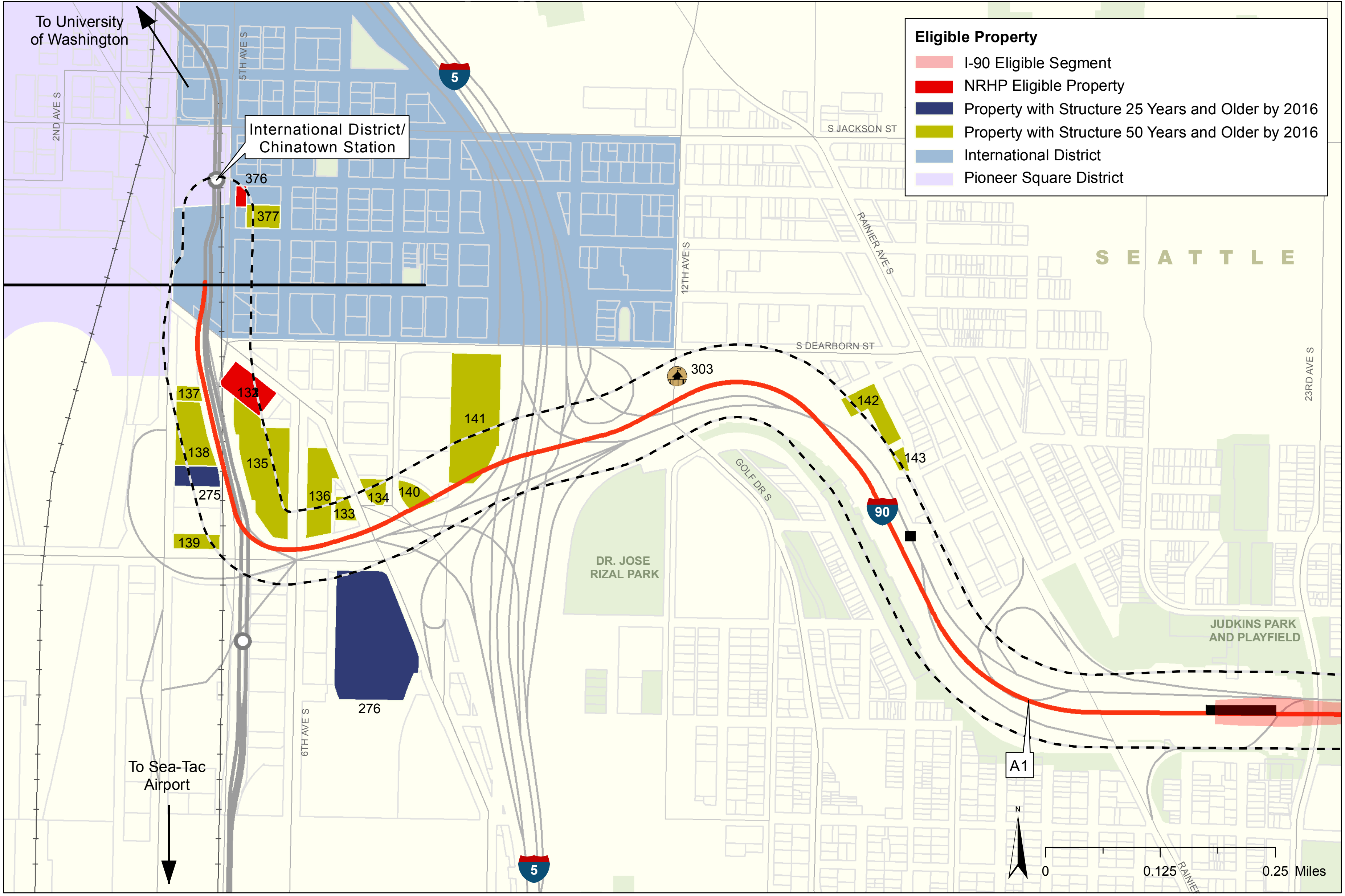
City of Bellevue Historic Property Inventory Forms List - Segment D

Field Site No.	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-102	D	No	2825059127	1957	1438 130th Ave NE 98005
1256-103	D	No	2825059159	1962	1606 130th Ave NE
1256-104	D	Yes	2625059107	1960	14822 NE Bellevue-Redmond RD 98007
1256-105	D	No	2625059010	1961	15022 NE Bellevue-Redmond RD 98007
1256-106	D	No	2825059155	1959	12628 Northup Way 98005
1256-250	D	No	5328000005		1815 116th
1256-251	D	No	5328000050		1814 115th
1256-252	D	No	5328000045		1824 115th
1256-253	D	No	5328000030		1854 115th
1256-254	D	No	5326800005		1914 116th
1256-255	D	No	0645800010		11522 NE 21st
1256-256	D	No	0645800020		11542 NE 21st
1256-257	D	No	2825059027	1960	1424 130th Ave NE 98005
1256-258	D	No	2825059165	1963 (2)	1503 130th Ave NE 98005
1256-259	D	No	2825059058	1962	1500 130th Ave NE 98005
1256-260	D	No	2725059217	1963	13420 NE 16th St 98005
1256-261	D	No	2625059039	1934, 1957 (6)	15005 NE Bellevue-Redmond Rd 98007
1256-262	D	No	2625059109		15045 NE Bellevue-Redmond RD 98007
1256-378	D	No	1099100490	1930	800 118th Ave NE 98005
1256-384	D	No	1099100102	1958 (6), 1966,	1121 124th Ave NE 98101
1256-3111	D	No	2063500010	1975	2400 148th Ave NE 98052
1256-5014	D	No	2063500090	1975	2601 151st Pl NE 98052

City of Redmond Historic Property Inventory Forms List - Segments D and E

Field Site No.	Segment	Eligible for NRHP?	Tax parcel	Year Built	Address
1256-107	E	No	9435300055	1933	15504 NE 60th ST 98052
1256-108	E	No	9435300065	1958	6219 156th Ave NE 98052
1256-109	E	No	1125059050	1954	7505 W Lake Sammamish Pkwy NE
1256-110	E	No	9270700010	1958	7848 159th Place NE
1256-111	E	No	9270700020	1960	7842 159th Place NE
1256-112	E	Yes	7202410210	1898	Leary Way NE and NE 76th St
1256-113	E	No	7198800045	1910	7805 Leary Way NE
1256-114	E	Yes	7198800025	1913	7824 Leary Way NE
1256-115	E	No	7198800016	1903	7800 Gilman Street
1256-116	E	No	1225059094	1961	16771 Redmond Way 98052
1256-117	E	No		1889	
1256-118	E	No	9270700130	1980	Slough Park; Leary Way NE and 159th
1256-263	D	No	2625059160	1966	15212 NE 20th St 98052
1256-264	E	No	1225059229	1940, 1975, 1980	17609 NE 70th St 98052
1256-265	E	No	3066100043	1965, 1964	17657 Redmond Way 98052
1256-266	E	No	1318300173	1940 (2)	6411 East Lake Sammamish Pkwy 98052
1256-267	E	No	1225059189	1959, 1975	17825 NE 65th St 98052
1256-278	D	No	2625059196	1971 (2), 1973	2200 148th Ave NE 98007
1256-279	D	No	2625059199	1970	15226 NE Bellevue-Redmond Rd
1256-280	D	No	2625059054	1973	15301 NE 24th St 98052
1256-281	E	No	5411800290	1967	5909 155th Ave NE 98052
1256-282	E	No	5411800300	1967	5915 155th Ave NE 98052
1256-283	E	No	5411800310	1967	5923 155th Ave NE 98052
1256-284	E	No	5422560680	1976	15804 NE 67th Pl 98052
1256-285	E	No	5422560670	1976	15810/15816 NE 67th Pl 98052
1256-286	E	No	5422560650	1976	15822 NE 67th Pl 98052
1256-287	E	No	1225059224	1973	16979 NE Redmond Way 98052
1256-288	E	No	1225059228	1973	16989 NE Redmond Way 98052
1256-289	E	No	1225059231	1976	7370 170th Ave NE 98052
1256-290	E	No	1225059187	1955, 1971, 1979	17301 NE 70th ST 98052
1256-326	E	No	1125059021	1950	16255 Cleveland St 98052
1256-380	E	No	7792400190	1955	16119 NE Redmond Way 98052
1256-381	E	No	225059103	1959	16160 NE 80th ST 98052
1256-382	E	No	225059126	1969	8005 161st Ave NE 98052
1256-383	E	No	7198900300	1972	8075 161st Ave NE 98052
1256-398	E	No	9270700035	1973	7760 159th Pl NE 98004
1256-405	D	No	673100050	1973	2464 152nd Ave NE 98052
1256-2154	E	No	9270700005	1971	7870 159th Pl NE 98052

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\SECTION106_SEGMENT_A_SEATTLE.MXD RGRABARE 3/4/11 10:20:34

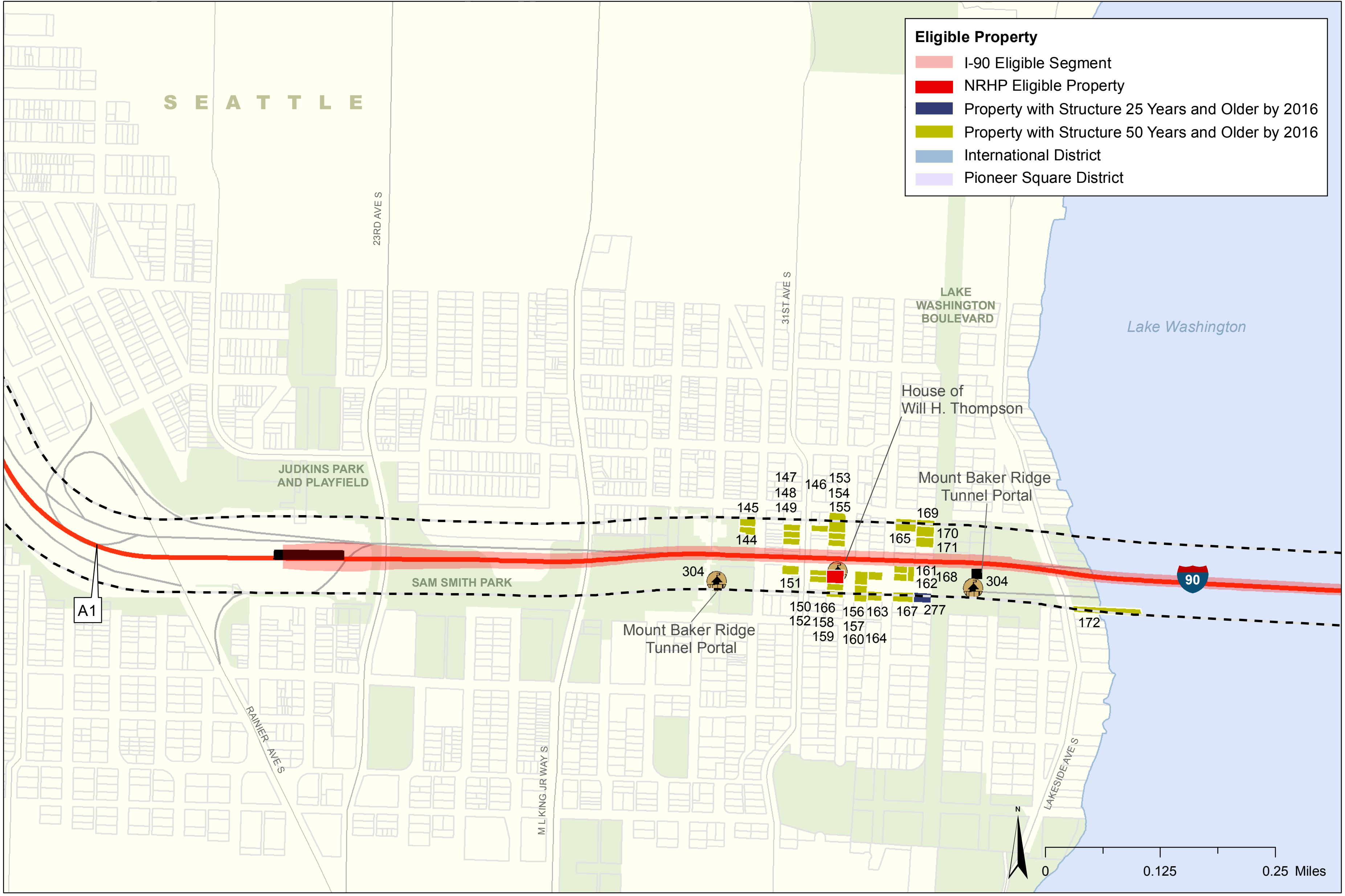

To University of Washington
International District/ Chinatown Station
2ND AVE S
5TH AVE S
12TH AVE S
S JACKSON ST
RAINIER AVE S
S DEARBORN ST
GOLF DR S
6TH AVE S
23RD AVE S
SEATTLE
DR. JOSE RIZAL PARK
JUDKINS PARK AND PLAYFIELD
To Sea-Tac Airport
5
90
376
377
137
132
135
136
133
134
140
141
138
275
139
276
303
142
143
A1
N
0
0.125
0.25 Miles
Eligible Property
🟥 I-90 Eligible Segment
🟥 NRHP Eligible Property
🟦 Property with Structure 25 Years and Older by 2016
🟨 Property with Structure 50 Years and Older by 2016
🟦 International District
🟪 Pioneer Square District

Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2009).

Listed NRHP Property
Area of Potential Effects
■ Traction Power Substation
Proposed Station
City Limits
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Central Link Alignment and Station

Exhibit C-1 **Section 106 Historic Properties Within 200 ft of Project Segment A - Seattle**
East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\SECTION106_SEGMENT_A_SEATTLE.MXD RGRABARE 3/4/11 10:20:34

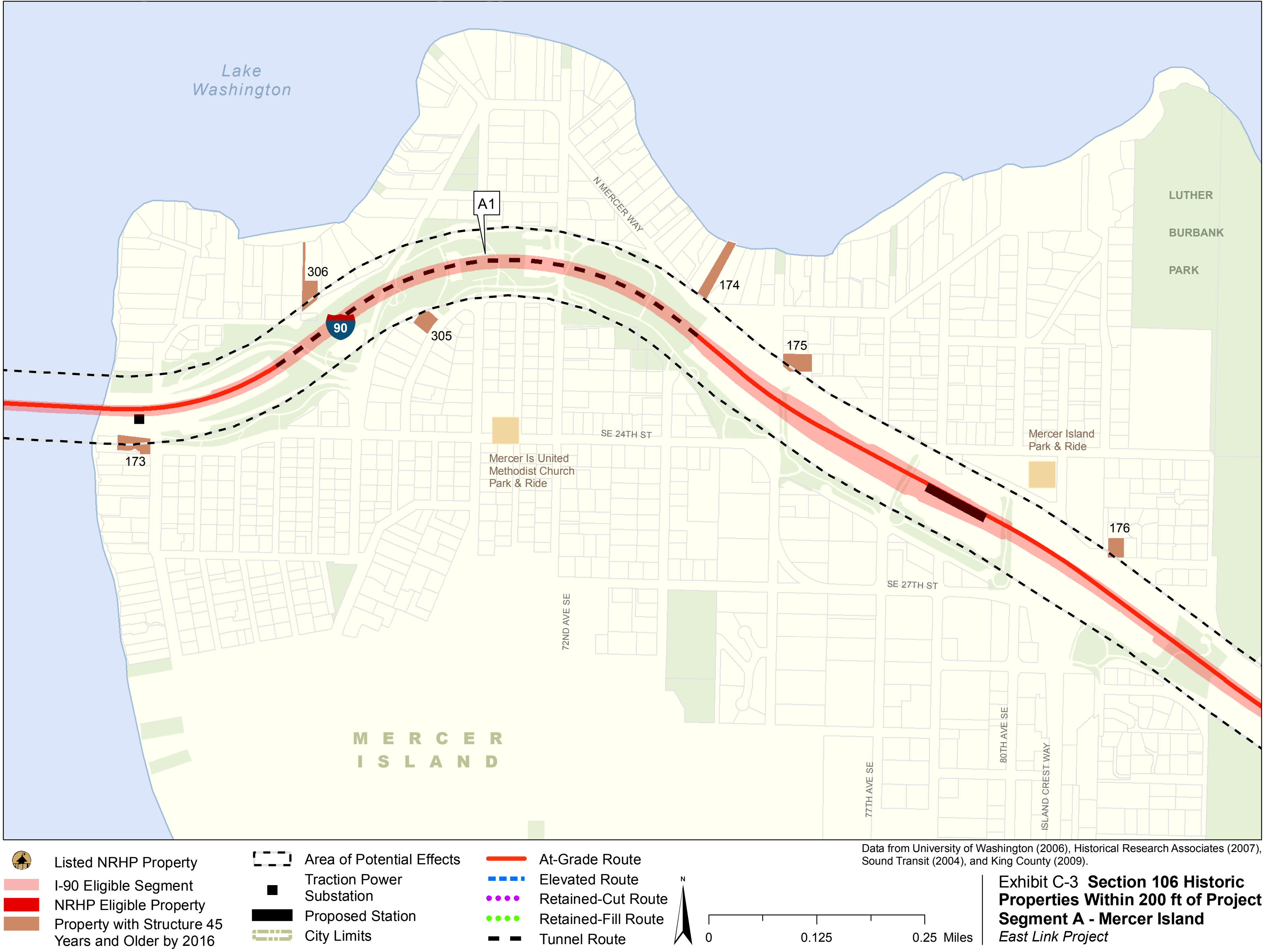

Eligible Property
🟥 I-90 Eligible Segment
🟥 NRHP Eligible Property
■ Property with Structure 25 Years and Older by 2016
■ Property with Structure 50 Years and Older by 2016
■ International District
■ Pioneer Square District
SEATTLE
23RD AVE S
31ST AVE S
LAKE WASHINGTON BOULEVARD
Lake Washington
House of Will H. Thompson
Mount Baker Ridge Tunnel Portal
JUDKINS PARK AND PLAYFIELD
SAM SMITH PARK
147
148
149
146
153
154
155
145
144
169
165
170
171
304
151
161
162
168
304
150
166
152
158
159
156
163
157
160
164
167
277
172
90
A1
Mount Baker Ridge Tunnel Portal
RAINIER AVE S
M L KING JR WAY S
LAKESIDE AVE S
N
0
0.125
0.25 Miles

Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2009).

- ● Listed NRHP Property
- ▭ Area of Potential Effects
- ■ Traction Power Substation
- ▬ Proposed Station
- ┅ City Limits
- ━ At-Grade Route
- ┅ Elevated Route
- •••• Retained-Cut Route
- •••• Retained-Fill Route
- ▬ ▬ Tunnel Route
- ─○─ Central Link Alignment and Station

Exhibit C-2 **Section 106 Historic Properties Within 200 ft of Project Segment A - Seattle**

East Link Project

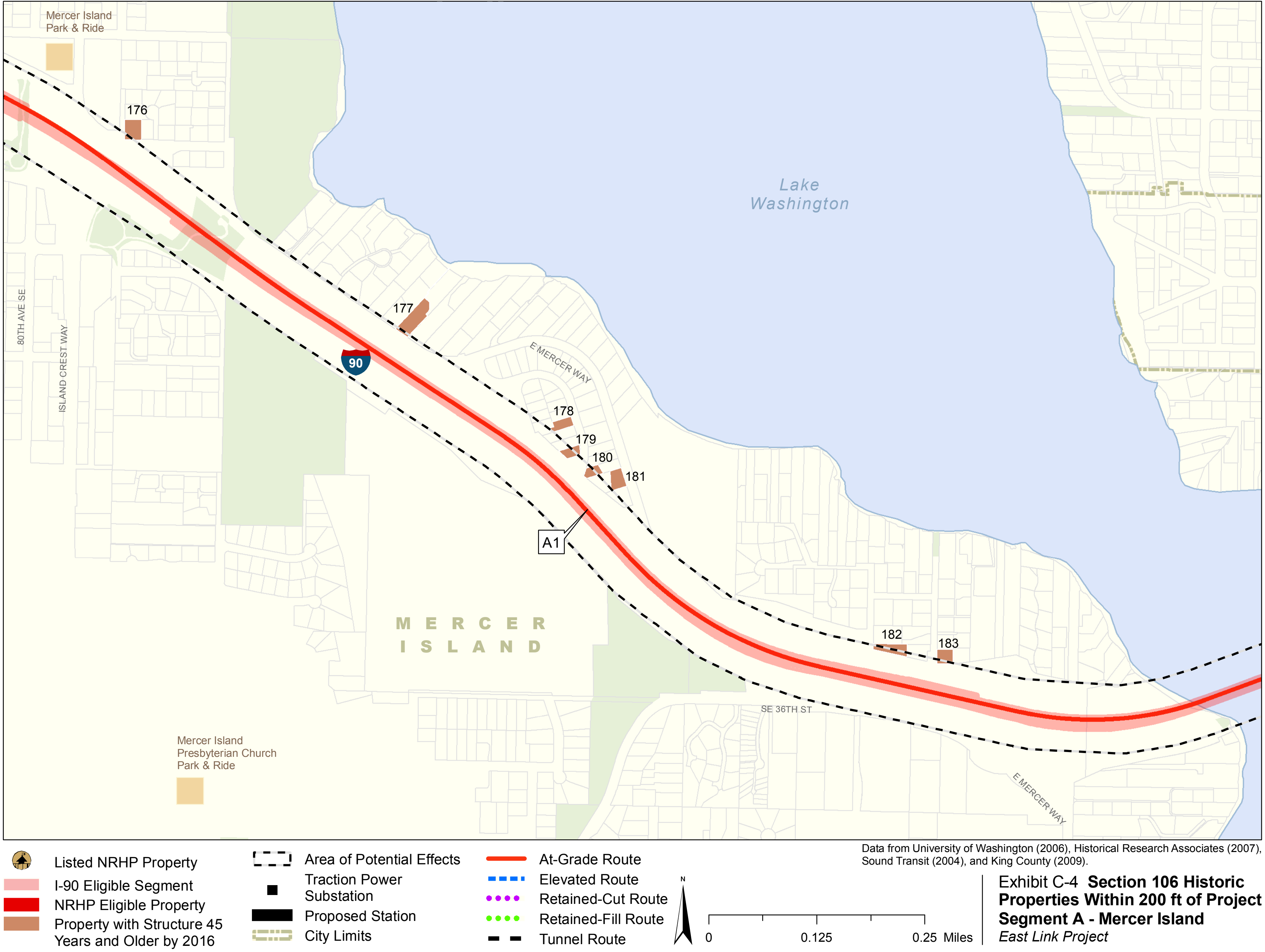

Lake Washington
LUTHER BURBANK PARK
N MERCER WAY
A1
306
305
174
175
173
176
90
SE 24TH ST
SE 27TH ST
72ND AVE SE
77TH AVE SE
80TH AVE SE
ISLAND CREST WAY
Mercer Is United Methodist Church Park & Ride
Mercer Island Park & Ride
MERCER ISLAND
Listed NRHP Property
I-90 Eligible Segment
NRHP Eligible Property
Property with Structure 45 Years and Older by 2016
Area of Potential Effects
Traction Power Substation
Proposed Station
City Limits
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
N
0
0.125
0.25 Miles

Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2009).

Exhibit C-3 **Section 106 Historic Properties Within 200 ft of Project Segment A - Mercer Island**

East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\SECTION106_SEGMENT_A_MERCERISLAND.MXD RGRABARE 3/4/11 10:22:18

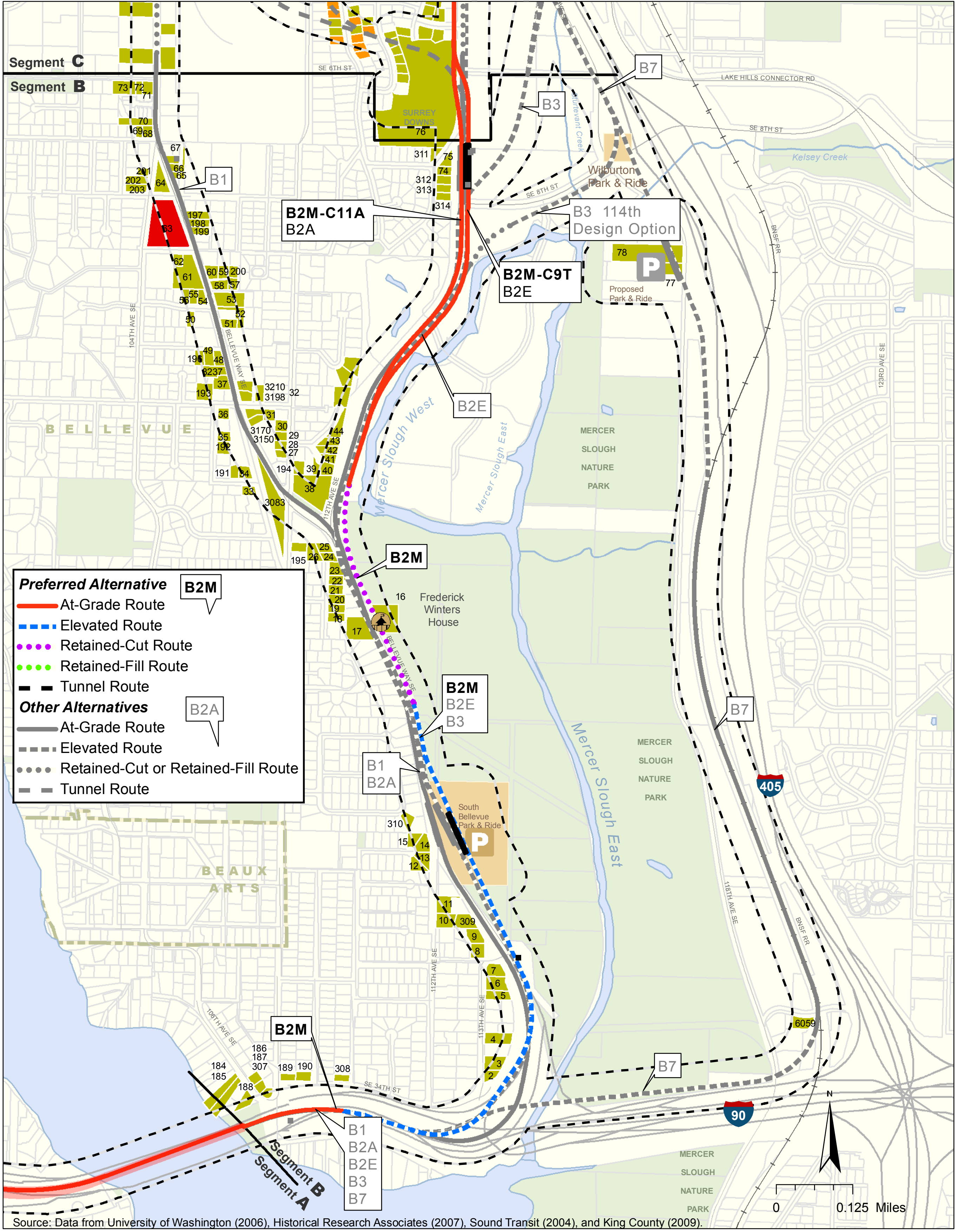


Mercer Island Park & Ride
176
Lake Washington
177
90
E MERCER WAY
178
179
180
181
A1
80TH AVE SE
ISLAND CREST WAY
MERCER ISLAND
182
183
SE 36TH ST
Mercer Island Presbyterian Church Park & Ride
E MERCER WAY
Listed NRHP Property
I-90 Eligible Segment
NRHP Eligible Property
Property with Structure 45 Years and Older by 2016
Area of Potential Effects
Traction Power Substation
Proposed Station
City Limits
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
N
0
0.125
0.25 Miles

Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2009).

Exhibit C-4 **Section 106 Historic Properties Within 200 ft of Project Segment A - Mercer Island**
East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\SDEIS\HISTORICARCHAEOLOGICAL\TR\SECTION106_SEGMENT_B1.MXD RGRABARE 8/30/10 08:51:26


Segment C
Segment B
SE 6TH ST
B7
LAKE HILLS CONNECTOR RD
B3
Richards Creek
SURREY DOWNS
76
SE 8TH ST
Kelsey Creek
Wilburton Park & Ride
SE 8TH ST
B1
B2M-C11A
B2A
B3 114th Design Option
B2M-C9T
B2E
78
P
77
Proposed Park & Ride
BNSF RR
104TH AVE SE
BELLEVUE WAY SE
B2E
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
B E L L E V U E
112TH AVE SE
B2M
Frederick Winters House
BELLEVUE WAY SE
B2M
B2E
B3
B7
B1
B2A
405
South Bellevue Park & Ride
P
Mercer Slough East
B E A U X A R T S
118TH AVE SE
BNSF RR
112TH AVE SE
113TH AVE SE
108TH AVE SE
B2M
SE 34TH ST
B7
6059
90
B1
B2A
B2E
B3
B7
Segment B
Segment A
N
0
0.125 Miles
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
73 72 71 70 69 68 67 66 65 64 63 201 202 203 197 198 199 62 61 60 59 200 58 57 55 56 54 53 52 50 51 49 196 48 6237 193 37 3210 3198 32 36 31 30 3170 3150 29 28 27 35 192 44 43 42 41 40 39 38 194 191 34 33 3083 25 26 24 195 23 22 21 20 19 18 17 16 311 75 74 312 313 314 310 15 14 13 12 11 10 309 9 8 7 6 5 4 3 2 184 185 186 187 307 188 189 190 308

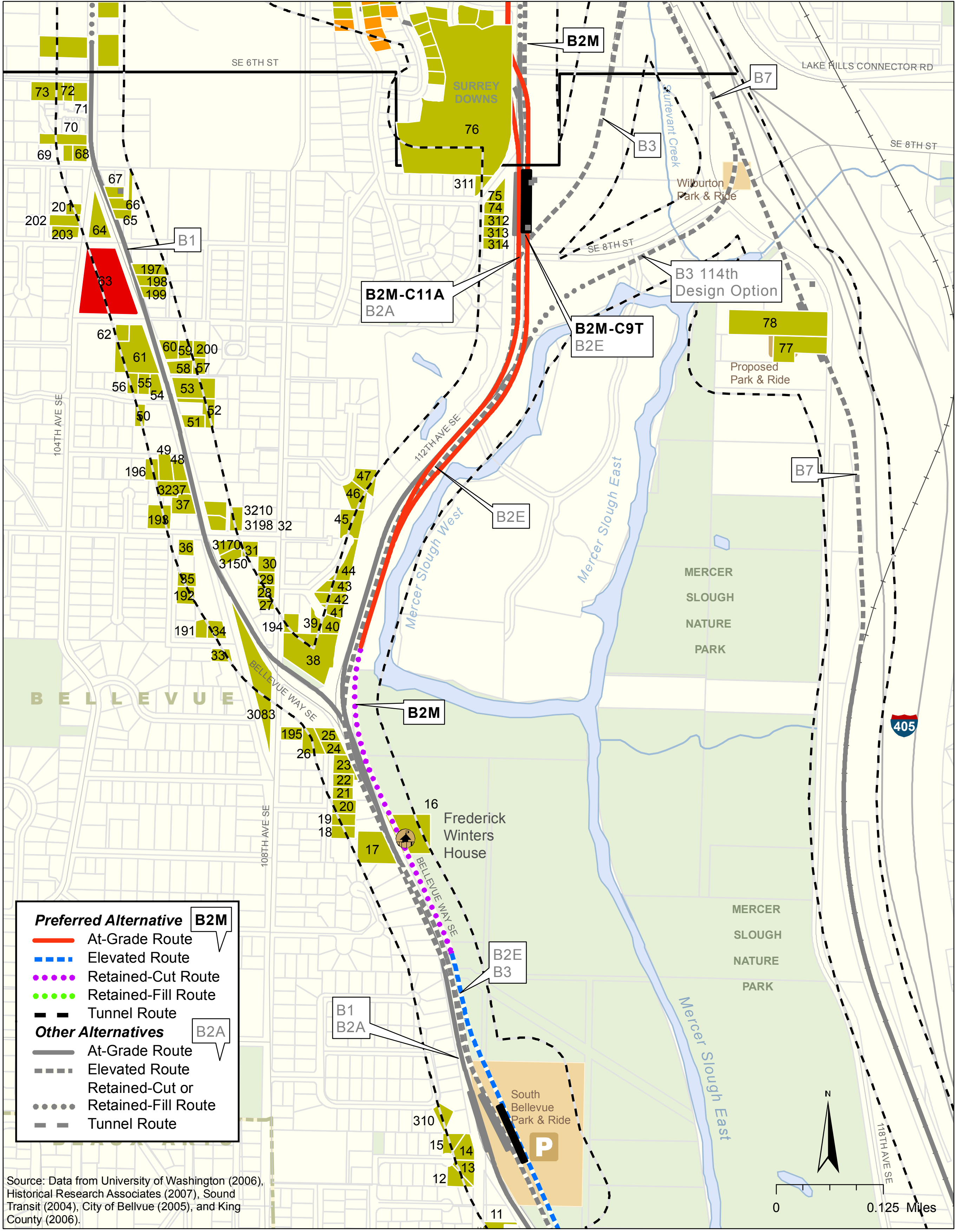
Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2009).

- Listed NRHP Property
- 🟥 NRHP Eligible Property
- 🟩 Property with Structure 50 Years and Older by 2016
- Area of Potential Effects
- 🟧 Contributing Property to Potential Surrey Downs NRHP Historic District
- ■ Traction Power Substation
- ▬ Proposed Station

Exhibit C-5 **Section 106 Historic Properties Within 200 ft of Project Segment B**

East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\SECTION106_SEGMENT_B2.MXD RGRABARE 3/4/11 10:59:49



SE 6TH ST
SURREY DOWNS
B2M
B7
LAKE HILLS CONNECTOR RD
SE 8TH ST
B3
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
B3 114th Design Option
B1
B2M-C11A
B2A
B2M-C9T
B2E
Proposed Park & Ride
112TH AVE SE
104TH AVE SE
B2E
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
B7
BELLEVUE
BELLEVUE WAY SE
B2M
405
108TH AVE SE
Frederick Winters House
B2E
B3
B1
B2A
South Bellevue Park & Ride
P
118TH AVE SE
N
0
0.125 Miles
Preferred Alternative
B2M
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
B2A
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 76 75 74 77 78 311 312 313 314 310 3237 3210 3198 3170 3150 3083 191 192 194 195 196 197 198 199 200 201 202 203

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), City of Bellevue (2005), and King County (2006).

Listed NRHP Property

Area of Potential Effects

🟧 Contributing Property to Potential Surrey Downs NRHP Historic District

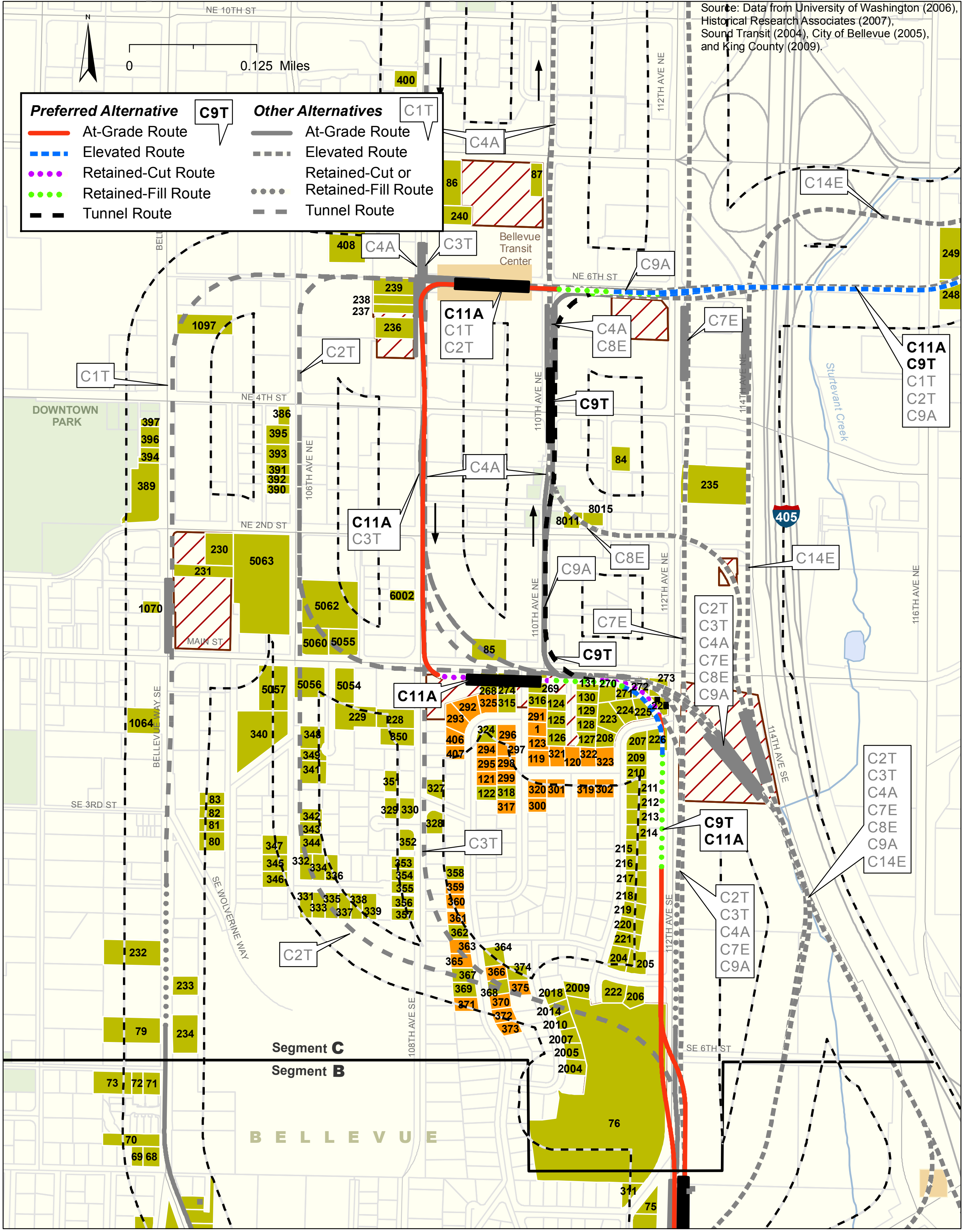
🟥 NRHP Eligible Property

🟩 Property with Structure 50 Years and Older by 2016

⬛ Proposed Station

Exhibit C-6 **Section 106 Historic Properties Within 200 ft of Project Segment B**

East Link Project


Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), City of Bellevue (2005), and King County (2009).
N
0
0.125 Miles
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C1T
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
NE 10TH ST
112TH AVE NE
C4A
C14E
86
87
240
400
408
Bellevue Transit Center
C3T
NE 6TH ST
C9A
249
248
239
238
237
236
1097
C11A
C1T
C2T
C4A
C8E
C7E
114TH AVE NE
C11A
C9T
C1T
C2T
C9A
Sturtevant Creek
C2T
C1T
DOWNTOWN PARK
NE 4TH ST
386
397
396
394
395
393
391
392
390
389
106TH AVE NE
110TH AVE NE
C9T
84
C4A
235
405
C11A
C3T
8015
8011
NE 2ND ST
230
231
5063
C8E
C14E
C9A
110TH AVE NE
112TH AVE NE
116TH AVE NE
6002
5062
1070
MAIN ST
5060
5055
85
C7E
C9T
C2T
C3T
C4A
C7E
C8E
C9A
273
5057
5056
5054
C11A
268
274
269
131
270
271
272
292
325
315
316
124
130
224
225
293
229
228
129
291
125
223
1064
BELLEVUE WAY SE
340
348
350
324
296
128
1
127
208
207
226
406
294
297
123
126
407
295
298
119
321
120
322
323
209
349
341
121
299
210
351
327
122
318
320
301
319
302
211
SE 3RD ST
83
82
81
80
329
330
317
300
212
213
114TH AVE SE
C2T
C3T
C4A
C7E
C8E
C9A
C14E
342
343
344
328
C9T
C11A
214
347
345
346
352
C3T
215
332
334
336
353
354
358
216
217
355
359
SE WOLVERINE WAY
331
333
335
337
338
339
356
357
360
218
219
220
221
C2T
C3T
C4A
C7E
C9A
361
362
363
364
374
204
205
232
C2T
365
367
366
375
369
368
2018
2009
222
206
112TH AVE SE
233
371
370
2014
372
2010
373
2007
2005
2004
79
234
Segment C
Segment B
108TH AVE SE
SE 6TH ST
73
72
71
70
69
68
BELLEVUE
76
311
75

🏛 Listed NRHP Property

🟥 NRHP Eligible Property

🟧 Contributing Property to Potential Surrey Downs NRHP Historic District

🟩 Property with Structure 50 Years and Older by 2016

Area of Potential Effects

▨ Construction Staging Area

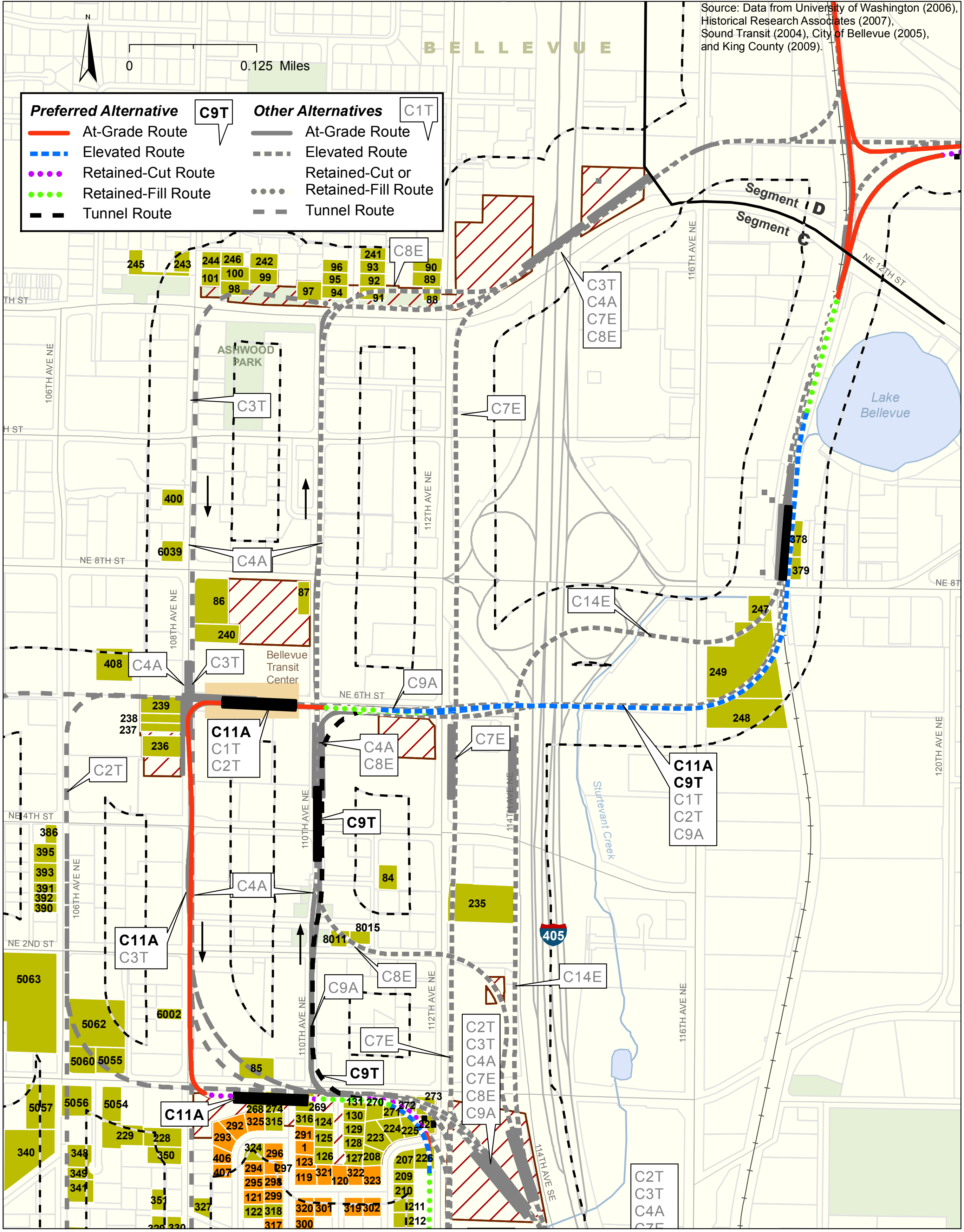
■ Traction Power Substation

▬ Proposed Station

Exhibit C-7 **Section 106 Historic Properties Within 200 ft of Project Segment C**

East Link Project

\\JAFAR\PROJ\SOUNDTRANSIT_341526\MAPFILES\FEIS\HISTORICARCHAEOLOGICAL\SECTION106_SEGMENT_C2.MXD RGRABARE 3/4/11 11:26:16


N
0
0.125 Miles
BELLEVUE
Preferred Alternative
C9T
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
C1T
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
Segment D
Segment C
NE 12TH ST
116TH AVE NE
C3T C4A C7E C8E
C8E
C3T
C7E
C4A
C4A
C3T
C9A
C14E
C11A C9T C1T C2T C9A
C11A C1T C2T
C4A C8E
C7E
C2T
C9T
C4A
C11A C3T
C8E
C9A
C7E
C9T
C14E
C2T C3T C4A C7E C8E C9A
C11A
C2T C3T C4A C7E
ASHWOOD PARK
Lake Bellevue
Bellevue Transit Center
Sturtevant Creek
NE 8TH ST
NE 8T
NE 6TH ST
NE 4TH ST
NE 2ND ST
TH ST
H ST
106TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
114TH AVE SE
116TH AVE NE
120TH AVE NE
405
245 243 244 246 242 101 100 99 98 97 96 95 94 93 92 91 241 90 89 88
400 6039 86 87 240 408 239 238 237 236
386 395 393 391 392 390
84 235 8015 8011 6002 5063 5062 5060 5055 85
5057 5056 5054 340 348 349 341 229 228 350 351 327 330 329
292 293 406 407 324 294 296 297 295 298 121 299 122 318 317
268 274 325 315 269 316 124 291 125 1 123 126 119 321 120 322 320 301 300 319 302
131 270 130 129 128 127 208 323 271 272 224 225 223 226 207 209 210 211 212 273
378 379 247 249 248

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), City of Bellevue (2005), and King County (2009).

Listed NRHP Property
NRHP Eligible Property
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 50 Years and Older by 2016
Area of Potential Effects
Construction Staging Area
Traction Power Substation
Proposed Station

Exhibit C-8 **Section 106 Historic Properties Within 200 ft of Project Segment C**

East Link Project

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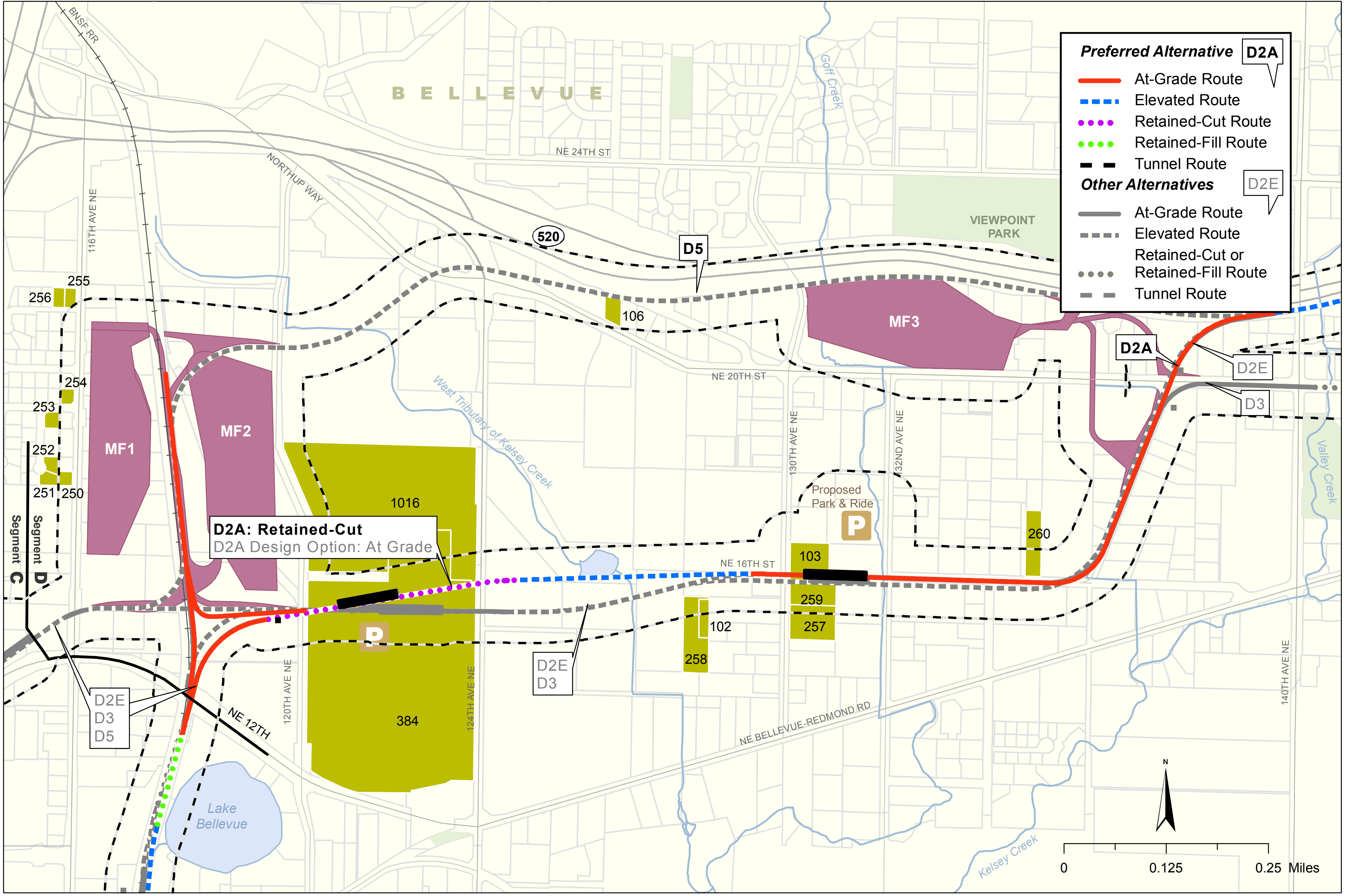

Preferred Alternative
D2A
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
D2E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
BELLEVUE
BNSF RR
NORTHUP WAY
NE 24TH ST
Goff Creek
520
D5
VIEWPOINT PARK
116TH AVE NE
255
256
106
MF3
D2A
D2E
NE 20TH ST
D3
254
253
MF2
MF1
252
251
250
West Tributary of Kelsey Creek
130TH AVE NE
132ND AVE NE
Valley Creek
1016
Proposed Park & Ride
P
260
Segment C
Segment D
D2A: Retained-Cut
D2A Design Option: At Grade
103
NE 16TH ST
259
257
102
P
D2E
D3
258
D2E
D3
D5
NE 12TH
120TH AVE NE
124TH AVE NE
384
NE BELLEVUE-REDMOND RD
140TH AVE NE
Lake Bellevue
Kelsey Creek
N
0
0.125
0.25 Miles

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), City of Bellevue (2005), and King County (2009).

- Listed NRHP Property
- 🟥 NRHP Eligible Property
- 🟩 Property with Structure 50 Years and Older by 2016
- Area of Potential Effects
- ■ Traction Power Substation
- ▬ Proposed Station
- Maintenance Facility
- City Limits

Exhibit C-9 **Section 106 Historic Properties Within 200 ft of Project Segment D**

East Link Project

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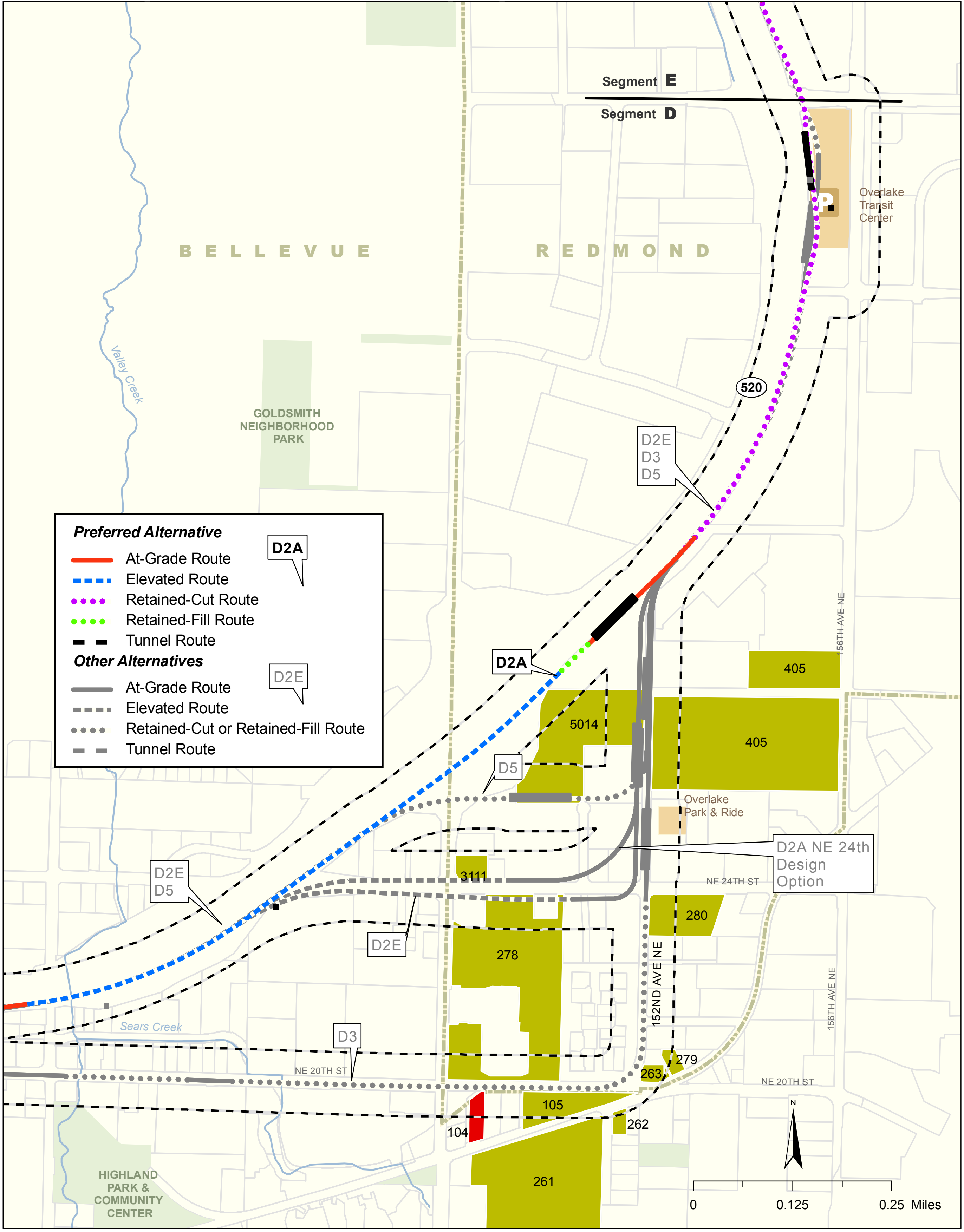

Segment E
Segment D
BELLEVUE
REDMOND
Overlake Transit Center
P
520
Valley Creek
GOLDSMITH NEIGHBORHOOD PARK
D2E
D3
D5
Preferred Alternative
D2A
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
D2E
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
D2A
405
5014
405
156TH AVE NE
D5
Overlake Park & Ride
D2A NE 24th Design Option
NE 24TH ST
D2E
D5
3111
280
D2E
278
152ND AVE NE
156TH AVE NE
Sears Creek
D3
NE 20TH ST
279
263
NE 20TH ST
105
262
104
N
HIGHLAND PARK & COMMUNITY CENTER
261
0
0.125
0.25 Miles

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), City of Bellevue (2005), City of Redmond (2005), and King County (2006).

⌂	Listed NRHP Property	■	Traction Power Substation
🟥	NRHP Eligible Property	▬	Proposed Station
🟨	Property with Structure 50 Years and Older by 2016	▬	Maintenance Facility
⬚	Area of Potential Effects	▬	City Limits

Exhibit C-10 **Section 106 Historic Properties Within 200 ft of Project Segment D**

East Link Project

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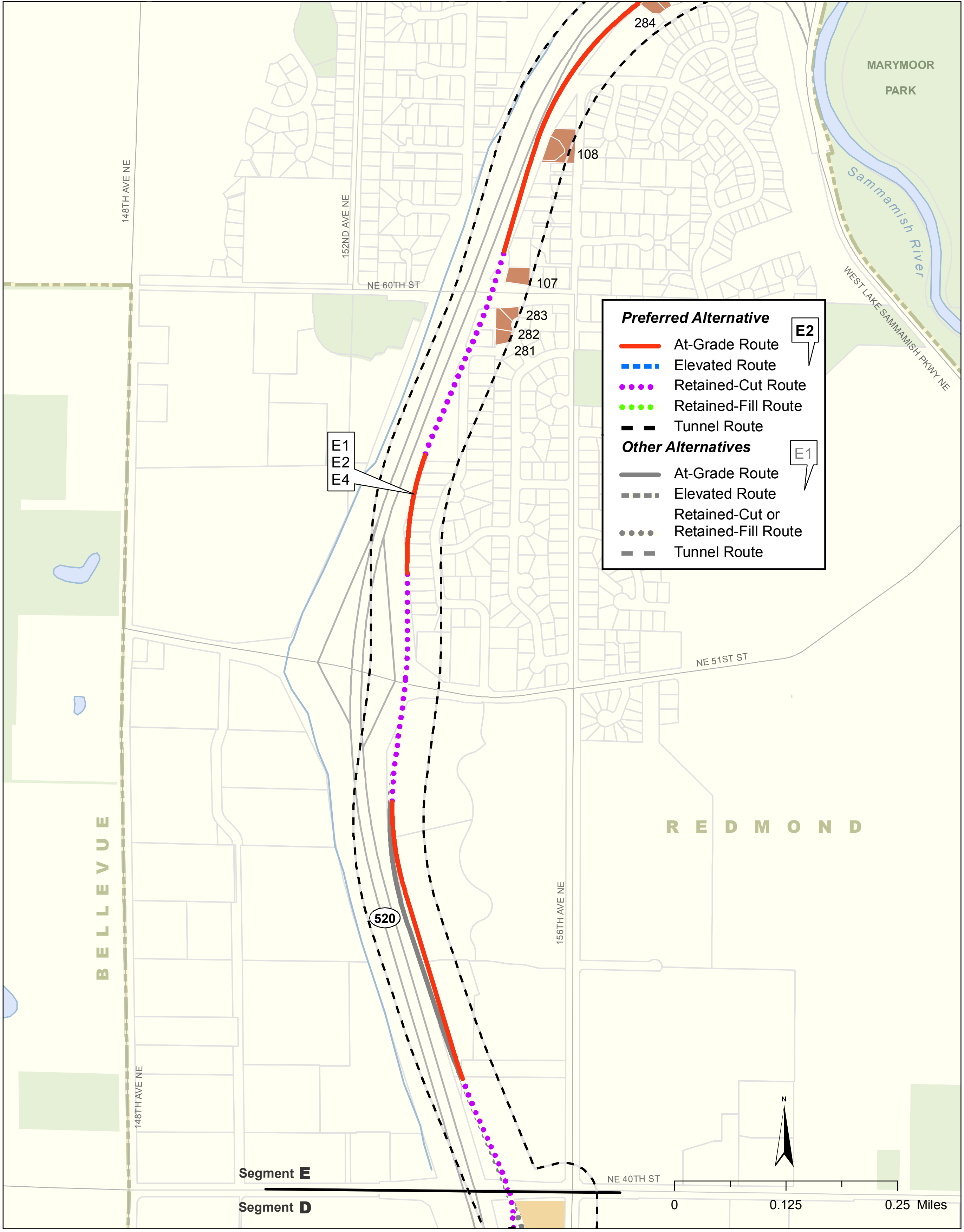

284
108
107
283
282
281
MARYMOOR PARK
Sammamish River
WEST LAKE SAMMAMISH PKWY NE
148TH AVE NE
152ND AVE NE
NE 60TH ST
NE 51ST ST
156TH AVE NE
NE 40TH ST
520
E1
E2
E4
REDMOND
BELLEVUE
Segment E
Segment D
Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
N
0
0.125
0.25 Miles

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2006).

Listed NRHP Property

🟥 NRHP Eligible Property

▨ Property with Structure 45 Years and Older by 2016

Area of Potential Effects

■ Traction Power Substation

Proposed Station

Maintenance Facility

City Limits

Exhibit C-11 **Section 106 Historic Properties Within 200 ft of Project Segment E**

East Link Project

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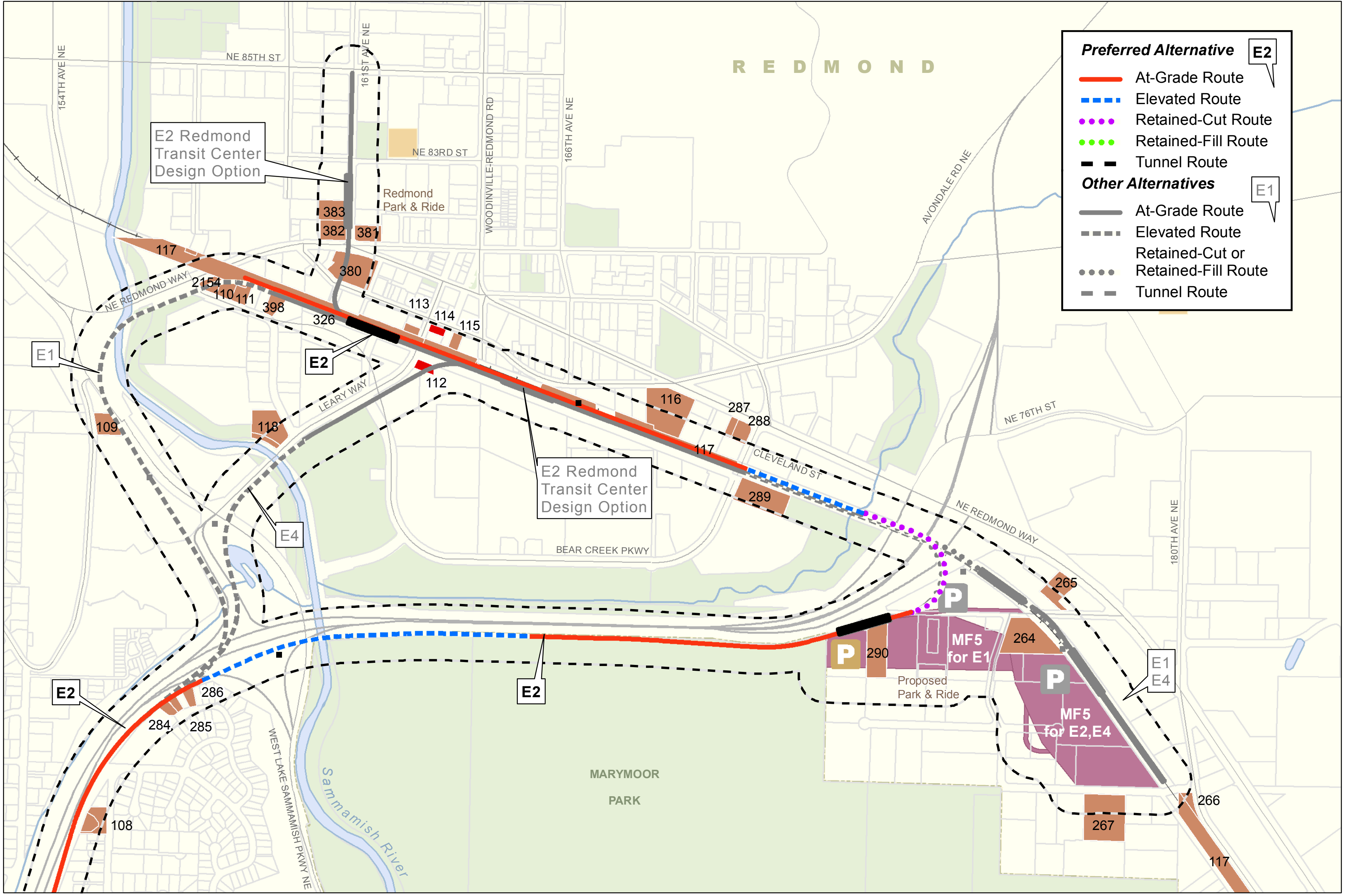

Preferred Alternative
E2
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
Other Alternatives
E1
At-Grade Route
Elevated Route
Retained-Cut or Retained-Fill Route
Tunnel Route
REDMOND
NE 85TH ST
154TH AVE NE
161ST AVE NE
NE 83RD ST
WOODINVILLE-REDMOND RD
166TH AVE NE
AVONDALE RD NE
NE 76TH ST
180TH AVE NE
NE REDMOND WAY
LEARY WAY
CLEVELAND ST
BEAR CREEK PKWY
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
MARYMOOR PARK
E2 Redmond Transit Center Design Option
E2 Redmond Transit Center Design Option
Redmond Park & Ride
Proposed Park & Ride
MF5 for E1
MF5 for E2,E4
P
E1
E2
E4
E1 E4
383
382
381
380
117
2154
110
111
398
326
113
114
115
112
109
118
116
287
288
117
289
265
264
290
286
284
285
108
266
267
117

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), and King County (2009).

●	Listed NRHP Property
🟥	NRHP Eligible Property
🟫	Property with Structure 45 Years and Older by 2016
▭	Area of Potential Effects
■	Traction Power Substation
▬	Proposed Station
🟪	Maintenance Facility
▭	City Limits

N

0 0.125 0.25 Miles

Exhibit C-12 **Section 106 Historic Properties Within 200 ft of Project Segment E**

East Link Project

APPENDIX D

Winters House Construction Minimization and Avoidance Technical Memorandum and Landscape Report

APPENDIX D1

Winters House Construction Minimization and Avoidance Technical Memorandum

MEMORANDUM CH2MHILL

Sound Transit, East Link Project

Construction of Transit Corridor in Proximity to Winters House Foundation

TO:	Jodi Ketelsen/CH2M HILL
FROM:	Green, Ken/CH2M HILL
DATE:	November 23, 2010

The B2M preferred alternative route is designed as a lidded, retained cut that would be below ground and out of visual sight from the front of the Winters House, a public building listed on the National Historic Register. This memorandum describes the construction sequence, monitoring program, and minimization and avoidance techniques that have been incorporated into the project and would prevent damage or limit impacts to minor cosmetic damage. If any cosmetic damage occurs, ST will make repair in accordance with the Secretary of Interior's Standards for Treatment of Historic Properties.

Background

Description of Winters House. The Winters House was constructed in the late 1920's by Frederick and Cecelia Winters, prominent early Bellevue citizens. The house utilizes concrete foundations and basement walls and is finished with Spanish architecture, including stucco siding and extensive use of tile. The property was purchased by the City of Bellevue and the house was restored to its present condition in about 1988. The structure is currently used by the City as a cultural and natural interpretive center, community meeting space, and the home of the Bellevue Historical Society.

The structure contains three floors: a main level at street grade, a lower basement, and an upper level. The upper structure is believed to be a wood frame building with stucco (mortar) siding. The lower level is constructed with concrete basement foundation walls extending to about 9 feet or more below grade at the west side and day-lighting at the east. It is not known if or how extensively the structure's concrete foundation walls are reinforced. Given the age of the structure, it is likely however, that the reinforcing in the basement walls and floor is minimal.

Description of Project Next to the Winters House. The new transit corridor will be constructed in a lidded retained cut in the area next to the Winters House. This lidded segment will extend from station 2067+19 to 2068+89, a distance of 170 feet. The Winters House is near the center of this segment.

The lidded transit facility in this 170 foot long segment will consist of a heavily braced excavation with massive secant pile walls along both sides of the retained cut. At its closest point to the Winters House, the outside edge of the secant pile wall will be approximately 9 feet from the main foundation walls of the Winters House. A front porch on the house extends from the main structure and would be about 4.5 to 5 feet from the outside walls of the transit corridor along a short distance (about 15 feet).

A concrete lid will be used to cover and span between the two secant pile walls and will serve as a lateral brace to support a portion of the lateral loads carried by the transit structure walls. Permanent bracing will also be used at rail grade to provide additional lateral support near the base of the transit corridor excavation. The combination of the concrete lid, the permanent bracing at the track grade, and the thick (estimated 4-foot diameter) secant pile walls will result in a very rigid structure that limits lateral ground movement outside the walls to essential zero.

It is important that the Winters house structure be preserved and protected from damage as a result of construction and operation of the new light rail system. This includes protection from lateral movement and control of construction vibrations and vibrations during operation of the facility. Vibrations during operation of the system will be controlled by use of elastomeric pads and special fixation methods intended to reduce vibrations in adjacent structures to levels that will not cause either structural or cosmetic damage to the structure.

Figures, Photos, and Other Attachments. Key features of the house and the planned project are shown in the following figures:

- Attached Figure 1 illustrates the existing floor plans for both the main level and lower levels of the Winters House. Attached photos and figures show a porch that extends about 4.5 feet from the west side of the house towards the street.
- Figure 2 provides a structural cross section of the transit corridor illustrating the elements of this structure and its approximate setting in relation to the Winters House. In this figure, the approximate location of the Winters house foundation walls and footings are shown. The secant pile walls near the house are shown where they will extend below the basement of the house. This figure also illustrates the approximate subsurface strata and groundwater location as measured in nearby soil borings.
- Figure 3 provides a longitudinal profile of the transit facility grade at the Winters House segment. It illustrates the soil types and groundwater conditions in the vicinity of the Winters House.

A package of twelve 11 x17 inch preliminary design drawings is also attached in the appendix of this report showing the alignment and design details in the vicinity of the Winters House. Drawing No. L65-SD010 illustrates the anticipated design configuration of the secant pile wall section.

Finally, selected photos are provided in the appendix illustrating the conditions inside and outside of the Winters House in the vicinity of the proposed construction.

Measures for Minimizing and Avoiding Impacts to Winters House

A number of measures would be used during construction to minimize or avoid the potential impacts of construction on the Winters House. These measures would be included in contract documents to assure that the measures are appropriately implemented. Sound Transit's construction inspectors would provide construction oversight to confirm that the measures are being followed.

1. **Preconstruction Assessment of Winters House and Installation of Monitoring Devices.** Prior to any construction activities at the site, the Winters House will be carefully evaluated to document its condition prior to any construction. Careful observation of existing conditions and close monitoring during construction will assure that construction techniques are controlled as the work approaches the vicinity of the Winters House.

The preconstruction assessment will include inspection of all existing cracks and other existing defects inside and outside of the entire house. These observations will be documented with photos and written description. Selected areas will be prepared by installation of monitoring devices across cracks to precisely monitor additional future movement during or following construction. Settlement plates and benchmarks will be located on and adjacent to the Winters House to allow accurate monitoring of settlement before, during, and following construction. Vibration monitoring equipment will be positioned in the house, including on its foundation, to monitor for vibration during all construction activities in the vicinity of the house.

2. **Choice of Construction Techniques.** Potential project impacts from construction vibration and movement come from the method of design, construction approach, and the machines required for installing the system. These impacts can be minimized by careful selection of the best construction methods and techniques and proper choice of tools and equipment so that vibrations and impacts can be minimized. The most sensitive vibration generating activity associated with the new construction occurs with the installation of the wall system in the segment adjacent to the Winters House. A secant pile wall system has been identified as the best wall type for the particular location. The selection, design, and construction of a secant type pile support system provides the following advantages: 1) secant piles provide a locally common construction method that is widely used by local foundation contractors at sites having similar construction limitations, 2) the secant piles can be installed in a manner that minimizes potential disturbance to nearby facilities, 3) the secant pile system provides a very stiff wall system capable of lateral support with little or no lateral deflection and continuous support of the external soils adjacent to the walls and, 4) the secant pile system allows the transit corridor excavation to be accomplished with only limited need for external control of groundwater. Control of groundwater is important, because changes in water table location can result in settlement of soil, which could damage the house.

3. **Control Construction Vibration and Movement.** Movement within adjacent soil zones and levels of vibration will likely be equipment and site dependent. For this project, the construction approach and equipment is designed to minimize this potential impact:

- The construction work will begin at locations several hundred feet distant from the Winters House. The work would be allowed to advance closer to the Winters House only after the vibration limits are shown to be within tolerable limits and proven excavation and construction methods are achieved as evidenced by controlling vibrations and movements at the house and adjacent to the work. The Contractor will be required to employ alternate excavation techniques if required to control vibrations or prevent damage. The construction procedures and equipment and tools used to conduct the work will be changed at any time that it is necessary to further control vibrations or movement at the house.

- Conservative vibration limits will be established for construction activities occurring near the structure. Experience in the construction industry has shown that anticipated structure damage levels can be correlated to peak particle velocity of structure vibrations. A criterion often used to limit vibration levels to avoid structural damage to residential buildings requires limiting vibration levels to less than 50 mm/sec (about 2 inch/sec) peak particle velocity in the frequency range of 3–100 Hz. In this context, structural damage refers to damage to components of the structure that are used for structural support. Cosmetic or architectural damage, such as cracking of plaster typically occurs at much lower levels of vibration.

- For historic and fragile structures, the limiting level of vibration is normally further reduced to control damage such as cracking of plaster. In severe conditions vibration limits may be controlled to 2.5 mm/sec (about 0.1 inch/sec) peak particle velocity or less. It is important to set realistic criteria for limiting vibration so that damage is avoided to the structure while at the same time, not overly constraining the ability to perform construction activities.

4. **Selection of Pile Installation Methods.** Use of auger drilling methods for installation of the secant piles will limit vibration-induced impacts.

   - In order to limit the vibration associated with installation of secant pile foundations, drilling equipment and excavation methods would be utilized to remove soils from within holes cased with steel pipe.

   - The sidewalls of the secant piles would remain fully supported with steel casings while drilling within the upper zone that extends to a safe depth below the foundation level and footings of the Winters House, extending to dense self-supporting granular soils. Care would be taken to assure that the soil surrounding the casing is not "over-mined" or removed during installation of the casing.

   - Steel casing would extend to the full depth of the piles; however, if insertion of the casing to the full depth of the pile is not possible because of high friction or obstruction, then slurry confinement may be needed to support the deepest portions of the excavation extending below the sensitive foundation zone for house.

     It is important that the casing be installed in a manner that does not disturb or cause movement or excessive vibration in the adjacent soils. The drill bit and maximum depth of excavation for each pile should not be extended below the bottom of the steel casing until the excavation reaches a safe depth below the bottom of the Winters House foundation and the tip of the steel casing pipe is founded in dense self-supporting soils. The casing pipe should be inserted by methods other than vibration or impact that could result in damaging vibration. One method of accomplishing the installation would be by application of down-pressure and use of twisting slots and cutting teeth. Use of heavy equipment capable of applying sufficient down force and lubrication of the sidewalls of the casing may be also be required to achieve this requirement.

If soil conditions suggest that there could be concern for encountering boulders, woody debris (logs), or other foundation conditions that could result in disruption or vibration to adjacent soils, smaller excavation equipment can be utilized within the casing pipe. A "toolbox" of specialized techniques could include such equipment as clams, small diameter flight and bucket augers, coring tools, and/or hand operated jackhammers or other mining equipment that will allow the controlled excavation and removal of soils to safe depths below the base of the facilities to be projected.

Backfilling of each pier with concrete and installation of reinforcing steel should occur immediately upon completion of drilling to the required depth. The steel support casing for pier should be removed as the pier is backfilled. Concrete should be maintained a minimum of about 5 feet above the base of the steel casing pipe at all times as the steel casing is extracted and removed to assure that concrete under controlled head is forced to fill all void space left as the steel casing is withdrawn.

5. **Continuous Monitoring of Winters House.** The protection of Winters House can be assured by performing continuous monitoring of the house, walls, existing cracks, and vibration levels at and surrounding the house. The structure is further protected by monitoring of vibration levels and construction techniques directly adjacent to the work, but in distant segments prior to advancing close to the Winters House. The work will be controlled and limited as needed during construction to avoid disturbance and damage to the house.

   Vibration monitoring will also include monitoring the background vibration levels generated by traffic and existing activities normally occurring in the vicinity of the structure. This includes measurements of vibrations from trucks and other large vehicles travelling on Bellevue Way SE. These background vibration levels will be noted and triggering levels will be identified that are above background vibration levels but below levels that could cause damage to the house.

6. **Construction Settlement from Vibration**. Another consideration for damage is vibration-induced settlement of foundations. Standard penetration test (SPT) blow counts near the Winters House range from 5 to 13 blows per foot within the upper 20 to 24 feet of soil near the Winters House, making soil in this depth interval slightly susceptible to severe-vibration induced settlement, which could potentially lead to settlement of the foundation. Monitoring and controlling the levels of vibration as recommended above, will control the potential for vibration-induced settlement of the foundations.

7. **Construction Settlement from dewatering activities.** It is possible to cause minor settlement of the foundation soils under the house as a result of dewatering activities.

Lowering the groundwater table increases the vertical load on the soils that support the foundation of the Winters House.

Analyses of the movement associated with construction activities, including excavation of the transit corridor and dewatering, were analyzed. The analyses suggest that almost immeasurable settlement could occur (0.1 inch) if the zone surrounding the corridor were to be completely dewatered. The analysis shows that a similar magnitude of movement in the way of rebound (upward movement) could occur as the corridor soils are excavated. These considerations are beyond the ability to accurately predict using geomechanic analyses and are small enough to be non-significant in consideration of these issues.

8. **Lateral Deflection of Piles.** The most likely cause of damage that could occur to the Winters House would likely result from lateral deflection of the walls of the transit corridor during construction. Lateral (horizontal) movement of the corridor secant wall next to the house could result in an approximately equal amount of vertical settlement of the slab-supported porch along the west side of the Winters House.

   To avoid this condition, a conservative approach has been selected for design and construction of the walls. The secant pile wall consists of a massive 4-foot thick concrete reinforced continuous wall. The wall will be capable of conservatively supporting large lateral soil loads with minimal or no deflection. The walls will be constructed by following a sequence that will prevent lateral movement at all times. The sequence of construction is outlined in the section that follows titled "sequence of construction".

   Construction using large diameter secant piles must assure that the piles have sufficient diameter, depth, and reinforcement to provide lateral capacity to control lateral movement of adjacent ground during construction. The concrete piles will be designed to develop sufficient strength and capacity prior to beginning the excavation of interior soils for the transit corridor.

9. **Support of porch along the west side of Winters House**. Based on the configuration shown in Figure 2, and further investigation and verification of shape, configuration, and depth of supporting slab, it may be helpful to provide small piles (referred to as pin piles) or other shallow temporary supporting system or walls to provide increased support and assurance that the soil next to this foundation is not disturbed. Final evaluations of the foundation conditions will be verified during the final design process. Permanent supports will be designed to fully support the soils and footings of the porch.

Monitoring Program

Careful monitoring of the Winters House and selected elements of the new construction would be required as outlined above. Surface monuments would be established at selected points on the walls and foundations of the house in advance of any construction work to observe lateral and vertical movements. Observable cracks in stucco and concrete would be taped or coated in spots at monitoring locations to allow future observation of movements during construction. A complete inventory of the house condition would be thoroughly established prior to beginning the construction work on or near the property.

Monuments would be established on the tops of selected secant piles immediately after completion of pile installation at each monitoring location. All monitoring piles would be monitored for lateral and vertical movement on a daily basis as the construction proceeds. If potentially damaging movement is detected, additional measures would be required to further limit the potential for further movement. Monitoring would begin in areas distant from the Winters House to verify suitable performance prior to the work advancing close to the Winters House.

Monuments established for measurement of movements on the transit corridor facilities and on the Winters House would continue to be read and monitored for a minimum of 6 months or as needed to assure that no additional movement is occurring.

Sequence of Construction

Sequence of construction of the transit corridor is important in controlling the disturbance and lateral movement of adjacent soils. The following construction sequence is anticipated:

1. Begin construction at location distant to the Winters House to verify all construction techniques and performance
2. Set guide beams for control of alignment of secant piles. Accurately drill each secant pile to the required depth using a steel casing to fully support adjacent soils at all times while performing the work. Install steel casing using “oscillator” equipment and down pressure in a manner that minimizes disturbance to adjacent soils. Do not drill below the tip of the casing pipe until the tip of the casing is founded in dense, self-supporting granular soils.
3. Place steel reinforcing cage and backfill each secant pile with concrete. Extract the casing pipe as the concrete is placed, keeping the backfill level of the concrete well above the tip of the steel casing at all times.
4. Construct each secant pile to the required top elevation and form and pour the pile cap.
5. Construct secant pile walls on both sides of transit corridor and complete pile caps prior to beginning corridor excavation.
6. Allow the secant piles to achieve full design strength prior to beginning corridor excavation.
7. Perform limited depth of corridor excavation as limited by design and then install temporary lateral supports at or near the top of the secant pile walls. Provide jackable struts or otherwise shim and support each brace to assure that no movement occurs at the tops of secant pile walls.
8. Install intermediate jackable struts or braces as dictated by final design of the corridor excavation requirements.
9. Control ground water inside the corridor excavation as necessary to perform the work.
10. Excavate to the required base elevation and install granular foundation support materials.
11. Construction permanent concrete base support slab that supports rails.

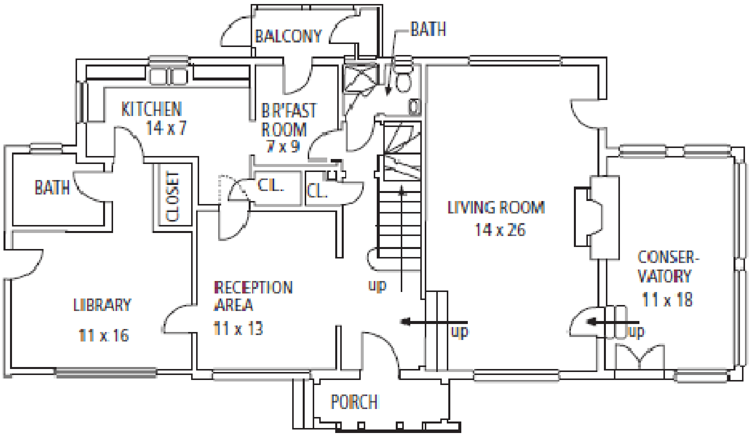
12. Install permanent lid and remove internal braces and struts in a sequence and manner dictated by final design of the corridor. As necessary, do not remove or release temporary supports until the concrete lid is placed, has achieved full design strength, and is capable of fully supporting the secant pile walls.

Operation of Light Rail

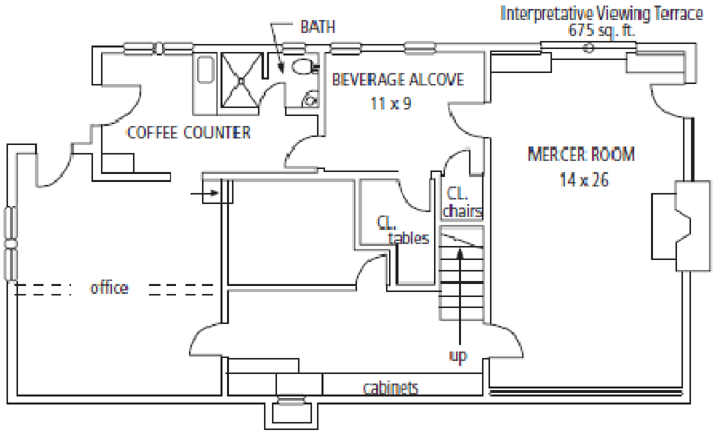
During operation, ground-borne noise impact is projected at the House. Standard methods of vibration reduction, such as resilient fasteners or ballast mats will be incorporated in the project. These measures will reduce the level of ground-borne noise but might not eliminate the impact. Using a floating slab, if necessary, would eliminate the ground-borne noise impacts. Vibration levels during operation are expected to be below the FTA impact criteria.

Entire House
Capacity: 75 persons
Includes: The Main Floor, The Lower Level

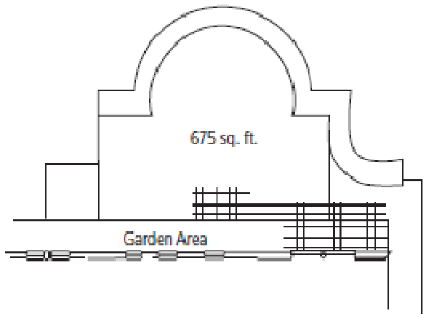
The Main Floor
Capacity: 15 at tables
25 theater style
25-60 standing
Includes: Living Room,
Conservatory,
Kitchen,
Breakfast Nook,
Reception Area,
and Library

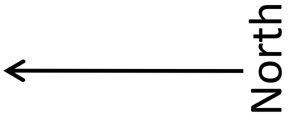

BALCONY
BATH
KITCHEN
14 x 7
BR'FAST
ROOM
7 x 9
BATH
CLOSET
CL.
CL.
LIVING ROOM
14 x 26
CONSER-
VATORY
11 x 18
RECEPTION
AREA
11 x 13
LIBRARY
11 x 16
up
up
up
PORCH

The Lower Level
Capacity: 15 at tables
25 theater style
35 standing
Includes: Mercer Room, Food
and Beverage Alcove,
and Coffee Counter


Interpretative Viewing Terrace
675 sq. ft.
BATH
BEVERAGE ALCOVE
11 x 9
COFFEE COUNTER
MERCER ROOM
14 x 26
CL.
chairs
CL.
tables
office
up
cabinets

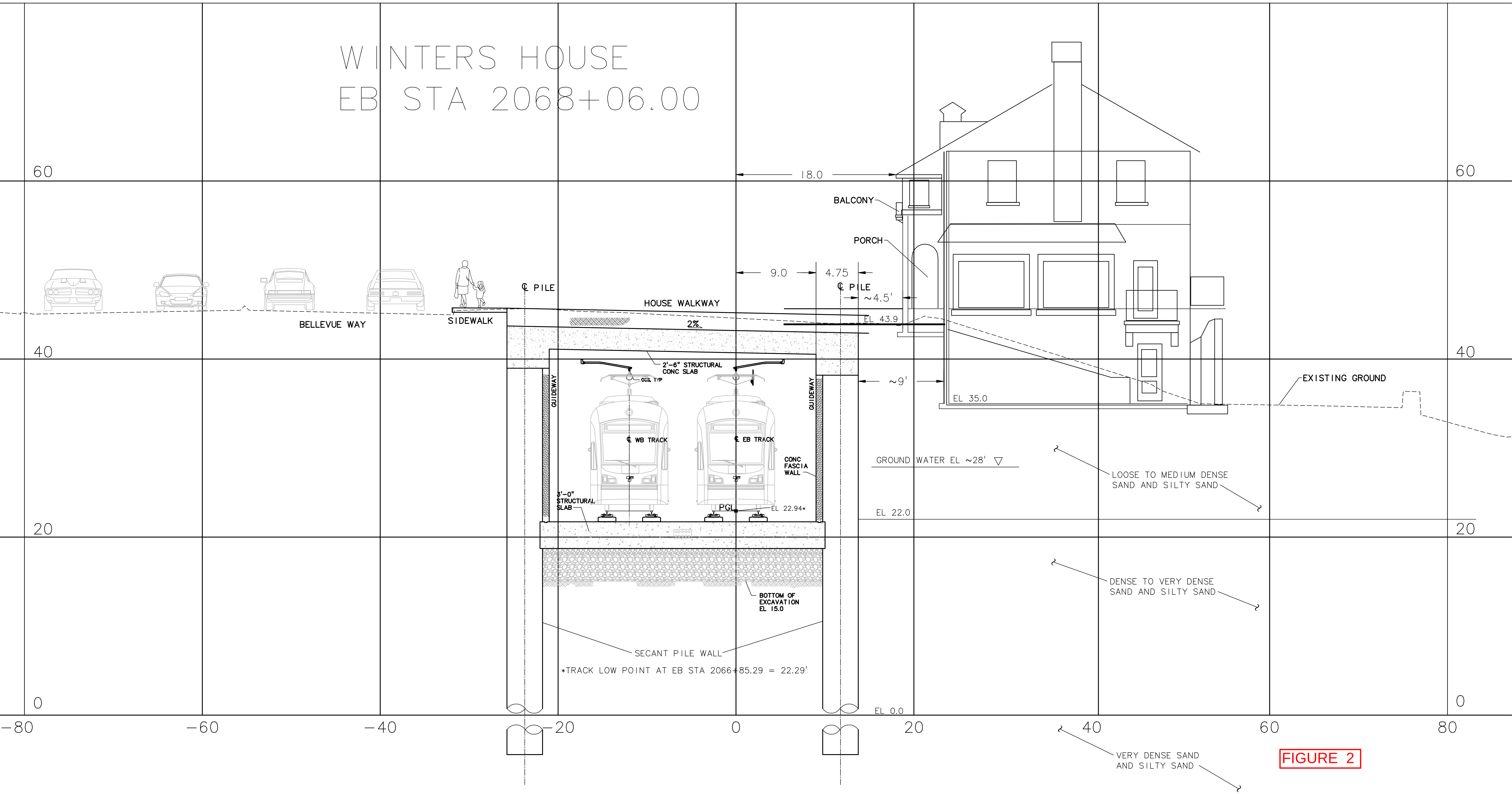
Interpretive Viewing Terrace
Capacity: approximately 40 standing
Includes: 1.5' wide seating wall
along outside edge


675 sq. ft.
Garden Area



mac8202rev.rev12/09.ai

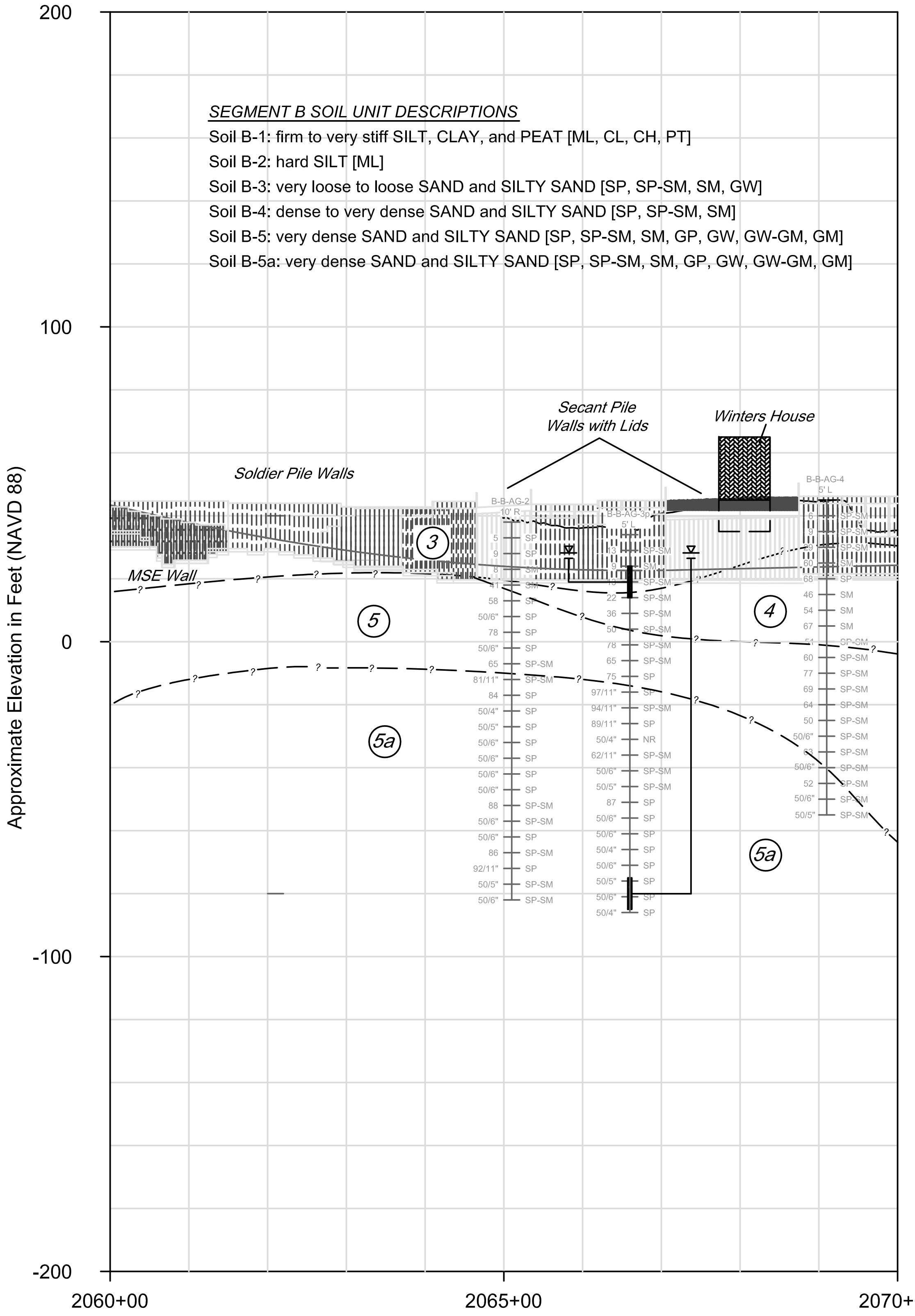
FIGURE 1



WINTERS HOUSE
EB STA 2068+06.00

60
40
20
0
-80
-60
-40
-20
0
20
40
60
80
18.0
BALCONY
PORCH
9.0
4.75
℄ PILE
℄ PILE
~4.5'
HOUSE WALKWAY
EL 43.9
2%
BELLEVUE WAY
SIDEWALK
2'-6" STRUCTURAL CONC SLAB
OCS, TYP
GUIDEWAY
GUIDEWAY
~9'
EL 35.0
EXISTING GROUND
℄ WB TRACK
℄ EB TRACK
CONC FASCIA WALL
GROUND WATER EL ~28'
LOOSE TO MEDIUM DENSE SAND AND SILTY SAND
3'-0" STRUCTURAL SLAB
PGL
EL 22.94*
EL 22.0
DENSE TO VERY DENSE SAND AND SILTY SAND
BOTTOM OF EXCAVATION EL 15.0
SECANT PILE WALL
*TRACK LOW POINT AT EB STA 2066+85.29 = 22.29'
EL 0.0
VERY DENSE SAND AND SILTY SAND

FIGURE 2


200
100
0
-100
-200
Approximate Elevation in Feet (NAVD 88)
2060+00
2065+00
2070+00
Soldier Pile Walls
Secant Pile Walls with Lids
Winters House
MSE Wall
B-B-AG-2
10' R
B-B-AG-3p
5' L
B-B-AG-4
5' L
3
4
5
5a
5a

SEGMENT B SOIL UNIT DESCRIPTIONS

Soil B-1: firm to very stiff SILT, CLAY, and PEAT [ML, CL, CH, PT]

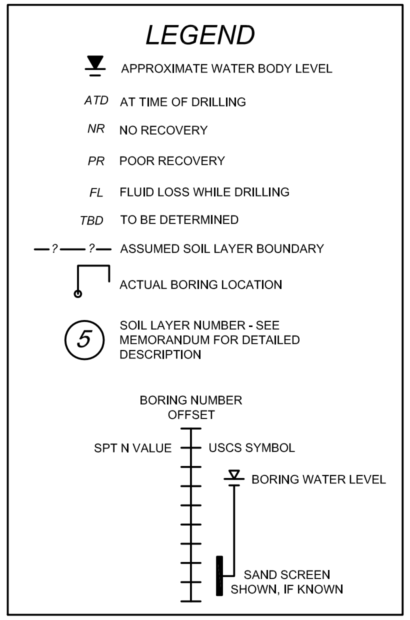
Soil B-2: hard SILT [ML]

Soil B-3: very loose to loose SAND and SILTY SAND [SP, SP-SM, SM, GW]

Soil B-4: dense to very dense SAND and SILTY SAND [SP, SP-SM, SM]

Soil B-5: very dense SAND and SILTY SAND [SP, SP-SM, SM, GP, GW, GW-GM, GM]

Soil B-5a: very dense SAND and SILTY SAND [SP, SP-SM, SM, GP, GW, GW-GM, GM]



LEGEND

▼ APPROXIMATE WATER BODY LEVEL

ATD AT TIME OF DRILLING

NR NO RECOVERY

PR POOR RECOVERY

FL FLUID LOSS WHILE DRILLING

TBD TO BE DETERMINED

—?—?— ASSUMED SOIL LAYER BOUNDARY

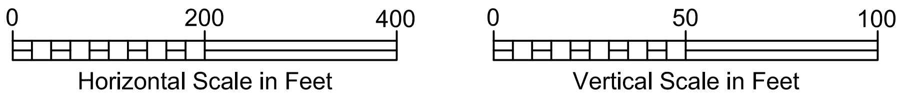
ACTUAL BORING LOCATION

⑤ SOIL LAYER NUMBER - SEE MEMORANDUM FOR DETAILED DESCRIPTION

BORING NUMBER
OFFSET
SPT N VALUE
USCS SYMBOL
BORING WATER LEVEL
SAND SCREEN
SHOWN, IF KNOWN

NOTE:
The depth and thickness of the subsurface strata indicated on the section (profile) were generalized from and interpolated between test locations. Information on actual subsurface conditions exist only at the specific locations at the time of the explorations. Subsurface conditions and water levels at other locations may differ from conditions occurring at the indicated locations. Also, the passage of time may result in a change in the conditions at these locations. See boring logs for more detailed information.

VERTICAL DATUM:
(NAVD) 88


0
200
400
Horizontal Scale in Feet
0
50
100
Vertical Scale in Feet

Vertical Exaggeration = 4 x

FIGURE 3

Draft Subject to Revison

Sound Transit East Link Project
Preliminary Engineering

SOIL PROFILE
SEGMENT B

CH2MHILL

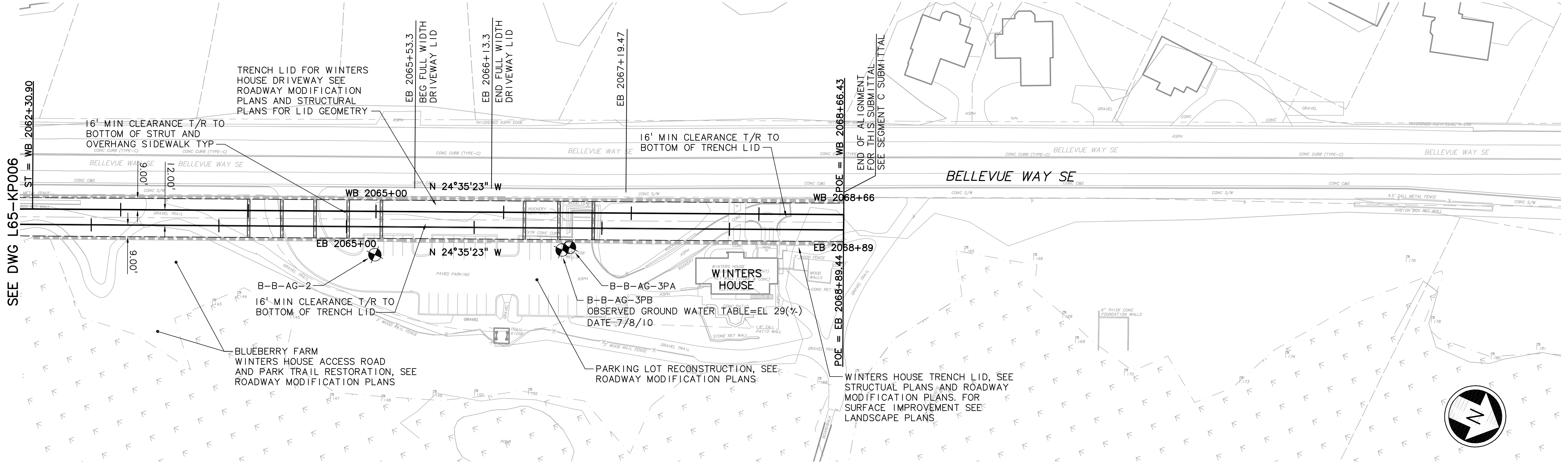
Oct 2010

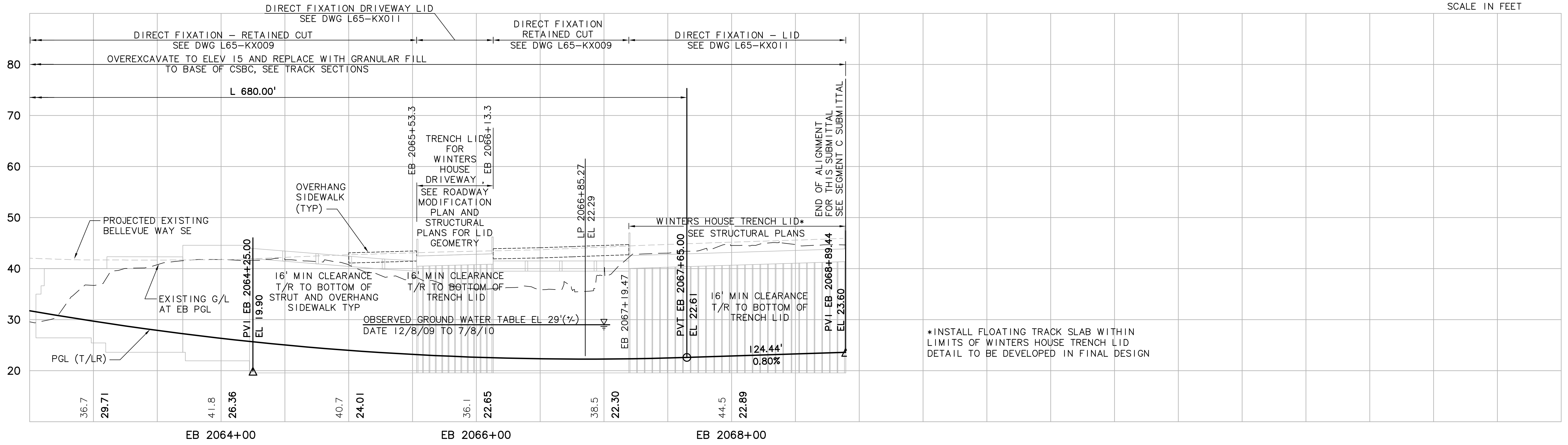
EXHIBIT 3d

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELB_L65_KA
ELB_L65_SP
PE_BORE
REG-SCM
SUB-INTR
Zg-2234h
Zg-g20020
x0219rx
x0219sf
x0222rx
x0222sf
x0519rx
x0519sf
x0522rx
x0522sf
-Unresolved:


SEE DWG L65-KP006
ST = WB 2062+30.90
TRENCH LID FOR WINTERS HOUSE DRIVEWAY SEE ROADWAY MODIFICATION PLANS AND STRUCTURAL PLANS FOR LID GEOMETRY
EB 2065+53.3 BEG FULL WIDTH DRIVEWAY LID
EB 2066+13.3 END FULL WIDTH DRIVEWAY LID
EB 2067+19.47
16' MIN CLEARANCE T/R TO BOTTOM OF STRUT AND OVERHANG SIDEWALK TYP
16' MIN CLEARANCE T/R TO BOTTOM OF TRENCH LID
POE = WB 2068+66.43
END OF ALIGNMENT FOR THIS SUBMITTAL SEE SEGMENT C SUBMITTAL
BELLEVUE WAY SE
9.00'
12.00'
WB 2065+00
N 24°35'23" W
WB 2068+66
EB 2065+00
N 24°35'23" W
EB 2068+89
9.00'
WINTERS HOUSE
POE = EB 2068+89.44
B-B-AG-2
B-B-AG-3PA
16' MIN CLEARANCE T/R TO BOTTOM OF TRENCH LID
B-B-AG-3PB
OBSERVED GROUND WATER TABLE=EL 29(±)
DATE 7/8/10
BLUEBERRY FARM
WINTERS HOUSE ACCESS ROAD AND PARK TRAIL RESTORATION, SEE ROADWAY MODIFICATION PLANS
PARKING LOT RECONSTRUCTION, SEE ROADWAY MODIFICATION PLANS
WINTERS HOUSE TRENCH LID, SEE STRUCTUAL PLANS AND ROADWAY MODIFICATION PLANS. FOR SURFACE IMPROVEMENT SEE LANDSCAPE PLANS
N
40 20 0 40 80
SCALE IN FEET


DIRECT FIXATION DRIVEWAY LID
SEE DWG L65-KX011
DIRECT FIXATION - RETAINED CUT
SEE DWG L65-KX009
DIRECT FIXATION RETAINED CUT
SEE DWG L65-KX009
DIRECT FIXATION - LID
SEE DWG L65-KX011
OVEREXCAVATE TO ELEV 15 AND REPLACE WITH GRANULAR FILL TO BASE OF CSBC, SEE TRACK SECTIONS
L 680.00'
80
70
60
50
40
30
20
EB 2065+53.3
EB 2066+13.3
TRENCH LID FOR WINTERS HOUSE DRIVEWAY, SEE ROADWAY MODIFICATION PLAN AND STRUCTURAL PLANS FOR LID GEOMETRY
OVERHANG SIDEWALK (TYP)
LP 2066+85.27
EL 22.29
END OF ALIGNMENT FOR THIS SUBMITTAL SEE SEGMENT C SUBMITTAL
PROJECTED EXISTING BELLEVUE WAY SE
WINTERS HOUSE TRENCH LID*
SEE STRUCTURAL PLANS
PVI EB 2064+25.00
EL 19.90
16' MIN CLEARANCE T/R TO BOTTOM OF STRUT AND OVERHANG SIDEWALK TYP
16' MIN CLEARANCE T/R TO BOTTOM OF TRENCH LID
EXISTING G/L AT EB PGL
EB 2067+19.47
PVT EB 2067+65.00
EL 22.61
16' MIN CLEARANCE T/R TO BOTTOM OF TRENCH LID
PVI EB 2068+89.44
EL 23.60
OBSERVED GROUND WATER TABLE EL 29'(±)
DATE 12/8/09 TO 7/8/10
124.44'
0.80%
PGL (T/LR)
36.7
29.71
41.8
26.36
40.7
24.01
36.1
22.65
38.5
22.30
44.5
22.89
EB 2064+00
EB 2066+00
EB 2068+00

*INSTALL FLOATING TRACK SLAB WITHIN LIMITS OF WINTERS HOUSE TRENCH LID DETAIL TO BE DEVELOPED IN FINAL DESIGN

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: M. RILLING
Drawn By: F. BOLIMA
Checked By: D. TREADWELL
Approved By: S. MAK

STEPHEN C. MAK
38797
FINAL PE

CH2MHILL

INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: H: 1"=40'; V: 1"=10'
Filename: ELB_L65_KP007.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
TRACK
PLAN & PROFILE
STA EB 2063+00 TO STA EB 2068+89.44

Drawing No.: L65-KP007
Sheet No.: 40
Rev.:

c:\work\seg_b\ELB_L65_KP007.dwg
10/22/10 10:14 : bolimaf OE6504

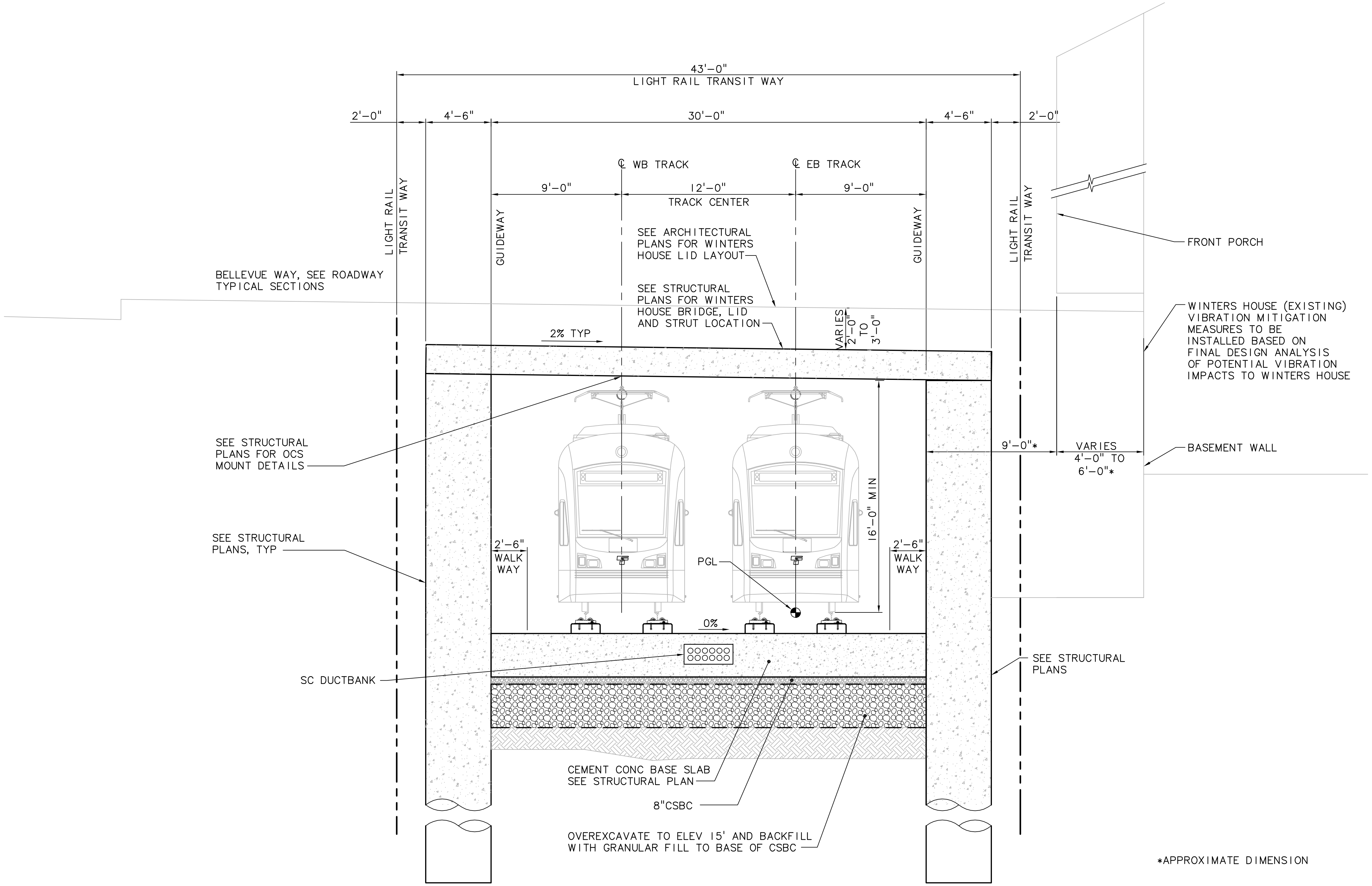
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
ZG-2234H
-Overlay:
REG-SCM
SUB-INTR
-Unresolved:

NOTES:

1. SEE OCS FOUNDATION LAYOUT PLAN AND PROFILE FOR OCS POLE AND DUCTBANK LOCATIONS.
2. SEE RIGHT OF WAY PLANS FOR LIMITS OF PROPOSED RIGHT OF WAY.
3. SEE ROADWAY MODIFICATION PLANS, PROFILES AND TYPICAL SECTIONS FOR LIMITS OF ROADWAY RECONSTRUCTION.
4. SEE TRACK PLAN AND PROFILE FOR PROPOSED LRT LOCATION.
5. SEE STRUCTURAL PLANS FOR STRUCTURAL DESIGN DETAILS AND LOCATIONS.
6. SEE ARCHITECTURAL PLANS FOR STATION, PARK AND RIDE, PEDESTRIAN PLAZA DETAILS AND LOCATIONS.
7. SEE UTILITY COMPOSITE PLANS FOR DRAINAGE AND UTILITY LOCATIONS.
8. SEE TRACK PLAN AND PROFILE FOR LOCATION AND HEIGHT OF ACOUSTIC BARRIER.
9. SEE STRUCTURAL PLAN FOR CROSS SLOPE ON ELEVATED GUIDEWAY.



43'-0"
LIGHT RAIL TRANSIT WAY
2'-0"
4'-6"
30'-0"
4'-6"
2'-0"
℄ WB TRACK
℄ EB TRACK
9'-0"
12'-0"
TRACK CENTER
9'-0"
LIGHT RAIL TRANSIT WAY
GUIDEWAY
SEE ARCHITECTURAL PLANS FOR WINTERS HOUSE LID LAYOUT
GUIDEWAY
LIGHT RAIL TRANSIT WAY
FRONT PORCH
BELLEVUE WAY, SEE ROADWAY TYPICAL SECTIONS
SEE STRUCTURAL PLANS FOR WINTERS HOUSE BRIDGE, LID AND STRUT LOCATION
VARIES 2'-0" TO 3'-0"
WINTERS HOUSE (EXISTING) VIBRATION MITIGATION MEASURES TO BE INSTALLED BASED ON FINAL DESIGN ANALYSIS OF POTENTIAL VIBRATION IMPACTS TO WINTERS HOUSE
2% TYP
SEE STRUCTURAL PLANS FOR OCS MOUNT DETAILS
9'-0"*
VARIES 4'-0" TO 6'-0"*
BASEMENT WALL
16'-0" MIN
SEE STRUCTURAL PLANS, TYP
2'-6" WALK WAY
PGL
2'-6" WALK WAY
0%
SC DUCTBANK
SEE STRUCTURAL PLANS
CEMENT CONC BASE SLAB SEE STRUCTURAL PLAN
8"CSBC
OVEREXCAVATE TO ELEV 15' AND BACKFILL WITH GRANULAR FILL TO BASE OF CSBC

*APPROXIMATE DIMENSION

WINTERS HOUSE LID
DIRECT FIXATION DOUBLE TRACK

K
L65-KX011
L65-KP007

SCALE: NTS

LIMITS

EB TRACK 2065+53.3 TO 2066+13.3 (DRIVEWAY)
EB TRACK 2067+19.47 TO 2068+89.44 (HOUSE/LID)

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10/22/10 10:17 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: M. RILLING
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Approved By: S. MAK

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BOLIMA DRAFTING & DESIGN INC.
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELB_L65_KX011.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

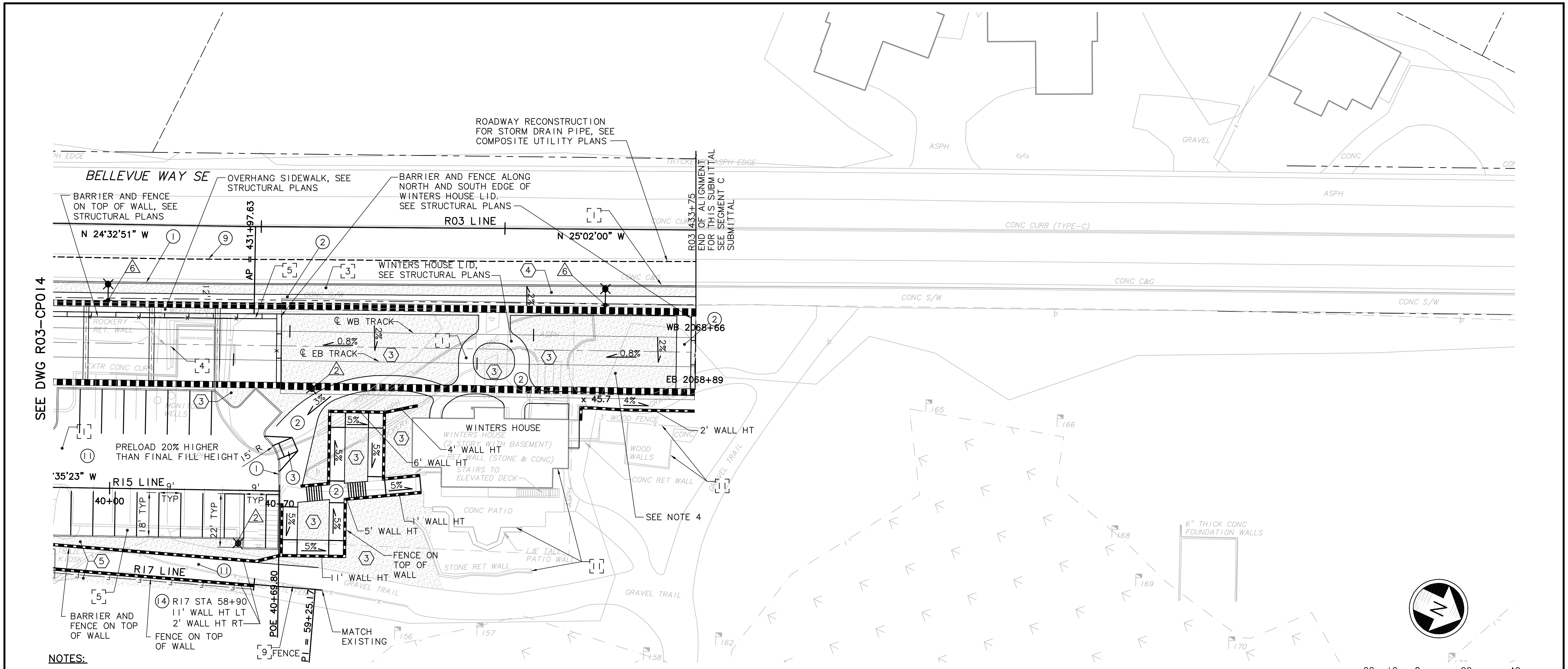
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
TYPICAL SECTION
WINTERS HOUSE LID

Drawing No.: L65-KX011
Sheet No.: 53
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
ELB_L65_CA
ELB_L65_CG
ELB_L65_CM
ELB_L65_CS
ELB_L65_KA
ELB_L65_LP
ELB_L65_SP
REG-SCM
SUB-INTR
Zg-2234h
x0219rx
x0219sf
x0222rx
x0222sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
x0525sf
-Unresolved:



SEE DWG R03-CP014
BELLEVUE WAY SE
ROADWAY RECONSTRUCTION FOR STORM DRAIN PIPE, SEE COMPOSITE UTILITY PLANS
OVERHANG SIDEWALK, SEE STRUCTURAL PLANS
BARRIER AND FENCE ALONG NORTH AND SOUTH EDGE OF WINTERS HOUSE LID. SEE STRUCTURAL PLANS
BARRIER AND FENCE ON TOP OF WALL, SEE STRUCTURAL PLANS
R03 LINE
N 24°32'51" W
N 25°02'00" W
AP = 431+97.63
R03 433+75 END OF ALIGNMENT FOR THIS SUBMITTAL SEE SEGMENT C SUBMITTAL
WINTERS HOUSE LID, SEE STRUCTURAL PLANS
℄ WB TRACK
℄ EB TRACK
0.8%
2%
WB 2068+66
EB 2068+89
45.7
4%
ROCKERY RET. WALL
EXTR CONC CURB
PRELOAD 20% HIGHER THAN FINAL FILL HEIGHT
WINTERS HOUSE
4' WALL HT
6' WALL HT
2' WALL HT
1' WALL HT
5' WALL HT
11' WALL HT
FENCE ON TOP OF WALL
SEE NOTE 4
CONC PATIO
STONE RET WALL
GRAVEL TRAIL
R15 LINE
R17 LINE
40+00
18' TYP
22' TYP
9' TYP
40+70
R17 STA 58+90 11' WALL HT LT 2' WALL HT RT
BARRIER AND FENCE ON TOP OF WALL
FENCE ON TOP OF WALL
POE 40+69.80
PI = 59+25.17
MATCH EXISTING
FENCE
ASPH
GRAVEL
CONC
CONC CURB (TYPE-C)
CONC C&G
CONC S/W
6" THICK CONC FOUNDATION WALLS
165
166
168
169
170
156
157
158
162
20 10 0 20 40
SCALE IN FEET

NOTES:

1. SEE DWG L65-CZ001 FOR LEGEND.
2. SEE DWG R03-CV002 FOR R15 LINE BLUEBERRY FARM WINTERS HOUSE PROFILE.
3. SEE DWG R03-CV002 FOR R17-LINE LINE BLUEBERRY FARM WINTERS HOUSE PARK TRAIL PROFILE.
4. SEE DWG L65-LX001 FOR TYPICAL LANDSCAPING SECTION AT WINTERS HOUSE LID.

SIGNAL & ILLUMINATION NOTES:

△ SEE LEGEND, DWG L65-CZ001

ROADWAY MODIFICATION NOTES:

① CEMENT CONCRETE CURB AND GUTTER
② CONCRETE SIDEWALK
③ CURB RAMP TYPE 1
④ CURB RAMP TYPE 2 – DEPRESSED
⑤ DRIVEWAY APPROACH – COMMERCIAL

ROADWAY MODIFICATION NOTES (CONT):

⑥ CAST-IN-PLACE CONCRETE RETAINING WALL.
⑦ SOLDIER PILE RETAINING WALL.
⑧ SEE STRUCTURAL DRAWINGS FOR ALL GUIDEWAY RETAINING WALLS.
⑨ SAWCUT, MATCH EXISTING.
⑩ TRAFFIC CURB
⑪ ASPHALT CONCRETE PAVEMENT
⑫ PORTLAND CEMENT CONCRETE PAVEMENT
⑬ ROCKERY RETAINING WALL
⑭ RETAINING WALL
⑮ DRIVEWAY APPROACH – RESIDENTIAL
⑯ CONCRETE TRAFFIC DOWELED CURB
⑰ EXTRUDED CURB

DEMO CONSTRUCTION NOTES:

[1] REMOVE PAVEMENT, ASPHALT
[2] REMOVE PAVEMENT, CONCRETE
[3] REMOVE SIDEWALK
[4] REMOVE RETAINING WALL
[5] REMOVE FENCE
[6] REMOVE MISCELLANEOUS ITEM
[7] REMOVE (BY OTHERS)
[8] REMOVE AND REPLACE
[9] REMOVE RESET
[10] REMOVE AND RELOCATE
[11] PROTECT AND PRESERVE
[12] REMOVE BUILDING AND BUILDING FOUNDATION

CONSTRUCTION NOTES, LANDSCAPE TYPES:

1 RAIN GARDENS
2 LANDSCAPE BUFFER
3 WINTERS HOUSE
4 STREET LANDSCAPE
5 RESTORATION – GROUNDCOVER, SHRUBS, TREES
6 STATION LANDSCAPE
7 FREEWAY LANDSCAPE
8 RESTORATION – SEEDING
9 GRAVEL

WINTERS HOUSE:

PARKING STALL COUNT
EXISTING = 33 STANDARD STALLS
1 ADA STALLS
PROPOSED = 34 STANDARD STALLS
1 ADA STALL

CURVE DATA

P.I. STA.	DELTA	RADIUS	TANGENT	LENGTH
R03 431+97.63	0°29'09.50" LT	ANGLE PT	–	–

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10/22/10 11:20 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: M. RILLING
Drawn By: A. BYERS
Checked By: R. McKELVY
Approved By: S. MAK

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CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
NAKANO ASSOCIATES LLC
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELB_R03_CP015.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
ROADWAY MODIFICATION PLAN
BELLEVUE WAY SE
STA R03 431+25 TO STA R03 433+75

Drawing No.: R03-CP015
Sheet No.: 72
Rev.:

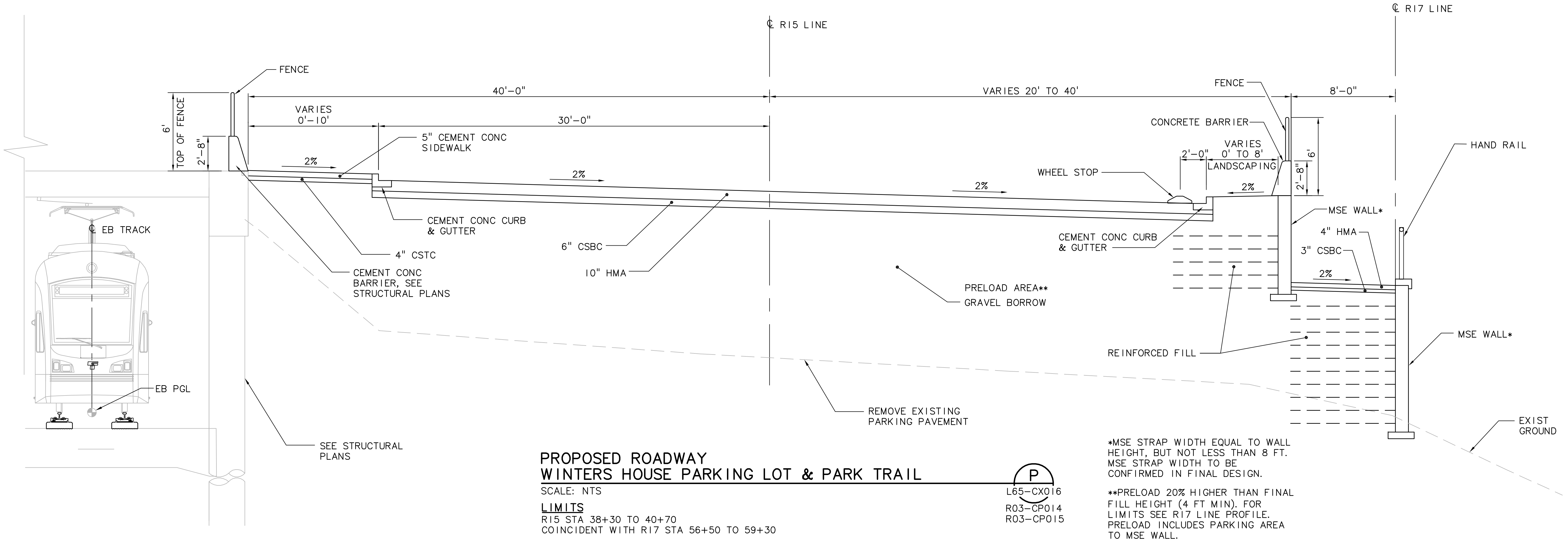
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
REG-SCM
SUB-INTR
ZG-2234H
-Unresolved:

NOTES:

1. ROADWAY PROFILES WILL BE SHOWN FOR THE PGL POINTS AS SHOWN FOR F-LINE, EN3-LINE, EN-LINE, R07-LINE, R09-LINE, R11-LINE R15-LINE AND R17-LINE.
2. SEE ROADWAY MODIFICATION PLANS FOR ROAD PLAN AND PROFILES; LIMITS OF ROADWAY WIDENING; LIMITS OF PAVEMENT, CURB AND SIDEWALK MODIFICATIONS; LIMITS OF RETAINING WALLS LOCATIONS RELATING TO ROADWAY RETAINED FILL AND CUT SECTIONS; AND ROADWAY PAVEMENT MARKINGS.
3. FOR DRIVEWAY RECONSTRUCTION/RELOCATIONS SEE ROADWAY MODIFICATION PLANS. DRIVEWAY PROFILES ARE SHOWN ON SEPARATE SHEET.
4. SEE TRACK TYPICAL SECTION SHEETS FOR TRACK SECTION DETAILS.
5. SEE TRACK PLAN AND PROFILE SHEETS FOR LIMITS OF PROPOSED LRT LOCATION.
6. SEE RIGHT OF WAY PLANS FOR LIMITS OF PROPOSED RIGHT OF WAY.
7. SEE CITY OF BELLEVUE STANDARD PLAN NUMBERS: DEV-9, TE-10, TE-6 , TE-11, & DEV-6 FOR PUBLIC STREET DESIGN STANDARDS.
8. SEE STRUCTURAL PLANS AND TYPICAL SECTIONS FOR STRUCTURAL DESIGN DETAILS AND LOCATIONS.
9. SEE ARCHITECTURAL PLANS FOR STATION, PARK AND RIDE, PEDESTRIAN PLAZA DETAILS AND LOCATIONS.
10. ALL SURFACING DEPTHS SHOWN ARE COMPACTED DEPTH.
11. NO PAVEMENT DESIGN HAS BEEN PERFORMED IN PRELIMINARY DESIGN. ASPHALT PAVEMENT DEPTH SHOWN IS PER CITY OF BELLEVUE DEPARTMENT OF TRANSPORTATION DESIGN MANUAL DWG NO. DEV-9(1/08).


℄ R15 LINE
℄ R17 LINE
FENCE
40'-0"
VARIES 20' TO 40'
8'-0"
VARIES
0'-10'
30'-0"
6'
TOP OF FENCE
2'-8"
5" CEMENT CONC
SIDEWALK
2%
2%
2%
2%
2%
CONCRETE BARRIER
FENCE
VARIES
0' TO 8'
2'-0"
LANDSCAPING
6'
2'-8"
HAND RAIL
WHEEL STOP
MSE WALL*
4" HMA
3" CSBC
℄ EB TRACK
CEMENT CONC CURB
& GUTTER
4" CSTC
6" CSBC
10" HMA
CEMENT CONC
BARRIER, SEE
STRUCTURAL PLANS
CEMENT CONC CURB
& GUTTER
PRELOAD AREA**
GRAVEL BORROW
MSE WALL*
REINFORCED FILL
EB PGL
REMOVE EXISTING
PARKING PAVEMENT
EXIST
GROUND
SEE STRUCTURAL
PLANS

PROPOSED ROADWAY
WINTERS HOUSE PARKING LOT & PARK TRAIL

SCALE: NTS

P
L65-CX016
R03-CP014
R03-CP015

LIMITS
R15 STA 38+30 TO 40+70
COINCIDENT WITH R17 STA 56+50 TO 59+30

*MSE STRAP WIDTH EQUAL TO WALL HEIGHT, BUT NOT LESS THAN 8 FT. MSE STRAP WIDTH TO BE CONFIRMED IN FINAL DESIGN.

**PRELOAD 20% HIGHER THAN FINAL FILL HEIGHT (4 FT MIN). FOR LIMITS SEE R17 LINE PROFILE. PRELOAD INCLUDES PARKING AREA TO MSE WALL.

c:\work\seg_b\ELB_L65_CX016.dwg
10/22/10 09:48 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: M. RILLING
Drawn By: D. DE LA CRUZ
Checked By: M. JOHNSON
Approved By: S. MAK

STEPHEN C. MAK
38797
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CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELB_L65_CX016.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED * HALF SCALE

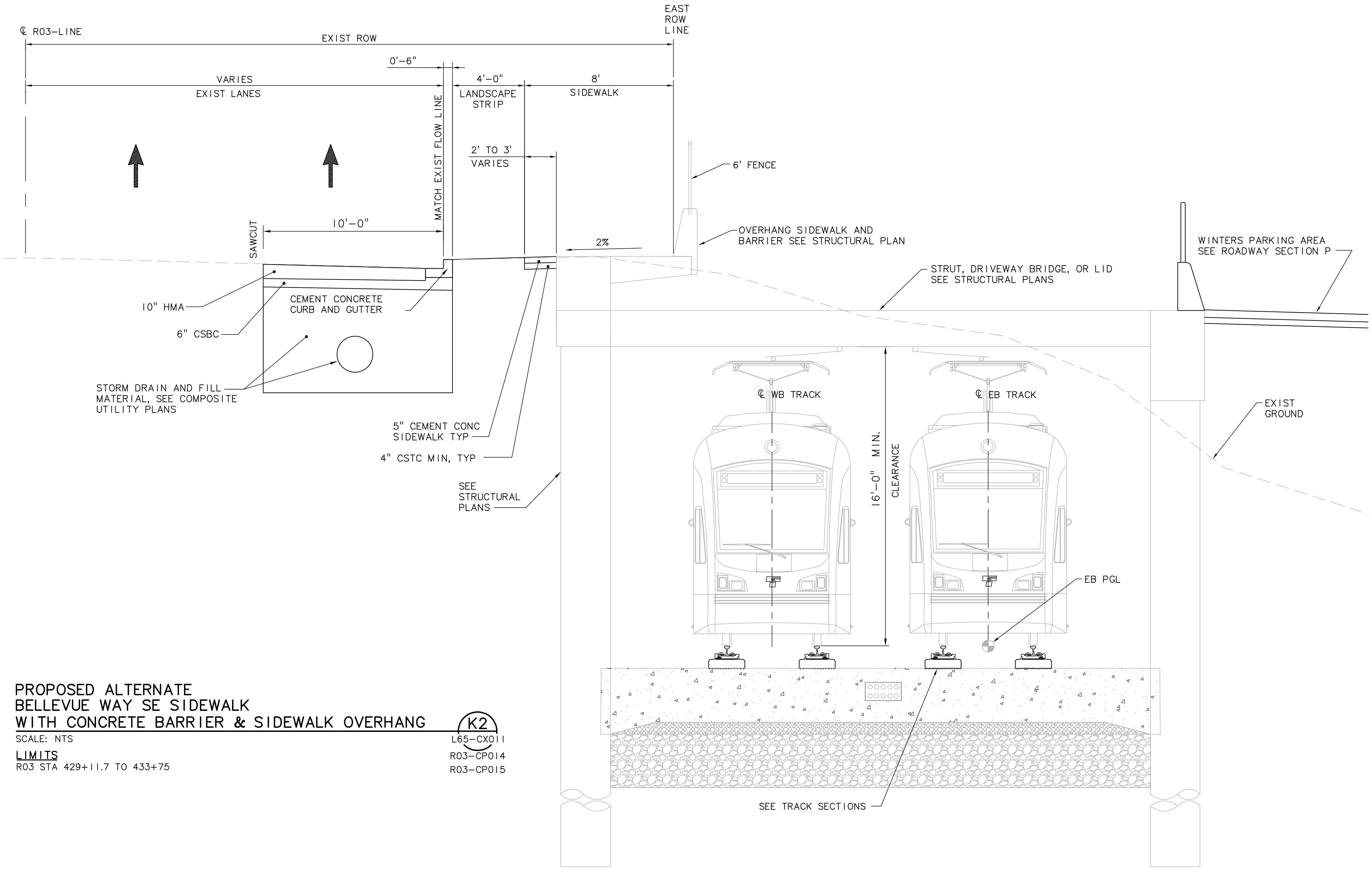
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B

ROADWAY TYPICAL SECTION
WINTERS HOUSE PARKING LOT & LOWER TRAIL
R15 STA 38+30 TO 40+70

Drawing No.: L65-CX016
Sheet No.: 94
Rev.:

NOTES:

1. ROADWAY PROFILES WILL BE SHOWN FOR THE PGL POINTS AS SHOWN FOR F-LINE, EN3-LINE, EN-LINE, R07-LINE, R09-LINE, R11-LINE, R15-LINE AND R17-LINE.
2. SEE ROADWAY MODIFICATION PLANS FOR ROAD PLAN AND PROFILES; LIMITS OF ROADWAY WIDENING; LIMITS OF PAVEMENT, CURB AND SIDEWALK MODIFICATIONS; LIMITS OF RETAINING WALLS LOCATIONS RELATING TO ROADWAY RETAINED FILL AND CUT SECTIONS; AND ROADWAY PAVEMENT MARKINGS.
3. FOR DRIVEWAY RECONSTRUCTION/RELOCATIONS SEE ROADWAY MODIFICATION PLANS. DRIVEWAY PROFILES ARE SHOWN ON SEPARATE SHEET.
4. SEE TRACK TYPICAL SECTION SHEETS FOR TRACK SECTION DETAILS.
5. SEE TRACK PLAN AND PROFILE SHEETS FOR LIMITS OF PROPOSED LRT LOCATION.
6. SEE RIGHT OF WAY PLANS FOR LIMITS OF PROPOSED RIGHT OF WAY.
7. SEE CITY OF BELLEVUE STANDARD PLAN NUMBERS: DEV-9, TE-10, TE-6 , TE-11, & DEV-6 FOR PUBLIC STREET DESIGN STANDARDS.
8. SEE STRUCTURAL PLANS AND TYPICAL SECTIONS FOR STRUCTURAL DESIGN DETAILS AND LOCATIONS.
9. SEE ARCHITECTURAL PLANS FOR STATION, PARK AND RIDE, PEDESTRIAN PLAZA DETAILS AND LOCATIONS.
10. ALL SURFACING DEPTHS SHOWN ARE COMPACTED DEPTH.
11. NO PAVEMENT DESIGN HAS BEEN PERFORMED IN PRELIMINARY DESIGN. ASPHALT PAVEMENT DEPTH SHOWN IS PER CITY OF BELLEVUE DEPARTMENT OF TRANSPORTATION DESIGN MANUAL DWG NO. DEV-9(1/08).


℄ R03-LINE
EXIST ROW
EAST ROW LINE
0'-6"
VARIES
EXIST LANES
4'-0"
LANDSCAPE STRIP
8'
SIDEWALK
MATCH EXIST FLOW LINE
2' TO 3' VARIES
6' FENCE
SAWCUT
10'-0"
2%
OVERHANG SIDEWALK AND BARRIER SEE STRUCTURAL PLAN
WINTERS PARKING AREA SEE ROADWAY SECTION P
STRUT, DRIVEWAY BRIDGE, OR LID SEE STRUCTURAL PLANS
10" HMA
CEMENT CONCRETE CURB AND GUTTER
6" CSBC
STORM DRAIN AND FILL MATERIAL, SEE COMPOSITE UTILITY PLANS
℄ WB TRACK
℄ EB TRACK
EXIST GROUND
5" CEMENT CONC SIDEWALK TYP
4" CSTC MIN, TYP
SEE STRUCTURAL PLANS
16'-0" MIN. CLEARANCE
EB PGL
SEE TRACK SECTIONS

PROPOSED ALTERNATE BELLEVUE WAY SE SIDEWALK WITH CONCRETE BARRIER & SIDEWALK OVERHANG

K2
L65-CX011

SCALE: NTS

R03-CP014
R03-CP015

LIMITS
R03 STA 429+11.7 TO 433+75

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: M. RILLING
Drawn By: F. BOLIMA
Checked By: M. JOHNSON
Approved By: S. MAK

STEPHEN C. MAK
38797
FINAL PE

CH2MHILL

INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: NTS
Filename: ELB_L65_CX011.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
ROADWAY TYPICAL SECTION
BELLEVUE WAY SE

Drawing No.: L65-CX011
Sheet No.: 89
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
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ELB_L65_CG
ELB_L65_CM
ELB_L65_CS
ELB_L65_KA
ELB_L65_LP
ELB_L65_SP
REG-SCM
SUB-INTR
Zg-2234h
blue-win_draftgrading
x0219rx
x0219sf
x0222rx
x0222sf
x0519rx
x0519sf
x0522rx
x0522sf
x0525rx
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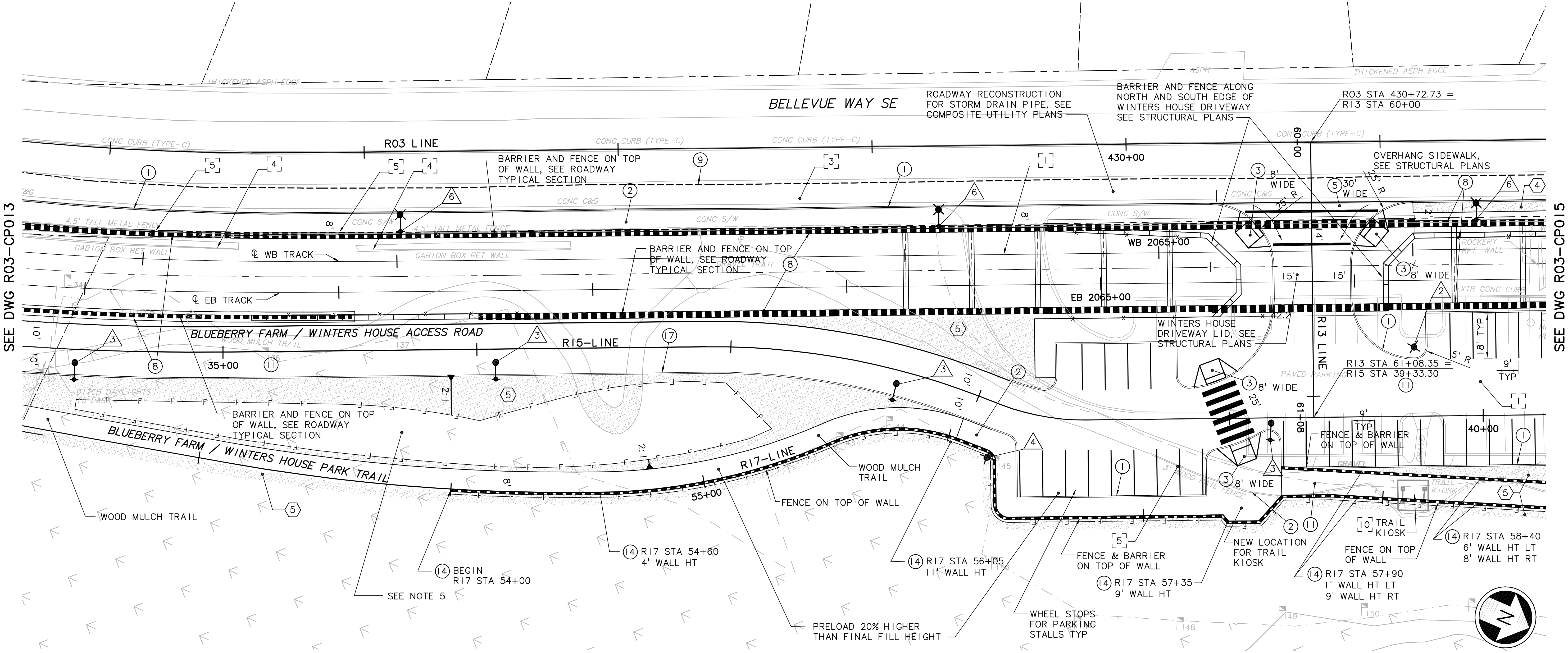
c:\work\seg_b\ELB_R03_CP014.dwg
10/22/10 11:20 : bolimaf OE6504


SEE DWG R03-CP013
SEE DWG R03-CP015
BELLEVUE WAY SE
THICKENED ASPH EDGE
R03 LINE
430+00
CONC CURB (TYPE-C)
CONC C&G
CONC S/W
4.5' TALL METAL FENCE
GABION BOX RET WALL
℄ WB TRACK
℄ EB TRACK
WB 2065+00
EB 2065+00
BARRIER AND FENCE ON TOP OF WALL, SEE ROADWAY TYPICAL SECTION
ROADWAY RECONSTRUCTION FOR STORM DRAIN PIPE, SEE COMPOSITE UTILITY PLANS
BARRIER AND FENCE ALONG NORTH AND SOUTH EDGE OF WINTERS HOUSE DRIVEWAY SEE STRUCTURAL PLANS
R03 STA 430+72.73 = R13 STA 60+00
OVERHANG SIDEWALK, SEE STRUCTURAL PLANS
8' WIDE
30' WIDE
15'
25' R
5' R
18' TYP
9' TYP
BLUEBERRY FARM / WINTERS HOUSE ACCESS ROAD
R15-LINE
35+00
40+00
R13 LINE
60+00
61+08
WINTERS HOUSE DRIVEWAY LID, SEE STRUCTURAL PLANS
R13 STA 61+08.35 = R15 STA 39+33.30
PAVED PARKING
FENCE & BARRIER ON TOP OF WALL
BLUEBERRY FARM / WINTERS HOUSE PARK TRAIL
R17-LINE
55+00
WOOD MULCH TRAIL
DITCH DAYLIGHTS
FENCE ON TOP OF WALL
NEW LOCATION FOR TRAIL KIOSK
TRAIL KIOSK
BEGIN R17 STA 54+00
R17 STA 54+60 4' WALL HT
R17 STA 56+05 11' WALL HT
R17 STA 57+35 9' WALL HT
R17 STA 57+90 1' WALL HT LT 9' WALL HT RT
R17 STA 58+40 6' WALL HT LT 8' WALL HT RT
SEE NOTE 5
PRELOAD 20% HIGHER THAN FINAL FILL HEIGHT
WHEEL STOPS FOR PARKING STALLS TYP
2:1
10'
N

20 10 0 20 40
SCALE IN FEET

NOTES:

1. SEE DWG L65-CZ001 FOR LEGEND.
2. SEE DWG R03-CV001 FOR R13-LINE WINTERS HOUSE DRIVEWAY PROFILE.
3. SEE DWG R03-CV002 FOR R15-LINE BLUEBERRY FARM WINTERS HOUSE ACCESS PROFILE.
4. SEE DWG R03-CV002 FOR R17-LINE BLUEBERRY FARM WINTERS HOUSE PARK TRAIL PROFILE.
5. PROTECT EXISTING VEGETATION DURING CONSTRUCTION.

SIGNAL & ILLUMINATION NOTES:

X SEE LEGEND, DWG L65-CZ001

ROADWAY MODIFICATION NOTES:

① CEMENT CONCRETE CURB AND GUTTER
② CONCRETE SIDEWALK
③ CURB RAMP TYPE 1
④ CURB RAMP TYPE 2 - DEPRESSED
⑤ DRIVEWAY APPROACH - COMMERCIAL

ROADWAY MODIFICATION NOTES (CONT):

⑥ CAST-IN-PLACE CONCRETE RETAINING WALL.
⑦ SOLDIER PILE RETAINING WALL.
⑧ SEE STRUCTURAL DRAWINGS FOR ALL GUIDEWAY RETAINING WALLS.
⑨ SAWCUT, MATCH EXISTING.
⑩ TRAFFIC CURB
⑪ ASPHALT CONCRETE PAVEMENT
⑫ PORTLAND CEMENT CONCRETE PAVEMENT
⑬ ROCKERY RETAINING WALL
⑭ RETAINING WALL
⑮ DRIVEWAY APPROACH - RESIDENTIAL
⑯ CONCRETE TRAFFIC DOWELED CURB
⑰ EXTRUDED CURB

DEMO CONSTRUCTION NOTES:

[1] REMOVE PAVEMENT, ASPHALT
[2] REMOVE PAVEMENT, CONCRETE
[3] REMOVE SIDEWALK
[4] REMOVE RETAINING WALL
[5] REMOVE FENCE
[6] REMOVE MISCELLANEOUS ITEM
[7] REMOVE (BY OTHERS)
[8] REMOVE AND REPLACE
[9] REMOVE RESET
[10] REMOVE AND RELOCATE
[11] PROTECT AND PRESERVE
[12] REMOVE BUILDING AND BUILDING FOUNDATION

CONSTRUCTION NOTES, LANDSCAPE TYPES:

① RAIN GARDEN
② LANDSCAPE BUFFER
③ WINTERS HOUSE
④ STREET LANDSCAPE
⑤ RESTORATION - GROUNDCOVER, SHRUBS, TREES
⑥ STATION LANDSCAPE
⑦ FREEWAY LANDSCAPE
⑧ RESTORATION - SEEDING
⑨ GRAVEL

CENTERLINE DATA:

POINT	STA	NORTHING	EASTING
POB	R13 60+00.00	546603.42	1633004.94
POE	R13 61+08.35	546648.51	1633103.46

CURVE DATA

P.I. STA.	DELTA	RADIUS	TANGENT	LENGTH
R03 425+56.06	13°23'34.13" LT	1000.00	117.41	233.75
R15 37+45.87	21°48'05.07" RT	289.50	55.75	110.16
R15 38+26.63	21°48'05.07" LT	90.00	17.33	34.25

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: M. RILLING
Drawn By: A. BYERS
Checked By: R. McKELVY
Approved By: S. MAK

STEPHEN C. MAK
38797
FINAL PE

CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
NAKANO ASSOCIATES LLC
SOUND TRANSIT

Submitted:
Date:
Approved:
Date:

Scale: 1"=20'
Filename: ELB_R03_CP014.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B

ROADWAY MODIFICATION PLAN
BELLEVUE WAY SE
STA R03 426+00 TO STA R03 431+25

Drawing No.: R03-CP014
Sheet No.: 71
Rev.:

DWG INFO:

LTSCALE:
1=1

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–Overlay:
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ELB_L65_JO
ELB_L65_KA
ELB_L65_KA_40
ELB_L65_SP
REG–ASO
SUB–INTR
Zg–2234h
Zg_g4040h
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x0222sf
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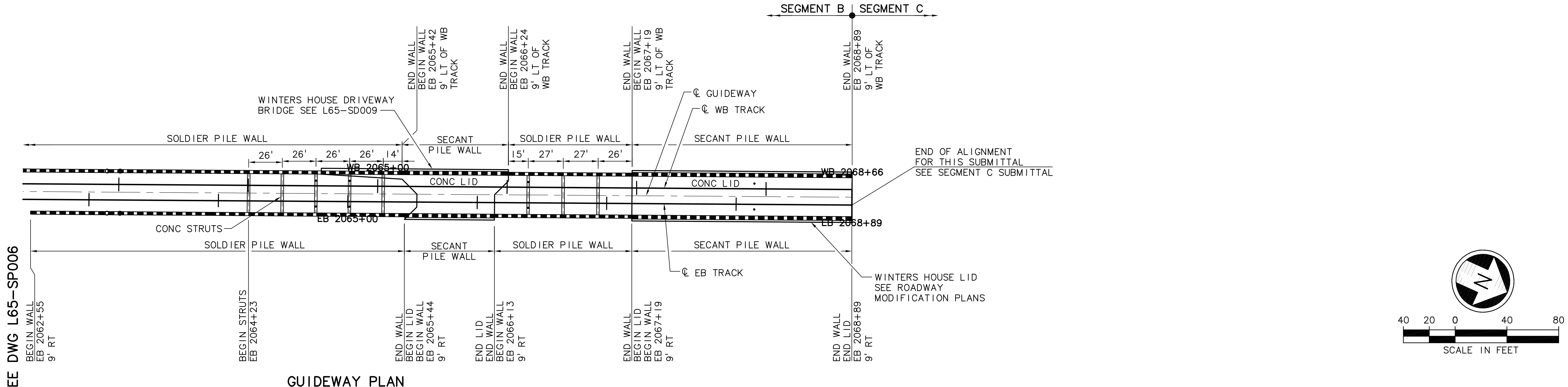
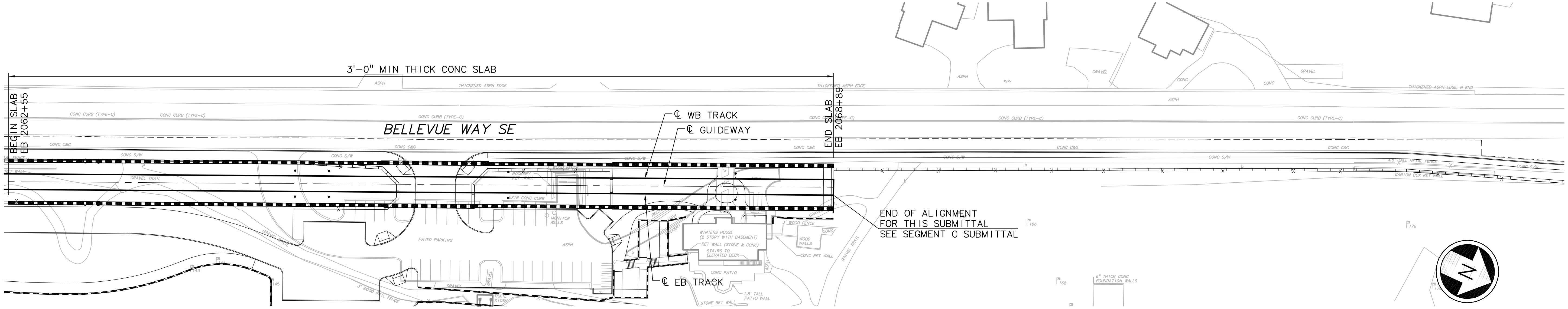


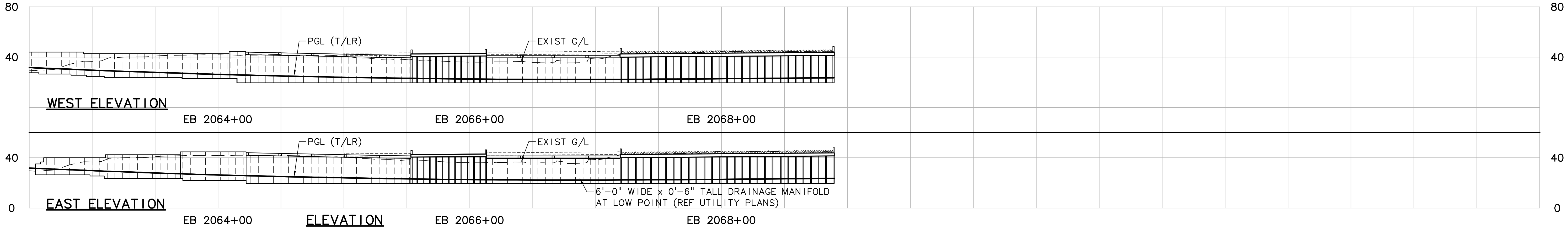
SEGMENT B | SEGMENT C
END WALL BEGIN WALL EB 2065+42 9' LT OF WB TRACK
END WALL BEGIN WALL EB 2066+24 9' LT OF WB TRACK
END WALL BEGIN WALL EB 2067+19 9' LT OF WB TRACK
END WALL EB 2068+89 9' LT OF WB TRACK
WINTERS HOUSE DRIVEWAY BRIDGE SEE L65–SD009
℄ GUIDEWAY
℄ WB TRACK
SOLDIER PILE WALL
SECANT PILE WALL
SOLDIER PILE WALL
SECANT PILE WALL
26'
26'
26'
26'
14'
15'
27'
27'
26'
WB 2065+00
CONC LID
CONC LID
WB 2068+66
END OF ALIGNMENT FOR THIS SUBMITTAL SEE SEGMENT C SUBMITTAL
CONC STRUTS
EB 2065+00
EB 2068+89
SOLDIER PILE WALL
SECANT PILE WALL
SOLDIER PILE WALL
SECANT PILE WALL
℄ EB TRACK
WINTERS HOUSE LID SEE ROADWAY MODIFICATION PLANS
SEE DWG L65–SP006
BEGIN WALL EB 2062+55 9' RT
BEGIN STRUTS EB 2064+23
END WALL BEGIN LID BEGIN WALL EB 2065+44 9' RT
END LID END WALL BEGIN WALL EB 2066+13 9' RT
END WALL BEGIN LID BEGIN WALL EB 2067+19 9' RT
END WALL END LID EB 2068+89 9' RT
N
40 20 0 40 80
SCALE IN FEET

GUIDEWAY PLAN



3'–0" MIN THICK CONC SLAB
BEGIN SLAB EB 2062+55
END SLAB EB 2068+89
BELLEVUE WAY SE
℄ WB TRACK
℄ GUIDEWAY
℄ EB TRACK
END OF ALIGNMENT FOR THIS SUBMITTAL SEE SEGMENT C SUBMITTAL
WINTERS HOUSE (2 STORY WITH BASEMENT)
ASPH
CONC CURB (TYPE–C)
CONC S/W
PAVED PARKING
CONC PATIO
STONE RET WALL
N

FOUNDATION LAYOUT PLAN



80
40
80
40
PGL (T/LR)
EXIST G/L
WEST ELEVATION
EB 2064+00
EB 2066+00
EB 2068+00
40
40
PGL (T/LR)
EXIST G/L
6'–0" WIDE x 0'–6" TALL DRAINAGE MANIFOLD AT LOW POINT (REF UTILITY PLANS)
0
0
EAST ELEVATION
EB 2064+00
EB 2066+00
EB 2068+00

ELEVATION

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10/22/10 10:31 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: N. GALER
Drawn By: S. KASHANI
Checked By: A. ASAIDALI
Approved By: A. OZKAN

AHMET S. OZKAN
43003
FINAL PE

CH2MHILL

Submitted:

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

Date:

Approved:

SOUNDTRANSIT

Date:

Scale: 1"=40'
Filename: ELB_L65_SP007.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
GENERAL LAYOUT
PLAN & PROFILE
EB STA 2063+00 TO EB STA 2068+89

Drawing No.: L65–SP007
Sheet No.: 131
Rev.:

DWG INFO:

LTSCALE:
1=1

XREFs:
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ZG-2234H
-Overlay:
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ELB_L65_KA
ELB_L65_SP
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SUB-INTR
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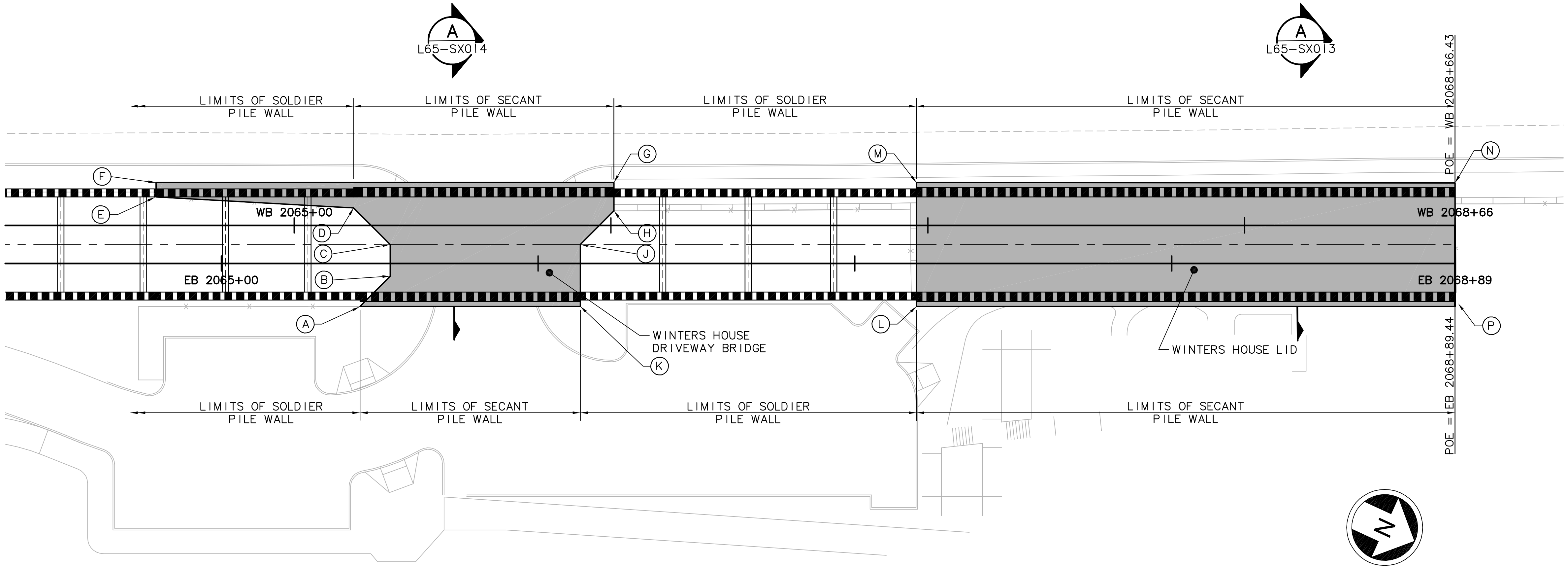

A
L65-SX014
A
L65-SX013
LIMITS OF SOLDIER PILE WALL
LIMITS OF SECANT PILE WALL
LIMITS OF SOLDIER PILE WALL
LIMITS OF SECANT PILE WALL
POE = WB 2068+66.43
F
E
G
M
N
WB 2065+00
D
C
B
H
J
WB 2068+66
EB 2065+00
EB 2068+89
A
L
P
WINTERS HOUSE DRIVEWAY BRIDGE
K
WINTERS HOUSE LID
LIMITS OF SOLDIER PILE WALL
LIMITS OF SECANT PILE WALL
LIMITS OF SOLDIER PILE WALL
LIMITS OF SECANT PILE WALL
POE = EB 2068+89.44
N

PLAN – WINTERS HOUSE DRIVEWAY BRIDGE AND WINTERS HOUSE LID

SCALE: 1"=20'-0"

Ⓐ STA EB 2065+43.79
13'-6"R
Ⓑ STA EB 2065+53.30
4'-0"R
Ⓒ STA EB 2065+53.30
6'-0"L
Ⓓ STA EB 2065+41.76
17'-6"L
Ⓔ STA EB 2064+79.44
21'-0"L
Ⓕ STA EB 2064+79.39
25'-6"L
Ⓖ STA EB 2066+23.91
25'-6"L
Ⓗ STA ED 2066+23.91
16'-7"L
Ⓙ STA EB 2066+13.30
6'-0"L
Ⓚ STA EB 2066+13.30
13'-6"R

Ⓛ STA EB 2067+19.43
13'-6"R
Ⓜ STA EB 2067+19.43
25'-6"L
Ⓝ STA EB 2068+89.00
25'-6"L
Ⓟ STA EB 2068+89.00
13'-6"R

DESIGN LOADS		
STRUCTURE	LIVE	DEAD
WINTERS HOUSE DRIVEWAY LID WINTERS HOUSE LID	HL-93 100 PSF	WEIGHT 360 PSF (SUPERIMPOSED)

NOTES:

1. SEE SHEET L65-SD010 FOR SOLDIER PILE TO SECANT WALL TRANSITION.

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10/22/10 10:28 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: W. KHALID
Drawn By: J. MATTHEWS
Checked By: A. ASAIDALI
Approved By: A. OZKAN

AHMET S. OZKAN
43003
FINAL PE

CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: AS NOTED
Filename: ELB_L65_SD009.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

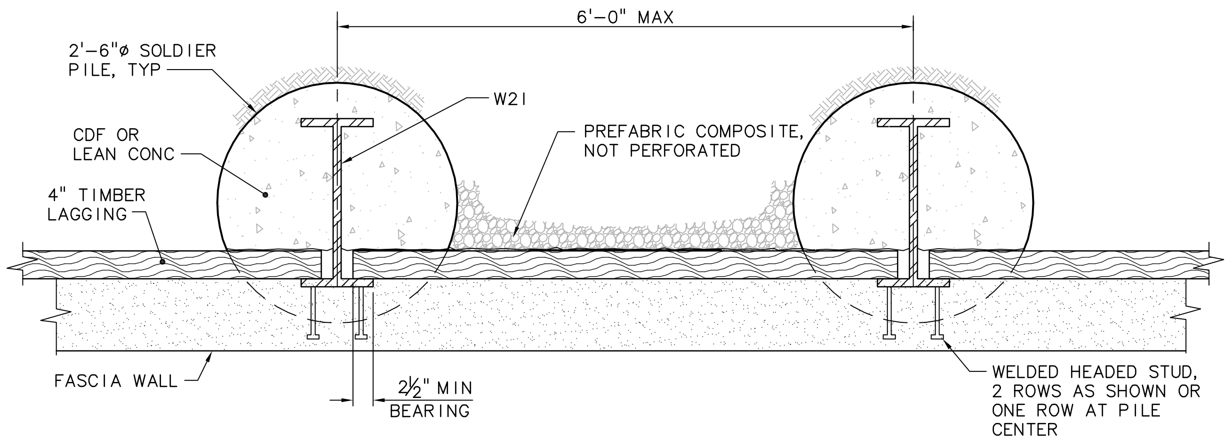
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
WINTERS HOUSE
LID AND DRIVEWAY BRIDGE

Drawing No.: L65-SD009
Sheet No.: 178
Rev.:

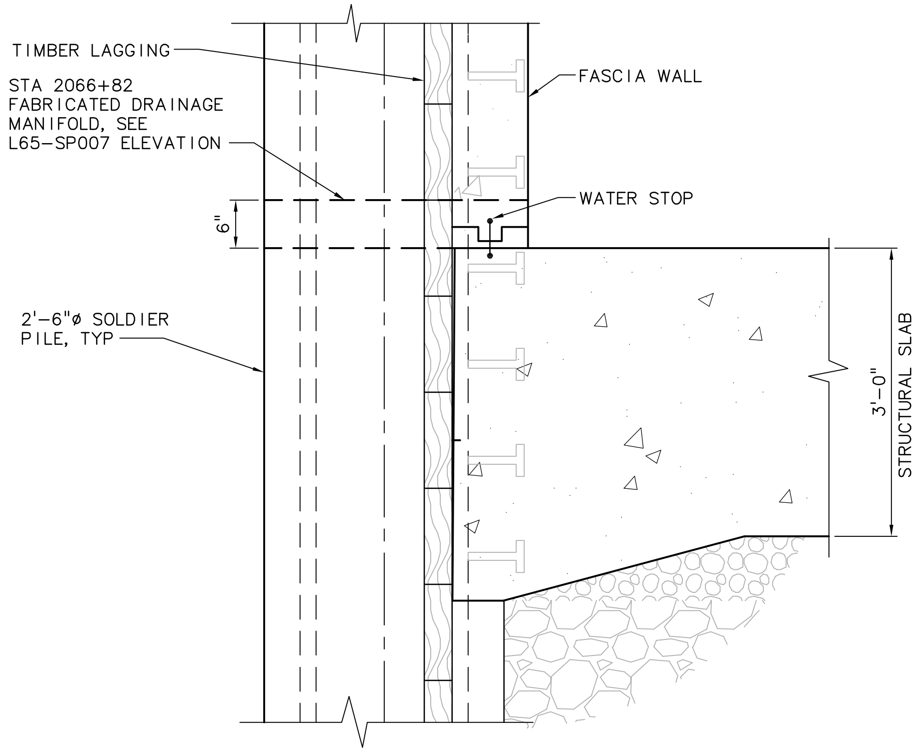
DWG INFO:

LTSCALE:
1=1

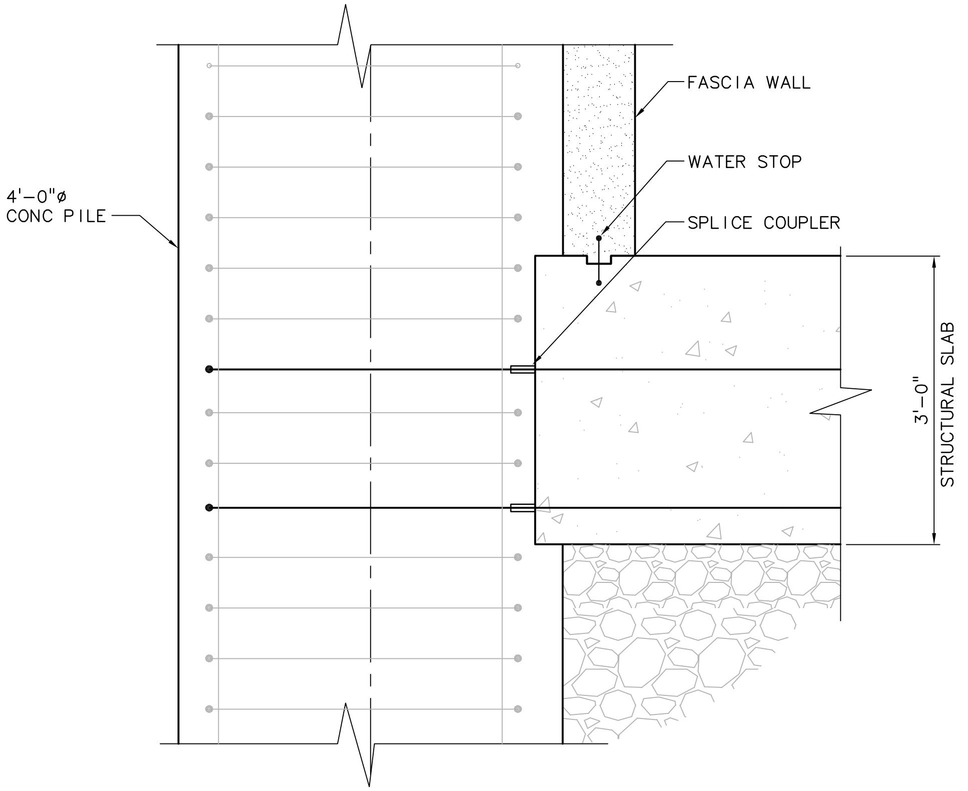
XREFs:
-Attach:
ZG-2234H
-Overlay:
REG-ASO
SUB-INTR
-Unresolved:


6'-0" MAX
2'-6"ø SOLDIER PILE, TYP
W21
CDF OR LEAN CONC
PREFABRIC COMPOSITE, NOT PERFORATED
4" TIMBER LAGGING
FASCIA WALL
2½" MIN BEARING
WELDED HEADED STUD, 2 ROWS AS SHOWN OR ONE ROW AT PILE CENTER

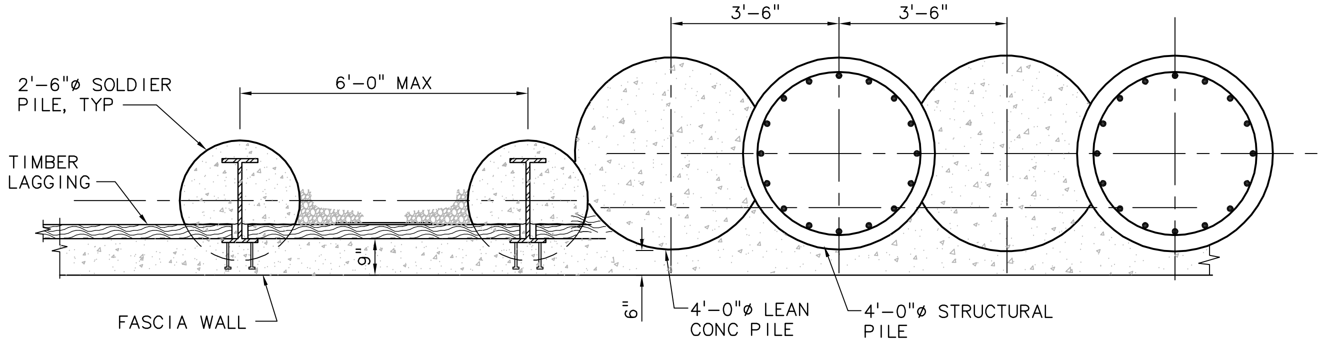
TYPICAL WALL PLAN SECTION (A)
SCALE: 1" = 1'-0"
L65-SD010
L65-SX012


TIMBER LAGGING
STA 2066+82 FABRICATED DRAINAGE MANIFOLD, SEE L65-SP007 ELEVATION
FASCIA WALL
WATER STOP
6"
2'-6"ø SOLDIER PILE, TYP
3'-0"
STRUCTURAL SLAB

BASE SLAB AT SOLDIER PILE WALL (B)
SCALE: 1" = 1'-0"
L65-SD010
L65-SX012


FASCIA WALL
WATER STOP
SPLICE COUPLER
4'-0"ø CONC PILE
3'-0"
STRUCTURAL SLAB

BASE SLAB AT SECANT WALL (C)
SCALE: 1" = 1'-0"
L65-SD010
L65-SX013


3'-6"
3'-6"
6'-0" MAX
2'-6"ø SOLDIER PILE, TYP
TIMBER LAGGING
9"
6"
FASCIA WALL
4'-0"ø LEAN CONC PILE
4'-0"ø STRUCTURAL PILE

SOLDIER PILE TO SECANT PILE WALL TRANSITION PLAN
EXAMPLE AT STA EB 2065+53.3 AND STA EB 2067+19.47
SCALE: 1/2" = 1'-0"

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10/22/10 10:28 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: N. GALER
Drawn By: J. MATTHEWS
Checked By: A. ASAIDALI
Approved By: A. OZKAN

AHMET S. OZKAN 43003
FINAL PE

CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

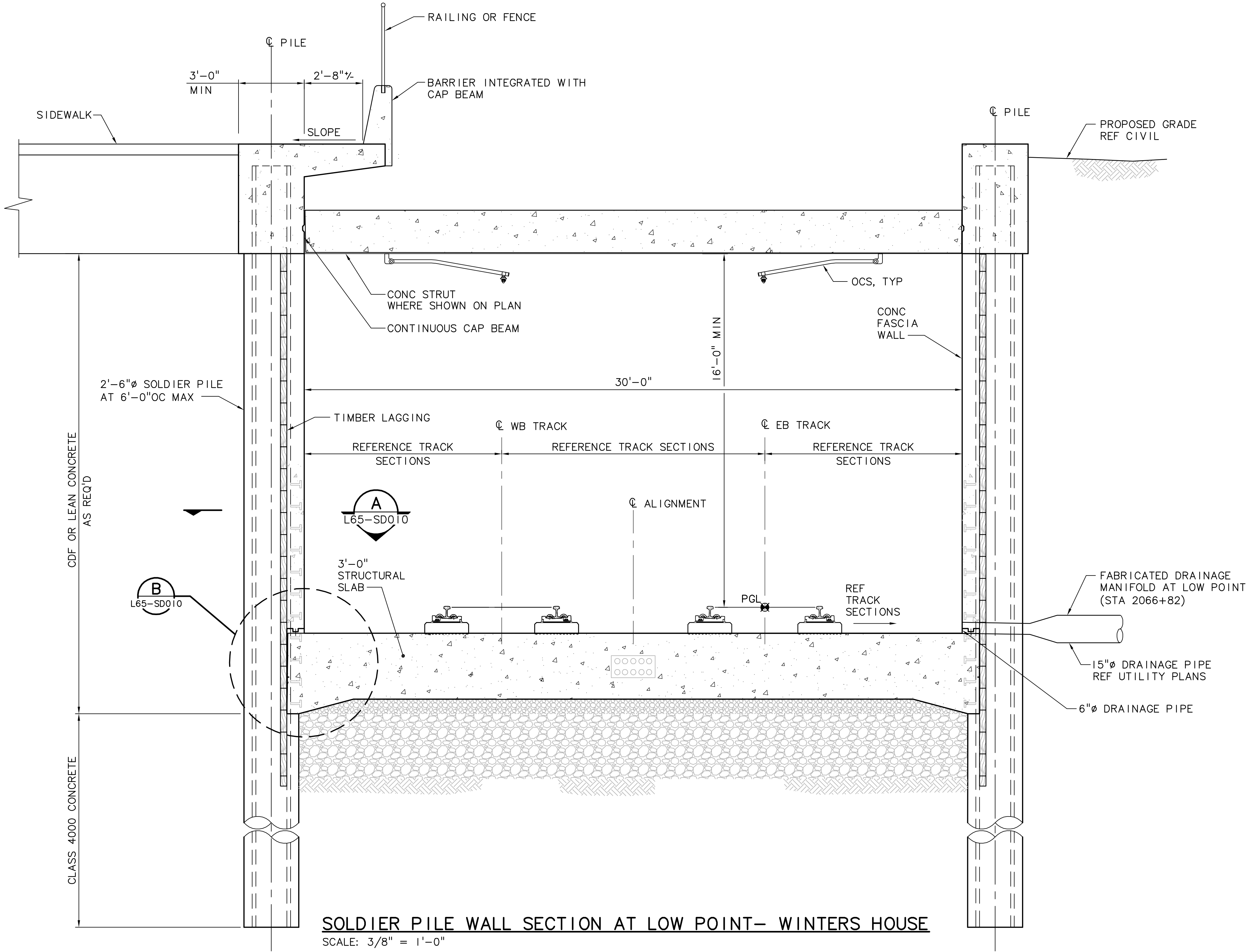
Scale: AS NOTED
Filename: ELB_L65_SD010.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
SOLDIER PILE WALL AND
SECANT AND RETAINING WALL DETAILS

Drawing No.: L65-SD010
Sheet No.: 179
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
-Overlay:
REG-ASO
SUB-INTR
Zg-2234h
-Unresolved:


RAILING OR FENCE
℄ PILE
3'-0"
MIN
2'-8"+/-
BARRIER INTEGRATED WITH
CAP BEAM
SIDEWALK
SLOPE
℄ PILE
PROPOSED GRADE
REF CIVIL
CONC STRUT
WHERE SHOWN ON PLAN
CONTINUOUS CAP BEAM
OCS, TYP
16'-0" MIN
CONC
FASCIA
WALL
2'-6"ø SOLDIER PILE
AT 6'-0"OC MAX
30'-0"
TIMBER LAGGING
℄ WB TRACK
℄ EB TRACK
REFERENCE TRACK
SECTIONS
REFERENCE TRACK SECTIONS
REFERENCE TRACK
SECTIONS
CDF OR LEAN CONCRETE
AS REQ'D
A
L65-SD010
℄ ALIGNMENT
3'-0"
STRUCTURAL
SLAB
B
L65-SD010
PGL
REF
TRACK
SECTIONS
FABRICATED DRAINAGE
MANIFOLD AT LOW POINT
(STA 2066+82)
15"ø DRAINAGE PIPE
REF UTILITY PLANS
6"ø DRAINAGE PIPE
CLASS 4000 CONCRETE

SOLDIER PILE WALL SECTION AT LOW POINT- WINTERS HOUSE
SCALE: 3/8" = 1'-0"
EB STA 2066+85.27

c:\work\seg_b\ELB_L65_SX009.dwg
10/22/10 10:41 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: N. GALER
Drawn By: E. MILLER
Checked By: A. ASAIDALI
Approved By: A. OZKAN

AHMET S. OZKAN
43003
FINAL PE

CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

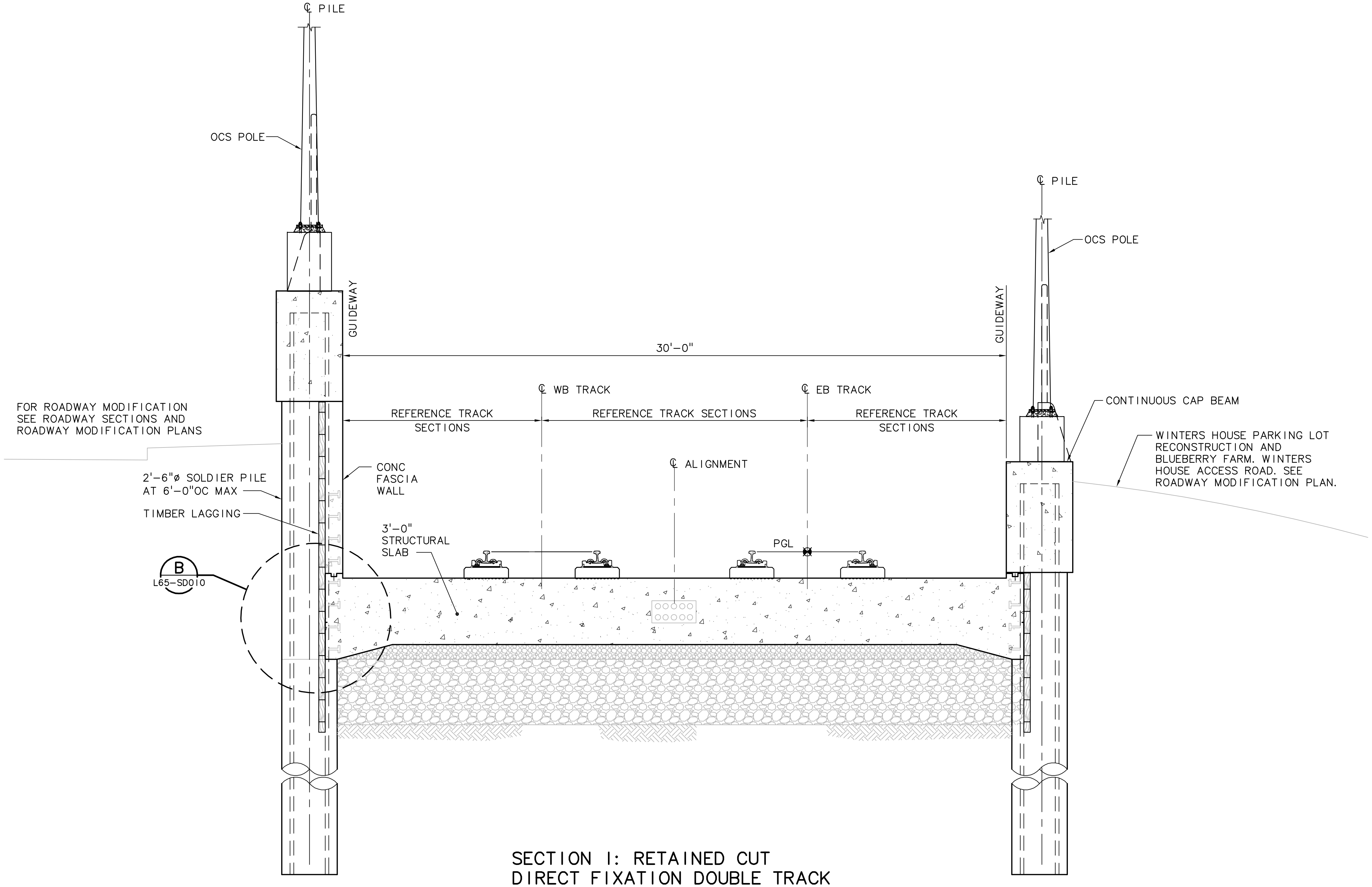
Scale: AS NOTED
Filename: ELB_L65_SX009.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
GUIDEWAY TYPICAL SECTIONS
SOLDIER PILE WALL LOW POINT-WINTERS HOUSE
DIRECT FIXATION DOUBLE TRACK

Drawing No.: L65-SX009
Sheet No.: 188
Rev.:

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
-Overlay:
REG-ASO
SUB-INTR
Zg-2234h
-Unresolved:



℄ PILE
OCS POLE
GUIDEWAY
30'-0"
GUIDEWAY
℄ PILE
OCS POLE
℄ WB TRACK
℄ EB TRACK
CONTINUOUS CAP BEAM
FOR ROADWAY MODIFICATION SEE ROADWAY SECTIONS AND ROADWAY MODIFICATION PLANS
REFERENCE TRACK SECTIONS
REFERENCE TRACK SECTIONS
REFERENCE TRACK SECTIONS
WINTERS HOUSE PARKING LOT RECONSTRUCTION AND BLUEBERRY FARM. WINTERS HOUSE ACCESS ROAD. SEE ROADWAY MODIFICATION PLAN.
℄ ALIGNMENT
2'-6"ø SOLDIER PILE AT 6'-0"OC MAX
CONC FASCIA WALL
TIMBER LAGGING
3'-0" STRUCTURAL SLAB
PGL
B
L65-SD010

SECTION 1: RETAINED CUT DIRECT FIXATION DOUBLE TRACK

SCALE: 3/8" = 1'-0"

LIMITS

EB STA 2060+14.47 TO EB STA 2065+53.3
EB STA 2066+13.3 TO EB STA 2067+19.47
SEE SHEET L65-SX011 FOR SECTION 1 ALTERNATE SECTION

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: N. GALER
Drawn By: E. MILLER
Checked By: A. ASAIDALI
Approved By: A. OZKAN

AHMET S. OZKAN
43003
FINAL PE

CH2MHILL
INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.
SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: AS NOTED
Filename: ELB_L65_SX010.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
GUIDEWAY TYPICAL SECTIONS
RETAINED CUT
DIRECT FIXATION DOUBLE TRACK

Drawing No.: L65-SX010
Sheet No.: 189
Rev.:

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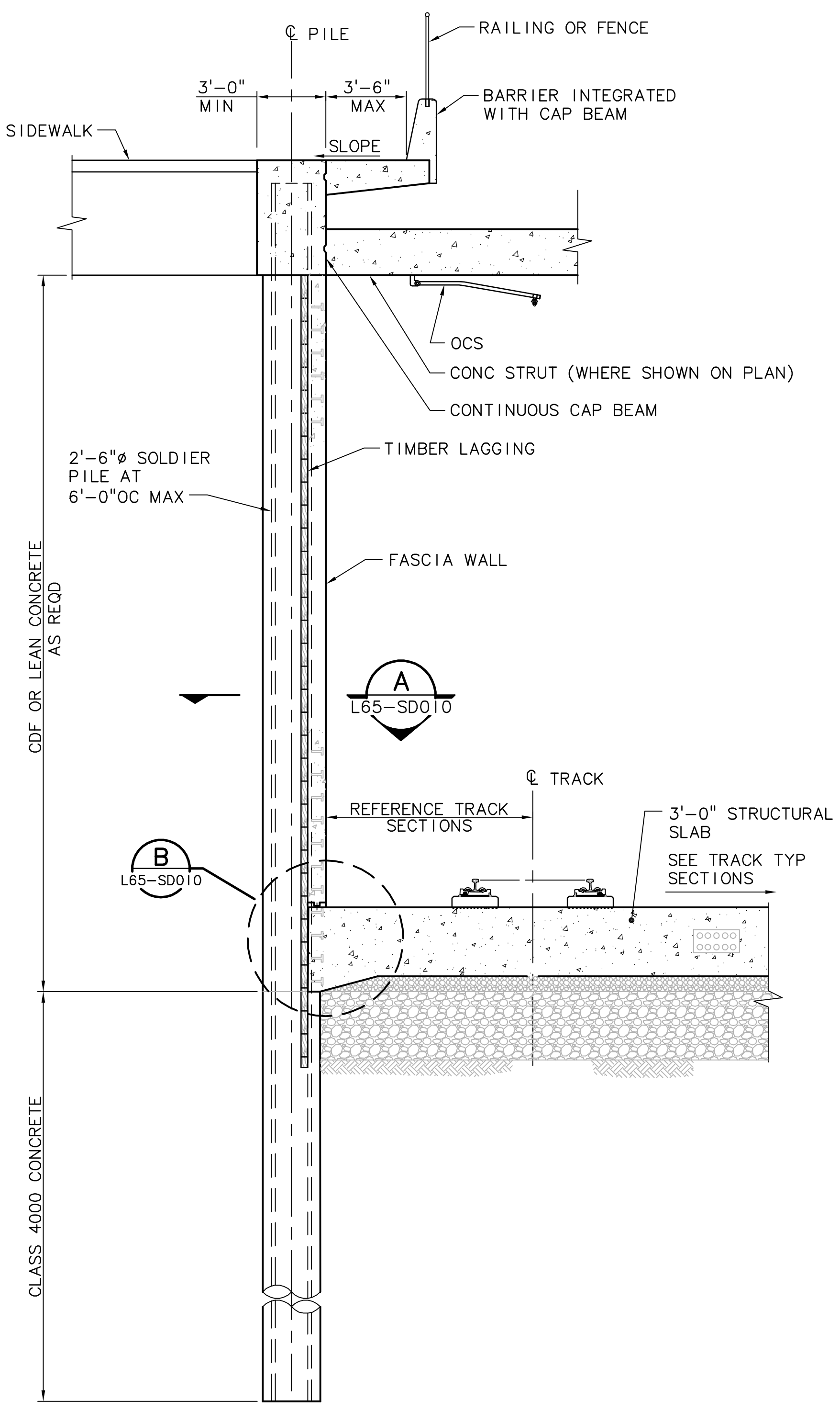
10/22/10 10:41 : bolimaf OE6504

DWG INFO:
LTSCALE:
1=1
XREFs:
-Attach:
-Overlay:
REG-ASO
SUB-INTR
Zg-2234h
-Unresolved:

NOTES:

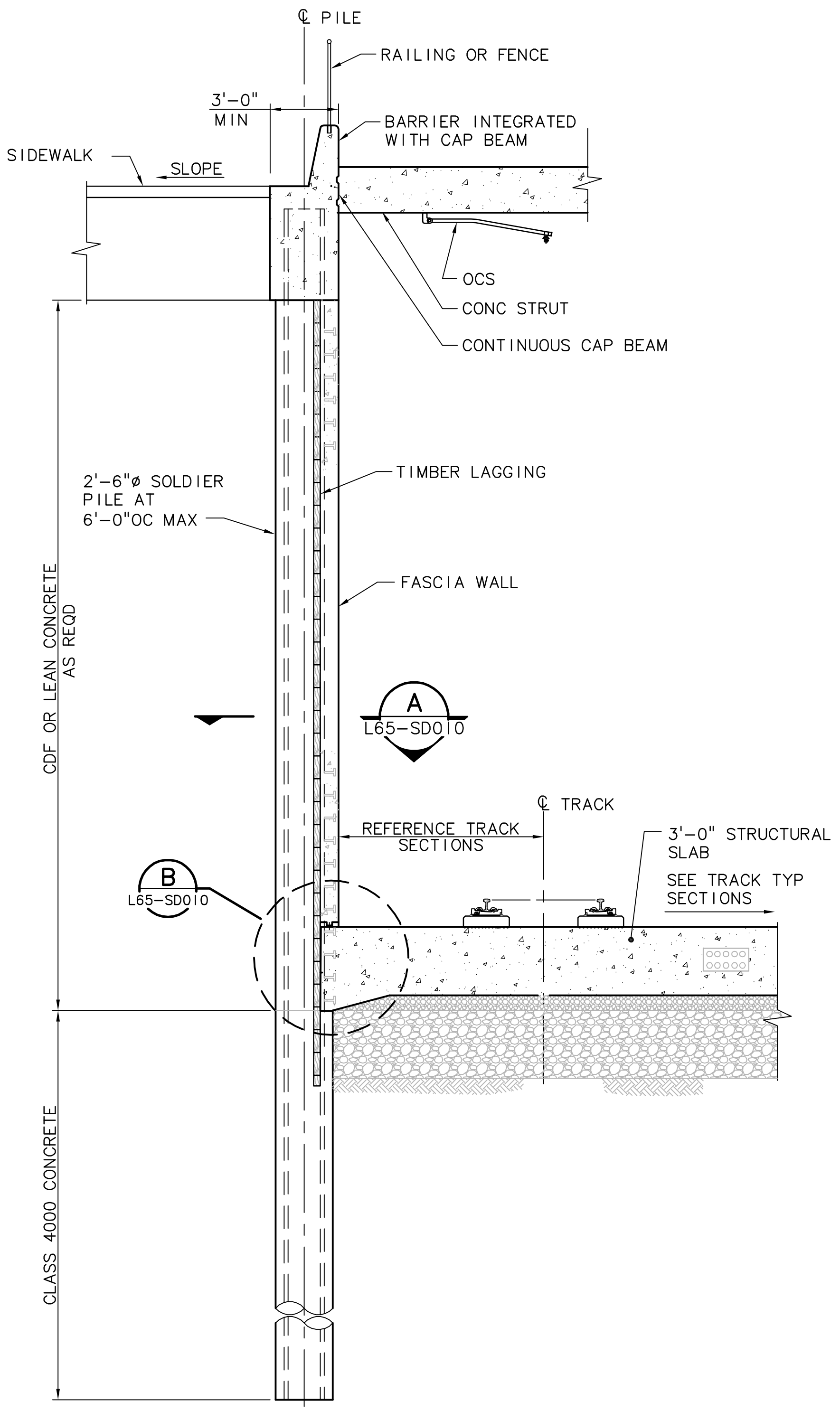
1. SEE L65-KX SERIES DRAWINGS FOR INFORMATION NOT SHOWN INCLUDING GROUND IMPROVEMENT MEASURES.



℄ PILE
RAILING OR FENCE
3'-0" MIN
3'-6" MAX
BARRIER INTEGRATED WITH CAP BEAM
SIDEWALK
SLOPE
OCS
CONC STRUT (WHERE SHOWN ON PLAN)
CONTINUOUS CAP BEAM
TIMBER LAGGING
2'-6"ø SOLDIER PILE AT 6'-0"OC MAX
FASCIA WALL
CDF OR LEAN CONCRETE AS REQD
A
L65-SD010
℄ TRACK
REFERENCE TRACK SECTIONS
3'-0" STRUCTURAL SLAB
SEE TRACK TYP SECTIONS
B
L65-SD010
CLASS 4000 CONCRETE

TYPICAL SOLDIER PILE WALL SECTION

SCALE: 1/4" = 1'-0"
EB STA 2064+79.4 TO EB STA 2065+41.8



℄ PILE
RAILING OR FENCE
3'-0" MIN
BARRIER INTEGRATED WITH CAP BEAM
SIDEWALK
SLOPE
OCS
CONC STRUT
CONTINUOUS CAP BEAM
TIMBER LAGGING
2'-6"ø SOLDIER PILE AT 6'-0"OC MAX
FASCIA WALL
CDF OR LEAN CONCRETE AS REQD
A
L65-SD010
℄ TRACK
REFERENCE TRACK SECTIONS
3'-0" STRUCTURAL SLAB
SEE TRACK TYP SECTIONS
B
L65-SD010
CLASS 4000 CONCRETE

SOLDIER PILE WALL SECTION

SCALE: 1/4" = 1'-0"
EB STA 2064+23.3

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10/22/10 10:41 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: N. GALER
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AHMET S. OZKAN
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INCA ENGINEERS INC.
BOLIMA DRAFTING & DESIGN INC.

SOUNDTRANSIT

Submitted:
Date:
Approved:
Date:

Scale: AS NOTED
Filename: ELB_L65_SX012.dwg
Contract No.:
Date: 10/25/10

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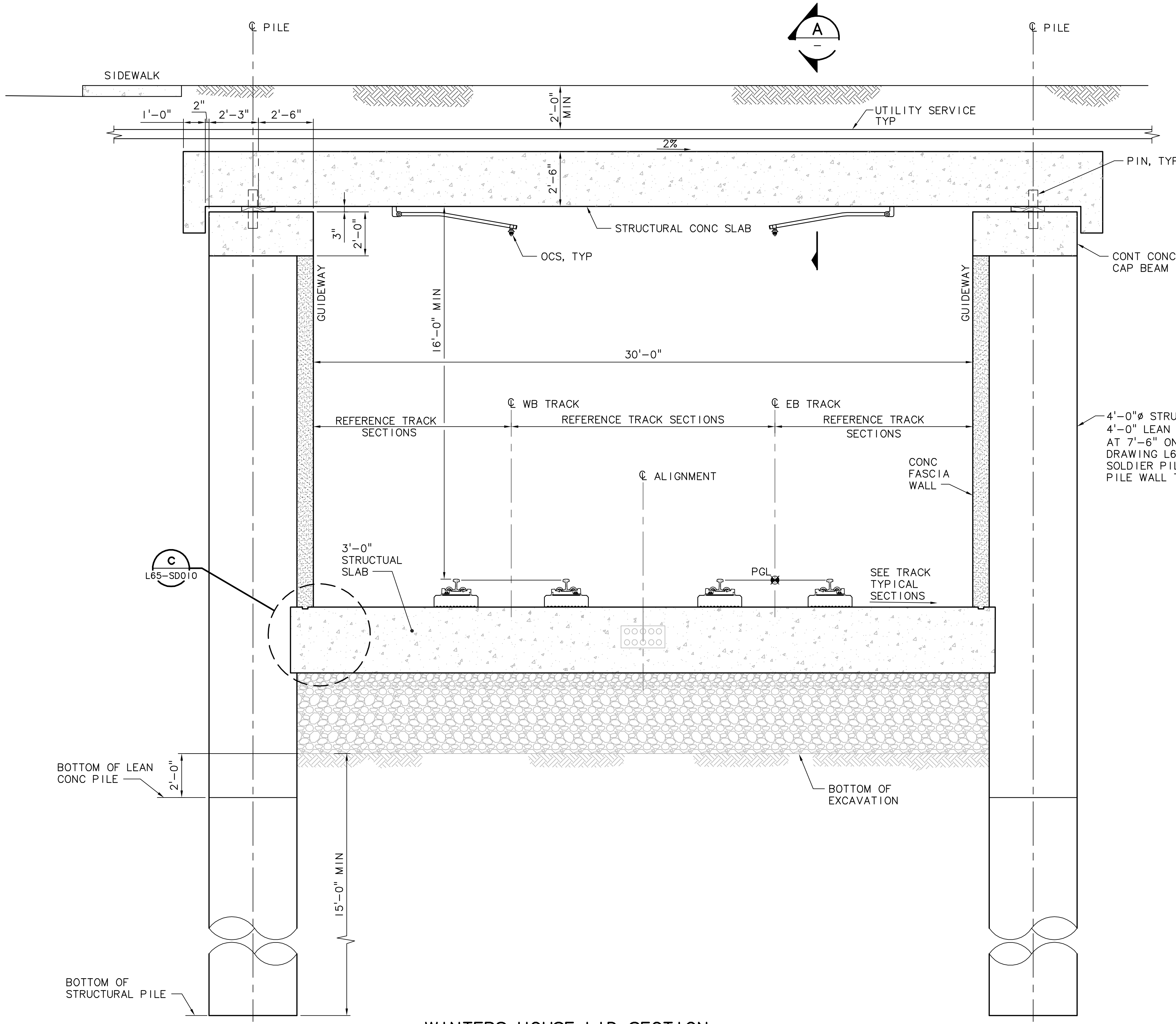
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
GUIDEWAY TYPICAL SECTIONS
SOLDIER PILE WALL WITH STRUTS
DIRECT FIXATION TRACK

Drawing No.: L65-SX012
Sheet No.: 191
Rev.:

DWG INFO:

LTSCALE:
I=I

XREFs:
-Attach:
-Overlay:
REG-ASO
SUB-INTR
Zg-2234h
-Unresolved:



℄ PILE
A
℄ PILE
SIDEWALK
2'-0" MIN
1'-0"
2"
2'-3"
2'-6"
UTILITY SERVICE TYP
2%
2'-6"
PIN, TYP
3"
2'-0"
STRUCTURAL CONC SLAB
OCS, TYP
CONT CONC CAP BEAM
GUIDEWAY
16'-0" MIN
GUIDEWAY
30'-0"
℄ WB TRACK
℄ EB TRACK
REFERENCE TRACK SECTIONS
REFERENCE TRACK SECTIONS
REFERENCE TRACK SECTIONS
4'-0"ø STRUCTURE AND 4'-0" LEAN CONC PILES AT 7'-6" ON CENTER, SEE DRAWING L65-SD010 FOR SOLDIER PILE TO SECANT PILE WALL TRANSITION
℄ ALIGNMENT
CONC FASCIA WALL
C
L65-SD010
3'-0" STRUCTUAL SLAB
PGL
SEE TRACK TYPICAL SECTIONS
BOTTOM OF LEAN CONC PILE
2'-0"
BOTTOM OF EXCAVATION
15'-0" MIN
BOTTOM OF STRUCTURAL PILE

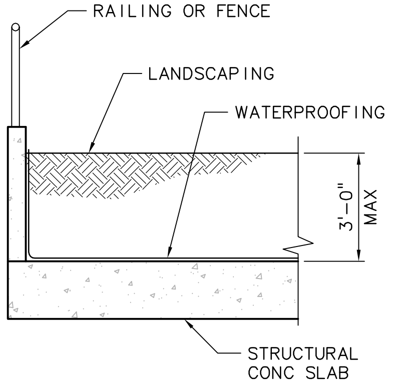
WINTERS HOUSE LID SECTION

SCALE: 3/8" = 1'-0"

LIMITS EB STA 2067+19.44 TO EB STA 2068+89.44

NOTES:

1. SEE SHEET L65-SD009 FOR LID AND DRIVEWAY PLAN.
2. SEE L65-KX SERIES DRAWINGS FOR INFORMATION NOT SHOWN INCLUDING GROUND IMPROVEMENT MEASURES.



RAILING OR FENCE
LANDSCAPING
WATERPROOFING
3'-0" MAX
STRUCTURAL CONC SLAB

DETAIL A

SCALE: 3/8" = 1'-0"

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10/22/10 10:42 : bolimaf OE6504

No.	Date	Dsn.	Chk.	App.	Revisions

Designed By: N. GALER
Drawn By: E. MILLER
Checked By: A. ASAIDALI
Approved By: A. OZKAN

AHMET S. OZKAN
43003
FINAL PE

CH2MHILL

INCA ENGINEERS INC.

BOLIMA DRAFTING & DESIGN INC.

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Date:
Approved:
Date:

Scale: AS NOTED
Filename: ELB_L65_SX013.dwg
Contract No.:
Date: 10/25/10

THIS PRINT REDUCED HALF SCALE

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B
GUIDEWAY TYPICAL SECTIONS
SECANT PILE WALL - WINTERS HOUSE LID
DIRECT FIXATION TRACK

Drawing No.: L65-SX013
Sheet No.: 192
Rev.:

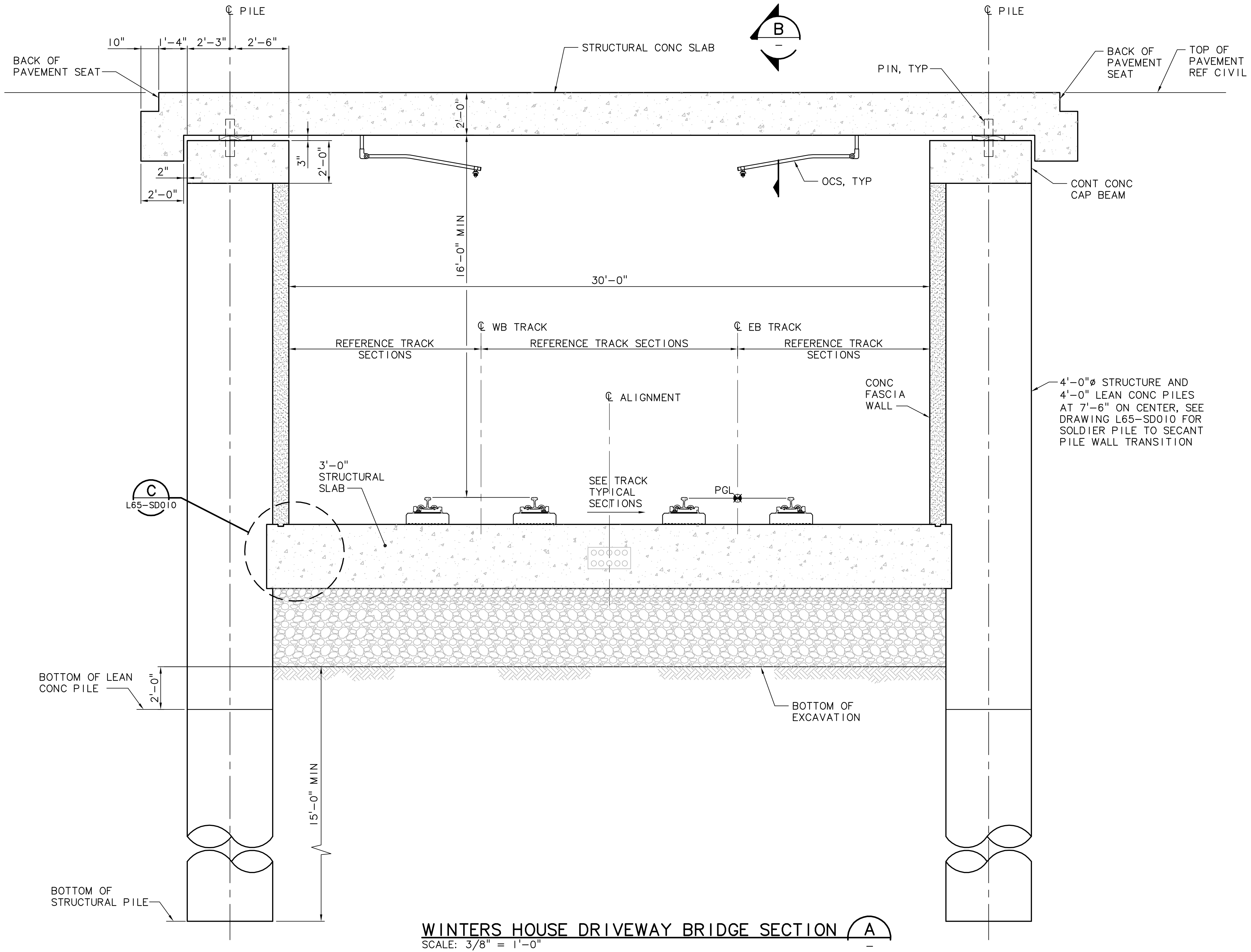
DWG INFO:

LTSCALE:
1=1

XREFs:
-Attach:
-Overlay:
REG-ASO
SUB-INTR
Zg-2234h
-Unresolved:

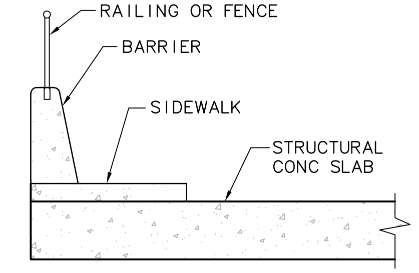
NOTES:

1. SEE SHEET L65-SD009 FOR LID AND DRIVEWAY PLAN.
2. SEE L65-KX SERIES DRAWINGS FOR INFORMATION NOT SHOWN INCLUDING GROUND IMPROVEMENT MEASURES.



℄ PILE
℄ PILE
B
10"
1'-4"
2'-3"
2'-6"
BACK OF PAVEMENT SEAT
STRUCTURAL CONC SLAB
PIN, TYP
BACK OF PAVEMENT SEAT
TOP OF PAVEMENT REF CIVIL
2'-0"
3"
2'-0"
2"
2'-0"
OCS, TYP
CONT CONC CAP BEAM
16'-0" MIN
30'-0"
℄ WB TRACK
℄ EB TRACK
REFERENCE TRACK SECTIONS
REFERENCE TRACK SECTIONS
REFERENCE TRACK SECTIONS
CONC FASCIA WALL
℄ ALIGNMENT
4'-0"ø STRUCTURE AND 4'-0" LEAN CONC PILES AT 7'-6" ON CENTER, SEE DRAWING L65-SD010 FOR SOLDIER PILE TO SECANT PILE WALL TRANSITION
3'-0" STRUCTURAL SLAB
SEE TRACK TYPICAL SECTIONS
PGL
C
L65-SD010
BOTTOM OF LEAN CONC PILE
2'-0"
BOTTOM OF EXCAVATION
15'-0" MIN
BOTTOM OF STRUCTURAL PILE

WINTERS HOUSE DRIVEWAY BRIDGE SECTION (A/–)
SCALE: 3/8" = 1'-0"
LIMITS EB STA 2065+53.3 TO EB STA 2066+13.3



RAILING OR FENCE
BARRIER
SIDEWALK
STRUCTURAL CONC SLAB

DETAIL (B/–)
SCALE: 3/8" = 1'-0"

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10/22/10 10:42 : bolimaf OE6504

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Drawn By: E. MILLER
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Approved By: A. OZKAN

AHMET S. OZKAN
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Contract No.:
Date: 10/25/10

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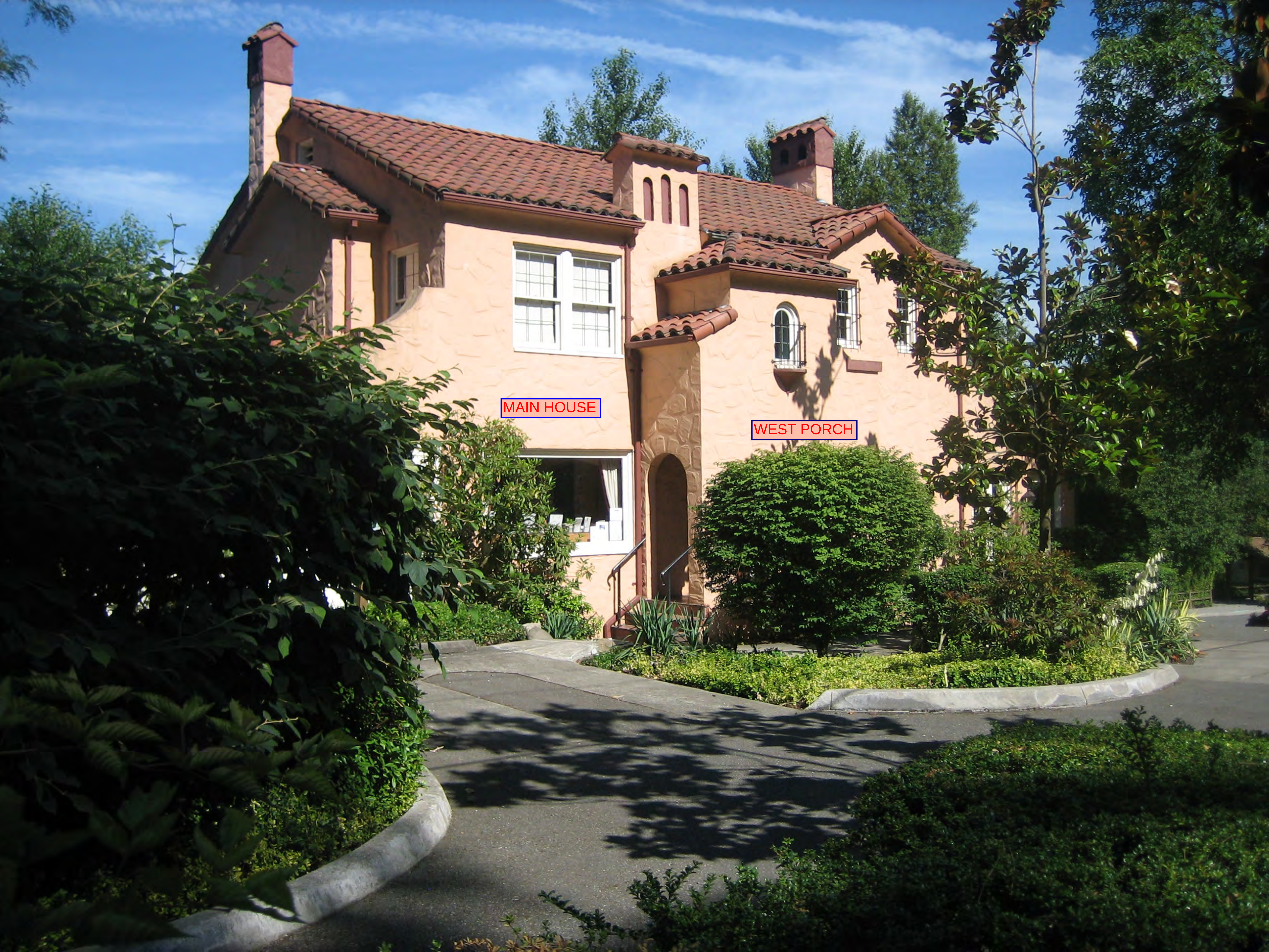
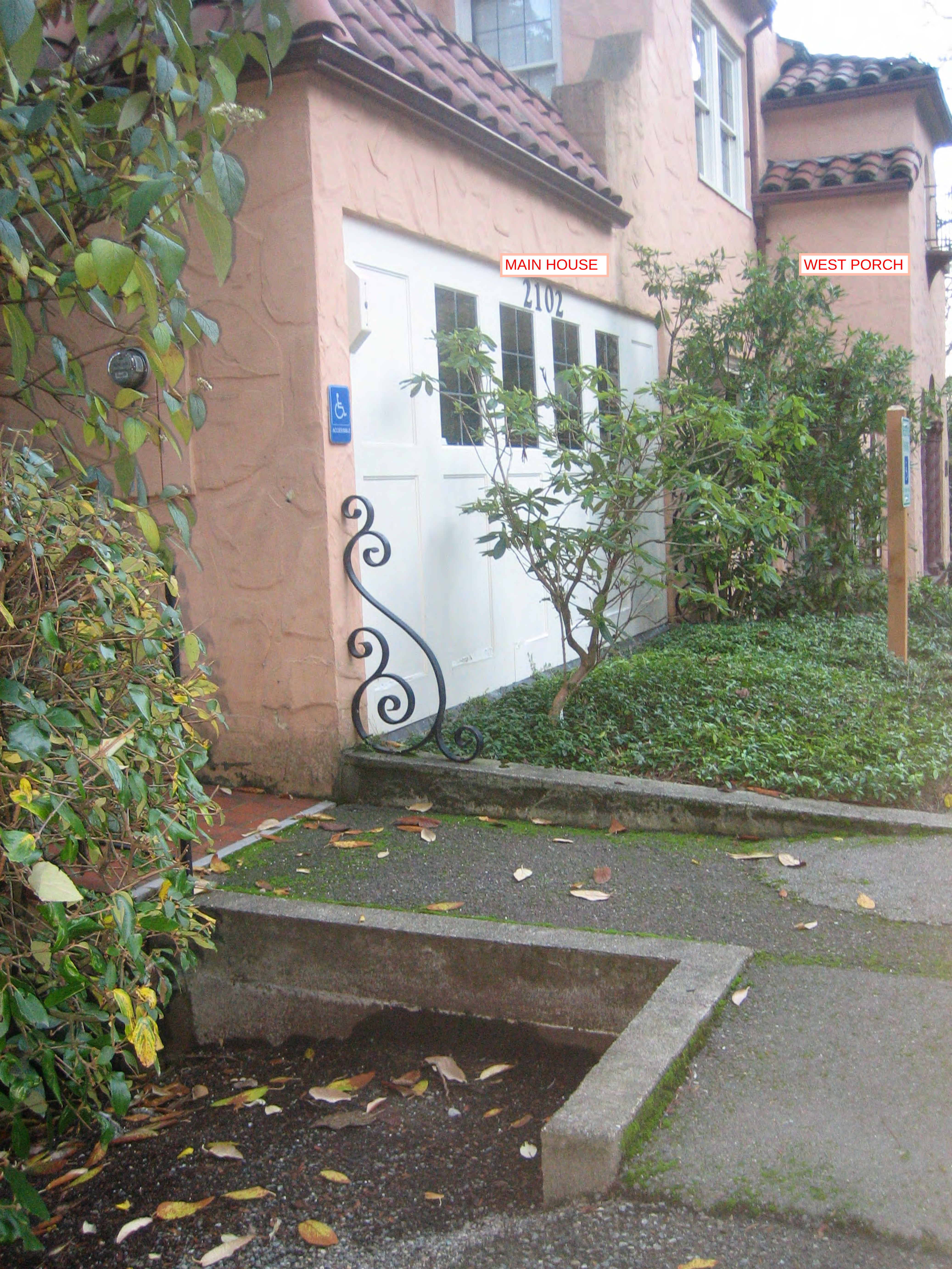
LINK LIGHT RAIL PROJECT
EAST CORRIDOR
SEGMENT B

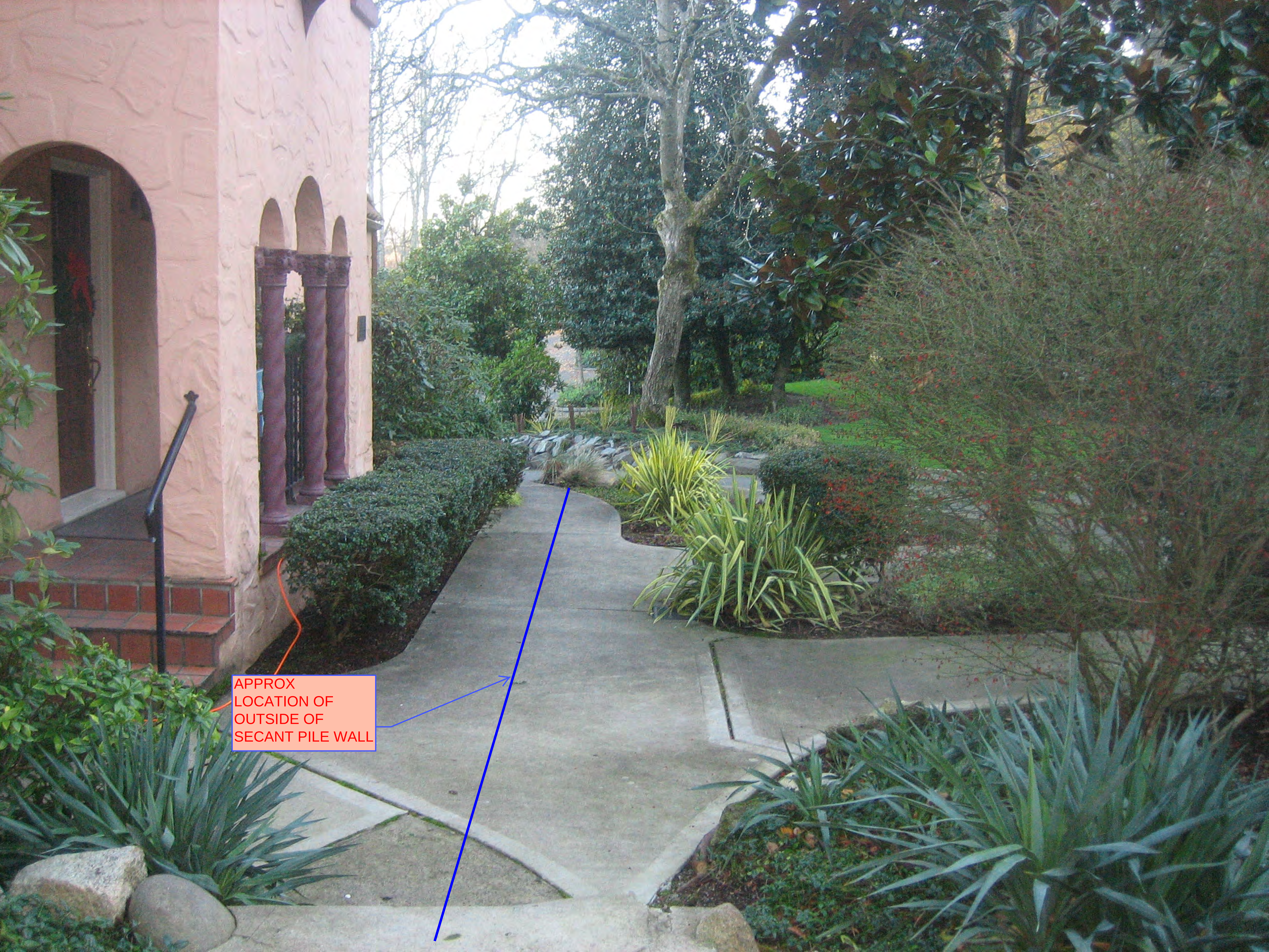
GUIDEWAY TYPICAL SECTIONS
SOLDIER PILE WALL - WINTERS HOUSE BRIDGE
DIRECT FIXATION TRACK

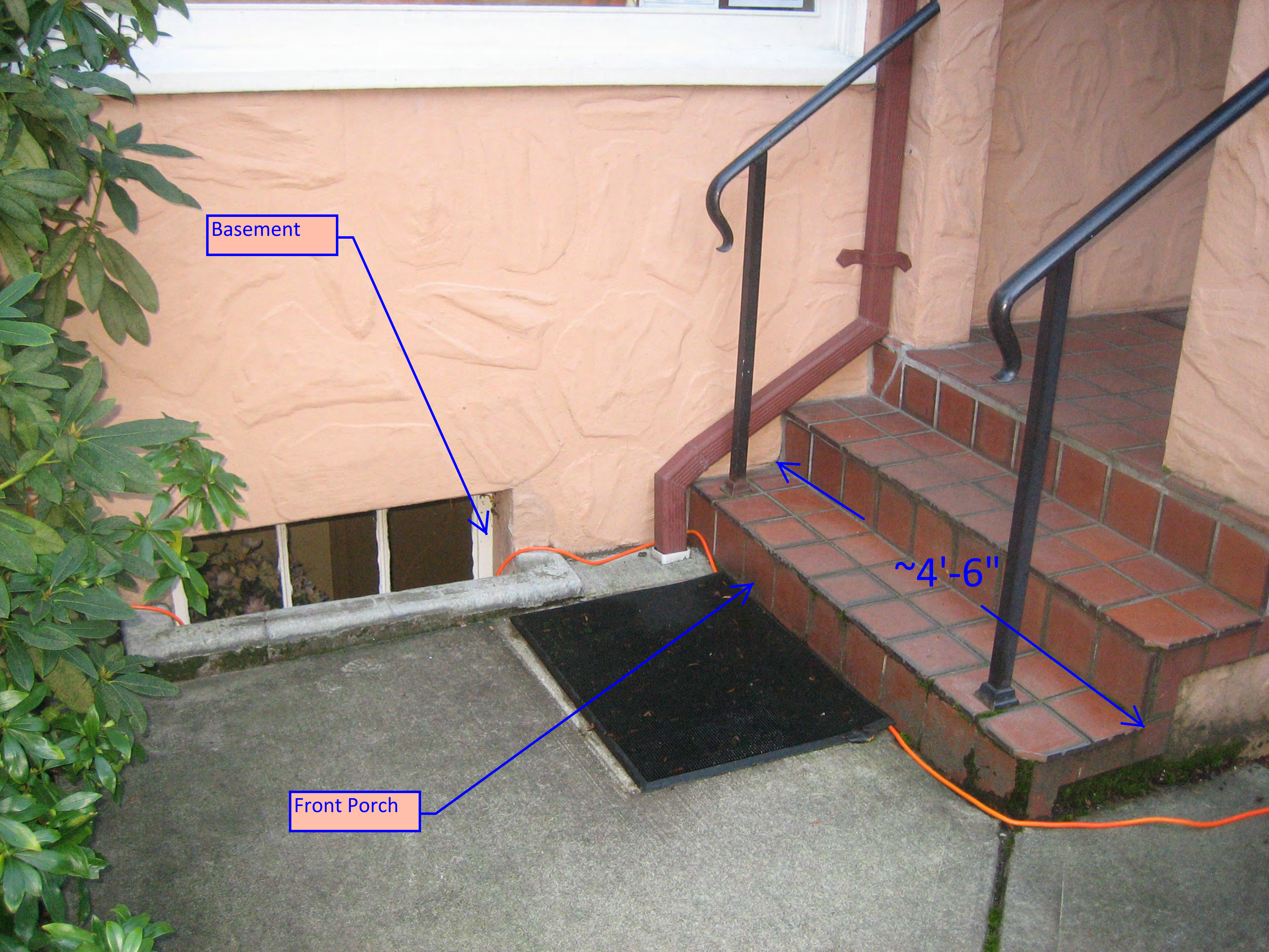
Drawing No.: L65-SX014
Sheet No.: 193
Rev.:

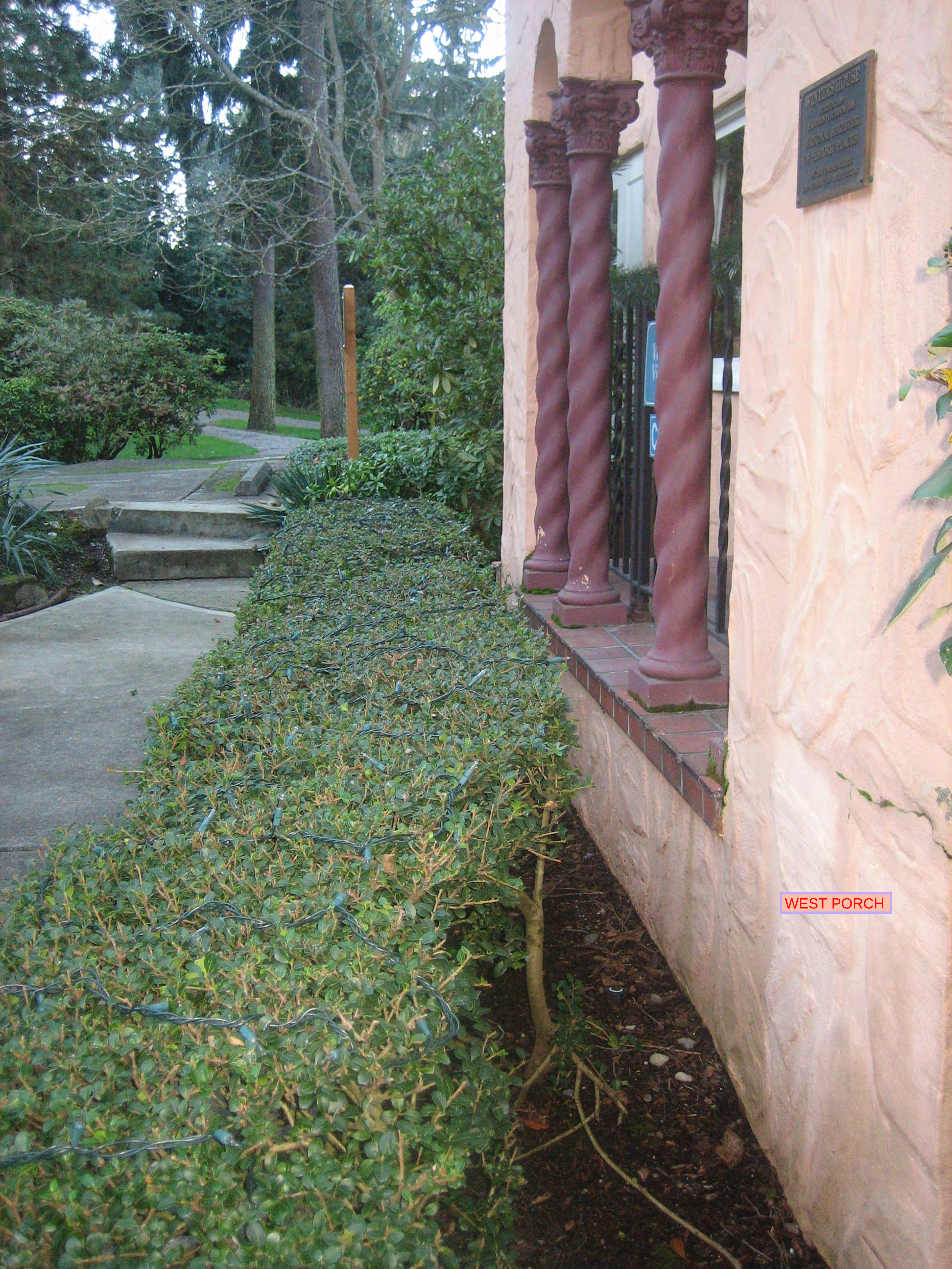
SELECTED PHOTOS OF THE WINTERS HOUSE


MAIN HOUSE
WEST PORCH

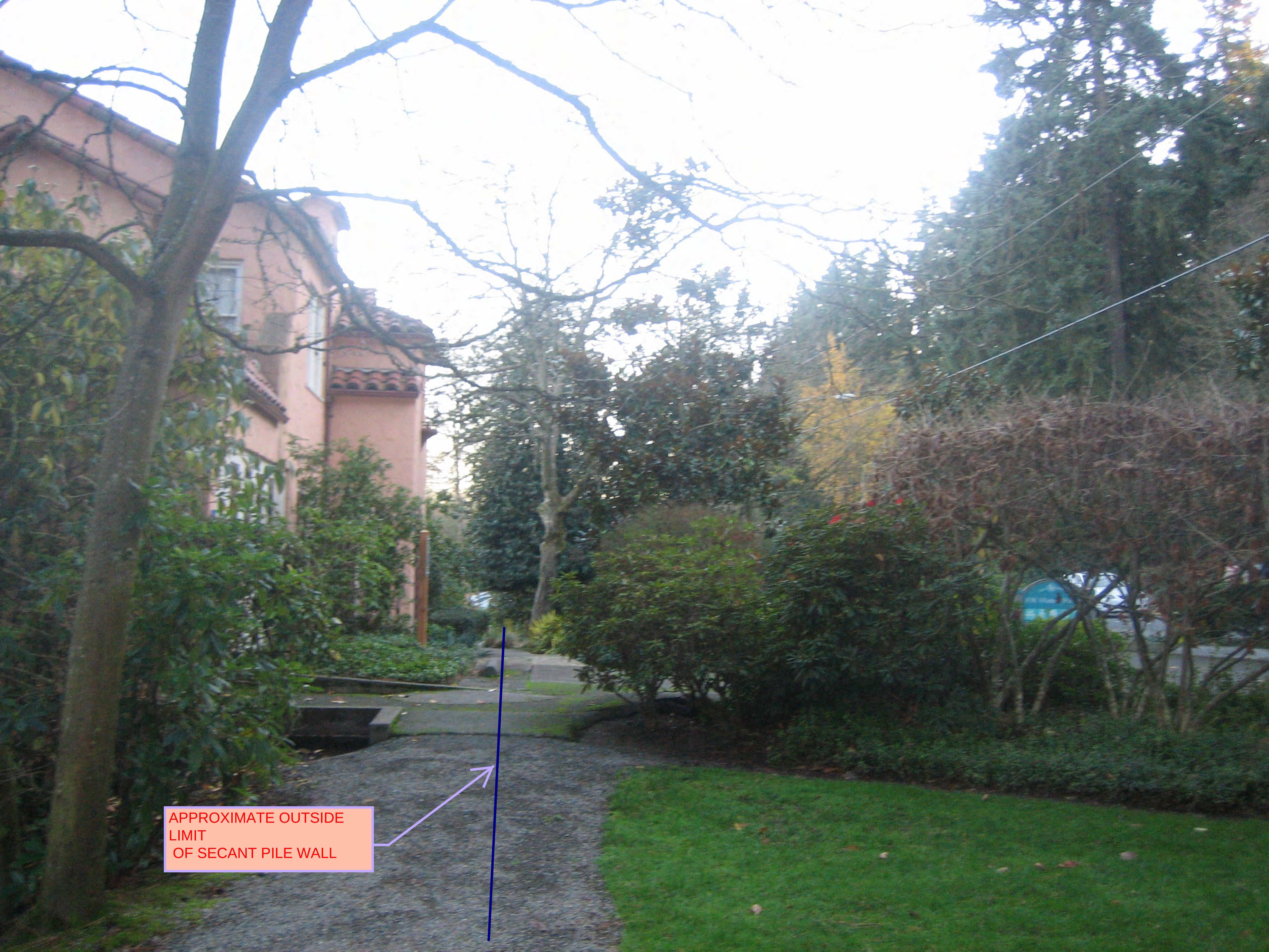

MAIN HOUSE
2102
WEST PORCH


APPROX
LOCATION OF
OUTSIDE OF
SECANT PILE WALL

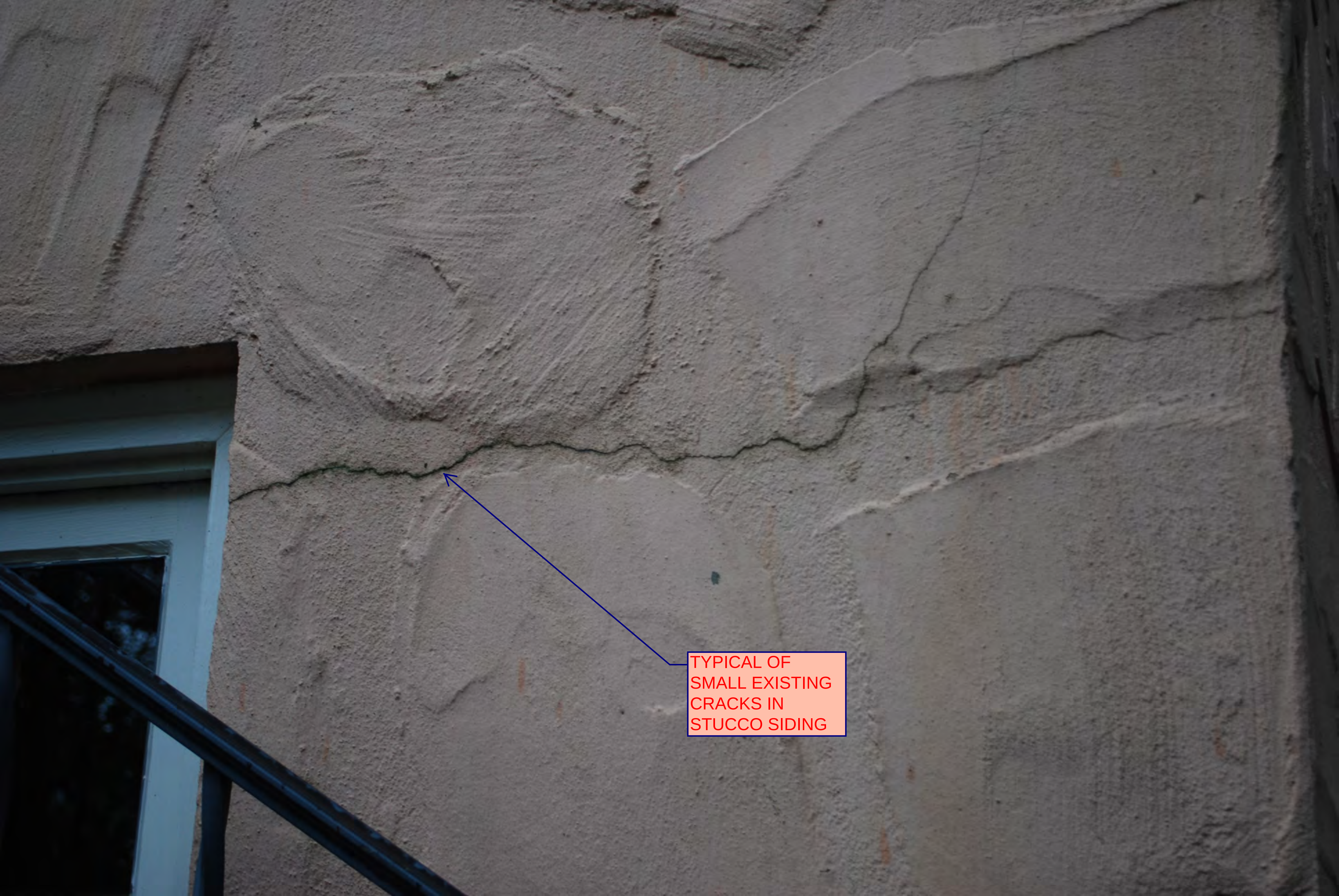

Basement
~4'-6"
Front Porch


WINTERS HOUSE
NATIONAL REGISTER
OF HISTORIC PLACES

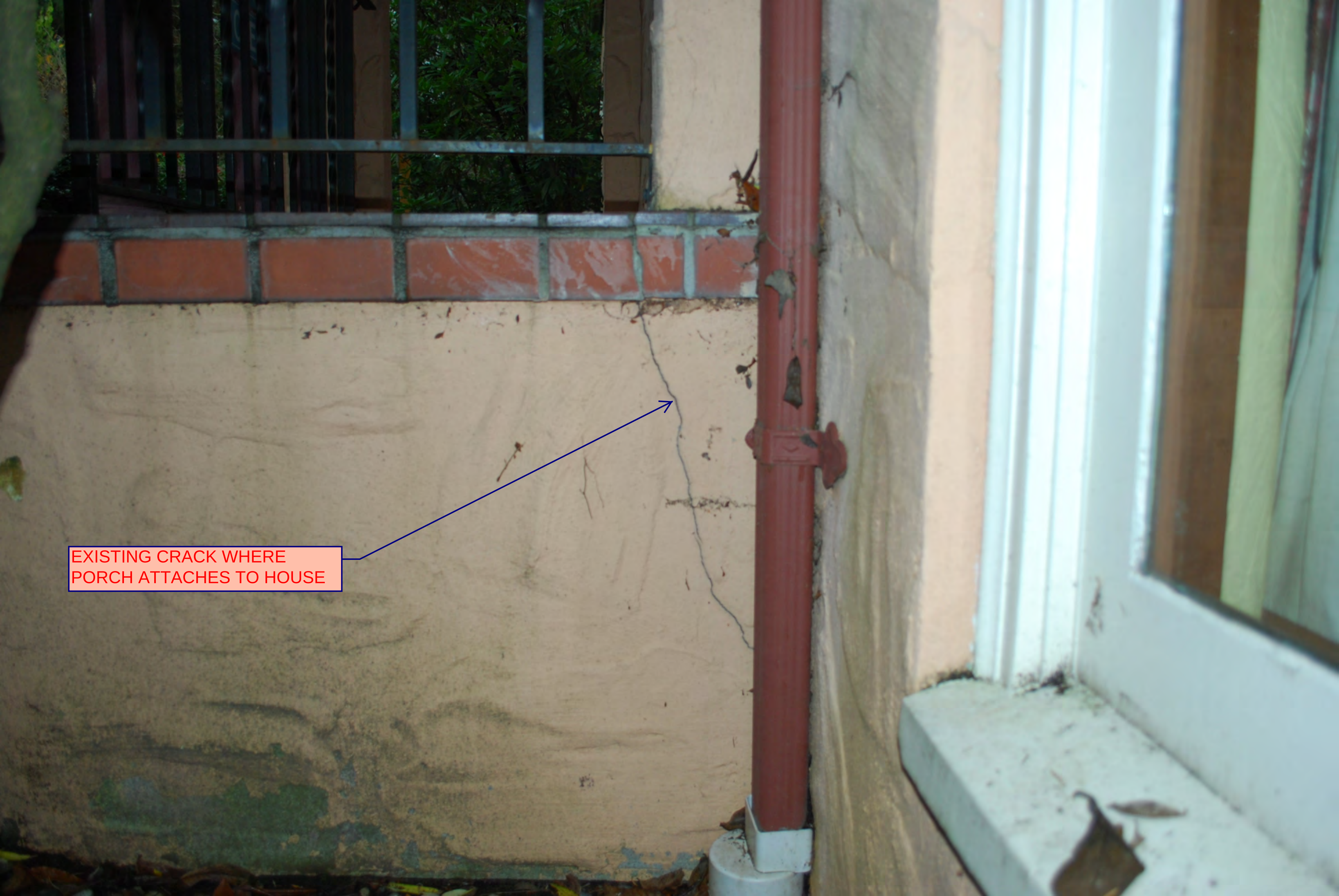
WEST PORCH

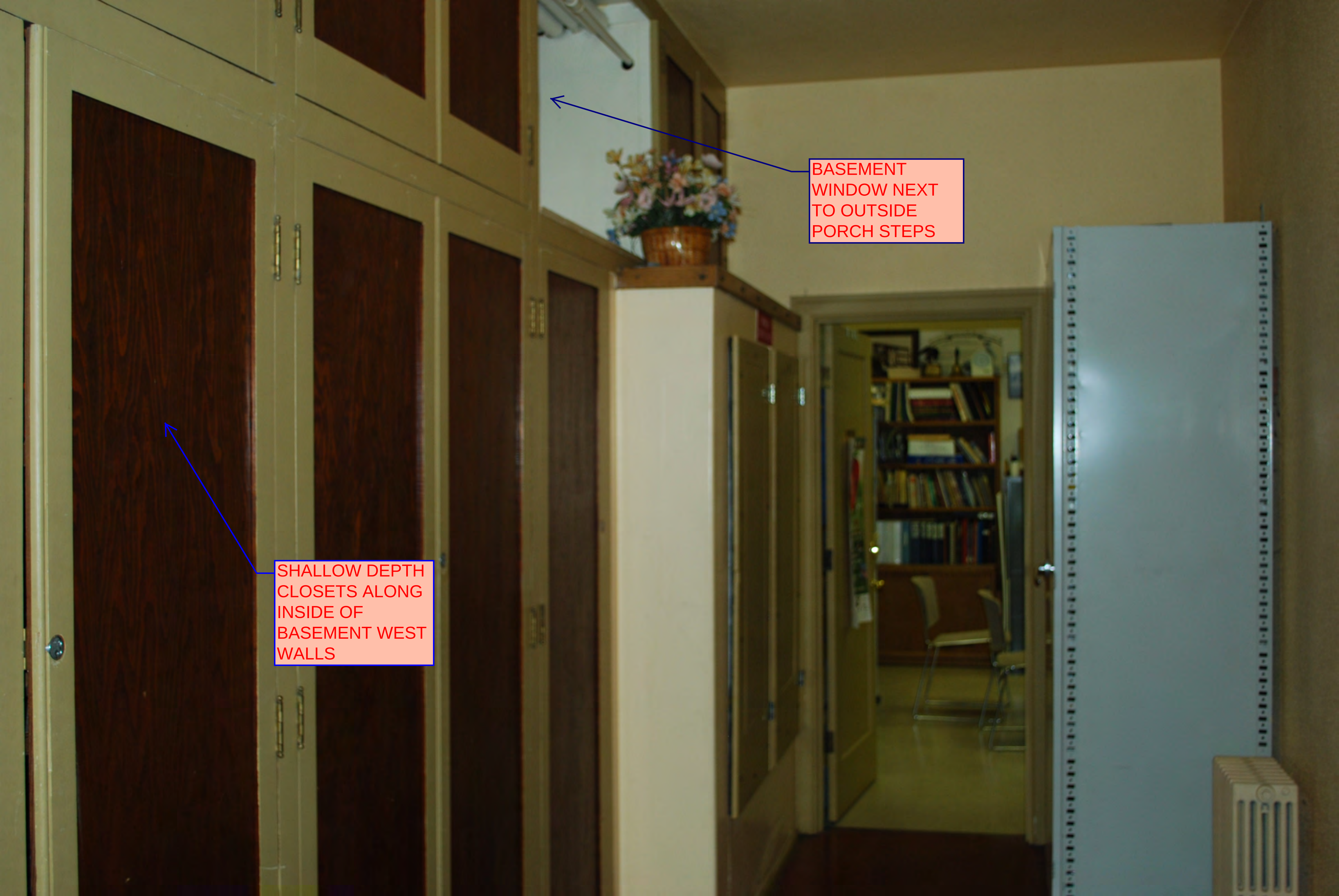


APPROXIMATE OUTSIDE LIMIT
OF SECANT PILE WALL



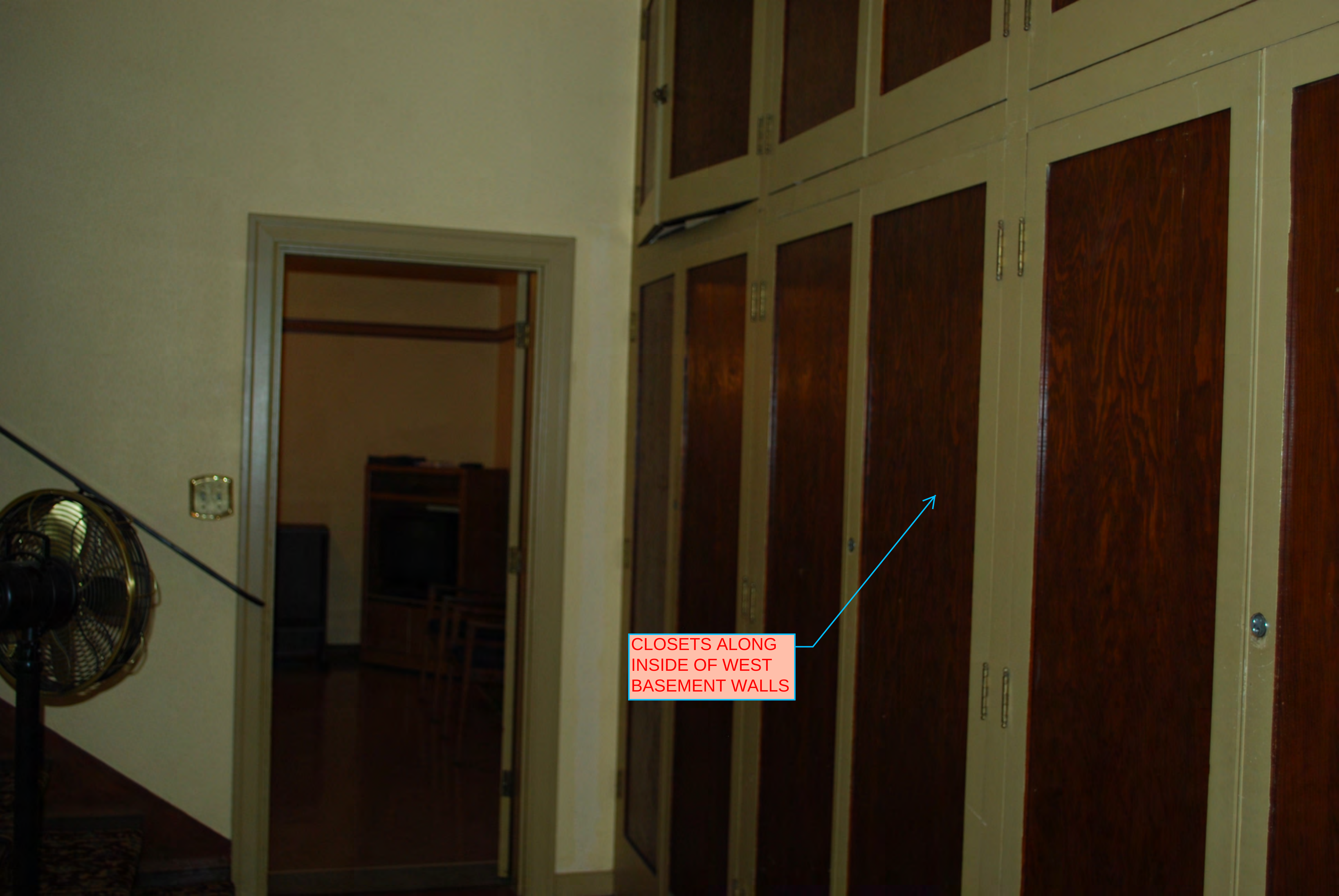
TYPICAL OF
SMALL EXISTING
CRACKS IN
STUCCO SIDING

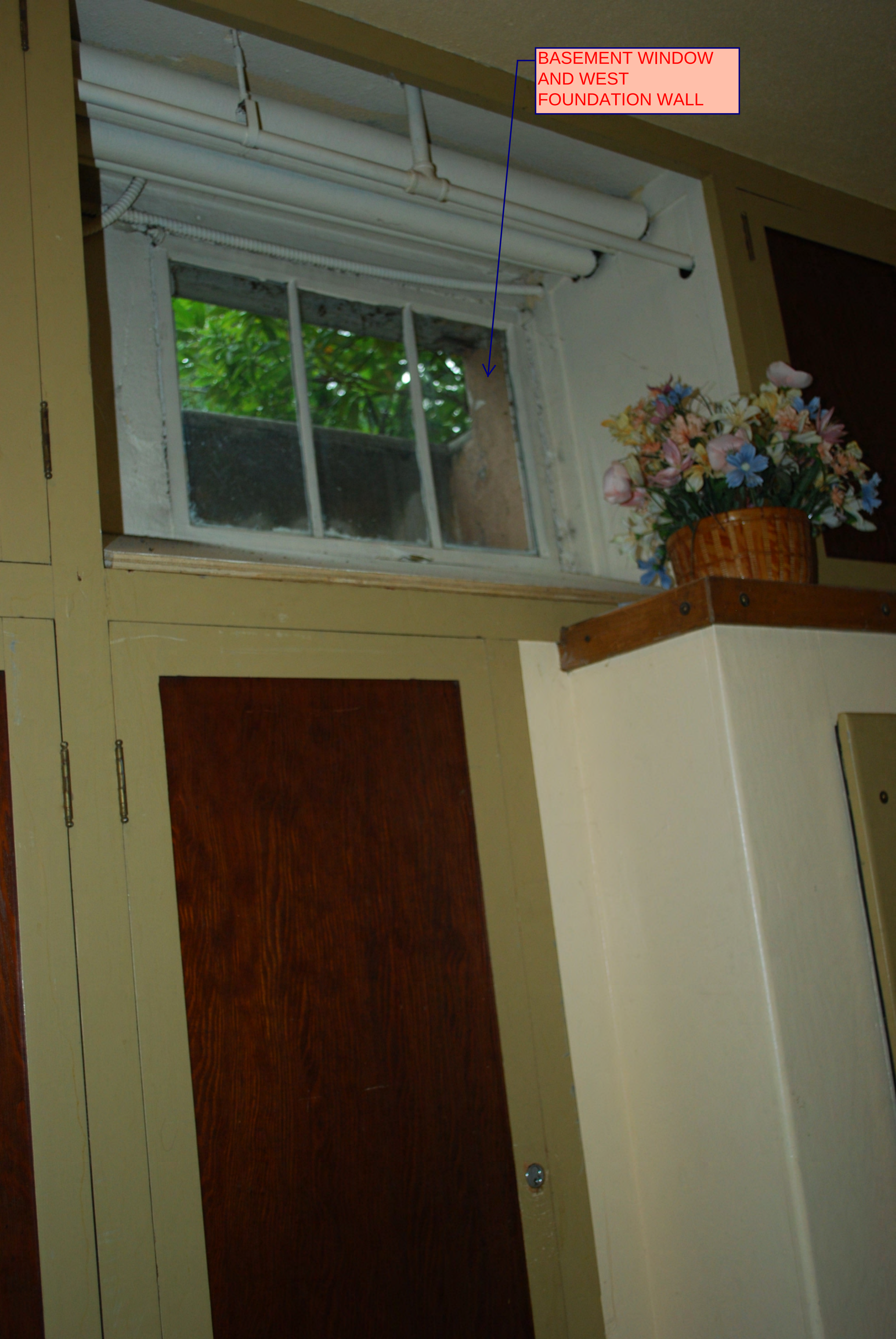

EXISTING CRACK WHERE
PORCH ATTACHES TO HOUSE



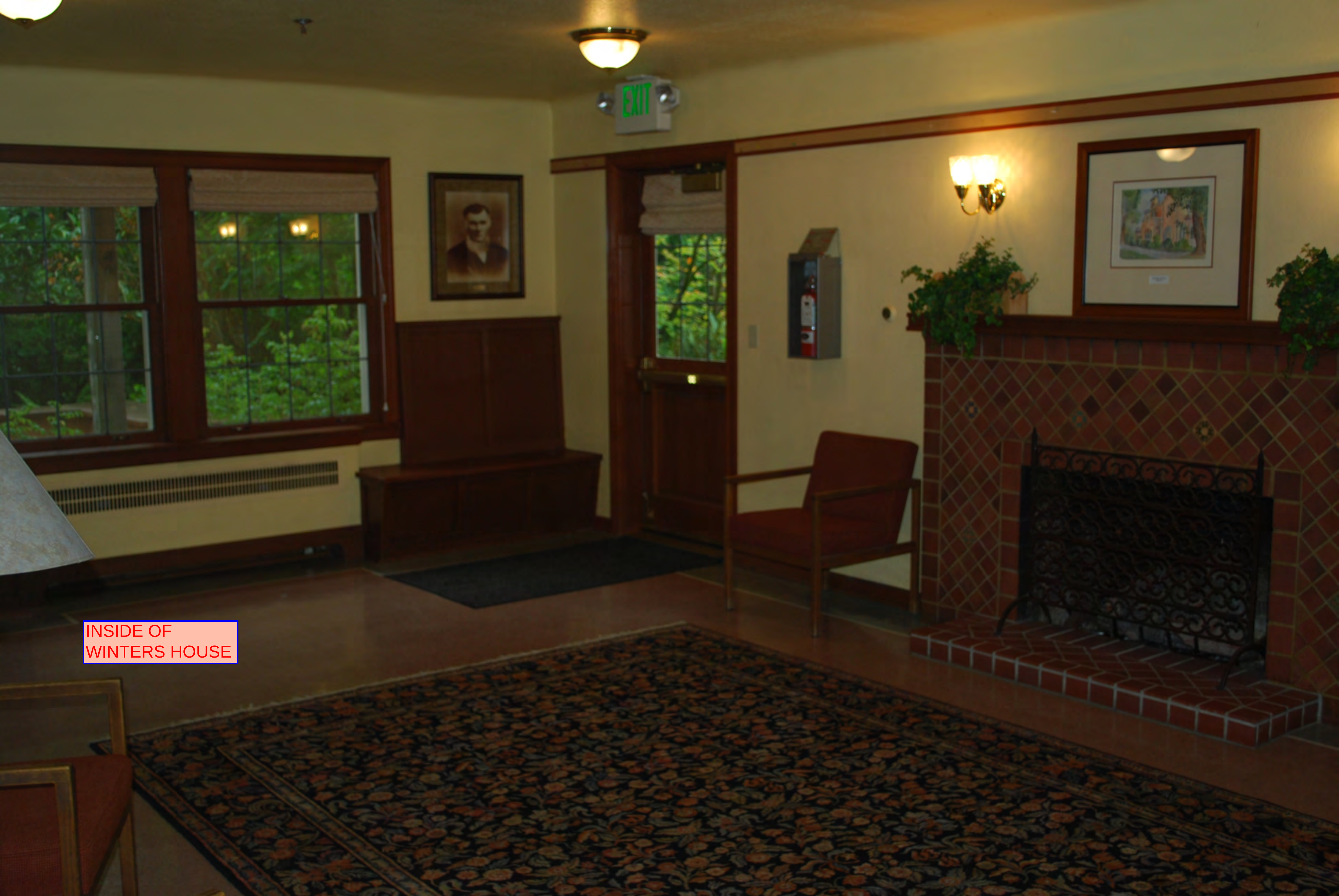
BASEMENT WINDOW NEXT TO OUTSIDE PORCH STEPS

SHALLOW DEPTH CLOSETS ALONG INSIDE OF BASEMENT WEST WALLS


CLOSETS ALONG
INSIDE OF WEST
BASEMENT WALLS



BASEMENT WINDOW
AND WEST
FOUNDATION WALL



INSIDE OF
WINTERS HOUSE

APPENDIX D2

Winters House Landscape Report

Winters House Landscape Report

PROPOSAL

Sound Transit is proposing to build a portion of the East Corridor light rail guideway parallel to Bellevue Way S.E. In order to mitigate potential impacts to the F.W. Winters House at 2102 Bellevue Way S.E., Sound Transit proposes to depress the alignment located between Bellevue Way S.E. and the Winters House.

The guideway will be below grade in a retained cut (trench). A structural lid has been proposed to cover the trench in the area between the Winters House and Bellevue Way S.E. This report includes a brief review of the landscape history of the house and property for the purpose of explaining the proposed landscape treatment on the lid. The lid is expected to support a 3' depth of soil and planting above. The lid will not be designed to support vehicular traffic.

HISTORY

The Winters House is listed on the National Register of Historic Places, NHRP (National Register of Historic Places Registration Form, 1991, Krafft). The landscape design proposed for the top of the lid considers the history of the house and reflects the cultural and horticultural past of the house and its surroundings.

LATE 1920'S – 1930'S

Frederick and Celia Winters specialized in raising greenhouse azaleas, and later daffodils and iris. In 1917, Frederick Winters purchased 10 acres of property along Mercer Slough, where he and Celia grew azaleas, and bulbs. (Krafft) The Winters residence was constructed on the property in the late 1920's, in the Spanish Eclectic style. "The house was constructed with windows that focused on the bulb fields beyond the backyard." (City of Bellevue Parks and Community Services, *Welcome to the Winters House,* brochure.) Terrain in the slough proved to be too swampy for growing bulbs, so the Winters later sold off portions of their land (Krafft).

The landscapes shown in figures 1 and 2, from the mid- to late-1930s, consist of an open area adjacent to the road and a buffer of small conifers against the front of the house. Figure 3 illustrates a plan view interpretation by Nakano Associates of this time period.

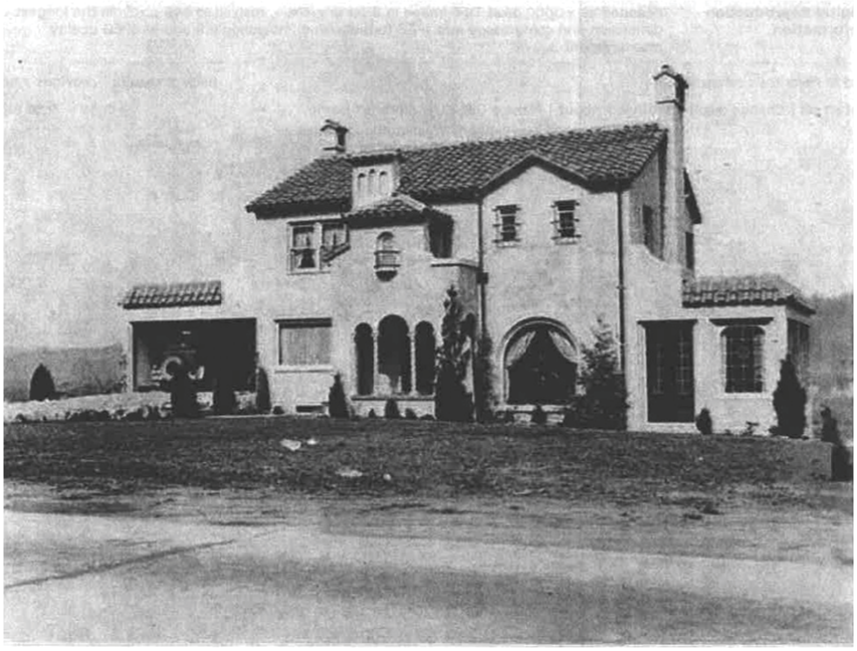


Figure 1. *Winters House – circa 1935 (Collections of Eastside Heritage Center)*

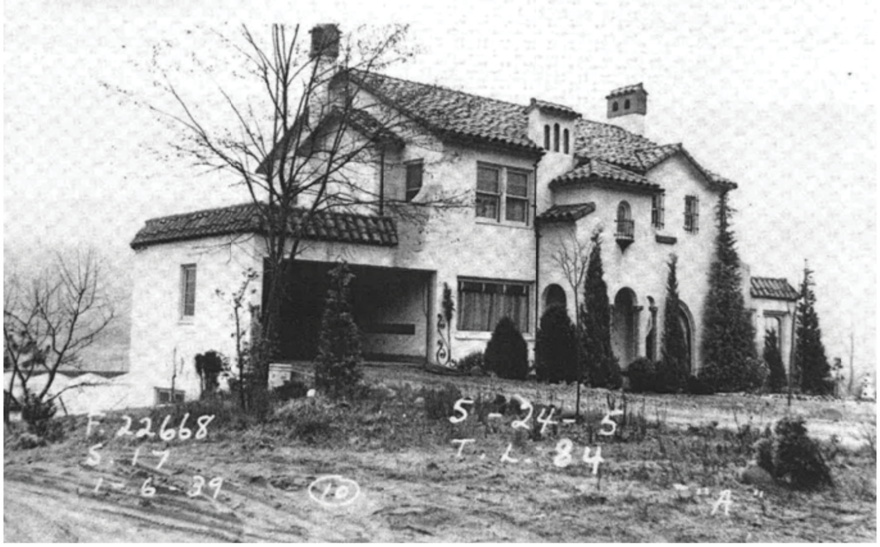

F. 22668
S. 17
1-6-39
10
5-24-5
T.L. 84
"A"

Figure 2. *Winters House – 1939*

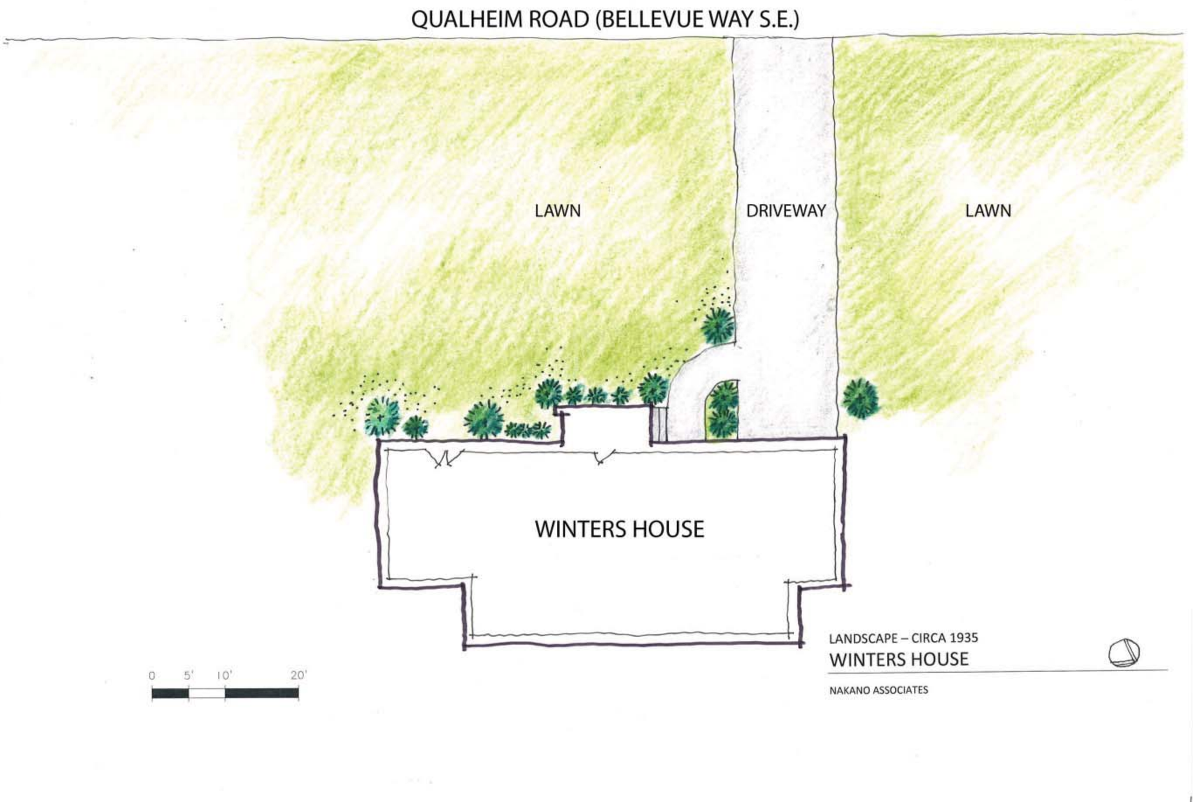

QUALHEIM ROAD (BELLEVUE WAY S.E.)
LAWN
DRIVEWAY
LAWN
WINTERS HOUSE
0
5'
10'
20'
LANDSCAPE – CIRCA 1935
WINTERS HOUSE
NAKANO ASSOCIATES

Figure 3. *Landscape Plan: Winters House– circa 1935, Nakano Associates interpretation*

1940'S – 1960'S

In 1943, Anna and Frank Riepl purchased 1.31 acres of the Winters property, including the house. They made changes to the landscape at the front of the house (circa 1950, 1957, 1962), including construction of a fish and lily pond (Krafft). Mrs. Riepl lived in the main house until 1983. The pond no longer exists.

Endre Ostbo purchased the remaining 3.69 acres. He raised rhododendrons on his portion of the land. Later, his son Owen took over and operated a rhododendron nursery on the site until the late 1970's.

The landscapes in figures 4 and 5 show the addition of deciduous trees and shrubs. The largest conifer seen in front of the house in figure 2 had been removed by the time the photos in figures 4 and 5 were taken in 1945.

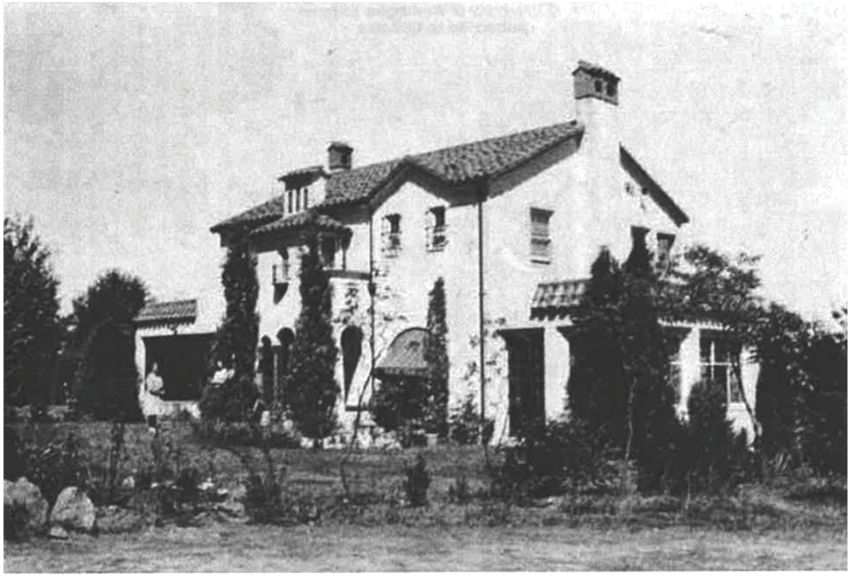


Figure 4. *Winters House – circa. 1945 (Collections of Eastside Heritage Center)*

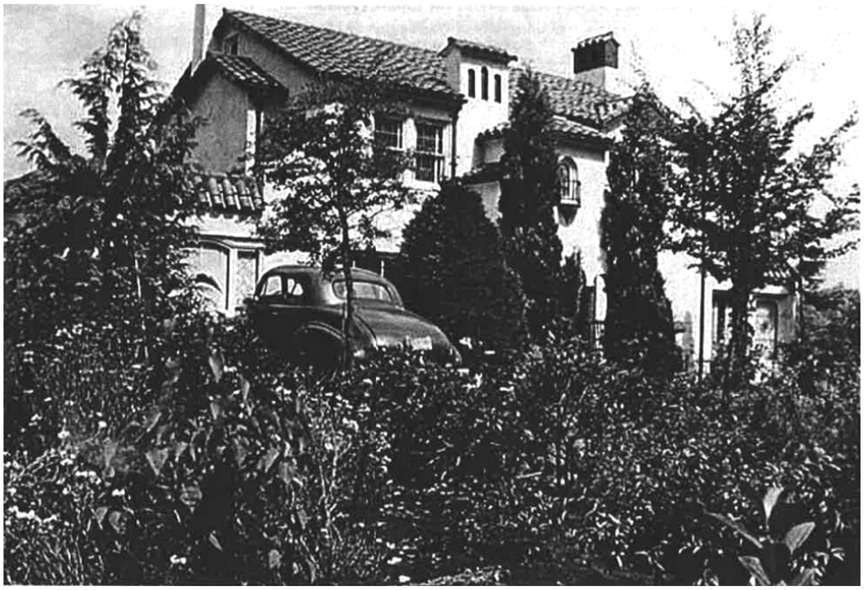


Figure 5. *Winters House – circa 1945 (Collections of Eastside Heritage Center)*

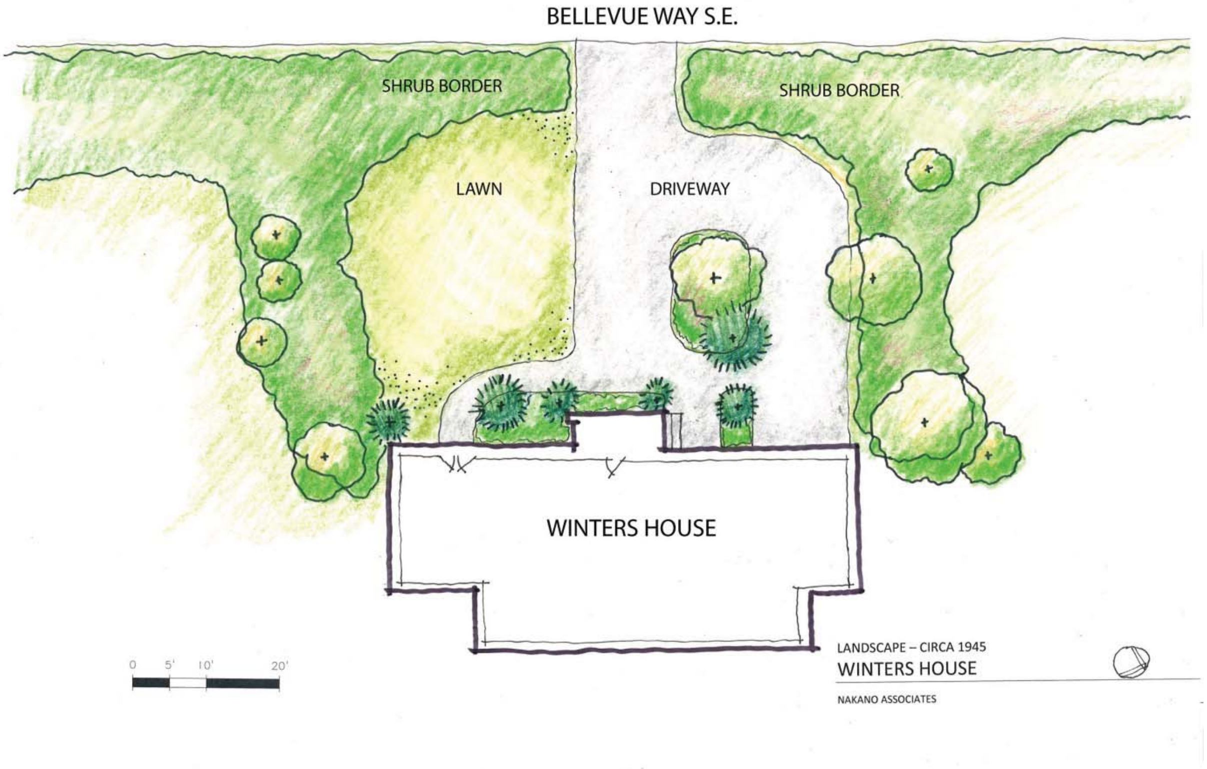

BELLEVUE WAY S.E.
SHRUB BORDER
SHRUB BORDER
LAWN
DRIVEWAY
WINTERS HOUSE
0
5'
10'
20'
LANDSCAPE – CIRCA 1945
WINTERS HOUSE
NAKANO ASSOCIATES

Figure 6. *Landscape Plan: Winters House – circa 1945, Nakano Associates interpretation*

LATE 1980'S

In 1988, the City of Bellevue purchased the Winters estate, rehabilitated the house, and had it placed on the National Register of Historic Places.

"The nominated property includes the Winters House and the landscaped property within 50 feet of it… Winters House is significant for both its distinctive architectural character and its association with bulb growing and the floricultural industry in King County and Washington State." (Krafft)

Features in the landscape have been altered a number of times since the house was built. Statements on the National Register of Historic Places registration form describe the early landscape as: *"The house is… buffered from the roadway by a small grove of deciduous and conifer trees and shrubs. Originally a substantial lawn, fish pond and planted area separated the residence from the old narrower roadway… The house is the only intact historic resource to remain on the site."* (Krafft)

Most of the shrub layer no longer existed in front of the house at the time of the 1988 renovation. Several trees can be seen in figure 7 below.

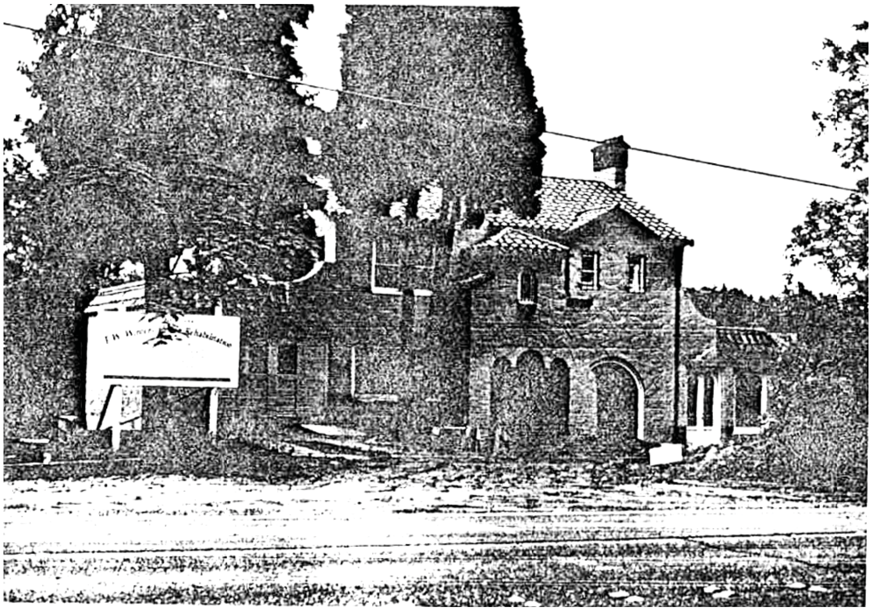
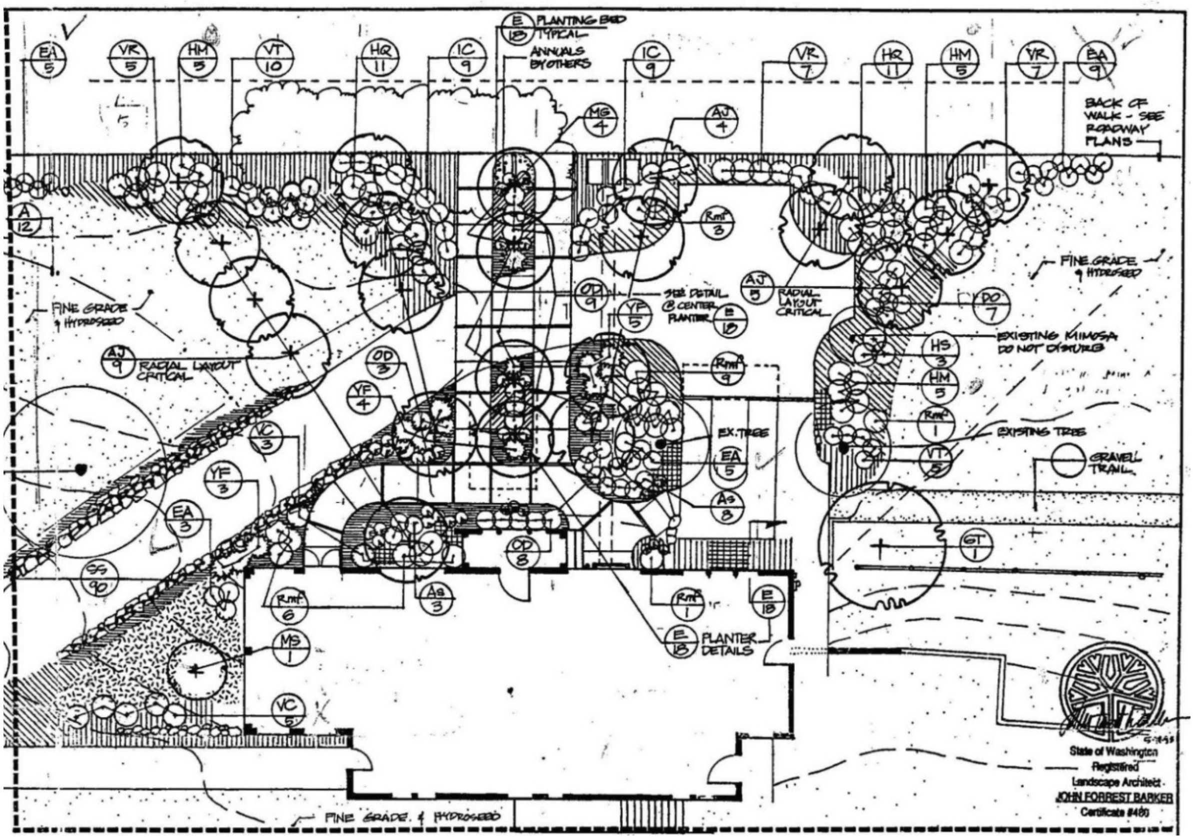


Figure 7. *Winters House – Rehabilitation*

1990'S

In 1993, a new plan for the Winters House was prepared by John Forrest Barker Landscape Architects, P.S. This plan allowed for accessible parking and entry at the northwest corner of the house. It retained the "original driveway" (per John Barker) as a central pedestrian entry off of Bellevue Way S.E. The plan specified silk trees (Albizia julibrissen), magnolias and a honey locust (Gleditsia triacanthos 'Halka'), as well as witch hazel, viburnums, rhododendrons, and azaleas. See figure 8 below.


EA 5
VR 5
HM 5
VT 10
HQ 11
IC 9
E 18 PLANTING BED TYPICAL ANNUALS BY OTHERS
IC 9
VR 7
HQ 11
HM 5
VR 7
EA 9
BACK OF WALK - SEE ROADWAY PLANS
MG 4
AJ 4
A 12
Rmf 3
FINE GRADE & HYDROSEED
FINE GRADE & HYDROSEED
OD 9
YF 5
SEE DETAIL @ CENTER PLANTER
E 18
AJ 5
RADIAL LAYOUT CRITICAL
DO 7
EXISTING MIMOSA, DO NOT DISTURB
AJ 9
RADIAL LAYOUT CRITICAL
OD 3
Rmf 9
HS 3
HM 5
YF 4
Rmf 1
EXISTING TREE
VC 3
EX. TREE
EA 5
VT 5
GRAVEL TRAIL
YF 3
As 8
EA 3
GT 1
OD 8
SS 90
Rmf 6
As 3
Rmf 1
E 18
MS 1
E 18 PLANTER DETAILS
VC 5
State of Washington Registered Landscape Architect JOHN FORREST BARKER Certificate #480
FINE GRADE & HYDROSEED

Planting Legend

Groundcovers

Qty	Abbrev. key		Botanical name / SPACING	Common name	Size	Quality/Std.
352	Ar	▤	Ajuga reptans *'Jungle Bronze'* 12" o.c.	*'Jungle Bronze* Ajuga	4" pots	12" growth min. vigorous ASNS #6.4.3.
90	Ss	░	Sempervivum spp. AS SHOWN	Houseleek		
207	Ef	▧	Euonymus fortunei *'Gold Mound'* 18" o.c.	Gold Winter creeper	1 gallon cont.	12" growth min. vigorous ASNS #6.4.3
38	Bc	▦	Bergenia crassifolia 18" o.c.	White Bergenia	"	"
1088	Gs	░	Gaultheria shallon 18" o.c.	Salal	"	"
43	Hs	○	Helictotrichon sempervirens 12" o.c./AS SHOWN	Blue Oat Grass	"	"
1677	Vm	▥	Vinca minor (White flowers) 18" o.c.	Dwarf Periwinkle	"	"
48	La	▨	Lavendula stoechas 18" o.c.	Spanish Lavender	"	"

Lawn			
░	60% Perennial Rye 20% Merit Kentucky Bluegrass 20% Mustang Tall Fescue	20% each of Palmer, Prelude, Premier Rye FINE GRADE AFTER AMENDING NATIVE SOIL.	5 lbs./ 1000 SF	(hydroseed)

NOTE: PLANTING LEGEND FOR THIS SHEET & FOR SHEET 17 ARE IDENTICAL. QUANTITIES SHOW PERTAIN TO THE TOTAL PLANT MAT'LS. REQ'D. FOR THE F.W. WINTERS SITE. HYDROSEED QUANTITIES PER SHEET 17.

Trees

Qty.	Abbrev. key		Botanical name	Common name	Size/ Con.	Quality/Std.
10 4 6	PN PC PM	◍	Pinus nigra Pinus contorta Pseudotsuga menziesii	Austrian Pine Shore Pine Douglas fir.	6-8' ht. b/b	full, vigorous sin stem tree,full, vigorous, ASNS 3124
8	GT	⊙	Gleditsia triancanthos "Halka"	Halka Honey Locust	2-1/2" cal 10-14' ht.	balanced canopy full, vigorous, ASNS 1131 b/b or cont.
18	AJ	⊕	Albizia julibrissin	Silk tree, Mimosa	1-1/2" cal. 7-8' ht.	Single stem to 6 ft. full, vigorous, ASNS 1171 b/b or cont.
4	MG	⊕	Magnolia grandiflora 'Majestic Beauty'	Evergreen Magnolia	1-1/2" cal. 8-9' ht.	Single stem to 6 ft. full, vigorous, ASNS 1171 b/b or cont.
3	MS	⊕	Magnolia sieboldii	Oyama Magnolia	1" cal. 4-5' ht.	Multi stem to 5 ft. full, vigorous, ASNS 1134 b/b or cont.

Shrubs

Qty	Abbrev. key		Botanical name	Common name	Size/ Con.	Quality/Std.
26 25 8 20	VT VR VC Rmf	⊙	Viburnum tinus. Vib. rhytidophyllum Vibunum carlesii Rhododendron *'Mrs.Furnival'*	Laurustinus Leatherleaf Vib. Korean Spice Vib. *'Mrs.Furnival'* Rhodo.	36"-42" ht. b/b or cont.	Full rounded form full, vigorous, ASNS #4.1.2.4.
16 31	HM HS	⊙	Hammamelis mollis Hybiscus syriacus 'Lucy'	Chin. Witch Hazel Rose of Sharon	42-48" ht. b/b or cont.	Multistemmed full, vigorous, ASNS 2.1.3.4
37 68 63	HQ EA CS	⊙	Hydrangea quercifolia Euonymus alatus Cornus stolonifera	Oakleaf hydrangea Burning Bush Red-osier Dogwood	30-36" ht. b/b or cont.	Full rounded form vigorous, ASNS #4.1.2.4.
7 12 12 11 18	DO YF OD As IC	○	Daphne odora Yucca flaccida *'Gold Sword'* Osmanthus delavayi Azalea *'stewartsonian'* Ilex crenata convexa	Winter daphne Gold Sword yucca Delvay Osmanthus *Stewartsonian* Azalea Japanese holly	24-30" ht. cont.	Full rounded form vigorous, ASNS #4.1.3.2.

Figure 8. *1993 Landscape Plan - John Forrest Barker Landscape Architects, P.S.*

2010

The Winters House is currently operated by Bellevue Parks Department and houses the offices and archives of the Eastside Heritage Center. This use is consistent with the intent listed in the NRHP Registration form: *"The F.W. Winters House shall be used as a public meeting and local historical society facility which will also serve to interpret both the natural and the cultural history of Mercer Slough."* (Krafft)

The existing landscape in the location of the proposed lid structure includes a number of rhododendrons and azaleas, as well as several magnolia trees and a mature walnut tree. There is no radiating layout of silk trees (as had been shown in the 1993 landscape plan shown in figure 8.) Massings of witch hazel (Hammamelis) and burning bush (Euonymus) exist today and likely contribute significantly to a display of fall color. Figures 9-13 illustrate shrub borders and trees separating the lawn and house from the street.

CH2MHill contracted HRA (Historical Research Associates) architectural historians review the extant landscape and historic photographs to consider whether the landscape of the house is character-defining or includes any character-defining features from the historic period. (CH2MHill, 17 June 2010)

In particular, HRA assessed the 50-foot boundary provided in the NRHP Registration form which includes the set back of the residence from Bellevue Way. The NRHP Registration form includes the following boundary justification:

> The nominated property includes the Winters House and the landscaped property within 50 feet of it. While the otherwise undeveloped grounds within the surrounding and adjacent acreage are associated with the house, they are no longer cultivated and no intact outbuildings remain. While complimenting the historic residence, the surrounding grounds no longer retain integrity.

Analysis of the 50-foot designated boundary to determine whether any character-defining landscape features remain currently that convey the significance of the residence and its relationship to the landscape found no such features. Rather, all of the surrounding landscape of the house was found to have been altered substantially from the historic period of the residence. Except for some mature trees beyond the rear of the residence that once were part of the larger property, the current landscape features do not in any way reflect the original landscape of the residence, nor do they convey the relationship of the landscape to the structure as it was first designed, matured, and allowed to evolve during the historic period of the property. (CH2MHill, 17 June 2010)

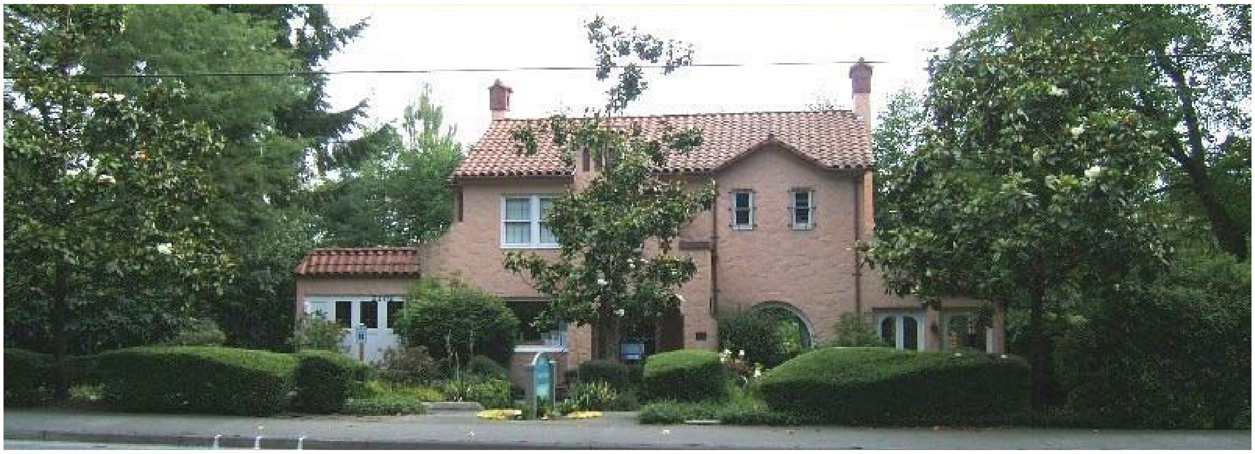


Figure 9. *Winters House – existing landscape photograph*

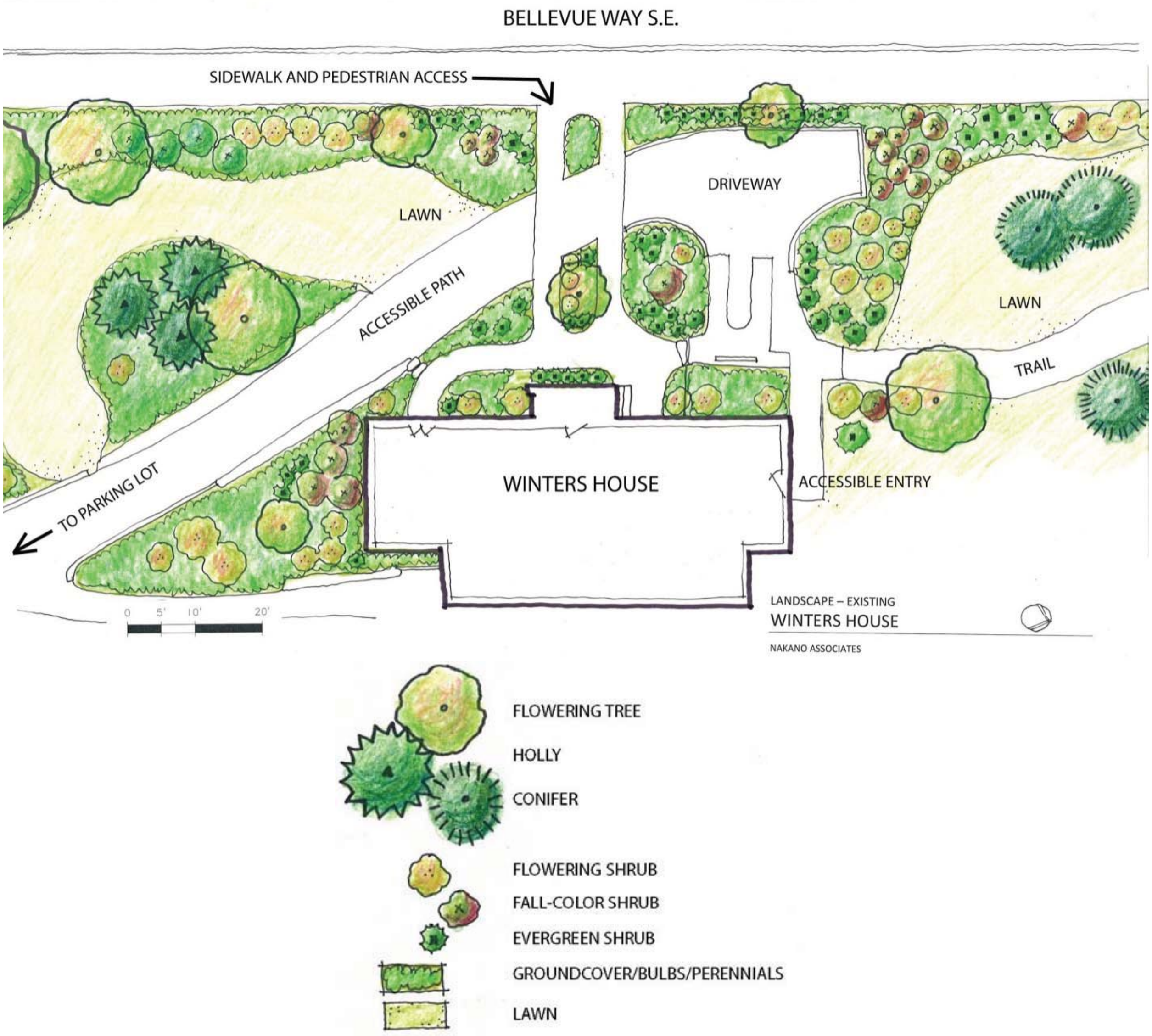

BELLEVUE WAY S.E.
SIDEWALK AND PEDESTRIAN ACCESS
DRIVEWAY
LAWN
ACCESSIBLE PATH
LAWN
TRAIL
WINTERS HOUSE
ACCESSIBLE ENTRY
TO PARKING LOT
0 5' 10' 20'
LANDSCAPE – EXISTING
WINTERS HOUSE
NAKANO ASSOCIATES
FLOWERING TREE
HOLLY
CONIFER
FLOWERING SHRUB
FALL-COLOR SHRUB
EVERGREEN SHRUB
GROUNDCOVER/BULBS/PERENNIALS
LAWN

Figure 10. *Winters House – existing landscape plan view*

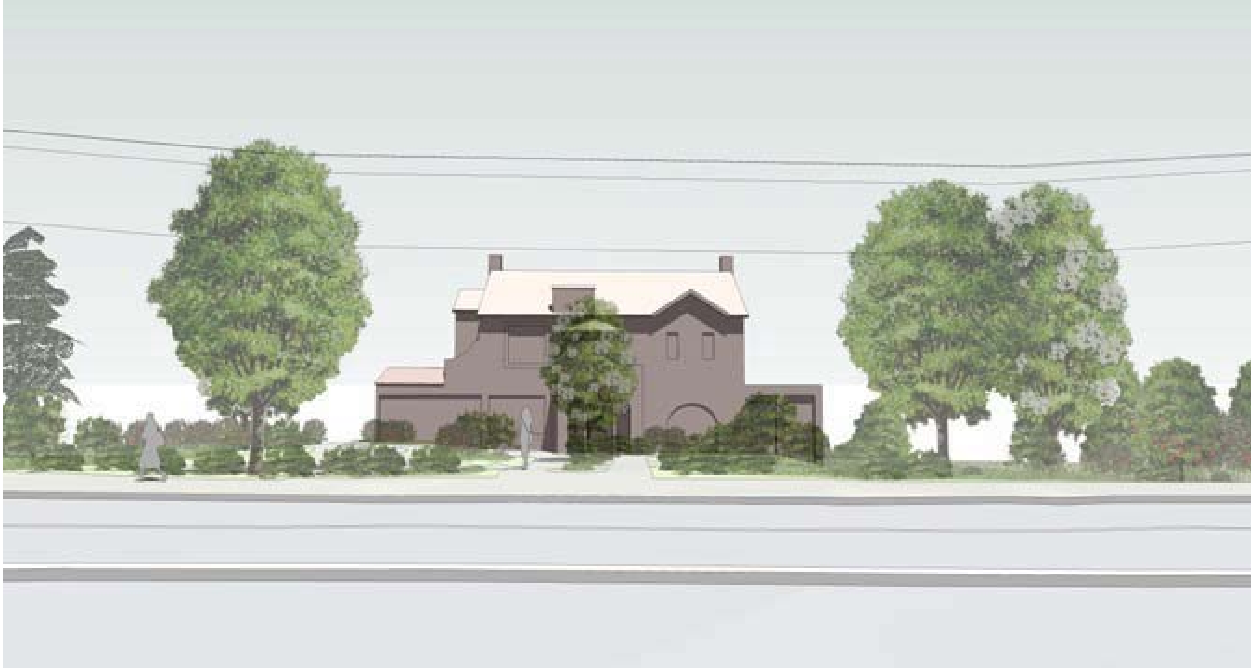


Figure 11. *Winters House – existing landscape street view, looking east*

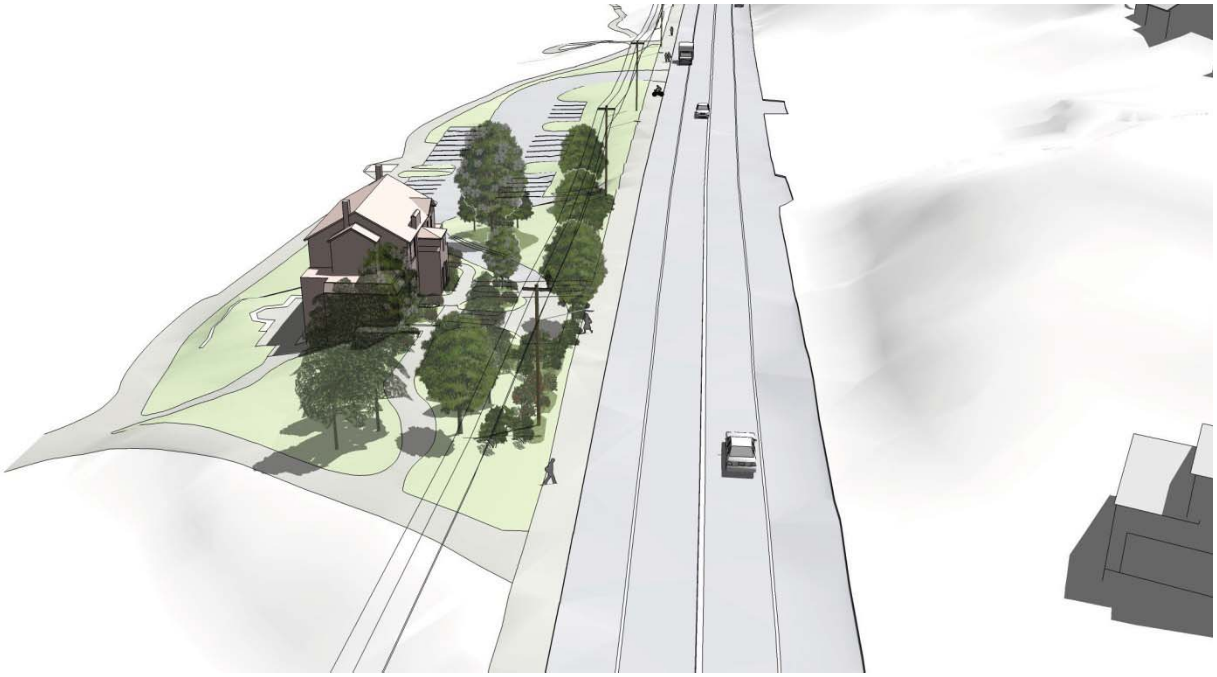


Figure 12. *Existing aerial view, looking south*

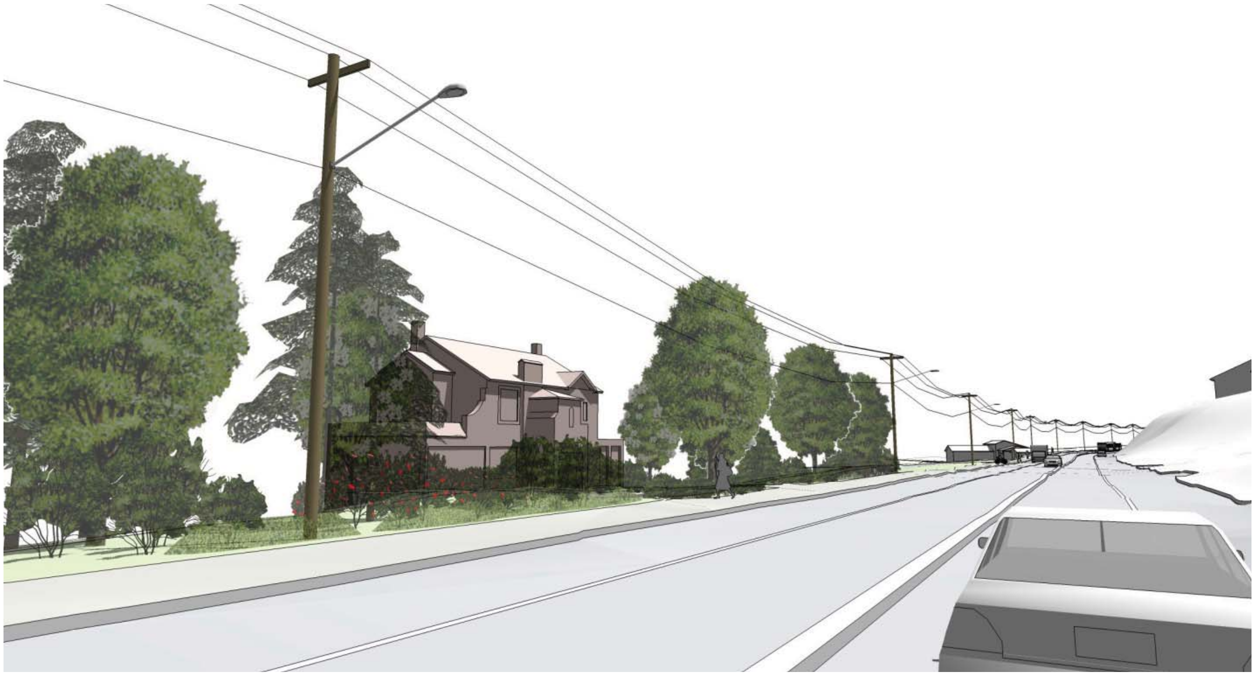


Figure 13. *Existing street level view, looking south*

RECOMMENDED LANDSCAPE

Secretary of the Interior's Standards for Rehabilitation
New work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Those changes that have acquired historic significance in their own right shall be retained and preserved. (National Park Service, The Secretary of the Interior's Standards for Rehabilitation, http://www.nps.gov/hps/tps/tax/rhb/stand.htm, 12 July 2010.)

Although the current landscape features do not reflect the original landscape, certain elements have persisted over time. These elements include an open lawn, and plant species (rhododendrons, azaleas, daffodils and tulips) that reflect the horticultural past of the property.

Proposed conditions dictated by light rail design:

1.) A new landscape design is proposed for the area to the west of the Winters House, between the house and South Bellevue Way, where a 170-foot long lid covers the light rail guideway (figures 14 and 15.)
2.) Soil depth on the lid: 3' (Large shrubs and small trees can grow in this depth.)
3.) Parking lot elevation to be raised approximately 9'. This will reduce the grade change from the parking lot to the front of the house and increase the change from the parking lot to the east patio on the lower level. A new ramp system is proposed to provide an accessible path to the lower level of the house.
4.) Retained cut trench adjacent to the lid to be bordered by 8' high fencing on both sides (2'-10" barrier and 5'-2" fence.)

The recommended landscape design for the proposed lid (figure 15) reinforces the layout of a central axis (as seen in figure 6, Winters House – circa 1945), creates a strong entry and maintains the axial layout in front of the house. One main feature of the early landscapes was an open lawn. The proposed open lawn would be encircled by shrub borders adjacent to the sidewalk along Bellevue Way S.E. to buffer the house and yard from street traffic. The borders would feature azaleas, rhododendrons, daffodils and tulips to reflect the horticultural past of the house.

At mature height, the proposed border will be about 3' high at the central opening of the garden. Shrubs at the north and south end of the garden, adjacent to the guideway barriers, will be 6'-10' high to screen views from the house to the guideway barrier. Columnar street trees will provide an additional screen between the front of the Winters House and Bellevue Way S.E.

A six-foot wide walkway along the north edge of the lid and along the front of the house allows for direct pedestrian access to the trail system below. With the raising of the parking lot elevation, walkways to the house will be graded for accessible entry at the street level and the lower level entry on the east side of the house. Figures 16-18 illustrate three views of the front of the Winters House, and the general layout and massing of the proposed landscape.

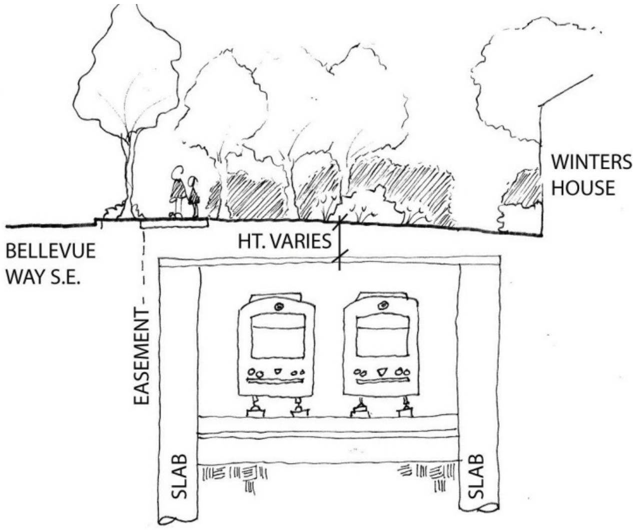

WINTERS
HOUSE
BELLEVUE
WAY S.E.
HT. VARIES
EASEMENT
SLAB
SLAB

Figure 14. *Section - front yard, looking north*

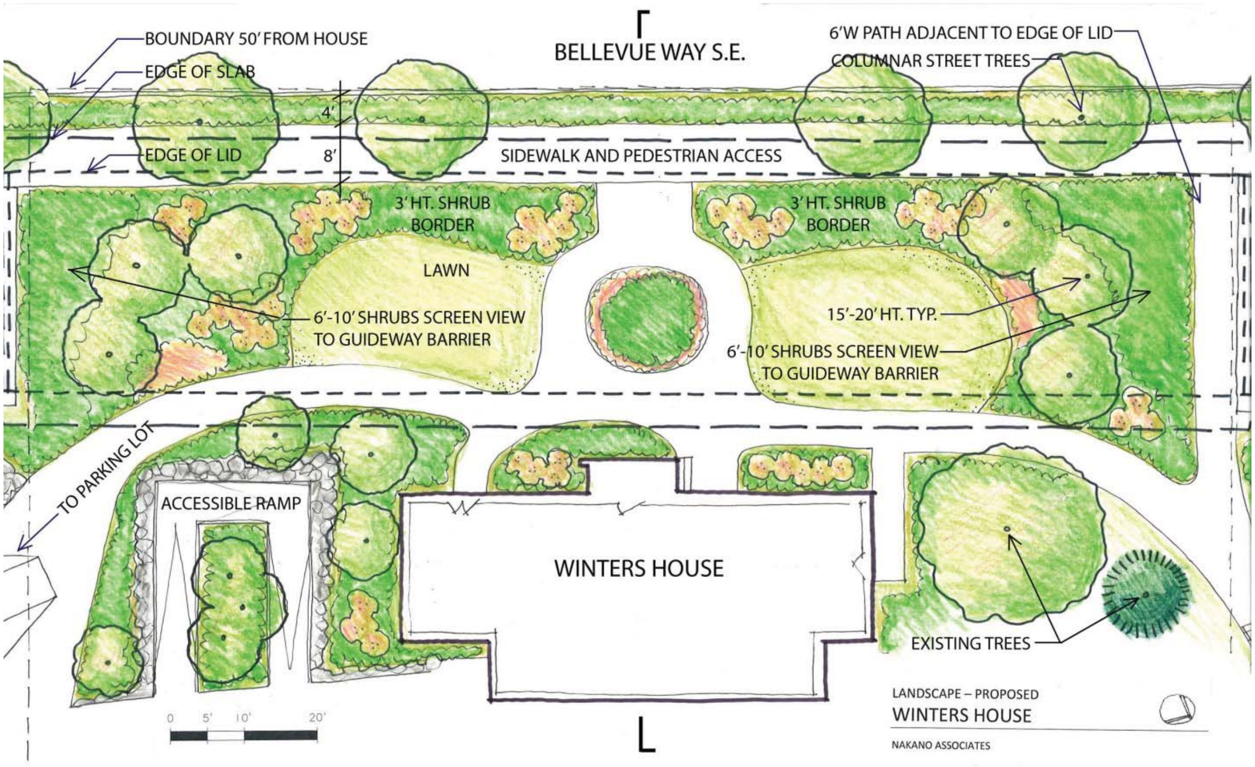

BOUNDARY 50' FROM HOUSE
EDGE OF SLAB
EDGE OF LID
BELLEVUE WAY S.E.
6'W PATH ADJACENT TO EDGE OF LID
COLUMNAR STREET TREES
4'
8'
SIDEWALK AND PEDESTRIAN ACCESS
3' HT. SHRUB
BORDER
3' HT. SHRUB
BORDER
LAWN
6'-10' SHRUBS SCREEN VIEW
TO GUIDEWAY BARRIER
15'-20' HT. TYP.
6'-10' SHRUBS SCREEN VIEW
TO GUIDEWAY BARRIER
TO PARKING LOT
ACCESSIBLE RAMP
WINTERS HOUSE
EXISTING TREES
0 5' 10' 20'
LANDSCAPE – PROPOSED
WINTERS HOUSE
NAKANO ASSOCIATES

Figure 15. *Landscape Plan – proposed*

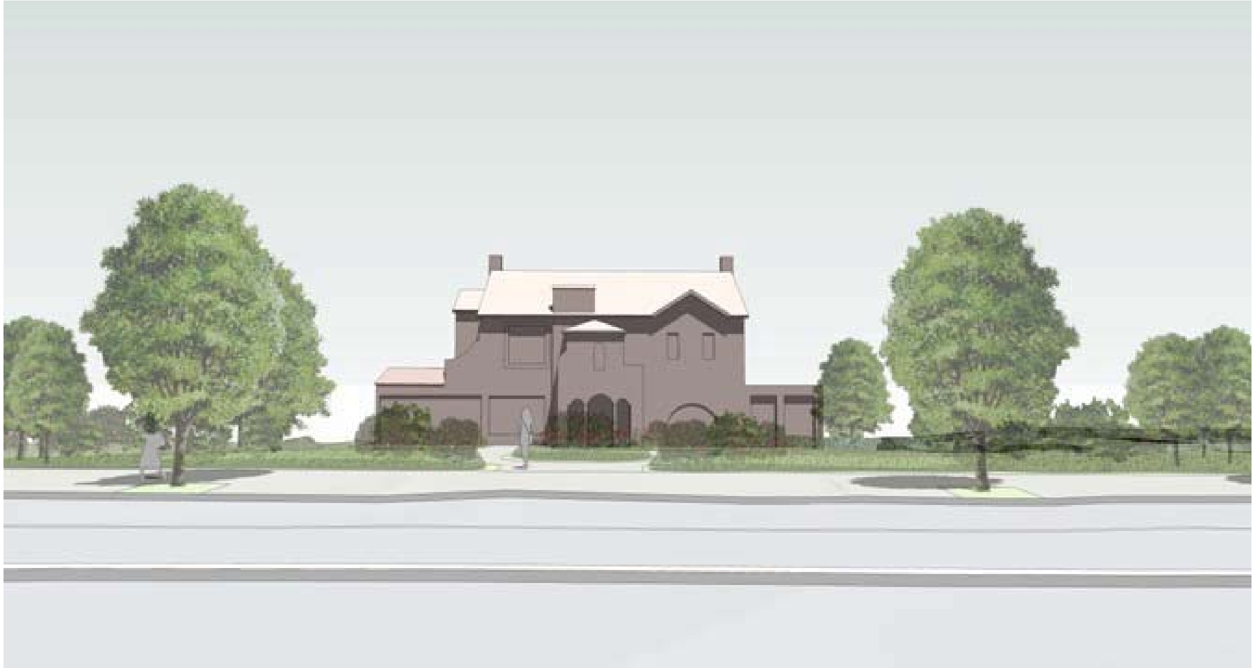


Figure 16. *Winters House – proposed landscape street view - looking east*

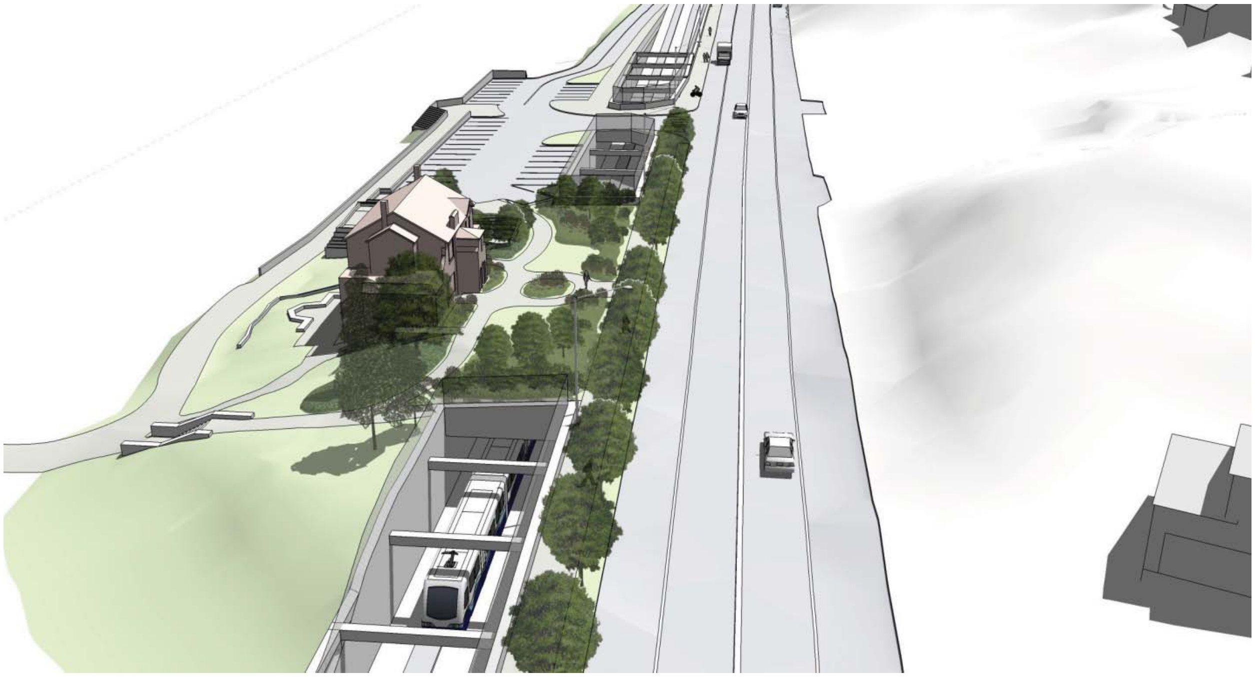


Figure 17. *Proposed aerial view – looking south*

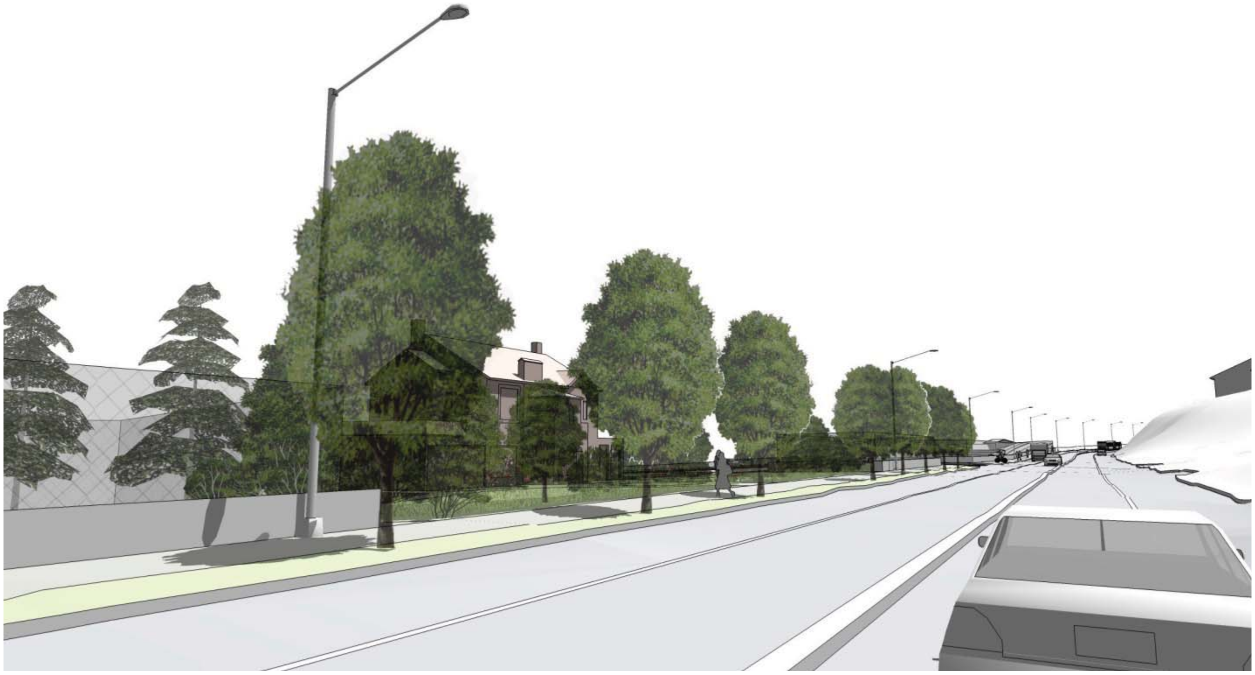


Figure 18. *Proposed street level view - looking south*

APPENDIX E

Agency Correspondence

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

August 24, 2006

Bill T. Sweet, Tribal Chair
Snoqualmie Tribe
PO Box 969
Snoqualmie, WA 98065

Subject: Invitation to Participate in the Environmental Review Process
and Initiation of Section 106 Consultation for the East Link Project

Dear Chairman Sweet:

The Federal Transit Administration (FTA), in cooperation with Sound Transit and the Washington State Department of Transportation (WSDOT), is initiating the preparation of an Environmental Impact Statement (EIS) for the proposed East Link project. The EIS will be a combined document under NEPA and the Washington State Environmental Policy Act (SEPA). Sound Transit and the Washington State Department of Transportation (WSDOT) will be co-lead agencies for SEPA compliance. The proposed project is located in King County, Washington. The proposed purpose of the project is to expand the Sound Transit Central Link rail system from Seattle to Bellevue and Redmond, via Interstate 90 (I-90) and across Mercer Island, to provide a reliable and efficient alternative for moving people throughout the region.

The enclosed Scoping Information Report provides more details including a map of the project area, maps depicting proposed route and station location alternatives, a schedule for the EIS process, the preliminary project Purpose and Need Statement, and elements of the environment to be evaluated in the EIS.

To ensure that we account for any effects of this undertaking on properties listed in or eligible for listing on the National Register of Historic Places, FTA confirms the initiation of the Section 106 consultation pursuant to 36 CFR 800.2(a)(4).

In addition, recently enacted federal legislation, Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), establishes an enhanced environmental review process for certain FTA projects, increasing the transparency of the process, as well as opportunities for participation. The requirements of Section 6002 apply to the East Link project. As part of the environmental review process for this project, the lead agencies must identify, as early as practicable, any other Federal and non-Federal agencies that may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process.[1] The Snoqualmie Tribe has been identified preliminarily as one that may have an interest in this project, because of the potential in the project area for historic or cultural resources listed in or eligible for listing in the National Register of Historic Places; accordingly, you are being extended this invitation to become actively involved as a participating agency in the environmental review process for the project.

---

[1] Designation as a "participation agency" does not imply that the participating agency supports the proposed project or has any jurisdiction over, or special expertise concerning the proposed project or its potential impacts. A "participating agency" differs from a "cooperating agency," which is defined in regulations implementing the National Environmental Policy Act as "any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment." 40 C.F.R. § 1508.5.

As a participating agency, you will be asked to:

- Participate in the NEPA process starting at the earliest possible time, especially with regard to the development of the purpose and need statement, range of alternatives, EIS analysis methodologies, and the level of detail for the analysis of alternatives.
- Identify, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts.
- Provide meaningful and timely input on unresolved issues
- Participate in the EIS scoping process.

Written responses to this invitation are due at the close of the scoping process on October 2, 2006. Please use the attached Participating Agency Designation form to accept or decline this invitation.

Scoping

An agency scoping meeting has been scheduled for September 12, 2006 at Bellevue City Hall, 450 110th Avenue NE, Bellevue, WA 98004, from 1:00 to 3:00 p.m. The 30-day scoping comment period begins on September 1 and ends October 2, 2006. As described in the enclosed Scoping Information Report, scoping comments are requested on the proposed range of alternatives, the probable significant impacts, and detail of analysis on specific environmental impacts to be included in the EIS. In addition, comment on the preliminary project Purpose and Need is being solicited during the scoping period pursuant to the SAFETEA-LU federal legislation that states lead agencies will provide an opportunity for agency and public comment on the purpose and need statement early in the environmental review process. The preliminary project Purpose and Need statement is provided in the Scoping Information Report. The draft project Coordination Plan prepared pursuant to SAFETEA-LU is also enclosed.

If you have questions regarding this invitation, please contact John Witmer, FTA Region 10 Community Planner, at (206) 220-7964.

Sincerely,

R.F. Krochalis
Regional Administrator

Enclosures: Participating Agency Designation Form
Scoping Information Report
Coordination Plan

cc: Mathew Mattson, Snoqualmie Tribe
Ian Kaniar, Snoqualmie Tribe
Kellie Kvasnikoff, Snoqualmie Tribe
Allyson Brooks, SHPO
Don Billen, Sound Transit
James Irish, Sound Transit
Ron Sheck, WSDOT
David Williams, WSDOT

EAST LINK PROJECT
PARTICIPATING AGENCY DESIGNATION

☐ Yes – ____________________________ the Snoqualmie Tribe wishes to be designated as a participating agency for the proposed East Link Project.

☐ No – ____________________________ the Snoqualmie Tribe does not wish to be designated as a participating agency for the proposed East Link Project.

______________________________________ (Sign – Authorized Representative)

______________________________________ (Print)

______________________________________ (Title)

______________________________________ (Date)

Please return by October 2, 2006 to:

John Witmer, Community Planner
Region 10
Federal Transit Administration
915 Second Ave., Room 3142
Seattle, WA 98174

Fax: (206) 220-7537

SoundTransit

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Joni Earl

December 19, 2006

Bill T. Sweet, Tribal Chair
Snoqualmie Tribe
PO Box 969
Snoqualmie, WA 98065

Re: East Link Project EIS Methodologies for Review

Dear Chairman Sweet:

Enclosed are the proposed Archaeological and Historic Resources, Water Resources, and Ecosystems methodologies for conducting the analysis in the East Link Environmental Impact Statement (EIS). These methodologies are provided for your review in continuing consultation on this project. A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated Snoqualmie Tribe comments for these methodologies by January 22, 2007. After receipt of comments from all the participating agencies and consulting tribes, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with the Tribe to discuss the draft methodologies and the Tribe's comments during this period. Please use the enclosed comment form or similar format for providing comments.

Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss a particular methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish

James Irish,
Environmental Manager

Cc: Andrea Rodgers, Snoqualmie Tribe
Allyson Brooks, SHPO
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: EIS Methodologies
Comment form
EIS Outline

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Joni Earl

December 19, 2006

Cecile Hansen, Chair
Duwamish Tribe
4717 W. Marginal Way SW
Seattle, WA 98106

Re: East Link Project EIS Methodologies for Review

Dear Chairperson Hansen:

Enclosed are the proposed Archaeological and Historic Resources, Water Resources, and Ecosystems methodologies for conducting the analysis in the East Link Environmental Impact Statement (EIS). These methodologies are provided for your review in continuing consultation on this project. A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated Duwamish Tribe comments for these methodologies by January 22, 2007. After receipt of comments from all the participating agencies and consulting tribes, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with the Tribe to discuss the draft methodologies and the Tribe's comments during this period. Please use the enclosed comment form or similar format for providing comments.

Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss a particular methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish,
Environmental Manager

Cc: James Rasmussen, Duwamish Tribe
Allyson Brooks, SHPO
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: EIS Methodologies
Comment form
EIS Outline

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Vice Chair, King County Council

CHIEF EXECUTIVE OFFICER

Joni Earl

December 19, 2006

Leonard Forsman, Tribal Chair
Suquamish Tribe
PO Box 498
Suquamish, WA 98392

Re: East Link Project EIS Methodologies for Review

Dear Chairman Forsman:

Enclosed are the proposed Archaeological and Historic Resources, Water Resources, and Ecosystems methodologies for conducting the analysis in the East Link Environmental Impact Statement (EIS). These methodologies are provided for your review in continuing consultation on this project. A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated Suquamish Tribe comments for these methodologies by January 22, 2007. After receipt of comments from all the participating agencies and consulting tribes, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with the Tribe to discuss the draft methodologies and the Tribe's comments during this period. Please use the enclosed comment form or similar format for providing comments.

Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss a particular methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish,
Environmental Manager

Cc: Richard Brooks, Suquamish Tribe
Dennis Lewarch, Suquamish Tribe
Rob Purser, Suquamish Tribe
Allyson Brooks, SHPO
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: EIS Methodologies
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Vice Chair, King County Council

CHIEF EXECUTIVE OFFICER
Joni Earl

December 19, 2006

John Daniels, Jr., Council Chairman
Muckleshoot Indian Tribe
39015 172nd Ave. SE
Auburn, WA 98092

Re: East Link Project EIS Methodologies for Review

Dear Chairman Daniels:

Enclosed are the proposed Archaeological and Historic Resources, Water Resources, and Ecosystems methodologies for conducting the analysis in the East Link Environmental Impact Statement (EIS). These methodologies are provided for your review in continuing consultation on this project. A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated Muckleshoot Tribe comments for these methodologies by January 22, 2007. After receipt of comments from all the participating agencies and consulting tribes, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with the Tribe to discuss the draft methodologies and the Tribe's comments during this period. Please use the enclosed comment form or similar format for providing comments.

Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss a particular methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James

James Irish,
Environmental Manager

Cc: Laura Murphy, Muckleshoot Tribe
Karen Walter, Muckleshoot Tribe
Allyson Brooks, SHPO
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: EIS Methodologies
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CHIEF EXECUTIVE OFFICER

Joni Earl

December 19, 2006

Stanley Jones, Chair
Tulalip Tribe
6700 Totem Beach Road
Tulalip, WA 98271

Re: East Link Project EIS Methodologies for Review

Dear Chairperson Jones:

Enclosed are the proposed Archaeological and Historic Resources, Water Resources, and Ecosystems methodologies for conducting the analysis in the East Link Environmental Impact Statement (EIS). These methodologies are provided for your review in continuing consultation on this project. A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated Tulalip Tribe comments for these methodologies by January 22, 2007. After receipt of comments from all the participating agencies and consulting tribes, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with the Tribe to discuss the draft methodologies and the Tribe's comments during this period. Please use the enclosed comment form or similar format for providing comments.

Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss a particular methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish,
Environmental Manager

Cc: Henry Gobbin, Tulalip Tribe
Fisheries Department, Tulalip Tribe
Allyson Brooks, SHPO
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: EIS Methodologies
Comment form
EIS Outline

Central Puget Sound Regional Transit Authority • Union Station
401 S. Jackson St., Seattle, WA 98104-2826 • Reception: (206) 398-5000 • FAX: (206) 398-5499 • www.soundtransit.org

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Vice Chair, King County Council

CHIEF EXECUTIVE OFFICER
Joni Earl

December 19, 2006

Judith R. Joseph, Superintendent
U.S. Bureau of Indian Affairs
PO Box 80947
Seattle, WA 98108

Re: East Link Project EIS Methodologies for Review

Dear Ms. Joseph:

Enclosed is the proposed Historic and Archaeological Resources analysis methodology for conducting the analysis in the East Link Environmental Impact Statement (EIS). This methodology is provided for your review pursuant to the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated BIA comments for this methodology by January 22, 2007. After receipt of comments from all the Participating and Cooperating Agencies, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with BIA to discuss this draft methodology and the agency's comments during this period. Please use the enclosed comment form or similar format for providing comments.

The Federal Transit Administration, NEPA lead for this project with Sound Transit, has not received BIA's confirmation of Participating Agency status in response to the FTA's August 24, 2006 invitation letter. Methodology review is provided for Cooperating and Participating agencies. Because Sound Transit feels that the BIA may be interested in serving as a Participating Agency, we are transmitting these for your review. However, in order to ensure that your input is considered as appropriate in finalizing the EIS methodology and throughout the EIS process, it is important that BIA indicate its participation status. A Participating Agency Designation Form is enclosed. Pursuant to SAFETEA-LU Section 6002(d)(3), if BIA elects not to become a Participating agency, you must decline the invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, and does not intend to submit comments on the project. Otherwise, BIA is considered a Participating Agency.

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Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss the methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish,
Environmental Manager

Cc: John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: Draft Historic and Archaeological Resources EIS Methodology
Comment form
Participating Agency Designation Form
EIS Outline

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Vice Chair, King County Council

CHIEF EXECUTIVE OFFICER
Joni Earl

December 19, 2006

John M. Fowler, Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Ave NW #809
Washington, DC 20004

Re: East Link Project EIS Methodologies for Review

Dear Mr. Fowler:

Enclosed is the proposed Historic and Archaeological Resources analysis methodology for conducting the analysis in the East Link Environmental Impact Statement (EIS). This methodology is provided for your review pursuant to the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated ACHP comments for this methodology by January 22, 2007. After receipt of comments from all the Participating and Cooperating Agencies, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with ACHP to discuss this draft methodology and the agency's comments during this period. Please use the enclosed comment form or similar format for providing comments.

The Federal Transit Administration, NEPA lead for this project with Sound Transit, has not received ACHP's confirmation of Participating Agency status in response to the FTA's August 24, 2006 invitation letter. Methodology review is provided for Cooperating and Participating agencies. Because Sound Transit feels that the ACHP should serve as a Participating Agency, we are transmitting these for your review. However, in order to ensure that your input is considered as appropriate in finalizing the EIS methodology and throughout the EIS process, it is important that ACHP indicate its participation status. A Participating Agency Designation Form is enclosed. Pursuant to SAFETEA-LU Section 6002(d)(3), if ACHP elects not to become a participating agency, you must decline the invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, and does not intend to submit comments on the project. Otherwise, ACHP is considered a Participating Agency.

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Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss the methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish,
Environmental Manager

Cc: Don Klima, ACHP
Allyson Brooks, Washington DAHP
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: Draft Historic and Archaeological Resources EIS Methodology
Comment form
Participating Agency Designation Form

SOUNDTRANSIT

December 19, 2006

Dr. Allyson Brooks
State Historic Preservation Officer
Department of Archaeology and Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Re: East Link Project EIS Methodologies for Review

Dear Dr. Brooks:

Enclosed is the proposed Historic and Archaeological Resources analysis methodology for the analysis in the East Link Environmental Impact Statement (EIS). This methodology is provided for your review as a Participating Agency pursuant to the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). A copy of the proposed outline for the EIS is also enclosed.

Please provide consolidated DAHP comments on the methodology by January 22, 2007. After receipt of comments from all the Participating and Cooperating Agencies, Sound Transit will revise the methodology as appropriate. Sound Transit staff would be happy to meet with the Department to discuss the draft methodology and the Department's comments during this period. Please use the enclosed comment form or similar format for providing comments.

Please return comments to Lauren Swift, Environmental Planner at the following address: Link Light Rail, Sound Transit, 401 S. Jackson Street, Seattle, WA 98104. If you have any questions or would like to schedule a meeting to discuss the methodology, please call Lauren Swift, at 206/398-5445.

Sincerely,

James Irish,
Environmental Manager

Cc: Matthew Sterner, DAHP Transportation Archaeologist
John Witmer, FTA
Theresa Smith, WSDOT
Christina Martinez, WSDOT
Don Billen, Sound Transit

Enclosures: Draft EIS Historic and Archaeological Resources Methodology
Comment form
EIS Outline

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1889

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

January 2, 2007

Mr. James Irish
Environmental Manager, Sound Transit
Union Station
401 S. Jackson St.
Seattle, Washington 98104-2826

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: Review Comments

Dear Mr. Irish:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP). The East Link project materials have been reviewed on behalf of the State Historic Preservation Officer under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. My review is based upon documentation contained in your communication.

Overall, the field methods described in the document received on 21 December, 2006, seem sound and prudent. We appreciate the opportunity to review and comment.

Please note that DAHP has developed a set of cultural resource reporting guidelines. You can obtain a copy of these guidelines from our Web site. Thank you for the opportunity to review and comment.

Sincerely,

Matthew Sterner, M.A., RPA
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov

Cc: Mr. Richard F. Krochalis, FTA

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

July 3, 2007

Dr. Allyson Brooks
State Historic Preservation Officer
Office of Archaeology & Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Log: 090806-11-FTA
Property: Sound Transit East Link Project, Seattle to Bellevue to Redmond
Re: Area of Potential Effects

Dear Dr. Brooks:

The purpose of this letter is to consult with you on the Area of Potential Effects (APE) for the Sound Transit East Link Project as required by 36 CFR 800.4(1). We have attached maps of the alternative alignments currently being considered by Sound Transit for the East Link Project. These maps consist of segments A, B, C, D, and E which show the APE for each segment. Section 106 historic properties within 200 feet of these segments are also shown in the attached maps.

The APEs within which archaeological and historical resources will be inventoried and evaluated for project effects will generally be one block (approximately 200 feet) on either side of at-grade or elevated alternatives or where tunnel alternatives will disturb the surface or have the potential for other surface impacts, depending on terrain and local land use. In some locations, the APE may extend further than 200 feet from an alternative, as shown on the attached maps. The horizontal APE around alternatives, station locations, and maintenance facility locations will also generally be one block, or approximately 200 feet, beyond project limits (i.e., property line). For the archaeological resource investigation, the vertical APE may vary according to construction practice and depth of excavation, depending on the geomorphology of the landform where the project element occurs.

This APE is consistent with the discussion contained in the "East Link Project, Technical Analysis Methodology Memo for Historic and Archaeological Resources," December 19, 2006. Matthew Sterner provided comments on this memo in a letter to James Irish, Sound Transit, dated January 2, 2007.

Per 36 CFR 800.2(a)(3) and 800.2(c)(4) of these regulations, FTA is authorizing Sound Transit, as an applicant for Federal assistance, to prepare information, analyses, and recommendations regarding Section 106 consultation for this project. The delegated authority to initiate consultation does not extend to making determinations, such as the area of potential effects or consulting parties.

If you have any questions, please contact John Witmer at (206) 220-7964.

Sincerely,

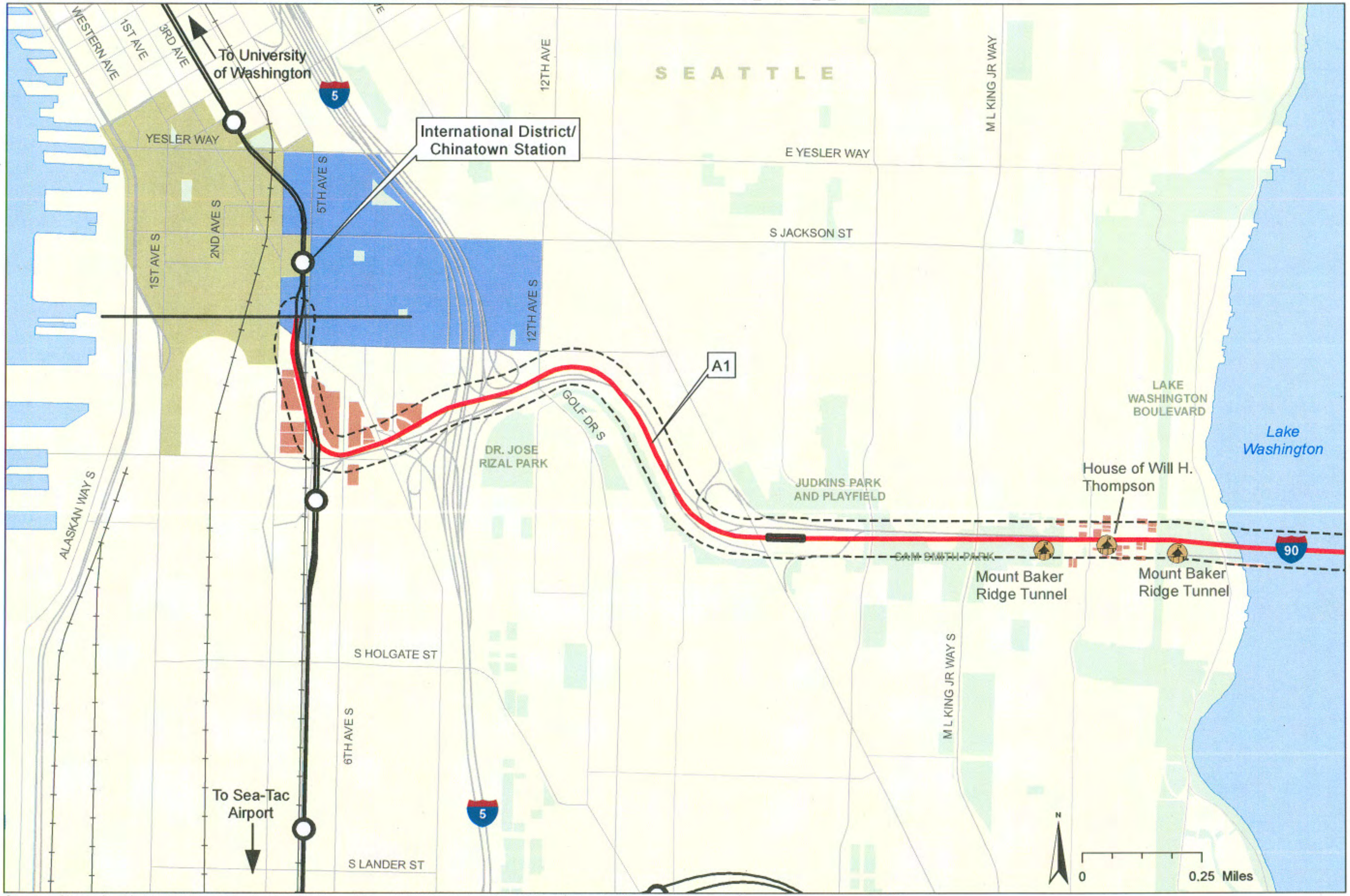
Linda M. Gehrke

for R.F. Krochalis
Regional Administrator

Enclosures: Maps for Segments A, B, C, D, and E

CC: Mathew Sterner, DAHP
James Irish & Steve Kennedy, ST
Cecile Hansen, Duwamish Tribe
Leonard Forsman, Suquamish Tribe
John Daniels, Jr., Muckleshoot Indian Tribe
Lavina Washines, Yakama Tribe
Bill T. Sweet, Snoqualmie Tribe
Stanley Jones, Tulalip Tribe

File Path: \\Bianca\Proj\SoundTransit\341526\GIS\MapDocuments\2007_Setup\ExistingConditions\CulturalResources\Section106_Segment_A_Seattle.mxd, Date: April 03, 2007


WESTERN AVE
1ST AVE
3RD AVE
To University of Washington
5
SEATTLE
12TH AVE
M L KING JR WAY
International District/ Chinatown Station
E YESLER WAY
YESLER WAY
5TH AVE S
S JACKSON ST
2ND AVE S
1ST AVE S
12TH AVE S
A1
LAKE WASHINGTON BOULEVARD
Lake Washington
GOLF DR S
DR. JOSE RIZAL PARK
House of Will H. Thompson
JUDKINS PARK AND PLAYFIELD
ALASKAN WAY S
CAM SMITH PARK
90
Mount Baker Ridge Tunnel
Mount Baker Ridge Tunnel
S HOLGATE ST
M L KING JR WAY S
6TH AVE S
To Sea-Tac Airport
5
S LANDER ST
N
0
0.25 Miles

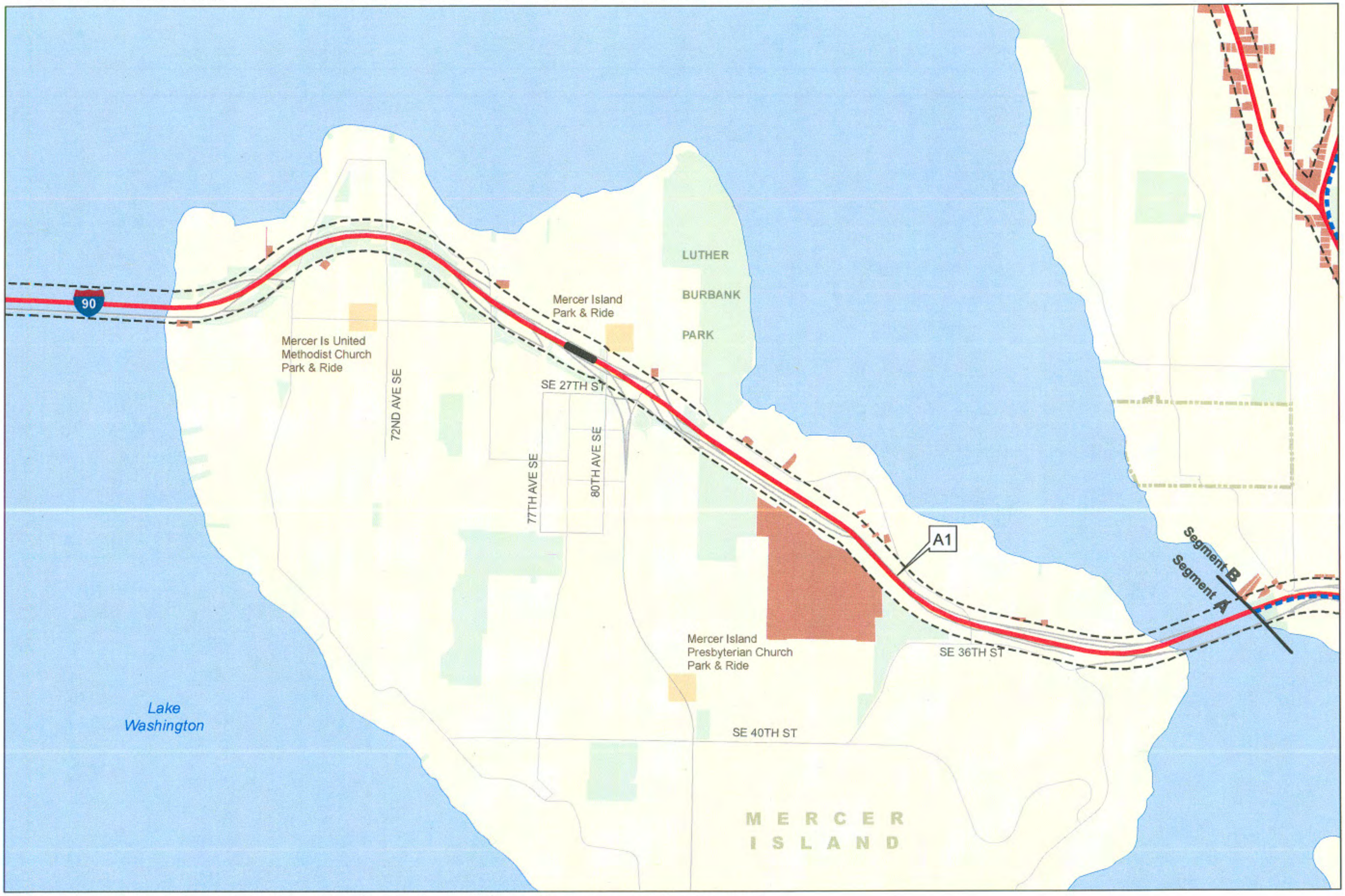
Source: City of Seattle (2002), King County (2006), Sound Transit (2004), University of Washington (2006), and Historical Research Associates (2007).

●	Documented Historic Site	⌗	Area of Potential Effect	─○─	Central Link Alignment and Station
🟥	Property with Structure 50 Years and Older by 2016	▬ ▬	Route In Tunnel	▭	Proposed Station
🟦	International District	•••••	Route in Retained-Cut	▨	City Limit
🟩	Pioneer Square District	━	Route At Grade		
		▪▪▪▪	Elevated Route		

Segment A - Seattle
SECTION 106 - HISTORIC
PROPERTY Within 200 ft
Sound Transit East Link Project

DRAFT- For Internal Discussion Only; Not Reviewed or Approved by or on behalf of any Party.

File Path: \\Bianca\Proj\SoundTransit\341526\GIS\MapDocuments\2007_Setup\ExistingConditions\CulturalResources\Section106_Segment_A_MercerIsland.mxd, Date: March 29, 2007



90
LUTHER
BURBANK
PARK
Mercer Island Park & Ride
Mercer Is United Methodist Church Park & Ride
72ND AVE SE
SE 27TH ST
77TH AVE SE
80TH AVE SE
A1
Segment B
Segment A
Mercer Island Presbyterian Church Park & Ride
SE 36TH ST
SE 40TH ST
Lake Washington
MERCER ISLAND

Source: King County (2006), Sound Transit (2004), University of Washington (2006), and Historical Research Associates (2007).

- 🟥 Property with Structure 50 Years and Older by 2016
- ▭ Area of Potential Effect
- ▬ Proposed Station
- ▭ City Limit
- ▬ ▬ Route In Tunnel
- •••• Route in Retained-Cut
- ▬ Route At Grade
- ▪▪▪▪ Elevated Route

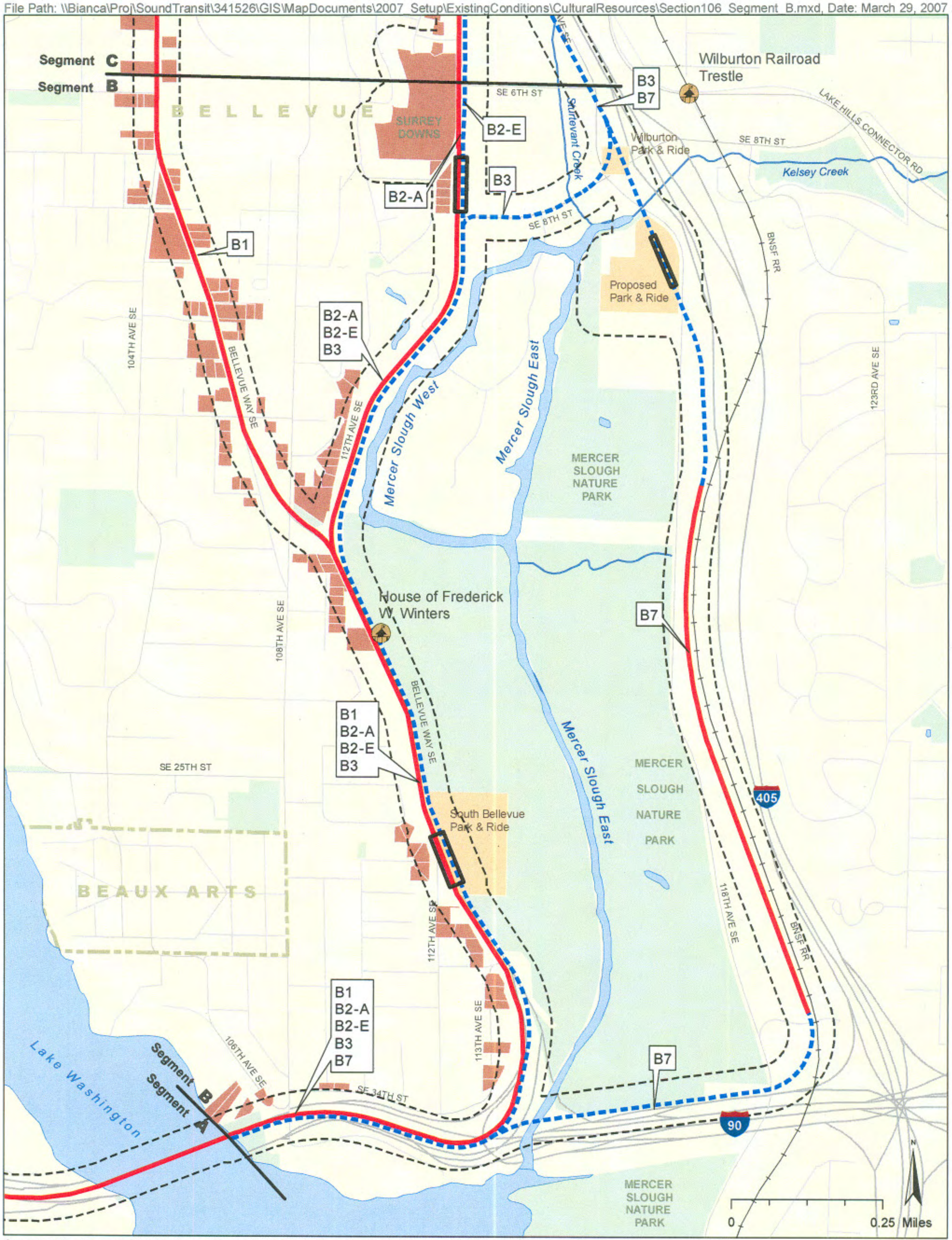
N

0 0.25 0.5 Miles

Segment A - Mercer Island
SECTION 106 - HISTORIC
PROPERTY Within 200 ft
Sound Transit East Link Project

DRAFT- For Internal Discussion Only; Not Reviewed or Approved by or on behalf of any Party.

File Path: \\Bianca\Proj\SoundTransit\341526\GIS\MapDocuments\2007_Setup\ExistingConditions\CulturalResources\Section106_Segment_B.mxd, Date: March 29, 2007


Segment C
Segment B
BELLEVUE
SURREY DOWNS
SE 6TH ST
B3
B7
Wilburton Railroad Trestle
LAKE HILLS CONNECTOR RD
B2-E
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
Kelsey Creek
B3
B2-A
SE 8TH ST
B1
BNSF RR
Proposed Park & Ride
B2-A
B2-E
B3
104TH AVE SE
BELLEVUE WAY SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
123RD AVE SE
House of Frederick W. Winters
B7
108TH AVE SE
B1
B2-A
B2-E
B3
BELLEVUE WAY SE
SE 25TH ST
Mercer Slough East
MERCER SLOUGH NATURE PARK
405
South Bellevue Park & Ride
BEAUX ARTS
118TH AVE SE
BNSF RR
112TH AVE SE
113TH AVE SE
B1
B2-A
B2-E
B3
B7
Lake Washington
106TH AVE SE
Segment B
Segment A
SE 34TH ST
B7
90
MERCER SLOUGH NATURE PARK
0
0.25 Miles
N

Source: King County (2006), Sound Transit (2004), University of Washington (2006), and Historical Research Associates (2007).

Documented Historic Site

▬ Property with Structure 50 Years and Older by 2016

Area of Potential Effect

Route In Tunnel

●●●● Route in Retained-Cut

Route At Grade

Elevated Route

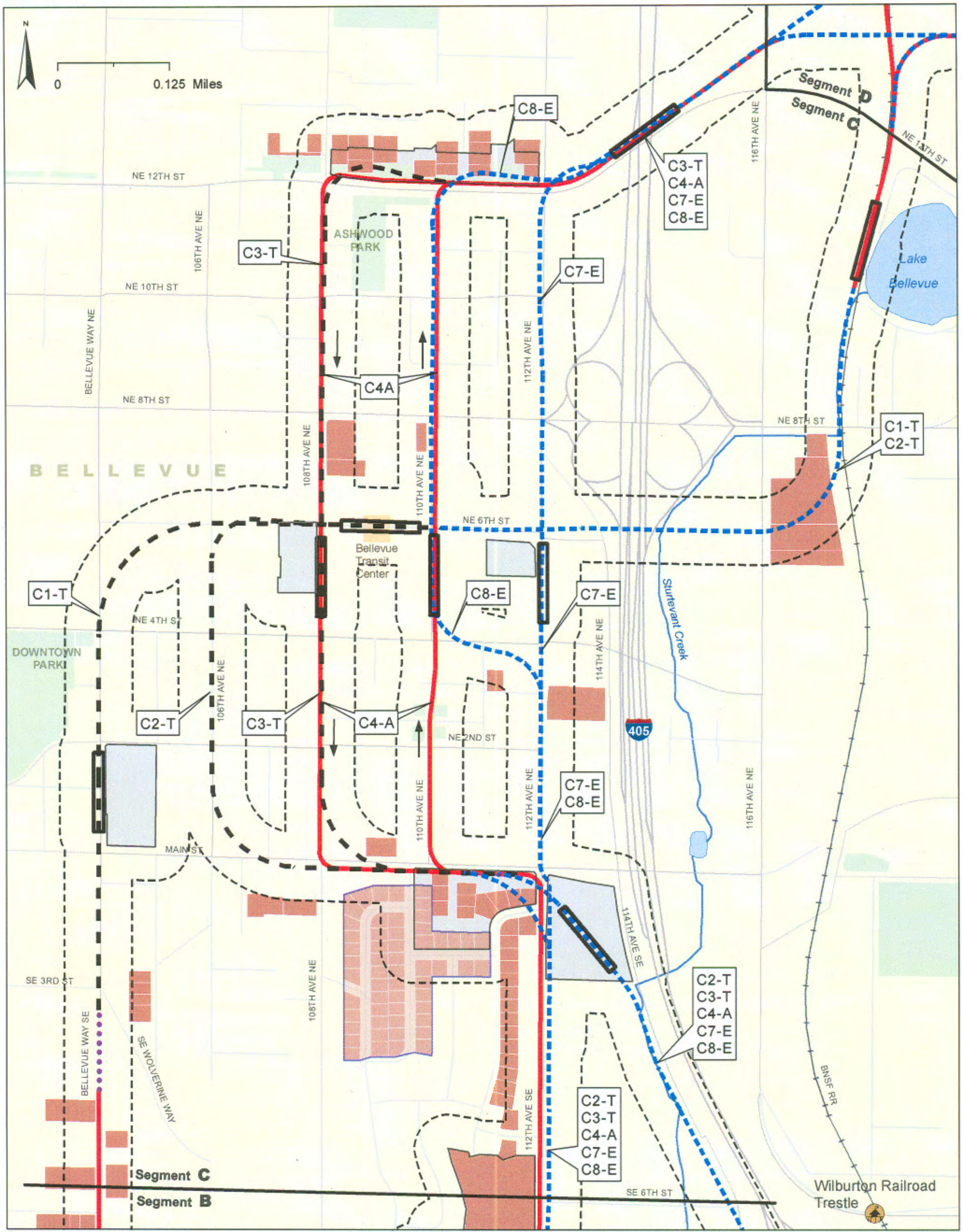
Proposed Station

City Limit

Segment B
SECTION 106 - HISTORIC PROPERTY Within 200 ft
Sound Transit East Link Project

DRAFT- For Internal Discussion Only; Not Reviewed or Approved by or on behalf of any Party.

Date: March 29, 2007 File Path: \\Bianca\Proj\SoundTransit\341526\GIS\MapDocuments\2007_Setup\Section106_Segment_C.mxd


N
0
0.125 Miles
C8-E
C3-T
C4-A
C7-E
C8-E
Segment D
Segment C
NE 12TH ST
NE 12TH ST
116TH AVE NE
106TH AVE NE
ASHWOOD PARK
C3-T
C7-E
Lake Bellevue
NE 10TH ST
BELLEVUE WAY NE
112TH AVE NE
C4A
NE 8TH ST
NE 8TH ST
C1-T
C2-T
108TH AVE NE
110TH AVE NE
B E L L E V U E
NE 6TH ST
Bellevue Transit Center
C1-T
C8-E
C7-E
Sturtevant Creek
NE 4TH ST
114TH AVE NE
DOWNTOWN PARK
405
C2-T
106TH AVE NE
C3-T
C4-A
NE 2ND ST
110TH AVE NE
112TH AVE NE
116TH AVE NE
C7-E
C8-E
MAIN ST
114TH AVE SE
SE 3RD ST
108TH AVE NE
C2-T
C3-T
C4-A
C7-E
C8-E
BELLEVUE WAY SE
SE WOLVERINE WAY
BNSF RR
112TH AVE SE
C2-T
C3-T
C4-A
C7-E
C8-E
Segment C
Segment B
SE 6TH ST
Wilburton Railroad Trestle

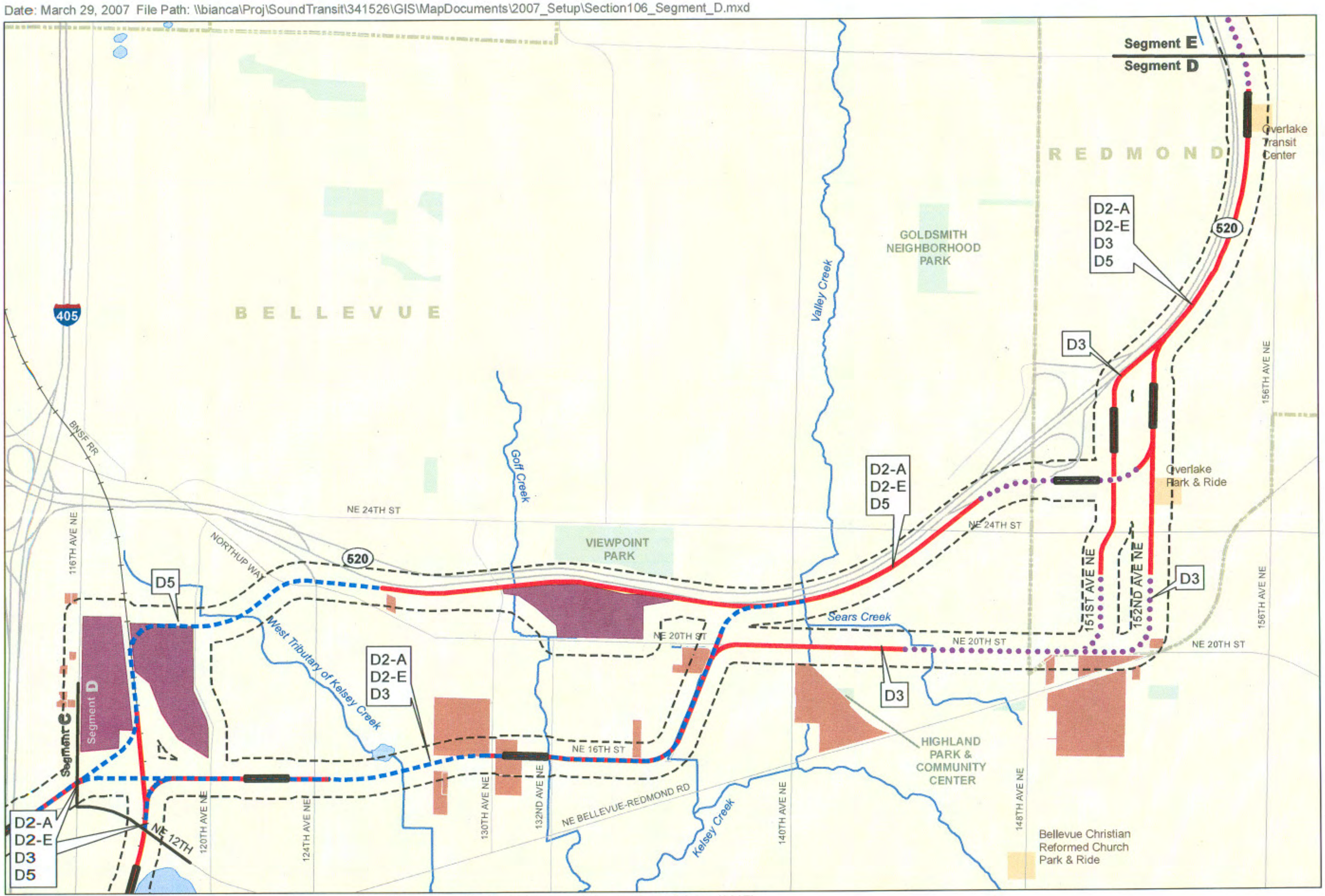
Source: King County (2006), Sound Transit (2004), University of Washington (2006), and Historical Research Associates (2007).

●	Documented Historic Site	⌐⌐⌐	Area of Potential Effect	▭	Proposed Station
🟥	Property with Structure 50 Years and Older by 2016	▬ ▬	Route In Tunnel	▭	Tunnel Staging Area
▨	Potential Surrey Downs Historic District	••••	Route in Retained-Cut	▬	City Limit
		▬	Route At Grade		
		----	Elevated Route		

Segment C
SECTION 106 - HISTORIC PROPERTY Within 200 ft
Sound Transit East Link Project

DRAFT- For Internal Discussion Only; Not Reviewed or Approved by or on behalf of any Party.

Date: March 29, 2007 File Path: \\bianca\Proj\SoundTransit\341526\GIS\MapDocuments\2007_Setup\Section106_Segment_D.mxd


Segment E
Segment D
Overlake Transit Center
REDMOND
D2-A
D2-E
D3
D5
520
GOLDSMITH NEIGHBORHOOD PARK
BELLEVUE
405
D3
Valley Creek
Goff Creek
BNSF RR
Overlake Park & Ride
D2-A
D2-E
D5
NE 24TH ST
156TH AVE NE
NE 24TH ST
NORTHUP WAY
520
VIEWPOINT PARK
151ST AVE NE
152ND AVE NE
D3
116TH AVE NE
D5
Sears Creek
156TH AVE NE
NE 20TH ST
NE 20TH ST
NE 20TH ST
West Tributary of Kelsey Creek
D2-A
D2-E
D3
D3
Segment D
Segment C
NE 16TH ST
HIGHLAND PARK & COMMUNITY CENTER
NE BELLEVUE-REDMOND RD
Kelsey Creek
D2-A
D2-E
D3
D5
NE 12TH
120TH AVE NE
124TH AVE NE
130TH AVE NE
132ND AVE NE
140TH AVE NE
148TH AVE NE
Bellevue Christian Reformed Church Park & Ride

Source: King County (2006), Sound Transit (2004), University of Washington (2006), and Historical Research Associates (2007).

🟫	Property with Structure 50 Years and Older by 2016
⬚	Area of Potential Effect
🟪	Maintenance Facility
▭	Proposed Station
▨	City Limit
▬ ▬	Route In Tunnel
●●●●●	Route in Retained-Cut
🟥	Route At Grade
▪▪▪▪	Elevated Route

N

0 0.25 0.5 Miles

Segment D
SECTION 106 - HISTORIC
PROPERTY Within 200 ft
Sound Transit East Link Project

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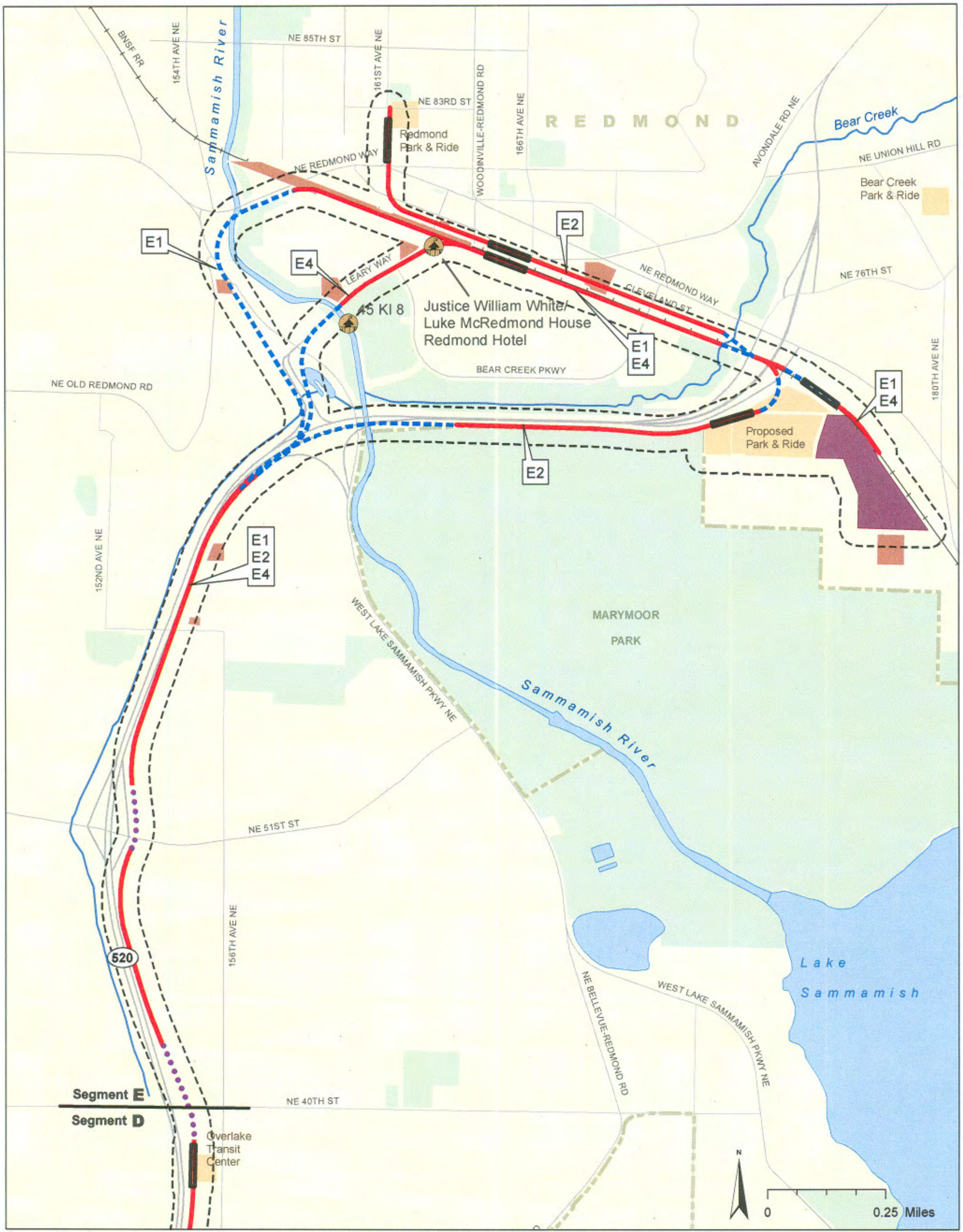
Date: March 29, 2007 File Path: \\Bianca\Proj\SoundTransit\341526\GIS\MapDocuments\2007_Setup\Section106_Segment_E.mxd


BNSF RR
154TH AVE NE
Sammamish River
NE 85TH ST
161ST AVE NE
NE 83RD ST
WOODINVILLE-REDMOND RD
166TH AVE NE
REDMOND
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
Bear Creek Park & Ride
Redmond Park & Ride
NE REDMOND WAY
E1
E4
LEARY WAY
E2
NE REDMOND WAY
CLEVELAND ST
NE 76TH ST
45 KI 8
Justice William White/ Luke McRedmond House Redmond Hotel
E1
E4
BEAR CREEK PKWY
180TH AVE NE
E1
E4
NE OLD REDMOND RD
Proposed Park & Ride
E2
152ND AVE NE
E1
E2
E4
MARYMOOR PARK
WEST LAKE SAMMAMISH PKWY NE
Sammamish River
NE 51ST ST
156TH AVE NE
520
Lake Sammamish
NE BELLEVUE-REDMOND RD
WEST LAKE SAMMAMISH PKWY NE
Segment E
Segment D
NE 40TH ST
Overlake Transit Center
N
0
0.25 Miles

Source: King County (2006), Sound Transit (2004), University of Washington (2006), and Historical Research Associates (2007).

● Documented Historic Site	▬ ▬ Route In Tunnel	▭ Proposed Station
▨ Property with Structure 50 Years and Older by 2016	•••• Route in Retained-Cut	▨ Maintenance Facility
┅ Area of Potential Effect	▬ Route At Grade	┅ City Limit
	▪▪▪▪ Elevated Route	

Segment E
SECTION 106 - HISTORIC PROPERTY Within 200 ft
Sound Transit East Link Project

DRAFT- For Internal Discussion Only; Not Reviewed or Approved by or on behalf of any Party.

1889

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

July 13, 2007

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: Archaeology - APE Concur

Dear Mr. Krochalis:

We have reviewed the materials forwarded to our office for the East Link project. Thank you for your description of the area of potential effect (APE) for the project. We concur with the definition of the APE. We look forward to the results of your cultural resources survey efforts, your consultation with the concerned tribes, and receiving the survey report. We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4) and the survey report when it is available.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Please note that DAHP has developed a set of cultural resource reporting guidelines. You can obtain a copy of these guidelines from our Web site. Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Matthew Sterner, M.A., RPA
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov

JUL 16 2007 AM 9:30

U.S. Department
of Transportation
Federal Transit
Administration

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

July 18, 2007

Dr. Allyson Brooks
State Historic Preservation Officer
Office of Archaeology & Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Log: 090806-11-FTA
Property: Sound Transit East Link Project, Seattle to Bellevue to Redmond
Re: Eligibility Determinations

Dear Dr. Brooks:

The Federal Transit Administration (FTA) is forwarding to you the enclosed information on properties located within the area of potential effects (APE) for the East Link Light Rail Project sponsored by Sound Transit. There are three packets of information:

1. Section 106 Historic Forms for Properties within the East Link APE Recommended as Eligible for the National Register. Forms are provided for 10 properties.

2. Surrey Downs. Properties within the Surrey Downs subdivision in Bellevue, Washington are treated separately. The memorandum from Ann Gillespie, Historical Research Associates, Inc., dated May 22, 2007, discusses the subdivision and provides inventories for houses that appear to be National Register eligible as contributing resources to a potential historic district within Surrey Downs. Forms are provided for 17 properties.

3. Section 106 Historic Forms for Properties within the East Link APE Recommended as Non-Eligible for the National Register. Forms are provided for a large number of properties and are grouped by project segment.

FTA requests your concurrence on the enclosed eligibility determinations. If you have any questions, please contact John Witmer at 206-220-7964.

Sincerely,

R.F. Krochalis
Regional Administrator

Enclosures (7)

CC: Mathew Sterner, DAHP
James Irish & Steve Kennedy, ST

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STATE OF WASHINGTON
DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION
1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
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(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

November 16, 2007

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: Determined Eligible

Dear Mr. Krochalis:

Thank you for contacting our office. I have reviewed the materials you provided to our office which have been prepared for Sound Transit by HRA. The report included 302 Historic Property Inventory Forms. After careful evaluation, the following properties/resources have been determined ELIGIBLE for the National Register of Historic Places. Note that this list differs slightly from the resources which were determined eligible by Sound Transit's consultant.

ELIGIBLE:
Pilgrim Lutheran Church - 10420 SE 11th St., Bellevue (Criteria C)
Winters, Frederick, House – 2102 Bellevue Way SE, Bellevue (Already Listed on NRHP)
Bellevue Fire Station – 14822 NE Bellevue-Redmond Rd., Bellevue (Criteria A, C)
Bill Brown Building – 7824 Leary Way NE, Redmond (Criteria B)
Justice White House/Hotel Redmond – Leary Way (Formally Determined Eligible by
Keeper of NR, but not listed due to owner objection. not on State Register.
W.H. Thompson House – 3119 S. Day St., Seattle (Listed on NRHP)
Immigration & Assay Building – 851 Airport Way S., Seattle (Listed on NRHP)
Surrey Down Neighborhood – Bellevue (Criteria A & C, contributing properties to a potential historic district, exact boundaries of which have not been defined)

88 110th Ave SE
106 110th Ave SE
114 110th Ave SE
122 110th Ave SE
10915 SE 1st St.
115 110th Ave SE
121 110th Ave SE
125 110th Ave SE
214 110th Ave SE
203 110th Pl SE
11022 SE 2nd St.
11039 SE 2nd St.
10904 SE 1st St.
128th 109th Ave SE
122 109th Ave SE
114 109th Ave SE
103 109th Ave SE

The following resources are found to be Not Eligible, despite the consultant's recommendations. The below properties are not yet 50 years old and the information that was provided on the Historic Property Inventory Forms does not justify special criterion consideration G for exceptional significance.

NOT ELIGIBLE: (although identified by consultant as Eligible)
Haida House – Sammamish Parkway
Highland Covenant Church – 15022 NE Bellevue-Redmond Rd.
First Baptist Church – 1100 Bellevue Way

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800.

Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Michael Houser
State Architectural Historian
(360) 586-3076
Michael.Houser@dahp.wa.gov

CC: John Witmer, FTA
Steve Kennedy, Sound Transit

City of Redmond
WASHINGTON

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November 19, 2007

James Irish, Environmental Manager
401 S. Jackson Street
Seattle, WA 98104-2826

SUBJECT: East Link Historic Property Inventory

Dear Mr. Irish:

I have had an opportunity to review the historic inventory forms that were prepared for the DEIS. I would concur with the assessment on these properties. You are correct in noting three properties that have likelihood to meet National Register eligibility, the Justice White house, the Bill Brown building, and the Haida house. I would also like to call out that one property, the Redmond Trading Company, is on a local City of Redmond register. This structure, however, has had some extensive front façade modifications which would preclude it from National Register nomination.

The City of Redmond has a relatively complete survey and inventory and no additional historic properties lie in the proposed study corridor.

I would also note that Marymoor Park has known cultural resources. The extensive amount of disturbance that has already occurred along the proposed alignments as it enters the valley north of the Park would lower the expectation of that occurrence but the City of Redmond would like you to note the possibility in the EIS.

It appears that the review has been thorough and the City of Redmond would not expect any additional properties to be addressed in an EIS for this project.

Sincerely,

Dianna M Broadie

DIANNA BROADIE, Senior Planner
Dept. of Planning and Community Development

Cc. Steve Kennedy, Sound Transit
Terry Marpert, City of Redmond

M:\DBROADIE\Sound Transit reply.doc

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SNOQUALMIE TRIBE

8130 Railroad Ave. Ste. 103
PO Box 969
Snoqualmie, WA 98065
Phone: 425-888-6551
Fax: 425-888-6727
E-Mail: Snoqualmie1855@snoqualmienation.com

November 19, 2007

James Irish
East Link Environmental Manager
Link Light Rail
Sound Transit
401 S. Jackson Street
Seattle, WA 98104

Re: Cultural Areas in the Project Area

Dear Mr. Irish,

I am writing in response to an e-mail that Lauren Swift sent on August 29, 2007 (yes, we really are that late!) asking us whether any Snoqualmie Tribal elders informed us of any important cultural areas within the proposed project area for the Link Light Rail. At this time, there are no specific sites that we wish to identify at this time. The entire project is being planned within important traditional areas of the Tribe and we do not feel that it would be productive to highlight just one or two areas of concern. I hope that makes sense to you.

One question we have is more of a policy question, but one we would like answered nonetheless. The Tribe's main interest in regards to cultural resources is to ensure that all of the Tribe's cultural heritage is maintained and protected to the greatest extent possible. One way of making that happen is to construct projects such as the Link Light Rail in areas which have already experienced a significant amount of ground disturbance. In that vein, we are wondering whether Sound Transit is looking at the Burlington Northern Eastside Rail Corridor as a future home to light rail on the east side. Based on reports we have seen in the news media, it appears as if the Port of Seattle and King County intend to purchase this rail corridor in order to convert it into a recreational trail. It is hard for us to comprehend why they would want to remove an existing rail corridor, when that is exactly what you are trying to create. The amount of ground disturbance, and in turn the risk to cultural resources, would be much greater under either of the proposed alternatives that you are evaluating, when compared to utilizing an existing rail corridor. That is in addition to all other concerns regarding congestion on the east side. I would really appreciate if you could inform us of Sound Transit's position in regards to the Burlington Northern rail corridor. This is an issue of great importance to the Snoqualmie Tribal membership. I apologize for having taken so long to get back to you. If you have any questions, please do not hesitate to contact me at (425) 888-6551 ext. 112.

Sincerely,

Andrea K. Rodgers

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

January 9, 2008

Dr. Allyson Brooks
State Historic Preservation Officer
Office of Archaeology & Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Log: 090806-11-FTA
Property: Sound Transit East Link Project, Seattle to Bellevue to Redmond
Re: Additional Eligibility Determinations

Dear Dr. Brooks:

The Federal Transit Administration (FTA) is forwarding to you 75 additional historic property inventory forms with eligibility determinations for properties located within the area of potential effects (APE) for the East Link Light Rail Project. Also included is a CD of the amended database files in ACCESS format.

This is the second package of East Link property forms FTA has sent to the Department of Archaeology and Historic Preservation (DAHP) for determinations of eligibility. DAHP responded to the first package in a letter dated November 16, 2007. This second package contains the following forms listed by jurisdiction, with the reason for the additional forms noted below:

1) Seattle (4 additional forms): During its review of the first set of inventory forms submitted in July, 2007, DAHP requested additional forms be prepared for existing National Register of Historic Places (NRHP) sites in the study area (12th Avenue Bridge; Mt Baker Ridge tunnel; Publix Hotel). In addition, a quality control review found another property within the APE that needed to be included (Ming's Asian Gallery at 519 6th Avenue S.).

2) Mercer Island (2 additional forms): After the first submittal to DAHP in July 2007, additional quality control was conducted on the forms submitted and compared against the structures age database. As a result, two additional properties were identified within the APE that met the age criteria and forms were prepared for these properties.

3) Bellevue (68 additional forms): Additional forms have been prepared for properties in Bellevue. First, Sound Transit added a series of alternative tunnel connections via Surrey

Downs Park north into downtown Bellevue. The tunnel alternatives in Bellevue include a 200-foot wide swath (100 feet on either side of the tunnel alternatives) for residences above the tunnel to account for potential ground-borne noise impacts, vibration, or soil settlement to these structures. This resulted in 50 additional residential properties surveyed in the Surrey Downs neighborhood. As discussed with Matt Sterner of DAHP, this 200-foot wide APE for the underground tunnel alternatives is smaller than the 400-foot wide APE (200 feet on either side of the alignment centerline) for the above ground (at-grade and elevated) alignments. The larger APE for above ground alignments is intended to cover visual impacts on potentially historic properties which would not occur for the tunnel alternatives. The 200-foot wide APE for the tunnel alternatives is considered large enough to cover any potential noise, vibration, and settlement impacts on above ground properties.

Additionally, a quality control review found additional sites within the existing APE that met the age criteria; thus forms were prepared for these properties.

4) Redmond (1 additional form): A quality control review was also conducted within the City of Redmond and, as a result, one additional property was identified within the APE that met the age criteria; thus a form was prepared for that property.

Please note that the matrix summary table attached (East Link: Historic Buildings and Structures, 50 years and older, by jurisdiction) with this submittal lists all of the properties for which historic property forms have been prepared. The 75 properties in this second submittal are highlighted in the table. Also included in the attached package are detailed maps showing the location of all properties within the APE for which forms were prepared (both the first and second package submittals). These detailed maps were not available at the time of the first submittal.

FTA requests your concurrence on the enclosed eligibility determinations. If you have any questions, please contact John Witmer at 206-220-7964.

Sincerely,

R.F. Krochalis
Regional Administrator

Enclosures

CC: Mathew Sterner, DAHP
Michael Houser, DAHP
James Irish & Steve Kennedy, ST

CITY OF MERCER ISLAND, WASHINGTON
9611 SE 36th Street • Mercer Island, WA 98040-3732
(206) 275-7605 • (206) 275-7726 fax
www.mercergov.org

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January 22, 2008

Steve Kennedy
Sound Transit
401 S. Jackson St.
Seattle, WA 98104-2826

Subject: East Link Historic Property Inventory

Dear Mr. Kennedy:

I am writing regarding Sound Transit's request for the City to review Sound Transit's historic inventory forms for buildings within the East Link Area of Potential Effect (APE) on Mercer Island. I have reviewed the forms which identify properties located within 200 feet of the East Link project alignment and will be 50 years or older by 2016.

None of the properties identified in the forms are currently designated by the City as "historical" pursuant to Mercer Island City Code Chapter 16.01 and I am not aware of information associated with any of the properties that would make them eligible for consideration of historical designation by the City. The only properties currently designated by the City as historical are:

- Luther Burbank Administrative Building located at Luther Burbank Park
- Veterans of Foreign Wars Hall located at 1836 72nd Ave. SE.

I can be reached at (206) 275-7722 or patrick.yamashita@MercerGov.org if you have any questions.

Sincerely,

Patrick Yamashita
City Engineer

Cc: Nancy Fairchild, Transportation Planner

S:\DSG\Staff_Files\PYamashita\Transportation\Sound Transit East LInk Historic Prop Inquiry.doc

STATE OF WASHINGTON
DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION
1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
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February 20, 2008

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond – additional documentation
Re: Determination of Eligibility

Dear Mr. Krochalis:

Thank you for contacting our office. I have reviewed the materials you provided to our office which have been prepared for Sound Transit by HRA. The report included 75 additional Historic Property Inventory Forms for the Sound Transit East Link Project. After careful evaluation, the following properties/resources have been determined ELIGIBLE for the National Register of Historic Places. Note that this list differs slightly from the resources which were determined eligible by Sound Transit's consultant.

ELIGIBLE:
12th Avenue South Bridge – 12th Ave over Dearborn St., Seattle (Already Listed on NRHP)
Mount Baker Ridge Tunnel – Seattle (Already Listed on NRHP)
Publix Hotel – 504 5th Avenue S., Seattle (Already Listed on NRHP as part of District)
Surrey Down Neighborhood – Bellevue (Criteria A & C, contributing properties to a potential historic district, exact boundaries of which have not been defined)

215 110th Ave SE
204 110th PL SE
11005 SE 2nd St.
11014 SE 2nd St.
11030 SE 2nd St.
11040 SE 2nd St.
10910 SE 1st St.
241 109th Ave SE
301 109th Ave SE
313 109th Ave SE
401 109th Ave SE
409 109th Ave SE
412 109th Ave SE
428 109th Ave SE
431 109th Ave SE
436 109th Ave SE
442 109th Ave SE
423 110th Ave SE

The following resources are found to be Not Eligible, despite the consultant's recommendations.

NOT ELIGIBLE: (although identified by consultant as Eligible)
Walsen House - 317 109th Ave SE (low integrity)
Cross House - 420 109th Ave SE (low integrity)

+All other surveyed resources that are not specifically identified in list.

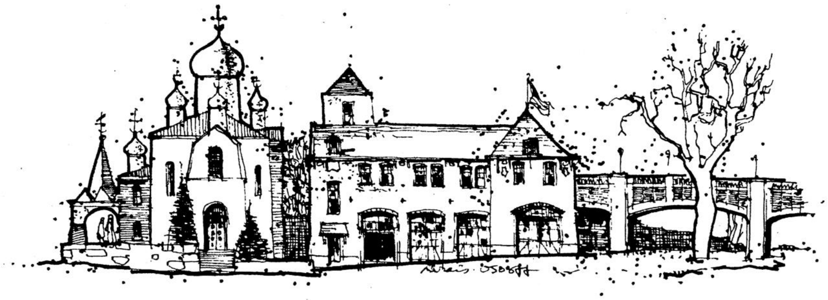
These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800.

Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Michael Houser
State Architectural Historian
(360) 586-3076
Michael.Houser@dahp.wa.gov

CC: John Witmer, FTA
Steve Kennedy, Sound Transit



The City of Seattle

Landmarks Preservation Board

Mailing Address: PO Box 94649 Seattle WA 98124-4649
Street Address: 700 5th Ave Suite 1700

May 27, 2008 LPB 30308

James Irish, Environmental Manager
Sound Transit
401 South Jackson Street
Seattle, WA 98104-2826

SUBJECT: Historic Property Inventory for the City of Seattle, East Link Project EIS

Dear Mr. Irish:

Thank you for the opportunity to review the historic forms for structures located within the East Link area of potential effect (APE) in Seattle.

I understand that the Department of Archaeology and Historic Preservation has also reviewed the historic forms and concurred with Sound Transit's assessment that with the exception of five existing historic structures along the East Link corridor in Seattle, there are no other historic structures that appear to be eligible for the National Register of Historic Places (NRHP). These NRHP-eligible properties are:

1. Publix Hotel
2. Immigration Station and Assay Office
3. 12th Avenue South Bridge
4. Will H. Thompson House
5. Mount Baker Ridge Tunnel and Easter Portals

In addition to the NRHP-eligible properties listed above, based on my review of the forms, I believe that there are two properties located within the APE that may be eligible pursuant to the Seattle's Landmarks Preservation Ordinance (SMC 25.12.350): These properties are located at: 1402 32nd Avenue and 1101 Airport Way South.

Administered by The Historic Preservation Program
The Seattle Department of Neighborhoods
"Printed on Recycled Paper"

Thank you again for the opportunity to review the historic property forms that are associated with the East Link project within Seattle's city limits. If you have any questions, please contact me at karen.gordon@seattle.gov or at 206-684-0381.

Sincerely,

Karen Go

Karen Gordon
City Historic Preservation Officer
Department of Neighborhoods

cc: Steve Kennedy, Sound Transit
Elma Borbe, Sound Transit

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EL 017

Preserving America's Heritage

December 10, 2008

Mr. James Irish
Environmental Manager
Link Light Rail
Central Puget Sound Regional Transit Authority
401 S. Jackson St.
Seattle, WA 98104-2826

RE: *Draft Environmental Impact Statement for East Link light rail project*
Seattle, Mercer Island, Bellevue, and Redmond, Washington

Dear Mr. Irish:

On December 8, 2008, the Advisory Council on Historic Preservation (ACHP) received a copy of the Draft Environmental Impact Statement for the referenced undertaking. Our comments pursuant to the National Environmental Policy Act of 1969 (NEPA) were requested. We have no comments pursuant to NEPA at this time.

While the documentation provided indicates that the proposed undertaking may adversely affect historic properties, we have no record of receiving notification of adverse effects from the Federal Transit Administration (FTA) regarding this undertaking as is required under our regulations, "Protection of Historic Properties" (36 CFR Part 800). Please continue to consult with the Washington State Historic Preservation Office (SHPO) and other consulting parties to complete the requirements of the Section 106 process. If, or when, FTA makes an adverse effect finding in this case, you should provide the required notification and documentation to ACHP in accordance with 36 CFR § 800.6 and § 800.11(e).

If you have any questions or would like to discuss this issue, please contact Blythe Semmer by telephone at (202) 606-8552 or by e-mail at bsemmer@achp.gov.

Sincerely,

Charlene Dwin Vaughn

Charlene Dwin Vaughn, AICP
Assistant Director
Office of Federal Agency Programs
Federal Permitting, Licensing, and Assistance Section

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
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EL 131

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
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(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

January 5, 2009

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: Receipt of DEIS

Dear Mr. Krochalis:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP) and providing a copy of the draft Environmental Impact Statement for the East Link Project, Seattle to Bellevue to Redmond. The document has been reviewed on behalf of the State Historic Preservation Officer under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. My review is based upon documentation contained in your communication.

While your cover letter accompanying the submittal requests a concurrence with a determination of no adverse effect for the project, we cannot concur with your determination at this time. Since a preferred alternative has not yet been selected and final engineering for each stage has not been undertaken to date, it would be premature for DAHP to concur with any determination of effect until more information on the potential effects of the project on cultural resources is presented. Please consult again with us when a preferred alternative has been selected and additional engineering has been completed that more thoroughly documents the impacts that the project may have on resources that have been identified within the projects area of potential effect.

JAN 7 2009 AM 9:57

Thank you for the opportunity to review and comment.

Sincerely,

Matthew Sterner, M.A., RPA
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov

EL 759

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

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February 24, 2009

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: DEIS Review Comments

Dear Mr. Krochalis:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP) and providing a copy of the Draft Environmental Impact Study (DEIS). The document has been reviewed on behalf of the State Historic Preservation Officer under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800.

This letter is a follow up to a previous letter drafted on January 5th. Following my meeting with the Federal Transit Authority (FTA) and Sound Transit (ST) on January 29th, I am in a better position to review and comment on your original cover letter (December 2, 2008) that accompanied the DEIS submittal.

Regarding historic structures that have been identified and reviewed within the area of potential effect (APE) for the project, 45 properties have been concurred upon by DAHP as being eligible for listing in the National Register of Historic Places (NRHP). The remaining 332 properties within the APE have been concurred upon/determined by DAHP as not eligible for listing in the NRHP. Communications to FTA from DAHP regarding these eligibility determinations were sent on November 16, 2007, and February 20th, 2008.

To date, no archaeological resources have been identified within the APE.

Comments presented in this letter are based on my review of the Historic and Archaeological Resources Technical Report (Appendix H-4 of the DEIS), not on the DEIS itself. I will presume that modifications made to the discipline report will find their way into the DEIS.

Below are some specific comments regarding built environment issues that I have identified in the DEIS, in consultation with Russell Holter, Compliance Reviewer, and Michael Houser, State Architectural Historian:

- The Endresen Residence and Romaine Electric building are resources that are identified in Table 7-3 as Seattle Landmark-eligible properties within Segment A of the proposed alignment. I understand from Michael Houser that these properties were not among the properties considered eligible for listing in the NRHP. Is some elevated status being provided to these properties by including them in Table 7-3? Since these properties 'may be' eligible for City Landmark status (page 7-7), should there be some discussion of effects to them in Section 8.0?
- The discussion of cultural resources within Segment A does not include the NRHP-eligible I-90 (Lacey V. Murrow Memorial) bridge. Please include a discussion of this resource and proposed effects as a result of the project.
- We are withholding comment regarding potential effects, both during construction and operation, that may occur to the Immigrant Station and Assay Office (INS Building) until more detailed construction design/engineering plans are forwarded. The proximity of the proposed alignment to the structure appears to be too close to discount any effect at this time. If engineering documents are presented at a later date that can substantiate the 'no effect' determination, we will revisit your recommendation.
- Alignment alternatives within Segment B, as presented in the DEIS, would not adversely affect the Frederick Winters House. However, any modification of the alignments, as proposed, would warrant a reassessment of the effect determination.
- Page B-3 of the report states that, "construction of the underground stormwater detention vault at the northeast corner of the Pilgrim Lutheran Church parking lot would have temporary noise effects on the church, but these effects are not considered adverse." Any "take" of property, in this case the northeast corner of the Pilgrim Lutheran Church parking lot, that is listed in the NRHP constitutes an adverse effect to that property. This would also trigger a 4(f) evaluation.
- Alignment preferences within Segment C would favor those that avoided any property acquisition within the Surrey Down Neighborhood. Having been determined NRHP-eligible as a district, property acquisition within this area is problematic and another potential 4(f) issue.
- Within Segment D, the discussion is unclear exactly how Alternative D3 would affect the former Bellevue Fire Station, a NRHP-eligible property. The text suggests that there will be a property take but that the "building itself is outside the APE." Any take of a NRHP-eligible property suggests an adverse effect to that property and would likely trigger a 4(f) evaluation.
- Within Segment E, the discussion focuses on the potential effects of Alternative E4 on the NRHP-eligible Justice William White House. Conceptual design suggests that this alignment would have an adverse effect on that property. However, we would also question the effect of Alternative E2 on the White property, as it appears (in Exhibit B-12) to pass just as close to the property as Alternative E4. We would require additional review of construction design/engineering drawings before making a concurrence on effect to this property.

In general, the archaeological investigation conducted for the alternatives analysis phase of the project does not appear to have contributed to the identification of a preferred alternative. Because of numerous factors (development, erosion, deposition of modern fill, among others), the archaeological investigation was focused on a few, very small sample areas within the APE. For an undertaking of this magnitude, the archaeological investigation conducted to date does not constitute an adequate sample to identify resources that might exist within the APE. While the consultant did indicate that Segments B, D, and E traverse areas that appear to be archaeologically sensitive, it is unfortunate that insufficient survey was conducted to provide meaningful assistance in the alternatives selection process. Once a preferred alternative is selected, additional review will be required to determine how best to augment this phase of archaeological investigation with additional survey and/or testing to determine overall project effects.

Based on the comments presented above, DAHP does not concur with FTA's determination of no adverse effect (December 2, 2008) for the project. At a minimum, additional review will be required as construction design/engineering plans are refined and as a preferred alternative is selected.

Thank you for the opportunity to review and comment. If you have questions or comments about anything contained in this letter, please don't hesitate to contact me. We look forward to working closely with you and Sound Transit in the continuing evaluation and review of this project.

Sincerely,

Matthew Sterner, M.A., RPA
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

September 29, 2009

Mr. Richard F. Krochalis
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: Notification of Geotechnical Monitoring within the APE

Dear Mr. Krochalis:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP). The maps and materials regarding Sound Transit's intent to conduct geotechnical monitoring with the East Link Project, Seattle to Bellevue to Redmond project area of potential effect have been reviewed on behalf of the State Historic Preservation Officer under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. My review is based upon documentation contained in your communication.

We concur with the use of an archaeological monitor in areas that are considered potentially sensitive for the presence of archaeological resources. Thank you for consulting with us as the project moves forward. We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

Please note that DAHP has developed a set of cultural resource reporting guidelines. Please provide us with a copy of the archaeological monitoring report once the geotechnical work is completed. Contact us immediately if any cultural resources are identified during the monitoring process. Thank you for the opportunity to review and comment.

Sincerely,

Matthew Sterner, M.A., RPA
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov

1889

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

November 23, 2009

Ms. Connie Walker Gray
Architectural Historian
WSDOT ESO Mega Projects
401 Second Ave. South, Suite 300
Seattle, Washington 98104

In future correspondence please refer to:
Log: 012109-04-FHWA
Property: SR 520, Evergreen Point (Albert D. Rosellini) Bridge: Urban Partnership Agreement Variable Tolling Project
Re: Determined Eligible / No Adverse Effect

Dear Ms. Walker Gray:

Thank you for contacting our office. I have reviewed the materials you provided to our office regarding the Traffic Management Project. I concur with your professional opinion that the I-90 Bridge from mile post 3.44 to 8.9 is exceptionally significant and eligible to the National Register of Historic Places under Criterion A, C and G. The NR nomination, as prepared, provides a good overall context and justification for the significance of this resource.

I also concur with your assessment on the APE and the assessment that as proposed the project which involves the installation of gantries and signage, will have No Adverse Effect on Historic properties.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800.

Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Michael Houser
State Architectural Historian
(360) 586-3076
michael.houser@dahp.wa.gov

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

June 9, 2010

Matthew Sterner
Transportation Archaeologist
Office of Archaeology and Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Log: 090806-11-FTA
Property: Sound Transit East Link Project, Seattle to Bellevue to Redmond
Re: Additional Eligibility Determinations

Dear Matt:

Pursuant to the National Historic Preservation Act Section 106 and its implementing regulations, the Federal Transit Administration (FTA) is transmitting the enclosed 60 new Historic Property Inventory forms (HPI) for Sound Transit's East Link Project. Please review the forms for eligibility to the National Register of Historic Places (NR). The additional forms enclosed were not included as part of the earlier consultation process for a variety of reasons including inconsistencies in the King County assessor's database and refinements to project alternatives.

These HPI forms have been prepared by Historical Research Associates, Inc. Based on their evaluation and analysis, none of the structures are considered eligible for listing to the NR. The HPI form for Field Site 1256-274 at 69 110th Ave SE is being resubmitted to include a new description, which clarifies that the structure is likely associated with the architects Mithun and Nesland. However, the structure remains a non-contributor to a potential Surrey Downs historic district because of its lack of integrity due to alterations and loss of original setting.

If you have any questions, please contact John Witmer at (206) 220-7964 or Elma Borbe at Sound Transit at (206) 398-5445.

Sincerely,

Linda M. Gehrke

for R. F. Krochalis
Regional Administrator

Enclosures: Historic Property Inventory Forms, CD-ROM

Cc: Elma Borbe, ST

Send to Sound Transit
JW DD,
TU ✓Env't Log
#220
✓scan

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

October 18, 2010

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 101810-25-FTA
Property: Sound Transit East Link – Seattle to Bellevue to Redmond
– 60+5 inventory forms
Re: Determined Eligible

Dear Mr. Krochalis:

Thank you for contacting our office. I have reviewed the 60 new inventory forms and 5 updated forms you provided to our office for the Sound Transit East Link – Seattle to Bellevue to Redmond project.

I do not concur with your consultant that none of the surveyed properties are eligible for the National Register of Historic Places. I have determined that the following resources are ELIGIBLE for the National Register of Historic Places under criteria C as properties that embody the distinguishing characteristics of their type and period of construction, as well as possess high artistic values.

These include:
115 109th Ave SE;
109 109th Ave SE; (Swallwell Residence)
414,424,456 104th Ave NE (Safeway Store); and
88 110th Ave SE. (Kim Residence)

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800.

I look forward to consulting with you further as to any potential effects your projects may have on these eligible resources.

OCT 20 2010 AM10:45

Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Michael Houser
State Architectural Historian
(360) 586-3076
michael.houser@dahp.wa.gov

1889

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

November 23, 2010

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

NOV 30 2010 AM10:31

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: More Information Needed

Dear Mr. Krochalis:

Thank you for contacting our office. I have reviewed the archaeological site forms for 45KI451 and Site 1256-1 (a temporary designation) that you provided for this project. I can concur at this time with your determination that archaeological site 45KI451 is **not eligible** for listing in the National Register of Historic Places (NRHP). However, in order to complete our review we request the following material to be provided to our office:

- I am unable to process archaeological site forms that do not have Smithsonian trinomial designations assigned to them. Please have your consultant contact Ms. Morgan McLemore (360.586.3081) to obtain a trinomial designation and then resubmit the site form for eligibility concurrence.

I would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4) and the survey report when it is available.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Please contact me should you have any specific questions about our request and we look forward to receiving this material.

Please note that DAHP requires that all historic property inventory and archaeological site forms be provided to our office electronically. If you have not registered for a copy of the database, please log onto our website at www.dahp.wa.gov and go to the Survey/Inventory page for more information and a registration form.

Thank you for the opportunity to review and comment. If you have any questions, please feel free to contact me.

Sincerely,

Matthew Sterner, M.A.
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

March 28, 2011

Matthew Sterner
Transportation Archaeologist
Office of Archaeology and Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Log: 090806-11-FTA
Property: Sound Transit East Link Project, Seattle to Bellevue to Redmond
Re: Additional Eligibility Determinations

Dear Matt:

Pursuant to the National Historic Preservation Act Section 106 and its implementing regulations, we are continuing consultation on the above-reference project. We are re-submitting Archaeological Site Form Site 45KI451 for eligibility concurrence. We had originally submitted this site with a temporary name "Site 1256-1." However, you were unable to process it because it did not have the Smithsonian trinomial designations. Please review the site for eligibility to the National Register of Historic Places (NR). This site form has been prepared by Historic Research Associates, Inc. and based on their evaluation and analysis, this site is not considered eligible for listing to the NR. We look forward to your comment on the eligibility determination and to your concurrence that this site is not eligible. If you have any questions, or need additional information, please call John Witmer, FTA Community Planner, at (206) 220-7964 or Elma Borbe, Sound Transit Environmental Planner, at (206) 398-5445.

Sincerely,

Kenneth A

for R. F. Krochalis
Regional Administrator

Cc: John Witmer, FTA
Elma Borbe, Sound Transit

Loeffler, Heidi/SEA

From: Borbe, Elma [elma.borbe@soundtransit.org]
Sent: Friday, June 17, 2011 10:06 AM
To: Ketelsen, Jodi/SEA; Loeffler, Heidi/SEA
Subject: FW: East Link Archeological Resources Technical Report, No Comments From King County Metro Transit

---

From: Kriedt, Gary [mailto:Gary.Kriedt@kingcounty.gov]
Sent: Thursday, May 19, 2011 12:47 PM
To: Borbe, Elma
Cc: John Witmer, FTA
Subject: East Link Archeological Resources Technical Report, No Comments From King County Metro Transit

Hi Elma -- This is to confirm that King County Metro Transit does not have any comments on the East Link Archeological Resources Technical Report (Appendix H4 to the East Link Final EIS), and we do not have any concerns with regard to the Winter House Adverse Effect during the construction phase. As we discussed, there is an error in the listing of King County as the owner of the South Bellevue P&R, parcel number 7000100360 in Appendix C (Stage 1 Survey Tract Table) to Appendix A (Archaeological Survey Plan); the owner is actually WSDOT, although we do not have a copy of the deed. Thank you, and nice talking with you!

***Gary Kriedt**, Senior Environmental Planner*
Metro Transit
201 South Jackson St., MS KSC-TR-0431
Seattle, WA 98104-3856
(206) 684-1166 cell: (206) 818-8647
gary.kriedt@kingcounty.gov

From: John.Witmer@dot.gov [mailto:John.Witmer@dot.gov]
Sent: Friday, April 22, 2011 1:42 PM
To: Kriedt, Gary
Subject: 5/23, Monday -- Comments due - East Link Archeological Resources Technical Report, Need to Review/Comment

Hey Gary. Please see the attached. We mailed the package today. John

John Witmer
FTA Region 10
915 Second Avenue, Suite 3142
Seattle, WA 98174-1002
206-220-7964
http://www.fta.dot.gov/regions/regional_offices_918.html

City of
Bellevue

P.O. Box 90012 • Bellevue, WA • 98009-9012

Via Facsimile and Regular Mail

R.F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue, Suite 3142
Seattle, WA 98174-1002

Dear Mr. Krochalis:

Thank you for the invitation to participate as a consulting party under the Section 106 process for the East Link light rail project. The City of Bellevue is extremely interested in potential impacts to historic resources throughout the community, including the F.W. Winters House, which the City owns and operates. Eastside Heritage Center, our partner in operating historic programming in and around the Winters House, is also potentially impacted if the final East Link light rail alignment causes construction-period or operational impacts to the Winters House.

The City has recorded a series of comments regarding potential historic impacts in previous correspondence to Sound Transit during the East Link Environmental Impact Statement process. For your convenience, although already a part of the record for your consideration, a collection of those comments specific to Winters House in attached to this letter. In summary, the City has expressed concern about:

- potential physical impacts to the structure during construction and the effectiveness of proposed mitigation;
- potential long-term vibration and ground-borne noise impacts during operation;
- impacts for the City and the Eastside Heritage Center associated with the multi-year closure of the facility during construction; and
- permanent impacts to the setting of the house caused by the retained cut and the reconstructed and raised parking lot and access stairs and ramps within the 50 foot boundary around the house established for the National Register of Historic Places and the effectiveness of proposed mitigation.

As you can see from the more detailed comments in the attached, the City does not necessarily agree that all alternatives described in the DEIS and SDEIS, other than B2M, avoid impacts to the Winters House and needs more information to draw such conclusions.

In light of these concerns, the City welcomes the opportunity to participate in the Section 106 process by reiterating these comments and by participating in further discussion of impacts and mitigation through the Memorandum of Agreement (MOA) process. As owner of the Winters House, the City should be actively involved in developing ways to avoid, minimize and mitigate project impacts. We believe such issues can be most effectively addressed during the development of the MOA, rather than through formal comments after a draft MOA is published with the project Final Environmental Impact Statement. In light of the State Historic Preservation Officer's expertise on historic resources and knowledge about this project and the Winters House, we would like to take this opportunity to suggest that a meeting between the agencies, SHPO and the City would be quite beneficial early in the process of outlining the contents of any MOA.

I would also like to take this opportunity to request clarification from the FTA regarding completion of the separate 4(f) analysis of impacts of the East Link light rail project on properties protected by 4(f). The Winters House, both as an historic resource and as a part of the larger Mercer Slough Nature Park is also subject to protection under the separate 4(f) process. A number of other city-owned resources, including Mercer Slough Nature Park, Surrey Downs Park and NE 2nd Place Pocket Parks are also protected under Section 4(f). Until recently, the City was under the impression that it would be asked to formally concur in a *de minimis* determination of impact under Section 4(f) for most of these resources. In order to prepare for that discussion, City and Sound Transit staff were engaged in a more detailed analysis of impacts on 4(f) resources and potential mitigation for those impacts, beyond the level of detail included in the Agency's DEIS and SDEIS, but had reached no conclusions in those discussions, nor had the City concluded that a *de minimis* determination was appropriate for some or any of the resources impacted by East Link light rail.

The City now understands that a *de minimis* concurrence will not be requested, and instead that FTA and Sound Transit are preparing an alternatives analysis for 4(f) resources. The City is requesting clarification of when and how it will be invited to participate in that alternatives analysis. Again, as the affected jurisdiction with authority over these parks resources, we believe that the City's participation early in the process will be of critical importance to both the FTA and Sound Transit. The City has yet to make any final determinations on the relative impacts of the East Link light rail alignment alternatives on its parks resources, and such determinations will be critical to FTA's ultimate conclusion in the 4(f) alternatives analysis. In order to effectively and efficiently conclude the 4(f) process, the City is seeking guidance on how to participate proactively with Sound Transit and FTA in identifying specific parks impacts and mitigations. Thank you in advance for your detailed response to this request for guidance on the 4(f) process. Your response will allow us to ensure that the City can include all stakeholders in assessing impacts and mitigation and providing input to the FTA.

Please feel free to contact me if you have any questions about the City's comments to date or the requests that we have included in this letter.

Sincerely,

CITY OF BELLEVUE
OFFICE OF THE CITY ATTORNEY
Lori M. Riordan, City Attorney

Mary Kate Berens
Deputy City Attorney

Enclosure

Cc: Steve Sarkozy, City Manager
Lori Riordan, City Attorney
Patrick Foran, Director, Parks and Human Services Department
Diane Carlson, Intergovernmental Affairs Manager, City of Bellevue
Bernard Van de Kamp, East Link project manager, City of Bellevue
Steve Sheehy, Senior Legal Counsel, Sound Transit (via electronic mail only)

Historic Resource – Related Comments from City of Bellevue
Attachment to May 23, 2011 Letter to FTA
Section 106 Process

July 20, 2010 letter from Bellevue City Council to Sound Transit Board of Directors

"...B2M light rail right of way runs mere feet from the structure of the F.W. Winters House, Bellevue's only property on the National Historic Register. The light rail alignment runs so close to the house that damage to the house from construction and train vibration will almost certainly damage the house over time and will negatively alter the character and use of this historic structure."

January 10, 2011 East Link SDEIS Comments Letter

"The potential for damage to the Winters House is a significant issue for Bellevue. According to the City's consultant (Greenbush, Final SDEIS Peer Review, 12/29/2010), "Predicted levels of vibration at the winters House during the excavation of the trench are at the threshold for damage to a sensitive structure." The SDEIS identifies "special measures" and monitoring during construction and the City will e seeking additional assurances from Sound Transit prior to construction."

DEIS Comments

Segments B and C contain significant cultural/historical resources for the City of Bellevue. Considering the relatively small number of features in Bellevue that are of significant cultural/historical value, these features are extremely important for preservation and would be extremely difficult to mitigate for.
The visual analysis in Appendix F4.5, Table 2 shows an overall change from high to medium visual quality for Bellevue Way Southeast between the South Bellevue Park and Ride and SE 8th Street, caused by Alternatives B1, B2A, B2E and B3. This impact is described as follows, "The introduction of light rail components would lower the undeveloped, almost rural landscape character of this section of Bellevue Way SE." The Winters House is located within this segment. In other sections of the DEIS that describe impacts to the Winters House, this visual analysis is either minimized or disregarded.

SDEIS Comments

Winters House serves as more than just offices of Eastside Heritage Center. The house includes office space for Bellevue Parks staff, hosts community events and programs as well as the historical archive of the EHC. It is also a key part of the Heritage Loop Trail, offering historical interpretation and facilities for park trail users.
Winters House discussion makes no mention of the need to preserve the number of existing parking spaces.
It is not accurate to claim the existing landscaping "does not in any way reflect the house's original landscape." Beside viewing a limited number of photographs, this statement is not adequately researched. Further, the landscaping today remains similar to the landscape in 1991, when the 50-foot

buffer was proposed and approved. With no significant change since 1991 the reasons for including that area 50-feet around the house in 1991 remain valid today.
Historic and Archeological Resources section does not disclose or analyze impacts of the reconstructed parking lot and associated retaining walls and ramps that fall within the 50' historic boundary of the house.
"The roadway would be the same distance from the house." This is technically accurate but misleading, as Exhibit 3-9 shows the sidewalk moving approximately 5 feet closer to the house due to the new proposed sidewalk.
By not disclosing or analyzing the impacts of the increased paved areas and reconstructed parking lot within the 50-foot area of significance, it is not accurate to claim no impacts to the existing landscape.
"EHC offices would be temporarily relocated" due to closure of Winter House during construction. How would other activities within Winters House be mitigated during closure (City office space, event rentals, trail facilities, EHC/City programs, EHC archive space, etc.)?
If B2M is selected as the preferred alternative, a more refined study of construction vibration at the Winters House should be conducted to ensure the methods for both construction and operation do not put this historic house at risk.
Ground-borne noise impacts have been identified at the Winters House with operation. Analysis concludes that a floating slab would eliminate the impact. Need firm commitment from Sound Transit in FEIS that impact will be mitigated, which appears to mean a commitment to using a floating slab.
"Constructing B2M would not substantially affect park use..." The project would close the majority of park parking, close the Winters House, and limit pedestrian access to the Heritage Loop Trail and trailhead facilities at Winters House and the Blueberry Farm. Per Section 4(f), these actions temporarily interfere with the protected activities and features of the park and historic resource (23 CFR 774.13(d)(3)) and appear to constitute a temporary 4(f) use. With the exception of relocating the Periphery Loop Trail, mitigation is not proposed for other temporary impacts.
The activities of Winters House are not fully described. In addition to housing the Eastside Heritage Center, the house includes office space for Bellevue Parks staff, hosts community events and programs as well as the historical archive of the EHC. It is also a key part of the Heritage Loop Trail, offering historical interpretation and facilities for park trail users. The house should be considered as both a 4(f) protected historic resource and as a 4(f) protected facility within public parkland.
"Bellevue Way SE and the sidewalk would remain the same distance from the house." This is not supported by A-8, which shows the sidewalk approximately 5 feet closer to the house.
Although the home's garage is not used for vehicle storage at the present time, vehicle access to the garage of the house has been maintained since the period of historic significance. The lid will not longer allow vehicle access to the garage. This limitation should be considered in the historic impact analysis.
The reconstructed parking lot serving the Winters House and the Heritage Loop Trail trailhead is not discussed in the 4(f) analysis even though it presents a significant temporary interference to one of the primary parking areas for the park as well as extending within the 50 foot historic designation boundary of the Winters House. This new structure within the park deserves analysis as a potentially a 4(f) temporary use and 4(f) historic impact.
The mitigation measures as described in Table A-5 are not sufficient in scope or detail to judge the appropriateness of de minimis determinations for the Section 4(f) temporary uses and permanent uses of impacted park land or historic resources within Mercer Slough Nature Park or Surrey Downs Park.
The temporary 4(f) use of the Winters House as a historic resource is not adequately analyzed in the SDEIS. As per the FHWA Section 4(f) Policy Paper, in a situation where a resource does not meet all the exemption criteria at 23 CFR 771.135(p)(7), "the temporary occupancy will be considered a use of the 4(f) resource and the appropriate Section 4(f) analysis will be required." (Policy Paper, p. 11, Question

C.). The third exemption criteria states that the project will not interfere with the activities or purpose of the resource on a temporary basis. This would also apply to the use of the Winters House as a Section 4(f) protected recreational facility as well as a protected historic resource.

Washington State Department of Transportation
Paula Hammond
Secretary of Transportation

ESO Mega Projects
999 Third Avenue, Suite 2424
Seattle, WA 98104
206-521-5628/ fax 206-805-2899
TTY: 1-800-833-6388
www.wsdot.wa.gov

June 9, 2011

R.F. Krochalis
Federal Transit Administration, Region X
915 Second Avenue, Suite 3142
Seattle, WA 98174-1002

Subject: East Link Light Rail Project

Dear Mr. Krochalis,

Thank you for the opportunity to review and comment on your Determination of Adverse Effect on Section 106 resources for the East Link Light Rail Project and the invitation to participate as a consulting party under the Section 106 process for this project.

We have no comments on the Determination of Adverse Effect and we accept your invitation to participate as a consulting party.

You may continue to use me as a point of contact during the Section 106 process. If you have any questions, please call me at (206) 805-2892 or email me at paul.krueger@wsdot.wa.gov.

Sincerely,

Paul Krueger

Paul Krueger
Project Environmental Manager

cc: James Irish, Sound Transit
Elma Borbe, Sound Transit
Scott Williams, WSDOT
Kevin Bartoy, WSDOT

JUN 9 2011 PM12:20

City of Redmond
WASHINGTON

June 10, 2011

R. F. Krochalis
U.S. Department of Transportation
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, WA 98174-1002

Subject: City of Redmond Comments to East Link Light Rail Project, Historic and Archaeological Resources Technical Report: Determination of Adverse Effect

Dear Mr. Krochalis;

Thank you for the opportunity to review the Historic and Archeological Resources Technical Report for the East Link Project Final EIS. We apologize for the late response.

During the past three years, the City has worked with King County to formally recognize the City's landmarks. In 2005, King County inventoried and classified historic properties in Redmond's vicinity.

The recommended amendments to Appendix H4 are based on this inventory and other historic resources such as Redmond Historical Society archives. The attached list provides our recommended classification of sites to be reflected on Exhibit C-12. This list includes properties both inside and adjacent to the area of potential affects. For reference and for noting on Exhibit C-12, the attached list also includes locations (without structures) that are of significant historic interest within the indicated area of potential effects: the Redmond Railway Depot, Lampaert's Butcher Shop, and Youngerman's General Store.

We also note the following respective portions of the appendix:

- Exhibit C-12, Redmond Trading Company – shown as 113 Redmond Trading Company is a Redmond (only) Landmark and contains two historic buildings. Per original plats, two structures and an 11-foot wide alley were incorporated into the Trading Company structure.
- Exhibit C-12, Grange Coop/ T&D Feed Mill – shown as 115. It is difficult to tell if Property 115 refers to T&D Feed or the Grange Coop. If T&D Feed, this site was demolished. The map could note this site as a previous location of historic significance.

- Exhibit C-12, Haida House – shown as 118. Haida House Studio is a Redmond Landmark and additional consideration is underway regarding Regional landmark designation.
- Page 7-28, line 3, Haida House – Please note that King County staff also support eligibility for Regional landmark designation.

Thank you for your consideration of our comments. Please contact me at 425-556-2415 or kdietz@redmond.gov with any questions.

Sincerely,

Kimberly Dietz, Senior Planner (Historic Preservation Program)
Dept. of Planning and Community Development, Policy Planning

CC: Terry Marpert, Principal Planner

Landmarks and Historic Properties	Eligible for NRHP	Regional or Local Designation or Eligibility	Address
Bill Brown's Saloon/ Matador	yes	yes	7830 Leary Way
Haida House Studio	yes	yes	7447/7747 159th Place NE
Justice White House	yes	yes	7529 Leary Way
Redmond Trading Company (includes Redmond Meat Market)/ Half Price Books	no	yes	7805 Leary Way
Redmond State Bank/ Brad Best Building	yes	yes	7841 Leary Way; immediately adjacent to the indicated area of potential effects
O.A. Wiley House/ Stone House	yes	yes	16244 Cleveland Street; immediately adjacent to the indicated area of potential effects
Grand Central Hotel (Walther)/ Restaurant	possible	possible	7844 Leary Way; immediately adjacent to the indicated area of potential effects
Location of Redmond Railway Depot		please note as historic site, no structure	immediately south of Bill Brown's Saloon, adjacent to existing rail
Location of Lampaert's Butcher Shop		please note as a historic site, no structure	immediately south of Bill Brown's Saloon, current parking lot of Matador
Location of Youngerman's General Store		please note as a historic site, no structure	immediately south of Bill Brown's Saloon, current parking lot of Matador

U.S. Department
of Transportation
**Federal Transit
Administration**

REGION X
Alaska, Idaho, Oregon,
Washington

915 Second Avenue
Federal Bldg. Suite 3142
Seattle, WA 98174-1002
206-220-7954
206-220-7959 (fax)

April 21, 2011

Allyson Brooks
State Historic Preservation Officer
Department of Archaeology and Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Log: 090806-11-FTA
Property: Sound Transit East Link Project, Seattle to Bellevue to Redmond
Re: Historic and Archaeological Resources Technical Report: Affect Determination
Determination of Adverse Effect

Dear Dr. Brooks:

In accordance with Section 106 of the National Historic Preservation Act, as amended (16 U.S.C 470f), and implementing regulations 36 CFR 800.6(a) (1) and as part of the continuing consultation, the Federal Transit Administration (FTA) submits to you for review and comment our Determination of Adverse Effect on Section 106 resources for the East Link Light Rail Project. This determination is based on the enclosed East Link Historic and Archeological Report and comments received during the public comment period received on the East Link *Supplemental* Draft Environmental Impact Statement (DEIS) of 2010.

The project proponent is the Central Puget Sound Regional Transit Authority (Sound Transit). FTA is participating in this undertaking to extend light rail service approximately 18 miles from downtown Seattle to serve the regional destinations of Mercer Island, Bellevue, Overlake, and Redmond.

In prior correspondence dated August 24, 2006 and July 3, 2007, FTA provided initial notification to you of this federal action and of the proposed Area of Potential Effect (APE). By your letter of July 13, 2007, you concurred with the proposed APE. In addition, in correspondence dated August 24, 2006, the Muckleshoot, Suquamish, Yakama, Snoqualmie, Tulalip, and Duwamish Indian tribes were notified of the project and invited to participate.

Based on the enclosed East Link Historic and Archeological Report, enclosed comments submitted by interested parties with views about historic resources associated with East Link, along with comments received during the public comment periods for the Draft EIS and *Supplemental* Draft

EIS, FTA has determined that the East Link Light Rail Project Preferred Alternative would have an Adverse Effect on Section 106 resources. As a result of the finding of Adverse Effect, FTA will execute a Memorandum of Agreement (MOA) with the State Historic Preservation Officer (SHPO) pursuant to the requirements of Section 106. FTA requests the SHPO's concurrence on this determination. FTA will also provide copies of the Technical Report and adverse effect determination to the consulting Indian tribes and agencies with jurisdiction over the area including: the Federal Highway Administration, the Washington State Department of Transportation, the cities of Bellevue, Mercer Island, Redmond, and Seattle and King County.

If you have any questions, please call John Witmer, Community Planner, at (206) 220-7964.

Sincerely,

Linda M. Gehrke

for R. F. Krochalis
Regional Administrator

Cc: James Irish, Sound Transit
Elma Borbe, Sound Transit

Enclosures: Historic and Archaeological Resources Technical Report
Stakeholder and Public Input on Cultural Resources

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

June 15, 2011

Mr. Richard F. Krochalis
Regional Administrator
Federal Transit Administration
915 Second Avenue
Federal Building, Suite 3142
Seattle, Washington 98174-1002

In future correspondence please refer to:
Log: 090806-11-FTA
Property: East Link Project, Seattle to Bellevue to Redmond
Re: ADVERSE Effect

Dear Mr. Krochalis:

Thank you for contacting the Department of Archaeology and Historic Preservation (DAHP). We have reviewed the final EIS and subsequent adjusted pages (May 2011, based on our telephone conversations) you provided for the Seattle-to-Bellevue-to-Redmond East Link Project for Sound Transit. We concur with your determination that the project, as proposed, will have an Adverse Effect on eligible and/or listed historic properties. We also concur that various resources within the APE (as defined on Table 9-1 in the FEIS) may be impacted dependent on which alternative is chosen by Sound Transit.

We look forward to further consultation and the development of a Memorandum of Agreement (MOA) to address this Adverse Effect and the individual impacts that may or may not occur based on which alternative is chosen.

Thank you for the opportunity to review and comment. If you have any questions, please contact me.

Sincerely,

Michael Houser
State Architectural Historian
(360) 586-3076
michael.houser@dahp.wa.gov

CC: James Irish & Elma Borbe, Sound Transit

APPENDIX F

List of Previous Cultural Resource Reports

TABLE F-1

Previous Cultural Resource Investigations in the Project Vicinity (reports are on file at DAHP, Olympia, Washington.)

Author(s)	Date	Title
Robert Greengo	1964	*Excavations at Marymoor Site*. Prepared by the University of Washington.
Brian G. Holmes	1964	*Sammamish Archaeological Salvage Project: A Final Report on Site Survey Conducted During Summer and Autumn 1963*. Prepared by the University of Washington, for the National Park Service (NPS).
Robert Greengo	1966	*Archaeological Excavations at the Marymoor Site (45KI9) A Report to the National Park Service Region Four Order Invoice Voucher 34-703 and 34-64-554 (Sammamish Flood Control Project)*. Prepared by the University of Washington.
Robert Greengo	1968	*Archaeological Excavations at the Marymoor Site (45KI9) A Report to the National Park Service Region Four Sammamish Flood Control Project*. Prepared by the University of Washington.
Robert Greengo and Robert Houston	1970	*Excavations at the Marymoor Site.* Department of Anthropology, University of Washington, Seattle.
Hal K. Kennedy	1977	*Archaeological Assessment of the King County Sammamish River Trail Project*. Prepared by the University of Washington, for the Department of Planning and Community Development.
David H. Stratton	1977	*Survey of Historical resources: Corridor of Interstate 90 from Junction With Interstate 5 to The Vicinity of the Junction With Interstate 405*. Prepared by Washington State University, for WSDOT.
Robert S. Thomas	1978	*Archaeological Evaluation of Pedestrian Bridge Site on Sammamish River Trail*. Prepared by the University of Washington, for the Department of Planning and Community Development.
Rinita Dalan	1980	*Cultural Resource Reconnaissance Proposed Landmark on the Lake Development, Redmond, Washington*. Prepared by Geo-Recon International, for Landmark Projects Corporation Limited.
Paul E. Buck	1981	*Marymoor Park Interpretive Trail, King County, Washington*. Prepared by the University of Washington, for King County Architecture Division.
Joan M. Robinson	1981	*An Archaeological Reconnaissance of L-6520 SR 202: SR 520 to NE 124th St.* Prepared by AHS, for WSDOT.
Gail Thompson	1981	*Methods and Results of Fugro Northwest's Cultural Resources Survey of the Proposed Commercial Radio Transmitter Facility Site in the Wetlands on the West Bank of Mercer Slough*. Prepared by Fugro Northwest, for Whitacre Engineers, Inc.
Joan M. Robinson	1982	*SR 90: Bellevue Transit Access Study*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1982	*SR 405: Factoria to Northup Way – HOV*. Prepared by AHS, for WSDOT.
Gail Thompson	1982	*Cultural Resources Survey and Testing of the Redmond Town center Project*. Prepared by Ertec Northwest, for John W. Graham and Company.
Joan M. Robinson	1983	*A Preliminary Archaeological Reconnaissance of SR 520: 108th Avenue NE Transit Access Ramp, King County*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1984	*An Archaeological Reconnaissance of SR 202/ SR 920 to East Lake Sammamish Parkway Redmond, King County, Washington (TAD 324)*. Prepared by AHS, for WSDOT
Janine Tillotson	1984	*Cultural Resource Assessment of the West Lake Sammamish Parkway*. Prepared for Jones and Stokes Associates, Inc.
Joan M. Robinson	1985	*An Archaeological Monitoring of SR 202 From SR 920 to East Lake Sammamish Parkway, King County, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1987	*A Cultural Resources Survey of SR 202: SR 522 to 175th Street, King County, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1987	*An Archaeological Survey of the Proposed Sammamish Park Estates Property, King County, Washington*. Prepared by AHS, for Lincoln Property Company, Bellevue, Wash.
Gary C. Wessen	1987	*Cultural Resources Survey for the US Sprint Fiber Optic Cable Project Seattle, Washington to Spokane, Washington*. Prepared by Dames & Moore, for US Spring.
Gary C. Wessen	1987	*Confidential Appendices: Cultural Resources Survey for the US Sprint Fiber Optic Cable Project: Seattle, WA to Spokane, WA*. Prepared by Dames & Moore, for US Sprint.

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Previous Cultural Resource Investigations in the Project Vicinity (reports are on file at DAHP, Olympia, Washington.)

Author(s)	Date	Title
Gary C. Wessen	1987	*US Sprint Fiber Optic Cable Project, Seattle WA to Spokane WA ADDENDUM #1 to the Technical Report*. Prepared by Dames & Moore, for US Sprint.
E. Richard Chesmore	1988	*US Sprint Fiber Optic Cable Project, Seattle, Washington to Spokane, Washington Addendum 3: Cultural Resource Survey of Proposed Regeneration Stations and a Point of Presence Site Between Seattle and Wenatchee*. Prepared for US Sprint, Dames & Moore.
Joan M. Robinson	1988	*A Cultural Resources Survey of SR 520: SR 901 to SR 202, King County, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1990	*An Archaeological Survey of SR 202: Junction 145th Street/ 148th Avenue Northeast King County, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1992	*A Cultural Resource Survey of 132nd Ave/Place NE Project, King County, Washington*. Prepared by AHS, for King County Department of Public Works.
Joan M. Robinson	1992	*A Cultural Resources Survey of SR 202: East Lake Sammamish Parkway to Sahalee Way, King County, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1993	*A Cultural Resources Survey of the 132nd Avenue NE Phase II Project, King County, Washington*. Prepared by AHS, for King County Division of Roads and Engineering.
Joan M. Robinson	1993	*A Cultural Resource Study of the 196th Avenue NE Corridor, King County, Washington*. Prepared by AHS, for King County Division of Roads and Engineering.
Kris H. Wilhelmsen	1993	*A Cultural Resources Inventory of the METRO Lake Hills Project (Jobe Property) Redmond, Washington*. Prepared by HRA Gray & Pape, for Woodward-Clyde Consultants.
Bradley Bowden	1997	*Cultural Resource Assessment Jag Development, King County, Washington*. Prepared by LAAS, for C N A Architecture.
Robin E. Moore	1997	*Letter to Pat Plumb Regarding Cultural Resource Survey of the Proposed Millennium Project Interim Report*. Prepared by LAAS, for David Evans & Associates, Inc.
AHS	1998	*Archaeological Resources SR 202 SR 520 to Sahalee Way NE Improvement Project Redmond Vicinity, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1998	*An Archaeological Resources Report of the Washington State Department of Transportation's SR 202: SR 520 To Sahalee Way NE Improvement Project, Redmond Vicinity, King County, Washington*. Prepared by AHS, for WSDOT.
Joan M. Robinson	1998	*An Historic Resources Report of the Washington State Department of Transportation's SR 202: SR 520 To Sahalee Way NE Improvement Project, Redmond Vicinity, King County, Washington*. Prepared by AHS, for WSDOT.
Leslie K. Norman	1999	*Letter to Barry Gilbert Regarding Archaeological Testing and Monitoring for Phase II Construction at Millennium Corporate Park*. Prepared by NWAA, for Bentall U.S. LLC.
Leslie K. Norman	1999	*Letter to Barry Gilbert Regarding Heritage Resource Monitoring of Construction at the Millennium Corporate Park*. Prepared by NWAA, for Bentall S.W. LLC.
Leslie K. Norman	1999	*Letter to Craig Lewis Regarding Archaeological Testing of the Flood Plain Mitigation Area for the Marymoor Parking Lot Expansion Project*. Prepared by NWAA, for JGM Landscaping Architects.
Leslie K. Norman	1999	*Letter to John Gallagher Regarding Archaeological Monitoring of the Marymoor Park Telephone Cable Trench*. Prepared by NWAA, for King County Park System.
Stephen Emerson	2000	*A Cultural Resources Survey of the Evans Creek Realignment Project Area and Evaluations of Wetland Mitigation Sites and Potentially Significant Historic-Period Properties: WSDOT's SR 202, SR 520 to Sahalee Way, Road Improvement Project, King County, Washington*. Prepared by AHS, for WSDOT.
Craig Holstine	2000	*An Evaluation of Historic Properties and Effects in the Proposed SR 202/ NE 145th Street I/S Project, Woodinville, Washington*. Prepared by AHS, for WSDOT.
Paula Johnson	2000	*Letter to Rob Whitlam Regarding Cultural Resources Assessment for the First Phase of the Proposed East Lake Sammamish Trail Project*. Prepared by Paragon Research Associates, for Adolfson Associates, Inc.

TABLE F-1
Previous Cultural Resource Investigations in the Project Vicinity (reports are on file at DAHP, Olympia, Washington.)

Author(s)	Date	Title
Dennis E. Lewarch	2000	*Marymoor Park Baseball Field Rehabilitation Project King County, Washington Archaeological Resources Assessment*. Prepared for LAAS, by Susan Black and Associates.
Margaret A. Nelson	2000	*Heritage Resource Investigations at the Marymoor Park Utility Trench, King County, Washington*. Prepared by NWAA, for King County Department of Parks and Recreation.
Leslie K. Norman	2000	*Letter to Karl Kostal Regarding Archaeological Testing for the Clise Mansion Sprinkler System*. Prepared by NWAA, for King County Park System.
Leslie K. Norman	2000	*Letter to Bill Schwartz Regarding Archaeological Monitoring of the Marymoor Park Fiber Optic Trench*. Prepared by NWAA, for King County Park System.
NWAA	2000	*Plan of Action: Cultural Resources Assessment of the Proposed Light Lanes Fiber Optic Line*. Prepared by NWAA, for David Evans & Associates.
Michelle M. Hanum	2001	*Eastgate Park and Ride Improvement Project: Cultural Resource Assessment, Bellevue, King County, Washington*. Prepared by HRA Gray & Pape, for King County Department of Metropolitan Services.
Kenneth E. Juell	2001	*Cultural Resources Inventory of the proposed Washington Light Lanes Project*. Prepared by NWAA, for Universal Communications Networks-Washington, Inc., and David Evans & Associates, Inc.
Stephenie Kramer	2001	*King County Capital Improvement Projects 2001 Four Projects Cultural Resources Site Screening King County, Washington*. Prepared by LAAS, for King County Department of Transportation.
Lynn L. Larson	2001	*Sahalee Way Northeast Widening Project (200997) Cultural Resources Assessment, Preliminary Results*. Prepared by LAAS, for King County Department of Transportation.
Laura R. Murphy	2001	*Sahalee Way Northeast Widening Project (CIP 200997) Archaeological Resources And Traditional Cultural Places Assessment, King County, Washington*. Prepared by LAAS, for King County Department of Transportation, Road Services Division.
Leslie K. Norman	2001	*Letter to Mark Crandell Regarding Archaeological Testing for the Marymoor Park Riparian Enhancement Project*. Prepared by NWAA, for King County Park System.
Kurt W. Roedel	2001	*Letter to Robert Harding Regarding Marymoor Park Baseball Field Rehabilitation Project-Phase 2, Archaeological Resources Monitoring*. Prepared by LAAS, for Susan Black & Associates, Inc.
Michelle M. Hanum	2002	*Cultural Resource Assessment of the Eastgate Park and Ride Improvement Project*. Prepared by HRA Gray & Pape, for PIC Technologies.
Travis Maurer	2002	*Letter to Mr. Kenneth George Regarding MacLeod WA-479-03 106 148th Avenue NE*. Prepared by Vertex Engineering Services, for Cingular Wireless.
Leslie K. Norman	2002	*Archaeological Investigations for the Bear Creek Mitigation/ Planting Site*. Prepared by NWAA, for City of Redmond.
Lara C. Rooke	2002	*Letter to Jay Grenfall Regarding WA-479 (Texaco)*. Prepared by Cascadia Archaeology, for Vertex Engineering Services, Inc.
Donald Shannon	2002	*Cultural Resources Assessment for the Sammamish River Pedestrian and Bicycle Bridge*. Prepared by HRA Gray & Pape, for City of Redmond.
Glenn D. Hartmann	2003	*Letter to Mark Follett Regarding Cultural Resources Investigations for NE 124th Street Phase IIb, Willows Road to SR 202*. Prepared by Western Shore Heritage Services, for King County Department of Transportation.
David R. Iverson	2003	*FINAL – 124th Avenue Northeast Roadway Improvement Project Archaeological Resources and Traditional Cultural Places Assessment*. Prepared by LAAS, for King County Department of Transportation.
LAAS	2003	*FINAL – Appendix 15-A Cultural Resources: Historic Buildings and Structures*. Prepared by LAAS, for King County Department of Natural Resources.
Laura R. Murphy	2003	*Letter to Jay Brueggeman Regarding Final Ripley Lane Pipeline Excavation Project (CIP #200799) Archaeological Resources Monitoring*. Prepared by LAAS, for Parametrix, Inc.

TABLE F-1
Previous Cultural Resource Investigations in the Project Vicinity (reports are on file at DAHP, Olympia, Washington.)

Author(s)	Date	Title
Leslie K. Norman	2003	*Heritage Resources Investigation of the Redmond Cell Tower Upgrade #SE03XC681*. Prepared by NWAA.
NWAA	2003	*Cultural Resources Monitoring and Discovery Plan for the West Lake Sammamish Parkway-South Project*. Prepared by NWAA, for City of Redmond, Entranco.
Kurt W. Roedel	2003	*Sammamish Valley Reclaimed Water Production Facility Archaeological Resources and Traditional Cultural Use Assessment*. Prepared by LAAS, for King County Department of Natural Resources and Parks.
Paula Johnson	2004	*Letter to Mike Lozano Regarding Monitoring of Interim East Lake Sammamish Trail Fence Augers*. Prepared by Paragon Research Associates, for King County Department of Executive Services.
Robert E. Kopperl	2004	*Cultural Resources Assessment SR-202 SR-522 to Sahalee Way Floodplain/Wetland Mitigation Site King County*. Prepared by NWAA, for WSDOT.
Michael V. Shong	2004	*Letter to Karan Soi Regarding Assessment of Effects for the Sammamish River Trail Repair and Widening Project on Archaeological site 45-KI-11*. Prepared by NWAA.
Jana L. Boersema	2005	*Archaeological Investigations for the Park Place, Redmond*. Prepared by Cascadia Archaeology, for Legend Development and Group Architect.
Jason Cooper	2005	*Archaeological Survey of the Housing at the Crossroads Kensington Square Project, City of Bellevue*. Prepared by Jones & Stokes, for Housing at the Crossroads.
Amber L. Earley	2005	*Cultural Resources Assessment of the Bear Creek Trail Project, Redmond*. Prepared by NWAA, for Reid Middleton.
Steven J. Greenwalt	2005	*Perrigo Heights Archaeological Resources and Traditional Cultural Places Assessment*. Prepared by LAAS, for CamWest Development.
Fran E. Hamilton	2005	*Cultural Resources Assessment for the SR 202-SR 520 to Sahalee Way: Happy Valley Wetland Mitigation Site Project*. Prepared by NWAA, for WSDOT.
Margaret A. Nelson	2005	*Cultural Resources Survey Report for the Proposed Mercer Slough Environmental Education Center, Bellevue*. Prepared by Cascadia Archaeology, for Shannon & Wilson, Inc., and City of Bellevue.
Michele Parvey	2005	*Cultural Resources Assessment for the Willows Creek Daylighting Project, Redmond*. Prepared by NWAA, for City of Redmond, Public Works Department.
Lara C. Rooke	2005	*Cultural Resources Assessment for the Redmond Transit Center, Redmond*. Prepared by Shapiro and Associates, for King County Metro Transit.
Michael V. Shong	2005	*Letter to Karan K. Soi Regarding Additional Archaeological Testing at Site 45-KI-11 Related to the Sammamish River Trail Repair and Widening Project*. Prepared by NWAA, for King County Parks.
WSDOT	2005	*I-405, SR 520 to SR 522 Kirkland Nickel Project Historic, Cultural, and Archaeological Resources Discipline Report and Supplemental Analysis, Appendix M*. Prepared by WSDOT.
WSDOT	2005	*Historic, Cultural & Archaeological Resources Discipline Report, I-405 Bellevue Nickel Improvement Project, I-90 to SE 8th*. Prepared by WSDOT, for WSDOT.
WSDOT	2005	*Historic, Archaeological and Cultural Resources Technical Report for the I-405, NE 10th Overcrossing Project*. Prepared by WSDOT, for WSDOT.
Linda Naoi Goetz	2006	*DRAFT: Cultural Resources Assessment NE 24th Street Improvements, Bellevue*. Prepared by Landau Associates, for KPG, Inc.
WSDOT	2006	*DRAFT: Historic, Cultural, and Archaeological Resources Discipline Report, Version 2, I-405, SR 169 to I-90, Renton to Bellevue Project*. Prepared by WSDOT, for WSDOT.
Christie Weitzel	2006	*Letter to Mike Lozano, CIP Asset Development & Management Regarding Monitoring of Interim East Lake Sammamish Trail Fence Augers (City of Sammamish Section)*. Prepared by Paragon Research Associates, for CIP Asset Development & Management.

Appendix G

Draft Memorandum of Agreement

DRAFT

MEMORANDUM OF AGREEMENT

AMONG

THE FEDERAL TRANSIT ADMINISTRATION,

WASHINGTON STATE HISTORIC PRESERVATION OFFICER,
AND THE CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY

Implementing

Section 106 of the National Historic Preservation Act

for the

EAST LINK LIGHT RAIL TRANSIT PROJECT
IN THE STATE OF WASHINGTON

DRAFT

WHEREAS, the Central Puget Sound Regional Transit Authority (Sound Transit) proposes to construct and operate the East Link Light Rail Transit Project (Project), an extension of its electric light rail transit system, that will connect the cities of Seattle, Mercer Island, Bellevue, and Redmond, crossing Lake Washington in the center lanes of Interstate 90 (I-90) and operating in a dedicated right-of-way between Seattle and Redmond; and

WHEREAS, the Federal Transit Administration (FTA), the responsible Federal agency, has determined that the Project is an undertaking, as defined in Title 36 Code of Federal Regulations (CFR) §800.16(y), and thus is subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. §470f and its implementing regulations, 36 CFR Part 800; and

WHEREAS, Sound Transit is the designated applicant responsible for obtaining the necessary approvals and permits to undertake the Project; and

WHEREAS, FTA and Sound Transit have consulted with the Washington State Historic Preservation Officer (SHPO), interested and affected Indian tribes, and other parties with a demonstrated interest in the effects of the Project on historic properties in accordance with Section 106 of the National Historic Preservation Act (16 USC 4701) and its implementing regulations (36 CFR Part 800.2); and

WHEREAS, FTA and Sound Transit, in consultation with SHPO, have determined the appropriate area of potential effects (APE) for the Project and conducted cultural resource studies constituting a reasonable and good faith effort to identify historic properties and archaeological resources within the APE pursuant to 36 CFR §800.4; and

WHEREAS, the APE and potential historic properties within the APE are described in the Sound Transit East Link Project Historic and Archaeological Resources Technical Report, along with a description and map of the Project; and

WHEREAS, the cultural resource studies resulted in the identification of 16 properties within the APE listed in or eligible for listing in the National Register of Historic Places (NRHP), including a neighborhood (Surrey Downs) that is potentially eligible for listing in the NRHP; and

WHEREAS, as federally recognized tribes, the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Suquamish Indian Tribe, the Tulalip Tribes of the Tulalip Reservations, and the Confederated Bands and Tribes of the Yakama Nation (the Tribes) have been consulted about the Project and have been invited to concur with this Agreement; and

WHEREAS, the Duwamish Tribal Services (a non-profit organization) has been consulted about the Project and has been invited to concur with this Agreement; and

WHEREAS, FTA and Sound Transit have completed a traditional cultural properties (TCP) archival inventory of the APE using secondary sources and information available in the public domain, and identified no property of cultural interest to the Tribes ; and

WHEREAS, FTA and Sound Transit have consulted about the project with the cities of Seattle, Mercer Island, Bellevue, and Redmond, King County, Washington State Department of Transportation, Federal Highway Administration, and US Army Corps of Engineers, and have invited those entities to concur with this Agreement; and

WHEREAS, FTA and Sound Transit have coordinated the investigations, studies and consultations described above required under Section 106; and

WHEREAS, FTA and Sound Transit have determined that the Project will have an adverse effect, which results from a potential impact on the Winters House, and on the potentially eligible Surrey Downs Historic District, and has the potential to have an impact on undiscovered archaeological resources; and

WHEREAS, FTA and Sound Transit carried out consultations with SHPO, interested and affected Indian tribes, and other consulting parties to identify measures to resolve impacts pursuant to 36 CFR §800.6, resulting in development of this Agreement; and

NOW, THEREFORE, FTA, SHPO, and Sound Transit agree that the Project shall be implemented in accordance with the following stipulations to satisfy FTA's Section 106 responsibilities, and they further agree that FTA shall require that the following terms and conditions be carried out.

STIPULATIONS

FTA and Sound Transit shall implement the following terms and conditions in a timely manner and with adequate resources in compliance with the NHPA (16 USC 470).

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During the environmental review for this Project, conceptual engineering plans and conceptual station designs were reviewed for potential impacts on identified historic properties. These conceptual plans and designs, and the potential impacts they describe, are included in the East Link Light Rail Transit Project Final Environmental Impact Statement (FEIS July 2011) and the Archeological and Historic Resources Technical Report to the FEIS. The following stipulations will govern future design, construction, and operation of the Project.

I. WINTERS HOUSE

A. Sound Transit will perform a conditions assessment of the Winters House building to establish existing conditions, including exterior and interior inspection.

B. Sound Transit will install vibration and settlement monitoring devices before undertaking ground-disturbing construction sufficient to provide the necessary monitoring and measurements to alert Sound Transit. Where called for, Sound Transit will adjust construction methods as needed based on monitoring results.

C. Sound Transit will use specific vibration and settlement-reducing construction methods, to be determined by Sound Transit during final design and construction.

D. If warranted, Sound Transit will build a construction barrier around the Winters House building to minimize damage and minimize dust during construction. This will be determined by Sound Transit during final design and construction.

E. Sound Transit will apply dust control measures during construction to minimize dust. After construction, in consultation with SHPO, Sound Transit will clean the outside of the Winters House building and windows in a manner sensitive to the historic property.

F. The Winters House will be closed during construction and Sound Transit will temporarily relocate the tenant. For the duration of the time the Winters House is closed, Sound Transit will provide information to the public regarding how to access the Eastside Heritage Center during construction.

G. If any physical damage occurs to the Winters House building as a result of the Project, Sound Transit, in consultation with SHPO, will make any necessary repairs consistent with U.S. Secretary of the Interior’s Standards for the Treatment of Historic Properties.

H. Sound Transit will install standard methods of vibration reduction, such as resilient fasteners or ballast mats, to reduce groundborne noise below FTA impact criteria. A floating slab will be incorporated in the project, if necessary, to eliminate groundborne noise and vibration impacts. This will be determined by Sound Transit in consultation with FTA during final design and construction.

I. Within six months after construction of the Project is completed, Sound Transit will landscape the area of property between the front (west elevation) of the Winters House and Bellevue Way SE to more closely reflect the landscaping of the historic period, in consultation with the City of Bellevue and SHPO. Sound Transit will preserve, as practical, historic period plants that will be affected by Project construction.

J. Sound Transit will provide interpretive signage on or near the Winters House property in consultation with the City of Bellevue.

II. POTENTIAL SURREY DOWNS HISTORIC DISTRICT

A. To minimize construction impacts, the following minimization measures will be incorporated into the Project during construction adjacent to properties that contribute to the potential Surrey Downs Historic District:

1. Before construction begins, Sound Transit will install a solid construction barrier south of Main Street between the area of construction activity and adjacent contributing properties.

2. During construction, Sound Transit will comply with the City of Bellevue's Noise Ordinance. Other construction impact minimization measures, including dust control, will be implemented as needed.

3. Sound Transit will remove the construction barrier and will install landscaping along the south side of the guideway south of Main Street within six months after completion of construction.

4. As practical, Sound Transit will preserve the evergreen trees located between the contributing historic properties and proposed project south of Main Street and east of 108th Avenue SE.

5. Reasonable mitigation measures shall be employed for construction-related activities occurring on adjacent property used by Sound Transit for "construction staging" to address noise, dust, visual and other such impacts in recognition of the neighboring residential setting.

B. To minimize impacts during operation, the following measures will be incorporated into the Project

1. Sound Transit will install a permanent sound barrier, which may include a berm and/or wall, south of the light rail track along Main Street to prevent noise impacts on contributing properties within the potential Surrey Downs Historic District. The SHPO will be consulted for sound barrier design prior to its construction.

2. Sound Transit will install landscaping along the south side of the guideway south of Main Street to provide a buffer for the boundary of the potential Surrey Downs Historic District where noncontributing properties would be removed for the Project.

III. ARCHAEOLOGY

A. Project archaeologists who meet the Secretary of Interior's professional standards will conduct additional subsurface testing before construction as outlined in the Archaeological Survey Strategy (which is included in the Historic and Archaeological Technical Report).

B. An Archaeological Resources Monitoring and Treatment Plan or an Unanticipated Discovery Plan will be prepared before construction to provide additional information and protocols that will guide archaeological monitoring work during Project construction.

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IV. DISPUTE RESOLUTION

A. FTA, Sound Transit, and SHPO are signatories to this agreement and are the parties who are authorized to address and informally resolve disagreements concerning the implementation of this Agreement.

B. If informal resolution cannot be achieved, any signatory to this Agreement may object in writing to FTA or Sound Transit regarding any action carried out or proposed with respect to implementation of this Agreement. The agency receiving the objection shall, within ten working days, initiate consultation with the objecting party to resolve the objection.

C. If after initiating such consultation FTA or Sound Transit determines that the objection cannot be resolved through consultation, FTA shall forward all documentation relevant to the objection to the Advisory Council on Historic Preservation (ACHP), including the agency's proposed response to the objection.

D. Within thirty calendar days after receipt of all pertinent documentation, ACHP shall exercise one of the following options:

1. Advise FTA that ACHP concurs in the agency's proposed response to the objection, whereupon FTA will respond to the objection accordingly; or

2. Provide FTA with recommendations, which the agency shall take into account in reaching a final decision regarding its response to the objection; or

3. Notify FTA that the objection will be referred for comment pursuant to 36 CFR §800.7(a)(4), and proceed to refer the objection and comment.

E. FTA shall take the resulting comment into account in accordance with 36 CFR §800.7(c)(4), with reference only to the subject of the specified dispute; FTA's responsibility to ensure that all actions under this Agreement that are not the subjects of the dispute are carried out will remain unchanged.

V. AMENDMENT AND TERMINATION

A. FTA, Sound Transit, and SHPO are signatories to this agreement and are the parties who are authorized to terminate it by providing 30 calendar days written notice to the other parties. If requested by a signatory, the signatories may meet during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

B. In the event of termination, FTA shall comply with 36 CFR 800 with regard to all remaining actions under this Agreement.

C. If FTA or Sound Transit proposes to modify this Agreement in a manner that alters the resolution of adverse effects of historic properties, the modified Agreement must be signed by all signatories.

DRAFT

VI. CONSULTATION UNDER SECTION 106

A. FTA notified the ACHP of a potential adverse effect of the Project on properties listed in or eligible for listing in NRHP, affording ACHP an opportunity to comment and/or participate in resolving adverse effects. ACHP has declined to participate in the consultation to resolve adverse effects. The executed MOA will be filed with the ACHP, pursuant to 36 CFR 800.6(b)(I)(iv), when signed by the parties below.

B. Execution and implementation of this Agreement is evidence that FTA and Sound Transit have taken into account the effects of the Project on historic properties and afforded the ACHP an opportunity to comment on those effects, and is evidence that FTA and Sound Transit have complied with the consultation requirements under Section 106.

VII. EXECUTION

A. Unless terminated, this MOA shall remain in effect from the date of execution until FTA determines that the terms of this MOA have been satisfactorily fulfilled. Upon such determination, this MOA shall terminate, and FTA shall provide SHPO with written notice of the determination and termination.

B. The undersigned official representatives of the parties affirm and concur with the agreement and enter into this agreement on behalf of their respective parties. Each party represents that the person executing this agreement on its behalf is duly authorized to execute this agreement.

VIII. MISCELLANEOUS

This MOA creates no right of action for any signatory to this agreement or any other party.

DRAFT

Signatories:

FEDERAL TRANSIT ADMINISTRATION

By: ____Date: ________________

R.F. Krochalis, Regional Administrator

WASHINGTON STATE DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION

By: ____Date: ________________

Allyson Brooks, Ph.D., State Historic Preservation Officer

SOUND TRANSIT

By: ____Date: ________________

Joni Earl, Chief Executive Officer

DRAFT

Concurring Parties:

CITY OF SEATTLE

CITY OF MERCER ISLAND

CITY OF BELLEVUE

CITY OF REDMOND

KING COUNTY

FEDERAL HIGHWAY ADMINISTRATION

US ARMY CORPS OF ENGINEERS

MUCKLESHOOT INDIAN TRIBE

SNOQUALMIE INDIAN TRIBE

SUQUAMISH INDIAN TRIBE

TULALIP TRIBES OF THE TULALIP RESERVATION

CONFEDERATED BANDS AND TRIBES OF THE YAKAMA NATION

DUWAMISH TRIBAL SERVICES

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DRAFT

FINAL EIS

EAST LINK PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

Appendix H4
Historic and Archaeological Resources Technical Report

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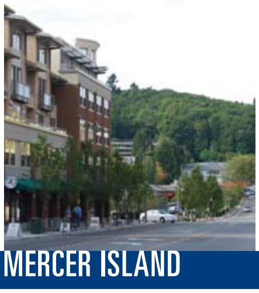
SEATTLE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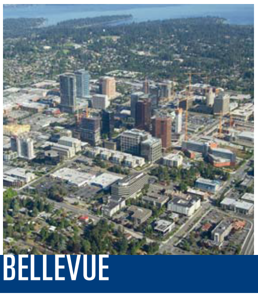
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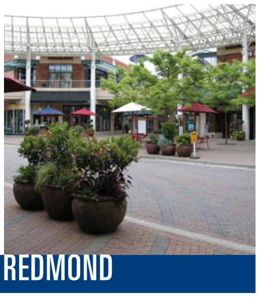
REDMOND

SOUNDTRANSIT

CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State
Department of Transportation

U.S. Department of Transportation
Federal Transit
Administration

July 2011

SOUNDTRANSIT

SOUND TRANSIT EAST LINK PROJECT

Appendix H4

Historic and Archaeological Resources Technical Report

Prepared for:
Sound Transit

Prepared by:
Historical Research Associates, Inc.
CH2M HILL

July 2011

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Executive Summary

The following report has been prepared pursuant to Section 106 of the National Historic Preservation Act as amended (16 U.S.C. 470f) and implementing regulations 36 CFR Part 800, which stipulates that projects that involve federal money, permits, and/or licenses must take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. This technical report presents the eligibility of historic and archaeological resources, effects analysis and findings, along with commitments to avoid, minimize, and mitigate impacts.

As part of the project's historic environmental review, 439 buildings or structures, cultural investigations, and two archaeological sites located within the Area of Potential Effect (APE) were documented and analyzed. Of this total, 12 buildings or structures have been found to be listed or eligible for the National Register of Historic Places (NRHP). The Federal Transit Administration (FTA), in consultation with the State Historic Preservation Office (SHPO), has made a determination of adverse effect for the project. This determination results from the preferred alternative's potential impacts on the Winters House and potential Surrey Downs historic district. Other alternatives would also impact the potential Surrey Downs historic district and Justice White House.

Project Overview

East Link project is an extension of the light rail system from Seattle, Mercer Island, and the east side of Lake Washington to Bellevue and Redmond. The corridor is approximately 18 miles long and has been divided into five segments: Segment A, Interstate 90 (Seattle, Mercer Island to Bellevue); Segment B (I- 90 to Downtown Bellevue); Segment C (Downtown Bellevue); Segment D (Downtown Bellevue to Overlake Transit Center); and Segment E (Overlake Transit Center to Downtown Redmond). From the 28 different alternatives considered in these segments, the Sound Transit Board has identified a combination of Alternatives A1, B2M, C11A or C9T, D2A, and E2, as the *Preferred Alternative*.

Archaeology

Several portions of the alternatives have a high sensitivity for prehistoric archaeological sites, while no high sensitivity historic-period archaeological sites were identified. Archaeological investigations were conducted on 25 survey tracts. The surveys located no NRHP-eligible prehistoric or historic-period archaeological sites in the APE.

Additional archaeological surveys would be conducted prior to construction. In addition, an Archaeological Resources Monitoring and Treatment Plan (ARMPT) or an Unanticipated Discovery Plan would be prepared to guide archaeological monitoring during East Link construction. The Federal Transit Administration (FTA) and Sound Transit would consult with the Washington State Historic Preservation Officer (SHPO), the Muckleshoot and Snoqualmie Tribes, and other interested parties as appropriate, to review this plan.

Historic Resources

Project historians analyzed 439 buildings and structures for eligibility to the National Registrar. Of the total inventoried properties (including one potential historic district), 12 properties were either listed in the NRHP or recommended to be eligible to the NRHP. The Table ES-1 lists the 12 historic properties, findings of eligibility and impacts for each resource, along with minimization and mitigation measures. The resources that are "bold and italicized" are located along the *Preferred Alternative*. For the *Preferred Alternative*, a potential impact could occur at the Winters House and the potential Surrey Downs historic district during construction. The *Preferred Alternative* would not result in any other impacts on any other historic resources.

The project alternatives avoid all of the listed or eligible resources within the APE with the following exceptions. In Segment A, the *Preferred Alternative* would be located within the center roadway of the historic segment of I-90. The *Preferred Alternative* would not impact I-90 because light rail would maintain its character defining features and because this segment of I-90 was originally designed to accommodate high capacity transit including light rail.

Preferred Alternative B2M would be located in a lidded retained cut under the front yard of the Winters House. Project construction includes measures to minimize damage to the house. If damage does occur, Sound Transit would make the needed repairs consistent with U.S. Secretary of the Interior's standards for treating historic properties. The Winters House will be closed during construction and the existing tenant temporarily relocated. The proximity of the light rail to the house creates the potential for groundborne noise above the FTA criteria during light rail operations. Project design would include vibration-reducing track work to mitigate this impact. Implementing these measures would resolve the project's potential impacts on the Winters House.

Preferred Alternative B2M also would benefit the historic features of the Winters House. The proposed mitigation for the Winters House would improve its visual and physical context. Following construction, and in consultation with the City of Bellevue, more historically appropriate landscaping would be planted over the lidded retained-cut with a net benefit to the historic home. The Winters House today lacks sufficient or appropriate signage providing information about its history and historic significance. Sound Transit would also provide new interpretive signage on or near the Winters House property.

Preferred Alternative C11A is located adjacent to three contributing properties within the potential Surrey Downs historic district. Operations of the project would not diminish the historic setting within the potential Surrey Downs historic district, which is already located in a highly developed area. A landscaped berm and permanent sound barrier would be constructed between the station and the potential Surrey Downs historic district, providing a visual buffer and mitigating operational noise impacts. Construction adjacent to the potential district has potential impacts without implementation of appropriate minimization techniques including installing a solid construction barrier, and preserving the evergreen trees along the south edge of the proposed station, as practical.

Alternative E4, which is not a *Preferred Alternative*, would sustain an impact because the Justice White House would need to be relocated.

TABLE ES-1
Historic Properties within Project Area of Potential Effect, Eligibility, and Effect Findings

Segment	Map ID	Property Name/Type	Address	Register Status	Avoidance Minimization Mitigation	Impact Findings
A, Interstate 90	376	Publix Hotel (Seattle Chinatown NRHP/ International Special Review historic district)	504 5th Avenue South	Contributing element to NRHP and Seattle Special Review historic districts	Project avoids resource.	No Impact
	132	Immigrant Station and Assay Office	815 Airport Way South	NRHP, WHR, eSL	Project avoids resource.	No Impact
	303	Jose Rizal 12th Avenue South Bridge	12th Avenue South crossing of South Dearborn Street	NRHP, WHR, eSL	Project avoids resource.	No Impact
	166	Will H. Thompson House	3119 South Day Street	NRHP, WHR, SL	Project avoids resource.	No Impact
	I90	I-90 Lake Washington Highway Segment between mileposts 3.4 and 8.9	I-90 between mileposts 3.4 and 8.9 (includes Mount Baker Ridge Tunnel and Eastern Portals)	eNRHP, eWHR, SL[a]	Project is consistent with the character and design intent of I-90.	No Impact
	156	Endresen Residence	1402 32nd Avenue South	eSL	Project avoids resource.	No Impact
	133	Romaine Electric/Washington Iron Works Pattern Shop	1101 Airport Way South	eSL	Project avoids resource.	No Impact
B, South Bellevue	16	Frederick Winters House	2102 Bellevue Way SE	NRHP, WHR	All alternatives, except *Preferred Alternative B2M* avoid resource. *Preferred Alternative B2M* designed with minimization and mitigation measures during construction and in operations. Project would benefit the property with landscape improvements consistent with the historic period and interpretative signage.	Potential Impact for Alternative B2M only
	63	Pilgrim Lutheran Church	10420 SE 11th Street	eNRHP, eWHR	Project avoids resource; small area of parking lot is affected, away from resource.	No Impact
C, Downtown Bellevue	various	Potential Surrey Downs historic district	Between 108th Avenue and 112th Avenue SE, south of Main Street (see Table 7-4)	Potentially eNRHP, eWHR	*Preferred Alternative C11A*: resource is separated from project with landscaped buffer and noise barrier. Construction minimization measures in place.	Potential Impact

TABLE ES-1 CONTINUED
Historic Properties within Project Area of Potential Effect, Eligibility, and Effect Findings

Segment	Map ID	Property Name/Type	Address	Register Status	Avoidance Minimization Mitigation	Impact Findings
	1100	Safeway Store	414, 424, and 456 104th Avenue NE	eNRHP	Project avoids resource.	No Impact
D, Bel-Red/Overlake	104	Former Bellevue Fire Station	14822 NE Bellevue-Redmond Road	eNRHP, eWHR	Project avoids resource.	No Impact
E, Downtown Redmond	112	Justice William White House	Leary Way NE and NE 76th Street	eNRHP, eWHR, RHL	Project avoids resource, except for Alternative E4 (requires relocation of the house).	Potential Impact for Alternative E4 only
	113	Redmond Trading Company	7805 Leary Way NE	RHL	Project avoids resource	No Impact
	114	Bill Brown Saloon Building	7824 Leary Way NE	RHL, eNRHP, eWHR	Project avoids resource.	No Impact
	118	Dudley Carter/Haida House	Sammamish Slough Park	RHL	Project avoids resource.	No Impact

NRHP	National Register of Historic Places
WHR	Washington Heritage Register
SL	Seattle Landmark
RHL	Redmond Historic Landmark
e	determined eligible

[a] The Mount Baker Ridge Tunnel and Eastern Tunnel Portals are also designated Seattle Landmarks.

1.0 Introduction

The East Link light rail system would connect Seattle, Mercer Island, Bellevue, and Redmond, with a length of about 18 miles. This technical report, prepared to support the Sound Transit East Link Project's Final Environmental Impact Statement (EIS), addresses potential effects on historic and archaeological resources, which include the following: prehistoric and historic-period archaeological sites; districts, buildings, structures, objects, and landscapes; and cultural or traditional places or resources that have value to a community, such as an Indian tribe. Important resources are termed "historic properties" and—because of the inclusion of federal monies or federal licensing and permitting—must be considered by the lead agencies as they make decisions about the East Link Project. Section 1.1 provides a description of the East Link Project.

This technical report addresses historic and archaeological resource laws and regulations (Section 2.0) and the methods used for the investigations (Section 3.0). The Federal Transit Administration (FTA) and Sound Transit consulted with interested Indian tribes and the Washington State Historic Preservation Officer (SHPO) in the Department of Archaeology and Historic Preservation (DAHP), and the Washington State Department of Transportation (WSDOT) (as described in Section 4.0). The investigation included information on the natural setting (Section 5.0) and cultural context (Section 6.0) of the study area. The results of survey efforts to inventory historic and archaeological resources, and to identify historic properties, appear in Section 7.0. Potential project effects are discussed in Section 8.0, potential mitigation measures in Section 9.0, and cumulative effects in Section 10.0. Section 11.0 lists the references cited in this report. The appendices contain the following information: archaeological surveys (Appendix A and B), the inventory of historic buildings and structures (Appendix C), background reports on the Winters House (Appendix D), agency consultation (Appendix E), reports from previous cultural resource management studies (Appendix F), and the draft Memorandum of Agreement (Appendix G). Inventory forms for each building or structure have been submitted to DAHP.

Several cultural resource management specialists from Historical Research Associates, Inc. (HRA) contributed to this study, including senior reviewer Gail Thompson, Ph.D., principal investigator and Project Manager Erica Kachmarsky, M.A., who lead historical research, inventory, and evaluation of buildings and structures with Ann Gillespie, M.A., and Jennifer Gilpin, M.A., who directed the 2010 archaeological survey and analyzed archaeological information, including data compiled previously by Gretchen Kaehler, M.A. Lori Durio Price, M.A. of CH2M HILL was responsible for senior technical review, and also prepared the draft of the Section 106 Memorandum of Agreement for the Project.

1.1 Project Description

The proposed project consists of constructing and operating an approximately 18-mile light rail system that would connect Sound Transit's Central Link at the International/Chinatown Station to Redmond via Interstate 90 (I-90) to Mercer Island, Downtown Bellevue, and Bel-Red/Overlake before terminating in Downtown Redmond. Light rail consists of electrically powered trains of up to four cars running on steel rails operating at speeds of up to 55 miles per hour in a dedicated right-of-way.

1.2 Description of Alternatives

The following alternatives are evaluated in the Final EIS and described here for easy reference. The project is divided into five segments, A through E. The alternatives are made up of a range of light rail routes and stations. The proposed route and station alternatives vary in profile as travelling at-grade, elevated, or in a tunnel. There are four maintenance facility location alternatives, which are described further in the Final EIS.

1.2.1 Segment A: Interstate 90

Segment A has one alternative, the ***Preferred Interstate 90 Alternative (A1)***, which crosses Lake Washington and connects Seattle and Mercer Island with Segment B, South Bellevue. *Preferred Alternative A1* has two stations: one in Seattle and one on Mercer Island (Exhibit 1-1).

1.2.2 Segment B: South Bellevue

Segment B has six alternatives and one design option that connect to Downtown Bellevue in Segment C as shown in Exhibit 1-2.

Preferred 112th SE Modified Alternative (B2M) is elevated in the I-90 center roadway, crosses over westbound I-90, and continues elevated on the east side of Bellevue Way SE to the South Bellevue Station, located at the current South Bellevue Park-and-Ride; this alternative also maintains the westbound and eastbound I-90 high-occupancy vehicle (HOV) ramps. The South Bellevue Station includes a parking structure up to about five stories high built on the site of the existing South Bellevue Park-and-Ride. After leaving the station, the route transitions to a retained cut on the east side of Bellevue Way within Mercer Slough Nature Park to the intersection of Bellevue Way SE and 112th Avenue SE. From this point, *Preferred Alternative B2M* has three variations that connect to one of the Segment C *Preferred Alternatives*: one connects to *Preferred 108th NE At-Grade Alternative (C11A)*, and two connect to *Preferred 110th NE Tunnel Alternative (C9T)*. Each variation connects to one of the Segment C *Preferred Alternatives*. The following describes the three variations**:**

- When connecting to *Preferred Alternative C11A*, *Preferred Alternative B2M* continues in a retained cut on the east side of Bellevue Way SE and then travels under the northbound lanes of 112th Avenue SE to enter the center median of this road and travel in the median to SE 8th Street. This variation does not have a SE 8th Station.
- When connecting to *Preferred Alternative C9T*, *Preferred Alternative B2M* transitions to at-grade on the east side of 112th Avenue SE to the at-grade SE 8th Station north of SE 8th Street. From there *Preferred Alternative B2M* remains at-grade until reaching Segment C at SE 6th Street.

Bellevue Way Alternative (B1) travels within the I-90 center roadway and continues in the Bellevue Way SE HOV direct-access ramp under the westbound lanes of I-90 onto Bellevue Way at-grade to the South Bellevue Station. Alternative B1 travels in the median of Bellevue Way SE its entire length up to Segment C at SE 6th Street. Bellevue Way from north of the South Bellevue Station up to SE 6th Street would generally be widened to the west. North of the 112th Avenue NE intersection, the widening of Bellevue Way may fluctuate to either side in some locations.

112th SE At-Grade Alternative (B2A) is elevated in the I-90 center roadway, crosses over westbound I-90, and touches down on the east side of Bellevue Way in an elevated profile. After leaving the South Bellevue Station, the alternative transitions to at-grade in the median of Bellevue Way, turning into the median of 112th Avenue SE and extending to SE 6th Street. Additional right-of-way would be required along the east side of Bellevue Way SE, both north and south of the Frederick Winters House, as well as across from the Frederick Winters House on the west side of the road. Also, 112th Avenue SE would be widened to the east and west within existing right-of-way to maintain existing travel lanes.

112th SE Elevated Alternative (B2E) is the same as Alternative B2A up to the South Bellevue Station. After the station, Alternative B2E crosses to the west side of Bellevue Way SE until just south of the Bellevue Way SE/112th Ave SE intersection, where the alternative crosses over to continue along the east side of 112th Avenue NE to SE 6th Street. The SE 8th Station is elevated for Alternative B2E. Most of the additional right-of-way would be required along the west side of Bellevue Way SE north of the South Bellevue Station and on the east side of 112th Avenue SE just south and north of SE 8th Street.

112th SE Bypass Alternative (B3) follows the same route as Alternatives B2A and B2E to the South Bellevue Park-and-Ride. North of the park-and-ride lot, Alternative B3 mimics Alternative B2A in profile and right-of-way requirements, except that it becomes elevated along 112th Avenue SE, south of SE 8th Street, and then turns northeast in new right-of-way behind commercial buildings and up to SE 6th Street. It does not include a SE 8th Station.

Alternative B3 - 114th Extension Design Option (B3 - 114th Extension Design Option) extends the route at SE 8th Street farther east to 114th Avenue SE and turns north along the east side of 114th Avenue. The extension travels through the Wilburton Park-and-Ride and then cross 114th Avenue SE again to connect to Segment C.

BNSF Alternative (B7) is elevated in the I-90 center roadway similar to Alternatives B2, B2E, and B3, except that it crosses over westbound I-90 and the HOV off-ramp near Bellevue Way SE and moves to the north side of I-90 and continues eastbound elevated across Mercer Slough in a new 30-foot right-of-way until it turns north inside the former BNSF Railway right-of-way. After the 2008 Draft EIS was published, the I-405 South Bellevue Widening Project was completed, which included removing the Wilburton Tunnel over I-405 and widening I-405 to the west near the Alternative B7 route. This widening changed the topography near the route for approximately 500 feet, which changed the profile for this part of the route from at-grade to elevated. Neither the profile elevation nor the horizontal alignment of the route was changed. The I-405 South Bellevue Widening Project also constructed sound barriers between I-405 and some residences along 118th Avenue SE.

1.2.3 Segment C: Downtown Bellevue

Segment C has ten alternatives through Downtown Bellevue, crossing I-405 to connect with Segment D at NE 12th Street (Exhibit 1-3). Sound Transit identified the *Preferred Alternative C11A* as the new preferred at-grade alternative in Segment C and *Preferred Alternative C9T* as the new preferred tunnel alternative in Segment C. The new tunnel alternative was developed in response to requests from the City of Bellevue for a shorter and less expensive tunnel alternative.

Preferred 108th NE At-Grade Alternative (C11A) connects with *Preferred Alternative (B2M)* or Alternatives B3 and B7. When connecting with *Preferred Alternative B2M*, *Preferred Alternative C11A* transitions from center-running to side-running on the west side of 112th Avenue SE, crossing the southbound lanes south of SE 6th Street. It continues north from SE 6th Street, remaining at-grade along the west side of 112th Ave SE, transitioning from at-grade profile to retained fill on the west side of 112th Avenue SE and then becomes elevated to cross SE 1st Place and turn west. *Preferred Alternative C11A* then travels on the south side of Main Street in a retained cut to the 108th Station between 108th and 110th Avenues NE. From the 108th Station, *Preferred Alternative C11A* turns north at-grade over Main Street to the center of 108th Avenue NE. At NE 6th Street, C11A turns east along the center of NE 6th Street to the at-grade Bellevue Transit Center Station, located at the existing Bellevue Transit Center between 108th and 110th Avenues NE. *Preferred Alternative C11A* then crosses 110th Avenue NE at-grade, transitioning to a retained fill and then to an elevated profile between 110th and 112th Avenues NE before crossing 112th Avenue NE. Alternative C11A transitions from center-running on NE 6th Street between 110th and 112th Avenues NE to the north side of NE 6th Street before crossing I-405 and 116th Avenue NE. *Preferred Alternative C11A* then turns north along the former BNSF Railway right-of-way to cross NE 8th Street and reach the elevated Hospital Station and then connects with Segment D alternatives from the former BNSF Railway right-of-way. When connecting to Alternatives B3 and B7, Alternative C11A crosses elevated over 112th Avenue SE just south of Main Street to follow the south side of Main Street to the 108th Station before turning north under at grade on 108th Avenue NE.

Preferred 110th NE Tunnel Alternative (C9T) connects to *Preferred Alternative B2M* or Alternatives B3 and B7. When connecting to *Preferred Alternative B2M*, *Preferred Alternative C9T* begins on the east side of 112th Avenue SE at SE 6th Street and then transitions to the west side of 112th Avenue SE at SE 6th Street. This alternative then travels at-grade on the west side of the road before turning west at Main Street to enter the tunnel portal. The tunnel continues on the south side of Main Street before turning north under 110th Avenue NE. This alternative requires realigning SE 4th Street through Surrey Downs Park to connect to 112th Avenue SE further south, forming a 4-way intersection at SE 6th Street. The Bellevue Transit Center Station would be at NE 4th Street. From the station, *Preferred Alternative C9T* continues north to NE 6th Street, where it turns east and transitions to an elevated profile in the center of NE 6th Street to cross 112th Avenue NE, I-405, and 116th Avenue NE. *Preferred Tunnel Alternative C9T* then turns north along the former BNSF Railway right-of-way to cross NE 8th Street and reach the elevated Hospital Station, and then it connects with Segment D alternatives from the former BNSF Railway right-of-way. When connecting to Alternative B3 or B7, *Preferred Alternative C9T* crosses elevated over 112th Avenue SE to follow the south side of Main Street, transitioning to a tunnel before turning north under 110th Avenue NE.

The Bellevue Way Tunnel Alternative (C1T) continues at-grade in the median of Bellevue Way SE from Alternative B1, then transitions to a tunnel in a retained cut from approximately SE 4th Street to SE 2nd Street. Alternative C1T continues in a tunnel to the underground Old Bellevue Station between Main Street and NE 2nd Street. The alternative turns east at NE 6th Street to an underground station at the Bellevue Transit Center and exits the tunnel after 110th Avenue NE in an elevated profile in the median of 112th Avenue NE. It continues over I-405 and 116th Avenue NE before turning north inside the former BNSF Railway right-of-way. The Hospital Station is elevated just north of NE 8th Street. Alternative C1T then descends to an at-grade profile to cross under NE 12th Street where it connects to Segment D.

106th NE Tunnel Alternative (C2T) travels from Segment B in a tunnel under 106th Avenue NE, turns east at NE 6th Street, and crosses over I-405 to connect with the Segment D alternatives.

108th NE Tunnel Alternative (C3T) travels from Segment B in a tunnel under 108th Avenue NE, turns east at NE 12th Street, and crosses I-405 to connect with the Segment D alternatives.

Couplet Alternative (C4A) travels from Segment B at-grade with a northbound track on 110th Avenue NE and southbound track on 108th Avenue NE. It turns east at NE 12th Street and crosses I-405 to connect with the Segment D alternatives.

112th NE Elevated Alternative (C7E) travels from Segment B elevated along 112th Avenue NE, turns east on NE 12th Street, and crosses I-405 to connect with the Segment D alternatives.

110th NE Elevated Alternative (C8E) travels from Segment B adjacent to 114th Avenue NE/I-405, turns west at NE 2nd Street and north elevated along 110th Avenue NE, turns east at NE 12th Street, and crosses I-405 to connect with the Segment D alternatives.

110th Avenue NE At-Grade Alternative (C9A) follows a similar route as *Preferred Alternative C11A*, but along 110th Avenue NE instead of 108th Avenue NE. From Segment B, Alternative C9A could connect with Alternative B2A, B2E, B3, or B7 from the Draft EIS. This alternative has a SE 8th Station if connecting to Alternative B2A or B2E or has an East Main Station if connecting to Alternative B3 or B7. From the Segment B connection, Alternative C9A heads west on the south side of Main Street before turning north in the center of 110th Avenue NE and traveling in the center to NE 6th Street, where it would turn east to a Bellevue Transit Center Station located between 110th and 112th avenues NE. From the station, this alternative travels east in an elevated profile over 112th Avenue NE, I-405, and 116th Avenue NE. Alternative C9A then turns north along the former BNSF Railway right-of-way to cross NE 8th Street and reach the elevated Hospital Station and then connects with Segment D alternatives from the former BNSF Railway right-of-way.

114th Avenue NE Elevated Alternative (C14E) connects to Alternative B3 or B7 from the 2008 Draft EIS and follows 114th Avenue SE/NE to the south side of the I-405 and NE 8th Street interchange. This alternative is elevated the entire distance and crosses over I-405 beginning at NE 6th Street. The Bellevue Transit Center Station is located on an elevated structure above 114th Avenue NE, between NE 4th and 6th Streets, east of the existing Bellevue Transit Center. To provide better access from the Bellevue Transit Center, a moving sidewalk connects the station to City Hall Plaza, located across the street from the Bellevue Transit Center. After crossing I-405, Alternative C14E crosses 116th Avenue NE in an elevated profile and then turns north in the former BNSF Railway right-of-way to an elevated Hospital Station. This alternative does not include the East Main Station.

An **Interim Terminus** would be needed if the East Link Project were built in phases. A station in Segment C could be selected as the interim terminus station until completion of the final phase of the East Link Project. The Hospital or Ashwood/Hospital Station in Segment C could serve as an interim terminus, depending on the alternative selected. An interim terminus would require storage tracks up to 850 feet beyond the station platform for temporary layover of a four-car train and turnback operations.

The preferred interim terminus location is a storage track in the former BNSF Railway corridor north of the Hospital Station. However, operational plans may require the construction of a maintenance facility at the interim terminus. The closest of the proposed alternative maintenance facility sites is in Segment D, so an access track and maintenance facility may be built beyond Segment C under this phasing scenario.

1.2.4 Segment D: Downtown Bellevue to Overlake Transit Center

There are four alternatives in Segment D and one design option, which serve both the City of Bellevue's Bel-Red Corridor and Redmond's Overlake Village planning areas (Exhibit 1-4). The Segment D alternatives begin with connections from either the north side of NE 12th Street across 116th Avenue NE or from the former BNSF Railway right-of-way coming from NE 6th Street. Sound Transit prepared the design modifications to the *Preferred NE 16th At-Grade Alternative (D2A)* based on comments from property owners in the corridor, the cities of Bellevue and Redmond, and the Sound Transit Board.

Preferred NE 16th At-Grade Alternative (D2A) travels parallel to and north of a new NE 15th and 16th Street corridor east from 116th Avenue NE in a mixed at-grade, retained-cut, and elevated profile. This alternative has four stations: 120th, 130th, Overlake Village, and Overlake Transit Center. *Preferred Alternative D2A* crosses 116th

Avenue NE at-grade, continues elevated over the former BNSF Railway tracks, and then transitions to a retained cut under 120th Avenue NE to a retained-cut 120th Station. After leaving the station, the route continues in a retained cut under 124th Avenue NE before transitioning to an elevated profile over the Kelsey Creek West Tributary and returns to the at-grade 130th Station, which includes a park-and-ride lot. *Preferred Alternative D2A* continues at-grade on NE 16th Street, turns at 136th Place NE, and crosses NE 20th Street at-grade until it transitions to an elevated structure along the south side of SR 520. This alternative then continues northeast to the Overlake Village Station west of 152nd Avenue NE, next to SR 520, and transitions to a retained-cut profile after the station until reaching the retained-cut Overlake Transit Center Station, which includes a proposed four-story parking structure. King County Metro bus, Sound Transit bus, and Microsoft shuttle services are integrated into this station. From this station, the route descends into a retained-cut profile on the east side of SR 520 and crosses under NE 40th Street before connecting with all the Segment E alternatives. *Preferred Alternative D2A* also includes the preferred location for storage tracks to extend north of the Segment C and D connection within the former BNSF Railway corridor. An interim terminus would be needed if the East Link Project is built in phases. Any proposed station in Segment D could be selected as the interim terminus station until completion of the final phase of the East Link Project. An interim terminus would require storage tracks up to 850 feet beyond the station platform for temporary layover of a four car train and turnback operations. The *Preferred Alternative* includes proposed storage tracks in the former BNSF Railway corridor north of the Segment C/D break.

Preferred Alternative D2A also includes design options. One option follows the same horizontal alignment between 120th and 124th Avenues NE, but it is at-grade instead of a retained cut, with an at-grade 120th Station. The second design option is similar to the original *Preferred Alternative D2A* evaluated in the 2008 Draft EIS near NE 24th Street and 152nd Avenue NE, but it leaves the SR 520 corridor and runs elevated along the north side of NE 24th Street. After crossing 148th Avenue NE, *Preferred Alternative D2A* becomes at-grade before turning north along the west side of 152nd Avenue NE to the Overlake Village Station, and continues north to the SR 520 right-of-way.

NE 16th Elevated Alternative (D2E) is an elevated version of *Preferred Alternative D2A* except for the Overlake Village area. This alternative is elevated over 116th Ave NE then continues elevated along NE 16th corridor turning north and crossing over NE 20th Street and then following the south side of SR 520 continues over 148th Avenue NE staying on the south side of NE 24th Street before turning north along the east side of 152nd Avenue NE and continuing to SR 520 where it descends into a retained cut to Overlake Transit Center Station.

NE 20th Alternative (D3) follows the same route as *Preferred Alternative D2A* until the alternative approaches NE 20th Street, where it turns east into the median of NE 20th Street at-grade, requiring widening on either side of the road, then into a retained cut east of 140th Avenue NE. Alternative D3 remains in a retained-cut profile, heading north at 152nd Avenue NE, transitions to an at-grade center-running route just south of NE 24th Street. 152nd Avenue NE would be widened to the east and west. The alternative continues north to Overlake Village and then mirrors the *Preferred Alternative D2A* profile and stations, except that D3 is in the median of 152nd Avenue NE.

SR 520 Alternative (D5) is elevated from the north side of NE 12th Street, or at-grade in the former BNSF Railway, turns east at approximately NE 20th Street, crosses Northup Way, and continues east on the south side of SR 520. The alternative crosses over NE 24th Street and then transitions into a retained-cut profile under 148th Avenue NE and then into the retained cut/at-grade station at the Overlake Village Station behind the Safeway store or at the Overlake Village Station at NE 25th Street along the west side of 152nd Avenue NE. From 152nd Avenue NE, Alternative D5 is similar to *Preferred Alternative D2A* going to Segment E.

1.2.5 Segment E: Overlake Transit Center to Downtown Redmond

The three Segment E alternatives follow one route from Segment D along the south side of SR 520 until they split into three different routes accessing Downtown Redmond (Exhibit 1-5). From the Overlake Transit Center, all Segment E alternatives follow along the south side of SR 520 and under NE 40th Street, NE 51st Street, and NE 60th Street in a retained-cut profile. The three alternatives split into different routes at the SR 520 interchange with Lake Sammamish Parkway. The *Preferred Marymoor Alternative (E2)* crosses the interchange to continue east along the south side of SR 520.

Preferred Marymoor Alternative (E2) (see Exhibit 1-5) was modified in response to the City of Redmond by replacing the Redmond Town Center Station and the Redmond Transit Center Station with one Downtown

Redmond Station located midway between the two original stations and discontinuing the alignment up 161st Avenue NE. *Preferred Alternative E2* remains elevated on the south side of SR 520 in a new bridge structure over the Sammamish River, descending down to grade and straddling the SR 520 right-of-way and Marymoor Park property lines. The SE Redmond station, parking structure, and park-and-ride lot are located on the south side of the SR 520 and SR 202 interchange. After the station, *Preferred Alternative E2* turns west going under the SR 520 and SR 202 interchange and enters the former BNSF Railway right–of-way elevated over SR 520 and Bear Creek. *Preferred Alternative E2* then becomes at-grade to cross 170th Avenue NE and continues in the former BNSF Railway corridor to the Downtown Redmond Station and terminus northwest of Leary Way. An 800-foot-long tail track would extend past the station for train layovers. *Preferred Alternative E2* has two traction power substations: one located adjacent to the route before approaching West Lake Sammamish Parkway and another just east of 166th Avenue NE prior to the Downtown Redmond Station. The E2 – Redmond Transit Center Design Option retains the Redmond Town Center Station and the Redmond Transit Center Station and continues up 161st Avenue NE as described in the 2008 Draft EIS.

Redmond Way Alternative (E1) becomes elevated and crosses north over SR 520, follows the northwest side of West Lake Sammamish Parkway, and turns northeast on the south side of Redmond Way on a new bridge structure over the Sammamish River. Alternative E1 continues along Redmond Way and turns southeast into an at-grade profile onto the former BNSF Railway right-of-way to Redmond Town Center, then transitions to an elevated structure over Bear Creek and the SR 520/SR 202 interchange to the terminus, SE Redmond Station. This station would include a four-story structured park-and-ride facility in the industrial park adjacent to the former BNSF Railway corridor.

Leary Way Alternative (E4) crosses north over SR 520 and is elevated on the northwest side of West Lake Sammamish Parkway, and it turns northeast along the south side of Leary Way, crossing the Sammamish River on a new bridge structure, then transitions to an at-grade profile south of Bear Creek Parkway and turns southeast in the former BNSF Railway right-of-way. The alternative continues along the former BNSF Railway, crosses over Bear Creek on a bridge, and then transitions into a retained-cut profile under SR 520 before terminating in an at-grade profile. The SE Redmond terminus station would include a four-story structured park-and-ride facility in the industrial park adjacent to the former BNSF Railway corridor.

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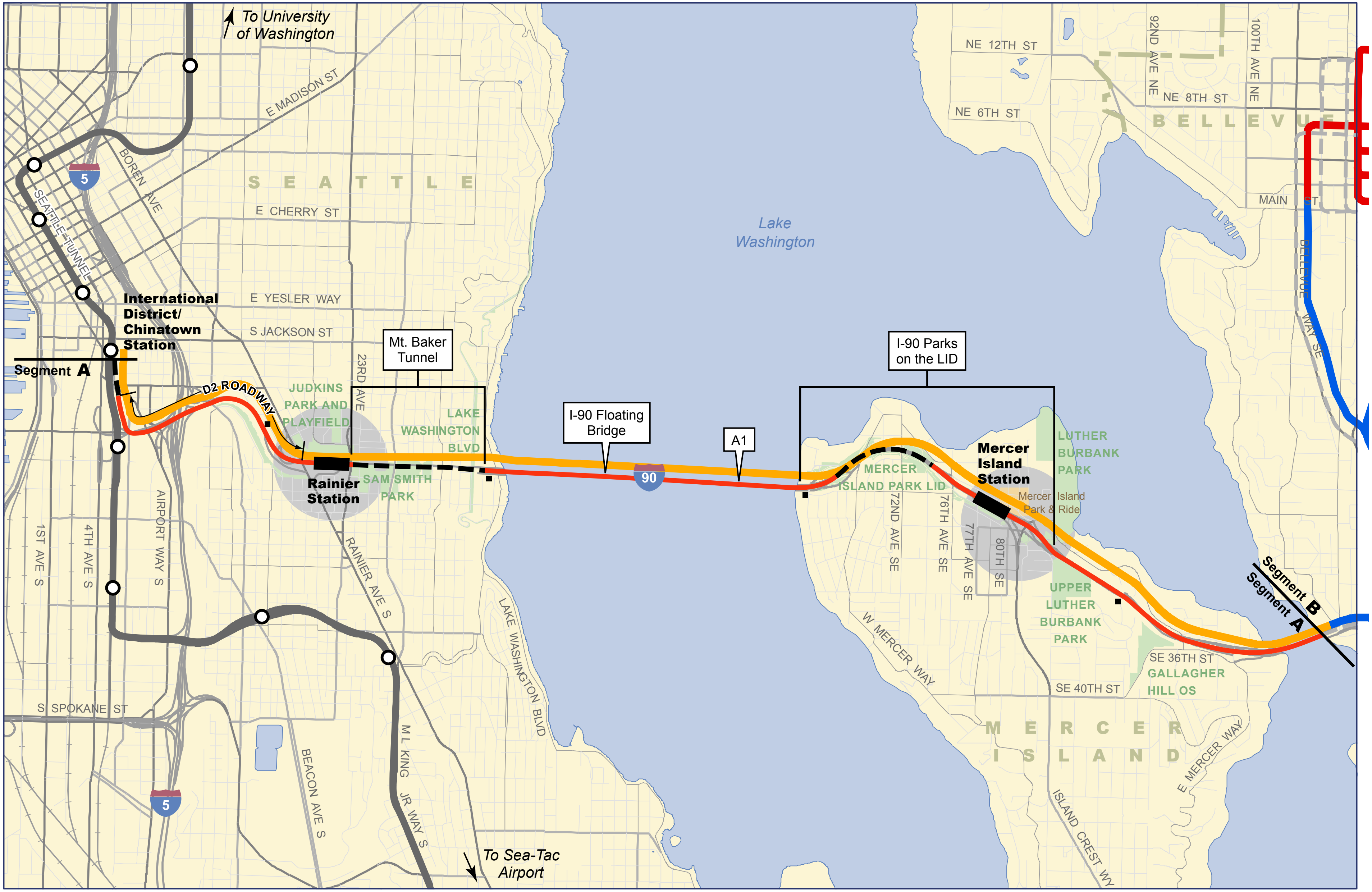
To University of Washington
E MADISON ST
BOREN AVE
SEATTLE TUNNEL
5
S E A T T L E
E CHERRY ST
E YESLER WAY
S JACKSON ST
International District/ Chinatown Station
Segment A
D2 ROADWAY
JUDKINS PARK AND PLAYFIELD
23RD AVE
Mt. Baker Tunnel
LAKE WASHINGTON BLVD
Rainier Station
SAM SMITH PARK
I-90 Floating Bridge
90
A1
Lake Washington
I-90 Parks on the LID
MERCER ISLAND PARK LID
Mercer Island Station
LUTHER BURBANK PARK
Mercer Island Park & Ride
72ND AVE SE
76TH AVE SE
77TH AVE SE
80TH SE
UPPER LUTHER BURBANK PARK
SE 36TH ST
GALLAGHER HILL OS
SE 40TH ST
W MERCER WAY
E MERCER WAY
ISLAND CREST WY
M E R C E R I S L A N D
Segment B
Segment A
NE 12TH ST
NE 8TH ST
NE 6TH ST
92ND AVE NE
100TH AVE NE
B E L L E V U E
MAIN ST
BELLEVUE WAY SE
1ST AVE S
4TH AVE S
AIRPORT WAY S
RAINIER AVE S
LAKE WASHINGTON BLVD
S SPOKANE ST
BEACON AVE S
M L KING JR WAY S
5
To Sea-Tac Airport

Preferred Alternative
🟥 At-Grade Route
▬ ▬ Tunnel Route

Other Alternatives
▬ At-Grade Route
▬ ▬ Tunnel Route

▪ Traction Power Substation
▬ Station
A | B Segment Limit

Segment Limit
○ Central Link Alignment and Station
Adjacent Segment
Central Link Alignment and Station

N

SCALE
0 0.5 Mile

Exhibit 1-1
Segment A, Interstate 90
East Link Project

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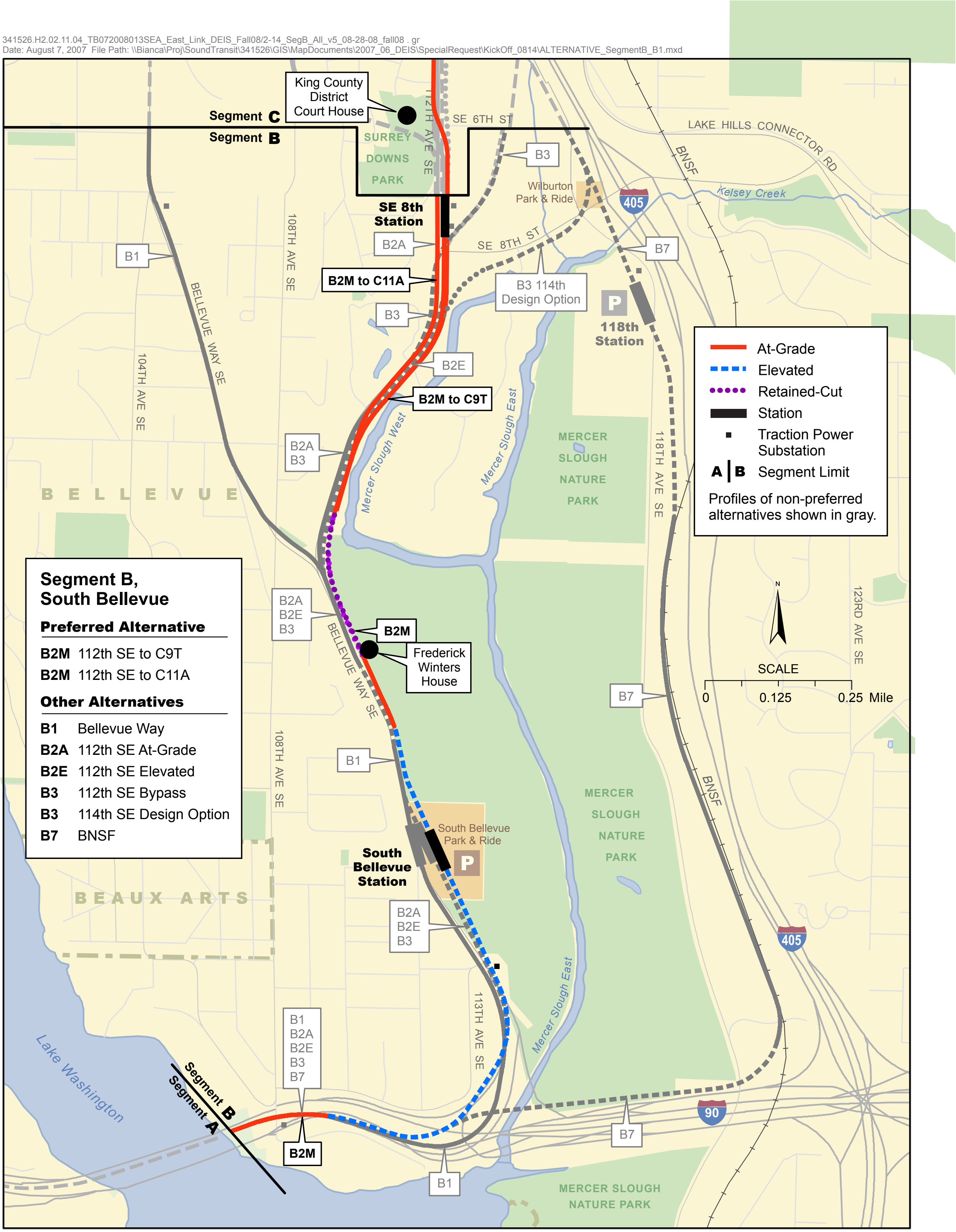
King County District Court House
Segment C
Segment B
SURREY DOWNS PARK
112TH AVE SE
SE 6TH ST
B3
LAKE HILLS CONNECTOR RD
BNSF
Wilburton Park & Ride
405
Kelsey Creek
SE 8th Station
B2A
SE 8TH ST
B7
B1
108TH AVE SE
B2M to C11A
B3 114th Design Option
B3
P
118th Station
BELLEVUE WAY SE
104TH AVE SE
B2E
B2M to C9T
At-Grade
Elevated
Retained-Cut
Station
Traction Power Substation
A | B Segment Limit
Profiles of non-preferred alternatives shown in gray.
B2A
B3
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE SE
BELLEVUE
Segment B, South Bellevue
Preferred Alternative
B2M 112th SE to C9T
B2M 112th SE to C11A
Other Alternatives
B1 Bellevue Way
B2A 112th SE At-Grade
B2E 112th SE Elevated
B3 112th SE Bypass
B3 114th SE Design Option
B7 BNSF
B2A
B2E
B3
B2M
Frederick Winters House
BELLEVUE WAY SE
N
SCALE
0
0.125
0.25 Mile
123RD AVE SE
B7
B1
108TH AVE SE
South Bellevue Park & Ride
P
South Bellevue Station
MERCER SLOUGH NATURE PARK
BNSF
BEAUX ARTS
B2A
B2E
B3
405
Mercer Slough East
113TH AVE SE
Lake Washington
B1
B2A
B2E
B3
B7
Segment B
Segment A
90
B7
B2M
B1
MERCER SLOUGH NATURE PARK

Source: City of Bellevue (2005) and King County (2006).

Preferred Alternatives
🟥 At-Grade Route
🟦 Elevated Route
●●●●● Retained-Cut Route
●●●●● Retained-Fill Route

OtherAlternatives
▬ At-Grade Route
▬ ▬ Elevated Route
●●●●● Retained-Cut Route
●●●●● Retained-Fill Route

▪ Traction Power Substation
▬ Station
▬ ▬ Adjacent Segment
P New and/or Expanded Park-and-Ride Lot
A | B Segment Limit

Exhibit 1-2
Segment B, South Bellevue
East Link Project

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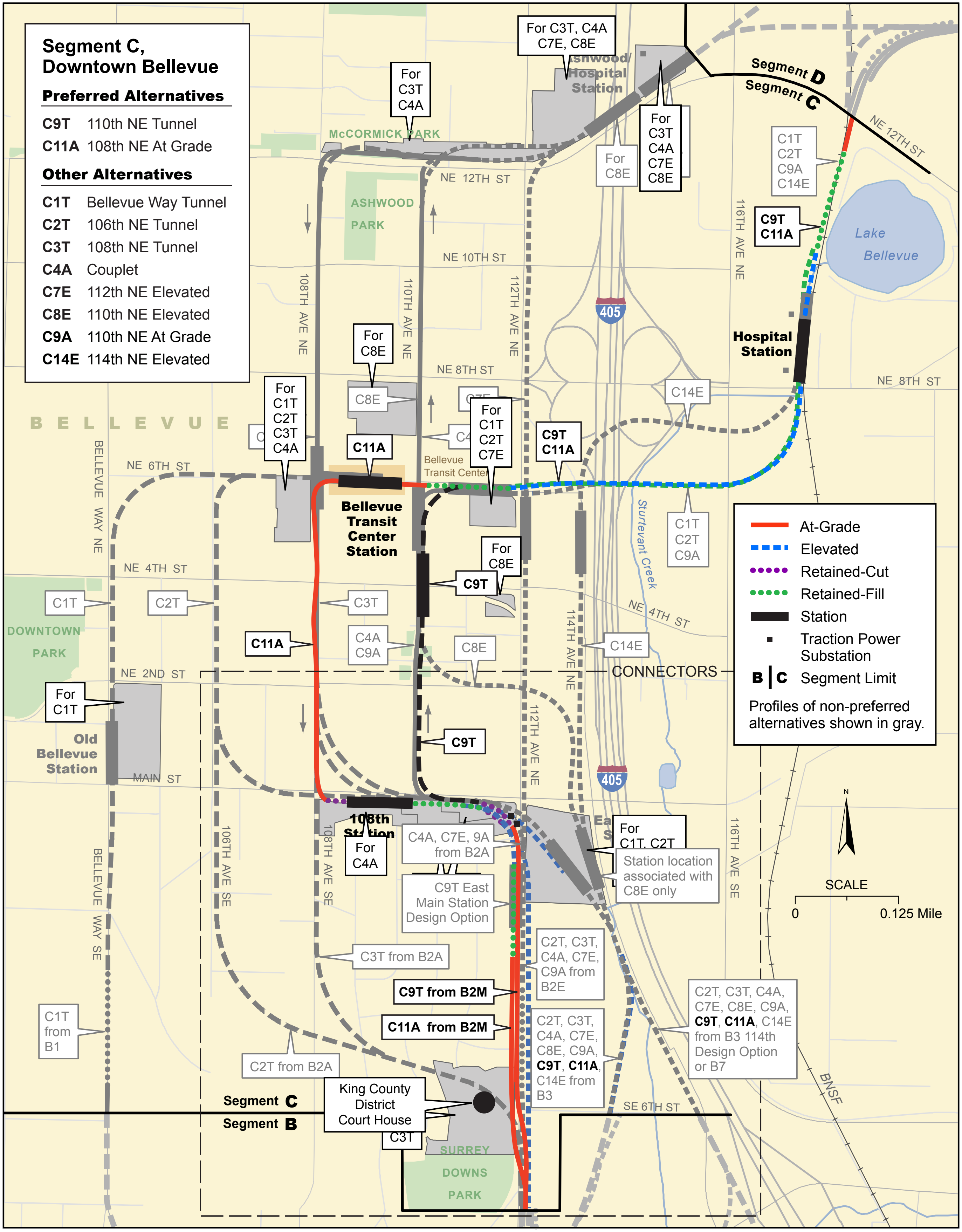

Segment C, Downtown Bellevue
Preferred Alternatives
C9T 110th NE Tunnel
C11A 108th NE At Grade
Other Alternatives
C1T Bellevue Way Tunnel
C2T 106th NE Tunnel
C3T 108th NE Tunnel
C4A Couplet
C7E 112th NE Elevated
C8E 110th NE Elevated
C9A 110th NE At Grade
C14E 114th NE Elevated
At-Grade
Elevated
Retained-Cut
Retained-Fill
Station
Traction Power Substation
B | C Segment Limit
Profiles of non-preferred alternatives shown in gray.
Segment D
Segment C
NE 12TH ST
Lake Bellevue
Hospital Station
Ashwood/Hospital Station
McCORMICK PARK
ASHWOOD PARK
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
SE 6TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
BELLEVUE WAY NE
BELLEVUE WAY SE
106TH AVE SE
108TH AVE SE
112TH AVE NE
116TH AVE SE
405
BELLEVUE
DOWNTOWN PARK
Old Bellevue Station
Bellevue Transit Center Station
Bellevue Transit Center
108th Station
Sturtevant Creek
BNSF
SURREY DOWNS PARK
King County District Court House
For C3T, C4A C7E, C8E
For C3T C4A
For C3T C4A C7E C8E
For C8E
C1T C2T C9A C14E
C9T C11A
For C8E
C8E
For C1T C2T C3T C4A
C11A
For C1T C2T C7E
C9T C11A
C14E
C1T C2T C9A
For C8E
C9T
C1T
C2T
C3T
C11A
C4A C9A
C8E
C14E
CONNECTORS
For C1T
C9T
For C4A
C4A, C7E, C9A from B2A
C9T East Main Station Design Option
For C1T, C2T
Station location associated with C8E only
C3T from B2A
C9T from B2M
C2T, C3T, C4A, C7E, C9A from B2E
C11A from B2M
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A, C14E from B3
C2T, C3T, C4A, C7E, C8E, C9A, C9T, C11A, C14E from B3 114th Design Option or B7
C1T from B1
C2T from B2A
C3T
Segment C
Segment B
SCALE
0
0.125 Mile
N

Source: City of Bellevue (2005) and King County (2006).

Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel

Other Alternatives
- At-Grade
- Elevated
- Retained-Cut
- Retained-Fill
- Tunnel

■ Traction Power Substation
Staging Area
Station
P New and/or Expanded Park-and-Ride Lot
B | C Segment Limit
Segment Limit
Adjacent Segment

Exhibit 1-3
Segment C, Downtown Bellevue
East Link Project

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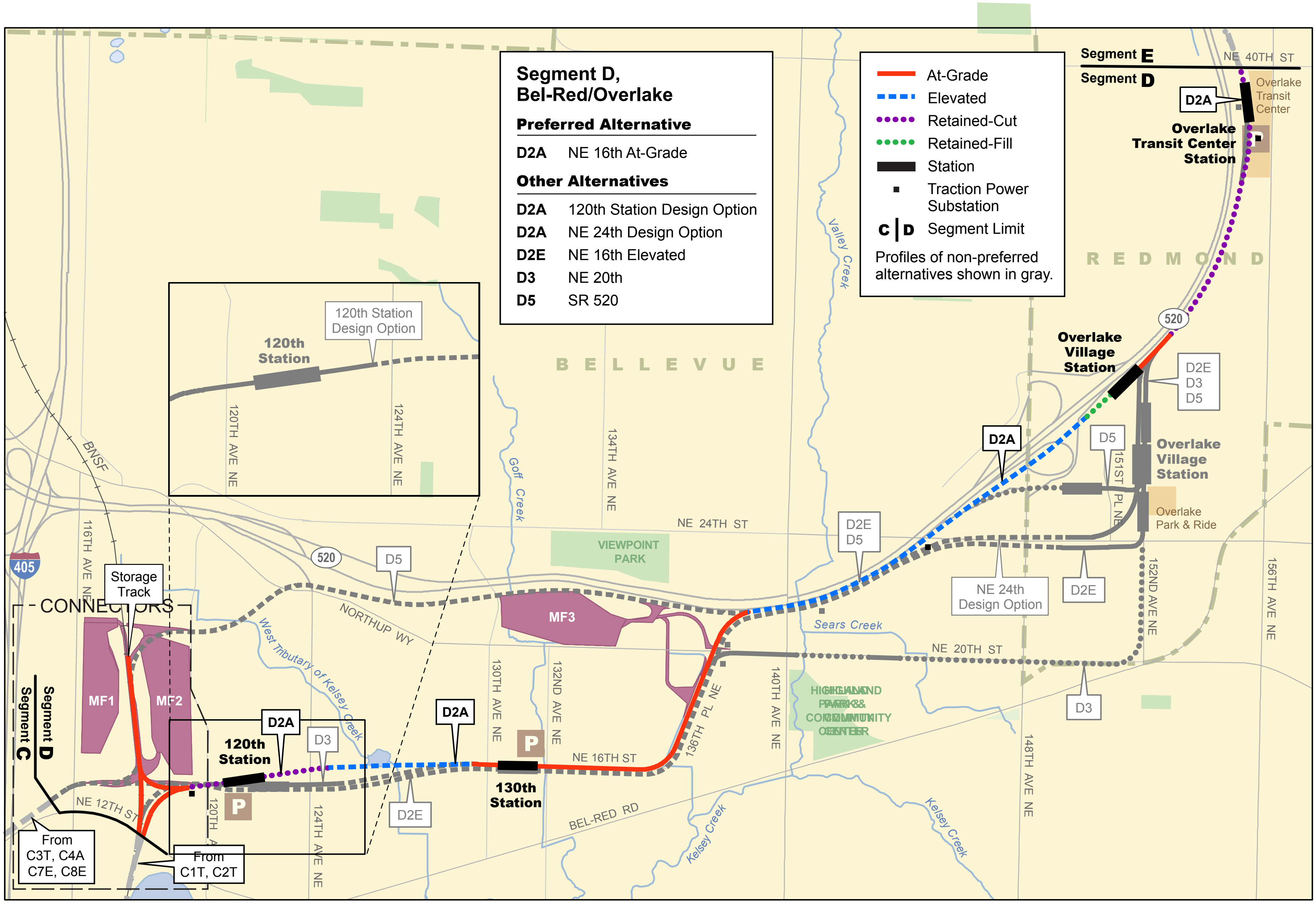

Segment E
Segment D
NE 40TH ST
D2A
Overlake Transit Center
Overlake Transit Center Station
R E D M O N D
520
Overlake Village Station
D2E
D3
D5
D2A
D5
Overlake Village Station
151ST PL NE
Overlake Park & Ride
B E L L E V U E
120th Station
120th Station Design Option
120TH AVE NE
124TH AVE NE
134TH AVE NE
Goff Creek
Valley Creek
NE 24TH ST
VIEWPOINT PARK
D2E
D5
NE 24th Design Option
D2E
152ND AVE NE
156TH AVE NE
BNSF
405
116TH AVE NE
520
D5
Storage Track
CONNECTORS
NORTHUP WY
MF3
Sears Creek
NE 20TH ST
West Tributary of Kelsey Creek
MF1
MF2
Segment C
Segment D
D2A
120th Station
D3
D2A
130TH AVE NE
132ND AVE NE
P
NE 16TH ST
136TH PL NE
140TH AVE NE
HIGHLAND PARK & COMMUNITY CENTER
D3
148TH AVE NE
130th Station
D2E
NE 12TH ST
120TH AVE NE
124TH AVE NE
P
From C3T, C4A C7E, C8E
From C1T, C2T
BEL-RED RD
Kelsey Creek
Kelsey Creek
N
SCALE
0
0.25 Mile

Segment D, Bel-Red/Overlake

Preferred Alternative

D2A	NE 16th At-Grade

Other Alternatives

D2A	120th Station Design Option
D2A	NE 24th Design Option
D2E	NE 16th Elevated
D3	NE 20th
D5	SR 520

- At-Grade
- Elevated
- Retained-Cut
- Retained-Fill
- Station
- Traction Power Substation
- **C | D** Segment Limit

Profiles of non-preferred alternatives shown in gray.

Source: City of Bellevue (2005), City of Redmond (2005), and King County (2006).

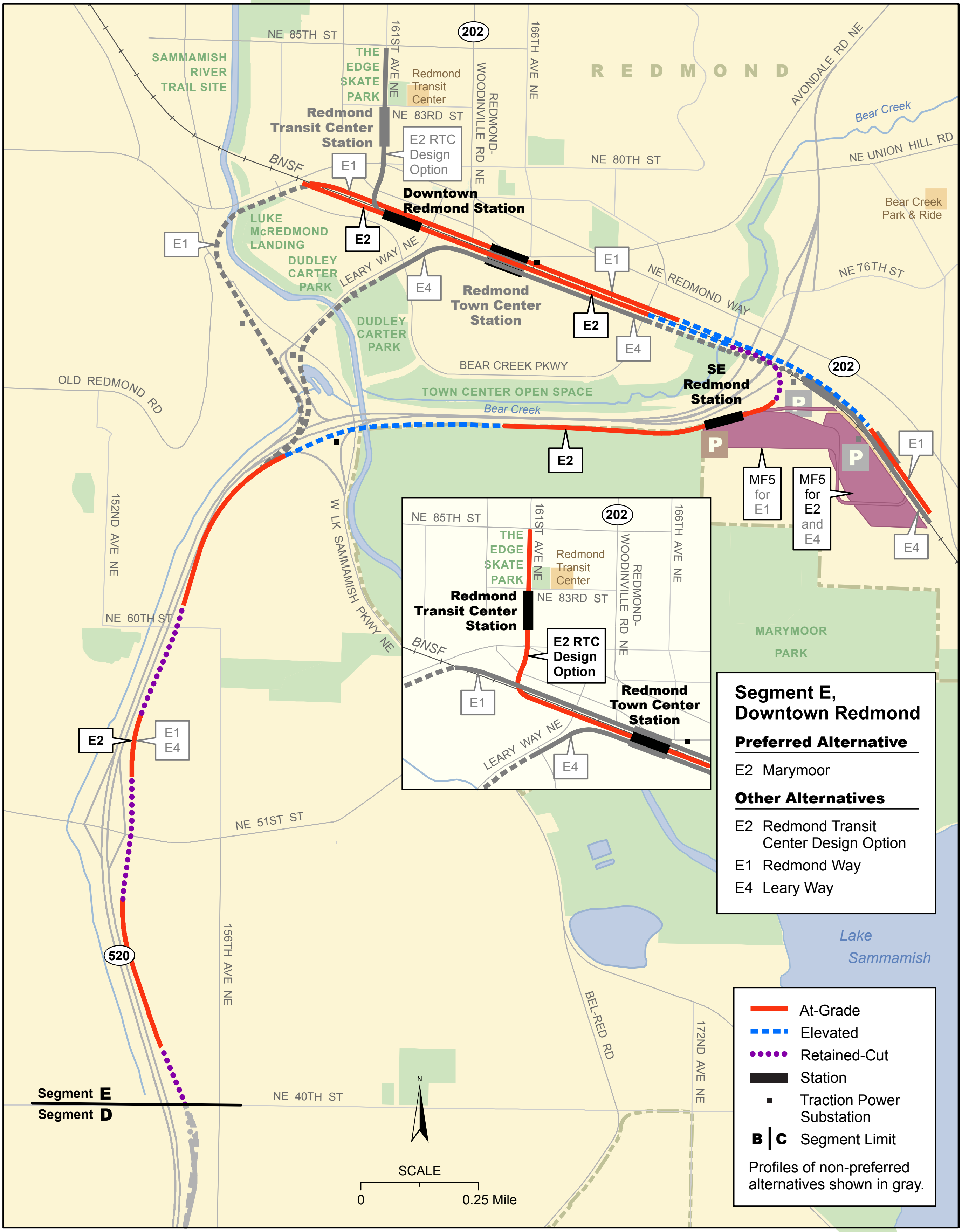
Preferred Alternative
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route

Other Alternatives
- At-Grade Route
- Elevated Route
- Retained-Cut Route

- Traction Power Substation
- Station
- P New and/or Expanded Park-and-Ride Lot
- Maintenance Facility and Tail Track

C | D Segment Limit

Exhibit 1-4
Segment D, Bel-Red/Overlake
East Link Project


NE 85TH ST
202
161ST AVE NE
166TH AVE NE
SAMMAMISH RIVER TRAIL SITE
THE EDGE SKATE PARK
Redmond Transit Center
REDMOND
WOODINVILLE RD NE
REDMOND-
AVONDALE RD NE
Bear Creek
NE UNION HILL RD
NE 83RD ST
Redmond Transit Center Station
E2 RTC Design Option
NE 80TH ST
BNSF
E1
Downtown Redmond Station
Bear Creek Park & Ride
LUKE McREDMOND LANDING
E2
DUDLEY CARTER PARK
LEARY WAY NE
E4
Redmond Town Center Station
NE REDMOND WAY
NE 76TH ST
DUDLEY CARTER PARK
BEAR CREEK PKWY
SE Redmond Station
OLD REDMOND RD
TOWN CENTER OPEN SPACE
Bear Creek
P
MF5 for E1
MF5 for E2 and E4
152ND AVE NE
W LK SAMMAMISH PKWY NE
NE 60TH ST
MARYMOOR PARK
E1 E4
NE 51ST ST
520
156TH AVE NE
BEL-RED RD
172ND AVE NE
Lake Sammamish
Segment E
Segment D
NE 40TH ST
N
SCALE
0
0.25 Mile
Segment E, Downtown Redmond
Preferred Alternative
E2 Marymoor
Other Alternatives
E2 Redmond Transit Center Design Option
E1 Redmond Way
E4 Leary Way
At-Grade
Elevated
Retained-Cut
Station
Traction Power Substation
B | C Segment Limit
Profiles of non-preferred alternatives shown in gray.

Source: King County (2006).

Preferred Alternative
At-Grade Route
Elevated Route
Retained-Cut Route

Other Alternatives
At-Grade Route
Elevated Route
Retained-Cut Route

■ Traction Power Substation
Station
P New and/or Expanded Park-and-Ride Lot
D | E Segment Limit

Segment Limit
Adjacent Segment
Maintenance Facility and Access Track

Exhibit 1-5
Segment E, Downtown Redmond
East Link Project

DRAFT — For internal discussion only. Not reviewed or approved by or on behalf of any party.

2.0 Laws and Regulations

2.1 Federal Laws and Regulations

Federal laws and regulations apply because FTA is the lead agency for Sound Transit's East Link Project. WSDOT is a cooperating agency, and the Washington SHPO is a consulting party. The National Historic Preservation Act of 1966 (NHPA), as amended, and the National Environmental Policy Act of 1969 (NEPA) provide for the consideration of historic properties; the FTA's guidance follows federal regulations for these laws. NHPA Section 106 states that any federal or federally assisted project or any project requiring federal licensing or permitting must consider the project's effects on historic properties listed in, or eligible for listing in, the National Register of Historic Places (NRHP or National Register). Regulations governing the Section 106 review process are contained in the Code of Federal Regulations (CFR) Title 36, Part 800, Protection of Historic Properties. Properties include historic and prehistoric archaeological sites, as well as districts, buildings, structures, objects, and landscapes. The NHPA also provides for consultation with American Indian groups when proposed projects might affect cultural or traditional places or resources that have value to an Indian tribal group, derived from the role the property plays in the community's historically rooted beliefs, customs, and practices (NHPA Section 101). These regulations encourage coordination with the environmental review process required by other statutes, including Section 4(f) of the U.S. Department of Transportation Act of 1966.

Regulations in 36 CFR 800 provide a step-by-step process for satisfying the Section 106 requirements. There are four steps: 1) initiate consultation with regulatory agencies, concerned Indian tribes, and other interested parties; 2) identify historic properties; 3) assess adverse effects; and 4) resolve adverse effects. Significant properties are evaluated in consultation with the Washington SHPO in the DAHP and must qualify for listing in the NRHP by being at least 50 years old, in most cases, and by meeting specific eligibility criteria and standards of integrity (36 CFR 60.4). The current investigation is designed to identify prehistoric and historic-period archaeological sites, historic buildings and structures, districts, and traditional cultural properties (TCPs), and to evaluate their National Register eligibility, to the extent feasible, using reconnaissance-level data. To consider the potential concerns of Indian tribes, the investigation also uses the following regulations:

- American Indian Religious Freedom Act of 1978
- Executive Order (EO) 13007 (access to and/or ceremonial use of sacred sites by Indian religious practitioners)

2.2 Washington State Laws

The State Environmental Policy Act (SEPA), Revised Code of Washington (RCW) 43.21C, and implementing rules contained in the Washington Administrative Code (WAC) 197-11 require the identification of historic, archaeological, and cultural resources listed in, or proposed for, national, state, and local registers, and the identification of measures to reduce or control effects on these resources. RCW 27.44, Indian Graves and Records, protects Indian burials, while RCW 27.53, Archaeological Sites and Resources, protects archaeological sites. RCW 42.56, Public Records Act, provides for the confidentiality of information on archaeological sites. WSDOT's *Environmental Procedures Manual* (WSDOT, 2006) Section 456, Historic, Cultural, and Archaeological Resources, and DAHP's survey and inventory standards both address the methods for cultural resource studies.

2.3 Municipal Regulations

The City of Seattle adopted additional specific environmental policies and procedures in the Seattle Municipal Code (SMC 25.05) while implementing SEPA. Procedures related to historic properties and archaeological sites need to comply with the Landmarks Preservation Ordinance (SMC 25.12), and resources that meet criteria for landmark designation must be identified. Properties eligible for city landmark designation must be at least 25 years old and meet at least one of six criteria of significance. The Seattle Landmarks Preservation Board conducts formal reviews to designate city landmarks. Altering landmarks requires a certificate of approval from the Landmarks Commission or another applicable commission, such as the Pioneer Square Preservation Board.

The City's historic preservation officer might require specific mitigation measures when a proposed project is located adjacent to or across the street from a designated landmark or when a site of potential archaeological significance is impacted.

The City of Mercer Island's Ordinance No. 05C-09 (amending Ordinance No. 02-16) contains provisions for historic designation of private and municipal properties, 50 years of age or older, within the city limits. The City of Redmond's Ordinance No. 2224 contains provisions for historic preservation, including a Redmond Heritage Resource Register, administered by the Landmarks and Heritage Commission. Designation requires that a structure be at least 40 years of age and meet other criteria established by the commission; archaeological sites also are eligible for designation. The property owner must apply to the commission to modify or demolish listed landmarks.

The City of Bellevue has no preservation ordinance. King County's Ordinance No. 20.62 requires the County to maintain a list of landmarks within the unincorporated areas and for some municipalities with which the County has formulated agreements. The County has no agreement with the City of Bellevue.

3.0 Methods

This chapter outlines the methodology developed for archaeological and historic evaluation and FTA and Sound Transit's consultation regarding the methodology. Project cultural resource specialists prepared a statement about the methods that would be used to inventory and evaluate historic properties, and to determine potential project effects and mitigation measures. Sound Transit provided the methods statement to DAHP and the Duwamish, Muckleshoot, Snoqualmie, and Tulalip Indian tribes for review, and discussed the methods during consultation meetings and field trips. The methodology includes the definition of the Area of Potential Effects (APE), data collection methods, archaeological sensitivity model and survey procedure, building and structure inventory methods, National Register of Historic Places eligibility evaluation process, effects analysis approach, and avoidance and mitigation measure development.

3.1 Area of Potential Effects

Sound Transit and FTA, consulted with, and received concurrence from, the SHPO on the APE used for the project (letter of July 13, 2007, from DAHP to FTA). Sound Transit determined and mapped an APE for both archaeological resources and historical buildings and structures (Appendix C). The APE is the area within which an undertaking may cause direct or indirect changes to the character of any historic properties. The APE for archaeological resources is limited to the portion of the project where ground-disturbing activities will be conducted, such as areas for demolition, construction, staging, equipment storage locations, and stormwater management facilities, per 36 CFR 800.16[d]. For the archaeological resource investigation, the vertical APE might vary according to construction practice—deeper for excavation areas and shallower for at-grade construction, depending on the geomorphology of the landform where the project element occurs.

The APE for historical buildings and structures is one block (approximately 200 feet) on each side of the centerline of the project routes (i.e., a total corridor width of approximately 400 feet). The APE extends approximately 200 feet from the outer limits of station locations and maintenance facilities. The APE also includes the area one block from where tunnel alternatives could disturb the surface or have the potential for other surface effects, depending on terrain and local land use. Uniquely, for bored or mined tunnel construction, the APE for noise, vibration, and settlement effects is 100 feet on each side of the route centerline (i.e., a total corridor width of approximately 200 feet).

3.2 Data Collection

Information regarding resources in the East Link Project APE, that have already been identified, evaluated, and recognized, was gathered from established lists—the NRHP, the Washington Heritage Register (WHR), the DAHP, and local landmark or historic designations. Online register lists for the King County Historic Preservation Program and the City of Seattle were checked. Project archaeologists and historians reviewed the methods and results of cultural resource management reports for previous surveys conducted near the APE. Information regarding existing historic or prehistoric archaeological and traditional cultural resources in the project APE was gathered to help characterize the types of resources that might be found, and to identify areas that possess a high sensitivity for containing such sites. Sources of this information included historical maps, ethnographic literature, local histories, General Land Office Survey maps, and the files and site records of the Washington DAHP. Project archaeologists and historians mapped the locations of known archaeological sites, ethnohistoric places, and historical buildings and structures.

Other sources included fire insurance maps, historical photographs, building permits, assessors' records, and oral histories. Locations for this information included the University of Washington, Seattle Public Library, the Museum of History and Industry, and the Washington State Archives Puget Sound Region Branch at Bellevue Community College. In addition, Project historians contacted the Eastside Heritage Center, advocates for historic preservation, and private-sector experts.

Research was conducted to determine the soil types, geomorphologic setting, and age of landforms involved, as well as the extent of modern disturbance. The research established the potential for encountering buried prehistoric and historic archaeological sites, increasing the likelihood that existing sites would be identified during reconnaissance. It is possible, however, that one or more subsurface sites might not be discovered before construction.

Tribal consultation was the most important method for gathering data pertinent to identifying TCPs within the APE. Another method consisted of research into ethnographic sources that discuss Indian place names, especially the geographical data that T.T. Waterman prepared for the Puget Sound area in the 1920s (Hilbert, et al., 2001; Waterman, 1920). During consultation, Sound Transit, FTA, and tribal representatives discussed protocols to protect culturally sensitive information from broad public distribution. If TCPs were to exist within the APE, and interested tribes were concerned about maintaining the confidentiality of culturally sensitive information, then Sound Transit and FTA would avoid placing information specifically identifying the resource in the EIS.

3.3 Archaeological Study

3.3.1 Archaeological Sensitivity Models

Project archaeologists mapped the potential for prehistoric and historic-period archaeological sites to occur in the APE and reviewed information gathered about environmental features, known archaeological resources, and the patterns of prehistoric, ethnographic, and historic use of the area. Project archaeologists then studied maps and conducted a vehicle reconnaissance of the alternatives in 2007. Project archaeologists developed a set of criteria for identifying areas with a high sensitivity for containing archaeological sites, excluding locations with apparently severe disturbance, such as along I-90 in Segment A. High-sensitivity zones were identified areas where the potential for archaeological resource findings is high. The high-sensitivity areas are as follows:

- Areas within about 0.25 mile of water body confluences, especially water bodies with anadromous fish runs
- Areas within about 0.25 mile of water bodies
- Areas within about 0.25 mile of freshwater resources
- Areas on higher ground, such as terraces above water bodies
- High areas that provide protection and/or visibility, such as bluff tops

Areas on General Land Office (GLO) plats and/or Sanborn Fire Insurance Maps that show historical land use. In response to the DAHP comment on the Draft EIS requesting additional archaeological survey, project archaeologists developed an expanded cultural resources survey plan to identify potential prehistoric and historical archaeological sites along the *Preferred Alternative* and guide additional surveys as part of Final EIS (Gilpin and Thompson, 2010). Project archaeologists used information gathered about known archaeological resources and the patterns of prehistoric, ethnographic, and historic use of the area, along with the results of the previous cultural resources assessment, which was conducted in advance of the Draft EIS (Thompson et al. 2007). Archaeological field survey was designed to target a reasonably representative sample of the Project's *Preferred Alternative* with a systematic examination of a number of parcels, concentrating on high probability areas, but also including some lower probability areas; some open and undeveloped areas; more developed, urbanized areas; and some public and private ownership areas, within the APE of the *Preferred Alternative*.

Project archaeologists first identified areas of greater or lesser archaeological probability by reference to models developed by HRA for the East Link Project, and by DAHP for the state. The archaeological sensitivity data from the DAHP was provided in a format compatible with Global Positioning System (GPS) mapping software (e.g., ESRI ArcMap®), and the information covered the alignments active at that time. The DAHP archaeological predictive model uses standardized and repeatable statistical methods including Bayesian statistical analysis and "point kringing" (a form of geostatistical spatial estimation) (Kauhi and Markert 2009:46) with statewide environmental and cultural resources data. Data on geology, soils, landform, and information gleaned from historic-period GLO plats, were correlated with locations of known archaeological sites to "…determine the probability that, under a particular set of environmental conditions, another location would be expected to contain an archaeological site." (Kauhi and Markert, 2009)

DAHP's model combines local information from field surveys to identify locations with five resulting sensitivity levels: Very High (5), High (4), Moderate (3), Low (2), and Very Low (1). The agency refined these categories for management purposes, with groups (1) and (2), Archaeological Survey Contingent upon Project Parameters; group (3), Archaeological Survey Recommended; and groups (4) and (5), Archaeological Survey Required. The sensitivity zones developed by project archaeologists and the DAHP are shown on maps provided in Appendix B, and they are discussed in Section 7.1.2.

3.3.2 Selection of Geotechnical Boring Locations for Archaeological Survey

As part of preliminary engineering for the project, geotechnical borings were conducted in Segments A through D to assess general subsurface soil and groundwater conditions. The borings measured up to 8 inches in diameter and extended from approximately 50 to 200 feet deep. Project archaeologists determined that these borings would provide relatively little useful archaeological data because of the methods that are used in drilling. As a result, FTA proposed, and DAHP concurred, that no archaeological monitoring would be conducted during this exploratory work. A more important concern was whether the drilling activity (e.g., moving or storing equipment) could impact an unrecorded archaeological site. This would most likely occur on a soft surface, such as grass, that has not previously received an archaeological survey. For this reason, a "pre-excavation archaeological survey" was proposed for four high sensitivity boring locations (Thompson and Gilpin, 2010).

Several sources of information were examined to identify highly sensitive boring locations. Project archaeologists first examined archaeological sensitivity maps of the project APE (see Section 3.3.1, above), and compared these data with GIS maps showing the locations of proposed bore holes plotted on an aerial photograph background. Project archaeologists then used a table that outlined the identification (i.e., designation), location, and several additional characteristics of each proposed boring. These characteristics included proposed depth overall, depth to a hard (i.e., glacial, bedrock) surface, whether the bore would be placed on pavement or grass, and the potential for disruption of traffic.

Project archaeologists used the sensitivity maps and table, in combination with the results of the 2007 archaeological survey for the project, to winnow the list of potentially sensitive probe locations to those proposed for a pre-drilling survey. As a final cross-check, to potentially further refine boring locations, archaeologists examined the data for eight geotechnical borings excavated for the 2008 Draft EIS (Jacobs Associates, 2007) and 18 previously excavated borings along the route in Segment B (GeoMap NW 2009).The eight borings described by Jacobs Associates (2007) in Appendix B are located along Segment C, and were largely outside the area of the boreholes planned for Final EIS studies in the highly sensitive portions of Segment B. However, the 18 bores mentioned previously were drilled in the direct vicinity of the Segment B route.

The high-sensitivity borehole locations selected for archaeological survey occur along Segments B, C, and D. Segment A was not included because it consists largely of I-90, which either contains too much fill or is too disturbed for archaeological resources to be present, and no borings are presently planned for Segment E. Following are the selected borehole locations:

- Located in the previously-mapped zones of higher archaeological sensitivity
- Proposed to be excavated on a grassy surface (This narrowed down the probe locations to several in Segment B, with none in Segments C or D, where borings in archaeologically sensitive areas are proposed to be drilled on pavement.)
- Situated on relatively little estimated fill (This step eliminated several probes that are located close to the I-90 on- and off-ramps to Bellevue Way SE.)
- Proposed to be drilled outside of the boundaries of the 2007 archaeological survey tracts in Segment B, for which archaeological and subsurface information is already known (Thompson and Gilpin, 2010)

3.3.3 Archaeological Survey

For the initial archaeological survey conducted in 2007, Project archaeologists focused attention on multiple routes. Archaeologists selected a number of tracts for survey, favoring locations with high sensitivity for containing archaeological sites, but also including some areas of low sensitivity for comparison. Survey tracts focused on land that is publicly owned and on open land used to facilitate access, land with clear views of the ground surface, and on land allowing the possibility of digging shovel test probes. These locations were dispersed among the alternatives, as practical (Appendix B).

For the 2010 Archaeological Survey Plan (Appendix A), a similar method for selecting survey tracts was used, although attention was focused on the *Preferred Alternative* in each project segment. Project archaeologists prepared an Archaeological Survey Plan, and much of the discussion below is taken from this document (Thompson and Gilpin, 2010). Project archaeologists created a color-coded priority system to aid in the selection of archaeological survey tracts (Thompson and Gilpin, 2010). The process of prioritizing was undertaken with reference to the two sensitivity models (see Section 3.3.1), and by taking into account perceived local ground disturbance. Table 3-1 outlines this color-based priority system, with the general guidelines applied by project archaeologists, while coding each proposed survey segment. Based on this method, 11 tracts were identified for Stage 1 survey (see Thompson and Gilpin 2010 for spreadsheets showing this process). Additional tracts were also identified using this method, for future survey.

TABLE 3-1
Colors Used To Categorize Proposed Final EIS Archaeological Survey Tracts

Flag Color	**Project Archaeologist Sensitivity (Approximate)**	**DAHP Sensitivity (Approximate)**	**Additional Factors**
Red	High	5 (Survey Highly Advised: Very High Risk) Can be 4 (Survey Highly Advised: High Risk)	Generally, fewer disturbances seen (i.e., vegetated), but largely very high sensitivity.
Yellow	High	5 (Survey Highly Advised: Very High Risk) 4 (Survey Highly Advised: High Risk) Can be 3 (Survey Recommended: Moderate Risk)	Generally showing more developed and/or paved surfaces, but still high sensitivity.
Green	Low	4 (Survey Highly Advised: High Risk) 3 (Survey Recommended: Moderate Risk) Can be 2 (Survey Contingent Upon Project Parameters: Moderately Low Risk)	Generally, fairly developed and/or paved surfaces; some moderate risk. These tracts can be used as control or comparison areas for lower probability.
Blue	Low	2 (Survey Contingent Upon Project Parameters: Moderately Low Risk) 1 (Survey Contingent Upon Project Parameters: Low Risk)	Generally, very developed and/or disturbed, with lowest archaeological sensitivity.

Project archaeologists coded the proposed tract as Red when both sensitivity models classified the area as High to Very High risk, and it appeared (using aerial photographs) that the vicinity showed few obvious disturbances (i.e., much of the area shows vegetation rather than development). Yellow survey tracts are those with generally high sensitivity, but usually with increased disturbance; for instance, development or paved surfaces. Project archaeologists coded tracts as Green when (a) archaeological probability was high to moderate (generally, by the DAHP model) and predicted disturbances were quite extensive, or (b) archaeological probability was more moderate, but fewer disturbances were evident on aerial photographs of the alignment. Blue survey tracts are those in low-probability areas for archaeological resources, and they are generally also perceived to be at least moderately affected by development. This color coding system was then used as a basis for assigning proposed survey tracts to Stage 1 and 2, as described below.

Based on this color-coded priority system, 11 tracks were identified for Stage 1 survey as part of the Final EIS because these meet the following criteria:

- Identified as high probability for archaeological resources under both sensitivity models
- Primarily in public ownership
- Free from pavement or otherwise readily accessible

Based on the information gained from Stage 1 research and archaeological investigations, including geotechnical borings, a second preconstruction survey (Stage 2) would be planned, refined, and implemented. Stage 2 tracts are anticipated to be outside of public ownership, or are paved or otherwise less accessible at the time of the 2010 survey. Portions of several proposed Stage 1 tracts extended onto private property (for example, in Segment B), and these portions may be surveyed in Stage 2 (Thompson and Gilpin, 2010). The Stage 2 approach is included in Appendix A, Archeological Survey Plan.

A crew of four archaeologists conducted the survey, walking pedestrian transects at intervals appropriate for each alternative and level of existing urban development, generally at about 10- to 20-meter (33- to 66-feet) intervals. While the 2007 survey was generally limited to surface investigation, except for alluvial sediments or relatively shallow historical fill, the 2010 survey focused on systematic subsurface survey of the *Preferred Alternative* in the Stage 1 survey tracts. The field director took into account local disturbances, topography, and field conditions (i.e., large amounts of fill or other recent disturbances, standing water) to determine the placement of auger or shovel probes. Probes were generally spaced at about 20-meter (66 foot) intervals, and they were excavated down to sterile materials or a maximum of 2 meters (7 feet) in depth.

Excavated matrix was screened through .025 -inch mesh and examined for prehistoric- and historic-period artifacts. Cultural items were documented on standardized shovel probe forms and, if diagnostic, by digital photography, before being returned to the excavated hole; no artifacts were collected. The shovel probes were immediately backfilled following their termination and recording, and the turf was replaced, as appropriate.

Included in the above-described group of strategic shovel probes is one location where Sound Transit planned to drill a geotechnical boring in an archaeologically sensitive zone (Survey Tract 12F). Prior to the excavation of this boring, archaeologists examined the grassy (or otherwise unpaved) ground surface surrounding the drill location, and excavated one shovel probe at the approximate drill location, to determine if the drilling (including the movement of drill-related machinery) would disturb an unrecorded archaeological site. Archaeologists also performed a pedestrian survey and excavated eight shovel probes within a length of the APE at the location of the proposed boring (see Appendix B). The location of survey transects and shovel probes was recorded using a handheld Trimble® GPS unit loaded with ArcGIS® software. Archaeological sites were mapped, photographed, and recorded using Washington Archaeological Site Inventory forms. Maps of archaeological survey tracts from 2007 and 2010, along with summary information on shovel probes, are provided in Appendix B and discussed in Section 7.1.3.

3.4 Inventory of Buildings and Structures

Sound Transit architectural historians conducted a literature and records search and a reconnaissance-level field survey of historic buildings and structures in the East Link APE using the year 2016 as a baseline. Per the baseline, buildings in the APE that would be 50 years old by 2016 were evaluated and documented. For buildings in the City of Seattle, Project architectural historians used the local age criterion of 25 years, whereas the City of Mercer Island uses an age of 50 years and the City of Redmond uses 40 years. As the City of Bellevue has no local historic preservation ordinance, the age criterion of 50 years old by 2016 was applied.

The architectural historians drove along the alternative routes on several occasions, between September 2006 and April 2010. Using lists compiled from records searches, including maps of parcels with buildings identified in King County Tax Assessor's data that met the age criteria, existing historic property inventory (HPI) forms, NRHP nomination forms, and published sources, the architectural historians compiled a master list of historic resources within the East Link APE. The architectural historians briefly surveyed these areas, in September and December 2006, to search for buildings and structures that would clearly be of concern in initial evaluations of project alternatives. These architectural historians returned to the study area in February, April, May, September through October 2007, and again in February, March, and April 2010, for systematic inventory along the alternatives.

Resources that met the applicable jurisdiction's age criterion by 2016 were photographed and reconnaissance-level data was entered into Washington State DAHP Historic Property database inventory forms along with a recommendation of the buildings' eligibility for listing in the NRHP, WHR, or local jurisdiction register. Complete inventory forms were then completed for those structures that met one or more of the eligibility criteria for the NRHP, WHR, or local jurisdictions' criteria of integrity and significance. The result of the records search and reconnaissance field survey is a list of existing and newly recommended historic properties in the APE that could be affected by one or more of the Project alternatives. A list of inventoried buildings and structures is provided in Appendix C and discussed in Section 7.3.

3.5 Evaluation of Register Eligibility

Prehistoric and historic-period archaeological sites, TCPs, and buildings and structures are called "historic properties" if they are listed in, or eligible for, the NRHP. To be eligible, a property must be at least 50 years old or be exceptionally important and meet one or more of the criteria for evaluation, as outlined in 36 CFR 60.4:

> *The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, or association; and*
>
> A. *That are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> B. *That are associated with the lives of persons significant in our past; or*
>
> C. *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> D. *That have yielded or may be likely to yield, information important in prehistory or history.*

Certain properties are unlikely to qualify, including cemeteries, birthplaces and graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years. The application of the criteria considerations is discussed in 36 CFR Part 63. Properties can be eligible for the NRHP at the national, regional, or local level. Landmark registers for the cities of Seattle, Mercer Island, and Redmond use criteria similar to those for the NRHP, although the age criterion for the City of Seattle is 25 years and for the City of Redmond it is 40 years.

Sound Transit and FTA submitted the database of inventory forms to DAHP for review of preliminary determinations about NRHP eligibility. Similarly, the agencies submitted the forms to the cities of Seattle, Mercer Island, and Redmond for reviews of eligibility determinations. Only these local jurisdictions can determine local landmark status after their formal review; therefore, apparent eligibility for local landmark status was based solely on the professional judgment of East Link and local jurisdiction staff, and is not to be considered an official determination. DAHP reviewed the inventory forms and made concurrence determinations of National Register eligibility for the properties (Letters from DAHP to FTA of November 16, 2007; February 20, 2008; and February 24, 2009). The City of Redmond provided a letter regarding the National Register eligibility of properties within the City's jurisdiction (Letter from City of Redmond to Sound Transit of November 19, 2007), and the City of Mercer Island concurred with the project inventory and lack of National Register-eligible properties within its jurisdiction (Letter from Mercer Island to Sound Transit on January 22, 2008). The result was a list of existing and newly recommended historic properties in the APE that could be affected by one or more of the project alternatives.

3.6 Approach to Effects Analysis

The analysis for construction impacts and operations impacts follows the standard approach for historic properties, including buildings and structures, prehistoric and historic-period archaeological sites, and TCPs. The Advisory Council on Historic Preservation's regulations implementing NHPA Section 106 create a process by which federally assisted undertakings are reviewed for their impacts on properties listed in, or eligible for listing in, the NRHP. After the resource is identified and evaluated, the next step is to apply the Criteria of Adverse Effect. These criteria are used to determine whether the undertaking could change the characteristics that qualify the property for NRHP inclusion. An adverse effect (or impact) is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects include, but are not limited to, the following:

- Demolishing or altering the property
- Altering the property's setting

- Introducing visual, audible, or atmospheric elements that are out of character with the setting of the historic property
- Physically encroaching upon an archaeological site

In addition to the criteria above, 36 CFR 800.5(b) allows the agency official to propose a finding of no adverse effect if the undertaking is modified or conditions are imposed to avoid impacts.

Cumulative effects are discussed using readily available information on past, present, and foreseeable projects.

3.7 Potential Mitigation Measures

When an undertaking is found to have an adverse effect, Section 106 requires consultation with the Washington SHPO in the DAHP, affected Indian tribes, and other interested parties regarding appropriate avoidance or mitigation measures. Some typical mitigation measures include modifying the undertaking through redesign, reorientation, or other similar changes; documenting buildings or structures that must be destroyed or substantially altered; and implementing data recovery of archaeological or architectural information and materials. Sound Transit and FTA consulted with SHPO about potential mitigation measures for historic properties. The product of consultation, when there is a finding of adverse effect for the project, is an agreement document (Memorandum of Agreement [MOA] per 36 CFR 800.6[c]) that contains stipulations specifying measures to be implemented that would avoid or mitigate the impacts. A draft MOA is in Appendix G of this report.

4.0 Agency and Tribal Consultation

Sound Transit consulted with the Washington DAHP, local jurisdictions, and Indian tribes during its historic and archaeological resources investigations. Sound Transit coordinated with staff members at the cities of Bellevue, Mercer Island, Redmond, and Seattle. Consultation with DAHP and other agencies clarified the applicable federal, state, and local legal and regulatory requirements for any archaeological sites and/or TCPs identified within the East Link APE.

Sound Transit and FTA sought government-to-government consultation with the Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, Duwamish Tribe, Tulalip Tribes of Washington, and Yakama Nation, initially providing information by mail. The initial letters served to identify which tribes wished to participate in consultation, to establish a protocol, and to identify the appropriate tribal representatives with whom to consult. Meetings were held with Snoqualmie and Muckleshoot tribal representatives to discuss the project, its potential effects on archaeological sites and TCPs, and whether the tribes would like to make field trips to the study area and provide members for the archaeological field crew. Sound Transit and FTA solicited information from the tribes about the presence of any known archaeological sites and TCPs that might be affected by future construction of a *Preferred Alternative*. Table 4-1 lists the letters that resulted from agency and tribal consultation. Copies of letters appear in Appendix E.

TABLE 4-1
Consultation Summary

Date	Form	Participants	General Topic(s)
August 24, 2006	Letter	FTA/Sound Transit to Tulalip, Duwamish, Muckleshoot, Yakama, Snoqualmie, and Suquamish tribes	Opening consultation with tribes
December 19, 2006	Submittal of cultural resources methods statement to DAHP and ACHP, tribes and US Bureau of Indian Affairs for review	Sound Transit and DAHP	Historic, archaeological, and cultural resources methods statement sent to DAHP for review
January 2, 2007	Letter	From Matthew Sterner, DAHP, to James Irish, Sound Transit	Review comments on proposed resource study methods statement
July 3, 2007	Letter	FTA to DAHP	Requesting concurrence on APE for historic properties
July 13, 2007	Letter	DAHP to FTA	Concurring in APE for historic properties
July 18, 2007	Letter	FTA to DAHP	Requesting concurrence in determinations of NRHP-eligibility for historical resources
November 16, 2007	Letter	DAHP to FTA	Providing determinations of National Register eligibility for historic properties
November 19, 2007	Letter	City of Redmond to Sound Transit	Concurring with Local Register eligibility recommendations
November 19, 2007	Letter	Snoqualmie Tribe to Sound Transit	Requesting Sound Transit to clarify position about former BNSF Railway corridor.
January 9, 2008	Letter	FTA to DAHP	Requesting review and concurrence of additional historic properties
January 22, 2008	Letter	City of Mercer Island to Sound Transit	Concurring with Local Register eligibility recommendations
February 20, 2008	Letter	DAHP to FTA	Providing determinations of NRHP eligibility for additional historic properties
May 27, 2008	Letter	City of Seattle to Sound Transit	Providing determinations of eligibility for Seattle Landmark Ordinance

TABLE 4-1 CONTINUED
Consultation Summary

Date	Form	Participants	General Topic(s)
December 10, 2008	Letter	Advisory Council on Historic Preservation to Sound Transit	Acknowledging receipt of the 2008 Draft EIS
January 5, 2009	Letter	DAHP to FTA	Acknowledging receipt of 2008 Draft EIS and requesting consultation once a Preferred Alternative is selected
February 24, 2009	Letter	DAHP to FTA	Concurring with eligibility determinations for 337 properties and providing comments and potential determinations of effects
September 29, 2009	Letter	DAHP to FTA	Concurring with use of archaeological monitor in areas considered potentially sensitive.
November 23, 2009	Letter	DAHP to WSDOT	Concurring with eligibility determination for I-90 Lake Washington Segment
June 9, 2010	Letter	FTA to DAHP	Providing determinations of NRHP eligibility for additional historic properties
October 18, 2010	Letter	DAHP to FTA	Providing determinations of eligibility for additional historic properties
November 23, 2010	Letter	DAHP to FTA	Providing determination of eligibility for an archaeological site
March 28, 2011	Letter	FTA to DAHP	Requesting concurrence in determinations of NRHP-eligibility for a historical resource
May 19, 2011	Email	King County Metro Transit to FTA and Sound Transit	Providing Comments on the Archeological Resources Technical Report
May 23, 2011	Letter	City of Bellevue to FTA	Providing comments on potential historic impacts as a consulting party under Section 106
June 9, 2011	Letter	WSDOT to FTA	Concurring with determinations of Adverse Effect on Section 106 resources
June 10, 2011	Letter	City of Redmond to FTA	Review comments on the Historic and Archeological Resources Technical Report
April 21, 2011	Letter	FTA to DAHP	Requesting concurrence regarding determinations of NRHP-eligibility for archaeological resources.
June 15, 2011	Letter	DAHP to FTA	Providing concurrence determinations of National Register eligibility for historic properties and determinations of effect.

5.0 Environmental Context

This section describes the natural and geologic setting of the project vicinity, which provides a context for the environment in prehistoric times and insight regarding where archaeological remains may be discovered based on past geologic events and modern development.

5.1 Natural Setting

The East Link Project would be located in the central portion of the Puget Sound Lowland, generally running east and northeast across a series of north-south trending uplands and water bodies, from Seattle, east across Lake Washington and Mercer Island, along Mercer Slough, across the Bellevue upland, and into the Sammamish River Valley to Redmond. Drainages that would be crossed include Puget Sound, the Duwamish River estuary, Lake Washington, Mercer Slough, Sturtevant Creek, Lake Bellevue, Kelsey Creek and its tributaries, the Sammamish River, and Bear Creek. Ground surface elevations generally range within 500 feet above sea level. Summary information on environmental factors that would affect the resource and land use of prehistoric and historic-period residents can help identify areas sensitive for archaeological resources, as well as the types of resources that could be present.

Late Pleistocene glaciation and post-glacial alluvial processes shaped the landforms in the project vicinity, starting by about 18,000 years before present (B.P.) (Porter and Swanson, 1998). [1] As the glaciers melted, plant and animal communities became established and able to support prehistoric gathering, hunting, and fishing, with a tundra environment becoming established by about 15,000 B.P. and a forest-parkland environment about 14,000 B.P. (Brubaker, 1991; Whitlock, 1992). In the latter environment, species included scattered trees of lodgepole pine (*Pinus contorta*), alder (*Alnus rubra*), and Douglas fir (*Pseudotsuga menziesii*); and shrubs, bracken fern (*Pteridium aquilinum*), and grasses (Whitlock, 1992). Climatic conditions warmed and dried, even more so than today, expanding the forest-parkland environment until about 7,000 B.P. (Barnosky, et al., 1987).

Climatic conditions similar to the present became established by about 6,000 B.P. Western hemlock (*Tsuga heterophylla*) and successional Douglas fir dominated the forested uplands, while western red cedar (*Thuja plicata*) were found along the stream banks, and marshes occurred in low-lying areas (Brubaker, 1991; Whitlock, 1992). Deer (*Odocoileus* sp.) and elk (*Cervus canadensis*) were probably more abundant in stream valleys than upland forests. Environments along water bodies generally supported more varied plant and animal resources useful to humans, including wetland plants, waterfowl, and large and small game. Mercer Slough and its tributaries (Kelsey Creek and Sturtevant Creek), and the Sammamish River and its tributary (Bear Creek), have supported a variety of abundant resources, including a combination of anadromous Chinook (*Onchorynchus tshawytscha*), coho (*O. kisutch*), and sockeye (*O. nerka*) salmon (Williams, et al., 1975), as well as resident fish and freshwater mussels.

5.2 Geomorphic Setting

Geomorphology refers to the study of landforms, and the history of their development of geologic features. The most recent glacial advance, the Vashon stage of the Fraser glaciations, formed most of the present geologic and topographic conditions (Jacobs Associates, 2007:3). The ice sheet deposited a mixed assemblage of lacustrine deposits, outwash, glaciomarine drift, and till. Erosion and deposition have influenced the preservation of the glacial deposits, covering them in places with recent stream and river alluvium. The general environments for the deposition of archaeological remains include the tops of glacial deposits, where archaeological materials would be found within a short distance beneath the ground surface; stream deposits, where the materials could be buried to some depth; and river deposits, where they could be buried deeply. In addition, modern fill, often topped by asphalt, concrete, or gravel, occurs throughout the project vicinity, to varying depths. This fill could cover archaeological resources and may contain some historic-period remains. Where developers scraped glacially derived or shallow alluvial soils before placing fill, they likely destroyed or disturbed any archaeological deposits that may have been present. In downtown Bellevue, for example, project geotechnical work revealed fill to between about 8.5 and 10 feet below ground surface in six borings, underlain by glacial till or outwash, with glacial till to about 10 feet in one boring and outwash to about 6 feet in another (Jacobs Associates, 2007).

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[1] Before present is an archaeological term that considers radiocarbon dating at a specified point in time. Standard practice is to make time relative to January 1, 1950.

The Seattle earthquake fault zone includes the area around I-90, from Seattle to south Bellevue (Jacobs Associates, 2007:5). It is west trending and about 4 to 6 kilometers (2.5 to 3.75 miles) wide. Quaternary sediment has been folded and faulted along the zone. This fault has been the source of prehistoric and historic-period earthquakes that have affected human use of the project vicinity and archaeological sites located there. An earthquake about 1,000 to 1,100 years ago caused 23 feet of surface displacement (Jacobs Associates, 2007:5). Deposits in Redmond's Marymoor Park suggest that land at the north end of Lake Sammamish, near the project vicinity, dropped by 3 feet or more and a large wave from the lake washed north into the Sammamish River valley, covering the river's floodplain and the archaeological sites located there (Lewarch, et al., 2000:9).

The East Link alternatives traverse areas of glacially derived soils throughout most of Segments B, C, and D, except where the alternatives are located near streams or wetland areas. In particular, Segment B soils tend to be formed on terraces along or near Mercer Slough. By contrast, much of the Segment E soils consist of Sammamish River alluvium.

6.0 Cultural Context

This section discusses the previous cultural resource management studies, prehistory, ethnography, and history of the project vicinity to establish a context from which to evaluate the significance of archaeological and historic resources.

6.1 Previous Cultural Resource Management Studies

Numerous cultural resource management investigations have taken place in the project vicinity, as listed in Appendix F. Most of the studies have been conducted for transportation-related projects, although others include the Sammamish River Trail and park developments, commercial and residential developments, fiber optic cables and communication towers, and study of an archaeological site in Marymoor Park. The City of Bellevue conducted a survey of its historic properties in the 1990s (Tobin and Pendergrass, 1997). The studies have recorded few NRHP-eligible historic properties, two of which are located in the project APE.

6.2 Prehistory

Most archaeologists agree that human occupation and the use of inland western Washington has been continuous from approximately 10,500 years ago. The earliest sites consist of lithic scatters, possibly including leaf-shaped projectile points, which may be the remains of broad-spectrum foraging camps or hunting and gathering activity areas. Over time, changing aboriginal technology and site locations suggest increased sedentism and specialization in the use of particular environments and resources (Ames and Maschner, 1999; Samuels, 1993).

Several chronological sequences describe the timing and nature of cultural change in the Pacific Northwest. Table 6-1 shows a regional chronology for the Pacific Northwest coast, based on the work of Ames and Maschner (1999), that divides prehistoric occupation into five developmental periods. In general, Ames and Maschner's model suggests a shift from small groups relying on generalized hunting and gathering to larger groups with increasing social complexity and specialized reliance on aquatic resources.

TABLE 6-1
Ames and Maschner's (1999) Model of Prehistoric Change in the Puget Basin

Dates	Period	Land Use	Settlement	Subsistence	Technology
14,000 BC to 10,500 BC	Paleoindian	Generalized marine, littoral, and/or terrestrial	Short-term use of pit houses and shelters	Generalized marine, littoral, and/or terrestrial	Stone; bone, antler, and perishable materials likely
10,500 BC to 4,400 BC	Archaic	Generalized littoral, neritic, and terrestrial	Short-term use of pit houses and shelters	Generalized littoral, neritic, and terrestrial	Stone; some bone and antler; other perishable materials likely
4,400 BC to 1,800 BC	Early Pacific	Littoral, neritic, and terrestrial	Increased sedentism in seasonal villages	Increased focus on littoral resources and expanded use of neritic resources	Increase in ground stone, bone, antler, and perishable materials
1,800 BC to AD 200/500	Middle Pacific	Neritic, littoral, and terrestrial	Winter villages of plank houses and seasonal camps	Increased focus on marine and riverine resources; food storage technologies developed	Decrease in stone; diversification of tools and tackle of bone, antler, and perishable materials
AD 200/500 to c. AD 1775	Late Pacific	Neritic, littoral, and terrestrial	Large permanent villages and special use sites	Specialized marine, riverine, littoral, and terrestrial resource use and management; extensive food storage.	Tools and tackle of bone, antler, and perishable materials; very little stone

6.2.1 Paleoindian (14,000 BC to 11,000 BC)

The Paleoindian period includes the earliest evidence of movement of peoples from eastern Siberia onto the North American continent. Currently a few small sites with tool assemblages, dominated by basalt cobble choppers, flaked scrapers, and finely crafted fluted lanceolate Clovis projectile points, characterize the period. These artifacts suggest a highly mobile and opportunistic culture, adapted to the rapidly changing environments and ocean levels that followed the retreat of the glacial ice caps.

6.2.2 Archaic (10,500 BC to 4,400 BC)

Continued tectonic activity and fluctuation of ocean levels have contributed to the paucity of information regarding this period. Sites in the Pacific Northwest tend to consist primarily of surface scatters with shallow buried components. Time-sensitive lithic tools provide the only chronological reference, because little organic material has survived. Large bifacial, leaf-shaped artifacts, dating from 7,000 BC to 4,300 BC, dominate assemblages (known as Old Cordilleran) of this period. Subsistence strategies during this period include flexible technologies and broad skill sets applied to the exploitation of neritic (i.e., the ecological zone of the continental shelf extending from low tide to a depth of about 100 fathoms [about 180 meters]), littoral (i.e., the region of the shore of a lake, sea, or ocean), and terrestrial (i.e., land) resources. The archaeological record suggests populations were small, mobile, and did not develop technologies to store food.

6.2.3 Pacific (4,400 BC to About AD 1775)

The Pacific period is divided into the Early, Middle, and Late (described below), terminating around AD 1775 with the first European-introduced smallpox epidemic. In general, hunter-gatherer cultures increased in complexity during this period, with intensified use of specialized resources, settlement in permanent village sites, and the development of social stratification.

6.2.3.1 Early Pacific (4,400 BC to 1,800 BC)

The Early Pacific, also described as the Cascade Phase (Suttles and Lane, 1990), includes the first clear indication of the use of specialized resources, such as camas (*Camassia quamash*) and shellfish. This phase is characterized by an overall increase in food production with a focus on intertidal resources, as illustrated by numerous shell midden sites. These sites also indicate an increase in sedentism.

6.2.3.2 Middle Pacific (1,800 BC to AD 200/500)

A few coastal Washington sites characterize the Middle Pacific. These sites include large shell middens, remains of large rectangular cedar plank houses, and large canoes. The tool assemblages reveal an increase in complexity and an array of tools manufactured from antler and bone. Subsistence strategies include an intensification of fishing technologies and a growing reliance on food storage.

6.2.3.3 Late Pacific (AD 200/500 to About AD 1775)

Because sites dating to the Late Pacific are more common and have been studied more intensively, this period is better understood that the previous ones. Villages often consisted of large cedar plank houses, with ceremonial, artistic, and utilitarian artifacts. Items made of bone, antler, and wood largely replaced chipped stone tools. Both terrestrial and marine resources supplemented intense use of specific resources, such as salmon and root crops.

6.2.4 Project Vicinity Prehistory

Eleven prehistoric archaeological sites have been recorded in the project vicinity, and two have received more intensive testing and study. Table 6-2 summarizes information on these sites, most of which are located in the Sammamish River valley or along its tributaries. A cluster of sites has been recorded in Marymoor Park, along the upper Sammamish River, in the vicinity of the historic confluence of Bear Creek, and downstream from the historic shoreline of Lake Sammamish. The sites include 45KI9A/9B (called the Marymoor site) and 45KI10, recorded as a result of University of Washington archaeological studies in the area. Sites 45KI266, 45KI492, and 45KI493 also were recorded in Marymoor Park and were encountered during excavations for utilities. Northeast of the current confluence of the channelized Bear Creek and the Sammamish River, investigations in 2008 recorded prehistoric site 45KI839 (Hodges et al., 2009; Rinck, 2008).

TABLE 6-2
Previously Recorded Prehistoric Sites Recorded within the Vicinity of the East Link Project APE

Site Number and Name	Landform	Description	Reference
45KI8	Along Sammamish River banks, near mouth of Bear Creek	Prehistoric lithic scatter with large stemmed projectile point, two small leaf-shaped points, basalt blade fragment, adze blade fragment; historic whetstone fragment; also reported fluted point; disturbed context; location could not be verified in East Link Project fieldwork	Greengo ,1968; Greengo and Houston, 1970
45KI9A&9B Marymoor Site	Sammamish River banks	Prehistoric midden with a variety of lithic artifacts, thermally altered rock, and bone and shell fragments	Greengo, 1968; Greengo and Houston, 1970
45KI10	Sammamish River bank/ terrace	Small prehistoric site with basalt blades, corner- and side-notched projectile points, scrapers, choppers, and fire-cracked rock; also two basalt cores and flakes of basalt, cryptocrystalline silicate, and an unidentified material; disturbed context	Greengo, 1968; Greengo and Houston, 1970
45KI266	Sammamish River valley	Prehistoric fire pits and lithic artifacts; reported about 1979; destroyed by 1984	Elvidge, 1984
45KI466 Bear/Evans Creek Site	Confluence of Bear Creek and Evans Creek; also on upper terrace	Possible prehistoric campsite and historic road bed; basalt, jasper, and petrified wood flakes, chunks, cores, and chipped cobbles (13 artifacts); crushed rock, clear and green flat glass, coal slag; metal fragments	Norman, 1999a and 1999b
45KI467 Union Hill Road Site	Upper/Pleistocene terrace	Prehistoric lithic and historic debris scatter, with small lanceolate projectile point of petrified wood, jasper flake fragment, two pieces of amethyst bottle glass	Norman, 1999a and 1999b
45KI492	Sammamish River valley	Prehistoric burn feature, basalt cobble spall, cryptocrystalline silicate interior flake, and fire-modified rock; charcoal date of 3,220 – 3,060 B.P.	Nelson, 2000
45KI493	Sammamish River valley	Prehistoric burn feature, two cryptocrystalline silicate interior flakes; charcoal dates of 2,370 – 2,230 B.P. and 2,600 –2,460 B.P.; disturbed context	Nelson, 2000
45KI718 Eastern Terrace Site	Terrace above tributary to Kelsey Creek	Prehistoric lithic scatter with Cascade point, biface, and other chipped stone of cryptocrystalline silicate (11 artifacts); disturbed context	Cooper, 2005
45KI839	Bear Creek/Sammamish River floodplain	Prehistoric lithic scatter including fire-cracked rock concentration, flakes, and flaked-tool fragments	Rinck 2008
45KI941	Marymoor Pet Garden	five flake fragments/debitage and one unidentified mammal bone fragment found along the southern boundary of the Pet Garden	Hoyt, 2009

The reasons for the cluster of prehistoric sites in Marymoor Park likely include the local diversity of stream, lake, marsh, and upland environments, which provided abundant salmon and other fish, plants, waterfowl, and mammals. In addition, the park has saved the area from wholesale development, while requiring archaeological survey and monitoring of excavations within the park. This has provided some protection for the sites, as well as the means for finding and investigating them. The sites have received varying degrees of disturbance from historical and modern activities.

Marymoor site locus 45KI9A has received the most study. Two layers of dark midden soil with thermally altered rock, bone, and shell fragments, and artifacts that include projectile points, large blades, and microblade cores, scrapers, gravers, choppers, flake tools, quartz crystals, and pieces of ocher pigment characterize the deposits. Two radiocarbon dates suggest occupation, hunting, and fishing around 2,500 years B.P. (Greengo, 1968; Greengo and Houston, 1970). Nearby, locus 45KI9B appears to have been used later; its assemblage of ground stone adze blades, barbed projectile points, worked and unworked bone, earth oven, stone pendant, and salmon and mollusk remains suggest occupation, fishing, woodworking, hunting, and plant processing (Greengo and Houston, 1970).

Site 45KI10 was recorded as a small, disturbed site with basalt blades, corner- and side-notched projectile points, scrapers, choppers, cores, flakes, and thermally altered rock (Greengo, 1968). Three other prehistoric archaeological sites have been recorded in Marymoor Park. Site 45KI266 consisted of prehistoric fire pits and lithic artifacts; originally recorded in 1966, the site was reported destroyed in 1984 (Elvidge, 1984). Sites 45KI492 and 45KI493 consist of prehistoric burn features and stone flakes, with radiocarbon dates of 3,220 to 3,060 B.P. and from 2,370 to 2,230 B.P. to 2,600 to 2,460 B.P., respectively (Nelson, 2000).

Site 45KI8 was recorded north of Marymoor Park, along the Sammamish River at Redmond (Greengo, 1966 and 1968); it is discussed in Section 7.1.1 below. Sites 45KI466 and 467, near the confluence of Bear and Evans creeks, were recorded during monitoring for excavations associated with the Millennium Corporate Center (Norman, 1999a and 1999b). Located close to the creek confluence, 45KI466 consists of a possible prehistoric campsite and historic road bed. Prehistoric artifacts included basalt, jasper, and petrified wood flakes, chunks, cores, and chipped cobbles, while historic-period artifacts included crushed rock, clear and green flat glass, coal slag, and metal fragments. Located south and west of the creek confluence, 45KI467 consists of a prehistoric lithic and historic debris scatter, with a small lanceolate projectile point of petrified wood, a jasper flake fragment, and two pieces of amethyst bottle glass.

Site 45KI839 was recorded during a cultural resources assessment for the proposed rehabilitation of Lower Bear Creek, northeast of the confluence of Bear Creek with the Sammamish River. The site includes cultural materials that appear to date to several thousand years old (based on radiocarbon dates of associated peat layers). The items in the lithic scatter, including a concentration of fire-cracked rock, fine-grained flakes, and several tool fragments, were observed below silty, clayey 'diatomaceous' earth, in association with deposits of peat, at 4.3 to 5.9 feet (1.3 to 1.8 meters) below surface (Hodges et al., 2009; Rinck, 2008). Archaeologists continued testing of the site into 2009, and are currently analyzing materials for an updated excavation report.

An archaeological survey for a residential development recorded 45KI718, a lithic scatter located on a terrace above a tributary to Kelsey Creek, south of the East Link Project vicinity (Cooper, 2005). Investigations there recovered a Cascade projectile point, a chipped stone biface, and several other chipped stone artifacts in a disturbed context.

6.3 Ethnography

The project vicinity is located in the aboriginal territories of the Duwamish and Sammamish (Haeberlin and Gunther, 1930; Suttles and Lane, 1990). These groups spoke the Lushootseed or Puget Salish language. People lived in winter villages, generally located where rivers and streams entered Puget Sound, near lakes, such as Lake Washington and Lake Sammamish, or at stream confluences. A village was located either at the confluence of Mercer Slough with Lake Washington, or along the slough (Hilbert, et al., 2001:95).

Winter villages consisted of longhouses built from split cedar planks placed on wooden frames, and ranged from one to several houses that sheltered one or more extended family groups. In the villages, people lived during the winter using food and other supplies collected throughout the year and supplemented with fresh foods available nearby. They made and repaired tools, clothing, and other necessary materials in winter, and pursued ceremonial and social activities. Families left their winter villages during the warmer months to fish, collect plant foods and materials, and hunt foods for immediate use and storage for the next winter. They often met other families and groups at locations with abundant resources, and traveled and traded with others. During these months, people camped in portable shelters made of mats stretched over pole frameworks (Haeberlin and Gunther, 1930; Suttles and Lane, 1990).

People gained their subsistence by fishing, collecting plant products, and hunting. Catching salmon in water bodies within the East Link Project vicinity was an especially important economic activity. Many fishing implements were utilized, including weirs and spears, traps, and dip nets. Freshwater fish, including trout, were taken from streams and lakes. Eels and freshwater mussels also came from streams. Plants used for food, medicines, and technological activities included shoots; camas bulbs; roots, such as wapato; and berries. Cedar trees provided materials for houses, canoes, mats, baskets, rope, and clothing. People used bows and arrows, pitfalls, and snares to hunt large and small game, often catching waterfowl in aerial nets. The Duwamish and

Suquamish also collected resources from Puget Sound, including shellfish, seals, and fin fish (Haeberlin and Gunther, 1930; Suttles and Lane, 1990).

Background research reveals Indian place names for villages and other uses occur along the Segment B alternatives in the vicinity of Mercer Slough, and along the Segment E alternatives in the vicinity of the Sammamish River. The place names correlate with areas analyzed as archaeologically sensitive. A promontory along Lake Washington, just west of the Mercer Slough confluence, was called *Tl^{3}utsa^{3}lus* ("tying a mesh"). *Sa'tsakaL* ("water at head of a bay"), the place name for Mercer Slough, and represents an old village site where the people were called *Sa'tsakalEbc*. It was reported to have been the staging place for the native attack on Seattle in January 1856 (Hilbert, et al., 2001:95). The place was also important in mythology (Hilbert, et al., 2001:46, 95).[2]

The place name for the Sammamish River was *sts!ap* ("crooked," "meandering") and for Redmond was *TL^{3}oq^{3}* ("crowded in, poked in"), while *Ceqos-a'lt^{u}* ("a high place with a house on it") denoted a creek entering the Sammamish River "from the east below Redmond" (Hilbert, et al., 2001:112). While maps of this downriver location should indicate north of Redmond, the maps of place names show this, and a creek called *Tuba'hal* ("broad"), to be located south of Redmond (Hilbert, et al., 2001:112). Possessing a number of upper branches, this was probably Bear Creek.

The earliest effects of Euroamerican contact appeared in Northwest Indian communities before the Euroamericans themselves. Researchers have not yet determined when epidemic diseases first appeared, but Lewis and Clark estimated that smallpox predated their 1805-1806 trip to the lower Columbia River area by about 30 years. Repeated epidemics of various diseases continued to drastically decrease populations (Noel, 1980:66), reducing many by two-thirds or more (Boyd, 1985:398).

Alcohol, disease, and dislocation from traditional territories disrupted the social and political organization of the groups. Euroamericans often hired Indians to act as guides, as transporters of goods and messages, and to hunt, fish, cut timber, and tend herds and crops, all of which took Indian people away from their traditional subsistence-oriented activities (Suttles and Lane, 1990). Reduction of Indian populations also brought changes in subsistence patterns.

In 1855, Washington Territorial Governor Isaac Stevens negotiated the Treaty of Point Elliott with a number of groups, including the Duwamish, Snoqualmie, and Sammamish tribes. The United States intended for the Duwamish Tribe to move to the Port Madison Reservation and the Snoqualmie Tribe to move to the Tulalip Reservation, while the Sammamish Tribe could go to either reservation (Ruby and Brown, 1992:72-73). Although some Indians moved to these reservations or to the Muckleshoot Reservation, others remained near their traditional settlements. The federal government recognized the Snoqualmie Tribe in 1999, but the Duwamish are not yet federally recognized.

6.4 History

The East Link Project would run from the historic International District of Seattle east through the Mount Baker District, across once-rural and now developed suburban and city areas of Mercer Island and Bellevue, and into Redmond. The following information regards the historic development and populations of each of these communities.

The International District, also known as Chinatown, encompasses the blocks east of Fifth Avenue South, west of Boren and Rainier Avenue South, north of South Dearborn Street, and south of South Main Street. The main thoroughfares in the District are South Jackson Street and South King Street, as well as 12th Avenue South intersecting at South Jackson Street.

By 1876, 3,400 people lived in the City of Seattle and 250 of them were Chinese. A small area on Washington Street, between 2nd Avenue and 3rd Avenue, became the City's earliest China Town. Seattle was one of two main ports of entry for Japanese immigrants during the 1880s, with the 1890 census listing 360 Japanese in Washington, most living in Seattle. The Japanese community grew next to that of the Chinese on Washington Street, and spread south past Jackson Street to Weller Street. When the City filled the tide flats south of Jackson Street in 1909, using debris from the Jackson and Dearborn Street regrades, the Chinese community, which had supplied much of the labor for these efforts, moved south to the newly filled area.

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[2] Orthographic symbols, such as ^{3}, ^{u}, and !, used in archaeological names indicate sounds unique to the Lushootseed language.

Filipinos came to Seattle in large numbers during the early decades of the twentieth century. By 1930, the Filipino population in Seattle had outgrown the Chinese population. At the same time, African Americans also settled in the Central District of Seattle in large numbers. Restrictive covenants prevented these ethnic and racial groups from buying land in many Seattle neighborhoods, prohibitions that encouraged the growth of what would become Seattle’s International and Central districts (Chin, 2001). Seattle’s International District is a National Register Historic District and a City of Seattle Landmark District based on its historic character, and because it is the only pan-Asian American community on the United States mainland (Chin, 2001:10).

Logging started early in the vicinity of Seattle, and the Mount Baker District featured saw and planning mills along its shoreline in the 1890s. Only a few families built houses there before 1905, however, because a small number of individuals and companies owned most of the land, and because people thought of the area as too distant from Seattle. The City's annexation of Mount Baker, in 1907, encouraged growth during the early twentieth century, and landowners platted most of the neighborhood by 1910. The Mount Baker Park Improvement Club discouraged the construction of buildings, other than single-family residences, and enforced restrictive covenants that prohibited selling property or renting apartments to nonwhites or recent immigrants. These restrictions continued until after World War II (Tobin, 2004).

A government land survey named Mercer Island after pioneer Thomas Mercer in 1860. The island’s first post office, in the early settlement called East Seattle, opened in 1904. Passenger ferries connected the island with Seattle and Bellevue until the first bridge opened in 1923, which allowed vehicle traffic between Mercer Island and Bellevue. Population increased dramatically and, in 1924, the name of the settlement changed to Mercer Island. The island remained relatively rural until 1940, when the increasing population of Mercer Island and the resulting vehicle traffic necessitated construction of the Lake Washington Floating Bridge and the replacement of the East Channel Bridge. The population grew from 1,200 to 4,500 between 1940 and 1950 and then nearly doubled in the next 3 years. Voters rejected the first referendum on incorporation in 1945 and the next in 1953. In 1960, Mercer Island finally incorporated as a city and the downtown business district incorporated as a town—both named Mercer Island. This situation continued for a decade until the two governments merged in 1970.

The first settlers, William Meydenbauer and Aaron Mercer, both arrived in the area that would become Bellevue in 1869. Each settled in a coastal area that would come to bear his name, Meydenbauer on the bay and Mercer to the south along the slough. Isaac Bechtel purchased land near the current downtown area in 1883, working with his sons to log and clear the land. By 1890, shingle mills and a sawmill had begun operation and settlers had moved onto the cleared land. By 1900, the area had 400 residents. At that time, the Hewitt Lumber Company employed hundreds of men to log timber from the Wilburton vicinity, near the present day intersection of 116th Avenue SE and SE 8th Street, west to Lake Sammamish and south to Kennydale (Wilma, 1999). They hauled the logs overland and floated them down the Mercer Slough.

Before the Lake Washington Ship Canal opened in 1917, Mercer Slough included several boat landings and extended north nearly to Main Street, where a lumber mill operated at the community of Wilburton (Krafft, 1991). Operation of the Ship Canal lowered the level of Lake Washington, destroying the navigability of Mercer Slough and creating new farmlands in the rich bottomland soil. Residents grew holly trees; azaleas; bulbs, such as daffodils and iris; and berries.

The settlement of Lake Washington was spurred by industrialists such as William Renton and Peter Kirk, who constructed plants, platted towns, and contracted railroads to build spur lines to their developments. The Northern Pacific Railroad constructed the Lake Washington Beltline Route, which ran from Renton to Kirkland, in 1891. The route passes through Bellevue, roughly along the I-405 corridor. In the early years, this route was primarily used to transport coal and iron from the Cascade foothills in the vicinity of Redmond to steel plants in the Kirkland area (Allen 2007:4).

Post-World War II population growth spurred the development of Bellevue. Developer Kemper Freeman opened Bellevue Square, the first shopping mall on the Eastside, in 1946. In 1952, Roxbury Homes purchased 80 acres that had been a filbert farm, platting the area as “Surrey Downs Addition No. 1.” The residential subdivision eventually included about 200 houses, with the optimism of the period showing in the modern Northwest design of the houses. The City of Bellevue incorporated in 1953 (Stein, 1998).

Luke McRedmond, who came to the United States from Ireland, established the City of Redmond. He first settled in Seattle in 1865 and then staked a claim just north of Lake Sammamish in the early 1870s. McRedmond started a dairy farm and founded the Seattle and International Railroad. He was involved in the Black Diamond coal mines, and served as justice of the peace and the first postmaster, changing the community’s name from Willows to Redmond. McRedmond’s daughter Emma, born in Seattle in 1869, served as Redmond’s postmistress for years, beginning at the age of 16. In 1898 she married William White, who would become a justice of the Washington State Supreme Court; their house is one of the oldest extant buildings in Redmond (Hanscom, 1979).

The Seattle, Lake Shore, and Eastern (SLS&E) Railway incorporated in 1885, and it was purportedly conceived as a response to Seattle’s rival city Tacoma being selected as the terminus to the Northern Pacific Railroad’s transcontinental line. By 1886, the line reached from downtown Seattle to the town of Ballard. By 1889, the line extended for 63 miles out of Seattle, reaching just past current-day North Bend (Martin, Jr., 2009).

Redmond had a train station with both freight and passenger service. Although there was some logging in the area before operation of the railroad, those efforts were limited. The sawmill began operation about 1890. Local logging increased as companies used the freight service to ship their lumber, thereby allowing the logging companies and mills to employ hundreds of men (Bagley, 1929:849). Redmond’s hotels and restaurants benefited from the passenger service. Trains stopped in Redmond twice each day, serving schoolchildren, businessmen, people who shopped in Seattle, and the postal service, among others (MacIntosh, 1999b).

In 1892, the Northern Pacific Railroad acquired the SLS&E Railway line and operated it for just over a year. In 1893, the railroad was operated under the reorganized Seattle & International Railroad and Spokane & Seattle Railroad. By 1901, the Northern Pacific had re-absorbed this railroad, and they continued to operate the line, under its Snoqualmie Branch, until 1970, when the Burlington Northern purchased it (Northern Pacific Railway Historical Association, 2007). The railroad depot in Redmond, which had been open since 1889, closed in 1970. The building was demolished in 1972, but BNSF still owns much of the railroad right-of-way through Redmond (King County Property Records 2007, 2010; MacIntosh, 1999a). Many of the oldest buildings in Redmond are located near the former location of the depot, which was close to the intersection of the SLS&E and Leary Avenue NE. Table 6-3 lists historic-period archaeological resources that have been recorded in the vicinity of the East Link Project APE. The majority of these sites are located in downtown Seattle, and their contents reflect the history of the city. The sites range from scatters of industrial and domestic debris (45KI924, 45KI947), historic-period construction remnants (45KI765, 45KI943), and railroad properties (45KI930) associated with the various stages of development, from filling the Elliott Bay tidelands to the construction of the city.

Site 45KI451, the SLS&E Railway grade, was originally recorded as an archaeological site to within a few hundred feet east of Segment E in Redmond. The railroad grade continues into the APE and had been recorded as a Historic Property (Adams and O'Brien 2007b; HPI 1256-117 [Appendix C]), but had not been recorded as an archaeological site before the 2010 survey for the Project. In addition, the Frederick Winters House, located along Bellevue Way SE and discussed in Section 7.3.2 below, is recorded as 45KI606, although it is not an archaeological property. North of Redmond, and outside of the immediate vicinity of the Segment E route, the Moore Farmstead is recorded as 45KI543.

In 2007, Archaeological Investigations Northwest, Inc. (AINW) conducted a historic resources survey along segments of former BNSF Railway grades in Redmond and Bellevue, Washington, ahead of proposed abandonment by BNSF (Allen, 2007). The three segments surveyed—mile post (MP) 5.00 to 10.60 and (MP) 11.25 to 23.9 on the former Northern Pacific Lake Washington Beltline Route, running from Renton to Woodinville, and MP 1.86 to 7.30 on the former SLS&E rail line between Woodinville and Redmond—were recorded on HPI forms as historic period railroad properties. These segments contain six historic-period trestles and bridges, which were constructed between 1904 and 1960. AINW recommended the segments of historic-period railroad eligible for listing in the NRHP under Criterion A, with the bridges/trestles considered to be contributing elements.

TABLE 6-3
Previously Recorded Historic Sites Recorded within the Vicinity of the East Link Project APE

Site Number and Name	Landform	Description	Reference
45KI451	Multiple – locally Bear Creek/ Sammamish River floodplain	Railroad properties associated with Seattle, Lake Shore & Eastern Railway, constructed from 1885 to the 1890s. Includes sections of railroad grade, trestles, and associated artifacts	Hamilton and Johnson, 2004; Hudson and Nelson, 1997; LeTourneau, 2005; LeTourneau and Sundberg, 2009; Luttrell, 2007; Murphy and Iverson, 2000; Nelson, 2001; Norman, 2001; Sparks, 2006
45KI765 Sixth Avenue South Refuse Deposit	On 6th Avenue South between Royal Brougham Way and South Massachusetts Street	Historic debris concentration associated with pilings that formed the supports of Sixth Avenue South. The site is the result of numerous dumping episodes spanning a period of 33 years, from 1890 to 1923. Material collected include bottles, ceramics, faunal remains, misc. debris	Fallon, 2006
45KI924 Dearborn South Tideland Site	Filled tidelands	Historic commercial, industrial, and residential properties	Shong, 2009
45KI930	200 feet east of modern, constructed Puget Sound shoreline, 110 feet southeast of South King Street and Railroad Way South	Historic railroad properties	Gilpin, 2009
45KI942 W.L. McCabe's Machine Shop Site	Filled tidelands	Dimensional lumber, coal clinker deposits, and domestic and personal materials c. 1895.	Meyer, 2009
45KI943 Dearborn North Tideland Site	Filled tidelands	Historic commercial properties	Shong, 2009
45KI947	Duwamish River/filled Tidelands	Truncated historic surface composed of slag pits, lens of historic debris, scattered bricks and large depressions filled with concrete rubble and dimensional lumber.	Meyer, 2010

According to AINW, the railroad lines are associated with the development of railroads in the Puget Sound region, and more locally with the development of industry (e.g., coal mining and steel plants) in the area (Allen 2007:2-3). DAHP concurred with this recommendation on July 19, 2007, (Lake Washington Beltline segments) and on April 30, 2009 (SLS&E segment) (Allen and O'Brien 2007a, 2007b). At the time of the East Link Project Historic Properties survey in 2007, the Washington Beltline segment was still in operation, hosting the Spirit of Washington Dinner Train and a few freight trains.

The East Link project affects segments of the former BNSF corridor. These segments were reviewed for eligibility to the NRHP and it was determined that none of these segments are eligible to the NRHP.

7.0 Affected Environment

7.1 Archaeological Properties

7.1.1 Previously Recorded Archaeological Sites

Two archaeological sites (45KI8 and 45KI451) have been recorded in proximity to the East Link Project route. Site 45KI8 was recorded in 1966 (Greengo, 1966). The site was said to be located along the Sammamish River and near an old confluence of Bear Creek, near the Redmond Way Alternative (E1). The site was described as consisting of scattered artifact finds along the river for about one-half mile, including some finds in dredged material located on the west bank of the river. A fluted projectile point, which usually denotes ancient occupation, was said to have been found at the site in about 1941. The condition of the site, in 1966, was reported as “completely worked over on surface—no midden visible” (Greengo, 1966).

Various segments of SLS&E Railway grades have been previously recorded in King County as archaeological sites 45KI451 (Hamilton and Johnson, 2004; Hudson and Nelson, 1997; LeTourneau, 2005; LeTourneau and Sundberg, 2009; Luttrell, 2007; Murphy and Iverson, 2000; Nelson, 2001; Norman, 2001a; and Sparks, 2006) and 45KI536 (Hungar, 1996; Nelson, 1997; and Norman, 1996). Segments of SLS&E Railroad in Skagit County have been recorded as archaeological site 45SK244 (Norman 2001b) and a portion of the company's grade constructed in Spokane County has been recorded as 45SP643 (Emerson 2009a, 2009b). The segments in King County have been recorded from as close to the Project area as the east side of State Route 520 (and adjacent to HRA Survey Tract 11F) to the towns of Issaquah, Snoqualmie, and North Bend. Construction on the SLS&E began in Seattle in 1887. Through the years, the railroad changed hands, operating under the Northern Pacific, the Seattle & International Railway Co., and finally (by 1970) the Burlington Northern Railroad (Hudson and Nelson 1997).

7.1.2 Results of Archaeological Sensitivity Mapping and Implications for Archaeological Resources

The application of the landform criteria for archaeological sensitivity (see Section 3.3.1) identified several portions of the alternatives as having high sensitivity for prehistoric archaeological sites, while use of the historical criterion did not identify areas with a high sensitivity of historic-period archaeological sites. Examination of land patents and early GLO survey maps did not reveal historical building sites within the APE, and early agricultural use often did not leave archaeological deposits at locations removed from building sites. Historical uses, revealed by the Sanborn Fire Insurance maps, included commercial and industrial uses, such as an automobile repair shop in Bellevue and railroad tracks and a nearby depot in Redmond. These uses are well documented in the historical record, but no early tenements, apartments, small stores (that might have had living quarters), hotels, or other buildings that might have resulted in archaeological remains and contributed important information to the historical record, were found on the Sanborn Maps. Exhibits B-1 through B-5 in Appendix B show the relative amounts of high-sensitivity APE within each of the East Link alternatives, according to the project and DAHP sensitivity models. The relative amounts of high, moderate, and low-risk areas are described in the text below.

7.1.2.1 Segment A

Exhibits B-1 through B-5 in Appendix B show areas judged to have high prehistoric archaeological sensitivity for the project alternatives, as determined by the project predictive model. Segment A was not mapped because most of the APE in this segment was previously disturbed for the construction of I-90 and the project would be constructed on I-90. Although the DAHP sensitivity model shows high sensitivity for several portions of Segment A (particularly along I-90 on Mercer Island), no archaeological sites could be expected in the APE of Segment A. A small portion of Alternative A1 occurs on the east bank of Lake Washington, in an area considered to have high sensitivity for archaeological remains, according to both models.

7.1.2.2 Segment B

According to the DAHP model, the Segment B alternatives have a high to very high sensitivity for archaeological resources because of their proximity to Mercer Slough, especially its confluence with Lake Washington, and to the

Kelsey Creek and Sturtevant Creek confluences. The same is true for the project model, except for the portion of Alternative B1 where it follows Bellevue Way NE, which is not considered to be high probability. However, the area encompassing the Segment B alternatives has been extensively developed, with considerable disturbance to native soils that could have disrupted or destroyed archaeological deposits. These landforms have a high sensitivity for archaeological resources, although none may be found or be intact if identified because the area is highly developed and has been disturbed through development over the years. The portion of all Segment B alternatives along the I-90/Bellevue Way off-ramp is judged sensitive because, even though it follows I-90, it is located on old shoreline. Alternative B7 is located on uplands east of Mercer Slough and, of the five Segment B alternatives, the DAHP model assigns this the consistently lowest sensitivity (still, almost all of it is "high risk," see Appendix B). According to the sensitivities developed by Project archaeologists, Alternative B1 has the least amount of land considered to have high archaeological sensitivity, while Alternative B7 has the most.

7.1.2.3 Segment C

Most of Segment C is highly developed. In glacial till soils typical of eastern King County highlands, including the Bellevue core, sediments of an age that could include archaeological deposits are shallow, in the top meter or less below ground surface. Of course, if native soils have been buried by historic-era fill episodes archaeological materials can occur more deeply. Geologic explorations have show a thin layer (5 to 10 ft) of sandy material of non-native material from probably placed for roadway construction – over very dense sands and gravels, which appears to be glacial till. None of the recent explorations encountered any recent material (post glacial) show native soils (containing organics or archaeological remnants).

According to the project sensitivity model, portions of Segment C alternatives have a high sensitivity for archaeological resources because they travel along, or near, Sturtevant Creek or other freshwater resources. Portions of Alternatives C1T and C2T pass Lake Bellevue and cross Sturtevant Creek, where archaeological resources could be buried within the floodplain. The DAHP archaeological sensitivity model shows highest-risk areas in the southern and western portions of Segment C. As with the project model, the initial portions of *Preferred Alternative C9T* and Alternative C3T and Alternative C4A, until reaching the vicinity of Main Street, are high to very high risk areas for prehistoric archaeological materials.

To the north along 108th Ave NE and 110th Ave NE, Alternatives C3T and C4A transition to a less sensitive moderately low risk zone by NE 8th Street. The portion of *Preferred Alternative C9T* crossing I-405 and Sturtevant Creek retains moderate to high risk (reflected by the project model). The DAHP model differs, however, along Bellevue Way SE and 106th Ave SE (Alternatives C1T and C2T). These alignments range from very high to moderate risk for prehistoric archaeological materials. However, given that these areas have been moderately to highly developed over the past several decades and there are no apparent stream crossings nearby, it is unlikely that archaeological materials will be uncovered.

7.1.2.4 Segment D

The Segment D alternatives also are located in heavily developed areas. According to the project sensitivity model, portions of the Segment D alternatives have a high sensitivity for archaeological resources where they cross streams, such as the West Tributary of Kelsey Creek. In addition, part of *Preferred Alternative D2A* and Alternative D5 follow the uplands above the Sammamish River floodplain; such locations were often attractive for Native American groups for processing resources, camping, and even living for longer time periods. The DAHP model, however, shows Segment D as moderate to moderately low risk for prehistoric archaeological remains. At the West Tributary to Kelsey Creek, crossing along *Preferred Alternative D2A* and the D2A design options, the DAHP model shows a high risk (and this is within the larger project high probability area). Likewise, a second tributary to Kelsey Creek, located where these alternatives turn from NE 16th Street to the northeast, also shows a high probability, according to the DAHP model.

7.1.2.5 Segment E

The Segment E area is less heavily developed and retains more green space. The Segment E alternatives (E1 and E4) are considered to have a high to very high sensitivity for archaeological resources, according to both models. This is especially true near the crossings of Bear Creek and the Sammamish River, where some terraces are present and where archaeological resources may be buried within flood deposits.

7.1.3 Results of Archaeological Survey

The archaeological surveys conducted in 2007 and 2010 did not uncover any additional resources eligible for the NRHP. The archaeological survey took place during the last week of February 2007 and in March, June, and July 2010, with a field director and a crew of two to four archaeologists. The 2007 field survey included 15 survey tracts (Draft EIS tracts 1D to 16D), and the 2010 survey included 12 survey tracts (Final EIS tracts 1F to 12F). Of the 12 proposed 2010 survey tracts, two (Survey Tracts 5F and 6F) could not be surveyed because Sound Transit was denied entry for archaeological studies. Within each surveyed tract, the crew walked defined paths, or transects, and recorded observations; conducted shovel probes, depending on surface and perceived subsurface conditions; and screened materials. Shovel probes were spaced throughout the survey tracts, at intervals no greater than 20 to 25 meters (66 to 82 feet).

Twelve survey tracts were located in the archaeologically sensitive portions of Segment B; seven were located in Segment D (five Draft EIS tracts and two Final EIS tracts); and eight were located in the archaeologically sensitive portions of Segment E (four Draft EIS tracts and four Final EIS tracts). Two Draft EIS survey tracts in Segment D were placed in areas considered to have low archaeological sensitivity to control for the bias inherent in focusing the survey on high-sensitivity areas. No tracts were placed in Segments A or C during the 2010 Stage 1 archaeological survey because heavy development and other characteristics provide few areas of high archaeological sensitivity. The Stage 2 archaeological survey will target areas of lower archaeological probability and locations that are, according to the DAHP predictive model, of higher sensitivity but currently inaccessible (due to paved surfaces or other factors) or are currently privately owned.

The archaeological survey of the Segment B tracts encountered areas of historical and modern disturbance (for instance, the vicinity of the South Bellevue Park-and-Ride and the landscaping surrounding modern industrial parks), steep slopes in many portions of the *Preferred Alternative B2M*, heavy vegetation, water at or near the ground surface, and modern debris. When cultural materials were observed in shovel probes, they were generally modern or lacking in context (for instance, in fill). Survey tracts in Segment D also showed considerable disturbance, including the observation of asphalt on the surface close to one shovel probe (SP12F-7) and at approximately 30 to 40 centimeters (12 to 16 inches) below surface in two other probes in Tract 12F (SPs 12F-5 and 12F-6); this asphalt may be a remnant of the roadway that existed prior to the development of SR 520.

In Segment E archaeologists encountered fill covering the native alluvial soils at varying depths, up to about 1 meter (3.28 feet) deep. Many shovel probes excavated in Segment E, Tracts 10F and 11F, contained peat layers similar in composition to those observed during archaeological investigation of prehistoric site 45KI832. However, no flakes, fire-cracked rock (FCR) or other prehistoric artifacts were observed in these probes. Project archaeologists searched for traces of previously recorded prehistoric archaeological Site 45KI8 in Segment E, but the work encountered no evidence of the site. It is difficult to tell whether the site still exists because the areas have been eroded, dredged, riprapped, and filled.

The survey located no prehistoric archaeological remains. Although past development has likely damaged or destroyed archaeological sites, particularly those dating to prehistory, some important remains could exist. However, two historic-period archaeological sites were recorded during the 2010 survey session. In Survey Tract 4F of Segment B, approximately 125 meters (425 feet) northwest of the Winters House, the archaeologists observed a scatter of domestic debris. The site extends from the eastern edge of the right-of-way in *Preferred Alternative B2M*, downslope to the level surface of Mercer Slough. The debris included bed components; portions of household appliances (e.g., oven); entire and fragmented colorless and brown glass vessels (identified as soda and beer bottles) and additional pane glass fragments; oil drums; and fragments of automobiles, including a car with a Wisconsin license plate, dated February 1963, and a bus or station wagon parked under large rhododendron bushes outside the Segment B route. These items are scattered over an area measuring approximately 30 meters (98 feet) north-south by 30 meters east-west. Although no historic-period diagnostic artifacts were identified in the APE, it is likely that some components of the site, such as the automobile, can be considered historic-period in age (i.e., older than 50 years). The archaeologists prepared an Archaeological Site Inventory Form for this resource (45KI1008 [Appendix C]).

The archeological survey also found segments of the former BNSF (former Northern Pacific) Railway corridor. As this is a mostly aboveground historic resource, its eligibility for listing in the NRHP is discussed in Section 7.3.

7.2 Traditional Cultural Properties

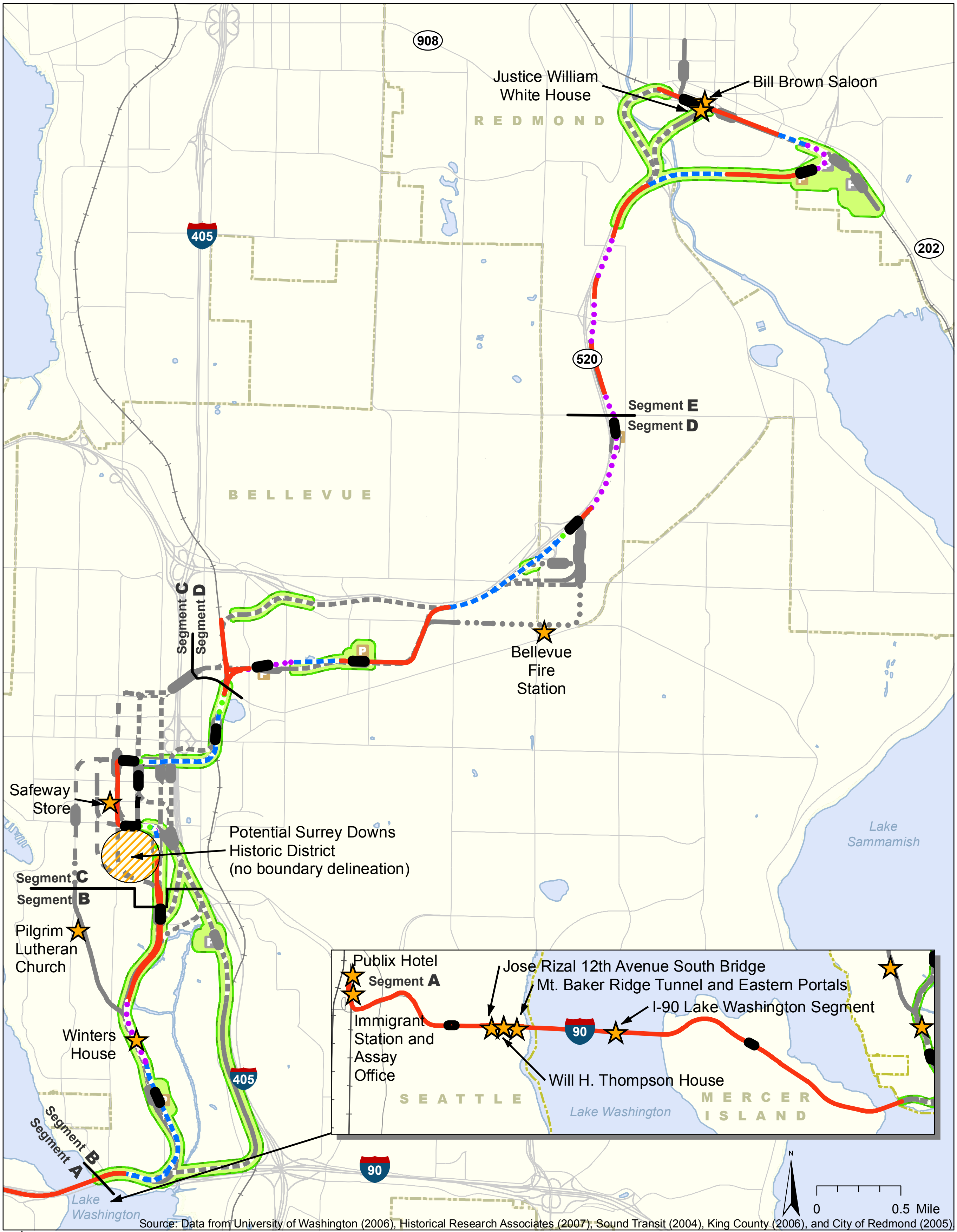
FTA and Sound Transit sought government-to-government consultation with the Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Indian Tribe, Duwamish Tribe, Tulalip Tribes of Washington, and Yakama Nation, initially providing project information by mail. Meetings were held with Muckleshoot and Snoqualmie tribal representatives to discuss the East Link Project and its potential effects on archaeological sites and TCPs. Consultation with the tribes revealed no TCPs in the project vicinity.

7.3 Historic Buildings and Structures

The historical records search identified several properties listed in the NRHP, the WHR, or local registers. The field survey and preparation of inventory forms took place primarily from February through June, 2007, September through October, 2007, and from December 2009 through April 2010. Project architectural historians' research and field survey inventoried 439 buildings and structures (including one potential historic district with a number of contributing elements) in the APE, with 13 either listed in the National Register (and automatically part of the WHR) or recommended to be eligible (Appendix C). FTA's eligibility determinations were based on criteria for listing in the NRHP and the Washington DAHP (which houses the SHPO). Section 106 of the NHPA requires federal agencies to take into account the effects of their actions on properties that are determined eligible as well as those that are listed. The consent of private property owners is needed before their properties can be listed in the NRHP. As discussed in Section 3.5, above, properties to be listed or considered eligible for the National Register normally must be 50 years old, must meet one of four criteria for listing, and must retain their integrity. Most of the properties inventoried for the project did not qualify for the National Register.

In addition to resources discussed in the remainder of Section 7.3, one potential historic resource, the former BNSF Railway, was surveyed in the APE for multiple project segments. Portions of the former BNSF Railway are within the APE for Segments B, C, D, and E. The portions of the former BNSF Railway within the project's APE are recommended as not eligible for listing in the NRHP, although the railroad as a whole has been determined eligible. These portions are recommended not individually eligible regardless of eligibility of the whole route: under Criterion A (which is what DAHP found the route eligible under). These sections are nondescript and do not well represent the theme asserted in the 2007 HPI (Allen and O'Brien 2007a); under both Criterion B and C, they have not been found to be associated with a master or someone of other historical importance, nor do these segments contain any remnants that are distinctive or that well represent historical railroad themes (Criterion D), such as the trestles and bridges emphasized in Allen and O'Brien 2007a. In summary, significant intact properties representative of the former BNSF Railway's and the preceding owners' contributions to railroad technology are not presented by portions of the former BNSF Railway in these segments of the project corridor.

Table 7-1 summarizes the results of the inventory, which is discussed by segment and alternative in the sections below. Exhibit 7-1 shows the location of the NRHP Eligible resources. A list of inventoried properties is included in Appendix C, along with maps of their parcel locations. Table 7-2 summarizes the properties listed, or recommended as eligible for listing, in the NRHP (and thus also eligible for the WHR). Historic resources are described, by alternative, in following the table. Because landmark register criteria for the cities of Seattle, Mercer Island, and Redmond are similar to those of the NRHP, these properties are also recommended as eligible for the local registers. FTA determines, in consultation with SHPO, NRHP recommendations for eligibility and effect determination. Local jurisdictions review local landmark register recommendations.


908
Justice William White House
Bill Brown Saloon
REDMOND
405
202
520
Segment E
Segment D
BELLEVUE
Segment C
Segment D
Bellevue Fire Station
Safeway Store
Potential Surrey Downs Historic District (no boundary delineation)
Segment C
Segment B
Pilgrim Lutheran Church
Winters House
Segment B
Segment A
405
90
Lake Washington
Lake Sammamish
Publix Hotel
Segment A
Jose Rizal 12th Avenue South Bridge
Mt. Baker Ridge Tunnel and Eastern Portals
I-90 Lake Washington Segment
Immigrant Station and Assay Office
90
Will H. Thompson House
SEATTLE
Lake Washington
MERCER ISLAND
N
0
0.5 Mile

Source: Data from University of Washington (2006), Historical Research Associates (2007), Sound Transit (2004), King County (2006), and City of Redmond (2005).

★ NHRP Listed/Eligible Site

🟩 Sensitivity Zone

● Proposed Station

P New and/or Expanded Park-and-Ride Lot

Preferred Alternative

At-Grade Route

Elevated Route

Retained-Cut Route

Retained-Fill Route

Tunnel Route

Other Alternatives

At-Grade Route

Elevated Route

Retained-Cut or Retained-Fill Route

Tunnel Route

Exhibit 7-1

Cultural Resources

Segments A, B, C, D, and E

East Link Project

TABLE 7-1
Buildings and Structures Inventoried for Each Segment

Segment	Number Inventoried	Number Recommended Not Eligible	Number Listed or Recommended Eligible for the NRHP
A, Interstate 90	62	56	5
B, South Bellevue	113	111	2
C, Downtown Bellevue	203	165	38 (37 of these properties are eligible as contributing elements of one potential historic district)
D, Downtown Bellevue to Overlake Transit Center	27	26	1
E, Overlake Transit Center to Downtown Redmond	33	31	2
B, C, D, and E Former BNSF Railway (Lake Washington Beltline Route)	1	1	0
Total	439	390	49

TABLE 7-2
List of Historic Properties

Segment	Field No. and Map ID	Property Name/Type	Address	Register Status
A, Interstate 90	376	Publix Hotel (Seattle Chinatown NRHP/ International Special Review historic district)	504 Fifth Avenue South	Contributing element to NRHP and Seattle Special Review historic districts
A, Interstate 90	132	Immigrant Station and Assay Office	815 Airport Way South	NRHP, WHR, eSL
A, Interstate 90	303	Jose Rizal 12th Avenue South Bridge	12th Avenue South crossing of South Dearborn Street	NRHP, WHR, eSL
A, Interstate 90	166	Will H. Thompson House	3119 South Day Street	NRHP, WHR, SL
A, Interstate 90	I90	I-90 Lake Washington Highway Segment, milepost 3.4-8.9 (includes Mount Baker Ridge Tunnel and Eastern Portals)	I-90 Washington State Department of Transportation right-of-way between mileposts 3.4 and 8.9	eNRHP, eWHR, SL[a]
A, Interstate 90	156	Endresen Residence	1402 32nd Avenue South	eSL
A, Interstate 90	133	Romaine Electric/Washington Iron Works Pattern Shop	1101 Airport Way South	eSL
B, South Bellevue	16	Frederick Winters House	2102 Bellevue Way SE	NRHP, WHR
B, South Bellevue	63	Pilgrim Lutheran Church	10420 SE 11th Street	eNRHP, eWHR
C, Downtown Bellevue	various (see Exhibit 7-12)	Potential Surrey Downs historic district	Between 108th and 112th Avenues SE, south of Main Street (see table 7-4)	Potentially eNRHP, eWHR
C. Downtown Bellevue	1100	Safeway Store	414, 424, and 456 104th Avenue NE	eNRHP
D, Bel-Red/Overlake	104	Former Bellevue Fire Station	14822 NE Bellevue-Redmond Road	eNRHP, eWHR
E, Downtown Redmond	112	Justice William White House	Leary Way NE and NE 76th Street	eNRHP, eWHR, RHL
E, Downtown Redmond	113	Redmond Trading Company	7805 Leary Way NE	RHL
E, Downtown Redmond	114	Bill Brown Saloon Building	7824 Leary Way NE	RHL, eNRHP, eWHR
E, Downtown Redmond	118	Dudley Carter/Haida House	Sammamish Slough Park	RHL

NRHP	National Register of Historic Places
WHR	Washington Heritage Register
SL	Seattle Landmark
RHL	Redmond Historic Landmark
e	determined eligible

[a] The Mount Baker Ridge Tunnel and Eastern Tunnel Portals are also designated Seattle Landmarks.

7.3.1 Segment A

Survey efforts in the City of Seattle portion of Segment A inventoried 62 properties, of which 6 are listed or eligible for listing in the NRHP and 2 are eligible for listing as Seattle Landmarks (City of Seattle Letter to Sound Transit, May 2008). All of the properties inventoried in Segment A were included in the 2007 version of the Cultural Resources Technical Report for the 2008 Draft EIS except for the Lake Washington Highway Segment of I-90. The W.H. Thompson House at 3119 South Day Street and the Immigration & Assay Building at 851 Airport Way S were both listed in the NRHP. The remaining structures inventoried in Segment A were determined not eligible for the NRHP, although DAHP requested additional information about the Endresen Residence and Romaine Electric building to their eligibility for City of Seattle Landmark status. The letter also requested information regarding the NRHP-eligible I-90 (Lacey V. Murrow Memorial) bridge. Additional information for these resources is included below.

The APE crosses a corner of the Seattle Chinatown NRHP historic district, listed in 1986 under Criteria A. This area is also part of the Seattle International Special Review District. One building that contributes to both districts, the Publix Hotel (Exhibit 7-2), is located within the APE. The architect was J. L. McCauley, who also designed the Rainier Heat and Power Company that was located immediately south of the hotel. The building was originally a workmen's hotel, with three wings containing 211 single rooms and 12 street-level retail bays.

EXHIBIT 7-2
Publix Hotel, 504 Fifth Avenue South

The United States Immigrant Station and Assay Office Building (also referred to as the INS Building) (Exhibit 7-3) is listed in the NRHP under Criteria A and C. However, it is not considered eligible as a potential City of Seattle Landmark. The federal government constructed the building in 1931. James Wetmore, acting supervising architect and designer of many federal buildings during this period, approved the plans for the building. The architecture is a combination of elements from the Neo-classical and Mediterranean styles. The building was Seattle's third immigration building and second assay office.

EXHIBIT 7-3
United States Immigration Station and Assay Office Building, 815 Airport Way South

Because the Chinese Exclusion Acts limited immigration to the United States, and Chinese people of this period typically arrived with poor documentation, most of the immigrants detained in the building were Chinese males. The Immigration and Naturalization Service was still using the building and the detention facilities within it when the building was listed in the NRHP in 1979. The first assay office in Seattle opened in 1898 during the Klondike Gold Rush. Although the amount of gold processed in Seattle dropped steeply within a decade, the federal government kept an assay office in Seattle until 1955 (Lee and Mathison, 1978). The building is not used at present.

EXHIBIT 7-4
Washington Iron Works Pattern Shop, 1101 Airport Way South

The City of Seattle Historic Resources Survey determined that the Washington Iron Works Pattern Shop (also known as the Romaine Electric Building) at 1101 Airport Way South (Exhibit 7-4) appears to meet the criteria of the Seattle Landmarks Preservation Ordinance. An HPI prepared by HRA in 2007 found the property to be ineligible for the NRHP and the Washington Heritage Register due to its lack of association with significant events or persons and it's not being an outstanding example of its architectural style or known to be the work of a master craftsman or architect. Although the building retains integrity of location and design, changes to the building impair the integrity of its materials and workmanship, and changes to the area around it impair the integrity of setting, feeling, and association.

Tax assessor's files date the building, constructed as a pattern shop factory for the Washington Iron Works, to 1920. It is associated with the development of the Seattle tidelands area as a transportation-related industrial and commercial warehouse district, and is specifically associated with an industrial firm that was one of the earliest ironworks manufacturers in Seattle, and which played a significant role in the logging, mining, shipbuilding and airplane manufacturing industries. The tidelands were filled through a series of successive grading and fill projects, between 1895 and 1929, which created developable land that made the expansion of railroad and port facilities possible. This also fostered the development of the area for industrial and commercial use that supported significant economic progress of Seattle in the early twentieth century.

The utilitarian industrial building is a large rectangular, three-story, flat-roofed structure, characterized by the large window openings set within the repetitive bays along the east, west, and south elevations. It retains an industrial character and is one of the few remaining large buildings of its type in an area that was a historically significant industrial district. It also appears to be the only building remaining with associations to one of the most prominent and longstanding local iron working firms.

The City of Seattle constructed the Jose Rizal 12th Avenue South Bridge (Exhibit 7-5) in 1911 after removing a portion of northern Beacon Hill to decrease the grade of South Dearborn

EXHIBIT 7-5
12th Avenue South Bridge, 12th Avenue South crossing of South Dearborn Street

Street. One of Seattle's numerous regrading projects, the Dearborn Street work accomplished the City's goal of creating a route from Puget Sound to Lake Washington at a grade of 5 percent or less. The bridge replaced the section of 12th Avenue S that was removed during regrading, thus maintaining accessibility to the northern part of Beacon Hill (Phelps, 1978:23). The bridge was listed in the NRHP in 1982 based on its engineering design under Criteria C.

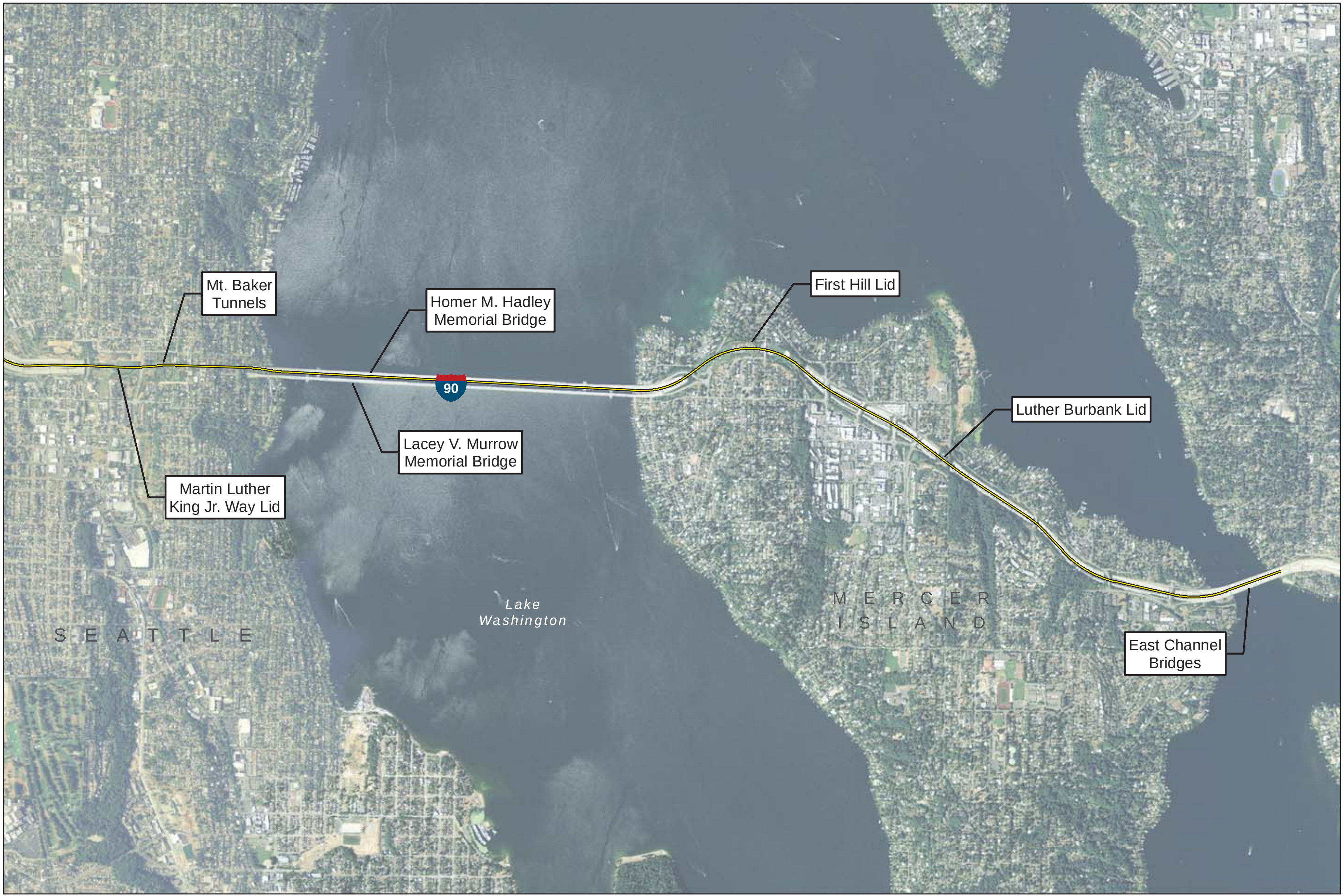
WSDOT, on behalf of the Federal Highway Administration and DAHP, identified a segment of I-90 between I-5 and I-405 as eligible for the NRHP under Criteria A and C and Criteria Consideration G. The Lake Washington Highway Segment of I-90 within the right-of-way from milepost 3.4 to 8.9 includes the west end of the Martin Luther King Jr. Way Lid to the east end of the East Channel Lake Washington Bridges. The determination of eligibility documentation included the Mount Baker Ridge Tunnels that were previously listed on July 16, 1982. DAHP concurred in its letter dated November 23, 2009 that this section of I-90 is eligible for the NRHP. This segment of I-90 (Exhibits 7-6 through 7-11) is just over five miles in length and encompasses the entire segment, including the roadway, with character-defining features such as lids, bridges, tunnels, ramps, sound barriers, overcrossings, and undercrossings. Major character-defining features include the Mount Baker Ridge Tunnels; the Lacey V. Murrow and Homer M. Hadley floating bridges; the East Channel Lake Washington Bridges; the Martin Luther King Lid; the First Hill Lid; and the Luther Burbank Lid. The lids have pedestrian and bicycle paths, extensive landscaping, and park areas (Exhibit 7-7).

This segment of I-90 runs through mostly residential neighborhoods. Due to its innovative design, which began in 1957, and its construction, from 1979 to 1993, the highway minimized impacts on surrounding neighborhoods by incorporating nine overpasses and three landscaped lid structures that provide both active and passive recreation opportunities in a 180-acre greenbelt. As a designed transportation system, the highway is planned to function as a whole and to achieve long-term transportation goals, including High Capacity Transit, while respecting the surrounding environment. The I-90 Lake Washington Segment was nominated with Criteria Consideration G, as most of the segment was completed between 1987 and 1992, making it less than 50 years old. Under Criteria Consideration G, a property achieving significance within the past fifty years is eligible if it is of exceptional importance. This segment is of exceptional importance as one of only four interstate system segments identified by WSDOT, in consultation with the FHWA, the Advisory Council on Historic Preservation, and the DAHP, as potentially significant segments of the National Interstate System on the "Final List of Nationally and Exceptionally Significant Features of the Federal Interstate Highway System." Features identified on that list warrant Section 106 review and require a formal determination of eligibility. The NRHP Registration form prepared for the resource supports the inclusion of this segment on that list as a feature of exceptional national significance.

The I-90 Lake Washington Segment is eligible for listing in the NRHP under Criteria A and C. Under Criterion A, the segment is an important component of the National Interstate System and a key piece of transportation history. It was one of the final sections that completed I-90 from Boston to Seattle. More than 25 years passed between initial planning and completion of construction, indicating the extensive considerations of planning, engineering, community involvement, and environmental effects in designing a freeway across Mercer Island, between I-5 and I-405. Its design was the product of an early NEPA challenge, resulting in a significant community and agency planning process that forged the Memorandum of Agreement of 1976.

Under Criterion C, the segment involved innovative engineering incorporating unusual and costly amenities. Interstate 90 incorporates many elements that exhibit outstanding engineering, including the floating bridges and the Mount Baker Tunnels. The original designers took great care to provide a consistent look and feel throughout the segment, and developed the I-90 Architectural Standards to guide their final design effort. The project balanced numerous competing interests to design an innovative and attractive final segment of I-90 that fulfilled its transportation mission while also providing tangible assets for the community. The NRHP areas of significance represented in the property are: Engineering, Transportation, Community Planning and Development, and Landscape Architecture. The property is significant locally, regionally, and nationally. The project, with the world's largest soft-earth tunnel, two floating bridges, and three landscaped lids, won the Presidential Design Award for Excellence, recognized for exemplary federal design achievement and honored for its engineering, energy conservation, and landscape architecture.

The I-90 Lake Washington Segment was designed with a vision for the future, when mass transit would be a necessity. The NRHP registration form notes that a central portion of the roadway, separating the eastbound and


Mt. Baker Tunnels
Homer M. Hadley Memorial Bridge
First Hill Lid
90
Luther Burbank Lid
Lacey V. Murrow Memorial Bridge
Martin Luther King Jr. Way Lid
Lake Washington
MERCER ISLAND
SEATTLE
East Channel Bridges

Source: NAIP Aerial (2009).

I-90 Lake Washington Segment
N
0
0.5
1 Mile

Exhibit 7-6

Resource Locations

I-90 Lake Washington Segment

westbound sections, was designed to be operated in reverse to facilitate the passage of peak hour traffic or for use by mass transit and emergency vehicles (I-90 Design Team, 1972: 147-155).

When U.S. Secretary of Transportation Brock Adams signed his decision to approve construction of I-90, in 1978, he noted that the facility would be unique in including both highway and transit elements. Adams pointed to the 3-2-3 lane configuration and the environmental amenities that included covered roadway sections, landscaping, and bicycle/pedestrian trails (Exhibit 7-8). The final design of the segment minimized disruption to the community by depressing the roadway and providing overpasses widened to contain plantings and pedestrian/bicycle lanes. Two middle lanes were designated for future mass transit and use in reversible commuting, high-occupancy vehicles/buses, and eventually light rail. Post-tensioned concrete minimized the concrete posts needed for earlier freeways, wasting less open space and providing more open views. Landscaped lids were introduced to provide park areas, including some playfields and passive recreation. In the end, the I-90 Lake Washington Segment achieved both its transportation and community enhancement goals through what is generally considered one of, if not the first, context sensitive design solutions in the country.

EXHIBIT 7-7
View (to the west) of the I-90 Roadway, Ramp (center of photo), Landscaped Overcrossing (in distance), Sound Barrier (left side of photo), and Landscaping

EXHIBIT 7-8
View (to the west) of a Landscaped Overcrossing above I-90

With the rise of automobile traffic congestion and suburban sprawl, as well as limited land to develop freeways, interchanges, and parking areas, officials made plans to develop a regional rail-transit system as early as the 1950s. Various reports and studies were produced toward this effort and, by 1964, a report recommended that the design of the third Lake Washington Bridge (now the Homer M. Hadley Bridge) be designed to accommodate the later addition of rapid transit rails. The report pointed out the lack of opening spans made it the only facility that would be adaptable to rail rapid transit operation.

The report also recommended the adoption of a coordinated bus and rail rapid transit plan to guide regional transit development to the year 1985. The report recommended that a regional plan, needed for the year 1985, include a high-speed, high-capacity, grade-separated rapid transit route. This would include a connection to Bellevue across Mercer Island in the median of the I-90 corridor, a station at 81st Avenue SE, and a crossing at the east channel on the planned high-level bridge (De Leuw, Cather & Company, 1965: 17, 31-32, and Plate 9).

EXHIBIT 7-9
Martin Luther King Way Lid, West Portal Pedestrian Tunnel

A 1967 report by De Leuw Cather, Report on a Comprehensive Public Transportation Plan for the Seattle Metropolitan Area, as noted in the NRHP Registration form, recommended including approximately 47 miles of dual-track, grade-separated rail rapid transit routes with about 32 stations and about 24 miles of grade-separated right-of-way for future extension of rail rapid transit routes. One of the four major travel corridors would run east across Lake Washington in the proposed I-90 alignment. The recommendations were then submitted to the State Highway Department. Although a final study report based on the 6-year planning effort released by the King, Kitsap, Pierce, and Snohomish counties and the cities of Seattle, Tacoma, Everett, and Bremerton found that rail rapid transit was not feasible for the region, the City of Seattle started planning separately for mass transit.

EXHIBIT 7-10
Mount Baker Ridge Tunnel, East End of I-90 Tunnel

A transportation system plan for the Central Puget Sound Region, prepared in 1974 by the Puget Sound Governmental Conference (PSGC) recommended providing for an exclusive transit way on I-90 between Seattle and the Factoria interchange and the construction of two flyer stops on I-90. In 1976 a multi-jurisdictional I-90 MOA stated that I-90 would be designed and constructed to allow for future conversion of all or part of the transit roadway to fixed guideway. The MOA committed the parties to further planning and construction of transit access connections, and Federal Secretary of Transportation Brock Adams's 1978 approval of I-90 construction included a condition relating to the provision of transit access (Adams, 1978:4), stating that "public transportation shall permanently have first priority in the use of the center lanes" (Adams, 1978:6).

In August 2004, this MOA was amended to reflect the current and future conditions and demands along the I-90 corridor between Bellevue and Seattle crossing Lake Washington via Mercer Island. These included increased travel growth, changes in travel patterns, and a reduction in transit reliability, as well as adding Sound Transit as a signatory to this agreement. One of the key elements of this amendment was that all parties agree that the ultimate configuration for I-90 between Bellevue, Mercer Island, and Seattle should be defined as High Capacity Transit in the center roadway and HOV lanes in the outer roadways, and further agree that High Capacity Transit for this purpose is defined as a transit system operating in dedicated right-of-way, such as light rail, monorail, or a substantially equivalent system.

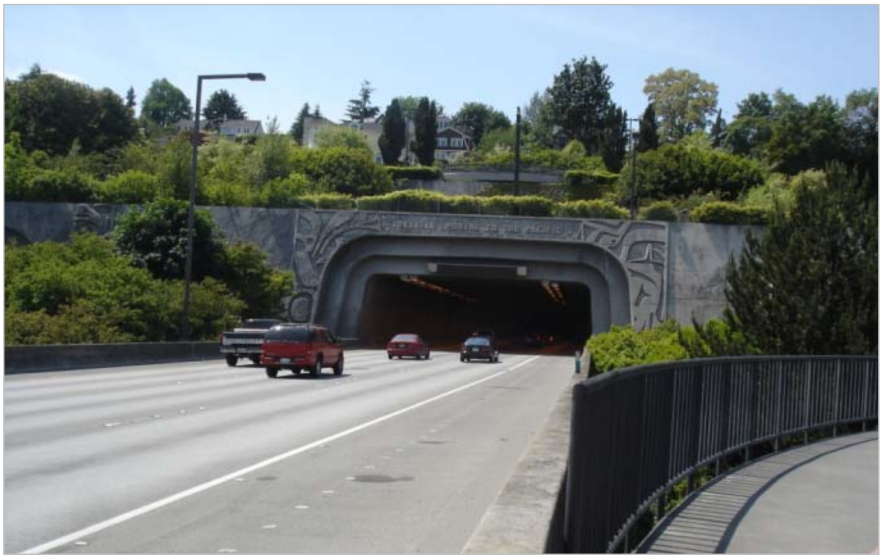


EXHIBIT 7-11
East Portal of the Mount Baker Ridge Tunnel ("Seattle Portal to the Pacific"), Showing Artwork.

Metro's 1984 I-90 Light Rail Conversion Feasibility Study evaluated the extent to which I-90 would provide for rail conversion, and determined the actions that could be taken during the highway's design and construction to preserve maximum flexibility and minimize disruption in operation of the facility resulting from conversion. The report's findings and conclusions included that the I-90 transit lanes could be converted to light rail transit, that there is adequate space for stations, and that no significant additional provisions are required. Report recommendations called for careful attention to character-defining features during final design and construction.

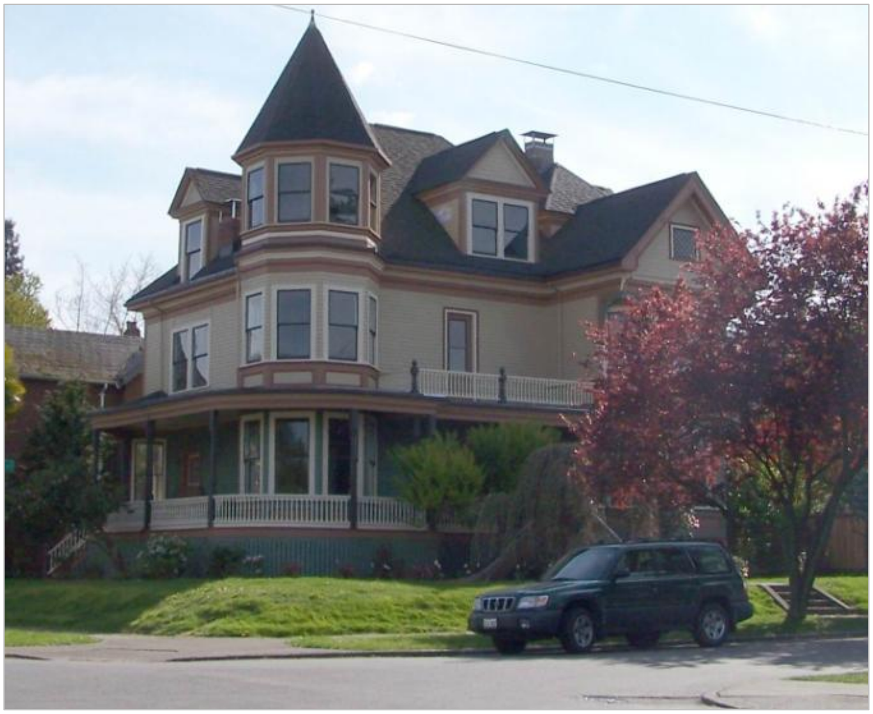


EXHIBIT 7-12
Will H. Thompson House, 3119 South Day Street

The Mount Baker Ridge Tunnels and Eastern Portals (Exhibits 7-9 through 7-11), initially listed in the NRHP in 1982, were included in the I-90 Lake Washington Segment NRHP Registration form prepared in 2009, and are a Seattle Landmark. WSDOT constructed the tunnel, which consists of two parallel sections, in 1940. Because Mount Baker Ridge consists of blue glacial clay, the Highway Department avoided explosives and drilling in favor of excavating both tunnels with an electric shovel. The tunnels' architects designed an impressive gateway to the City of Seattle by combining Art Deco elements and stylized Native American motifs (Soderberg, 1980b). Although the tunnels were an engineering feat, the 1982 NRHP listing focuses on their striking ornamentation.

The Will H. Thompson House (Exhibit 7-12) was listed in the NRHP in 1979 based on its Queen Anne architectural style under Criteria C. This building is unusual for its scale in present-day Seattle and for its high degree of integrity. The property is also a Seattle Landmark. Ernest MacKay constructed the building in 1894 and lived in it until 1897. Will H. Thompson and his wife purchased the house at public auction in 1897, with members of their family living there until 1917. After their son Maurice sold the house, it served as a sanitarium and then a rooming house for women. The La Turner family purchased the house in the 1970s and reversed many

EXHIBIT 7-13
Endresen Residence, 1402 32nd Avenue SE

of the changes made by the sanitarium and rooming house owners (Kreisman, 1979). The building is one of the oldest surviving houses and one of the few examples of the Queen Anne architectural style to survive in the Mount Baker Neighborhood.

The City of Seattle Historic Resources Survey determined that the Endresen Residence at 1402 32nd Avenue South (Exhibit 7-13) in Seattle's Mount Baker Neighborhood appears to meet the criteria of the Seattle Landmarks Preservation Ordinance. The HPI prepared by HRA in 2007 for the residence found it to be ineligible for the NRHP and Washington Heritage Register because it is not associated with significant events or persons and is not an outstanding example of its architectural style or known to be the work of a master craftsman or architect. Built in 1908, this is a Craftsman-influenced, Colonial Revival-style, single-family dwelling. Initial development of the Mount Baker area occurred relatively late, post-1900, following the construction of the Rainier Avenue Electric Street Railway in the 1890s. The Mount Baker Park Addition represents the core of the neighborhood and is its primary character-defining feature.

Mount Baker Park is one of Seattle's earliest planned residential communities that successfully integrated the natural environment and a relatively exclusive residential neighborhood in its layout of lots, streets, boulevards, and parks. The houses, primarily built between 1905 and 1929, reflect a variety of eclectic and Northwest-based architectural styles, and include designs by many prominent local architects. Other important influences were the streetcar connection with downtown Seattle, the integration of local parks and boulevards into the Olmsted system, the construction of Franklin High School in 1912, and the building of the Mount Baker tunnel and Lacey V. Murrow Floating Bridge to Mercer Island in 1940. Today this middle-to-upper income neighborhood remains predominantly residential, is home to an ethnically diverse population, and retains much of its planned character.

The inventory of Segment A in the City of Mercer Island identified 13 properties, none of which are listed or eligible for the NRHP, WHR, or local register. The DAHP letter sent to FTA dated November 16, 2007 concurred with HRA's inventory of these properties and resultant determinations of eligibility for the NRHP.

7.3.2 Segment B

Survey efforts in the South Bellevue Segment B area inventoried 113 properties. One property, the Winters House, is on the NRHP, and another property, the Pilgrim Lutheran Church, is eligible for listing on the NRHP. The remaining properties were determined not eligible for the NRHP. All of the properties inventoried in Segment B were included in the 2007 version of the East Link Project Cultural Resources Technical Report. DAHP sent two letters to FTA (dated November 16, 2007, and February 20, 2008) regarding the inventory and determination of eligibility of Segment B properties and specifically noted that the Winters House at 2102 Bellevue Way SE was already listed in the NRHP, and the Pilgrim Lutheran Church at 10420 SE 11th Street is NRHP-eligible under Criteria C.

7.3.2.1 *Preferred Alternative B2M* and Alternatives B1, B2A, B2E, B3, and B3 - 114th Design Option

EXHIBIT 7-14
Winters House, 2102 Bellevue Way SE

The Winters House (Exhibit 7-14) was listed in the NRHP in 1992 under Criteria A and C, based on its Spanish Eclectic architecture and its association with developments in the bulb-growing and floriculture industry in King County and Washington State. The NRHP Registration form provides a boundary description that includes 50 feet of landscaping around the house, including a portion of the parcel along Bellevue Way. Frederick and Cecilia Winters purchased 10 acres of land along Mercer Slough in 1920, and 4 years later they purchased additional acreage to expand their business. During the late 1920s, a period of rapid growth for bulb farms in Washington, the family built the residence that remains on the property. Much of the surrounding land was then sold during the 1930s when it proved too swampy for growing bulbs, and the family sold the house in 1943. Historic photographs of the property depict its construction and the frequent changes made to the surrounding landscape throughout its evolution. The subsequent owners lived in the house until the 1980s, when the City of Bellevue acquired the house. The City of Bellevue restored the house during the 1990s, and it has since become the headquarters of the Bellevue Historical Society, which became the Eastside Heritage Center in 2001 when it merged with Marymoor Museum of Eastside History, in Redmond. The Winters House is currently used by the Eastside Heritage Center as a heritage research center, exhibit space, archive storage, library, and public meeting space. Additionally, the Eastside Heritage Center provides public and educational programming at the Winters House. The Winters House also contains office space for the City of Bellevue Parks and Community Service Department staff and can be used for public or private meeting event space. The Winters House is also part of the Heritage Loop Trail in Mercer Slough Nature Park the site includes historical interpretation and facilities for trail users.

The Winters House is prominently situated on the western edge of the Mercer Slough, a rich natural oasis in the midst of a substantial modern suburban community. The site of the house is bordered on the west by Bellevue Way SE, formerly a county road named Qualheim Road, which has been completely altered into a major arterial roadway and on the east by Mercer Slough. Oriented toward Bellevue Way, the former residence is set back approximately 50 feet and buffered from the roadway by a small grove of deciduous and conifer trees and shrubs. Originally a substantial lawn, fish pond, and planted area separated the residence from the formerly narrow roadway.

According to the 1991 NRHP Registration form, the house is the only intact historic property to remain on the site of the former nursery and bulb farm complex. While the house’s orientation to Bellevue Way at one time would have been a significant character-defining feature of the structure and its relationship to the surrounding landscape, the historic design of the roadway and its relationship to the house has lost its integrity. The NRHP Registration form notes that while the house presented a distinctive and formal entrance façade toward the once narrow road it faced, the floor plan and siting of the house were specifically oriented toward the view of the bulb fields below the house, to the rear, and the undeveloped eastern side of Mercer Slough. From windows and balconies on the rear elevation it commanded a complete view of the nursery complex and fields which facilitated its construction.

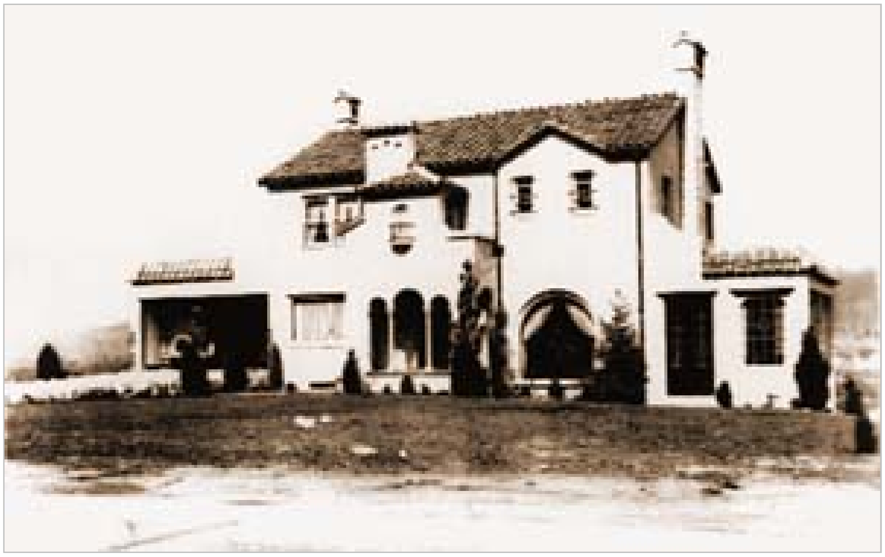


EXHIBIT 7-15
Winters House, 2102 Bellevue Way SE (1930)
Courtesy of Eastside Heritage Center

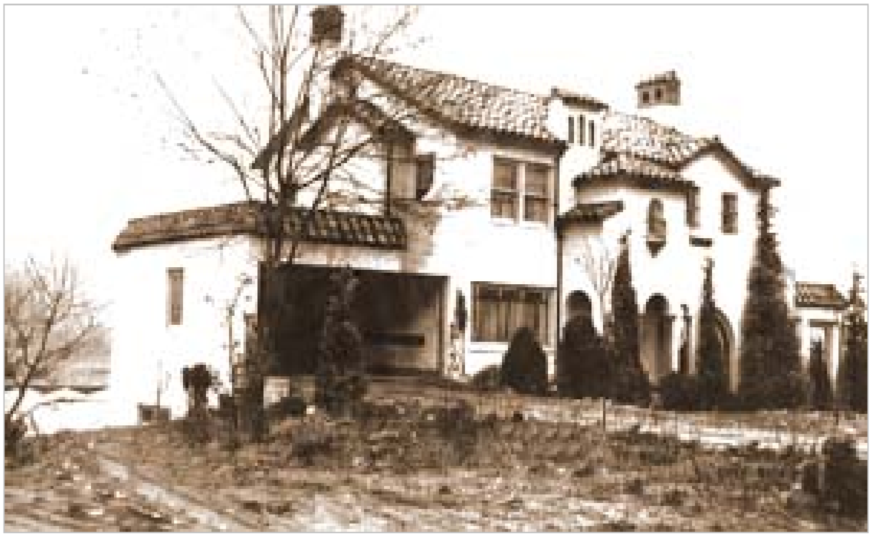


EXHIBIT 7-16
Winters House, 2102 Bellevue Way SE (January 6, 1939)
Courtesy of Eastside Heritage Center

Architectural historians reviewed the extant landscape and historic photographs to consider whether the landscape of the house is character-defining or includes any character-defining features from the historic period. In particular, HRA assessed the 50-foot boundary provided in the NRHP Registration form, which includes the set back of the residence from Bellevue Way. The NRHP Registration form includes the following boundary justification:

The nominated property includes the Winters House and the landscaped property within 50 feet of the house. While grounds within the surrounding and adjacent acreage are associated with the house, they are no longer cultivated and no intact outbuildings remain. However, the house does retain its setting and relationship to the surrounding property that is now Mercer Slough Nature Park. A large parking lot and trail access are also within the setting of the house.

Analysis of the 50-foot designated boundary to determine whether any character-defining landscape features currently remain that convey the significance of the residence and its relationship to the landscape found no such features. Rather, all of the surrounding landscaping was found to have been altered substantially from the historic period of the residence. Except for some mature trees beyond the rear of the residence that once were part of the larger property, the current landscape features do not in any way reflect the original landscape of the residence, nor do they convey the relationship of the landscape to the structure as it was first designed, matured, and allowed to evolve during the historic period of the property.

Architectural historians reviewed historic images of the Winters residence to further discern how the landscaping evolved and whether any character-defining significant original features of the residence are extant today. The earliest photograph reviewed from 1930 (Exhibit 7-15) depicts the residence when the landscape was just planted. Young cypress trees had been planted along the front elevation and a coniferous tree had also been planted against the front elevation.

A 1939 photograph (Exhibit 7-16) depicts how the cypress trees had grown as well as other shrubs planted along the front elevation, and the coniferous tree on the front elevation had grown to reach the roofline. On the opposite end of the elevation where the single-story garage was built, a deciduous tree had been planted and reached the roofline.

The third image of the house reviewed is of the residence in the 1940s (Exhibit 7-17), at which time the landscape had matured and included the cypress trees reaching the roofline, a variety of deciduous and coniferous trees along the front elevation, as well as shrubs and plants throughout the entire front lawn. Whereas the front lawn in 1930 appeared to be largely covered with grass, by 1939 the lawn had been planted with a variety of shrubs and other plantings and in the 1940s had matured.

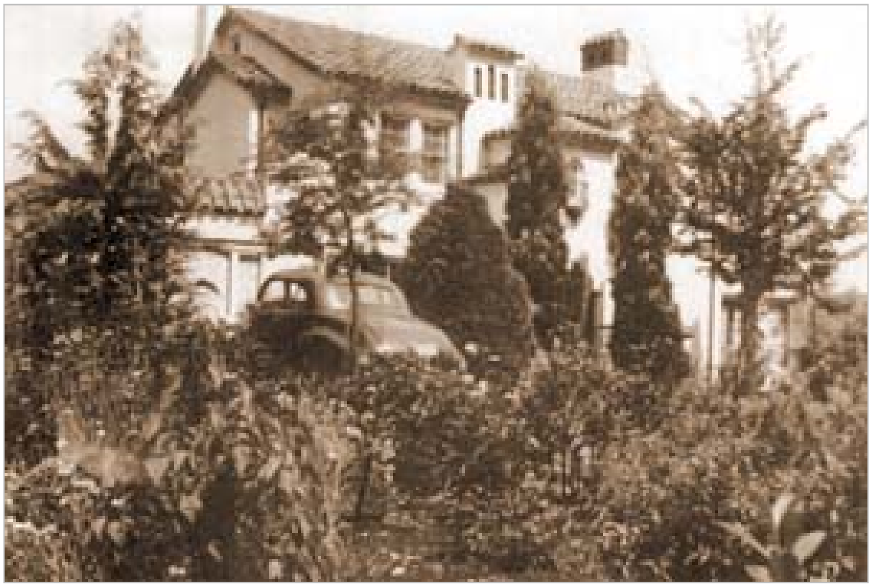


EXHIBIT 7-17
Winters House, 2102 Bellevue Way SE (1940s)
Courtesy of Eastside Heritage Center

Plantings from the period of significance have been removed. Currently the house consists of a landscaped lawn with a central concrete pathway featuring a center planting strip just opposite the entrance doors of the front elevation (Exhibit 7-18). All of the trees along the residence at the front elevation and side elevations appear to be plantings from after the period of significance, including relatively new deciduous trees and decorative shrubs. Although the landscaping in no way reflects the original landscaping, the residence itself remains intact and fully conveys its significance and period of construction and retains its relationship to the surrounding undeveloped land.

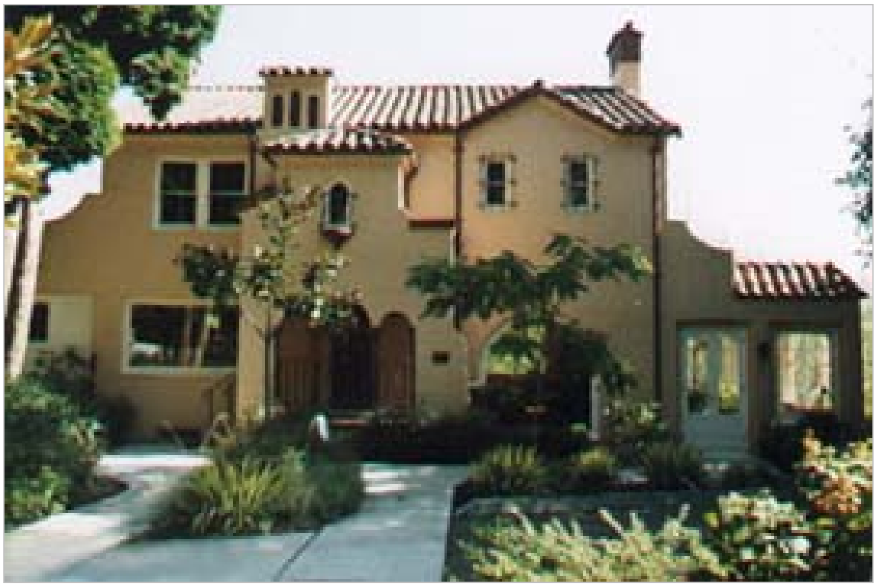


EXHIBIT 7-18
Winters House, 2102 Bellevue Way SE (Present)
Courtesy of Eastside Heritage Center

The NRHP Registration form describes the architectural style of the house, Spanish Eclectic, and the significance of this less common form of house design in the Pacific Northwest. The Winters House is unusual both for its style as well as its farmland setting, though the NRHP Registration form is careful to note that the landscape of the setting no longer has integrity to convey its significance. The rehabilitation and restoration of the residence in 1990 is also noted, and a Historic Structure Report was prepared to guide the project in accordance with the Secretary of the Interior's *Standards*. At the time of the nomination, future rehabilitation work was described as including selective restoration of the landscape, gardens, and bulb field areas by the City of Bellevue if proper funding could be obtained. As of the writing of this technical report, the Winters House landscape has not been restored and does not consist of features that are original or from the period of significance of the property.

The Winters House continues to fully convey its significance as outlined in its NRHP Registration form, though the 50-foot boundary provided around the house in the boundary justification does not signify that the landscaping is historic or character-defining. Rather, the presence of the undeveloped land around the residence is the historic context of the property, rather than what was actually planted around the residence, and the house retains its setting and relationship with the land. The relationship of the residence with and its orientation to Bellevue Way no longer has integrity, given the dramatic changes that have occurred to the once narrow country road that now is a major arterial leading to Downtown Bellevue.

7.3.2.2 Alternative B1

The Pilgrim Lutheran Church (Exhibit 7-19) within the Alternative B1 APE was completed in 1965. An outstanding example of Neo-Expressionist architectural style, the building is characterized by a geometric shingled roof that is both varied and dramatic. The roof forms a shed over most of the church and an angular cone rising to the steeple. Extending well beyond the building, the roof shelters brick walls, large windows, and walkways. The roofline also ties the church visually to the adjacent church hall. The design firm Grant, Copeland, Chervenak and Associates won awards for several of their local projects. The building is eligible for the NRHP under Criteria C and the WHR based on architectural excellence.

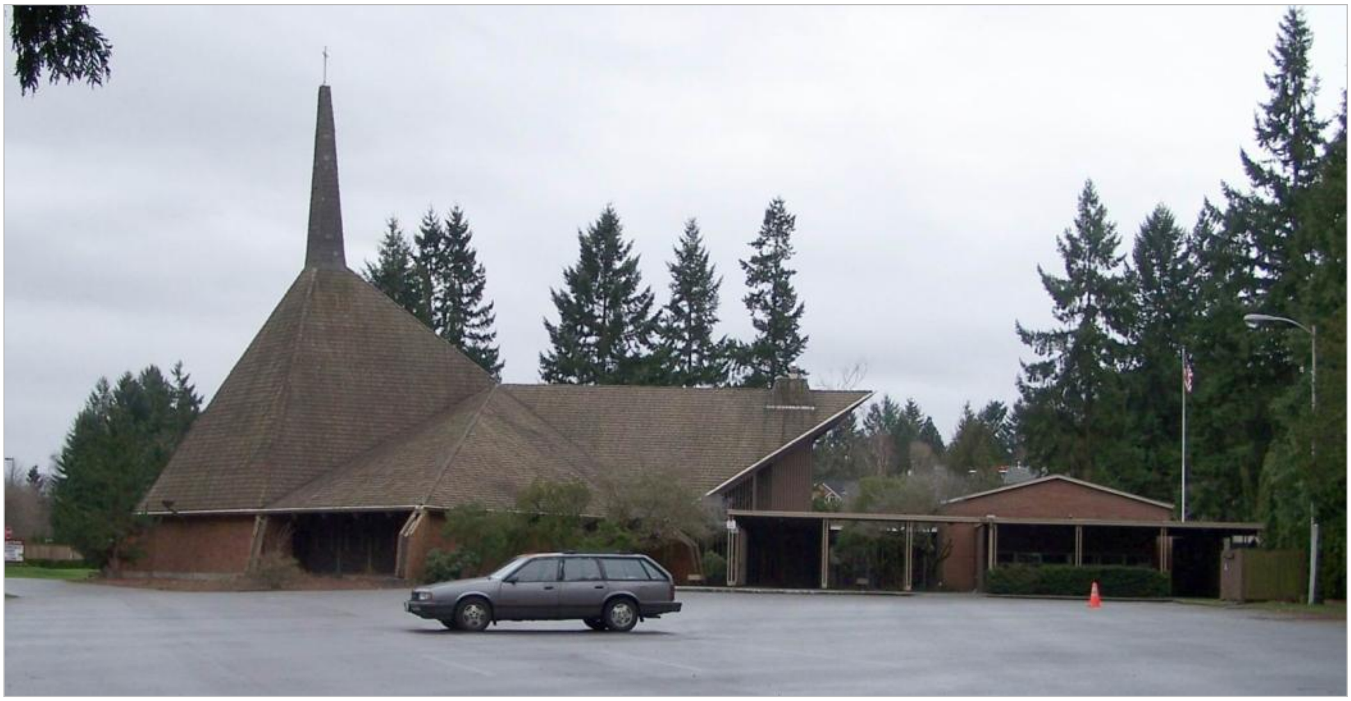


EXHIBIT 7-19
Pilgrim Lutheran Church, 10420 SE 11th Street

7.3.2.3 Alternative B7

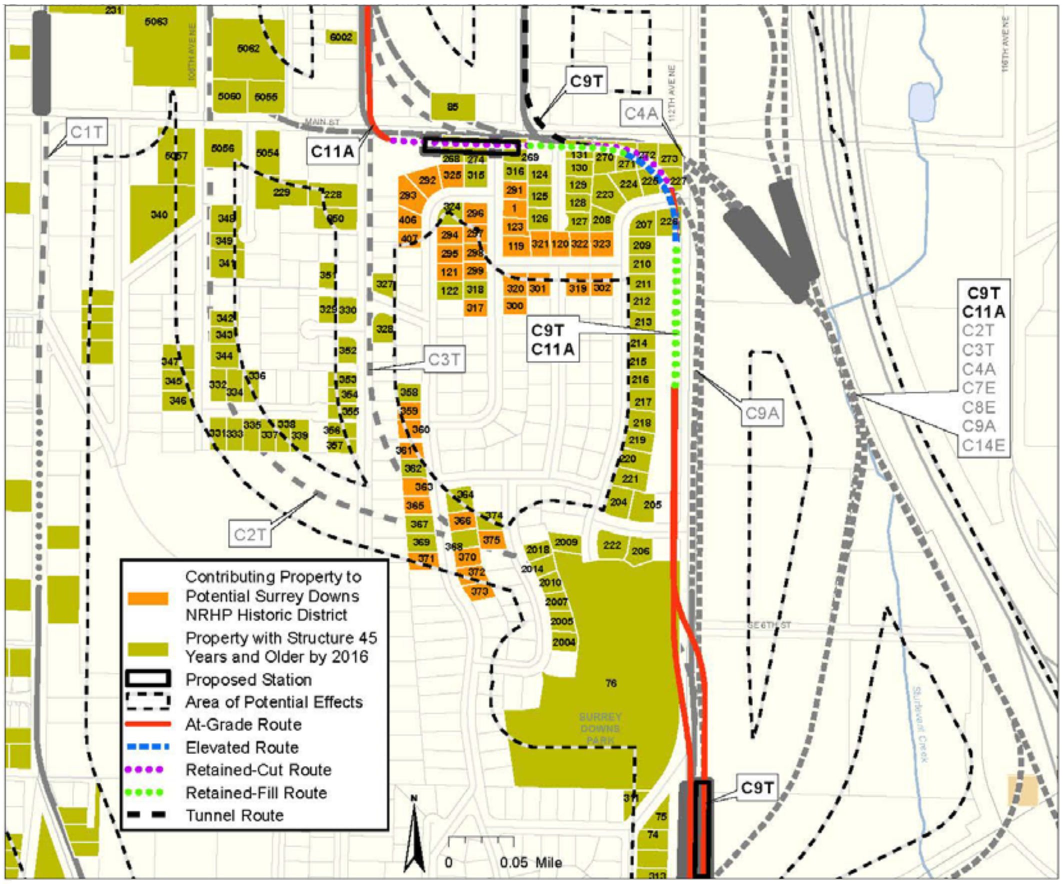
No historic properties were recorded within the APE of Alternative B7.

7.3.3 Segment C

Survey efforts in the Downtown Bellevue Segment C area inventoried 203 properties, including one NRHP-eligible resource consisting of 37 contributing properties within the potentially eligible Surrey Downs historic district. All of the properties inventoried within the potential historic district (except for two residences on 109th Avenue SE surveyed in 2009) were included in the 2007 version of the Cultural Resources Technical Report for the 2008 Draft EIS. DAHP sent two letters to FTA (dated November 16, 2007, and February 20, 2008) regarding the inventory and determination of eligibility of Segment C properties and specifically noted that the Surrey Downs neighborhood is a potential historic district, exact boundaries of which have not been defined, eligible under Criteria A & C for NRHP listing. Project architectural historians have since updated the inventory of Surrey Downs to include two new residences, both found to be eligible for NRHP listing, and also further surveyed the Main Street end of the potential historic district to assess where contributing properties are located and the integrity of resources nearest to Main Street. The remaining properties inventoried within Segment C, including the First Baptist Church at 1100 Bellevue Way, were determined not eligible for listing in the NRHP.

7.3.3.1 *Preferred Alternatives* C11A and C9T and Alternatives C2T, C3T, C4A, C9A, C7E, C8E, C9A, and C14E

DAHP determined 37 houses would be contributing elements to a potential Surrey Downs historic district within the Segment C area of the project APE. Exhibit 7-20 shows where in the project vicinity project architectural historians inventoried properties and which of those properties are recommended as contributing properties. Exhibits 7-21 through 7-25 demonstrate representative examples of these residences. A district is a concentration of buildings or other properties that may or may not be individually eligible for the National Register but are linked by one or more features that define their character. To be considered eligible as part of the potential Surrey Downs historic district, the houses needed to fit one of the architectural styles discussed below and not have undergone substantial modification (on the exterior) since their construction. Project architectural historians researched the history of the subdivision, inventoried buildings in the APE, and recommended 37 as contributing properties. Table 7-2 summarizes information on the contributing properties, and Appendix C, Exhibit C-7, shows their locations within the APE. FTA determined, in consultation with DAHP, that no boundaries were to be established for the potential district because it extends beyond the project APE.


C9T
C4A
C1T
C11A
C3T
C9T
C11A
C9A
C2T
C9T
C9T
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C2T
C3T
C4A
C7E
C8E
C9A
C14E
MAIN ST
108TH AVE NE
112TH AVE NE
116TH AVE NE
SE 6TH ST
SURREY DOWNS PARK
Sturtevant Creek
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Area of Potential Effects
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
N
0
0.05 Mile

EXHIBIT 7-20
Contributing Properties for the potential Surrey Downs Historic District, Between 108th and 112th Avenues SE, South of Main Street

In May 2007, HRA architectural historians first prepared findings for Sound Transit regarding the potential historic district within the Surrey Downs residential subdivision. In May 2010, project historians revisited the analysis of the potential historic district in response to public comment to more thoroughly assess the integrity of extant resources in relation to the criteria established for the potential district. The result was the inclusion of two additional residences as eligible for NRHP listing, and confirmation and additional documentation supporting that determination that properties along Main Street at the north end of the historic district are not contributing.

EXHIBIT 7-21
West Side of 109th Avenue Showing Mithun & Nesland Designs in Potential Surrey Downs Historic District

EXHIBIT 7-22
Mithun & Nesland Design at 11022 SE 2nd Street in Potential Surrey Downs Historic District

Table 7-3 lists properties that are currently considered to be contributing to the potential historic district:

Houses in Surrey Downs that retain integrity are likely to be eligible for the NRHP as a historic district because they are part of a residential subdivision developed during the period 1952-1956; many of the houses represent a Pacific Northwest regional variant of the Modern architectural design style of post-World War II residential architecture; a number of the houses are based on the designs of a prominent Seattle architectural firm Mithun & Nesland (now Mithun Partners); and the neighborhood retains a high degree of design unity and cohesiveness.

In 1952, Roxbury Homes purchased 80 acres that had been a filbert farm just south of Bellevue's downtown. The area was platted as "Surrey Downs Addition No. 1" in May of that year. The plat was bounded by Main Street on the north, 112th Avenue SE on the east, SE 2nd Street on the south, and 108th Avenue SE on the west. Roxbury Homes constructed the Surrey Downs residential subdivision, which eventually included about 200 houses. Between 1954 and 1956, they built approximately 40 of the houses using designs purchased from the Mithun & Nesland architectural firm. Although the owners have altered many of these houses—some substantially—since then, the neighborhood retains an unusual degree of design quality and cohesiveness.

Roxbury Homes constructed the subdivision in two stages, platted as Surrey Downs No. 1 and No. 2. For the first stage, the company purchased a few designs from Mithun & Nesland and adapted them to the varied topography of the subdivision, making aesthetic changes so that the houses built from the same design would not be identical. These Northwest Modern style designs (18 houses) included one-story houses with carports and two-story houses with garages located beneath the living space. Some of the one-story house designs featured a pitched roof that evoked a front-gabled house, with the house located under one pitch and the carport under the other. In other cases, the house extended under both sides of the roof, while the carport roof extended into the driveway. Some of the two-story houses showed a similar front-gabled appearance, while others had flat or nearly flat roofs. Other contributing houses include split-level (11 houses) and ranch styles (8 houses).

Properties that contribute to the potential historic district feature open plans, large areas of glass, and extensive use of wood. Hardwood floor and exposed beams characterize the house interiors, while the exteriors show wood siding, exposed rafters, and wooden roof supports. Skylights supplement the windows, which are plentiful and large, maximizing the amount of light admitted. Roxbury Homes chose pleasing color combinations, allowed wood grains to show through treatments, and left many of the existing trees on the lots. All of these factors contribute to the unity of design and quality that distinguishes this portion of the subdivision.

A report and map prepared by University of Washington student Russell L. Leach in 1965 regarding Surrey Downs and its Mithun & Nesland Mid-Century Modern homes was reviewed in preparation of the May 2007 and May 2010 inventory and evaluation efforts. The map accompanying the report was drawn by Leach to represent the original Mithun & Nesland-designed homes, as told to Leach through an interview with Omer Mithun prior to the completion of his report in 1965. In reviewing Leach's report, project architectural historians determined there was a need for a new survey of the neighborhood to determine which of the homes identified by Leach as architect-designed were in fact representative of the Mithun & Nesland-designed residences, and which of those retained integrity and were thus eligible as contributing properties to the potential historic district. The architectural historians also surveyed properties to identify whether they were individually eligible for the NRHP.

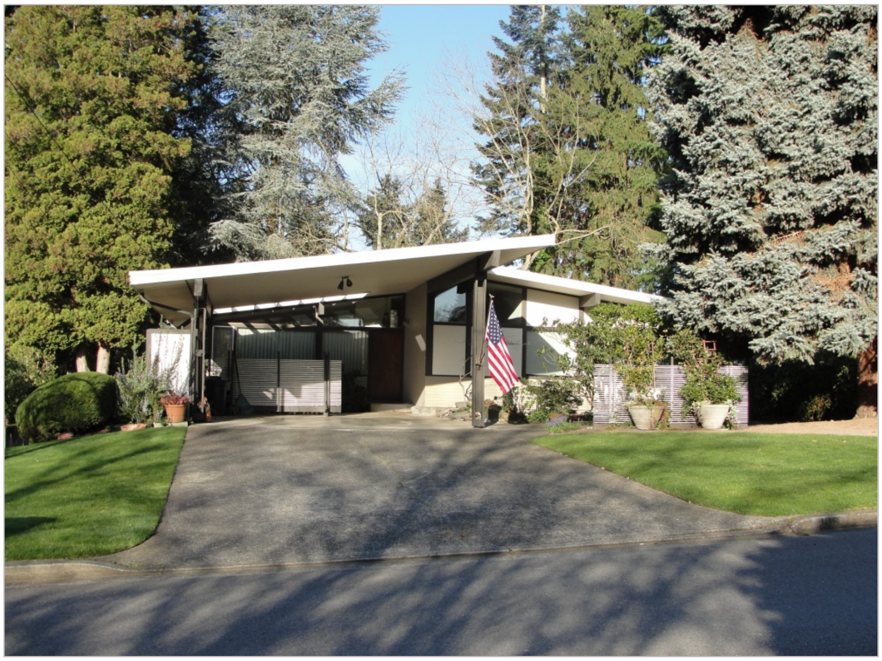


EXHIBIT 7-23
Mithun & Nesland Design at 109 109th Avenue SE in Potential Surrey Downs Historic District

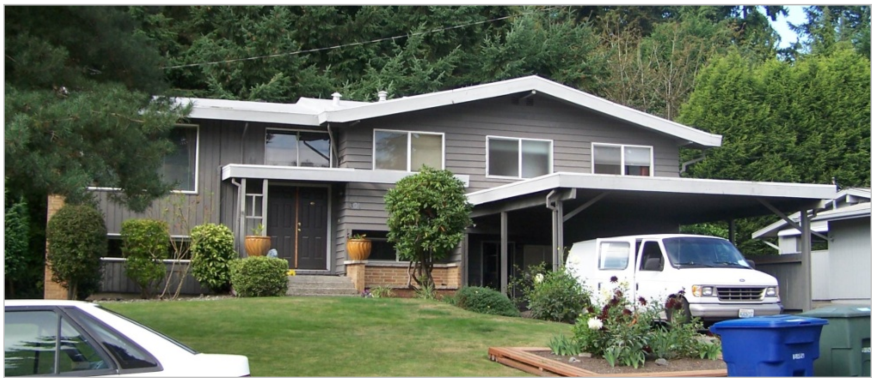


EXHIBIT 7-24
Split-Level Style at 301 109th Avenue SE in Potential Surrey Downs Historic District

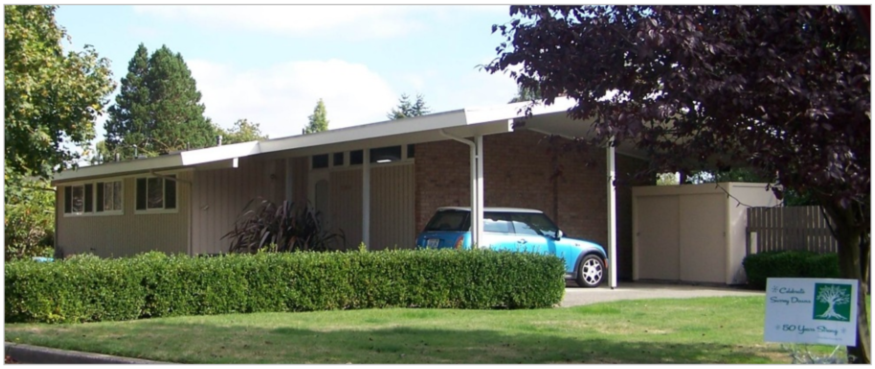


EXHIBIT 7-25
Ranch Style at 204 110th Place SE in Potential Surrey Downs Historic District

As the Leach report suggests that Mithun & Nesland designed the Surrey Downs neighborhood, the review of the potential historic district and properties within have largely been based on determining which of the residences extant in the neighborhood reflect one of the three designs sold to Roxbury Homes by the firm. The research found that Roxbury Homes sought to keep residences within the neighborhood from becoming too uniform, and toward that end, the developer altered

TABLE 7-3
Contributing Properties to Potential Surrey Downs NRHP Historic District

Field Number and Map ID	Address	Style and Year Built
291	88 110th Avenue SE	Northwest Modern, 1954 a
1	106 110th Avenue SE	Ranch, 1954
123	114 110th Avenue SE	Ranch, 1954
119	122 110th Avenue SE	Northwest Modern, 1954[a]
297	115 110th Avenue SE	Northwest Modern, 1954 [a]
298	121 110th Avenue SE	Northwest Modern, 1954 [a]
299	125 110th Avenue SE	Ranch, 1954
300	214 110th Avenue SE	Northwest Modern, 1955 [a]
301	203 110th Place SE	Northwest Modern, 1954 [a]
317	215 110th Avenue SE	Northwest Modern, 1955 [a]
319	204 110th Place SE	Ranch, 1954
320	11005 SE 2nd Street	Ranch, 1954
321	11014 SE 2nd Street	Ranch, 1954
120	11022 SE 2nd Street	Northwest Modern, 1954 [a]
322	11030 SE 2nd Street	Ranch, 1954
323	11040 SE 2nd Street	Ranch, 1954
302	11039 SE 2nd Street	Northwest Modern, 1954 [a]
292	10904 SE 1st Street	Northwest Modern, 1955 [a]
325	10910 SE 1st Street	Ranch, 1955
296	10915 SE 1st Street	Northwest Modern, 1954 [a]
293	103 109th Avenue SE	Northwest Modern, 1955 [a]
294	114 109th Avenue SE	Northwest Modern, 1955 [a]
295	122 109th Avenue SE	Northwest Modern, 1955 [a]
121	128 109th Avenue SE	Northwest Modern, 1955 [a]
359	241 109th Avenue SE	Split Level, 1961
360	301 109th Avenue SE	Split Level, 1961
361	313 109th Avenue SE	Split Level, 1961
363	401 109th Avenue SE	Split Level, 1961
365	409 109th Avenue SE	Split Level, 1961
366	412 109th Avenue SE	Split Level, 1961
370	428 109th Avenue SE	Split level, 1961
371	431 109th Avenue SE	Split Level, 1961
372	436 109th Avenue SE	Split Level, 1962
373	442 109th Avenue SE	Split Level, 1962
375	423 110th Avenue SE	Split Level, 1961
406	115 109th Avenue SE	Northwest Modern, 1954 [a]
407	109 109th Avenue SE	Northwest Modern, 1954 [a]

[a] Mithun & Nesland, Architects

aspects of the three designs bought from the architectural firm in the actual construction of the residences. Further research into the use of the Mithun & Nesland designs by the developer should be conducted if and when the potential historic district is more fully reviewed and nominated for listing in the NRHP.

While the Leach report provides good supportive evidence for the current review of Surrey Downs properties, recent data and a firsthand interview conducted by a project architectural historian with a member of the current Mithun firm have revealed further information and have clarified the role of the firm in the neighborhood. Mithun expressed specifically that the firm sold Roxbury Homes three designs and has no record of where in the subdivision those designs were used. No one at Mithun or in the archives used in the research expressed that everything in Surrey Downs was based on Mithun & Nesland designs, but rather that a survey of the properties would be necessary to determine which properties reflect the Mithun & Nesland firm and which of those retain integrity. It was also expressed that while designs were by Mithun & Nesland, the developer Roxbury Homes adapted the designs to ensure there would not be an overwhelming sense of uniformity among the residences.

Whereas many of the residences within the Surrey Downs subdivision constitute a potential historic district, particularly those based on Mithun & Nesland designs, other houses located south and east of the Mithun & Nesland residences within the subdivision are similar in architectural style but “lack the unity and quality of those designed by Mithun & Nesland.”

Other properties considered to be noncontributing properties to the potential Surrey Downs historic district include structures located along the northern boundary of the subdivision, Main Street. These structures include highly altered residences, residences that are original to the subdivision but unrelated to Mithun & Nesland designs, former residences that have been altered for commercial uses, and nonresidential commercial structures.

One such property is 10845 Main Street (alternate address 69 110th Ave SE) (Exhibit 7-26), a former residence on the northern boundary of the neighborhood built in 1954 when Mithun & Nesland designed-residences were built within Surrey Downs. The property faces Main Street and yet was originally accessed by a driveway on 110th Ave SE. The alternate address for this property is 10845 Main Street. Currently operated by the Semenea Law Firm, the one-story side-gabled structure includes a plan consistent with the houses in the Surrey Downs subdivision. The clerestory windows in the gable end of the former residence are original, but other windows have been replaced. Other character-defining features include the low-sloping, dramatic side-gabled roof and materials and the red brick double-wide chimney, as well as wood siding. Current analysis finds that the building appears related to the three known Mithun & Nesland designs sold for use by Roxbury Homes, and yet the building has undergone significant alterations to its west (rear) elevation and a surface parking lot has been added along its north elevation due to its conversion for commercial use. Changes to windows and the setting of the building also detract from its overall integrity and relationship to the residences within Surrey Downs.

The altered former residence at 10845 Main Street was not considered in isolation but rather in the context of the potential historic district and other contributing and noncontributing properties. This and other properties facing Main Street and within proximity of the major roadway have undergone similar alterations and a change in context over the years and do not reflect the type of typical residential alterations that residences further within Surrey Downs have undergone.

Other Main Street properties surveyed include 10833 Main Street, a parking lot created to serve an adjacent commercial structure to the west. These properties (Exhibit 7-27) are not architecturally or historically related to the development of Surrey Downs. Though it is unknown when the property at 10833 Main Street was demolished to create the parking lot, and the assessor record was not updated as of March 19, 2010, it is known that these properties and the former residence to the east, 10845 Main Street, are not properties that contribute to the potential historic district.

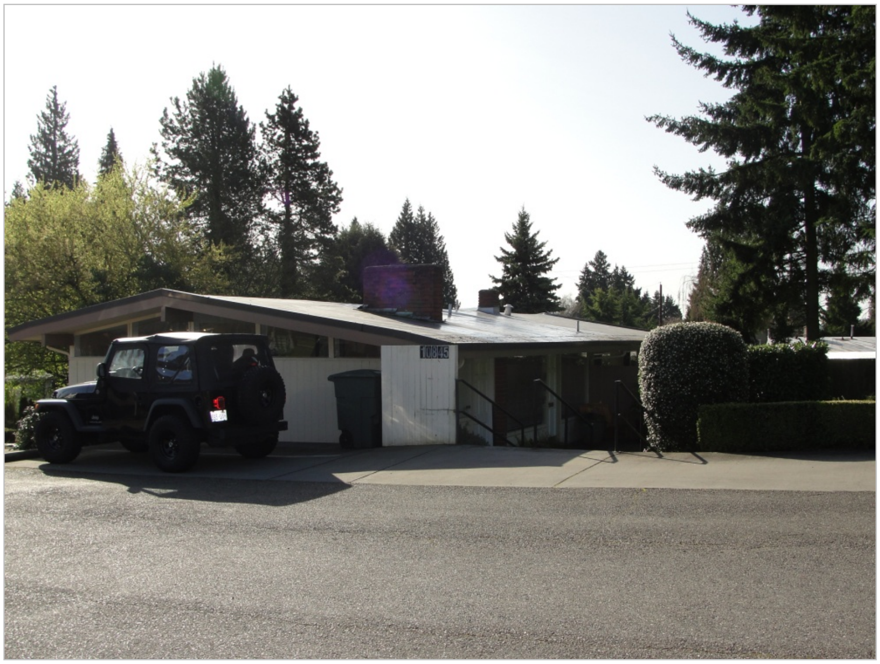


EXHIBIT 7-26
10845 Main Street (Alternate Address 69 110th Avenue SE)

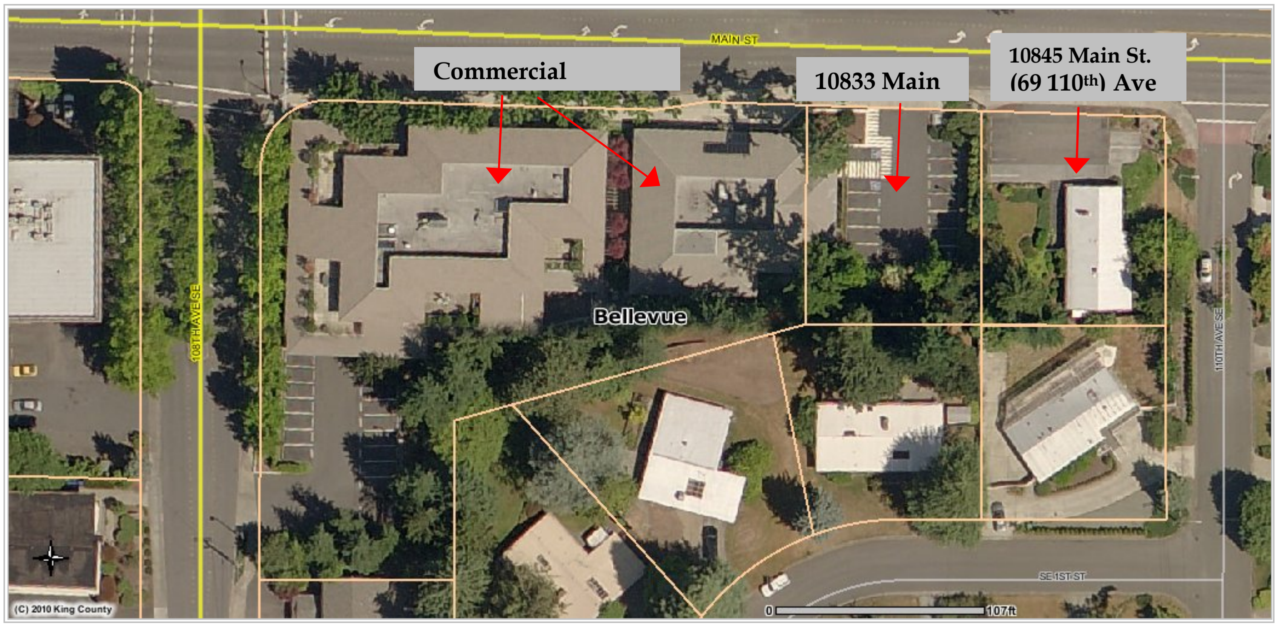


EXHIBIT 7-27
Main Street Properties

The structure at 11005 Main Street (Exhibit 7-28), opposite the former residence at 10845 Main Street and across 110th Avenue SE, is operated by the Law Offices of Fitch & Ludwick and is opposite a Toys R Us retail store and other commercial developments.

EXHIBIT 7-28
11005 Main Street

South of 11005 Main Street is 80 110th Avenue SE (Exhibit 7-29), identified as the “Kim Residence,” along with the neighboring property to the south at 88 110th Avenue SE. Whereas both 80 and 88 110th Avenue SE residences were built in 1954, the two buildings are architecturally different. The residence at 80 110th Ave SE is a one-story residence with a side-gabled roof. It has an attached garage with a hipped roof. The cladding of both is clapboard. The architectural style is Minimal Traditional. According to the archived King County tax records, the owners enclosed the carport to create a garage in 1960 and altered the roof and some other elements in 1972 after a fire damaged the building. Although the building was found to have integrity of location, setting, workmanship, feeling, and association, changes to the house impair the integrity of design and materials. There is no known association between the building and significant events or lives of significant persons and it is not known to be the work of a master craftsman and or architect. It is also not an outstanding example of an architectural style or building type. While the building was built in 1954, the same year the residence directly to its south (88 110th Avenue SE) was built and designed by Mithun & Nesland, this residence does not portray any of the design qualities determined to be significant within the potential Surrey Downs historic district and in its design does not appear to be related to the significant work by the architectural firm within the neighborhood. The lack of integrity of the residence due to changes to its original 1954 features furthers the determination that this residence is not a contributor to the potential historic district.

EXHIBIT 7-29
80 110th Avenue SE

The residence at 88 110th Avenue SE (Exhibit 7-30), the third structure along 110th Avenue SE from Main Street, is one-story with a front-gabled roof. There are clerestory windows under the eaves. While owners have made changes to the residence since it was designed and built in 1954, the major design elements are intact. The windows appear original, as do the plan, roof structure and materials, brick chimney, and siding. These character-defining features of the residence are in keeping with other significant contributing residences within the potential historic district that can be attributed to the work of the architectural firm Mithun & Nesland.

EXHIBIT 7-30
88 110th Avenue SE

The residence at 79 110th Avenue SE (Exhibit 7-31), directly south of 10845 Main Street and opposite 80 and 88 110th Avenue SE, was noted by Leach in 1965 as a Mithun & Nesland designed residence, and yet upon inventory was found to be a noncontributor to the potential historic district due to its loss of integrity through extensive alterations.

7.3.3.2 Alternative C1T

One historic property was found within the APE for Alternative C1T, a former Safeway store (Exhibit 7-32) located at 414, 424, and 456 104th Avenue NE. FTA has determined, in consultation with SHPO, that this structure is eligible to the NRHP. Constructed in 1962, the building likely originally served as a grocery store, and resembles other grocery stores constructed by the Safeway Corporation in the 1960s. According to National Register Criterion C, a building is eligible for the NRHP as a specimen of its type or period of construction and if it is an important example of building practices of a particular time in history. The former Safeway store embodies the distinctive characteristics of a type and period of construction in its representation of a large-scale commercial grocery store of the 1960s.

EXHIBIT 7-31
79 110th Avenue SE

The historic context of this building is the big-box style commercial development of the 1960s and the role commercial retailers and particularly supermarkets had in suburban expansion. While the Safeway store is eligible for the NRHP under Criterion C due to its distinguishing characteristics of its type and period of construction, the building does not appear to be associated with events that made a significant contribution to the broad patterns of local, state, or national history and is not recommended eligible for listing under Criterion A. The building also does not appear eligible under Criterion B, as it is not known to be associated with the lives of significant people. Furthermore the building is unlikely to yield further information important in understanding local, regional, or national history, and is recommended ineligible under Criterion D. The building maintains good integrity of materials, design, workmanship, feeling, association, location, and setting. The store is currently closed and a preliminary land use plan application for new construction is posted on the property.

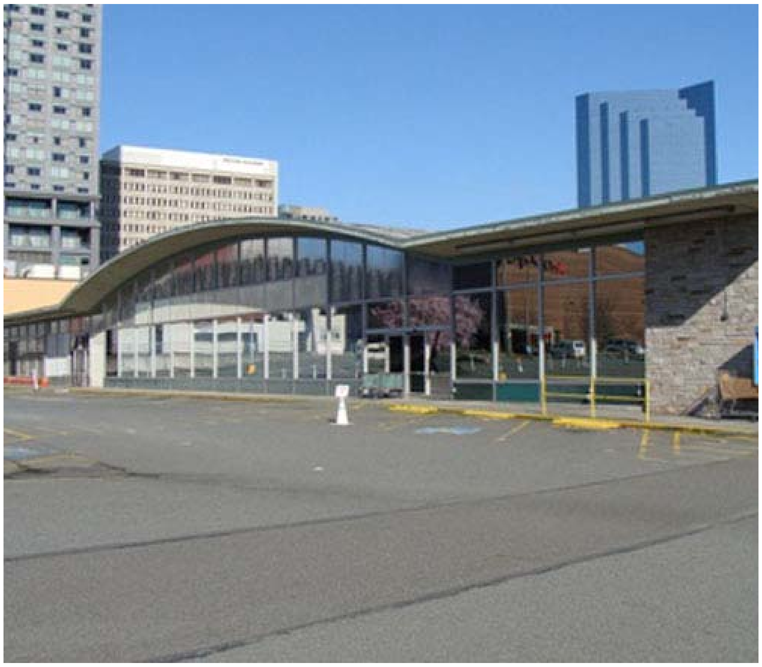


EXHIBIT 7-32
Safeway Store

7.3.4 Segment D

Survey efforts in the Bel-Red/Overlake Segment D area inventoried 27 properties, including the NRHP-eligible Former Bellevue Fire Station. All of the properties inventoried in Segment D were included in the 2007 Cultural Resources Technical Report for the 2008 Draft EIS. DAHP sent two letters to FTA (dated November 16, 2007, and February 20, 2008) regarding the inventory and determination of eligibility of Segment D properties and specifically noted that the Bellevue Fire Station is eligible for NRHP listing under Criteria A and C. The remaining properties surveyed in Segment D, including the Highland Covenant Church at 15022 NE Bellevue-Redmond Road, were determined to be ineligible for NRHP listing.

7.3.4.1 *Preferred Alternative D2A* and Alternatives D2E and Alternative D5

No historic properties were recorded within the APE of these alternatives.

7.3.4.2 Alternative D3

Within the Alternative D3 APE, the former Bellevue Fire Station (Exhibit 7-33) on Bellevue-Redmond Road, constructed in 1960, is eligible for the National Register under Criteria C as a good example of Populuxe architecture. The nearly flat roof has eaves with a wide overhang. The roof silhouette, which widens at the center, gives the impression that the roof curves upward at the outer edges. The style is reminiscent of 1950s aerodynamic styling. The building is currently used for the City of Bellevue's vehicle storage. Although the building's parcel is situated inside the APE, the building itself is outside the APE.

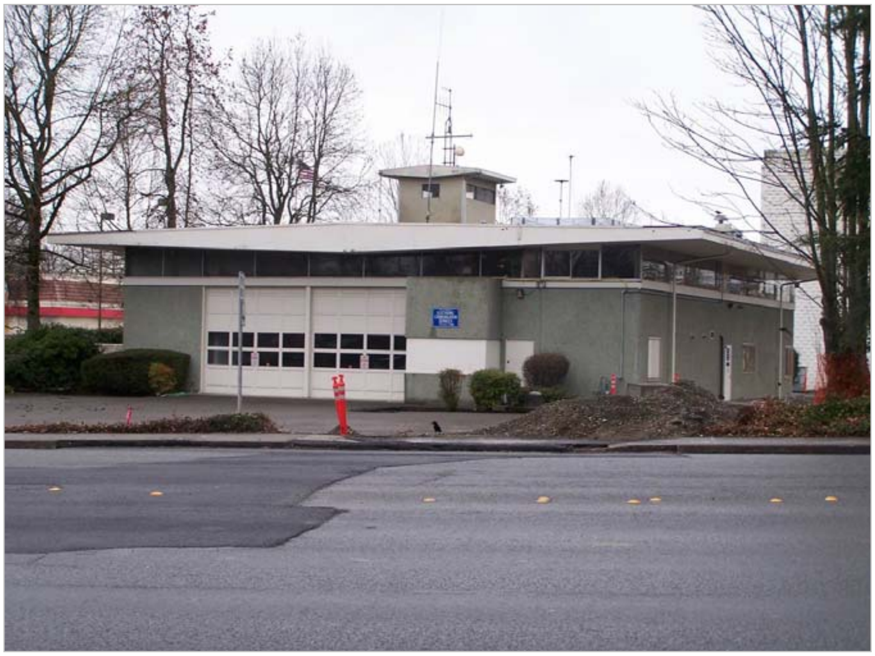


EXHIBIT 7-33
Former Bellevue Fire Station, 14822 NE Bellevue-Redmond Road

7.3.5 Segment E

Survey efforts in the Downtown Redmond Segment E area inventoried 33 properties, including the NRHP-eligible Justice William White House and the Bill Brown Saloon Building. The Justice William White House and the Bill Brown Saloon Building are designated as Redmond Heritage Landmarks. Architectural historians recommended the two Redmond Heritage Landmarks as eligible for listing in the NRHP (and therefore also for the WHR). SHPO concurred with the recommendations. All of the properties inventoried in Segment E were included in the 2007 Cultural Resources Technical Report for the 2008 Draft EIS. DAHP sent two letters to FTA (dated November 16, 2007, and February 20, 2008) regarding the inventory and determination of eligibility of Segment E properties and specifically noted that the Justice White House/Hotel Redmond on Leary Way is formally determined eligible for NRHP listing by the Keeper but not listed due to owner objection and is also not listed on the WHR, and that the Bill Brown Building at 7824 Leary Way NE is eligible for listing in the NRHP under Criteria B. The remaining properties surveyed in Segment E, including the Haida House on Sammamish Parkway (Exhibit 7-34), were determined to be ineligible for NRHP listing.

EXHIBIT 7-34
Haida House on Sammamish Parkway

EXHIBIT 7-35
Justice William White House, Leary Way NE and NE 76th Street

The Justice William White House (Exhibit 7-35) is significant under Criteria B and C, because its owners, William and Emma White, both played important roles in the history of Redmond and western Washington and the building retains integrity and is one of the few, if not the only, remaining example of Queen Anne Shingle style architecture in Redmond. William White moved to Seattle from West Virginia in 1870. He served as prosecuting attorney of the Third Judicial District, represented King County in the Territorial Legislature, and then served as United States attorney for the territory until statehood in 1889. In 1890, the governor appointed White to the Washington State Supreme Court. In 1898, White married Emma McRedmond, daughter of one of Redmond's founders and its namesake, Luke McRedmond. Emma McRedmond served as the town's postmistress for many years, beginning when she was 16. She was among the first women to run for statewide office and organized the Women's Democratic Club. In 1900, Emma and William White moved into the 14-room house that they built on a portion of Luke McRedmond's original claim. They set aside a part of the house as a hotel because it was conveniently located close to the railroad line and the passenger depot, giving guests easy access. Justice White died in 1914, and the family lost the house to foreclosure in 1932. It then became the clubhouse for a golf course located south of the house (Hanscom, 1979). The golf course has since become the site of the Redmond Town Center shopping center, and an architecture firm occupies the house.

The Redmond Trading Company building (which is currently occupied by Half Priced Books) was built in 1910 to house the store that was Redmond's largest business for decades during the City's earliest period of development. The Redmond Trading Company engaged in selling "general merchandise" both wholesale and retail. Fred Reil, Redmond's first mayor and an early postmaster, was one of the original owners and the building originally housed both the store and the post office. Through the ownership changed over time, the Redmond Trading Company operated at this location until 1955. Since then, the building has housed several different businesses. The building was originally constructed with a wooden cornice, multi-light transom windows, wooden storefronts and two double entries. None of this fabric remains, nor do any of the spatial relationships created by this façade. The presence of the display windows along the Leary Way side of the building is the only characteristic that the present façade of this building shares with the original, and as a result it is not considered eligible for listing in the National or State Registers. However, this building is a Redmond Heritage Landmark since it is considered an important early reminder of the City's early commercial development.

The Bill Brown Saloon Building (Exhibit 7-36) is significant under Criteria B because of its association with the man who was mayor of Redmond from 1919 to 1948. The building, while not an outstanding example of an architectural style, is the work of a master craftsman. Beginning well before he became mayor, Brown operated a variety of businesses. In 1910, he constructed his first building at Leary Way and Cleveland Street, a wood-frame structure that housed his saloon. Brown tore it down 3 years later and constructed the brick building that stands on the corner today. When it opened, the building housed the saloon, a drugstore, and a barbershop, with an upstairs gathering space for community events. When prohibition closed the saloon, Brown explored other businesses, including an auto stage line and a logging company. Beginning about 1915, the building's second floor served as an unofficial Redmond City Hall (Hardy, 2001).

The Dudley Carter/Haida House is a City of Redmond historic landmark, and the City considers it to be eligible for listing in the National Register. It was constructed by nationally known, Canadian-born artist Dudley Carter following methods of the Haida First Nation. However, based on a November 16, 2007, finding by DAHP regarding eligibility of resources in the project APE, the Haida House did not meet the eligibility requirements for the National Register.

7.3.6 Maintenance Facility Surroundings

No historic properties have been recorded at the alternative maintenance facilities.

EXHIBIT 7-36
Bill Brown Saloon Building, 7824 Leary Way NE

8.0 Environmental Effects

Project operation and construction could impact historic properties directly or indirectly. The Criteria of Adverse Effect, which determine if there will be an impact, are discussed in Section 3.6 above. The Advisory Council on Historic Preservation's regulations implementing Section 106 of the National Historic Preservation Act (36 CFR Part 800) create a process by which federally assisted projects are reviewed for their impacts on properties listed in, or eligible for listing in, the NRHP.

After a historic property is identified, the next step is applying the Criteria for Adverse Effect. These criteria are used to determine whether the undertaking could change the characteristics that qualify the property for NRHP eligibility. An impact is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Impacts include, but are not limited to, the following:

- Demolition or alteration of the property
- Alteration of the property's setting
- Introduction of visual, audible, or atmospheric elements that are out of character with the setting of the historic property
- Physical encroachment upon an archaeological site

Direct impacts are those caused by the project while the project is under construction or operating while indirect impacts are those reasonably foreseeable impacts caused by the action at a later time or at a distance that is farther removed from the project location, in accordance with 40 CFR 1508.8. The following sections discuss the potential impacts of project operation and construction on archaeological sites, TCPs, and historic buildings and structures by resource type for each segment.

Pursuant to 36CFR Part 800.5(b), an agency may propose a finding of no adverse effect in consultation with the SHPO when the undertaking is modified or conditions are imposed to avoid impacts. Potential impacts could occur at three historic resources, depending on the alternatives selected: the Justice White House with Alternative E4, the potential Surrey Downs historic district during construction of *Preferred Alternative C11A* or Alternatives C2T, C3T, orC4A and the Winters House during the construction of *Preferred Alternative B2M*. With the exception of the three resources and alternatives discussed above, in all instances where the project alternatives would affect a resource, impact minimization measures have been included in the project that would prevent an impact.

For all other historic resources and project alternatives, project historians did not find potential impacts from East Link Alternatives. These resources include the following: the I-90 Lake Washington Highway Segment and Mount Baker Ridge Tunnels, Will H. Thompson House, Jose Rizal 12th Avenue South Bridge, Immigrant Station and Assay House, Publix Hotel, Endersen Residence, Romaine Electric/Washington Iron Works Pattern Shop, Pilgrim Lutheran Church, Bill Brown Saloon, and the Dudley Carter/Haida House.

Following the release of the Draft EIS for public comment, the City of Bellevue requested that Sound Transit consider an alternative that traveled on the east side of Bellevue Way. This suggestion was also reiterated in numerous public comments that requested the alternative be furthest away from residences in order to minimize their perception of impacts on the adjacent neighborhoods. Further, to avoid intrusion on the Winters House and reduce concerns over visual impacts, the alternative was lowered below ground in front of the Winters House to preserve the existing contextual setting as much as possible. The alternative was selected as the *Preferred Alternative* by the Sound Transit Board as titled *Preferred 112th SE Modified Alternative (B2M).*

The No Build Alternative would not impact any historic properties.

8.1 Archaeological Sites

8.1.1 Description

Project archaeologists recorded two historic-period archaeological sites in the APE of the Preferred Alternative. Site 1256-1, along *Preferred Alternative B2M* and Alternatives B2A, B2E, and B3, is not eligible for listing in the NRHP: its integrity has been compromised, and it does not meet any of the four criteria that define eligibility.

A newly-recorded segment of site 45KI451, the SLS&E Railway, is also recommended not eligible for listing in the NRHP. Although substantial portions of the grade retain integrity of location, materials, and design, the growth of Redmond and the demolition of the Redmond Depot have decreased its integrity of setting, feeling, and association. The resource is not eligible under any of the four criteria for listing.

The single previously recorded prehistoric site (45KI8) could not be verified during the 2007 archaeological survey. The location of the many portions of the project within areas not considered sensitive for the occurrence of archaeological sites or in high-sensitivity areas that have received previous disturbance makes it unlikely, although not impossible, that the project would impact NRHP-eligible archaeological sites.

It is possible that one or more archaeological sites may exist beneath the ground surface in areas where project excavation would take place. The Segment B and E alternatives are more sensitive for containing archaeological sites than the other segments. *Preferred Alternative B2M* and Alternatives B2A, B2E, B3, and B7 are near Mercer Slough and its adjacent terraces; *Preferred Alternative E2* and Alternatives E4 and E1 are near the Sammamish River valley and its adjacent terraces. In Segment C, archaeological deposits are typically shallow (in the top meter or less below the ground surface). Recent explorations have not shown presence of native soils that would contain any deposits. However, since the ground has been previously disturbed in this area and native soils have been buried by historic-era fill episodes, archaeological sites may exist at depths that would be disturbed by tunnel excavation.

8.1.2 Effects During Operation and Construction

Project archaeologists will conduct additional subsurface testing before construction— activities referred to as Stage 2 survey in Section 3.3. Stage 2 survey tracts are those outside of public ownership, or were paved or otherwise less accessible at the time of Stage 1 survey prior to FEIS preparation. Stage 2 surveys will be conducted and use information from the Stage 1 survey and geotechnical borings, and will occur once the properties have been acquired by Sound Transit, after completion of the Final EIS. Stage 2 surveys will take into account that the location of archeological sites may have shifted due to previous historic period ground disturbance activities. Information gathered from the Stage 2 survey will inform preparation of the Archaeological Resources Monitoring and Treatment Plan (ARMTP) or an Unanticipated Discoveries Plan (UDP), which will guide archaeological monitoring work during East Link Project construction. FTA and Sound Transit will coordinate with SHPO, interested tribes, and other interested parties as appropriate, to review the plan.

8.2 Traditional Cultural Properties

Consultation with the tribes has identified no information regarding traditional cultural properties that would be impacted by the East Link Project.

8.3 Historic Buildings and Structures

8.3.1 Effects During Operation

This section evaluates anticipated operation impacts on historic properties identified within the project alternatives' APE, beginning with the discussion of the potential impacts for the *Preferred Alternative* for each segment.

8.3.1.1 Segment A

Operation of the light rail system on Alternative A1 is not anticipated to impact the seven historic properties identified in Segment A because of the position of Alternative A1 in the center of I-90.

The Publix Hotel

The Publix Hotel would not be impacted by Alternative A1, which begins with the addition of the project to the Downtown Seattle Transit Tunnel. The building is across the street to the east from the International District Station entrance to the transit tunnel, and the project would not result in above-ground changes in the immediate vicinity. There would be no impact on the setting of the property and no direct impacts on the structure from vibration, given the distance of the project from the historic property.

The INS Building

The INS Building is situated at the east edge of the APE, and considerable traffic associated with the 5th Avenue S/I-90 ramp is already present. The light rail facility would be at the level of the transit tunnel and then under Airport Way, and would not be visible until south of Airport Way when it transitions to at-grade to enter the existing D2 Roadway right-of-way. The project would not impact the setting of the building or the structure itself, because it would be below grade on an existing transportation structure, and consistent in general appearance with the buses using the D2 Roadway.

The Washington Iron Works Pattern Shop

Due to the location of the project alternative in the existing D2 Roadway right-of-way and the project's consistency with the transit function and appearance of this facility, operation of the project would not impact the Washington Iron Works Pattern Shop structure or setting, nor would it have vibration or other impacts on the structure.

12th Avenue South Bridge

The operation of the project along I-90 at-grade beneath the 12th Avenue South Bridge would not impact the setting of the bridge because the project is within the boundaries of the existing I-90 roadway.

Will H. Thompson House

The Will H. Thompson House sits above the Mount Baker Ridge Tunnels, where the light rail would run. The project is anticipated to have no vibration or other impacts on the Will H. Thompson House.

1402 32nd Ave South

Due to the distance of the project alternative from the residence at 1402 32nd Avenue South and the project's location in a tunnel within the existing I-90 right-of-way, operation of the project along I-90 at-grade would not impact the setting of the residence, nor would it have vibration or other impacts on the structure and its character-defining features.

I-90 Lake Washington Segment and the Mount Baker Ridge Tunnels

Preferred Alternative A1 would use the I-90 center roadway for the light rail trackway (Exhibit 8-1) and include a station in the center of I-90 between Rainier Avenue and 23rd Avenue with entrances from 23rd Avenue S and Rainer Avenue S, and a station with the existing park-and-ride garage on Mercer Island between 77th and 80th avenues SE and station entrances on 77th Avenue SE and 80th Avenue SE. The conversion of the center roadway to light rail would require closure of the westbound 77th Avenue SE off-ramp and the eastbound direct high-occupancy vehicle (HOV) off-ramp to Island Crest Way. The project includes an option to connect the outer HOV lane from I-90 east bound to the Island Crest Way ramp. Both the

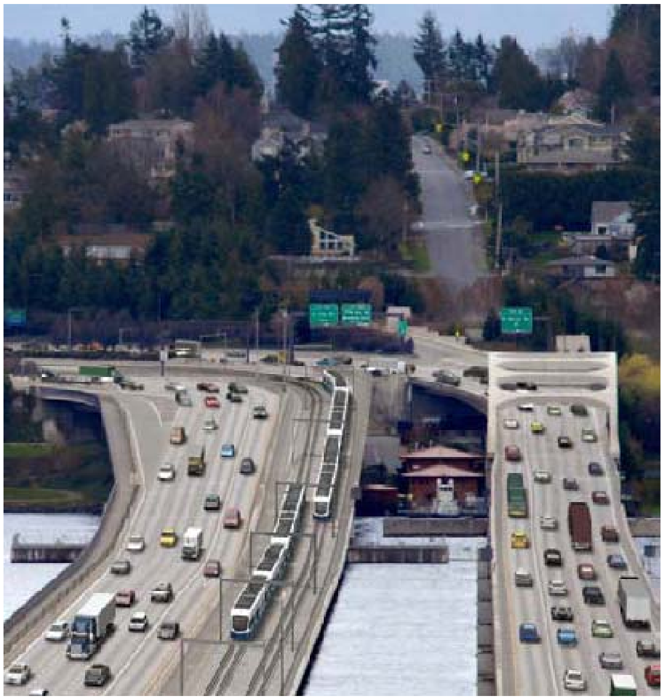


EXHIBIT 8-1
I-90 Floating Bridges with Light Rail Visual Simulation

I-90 tunnels and the floating bridge would require modifications to incorporate light rail. Modifications would include changes to wall dividers, a catenary system, light rail tracks, drainage, and ventilation. To equalize weight on the bridge from installation of steel rail, the concrete surface may be made thinner by removing the upper layers. Finally, to accommodate movement of the floating bridge in relation to the land abutment, specialized rail expansion joints would be installed on the bridge.

This segment of I-90 is unique in including both highway and transit elements in its earliest planning stages, unlike most of the national interstate system. In applying the Criteria of Adverse Effect, it has been concluded that that there would not be an impact on the historic property and its character-defining features because of its original design to accommodate high capacity transit, including light rail, and the placement of light rail within the existing right-of-way in the center roadway, which maintains character-defining features of the floating bridges, tunnel portals, and lids. The project would be constructed within the facility's existing center roadway and would not require widening of the facility. Structural modifications would not be noticeable. Modifications would not affect location, design, setting, materials, workmanship, feeling, or association of the I-90 corridor that make it eligible for the National Register. The project would not change the innovative engineering or amenities, such as the floating bridges, Mount Baker Tunnels, and landscaped lids. The project fulfills part of the original intention for use of the center roadway for transit. The primary changes to the transportation facility do not affect the character or the intended use of the structure.

8.3.1.2 Segment B

There are two historic properties within the APE of the Segment B alternatives. The Winters House is within the APE of *Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3. The Pilgrim Lutheran Church is within the APE of Alternative B1. There are no historic properties within the APE of Alternative B7.

Winters House

The Winters House is within the APE of all Segment B alternatives except Alternative B7. None of the Segment B alternatives would have an impact on the property during operation. The following discusses each alternative within proximity of the Winters House.

Effects of *Preferred Alternative B2M*
All measures to minimize potential operational period impacts to the Winters House are incorporated in project design. The alignment of *Preferred Alternative B2M* is proposed to be located within the 50-foot boundary of the Winters House established in the NRHP nomination. *Preferred Alternative B2M* would run in a lidded retained-cut positioned approximately 9 feet from the building foundation and 4.5 feet from the front porch (Exhibits 8-2and 8-3). The 170-foot-long retained cut would extend north and south of the house the full width of the 50-foot boundary, but because the light rail project would be below grade, the light rail and retained cut would not be visible within the property boundary. Exhibit 8-4 depicts a bird's eye view of the existing condition and the property with *Preferred Alternative B2M.*

The light rail would change elements that do not contribute to the Winters House eligibility. For example, the light rail would displace the existing landscaping in front of the house. While the landscaping is mature, historic photographs and discussions with the Eastside Heritage Center, which

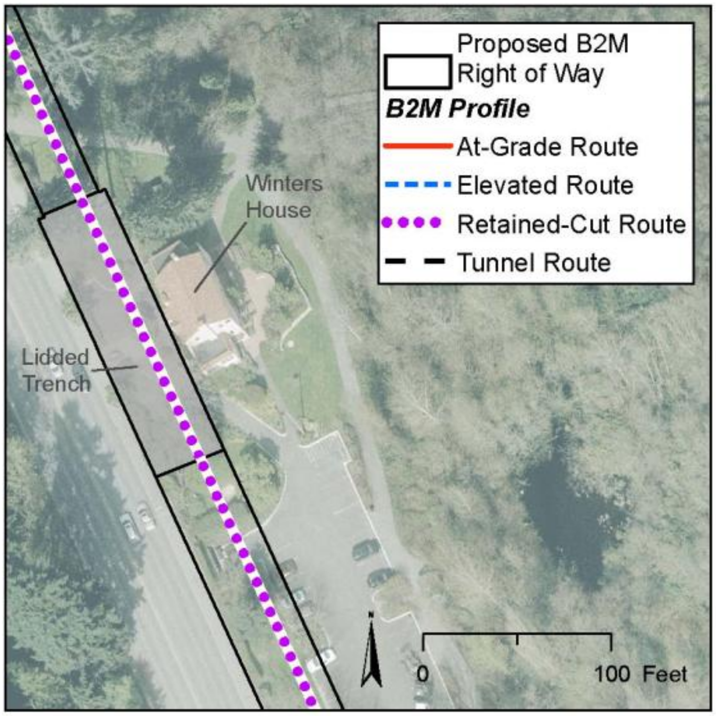
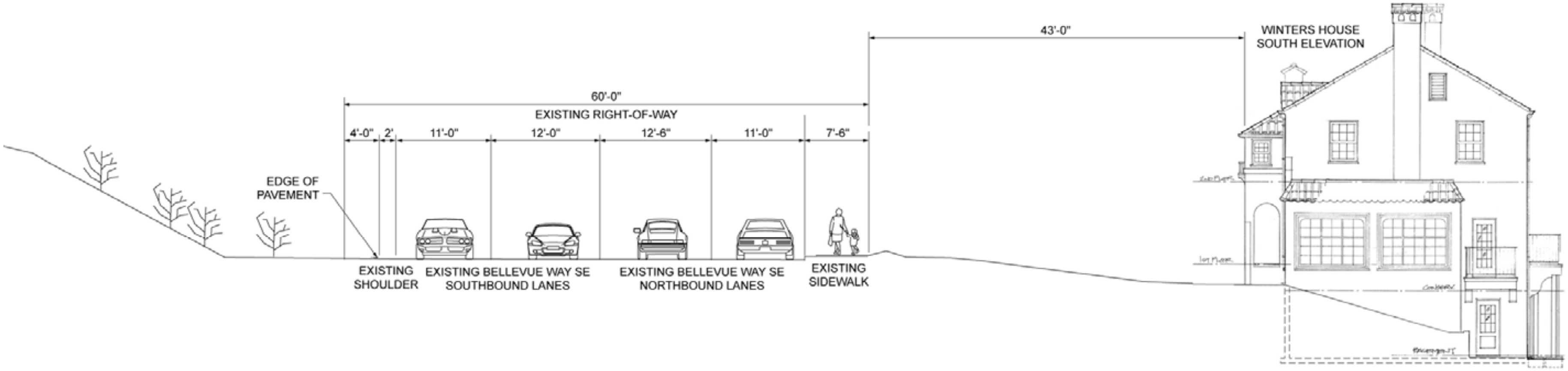


EXHIBIT 8-2
Proximity of *Preferred Alternative B2M* to Winters House

Existing


43'-0"
WINTERS HOUSE
SOUTH ELEVATION
60'-0"
EXISTING RIGHT-OF-WAY
4'-0"
2'
11'-0"
12'-0"
12'-6"
11'-0"
7'-6"
EDGE OF
PAVEMENT
EXISTING
SHOULDER
EXISTING BELLEVUE WAY SE
SOUTHBOUND LANES
EXISTING BELLEVUE WAY SE
NORTHBOUND LANES
EXISTING
SIDEWALK

Preferred Alternative B2M

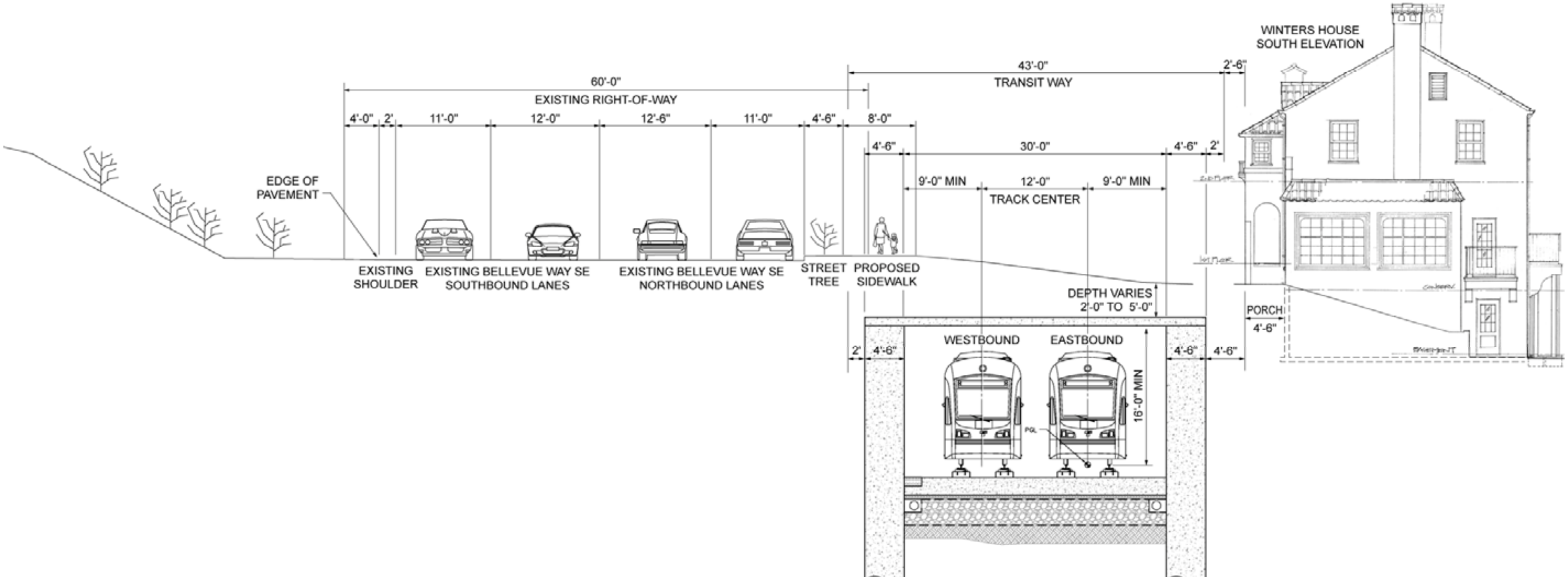

WINTERS HOUSE
SOUTH ELEVATION
43'-0"
TRANSIT WAY
2'-6"
60'-0"
EXISTING RIGHT-OF-WAY
4'-0"
2'
11'-0"
12'-0"
12'-6"
11'-0"
4'-6"
8'-0"
4'-6"
30'-0"
4'-6"
2'
9'-0" MIN
12'-0"
TRACK CENTER
9'-0" MIN
EDGE OF
PAVEMENT
EXISTING
SHOULDER
EXISTING BELLEVUE WAY SE
SOUTHBOUND LANES
EXISTING BELLEVUE WAY SE
NORTHBOUND LANES
STREET
TREE
PROPOSED
SIDEWALK
DEPTH VARIES
2'-0" TO 5'-0"
PORCH
4'-6"
2'
4'-6"
WESTBOUND
EASTBOUND
4'-6"
4'-6"
16'-0" MIN
PGL

EXHIBIT 8-3
Cross Section of *Preferred Alternative B2M* Adjacent to Winters House

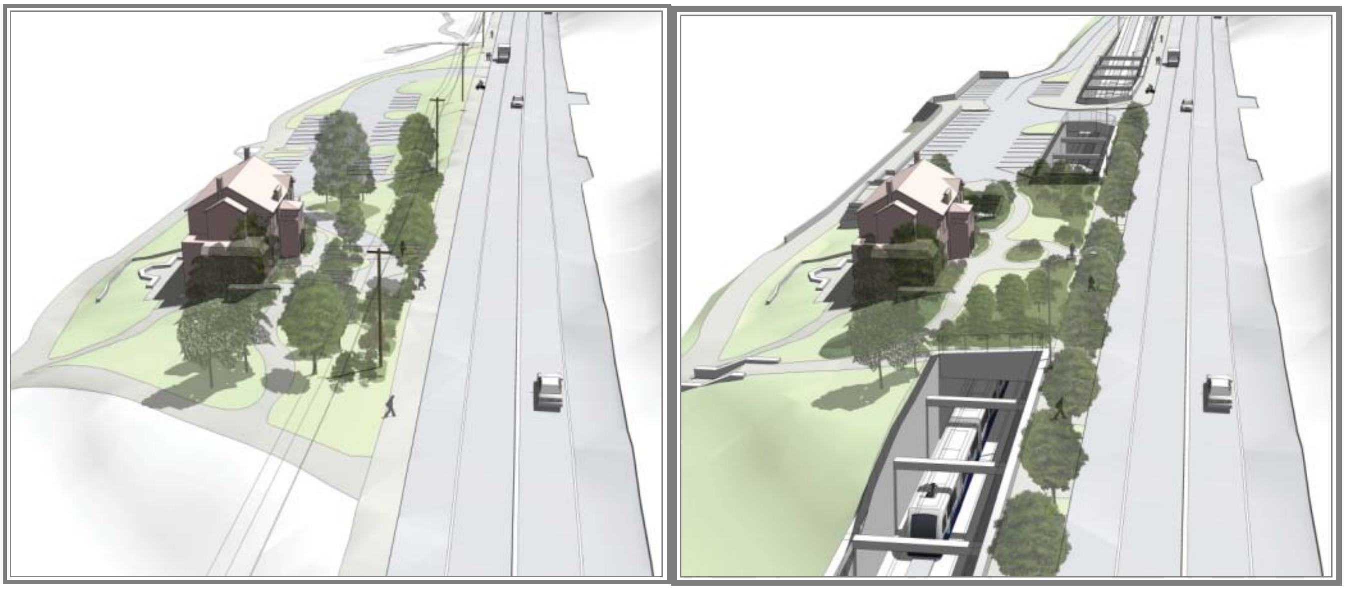


EXHIBIT 8-4
Winters House Bird’s Eye View, Existing (left) and *Preferred Alternative B2M* (right)

currently uses the building as an office and community meeting room, have verified that the landscaping is not part of the historic context. As part of the landscape plan, the existing concrete walkway from the parking lot to the basement would be reconfigured to a combination of stairs and a winding 6-foot wide ramp, which would provide handicap accessibility between the house and the parking lot in compliance with the Americans with Disabilities Act of 1990. Additionally, the front sidewalk would be moved 5 feet into the front yard, towards the house, which will allow for a row of trees to be placed between the sidewalk and the Bellevue Way (Exhibits 8-3 and 8-4). Although they are within the 50-foot boundary, the existing concrete walkway and sidewalk are also not part of the historic context of this resource. The Winters House also includes a garage, which is no longer functional, and vehicular access to the garage and front door would not be maintained with the lidded trench. Vehicles would only be allowed access to the basement.

Furthermore, the 50-foot boundary around the house provided in the NRHP boundary justification has already been reduced on the west side due to widening of Bellevue Way SE and thus has lost integrity. While the presence of land surrounding the house has been a feature of the property since it was constructed, the setting of the residence as it relates to Bellevue Way is not a character-defining feature given this loss of integrity. Therefore, any removal or addition of plantings would not be an impact on the historic property. A Sound Transit landscape architect has prepared a conceptual landscape plan showing what might be planted above the lidded retained cut, which would be more consistent with the landscaping typical of this historic-period landscaping as shown in Exhibit 8-5. The conceptual design can be found in Appendix D1. Sound Transit would preserve, as practical, historic period plants that would be impacted by project construction such as the Ostbo rhododendrons. Final design of the landscaping would be developed in consultation with the City of Bellevue.

Although the front landscaping within the 50-foot boundary does not convey significance and is not character-defining, the house does retain its relationship to the larger surrounding property to the north, south, and east of the house. However, given that the setting has changed from a working nursery and bulb farm to the current Mercer Slough Natural Park, a large 320-acre park that contains the area associated with the original Winters House farm and beyond, the setting adjacent and behind the house is not impacted.

In addition to landscaping the property consistent with the historic-period landscape, Sound Transit would provide interpretive signage on or near the property of the house. The project would also require shifting the driveway to the Winters House parking lot, which is not original, approximately 90 feet north, with a lid over the light rail retained cut to allow automobiles to cross into the parking area. The parking area would also be shifted, slightly to the east. The relocated driveway and parking area would remain outside of the property’s 50-foot boundary, and the number of spaces would remain the same. The parking area, which is currently level with the Winter’s House basement, would be raised 8 to 11 feet in elevation to allow access across the new lidded trench.

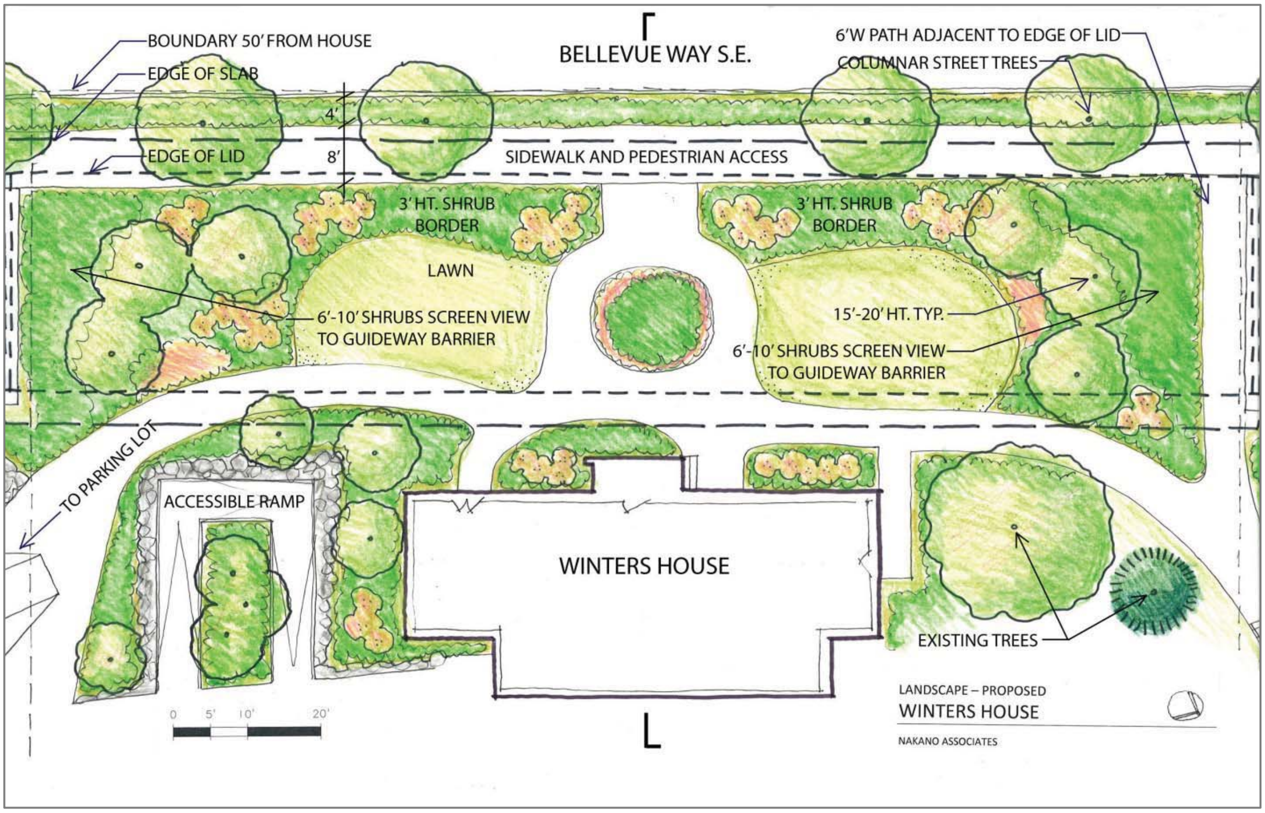

BOUNDARY 50' FROM HOUSE
EDGE OF SLAB
EDGE OF LID
BELLEVUE WAY S.E.
6'W PATH ADJACENT TO EDGE OF LID
COLUMNAR STREET TREES
4'
8'
SIDEWALK AND PEDESTRIAN ACCESS
3' HT. SHRUB BORDER
LAWN
3' HT. SHRUB BORDER
6'-10' SHRUBS SCREEN VIEW TO GUIDEWAY BARRIER
15'-20' HT. TYP.
6'-10' SHRUBS SCREEN VIEW TO GUIDEWAY BARRIER
TO PARKING LOT
ACCESSIBLE RAMP
WINTERS HOUSE
EXISTING TREES
0 5' 10' 20'
LANDSCAPE – PROPOSED
WINTERS HOUSE
NAKANO ASSOCIATES

EXHIBIT 8-5
Preferred Alternative B2M Winters House Proposed Conceptual Landscape Plan

This would make the parking area level with the Winters House and would result in a visual change. Tiered retaining walls, 8 to 11 feet high, would be constructed on the east side of the parking lot along the parking area. The existing Peripheral Trail connection from the parking lot would be reconfigured to provide access from the new raised parking lot. The visual change in the parking area, associated driveways, and trailhead would not diminish the setting of the historic property as this area has already been altered from what existed adjacent to the house during the period of significance. In addition, new landscaping provided by the project would enhance the appearance of the parking lot and retaining wall.

The potential for vibration and settlement impacts on the Winters House from operation of *Preferred Alternative B2M* were evaluated using a set of building-specific outdoor and indoor vibration propagation tests as described in the FEIS. The Winters House has not been used as a residence for over 20 years and will not likely be returned to its historic use, therefore, noise and vibration are evaluated as potential impacts on an institutional land use with primarily daytime activity. Because of the close proximity of the alignment to the foundation, groundborne noise impact is projected at the Winters House, but no vibration impacts are projected. The FTA impact criterion for groundborne noise, measured in weighted decibels (dBA), is 40 dBA. The projected groundborne noise levels would range from 44 dBA to 54 dBA. Sound Transit is committed to reducing groundborne noise below FTA impact criterion and would install standard methods of vibration reduction, such as resilient fasteners, ballast mats or, a floating slab, if necessary, to eliminate the groundborne noise impact.

For the Winters House, operational vibration levels, measured in vibration velocity decibels (VdB), are projected to be 76 VdB, which is below the FTA impact criteria of 78 VdB. In addition, the projected vibration levels are well below even the most stringent criteria for damage to structures, which is 90 VdB for buildings extremely susceptible to vibration. The Winters House is in a slightly less susceptible category, which is for nonengineered timber and masonry buildings, with a 94 VdB criteria for damage.

The Criteria of Adverse Effect were applied in analyzing each aspect of *Preferred Alternative B2M*, taking into consideration the character-defining features of the property that convey its significance and qualify the property for listing in the NRHP. Despite the introduction of visual, audible, and atmospheric elements, these elements would not diminish any extant character-defining features of the property and the operational period effects from these elements are not considered an impact. *Preferred Alternative B2M* would not diminish the property’s location, because the Winters House structure would not be moved. The roadway would be the same distance from the house as existing, and the light rail facility would be in a lidded retained cut below-grade within the property’s 50-foot boundary and would therefore not be visible. The project would not alter the building’s design, materials, or workmanship, because the project would not alter or damage the building; vibration and vibration-induced settlement would be avoided. Operation of the project would not diminish the integrity of the property’s setting as there would be no noise and vibration impacts, and the existing landscaping to be removed along Bellevue Way SE is not a characteristic that qualifies it for the NRHP. The project would not impact the larger undeveloped property surrounding the house once used for bulb farming, and, therefore, the integrity of the building’s association with bulb farming and floriculture would not be diminished. In addition, the property would be landscaped after construction in a manner sensitive to the historic period. While the City of Bellevue would not receive rental income from the Winters House during construction, there would be no impacts from the project that would cause a change in the use of the structure or change economic conditions resulting in reduced maintenance of the structure. Given the above and the minimization measures discussed in Section 9.2.1.1, *Preferred Alternative B2M* would avoid impacts on the Winters House during operation.

Effects of Other B Alternatives

Alternatives B1, B2A, B2E, B3, and Alternative B3 - 114th Extension Design Option would avoid impacts on the Winters House during operation of the project. While these alternatives would encroach on the larger parcel on which the Winters House is located, no impact within the delineated historic boundary of the house would occur. For these Segment B alternatives, expansion of Bellevue Way would be limited to the existing right-of-way line at the Winters House. Alternatives B1 and B2A would be located at-grade in the center of the roadway, and, therefore, no visual, noise, or vibration impacts are anticipated on the historic setting or features contributing to the eligibility of the Winters House. Alternative B2E would be elevated to the far side of Bellevue Way, away from the Winters House, and placed up against the adjacent ridge, thus also avoiding impact on the property. Given its similar route and design, Alternative B3 and B3 - 114th Design Option would also avoid impacts on the property.

In applying the Criteria of Adverse Effect to these Segment B alternatives, none would diminish the integrity of the characteristics that enable the property to be eligible for NRHP listing, and, therefore, none would have an impact. The operation of the project would not alter the character-defining features of the former residence or its setting that convey its significance, and despite the introduction of visual, audible, and vibration elements that impact the setting of the historic property, these elements would not diminish any extant character-defining features of the property and are not considered an impact.

The operation of the alternatives would have no noise or vibration impacts, would not alter or damage the structure, would not encroach past the existing right-of-way of Bellevue Way, and would not change the existing overall transportation character of the area on the west side of the house.

Pilgrim Lutheran Church

Effects of Alternative B1

Operation of the at-grade Alternative B1 in the center of Bellevue Way would not impact the Pilgrim Lutheran Church, which is located just west of the street on the southern portion of the property. Although Bellevue Way would be realigned up to 10 feet into the property for a distance of roughly 250 feet, the parcel is large and the historic building is sufficiently distant from the portion to be acquired so that no parking would be removed and the historic property would not be impacted (Exhibit 8-6).

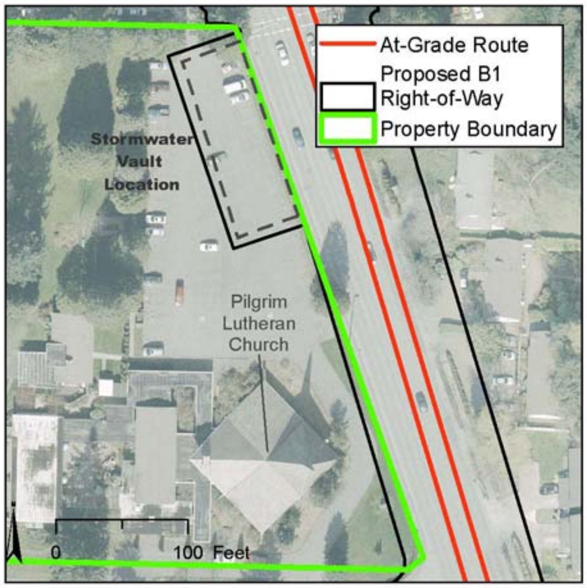


EXHIBIT 8-6
Proximity of Alternative B1 to Pilgrim Lutheran Church

The property already experiences the visual and noise impacts of heavy street traffic, and no additional impacts are expected to occur. Vibration impacts are also not expected to reach the church structure. Access from SE 11th Street to the church would not be disrupted. Additionally, an underground stormwater detention vault is proposed for construction at the northeast corner of the property in the parking area, but operation of this facility would not impact the Pilgrim Lutheran Church. The vault would not be visible after construction, and the only surface element of the vault would be one or two manholes necessary for maintenance. No parking spaces would be removed. Maintenance would consist of periodically parking a truck at the site and opening the manholes for cleaning and maintenance, and maintenance could be scheduled to avoid major events and regular services at the church. In applying the Criteria of Adverse Effect to Alternative B1, the character-defining features of the NRHP-listed Pilgrim Lutheran Church that convey its significance and qualify the property for listing in the NRHP were considered. The building is eligible for the NRHP based on its architectural significance. The operation of the project in Alternative B1 would not alter the structure or its character-defining features. In addition, the project would not diminish its setting by introducing visual, audible, or atmospheric elements that impact the character of the setting of the historic property, because the existing setting along Bellevue Way is already characterized by transportation uses and traffic noise and there are no noise or vibration impacts anticipated. Therefore, Alternative B1 would not have an impact on Pilgrim Lutheran Church.

Summary

All of the Segment B alternatives were found to have no impact on the two historic properties identified in Segment B during operations. Where potential long-term or permanent operation impacts could occur to the Winters House from the *Preferred Alternative B2M*, project design mitigates and resolves the potential impact. Operation of *Preferred Alternative B2M* within proximity to the Winters House would include vibration mitigation measures and result in no vibration or groundborne noise impacts above FTA criteria. None of the project alternatives would result in visual impacts that could diminish the integrity of the characteristics that qualify the Winters House or Pilgrim Church for NRHP inclusion or eligibility. In addition to incorporating conditions into the project to avoid potential impacts, Sound Transit would also benefit the historic resource by restoring the front yard consistent with the historic landscape and interpretative signage.

8.3.1.3 Segment C

There are two historic properties within the APE of the Segment C alternatives - the potential eligible Surrey Downs historic district (because the district has not been delineated yet), and the former Safeway store. The APE of *Preferred Alternatives C11A* and *C9T*, and Alternatives C2T, C3T, C4A, C7E, C8E, and C9A include the Surrey Downs historic district. The APE of Alternative C1T includes the Safeway store. Alternative C14E does not include any historic properties within its APE.

Potential Surrey Downs Historic District

Effects of *Preferred Alternative C11A*

When connecting to *Preferred Alternative B2M*, *Preferred Alternative C11A* is center running, transitions from an at-grade portion to a retained fill and then an elevated profile along 112th Avenue SE, and then turns west along the south side of Main Street where it returns to a retained cut at the 108th Street Station before turning north at-grade across Main Street at 108th Avenue NE. (Exhibit 8-7). When connecting to Alternative B3 or Alternative B7, *Preferred Alternative C11A* crosses elevated over 112th Avenue SE just south of Main Street and transitions to a retained cut along the south side of Main Street to the 108th Avenue Station before turning north at 108th Avenue NE.

The *Preferred Alternative C11A* route runs close to noncontributing properties within the potential Surrey Downs historic district, along the west side of 112th Avenue SE, at the northeast corner of the neighborhood, and adjacent to noncontributing and three contributing properties along its northern Main Street end. This alternative would require the removal of noncontributing buildings along 112th Avenue SE and Main Street, several of which have been converted residences into small businesses or replaced with 2- to 3-story buildings facing Main Street. While *Preferred Alternative C11A* would remove properties along 112th Avenue SE and Main Street, no properties contributing to the historic district would be removed. Along 112th Avenue SE the first two rows of properties from the roadway are noncontributing, and properties nearest the corner of 112th Avenue SE and Main Street are also noncontributing. A minimum of one row of noncontributing properties would remain between the project and the contributing properties along 112th Avenue SE. Contributing properties nearest the proposed project would not be impacted by *Preferred Alternative C11A,* because the back yards face the light rail and both noise barriers and landscaping would screen the contributing properties from the light rail and station

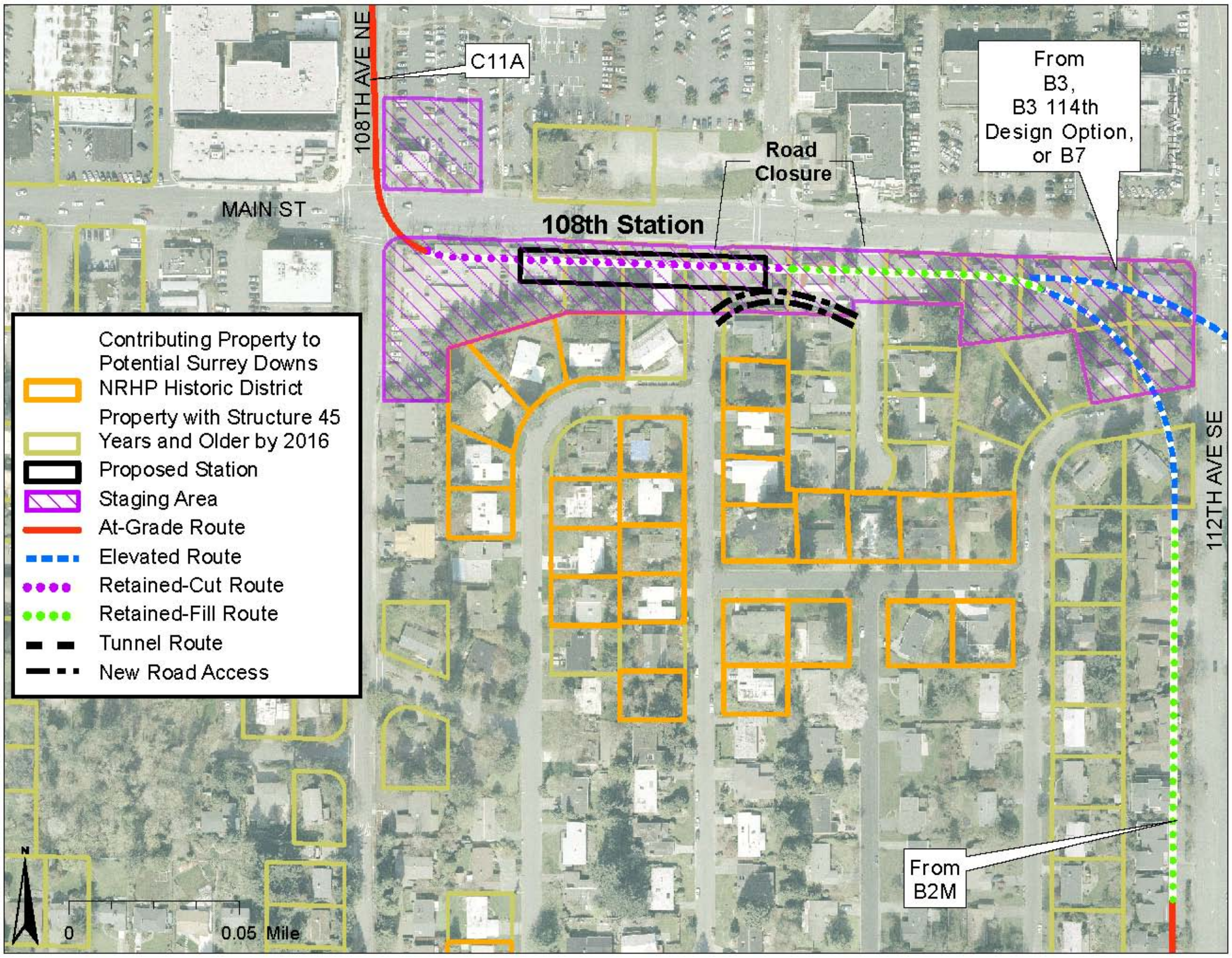

C11A
108TH AVE NE
MAIN ST
108th Station
Road Closure
From B3, B3 114th Design Option, or B7
112TH AVE SE
From B2M
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Staging Area
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
New Road Access
N
0
0.05 Mile

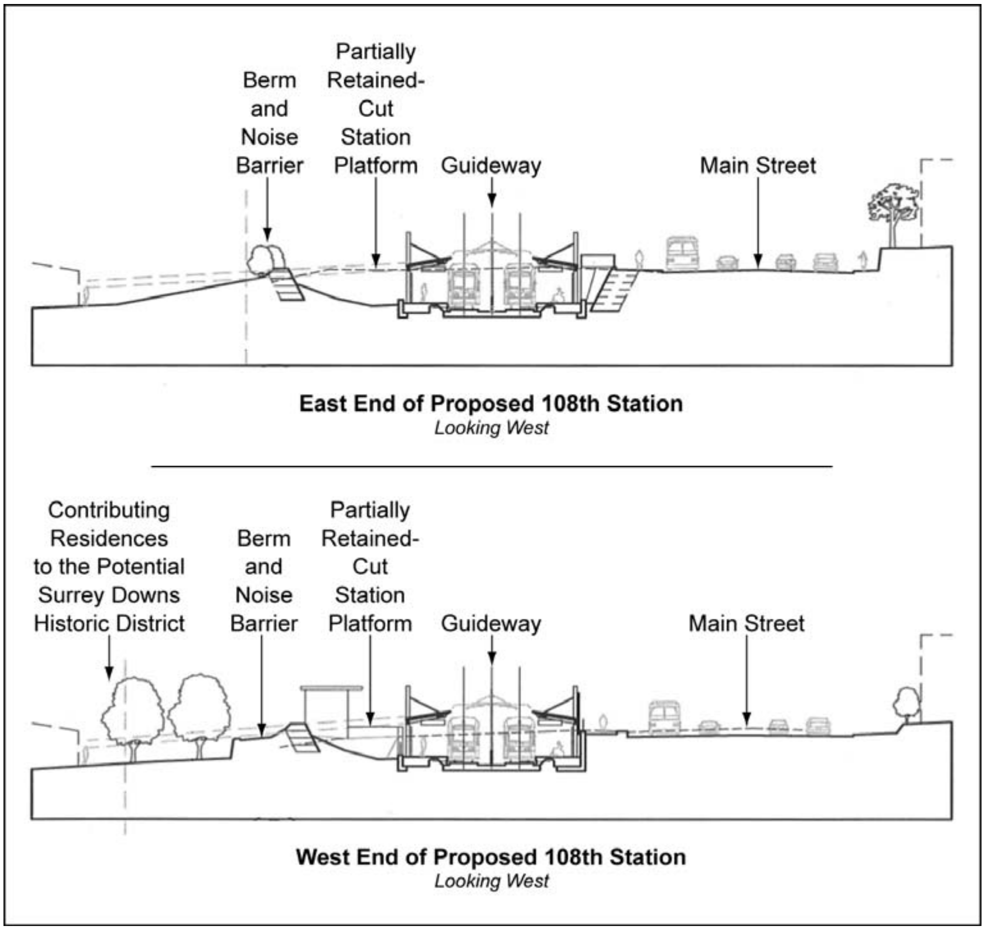
EXHIBIT 8-7
Proximity of *Preferred Alternative C11A* and Staging Area to Potential Surry Downs Historic District

area. A landscaped berm would be developed between the 108th Station and Surrey Downs neighborhood, providing a visual buffer and mitigates operational noise impacts; please refer to Exhibit 8-8. The setting of the historic district would be changed by removing noncontributing properties along 112th Avenue SE and Main Street from low-rise commercial buildings to landscaping and rail tracks. Because the structures to be removed contain businesses and commercial uses, replacing with light rail and landscaping would not change the relationship that the potential Surrey Downs Districts already maintain with the existing dense downtown development along the eastern and northern edges of the historic district. The contributing properties would still be the same distance from 112th Avenue SE and Main Street, and the light rail project would not diminish the setting of the potential district in any way that would impact its eligibility for listing in the NRHP or for its contributing properties to convey their significance and to the district as a whole. Additionally, *Preferred Alternative C11A* would close SE 4th Street access to 112th Avenue SE. However, SE 1st Place would remain open, maintaining access to 112th Avenue SE for the neighborhood, including the potential Surrey Downs District. *C11A* would also close 110th Avenue SE and 110th Place access to Main Street; alternate access points to the neighborhood from Main Street via 108th Avenue SE would continue to provide access. Collectively, closing these streets would likely reduce through traffic and maintain a more residential setting than currently exists.

Preferred Alternative C11A would have potential moderate noise impacts on three contributing properties south of the proposed 108th Station. However, these noise impacts would be eliminated with a permanent sound barrier, which may include a berm and/or sound barrier along the Main Street portion of the project.

When connecting to Alternatives B3 and B7, *Preferred Alternative C11A* would not remove any properties or change access along 112th Ave SE. One row of properties along Main Street would be permanently removed for the light rail guideway and 108th Station the same as for connecting to *Preferred Alternative B2M* as discussed above.

Preferred Alternative C11A would include measures to ensure sensitivity to neighboring properties and to alleviate the impacts of operating the project. Landscaping and a permanent sound barrier along the south side of the guideway along Main Street and landscaping and permanent sound barrier along the west side of the guideway along 112th Avenue SE would enhance the neighborhood boundary where noncontributing properties would be removed. Such measures would eliminate the noise impacts and minimize visual impacts of project operation on the potential historic district.


Berm and Noise Barrier
Partially Retained-Cut Station Platform
Guideway
Main Street
Contributing Residences to the Potential Surrey Downs Historic District
Berm and Noise Barrier
Partially Retained-Cut Station Platform
Guideway
Main Street

East End of Proposed 108th Station
Looking West

West End of Proposed 108th Station
Looking West

EXHIBIT 8-8
Cross-Section of Proposed 108th Station

While the setting of the area would change somewhat due to the removal of noncontributing properties and introduction of a light rail guideway with permanent sound barrier along the northern and eastern boundaries of the potential district, the impact would not diminish the historic setting within the Surrey Downs neighborhood, which is already located in a highly developed area of Bellevue. The changes to the setting would not diminish the integrity of the district and it would continue to be eligible for the NRHP.

Effects of *Preferred Alternative C9T*

Preferred Alternative C9T, when connecting to *Preferred Alternative B2M*, travels in an at-grade profile on the west side of 112th Avenue SE before becoming a retained cut as it turns west along the south side of Main Street and enters a tunnel to continue under 110th Avenue NE. When connecting to Alternatives B3 and B7, *Preferred Alternative C9T* crosses elevated over 112th Avenue SE to follow the south side of Main Street, transitioning to a tunnel before turning north under 110th Avenue NE. *Preferred Alternative C9T* does not include the 108th Avenue Station, and removes fewer properties along Main Street than *Preferred Alternative C11A*. *C9T* is buffered by noncontributing properties adjacent to the potential Surrey Downs historic district, along the west side of 112th Avenue SE, at the northeast corner of the neighborhood, and along its northern Main Street end. *Preferred Alternative C9T* would require the removal of one row of noncontributing properties along 112th Avenue SE, one noncontributing property on the second row north of SE 1st Place, and one row of noncontributing properties along Main Street between 112th Avenue SE and 110th Place before tunneling north under 110th Avenue NE.

While *Preferred Alternative C9T* would remove a number of properties along 112th Avenue SE and Main Street, and both streets border the Surrey Downs historic district, no properties contributing to the historic district or adjacent to contributing properties would be removed. Along 112th Avenue SE the first two rows of properties from the roadway are noncontributing, and properties nearest the corner of 112th Avenue SE and Main Street are also noncontributing. Contributing properties nearest the proposed project would be separated from the project by a row of noncontributing properties and would not be impacted by the operation of *Preferred Alternative C9T* due to the distance to project.

Preferred Tunnel Alternative C9T would require closure of SE 1st Place (112th Avenue SE end) and realignment of SE 4th Street so that it connects to SE 6th Street on the other side of 112th Avenue SE (Exhibit 8-9). However, the Surrey Downs neighborhood would remain accessible from 112th Avenue SE at the realigned SE 4th Street and the areas where the streets would end, just west of 112th Avenue SE, are not adjacent to contributing properties.

When connecting to Alternatives B3 and B7, *Preferred Alternative C9T* would not remove any properties or change access along 112th Ave SE. One row of properties along Main Street between 112th Avenue SE and 110th Avenue would be permanently removed where the elevated crossing of 112th Avenue SE transitions to a tunnel on the south side of Main Street before turning north under 110th Avenue NE.

The setting of the historic district would be changed by the removal of noncontributing properties along the major roadways of 112th Avenue SE and Main Street, the at-grade light rail with a permanent sound barrier on the west side of 112th Avenue SE, light rail in a retained cut trench and tunnel portal in the vicinity of Main Street and 112th Avenue SE, and the East Main Station Design Option, if selected. However, due to the nature of the existing properties along 112th Avenue SE and Main Street near the Surrey Downs historic district, this would not be an impact. The contributing properties would be the same distance from 112th Avenue SE and Main Street, and the light rail project would not diminish the setting of the district in any way that would impact its potential for listing in the NRHP or for its contributing properties to convey their significance and that of the district as a whole. The impact would not diminish the setting within the Surrey Downs neighborhood, which is already located in a highly developed area of Bellevue. Currently the neighborhood is bounded by commercial properties,

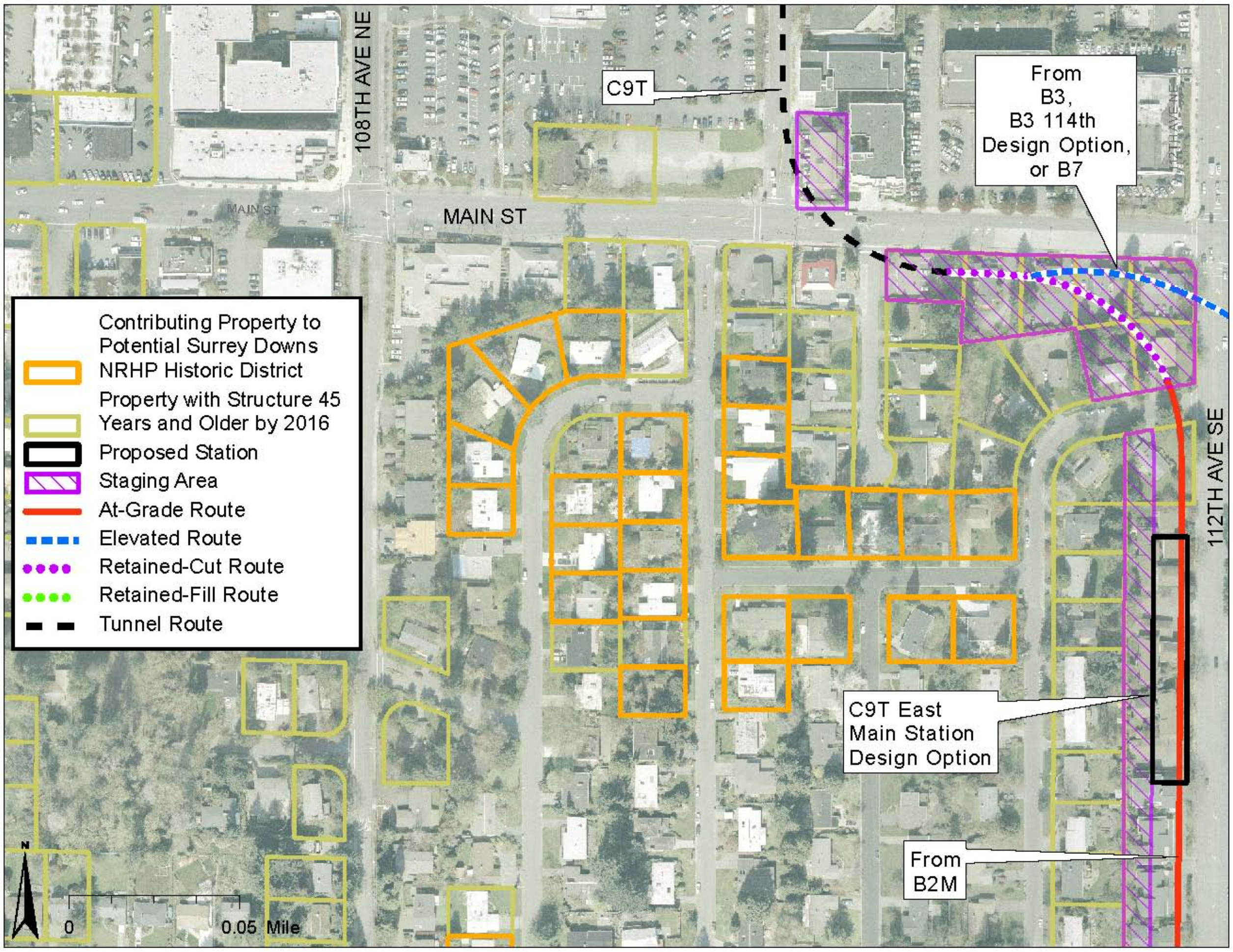

108TH AVE NE
C9T
From B3, B3 114th Design Option, or B7
MAIN ST
MAIN ST
112TH AVE SE
Contributing Property to Potential Surrey Downs NRHP Historic District
Property with Structure 45 Years and Older by 2016
Proposed Station
Staging Area
At-Grade Route
Elevated Route
Retained-Cut Route
Retained-Fill Route
Tunnel Route
C9T East Main Station Design Option
From B2M
N
0
0.05 Mile

EXHIBIT 8-9
Proximity of *Preferred Alternative C9T* and Staging Area to Potential Surrey Downs Historic District

including altered noncontributing former residences, commercial developments along the south side of Main Street, and large-scale retail properties facing the neighborhood along the major thoroughfare's north side as well as by 112th Avenue SE on the east.

The surrounding environment of the subdivision is not historic, and there is no intact historic relationship between the subdivision and 112th Avenue SE or Main Street, both highly altered roadways from their historic design and use. In addition, the neighborhood is not related to the newer commercial developments opposite Main Street, which is the boundary between the larger Surrey Downs neighborhood and Downtown Bellevue. As a result the light rail features, including the East Main Station Design Option, would be consistent with the existing setting.

Preferred Alternative C9T would not impact the potential Surrey Downs historic district, which is significant for its period of development, architectural style, and the design unity and cohesiveness of portions of the subdivision. *Preferred Alternative C9T* would not change the setting of the potential Surrey Downs historic district, as all contributing elements have been avoided by the project and the district as a whole would continue to be potentially eligible for the NRHP. No contributing properties are removed or impacted by the project. Contributing properties nearest the alternative would be buffered from the project by adjacent noncontributing properties. The setting is not a character-defining feature of the district and has been substantially changed since the period of significance. In addition, the project is consistent with the transportation character of the major roadways that border the district. Project minimization efforts, such as including landscaping and a permanent sound barrier (to eliminate noise impacts to noncontributing properties) along 112th Avenue SE and the south side of the guideway along Main Street, would protect the potential historic district from intrusion into the residential setting.

Effects of Other C Alternatives

Operation of Alternatives C2T and C3T would have no visual impacts on properties that contribute to the potential Surrey Downs historic district. Vibration and noise impacts are also not anticipated during operation.

Operation of Alternative C4A would be similar to *Preferred Alternative C11A* along 112th Avenue NE would avoid impacts on properties that contribute to the Surrey Downs historic district. Almost all of the contributing properties would be screened by existing vegetation, fences, and other houses. Landscaping would be installed along the south side of the guideway along Main Street to enhance the neighborhood boundary where noncontributing properties are removed.

The elevated Alternatives C7E and C8E are not anticipated to impact properties that contribute to the Surrey Downs historic district because the alternatives are distant enough (at least 200 feet) to avoid visual and noise impacts.

Alternative C9A would be elevated and on the east side of 112th Avenue SE, so there would be no acquisition of noncontributing properties along 112th Avenue SE. Because this alternative is elevated approximately 40 feet in this area with straddle bents, this alternative would result in visual change from the introduction of these structures. In addition, permanent sound barriers would be constructed along the west side of 112th Avenue SE and the south side of Main Street adjacent to noncontributing buildings. However, the change would not lower the area's existing visual quality and is consistent with the transportation character of the corridor. In addition, the two rows of noncontributing properties along 112th Avenue SE would remain and buffer the Surrey Downs historic district from the project.

Alternative C9A would travel at-grade on the south side of Main Street, before turning north on 110th Avenue NE, and would require the removal of one row of buildings along the south side of Main Street between 112th Avenue SE and 110th Avenue NE. None of the properties to be removed contribute to the Surrey Downs historic district. The intersection of 110th Place SE would either be gated with right-in/right-out access only or closed. However, ample access to the north end of the neighborhood would remain. Similar to *Preferred Alternatives C9T* and *C11A*, this alternative would include measures to ensure sensitivity to neighboring properties and to minimize impacts of operating the project. Landscaping and a permanent sound barrier along the south side of the guideway along Main Street would enhance the neighborhood boundary where noncontributing properties would be removed. Such measures would both eliminate the noise impact and minimize visual impacts of project operation on the historic district.

Alternative C14E would avoid impacts on properties that contribute to the potential Surrey Downs historic district, because the alternative is distant enough to avoid visual change and noise impacts.

Safeway Store

There are is only one historic property in the APE for Alternative C1, the former Safeway store located at 414, 424, and 456 104th Avenue NE (Exhibit 8-10). Alternative C1T would pass under the north edge of the sidewalk as the route turns eastward from Bellevue Way NE onto NE 6th Street in Downtown Bellevue. Alternative C1T would be in a tunnel profile as it passes by the Safeway store property approximately 170 feet from the building.

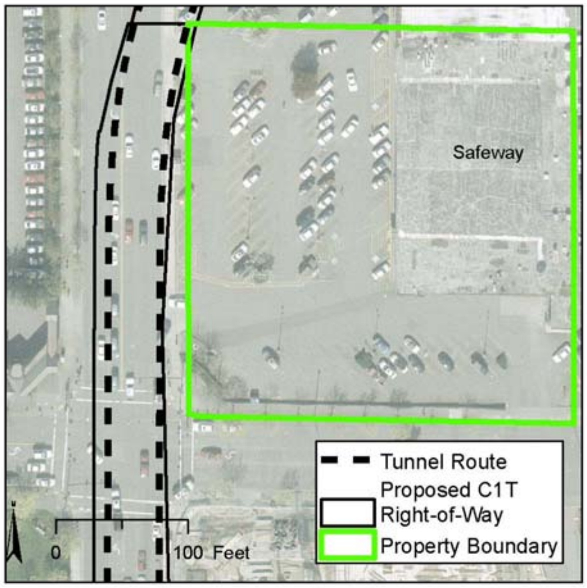


EXHIBIT 8-10
Location of Former Safeway and Surrounding Area

Since it will be located underground and considerable distance in this location, Alternative C1T would have no visual, vibration, or noise impacts during operation; therefore, no impacts to historic properties would occur from this alternative. The Safeway Store is eligible for the NRHP based on its architectural significance. The operation of the project in Alternative C1 would not alter the structure or its character-defining features.

Summary

None of the Segment C alternatives were found to have impacts on the potential Surrey Downs historic district during project operations. The alternatives would not alter or remove contributing elements to the district, and would not diminish character-defining features of the historic district, which are related to the period of construction, the architecture, and the design cohesiveness of portions of the subdivision. Applying the Criteria of Adverse Effect to all Segment C alternatives resulted in the determination that while some of the alternatives would introduce visual, audible, and atmospheric elements that change the setting of the eligible historic district, the setting is not a defining characteristic of the district, and the district would continue to be eligible for the NRHP. The district would retain its architectural cohesiveness. Due to the avoidance of all contributing properties and the minimization of impacts by the project, operation of Segment C alternatives would have no impact on the historic district.

Alternative C1T would be located underground and is therefore not anticipated to impact the historic Safeway store or any contributing element of the Safeway store.

8.3.1.4 Segment D

Effects of D Alternatives

None of the Segment D alternatives or design options have historic properties within their APE.

Former Bellevue Fire Station

Effects of Alternative D3

For Alternative D3, a narrow portion (approximately 15 feet) of the parcel that the former Bellevue Fire Station occupies would be incorporated into the project due to road reconstruction (Exhibit 8-11). However, the building is located approximately 80 feet back from the roadway, on a portion of the parcel outside of the APE, and the portion acquired is not a character-defining feature of the historic property, the significance of which is due to the building's representation of Populux architecture. Operation of the alternative would not result in visual, noise, vibration, or

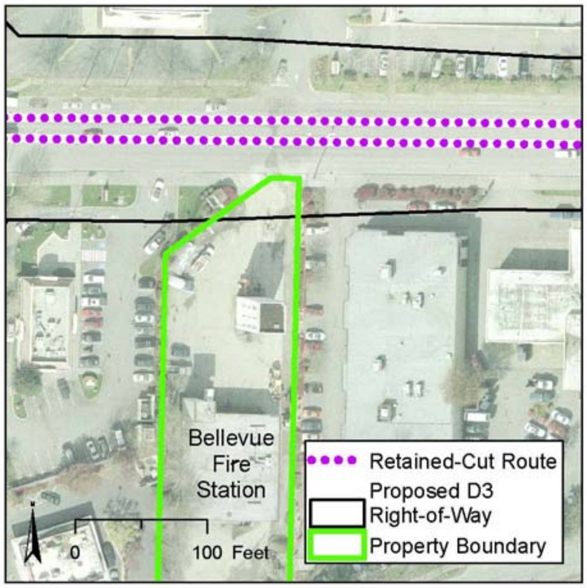


EXHIBIT 8-11
Effects of Alternative D3 on Former Bellevue Fire Station

other impacts on the property. The existing setting is characterized by major roadways: Bel-Red Road, 148th Avenue NE and NE 20th Street. Therefore widening the road and introducing the retained cut light rail is consistent with the setting and would not diminish it. Applying the Criteria of Adverse Effect, Alternative D3 would not impact the former Bellevue Fire Station because it would not alter the building nor diminish the setting.

Summary
The Segment D Alternatives were found to not impact on the historic property identified in Segment D, the former Bellevue Fire Station. No other historic properties were identified within the project APE.

8.3.1.5 Segment E

The Justice William White House and the Bill Brown Saloon are eligible for the NRHP and both within the APE of all three Segment E Alternatives—*Preferred Alternative E2* and Alternatives E1 and E4. The Dudley Carter/Haida House, not eligible for the NRHP but a Redmond Historic Landmark, is within the APE of Alternative E4.

Justice William White House, Redmond Trading Company, and Bill Brown Saloon

Effects of *Preferred Alternative E2*
Preferred Alternative E2, and the Alternative E2 - Redmond Transit Center Station Design Option that continues north on 161st Avenue NE to Redmond Transit Center, are approximately 65 feet from the Justice William White House and would not pass close enough to cause an impact on the historic setting or to potentially damage the building (Exhibit 8-12). The property is significant due to its association with individuals, William and Emma White, who built the house and set aside a portion for a hotel due to its proximity to the railroad and passenger depot. It is also significant as the best, if not the only, remaining example of Queen Anne shingle style architecture in Redmond. The house is approximately 65 feet from the guideway and is separated from the project by NE 76th Street. While *Preferred Alternative E2* and the E2 - Redmond Transit Center Design Option would introduce light rail into the setting, including a station just west of Leary Way NE, the project would be at-grade within the existing railroad right-of-way and consistent with the character of the railroad setting. The operation of passenger trains in the right-of-way is consistent with the historic use of the corridor. In addition, none of the remaining historic period buildings that contribute to the setting would be removed. Applying the Criteria of Adverse Effect, the character-defining features of the Justice William White House that convey its significance and qualify the property for listing in the NRHP would not be impacted by *Preferred Alternative E2* or the E2 - Redmond Transit Center Design Option.

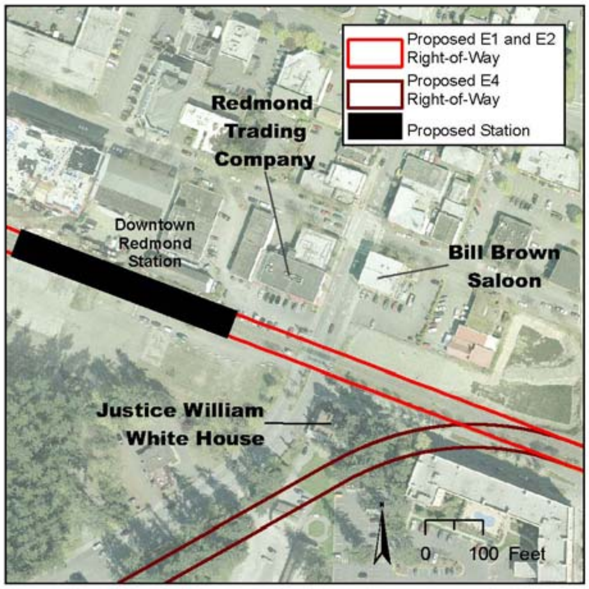


EXHIBIT 8-12
Proximity of *Preferred Alternative E2* and Alternatives E1 and E4 to Justice William White House and Bill Brown Saloon

Preferred Alternative E2 would include the Downtown Redmond Station which would be located approximately 50 feet from the Redmond Trading Company building, but would not encroach on the historic boundary of the property. None of the remaining historic period buildings that contribute to the setting would be removed. The station would be designed in coordination with the City of Redmond and the community to complement the historic setting of Downtown Redmond. Furthermore, the rail alignment and station would be located on the former BNSF corridor, and thus, would be consistent with the historic use of the corridor as a railway. *Preferred Alternative E2* would avoid impacts to the character of the setting of this historic property. No operational period impacts to the Redmond Trading Company building would occur.

Preferred Alternative E2 would pass at a sufficient distance from the Bill Brown Saloon, at least 110 feet, to avoid introducing visual, audible, and atmospheric elements that would impact the building and the character of the setting of the historic property (Exhibit 8-12). *Preferred Alternative E2* and the Downtown Redmond Station would be in the former BNSF Railway corridor, and operation of passenger trains in that right-of-way is consistent with the historic use of the corridor. In addition, none of the remaining historic period buildings that contribute to the setting would be removed. Applying the Criteria of Adverse Effect to *Preferred Alternative E2*, the character-defining features of the Bill Brown Saloon that convey its significance and qualify the property for listing in the NRHP would not be impacted.

During final design Sound Transit will work with the City of Redmond to adjust the design of *Preferred Alternative E2* within the BNSF and NE 76th Street right-of-way to accommodate the potential for future freight/commuter rail, the Central Connector utility line, the King County Trail, automobile traffic on NE76th Street as well as East Link light rail. Resulting changes may include shifting the *Preferred Alternative E2* rail alignment further from the Bill Brown Saloon and the Redmond Trading Company Building, closer to the Justice William White House. This shift in the alignment would not impact any of the three properties since *Preferred Alternative E2* would not encroach on the historic boundary, or alter the historic setting of the corridor as a railway in relation to the Justice William White House. The character-defining features of the Justice William White House and the Bill Brown Saloon that convey their significance and qualify the properties for listing in the NRHP would not be impacted by this potential shift of the alignment.

Effects of other Segment E Alternatives
The Alternative E1 route is the same at the Justice White House and the Redmond Trading Company as *Preferred Alternative E2* described above, although it does not include the Downtown Redmond Station.

Alternatives E1 and E4 would also pass at a sufficient distance from the Bill Brown Saloon to avoid impacting the character of the setting of the historic property. Alternative E1 is in the same location as *Preferred Alternative E2* near the Bill Brown Saloon, and Alternative E4 is a greater distance from the property. Applying the Criteria of Adverse Effect to Alternatives E1 and E4, the character-defining features of the Bill Brown Saloon that convey its significance and qualify the property for listing in the NRHP would not be impacted.

With Alternative E4, the project would require the relocation of the Justice William White House prior to construction. Moving the building to a new location would result in an impact on this property since it would alter the building's historic setting. Sound Transit has consulted with the City of Redmond and SHPO about moving the building to a nearby location that preserves as much of its setting, feeling, and association with the former BNSF Railway right-of-way as possible to minimize impacts from building relocation. Mitigation measures for this impact are listed in Section 9.2.2.

Alternative E4 would pass further from the Redmond Trading Company building than Alternative E2, and is thus a sufficient distance from this historic resource to avoid impacts to the character of the building's setting.

Alternative E4 would not substantially impact the Dudley Carter/Haida House, which is on the west side of NE Leary Way, opposite the light rail guideway, which would be transitioning from an elevated profile necessary to cross the Sammamish River, to at-grade. The elevated guideway would be consistent in general appearance with the bridge over the Sammamish River, but it would require the removal of mature trees along the east side of Leary Way, resulting in a decrease in visual quality. The visual impacts would be minimized with landscaping.

Summary
Preferred Alternative E2 and Alternative E1 were found to have no impact on the three historic properties identified in Segment E, the Justice William White House, the Redmond Trading Company, and Bill Brown Saloon. Operation of the proposed project alternatives would not impact the historic properties, as the properties would not be altered, the setting of the properties would remain intact, and the project is consistent with the historic use of the former BNSF Railway corridor in which it would be located. No visual, audible, or atmospheric elements that are out of character with the setting of the historic property would be introduced. Alternative E4 would result in an impact on the Justice William White House as this building would need to be relocated and its historic setting and location would be altered.

8.3.2 Effects During Construction

Construction effects on historic buildings and structures can include temporary loss of access along with visual effects, noise, vibration, and the dust and debris of construction activities. Sound Transit would implement avoidance measures to minimize these effects; however, some dust and noise are inevitable. These effects would be temporary and would not impact the properties.

Sound Transit anticipates beginning construction on the East Link Project in 2013, and construction from Seattle to Bellevue would be completed in approximately 6 years, in 2019. Construction from Bellevue to Overlake would occur in a subsequent 6-year period, from 2014 to 2020. The most intense civil construction would occur over an approximately 3-year period in most locations.

Construction activities associated with the alternatives discussed would require utility relocation, clearing and demolition, temporary roadway and lane closures, permanent acquisition of properties for stations and the routes, and temporary acquisition of properties for staging areas, hauling of materials, storing heavy equipment and materials, and light rail project construction. Construction activities would also result in temporary increases in noise, dust, and traffic congestion, but construction best management practices (BMPs) would be implemented to minimize these impacts, including standard dust and noise control measures as described in the East Link Final EIS.

This section evaluates anticipated construction impacts on historic properties identified within the project alternatives' APE, beginning with the discussion of the potential impacts for the *Preferred Alternative* for each segment.

8.3.2.2 Segment A

With the exception of I-90 between Seattle and Bellevue, historic properties along Segment A are completely separated from the project, which starts from the Downtown Seattle Transit Tunnel and continues in the center lanes of I-90. For the nonhighway (I-90) properties, no potential impacts during construction or operation are anticipated.

There are six historic properties eligible for or listed in the NRHP within the APE of Segment A: Publix Hotel, INS Building, 12th Avenue South Bridge, Will H. Thompson House, and the Mount Baker Ridge Tunnels and I-90 Lake Washington Segment. There are two additional properties eligible for listing as Seattle Landmarks, Washington Iron Works Pattern Shop and Endressen House.

Construction of Segment A is not anticipated to impact the identified historic properties. The Publix Hotel is located above the existing downtown Seattle transit tunnel, and the INS Building is situated at the east edge of the APE and would not be impacted by construction along 5th Avenue S. The project is also located far enough from the Washington Iron Works Pattern Shop that no construction activities are expected to impact the property. Construction of the at-grade route beneath the 12th Avenue South Bridge also would not impact that property. Located in the existing Mount Baker Ridge Tunnel, above which the Will H. Thompson House is situated, project construction would avoid impacts to the Thompson House.

Construction would also not impact the residence at Endressen House, given the distance of the activities from the property. Finally, construction would not impact features of the NRHP-eligible I-90 Lake Washington Segment, including the portals of the Mount Baker Ridge Tunnels, because the project will be constructed to avoid impacts to the features identified as character-defining by locating construction activities primarily within the center of I-90, which was originally designed with the intent to allow for such construction. The design, materials, and workmanship of the tunnels, portals, floating bridges, and lids will not be substantially changed. The structural integrity and intended use of the facility will be maintained. No character-defining features as identified in the NRHP Registration form for the I-90 Lake Washington Segment would be altered or removed by construction of the project. Use of the segment during construction would not impact the property in a manner that would impair future use of it as it was intended.

8.3.2.3 Segment B

There are two historic properties within the APE of the Segment B alternatives. The Winters House is within the APE of *Preferred Alternative B2M* and Alternatives B1, B2A, B2E, and B3. The Pilgrim Lutheran Church is within the APE of Alternative B1. There are no historic properties within the APE of Alternative B7.

Winters House

Effects of *Preferred Alternative B2M*

The alignment of *Preferred Alternative B2M* would run along the east side of Bellevue Way in front of the Winters House and would involve constructing a lidded retained cut within 10 feet of the base of the main structure of the NRHP-listed former residence. The lidded retained cut would be within 5 feet of the front porch of the Winters House. Construction would remove all of the vegetation in front of the house and require temporary relocation of the tenant, the Eastside Heritage Center, during construction due to loss of access. As discussed in Section 8.3.1, landscaping would be replaced after construction. The City of Bellevue owns the resource and while the City would not receive rental income from the Winters House during construction, there would be no impacts from the project that would change the long-term conditions of the house. After construction is completed, the City would continue to own and maintain the house, retaining the integrity of the building.

Constructing a lidded retained cut in this location, including construction of underground piles to structurally support the retained cut, would create the potential for vibration impacts and settlement. Given the period and type of construction of the property, there is a risk of causing impact through vibration without construction vibration-minimization techniques. The criterion for damage for this type of structure is 94 VdB or 0.2 peak particle velocity (PPV), and construction vibration could exceed this level. As a result, methods to minimize vibration during construction to prevent or limit impacts to minor cosmetic damage have been incorporated into the project as described in Appendix D1 of this report. Appendix D1 also provides further detail as to how these minimization measures will reduce construction vibration below the threshold. Minimization and avoidance techniques to prevent impacts on the property include the following:

- Photographing/inventorying the building to establish existing conditions
- Installing vibration and settlement monitoring devices and adjusting excavation methods based on monitoring results
- Using specific vibration and settlement reducing construction methods, to be determined during final design and construction; methods could include the following:
  - Using rotating/oscillating construction equipment, underpinning the house foundation and front porch, and other methods of ground improvement such as high pressure grouting
  - Constructing the retained cut side walls using slurry confinement (temporarily filling the excavated cavity with slurry material to replace removed soil) at the deepest excavation points
  - Installing a shallow temporary supporting wall to provide additional lateral support for the porch foundation footings and/or underpin the porch
- Potentially building a construction barrier around Winters House to prevent damage and minimize dust
- Applying dust control measures during construction to minimize dust (after construction, Sound Transit would clean the outside of the building and windows in a manner sensitive to the resource)
- Closing the Winters House during construction and temporarily relocating the tenant (Sound Transit will provide information to the public regarding how to access the Eastside Heritage Center during construction)
- If damage does occur, making the needed repairs consistent with U.S. Secretary of the Interior's standards for treating historic properties

The contractor would monitor vibration levels of construction equipment used for the East Link project in safe areas to anticipate vibration levels and apply avoidance measures prior to construction adjacent to the Winters House. Experience from other construction sites with similar soils has shown that by monitoring vibration and settlement during construction at the points more distant from the Winters House and incrementally upon approaching the house, the contractor can safely determine which of the vibration- and settlement-minimization and avoidance techniques would be necessary. Sound Transit will photograph and inventory the Winters House to establish existing conditions to determine if any damage is caused by construction. Utilizing these minimization and avoidance techniques would minimize the potential for vibration and settlement damage beyond minor cosmetic damage and would protect the character-defining features of the house. If damage does occur, Sound Transit will repair the building consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

The character-defining features of the NRHP-listed Winters House that convey its significance and qualify the property for listing in the NRHP may be impacted. While the alternative would introduce visual and atmospheric elements that would temporarily impact the character of the property's setting along the west/front elevation, the property's front elevation has lost some integrity due to the widening of Bellevue Way. The landscaping would be replaced after construction, and the property's relationship to the larger undeveloped area previously used for bulb farming would not change during construction. Vibration and settlement minimization and avoidance techniques would make sure that the effects introduced would not diminish the character-defining features of the former residence. Construction vibration and settlement minimization and avoidance techniques incorporated as conditions of the project would avoid or minimize damage, and, if any cosmetic damage occurs, it would be repaired. After construction, the landscaping would be restored in a manner more consistent with the historic period, as discussed above under operational impacts. The Eastside Heritage Center will be able to return to the building after construction. The minimization and avoidance techniques described above, which would be implemented by Sound Transit as part of the project, would resolve the potential for impacts during construction of *Preferred Alternative B2M*. It should be noted that at the Paramount Theater in Seattle, cut and cover construction of the Central Link light rail Pine Street stub tunnel construction was completed 9 feet away from the resource without any recorded damage.

Effects of Other B Alternatives

With Alternatives B1, B2A, B3, and B3 114th Extension Design Option, construction of the at-grade guideway located in the center of Bellevue Way SE would have temporary visual and noise effects on the Winters House that are not considered an impact. The character of the setting along Bellevue Way SE does not convey or contribute to the significance of the NRHP-listed property, and, therefore, the temporary change due to construction would not be an impact. Access to the property would be maintained during construction and the tenant would not need to be relocated. Construction would not alter or damage the building. The same is true for construction of the Alternative B2E guideway on the west side of Bellevue Way SE across from the Winters House. Alternative B7 does not impact the Winters House during construction.

Summary

In applying the Criteria of Adverse Effect to each of the Segment B alternatives, and taking into consideration the character-defining features of the NRHP-listed Winters House that convey its significance and qualify the property for listing in the NRHP, the construction impacts of the non-preferred Segment B alternatives would not remove or diminish the character-defining features of the property. *Preferred Alternative B2M* has the potential to impact the Winters House during construction. Implementation of mitigation measures would resolve these potential impacts.

Pilgrim Lutheran Church

Construction of the underground stormwater detention vault at the northeast corner of the Pilgrim Lutheran Church parking lot would have temporary noise and dust effects on the church and temporarily reduce parking, but these effects would not impair the intended use of the property and are not considered an impact. Sound Transit would avoid construction during church services and special events to the extent possible, and the remainder of the parking area would be available for use.

8.3.2.4 Segment C

The two historic properties that would be impacted by Segment C alternatives are the former Safeway store at 414, 424, and 456 104th Avenue NE and the Surrey Downs historic district.

Safeway Store

The Safeway store is also considered eligible for the NRHP. While construction effects with the Alternative C1T Alternative may result in visual disturbance, some noise, and dust, these effects are limited to Bellevue Way and small portions of the sidewalk However, because C1T would only impact the sidewalk adjoining the Safeway property, which would be over 170 feet from the structure; the store is currently closed; and a preliminary land use plan application for new construction is posted on the property, these construction effects are not considered an impact.

Potential Surrey Downs Historic District

Most of the Segment C alternatives, except for Alternatives C1, C8E, C9A, and C14E, would pass close enough to the potential Surrey Downs historic district to potentially cause some construction impact. None of the Segment C alternatives or construction staging areas would involve removal of properties that contribute to the historic district.

Effects of *Preferred Alternative C11A*
Construction staging areas adjacent to the potential Surrey Downs historic district would be needed to construct *Preferred Alternative C11A*. Construction staging areas are needed before, during, and for a short time after construction work occurs to store and maintain construction equipment and material and fabricate project component. Staging areas might also include contractor trailers (which would act as temporary offices and places for contractors to meet) and construction crew parking.

Construction of *Preferred Alternative C11A* would not involve removal of properties that contribute to the Surrey Downs historic district, and the removal of the other buildings would not damage the district's setting, feeling, or association. The *Preferred Alternative C11A* when connecting from P*referred Alternative B2M* would remove properties along the south side of Main Street between 112th Avenue SE and 108th Avenue SE and a row of properties along 112th Avenue SE north of Surrey Downs Park. When connecting from B3 or B7, the construction would not require removing properties along 112th Avenue SE, but the same properties along Main Street would be removed. These parcels would be used for construction of the project and for staging. Exhibit 8-8 depicts the staging area. As shown in Exhibit 8-9, construction staging would occur adjacent to three contributing buildings near the intersection of Main Street and 108th Avenue NE. Minimization and avoidance techniques would include installation of a solid construction barrier to shield the homes from construction, and to the extent practical, preservation of the evergreen trees along the south edge of the station area, east of 108th Avenue SE. All equipment would be fenced for safety purposes. Construction staging in itself provides a buffer from construction activities.

Construction of *Preferred Alternative C11A* along Main Street and 112th Avenue SE is expected to occur largely during daytime working hours. Construction would result in some impacts on nearby residences, including any construction activities that may occur at night with visual, lighting, and noise impacts. Access to properties in the neighborhood would be altered at times during construction. Construction activities may cause dust, noise and lighting spill over to adjacent properties. These potential impacts can be minimized. Construction impact minimization measures included in the project, such as noise and dust control, would reduce construction impacts. The residences would remain habitable during the construction period.

Sound Transit would, as practical, limit construction activities that produce the highest noise levels to daytime hours, or when disturbance to sensitive receivers would be minimized. For any nighttime work, contractors would be required to meet the criteria of the noise ordinance for the city and would seek the appropriate noise variance for operation of construction equipment that could exceed allowable noise limits during nighttime hours (between 10:00 p.m. and 7:00 a.m.), on Sundays or legal holidays. Sound Transit would control nighttime construction noise levels by applying noise level limits and noise control measures to meet these noise limits. Noise control measures for nighttime and daytime may include the following efforts, as necessary, to meet required noise limits:

- Installing construction noise barrier wall by noise sensitive receivers
- Using smart back-up alarms during nighttime hours, to automatically adjust alarm levels based on background level, or use of spotters.
- Using low-noise emission equipment
- Implementing noise-deadening measures for truck loading and operations
- Monitoring and maintenance of equipment to meet noise limits
- Covering lined or covered storage bins, conveyors, and chutes with sound-deadening material
- Using acoustic enclosures, shields, or shrouds for equipment and facilities
- Using high-grade engine exhaust silencers and engine casing sound insulation
- Prohibiting aboveground jack-hammering and impact pile driving during nighttime hours
- Minimizing the use of generators to power equipment
- Limiting use of public address systems

- Grading surface irregularities on construction sites
- Using moveable noise barriers at the source of the construction activity
- Limiting certain noisy activities during nighttime hours

With impact minimization measures, including a construction barrier and noise control measures, the project would resolve the potential impacts to the potential historic district or its contributing elements.

Effects of *Preferred Alternative C9T*

Construction of *Preferred Tunnel Alternative C9T* and its construction staging areas, when connecting to *Preferred Alternative B2M*, would require removal of one row of properties on the west side of 112th Avenue SE, the south side of Main Street between 112th Avenue SE and 110th Place, and an additional property on the second row north of SE 1st Place. These parcels would be used for construction of the project and for staging (as described earlier under the *Preferred Alternative C11A)*. Exhibit 8-7 depicts the staging area. Construction and staging would not be adjacent to any contributing buildings. This alternative would have fewer impacts along Main Street than *Preferred Alternative C11A* because it does not include the 108th Avenue Station and it turns north to tunnel under 110th Avenue NE rather than continuing to 108th Avenue NE. No properties that contribute to the potential Surrey Downs historic district would be removed, and the removal of the other buildings would not damage the district's setting, feeling, and association. Construction would result in some impacts on nearby residences, including construction activities that often may occur at night with visual, lighting, and noise impacts. Access to properties in the neighborhood would be altered at times during construction. The impacts would be temporary, however. The installation of a solid construction barrier along the boundary of the construction area will reduce noise and visual impacts. Additional measures to control nighttime construction noise levels for *Preferred Alternative C11A* are discussed above.

When connecting to Alternatives B3 and B7, construction of *Preferred Alternative C9T* would remove properties near the corner of Main Street and 112th Avenue SE, and one row of properties along Main Street between 112th Avenue SE and 110th Avenue where the elevated crossing of 112th Avenue SE transitions to a tunnel on the south side of Main Street before turning north under 110th Avenue NE. These areas would be used for construction staging. In The area along Main Street, the impacts are similar to the *Preferred Alternative B2M* connection as described previously.

Effects of other Segment C Alternatives

None of their alternatives require the removal of property along 112th Avenue SE south of SE 1st Place adjacent to the potential Surrey Downs historic district.

Alternatives C2T and C3T would involve connectors from Alternatives B2A, B2E, B3, and B7. The connector from Alternative B2A to Alternatives C2T and C3T would involve boring beneath the Surrey Downs historic district, which would avoid access and visual effects. Noise and possible vibration could be noticeable to residents during construction but would not impact the buildings. Although the geotechnical analysis shows that the soils in this area are generally resistant to settlement from ground disturbance, precautions during construction and a careful monitoring program would be incorporated into the construction plan.

The connector from Alternative B2E to C3T and C2Twould use the northern area of the Surrey Downs neighborhood for construction staging at the tunnel portal. This area would extend south from Main Street to one row north of SE 2nd Street on both sides of 110th Place and starting one row back from 110th Avenue SE and between Main Street and SE 1st Place. Construction would alter access at times during construction and would produce visual, noise, dust and possible vibration impacts. The impacts would be temporary. Sound Transit would minimize visual and noise impacts through placement of a solid construction barrier between the construction area and adjacent contributing properties to the south and west as well as implement dust control measures. This area could be developed as a park after construction consistent with the City of Bellevue's Parks and Recreation Plan. With minimization measures, the potential construction impacts from Alternatives C2T and C3T to this resource would be resolved.

For connectors from Alternatives B2A and B2E to Alternative C4A, construction staging areas would be similar to the construction staging area described for *Preferred Alternative C11A*, which includes removing one to two rows of properties south of Main Street. Construction would alter access at times during construction and would produce visual, noise, dust and possible vibration impacts. The impacts would be temporary. Sound Transit would minimize visual and noise impacts through placement of a solid construction barrier between the construction area and adjacent contributing properties to the south and west as well as implement dust control measures. For connectors from B3 and B7 to C4A, construction staging would involve a smaller area but would still be adjacent to portions of the Surrey Downs historic district. Construction of connectors to Alternative C4A would be of a shorter duration and require less nighttime construction than construction for tunnel alternatives, such as C2T, C3T, and *Preferred Alternative C9T*. With minimization measures, the potential construction impacts from Alternative C4A to this resource would be resolved. There would be no impact on the Surrey Downs historic district for connectors from B3 and B7 to C7E and C8E alternatives.

To meet required noise limits, noise control measures for nighttime and daytime for Alternatives C2T, C3T and C4A would be the same as those discussed above for *Preferred Alternative C11A*.

Alternative C9A would require similar property acquisition for construction staging as *Preferred Alternative C9T*, with the addition of one building west of 110th Place on the south side of Main. The elevated and at-grade construction for Alternative C9A would be of a shorter duration and require less nighttime construction than tunnel alternatives. Alternative C14E is located far enough away from the historic district as to have no impacts on it or on the properties within it.

Summary

In applying the Criteria of Adverse Effect to all Segment C alternatives, the character-defining features of the eligible potential Surrey Downs historic district that convey its significance and qualify the district and contributing properties for listing in the NRHP were considered. *Preferred Alternative C11A* and Alternatives C4A, C2T, and C3T would have potential impacts to this resource. These potential impacts would be resolved with construction minimization measures. Construction of these alternatives would introduce visual, audible, and atmospheric elements that temporarily change the setting of the eligible historic district. However, the alternatives would not alter or remove contributing resources to the district. The district would retain its architectural cohesiveness. In addition, project design and construction measures would further ensure that none of the effects introduced would be considered an impact. Alternative C1T runs on Bellevue Way and is 170 feet from the front of the eligible Safeway Store. Constructing this alternative might result in some visual disturbance, some noise, and dust, which would be limited to Bellevue Way. Given that the construction effects are minimal, it is not considered an impact.

8.3.2.5 Segment D

There are no historic properties within the APE of *Preferred Alternative D2A*, the D2A - 120th or NE 24th Design Options, Alternative D2E, and Alternative D5. The former Bellevue Fire Station is within the APE of Alternative D3.

Former Bellevue Fire Station

With Alternative D3, construction of the alternative in a retained cut near the former Bellevue Fire Station would not impact the property. Although part of the building’s parcel is situated inside the APE, the building itself is outside the APE and would not be impacted by the construction activities proposed.

Applying the Criteria of Adverse Effect to analyze Alternative D3, the character-defining features of the property were considered. The alternative would not alter or remove the building or its architectural elements, so it would maintain its character-defining features that convey its significance. The proposed project would not result in any visual, audible, or atmospheric elements that would impact the property.

8.3.2.6 Segment E

Two historic properties, the Justice William White House and the Bill Brown Saloon, are within the APE of *Preferred Alternative E2* and Alternatives E1 and E4.

Justice William White House

Effects of *Preferred Alternative E2*

Preferred Alternative E2, and the E2 - Redmond Transit Center Design Option that continues west and turns north on 161st Avenue NE to Redmond Transit Center, would not pass close enough to the Justice William White House to cause an impact on the historic setting or to potentially damage the building during construction. *Preferred Alternative E2* would temporarily increase noise and dust and result in visual change due to construction activities, but these effects would not result in an impact. In addition, NE 76th Street and existing vegetation would buffer the house from construction activities and further minimize the visual change and dust. Project construction would not impact the character-defining features of the property.

Effects of Other E Alternatives

Alternative E1 is in the same location as *Preferred Alternative E2* near the Justice William White House. Therefore, Alternative E1 would have the same temporary noise, dust and visual effects on the property as *Preferred Alternative E2* and would not impact the property.

Alternative E4 would require relocating to the Justice William White House. Moving the building prior to construction would cause an impact, as discussed under effects during operation. Relocation would occur in a manner that avoids substantial damage to the building during transport and re-establishment, which would minimize but not fully avoid a potential impact.

Summary

In applying the Criteria of Adverse Effect to all Segment E alternatives, the character-defining features of the Justice William White House that convey its significance and qualify the property for listing in the NRHP were considered. *Preferred Alternative E2* and Alternative E1 would not pass close enough to introduce visual, audible, and atmospheric elements that would impact the character of the setting of the property. Alternative E4 would result in a potential impact due to the need to relocation the building prior to construction. Potential for damage to the building would be minimized as discussed in Section 9.2.1.

Redmond Trading Company

All of the Segment E alternatives would pass at a close enough distance that construction of these alternatives may result in visual disturbance, some noise, and dust. These affects would be temporary and would not impact the property.

Bill Brown Saloon

All of the Segment E alternatives would pass at a close enough distance that construction of these alternatives may result in visual disturbance, some noise, and dust. These affects would be temporary however would not impact the property.

8.3.3 Maintenance Facilities

None of the maintenance facilities—116th Avenue (MF1), 124th Avenue NE (MF2), SR 520 (MF3), and Redmond (MF5)—have historic properties located in their APE; therefore, no historic properties would be impacted by the construction of these facilities.

9.0 Minimization and Mitigation Measures

The Section 106 process provides a procedure to seek ways to avoid, minimize, or mitigate adverse effects on historic properties. Potential mitigation is required if project activities directly or indirectly cause adverse effects to recognized historic properties. Participants in the Section 106 process include agency officials; the ACHP; consulting parties such as the SHPO, Native American Tribes, and local government representatives; and the public, as appropriate.

Given that FTA, in consultation with SHPO, has made a determination of Adverse Effect for the project, an MOA is required pursuant to 36 CFR 800.6[c]. Adverse impacts on historic properties must be resolved through the Section 106 process by preparing an MOA. This document records the terms and conditions agreed upon to resolve the impact of the project on historic properties, and is signed by Sound Transit and FTA, the SHPO, and other consulting parties, if appropriate. Sound Transit will comply with all local ordinances on impacts to historic resources.

An MOA contains stipulations specifying avoidance, minimization, or mitigation measures to be implemented to resolve the potential impacts. A draft MOA addresses potential impacts on the Winters House, potential Surrey Downs historic district, and archaeological resources. The proposed measures for these resources are also described in this section.

9.1 Archaeological Sites

Although some potentially sensitive archaeological areas are identified, studies to date have identified no NRHP-eligible prehistoric or historic-period archaeological sites in the project APE.

Although much of the APE has seen ground disturbance, fill, and development, it is possible that one or more archaeological sites may exist beneath the ground surface in areas where project excavation would take place. Project archaeologists will conduct additional subsurface testing before construction— activities referred to as Stage 2 survey— and/or monitor ground-disturbing activities in archaeologically sensitive areas during construction.

An Archaeological Resources Monitoring and Treatment Plan (ARMTP), or an Unanticipated Discovery Plan (UDP), will be prepared based on the Archeological Survey Plan (Appendix A)to provide additional information that would guide archaeological monitoring work during East Link Project construction. FTA and Sound Transit will coordinate with SHPO, the Muckleshoot and Snoqualmie tribes, and other interested parties as appropriate, to review the plan.

In the event that significant archaeological deposits are inadvertently discovered during construction in any portion of the project area, ground-disturbing activities will be halted and the procedures of the UDP followed. If ground-disturbing activities encounter human skeletal remains during the course of construction, FTA and Sound Transit will implement relevant procedures in the UDP and follow federal and state laws regarding the discovery of human remains. If the remains are determined to be Indian, FTA and Sound Transit will notify DAHP and the affected tribes to consult regarding treatment of the remains.

9.2 Historic Buildings and Structures

The East Link *Preferred Alternative B2M* has the potential to cause an impact on the Winters House. Preferred Alternative C11A and Alternatives C4A, C2T, and C3T have the potential to cause an impact on the potential Surrey Downs historic district. The project has the potential to cause an impact on the Justice William White House through Alternative E4. Table 9-1 summarizes the historic properties; and the properties listed, or recommended as eligible for listing, in the NRHP; the mitigation or minimization measures proposed to resolve potential impacts to the resource.

9.2.1 Minimization Measures

The following minimization measures will be incorporated into the project, avoiding a potential impact n adverse effect of the project, consistent with 36 CFR Park 800.5(b). General minimization efforts to be incorporated in to the project that could further minimize effects on historic properties would include the following

- Take precautions that historic properties are protected from vibrations, excavations, and damage from heavy equipment.
- Protect facades of affected historic buildings from an accumulation of excessive dirt and dust during construction, and/or clean them in an appropriate manner at the conclusion of construction. Sound Transit would consult with the SHPO before implementing any protection or cleaning methods.
- Control fugitive dust using measures listed in the EIS Air Quality Section.
- Maintain access to historic properties to the extent possible.

The above mentioned minimization measures would resolve impacts on the Safeway Store, the Former Bellevue Fire Station, the Bill Brown Saloon, and the Redmond Trading Company. Additional, resource specific minimization measures are described below.

9.2.1.1 Winters House

All measures to minimize potential operational period impacts to the Winters House are incorporated in project design and specified in the MOA.

Operation of *Preferred Alternative B2M*

- Standard methods of vibration reduction, such as resilient fasteners or ballast mats will be incorporated into the project and a floating slab would be incorporated as necessary to reduce the level of groundborne noise and eliminate the impact.
- Landscape the area of property between the front (west elevation) of the Winters House and Bellevue Way SE to more closely reflect the landscaping of the historic period, in consultation with the City.
- Sound Transit will provide interpretive signage on or near the Winters House property in consultation with the City of Bellevue.

Construction of *Preferred Alternative B2M*

- Photograph and inventory the building to establish existing conditions.
- Install vibration and settlement monitoring devices and adjust excavation methods based on monitoring results.
- Use specific vibration- and settlement-reducing construction methods (to be determined during final design and construction); methods could include the following:
    - Using rotating/oscillating construction equipment, underpinning the house foundation and front porch, and other methods of ground improvement such as high pressure grouting
    - Constructing the retained cut side walls using slurry confinement (temporarily filling the excavated cavity with slurry material to replace removed soil) at the deepest excavation points
    - Installing a shallow temporary supporting wall to provide additional lateral support for the porch foundation footings and/or underpin the porch
- Potentially build a construction barrier around Winters House to prevent damage and minimize dust.
- Close the Winters House during construction and temporarily relocate the tenant (Sound Transit would provide information to the public regarding how to access the Eastside Heritage Center during construction).
- If damage does occur, make the needed repairs consistent with the U.S. Secretary of the Interior's standards for treating historic properties.

TABLE 9-1
Historic Properties within Project Area of Potential Effect, Eligibility, and Effect Findings

Segment	Map ID	Property Name/Type	Address	Register Status	Avoidance Minimization Mitigation	Effect Findings
A, Interstate 90	376	Publix Hotel (Seattle Chinatown NRHP/ International Special Review historic district)	504 5th Avenue South	Contributing element to NRHP and Seattle Special Review historic districts	Project avoids resource.	No Impact
	132	Immigrant Station and Assay Office	815 Airport Way South	NRHP, WHR, eSL	Project avoids resource.	No Impact
	303	Jose Rizal 12th Avenue South Bridge	12th Avenue South crossing of South Dearborn Street	NRHP, WHR, eSL	Project avoids resource.	No Impact
	166	Will H. Thompson House	3119 South Day Street	NRHP, WHR, SL	Project avoids resource.	No Impact
	I90	I-90 Lake Washington Highway Segment between mileposts 3.4 and 8.9 (includes Mount Baker Ridge Tunnel and Eastern Portals)	I-90 between mileposts 3.4 and 8.9	eNRHP, eWHR, SL[a]	Project is consistent with the character and design intent of I-90.	No Impact
	156	Endresen Residence	1402 32nd Avenue South	eSL	Project avoids resource.	No Impact
	133	Romaine Electric/Washington Iron Works Pattern Shop	1101 Airport Way South	eSL	Project avoids resource.	No Impact
B, South Bellevue	16	Frederick Winters House	2102 Bellevue Way SE	NRHP, WHR	All alternatives, except *Preferred Alternative B2M* avoid resource. *Preferred Alternative B2M* designed with minimization and mitigation measures during construction and in operations. Project would benefit the property with landscape improvements consistent with the historic period and interpretative signage.	Potential Impact for Alternative B2M only
	63	Pilgrim Lutheran Church	10420 SE 11th Street	eNRHP, eWHR	Project avoids resource; small area of parking lot is affected, away from resource.	No Impact

TABLE 9-1
Historic Properties within Project Area of Potential Effect, Eligibility, and Effect Findings

Segment	Map ID	Property Name/Type	Address	Register Status	Avoidance Minimization Mitigation	Effect Findings
C, Downtown Bellevue	various	Potential Surrey Downs historic district	Between 108th Avenue and 112th Avenue SE, south of Main Street (see Table 7-4)	Potentially eNRHP, eWHR	*Preferred Alternative C11A*: project avoids resource; resource is separated from project with landscaped buffer and noise barrier. Construction minimization measures in place.	Potential Impact
	1100	Safeway Store	414, 424, and 456 104th Avenue NE	eNRHP	Project avoids resource.	No Impact
D, Bel-Red/Overlake	104	Former Bellevue Fire Station	14822 NE Bellevue-Redmond Road	eNRHP, eWHR	Project avoids resource.	No Impact
E, Downtown Redmond	112	Justice William White House	Leary Way NE and NE 76th Street	eNRHP, eWHR, RHL	Project avoids resource, except for Alternative E4 (requires relocation of the house).	Potential Impact for Alternative E4 only
	113	Redmond Trading Company	7805 Leary Way NE	eRHL	Project avoids resource	RHL
	114	Bill Brown Saloon Building	7824 Leary Way NE	RHL, eNRHP, eWHR	Project avoids resource.	No Impact
	118	Dudley Carter/Haida House	Sammamish Slough Park	RHL	Project avoids resource.	No Impact

NRHP	National Register of Historic Places
WHR	Washington Heritage Register
SL	Seattle Landmark
RHL	Redmond Historic Landmark
e	determined eligible

[a] The Mount Baker Ridge Tunnel and Eastern Tunnel Portals are also designated as Seattle Landmarks

9.2.1.2 Pilgrim Lutheran Church

Operation of Alternative B1

- Avoid stormwater vault maintenance during church services and special events to the extent possible.
- Minimize parking space obstruction during stormwater vault maintenance.

Construction of Alternative B1

- Apply typical BMPs to minimize and avoid construction impact.
- Avoid construction during church services and special events to the extent possible.
- Restore disturbed areas following construction.

9.2.1.3 Potential Surrey Downs Historic District

All measures to minimize potential operational period impacts to the Winters House are incorporated in project design and specified in the MOA.

Operation

Preferred Alternative C11A

- Install a permanent sound barrier along the south side of the guideway along Main Street to prevent noise impacts on contributing properties in the potential Surrey Downs historic district.
- Landscape along south side of the guideway and the 108th Station along Main Street where noncontributing properties are removed.

Alternative C4A

- Install a permanent sound barrier along the south side of the guideway along Main Street, adjacent to contributing properties.
- Landscape along the south side of the guideway along Main Street to enhance the neighborhood boundary where noncontributing properties are removed.

Construction

Preferred Alternative C11A **and Alternative C4A**

- Apply typical BMPs to minimize and avoid construction impacts.
- Before construction begins, install a solid construction barrier along contributing properties south of Main Street.
- Where possible, preserve the evergreen trees along the south edge of the proposed station area, east of 108th Avenue SE.

Alternative C2T and C3T

- Apply typical BMPs to minimize and avoid construction impacts.
- Before construction begins, install a solid construction barrier along contributing properties south of Main Street.

9.2.2 Mitigation for Adverse Effects

Justice White House, Alternative E4

Consult with SHPO to determine whether an appropriate location can be found to relocate this resource. If such a location can be determined, FTA and Sound Transit would consult with SHPO, the City of Redmond, and other interested parties to develop and to determine a suitable relocation site that preserves the Justice William White House’s setting, feeling, and association with the railroad, thus maintaining its eligibility for the NRHP. The relocation would be managed by qualified architects and engineers in a manner to avoid damage to the building and preserve its eligibility for listing in the NRHP. Prior to relocating the building, Sound Transit would fully record the building in its original context through a Level II Historic American Building Survey/Historic American Engineering Record documentation. This would include photographs, measured drawings, and a written history component. If alternative E4 were selected, then the MOA would be altered to include mitigation for the Justice William White House.

10.0 Cumulative Effects

Reasonably foreseeable future actions in the project vicinity would have no direct impacts on specific historic or archaeological resources in the East Link Project study area. However, cumulatively, the past, present, and future projects affect historic properties and archaeological resources. Incrementally, new infrastructure and development patterns change the historic setting of specific resources as a result of past and ongoing urbanization, particularly in Bellevue and Redmond.

East Link could affect the Winters House and the potential Surrey Downs historic district in Bellevue and the Justice William White House in Redmond. The settings surrounding these structures have already been altered by the development, increasing traffic conditions, and changes of uses surrounding them. Incrementally, East Link is part of the changing fabric of urbanization. In this regard, there is an incremental cumulative impact on historic resources. No direct or indirect impacts on archaeological resources are expected; therefore, no cumulative impact is expected.

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Appendix I

Mitigation Plan

Appendix I

Mitigation Plan

I.1 Introduction

The mitigation plan for East Link describes Sound Transit's preliminary mitigation commitments, which include all the mitigation measures Sound Transit proposes to implement to avoid or minimize impacts from the *Preferred Alternatives* identified in the Final EIS. If the Sound Transit Board ultimately selects another alternative to build differing from the *Preferred Alternatives*, the mitigation plan will be modified accordingly. The following are the *Preferred Alternatives*:

- Segment A: *Preferred Interstate 90 Alternative (A1)*
- Segment B: *Preferred 112th SE Modified Alternative (B2M)*
- Segment C: *Preferred 108th NE At-Grade Alternative (C11A)* and *Preferred 110th NE Tunnel Alternative (C9T)*
- Segment D: *Preferred NE 16th At-Grade Alternative (D2A)*
- Segment E: *Preferred Marymoor Alternative (E2)*

The mitigation measures described below are based on the potential mitigation measures identified in the Final EIS. Measures associated with the operation of East Link (long-term impacts) are described first; measures associated with construction are described second. These mitigation measures will be tracked in a monitoring program to ensure that the mitigation commitments are being met and addressed.

I.2 Transportation Potential Mitigation Measures

I.2.1 Regional Travel Mitigation Measures

No adverse impacts have been identified and no mitigation is proposed.

I.2.2 Transit Mitigation Measures

No adverse transit impacts have been identified during East Link operations and no mitigation is proposed.

During construction, existing park-and-ride lots (South Bellevue Park-and-Ride and Overlake Transit Center) would either be partially or fully closed. Measures to mitigate the loss of parking at these locations could include the following:

- Route transit riders that use these locations to available spaces at nearby park-and-ride lots, such as the Eastgate or Overlake Village Park-and-Ride Lots.
- Lease parking lots and/or new parking areas within the vicinity of the closed park-and-ride lot.

The South Bellevue Park-and-Ride Lot, Bellevue Transit Center, and Overlake Transit Center would either be partially closed or fully closed during construction. For these and other transit centers impacted during construction, Sound Transit would work with King County Metro and private transit service providers to revise transit service and minimize disruptions to bus facilities and service. Measures to minimize impacts to transit service may include the following:

- Relocate transit stops to adjacent streets.
- Provide a temporary transit center at a nearby off-street location.
- Revise transit services by rerouting buses where appropriate.
- Post informative signage before construction at existing transit stops that would be affected by construction activities.

I.2.3 Highway Operations and Safety Mitigation Measures

No adverse impacts have been identified and no mitigation is proposed during East Link operations.

During East Link construction, Sound Transit would coordinate with the Washington State Department of Transportation (WSDOT) on incident management, construction staging, and traffic control where the light rail construction might affect freeway traffic. Sound Transit would also coordinate with WSDOT to disseminate construction closure information to the public as needed.

I.2.4 Arterials and Local Streets Mitigation Measures

This section discusses mitigation for impacts on intersection level of service (LOS) and parking during project operation, and mitigation for impacts during project construction. Final mitigation would be coordinated with each affected jurisdiction through subsequent phases of this project.

I.2.4.1 Intersection Level of Service

Arterial and local street mitigation is potentially required at intersections where the intersection LOS with the East Link Project would degrade to levels that do not meet the LOS standards of the jurisdiction compared to the No Build Alternative. The intersections that would potentially be affected and their related improvements are discussed in the following subsections.

Segment A
In Segment A, under *Preferred Alternative A1*, five intersections on Mercer Island would potentially require turn pockets or traffic signal improvements to adjust for the change in travel patterns to and from the island. Improvements at intersections within the City of Mercer Island's jurisdiction include:

- West Mercer Way and 24th Avenue SE: Provide southbound left-turn pocket.
- 80th Avenue SE and SE 27th Street: Install a traffic signal.
- 77th Avenue SE and North Mercer Way: Install a traffic signal.

Improvements at intersections within WSDOT's jurisdiction include:

- 77th Avenue SE and I-90 eastbound off-ramp: Install a traffic signal.
- 76th Avenue SE/North Mercer Way and I-90 Westbound on-ramp: Modify the westbound channelization to provide left-turn pocket and through/right shared lane.

All of these improvements would improve the AM and PM peak hour intersection LOS to the same or better than no-build conditions. Sound Transit would be responsible for implementing improvements at the two intersections within WSDOT's jurisdiction prior to East Link opening service. Sound Transit would contribute its proportionate share of costs to improve intersections within the City of Mercer Island's jurisdiction. Sound Transit's contribution would be determined by the project's ratio of trips at the intersection or another equitable method. Through this contribution, the City of Mercer Island might determine other improvements than the intersection modifications listed that are more compatible with downtown Mercer Island.

Segment B
No adverse impacts on intersection LOS have been identified, and no mitigation is proposed.

Segment C
Under *Preferred Alternative C11A*, an eastbound right-turn pocket would be provided at the 112th Avenue NE and Main Street intersection. Additionally, at the Main Street and 108th Avenue NE intersection (with *Preferred Alternative C11A*) and at the NE 4th Street and 108th Avenue NE intersection (with *Preferred Alternatives C11A* and *C9T*), mitigation to better use the roadway capacity could be implemented, such as providing active traffic management strategies. For example, active signing could be installed to more effectively route vehicles to less congested streets; turn movements could be restricted during congested periods; or adaptive signal controllers could be installed to better respond to changing traffic conditions.

Segment D
Under *Preferred Alternative D2A*, a southbound right-turn pocket at the intersection of 152nd Avenue NE and NE 24th Street would mitigate impacts. This improvement or a similar intersection improvement would be coordinated with the City of Redmond.

Segment E
Under *Preferred Alternative E2*, the following intersections would require mitigation as described below:

- NE 76th Street and 170th Avenue NE: Install a traffic signal.
- SR 202 and NE 70th Street: Provide a southbound right-turn pocket.
- SR 202 and East Lake Sammamish Parkway: Rechannelize to provide an additional southbound through lane.
- NE 70th and 176th Avenue NE: Install a traffic signal.

I.2.4.2 Parking

Mitigation for potential hide-and-ride activities near stations and the best ways to mitigate such activities are specific to each area surrounding a station. The station most likely to generate hide-and-ride impacts is the Rainier Station. At the Mercer Island and South Bellevue Stations the parking analysis determined a low potential for hide–and-ride impacts. However, given the locations of these stations, Sound Transit will evaluate hide-and-ride impacts within one year of East Link commencing operations. If impacts are determined, Sound Transit would implement appropriate mitigation measures as discussed in this section.

Prior to implementing any parking mitigation measures, Sound Transit would inventory on-street parking around each of the three stations listed up to one year prior to the start of light rail revenue service. These inventories would document the current on-street parking supply within a one-quarter-mile radius of the stations. Based on the inventory results, Sound Transit and the local jurisdiction would work with the affected stakeholders to identify and implement appropriate mitigation measures, if necessary.

Parking control measures could consist of parking meters, restricted parking signage, passenger and truck load zones, and residential parking zone (RPZ) signage. Other parking mitigation strategies could include promotion of alternative transportation services (e.g., encourage the use of bus transit, vanpool or carpool services, walking, or bicycle riding).

For parking controls agreed to with the local jurisdiction and community, Sound Transit would be responsible for the cost of installing the signage or other parking controls and any expansion of the parking controls for one year after opening the light rail system. The local jurisdictions would be responsible for monitoring the parking controls and providing all enforcement and maintenance of the parking controls. The local residents would be responsible for any RPZ-related costs imposed by the local jurisdiction.

I.2.4.3 Construction Mitigation

All mitigation measures associated with the construction of the East Link Project would comply with local regulations governing construction traffic control and construction truck routing. Sound Transit would finalize detailed construction mitigation plans in coordination with local jurisdictions and WSDOT during the final design and permitting phase of the project. Mitigation measures for traffic impacts due to light rail construction could include the following:

- Follow standard construction safety measures, such as installing advance warning signs, installing highly visible construction barriers, and using flaggers.
- Use lighted or reflective signage to direct drivers to truck haul routes and enhance visibility during nighttime work hours.
- Use temporary reflective truck prohibition signs on streets with a high likelihood of cut-through truck traffic.
- In areas with high levels of traffic congestion, schedule traffic lane closures and high volumes of construction traffic during off-peak hours to minimize delays where practical.
- Provide public information through tools such as print, radio, posted signs, websites, and e-mail to provide information regarding street closures, hours of construction, business access, and parking impacts.
- Access closures would be coordinated in person with affected businesses and residents. If access closures are required, property access to residences and businesses would be maintained to the extent possible. If access to the property was not able to be maintained, the specific construction activity would be reviewed to determine if it could occur during non-business hours, or if the parking and users of this access (for example deliveries) could be provided at an alternative location.
- Where necessary, the contractor could be responsible for providing parking areas for construction workers.

Also, please refer to Section I.5 for more construction mitigation measures for businesses.

I.2.5 Nonmotorized Facilities Mitigation Measures

No adverse impacts on nonmotorized facilities have been identified; therefore, no mitigation is proposed during East Link operations.

Sound Transit would provide nonmotorized improvements at East Link stations, as shown in the conceptual engineering drawings in Appendix G1. Sound Transit would work with the local agencies regarding alternatives and stations that are located within the median of roadways so that the most appropriate treatments are provided for safe and effective pedestrian crossings and access. These treatments could include painted crosswalks or signals, street lighting, warning lights, or signage.

During construction, Sound Transit would minimize potential impacts on pedestrian and bicycle facilities by providing detours or clearly delineated facilities within construction areas such as protected walkways and notify the public as determined appropriate by the project.

Multiuse trails that might be affected by construction would generally be kept open for use, but detours would be provided when trails are closed, unless they are closed for short durations or in areas where a detour option is not feasible. Public notification efforts would be conducted for temporary trail closures during construction.

I.2.6 Freight Mobility and Access Mitigation Measures

No adverse impacts on freight mobility and access have been identified, and no mitigation is proposed during East Link operations.

During East Link construction, adverse truck impacts would likely be associated with business deliveries on arterials and local streets near surface or tunnel construction activities. To minimize these impacts, Sound Transit would work specifically with affected businesses throughout construction to maintain access as much as possible to each business and coordinate with businesses during times of limited access.

During construction associated with I-90, SR 520, or I-405, Sound Transit would coordinate with freight stakeholder groups by providing construction information to WSDOT for use in the state's freight notification system. Sound Transit would provide information in a format required by WSDOT and compensate WSDOT for any direct costs associated with use of the freight notification system for East Link construction.

I.2.7 Navigable Waterways Mitigation Measures

No adverse impacts on navigable waterways have been identified, and no mitigation is proposed during East Link operations.

During construction of *Preferred Alternative E2*, Sound Transit would minimize any impacts on the navigability of the Sammamish River waterway crossing.

A Tribal fishery event on Lake Washington occurs in July. If any barging of construction equipment or materials is required, then Sound Transit would consult with the Muckleshoot Tribe to avoid conflict with the tribal fishing event.

I.3 Acquisitions, Displacements, and Relocations Potential Mitigation Measures

No adverse impacts related to acquisitions, displacements, and relocations have been identified, and no mitigation is proposed. As part of the project, Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines. (Resolution #R98-20-1)Sound Transit would comply with provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Code of Federal Regulations [CFR] Title 49, Part 24), as amended, and the State of Washington's relocation and property acquisition regulations (WAC 468-100 and RCW 8.26). Benefits would vary depending on the level of impact, available relocation options, and other factors. Because of these compliance actions, no mitigation would be necessary.

I.4 Land Use Potential Mitigation Measures

No adverse impacts on land use have been identified, and no mitigation is proposed.

I.5 Economics Potential Mitigation Measures

No adverse economics impacts during East Link operations have been identified, and no mitigation is proposed. To minimize or limit impacts on businesses during construction, Sound Transit would dedicate staff to work specifically with affected businesses. Construction mitigation plans would be developed to address the needs of businesses during construction and could include, but are not limited to, the following elements:

- Provide a 24-hour construction telephone hotline.
- Provide business cleaning services on a case by case basis.
- Provide detour, open for business, and other signage as appropriate.
- Establish effective communications with the public through measures such as meetings and construction updates, alerts, and schedules.
- Promotion and marketing measures to help affected business districts maintain their customer base to the extent possible during construction.
- Maintain access as much as possible to each business and coordinate with businesses during times of limited access.
- Provide a community ombudsman.

Please refer to the arterials and local streets construction mitigation measures in Section I.2.4.3 for additional measures that would help mitigate economics impacts.

I.6 Social Impacts, Community Facilities, and Neighborhoods Potential Mitigation Measures

No adverse social, community facilities, and neighborhoods impacts have been identified, and no mitigation is proposed.

I.7 Visual and Aesthetic Resources Potential Mitigation Measures

No adverse impacts on visual and aesthetic resources during East Link operation have been identified for the *Preferred Alternatives*, and no mitigation is proposed.

During construction, Sound Transit would provide visual screening along the south side of Main Street for the 108th Station construction area for *Preferred Alternative C11A*, or along the south side of the tunnel portal construction area along Main Street for *Preferred Alternative C9T*. Visual screening would include construction of a solid barrier to screen ground-level views into the construction area from adjacent historic properties to the south. When possible, Sound Transit would preserve the existing vegetation. The decision whether to revegetate disturbed areas after construction would be determined based on future use of lands outside the trackway. Nighttime construction lighting would be shielded and directed downward to avoid light spillover onto adjacent sensitive uses.

I.8 Air Quality and Greenhouse Gases Potential Mitigation Measures

No adverse impacts related to air quality or greenhouse gases (GHGs) have been identified during East Link operation, and no mitigation is proposed.

For construction activities, Puget Sound Clean Air Agency (PSCAA) regulates particulate emissions (in the form of fugitive dust). To comply with the PSCAA policy of preventing air quality degradation, the following mitigation measures may be used as necessary and in accordance with standard practice to control particulate matter 10 microns or 2.5 microns or less in size (PM_{10} and $PM_{2.5}$, respectively) and emissions of carbon monoxide (CO) and oxides of nitrogen (NO_x) during construction of the project. Several of these measures would also reduce GHG emissions.

- Spray exposed soil with dust control agent as necessary to reduce emissions of PM_{10} and deposition of particulate matter.
- Cover all transported loads of soils and wet materials before transport, or provide adequate freeboard (i.e., space from the top of the material to the top of the truck) to reduce PM_{10} and deposition of particulate during transportation.
- Provide wheel washes to reduce dust and mud that would be carried off site by vehicles and to decrease particulate matter on area roadways.
- Remove the dust and mud that are deposited on paved, public roads to decrease particulate matter.
- Route and schedule high volumes of construction traffic to reduce congestion during peak travel periods and reduce emissions of CO, NO_x, and carbon dioxide equivalent (CO_2e) where practical.
- Require appropriate emission-control devices on all construction equipment powered by gasoline or diesel fuel to reduce CO and NO_X emissions in vehicular exhaust.
- Use well-maintained heavy equipment to reduce CO and NO_X emissions, which may also reduce GHG emissions.
- Cover, install mulch, or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

The following other readily available mitigation measures could potentially be used:

- Encourage contractors to employ emissions reduction technologies and practices for both on-road and off-road equipment/vehicles (e.g., retrofit equipment with diesel control technology and/or use of ultra-low sulfur diesel).
- Implement construction truck-idling restriction (e.g., no longer than 5 minutes).
- Locate construction equipment and truck staging zones away from sensitive receptors as practical and in consideration of other factors such as noise.

I.9 Noise and Vibration Potential Mitigation Measures

I.9.1 Noise Mitigation during Operation

Sound Transit is committed to minimizing noise levels at the source. This includes using only state-of-the-art vehicles equipped with wheel skirts to reduce noise. In addition, Sound Transit has committed to a maintenance program that includes periodic rail grinding or replacement, wheel truing or replacement, vehicle maintenance, and operator training, which all help to reduce noise levels along transit corridors. For noise impacts that still exist after these source noise treatments, noise mitigation measures would be provided that are consistent with Sound Transit's Light Rail Noise Mitigation Policy (Motion No. M2004-08). The FTA manual also defines when mitigation is needed and bases this on the impact's severity, with severe impacts requiring the most consideration. During final design, all impacts and mitigation measures will be reviewed for verification. During final design, if it is discovered that mitigation can be achieved by a less costly means or if the detailed analysis show no impact, then the mitigation measure may be eliminated or modified.

Sound Transit is currently investigating the use of non-audible warnings for gated and ungated at-grade crossings. If non-audible warning devices are found to be viable, this option could be used to reduce or eliminate bell noise at specific crossings. Where practical, grade separation of at-grade light rail crossings would also be considered to eliminate the need for bells or other audible warning devices. In addition, the use of acoustic bell shrouds would be examined during final design. These shrouds direct the bell noise at gated crossings to the intersection.

The mitigation proposed below follows Sound Transit policy. Table I-1 presents noise impacts and mitigation for the *Preferred Alternatives*, and additional details are presented in Attachment 1 to this appendix. Detailed tables of noise and vibration impacts in each segment are provided in Section 4.7 of the Final EIS. The Noise and Vibration Technical Report, Appendix H2, contains additional tables and parcel-scale maps indicating the location of impacts and proposed mitigation measures.

TABLE I-1
Summary of Potential Noise Impacts and Mitigation Measures – *Preferred Alternative*

Alternative	Connection Alternatives	Light Rail Impacts[a]		Traffic Noise Impacts[b]	Proposed Mitigation	Locations Considered for Sound Insulation
		Moderate	Severe			
Segment A						
Preferred Interstate 90 Alternative (A1)	N/A	1	0	0	Potential sound wall	0
Segment B						
Preferred 112th SE Modified Alternative (B2M)	*Preferred Alternative C11A*	79	0	0	Sound walls, special trackwork, and building insulation	10
	Preferred Alternative C9T	66				
Segment C						
Preferred 108th NE At-Grade Alternative (C11A)	*Preferred Alternative B2M*	119	65	0	Sound walls, special trackwork, and building insulation	108
Preferred 110th NE Tunnel Alternative (C9T)	*Preferred Alternative B2M*	62	57	0	Sound walls, special trackwork, and building insulation	50
Segment D						
Preferred NE 16th At-Grade Alternative (D2A)	*Preferred Alternative C11A* or *C9T*	0	0	0	None	0
Segment E						
Preferred Marymoor Alternative (E2)	*Preferred Alternative D2A*	33	148	0	Sound wall, special trackwork, and building insulation	168

[a] **Moderate impact:** In this range of noise impact, the change in the cumulative noise level is noticeable to most people but might not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing noise level, the projected level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views, and the cost of mitigating noise to more acceptable levels.

Severe impact: Project-generated noise in the severe impact range can be expected to cause a substantial percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation will normally be specified for severe impact areas unless there are truly extenuating circumstances that prevent it.

[b] These traffic noise impacts are based on the Federal Highway Administration 66 A-weighted decibel (dBA) equivalent continuous sound level (L_{eq}) impact criteria.

I.9.1.1 Transit Noise Mitigation

The potential mitigation options available for noise from transit operations on the East Link Project are primarily sound walls, special trackwork, lubricated curves, and residential building sound insulation. Sound walls are proposed where feasible and reasonable, as determined by Sound Transit based on specific site conditions. Sound walls would be located on the ground for at-grade profiles and on the guideway structure for elevated profiles. Sound walls are preferred because they are effective at reducing noise. For locations where there is a potential for traffic noise to be reflected off the sound walls, Sound Transit would propose to use absorptive treatments to remedy this issue.

A crossover track uses a frog (a rail-crossing structure) to allow the train to either cross over to another track or continue moving on the same track. A gap is provided on top of the frog so that vehicle wheels can pass regardless of which track is in use. With typical frogs, noise and vibration are generated when the wheels pass over the gap. Special trackwork, such as movable point or spring rail frogs, eliminates the gap between tracks at crossovers that causes noise and vibration at these locations.

Sound Transit is currently investigating the use of non-audible warnings for gated and ungated at-grade crossings. If non-audible warning devices are found to be viable, this option could be used to reduce or eliminate bell noise at specific crossings. Where practical, grade separation of at-grade light rail crossings would also be considered to eliminate the need for bells or other audible warning devices. If bells are used at gated crossings, the bells would be set at the minimum noise level that maintains a safe crossing. Finally, the use of acoustic bell shrouds would be examined during final design; the shrouds would direct the bell noise at gated crossings to the intersection.

When source mitigation measures or sound walls are infeasible or not entirely effective at reducing noise levels below the FTA impact criteria, then residential sound insulation would be evaluated and implemented at impacted properties where the existing building does not already achieve a sufficient exterior-to-interior reduction of noise levels. Many newer buildings, particularly in Downtown Bellevue, have good interior noise reduction and additional sound insulation may not be necessary.

Consistent with FTA methods and criteria, residential properties are considered “noise-sensitive” because people sleep there and “nighttime sensitivity to noise is assumed to be of utmost importance” (FTA, 2006). Accordingly, FTA analysis methods artificially increase measured existing noise and predicted project noise levels by 10 dBA (a perceived doubling of the noise level by most people) between 10:00 p.m. and 7:00 a.m. While noise measurements and impacts are analyzed at the exterior of residential properties, FTA methods clearly emphasize noise sensitivity for residential properties at night, because project noise could affect the ability of people to sleep. During the daytime hours, light rail noise levels are very similar to (in many cases less than) common noise levels in urban settings like Downtown Bellevue or along transportation corridors (like I-90, Bellevue Way, 112th Avenue SE, or I-405) where the predominant noise is from existing traffic (buses, trucks, and heavy traffic volumes). During those times of the day when outdoor uses are most frequent, noise from light rail would typically be less noticeable because of the higher ambient noise levels from traffic and other urban sources.

I.9.1.2 Traffic Noise Mitigation

Traffic noise impacts would be mitigated by sound walls, where determined to be reasonable and feasible. For locations with residual traffic noise impacts caused by the project, sound insulation might also be considered by Sound Transit. Use of FHWA or WSDOT funds to insulate residences from sound for traffic noise abatement is allowed only in specific situations. Federal regulation 23 CFR 772.13(c)(6), and WSDOT and FHWA policies and procedures limit sound insulation for traffic noise abatement to public use or nonprofit institutional structures and only in situations where a barrier is ineffective, unreasonable, and/or infeasible and interior noise levels are above the impact criteria. Sound insulation of residences is allowed only when noise impacts are severe (i.e., above 80 dBA exterior or above 60 dBA interior) and no other type of abatement is possible. In contrast, Sound Transit considers residential sound insulation for any noise impacts related to light rail projects if a sound wall is ineffective, unreasonable, and/or infeasible.

I.9.1.3 Segment A

In Segment A, the only potential noise impact resulting from *Preferred Alternative A1* would be near the transition from the Mount Baker Tunnel to the floating bridge structures. A light rail expansion joint would be required to allow for bridge movement; as a result, increased noise related to this joint could occur. If, after testing of the expansion joint prototype, the expansion joint near the Mount Baker Tunnel were determined to cause a noise impact, then mitigation would likely be a short, absorbent sound wall along the structure's side or absorbent material applied to the existing traffic safety barriers.

To reduce noise levels on the Rainier Station and Mercer Island Station platforms, Sound Transit would incorporate design measures to reduce freeway noise for patrons waiting at station platforms. (See Exhibits A-1-Na and A-1-Nb in Appendix H2, and Attachment 1 to this appendix.)

I.9.1.4 Segment B

In Segment B, mitigation measures under *Preferred Alternative B2M* when connecting to *Preferred Alternative C11A* would include a sound wall running continuously from the elevated section on I-90 to the retained cut section south of the Winters House along Bellevue Way SE. North of the 112th Avenue SE intersection, a sound wall is proposed at-grade, along the west side of the guideway, to just south of the Bellefield Residential Park Condominiums. A new sound wall would start along the west side of 112th Avenue SE and continue to the Segment C connection. The second sound wall would need to overlap with the first wall and would be effective at reducing traffic noise at the Bellefield Residential Park Condominiums. Openings in the wall would be required for vehicle and pedestrian access to the Bellefield Residential Park Condominiums, reducing the overall effectiveness. Supplemental sound insulation might also be required at approximately six multifamily and four single-family residences.

Noise mitigation for *Preferred Alternative B2M* when connecting to *Preferred Alternative C9T* would be identical to *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* south of 112th Avenue SE. A second wall would be installed just north of the 112th Avenue SE intersection, on the west side of the guideway, to just north of the SE 8th Station. Openings would be required for pedestrian and vehicle access at SE 15th Street and SE 8th Street. Special trackwork would also be used for the crossovers. Approximately ten residences along 112th Avenue SE may also be provided with sound insulation to complete the noise mitigation measures if the sound walls are not effective at mitigating all impacts. (See Exhibits A-2-Na, A-2-Nb, A-3-Na, and A-3-Nb in Appendix H2, and Attachment 1 to this appendix.)

I.9.1.5 Segment C

In Segment C under *Preferred Alternative C11A*, mitigation would include a sound wall along the west side of the alignment beginning near SE 6th Street and continue as a sound barrier to 108th Avenue NE, just south of Main Street. The wall would be located near the tracks on the retained fill and elevated structure to the 108th Station. The sound wall barrier, along with special trackwork at the crossover along 112th Avenue SE, would mitigate all impacts along this section of the corridor. Sound walls and special trackwork for the crossover would also be used to mitigate impacts on the Coast Bellevue Hotel and Lake Bellevue Village Condominiums. Multi-family units located on Main Street, 108th Avenue NE, and NE 6th Street would be mitigated with sound insulation where necessary.

Noise mitigation under *Preferred Alternative C9T* would be similar to that proposed for *Preferred Alternative C11A* and would also include a sound wall along the west side of the alignment beginning near SE 6th Street continuing to the tunnel transition. The wall would likely be located on a retaining wall to the west of the tracks, with final placement determined during final design. This sound wall, along with special trackwork at the crossover along 112th Avenue SE, would mitigate all impacts along this section of the corridor. Sound walls and special trackwork at the crossover would also be used to mitigate impacts on the Coast Bellevue Hotel and Lake Bellevue Village Condominiums. Impacts located on SE 4th Street would be mitigated with a sound wall if possible, otherwise sound insulation would be employed for mitigation. Single- and multi-family units located on Main Street and NE 6th Street would be mitigated with sound insulation where necessary. (See Exhibits A-10-Na, A-10-Nb, A-12-Na, and A-12-Nb in Appendix H2, and Attachment 1 to this appendix.)

I.9.1.6 Segment D

There are no anticipated noise impacts for *Preferred Alternative D2A*, so no noise mitigation is proposed. (See Exhibits A-29-Na and A-29-Nb in Appendix H2, and Attachment 1 to this appendix.)

I.9.1.7 Segment E

Noise mitigation for *Preferred Alternative E2* would include sound walls along the elevated structures from SR 520, near NE 67th Place, to the at-grade transition by Marymoor Park. All remaining noise impacts would occur at highrise apartments on Cleveland Street and a hotel on NE 76th Street. If necessary, sound insulation along with special trackwork for the crossover would be used to mitigate these impacts. (See Exhibits A-34-Na and A-34-Nb in Appendix H2, and Attachment 1 to this appendix.)

I.9.1.8 Wheel Squeal

For curves of 600-foot radius or less, a trackside or vehicle-mounted lubrication system would be used to mitigate wheel squeal noise. For curves of 600- to 1,000-foot radius, the project would be designed to accommodate a lubrication system if wheel squeal occurs during operations.

I.9.2 Construction Noise Mitigation Measures

Several different jurisdictions are responsible for the regulation of construction noise. In addition, most daytime construction activities would be exempt from the noise control ordinances. When required, Sound Transit or its contractor would seek the appropriate noise variance from the local jurisdiction. Sound Transit would control nighttime construction noise levels by applying noise level limits, established through the variance process, and use noise control measures where necessary. The contractor would have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet these noise limits. Noise control mitigation for nighttime or daytime work may include the following measures, as necessary, to meet required noise limits:

- Install construction site noise barrier wall by noise-sensitive receivers.
- During nighttime work, use smart back-up alarms that automatically adjusts or lowers the alarm level or tone based on the background noise level, or switch off back-up alarms and replace with spotters.
- Use low-noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Conduct monitoring and maintenance of equipment to meet noise limits.
- Use lined or covered storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Install high-grade engine exhaust silencers and engine-casing sound insulation.
- Prohibit aboveground jack-hammering and impact pile driving during nighttime hours.
- Minimize the use of generators or use whisper quiet generators to power equipment.
- Limit use of public address systems.
- Use movable noise barriers at the source of the construction activity.
- Limit or avoid certain noisy activities during nighttime hours.

Pile driving might be required in Segments B, C, D, and E for construction of elevated profiles and bridges, and might also occur in areas of retained cuts in Segments C and D. To mitigate noise related to pile driving, the use of an augur to install the piles instead of a pile driver would greatly reduce the noise levels. If pile driving is necessary, the only mitigation would be to limit the time of day the activity can occur. Pile driving is not expected at most construction locations.

No segment-specific construction mitigation would be necessary for Segments A, B, or D during allowable daytime construction hours. In Segment C, at the tunnel staging areas near the Surrey Downs neighborhood, a mitigation measure that could be used includes construction of temporary noise barriers adjacent to the construction staging area. Construction in Segment E along SR 520 near NE 51st Street could require moving existing sound walls and, if practical, these would be replaced early in project construction.

I.9.3 Vibration Mitigation during Operation

Vibration and groundborne noise impacts that exceed FTA criteria warrant mitigation when determined to be reasonable and feasible. The locations requiring mitigation would be refined during final design. At some locations, however, light rail trackways or guideways would be within 20 feet of buildings and vibration mitigation would not be effective at reducing the vibration level to below the FTA criteria. At these locations, project design modification and additional information on affected buildings could eliminate these impacts. For instance, the type of building foundation might reduce vibration impacts and therefore, these residual impacts might be eliminated.

In addition, each building would need to be examined in detail to determine where the vibration-sensitive uses are located. For example, the side of a building nearest the proposed alternative might be a vibration-sensitive use. Buildings that are mixed use might not have sensitive uses on lower floors where impacts would occur, and the vibration would not be noticeable by the time it reached higher floors with sensitive uses, such as sleeping quarters. Outdoor-to-indoor vibration testing, which tests how the vibration changes from the soil outside to a sensitive space inside a building, would also help to refine the vibration projections at these locations. A summary of segment-specific vibration mitigation is provided below.

Options for mitigating vibration impacts include the following:

- Ballast mats, which consist of a pad made of rubber or rubberlike material placed on an asphalt or concrete base with the normal ballast, ties, and rail on top. The reduction in groundborne vibration provided by a ballast mat is strongly dependent on the vibration frequency content and the design and support of the mat.
- Resilient fasteners to provide vibration isolation between rails and concrete slabs for direct fixation track, typically on elevated structures or in tunnels. These fasteners include a soft, resilient element between the rail and concrete to provide greater vibration isolation than standard rail fasteners.
- Tire-derived aggregate (TDA), which consists of shredded tires wrapped with filter fabric that is added to the base below the track ties.
- Special trackwork, such as movable point or spring rail frogs, to eliminate the gap between tracks at crossovers that causes noise and vibration at these locations.
- Floating slabs, which consist of thick concrete slabs supported by resilient pads on a concrete foundation; the tracks are mounted on top of the floating slab. Although floating slabs are designed to reduce vibration at lower frequencies than ballast mats, they are extremely expensive and are rarely used, except in the most extreme situations. Most successful floating slab installations are in subways, and their use for at-grade track is less common and often not reasonable.

In Segment A, approximately 1,900 feet of vibration mitigation would be required along the Mount Baker Tunnel area to mitigate groundborne noise impacts at single-family homes along the top of the hillside. No other vibration impacts were identified in Segment A. (See Exhibits A-1-Va and A-1-Vb in Appendix H2.)

In Segment B, mitigation measures under *Preferred Alternative B2M* connecting to *Preferred Alternative C11A* or *C9T* would include up to 600 feet of vibration isolation at the Winters House. Standard vibration mitigation methods, such as resilient fasteners or ballast mats, would reduce the groundborne noise level at the Winters House, but might not eliminate the impact and would be determined in final design. A floating slab might be needed to eliminate the groundborne noise impact. (See Exhibits A-2-Va and A-2-Vb in Appendix H2.)

In Segment C, under *Preferred Alternative C11A*, vibration mitigation would be required at two single-family residences south of Main Street, three multifamily structures along 108th Avenue NE, and the elevated structure by the Coast Bellevue Hotel. Under *Preferred Alternative C9T*, vibration mitigation would also be required at the same two single-family residences and the Coast Bellevue Hotel identified under *Preferred Alternative C11A*, along with five single-family residences near the crossover on 112th Avenue SE. These five single-family residential impacts could be eliminated by the relocation of the crossover or the use of special trackwork to eliminate the gap. Both *Preferred Alternatives C9T* and *C11A* identified groundborne noise impacts at the Meydenbauer Center, a highly sensitive location, where impacts would be mitigated using ballast mats or resilient rail fasteners. (See Exhibits A-4-Va, A-4-Vb, A-5-Va, and A-5-Vb in Appendix H2.)

In Segment D, there would be no vibration or groundborne noise impacts with *Preferred Alternative D2A*, and no vibration mitigation is proposed.

In Segment E, with *Preferred Alternative E2*, an estimated 700 feet of vibration mitigation would be required along SR 520 to mitigate vibration impacts on three single-family residences. (See Exhibits A-13-Va and A-13-Vb in Appendix H2.)

I.9.4 Construction Vibration Mitigation Measures

In general, building damage from construction vibration would only be anticipated from impact pile driving close to buildings. If piling is more than 50 to 100 feet from buildings, or if alternative methods, such as auger cast piling or drilled shafts are used, then damage from construction would not be anticipated. Other sources of construction vibration, including potential ground improvement activities in Segment B such as construction of subsurface stone columns, could generate high enough vibration levels for localized damage to occur, depending on the soil type and distance between the source of vibration and the nearest building. In any locations of concern, preconstruction surveys would be conducted to document the existing condition of buildings, in case there was an issue during or after construction, and vibration monitoring would be implemented during construction to establish levels of vibration. Where levels of vibration exceed preset limits for damage, the contractor would be required to stop work and switch to alternate construction methods.

Measures to minimize short-term annoyance from groundborne vibration and groundborne noise from construction activities such as pile installation or compaction of earth fills include use of alternate methods that result in less vibration or noise, such as auger cast piles or drilled shafts in place of driven piles, or use of static roller compactors rather than vibratory compactors. The hours and duration of these types of activities can also be restricted to hours when vibrations and noise are less noticeable. Vibration monitoring would be considered for pile driving, tunnel construction, vibratory sheet installation, and other construction activities that have the potential to cause high levels of vibration.

Sound Transit would minimize vibration at the Winters House during construction and prevent damage or limit to minor cosmetic damage by using the following methods:

- Install monitoring equipment and monitor vibration during construction.
- Place limits on the construction vibration levels for the contractor, with the contractor selecting one or more of the following measures or other measures of equivalent effectiveness to limit construction:
  - Using auger-drilling methods
  - Using low vibration or nonimpact methods of installing steel casing required to support construction of drilled shaft or secant pile foundations
  - Using slurry confinement (i.e., temporarily filling the cavity with slurry material to replace the removed soil)
  - Underpinning foundation and employing structural support or soil stabilization if needed
  - Adjusting excavation methods based on monitoring results
  - Installing a shallow temporary supporting wall
  - Monitoring vibration levels associated with equipment to be used for the East Link Project at other construction sites with similar soils before project construction to determine which vibration-minimization method would be necessary
  - Beginning vibration-inducing construction at the site at points more distant from the Winters House to enable the contractor to determine which vibration-minimization method would be necessary
- Photograph and inventory the building to establish existing conditions to determine if any damage is caused by construction, and repair the building in a manner consistent with the U.S. Department of the Interior Secretary's standards for treating historic properties.

I.10 Ecosystem Resources Potential Mitigation Measures

I.10.1 Potential Mitigation for Operational Impacts

I.10.1.1 High-Value Habitat

Project impacts on high-value wildlife habitats regulated by local agencies would be mitigated with habitat replacement or enhancement. The type of habitat to be established would depend on the affected species. The type of habitat to be replaced and mitigation ratios would be determined through discussions with federal, state, and local permitting agencies during final design and project permitting. Sound Transit would adhere to local ordinances regarding tree replacement ratios.

I.10.1.2 Wetlands and Wetland Buffers

Sound Transit has committed to achieving no net loss of wetland function and area on a project-wide basis. Sound Transit would apply the interagency wetland mitigation guidance prepared by Ecology, United States Army Corps of Engineers (USACE), and United States Environmental Protection Agency (EPA) (2006).

Compensatory mitigation sites would be identified within the same drainage basin and compensate for lost functions in-kind. The specific compensatory mitigation sites for unavoidable impacts on wetlands would be determined during final design and project permitting. Compensatory mitigation-to-impact ratios for replacement of wetlands would comply with the requirements of the local critical area ordinances (CAOs) and the interagency wetland mitigation guidance (Ecology et al., 2006).

During field work, Sound Transit determined there are several opportunities for wetland mitigation within the study area close to potentially impacted areas that are expected to meet required mitigation ratios. Additional compensatory mitigation may be required for impacts on existing wetland mitigation sites and would be determined during final design and project permitting.

There are no existing approved mitigation banks in the Kelsey Creek subbasin. However, it is possible that a bank could become certified in the project study area in the future and could be used to mitigate project impacts.

I.10.1.3 Aquatic Habitat

On Sturtevant Creek at the Hospital Station, where realignment of the stream channel would be required (with *Preferred Alternatives C11A* and *C9T*), Sound Transit would reconstruct the new channel with natural stream habitat features. Riparian habitat functions would be improved with native riparian plantings. This reach is currently lacking shade. The newly shaded reach would help lower stream temperatures in the downstream reaches that support salmonids. Specific requirements and details of these measures would be established during final design and project permitting.

For mitigation for the increased culvert length on the Unnamed Tributary to Kelsey Creek (with *Preferred Alternative D2A*), Sound Transit proposes to coordinate with the City of Bellevue to find and develop in-stream habitat improvements on the downstream reaches of Goff Creek in coordination with the City of Bellevue’s larger plans to restore and daylight the creek.

I.10.2 Potential Mitigation for Construction Impacts

I.10.2.1 High-Value Habitat

Areas disturbed in the construction staging areas would be revegetated with native vegetation as soon as possible following construction.

Sound Transit would update its survey of bird nests during final design. If a bald eagle nest is found within one-half mile of the proposed construction limits, a bald eagle management plan would be prepared. Under the Migratory Bird Treaty Act (MBTA), nesting migratory bird nests cannot be destroyed during the breeding season. Sound Transit would consult with the U.S. Fish and Wildlife Service on methods to implement during construction to avoid impacts on migratory birds consistent with the MBTA and the Bald and Golden Eagle Protection Act. Such methods would include clearing in the Mercer Slough buffer outside the nesting season for migratory birds.

I.10.2.2 Wetlands and Wetland Buffers

Wetlands and wetland/stream buffer areas disturbed by construction would be protected by best management practices (BMPs) and revegetated as soon as possible after construction. BMPs would be implemented to avoid construction impacts on wetlands and wetland buffers.

Sound Transit would conduct detailed site surveys to establish existing topography and conduct hydrologic monitoring to restore topography. Restoration would include soil amendment and vegetation replacement.

I.10.2.3 Aquatic Habitat

BMPs would be implemented to avoid construction impacts on aquatic resources. Except for the in-water construction in Lake Washington, any in-water work would be isolated from adjacent waters using a coffer dam or other suitable technique. Such isolation is not necessary in Lake Washington due to the type of work done there (welding or bolting metal jackets together).

In-water work would be conducted during approved in-water construction windows. Where ESA-listed species might be present, stream crossings would not require in-water work and the project would not install infrastructure below the ordinary high water mark (OHWM). Disturbed or temporarily cleared riparian vegetation would be replanted with suitable native species. The proposed channel relocation of Sturtevant Creek adjacent to the Hospital Station would follow guidelines found in the Integrated Streambank Protection Guidelines manual (WDFW et al. , 2002) and other current stream design documents. If over-water construction is conducted over the Sammamish River (with *Preferred Alternative E2*) during the migratory period of Endangered Species Act (ESA)-protected species, nighttime lighting would be shielded from the waters below.

Sound Transit would consult with the Tribes to avoid impacting Tribal fisheries from construction work in Lake Washington, barge/boat transit through the Lake Washington ship canal, or through approaches to the Ballard Locks.

I.11 Water Resources Potential Mitigation Measures

A number of regulatory requirements for addressing water resource impacts would be met by the East Link Project design. In addition to these project components, the mitigation measures discussed below would also be applied.

During final design, opportunities for regional management of project stormwater and on-site control of stormwater runoff would be explored. The project design team would work with local jurisdictions to identify opportunities to incorporate low-impact development features into the project. Stormwater management and treatment principles of Low-Impact Development (LID) will be favored over “traditional” stormwater treatment. For *Preferred Alternative B2M*, the retained cut constructed near Mercer Slough would be sealed to prevent groundwater from entering the retained cut but would allow groundwater to flow downgradient beneath the cut. This would maintain the existing groundwater flow toward the Slough and sustain downgradient wetlands and other surface water features.

For *Preferred Alternative D2A*, the Unnamed Tributary to Kelsey Creek would be relocated into a new 24-inch-wide storm drain. The stream would remain in the existing storm drain until a new storm drain is constructed. Rerouting the tributary would occur during the summer when flows in the stream do not typically exist or are extremely low.

I.12 Energy Impacts Potential Mitigation Measures

No adverse energy impacts have been identified, and no mitigation is proposed.

I.13 Geology and Soils Potential Mitigation Measures

No adverse geology and soils impacts from East Link operation have been identified, and no mitigation is proposed.

Engineering design standards and BMPs would be used to avoid and minimize potential construction impacts. Based on the review of potential impacts, the design and construction process would address seismic hazards, soft soils, settlement, steep-slope hazards, landslide hazards, erosion and sediment control, vibrations, and groundwater.

I.14 Hazardous Materials Potential Mitigation Measures

In order to mitigate potential impacts from all potential sites, including railroad corridor and crossings, Sound Transit would perform a level of environmental due diligence appropriate to the size and presumed past use of the property at all properties along the corridor before they are acquired. Phase 2 Environmental Site Assessments would be conducted where appropriate. Where known hazardous sites are present, Sound Transit would be responsible for the remediation of any contaminated soil and groundwater, including those previously unknown and found during construction. To the extent practical, Sound Transit would limit construction activities that might encounter contaminated groundwater or contaminated soils.

I.15 Electromagnetic Fields Potential Mitigation Measures

Standard design measures are necessary to protect underground utilities against stray currents. These measures would be developed and implemented in consultation with utility owners during final design.

The I-90 section of the project would incorporate measures to prevent stray electrical current from corroding the steel components of the I-90 bridge, as agreed to with WSDOT.

I.16 Public Services Potential Mitigation Measures

No adverse operational public services impacts have been identified, and no mitigation is proposed.

Sound Transit would coordinate with public service providers before and during construction to maintain reliable emergency access and alternative plans or routes to minimize delays in response times. Sound Transit would also coordinate with solid waste and recycling companies and schools if any rerouting of collection or bus routes would need to occur. Postal collection and delivery and solid waste and recycling collection would be maintained at all addresses.

I.17 Utilities Potential Mitigation Measures

No adverse impacts on utilities during light rail operation are anticipated, and no mitigation is proposed. The project includes design measures and coordination with utility providers and the public to minimize impacts on utilities during light rail construction. These measures would include potholing and preconstruction surveys to identify utility locations. Sound Transit would continue to work with utility providers to minimize any potential service interruptions and perform outreach to notify the community of potential service interruptions.

I.18 Historic and Archaeological Resources Potential Mitigation Measures

I.18.1 Archaeological Sites

Sound Transit would conduct preconstruction surveys of selected areas that it would acquire and that have been identified as high potential for cultural resources. Using information from the preconstruction survey, an archaeological resources monitoring and treatment plan (ARMTP) would be prepared to provide additional information that would guide archaeological monitoring during East Link construction. The plan would contain procedures for the inadvertent discovery of archaeological deposits and human remains. The Federal Transit

Administration (FTA) and Sound Transit will consult with Washington Department of Archaeology and Historic Preservation (DAHP) and the Muckleshoot, Snoqualmie, Suquamish, Tulalip, and Duwamish Tribes to review the plan. If prehistoric or historic-period archaeological sites are encountered during construction, Sound Transit would follow the protocols established in the ARMTP and consult with DAHP, interested Indian Tribes, and other interested parties as appropriate.

I.18.2 Historic Buildings and Structures

Through consultation with local jurisdictions and interested parties, minimization measures have been developed and incorporated into the project. FTA has determined in consultation with the State Historic Preservation Office (SHPO), that the project would have an adverse effect, resulting from *Preferred Alternatives B2M and C11A* potential impacts on the Winters House and the potential Surrey Downs historic district. Mitigation would consist of the preparation of a Memorandum of Agreement. A copy of the Draft MOA is provided in Attachment 2 to this appendix.

I.19 Parkland and Open Space Potential Mitigation Measures

Sound Transit would restore disturbed park and open space to pre-project conditions after construction in cooperation with the resource owner. This would include landscaping, paths, and any built features of the park and trail resources. Other measures to mitigate affected parks and open space include providing replacement lands, financial compensation, or park enhancement, where appropriate. During construction, pedestrian access to parks and trails would be routed to the remaining open portions of the facilities. Dust from construction would be mitigated using dust control measures described in Section 4.6, Air Quality. Visual and noise impacts would be mitigated using measures described in Section 4.5, Visual and Aesthetic Resources, and Section 4.7, Noise and Vibration.

As part of the Section 4(f) process, Sound Transit has consulted with the Cities of Seattle, Mercer Island, Bellevue, and Redmond and with King County about potential impacts on parks under their jurisdiction and possible mitigation measures. With the exception of the City of Bellevue, the agencies with jurisdiction over parklands have concurred regarding the scope of potential project impacts and associated mitigation measures. The cities of Seattle, Mercer Island, Redmond, and King County have provided 4(f) letters of concurrency, which are included in Appendix D. Table I-2 includes the mitigation measures that are consistent with the letters of 4(f) concurrency for each affected recreational resource and also includes proposed mitigation for City of Bellevue park impacts. Not all mitigation measures would be necessary or implemented where multiple mitigation options are described in the Table I-2.

Sound Transit has also consulted with the Washington RCO and the National Park Service regarding potential LWCF Section 6(f) and RCO funded property conversion. Appendix D discusses converting these properties and requirements regarding replacement properties.

TABLE I-2
Potential Mitigation for Identified Section 4(f)/6(f) Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
Segment A, Interstate 90			
Benvenuto Viewpoint	WSDOT, City of Seattle	**Permanent:** ▪ Design station entrance to be compatible with the City's park design. **Temporary:** Restore temporarily disturbed area to existing conditions.	*Preferred Alternative A1*
Park on the Lid	WSDOT	**Permanent:** ▪ Design station entrance to be compatible with the surrounding the park. **Temporary:** ▪ Restore temporarily disturbed areas to existing conditions	*Preferred Alternative A1*

TABLE I-2 CONTINUED
Potential Mitigation for Identified Section 4(f)/6(f) Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
Segment B, South Bellevue			
Mercer Slough Nature Park	City of Bellevue	**Permanent:** ▪ Acquire replacement land pursuant to Washington State Recreation and Conservation Office (RCO) and Section 6(f) requirements that would be consistent with the natural character of the park. ▪ Have an option to preserve existing vehicle access to Sweylocken boat ramp. **Temporary:** ▪ Provide financial compensation for temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed areas to existing conditions. ▪ Provide temporary parking for users off Bellevue Way and south of the South Bellevue Park-and-Ride or as agreed to with the City. ▪ Relocate blueberry farm retail use during construction. ▪ Maintain blueberry farm operations ▪ Relocate Eastside Heritage Center during construction. ▪ Maintain access or provide detours for trails, and maintain access to Sweylocken boat ramp.	*Preferred Alternative B2M*
Segment C, Downtown Bellevue			
Surrey Downs Park	City of Bellevue	**Permanent:** ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE and provide landscaping. ▪ Design treatments of the retaining wall and fence along 112th Avenue SE in consultation with the City. ▪ Design and construct a U-turn on 112th Avenue SE at SE 8th Street. Prepare conceptual layout for two northbound-to-southbound U-turn options—one at SE 6th Street and one at Main Street—to accommodate those coming from the south who would want to turn left into the park; the City and Sound Transit would pick one that Sound Transit would design and construct. ▪ Coordinate with the City of Bellevue and community to revise the Surrey Downs Master Plan to address the impacted areas. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the Surrey Downs Master Park Plan. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*Preferred Alternative C11A* connecting from *Preferred Alternative B2M*
		Permanent: ▪ Replace impacted acreage with the acquired properties north of the park along 112th Avenue SE, and provide landscaping. ▪ Design treatments of the retaining wall and fence along realigned SE 4th Street in consultation with the City. ▪ Coordinate with the City of Bellevue and community to revise the Surrey Downs Master Plan to address the impacted areas. **Temporary:** ▪ Provide financial compensation for the temporary use of land as agreed with the City. ▪ Restore the temporarily disturbed area with landscaping in accordance with the Surrey Downs Master Park Plan. ▪ Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. ▪ Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). ▪ Provide a barrier or fence adjacent to the main construction area. ▪ Improve south driveway to increase traffic flow prior to closure of the north driveway.	*Preferred Alternative C9T* connecting from *Preferred Alternative B2M*

TABLE I-2 CONTINUED
Potential Mitigation for Identified Section 4(f)/6(f) Impacts

Facility Name	Jurisdiction	Potential Mitigation	Associated Alternatives
NE 2nd Pocket Parks	City of Bellevue	**Permanent:** • One, or a combination of the following, as agreed to with the City: — Provide financial compensation as agreed to with the City. — Provide replacement land with an equivalent portion of the project's staging area located on the northeast quadrant of the park. — Enhance entire northwest quadrant of the park as a public plaza in conjunction with the station entrance. **Temporary** ▪ Provide financial compensation for the temporary use of land as agreed to with the City. ▪ Restore temporarily disturbed park area to existing conditions. ▪ Preserve pedestrian access to southern park quadrants.	*Preferred Alternative C9T* connecting from *Preferred Alternative B2M*
Segment D, Bel/Red-Overlake			
No parks affected			
Segment E, Downtown Redmond			
Marymoor Park	King County	**Permanent:** ▪ Acquire replacement recreation land equal in value and function to offset the light rail use within the park property. ▪ Evaluate noise impacts on park uses in place, when Segment E is funded, consistent with Federal Transit Administration noise analysis methods and criteria when design is advanced. **Temporary:** ▪ Mitigate temporarily disturbed park lands pursuant to RCO regulations. ▪ Provide financial compensation for temporary use of land outside the light rail right-of-way for construction; restore parkland following construction.	*Preferred Alternative E2* and E2 - Redmond Transit Center Design Option
Bear Creek Trail	City of Redmond	**Permanent:** ▪ Reroute trail during construction, restore disturbed trail area after construction, replace trees. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction, as agreed with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative E2*
Redmond Central Connector Trail and Park Corridor	City of Redmond	**Permanent:** ▪ Possible permanent reroute of trail, and replace affected park amenities and associated vegetation as agreed to with the City. **Temporary:** ▪ Provide financial compensation for the temporary use of land during construction as agreed to with the City. ▪ Maintain access or provide detours for trail during construction. ▪ Restore temporarily disturbed area to existing conditions.	*Preferred Alternative E2*
Sammamish River Trail	King County	**Permanent:** ▪ Acquire replacement recreation land equal in value to offset the light rail within the trail right of way per RCO requirements. ▪ Locate guideway columns outside trail clear zone as practical. **Temporary:** ▪ Provide financial compensation for temporary use of land outside of the light rail right-of-way for construction. ▪ Reroute and restore trail to King County standards and specifications during and after construction.	*Preferred Alternative E2*
East Lake Sammamish Trail	King County	**Permanent:** ▪ Provide financial compensation for the light rail use of the trail right-of-way. **Temporary:** ▪ Provide financial compensation for temporary use of land outside of the light rail right-of-way during construction. ▪ Reroute and restore trail to King County standards and specifications during and after construction.	*Preferred Alternative E2*

Attachment 1

Noise Impacts Assessment

Preferred Interstate 90 Alternative (A1)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers West of Tunnel: Seattle																	
		Sturgus Ave S	18	68	2	No	No	60	Ldn	63	69	--	--	No Wall	N/A	No	60
		Sturgus Ave S	5	68	2	No	No	60	Ldn	63	69	--	--	No Wall	N/A	No	60
		S Atlantic St at 17th Ave S	12	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		18th and 19th Ave S	6	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		19th Ave S and Valentine Pl	6	68	2	No	No	60	Ldn	63	69	--	--	No Wall	N/A	No	60
		20th Ave at S Atlantic St	5	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		20th Ave at S Atlantic St	6	68	2	No	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
		S Atlantic St	6	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
		Judkins Park and Playfield	1	67	3	No	No	61	Leq	69	73	--	--	No Wall	N/A	No	61
Receiver East of the Tunnel: Seattle																	
		Irving Street	2	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
		Irving Street	1	67	2	No	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
		Lake Washington Blvd	2	67	2	No	No	60	Ldn	63	68	--	--	No Wall	N/A	No	60
		35th Ave S	3	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		36th Ave S	2	67	2	No	No	59	Ldn	63	68	--	--	No Wall	N/A	No	59
	1250204665	Lake Washington Blvd	1	67	2	No	Yes	63	Ldn	63	68	1	--	No Wall	Special	No	60
Mercer Island West Shore Landing																	
		60th Ave	1	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		60th Ave	1	67	2	No	No	55	Ldn	63	68	--	--	No Wall	N/A	No	55
		60th Ave	2	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		60th Ave	1	67	2	No	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
Mercer Island East Shore Landing																	
		SE 35th Pl	6	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58
		SE 36th Pl	0	67	2	No	No	58	Ldn	63	68	--	--	No Wall	N/A	No	58

Preferred 112th SE Modified Alternative (B2M) to Preferred 108th NE At-Grade Alternative (C11A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2003	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2008	Lot	0	69	2	No	No	67	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2030	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2036	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	67	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2073	SF residence	1	69	2	No	Yes	66	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2094	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2045	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	51
	2055	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2070	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2078	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area																	
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51

Preferred 112th SE Modified Alternative (B2M) to Preferred 108th NE At-Grade Alternative (C11A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	2144	SF residence	1	69	2	Yes	No	58	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	49
	2160	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2210	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2225	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2235	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2130	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2137	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2146	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2166	SF residence	1	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2170	SF residence	1	65	2	Yes	No	52	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	43
	2181	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2183	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2211	SF residence	1	67	2	No	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2230	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2252	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2265	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2275	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2284	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2288	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2296	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2300	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2307	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2326	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2333	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2345	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2351	SF residence	1	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	2361	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2367	SF residence	1	69	2	No	No	48	Ldn	64	70	--	--	No Wall	N/A	No	48
Station change to C9T																	
	2375	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2384	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2397	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2378	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2385	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	2393	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	2401	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	2407	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2413	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2421	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	3001	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2414	SF residence	1	67	2	No	No	49	Ldn	63	68	--	--	No Wall	N/A	No	49
	2418	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3000	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3004	SF residence	1	67	2	No	No	48	Ldn	63	68	--	--	No Wall	N/A	No	48
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56

Preferred 112th SE Modified Alternative (B2M) to Preferred 108th NE At-Grade Alternative (C11A)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3010	MF Units at Y	4	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	3010	MF Units at Y	4	69	2	No	No	48	Ldn	64	70	--	--	No Wall	N/A	No	48
	3010	MF Units at Y	4	67	2	No	No	50	Ldn	63	68	--	--	No Wall	N/A	No	50
SF Units forth of Y, south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	50	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	44
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	57
	4005	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	57
	4007	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	62	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4010	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4017	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	63	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	56
	4024	Lot	0	60	2	Yes	No	63	Ldn	58	64	0	--	Potential Sound Wall	N/A	Yes	59
	4025	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
	4029	SF up hill on retaining wall, north of Apts	1	60	2	Yes	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	55
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	Yes	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	58
	4050	MF units at Bellefield Park	2	64	2	Yes	No	64	Ldn	61	66	2	--	Potential Sound Wall	N/A	Yes	61
	4050	MF units at Bellefield Park	2	63	2	Yes	No	59	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	2	65	2	No	No	65	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	59
	4050	MF units at Bellefield Park	3	63	2	No	No	62	Ldn	60	66	3	--	Potential Sound Wall	N/A	No	56
	4050	MF units at Bellefield Park	4	64	2	No	No	64	Ldn	61	66	4	--	Potential Sound Wall	N/A	Yes	61
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	60
	4050	MF units at Bellefield Park	2	63	2	No	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	53
	4050	MF units at Bellefield Park	2	64	2	No	No	63	Ldn	61	66	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	2	63	2	No	No	62	Ldn	60	66	2	--	Potential Sound Wall	N/A	No	56
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	58	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	52
	4063	SF residence	1	66	2	Yes	No	66	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	60
	4067	SF residence	1	66	2	Yes	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	59
	4074	SF residence	1	66	2	Yes	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	59
	4079	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	58
	4084	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5000	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5006	SF residence	1	65	2	Yes	No	66	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5013	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5021	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	60
	5026	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5036	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	Yes	61
	5039	SF residence	1	66	2	Yes	No	63	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	61
	5050	SF residence	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	58

Preferred 112th SE Modified Alternative (B2M) to Preferred 110th NE Tunnel Alternative (C9T)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
Receivers North of I-90, Same for all alternatives																	
	1087	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1103	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	No Wall	N/A	No	61
	1137	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1152/3	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1164	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1172	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1182	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1195	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
	1203	SF residence	1	67	2	No	No	65	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	1086	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	No Wall	N/A	No	57
	1106	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1136	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1151	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1163	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1175	SF residence	1	65	2	No	No	59	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	50
	1177	SF residence	1	65	2	No	No	60	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	51
	1194	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
	1202	SF residence	1	65	2	No	No	61	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	52
Receivers East of 112th to SE 30th and 111th																	
	1210	SF residence	1	69	2	No	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	1217	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2001	SF residence	1	69	2	No	No	69	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	60
	2003	SF residence	1	69	2	No	No	68	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2008	Lot	0	69	2	No	No	67	Ldn	64	70	0	--	Potential Sound Wall	N/A	No	58
	2012	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2015 E	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	9819	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2017	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2023	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2026	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2030	SF residence	1	69	2	No	No	67	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	1209	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2000	SF residence	1	67	2	No	No	62	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	53
	2015 W	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	9820	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2021	SF residence	1	67	2	No	No	61	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
	2032	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2036	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2038	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
Triangle North of SE 30th																	
	2040	SF residence	1	69	2	No	Yes	67	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2049	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	57
	2061	SF residence	1	69	2	No	Yes	68	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2073	SF residence	1	69	2	No	Yes	66	Ldn	64	70	1	--	Potential Sound Wall	Special	No	56
	2094	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2045	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	51
	2055	SF residence	1	67	2	No	Yes	61	Ldn	63	68	--	--	Potential Sound Wall	Special	No	52
	2050	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2054	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2060	SF residence	1	65	2	No	No	57	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	48
	2070	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2078	SF residence	1	67	2	No	No	60	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	52
Receptors on 112th Ave SE and near Station Area																	
	2095	SF residence	1	69	2	No	No	61	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2109	SF residence	1	69	2	No	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51
	2124	SF residence	1	69	2	Yes	No	60	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	51

Preferred 112th SE Modified Alternative (B2M) to Preferred 110th NE Tunnel Alternative (C9T)

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	2144	SF residence	1	69	2	Yes	No	58	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	49
	2160	SF residence	1	69	2	Yes	No	59	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2178	Lot	0	69	2	Yes	No	62	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	53
	2193	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2210	SF residence	1	69	2	Yes	No	64	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	55
	2225	SF residence	1	69	2	Yes	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
	2235	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	56
Same as above, second row																	
	2104	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2116	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2130	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2137	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2146	SF residence	1	65	2	Yes	No	53	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	44
	2166	SF residence	1	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2170	SF residence	1	65	2	Yes	No	52	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	43
	2181	SF residence	1	65	2	Yes	No	54	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	45
	2183	SF residence	1	67	2	Yes	No	56	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	47
	2211	SF residence	1	67	2	No	No	57	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	48
	2230	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
Receptors from 23rd St to 25th St																	
	2246	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2252	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2265	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2275	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2284	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	57
	2288	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2296	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
	2300	SF residence	1	69	2	No	No	66	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	59
	2306	SF residence	1	69	2	No	No	65	Ldn	64	70	1	--	Potential Sound Wall	N/A	No	58
Same as above, second row																	
	2254	SF residence	1	65	2	No	No	56	Ldn	61	67	--	--	Potential Sound Wall	N/A	No	47
	2251	SF residence	1	67	2	No	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	50
	2271	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	49
	2289	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2297	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
	2307	SF residence	1	67	2	No	No	58	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	51
25th St to 112th "Y"																	
	2317	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2326	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	Potential Sound Wall	N/A	No	50
	2333	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2345	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2351	SF residence	1	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	2361	SF residence	1	69	2	No	No	51	Ldn	64	70	--	--	No Wall	N/A	No	51
	2367	SF residence	1	69	2	No	No	48	Ldn	64	70	--	--	No Wall	N/A	No	48
Station change to C9T																	
	2375	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2384	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2397	SF residence	1	69	2	No	No	58	Ldn	64	70	--	--	No Wall	N/A	No	58
	2378	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	2385	SF residence	1	69	2	No	No	54	Ldn	64	70	--	--	No Wall	N/A	No	54
	2393	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	2401	SF residence	1	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	2407	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2413	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	2421	SF residence	1	69	2	No	No	57	Ldn	64	70	--	--	No Wall	N/A	No	57
	3001	SF residence	1	69	2	No	No	56	Ldn	64	70	--	--	No Wall	N/A	No	56
	2414	SF residence	1	67	2	No	No	49	Ldn	63	68	--	--	No Wall	N/A	No	49
	2418	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3000	SF residence	1	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3004	SF residence	1	67	2	No	No	48	Ldn	63	68	--	--	No Wall	N/A	No	48
MF Units at the 112th "Y"																	
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	3010	MF Units at Y	4	69	2	No	No	61	Ldn	64	70	--	--	No Wall	N/A	No	61

Preferred 112th SE Modified Alternative (B2M) to Preferred 110th NE Tunnel Alternative (C9T)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	3010	MF Units at Y	4	69	2	No	No	49	Ldn	64	70	--	--	No Wall	N/A	No	49
	3010	MF Units at Y	4	69	2	No	No	53	Ldn	64	70	--	--	No Wall	N/A	No	53
	3010	MF Units at Y	4	67	2	No	No	55	Ldn	63	68	--	--	No Wall	N/A	No	55
SF Units forth of Y, south of Bellefield Park																	
	4000	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	49
	4001	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4004	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4005	SF up hill on retaining wall, north of Apts	1	60	2	No	No	60	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	54
	4007	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4010	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4017	SF up hill on retaining wall, north of Apts	1	60	2	No	No	59	Ldn	58	64	1	--	Potential Sound Wall	N/A	No	53
	4024	Lot	0	60	2	No	No	59	Ldn	58	64	0	--	Potential Sound Wall	N/A	No	53
	4025	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	Potential Sound Wall	N/A	No	52
	4029	SF up hill on retaining wall, north of Apts	1	60	2	No	No	55	Ldn	58	64	--	--	No Wall	N/A	No	55
Bellefield Park																	
	4050	MF units at Bellefield Park	2	64	2	No	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	54
	4050	MF units at Bellefield Park	2	63	2	Yes	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	49
	4050	MF units at Bellefield Park	2	65	2	Yes	No	64	Ldn	61	67	2	--	Potential Sound Wall	N/A	No	57
	4050	MF units at Bellefield Park	3	63	2	Yes	No	60	Ldn	60	66	3	--	No Wall	N/A	Yes	60
	4050	MF units at Bellefield Park	4	64	2	Yes	No	63	Ldn	61	66	4	--	No Wall	N/A	Yes	63
	4050	MF units at Bellefield Park	2	64	2	Yes	No	60	Ldn	61	66	--	--	No Wall	N/A	No	60
	4050	MF units at Bellefield Park	2	63	2	Yes	No	56	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	48
	4050	MF units at Bellefield Park	2	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	4050	MF units at Bellefield Park	2	63	2	Yes	No	58	Ldn	60	66	--	--	Potential Sound Wall	N/A	No	52
SF Units along 111th Place																	
	4065	SF residence	1	62	2	Yes	No	55	Ldn	59	65	--	--	Potential Sound Wall	N/A	No	48
	4063	SF residence	1	66	2	Yes	No	60	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	54
	4067	SF residence	1	66	2	Yes	No	61	Ldn	62	68	--	--	Potential Sound Wall	N/A	No	55
	4074	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	55
	4079	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	4084	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5000	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	No Wall	N/A	Yes	65
	5006	SF residence	1	65	2	Yes	No	65	Ldn	61	67	1	--	No Wall	N/A	Yes	65
	5013	SF residence	1	65	2	Yes	No	64	Ldn	61	67	1	--	No Wall	N/A	Yes	64
	5021	SF residence	1	65	2	Yes	No	63	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5026	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5036	SF residence	1	65	2	Yes	No	62	Ldn	61	67	1	--	Potential Sound Wall	N/A	No	55
	5039	SF residence	1	66	2	Yes	No	62	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	55
	5050	SF residence	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53

Preferred 108th NE At-Grade Alternative (C11A) from Preferred 112th SE Modified Alternative (B2M)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
112th Ave SF at SE 4th																	
	2001	SF Second Line	1	67	2	Yes	Yes	63	Ldn	63	68	1	--	Potential Sound Wall	Special	No	57
	2002	SF Third Line	1	64	2	Yes	Yes	58	Ldn	61	66	--	--	Potential Sound Wall	Special	No	51
	4003	SF Second Line	1	67	2	Yes	Yes	66	Ldn	63	68	1	--	Potential Sound Wall	Special	No	56
	4004	SF Third Line	1	64	2	Yes	Yes	59	Ldn	61	66	--	--	Potential Sound Wall	Special	No	51
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4007	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4009	SF Homes Along SE 111th Pl	1	64	2	No	Yes	69	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4011	SF Homes Along SE 111th Pl	1	64	2	No	Yes	67	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4015	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	58
	4019	SF Homes Along SE 111th Pl	1	64	2	No	Yes	67	Ldn	61	66	--	1	Potential Sound Wall	Special	No	59
	4024	SF Homes Along SE 111th Pl	1	64	2	No	Yes	66	Ldn	61	66	--	1	Potential Sound Wall	Special	No	59
	4028	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4032	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4036	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4040	SF Homes Along SE 111th Pl	1	64	2	No	No	66	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	59
	4041	SF Homes Along SE 111th Pl	1	64	2	No	No	67	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	58
	4042	SF Homes Along SE 111th Pl	1	64	2	No	No	67	Ldn	61	66	--	1	Potential Sound Wall	N/A	No	58
	4044	SF Homes Along SE 111th Pl	1	67	2	No	No	66	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	5011	SF Homes near DT	1	64	2	No	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	59
	5017	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5016	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5015	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5026	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5025	SF Homes near DT	1	64	2	Yes	No	58	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 111th Ave SE																	
	5034	SF Homes near DT	1	64	2	Yes	No	63	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	5033	SF Homes near DT	1	64	2	Yes	No	59	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	5032	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	5031	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	5040	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5039	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	5038	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
SF Residences along 1st Street																	
	5044	SF Homes near DT	1	67	2	Yes	No	64	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5046	SF Homes near DT	1	67	2	Yes	No	63	Ldn	63	68	1	--	Potential Sound Wall	N/A	No	57
	5042	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	3068	SF Homes near DT	1	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	49
	3061	SF Homes near DT	1	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3076	SF Homes near DT	1	64	2	Yes	No	60	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	3071	SF Homes near DT	1	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	50
	3067	SF Homes near DT	1	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
	3060	SF Homes near DT	1	64	2	Yes	No	53	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	48
MF Residences along 108th Ave SE																	
	3075	Duplex Units	2	64	2	Yes	No	57	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	53
	3072	Duplex Units	2	64	2	Yes	No	56	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	52
	3069	Duplex Units	2	64	2	Yes	No	55	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	3063	Duplex Units	2	64	2	Yes	No	54	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	51
	3074	Apartment	8	67	2	Yes	No	59	Ldn	63	68	--	--	Potential Sound Wall	N/A	No	56
110th Ave Corridor																	
	C5021	MF - Sir Gallahad 110th at Main	12	66	2	Yes	No	63	Ldn	62	68	12	--	No Wall	N/A	Yes	63
108th Ave Corridor																	
	C5050	MF Units near Main	12	66	2	Yes	No	65	Ldn	62	68	12	--	No Wall	N/A	Yes	65
	C5051	MF Units near Main	16	66	2	Yes	No	65	Ldn	62	68	16	--	No Wall	N/A	Yes	65

Preferred 108th NE At-Grade Alternative (C11A) from Preferred 112th SE Modified Alternative (B2M)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
	C6015	MF Units near 2nd Pl	20	66	2	Yes	No	67	Ldn	62	68	20	--	No Wall	N/A	Yes	67
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4020	Bellevue Hilton South	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	4020	Bellevue Hilton North	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	10001	Coast Hotel	36	69	2	No	Yes	80	Ldn	64	70	--	36	Potential Sound Wall	Special	No	61
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	64	Leq	70	75	--	--	No Wall	N/A	No	64

Preferred 110th NE Tunnel Alternative (C9T) from Preferred 112th SE Modified Alternative (B2M)

Receiver and Data Input Section						Impact Analysis								Project Mitigation			
Parcel #, Description, Existing Noise Levels and FTA Category						Noise Sources		Project	Analysis	FTA Criteria		Number		Type of mitigation proposed			Mitigated
Area	Parcel	Description	Units	Ldn/Leq	FTA-CAT	Bells	X-Over	Ldn/Leq	Type	Mod	Sev	Mod	Sev	Sound Wall	X-Over	Insulation	Ldn/Leq
112th Ave SF at SE 4th																	
	2001	SF Second Line	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	Yes	63
	2002	SF Third Line	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
	4003	SF Second Line	1	67	2	Yes	No	67	Ldn	63	68	1	--	Potential Sound Wall	N/A	Yes	63
	4004	SF Third Line	1	64	2	Yes	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	57
SF Residences along 111th PL SE																	
	4005	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4007	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4009	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4011	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4015	SF Homes Along SE 111th Pl	1	64	2	Yes	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4019	SF Homes Along SE 111th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	56
	4024	SF Homes Along SE 111th Pl	1	64	2	No	Yes	64	Ldn	61	66	1	--	Potential Sound Wall	Special	No	56
	4028	SF Homes Along SE 111th Pl	1	64	2	No	Yes	66	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4032	SF Homes Along SE 111th Pl	1	64	2	No	Yes	68	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4036	SF Homes Along SE 111th Pl	1	64	2	No	Yes	69	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4040	SF Homes Along SE 111th Pl	1	64	2	No	Yes	69	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4041	SF Homes Along SE 111th Pl	1	64	2	No	Yes	67	Ldn	61	66	--	1	Potential Sound Wall	Special	No	56
	4042	SF Homes Along SE 111th Pl	1	64	2	No	Yes	64	Ldn	61	66	1	--	Potential Sound Wall	Special	No	56
	4044	SF Homes Along SE 111th Pl	1	67	2	No	Yes	65	Ldn	63	68	1	--	Potential Sound Wall	Special	No	57
SF Homes South of Main East of 110th Pl																	
	5009	SF Homes near DT	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	5010	SF Homes near DT	1	64	2	No	No	52	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	46
	5011	SF Homes near DT	1	64	2	No	No	48	Ldn	61	66	--	--	Potential Sound Wall	N/A	No	43
SF Residences on 110th Place SE																	
	5018	SF Homes near DT	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5017	SF Homes near DT	1	64	2	Yes	No	52	Ldn	61	66	--	--	No Wall	N/A	No	52
	5016	SF Homes near DT	1	64	2	Yes	No	50	Ldn	61	66	--	--	No Wall	N/A	No	50
	5015	SF Homes near DT	1	64	2	Yes	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
	5026	SF Homes near DT	1	67	2	Yes	No	56	Ldn	63	68	--	--	No Wall	N/A	No	56
	5025	SF Homes near DT	1	64	2	Yes	No	51	Ldn	61	66	--	--	No Wall	N/A	No	51
	5024	SF Homes near DT	1	64	2	Yes	No	49	Ldn	61	66	--	--	No Wall	N/A	No	49
Multi-Family Residences along NE 6th St																	
	C8031	MF Bravern	48	67	2	Yes	No	65	Ldn	63	68	48	--	No Wall	N/A	Yes	65
Bellevue Lake Condominiums																	
	10045	Bellevue Lake Condos	8	58	2	No	No	65	Ldn	57	63	--	8	Potential Sound Wall	N/A	No	56
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
	10045	Bellevue Lake Condos	4	58	2	No	No	64	Ldn	57	63	--	4	Potential Sound Wall	N/A	No	55
Hotels																	
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4001	Bellevue Club Rooms	16	68	2	Yes	No	61	Ldn	63	69	--	--	No Wall	N/A	No	61
	4020	Bellevue Hilton South	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	4020	Bellevue Hilton North	18	69	2	No	No	55	Ldn	64	70	--	--	No Wall	N/A	No	55
	10001	Coast Hotel	36	69	2	No	Yes	79	Ldn	64	70	--	36	Potential Sound Wall	Special	No	60
Meydenbauer Center																	
	9005	Performing Arts Center	1	69	1	No	No	65	Leq	70	75	--	--	No Wall	N/A	No	65

Preferred NE 16th At-Grade Alternative (D2A) from Preferred 108th NE At-Grade (C11A) or Preferred 110th NE Tunnel (C9T) Alternative

Receiver and Data Input Section						*Impact Analysis*								*Project Mitigation*			
Parcel #, Description, Existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
D2A	1205	PNB	1	56	3	Yes	No	62	Leq	63	68	--	--	N/A	N/A	No	62

Preferred Marymoor Alternative (E2) from All Segment D Alternatives

Receiver and Data Input Section						***Impact Analysis***								***Project Mitigation***			
Parcel #, Description, existing Noise Levels and FTA Category						**Noise Sources**		**Project**	**Analysis**	**FTA Criteria**		**Number**		**Type of mitigation proposed**			**Mitigated**
Area	**Parcel**	**Description**	**Units**	**Ldn/Leq**	**FTA-CAT**	**Bells**	**X-Over**	**Ldn/Leq**	**Type**	**Mod**	**Sev**	**Mod**	**Sev**	**Sound Wall**	**X-Over**	**Insulation**	**Ldn/Leq**
Along SR520 from Segment D																	
	1708	SF Residence on NE 67th Pl	1	64	2	No	No	64	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	55
	1718	SF Residence on NE 67th Pl	1	66	2	No	No	65	Ldn	62	68	1	--	Potential Sound Wall	N/A	No	56
	1730	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1733	SF Residence on NE 67th Pl	1	68	2	No	No	70	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	61
	1737	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	1738, 4000	SF Residence on NE 67th Pl	1	68	2	No	No	69	Ldn	63	69	--	1	Potential Sound Wall	N/A	No	60
	4001	SF Residence on NE 67th Pl	1	68	2	No	No	67	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	58
	4002	SF Residence on NE 67th Pl	1	68	2	No	No	65	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	56
	4003	SF Residence on NE 67th Pl	1	68	2	No	No	64	Ldn	63	69	1	--	Potential Sound Wall	N/A	No	55
Second Line homes same area as above																	
	1719	SF Residence on NE 67th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	1728	SF Residence on NE 67th Pl	1	64	2	No	No	62	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	53
	1731	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
	1736	SF Residence on NE 67th Pl	1	64	2	No	No	61	Ldn	61	66	1	--	Potential Sound Wall	N/A	No	52
Condos along the Bluff																	
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	59	Ldn	61	66	--	--	No Wall	N/A	No	59
	2000	MF units on Bluff above W Lake Samm	4	64	2	No	No	58	Ldn	61	66	--	--	No Wall	N/A	No	58
New Condos Between Bear Creek Pkwy and Cleveland St at Brown St																	
	2173	The Cleveland Condominiums	48	64	2	Yes	Yes	66	Ldn	61	66	--	48	No Wall	Special	No	60
	2180	The Cleveland Condominiums	48	64	2	Yes	Yes	69	Ldn	61	66	--	48	No Wall	Special	Yes	61
	5002	Name Unknown	48	64	2	Yes	Yes	67	Ldn	61	66	--	48	No Wall	Special	No	60
Redmond Town Center/Redmond Way Hotels														No Wall			
	6047	Redmond TC Hotel (Lion)	24	64	2	Yes	Yes	65	Ldn	61	66	24	--	No Wall	Special	Yes	63
Marymoor Park																	
	4020	Baseball area	1	68	3	No	No	66	Leq	69	74	--	--	No Wall	N/A	No	66
	4026	Field near crossover	1	68	3	No	Yes	66	Leq	69	74	--	--	No Wall	Special	No	62

Attachment 2

Draft Memorandum of Agreement

DRAFT

MEMORANDUM OF AGREEMENT

AMONG

THE FEDERAL TRANSIT ADMINISTRATION,

WASHINGTON STATE HISTORIC PRESERVATION OFFICER,
AND THE CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY

Implementing

Section 106 of the National Historic Preservation Act

for the

EAST LINK LIGHT RAIL TRANSIT PROJECT
IN THE STATE OF WASHINGTON

DRAFT

WHEREAS, the Central Puget Sound Regional Transit Authority (Sound Transit) proposes to construct and operate the East Link Light Rail Transit Project (Project), an extension of its electric light rail transit system, that will connect the cities of Seattle, Mercer Island, Bellevue, and Redmond, crossing Lake Washington in the center lanes of Interstate 90 (I-90) and operating in a dedicated right-of-way between Seattle and Redmond; and

WHEREAS, the Federal Transit Administration (FTA), the responsible Federal agency, has determined that the Project is an undertaking, as defined in Title 36 Code of Federal Regulations (CFR) §800.16(y), and thus is subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. §470f and its implementing regulations, 36 CFR Part 800; and

WHEREAS, Sound Transit is the designated applicant responsible for obtaining the necessary approvals and permits to undertake the Project; and

WHEREAS, FTA and Sound Transit have consulted with the Washington State Historic Preservation Officer (SHPO), interested and affected Indian tribes, and other parties with a demonstrated interest in the effects of the Project on historic properties in accordance with Section 106 of the National Historic Preservation Act (16 USC 4701) and its implementing regulations (36 CFR Part 800.2); and

WHEREAS, FTA and Sound Transit, in consultation with SHPO, have determined the appropriate area of potential effects (APE) for the Project and conducted cultural resource studies constituting a reasonable and good faith effort to identify historic properties and archaeological resources within the APE pursuant to 36 CFR §800.4; and

WHEREAS, the APE and potential historic properties within the APE are described in the Sound Transit East Link Project Historic and Archaeological Resources Technical Report, along with a description and map of the Project; and

WHEREAS, the cultural resource studies resulted in the identification of 16 properties within the APE listed in or eligible for listing in the National Register of Historic Places (NRHP), including a neighborhood (Surrey Downs) that is potentially eligible for listing in the NRHP; and

WHEREAS, as federally recognized tribes, the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Suquamish Indian Tribe, the Tulalip Tribes of the Tulalip Reservations, and the Confederated Bands and Tribes of the Yakama Nation (the Tribes) have been consulted about the Project and have been invited to concur with this Agreement; and

WHEREAS, the Duwamish Tribal Services (a non-profit organization) has been consulted about the Project and has been invited to concur with this Agreement; and

WHEREAS, FTA and Sound Transit have completed a traditional cultural properties (TCP) archival inventory of the APE using secondary sources and information available in the public domain, and identified no property of cultural interest to the Tribes ; and

WHEREAS, FTA and Sound Transit have consulted about the project with the cities of Seattle, Mercer Island, Bellevue, and Redmond, King County, Washington State Department of Transportation, Federal Highway Administration, and US Army Corps of Engineers, and have invited those entities to concur with this Agreement; and

WHEREAS, FTA and Sound Transit have coordinated the investigations, studies and consultations described above required under Section 106; and

WHEREAS, FTA and Sound Transit have determined that the Project will have an adverse effect, which results from a potential impact on the Winters House, and on the potentially eligible Surrey Downs Historic District, and has the potential to have an impact on undiscovered archaeological resources; and

WHEREAS, FTA and Sound Transit carried out consultations with SHPO, interested and affected Indian tribes, and other consulting parties to identify measures to resolve impacts pursuant to 36 CFR §800.6, resulting in development of this Agreement; and

NOW, THEREFORE, FTA, SHPO, and Sound Transit agree that the Project shall be implemented in accordance with the following stipulations to satisfy FTA's Section 106 responsibilities, and they further agree that FTA shall require that the following terms and conditions be carried out.

STIPULATIONS

FTA and Sound Transit shall implement the following terms and conditions in a timely manner and with adequate resources in compliance with the NHPA (16 USC 470).

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During the environmental review for this Project, conceptual engineering plans and conceptual station designs were reviewed for potential impacts on identified historic properties. These conceptual plans and designs, and the potential impacts they describe, are included in the East Link Light Rail Transit Project Final Environmental Impact Statement (FEIS July 2011) and the Archeological and Historic Resources Technical Report to the FEIS. The following stipulations will govern future design, construction, and operation of the Project.

I. WINTERS HOUSE

A. Sound Transit will perform a conditions assessment of the Winters House building to establish existing conditions, including exterior and interior inspection.

B. Sound Transit will install vibration and settlement monitoring devices before undertaking ground-disturbing construction sufficient to provide the necessary monitoring and measurements to alert Sound Transit. Where called for, Sound Transit will adjust construction methods as needed based on monitoring results.

C. Sound Transit will use specific vibration and settlement-reducing construction methods, to be determined by Sound Transit during final design and construction.

D. If warranted, Sound Transit will build a construction barrier around the Winters House building to minimize damage and minimize dust during construction. This will be determined by Sound Transit during final design and construction.

E. Sound Transit will apply dust control measures during construction to minimize dust. After construction, in consultation with SHPO, Sound Transit will clean the outside of the Winters House building and windows in a manner sensitive to the historic property.

F. The Winters House will be closed during construction and Sound Transit will temporarily relocate the tenant. For the duration of the time the Winters House is closed, Sound Transit will provide information to the public regarding how to access the Eastside Heritage Center during construction.

G. If any physical damage occurs to the Winters House building as a result of the Project, Sound Transit, in consultation with SHPO, will make any necessary repairs consistent with U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties.

H. Sound Transit will install standard methods of vibration reduction, such as resilient fasteners or ballast mats, to reduce groundborne noise below FTA impact criteria. A floating slab will be incorporated in the project, if necessary, to eliminate groundborne noise and vibration impacts. This will be determined by Sound Transit in consultation with FTA during final design and construction.

I. Within six months after construction of the Project is completed, Sound Transit will landscape the area of property between the front (west elevation) of the Winters House and Bellevue Way SE to more closely reflect the landscaping of the historic period, in consultation with the City of Bellevue and SHPO. Sound Transit will preserve, as practical, historic period plants that will be affected by Project construction.

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J. Sound Transit will provide interpretive signage on or near the Winters House property in consultation with the City of Bellevue.

II. POTENTIAL SURREY DOWNS HISTORIC DISTRICT

A. To minimize construction impacts, the following minimization measures will be incorporated into the Project during construction adjacent to properties that contribute to the potential Surrey Downs Historic District:

1. Before construction begins, Sound Transit will install a solid construction barrier south of Main Street between the area of construction activity and adjacent contributing properties.

2. During construction, Sound Transit will comply with the City of Bellevue's Noise Ordinance. Other construction impact minimization measures, including dust control, will be implemented as needed.

3. Sound Transit will remove the construction barrier and will install landscaping along the south side of the guideway south of Main Street within six months after completion of construction.

4. As practical, Sound Transit will preserve the evergreen trees located between the contributing historic properties and proposed project south of Main Street and east of 108th Avenue SE.

5. Reasonable mitigation measures shall be employed for construction-related activities occurring on adjacent property used by Sound Transit for "construction staging" to address noise, dust, visual and other such impacts in recognition of the neighboring residential setting.

B. To minimize impacts during operation, the following measures will be incorporated into the Project

1. Sound Transit will install a permanent sound barrier, which may include a berm and/or wall, south of the light rail track along Main Street to prevent noise impacts on contributing properties within the potential Surrey Downs Historic District. The SHPO will be consulted for sound barrier design prior to its construction.

2. Sound Transit will install landscaping along the south side of the guideway south of Main Street to provide a buffer for the boundary of the potential Surrey Downs Historic District where noncontributing properties would be removed for the Project.

III. ARCHAEOLOGY

A. Project archaeologists who meet the Secretary of Interior's professional standards will conduct additional subsurface testing before construction as outlined in the Archaeological Survey Strategy (which is included in the Historic and Archaeological Technical Report).

B. An Archaeological Resources Monitoring and Treatment Plan or an Unanticipated Discovery Plan will be prepared before construction to provide additional information and protocols that will guide archaeological monitoring work during Project construction.

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IV. DISPUTE RESOLUTION

A. FTA, Sound Transit, and SHPO are signatories to this agreement and are the parties who are authorized to address and informally resolve disagreements concerning the implementation of this Agreement.

B. If informal resolution cannot be achieved, any signatory to this Agreement may object in writing to FTA or Sound Transit regarding any action carried out or proposed with respect to implementation of this Agreement. The agency receiving the objection shall, within ten working days, initiate consultation with the objecting party to resolve the objection.

C. If after initiating such consultation FTA or Sound Transit determines that the objection cannot be resolved through consultation, FTA shall forward all documentation relevant to the objection to the Advisory Council on Historic Preservation (ACHP), including the agency's proposed response to the objection.

D. Within thirty calendar days after receipt of all pertinent documentation, ACHP shall exercise one of the following options:

1. Advise FTA that ACHP concurs in the agency's proposed response to the objection, whereupon FTA will respond to the objection accordingly; or
2. Provide FTA with recommendations, which the agency shall take into account in reaching a final decision regarding its response to the objection; or
3. Notify FTA that the objection will be referred for comment pursuant to 36 CFR §800.7(a)(4), and proceed to refer the objection and comment.

E. FTA shall take the resulting comment into account in accordance with 36 CFR §800.7(c)(4), with reference only to the subject of the specified dispute; FTA's responsibility to ensure that all actions under this Agreement that are not the subjects of the dispute are carried out will remain unchanged.

V. AMENDMENT AND TERMINATION

A. FTA, Sound Transit, and SHPO are signatories to this agreement and are the parties who are authorized to terminate it by providing 30 calendar days written notice to the other parties. If requested by a signatory, the signatories may meet during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

B. In the event of termination, FTA shall comply with 36 CFR 800 with regard to all remaining actions under this Agreement.

C. If FTA or Sound Transit proposes to modify this Agreement in a manner that alters the resolution of adverse effects of historic properties, the modified Agreement must be signed by all signatories.

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VI. CONSULTATION UNDER SECTION 106

A. FTA notified the ACHP of a potential adverse effect of the Project on properties listed in or eligible for listing in NRHP, affording ACHP an opportunity to comment and/or participate in resolving adverse effects. ACHP has declined to participate in the consultation to resolve adverse effects. The executed MOA will be filed with the ACHP, pursuant to 36 CFR 800.6(b)(I)(iv), when signed by the parties below.

B. Execution and implementation of this Agreement is evidence that FTA and Sound Transit have taken into account the effects of the Project on historic properties and afforded the ACHP an opportunity to comment on those effects, and is evidence that FTA and Sound Transit have complied with the consultation requirements under Section 106.

VII. EXECUTION

A. Unless terminated, this MOA shall remain in effect from the date of execution until FTA determines that the terms of this MOA have been satisfactorily fulfilled. Upon such determination, this MOA shall terminate, and FTA shall provide SHPO with written notice of the determination and termination.

B. The undersigned official representatives of the parties affirm and concur with the agreement and enter into this agreement on behalf of their respective parties. Each party represents that the person executing this agreement on its behalf is duly authorized to execute this agreement.

VIII. MISCELLANEOUS

This MOA creates no right of action for any signatory to this agreement or any other party.

DRAFT

Signatories:

FEDERAL TRANSIT ADMINISTRATION

By: ____Date: ________________

R.F. Krochalis, Regional Administrator

WASHINGTON STATE DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION

By: ____Date: ________________

Allyson Brooks, Ph.D., State Historic Preservation Officer

SOUND TRANSIT

By: ____Date: ________________

Joni Earl, Chief Executive Officer

DRAFT

Concurring Parties:

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CITY OF MERCER ISLAND

CITY OF BELLEVUE

CITY OF REDMOND

KING COUNTY

FEDERAL HIGHWAY ADMINISTRATION

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CONFEDERATED BANDS AND TRIBES OF THE YAKAMA NATION

DUWAMISH TRIBAL SERVICES

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DRAFT

Downtown Bellevue Light Rail Alternatives

Concept Design Report

FEBRUARY 2010

BELLEVUE
SOUNDTRANSIT

PREPARED FOR

SOUNDTRANSIT

CITY OF BELLEVUE WASHINGTON

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Introduction

Sound Transit is studying an extension of the region's light rail system from downtown Seattle east to Bellevue and Redmond (Figure 1). The East Link Project would connect the Eastside's biggest population and employment centers, serving 45,000 – 50,000 daily riders, on one of the region's most congested travel corridors. Sound Transit is currently preparing a Final Environmental Impact Statement (Final EIS) as well as preliminary engineering drawings for the approximately 14-mile extension.

During the past three years, Sound Transit has developed numerous route and station alternatives for the portion of the route that would serve downtown Bellevue—Segment C. The City of Bellevue (the City) has expressed a preference for a tunnel route, in part to avoid the traffic conflicts that would affect the reliability of the light rail system and the downtown street network. The Sound Transit Board favors an at-grade profile because it would be cost-effective and directly serve the downtown Bellevue core without the visual effects of an elevated guideway. In May 2009, after the completion of the East Link Project Draft Environmental Impact Statement (Draft EIS), the Sound Transit Board identified a preferred alternative that included an at-grade couplet in downtown Bellevue running on 108th Avenue NE and 110th Avenue NE (C4A). The Sound Transit Board also identified a tunnel on 108th Avenue NE (C3T) for future consideration as preferred and if additional funding is found. Since then, both Sound Transit and the City have experienced significant revenue pressure from declining sales tax receipts. Sound Transit is examining ways to reduce the capital cost of all of its projects, including East Link.

At the time of this report, the City is engaged with the downtown stakeholders and Sound Transit to identify potential funding for a tunnel alternative. Recognizing their mutual interest in developing an alternative for downtown that effectively serves the downtown, and has the support of Bellevue's residents and businesses, Sound Transit and the City instructed their respective staffs to develop information on a range of new alternatives, both tunnel and non-tunnel, and to prepare a report that clearly describes the characteristics of each of those designs.

The Sound Transit Board intends to reconsider the preferred alternative for downtown Bellevue by spring 2010; if this deadline is not met, the schedule for funding and implementation, including final design and construction, will be delayed. As East Link is an essential element of the Sound Transit 2 Plan (ST2 Plan), project delay is not a desirable outcome.

In November 2009, staff from the City of Bellevue and Sound Transit met and jointly refined three new alternatives based on suggestions from Sound Transit peer review and value analysis panels – two at-grade alternatives and one tunnel alternative. In addition, the Sound Transit Board agreed to evaluate an elevated profile alternative at the request of the Bellevue City Council. The City and Sound Transit agreed to evaluate each alternative based upon a set of mutually agreed-upon criteria. Members of both staffs agreed that a visual simulation of each alternative would be helpful in describing how each alternative would look and operate in downtown Bellevue. The evaluation has been completed through a collaborative process where staff from Sound Transit and the City worked closely with support from the consultant team led by CH2M HILL.

The identification of a single Segment C alternative for the project preferred alternative will be made by the Sound Transit Board of Directors after a review of input from the City of Bellevue and community stakeholders. Sound Transit staff and consultants will then complete preliminary engineering and environmental review for the project. Future project phases include final design, permitting, and construction.

The report provides a basis for comparing the alternatives to one another, but it does not make a recommendation. It also represents an evaluation of conceptual designs and a screening level analysis of environmental impacts. The review contained in this report is based on existing data and information. As additional work is completed on the preferred alternative, and as additional information becomes available, the cost, performance, and environmental impacts reported here will continue to be refined. Additionally, designs that reduce construction risk and impacts, as well as other impacts, may be considered.

This report includes a summary of the evaluation of the new Segment C alternatives. It also includes an overview of the alternatives and of the agreed upon criteria and the methods used to assess each alternative. Finally, it includes a narrative describing the relative trade-offs of the new alternatives and a series of visual simulations and graphics illustrating how each alternative would look in downtown Bellevue.

Description of Alternatives

The Downtown Bellevue light rail alignments (Segment C) travel between SE 6th Street and NE 12th Street and extend east of I-405 to include the Hospital Station. This segment of the East Link Project transitions from the primarily single-family residential and commercial area of south Bellevue to the dense central business district of downtown Bellevue, which is a major regional urban center. Key destinations in the area are Bellevue’s downtown core and transit center and, on the east side of I-405, Overlake Hospital, Group Health, and Children’s Hospital medical centers. Within downtown Bellevue, city forecasts anticipate adding 13,000 housing units and 44,000 jobs between 2000 and 2030.

This Concept Design Report includes four new alternatives and two alternatives from the Draft EIS.

New Alternatives

C9T: 110th NE Tunnel

C9A: 110th NE At-Grade

C11A: 108th NE At-Grade

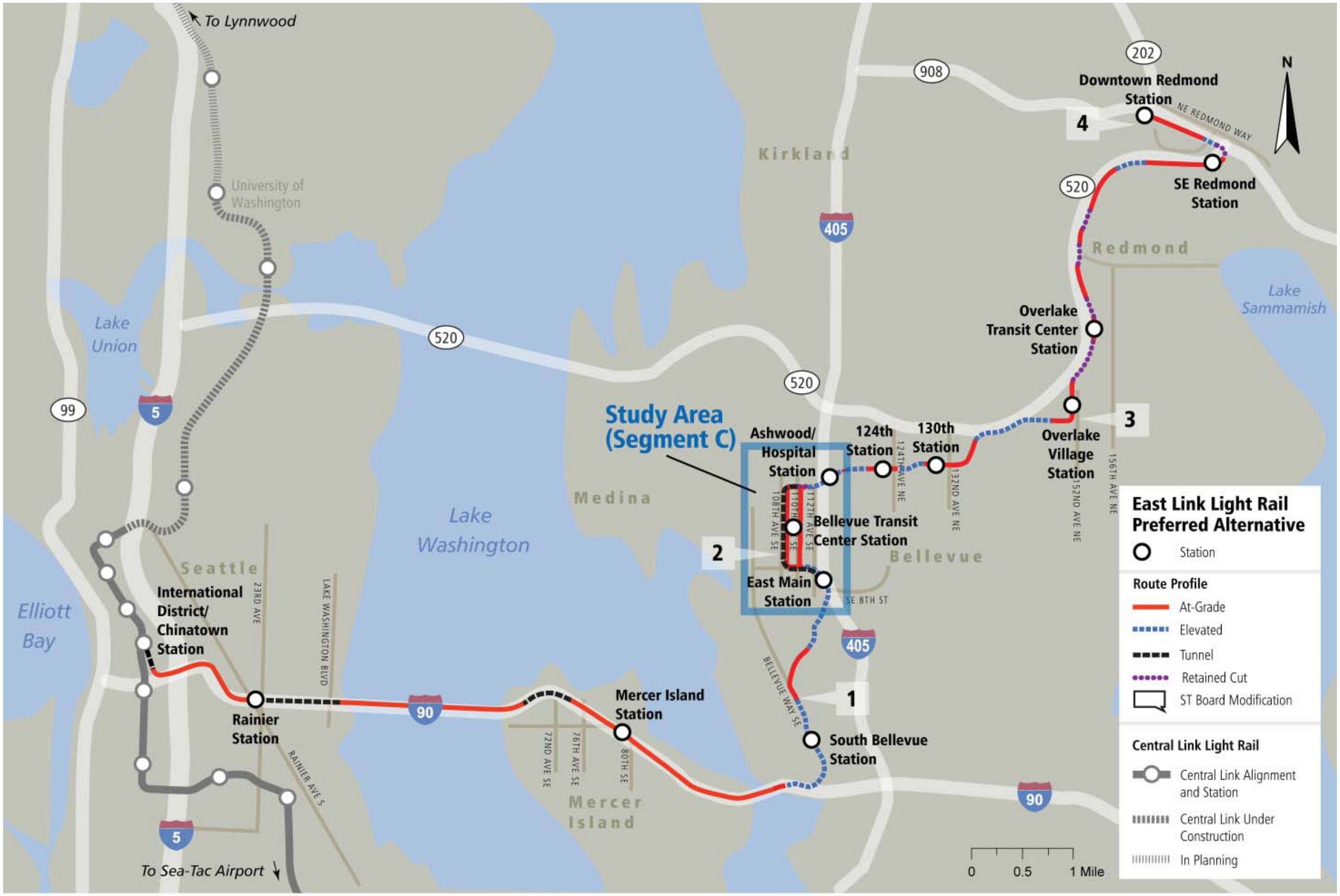
C14E: 114th NE Elevated

Alternatives from Draft EIS

C4A: At-Grade Couplet

C3T: 108th Avenue NE Tunnel

In addition, Sound Transit is re-evaluating the connector from Segment C to the Preferred Alternative B3S route in Segment B: South Bellevue between SE 8th Street and Main Street. One connector alternative would travel in the center of 112th Avenue SE (similar to Alternative B2A in the Draft EIS); this alternative was recommended as a cost-saving measure during the value analysis review of the project. B3S, the112th Bypass, would travel through privately owned parcels west of 114th Avenue SE. This analysis assumes the preferred alternative (B3S). Differences between the alternatives are noted in this report. This report does not include an evaluation of Segment B beyond these connection options.


To Lynnwood
University of Washington
Lake Union
Elliott Bay
99
5
520
Seattle
International District/ Chinatown Station
23RD AVE
LAKE WASHINGTON BLVD
Rainier Station
RAINIER AVE S
To Sea-Tac Airport
Lake Washington
90
Mercer Island Station
72ND AVE SE
76TH AVE SE
80TH SE
Mercer Island
Medina
Kirkland
405
908
202
Study Area (Segment C)
Ashwood/ Hospital Station
108TH AVE SE
110TH SE
112TH AVE SE
124th Station
124TH AVE NE
130th Station
132ND AVE NE
Bellevue Transit Center Station
East Main Station
SE 8TH ST
Bellevue
BELLEVUE WAY SE
South Bellevue Station
Overlake Village Station
152ND AVE NE
156TH AVE NE
Overlake Transit Center Station
Redmond
SE Redmond Station
Downtown Redmond Station
NE REDMOND WAY
Lake Sammamish
N
1
2
3
4
0
0.5
1 Mile
East Link Light Rail Preferred Alternative
Station
Route Profile
At-Grade
Elevated
Tunnel
Retained Cut
ST Board Modification
Central Link Light Rail
Central Link Alignment and Station
Central Link Under Construction
In Planning

1 Move B3 to at-grade on the east side of Bellevue Way SE and 112th Avenue SE, subject to further evaluation.

2 Future consideration of C3T tunnel as the preferred alternative, if additional funding sources are identified.

3 Locate D2A on the north side of NE 24th Street, subject to further evaluation.

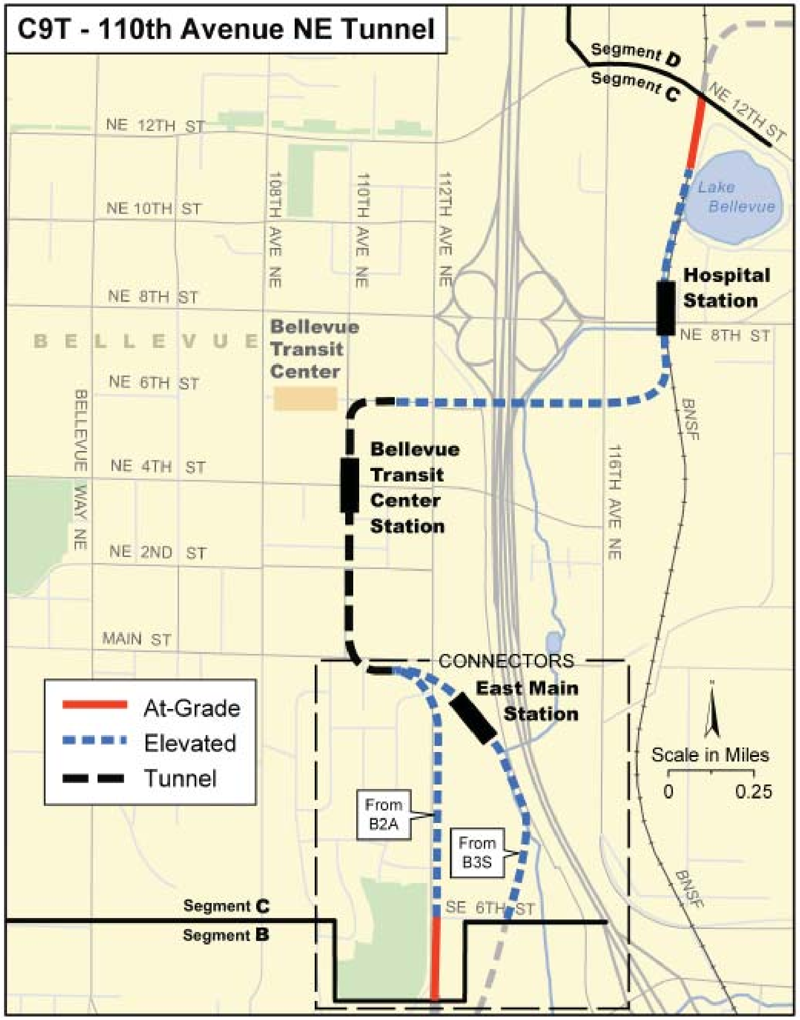
4 New location for the Downtown Redmond Station, subject to further evaluation.

Figure 1. **East Link Project**

C9T: 110th NE Tunnel (New Alternative)

With the 110th NE Tunnel Alternative (C9T), light rail would travel between Main Street and NE 6th Street in a cut-and-cover tunnel on 110th Avenue NE. After crossing over 112th Avenue NE south of Main Street, the tunnel would begin at 110th Avenue NE and end on NE 6th Street east of 110th Avenue NE. After leaving the tunnel, light rail would cross over 112th Avenue NE and I-405. C9T is fully grade-separated.

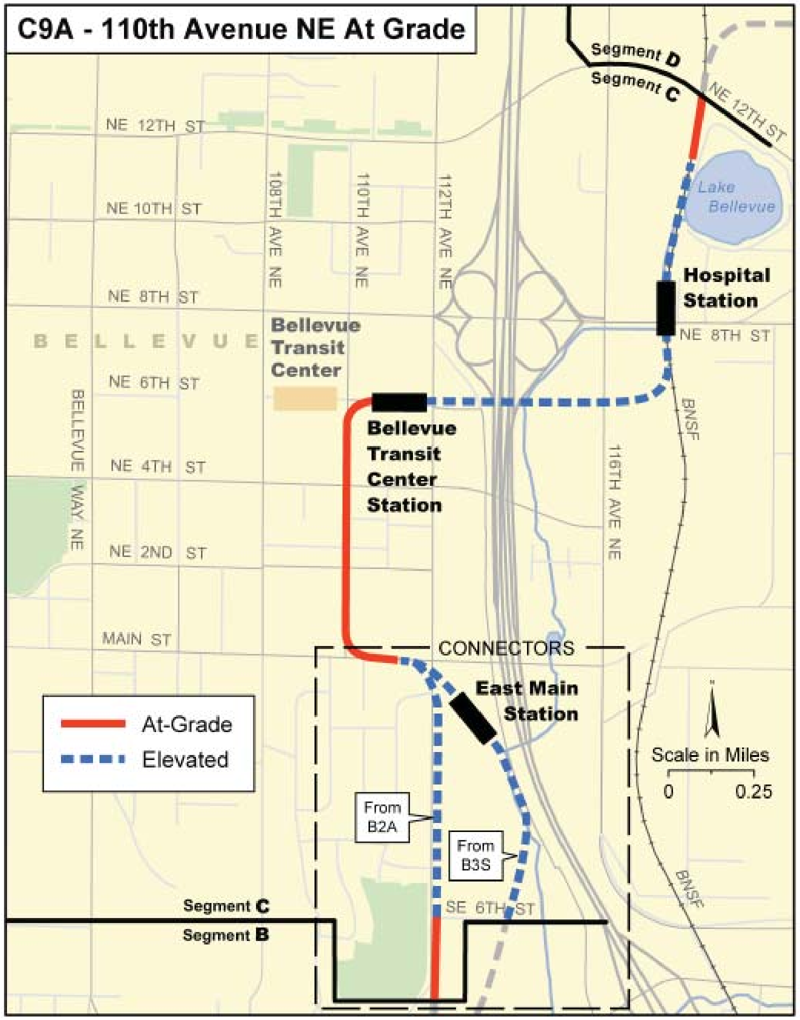
The underground Bellevue Transit Center Station would be located under 110th Avenue NE at NE 4th Street south of the existing Bellevue Transit Center. The elevated Hospital Station would be located at NE 8th Street in the former BNSF Railway corridor and includes a grade-separated pedestrian crossing of NE 8th Street. The East Main Station would be located on the southeast corner of Main Street and 112th Avenue SE.


C9T - 110th Avenue NE Tunnel
Segment D
Segment C
NE 12TH ST
Lake Bellevue
Hospital Station
NE 8TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
BELLEVUE
Bellevue Transit Center
NE 6TH ST
BNSF
BELLEVUE WAY NE
NE 4TH ST
Bellevue Transit Center Station
116TH AVE NE
NE 2ND ST
MAIN ST
CONNECTORS
East Main Station
At-Grade
Elevated
Tunnel
Scale in Miles
0
0.25
From B2A
From B3S
SE 6TH ST
Segment C
Segment B
BNSF

C9A: 110th NE At-Grade (New Alternative)

With the 110th NE At-Grade Alternative (C9A), light rail would cross over 112th Avenue NE, then travel between Main Street and NE 6th Street at-grade in the center of 110th Avenue NE. East of 110th Avenue NE on NE 6th Street, light rail would cross over 112th Avenue NE and I-405. C9A is 24 percent street running and 76 percent grade-separated.

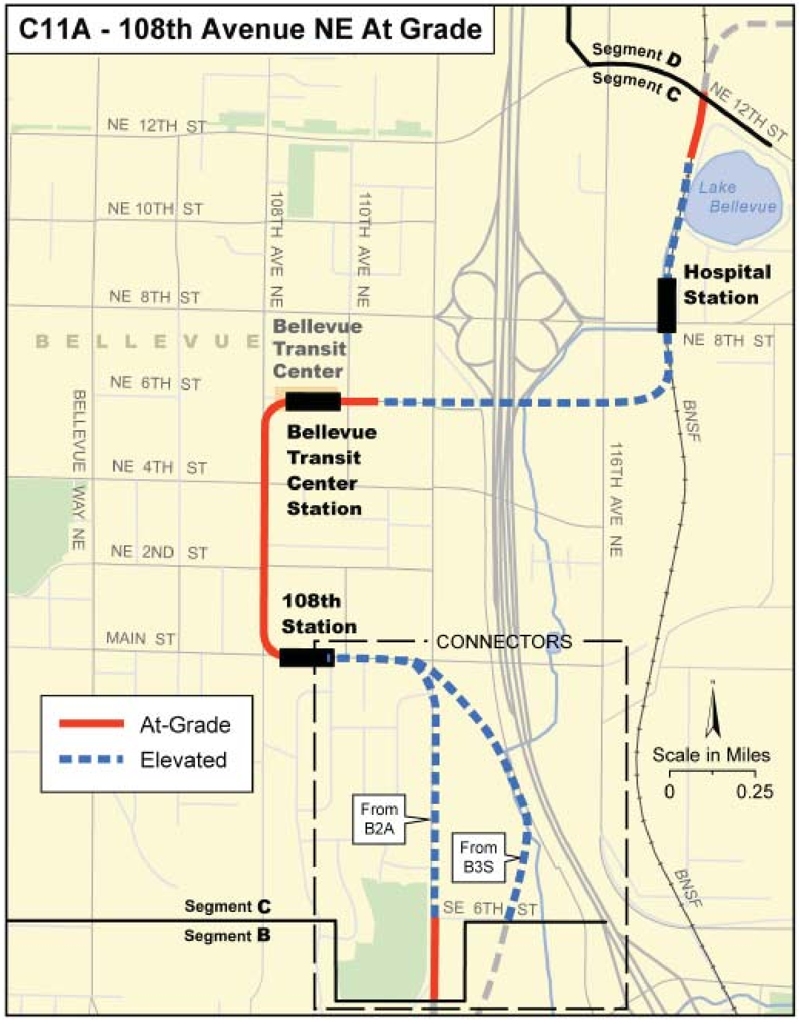
The Bellevue Transit Center Station would be elevated on NE 6th Street east of 110th Avenue NE near the existing Bellevue Transit Center. The east end of this station would be elevated, though access from the existing Bellevue Transit Center would be at-grade. The Hospital Station would be located at NE 8th Street in the former BNSF Railway corridor and includes a grade-separated pedestrian crossing of NE 8th Street. The East Main Station would be located on the southeast corner of Main Street and 112th Avenue SE.


C9A - 110th Avenue NE At Grade
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
BELLEVUE WAY NE
BELLEVUE
Bellevue Transit Center
Bellevue Transit Center Station
Lake Bellevue
Hospital Station
NE 8TH ST
BNSF
CONNECTORS
East Main Station
At-Grade
Elevated
From B2A
From B3S
SE 6TH ST
Segment C
Segment B
Scale in Miles
0
0.25
BNSF

C11A: 108th NE At-Grade (New Alternative)

With the 108th NE At-Grade Alternative (C11A), light rail would cross over 112th Avenue NE, then travel in the center of 108th Avenue NE. On NE 6th Street east of 110th Avenue NE, light rail would climb to a structure and cross over 112th Avenue NE and I-405. C11A is 27 percent street running and 73 percent grade-separated.

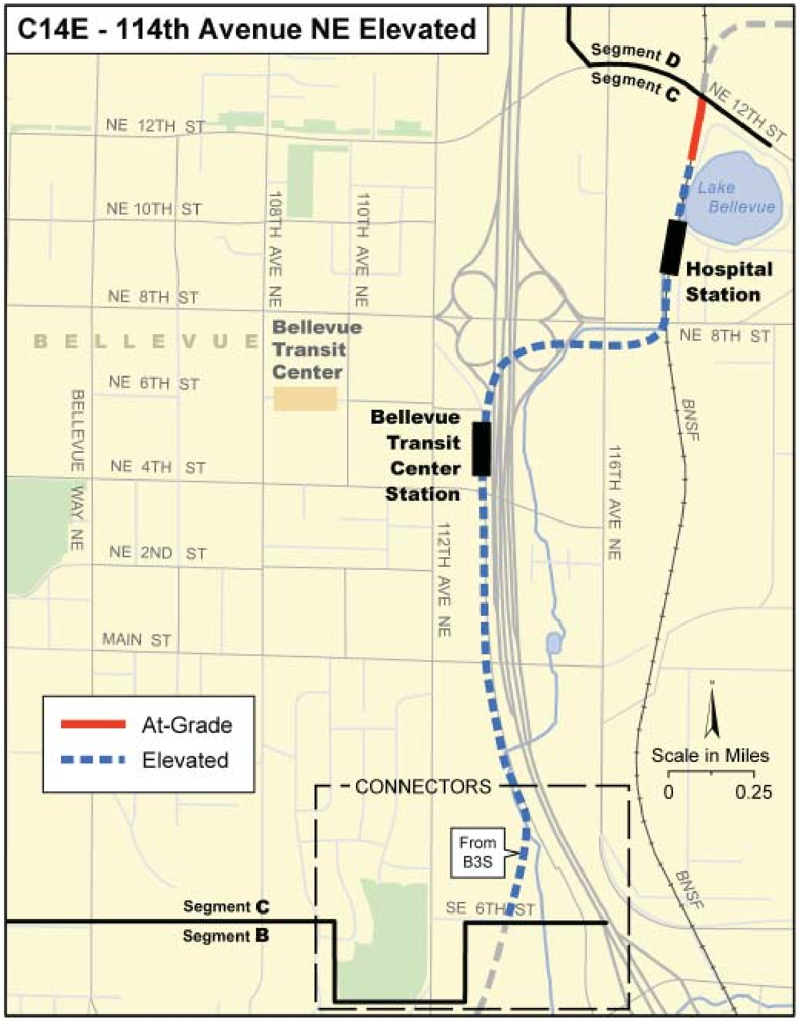
The Bellevue Transit Center Station would be located at-grade at the existing Bellevue Transit Center on NE 6th Street between 108th Avenue NE and 110th Avenue NE. The elevated Hospital Station would be located at NE 8th Street in the former BNSF Railway corridor and includes a grade-separated pedestrian crossing of NE 8th Street. The 108th Station would be located on the south side of Main Street between 108th Avenue and 110th Avenue NE. Alternately, the East Main Station described for C9T and C9A could be constructed with this alternative.


C11A - 108th Avenue NE At Grade
Segment D
Segment C
NE 12TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
116TH AVE NE
BELLEVUE WAY NE
BELLEVUE
Bellevue Transit Center
Bellevue Transit Center Station
108th Station
Hospital Station
NE 8TH ST
Lake Bellevue
BNSF
BNSF
CONNECTORS
From B2A
From B3S
SE 6TH ST
Segment C
Segment B
At-Grade
Elevated
Scale in Miles
0
0.25

C14E: 114th NE Elevated (New Alternative)

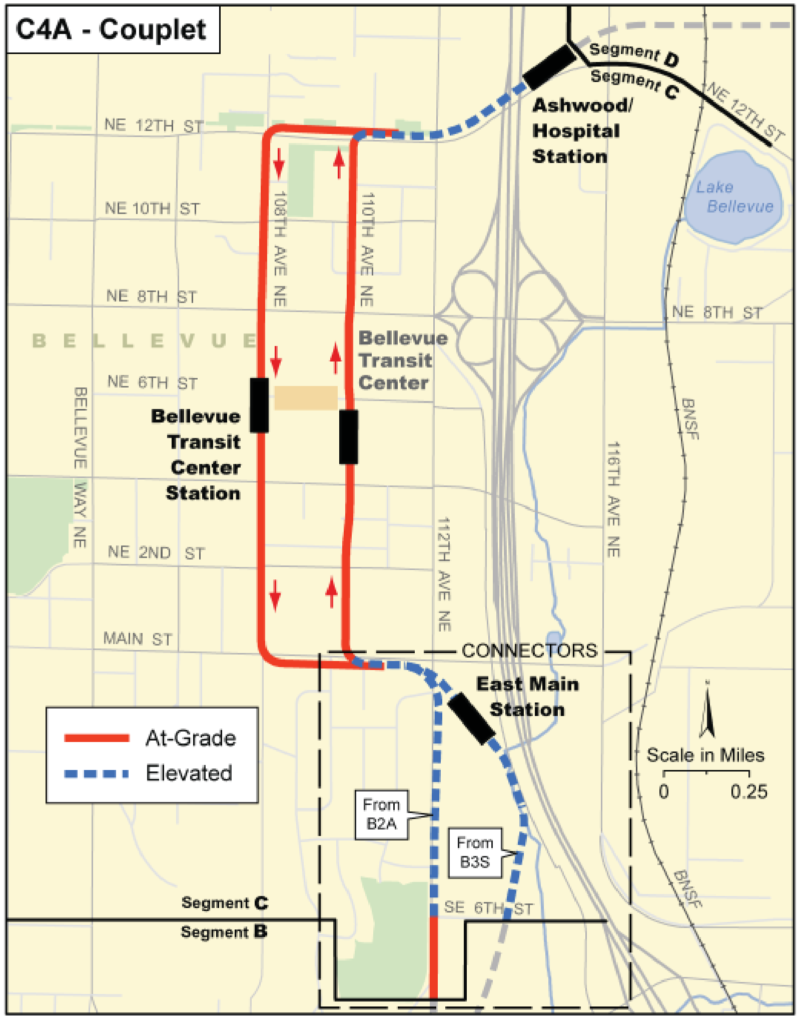
With the 114th NE Elevated Alternative (C14E), light rail would follow 114th Avenue NE from Main Street to the south side of the I-405/NE 8th Street interchange. This alternative would be elevated for its entire distance and cross over I-405 beginning at NE 6th Street. C14E is fully grade-separated.

The Bellevue Transit Center Station would be located on an elevated structure above 114th Avenue NE, between NE 4th Street and NE 6th Street, east of the existing Bellevue Transit Center. To provide better access from the Bellevue Transit Center, a moving sidewalk would connect the station to City Hall Plaza. The elevated Hospital Station would be located in the former BNSF Railway corridor north of NE 8th Street, further north than in the other alternatives. Pedestrian access across NE 8th Street would be at-grade. The East Main Station is not included in this alternative.


C14E - 114th Avenue NE Elevated
Segment D
Segment C
NE 12TH ST
Lake Bellevue
Hospital Station
NE 8TH ST
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
BELLEVUE WAY NE
BELLEVUE
Bellevue Transit Center
Bellevue Transit Center Station
BNSF
At-Grade
Elevated
CONNECTORS
From B3S
Scale in Miles
0
0.25
Segment C
Segment B
SE 6TH ST
BNSF

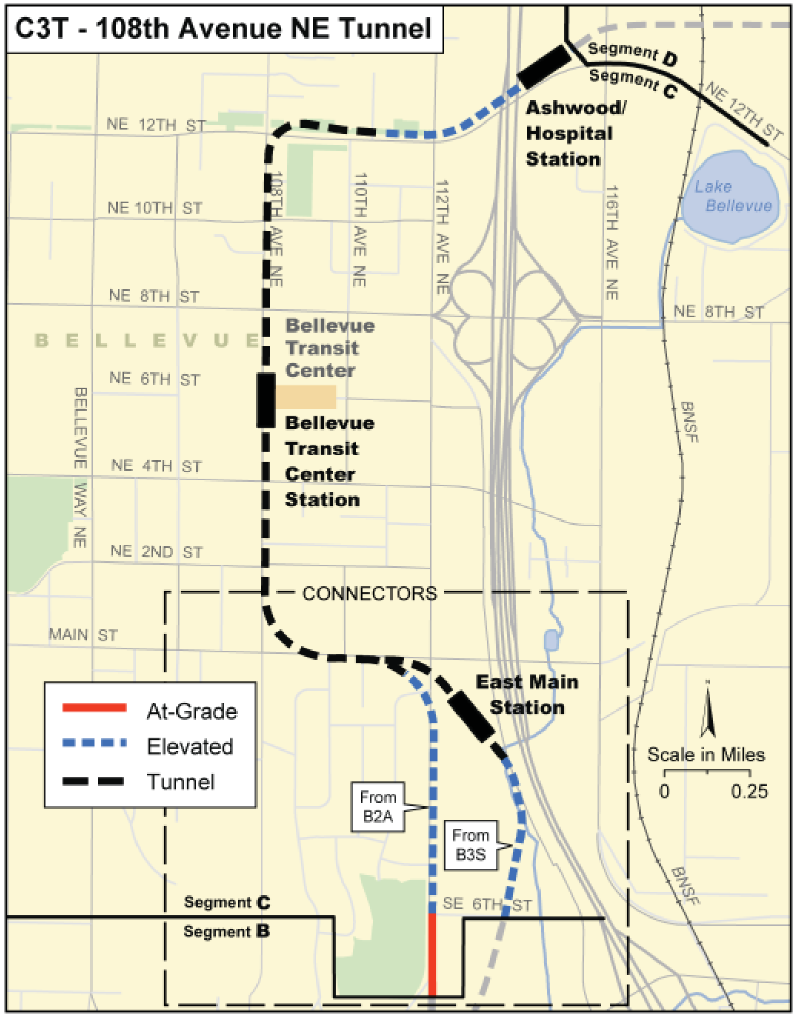
C4A: At-Grade Couplet
(Sound Transit Preferred Alternative, May 2009)

With the At-Grade Couplet Alternative (C4A), light rail would travel between Main Street and NE 12th Street as an at-grade couplet running counter-flow to traffic on one-way roadways (northbound track on the east side of 110th Avenue NE and the southbound track on the west side of 108th Avenue NE). Vehicle traffic on these avenues would be converted to one-way in the opposite direction of light rail travel. Both tracks would combine on NE 12th Street to cross over 112th Avenue NE and I-405. South of downtown, C4A would connect from Segment B as an elevated structure and transition to at-grade on Main Street. The Bellevue Transit Center Station would be on 108th and 110th avenues NE south of NE 6th Street near the existing Bellevue Transit Center, and the Ashwood/ Hospital Station would be located east of I-405 on the north side of NE 12th Street.


C4A - Couplet
Segment D
Segment C
Ashwood/ Hospital Station
NE 12TH ST
Lake Bellevue
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 8TH ST
BELLEVUE
108TH AVE NE
110TH AVE NE
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
BELLEVUE WAY NE
BNSF
116TH AVE NE
112TH AVE NE
NE 2ND ST
MAIN ST
CONNECTORS
East Main Station
At-Grade
Elevated
Scale in Miles
0
0.25
From B2A
From B3S
SE 6TH ST
BNSF
Segment C
Segment B

C3T: 108th NE Tunnel (Tunnel for Future Consideration as Preferred, May 2009)

The 108th NE Tunnel Alternative (C3T) would travel under 108th Avenue NE in a tunnel until turning east at NE 12th Street and transitioning to an elevated guideway to cross over 112th Avenue NE and I-405. The Bellevue Transit Center Station would be located underground on 108th Avenue NE at NE 6th Street, immediately west of the existing Bellevue Transit Center. The Ashwood/Hospital Station would be located east of I-405 on the north side of NE 12th Street.


C3T - 108th Avenue NE Tunnel
Segment D
Segment C
NE 12TH ST
Ashwood/ Hospital Station
Lake Bellevue
NE 12TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 4TH ST
NE 2ND ST
MAIN ST
108TH AVE NE
110TH AVE NE
112TH AVE NE
116TH AVE NE
NE 8TH ST
BELLEVUE
BELLEVUE WAY NE
Bellevue Transit Center
Bellevue Transit Center Station
BNSF
CONNECTORS
East Main Station
At-Grade
Elevated
Tunnel
From B2A
From B3S
Scale in Miles
0
0.25
SE 6TH ST
Segment C
Segment B
BNSF

Evaluation of the Alternatives

To identify and compare differences among the new alternatives, Sound Transit and the City of Bellevue agreed to use criteria grouped into eight categories based generally on criteria used in the Draft EIS and on City policy.The criteria categories, criteria, and measures are shown in Table 1.

Criteria category	Criteria	Measure
Cost	Capital cost	Capital cost ($2007)
Land Use accessibility/ Walk distance	Land use within walking distance of stations	Percent of 2030 forecast downtown jobs and residents within 5-minute walk of an East Link station
		Percent of 2030 forecast downtown jobs and residents within 10-minute walk of an East Link station
Ridership	Estimated 2030 ridership and light rail travel time	System ridership
		Segment C ridership
		Segement C light rail travel time
Traffic operations	Downtown traffic congestion for vehicles	Average intersection delay
		Vehicle demand served into and out of downtown
		East-west and north-south vehicular travel time
Environmental impacts	Displacements	Number of displaced residences and businesses
	Noise and vibration	Qualitative assessment of potentially affected sensitive uses and extent of possible mitigation
	Parks	Acres of parks affected
	Ecosystems	Assessment of sensitive natural resources affected
Construction effects	Construction effects	Qualitative assessment of street-level effects during construction
		Qualitative assessment of duration of construction
Construction risk	Construction risk	Qualitative assessment of construction risks to schedule and budget
Consistency with City plans and policies	Consistency with policies related to downtown alignments	Qualitative assessment of consistency with City of Bellevue Comprehensive Plan, and adopted Council interest statements

Table 1. **Criteria Categories, Criteria, and Measures**

Summary of Evaluation of Segment C: Downtown Bellevue Alternatives

Table 2 summarizes the evaluation of each new Segment C alternative using the methods described in this report.

		New Segment C: Downtown Bellevue Alternatives			
Criteria	**Measure**	**C9T** 110th NE Tunnel	**C9A** 110th NE At-Grade	**C11A** 108th NE At-Grade	**C14E** 114th NE Elevated
Cost	Estimated cost in millions ($2007)	$990	$640	$680	$560[1]
	Difference between ST2 Plan budget ($705 M) and alternative cost	($285)	$65	$25	$145
2030 Ridership	Segment boardings	8,000	7,500	8,000	6,000[2]
	East Link ridership	51,000	48,500	49,000	48,500
Alternative characteristics	Light rail travel time (minutes)	6	9	9	4
	Segment C length (miles)	1.6	1.7	1.9	1.3
	Number of stations	3	3	3	2
2030 Downtown jobs within walking distance of a station (79,000 jobs)	Percent within 5-minute walk	44%	51%	76%	27%
	Percent within 10-minute walk	97%	96%	99%	79%
2030 Downtown residents within walking distance of a station (19,000 residents)	Percent within 5-minute walk	21%	28%	53%	7%
	Percent within 10-minute walk	66%	63%	92%	46%
Traffic operations	Southbound vehicle travel time (minutes)	6.5	8.0	7.4	6.5
	Northbound vehicle travel time (minutes)	5.8	6.5	5.6	5.8
	Eastbound vehicle travel time (minutes)	5.0	4.9	5.3	5.0
	Westbound vehicle travel time (minutes)	4.9	5.2	5.8	4.9
	Percent of vehicle demand into and out of downtown served	78%	78%	77%	78%
	Average downtown vehicle delay (seconds)	67	73	70	67
	Average vehicle delay at key affected intersections (seconds)	78	85	87	78
Environmental impacts	Displacements (residential/business)	1/17	1/18	1/34	0/22
	Extent of noise mitigation needed	Slightly Lower	Higher	Slightly Higher	Higher
	Extent of vibration mitigation needed	Average	Average	Higher	Slightly Lower
	Park impacts in acres	.16	.14	0	0
	Linear feet of impacts to Sturtevant Creek	650	650	650	650
Construction risk	Relative risk to schedule and budget	Higher	Moderate	Moderate	Lower
Construction effects	Relative street level effects	Higher	Moderate	Moderate	Lower
	Construction duration	Longest	Intermediate	Intermediate	Shortest

Table 2. **Summary of Segment C: Downtown Bellevue Alternatives Evaluation**

Notes:

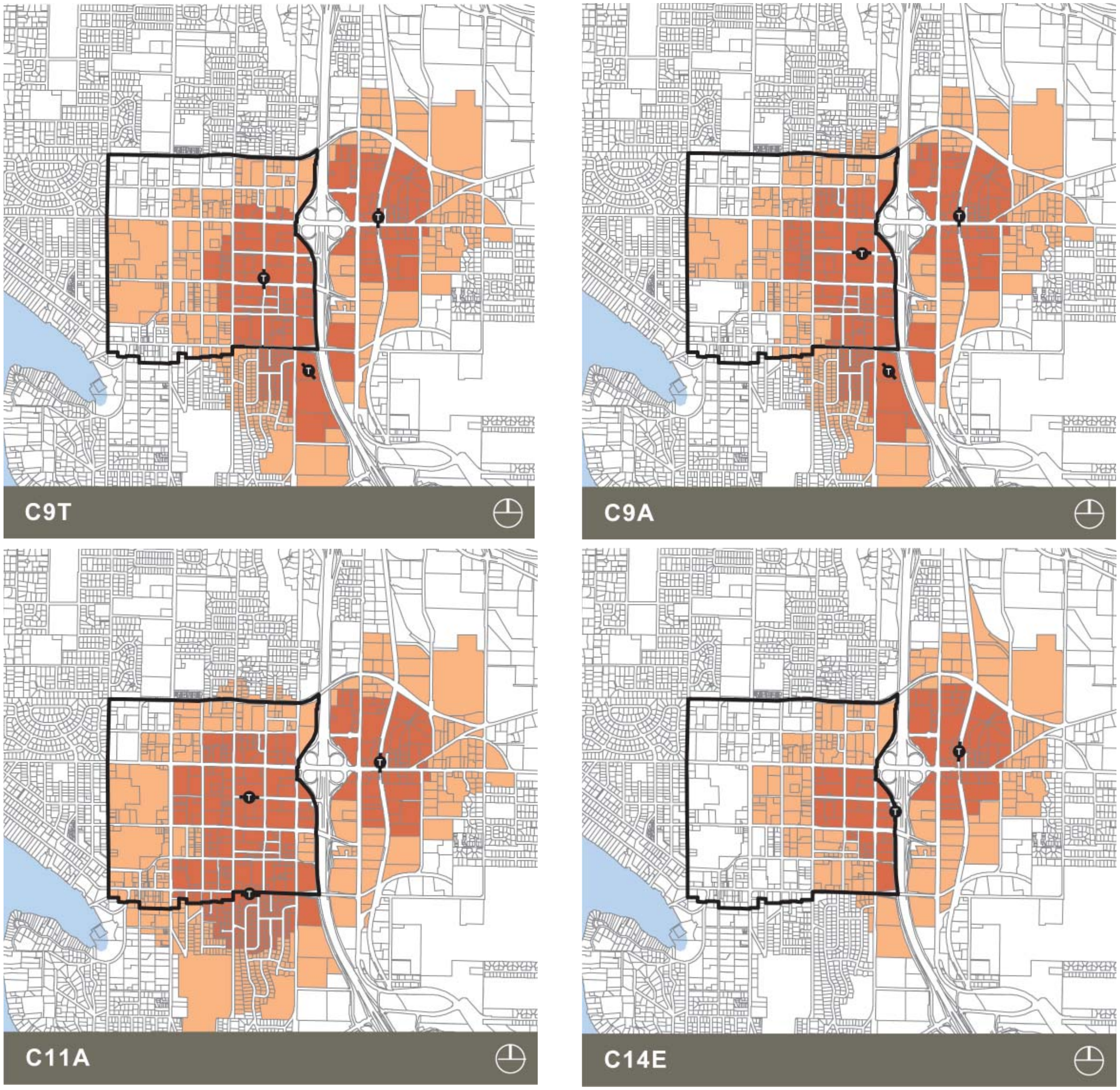
[1] The cost estimate for C14E does not include the addition of a circulator bus and park-and-ride lot. The addition of these amenities would add $70 million to project cost.

[2] The addition of the circulator bus or circulator bus and park-and-ride lot at Metro site does not appreciably change segment ridership.

Total East Link Project is expected to cost approximately $2.7 billion.

Land Use Accessibility

Walk Distance to East Link Stations


C9T
C9A
C11A
C14E
T

● light rail station
🟥 5 minute walk
🟧 10 minute walk
— downtown subarea boundary

City of Bellevue Policy Consistency Review

The purpose of the East Link project is to fulfill adopted regional policies such as the Puget Sound Regional Council's VISION 2040 and Destination 2030 plans by providing high capacity transit connections among the region's major population and employment centers. Seattle and Bellevue are designated "metropolitan cities" within King County in VISION 2040; therefore East Link is a critical component to realizing the land use and transportation visions for the region and the City of Bellevue, particularly downtown. The East Link Project is generally consistent with Bellevue's land use and transportation vision as described in the City's Comprehensive Plan. At a more detailed policy level, each of the new Segment C alternatives is more consistent or less consistent with individual policies, but these do not constitute a "fatal flaw" for any of the alternatives.

This review is intended to provide context for the policy related evaluation criteria discussed in this report. The focus was on policies that directly relate to discussions about the downtown alignment alternatives. Policies were compiled from the City's Comprehensive Plan (including adopted light rail best practices policies) and the Council's "Future High Capacity Transit Interest Statement" (adopted 6-20-2005). Policy TR-75.8 served as the general policy screen as it was the light rail best practices policy that was specifically intended to address the downtown alignment and it directly relates to the evaluation criteria in the report: serving downtown; pedestrian environment, urban design and safety; residential and commercial impacts; and transportation system functionality.

A summary of policy consistency is provided in Table 3.

Policy-Related Evaluation Criteria	**Downtown Alignment Policy Screen** – *TR-75.8: Advocate for an alignment for downtown Bellevue that advances the adopted land use vision for an urban downtown by (see items 1 – 5 below):*		C9T (110th Tunnel)	C9A (110th At-Grade)	C11A (108th At-Grade)	C14E (114th Elevated)
2030 station boardings and East Link ridership	**Serving Downtown**	1) Optimizing ridership, system performance, and user convenience; 2) Locating stations in proximity (i.e. within a 10-min walk) to existing and planned employment and residential concentrations in the downtown subarea. **Related policies:** • Locate major office and high intensity growth in the Downtown core (S-DT-4, S-DT-8) • Accommodate Bellevue's share of regional growth (LU-3) • Advocate for transportation options that are consistent with local plans (TR-75.7) • Connect downtown Bellevue with other major regional centers (TR-75.6, ETP-31, Council Interest Statement 6-20-2005)	• 8,000 boardings and 51,000 riders	• 7,500 boardings and 48,500 riders	• 8,000 boardings and 49,000 riders	• 6,000 boardings and 48,500 riders
2030 Downtown Residential and Jobs within 5- & 10-min. walking distance of a station			• 44% of jobs and 21% of residents within 5-min. walk • 97% of jobs and 66% of residents within 10-min. walk	• 51% of jobs and 28% of residents within 5-min. walk • 96% of jobs and 63% of residents within 10-min. walk	• 76% of jobs and 53% of residents within 5-min. walk • 99% of jobs and 92% of residents within 10-min. walk	• 27% of jobs and 7% of residents within 5-min. walk • 79% of jobs and 46% of residents within 10-min. walk
Segment C stations			• 3 stations in Segment	• 3 stations in Segment	• 3 stations in Segment	• 2 stations in Segment
Please refer to the visuals for each alternative in the body of the report	**Pedestrian Environment Urban Design & Safety**	3) Address aesthetic concerns and promote superior urban design integration, within established urban context. **Related policies:** • Develop an aesthetically attractive Downtown (S-DT-3) • Ensure access to sunlight in public places (UD-32) • Promote context sensitive design to mitigate impacts and incorporate light rail into streetscape (TR-75.14) • Retain and enhance views of Downtown (S-WI-40) • Visibility of station platform from streets (Tr-75.23)	• Underground station is weather protected • Platform is not visible from street • Elevated structure at both ends of Segment	• At-grade station with canopies provides some weather protection • West end of platform is visible from street, integrated into streetscape • East end of platform is not visible from street • Elevated structure at both ends of Segment	• At-grade station with canopies provides some weather protection • Platform is visible from street and integrated with • Elevated structure at both ends of Segment bus operations at BTC, integrated into streetscape	• Covered station is weather protected • Moving sidewalk is pedestrian connection to plaza • Platform is not visible from street • Elevated structure throughout Segment

Table 3. **City of Bellevue Policy Consistency Summary**

Policy-Related Evaluation Criteria	**Downtown Alignment Policy Screen** – *TR-75.8: Advocate for an alignment for downtown Bellevue that advances the adopted land use vision for an urban downtown by (see items 1 – 5 below):*		C9T (110th Tunnel)	C9A (110th At-Grade)	C11A (108th At-Grade)	C14E (114th Elevated)
Construction effects **Environmental Impacts:** **Displacements; Noise mitigation needed; Vibration mitigation needed; Park impacts; Sturtevant Creek impacts**	**Residential & Commercial Impacts**	4) minimize impacts on businesses and residents during construction. **Related policies:** • Protect residential and commercial areas by minimizing environmental, traffic and noise impacts (TR-75.17) • Minimize impacts of transportation system on environment and quality of life (Transportation Goal) • HCT should maximize amenities while being sensitive to neighborhood and quality of life (Council Interest Statement 6-20-2005) *NOTE: Noise and vibration are not described in the policy review as some noise and vibration impacts and commen-surate mitigation is assumed for each of the alternatives.	• Longer duration of street reconstruction • 1 residential, 17 commercial displacements • Tracks next to residential areas • Maintains existing access after construction	• Shorter duration of in-street construction • 1 residential, 18 commercial displacements • Tracks next to residential areas • Alters access along 110th after construction	• Shorter duration of in-street construction • 1 residential, 34 commercial displacements • Tracks next to residential areas • Alters access along Main and 108th after construction	• Shorter duration of street reconstruction • No residential, 22 commercial displacements • Avoids residential areas • Alters access along 114th after construction
Traffic operations and travel time	**Transportation System Functionality**	5) minimize overall impacts of light rail on operation of downtown street network. **Related policies:** • Provide reliable, high performance, attractive alternatives to SOV travel by providing service to city's major employment and residential areas, add capacity rather than replace existing (TR-75.5, Council Interest Statement 6-20-2005)	• Maintains existing travel lanes • Light rail system performance and reliability not vulnerable to street traffic issues/incidents	• Reduces travel lanes for 3 blocks on 110th, eliminates northbound left turns at 2nd and 4th • Light rail system performance and reliability vulnerable to street traffic issues/incidents	• Reduces travel lanes for 3 blocks on 108th, eliminates northbound left turns at 2nd and 4th • Light rail system performance and reliability vulnerable to street traffic issues/incidents	• Maintains existing travel lanes • Light rail system performance and reliability not vulnerable to street traffic issues/incidents

Table 3. **City of Bellevue Policy Consistency Summary** *(cont.)*

Summary of Methodology by Criteria Category

Capital Cost

Sound Transit calculated capital costs in 2007 dollars for the Draft EIS; these include estimates for construction, right-of-way, construction cost markups for general conditions, overhead, profit, and sales tax. Construction costs also include a design allowance and allocated contingency. Other costs include construction management, design (environmental review, preliminary engineering, final design, permitting), agency administration, construction contingency, and project reserve.

As with the estimates reported here, the cost estimates for the ST2 Plan adopted in 2008 include a 15% project reserve above the base project estimate. Subsequent declines in revenue due to the recession currently require that Sound Transit manage to the base project estimates. Sound Transit is seeking opportunities to reduce scope and budget to restore a project reserve within currently available revenues.

Once the Sound Transit Board identifies the Segment C preferred alternative, the team will complete preliminary engineering for that alternative, which will then be used to prepare a more detailed cost estimate. This information will be presented in the Final EIS and used to develop a financial plan for the project.

Table 4 presents a summary of the items included in the cost estimates by alternative. The following subsections describe the elements included in the cost estimate for each alternative.

		Alternative C9T 110th NE Tunnel	**Alternative C9A** 110th NE At-Grade	**Alternative C11A** 108th NE At-Grade	**Alternative C14E** 114th NE Elevated
Stations	Number (Segment C)	3	3	3	2
	East Main (108th for C11A)	Elevated, side platform	Elevated, side platform	At-grade, side platform	Not included
	Bellevue Transit Center (BTC)	Underground, center platform	Elevated, center platform	At-grade, side platform	Elevated, center platform
	Hospital	Elevated, center platform	Elevated, center platform	Elevated, center platform	Elevated, center platform
Substantial street reconstruction		110th Avenue NE, NE 6th Street	110th Avenue NE, 4th Street, 6th Street	108th Avenue NE, 6th Street	Portions of 114th Avenue NE, widening of NE 6th Street
Other items		Temporary decking on 110th Avenue NE to maintain access		Reconstruction of BTC bus facilities	Flyer stop on new NE 6th Street structure Moving walkway from City Hall to BTC station Pedestrian connection from Meydenbauer Center to BTC station

Table 4. **Summary of Items Included in Cost Estimates by Alternative**

C9T: 110th NE Tunnel

The cost estimate for C9T includes three stations: elevated East Main Station with side platforms, underground Bellevue Transit Center Station with a center platform, and elevated Hospital Station with a center platform. It also includes reconstruction of 110th Avenue NE for the tunnel, due to cut-and-cover construction, and NE 6th Street to accommodate transitions between elevated and tunnel profiles.

C9A: 110th NE At-Grade

The cost estimate for C9A includes three stations: elevated East Main Station with side platforms, elevated Bellevue Transit Center Station with a center platform, and an elevated Hospital Station with a center platform. It also includes reconstruction and modification of 110th Avenue NE to accommodate at-grade light rail, NE 4th Street to accommodate tracks through the 4th Street/110th Avenue NE intersection, and of NE 6th Street to accommodate transitions between at-grade and elevated profiles.

C11A: 108th NE At-Grade

The cost estimate for C11A includes three stations: at-grade 108th Station with side platforms, at-grade Bellevue Transit Center Station with side platforms, and an elevated Hospital Station with a center platform. It also includes reconstruction and modification of 108th Avenue NE to accommodate at-grade light rail and of NE 6th Street to accommodate transitions between at-grade and elevated profiles, and reconstruction of the existing Bellevue Transit Center to integrate with the light rail station.

C14E: 114th NE Elevated

The cost estimate for C14E includes two stations: elevated Bellevue Transit Center Station with a center platform and an elevated Hospital Station with a center platform. This option does not include an East Main Station. The cost estimate also includes a moving walkway with weather protection from City Hall Plaza to the Bellevue Transit Center Station and a pedestrian bridge from the Meydenbauer Center to the walkway. It also includes widening of NE 6th Street adjacent to the Bellevue Transit Center Station; this widening will be designed to include a bus flyer stop, travel lanes, and a multi-use path on the south side of the street to accommodate the City’s future plans to extend NE 6th Street across I-405.

Costs for two additional amenities to serve the Bellevue Transit Center Station are called out separately in the estimate for this alternative. The first amenity would be a circulator bus that loops through downtown to the BTC station. The second would be an underground parking structure that would be implemented as part of a larger development project with a plaza and other features on the Metro site; one floor (200 spaces) is assumed to be used as park-and-ride. Only that one floor is included as a potential cost add-on for C14E.

Ridership

Sound Transit developed 2030 ridership projections for each alternative. These projections reflect the most recent Puget Sound Regional Council (PSRC) 2030 land use projections which include the City of Bellevue's Bel-Red and Redmond's Overlake plans that were not reflected in the Draft EIS. The regional transit network is based on the system approved by voters in 2008. The ridership category also includes a comparison of Segment C light rail travel times.

Land Use Accessibility/Walk Distance

The City of Bellevue performed a walk distance analysis to better understand the differences in pedestrian capture areas associated with new Segment C station locations. This analysis was conducted by assessing the percent of 2030 downtown employment and residential population within a 5-minute and 10-minute walk distance of each station. Using an average walk speed of 3 miles per hour, the 5-minute walk represents the higher-capture, 1/4-mile distance for transit users. The 10-minute walk represents the 1/2-mile distance as identified in the Bellevue Light Rail Best Practices Report and reflected in the City's Comprehensive Plan.

The City converted the 5-minute and 10-minute walk times to more precise distances than a standard 1/4-mile and 1/2-mile measure based on two main factors: (1) the need for vertical circulation at some stations and (2) the presence of moving sidewalks in Alternative C14E (see page 53 for a desciption of this alternative). Stations requiring vertical circulation were assigned a walk time "penalty" for the rider to reach the sidewalk. C14E was assigned a "bonus" of reduced walk time due to the inclusion of a moving sidewalk.

Traffic Operations

This traffic analysis provides information that allows the stakeholders to compare the downtown alternatives with regard to their effects on the downtown Bellevue transportation system.

In undertaking the traffic operations analysis, the City of Bellevue used the Bellevue-Kirkland-Redmond (BKR) travel demand model (rather than the PSRC travel demand model, which was used for the Draft EIS) to produce vehicle travel demand forecasts. Forecasts for each alternative were based on the same set of land use and transportation network assumptions; with some variability in the local street network to reflect the configuration of the two at-grade alternatives. For purposes of the traffic analysis, the same overall network assumptions are assumed to be consistent for C9T and C14E, since these are both grade-separated alternatives; therefore, the data reported for each of these alternatives are the same. The analysis did not take into account a park-and-ride garage for C14E. It should also be noted that, to be consistent with the Draft EIS, some roadway assumptions are different than previous City planning and analysis efforts.

Using these forecasts, the City, Sound Transit and consultant staff collaboratively prepared a traffic operations analysis and simulation of the downtown transportation system. For the City, all previous Downtown traffic analysis (as part of the Downtown Plan) was completed for a 2020 time horizon. To be consistent with the EIS the time horizon for this analysis is 2030. Lastly, the analysis focuses on the PM peak hour conditions. This generally is the most congested time of the day in downtown Bellevue. The greatest changes in vehicle congestion between now and 2030 are due to growth in downtown Bellevue.

Data was produced for both the downtown transportation system as a whole and for specific intersections. For this report, the following system-wide or composite measures are reported for the 2030 PM peak hour:

- Vehicle Travel Times: Travel times are calculated between two points along key north-south and east-west roads. The four measures below describe the values presented in this report:
    - Southbound and Northbound Vehicle Travel Times: These measures report the average travel times for a composite of key north-south Downtown arterials between Bellevue Way and 112th Avenue NE (from Main Street to NE 12th Street
    - Eastbound and Westbound Vehicle Travel Times: These measures report the average travel times for a composite of key east-west Downtown arterials between Main Street and NE 12th Street (from Bellevue Way to 112th Avenue NE).
- Percent of Vehicle Demand Served Into and Out of Downtown Bellevue: This measures the percentage of vehicles able to

enter or exit Downtown as compared to total expected number of trips based on the 2030 land use forecast. It was measured at key arterials encompassing the core of Downtown Bellevue (Main Street, 112th Avenue NE, NE 12th Street, Bellevue Way).

- Average Vehicle Delay at Intersections: Intersection delay measures the amount of time a vehicle is expected to wait at an intersection. This measure is provided for two areas; the larger downtown transportation system bounded by Bellevue Way, 112th Avenue NE, Main Street and NE 12th Street (Downtown); and a more focused study area surrounding the light rail alternatives in southeast downtown, which is an area bounded by 106th Avenue NE, Main Street, 112th Avenue NE, and NE 8th Street. Individual vehicle intersection delays are weighted by the number of vehicles served at each intersection to provide a composite average delay experienced in each of the two values reported.

Environmental Impacts

Sound Transit used a subset of the environmental impacts analyzed in the Draft EIS to provide a comparison of key environmental factors likely to differentiate among the alternatives or otherwise be critical to community decision-making.

Displacements

Sound Transit counted displacements based on properties identified by project civil engineers as requiring demolition of buildings. The number of businesses affected was determined based on property site visits during 2007 for the Draft EIS.

Noise and Vibration

Sound Transit identified potential noise impacts by determining the total number of sensitive noise receptors potentially affected by light rail noise, according to a screening level noise model. The relative extent of sensitive receptors with the new alternatives was qualitatively compared to the average number of potentially affected sensitive receptors. Sensitive noise receptors generally include places where people typically sleep—homes and hotels in the study area.

Sound Transit identified potential vibration impacts by making a qualitative assessment of the number of sensitive receptors located near the light rail tracks for each alternative as compared to the average number of potentially affected receptors reported for all alternatives. Sensitive receptors include the Meydenbauer Center and nearby hospitals, residences, and hotels. The analysis used a screening-level approach based on distance from the track; it is assumed that surface and tunnel profiles cause vibration impacts at a greater distance than elevated profiles.

Ecosystems

Sound Transit calculated ecosystem impacts by overlaying conceptual designs of the alternatives over maps representing ecosystem resources and data collected during preparation of the Draft EIS. Sturtevant Creek could be affected between Main Street and SE 6th Street and under the Hospital Station at NE 8th Street. These impacts are reported in the analysis of the connectors between the Segment C alternatives and Segment B.

Parks

Sound Transit calculated park impacts by overlaying conceptual designs of the alternatives over park maps from the City of Bellevue.

Construction Effects and Risks

Construction Risks

Sound Transit developed a qualitative assessment of the construction risks for each alternative by assessing the schedule and budget risks for different types of construction (at-grade, retained cut and fill, elevated, cut-and-cover tunnel) for each construction stage and then by assessing the proportion of each route that would be constructed with each method. Construction risks are generally defined as items that could result in extra expense or a schedule delay. Generally, at-grade and elevated construction carries the lowest risk and retained cut and fill and cut-and-cover tunnel construction carries a higher risk.

Construction Duration

Sound Transit developed a construction schedule for each alternative based on construction type and typical production rates for each construction type. The reported qualitative comparison reflects a typical project. The actual construction schedule will be dependent on the contracting mechanism, the contractor’s methods, timing of the start of construction, and other factors that will not be known until final design.

Street-Level Construction Effects

Sound Transit developed a qualitative assessment of the disruption to businesses and street-level activity associated with each alternative. This measure is intended to highlight the differences between the most intense construction phases —the time that those who live, work, or do business in downtown Bellevue are most likely to be affected by construction activities— for each alternative. Generally, at-grade and elevated construction require major disruption for a shorter period in any specific area, and cut-and-cover tunnel or retained cut-and-fill construction requires major disruption for a longer period of time in any specific area. Three of the alternatives would have some impacts to the parking garage and public space at City Hall Plaza. Effects at City Hall Plaza are reported in the alternative evaluation section of this report.

This report reflects planning-level assumptions about construction methods, risks, and effects. Other construction methods will be evaluated by Sound Transit during the design process.

C9T: 110th NE Tunnel

Technical Analysis

Alternative C9T would cost about $990 million ($2007), the highest cost of any of the new alternatives. An estimated 8,000 riders would board the system within Segment C, and 44 percent of downtown Bellevue's forecast jobs would be within a 5-minute walk of an East Link station; 97 percent would be within a 10-minute walk, fewer than with C9A or C11A, but more than C14E. Light rail travel time is 6 minutes for the segment and includes the time for trains to stop at three stations.

This alternative would cause the most construction disruption because of the extended time required for underground guideway construction and restoration of the street. This alternative would have the greatest effect on City Hall Plaza. The parking garage would be modified and one plaza will be rebuilt

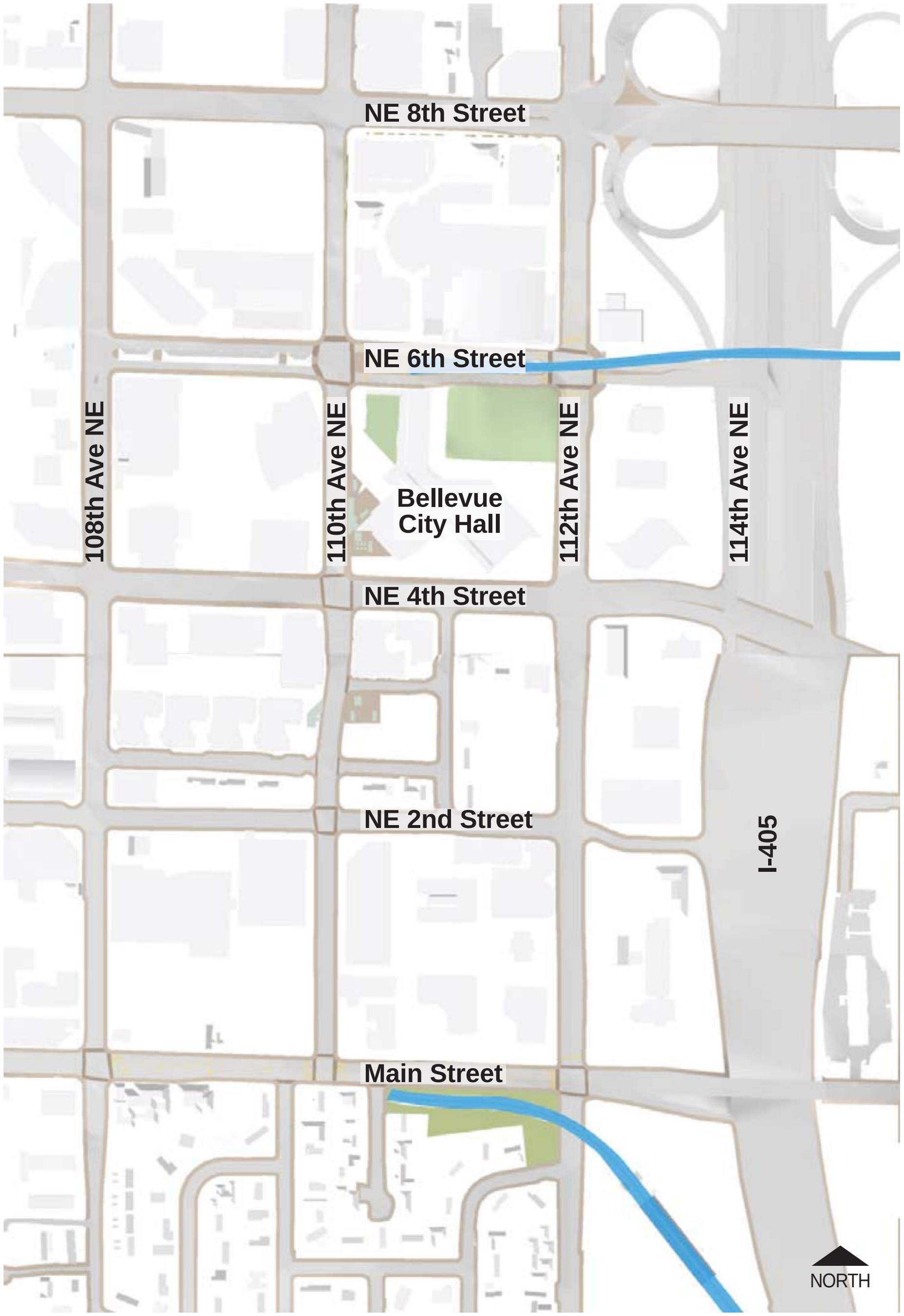
Alternative C9T would require potential mitigation for slightly fewer sensitive noise receptors than the average, and a similar number of vibration receptors; impacts to any of these receptors could likely be mitigated. This alternative would displace one home near the corner of Main Street and 112th Avenue SE and 17 businesses primarily on the south side of Main Street, and on 116th Avenue NE by the Hospital Station. It would have a small impact on the 110th Avenue Pocket Parks.

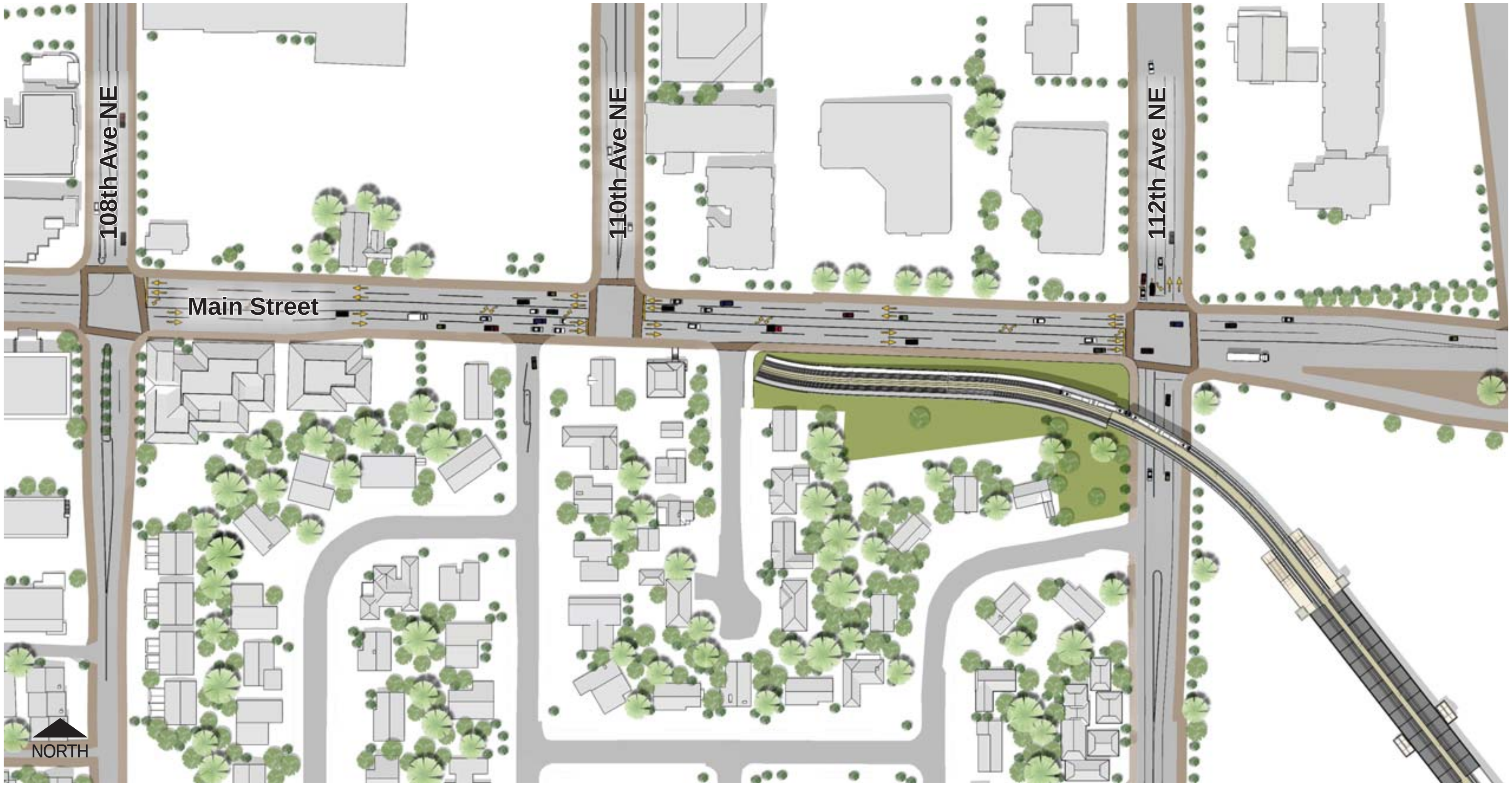
Alternative C9T is fully grade-separated, and along with C14E has the shortest southbound vehicle travel times, and similar or better northbound travel times compared to the at-grade alternatives. East-west travel time was generally similar among all alternatives as all alternatives had the same east-west signal operations. Alternative C9T, along with Alternative C14E, has less vehicle delay at intersections than the at-grade alternatives for the downtown as a whole. Within the smaller subarea, C9T, along with C14E, had approximately 10 percent less delay at intersections than the at-grade alternatives. Percent of vehicle demand served was comparable among all alternatives, reflecting expected overall congested conditions in downtown.

Evaluation Summary: C9T – 110th NE Tunnel

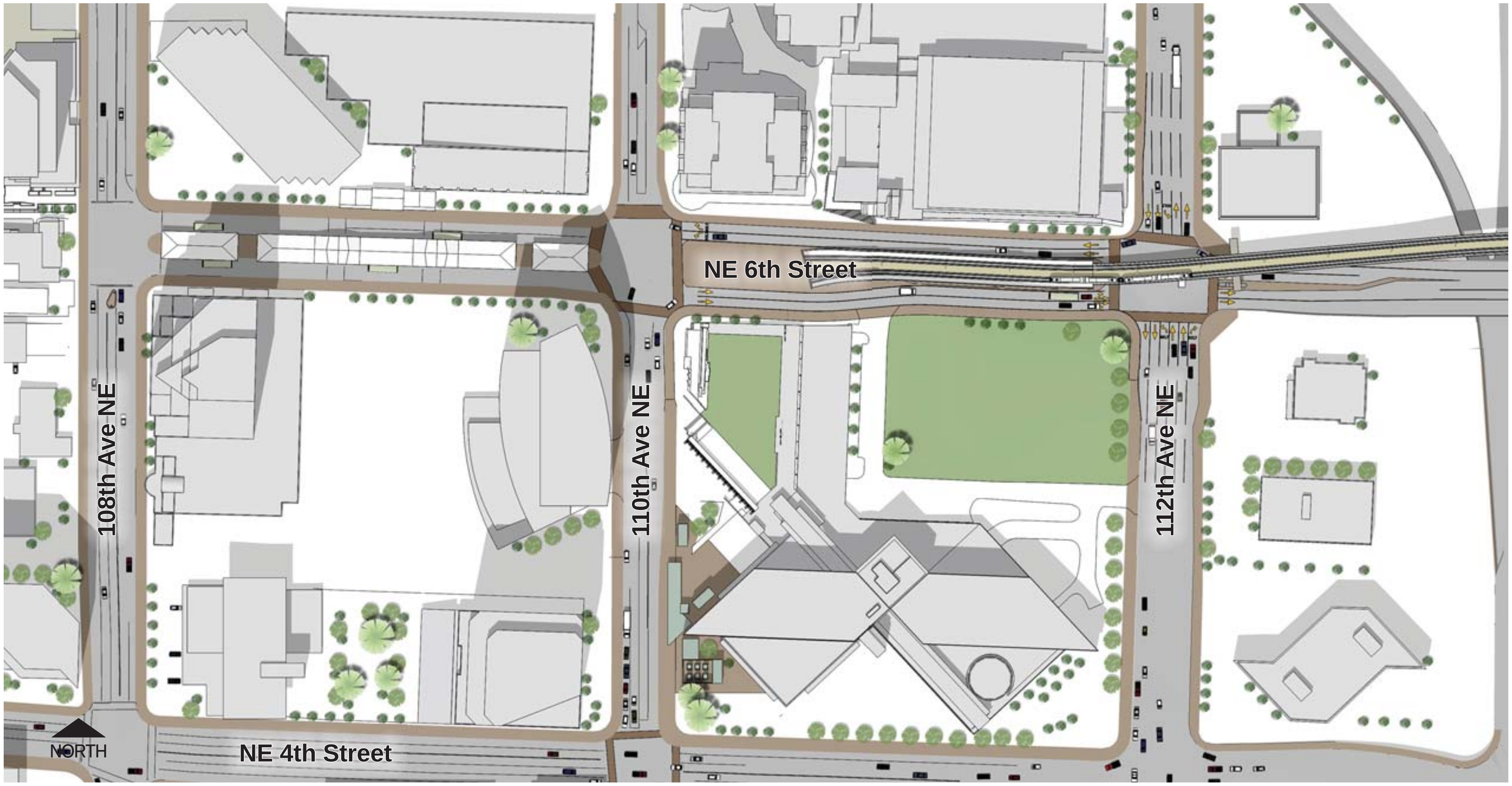
Criteria	Measure	C9T 110th NE Tunnel
Cost	Estimated cost in millions ($2007)	$990
	Difference between ST2 Plan budget ($705 M) and alternative cost	($285)
2030 Ridership	Segment boardings	8,000
	East Link ridership	51,000
Alternative characteristics	Light rail travel time (minutes)	6
	Segment C length (miles)	1.6
	Number of stations	3
2030 Downtown jobs within walking distance of a station (79,000 jobs)	Percent within 5-minute walk	44%
	Percent within 10-minute walk	97%
2030 Downtown residents within walking distance of a station (19,000 residents)	Percent within 5-minute walk	21%
	Percent within 10-minute walk	66%
Traffic operations	Southbound vehicle travel time (minutes)	6.5
	Northbound vehicle travel time (minutes)	5.8
	Eastbound vehicle travel time (minutes)	5.0
	Westbound vehicle travel time (minutes)	4.9
	Percent of vehicle demand into and out of downtown served	78%
	Average downtown vehicle delay (seconds)	67
	Average vehicle delay at key affected intersections (seconds)	78
Environmental impacts	Displacements (residential/business)	1/17
	Extent of noise mitigation needed	Slightly Lower
	Extent of vibration mitigation needed	Average
	Park impacts in acres	.16
	Linear feet of impacts to Sturtevant Creek	650
Construction risk	Relative risk to schedule and budget	Higher
Construction effects	Relative street level effects	Higher
	Construction duration	Longest

C9T: 110th NE Tunnel Alternative – Overall Plan


NE 8th Street
NE 6th Street
108th Ave NE
110th Ave NE
Bellevue City Hall
112th Ave NE
114th Ave NE
NE 4th Street
NE 2nd Street
I-405
Main Street
NORTH


108th Ave NE
110th Ave NE
112th Ave NE
Main Street
NORTH

C9T: 110th NE Tunnel Alternative – South Portal at Main Street


NE 6th Street
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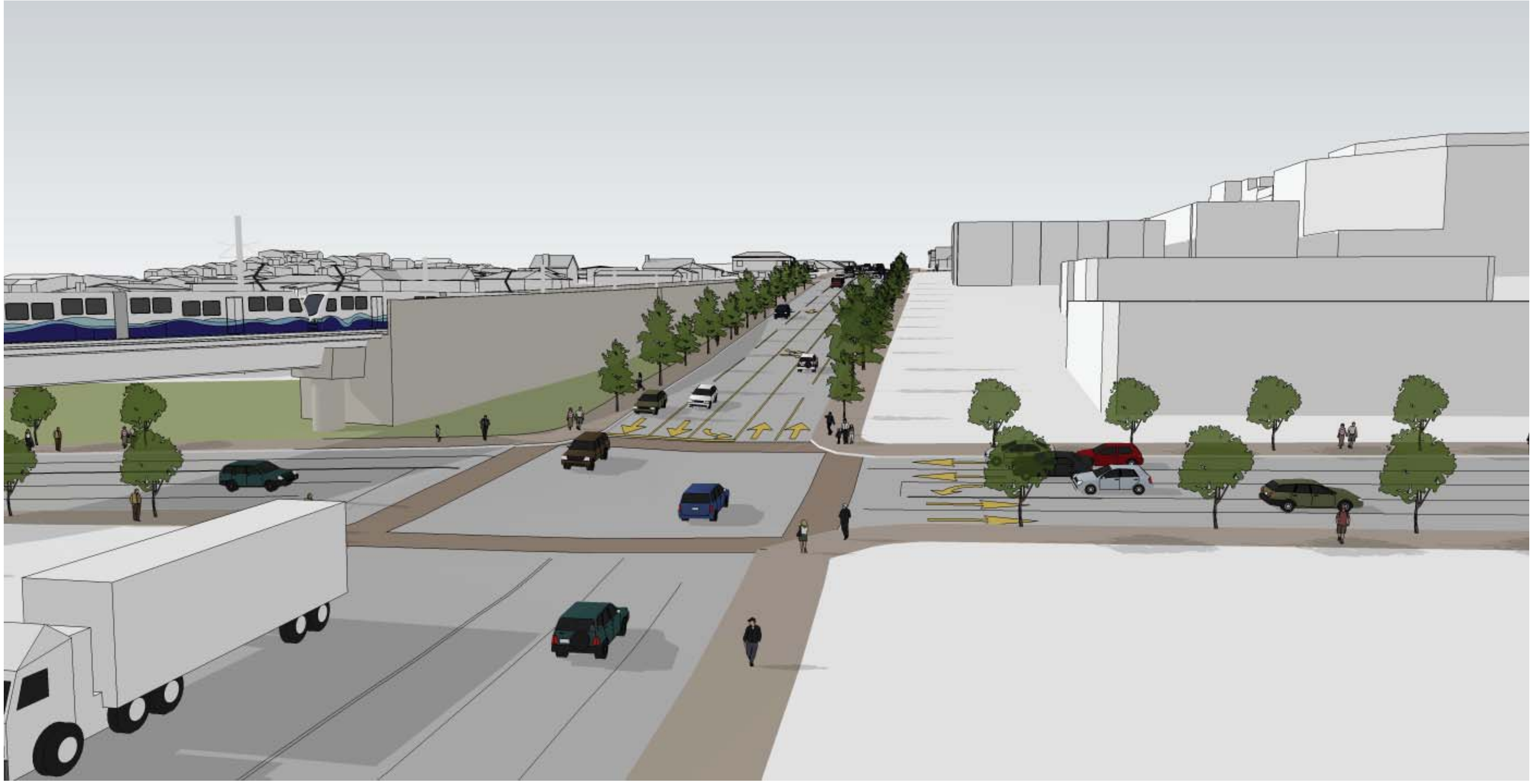
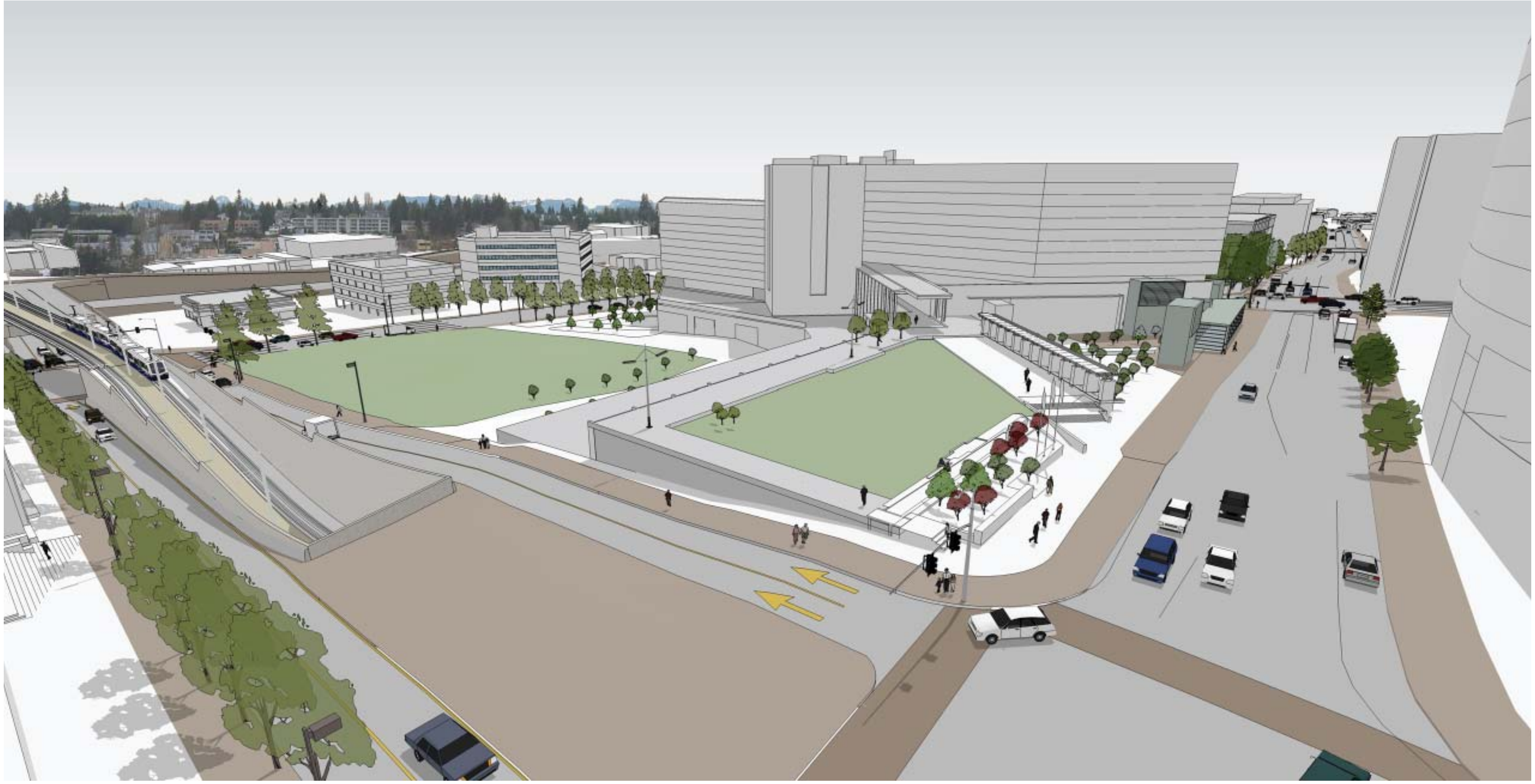
108th Ave NE
110th Ave NE
112th Ave NE
NORTH

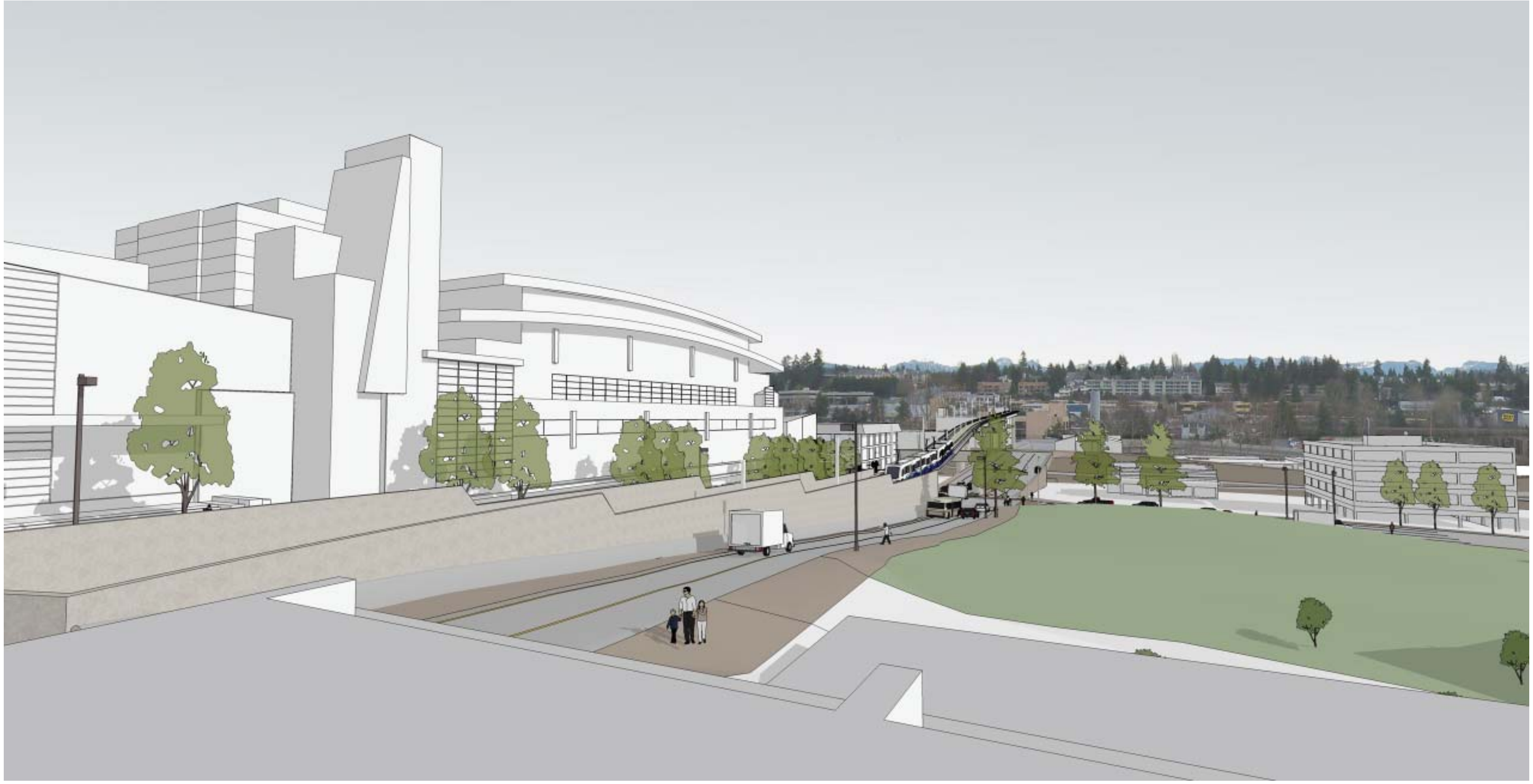
C9T: 110th NE Tunnel Alternative – North Portal at NE 6th Street



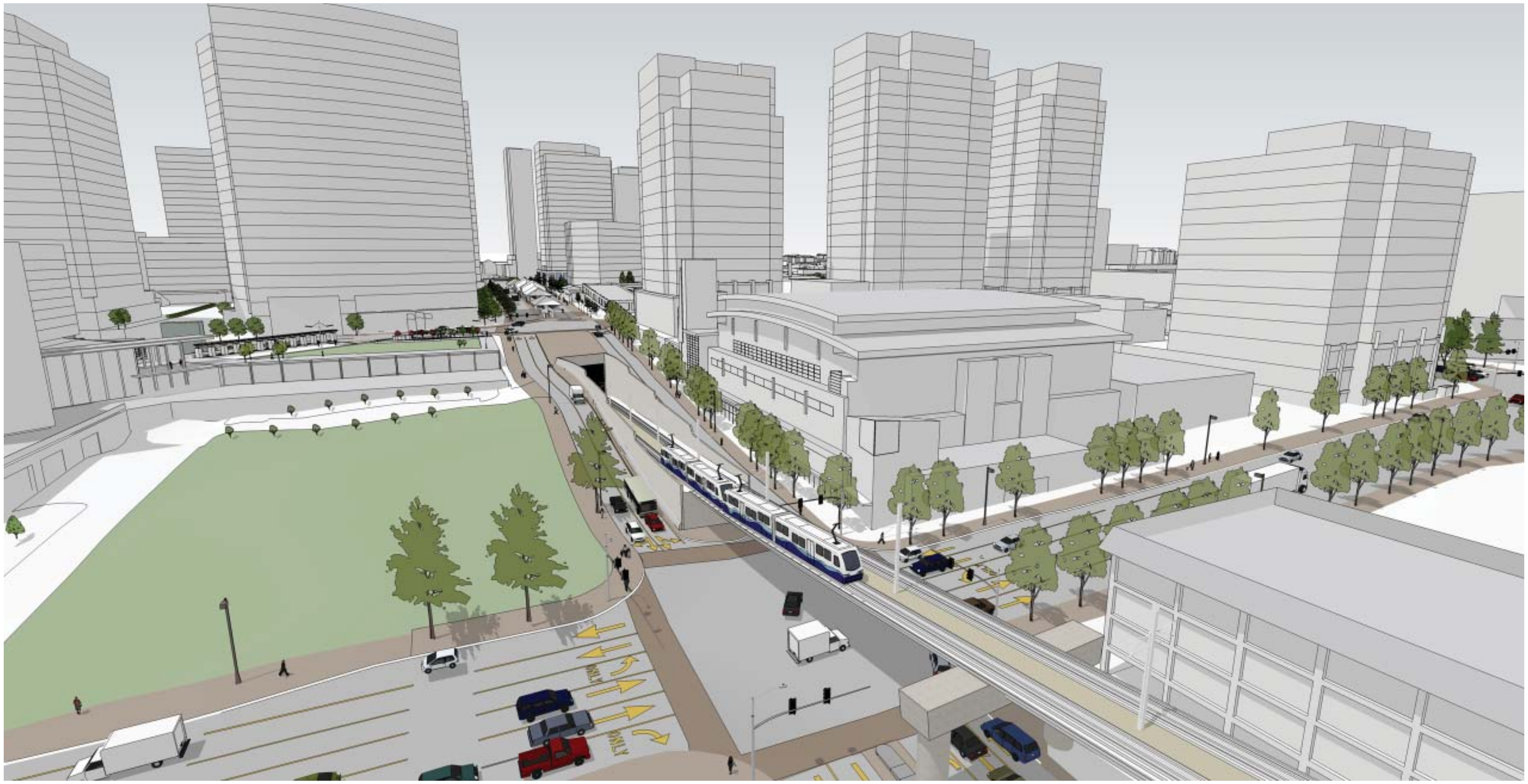
C9T: 110th NE Tunnel Alternative – South Portal at Main Street Looking West



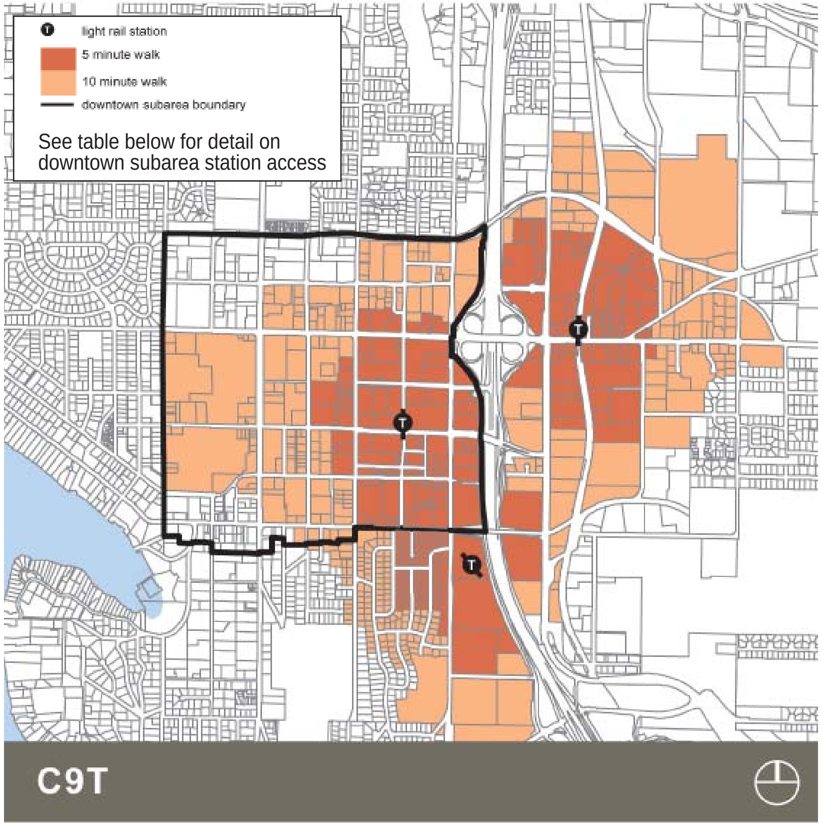
C9T: 110th NE Tunnel Alternative – North Portal on NE 6th Street Looking Southeast



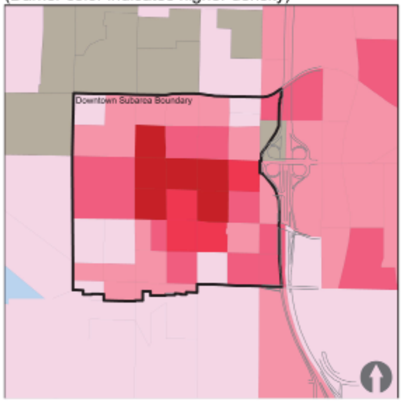
C9T: 110th NE Tunnel Alternative – North Portal at City Hall Plaza Looking Northeast



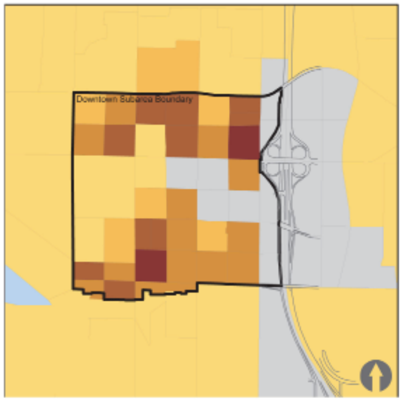
C9T: 110th NE Tunnel Alternative – North Portal at 112th Avenue NE Looking Northwest


light rail station
5 minute walk
10 minute walk
downtown subarea boundary
See table below for detail on downtown subarea station access
C9T

FORECAST LAND USE DENSITIES
(Darker color indicates higher density)


Downtown Subarea Boundary

Forecast 2030 Employment Density by TAZ (Jobs/Acre)


Downtown Subarea Boundary

Forecast 2030 Housing Density by TAZ (HHs/Acre)

	2030 Downtown Jobs		2030 Downtown Residents	
Downtown Subarea Forecast	79,000		19,000	
Walk Distance	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)
C9T Alternative				
Primary 110th Ave Tunnel Station				
Downtown Land Use within Walk Distance	**34,755**	75,908	**3,940**	12,345
Percent of 2030 Downtown Subarea Total	**44%**	97%	**21%**	66%
Station Composite (110th Ave Tunnel, East Main, Hospital Station)				
Downtown Land Use within Walk Distance	**34,755**	75,908	**3,940**	12,345
Percent of 2030 Downtown Subarea Total	**44%**	97%	**21%**	66%

C9A: 110th Avenue NE At-Grade Alternative – Downtown Land Use Accessibility

C9A: 110th NE At-Grade

Technical Analysis

Alternative C9A would cost about $640 million ($2007), less than C9T or C11A, but more than C14E. An estimated 7,500 riders would board the system within Segment C with Alternative C9A, fewer than with C9T or C11A. 51 percent of downtown Bellevue's forecast jobs would be within a 5-minute walk of a station; 96 percent would be within a 10-minute walk, more than with C9T or C14E, but fewer than C11A. Light rail travel time is 9 minutes for the segment and includes the time for trains to stop at three stations.

Alternative C9A would require potential mitigation for more sensitive noise receptors than average, and a similar number of vibration receptors; impacts to any of these receptors could likely be mitigated. This alternative would displace one residence near 112th Avenue SE and Main Street and 18 businesses primarily on the south side of Main Street and on 116th Avenue NE near the BNSF Railway right-of-way at the Hospital Station. It would have a small impact on 110th Avenue Pocket Parks.

This alternative would have some impacts on City Hall Plaza. The parking garage would be modified, but it would be open for use during construction. The plaza would be rebuilt along with the project.

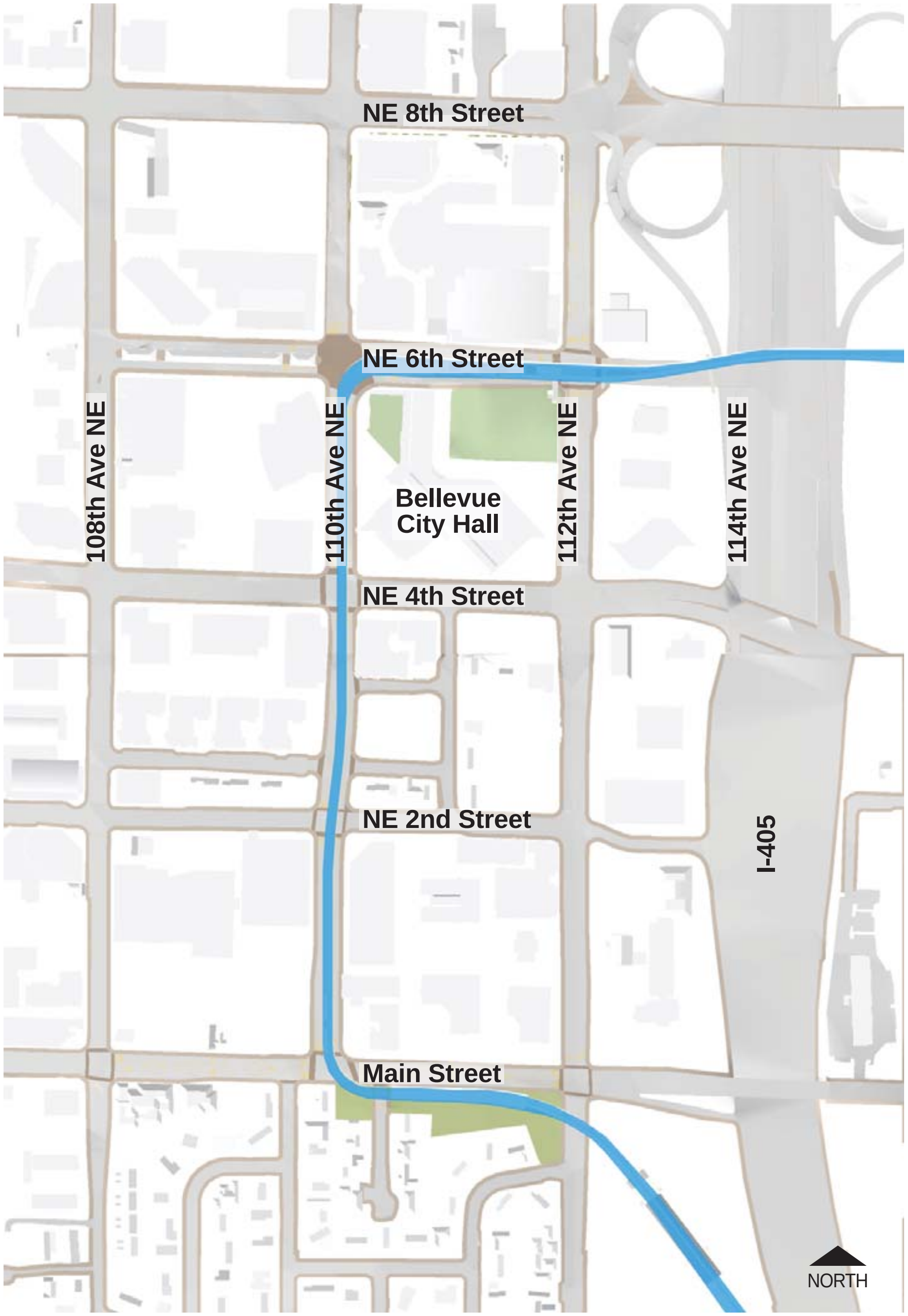
The transition structure along Main Street between 112th Avenue NE and 110th Avenue NE would be lower than with C11A because this alternative does not include the 108th Station. This is illustrated in the visual simulation “South Transition Structure at Main Street Looking West.”

Alternative C9A crosses 4 signalized intersections in an at-grade alignment along 110th Avenue NE between Main and NE 6th Street. C9A has greater northbound and southbound travel times than the other alternatives. East-west travel time was generally similar among all alternatives as all alternatives had the same east-west signal operations. Alternative C9A has higher vehicle delay at intersections than the other alternatives for the downtown as a whole. Within the smaller subarea, C9A has approximately 10% more delay at intersections than the grade-separated alternatives. Percent of vehicle demand served was comparable among all alternatives, reflecting expected overall congested conditions in downtown.

Evaluation Summary: C9A – 110th NE At-Grade

Criteria	Measure	C9A 110th NE At-Grade
Cost	Estimated cost in millions ($2007)	$640
	Difference between ST2 Plan budget ($705 M) and alternative cost	$65
2030 Ridership	Segment boardings	7,500
	East Link ridership	48,500
Alternative characteristics	Light rail travel time (minutes)	9
	Segment C length (miles)	1.7
	Number of stations	3
2030 Downtown jobs within walking distance of a station (79,000 jobs)	Percent within 5-minute walk	51%
	Percent within 10-minute walk	96%
2030 Downtown residents within walking distance of a station (19,000 residents)	Percent within 5-minute walk	28%
	Percent within 10-minute walk	63%
Traffic operations	Southbound vehicle travel time (minutes)	8.0
	Northbound vehicle travel time (minutes)	6.5
	Eastbound vehicle travel time (minutes)	4.9
	Westbound vehicle travel time (minutes)	5.2
	Percent of vehicle demand into and out of downtown served	78%
	Average downtown vehicle delay (seconds)	73
	Average vehicle delay at key affected intersections (seconds)	85
Environmental impacts	Displacements (residential/business)	1/18
	Extent of noise mitigation needed	Higher
	Extent of vibration mitigation needed	Average
	Park impacts in acres	.14
	Linear feet of impacts to Sturtevant Creek	650
Construction risk	Relative risk to schedule and budget	Moderate
Construction effects	Relative street level effects	Moderate
	Construction duration	Intermediate

C9A: 110th NE At-Grade Alternative – Overall Plan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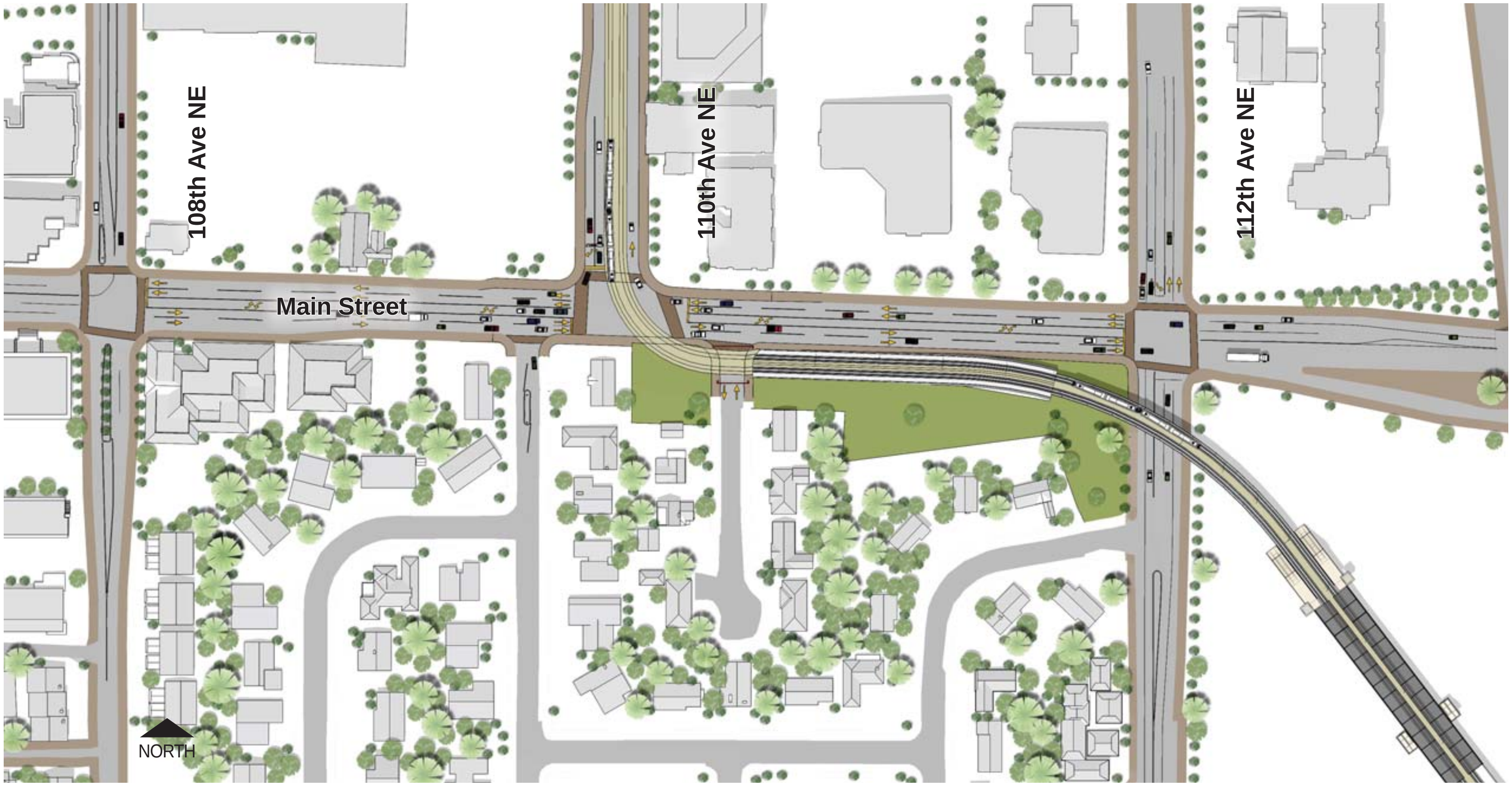
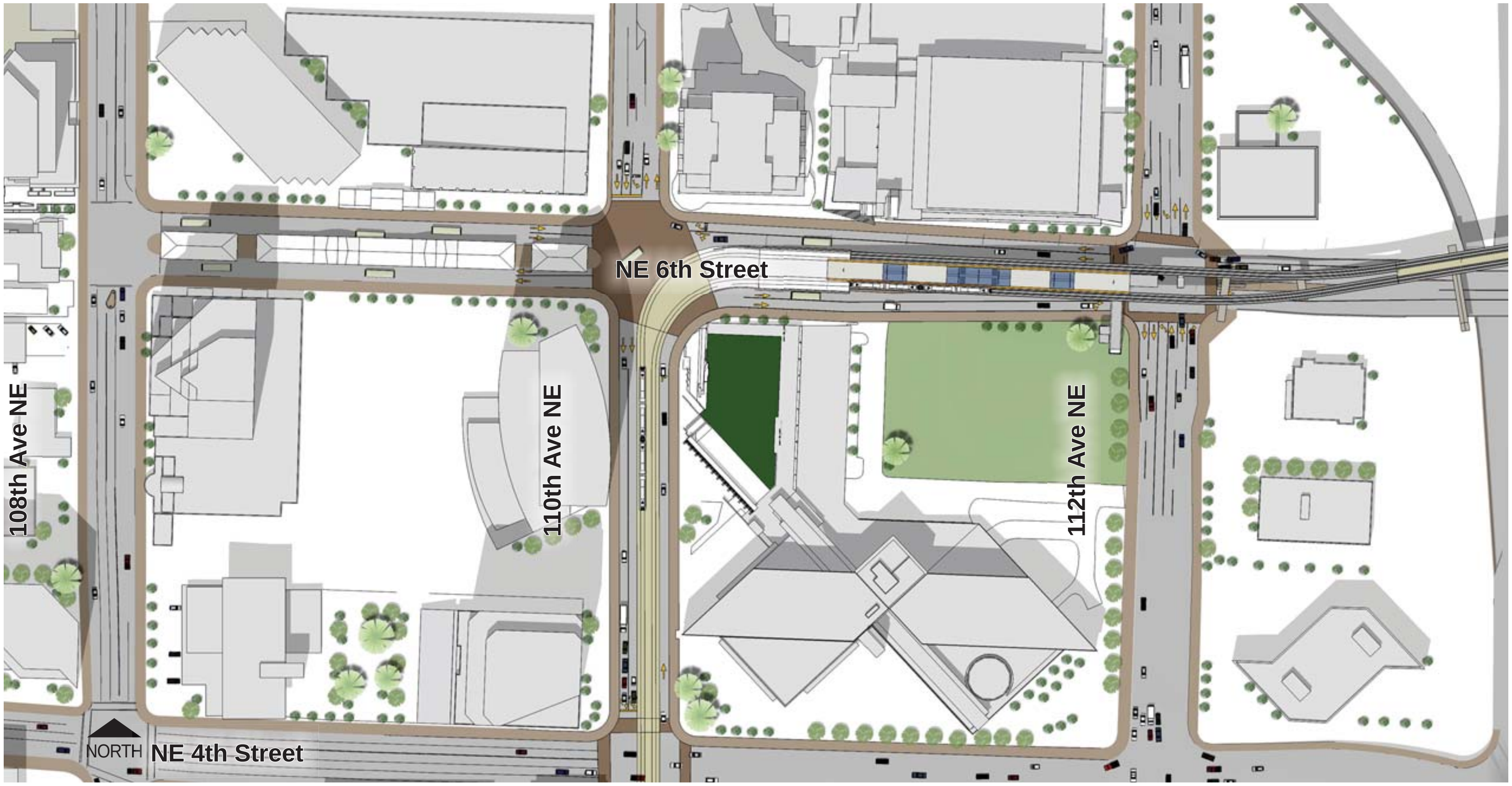
108th Ave NE
110th Ave NE
112th Ave NE
114th Ave NE
Bellevue City Hall
NE 4th Street
NE 2nd Street
I-405
Main Street
NORTH


108th Ave NE
110th Ave NE
112th Ave NE
Main Street
NORTH

C9A: 110th NE At-Grade Alternative – South Transition Structure at Main Street


NE 6th Street
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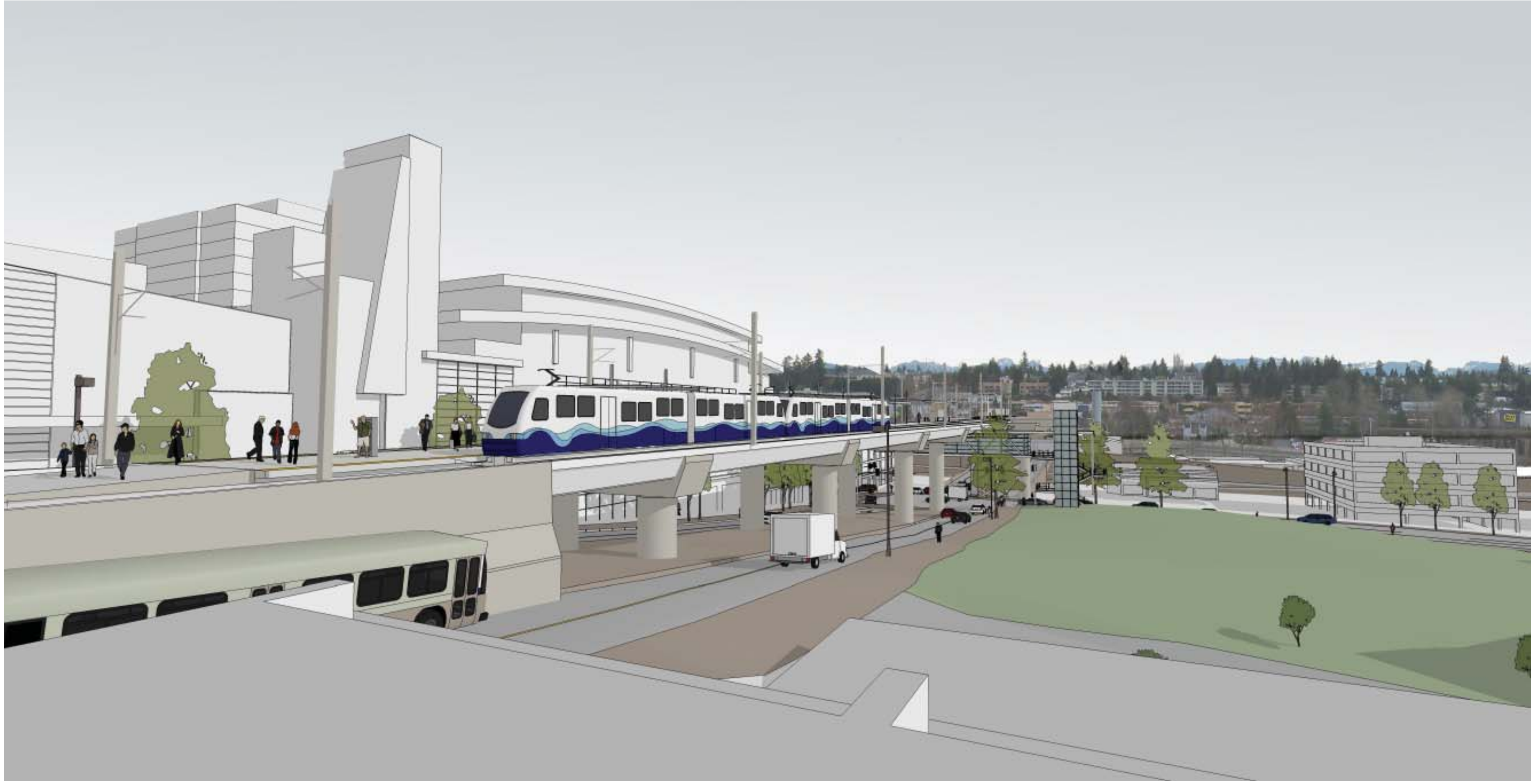
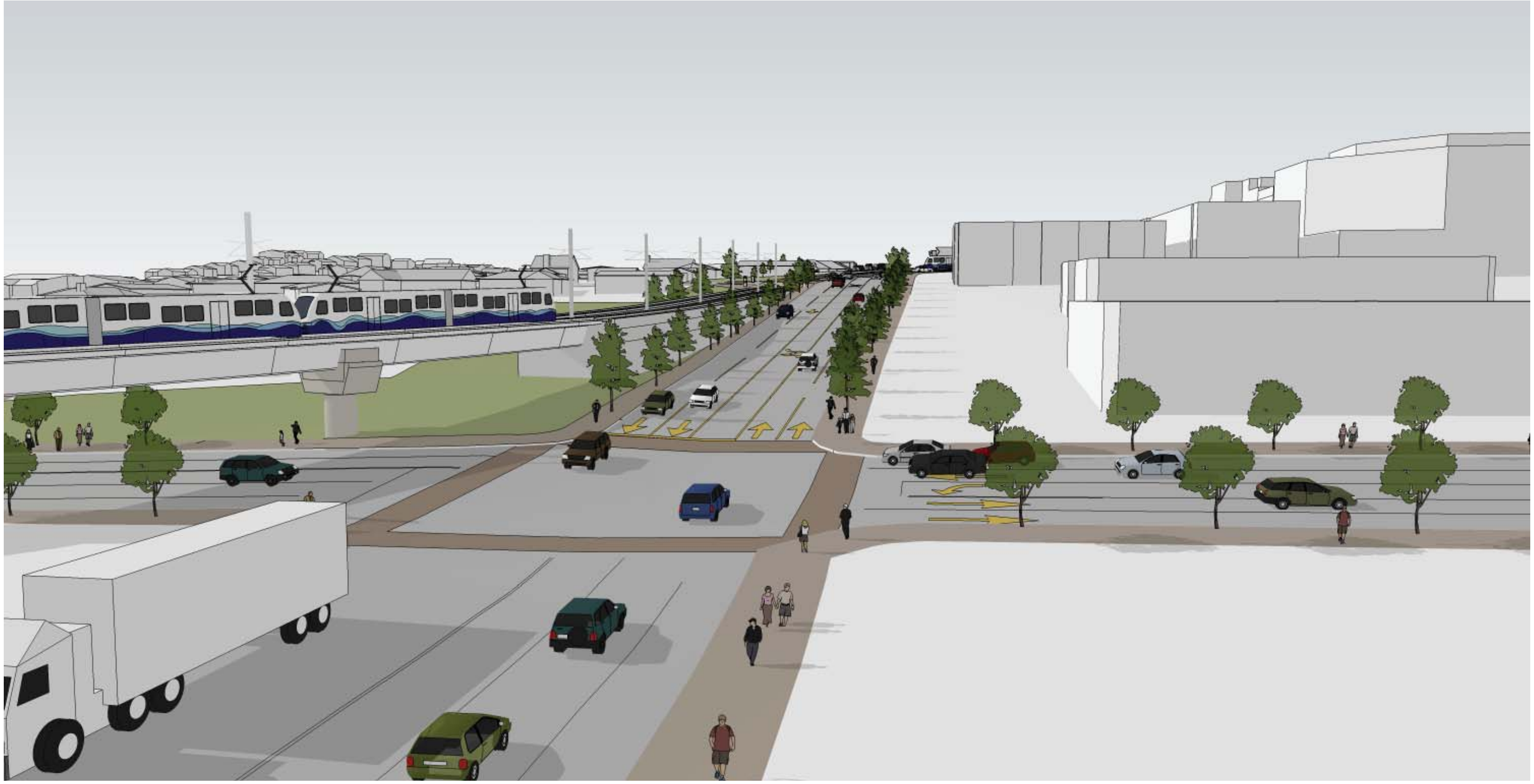
110th Ave NE
112th Ave NE
NORTH
NE 4th Street

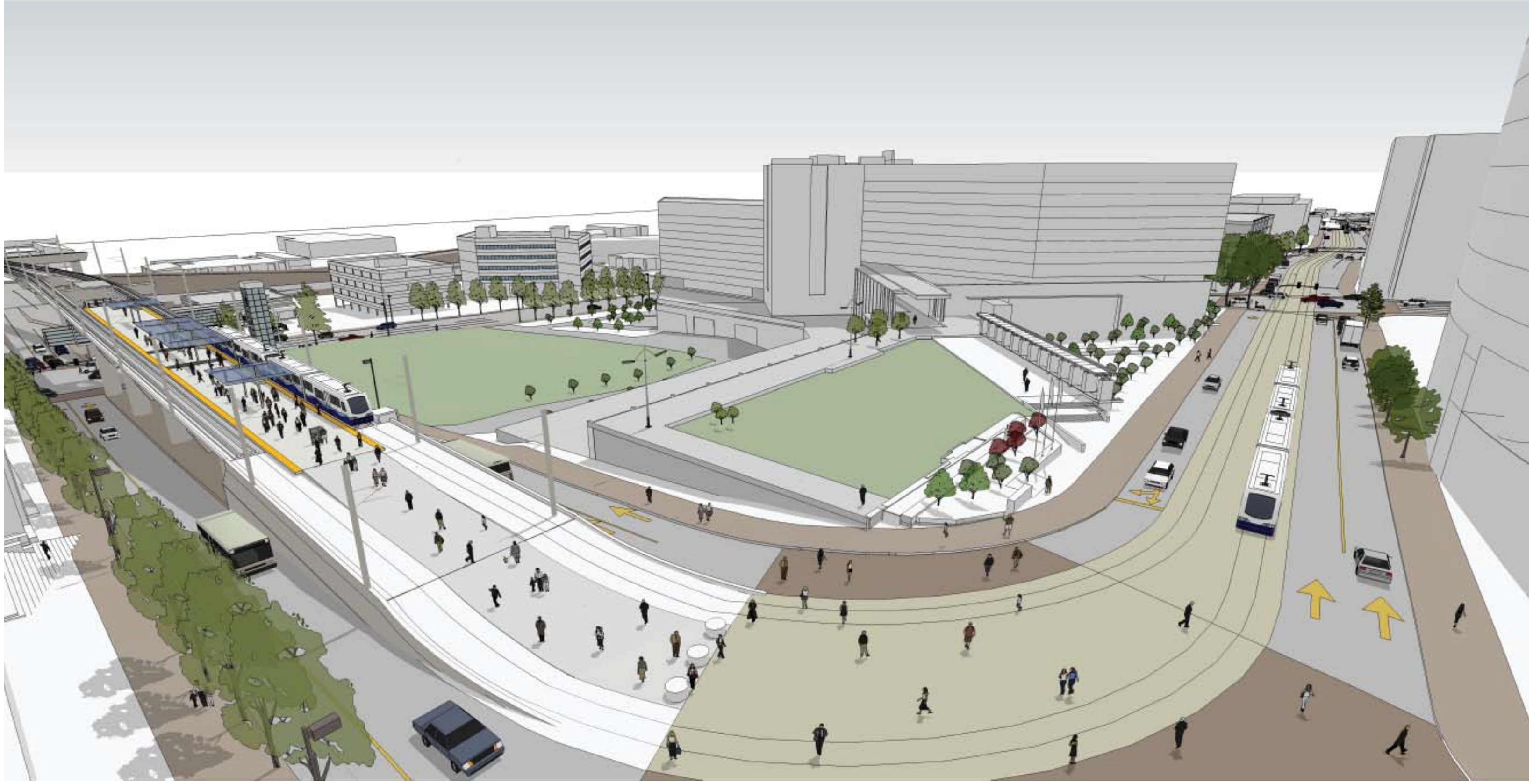
C9A: 110th NE At-Grade Alternative – North Transition Structure and Station at NE 6th Street



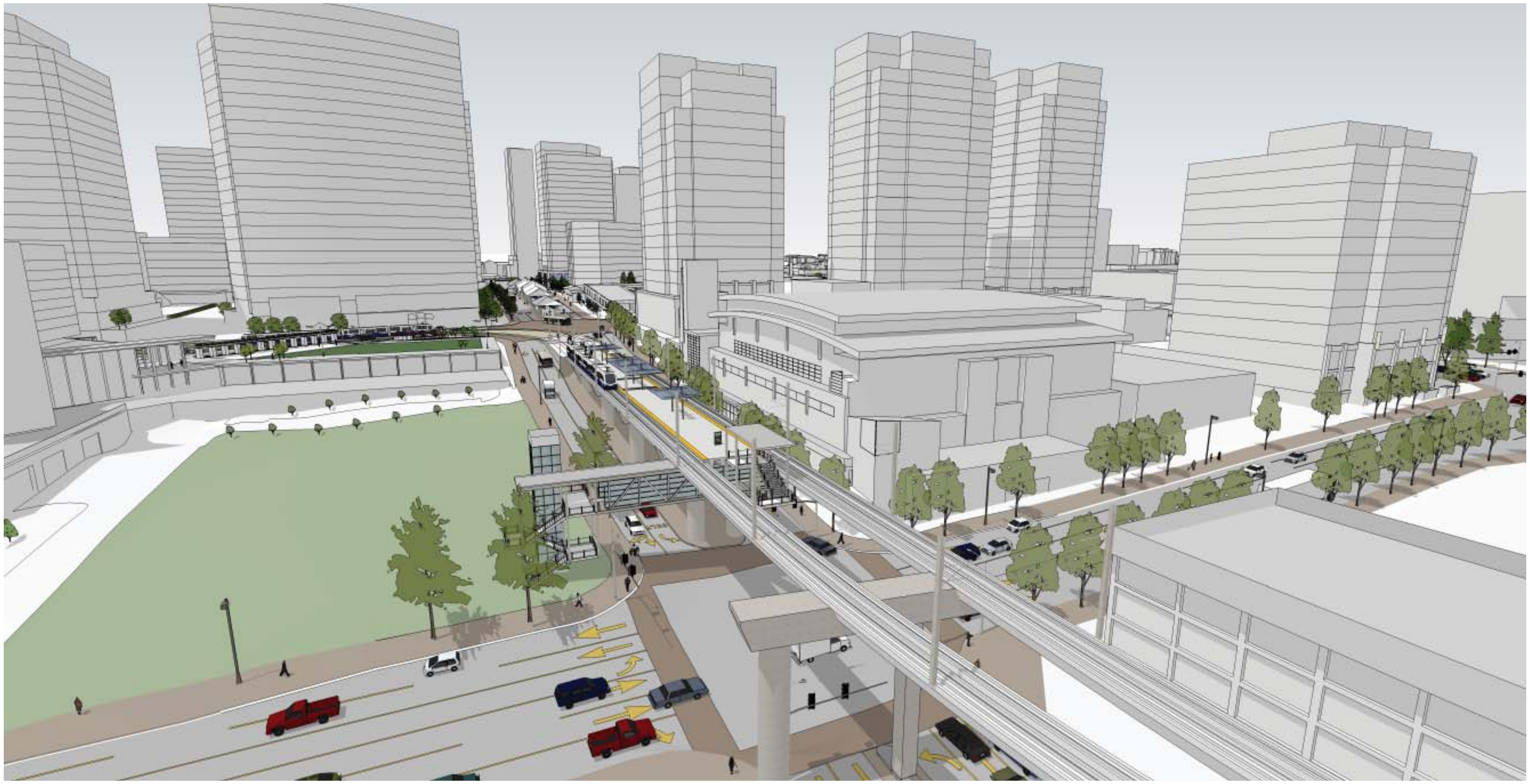
C9A: 110th NE At-Grade Alternative – North Transition Structure and Station at City Hall Plaza Looking Northeast



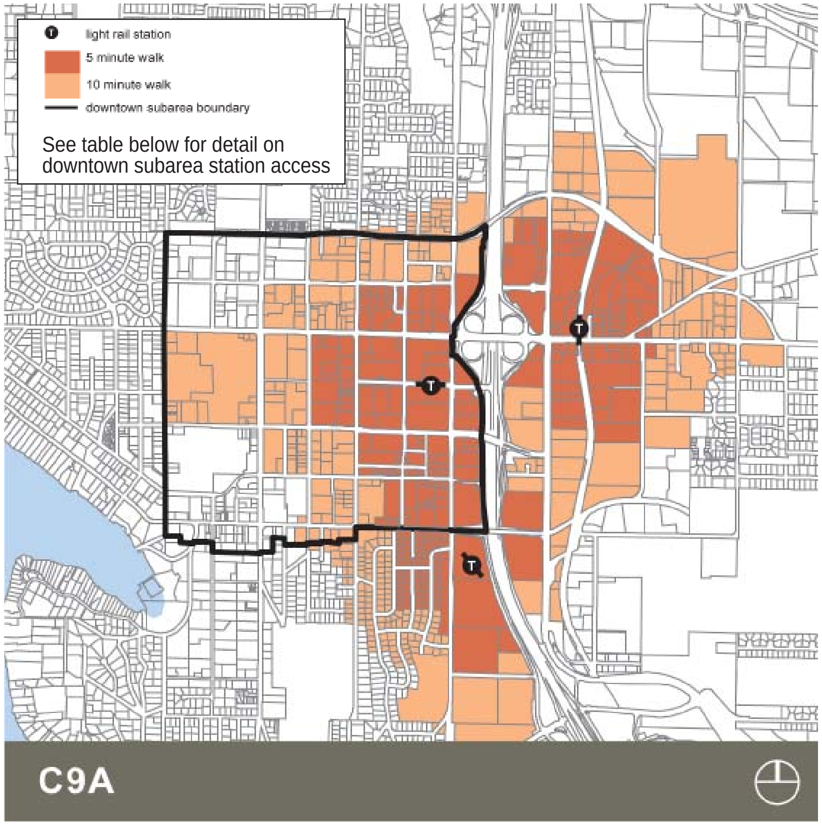
C9A: 110th NE At-Grade Alternative – South Transition Structure at Main Street Looking West



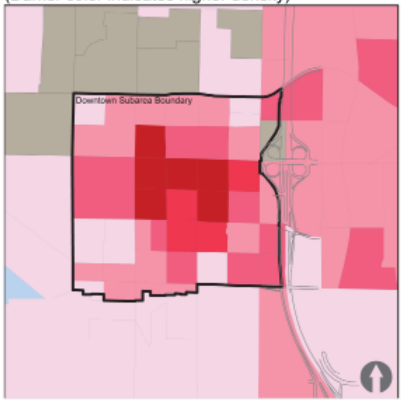
C9A: 110th NE At-Grade Alternative – North Transition Structure and Station at 110th Avenue NE Looking Southeast



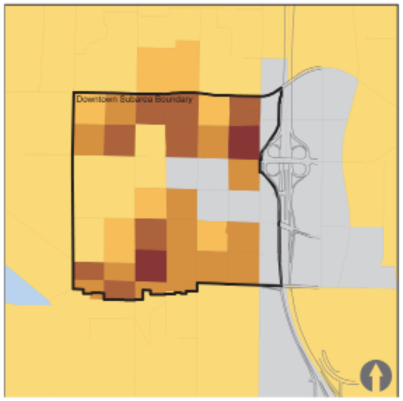
C9A: 110th NE At-Grade Alternative – North Transition Structure and Station at 112th Avenue NE Looking West


light rail station
5 minute walk
10 minute walk
downtown subarea boundary
See table below for detail on downtown subarea station access
C9A

FORECAST LAND USE DENSITIES
(Darker color indicates higher density)


Downtown Subarea Boundary

Forecast 2030 Employment Density by TAZ (Jobs/Acre)


Downtown Subarea Boundary

Forecast 2030 Housing Density by TAZ (HHs/Acre)

	2030 Downtown Jobs		2030 Downtown Residents	
Downtown Subarea Forecast	79,000		19,000	
Walk Distance	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)
C9A Alternative				
Primary NE 6th Station at City Hall				
Downtown Land Use within Walk Distance	**37,315**	75,210	**4,159**	11,580
Percent of 2030 Downtown Subarea Total	**47%**	96%	**22%**	62%
Station Composite (NE 6th at City Hall, East Main, Hospital Station)				
Downtown Land Use within Walk Distance	**39,938**	75,298	**5,221**	11,826
Percent of 2030 Downtown Subarea Total	**51%**	96%	**28%**	63%

C9A: 110th NE At-Grade Alternative – Downtown Land Use Accessibility

C11A: 108th NE At-Grade

C11A: 108th NE At-Grade

Technical Analysis

Alternative C11A would cost about $680 million ($2007), more than C9A or C14E, but less than C9T. An estimated 8,000 riders would board the system within Segment C with Alternative C11A, and 76 percent of downtown Bellevue's forecast jobs would be within a 5-minute walk of an East Link station; 99 percent would be within a 10-minute walk. C11A has the highest percentage of downtown jobs and residents with walking distance of a station of any of the new alternatives. Segment ridership for C11A is equal to C9T and higher than for either C9A or C14E. Unlike the other alternatives, C11A has a station on Main Street east of 108th Avenue. Light rail travel time is 9 minutes for the segment and includes the time for trains to stop at three stations.

Alternative C11A would potentially require potential mitigation for more sensitive noise and more vibration receptors than average; impacts to any of these receptors could likely be mitigated. This alternative would displace one residence near 112th Avenue SE and Main Street, and 34 businesses primarily on the south side of Main Street, and on 116th Avenue NE near the BNSF Railway right-of-way at the Hospital Station. This option would displace more businesses on Main Street than the other options. It would not affect any park land.

This alternative would have some impacts on City Hall Plaza and the garage related to roadway widening to the south. The parking garage would be modified, but it would be open for use during construction. The plaza would be rebuilt along with the project. This alternative would also require reconstruction of the Bellevue Transit Center.

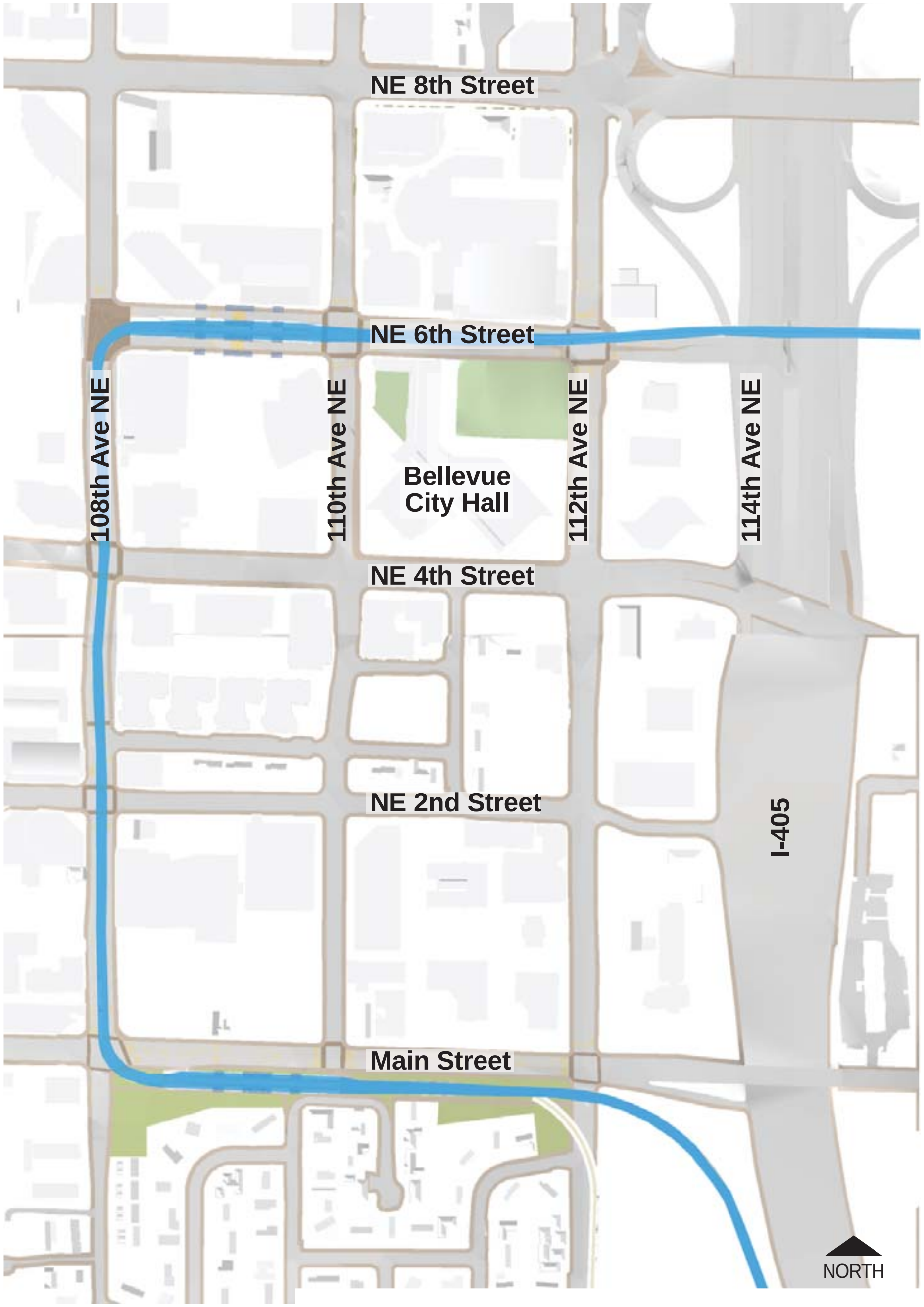
The transition structure along Main Street between 112th Avenue NE and 108th Avenue NE would be higher than with C9A to ensure that the 108th Station at the top of the hill is at-grade and level. This is illustrated in the visual simulation "South Transition Structure at Main Street Looking West."

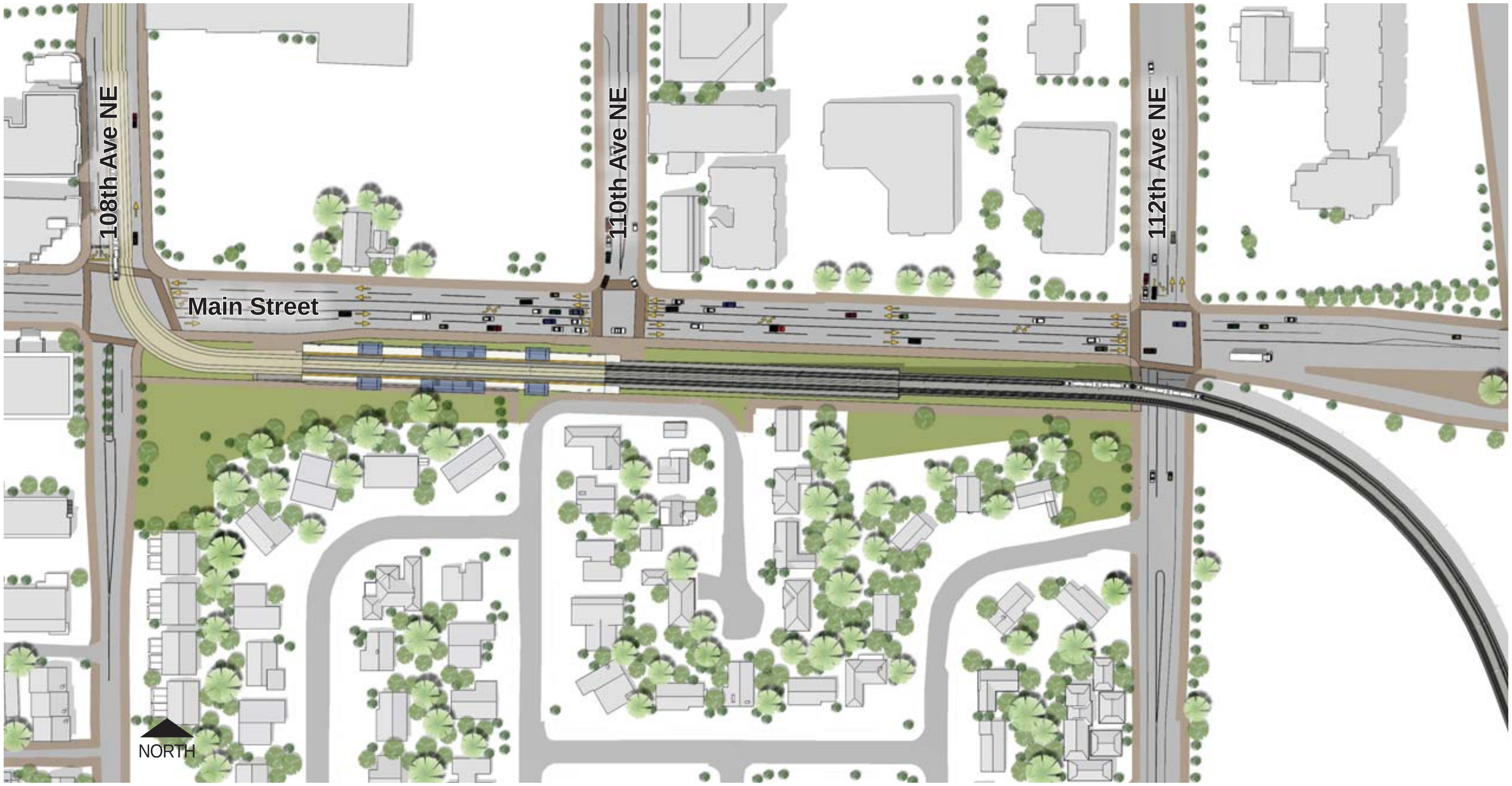
Alternative C11A crosses 5 signalized intersections in an at-grade alignment along 108th Avenue NE between Main and NE 6th Street. C11A has greater southbound travel times and similar northbound travel times than the grade separated alternatives. East-west travel time was generally similar among all alternatives as all alternatives had the same east-west signal operations. Alternative C11A has higher vehicle delay at intersections than the grade separated alternatives for the downtown as a whole. Within the smaller subarea, C11A has approximately 10% more delay at intersections than the grade-separated alternatives. Percent of vehicle demand served was comparable among all alternatives, reflecting expected overall congested conditions in downtown.

Evaluation Summary: C11A – 108th NE At-Grade

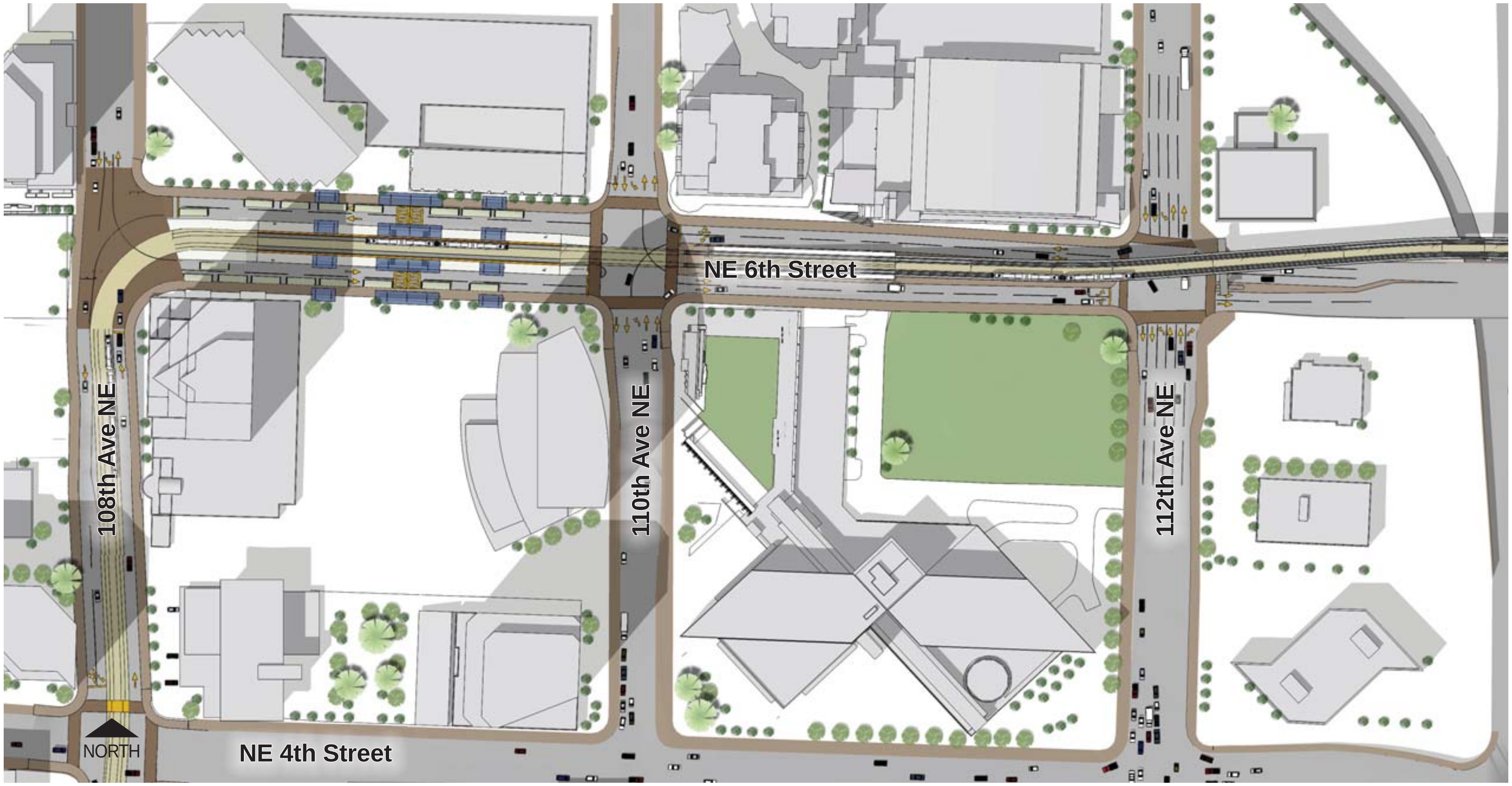
Criteria	Measure	C11A 108th NE At-Grade
Cost	Estimated cost in millions ($2007)	$680
	Difference between ST2 Plan budget ($705 M) and alternative cost	$25
2030 Ridership	Segment boardings	8,000
	East Link ridership	49,000
Alternative characteristics	Light rail travel time (minutes)	9
	Segment C length (miles)	1.9
	Number of stations	3
2030 Downtown jobs within walking distance of a station (79,000 jobs)	Percent within 5-minute walk	76%
	Percent within 10-minute walk	99%
2030 Downtown residents within walking distance of a station (19,000 residents)	Percent within 5-minute walk	53%
	Percent within 10-minute walk	92%
Traffic operations	Southbound vehicle travel time (minutes)	7.4
	Northbound vehicle travel time (minutes)	5.6
	Eastbound vehicle travel time (minutes)	5.3
	Westbound vehicle travel time (minutes)	5.8
	Percent of vehicle demand into and out of downtown served	77%
	Average downtown vehicle delay (seconds)	70
	Average vehicle delay at key affected intersections (seconds)	87
Environmental impacts	Displacements (residential/business)	1/34
	Extent of noise mitigation needed	Slightly Higher
	Extent of vibration mitigation needed	Higher
	Park impacts in acres	0
	Linear feet of impacts to Sturtevant Creek	650
Construction risk	Relative risk to schedule and budget	Moderate
Construction effects	Relative street level effects	Moderate
	Construction duration	Intermediate

C11A: 108th NE At-Grade Alternative – Overall Plan

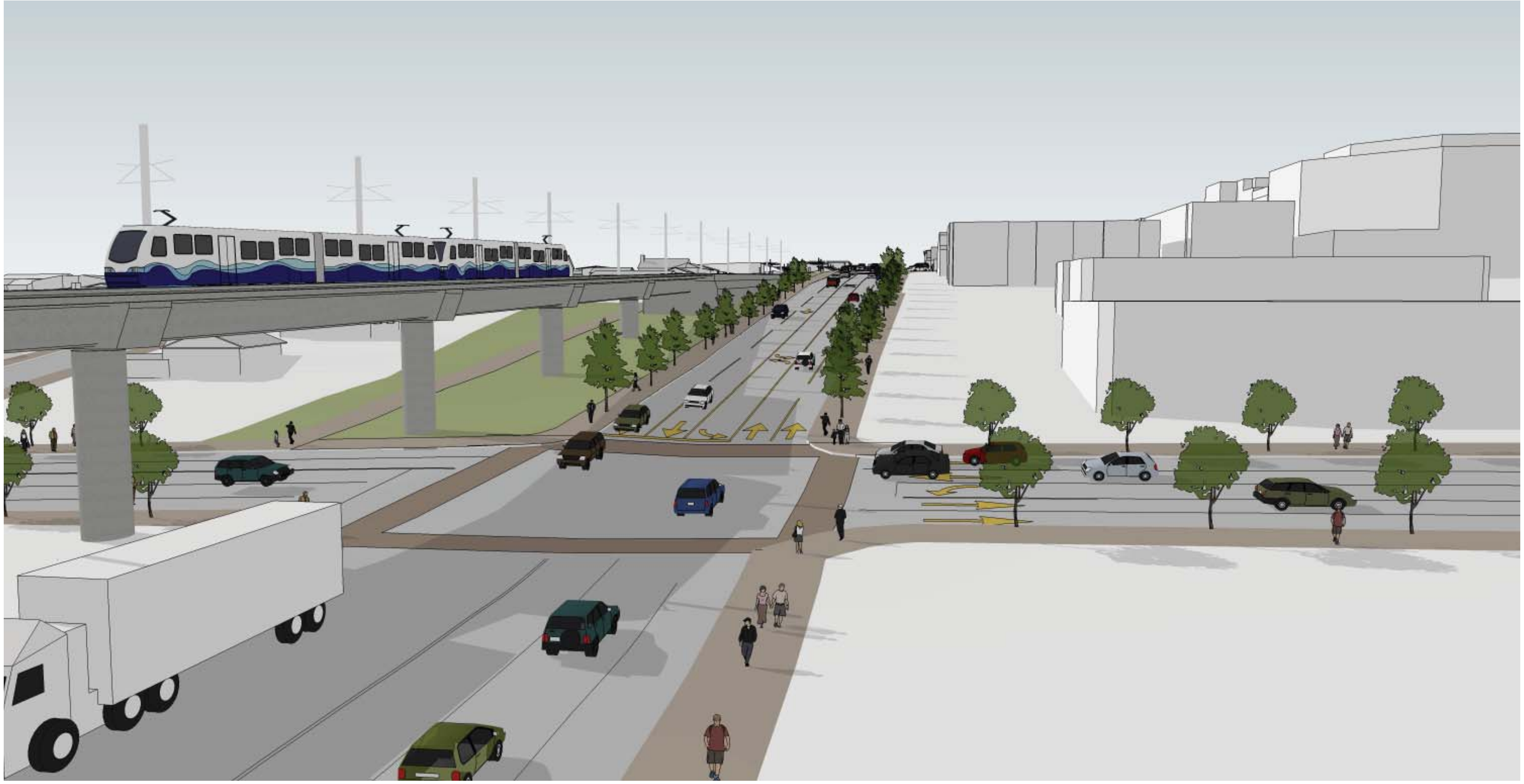

NE 8th Street
NE 6th Street
108th Ave NE
110th Ave NE
Bellevue City Hall
112th Ave NE
114th Ave NE
NE 4th Street
NE 2nd Street
I-405
Main Street
NORTH


108th Ave NE
110th Ave NE
112th Ave NE
Main Street
NORTH

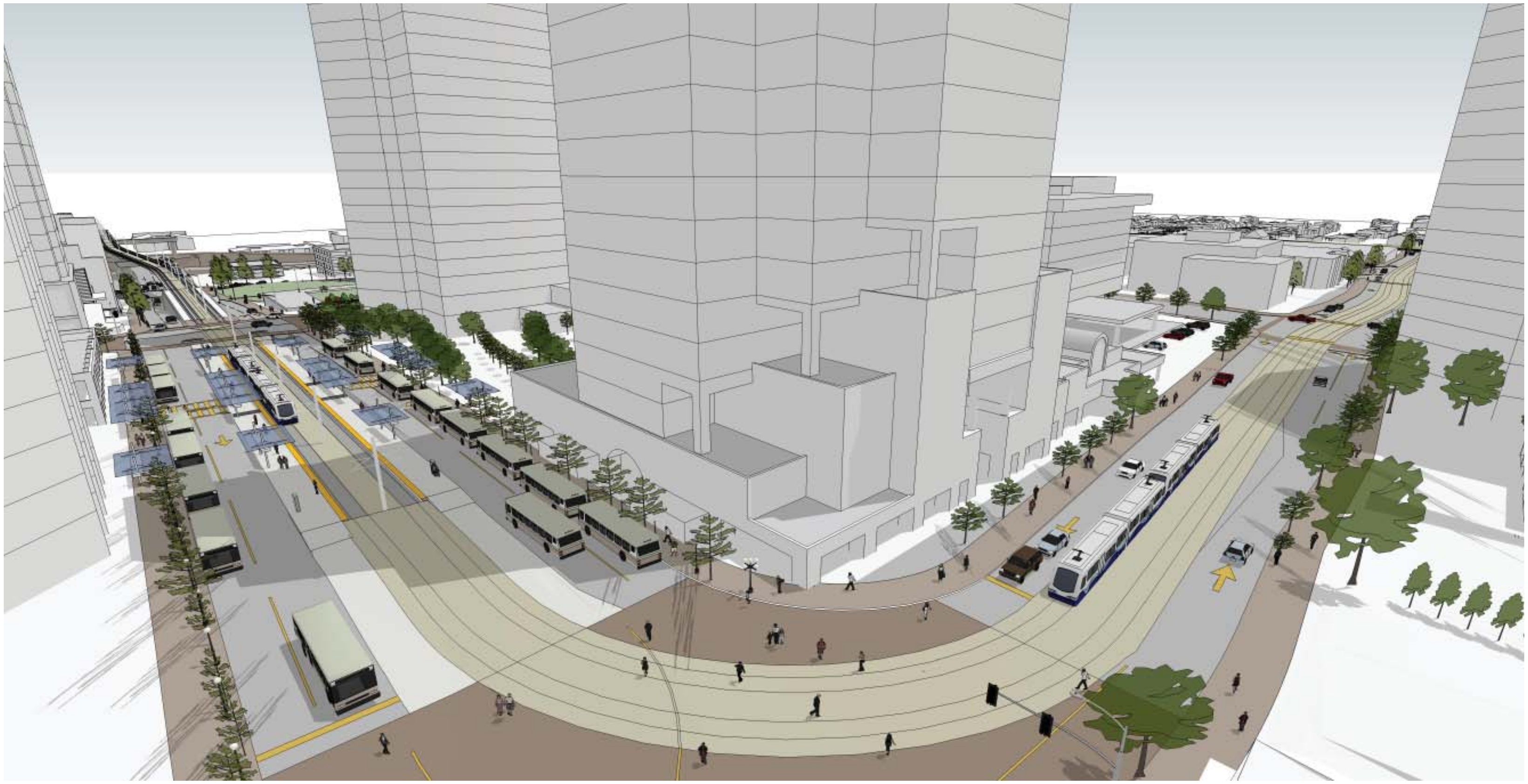
C11A: 108th NE At-Grade Alternative – South Transition Structure at Main Street


NE 6th Street
108th Ave NE
110th Ave NE
112th Ave NE
NE 4th Street
NORTH

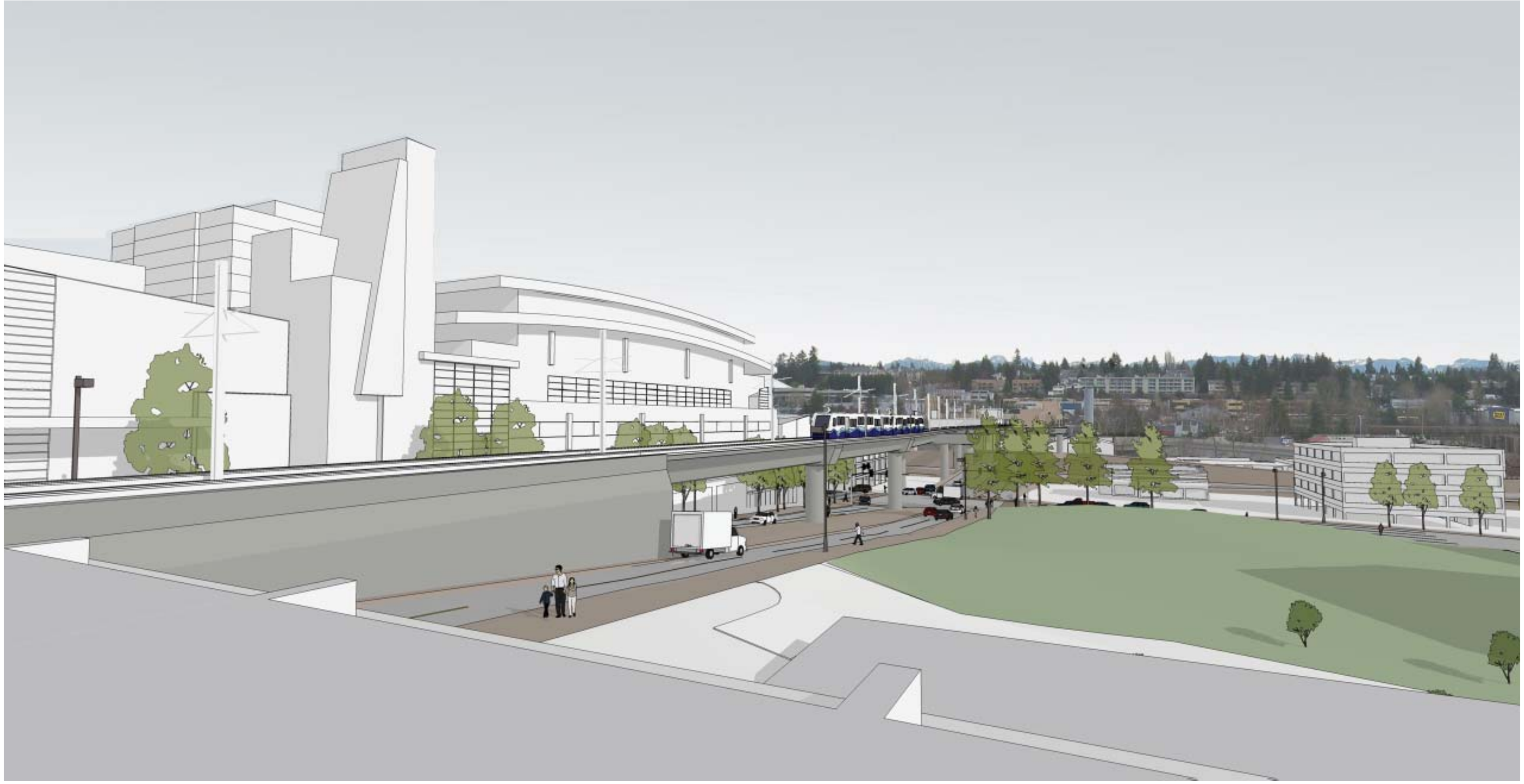
C11A: 108th NE At-Grade Alternative – North Transition Structure at NE 6th Street



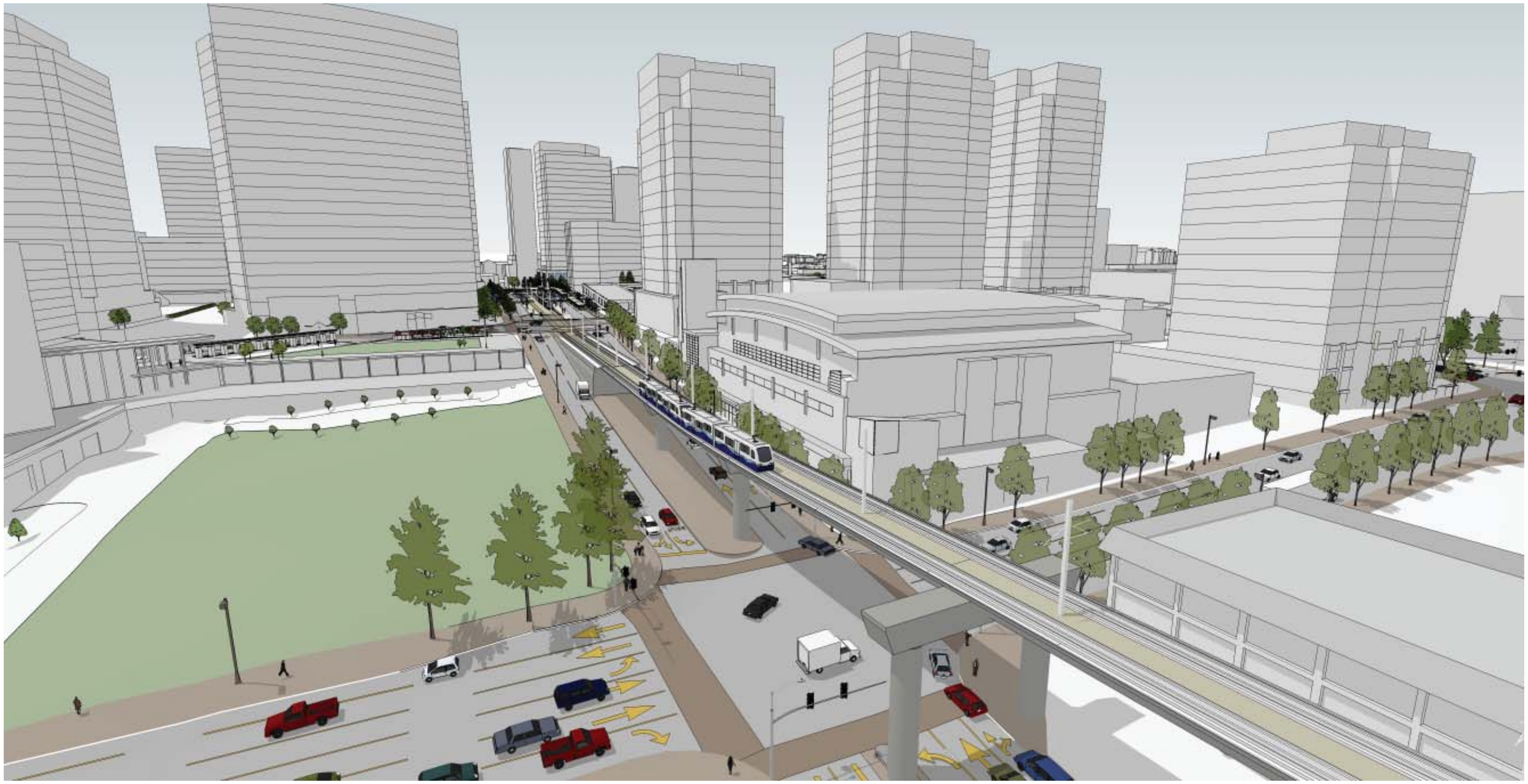
C11A: 108th NE At-Grade Alternative – South Transition Structure at Main Street Looking West



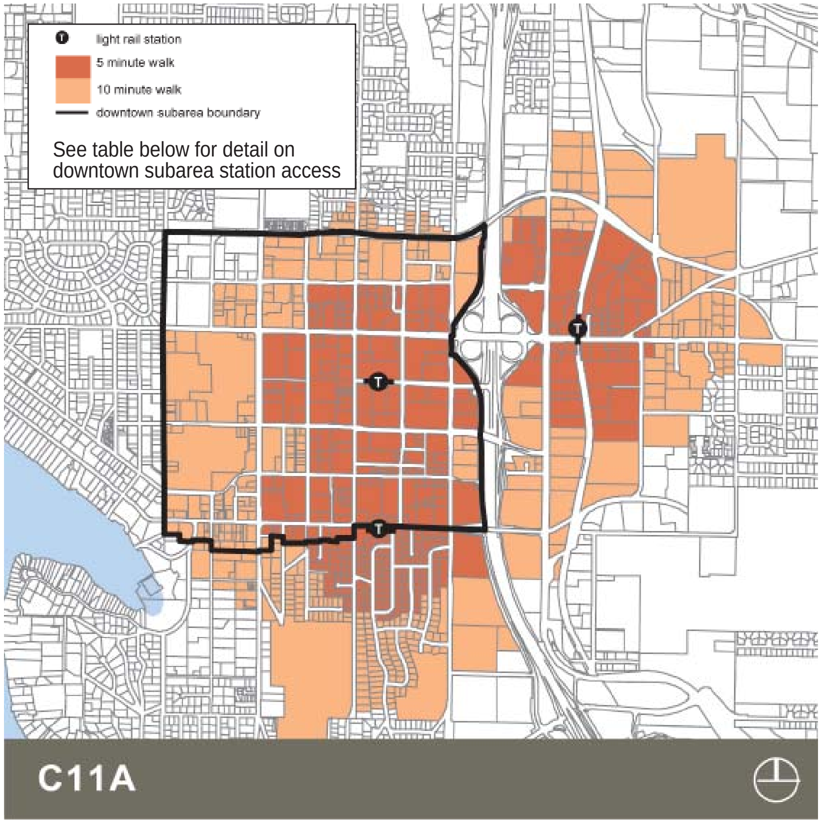
C11A: 108th NE At-Grade Alternative – Station at NE 6th Street and 108th Avenue NE Looking Southeast



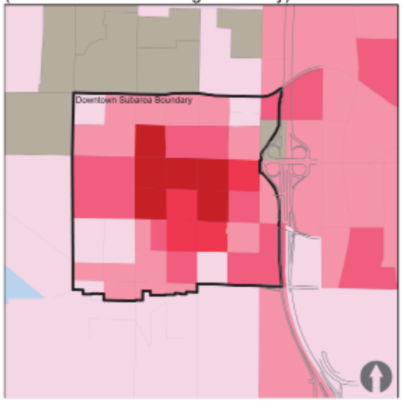
C11A: 108th NE At-Grade Alternative – North Transition Structure at City Hall Plaza Looking Northeast



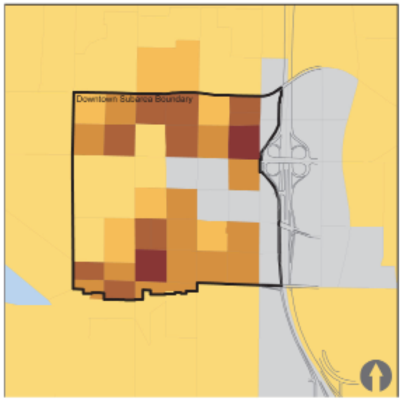
C11A: 108th NE At-Grade Alternative – North Transition Structure at 112th Avenue NE Looking West


light rail station
5 minute walk
10 minute walk
downtown subarea boundary
See table below for detail on downtown subarea station access
C11A

FORECAST LAND USE DENSITIES
(Darker color indicates higher density)


Downtown Subarea Boundary

Forecast 2030 Employment Density by TAZ (Jobs/Acre)


Downtown Subarea Boundary

Forecast 2030 Housing Density by TAZ (HHs/Acre)

	2030 Downtown Jobs		2030 Downtown Residents	
Downtown Subarea Forecast	79,000		19,000	
Walk Distance	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)
C11A Alternative				
Primary NE 6th Station at BTC				
Downtown Land Use within Walk Distance	**55,370**	76,914	**5,857**	15,190
Percent of 2030 Downtown Subarea Total	**70%**	98%	**31%**	81%
Station Composite (NE 6th at BTC, Main at 108th, Hospital Station)				
Downtown Land Use within Walk Distance	**60,059**	77,824	**9,929**	17,157
Percent of 2030 Downtown Subarea Total	**76%**	99%	**53%**	92%

C11A: 108th NE At-Grade Alternative – Downtown Land Use Accessibility

C14E: 114th NE Elevated

Technical Analysis

Alternative C14E would cost about $560 million ($2007), the lowest of any new alternative. An estimated 6,000 riders would board the system within Segment C with Alternative C14E, the fewest of any new alternative. 27 percent of downtown Bellevue's forecast jobs would be within a 5-minute walk of a Segment C station; 79 percent would be within a 10-minute walk, the fewest of any new alternative. The inclusion of a circulator bus and a 200-space park-and-ride lot would add $70 million to the cost, but would not increase segment ridership substantially. The light rail travel time is 4 minutes for the segment and includes the time for trains to stop at two stations.

Construction for this alternative would cause less disruption than the tunnel and at-grade options because of the limited extent of construction in Downtown Bellevue.

Alternative C14E would potentially affect more sensitive noise receptors and fewer sensitive vibration receptors than average for all alternatives. This alternative would displace 22 businesses—primarily on 116th Avenue NE near the BNSF Railway right-of-way at the Hospital Station. It would not affect any park land.

Alternative C14E is fully grade-separated, and along with C9T has the shortest southbound vehicle travel times, and similar or better northbound travel times compared to the at-grade alternatives. East-west travel time was generally similar among all alternatives as all alternatives had the same east-west signal operations. Alternative C14E, along with Alternative C9T, has less vehicle delay at intersections than the at-grade alternatives for the downtown as a whole. Within the smaller subarea, C14E, along with C9T, had approximately 10 percent less delay at intersections than the at-grade alternatives. Percent of vehicle demand served was comparable among all alternatives, reflecting expected overall congested conditions in downtown.

If C14E is modified to connect to B7, ridership would be lower because that alignment would not serve the South Bellevue Park-and-Ride.

Evaluation Summary: C14E – 114th NE Elevated

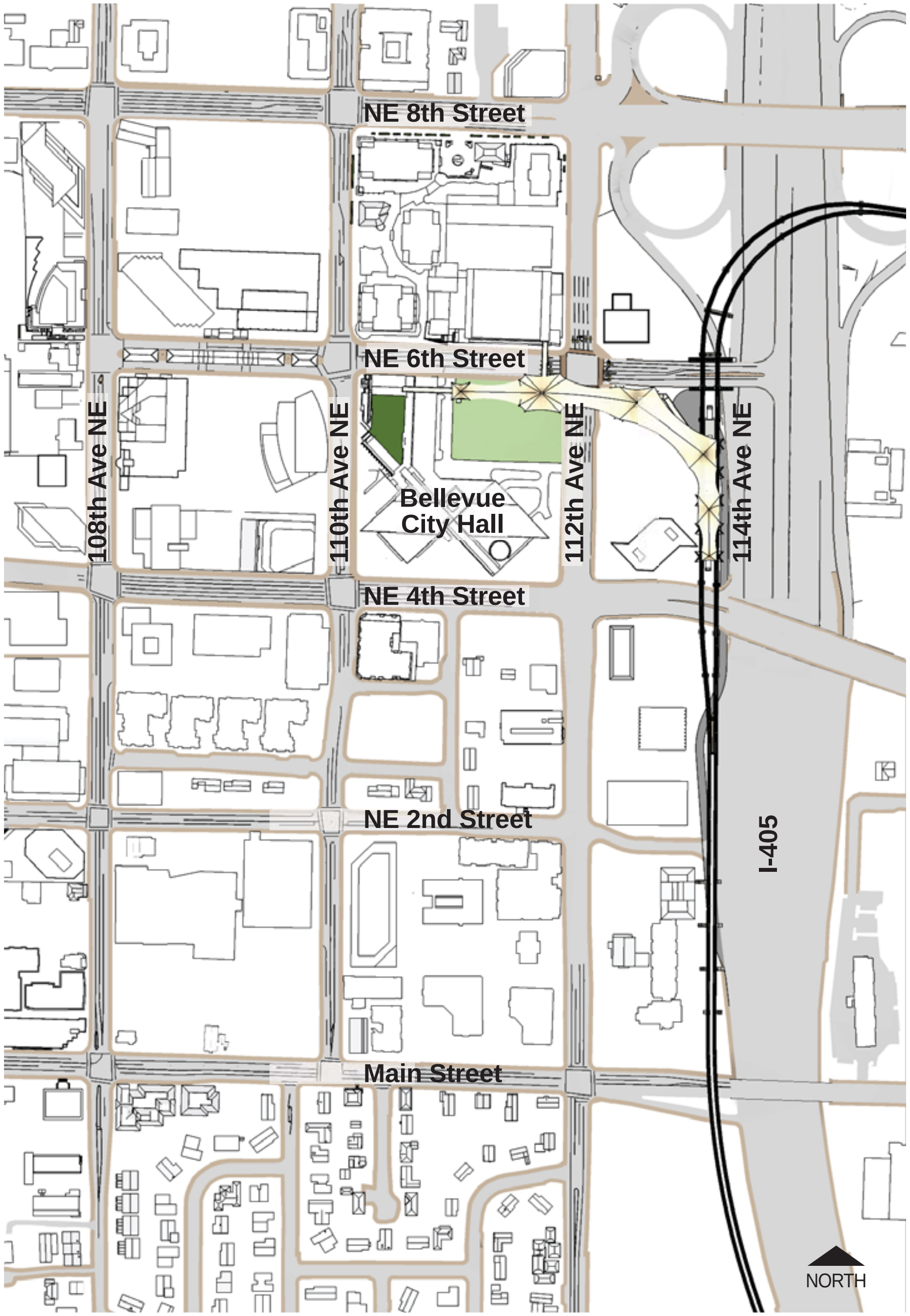
Criteria	Measure	C14E 114th NE Elevated
Cost	Estimated cost in millions ($2007)	$560[1]
	Difference between ST2 Plan budget ($705 M) and alternative cost	$145
2030 Ridership	Segment boardings	6,000[2]
	East Link ridership	48,500
Alternative characteristics	Light rail travel time (minutes)	4
	Segment C length (miles)	1.3
	Number of stations	2
2030 Downtown jobs within walking distance of a station (79,000 jobs)	Percent within 5-minute walk	27%
	Percent within 10-minute walk	79%
2030 Downtown residents within walking distance of a station (19,000 residents)	Percent within 5-minute walk	7%
	Percent within 10-minute walk	46%
Traffic operations	Southbound vehicle travel time (minutes)	6.5
	Northbound vehicle travel time (minutes)	5.8
	Eastbound vehicle travel time (minutes)	5.0
	Westbound vehicle travel time (minutes)	4.9
	Percent of vehicle demand into and out of downtown served	78%
	Average downtown vehicle delay (seconds)	67
	Average vehicle delay at key affected intersections (seconds)	78
Environmental impacts	Displacements (residential/business)	0/22
	Extent of noise mitigation needed	Higher
	Extent of vibration mitigation needed	Slightly Lower
	Park impacts in acres	0
	Linear feet of impacts to Sturtevant Creek	650
Construction risk	Relative risk to schedule and budget	Lower
Construction effects	Relative street level effects	Lower
	Construction duration	Shortest

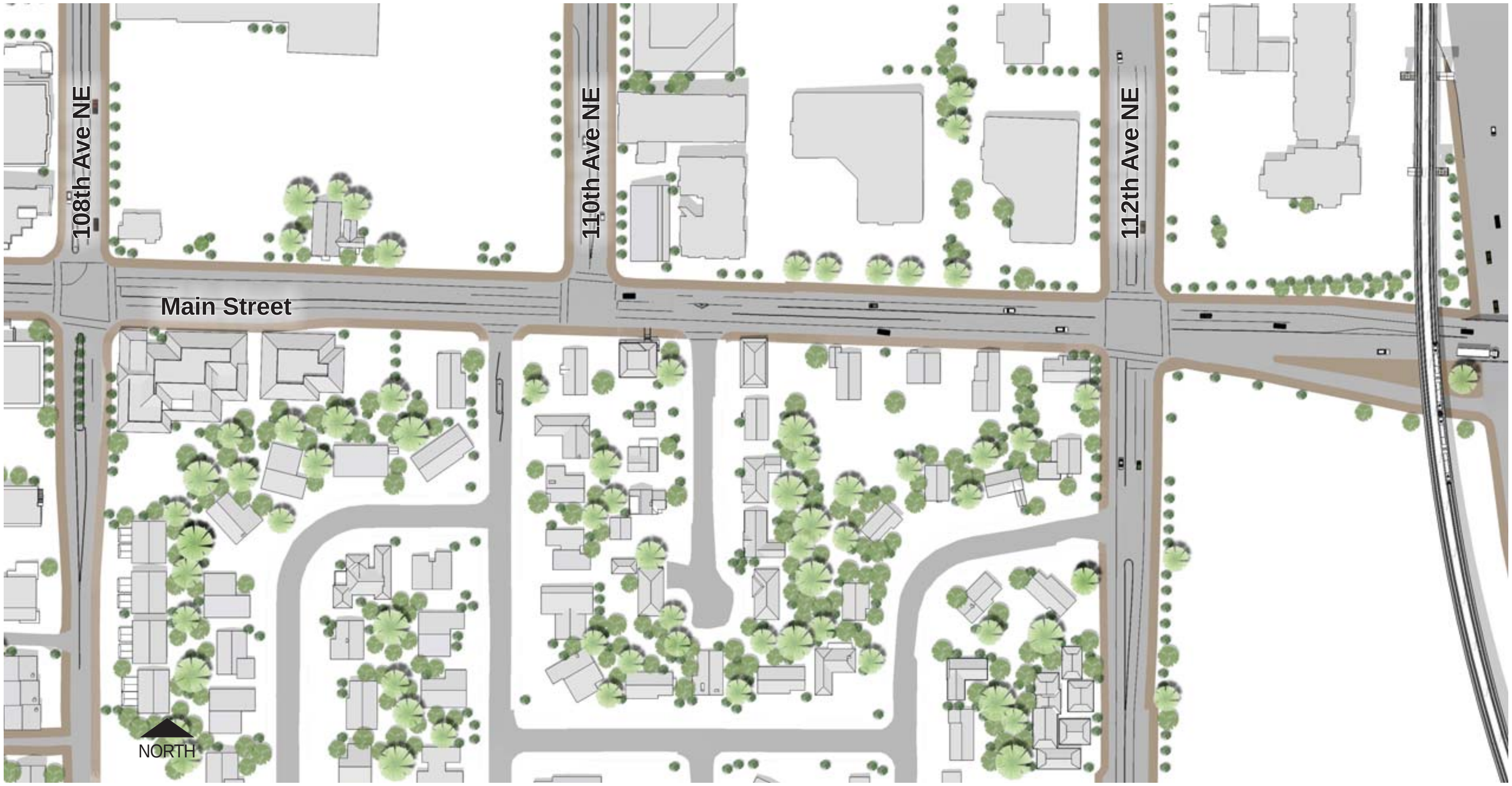
Notes:

[1] The cost estimate for C14E does not include the addition of a circulator bus and park-and-ride lot. The addition of these amenities would add $70 million to project cost.

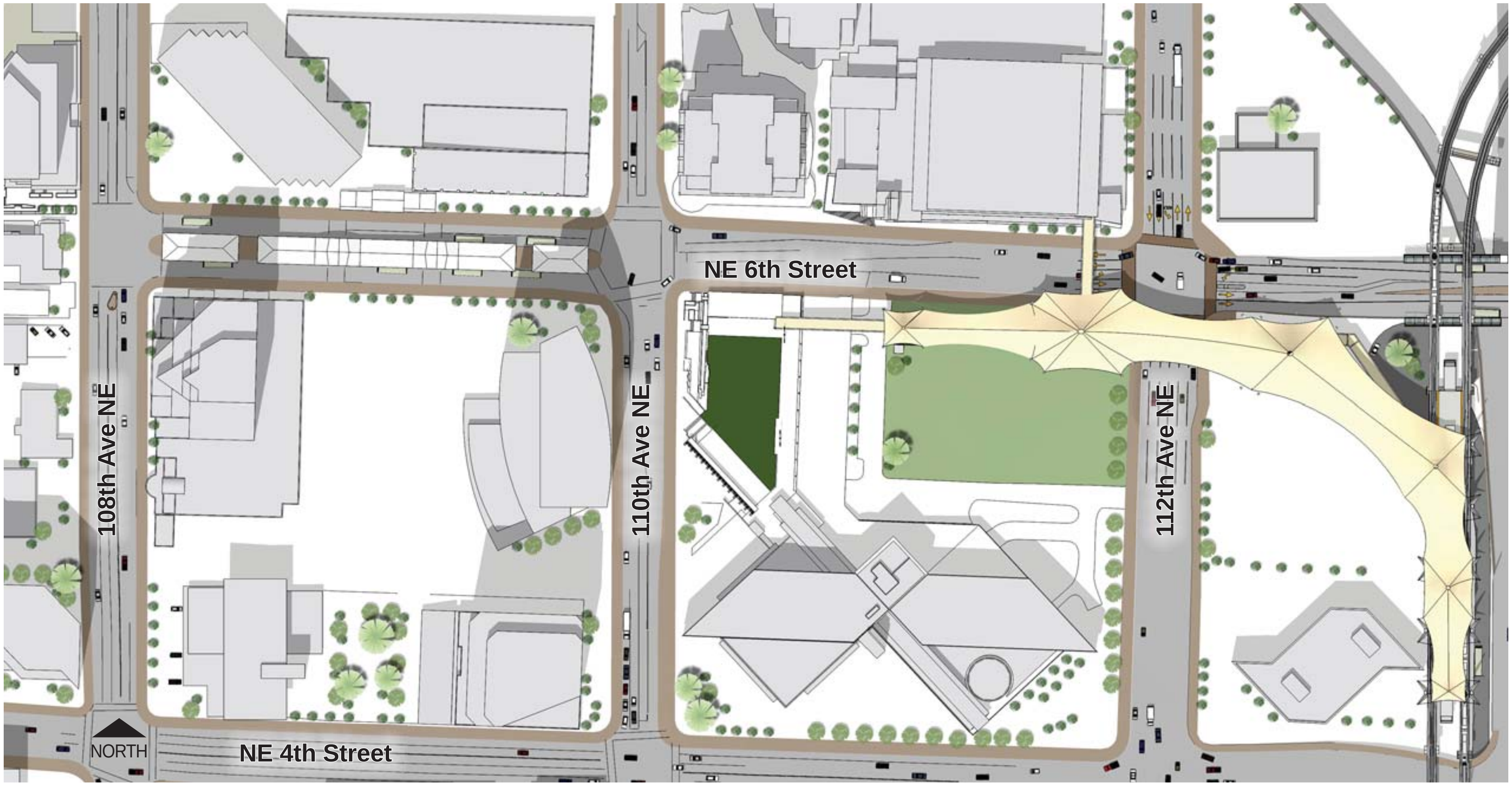
[2] The addition of the circulator bus or circulator bus and park-and-ride lot at Metro site does not appreciably change segment ridership.

C14E: 114th NE Elevated Alternative – Overall Plan

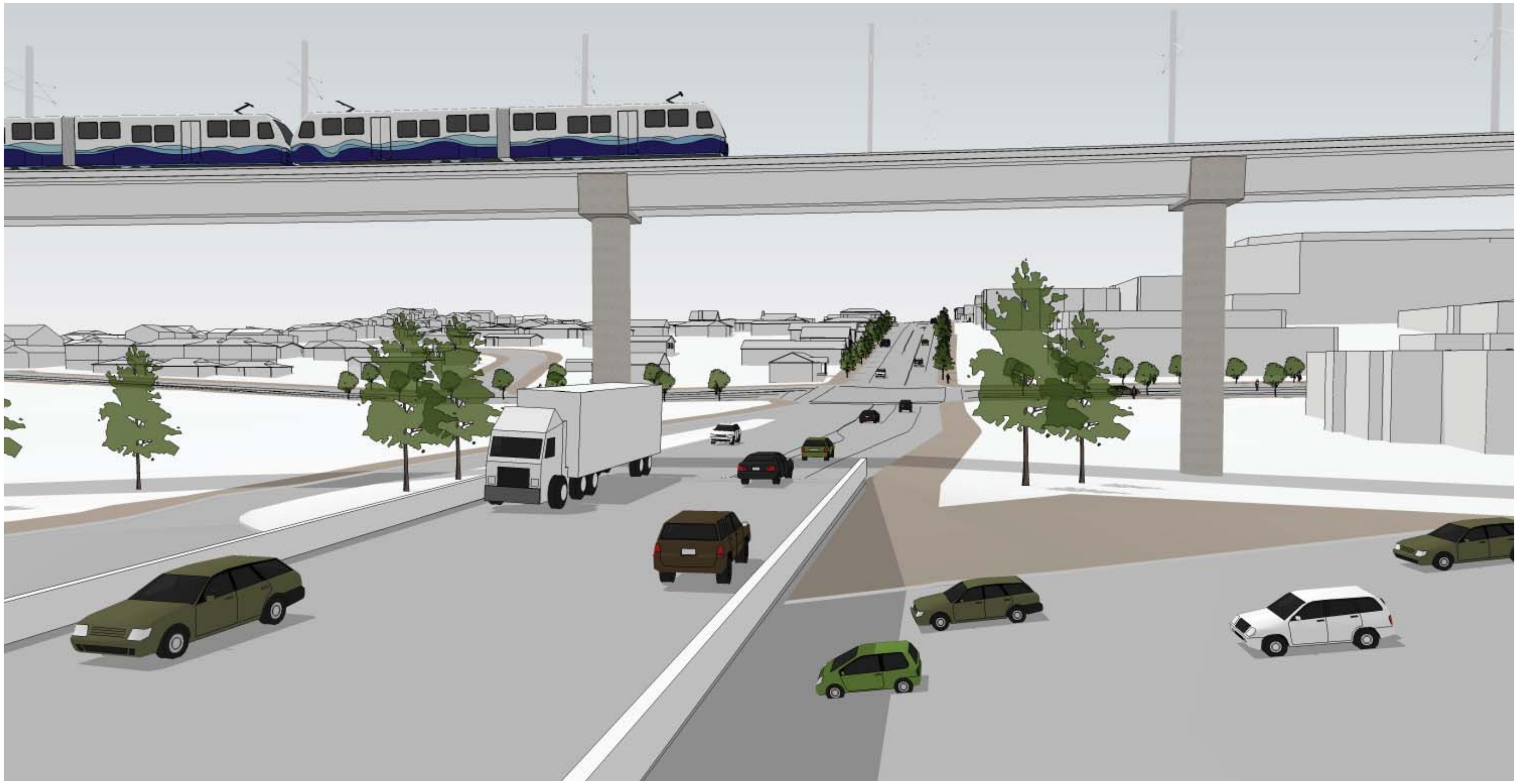

NE 8th Street
NE 6th Street
108th Ave NE
110th Ave NE
Bellevue City Hall
112th Ave NE
114th Ave NE
NE 4th Street
NE 2nd Street
I-405
Main Street
NORTH


108th Ave NE
110th Ave NE
112th Ave NE
Main Street
NORTH

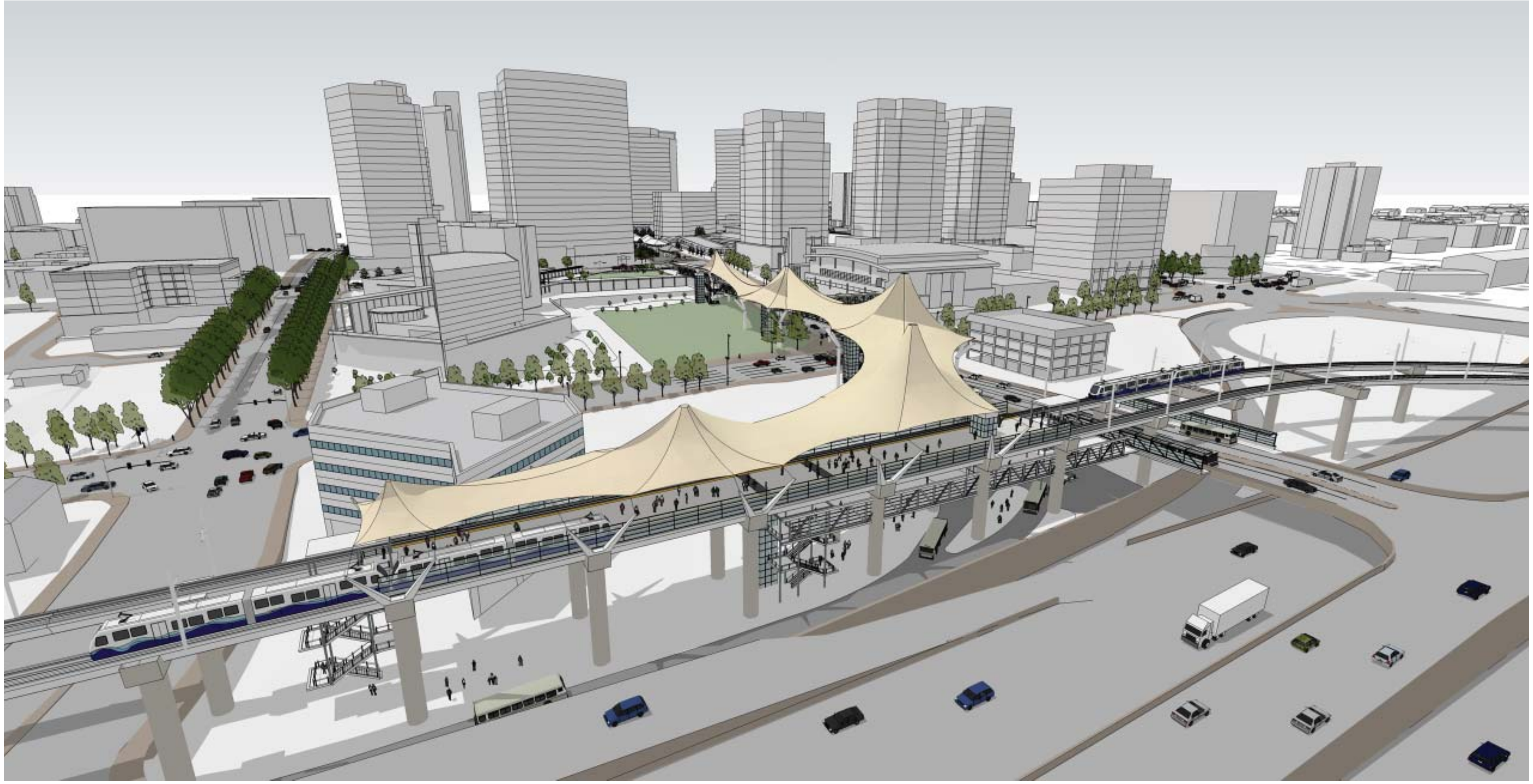
C14E: 114th NE Elevated Alternative – Elevated Alignment at Main Street


NE 6th Street
108th Ave NE
110th Ave NE
112th Ave NE
NORTH
NE 4th Street

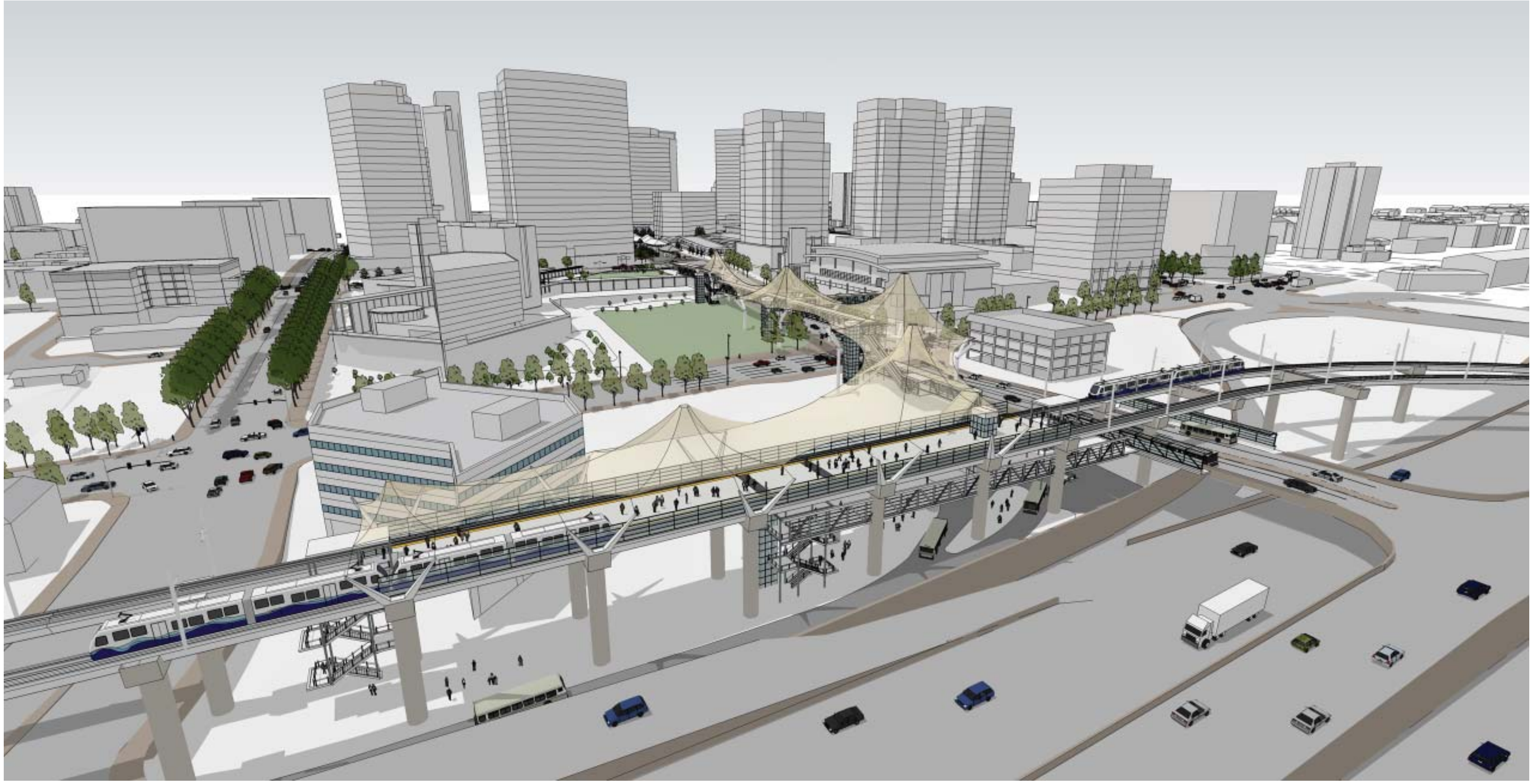
C14E: 114th NE Elevated Alternative – Station at 114th Avenue NE



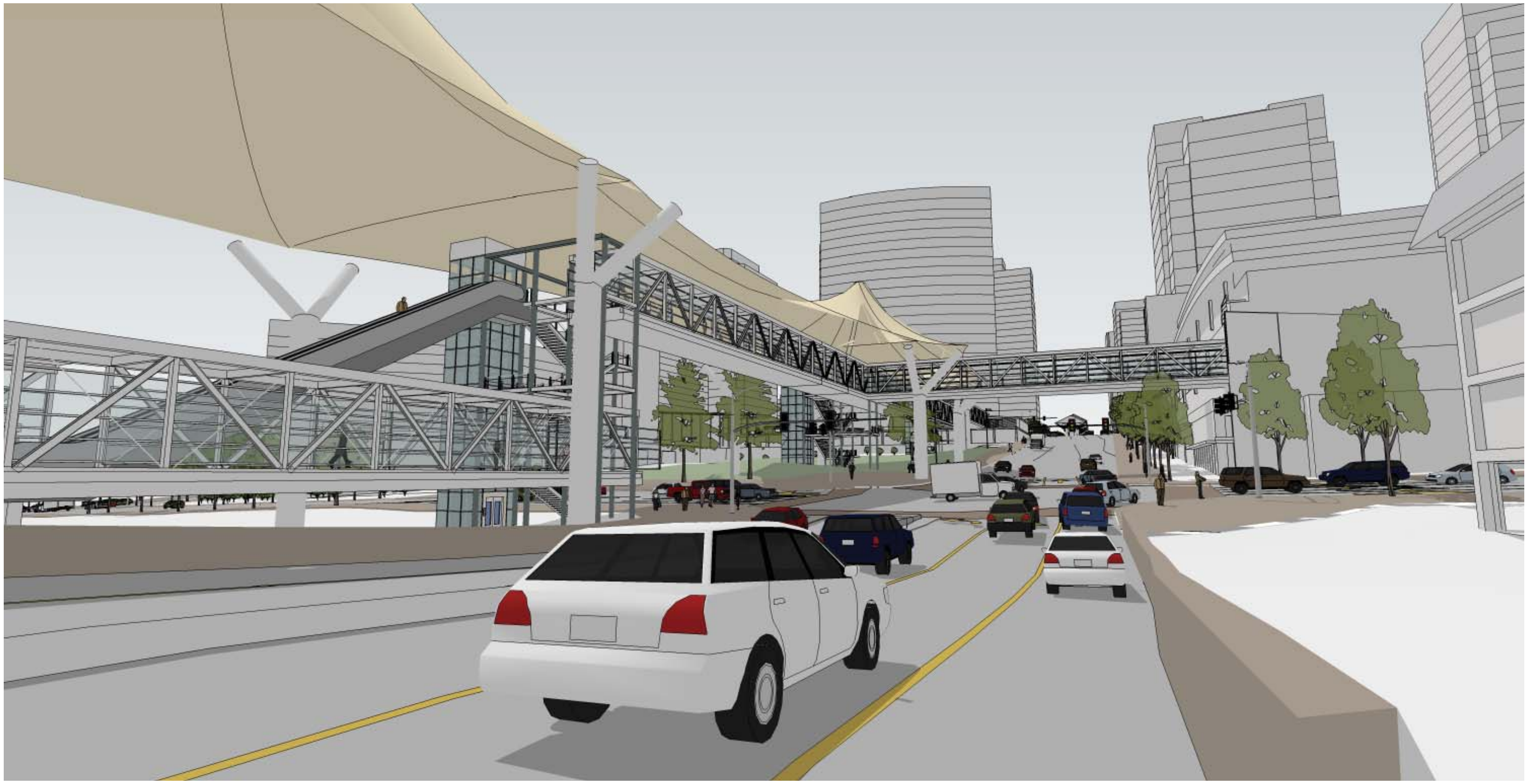
C14E: 114th NE Elevated Alternative – Alignment at Main Street Looking West



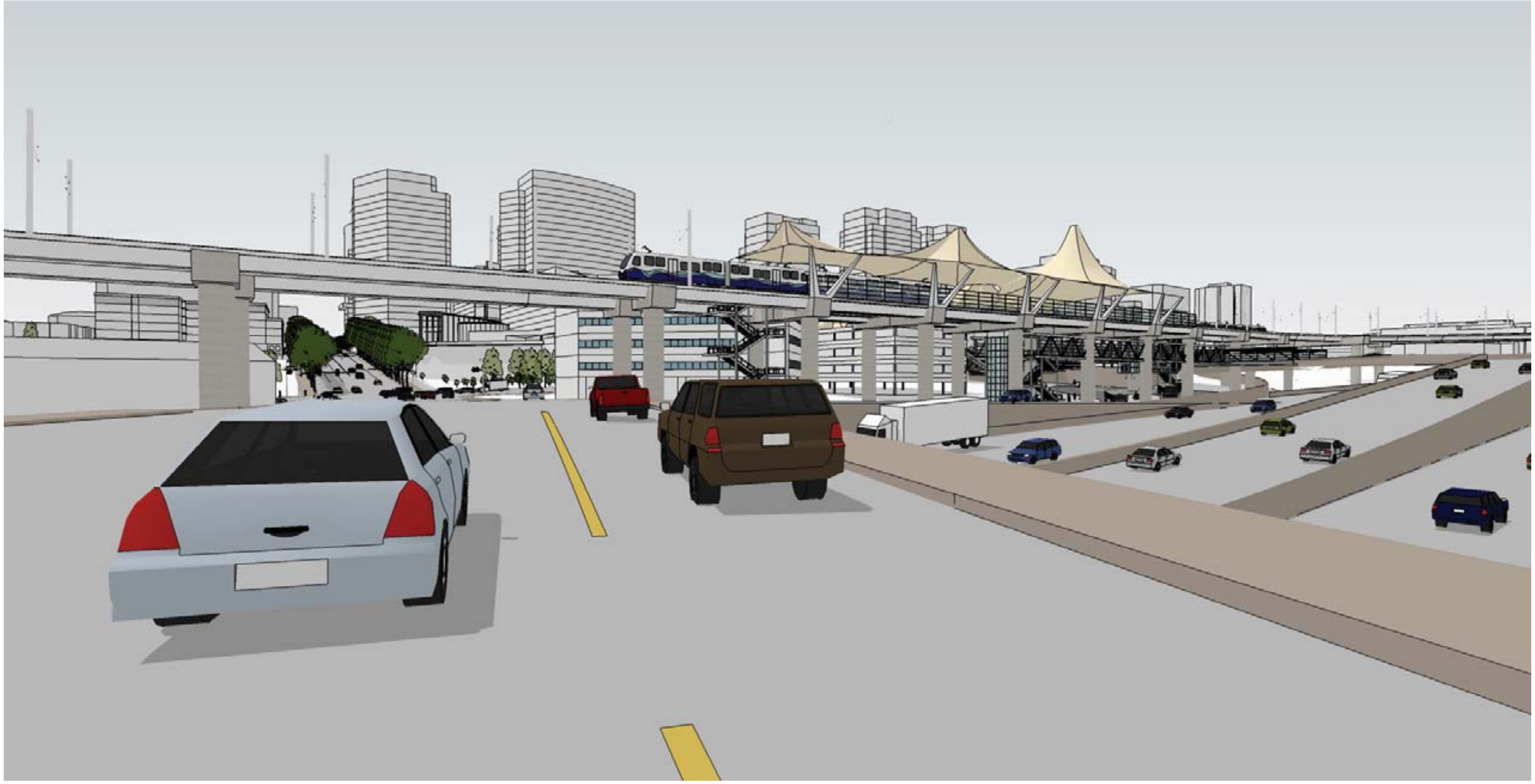
C14E: 114th NE Elevated Alternative – Station at 114th Avenue NE Looking Northwest



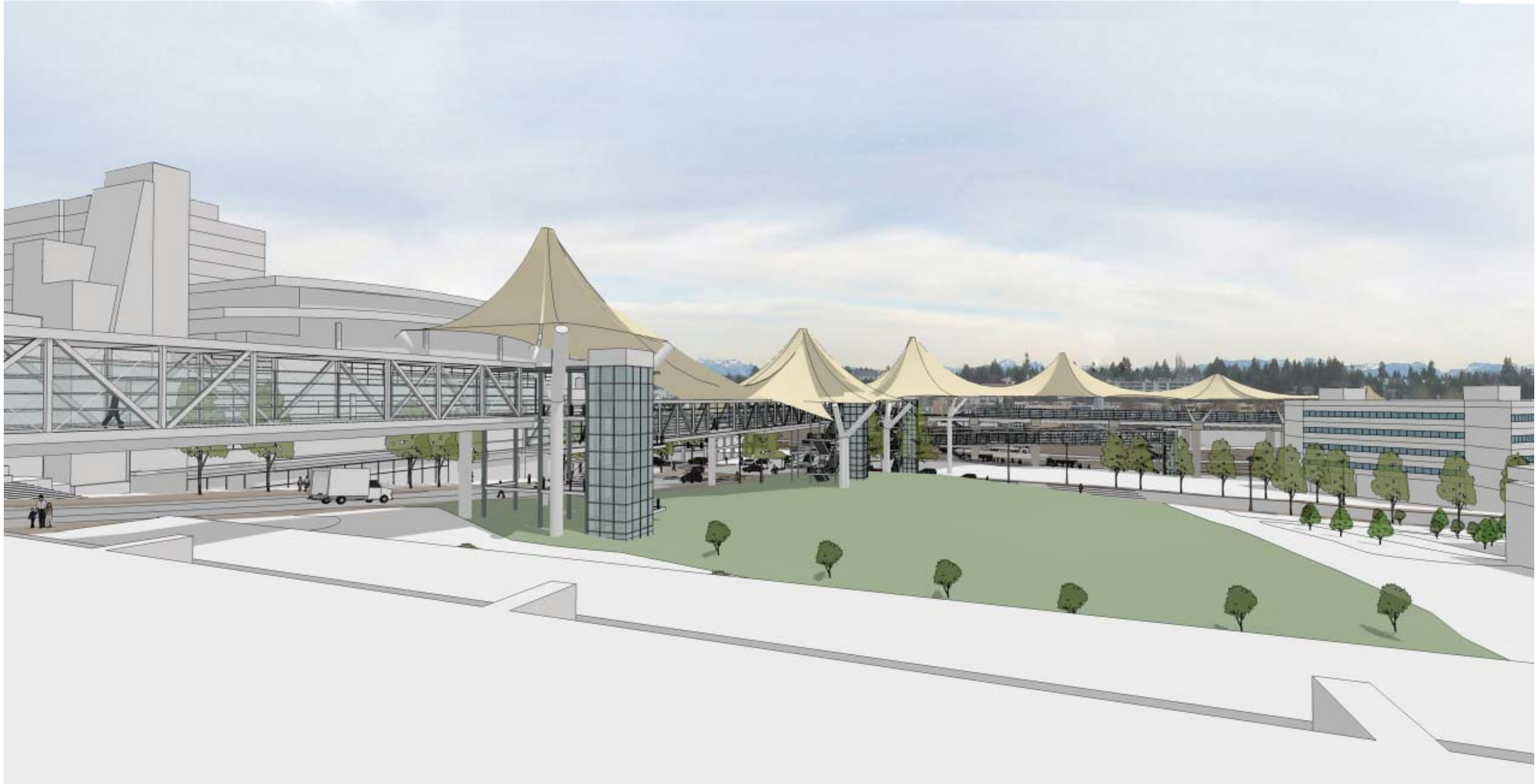
C14E: 114th NE Elevated Alternative – Station at 114th Avenue NE Looking Northwest with Cover Shown as Transparent



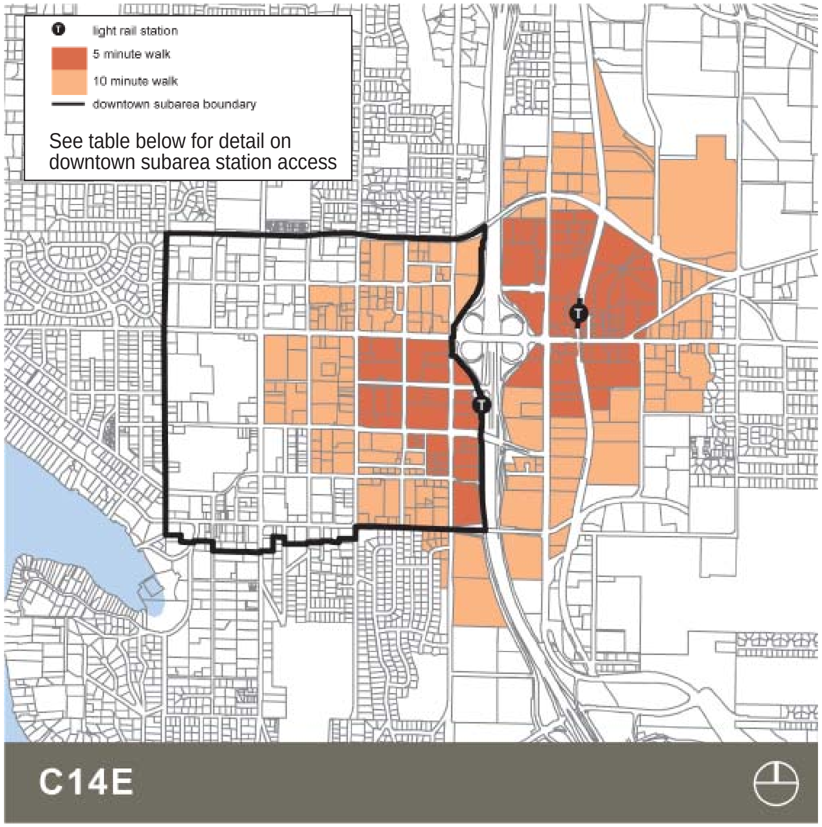
C14E: 114th NE Elevated Alternative – Pedestrian Access to Bellevue Transit Center at NE 6th Street Looking West



C14E: 114th NE Elevated Alternative: Elevated Alignment and Station at NE 4th Street Overpass Looking Northwest

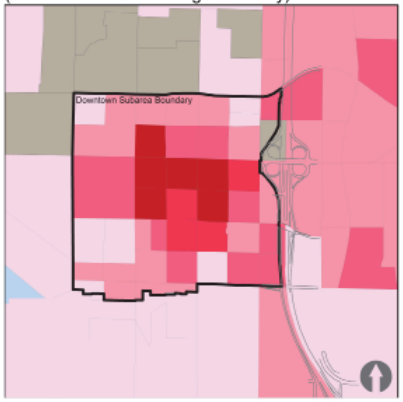


C14E: 114th NE Elevated Alternative – Pedestrian Access to Bellevue Transit Center at City Hall Plaza Looking Northeast

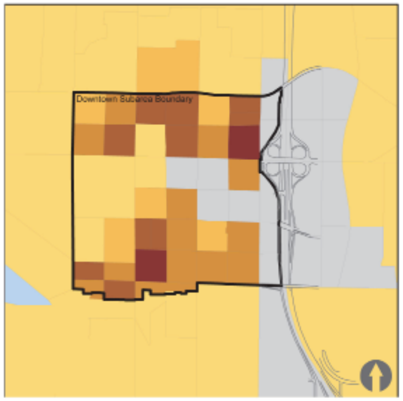

light rail station
5 minute walk
10 minute walk
downtown subarea boundary
C14E

See table below for detail on downtown subarea station access

FORECAST LAND USE DENSITIES
(Darker color indicates higher density)


Downtown Subarea Boundary

Forecast 2030 Employment Density by TAZ (Jobs/Acre)


Downtown Subarea Boundary

Forecast 2030 Housing Density by TAZ (HHs/Acre)

	2030 Downtown Jobs		2030 Downtown Residents	
Downtown Subarea Forecast	79,000		19,000	
Walk Distance	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)	**Within High-Capture 5-min. walk (1/4 mile)**	Within 10-min. walk (1/2 mile)
C14E Alternative				
Primary 114th Ave Elevated Station				
Downtown Land Use within Walk Distance	**21,249**	62,023	**1,258**	8,628
Percent of 2030 Downtown Subarea Total	**27%**	79%	**7%**	46%
Station Composite (114th Ave Elevated, Hospital Station)				
Downtown Land Use within Walk Distance	**21,249**	62,023	**1,258**	8,628
Percent of 2030 Downtown Subarea Total	**27%**	79%	**7%**	46%

C14E: 114th NE Elevated Alternative – Downtown Land Use Accessibility

Alternatives to Connect to Segment B

Alternatives to Connect to Segment B

In May 2009, Sound Transit identified a preferred preferred alternative for the South Bellevue portion of East Link – the 112th NE Bypass (B3S). This alternative approaches downtown Bellevue on a new right-of-way east of 112th Avenue and behind commercial buildings and is the approach that is assumed in the evaluation of the new downtown Bellevue alternatives.

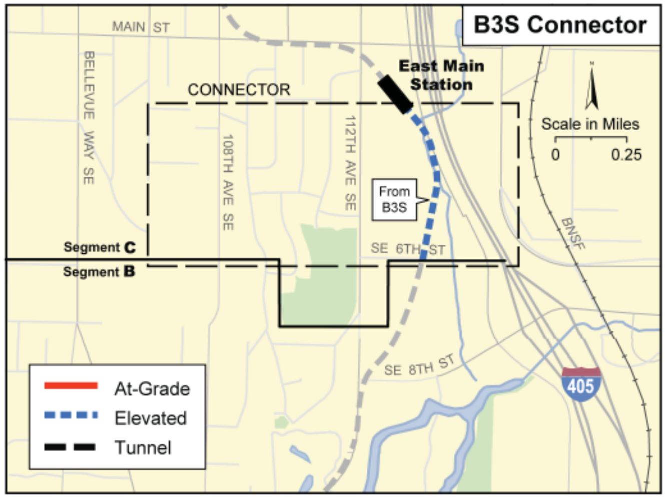
Recently, Sound Transit received a report from a value analysis panel that was convened to study design changes that might reduce overall project costs. One of the panel's recommendations for reducing costs is to use a median-running alignment on 112th NE for the approach into downtown. The City of Bellevue has requested that the evaluation of the value analysis recommendation include a consideration of two other alignments on 112th Avenue:

- A side running at-grade alignment on 112th Avenue
- A side running alignment in a retained cut on 112th Avenue

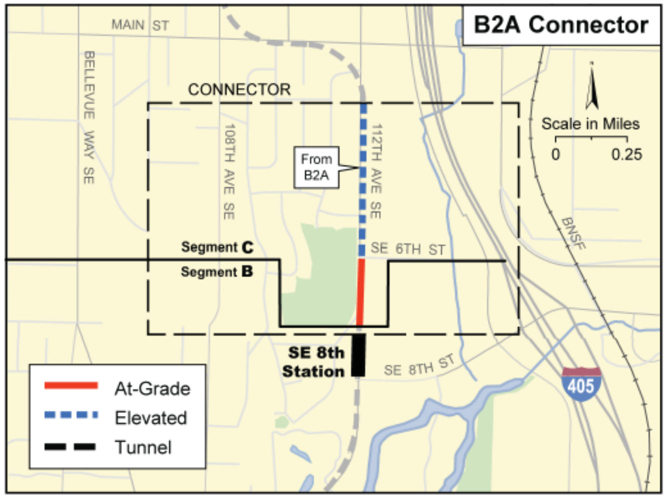
In order to provide information on the range of potential costs and impacts, this section presents a comparison of the 112th Bypass (B3S) option with the 112th NE At-Grade (B2A) option from the Draft EIS. The analysis was prepared for each of the downtown alternatives. When matched with the B2A alternative, three of the downtown alternatives (the tunnel and two at-grade alternatives) are $50 to $100 million less expensive. The C14E alignment is assumed to connect only to the 112th NE Bypass (B3S) or the BNSF alternative (B7) which does not have substantially different costs than the B3S approach to downtown. A summary of these costs and the differences in environmental impacts is shown in Table 5.

		Via B3S – 112th NE Bypass				**Via B2A – 112th NE At-Grade**		
		C9T	C9A	C11A	C14E	C9T	C9A	C11A
Estimated cost in millions ($2007)		$990	$640	$680	$560	$890	$540	$630
Difference between ST2 Plan budget ($705 M) and alternative cost		($285)	$65	$25	$145	($185)	$165	$75
Environmental impacts	Displacements (residential/business)	1/17	1/18	1/34	0/22	1/16	1/17	1/33
	Extent of noise mitigation needed	Slightly Lower	Higher	Slightly Higher	Higher	Slightly Higher	Higher	Higher
	Extent of vibration mitigation needed	Average	Average	Higher	Slightly Lower	Average	Average	Slightly Lower
	Park impacts (acres)	.16	.14	0	0	.16	.14	0
	Linear feet of impacts to Sturtevant Creek	650	650	650	650	550	550	550

Table 5. **Evaluation of Connector Options**


B3S Connector
MAIN ST
BELLEVUE WAY SE
CONNECTOR
108TH AVE SE
112TH AVE SE
East Main Station
Scale in Miles
0
0.25
From B3S
BNSF
Segment C
Segment B
SE 6TH ST
SE 8TH ST
405
At-Grade
Elevated
Tunnel

B3S Connector – 112th Bypass


B2A Connector
MAIN ST
BELLEVUE WAY SE
CONNECTOR
108TH AVE SE
112TH AVE SE
From B2A
Scale in Miles
0
0.25
BNSF
Segment C
Segment B
SE 6TH ST
SE 8th Station
SE 8TH ST
405
At-Grade
Elevated
Tunnel

B2A Connector – 112th At-Grade

Next Steps

This report will serve as the basis for a policy discussion about the future of a light rail route in downtown Bellevue. The report will be reviewed by the Sound Transit Board of Directors, the Bellevue City Council, business and neighborhood groups in Bellevue, and the general public at an open house. After collecting input through each of these activities, the Sound Transit Board of Directors will identify a preferred alternative.

Once a preferred alternative for downtown Bellevue is identified, Sound Transit will complete preliminary engineering for the downtown Bellevue segment (similar to the work currently being done in the other segments). Sound Transit will also publish the project’s Final EIS at the end of 2010. Sound Transit expects to begin final design in 2011 and begin construction as soon as 2013.

CH2MHILL

112th Avenue Light Rail Options

Concept Design Report

JUNE 2010

TBG060310124909PGH

PREPARED FOR

SOUNDTRANSIT

CITY OF BELLEVUE WASHINGTON

PREPARED BY

CH2MHILL

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Introduction

Project Overview

Sound Transit is studying an extension of the light rail system from Downtown Seattle east to Bellevue and Redmond, as shown in Figure 1. The East Link Project would connect the Eastside's biggest population and employment centers and serve 45,000 to 50,000 daily riders on one of the region's most congested travel corridors. Sound Transit is preparing a Supplemental Draft Environmental Impact Statement (SDEIS) to address new or changed project alternatives. The SDEIS is anticipated to be issued in Fall 2010. A Final EIS for the East Link Project is scheduled to be issued in spring 2011.

The East Link project faces two sources of financial pressure. First, revenue forecasts for the ST2 plan, including East Link, have decreased by 20%. Second, funding for a tunnel in downtown Bellevue is not included in the ST2 Plan. Project savings need to be identified to address both these financial pressures

In the fall of 2009, Sound Transit conducted a value review and recommended the 112th Avenue alignment as a potential cost saving measure. The February 2010 Downtown Bellevue Concept Design Report reviewed this alignment option, which has also been studied in the Draft EIS, and in April 2010, the Sound Transit Board of Directors identified a 112th Avenue alignment (known as the B2Modified Alternative) as the preferred alternative for Segments B and C, replacing Alternative B3S, identified as the Preferred Alternative by the Sound Transit Board in May 2009. Running the line on 112th Avenue is anticipated to cost less and reduce potential impacts on wetlands and streams.

The B2Modified Alternative includes the following elements:

- An elevated exit from the center of I-90 and preservation of direct high-occupancy vehicle (HOV) access from southbound Bellevue Way to westbound I-90 and eastbound I-90 to northbound Bellevue Way.
- An elevated profile on the east side of Bellevue Way to the South Bellevue Station.
- An elevated South Bellevue station on the existing park-and-ride lot property with a park-and-ride garage.
- An alignment along the east side of Bellevue Way to 112th Avenue SE that continues north from Bellevue Way along 112th Avenue SE to Downtown Bellevue.

To further refine B2Modified, Sound Transit is considering six design options that generally follow 112th Avenue SE from Bellevue Way to Downtown Bellevue. This 112th Alignment Options Concept Design Report provides the public and elected officials with

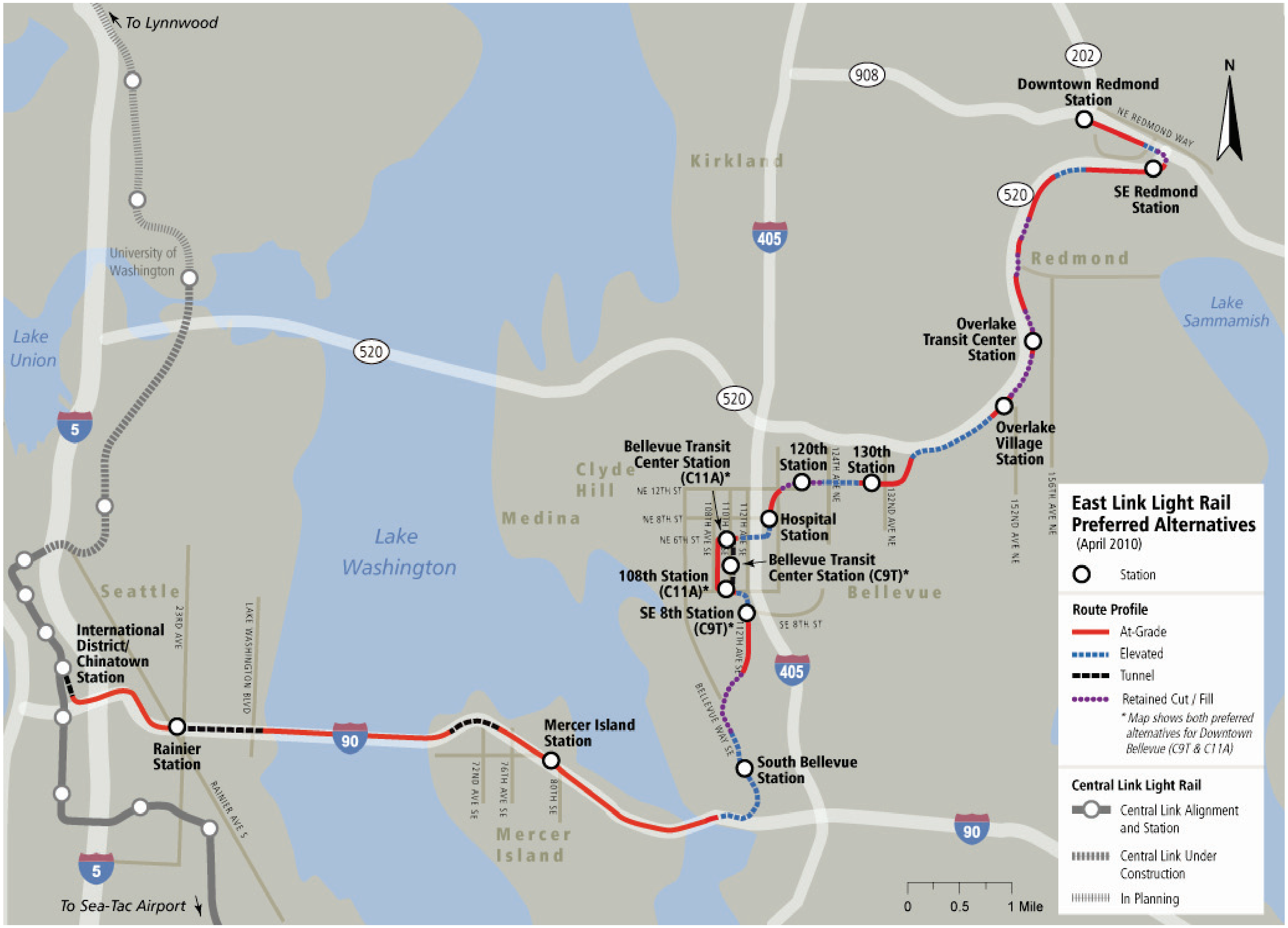

To Lynnwood
University of Washington
Lake Union
Kirkland
Redmond
Lake Sammamish
Lake Washington
Clyde Hill
Medina
Seattle
Bellevue
Mercer Island
908
202
520
405
5
90
N
Downtown Redmond Station
NE REDMOND WAY
SE Redmond Station
Overlake Transit Center Station
Overlake Village Station
Bellevue Transit Center Station (C11A)*
120th Station
130th Station
Hospital Station
Bellevue Transit Center Station (C9T)*
108th Station (C11A)*
SE 8th Station (C9T)*
South Bellevue Station
Mercer Island Station
Rainier Station
International District/ Chinatown Station
NE 12TH ST
NE 8TH ST
NE 6TH ST
108TH AVE SE
110TH
112TH AVE SE
124TH AVE NE
132ND AVE NE
152ND AVE NE
156TH AVE NE
SE 8TH ST
112TH AVE SE
BELLEVUE WAY SE
72ND AVE SE
76TH AVE SE
80TH SE
23RD AVE
LAKE WASHINGTON BLVD
RAINIER AVE S
To Sea-Tac Airport
0
0.5
1 Mile
East Link Light Rail Preferred Alternatives
(April 2010)
Station
Route Profile
At-Grade
Elevated
Tunnel
Retained Cut / Fill
*Map shows both preferred alternatives for Downtown Bellevue (C9T & C11A)
Central Link Light Rail
Central Link Alignment and Station
Central Link Under Construction
In Planning

Figure 1. **East Link Project Preferred Alternative (April 2010)**

information about each of the design options and facilitates the identification of an option that balances costs and potential impacts.

The 112th design options and report have been developed jointly by Sound Transit and the City of Bellevue.

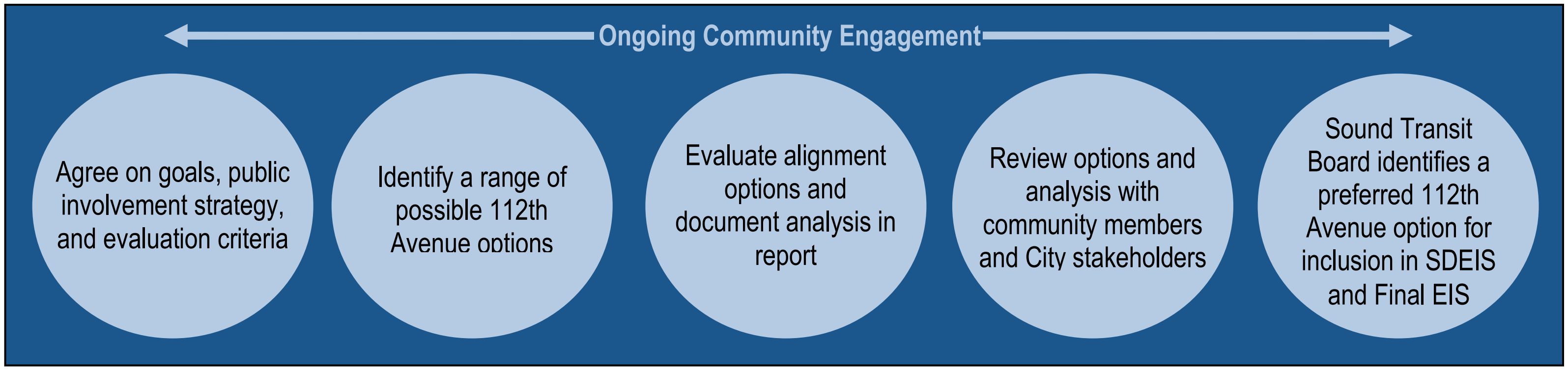
In late July, the Sound Transit Board intends to identify a preferred option along 112th Avenue after reviewing the information in this report and other input from the City of Bellevue and the community. Sound Transit will then complete preliminary engineering and environmental review for the project.

While identifying a preferred alternative is an important step in the process, it is not a final decision. All of the alternatives in the Draft EIS, including the City of Bellevue’s preferred alternative, B7, will continue to be carried forward and evaluated. The Sound Transit Board will select the final East Link route in 2011 after completion of the Final EIS. After the Final EIS, Sound Transit will complete final design, permitting, and construction.

Public Involvement and Technical Coordination

The technical information provided in this report was developed by Sound Transit, in coordination with the City of Bellevue. The option analysis process, illustrated in Figure 2, began with a technical workshop to develop alternatives and evaluation measures and has included opportunities for Sound Transit and City staff to review the analysis that is described in this report. In some cases, the City has undertaken a peer review of the Sound Transit consulting team's work to validate analysis. The work presented in this report represents analysis that has been reviewed by both the City and Sound Transit staff.

In addition to technical work, outreach staff from the City of Bellevue and Sound Transit have worked closely to develop and implement a program to support meaningful involvement of community members and stakeholders. Some outreach has already occurred and additional opportunities for involvement will follow publication of this report.


Ongoing Community Engagement

Agree on goals, public involvement strategy, and evaluation criteria

Identify a range of possible 112th Avenue options

Evaluate alignment options and document analysis in report

Review options and analysis with community members and City stakeholders

Sound Transit Board identifies a preferred 112th Avenue option for inclusion in SDEIS and Final EIS

Figure 2. **112th Alignment Options Analysis Process**

Description of 112th Avenue Options

The 112th Avenue options would provide a connection between the intersection of 112th Avenue SE and Bellevue Way in South Bellevue (Segment B) and Downtown Bellevue (Segment C).

Alignment Options

Six options that follow 112th Avenue from the “Y” at Bellevue Way have been developed. Each of these options follows 112th Avenue SE to Main Street, and some continue to NE 2nd Street. The options connect with one of the preferred Downtown Bellevue alignments, either the tunnel option (C9T-110th Tunnel) or the at-grade option (C11A-108th At-Grade).

Four options are compatible with the preferred downtown tunnel alternative (C9T-110th Tunnel). Two of these options, a center running and a westside running, would enter the tunnel at Main Street. The other two options, a center running and an eastside running, would enter the tunnel at NE 2nd Street. The final two options, a center running and a westside running option, are compatible with the preferred at-grade downtown alternative (C11A-108th At-Grade).

Cross-section and Profiles

The options include several profiles:

- At-grade – a profile that is generally at street level within or adjacent to the street. Street crossings are at traffic signals or are gated.
- Elevated – a profile that is higher than street level on a structure (bridge). Light rail generally passes over intersections and streets so gates or signals are not required.
- Retained cut – a profile that is below street grade in a trench with a retaining wall on one or both sides. Streets and driveways generally cross over the light rail alignment on short bridges or lids so gates or signals are not required.
- Tunnel – a profile that is underground and below a street, sidewalk, or other land use. All tunnel options included in this report are assumed to be cut and cover construction.

The options also have different cross-sections. The light rail alignment would operate on the eastside, westside, or in the center of 112th Avenue SE. The current travel lanes on 112th Avenue SE would be maintained with two southbound and two northbound lanes.

Descriptions of Options

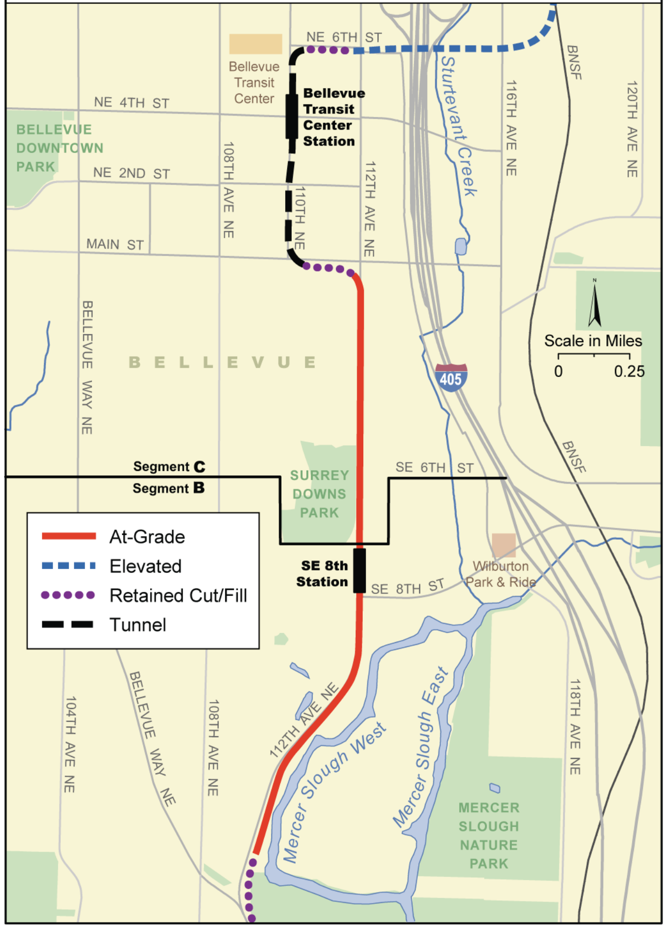
Option 1: Center Running to Main Street Tunnel

With Option 1, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions to street level and travels on the east side of 112th Avenue SE. Just south of SE 15th Street, light rail crosses the northbound lanes of 112th Avenue SE at a gated crossing and continues north in the center of 112th Avenue SE, still at-grade. An at-grade station is located in the center of 112th Avenue SE north of SE 8th Street.

South of Main Street, light rail crosses the southbound lanes of 112th Avenue SE at a gated crossing and curves to the west along Main Street in a retained cut “trench.” Just east of 110th Place and Main Street, light rail then transitions to a tunnel that follows 110th Avenue NE to an underground Bellevue Transit Center Station under 110th Avenue NE at NE 4th Street.

The following sections describe and illustrate each of the six 112th Avenue options. More detailed maps of the options are provided in Appendix A.

Option 1: Center Running to Main Street Tunnel


NE 6TH ST
Bellevue Transit Center
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
120TH AVE NE
BNSF
MAIN ST
BELLEVUE WAY NE
BELLEVUE
405
Scale in Miles
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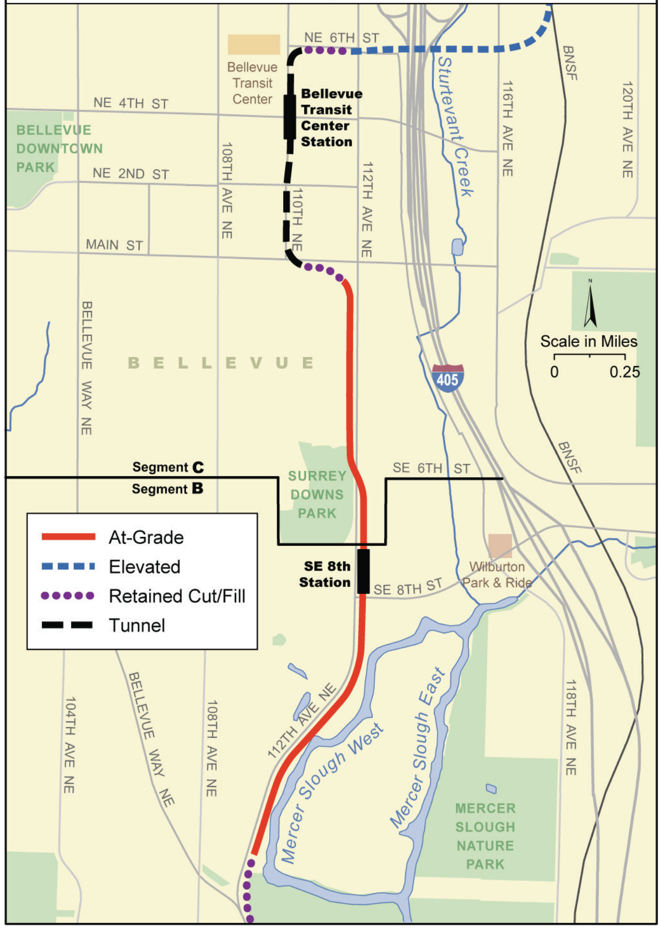
0.25
Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
At-Grade
Elevated
Retained Cut/Fill
Tunnel
SE 8th Station
SE 8TH ST
Wilburton Park & Ride
104TH AVE NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE

Option 2: Westside Running to Main Street Tunnel

With Option 2, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions to street level and travels on the east side of 112th Avenue SE. The crossings of SE 8th and 15th streets are gated. An at-grade station is located north of SE 8th Street.

At the SE 6th Street traffic signal, light rail crosses 112th Avenue SE and travels along the west side of the street. South of Main Street, the alignment transitions to a tunnel that follows 110th Avenue NE to an underground Bellevue Transit Center Station under 110th Avenue NE at NE 4th Street.

Option 2: Westside Running to Main Street Tunnel


NE 6TH ST
Bellevue Transit Center
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
120TH AVE NE
BNSF
BELLEVUE WAY NE
B E L L E V U E
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Scale in Miles
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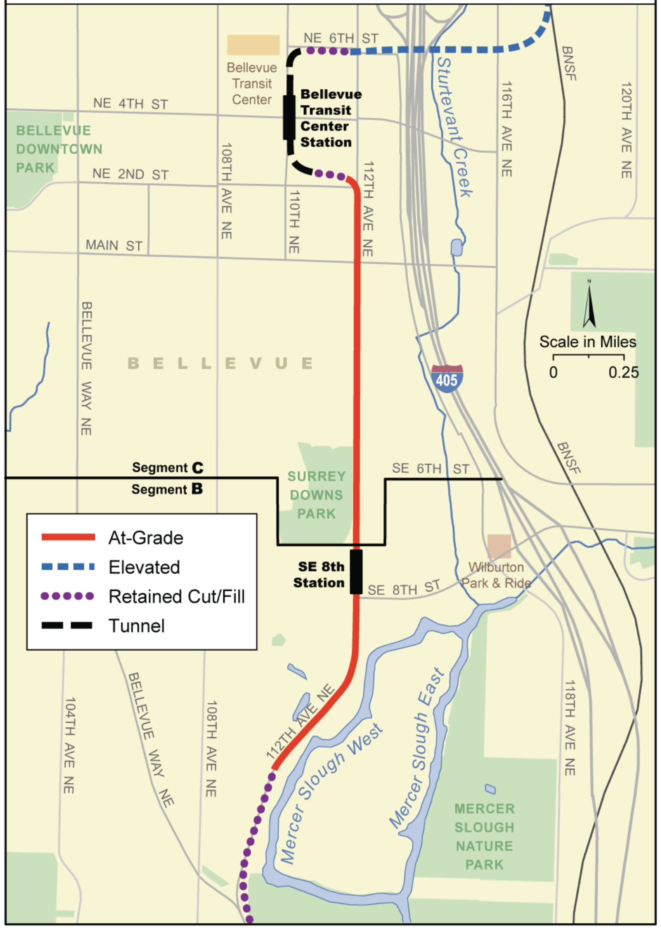
Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
SE 8th Station
SE 8TH ST
Wilburton Park & Ride
At-Grade
Elevated
Retained Cut/Fill
Tunnel
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE
BNSF

Option 3: Center Running to 2nd Street Tunnel

With Option 3, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail crosses to the center of 112th Avenue SE. At this crossing, the light rail alignment is below street level; the northbound lanes of 112th Avenue SE cross over the tracks to accommodate the transition from the trench to the center of 112th Avenue SE.

Light rail travels at-grade in the center of 112th Avenue SE with an at-grade station north of SE 8th Street. Light rail crosses the southbound lanes of 112th Avenue SE at NE 2nd Street. It then transitions to a tunnel that follows 110th Avenue NE to an underground Bellevue Transit Center Station under 110th Avenue NE at NE 4th Street.

Option 3: Center Running to 2nd Street Tunnel



NE 6TH ST
Bellevue Transit Center
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
Sturtevant Creek
BNSF
BELLEVUE WAY NE
B E L L E V U E
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Scale in Miles
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Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
SE 8th Station
SE 8TH ST
Wilburton Park & Ride
At-Grade
Elevated
Retained Cut/Fill
Tunnel
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE
BNSF

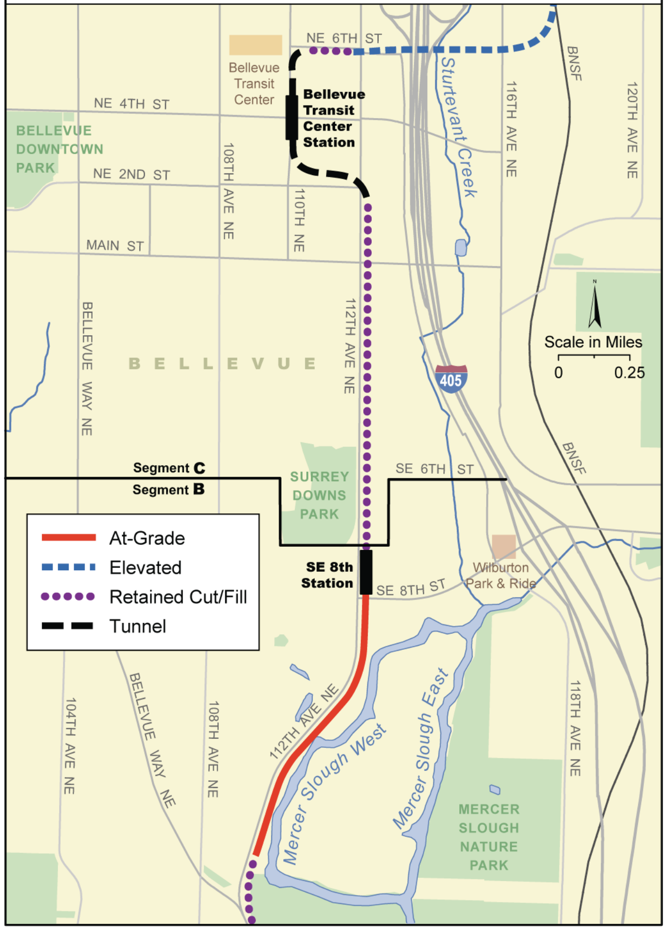
Option 4: Eastside Running to 2nd Street Tunnel

With Option 4, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions from a retained cut “trench” to a street-level route on the east side of 112th Avenue SE. Light rail crosses SE15th and SE 8th streets at gated crossings.

A street-level station is located north of SE 8th Street. At the station, light rail begins to transition to a retained cut “trench” along the east side of 112th Avenue SE. SE 6th Street, driveways, and Main Street cross over the light rail tracks on short bridges or lids.

South of NE 2nd Street, light rail transitions to a tunnel, which begins along 112th Avenue NE, then follows NE 2nd to 110th Avenue NE, where there is an underground station below NE 4th Street.

Option 4: Eastside Running to 2nd Street Tunnel


NE 6TH ST
Bellevue Transit Center
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
BNSF
120TH AVE NE
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Scale in Miles
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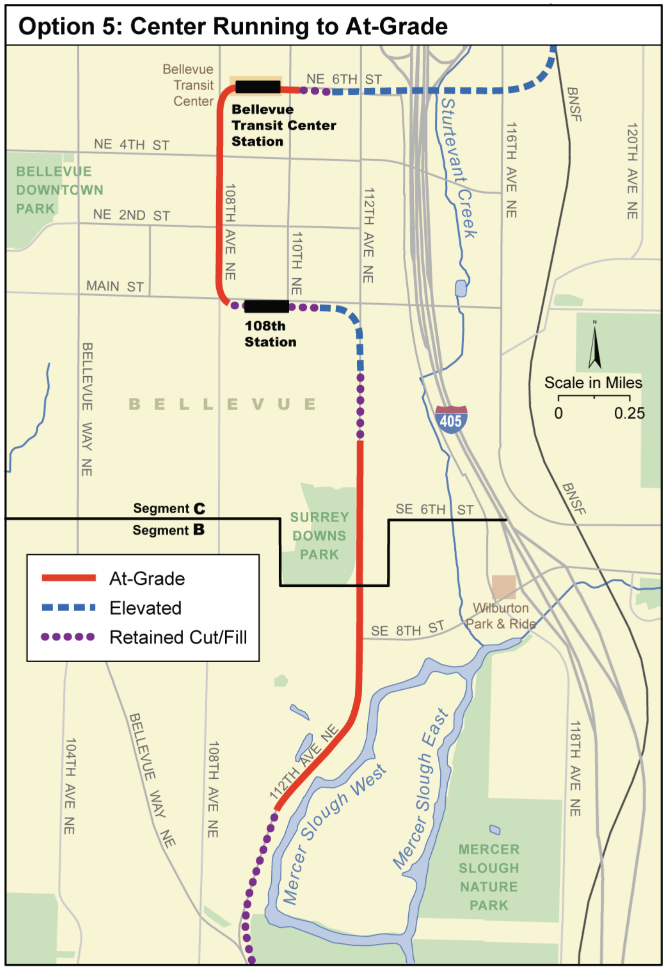
BELLEVUE WAY NE
BELLEVUE
Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
BNSF
SE 8th Station
SE 8TH ST
Wilburton Park & Ride
At-Grade
Elevated
Retained Cut/Fill
Tunnel
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE

Option 5: Center Running to At-Grade

With Option 5, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions from a retained cut “trench” to a street-level route in the middle of 112th Avenue SE. At this crossing, the light rail alignment is below street level; the northbound lanes of 112th Avenue SE cross over the tracks to accommodate the transition from the trench to the center of 112th Avenue SE.

North of SE 4th Street, light rail transitions to an elevated structure. It crosses over the southbound lanes of 112th Avenue SE on an elevated structure and serves a station on the south side of Main Street between 110th Avenue NE and 108th Avenue NE. West of the station, light rail curves north on 108th Avenue NE at street level and serves an at-grade Bellevue Transit Center Station on NE 6th Street.


Option 5: Center Running to At-Grade
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
BNSF
120TH AVE NE
108th Station
BELLEVUE WAY NE
B E L L E V U E
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Scale in Miles
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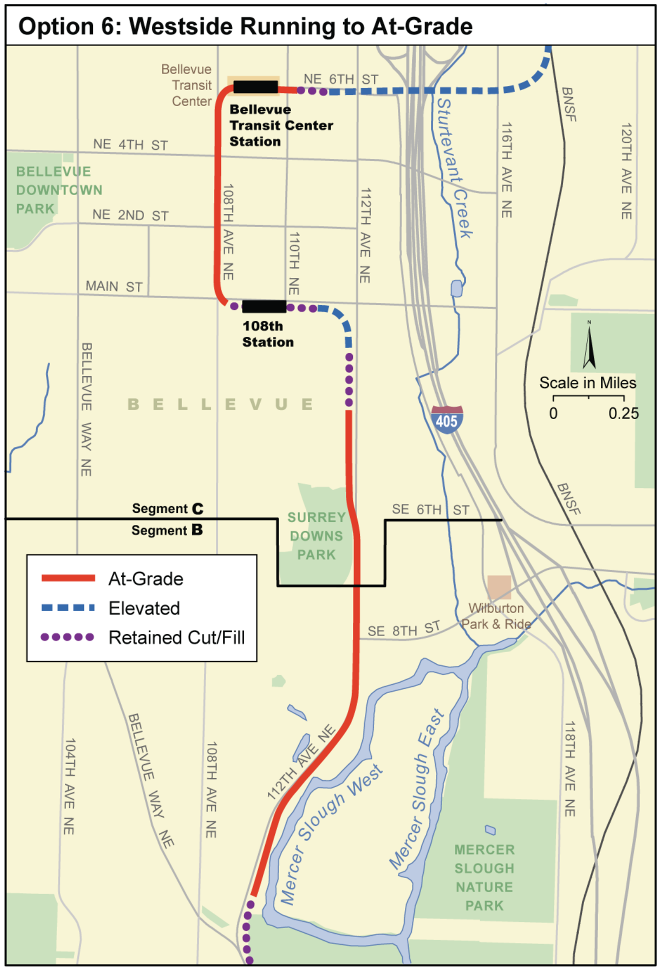
0.25
Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
BNSF
At-Grade
Elevated
Retained Cut/Fill
SE 8TH ST
Wilburton Park & Ride
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE

Option 6: Westside Running to At-Grade

With Option 6, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions from a retained cut “trench” to street level on the east side of 112th Avenue SE. South of SE 15th Street, light rail crosses the northbound lanes of 112th Avenue SE at a gated crossing and continues north in the center of 112th Avenue SE at street level.

At the SE 6th Street signal, light rail crosses the southbound lanes of 112th Avenue SE to run along the west side of 112th Avenue SE. North of SE 4th Street, light rail climbs to an elevated structure that crosses over SE 1st Street. Light rail transitions to street level, where it serves a station on the south side of Main Street between 110th Avenue NE and 108th Avenue NE. West of the station, light rail curves north on 108th Avenue NE at street level to an at-grade Bellevue Transit Center Station on NE 6th Street.


Option 6: Westside Running to At-Grade
Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
BNSF
120TH AVE NE
108th Station
BELLEVUE WAY NE
BELLEVUE
405
Scale in Miles
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0.25
BNSF
Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
At-Grade
Elevated
Retained Cut/Fill
SE 8TH ST
Wilburton Park & Ride
112TH AVE NE
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
Mercer Slough West
Mercer Slough East
118TH AVE NE
MERCER SLOUGH NATURE PARK

Evaluation of Options

This section summarizes and describes the evaluation of the 112th Avenue Options and the methodology used for the evaluation. Table 1 lists the criteria and measures used to identify and compare differences among the new options. These criteria were based on criteria found in the Draft EIS. Table 2 summarizes the results of the evaluation of the 112th Avenue options for each criterion.

Table 1. **Criteria and Measures**

Criteria	Measures
Capital cost reduction	Estimated capital cost reduction as compared to the Alternative B3S-C9T approach to Downtown Bellevue ($2007)
Transportation	Number of driveways converted to right-in/right-out (left turns are prohibited) or closed with alternate access available
	Number of side streets on 112th Avenue closed or restricted to right-in/right-out (where left turns are prohibited)
	Number of at-grade roadway crossings by light rail
	Number of study area intersections that fail to meet the City of Bellevue's level of service (LOS) standard before and after mitigation
Displacements	Number of residences displaced
	Number of businesses displaced
Transit Noise	Number of affected receivers before and after mitigation (receivers are defined as residences or other sensitive uses; each unit—hotel room, apartment, house—is counted as one receiver.)
Visual	No measure – see conceptual illustrations
Wetlands	Acres of wetland affected
	Acres of wetland buffer affected
Parks	Acres of parkland affected
Relative construction impacts	Qualitative comparison of construction disruption to those land uses along or using 112th Avenue, including utility relocation, general disruption, and street reconstruction
Relative construction duration	Qualitative comparison of construction duration

Table 2. **Summary of 112th Avenue Options Evaluation**

		Tunnel: Main Street Portal		Tunnel: 2nd Street Portal		108th Avenue At-Grade	
Criteria	**Measures**	**Option 1 (Center)**	**Option 2 (Westside)**	**Option 3 (Center)**	**Option 4 (Eastside)**	**Option 5 (Center)**	**Option 6 (Westside)**
Capital Cost Reduction	Estimated reduction in capital cost compared to B3S-C9T (millions, $2007)[a]	$75-125	$85-150	$105-170	$75-135	$255-425	$280-455
Transportation	Driveways converted to right-in, out or closed (with alternate access available)	15	2	15	2	15	6
	Changes to side streets (closed/ converted to right-in, right-out)	0/2	1/0	1/2	0/0	2/2	3/0
	At-grade roadway crossings	4	3	4	2	2	3
	Intersections that do not meet City LOS standard (without mitigation/ with mitigation)	1/0	1/0	0/0	1/0	1/0	1/0
Displacements	Residences displaced	1	46	0	0	2	46
	Businesses displaced	7	7	5	5	7	7
Transit Noise	Impacts (severe/moderate)	21/107	6/42	21/98	1/31	3/116	9/87
	Impacts after mitigation (severe/moderate)[b]	0/0	0/0	0/0	0/0	0/0	0/0
Visual	No measure	See conceptual illustrations in separate Appendix C					
Wetlands	Wetlands affected (acres)	0	0	0	0	0	0
	Wetland buffer affected (acres)	1.3	2.0	0.4	2.1	0.4	1.3
Parks	Parklands affected (acres)	0.5	1.4	0.2	0.3	0.2	1.0
Construction impacts	Relative construction disruption on 112th Avenue	Moderate to higher	Lower	Moderate to higher	Moderate	Moderate to higher	Moderate to lower
	Relative construction duration	Intermediate	Shortest	Intermediate	Longest	Intermediate	Intermediate

[a] Cost are presented in a range to reflect the uncertainty at this stage of design and estimating. Applying a similar uncertainty factor to the estimate of additional financing needed for updated preferred alternative with C9T in downtown Bellevue yields a range of $255 to 415 million.

[b] All interior impacts can be mitigated. There may be some residual impacts to outdoor areas.

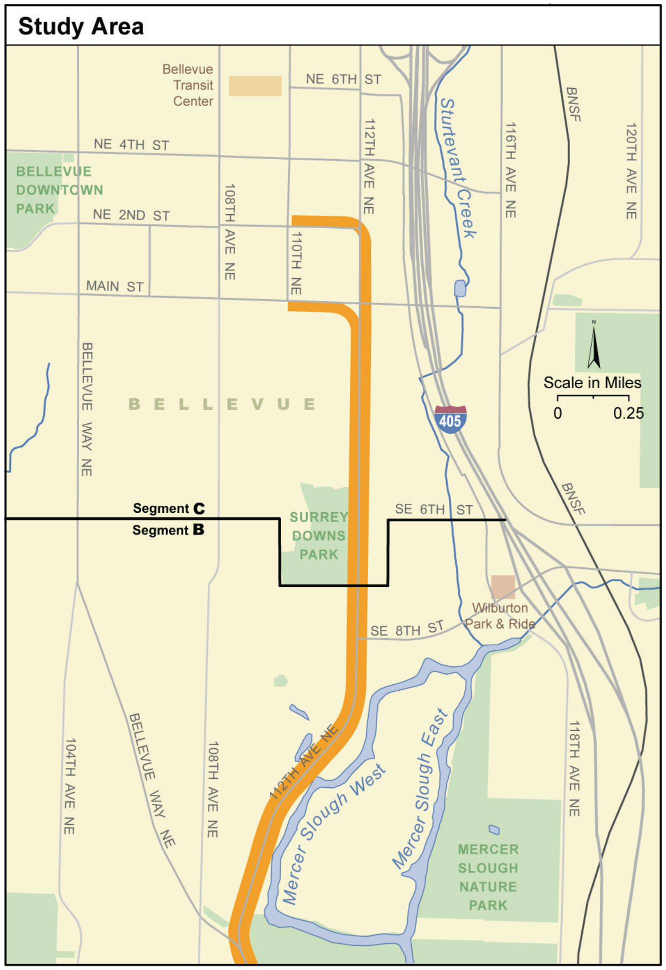
Summary of Methodology and Mitigation by Criteria

Sound Transit used a subset of the potential environmental impacts analyzed in the Draft EIS as a basis for the comparison of key environmental factors to differentiate among the options. Where applicable, a summary of potential mitigation is also provided.

The same study area was used for each criterion. Shown in Figure 3, the study area has been defined to highlight the differences among the 112th Avenue SE options. The study area is generally bounded by the “Y” at 112th Avenue SE and Bellevue Way to the south and at the point where each option meets 110th Avenue NE: either Main Street or NE 2nd Street.

The methodologies and mitigation proposals presented herein are preliminary and are only useful for comparisons among the options presented. The Supplemental Draft EIS and Final EIS will present more complete impact analyses and mitigation strategies for the preferred option.

The methodology and proposed mitigation for each criterion are summarized below.


Study Area
Bellevue Transit Center
NE 6TH ST
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
BNSF
120TH AVE NE
BELLEVUE WAY NE
B E L L E V U E
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Scale in Miles
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Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
SE 8TH ST
Wilburton Park & Ride
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE

Figure 3. **Study Area Map**

Capital Cost Reduction

Sound Transit calculated capital costs in 2007 dollars. Estimated capital costs include construction, right-of-way, construction cost markups for general conditions, overhead, profit and sales tax, a design allowance, and allocated contingency. Other costs reflected in the total capital cost include construction management, design (including environmental review, preliminary engineering, final design, and permitting), agency administration, construction contingency, and project reserve. For the purposes of this report, costs are reported as the reduction between the B3S approach to Downtown Bellevue and each 112th Avenue alignment option. A range of potential cost reductions are provided for each option. This approach of reporting a range reflects the limited conceptual level of design available and is consistent with the methodology used to prepare the estimates.

The potential cost reductions reflected in this report are preliminary estimates and are only useful in comparing among the options. After a preferred option is identified for this segment, an updated cost estimate will be presented in the Supplemental Draft EIS and Final EIS.

Transportation

The access and circulation measures characterize how the options would change residential and business driveways and street access along 112th Avenue. Sound Transit counted the number of residential and business driveways that would be converted from full-access to right-in/right-out in the study area. (Right-in/right-out refers to driveways where vehicle are restricted to turning right into the driveway and right out of the driveway.) Additionally, Sound Transit counted the number of locations along 112th Avenue SE where side street access would change by either closing the access or converting it to right-in/right-out. Sound Transit also counted the number of light rail at-grade street crossings. Crossings could either occur at signalized intersections or through gated crossings.

To measure traffic congestion, Sound Transit completed a traffic modeling analysis to predict the number of intersections on 112th Avenue SE and its cross streets that would fail to meet City of Bellevue LOS standards after the light rail project. At intersections that would fail to meet the City's LOS standards with light rail, Sound Transit would provide roadway improvements to mitigate these impacts. Sound Transit also counted the number of intersections that would not meet the City's LOS standard after these mitigation measures are implemented. The analysis reflects conditions during the afternoon peak period in the year 2030.

Displacements

Sound Transit counted displacements based on properties identified as requiring demolition of buildings. The number of businesses and residences affected was determined based on property site visits conducted during 2007 for the Draft EIS. The number of residences and businesses affected includes the number of individual residences in the case of multifamily housing and the number of individual businesses affected in the case of multiple businesses located in single building or on a single property.

Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines and would comply with the appropriate provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the State of Washington's relocation and property acquisition regulations (Washington Administrative Code 468-100 and Revised Code of Washington 8.26).

Transit Noise

Sound Transit conducted a preliminary analysis of potential noise impacts based on criteria defined by the Federal Transit Administration (FTA). The analysis considers light rail noise impacts to residential areas and to other noise sensitive land uses such as hotels and associated outdoor spaces. There are two levels of impact included in the FTA criteria: moderate and severe. The impact criteria for both moderate and severe criteria varies according to the level of existing ambient noise. A severe noise impact can be expected to cause a higher percentage of people to be highly annoyed. See Appendix B for additional discussion of noise basics and noise impact maps.

Noise analysis is based on existing noise measurements in the study area. Six long-term noise-monitoring locations were used for this analysis. Existing noise levels at single-family and multifamily residences along 112th Avenue SE ranged from 70 dBA Ldn for residents directly adjacent to 112th Avenue SE to 60 dBA Ldn for properties farther away from 112th Avenue SE. These noise levels have been used in the noise model to determine impacts.

The analysis used to evaluate the impacts of the options is based upon the change in the environmental noise level due to each option and the number of dwelling units potentially affected by project noise. Input to the noise model for this analysis included the following:

- Noise measurement levels from the Central Link light rail line
- On-board bells sounded at each signalized or gated crossing and sounded when entering or departing a station.
- Warning bells at crossing gates.
- Speed of light rail trains.
- Elevation of properties and topographic features that could affect noise transmission.
- Design of option including track elevations, places where the tracks meet (crossovers) or locations of other special trackwork.

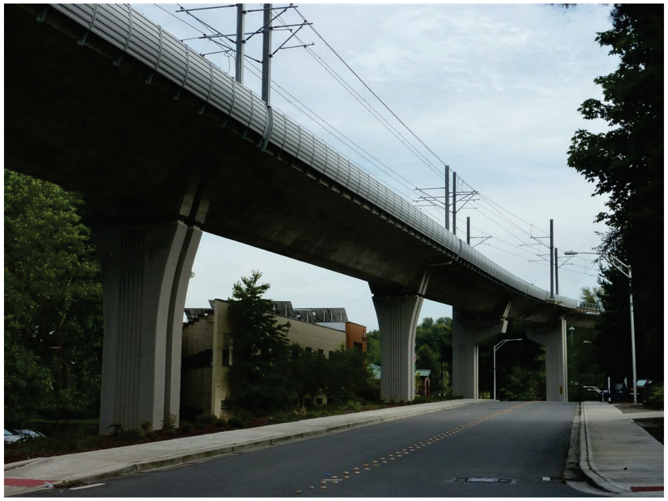


Figure 4. **Example of sound wall on elevated structure**

- Track types assumptions for the noise analysis were:
    - Embedded in roadway for center-running profiles
    - Ballasted (on a gravel bed) for at-grade side-running profiles
    - Direct fixation of rails on concrete for elevated and retained cut/fill profiles

The potential for wheel squeal on curves is discussed qualitatively and was not modeled. Further analysis of noise impacts and mitigation will be conducted during the Supplemental Draft EIS and Final EIS process. The analysis presented in this report is intended for purposes of comparing these options only. Noise mitigation will be developed as the design is advanced. Mitigation can include sound walls, residential sound insulation, special trackwork modifications, track lubrication, and different types of track. Where sound walls or mitigation at the noise source are ineffective, building sound insulation would be used. Building insulation would not reduce noise for outdoor activities. Ballasted track (track constructed on a gravel bed) can reduce noise levels through greater sound absorption compared to embedded track, sometimes called paved track, which is set into the street.

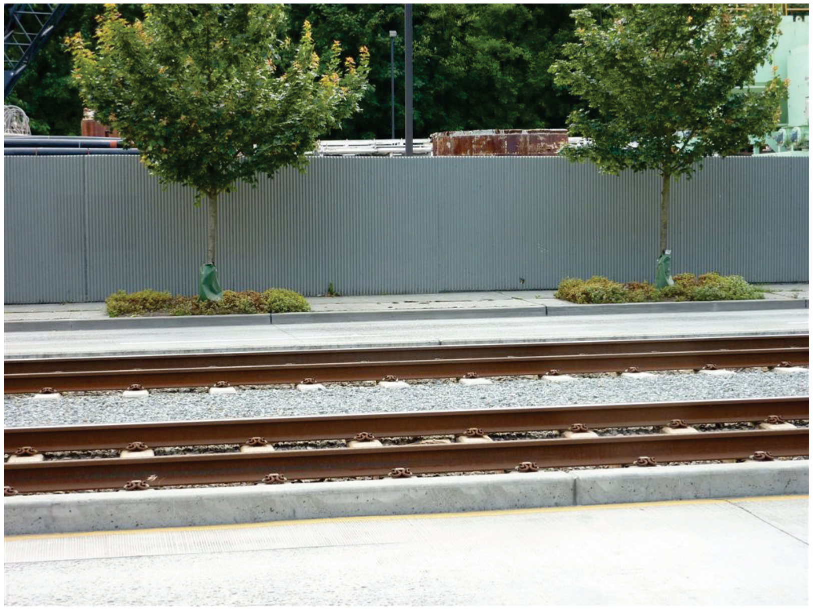


Figure 5. **Example of at-grade sound wall**

Visual

Conceptual illustrations suggesting how each light rail option may look in the corridor are provided in the separately bound Appendix C.

Wetlands

Sound Transit calculated wetland and wetland buffer impacts by overlaying conceptual designs of the alternatives onto maps representing wetland and wetland buffer areas. The identification of wetland and wetland buffer resources in the study area relies on available data from the City of Bellevue. Sound Transit is committed to no net loss of wetlands. None of the proposed options would have wetland impacts, but the options would have varying amounts of buffer impacts along 112th Avenue SE between Bellevue Way and SE 8th St.

Parks

Sound Transit calculated park impacts by overlaying conceptual designs of the alternatives on maps representing park areas provided by the City of Bellevue and confirmed through field work conducted for the 2008 Draft EIS.

All park impacts would be mitigated based on agreements with the City of Bellevue, with one or more of the following mitigation measures:

- Acquiring replacement lands of comparable value and function
- Financial compensation (which could be used to enhance the remaining land)
- Restoration of disturbed park areas
- Other measures as agreed with the City of Bellevue

For property at the Mercer Slough Nature Park purchased through the Land and Water Conservation Fund, mitigation would be implemented in consultation with the National Park Service.

Construction Impacts

Sound Transit developed a qualitative assessment of the disruption to residents, businesses, and street-level activity associated with each option. This measure is intended to highlight the differences in construction disruption to those who live, work, or do business along the 112th Avenue corridor during the most intense construction phases associated with each option. The primary disruptions would include temporary impacts to traffic and access and general disruption (e.g., noise, dust) to adjacent businesses and residents.

Sound Transit also prepared a qualitative comparison of construction duration. Construction duration is affected by construction type and typical production rates for each construction type. The reported qualitative comparison is based on assessment of a typical project comprising the different construction types. The actual construction schedule has not been determined, but would be developed as project design advances.

Evaluation Summary by Option

Option 1: Center Running to Main Street Tunnel

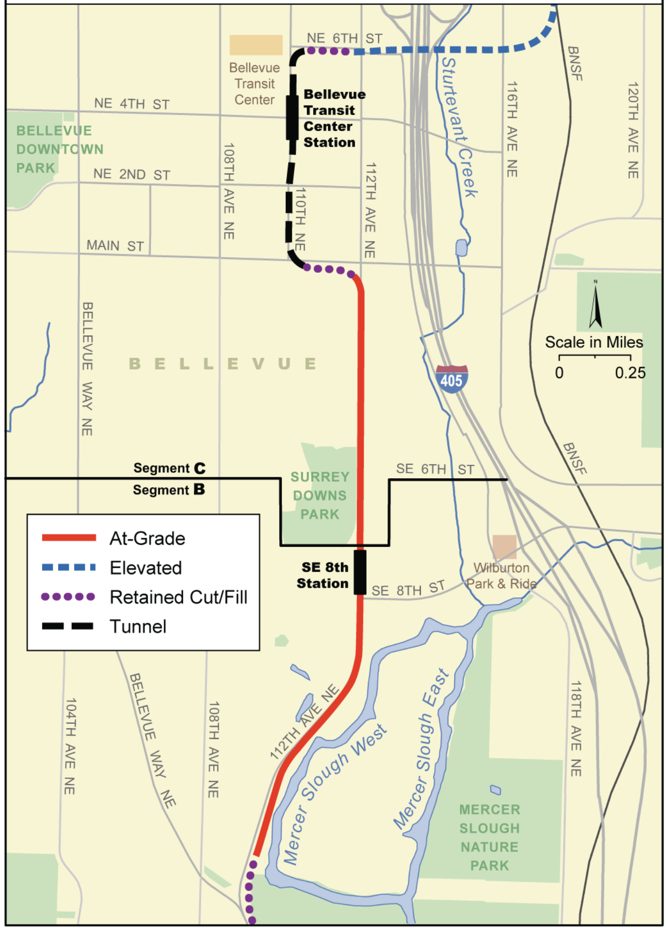
Transportation

Like the other center-running alignments where vehicles can only cross the tracks at signalized intersections, Option 1 would require converting 14 driveways to right-in, right-out and closing one driveway to a property with alternate access. SE 1st Street and SE 4th Street intersections along 112th Avenue SE would remain open, allowing for right-in, right-out movements only. As with all center-running alignments, u-turn movements would be accommodated at SE 8th, SE 6th, and Main street intersections along 112th Avenue SE to continue providing access to all properties.

With Option 1, light rail would have at-grade street crossings at SE 8th Street and SE 6th Street and to and from the center of 112th Avenue SE. With four crossings, Option 1, along with Option 3, would have the most at-grade light rail crossings.

Like the other options, with small changes to intersections, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards. An eastbound right-turn pocket could be provided at the intersection of Main Street and 112th Avenue to reduce traffic congestion that would occur with the gated light rail crossing immediately south of this intersection.

Option 1: Center Running to Main Street Tunnel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Wilburton Park & Ride
At-Grade
Elevated
Retained Cut/Fill
Tunnel
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
118TH AVE NE

Displacements

Option 1 would displace 1 single-family residence—fewer total residential displacements than Options 2 and 6, which would affect more than 40 homes. Option 1 would displace seven businesses, located primarily along the south side of Main Street. This is more than Options 3 and 4 and the same as the remaining options.

Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report.

Transit Noise

As with all options, noise impacts from Option 1 would be mitigated. Option 1 would result in 107 moderate impacts and 21 severe impacts. The severe impacts are associated with the crossover near SE 4th Street and would affect 20 multifamily residences and 1 single-family residence along 112th Avenue SE. The moderate impacts would affect 30 single-family residences, 43 multifamily residences and 32 hotel rooms, tennis courts and the pool at the Bellevue Club Hotel. The single-family residences are primarily located west of 112th Avenue SE between Bellevue Way SE and Surrey Downs Park. The multifamily residences are located at the Bellefields Residential Park and along 112th Avenue SE between SE 4th and SE 1st streets.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE, sound walls along the tracks and sound insulation where necessary. Mitigation for crossover noise could include the installation of special noise-reducing trackwork. Impacts north of Surrey Downs Park on the west side of 112th Avenue SE could be mitigated with a sound wall adjacent to the tracks, if practical, and/or with sound insulation. The impacts at the Bellevue Club Hotel could be mitigated by a sound wall on the eastside of 112th Ave SE. Mitigation for the upper floors of the hotel may also require sound insulation. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetlands and Wetland Buffer

This option would affect 1.3 acres of wetland buffer along the west side of Mercer Slough, the same as with Option 6. This impact is more than with Options 3 and 5 and less than with Options 2 and 4. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer or compensation to pre-approved wetland mitigation bank.

Parks

Option 1 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	0.2 acre

Option 1 would affect 0.5 acre of parklands. 0.3 acre of this impact would be to Mercer Slough Park and 0.2 acre to Surrey Downs Park. Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on

Surrey Downs Park could also be mitigated by financial compensation or replacement land such as development of acquired properties adjacent to and north of the park.

Construction Impacts

Option 1 would be constructed primarily in the center of 112th Avenue with full width roadway reconstruction. Like all options that would operate in the center of 112th Avenue, Option 1 would require a relatively high level of utility relocations, and roadway widening would be required primarily to the east of 112th Avenue SE. Retaining wall structures would be constructed behind the sidewalk on the east side of the roadway. The construction impacts resulting from this type of construction would cause a moderate to higher level of disruption, similar to the other options that operate in the center of 112th Avenue. The duration of construction would be longer than Option 2 and shorter than Option 4, and it would be similar to Options 3, 5 and 6.

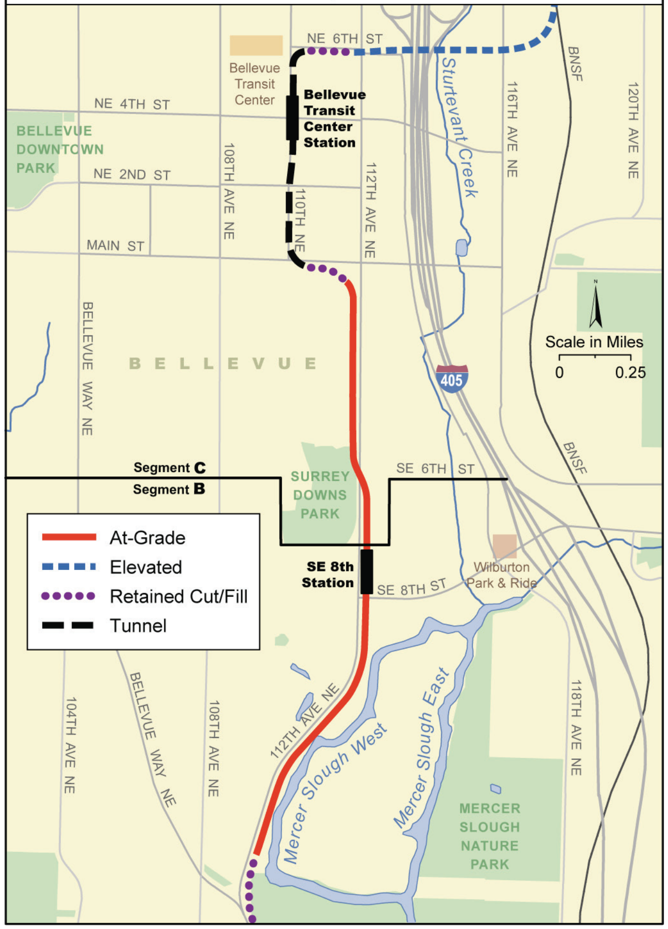
Option 2: Westside Running to Main Street Tunnel

Transportation

Option 2 would require closing two driveways to properties with other access already available. The intersection of SE 1st Street and 112th Avenue SE would be closed.

Option 2, along with Option 6, would have three at-grade roadway crossings; it would cross SE 15th and SE 8th streets in side-running areas and cross 112th Avenue SE at SE 6th Street. This is more than Options 4 and 5 and fewer than Options 1 and 3.

Option 2: Westside Running to Main Street Tunnel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BELLEVUE WAY NE
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Mercer Slough West
Mercer Slough East
118TH AVE NE
MERCER SLOUGH NATURE PARK

As with all options, with small improvements to intersections, no intersections on 112th Avenue SE would fail to meet the City of

Bellevue's LOS standards. A northbound right-turn pocket could be provided at the SE 8th Street and 112th Avenue SE intersection to reduce traffic congestion at this side-running gated light rail crossing.

Displacements

Option 2 would displace 5 single-family residences and 41 multifamily residences, more than would be displaced under Options 1, 3, 4, and 5 and the same as Option 6. Option 2 would also displace seven businesses, primarily along the south side of Main Street. This represents more business displacements than Options 3 and 4 and the same as Options 1, 5 and 6.

Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 2 would be mitigated. Option 2 would result in 42 moderate impacts and 6 severe impacts. The six severe impacts would affect single-family residences due to the crossover near SE 4th Street. The 42 moderate impacts would affect 16 multifamily units at the Bellefield Residential Park, 25 single-family residences, and the tennis courts at the Bellevue Club.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE along with sound insulation where required. North of Surrey Downs Park, impacts on single-family residences could be mitigated with a sound wall and noise-reducing trackwork at the crossover. Noise impacts at the Bellevue Club could be mitigated with a sound wall. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

Option 2 would affect approximately 2 acres of wetland buffer along the west side of Mercer Slough. This option, along with Option 4, would have the greatest impact on the wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 2 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	1.1 acre

Option 2 would affect the most parkland (1.4 acres), relative to the other options. The impact on Surrey Downs Park, which would be affected by both the light rail alignment and the realignment of SE 4th Street to create a four-way intersection with SE 6th Street and 112th Avenue SE, would be the largest of any option.

Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by development of acquired properties adjacent to and north of the park.

Construction Impacts

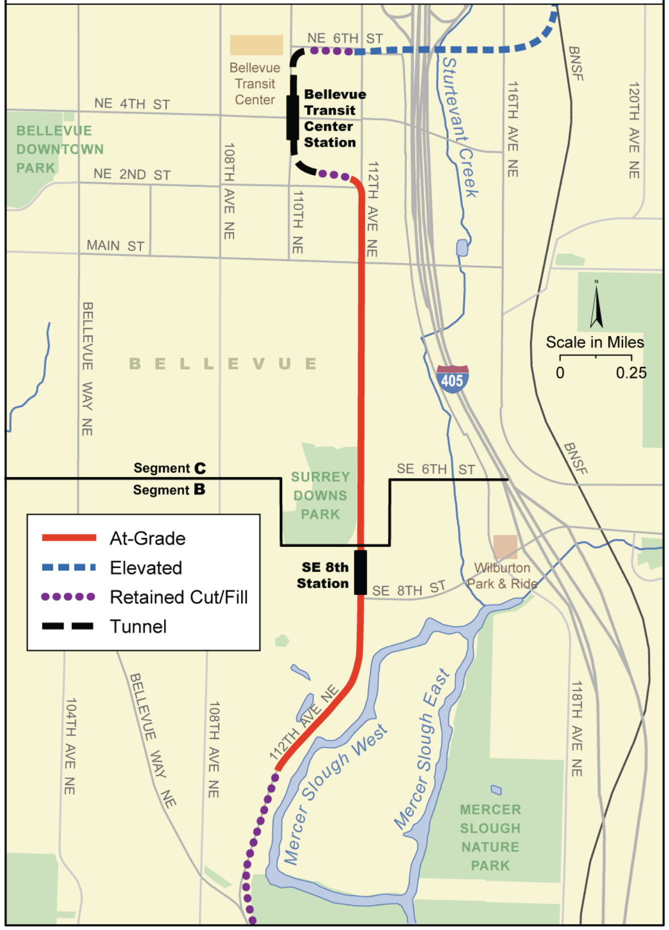
Option 2 would be constructed on the east side of 112th Avenue SE south of SE 6th Street and on the west side of 112th Avenue SE north of SE 6th Street. Option 2 would require partial roadway reconstruction to accommodate additional traffic turn lanes and to restore areas disrupted by construction activities, and would require fewer utility relocations than other options. Retaining wall structures would be constructed on the outside of the light rail tracks due to existing topography. This option would result in a lower level of construction disruption to the traveling public, businesses, and residents. The construction duration would be the shortest of any option.

Option 3: Center Running to 2nd Street Tunnel

Transportation

Like the other center-running alignments where vehicles can only cross the tracks at signalized intersections, Option 3 would require converting 14 driveways to right-in, right-out and closing one driveway to a property with alternate access. Similar to the driveway changes, the SE 1st Street and SE 4th Street intersections along 112th Avenue SE would remain open, allowing for right-in, right-out movements only. In addition, 111th Avenue NE at NE 2nd Street

Option 3: Center Running to 2nd Street Tunnel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SE 8TH ST
Wilburton Park & Ride
112TH AVE NE
Mercer Slough West
Mercer Slough East
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
118TH AVE NE
MERCER SLOUGH NATURE PARK

would be closed. As with all center-running alignments, u-turn movements would be accommodated at SE 8th, SE 6th and Main street intersections along 112th Avenue SE to continue providing access to all properties.

With Option 3, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards.

Displacements

Option 3 would have no residential displacements. It would displace five businesses along the north side of NE 2nd Street. This option, along with Option 4, would have the fewest displacements. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 3 would be mitigated. Option 3 would result in 98 moderate impacts and 21 severe impacts. The 21 severe impacts would affect 20 multifamily residences and 1 single-family residence near the crossover at SE 4th Street. The moderate impacts would affect 43 multifamily units and 21 single-family residences, along with 32 hotel rooms and the tennis courts and pool at the Bellevue Club Hotel.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE with sound insulation where necessary. North of Surrey Downs Park, noise impacts could be mitigated with a sound wall for the Bellevue Club Hotel, while impacts to residences along the westside of the tracks could be mitigated with sound walls near the tracks, sound insulation and use of special noise-reducing trackwork at the crossover. There is the potential for wheel squeal at the curve by 112th Avenue and NE 2nd St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

Option 3 would affect approximately 0.4 acre of wetland buffer along Mercer Slough. This option, along with Option 5, would have the least impact on the wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 3 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
< 0.1 acre	0.2 acre

Option 3 would affect 0.2 acre of parkland. Less than one tenth of an acre of this impact would be to Mercer Slough Park and 0.2 acre would be to Surrey Downs Park. Option 3, along with Option 5, would have the least impact on Mercer Slough Park. Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by financial compensation, acquisition of replacement land or other measures as agreed to with the City.

Construction Impacts

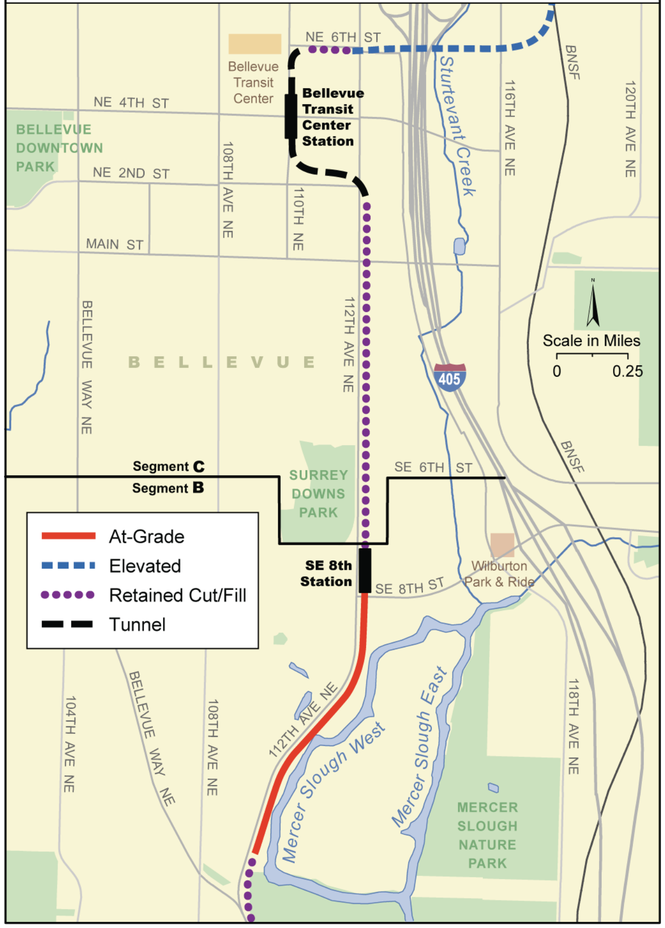
Option 3 would be constructed primarily in the center of 112th Avenue SE. Like other options that operate in the center of 112th Avenue, Option 3 would require reconstructing the entire roadway and a greater level of utility relocations. Roadway widening would occur primarily to the east of 112th Avenue SE. Roadway retaining wall structures would be constructed behind the sidewalk on the east side of the roadway. Option 3 would cause a moderate to higher level of construction disruption, similar to other center running options, for a similar amount of time as would occur with Options 1, 5 and 6.

Option 4: Eastside Running to 2nd Street Tunnel

Transportation

Option 4 would require closing two driveways for properties with other access available. It would maintain access at SE 8th and 15th streets before transitioning to a grade-separated eastside alignment.

Option 4: Eastside Running to 2nd Street Tunnel



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Mercer Slough East
118TH AVE NE
MERCER SLOUGH NATURE PARK

Option 4, along with Option 5, would have the fewest at-grade light rail crossings because it is grade-separated north of SE 8th Street.

As with all options, assuming minimal intersection improvements, no intersections on 112th Avenue SE would fail to meet the City of

Bellevue's LOS standards. A northbound right-turn pocket could be provided at the intersection of SE 8th Street and 112th Avenue SE to improve traffic congestion at this gated light rail crossing.

Displacements

Option 4 would have no residential displacements and would displace five businesses along the north side of NE 2nd Street. This option, along with Option 3, would have the fewest displacements. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 4 would be mitigated. Option 4 would result in 31 moderate impacts and 1 severe impact. The severe impact would affect the Bellevue Club pool. Moderate impacts would affect 15 single-family residences and 16 multifamily residences at the Bellefields Residential Park and the Bellevue Club tennis courts. Noise from this option would affect fewer receptors than other options north of SE 6th St because much of the light rail track is located in a retained cut through this area.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE with sound insulation where necessary. Mitigation for impacts at the Bellevue Club Hotel could include noise walls and special noise reducing track work at the crossover. The curve by 112th Avenue and NE 2nd St is in a tunnel and any wheal squeal is not likely to create impacts.

Wetland and Wetland Buffer

Option 4 would affect 2.1 acres of wetland buffer on the west side of Mercer Slough. This option would have the greatest impact on wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 4 would affect about 0.3 acre of parkland, all of which would be in the Mercer Slough Nature Park. These impacts would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue.

Option 4 Parks Impacts

Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	No impact

Construction Impacts

Option 4 would be constructed on the east side of 112th Avenue SE south of SE 8th Street and in a retained cut north of SE 8th Street.

This option would require partial roadway reconstruction to accommodate additional traffic turn lanes and to restore areas disrupted by construction activities, and it would require few utility relocations. For the retained cut area, it would require extensive retaining walls and bridge structures for cross street and driveway access. Option 4 would result in a moderate level of construction impacts for the longest duration, compared to the other options.

Option 5: Center Running to At-Grade

Transportation

Like the other center-running alignments where vehicles can only cross the tracks at signalized intersections, Option 5 would require converting 14 driveways to right-in, right-out and closing one driveway to a property with alternative access. Similar to the driveway changes, the SE 1st Street and SE 4th Street intersections along 112th Avenue SE would remain open, allowing for right-in, right-out movements only. Access to Main Street from 110th Place SE and 110th Avenue SE would be closed.

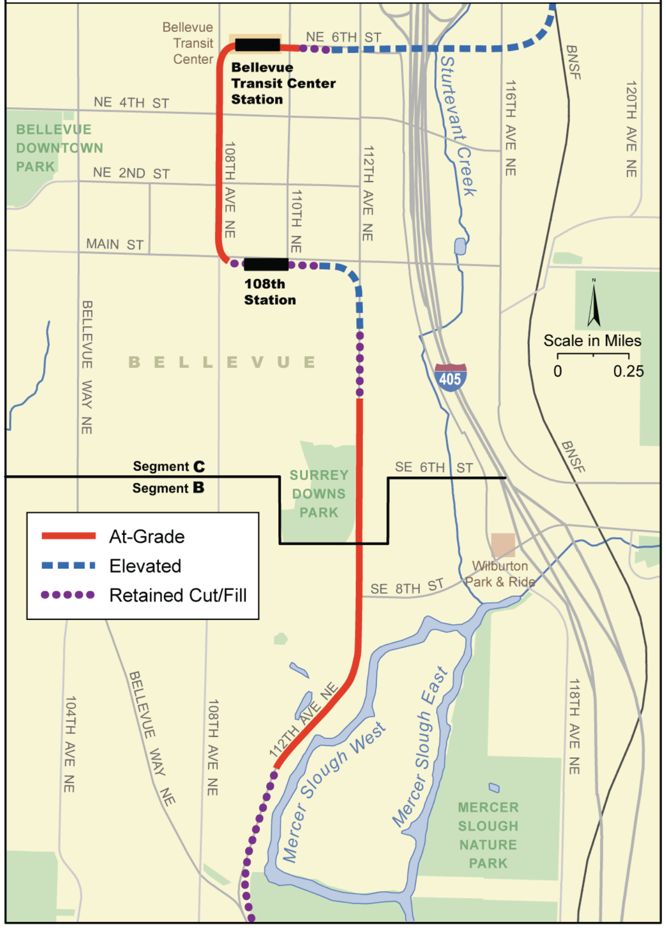
As with Option 4, Option 5 would have the fewest at-grade light rail crossings because it is grade separated as it crosses to and from the center of 112th Avenue SE.

As with all options, assuming minimal intersection improvements, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards. To reduce traffic congestion at the Main Street and 112th Avenue SE intersection, an eastbound right-turn pocket could be provided.

Displacements

Option 5 would displace two single-family homes. This is fewer total residential displacements than would occur under Options 2 and 6, which would affect more than 40 homes, but more than Options 3

Option 5: Center Running to At-Grade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MERCER SLOUGH NATURE PARK
118TH AVE NE
BNSF

and 4, which would displace no homes. Similar to Options 1, 2 and 6, Option 5 would also displace seven businesses located along the south side of Main Street. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 5 would be mitigated. Option 5 would result in 116 moderate impacts and 3 severe impacts. The severe impacts would affect two single-family residences and the tennis courts at the Bellevue Club due to the crossover at SE 4th Street. The moderate impacts would affect 20 single-family residences, 63 multifamily residences, 32 hotel rooms at the Bellevue Club, and the Bellevue Club pool.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE, along with sound insulation where necessary. North of Surrey Downs Park, sound walls on the retained fill, elevated and at-grade segments along Main St would be effective at mitigating most impacts. Additional sound walls, sound insulation, and special noise-reducing trackwork at crossovers would be used to mitigate any remaining noise impacts. Impacts to the Bellevue Club Hotel would be mitigated with sound walls and sound insulation where necessary. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

Option 5 would affect approximately 0.4 acre of wetland buffer along Mercer Slough. This option, along with Option 3, would have the least impact on wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 5 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
< 0.1 acre	0.2 acre

Option 5 would have similar park impacts as Option 3, with 0.2 acre of impact. Less than one tenth of an acre of this impact would be to Mercer Slough Park and 0.2 acre would be to Surrey Downs Park. Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by financial compensation, acquisition of replacement land or other measures as agreed to with the City.

Construction Impacts

Like other options that operate in the center of 112th Avenue, Option 5 would require full-width roadway reconstruction and a higher level of utility relocations than other options; roadway widening would occur primarily to the east of 112th Avenue SE. Roadway retaining wall structures would be constructed behind the sidewalk on the east side of the roadway. Option 5 would result in a moderate to higher level of construction impacts, similar to the other center running options. The duration of construction would be longer than Option 2, shorter than Option 4, and similar to the other options.

Option 6: Westside Running to At-Grade

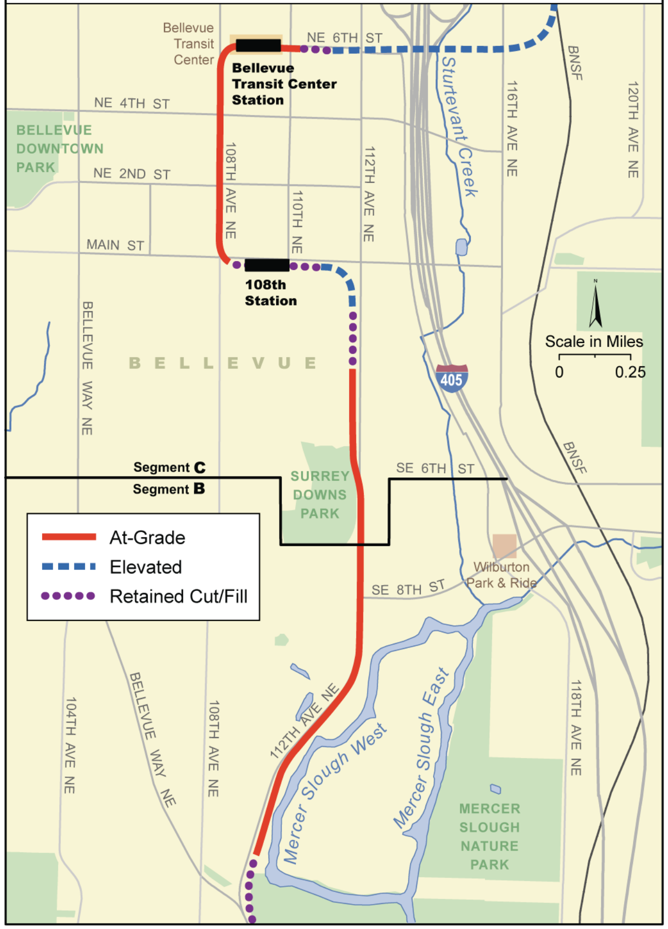
Transportation

Option 6 would convert two driveways to right-in, right-out and close four driveways to properties with other access. This is more than Options 2 and 4, which would only affect two driveways, but fewer than the center running options, which would affect 15 driveways. Full access at the SE 1st Street intersection would be maintained because the light rail alignment would be elevated at this location; the intersections at SE 4th Street, 110th Place SE, and 110th Avenue SE would be closed.

Option 6 would have the second most at-grade light rail crossings (3) because its alignment would be at-grade through the SE 8th Street intersection and transition to and from the center of 112th Avenue SE at-grade.

As with all options, assuming minimal intersection improvements, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards. A southbound left-turn pocket could be provided at the intersection of SE 6th Street and 112th Avenue SE to improve traffic operations.

Option 6: Westside Running to At-Grade


Bellevue Transit Center
NE 6TH ST
Bellevue Transit Center Station
NE 4TH ST
BELLEVUE DOWNTOWN PARK
NE 2ND ST
MAIN ST
108TH AVE NE
110TH NE
112TH AVE NE
Sturtevant Creek
116TH AVE NE
BNSF
120TH AVE NE
108th Station
BELLEVUE WAY NE
BELLEVUE
405
Scale in Miles
0
0.25
BNSF
Segment C
Segment B
SURREY DOWNS PARK
SE 6TH ST
At-Grade
Elevated
Retained Cut/Fill
SE 8TH ST
Wilburton Park & Ride
104TH AVE NE
BELLEVUE WAY NE
108TH AVE NE
112TH AVE NE
Mercer Slough West
Mercer Slough East
118TH AVE NE
MERCER SLOUGH NATURE PARK

Displacements

Option 6 would displace 5 single-family residences, 41 multifamily residences, and 7 businesses located along the south side of Main Street. Along with Option 2, this option would have the most total displacements. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 6 would be mitigated. Option 6 would result in 87 moderate impacts and 9 severe impacts. The severe impacts would affect 7 single-family residences, as well as the Bellevue Club tennis courts and pool due to the crossover near SE 4th Street. Moderate impacts would affect 33 single-family residences, 22 multifamily residences, and 32 hotel rooms.

The residential impacts on the west side of 112th Avenue SE could be mitigated with sound walls. The severe and moderate noise impacts at single-family residences and the Bellevue Club Hotel north of SE 6th St could be mitigated using a variety of methods, including sound walls at-grade and on the retained fill and elevated segments, special noise-reducing trackwork, or sound insulation where necessary. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

This option would affect 1.3 acres of wetland buffer along the west side of Mercer Slough, which is greater impact than would occur with Options 3 and 5 and less than with Options 2 and 4. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 6 would affect 1.0 acre of parkland, the second greatest impact among the options. 0.3 acre of this impact would be to Mercer Slough Park and 0.7 acre to Surrey Downs Park.

Option 6 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	0.7 acre

Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by development of acquired properties adjacent to and north of the park.

Construction Impacts

Option 6 would be constructed in the center of 112th Avenue SE south of SE 6th Street and west of 112th Avenue SE north of SE 6th Street. Option 6 would require partial roadway reconstruction, full reconstruction for the center running portion, and minimal roadway work for section on the west side of the roadway. It would require a moderate to lower level of utility relocations compared to the other options. Roadway retaining wall structures would be constructed behind the sidewalk on the east side of the roadway south of SE 6th and outside of the track north of SE 6th. Option 6 would cause a moderate to low level of disruption during construction. The duration of construction would be more than Option 2, less than Option 4, and similar to the remaining options.

Appendix A: Detailed Option Maps

SOUND TRANSIT EAST LINK PROJECT - PE (PHASE 3)

SEGMENT - C

OPTION 1: CENTER RUNNING TO MAIN ST. TUNNEL

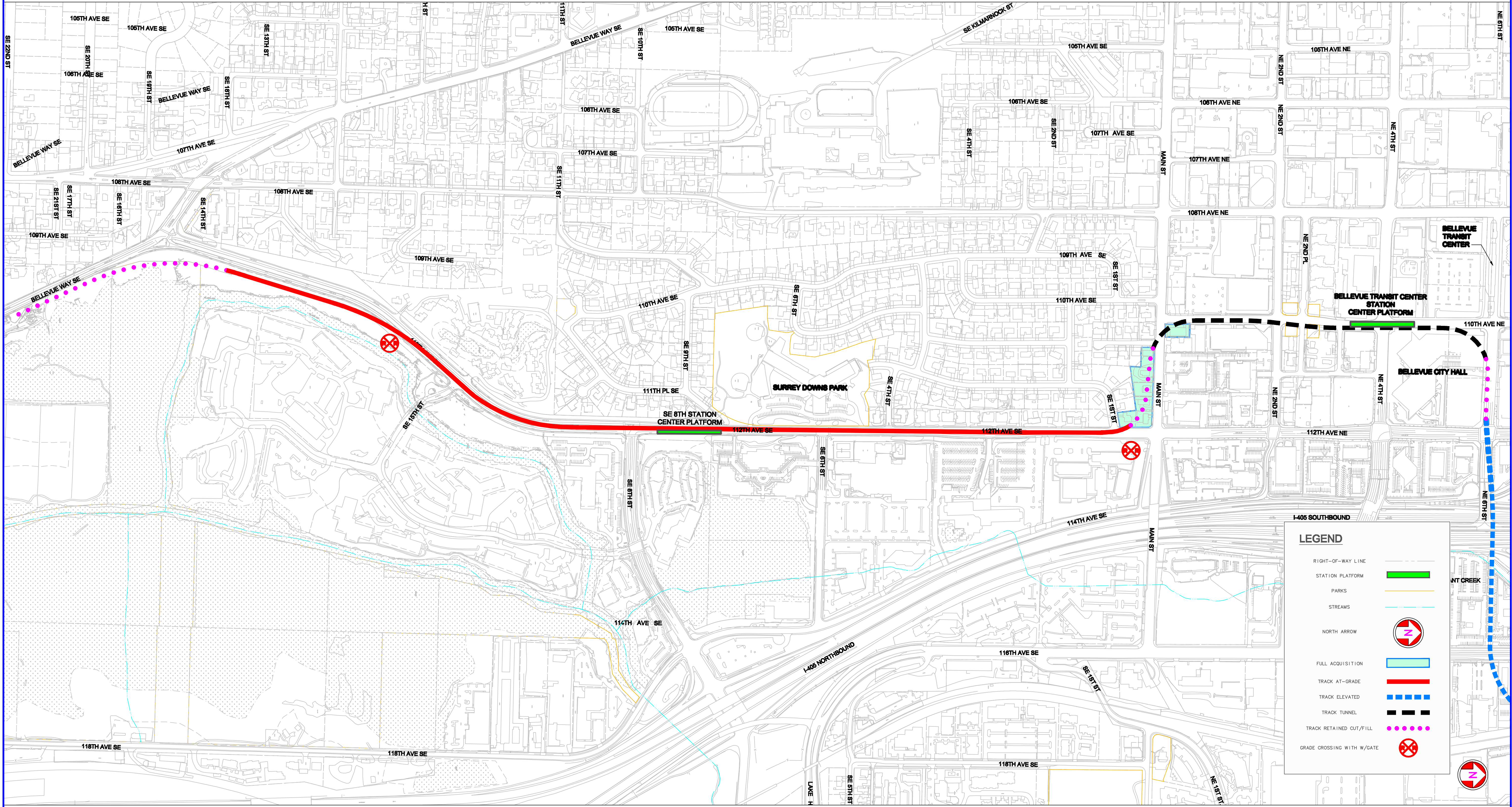
JUNE 15, 2010

HORIZONTAL SCALE: 1" = 150'

PROFILE SCALE: N/A

SOUNDTRANSIT

CH2MHILL EAST LINK TEAM



SE 22ND ST
105TH AVE SE
106TH AVE SE
SE 20TH ST
SE 19TH ST
SE 18TH ST
SE 13TH ST
BELLEVUE WAY SE
107TH AVE SE
108TH AVE SE
SE 21ST ST
SE 17TH ST
SE 16TH ST
SE 14TH ST
109TH AVE SE
SE 11TH ST
SE 10TH ST
SE KILMARNOCK ST
SE 2ND ST
SE 4TH ST
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
105TH AVE NE
106TH AVE NE
107TH AVE NE
108TH AVE NE
NE 2ND PL
BELLEVUE TRANSIT CENTER
BELLEVUE TRANSIT CENTER STATION CENTER PLATFORM
110TH AVE NE
BELLEVUE CITY HALL
110TH AVE SE
SE 6TH ST
SE 1ST ST
SE 9TH ST
111TH PL SE
SURREY DOWNS PARK
SE 8TH STATION CENTER PLATFORM
112TH AVE SE
112TH AVE NE
SE 15TH ST
SE 8TH ST
114TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
116TH AVE SE
118TH AVE SE
LAKE H
SE 5TH ST
NE 1ST ST
NT CREEK
SCALE IN FEET 0 150 300
LEGEND
RIGHT-OF-WAY LINE
STATION PLATFORM
PARKS
STREAMS
NORTH ARROW
FULL ACQUISITION
TRACK AT-GRADE
TRACK ELEVATED
TRACK TUNNEL
TRACK RETAINED CUT/FILL
GRADE CROSSING WITH W/GATE
N

SOUND TRANSIT EAST LINK PROJECT - PE (PHASE 3)

SEGMENT - C

OPTION 2: WESTSIDE RUNNING TO MAIN STREET TUNNEL

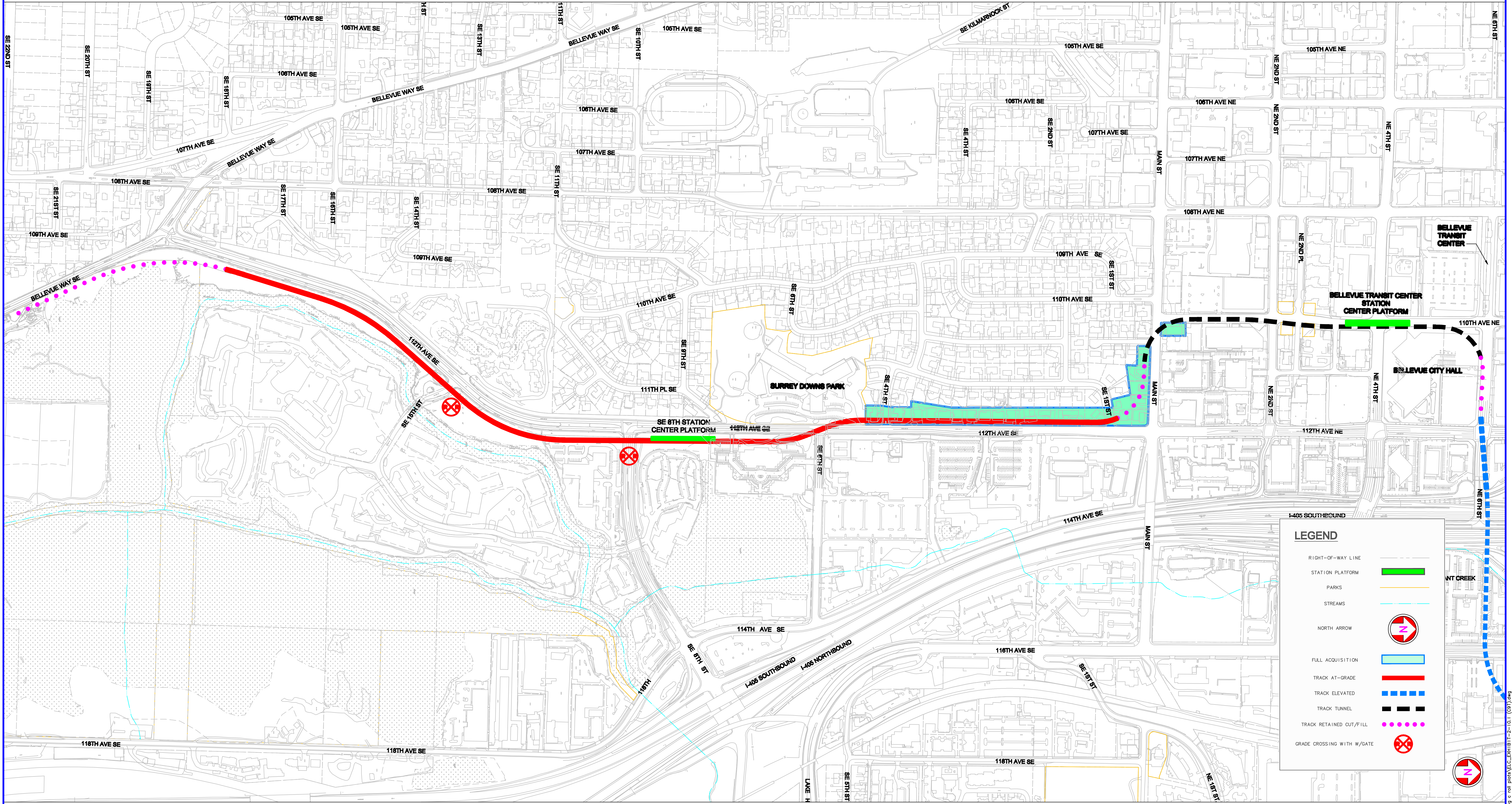
JUNE 15, 2010

HORIZONTAL SCALE: 1" = 150'

PROFILE SCALE: N/A

SOUNDTRANSIT

CH2MHILL
EAST LINK TEAM



SE 8TH STATION
CENTER PLATFORM
BELLEVUE TRANSIT CENTER
STATION
CENTER PLATFORM
BELLEVUE TRANSIT CENTER
BELLEVUE CITY HALL
SURREY DOWNS PARK
BELLEVUE WAY SE
112TH AVE SE
112TH AVE NE
110TH AVE NE
MAIN ST
SE 8TH ST
SE 15TH ST
SE 6TH ST
SE 4TH ST
SE 1ST ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
108TH AVE SE
108TH AVE NE
109TH AVE SE
110TH AVE SE
111TH PL SE
114TH AVE SE
116TH AVE SE
118TH AVE SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
SE KILMARNOCK ST
SE 22ND ST
0 150 300
SCALE IN FEET
LEGEND
RIGHT-OF-WAY LINE
STATION PLATFORM
PARKS
STREAMS
NORTH ARROW
N
FULL ACQUISITION
TRACK AT-GRADE
TRACK ELEVATED
TRACK TUNNEL
TRACK RETAINED CUT/FILL
GRADE CROSSING WITH W/GATE

SOUND TRANSIT EAST LINK PROJECT - PE (PHASE 3)

SEGMENT - C

OPTION 3: CENTER RUNNING TO 2ND STREET TUNNEL

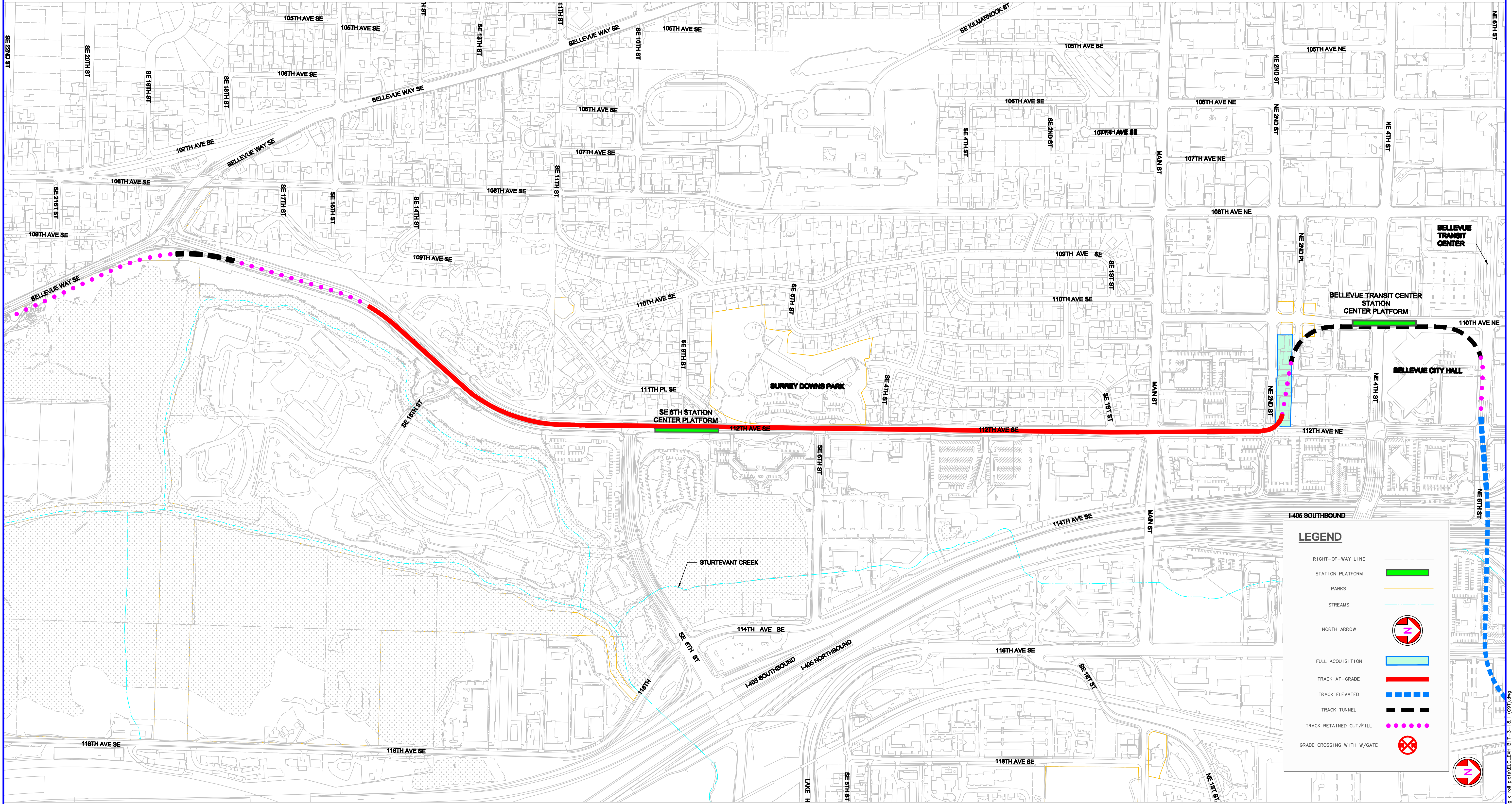
JUNE 15, 2010

HORIZONTAL SCALE: 1" = 150'

PROFILE SCALE: N/A

SOUNDTRANSIT

CH2MHILL EAST LINK TEAM



LEGEND
RIGHT-OF-WAY LINE
STATION PLATFORM
PARKS
STREAMS
NORTH ARROW
FULL ACQUISITION
TRACK AT-GRADE
TRACK ELEVATED
TRACK TUNNEL
TRACK RETAINED CUT/FILL
GRADE CROSSING WITH W/GATE
N
SCALE IN FEET
0
150
300
BELLEVUE TRANSIT CENTER STATION CENTER PLATFORM
BELLEVUE TRANSIT CENTER
BELLEVUE CITY HALL
SE 8TH STATION CENTER PLATFORM
SURREY DOWNS PARK
STURTEVANT CREEK
BELLEVUE WAY SE
112TH AVE SE
112TH AVE NE
110TH AVE NE
108TH AVE NE
107TH AVE NE
106TH AVE NE
105TH AVE NE
105TH AVE SE
106TH AVE SE
107TH AVE SE
108TH AVE SE
109TH AVE SE
110TH AVE SE
111TH PL SE
114TH AVE SE
116TH AVE SE
118TH AVE SE
SE 22ND ST
SE 21ST ST
SE 20TH ST
SE 19TH ST
SE 18TH ST
SE 17TH ST
SE 16TH ST
SE 15TH ST
SE 14TH ST
SE 13TH ST
SE 11TH ST
SE 10TH ST
SE 9TH ST
SE 8TH ST
SE 6TH ST
SE 5TH ST
SE 4TH ST
SE 2ND ST
SE 1ST ST
SE KILMARNOCK ST
MAIN ST
NE 2ND ST
NE 2ND PL
NE 4TH ST
NE 6TH ST
NE 1ST ST
I-405 SOUTHBOUND
I-405 NORTHBOUND
LAKE H

SOUND TRANSIT EAST LINK PROJECT - PE (PHASE 3)

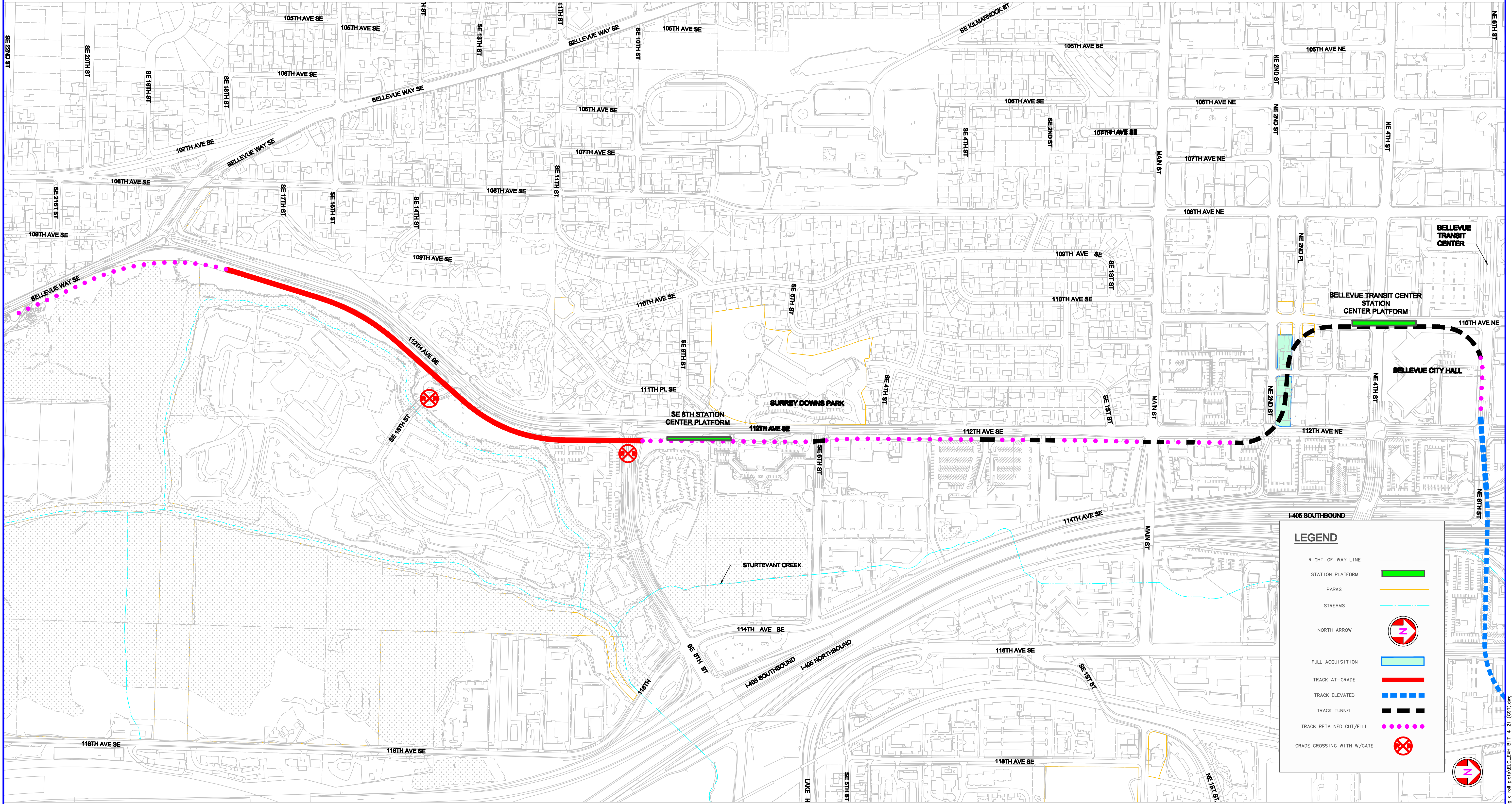
SEGMENT - C

OPTION 4: EASTSIDE RUNNING TO 2ND STREET TUNNEL

JUNE 15, 2010

HORIZONTAL SCALE: 1" = 150'

PROFILE SCALE: N/A



SCALE IN FEET 0 150 300
BELLEVUE TRANSIT CENTER
BELLEVUE TRANSIT CENTER STATION CENTER PLATFORM
BELLEVUE CITY HALL
SE 8TH STATION CENTER PLATFORM
SURREY DOWNS PARK
STURTEVANT CREEK
112TH AVE SE
112TH AVE NE
110TH AVE NE
BELLEVUE WAY SE
SE KILMARNOCK ST
MAIN ST
NE 2ND ST
NE 4TH ST
NE 6TH ST
SE 8TH ST
I-405 SOUTHBOUND
I-405 NORTHBOUND
114TH AVE SE
116TH AVE SE
118TH AVE SE
LEGEND
RIGHT-OF-WAY LINE
STATION PLATFORM
PARKS
STREAMS
NORTH ARROW
FULL ACQUISITION
TRACK AT-GRADE
TRACK ELEVATED
TRACK TUNNEL
TRACK RETAINED CUT/FILL
GRADE CROSSING WITH W/GATE
N

SOUNDTRANSIT

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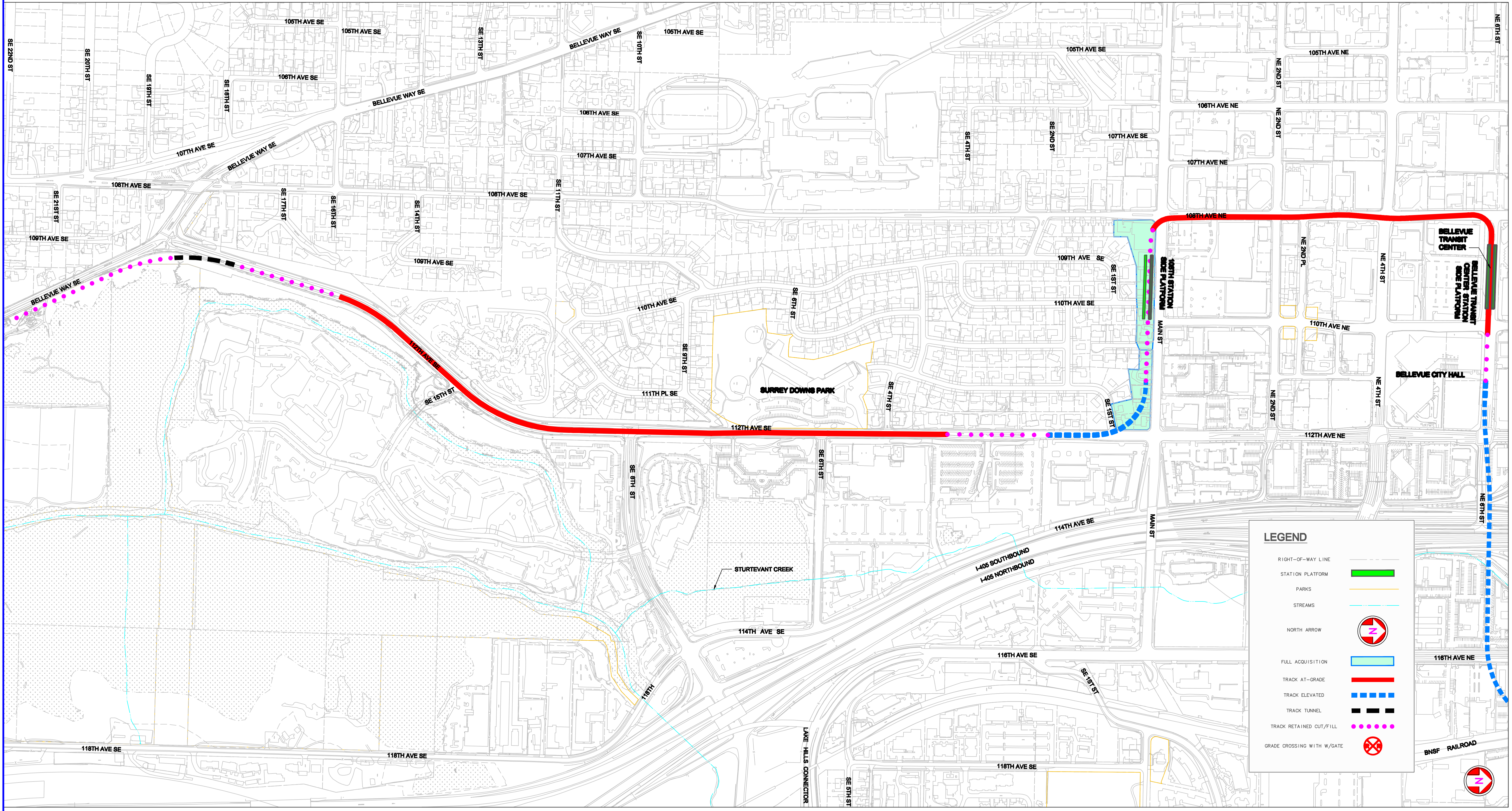
SOUND TRANSIT EAST LINK PROJECT - PE (PHASE 3)

SEGMENT - C

OPTION 5: CENTER RUNNING TO AT-GRADE

JUNE 15, 2010


LEGEND
RIGHT-OF-WAY LINE
STATION PLATFORM 🟩
PARKS
STREAMS
NORTH ARROW
FULL ACQUISITION
TRACK AT-GRADE
TRACK ELEVATED
TRACK TUNNEL
TRACK RETAINED CUT/FILL
GRADE CROSSING WITH W/GATE
N
BELLEVUE TRANSIT CENTER
BELLEVUE TRANSIT CENTER STATION SIDE PLATFORM
108TH STATION SIDE PLATFORM
BELLEVUE CITY HALL
SURREY DOWNS PARK
STURTEVANT CREEK
BNSF RAILROAD
I-405 SOUTHBOUND
I-405 NORTHBOUND
LAKE HILLS CONNECTOR
BELLEVUE WAY SE
112TH AVE SE
114TH AVE SE
116TH AVE SE
118TH AVE SE
116TH AVE NE
116TH
105TH AVE SE
106TH AVE SE
107TH AVE SE
108TH AVE SE
109TH AVE SE
110TH AVE SE
111TH PL SE
105TH AVE NE
106TH AVE NE
107TH AVE NE
108TH AVE NE
110TH AVE NE
112TH AVE NE
MAIN ST
SE 22ND ST
SE 21ST ST
SE 20TH ST
SE 19TH ST
SE 18TH ST
SE 17TH ST
SE 16TH ST
SE 15TH ST
SE 14TH ST
SE 13TH ST
SE 11TH ST
SE 10TH ST
SE 9TH ST
SE 8TH ST
SE 6TH ST
SE 5TH ST
SE 4TH ST
SE 2ND ST
SE 1ST ST
NE 2ND PL
NE 2ND ST
NE 4TH ST
NE 6TH ST

HORIZONTAL SCALE: 1" = 150'

PROFILE SCALE: N/A

0
150
300
SCALE IN FEET

SOUNDTRANSIT

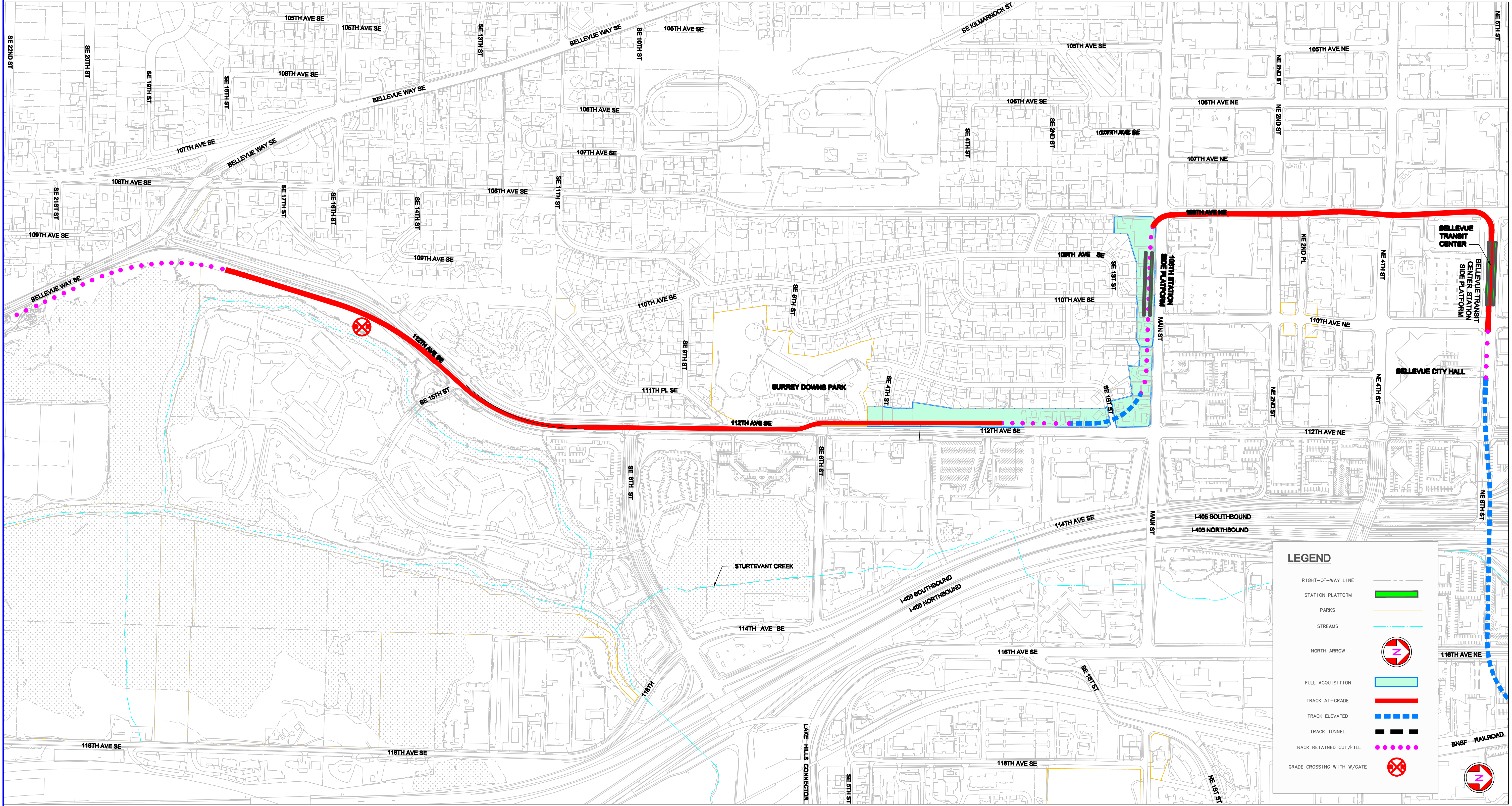
CH2MHILL EAST LINK TEAM

SOUND TRANSIT EAST LINK PROJECT - PE (PHASE 3)

SEGMENT - C

OPTION 6: WESTSIDE RUNNING TO AT-GRADE

JUNE 15, 2010



LEGEND
RIGHT-OF-WAY LINE
STATION PLATFORM
PARKS
STREAMS
NORTH ARROW
FULL ACQUISITION
TRACK AT-GRADE
TRACK ELEVATED
TRACK TUNNEL
TRACK RETAINED CUT/FILL
GRADE CROSSING WITH W/GATE
BELLEVUE TRANSIT CENTER
BELLEVUE TRANSIT CENTER STATION SIDE PLATFORM
108TH STATION SIDE PLATFORM
BELLEVUE CITY HALL
SURREY DOWNS PARK
STURTEVANT CREEK
112TH AVE SE
112TH AVE NE
108TH AVE NE
110TH AVE NE
MAIN ST
BELLEVUE WAY SE
I-405 SOUTHBOUND
I-405 NORTHBOUND
114TH AVE SE
116TH AVE NE
118TH AVE SE
LAKE HILLS CONNECTOR
BNSF RAILROAD
NE 6TH ST
NE 4TH ST
NE 2ND ST
SE 15TH ST
SE 8TH ST
SE 6TH ST

HORIZONTAL SCALE: 1" = 150'

0 150 300
SCALE IN FEET

PROFILE SCALE: N/A

SOUNDTRANSIT

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EAST LINK TEAM

Appendix B: Location of Sensitive Noise Receptors

Maps showing the locations of sensitive noise receptors for each option are provided for reference after this introduction. The Supplemental Draft Environmental Impact Statement (EIS) and Final EIS will include more information about potential mitigation measures, including the location of noise walls. A combination of noise walls, residential sound insulation, track lubrication, and special trackwork at crossovers would effectively mitigate transit noise impacts for all options. In the case of residential sound insulation, only interior noise impacts would be mitigated, and some residual outdoor noise impacts may remain.

Noise Basics

Human response to noise is subjective and can vary greatly from person to person. Factors that can influence individual response to noise include the loudness, frequency, the amount of background noise present before an intruding noise occurs and the nature of the work or activity (e.g., sleeping) that the noise affects. The unit used to measure the loudness of noise is the decibel (dB). To better approximate the sensitivity of the human ear to sounds of different frequencies, the A-weighted decibel (dBA) scale was developed, known as the A-scale. The A-scale is used in most noise ordinances and standards, including the applicable standards for the East Link Project.

The most basic sound level measurement is the maximum sound level, denoted Lmax. To account for the variance in loudness over time, a common noise measurement, the equivalent sound pressure level (Leq), was developed. The Leq is defined as the energy average noise level, in dBA, for a specific time period (for example, 1 hour). Another useful descriptor is the day-night equivalent sound level, abbreviated Ldn, which is defined as the 24-hour Leq, but with a 10-dBA penalty assessed to noise events occurring at night (defined as 10 p.m. to 7 a.m.). The effect of this penalty is that any event during nighttime hours is equivalent to 10 events during the daytime hours. For example, each train pass-by between 10 pm and 7 am is considered to have the same acoustical energy as 10 daytime trains. This strongly weights Ldn toward nighttime noise to reflect the supposition that most people are more easily annoyed by noise during nighttime hours when background noise is lower and when most people are sleeping.

The smallest change in broadband noise, such as traffic noise, that a human ear can perceive is about 3 dBA. For pure tones, the smallest perceptible change is close to 1 dBA. Most people also perceive an increase of 5 dBA or more as clearly noticeable, while a 10-dBA increase (or decrease) in noise levels is judged by most people as a doubling (or halving when levels decrease) of sound level.

Normal conversation ranges between 44 and 65 dBA when speakers are 3 to 6 feet apart. Quiet urban nighttime noise levels range from 40 to 50 dBA, while nighttime noise levels in an urban area near major roadways typically range from 50 to 60 dBA. Finally, noise levels during the day in a noisy urban area are frequently as high as 70 to 80 dBA.

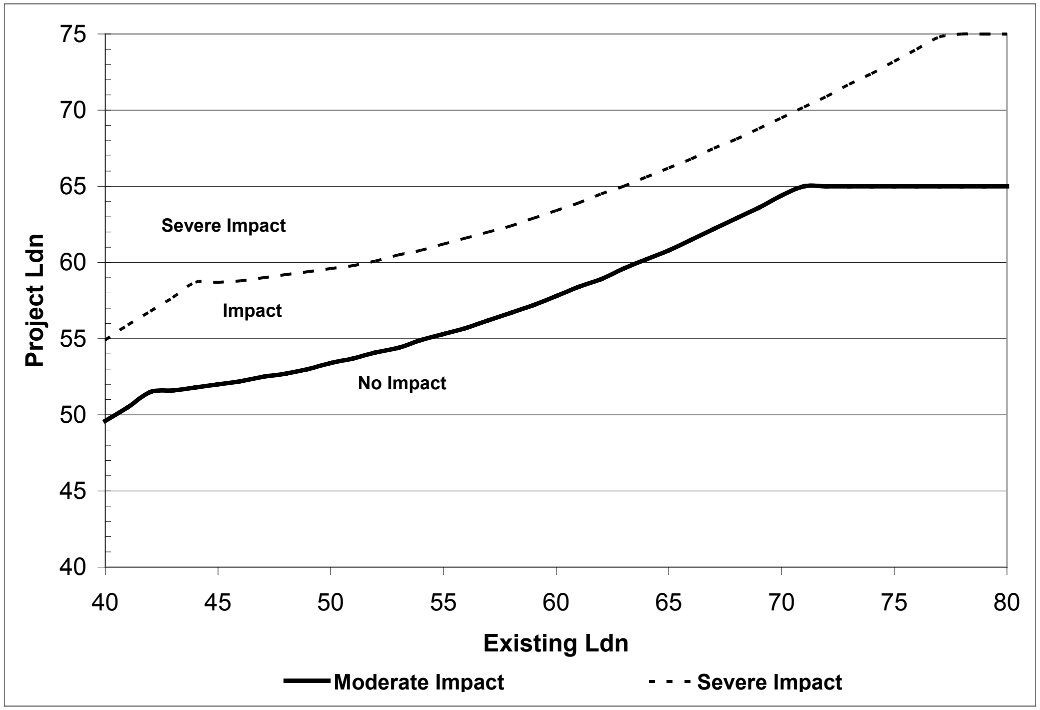
FTA Noise Impact Criteria

The noise criteria in the Federal Transit Administration (FTA) guidance manual for Transit Noise and Vibration Impact Assessment are founded on well-documented research on community reaction to noise and are based on changes in noise exposure using a sliding scale. The amount that the transit project is allowed to change the overall noise environment is reduced with increasing levels of existing noise.

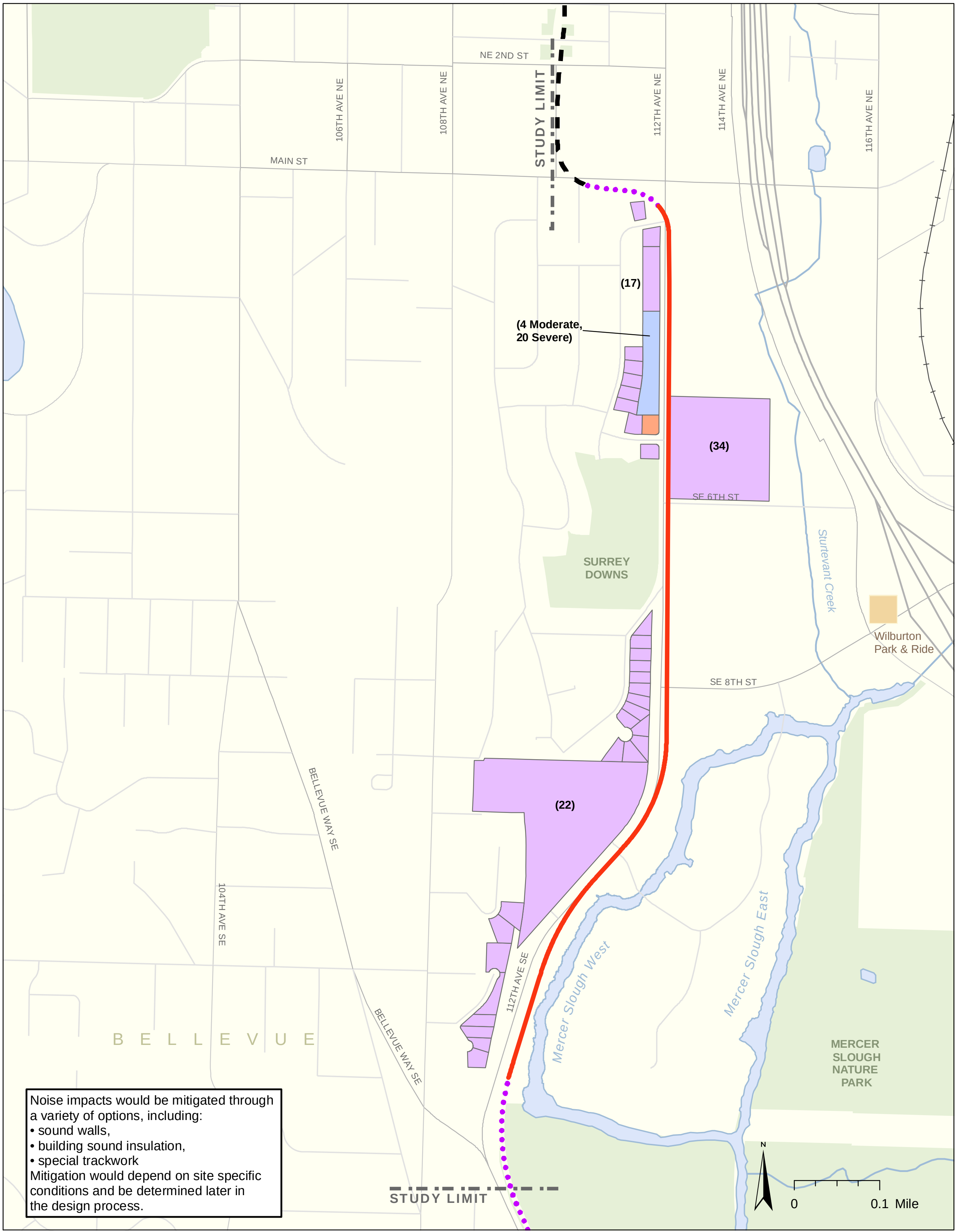
There are two levels of impact included in the FTA criteria: moderate impact and severe impact. The impact threshold for a moderate impact varies according to the level of the existing ambient noise. The severe impact threshold also varies according to the existing ambient noise but is set at levels where a higher percentage of people would be highly annoyed by the project noise. Project noise in the no-impact range is not likely to be annoying to most people. The FTA sliding scale noise impact criteria are illustrated in Figure A-1.

Consider the following as an example of FTA's sliding scale impact criteria related to a residential land use: A location with an existing noise level of 55 dBA Ldn (bottom scale) would have an impact if the transit project noise level (side scale) were between 56 dBA and 61 dBA Ldn; in contrast, a location with an existing noise level of

Figure A-1. **FTA Impact Criteria**



65 dBA Ldn would have an impact if the project noise levels were between 61 dBA and 66 dBA Ldn. Those same environments would have a severe impact if the project levels were greater than 61 dBA Ldn and greater than 66 dBA Ldn, respectively.


NE 2ND ST
STUDY LIMIT
106TH AVE NE
108TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
MAIN ST
(17)
(4 Moderate,
20 Severe)
(34)
SE 6TH ST
SURREY
DOWNS
Sturtevant Creek
Wilburton
Park & Ride
SE 8TH ST
(22)
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
BELLEVUE WAY SE
Mercer Slough West
Mercer Slough East
MERCER
SLOUGH
NATURE
PARK
BELLEVUE
STUDY LIMIT
N
0
0.1 Mile

Noise impacts would be mitigated through a variety of options, including:

- sound walls,
- building sound insulation,
- special trackwork

Mitigation would depend on site specific conditions and be determined later in the design process.

Source: Data from City of Bellevue (2005) and King County (2006).

━ At-Grade Route
╍ Elevated Route
⋯ Retained-Cut/Fill Route
▬ ▬ Tunnel Route

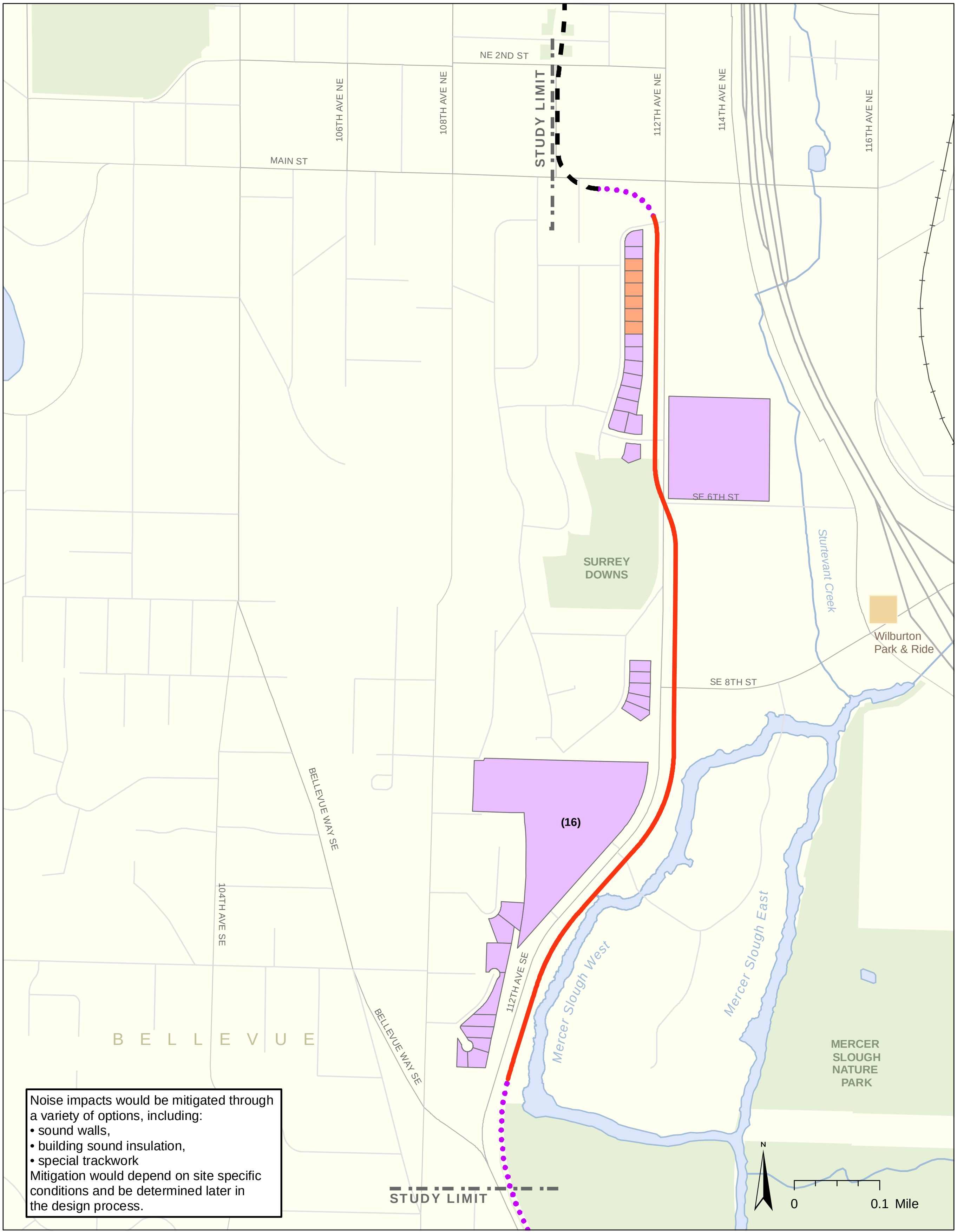
▭ Proposed Station
P New and/or Expanded Park-and-Ride Lot

🟦 Both Moderate and Severe Impacts
🟧 Severe Impact
🟪 Moderate Impact

NOTE: -One noise impact per parcel unless noted in parentheses

Transit Noise Impacts
Option 1: Center Running to Main Street Tunnel

East Link Project


NE 2ND ST
STUDY LIMIT
106TH AVE NE
108TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
MAIN ST
SE 6TH ST
Sturtevant Creek
SURREY DOWNS
Wilburton Park & Ride
SE 8TH ST
(16)
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
BELLEVUE
MERCER SLOUGH NATURE PARK
STUDY LIMIT
N
0
0.1 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls,
- building sound insulation,
- special trackwork

Mitigation would depend on site specific conditions and be determined later in the design process.

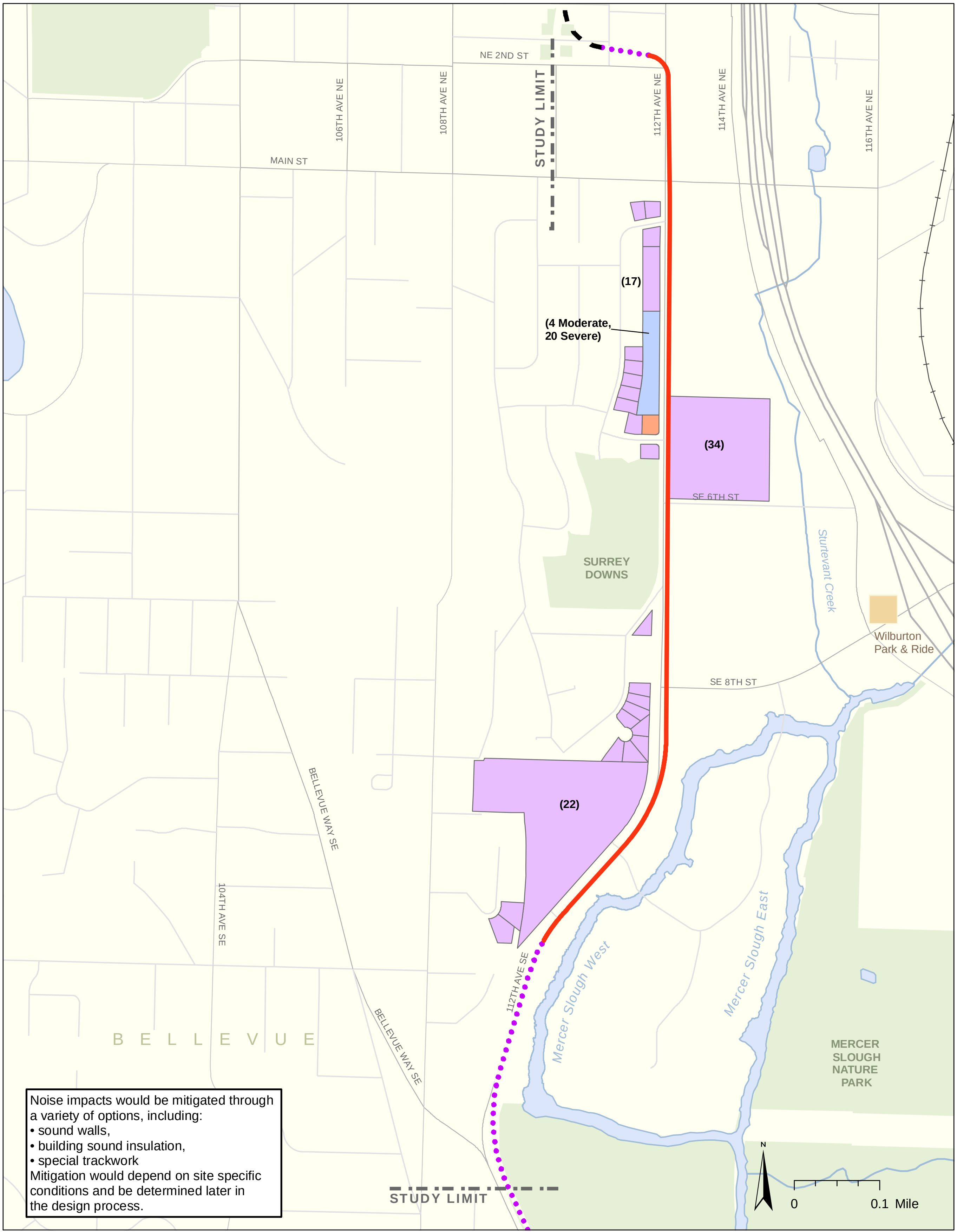
Source: Data from City of Bellevue (2005) and King County (2006).

At-Grade Route
Elevated Route
Retained-Cut/Fill Route
Tunnel Route
Proposed Station
P New and/or Expanded Park-and-Ride Lot
Both Moderate and Severe Impacts
Severe Impact
Moderate Impact

NOTE: -One noise impact per parcel unless noted in parentheses

Transit Noise Impacts Option 2: Westside Running to Main Street Tunnel

East Link Project


NE 2ND ST
MAIN ST
106TH AVE NE
108TH AVE NE
STUDY LIMIT
112TH AVE NE
114TH AVE NE
116TH AVE NE
(17)
(4 Moderate, 20 Severe)
(34)
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
BELLEVUE WAY SE
(22)
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
BELLEVUE WAY SE
BELLEVUE
MERCER SLOUGH NATURE PARK
N
0
0.1 Mile
STUDY LIMIT

Noise impacts would be mitigated through a variety of options, including:
- sound walls,
- building sound insulation,
- special trackwork

Mitigation would depend on site specific conditions and be determined later in the design process.

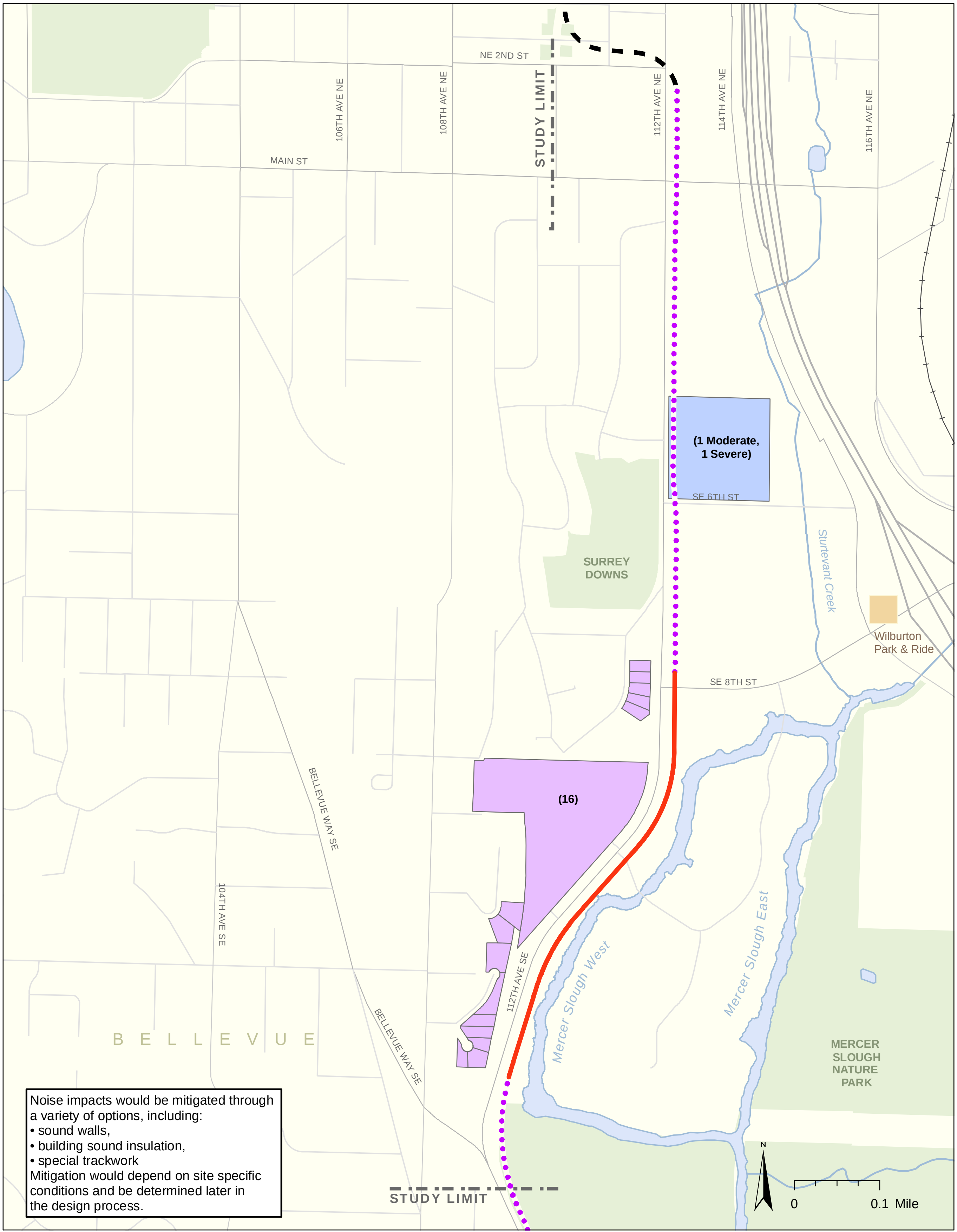
Source: Data from City of Bellevue (2005) and King County (2006).

━ At-Grade Route
╍ Elevated Route
••• Retained-Cut/Fill Route
━ ━ Tunnel Route
▭ Proposed Station
P New and/or Expanded Park-and-Ride Lot
▨ Both Moderate and Severe Impacts
▨ Severe Impact
▨ Moderate Impact

NOTE: -One noise impact per parcel unless noted in parentheses

Transit Noise Impacts Option 3: Center Running to 2nd Street Tunnel

East Link Project


NE 2ND ST
MAIN ST
106TH AVE NE
108TH AVE NE
STUDY LIMIT
112TH AVE NE
114TH AVE NE
116TH AVE NE
(1 Moderate, 1 Severe)
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
(16)
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
BELLEVUE
STUDY LIMIT
N
0
0.1 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls,
- building sound insulation,
- special trackwork

Mitigation would depend on site specific conditions and be determined later in the design process.

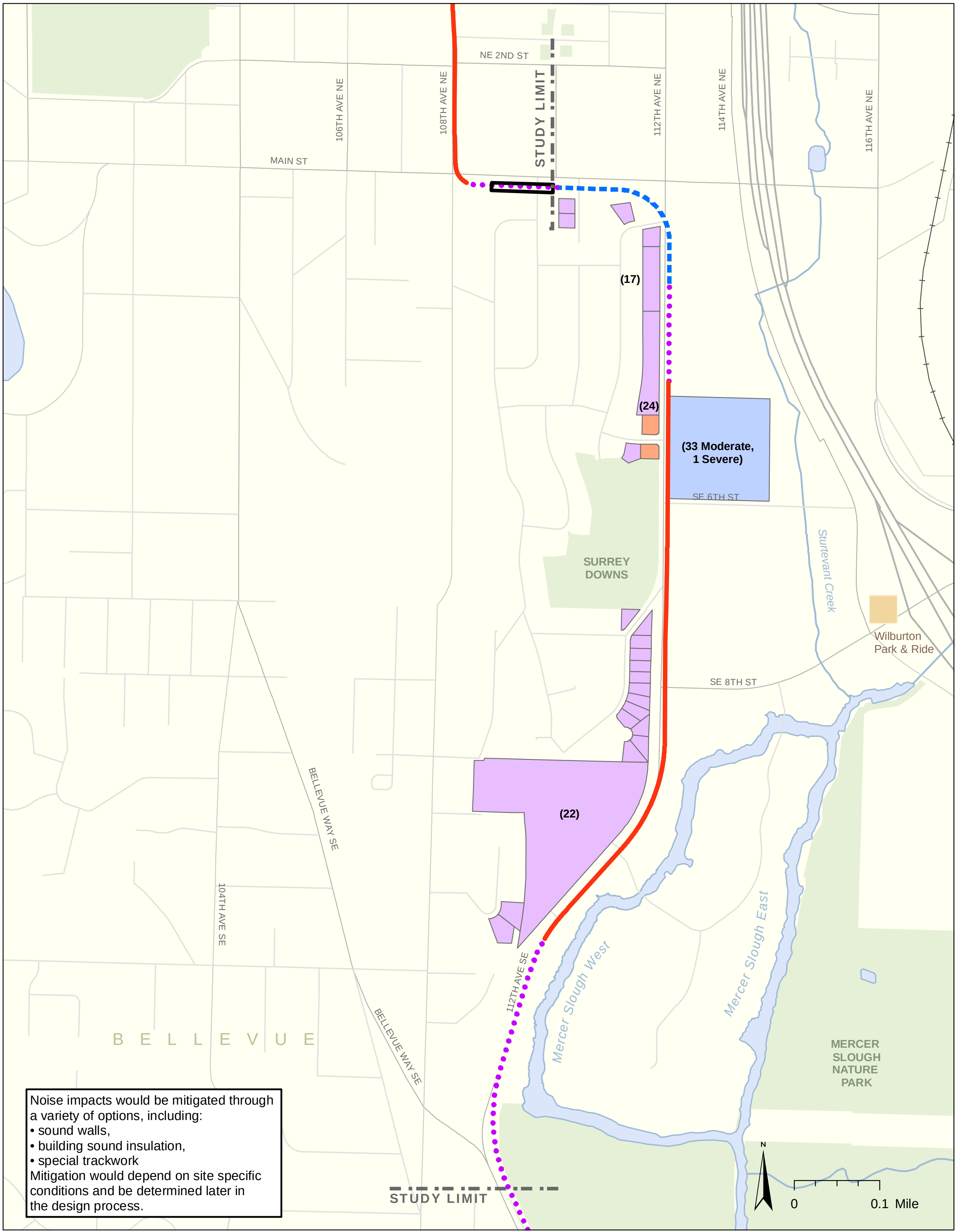
Source: Data from City of Bellevue (2005) and King County (2006).

━ At-Grade Route
┅ Elevated Route
●●●● Retained-Cut/Fill Route
▬ ▬ Tunnel Route
▭ Proposed Station
P New and/or Expanded Park-and-Ride Lot
🟦 Both Moderate and Severe Impacts
🟧 Severe Impact
🟪 Moderate Impact

NOTE: -One noise impact per parcel unless noted in parentheses

Transit Noise Impacts Option 4: Eastside Running to 2nd Street Tunnel

East Link Project


NE 2ND ST
106TH AVE NE
108TH AVE NE
STUDY LIMIT
112TH AVE NE
114TH AVE NE
116TH AVE NE
MAIN ST
(17)
(24)
(33 Moderate, 1 Severe)
SE 6TH ST
SURREY DOWNS
Sturtevant Creek
Wilburton Park & Ride
SE 8TH ST
(22)
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
BELLEVUE
BELLEVUE WAY SE
STUDY LIMIT
N
0
0.1 Mile

Noise impacts would be mitigated through a variety of options, including:
- sound walls,
- building sound insulation,
- special trackwork

Mitigation would depend on site specific conditions and be determined later in the design process.

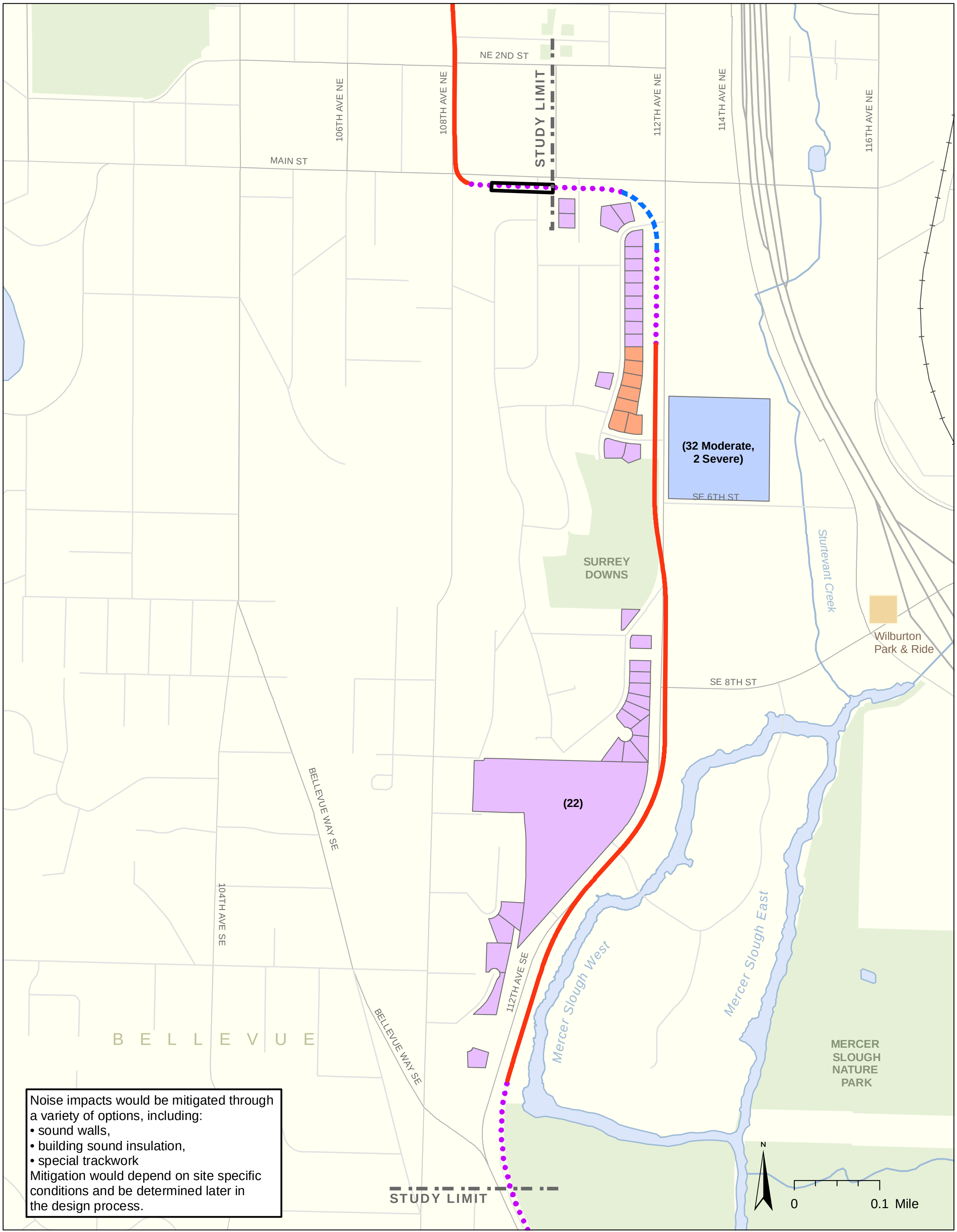
Source: Data from City of Bellevue (2005) and King County (2006).

- ▬ At-Grade Route
- ▬ ▬ Elevated Route
- ● ● ● ● Retained-Cut/Fill Route
- ▬ ▬ Tunnel Route
- ▭ Proposed Station
- P New and/or Expanded Park-and-Ride Lot
- 🟦 Both Moderate and Severe Impacts
- 🟧 Severe Impact
- 🟪 Moderate Impact

NOTE: -One noise impact per parcel unless noted in parentheses

Transit Noise Impacts Option 5: Center Running to At-Grade

East Link Project


NE 2ND ST
STUDY LIMIT
106TH AVE NE
108TH AVE NE
112TH AVE NE
114TH AVE NE
116TH AVE NE
MAIN ST
(32 Moderate, 2 Severe)
SE 6TH ST
Sturtevant Creek
SURREY DOWNS
Wilburton Park & Ride
SE 8TH ST
(22)
BELLEVUE WAY SE
104TH AVE SE
112TH AVE SE
Mercer Slough West
Mercer Slough East
MERCER SLOUGH NATURE PARK
BELLEVUE
N
0
0.1 Mile
STUDY LIMIT

Noise impacts would be mitigated through a variety of options, including:
- sound walls,
- building sound insulation,
- special trackwork

Mitigation would depend on site specific conditions and be determined later in the design process.

Source: Data from City of Bellevue (2005) and King County (2006).

━	At-Grade Route
╍	Elevated Route
•••••	Retained-Cut/Fill Route
▬ ▬	Tunnel Route
▭	Proposed Station
P	New and/or Expanded Park-and-Ride Lot
🟦	Both Moderate and Severe Impacts
🟧	Severe Impact
🟪	Moderate Impact

NOTE: -One noise impact per parcel unless noted in parentheses

Transit Noise Impacts Option 6: Westside Running to At-Grade

East Link Project

Conceptual Illustrations

This appendix has been prepared to support the 12th Avenue Light Rail Options: Conceptual Design Report, June 2010. The illustrations represent the 6 Alignment Options described in the report, plus existing views for comparison.

Conceptual illustrations have been prepared to allow visual comparisons between the Options. Several locations along the routes were selected as View Areas for the illustrations. The conceptual illustrations characterize changes to the general appearance of the areas the options would pass through and depict areas that could be landscaped as well as heights of structures.

The intent of these illustrations is not to depict detailed design related to stations, landscaping, or mitigation opportunities, but to allow a comparison to be made among the six options so that a preferred 112th Avenue option can be identified.

Plan, Section and Three Dimensional views of each Alignment Option are provided for seven View Areas. The views are grouped first by option, then by view area. The View Areas are:

- View Area 1.0: At 112th Ave SE & Bellevue Way looking north
- View Area 1.1: At 112th Ave SE & SE 15th Street looking south
- View Area 2.0: At 112th Ave SE & SE 8th Street looking north
- View Area 3.0: At 112th Ave SE & SE 6th Street looking north
- View Area 4.1: At 112th Ave SE & SE 4th Street looking north
- View Area 4.0: At 112th Ave SE & SE 15th Street looking northwest
- View Area 5.0: At 112th Ave & 2nd Street looking northwest

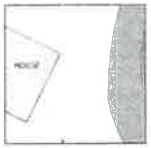
Existing Conditions

Plan, Section and Conceptual Illustrations

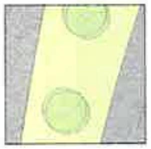
KEY PLAN AND ILLUSTRATED LEGEND

LEGEND

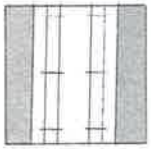
Proposed Sidewalks
Indicated at Conceptual Level only



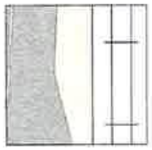
Existing Sidewalks, Curb and Buildings
Existing curbs removed shown dashed



Proposed Planting
Indicated at Conceptual Level only



Proposed Guideway
Areas of ballasted, embedded, and direct fixation track have not been determined

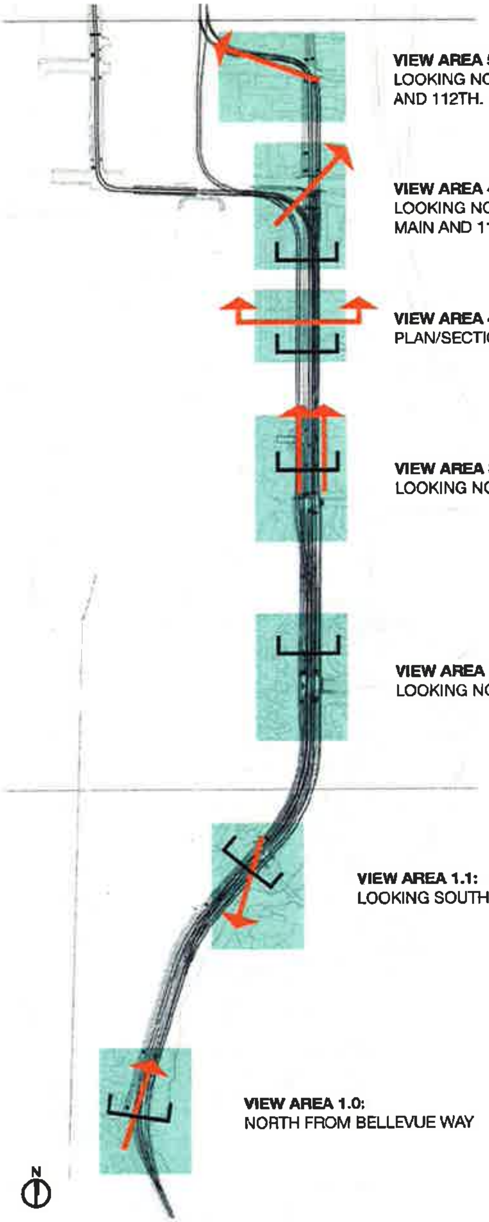


Proposed Median Surface
Areas between guideway and traffic lanes indicated at Conceptual Level only

Proposed Planting Adjacent to Guideway
Light green areas indicate Conceptual Areas of replanting due to construction

Vehicle and Pedestrian Gates

KEY PLAN



VIEW AREA 5.0:
LOOKING NORTHWEST AT 2ND ST AND 112TH.

VIEW AREA 4.0:
LOOKING NORTHEAST AT MAIN AND 112TH.

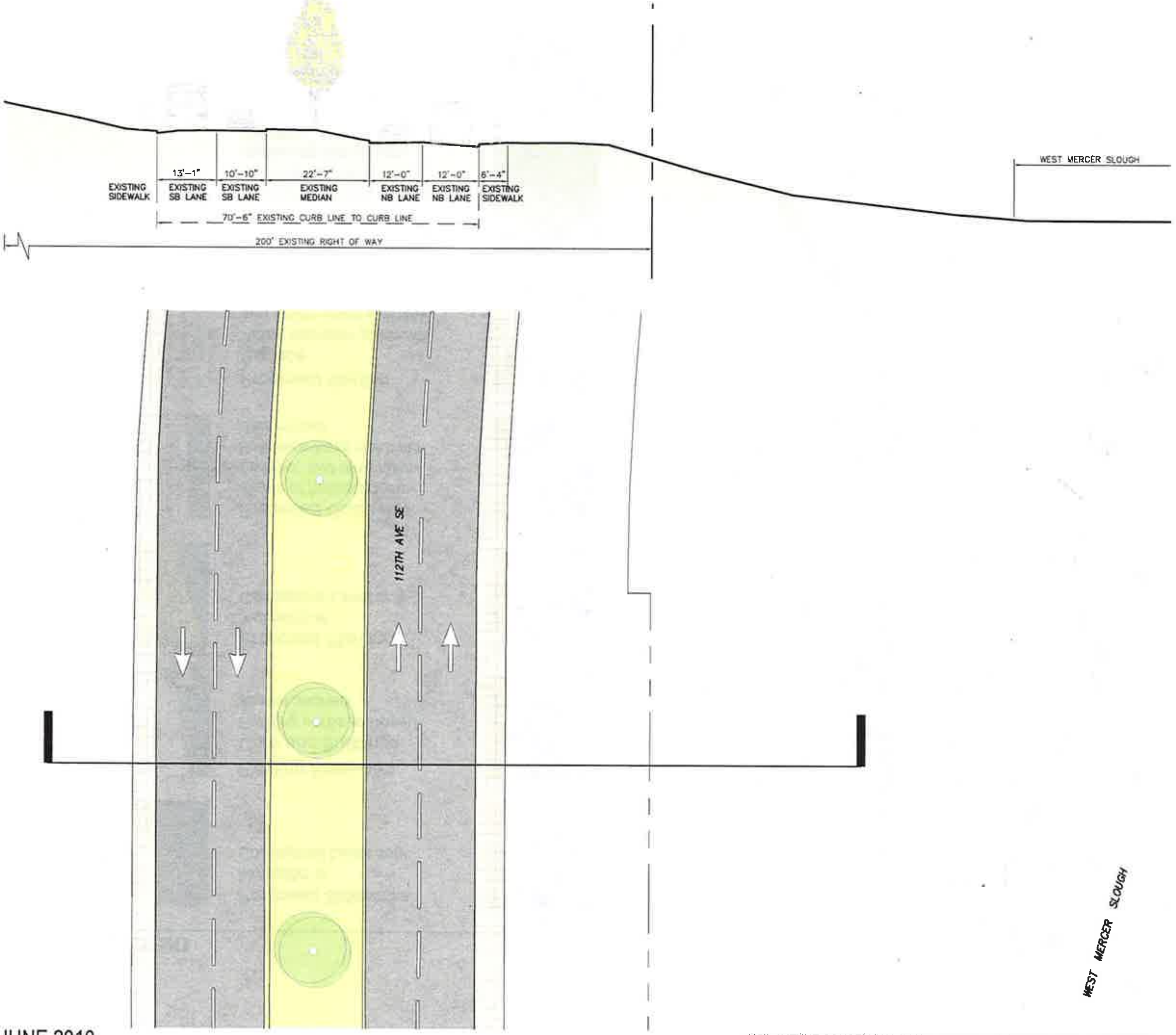
VIEW AREA 4.1:
PLAN/SECTION AT HILTON GARAGE

VIEW AREA 3.0:
LOOKING NORTH AT 6TH ST

VIEW AREA 2.0:
LOOKING NORTH AT 8TH ST

VIEW AREA 1.1:
LOOKING SOUTH AT 15TH ST

VIEW AREA 1.0:
NORTH FROM BELLEVUE WAY


13'-1"
10'-10"
22'-7"
12'-0"
12'-0"
6'-4"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING MEDIAN
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY
WEST MERCER SLOUGH
112TH AVE SE
WEST MERCER SLOUGH

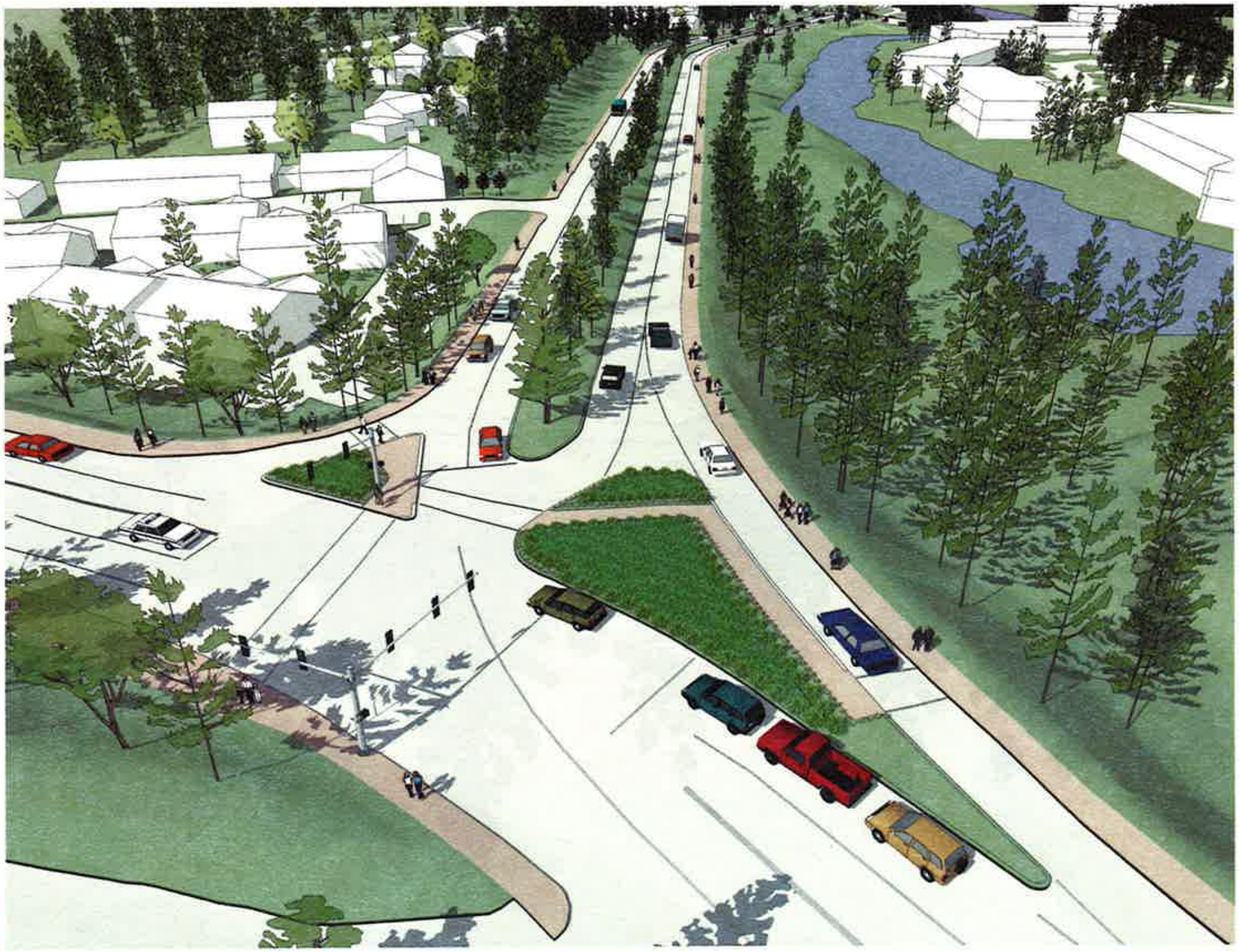
SECTION AND PLAN VIEW

Existing Conditions

View Area: 1.0

Nearest Intersection:
112th Ave SE north of Bellevue Way

0 5 10 20
SCALE IN FEET

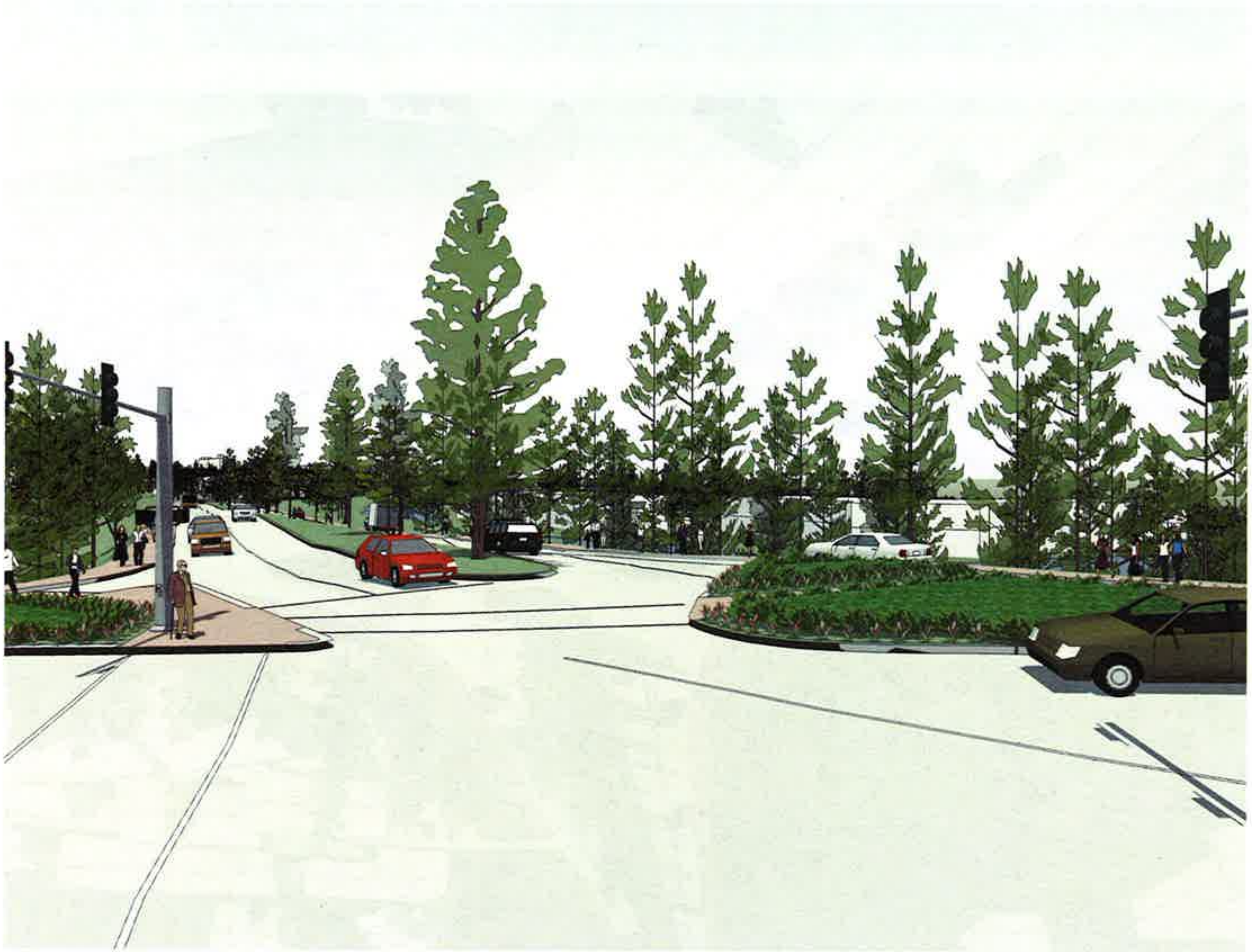


OVERHEAD VIEW

Existing Conditions

View Area: 1.0

Nearest Intersection:
112th Ave SE and
Bellevue Way

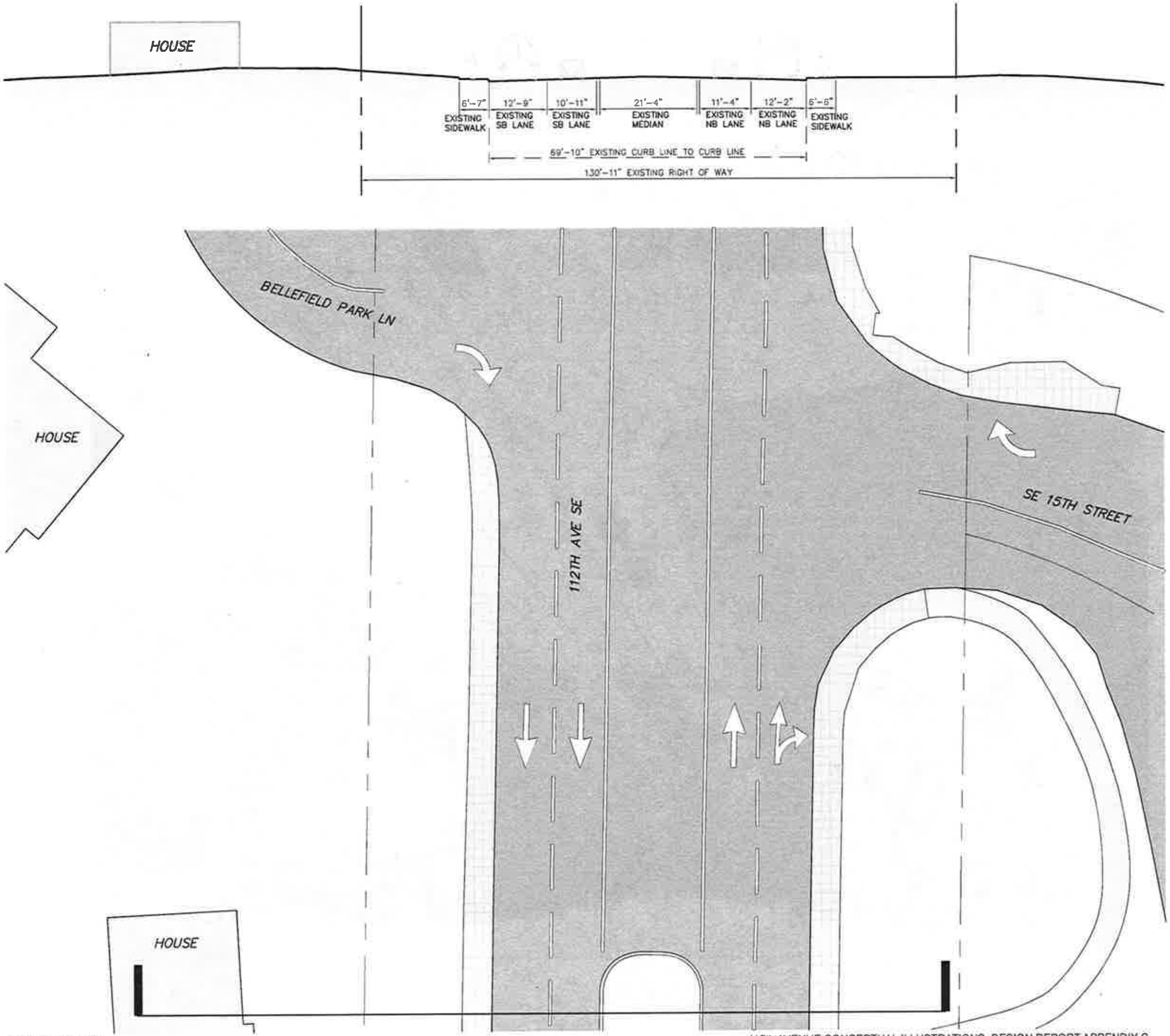


STREET VIEW

Existing Conditions

View Area: 1.0

Nearest Intersection:
112th Ave SE and
Bellevue Way

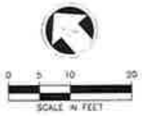

HOUSE
6'-7"
EXISTING SIDEWALK
12'-9"
EXISTING SB LANE
10'-11"
EXISTING SB LANE
21'-4"
EXISTING MEDIAN
11'-4"
EXISTING NB LANE
12'-2"
EXISTING NB LANE
6'-6"
EXISTING SIDEWALK
69'-10" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY
BELLEFIELD PARK LN
HOUSE
112TH AVE SE
SE 15TH STREET
HOUSE

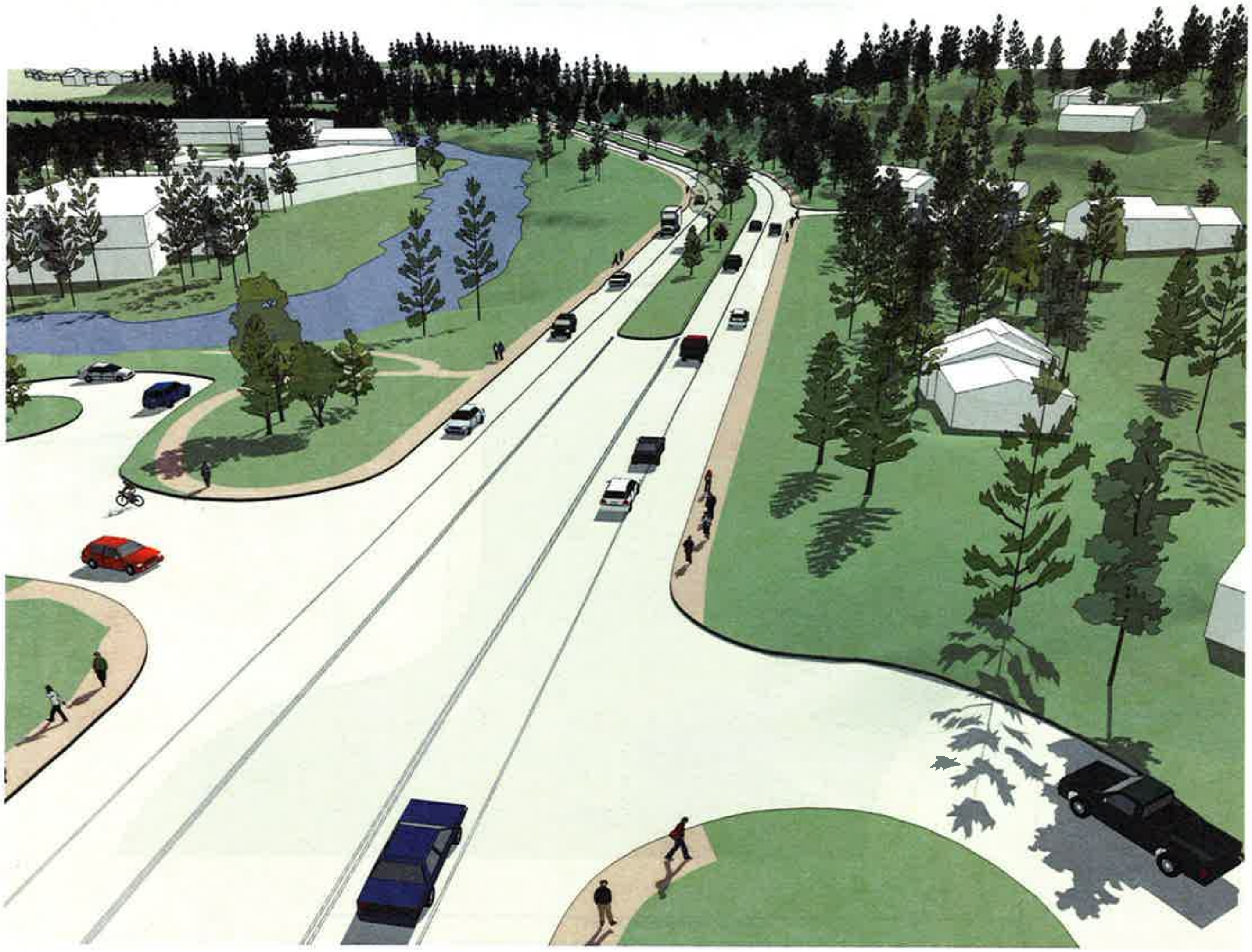
SECTION AND PLAN VIEW

Existing Conditions

View Area: 1.1

Nearest Intersection:
112th Ave SE and
SE 15th St


0
5
10
20
SCALE IN FEET

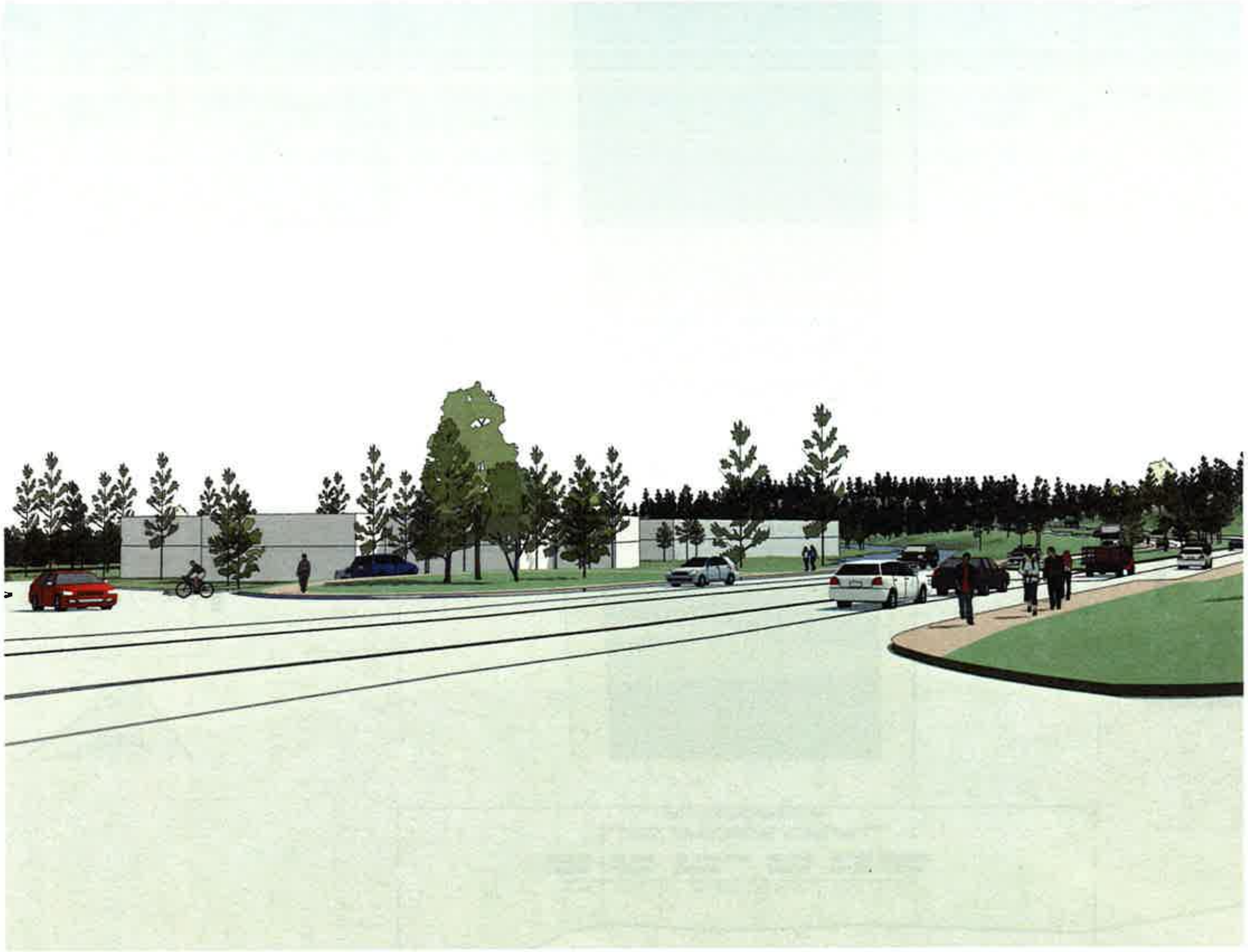


OVERHEAD VIEW

Existing Conditions

View Area: 1.1

Nearest Intersection:
112th Ave SE and
SE 15th St



STREET VIEW

Existing Conditions

View Area: 1.1

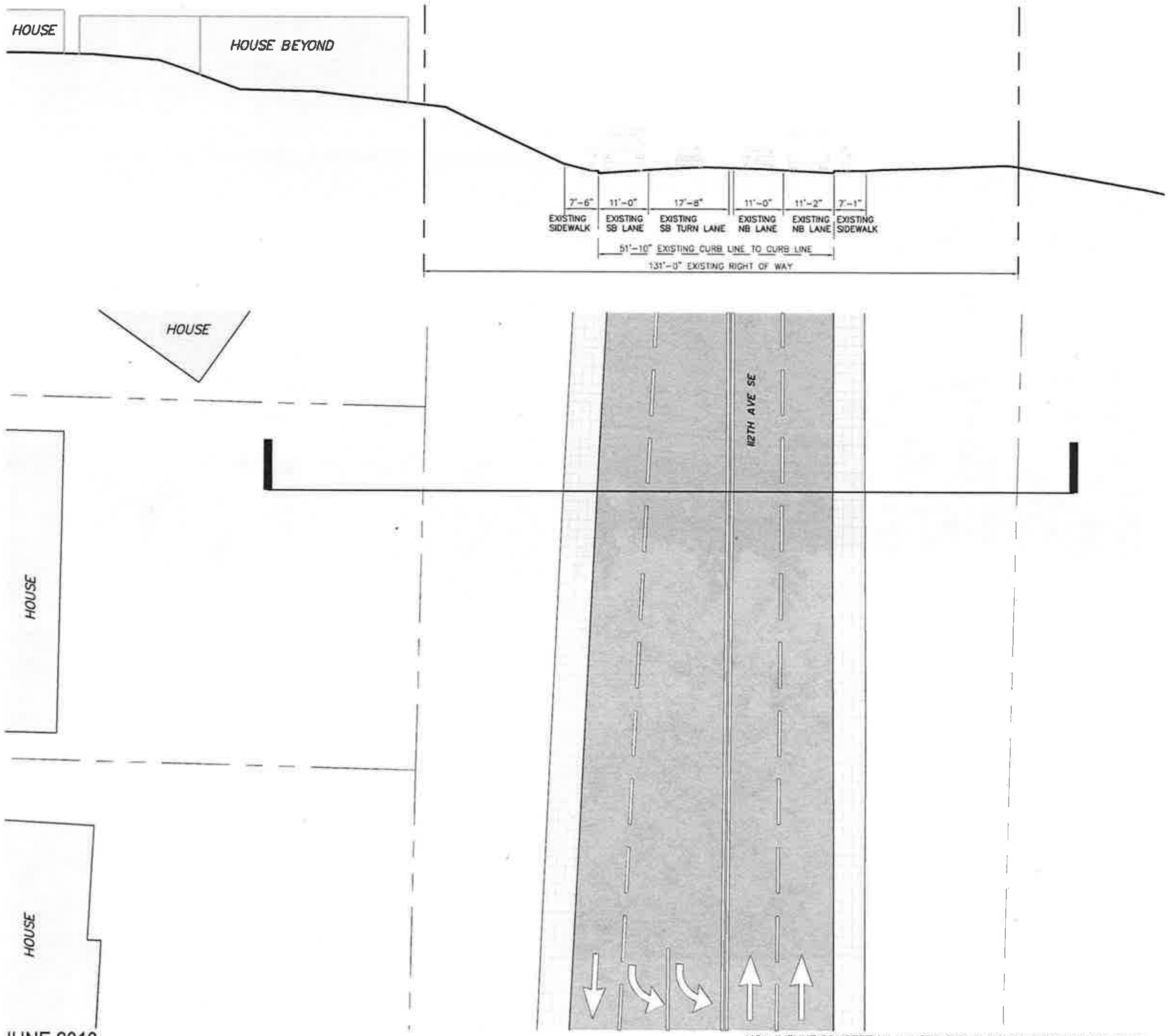
Nearest Intersection:
112th Ave SE and
SE 15th St

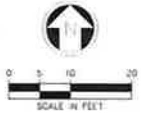
SECTION AND PLAN VIEW

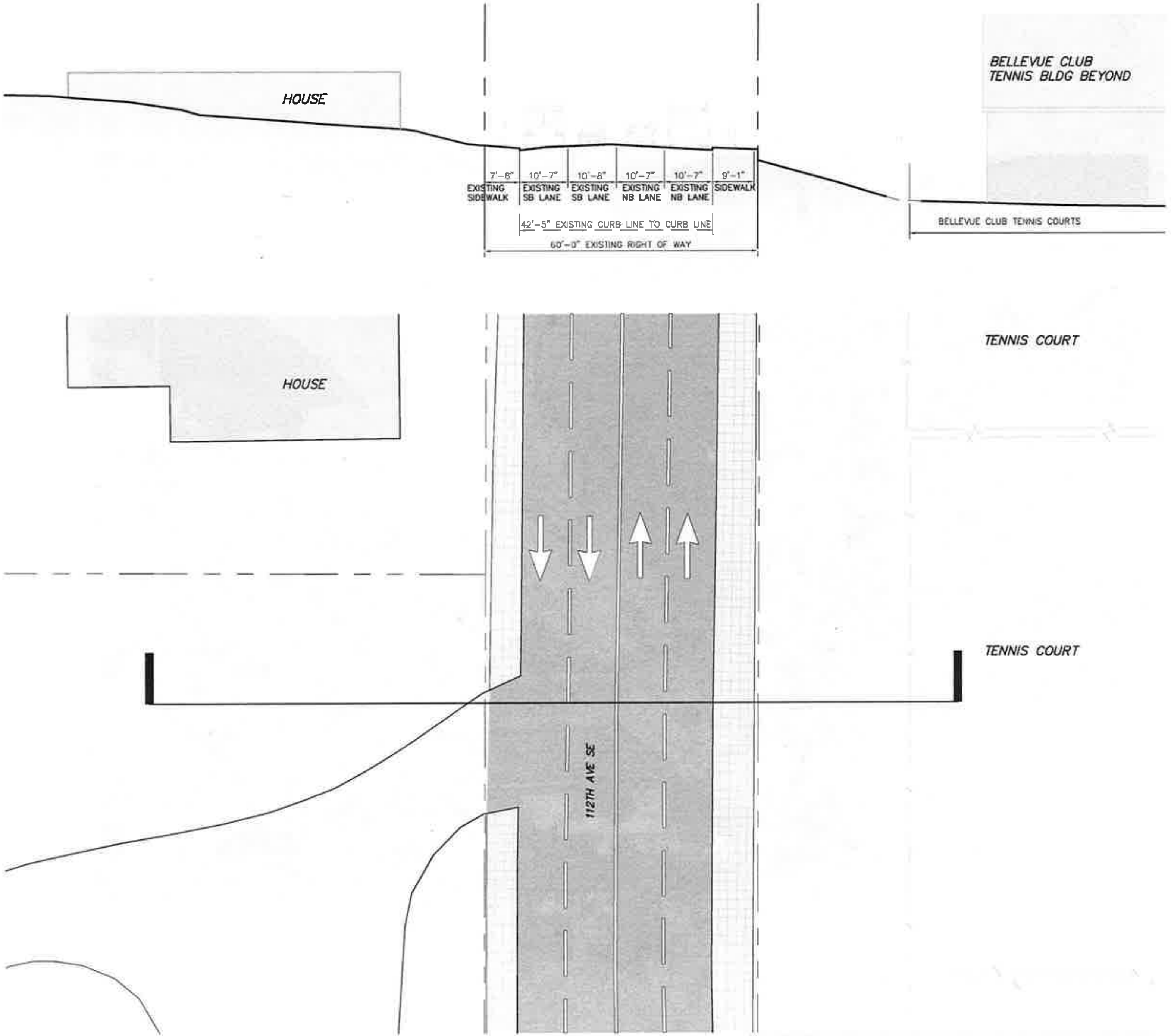
Existing Conditions

View Area: 2.0

Nearest Intersection:
112th Ave SE north of SE 8th St


HOUSE
HOUSE BEYOND
7'-6"
11'-0"
17'-8"
11'-0"
11'-2"
7'-1"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB TURN LANE
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
51'-10" EXISTING CURB LINE TO CURB LINE
131'-0" EXISTING RIGHT OF WAY
HOUSE
112TH AVE SE
HOUSE
HOUSE


N
0
5
10
20
SCALE IN FEET



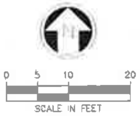
BELLEVUE CLUB
TENNIS BLDG BEYOND
HOUSE
7'-8"
10'-7"
10'-8"
10'-7"
10'-7"
9'-1"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING NB LANE
EXISTING NB LANE
SIDEWALK
42'-5" EXISTING CURB LINE TO CURB LINE
60'-0" EXISTING RIGHT OF WAY
BELLEVUE CLUB TENNIS COURTS
TENNIS COURT
HOUSE
TENNIS COURT
112TH AVE SE

SECTION AND PLAN VIEW

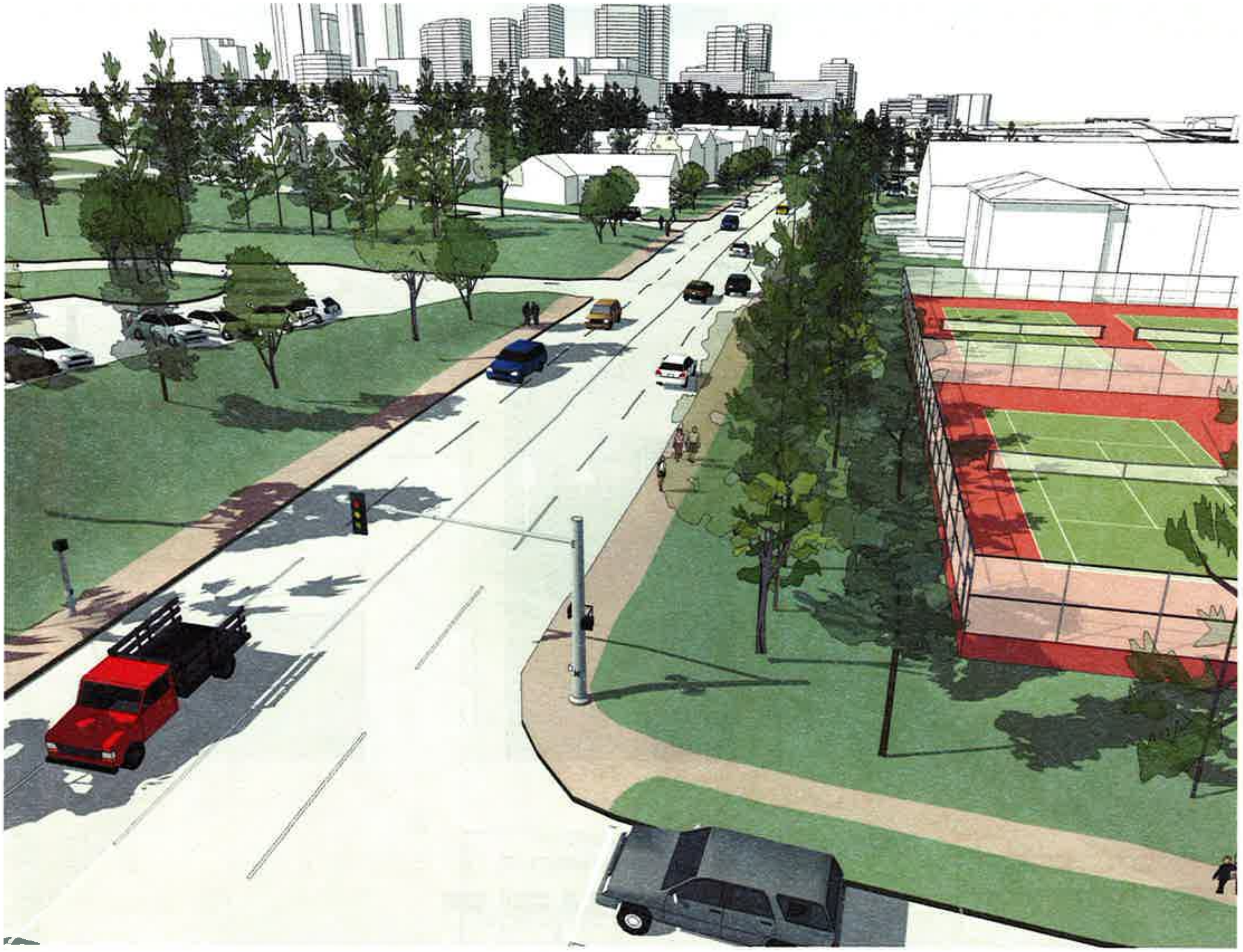
Existing Conditions

View Area: 3.0

Nearest Intersection:
112th Ave SE north of SE 6th St



N
0
5
10
20
SCALE IN FEET

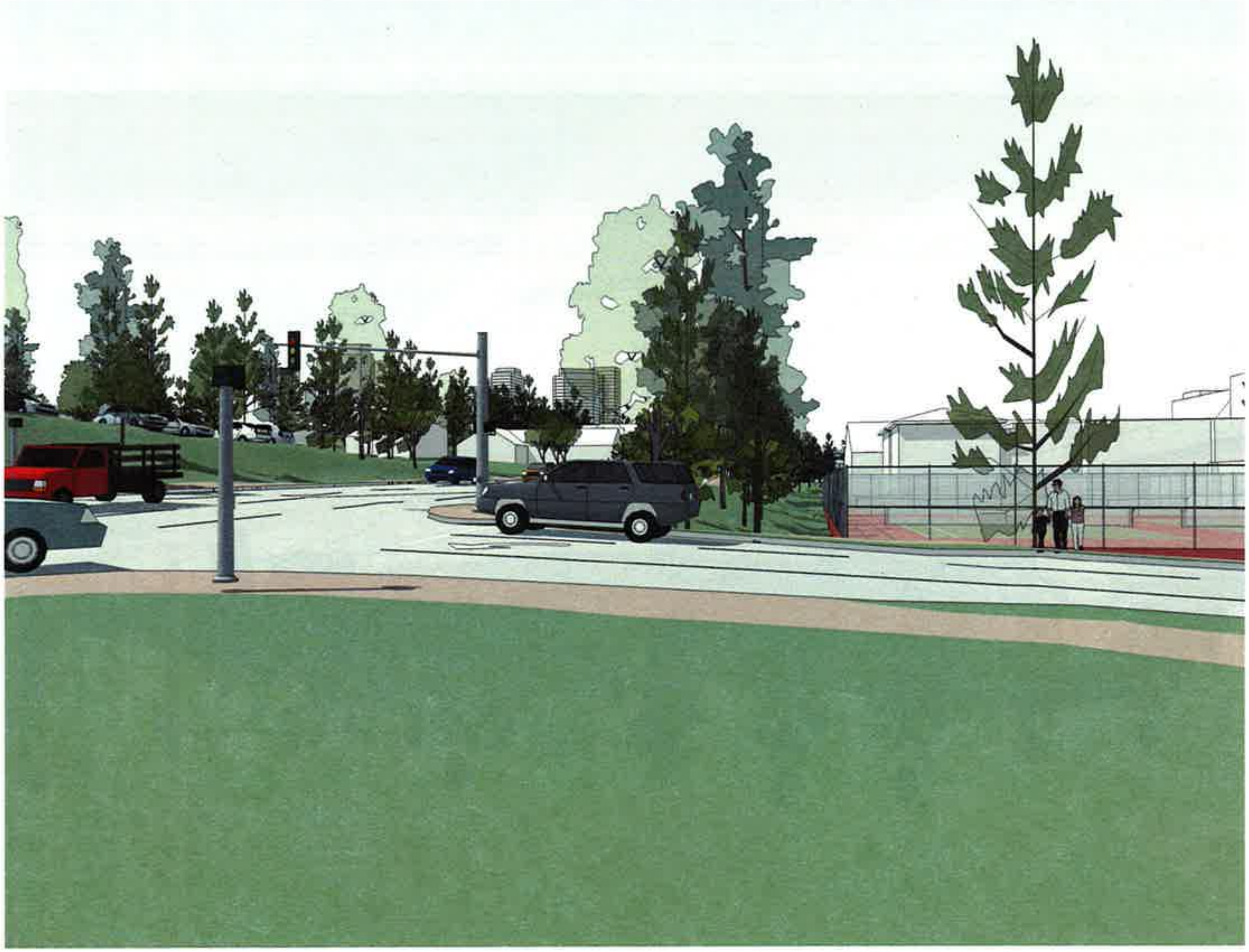


OVERHEAD VIEW

Existing Conditions

View Area: 3.0

Nearest Intersection:
112th Ave SE and
SE 6th St

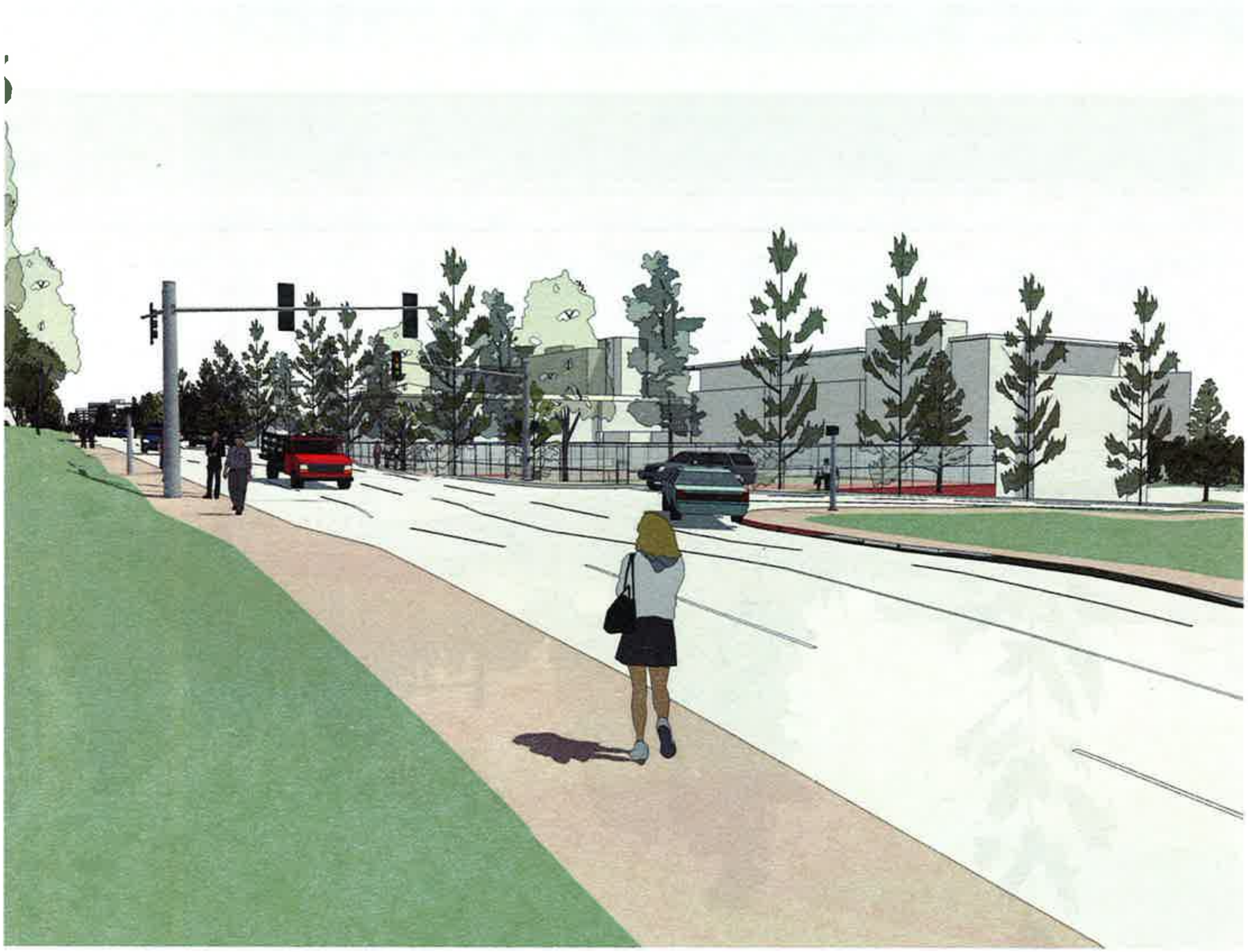


STREET VIEW EAST

Existing Conditions

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St



STREET VIEW WEST

Existing Conditions

View Area: 3.0

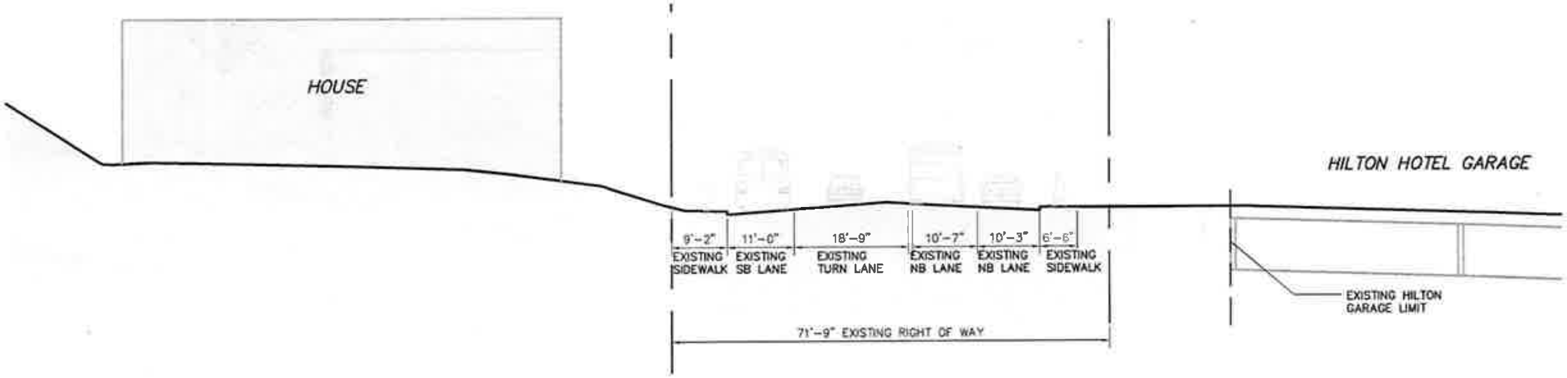
Nearest Intersection:
112th Ave SE and SE 6th St

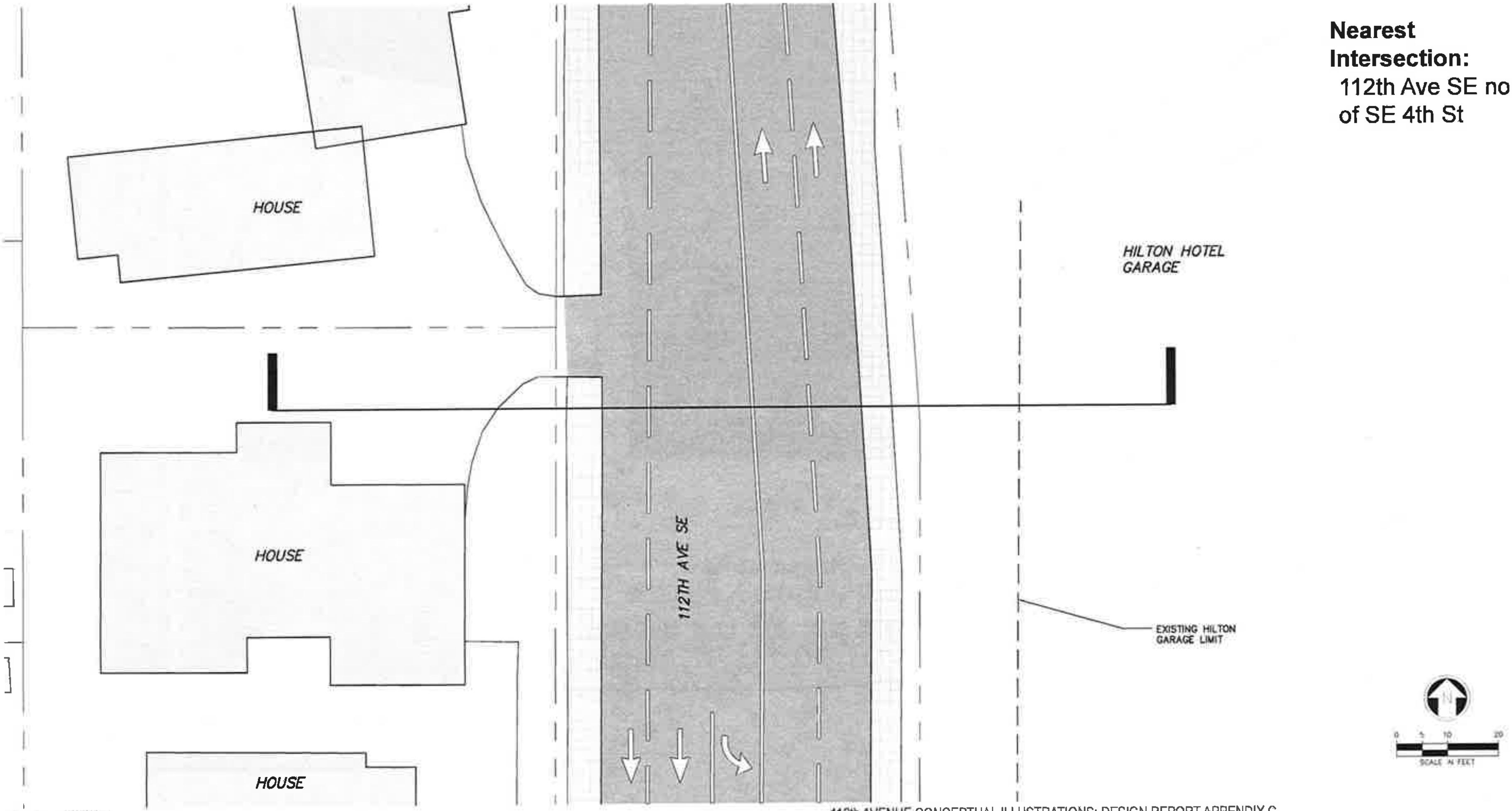
SECTION AND PLAN VIEW

Existing Conditions

View Area: 3.1

Nearest Intersection:
112th Ave SE north of SE 4th St


HOUSE
HILTON HOTEL GARAGE
9'-2" EXISTING SIDEWALK
11'-0" EXISTING SB LANE
18'-9" EXISTING TURN LANE
10'-7" EXISTING NB LANE
10'-3" EXISTING NB LANE
6'-6" EXISTING SIDEWALK
71'-9" EXISTING RIGHT OF WAY
EXISTING HILTON GARAGE LIMIT

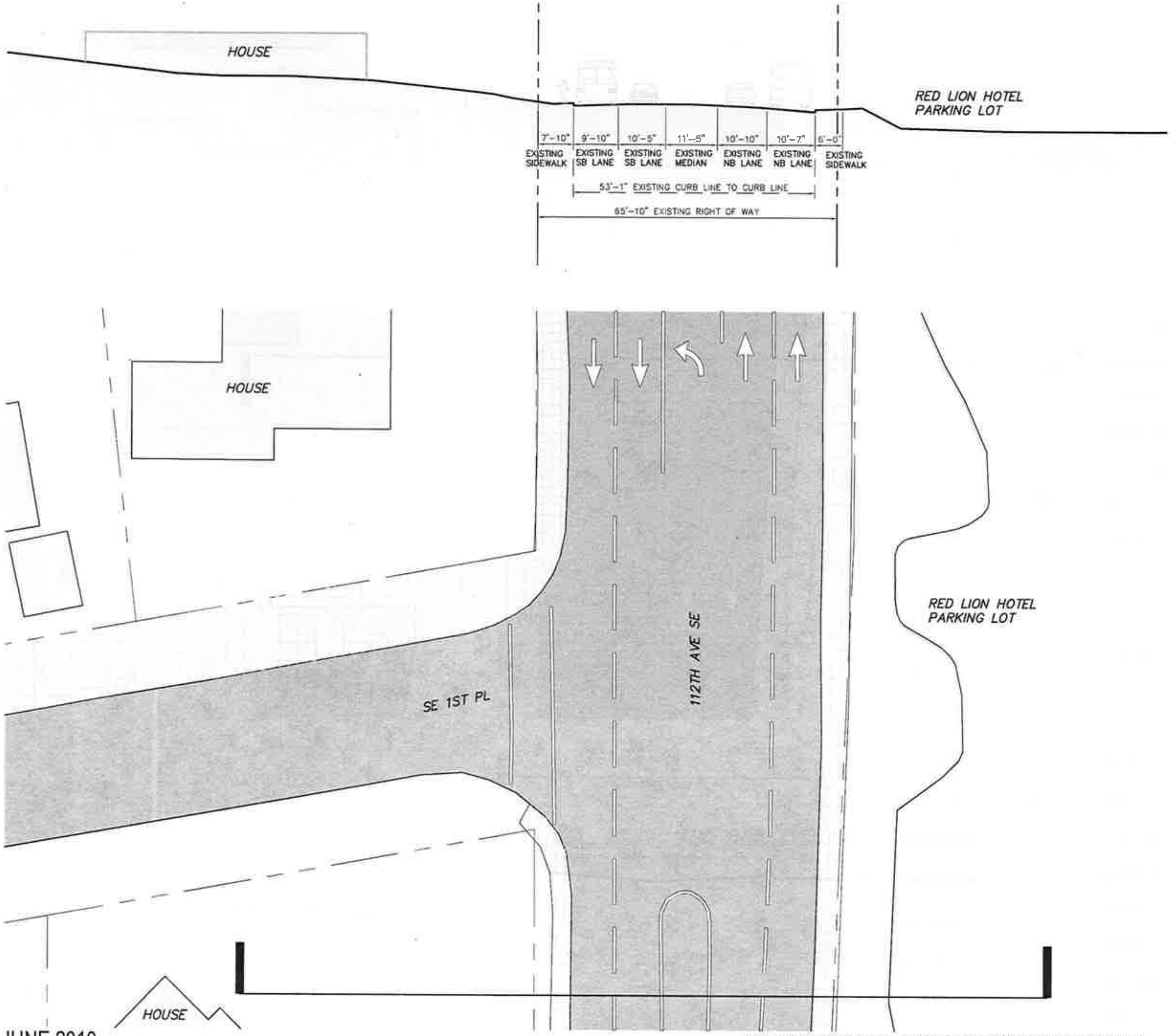

HOUSE
HOUSE
HOUSE
HOUSE
112TH AVE SE
HILTON HOTEL GARAGE
EXISTING HILTON GARAGE LIMIT
N
0
5
10
20
SCALE IN FEET

SECTION AND PLAN VIEW

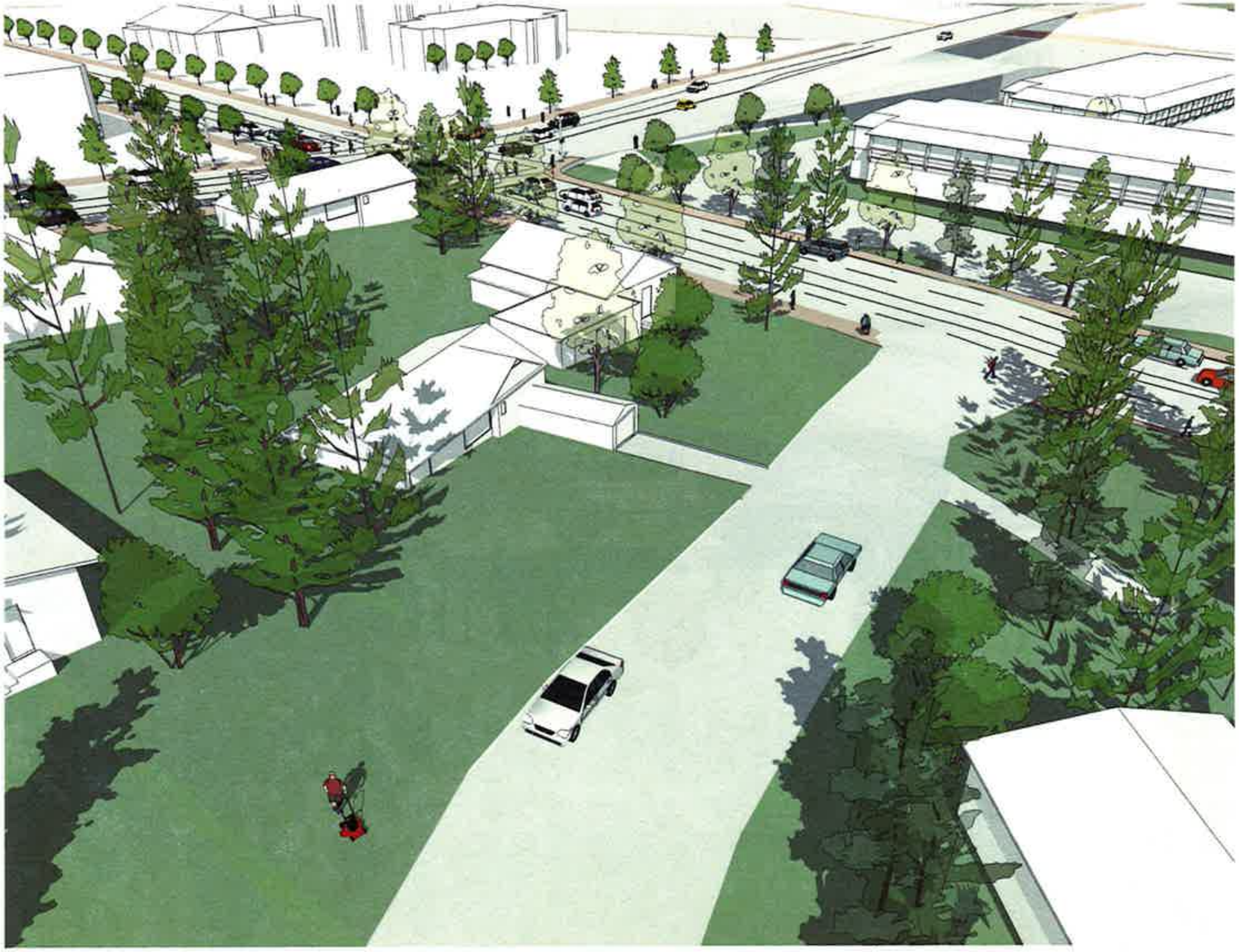
Existing Conditions

View Area: **4.0**

Nearest Intersection:
112th Ave SE and
SE 1st Place


HOUSE
RED LION HOTEL PARKING LOT
7'-10"
9'-10"
10'-5"
11'-5"
10'-10"
10'-7"
6'-0"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING MEDIAN
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
53'-1" EXISTING CURB LINE TO CURB LINE
65'-10" EXISTING RIGHT OF WAY
HOUSE
RED LION HOTEL PARKING LOT
112TH AVE SE
SE 1ST PL
HOUSE

N
0
5
10
20
SCALE IN FEET

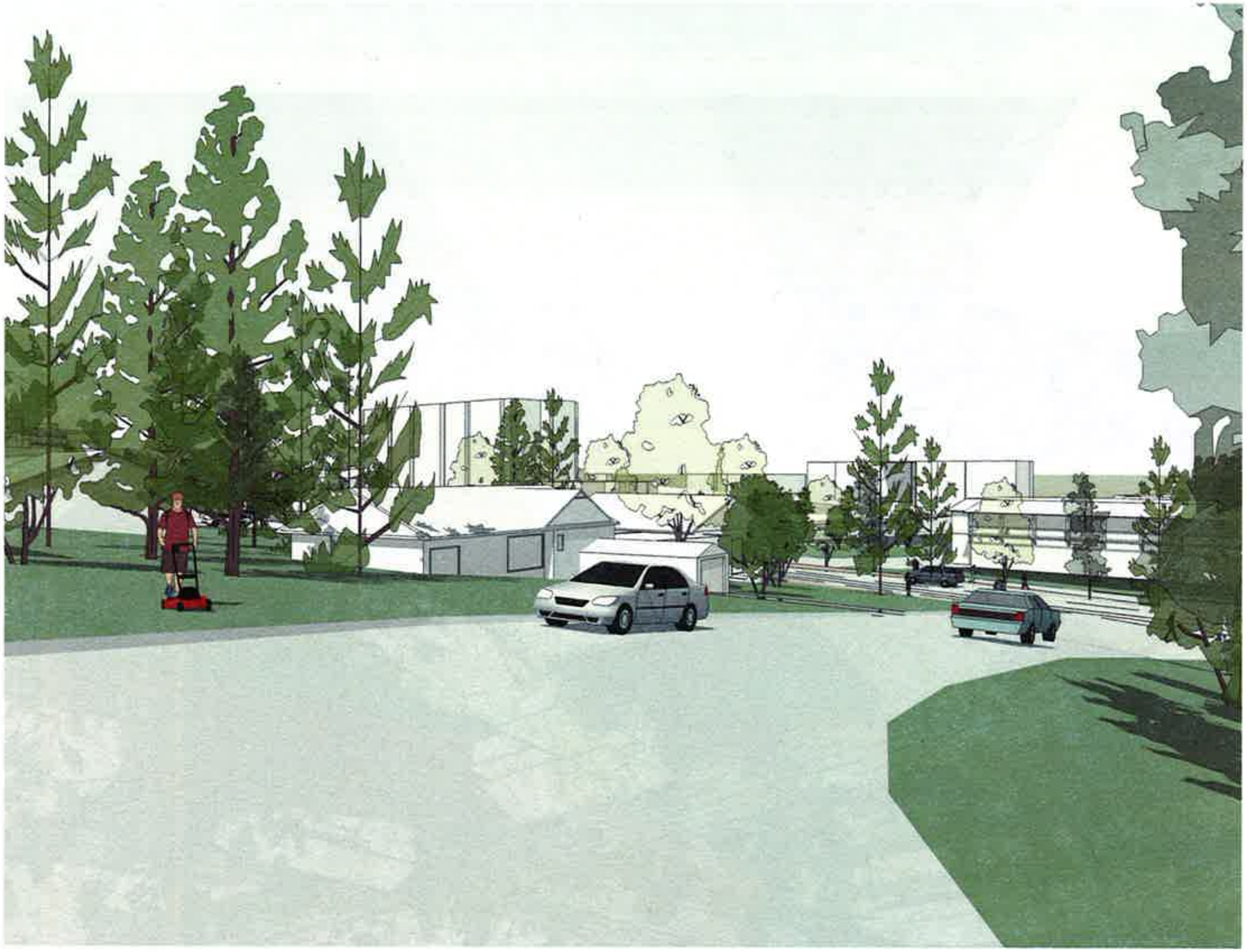


OVERHEAD VIEW

Existing Conditions

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place



STREET VIEW

Existing Conditions

View Area: 4.0

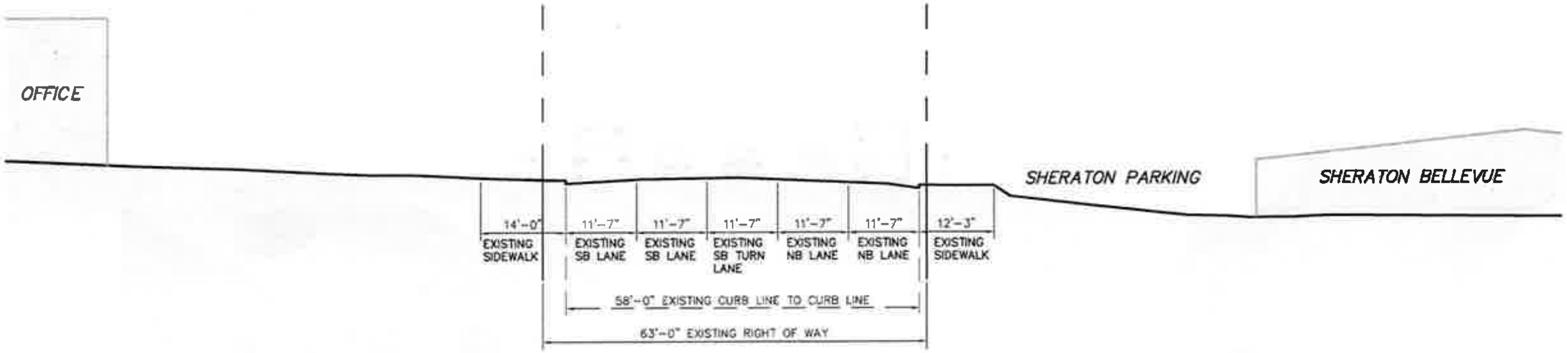
Nearest Intersection:
112th Ave SE and
SE 1st Place

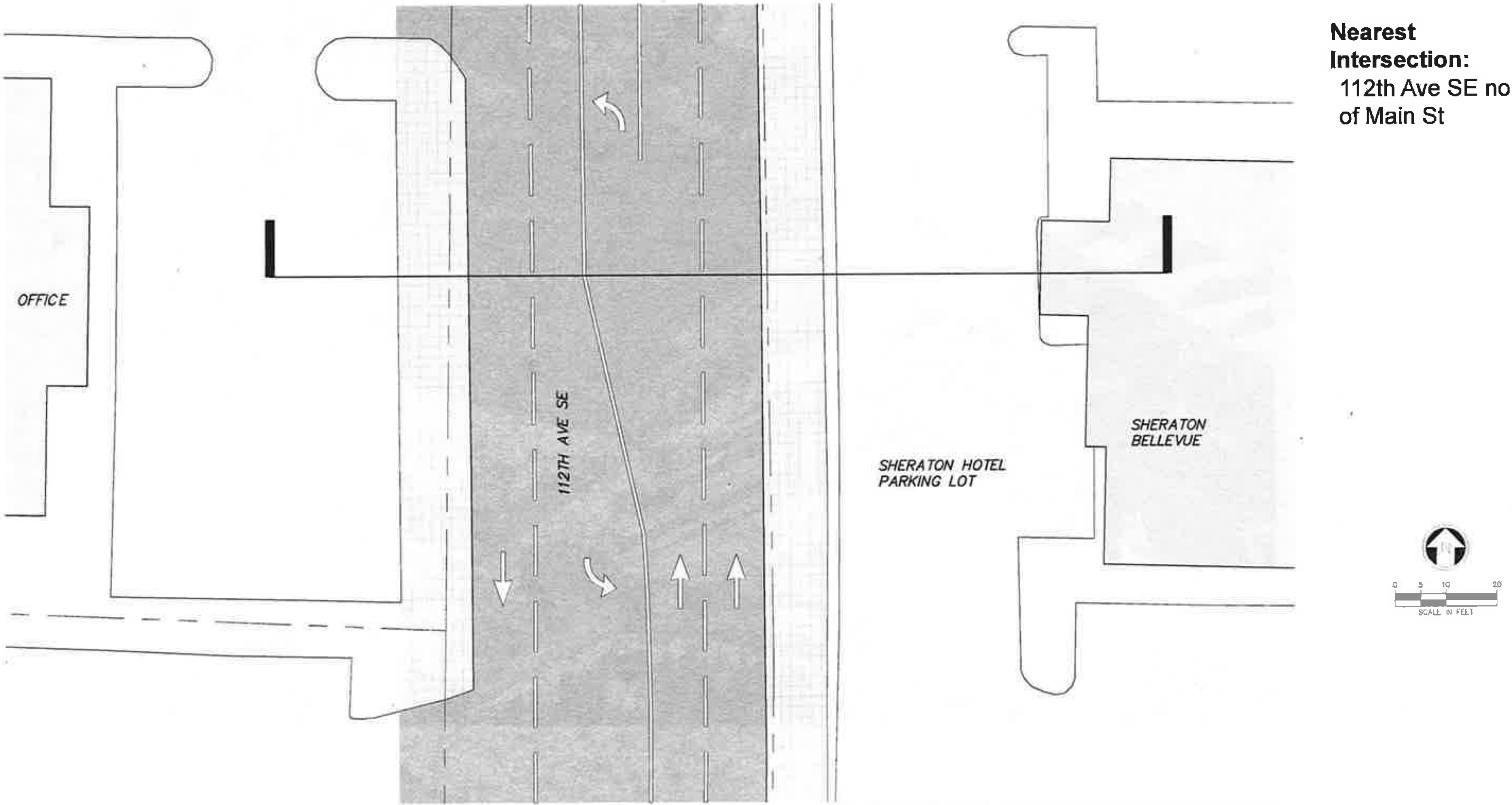
SECTION AND PLAN VIEW

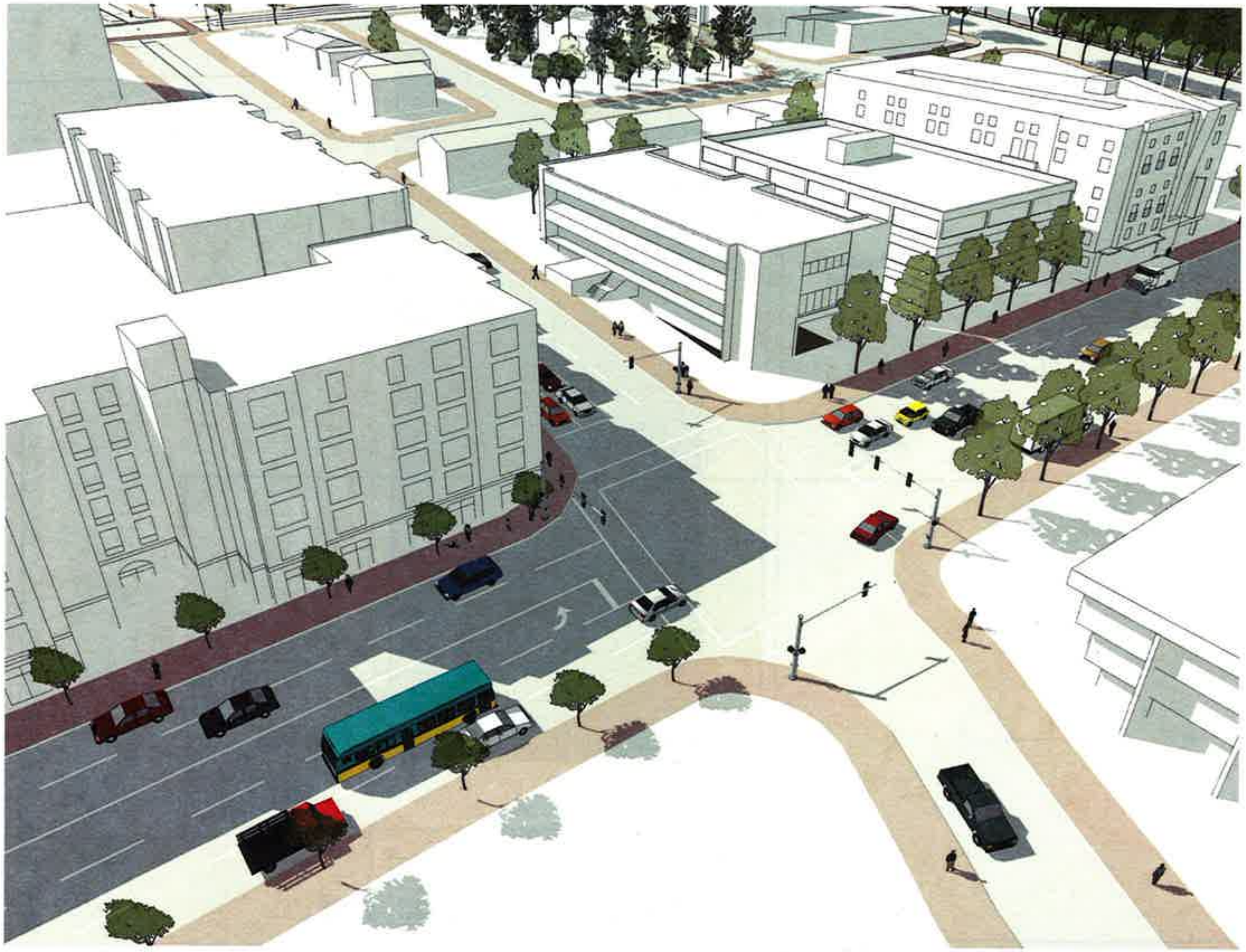
Existing Conditions

View Area: **5.0**

Nearest Intersection:
112th Ave SE north of Main St


OFFICE
SHERATON PARKING
SHERATON BELLEVUE
14'-0"
11'-7"
11'-7"
11'-7"
11'-7"
11'-7"
12'-3"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING SB TURN LANE
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
58'-0" EXISTING CURB LINE TO CURB LINE
63'-0" EXISTING RIGHT OF WAY


OFFICE
112TH AVE SE
SHERATON HOTEL PARKING LOT
SHERATON BELLEVUE
N
0
5
10
20
SCALE IN FEET

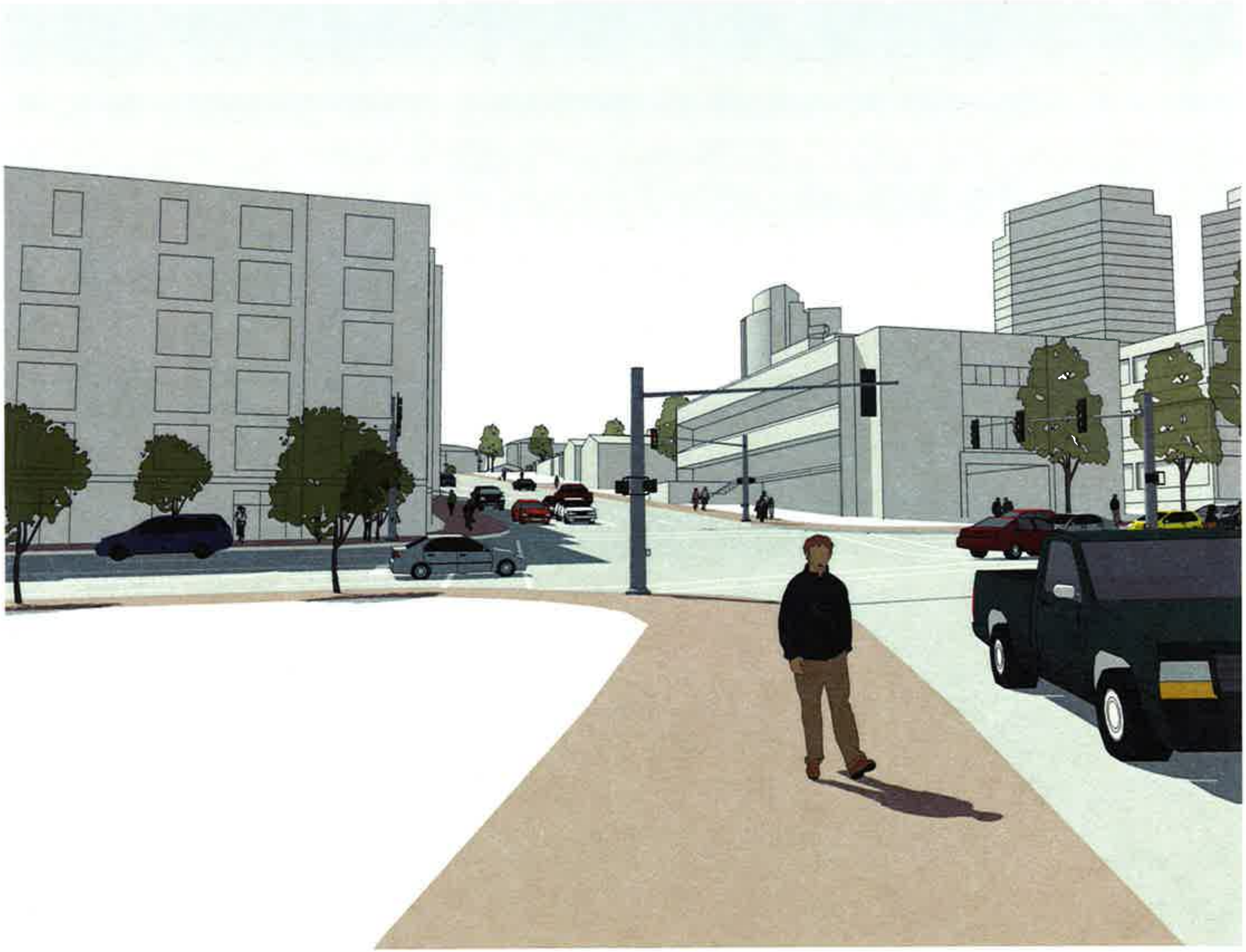


OVERHEAD VIEW

Existing Conditions

View Area: 5.0

Nearest Intersection:
112th Ave SE and
NE 2nd St.



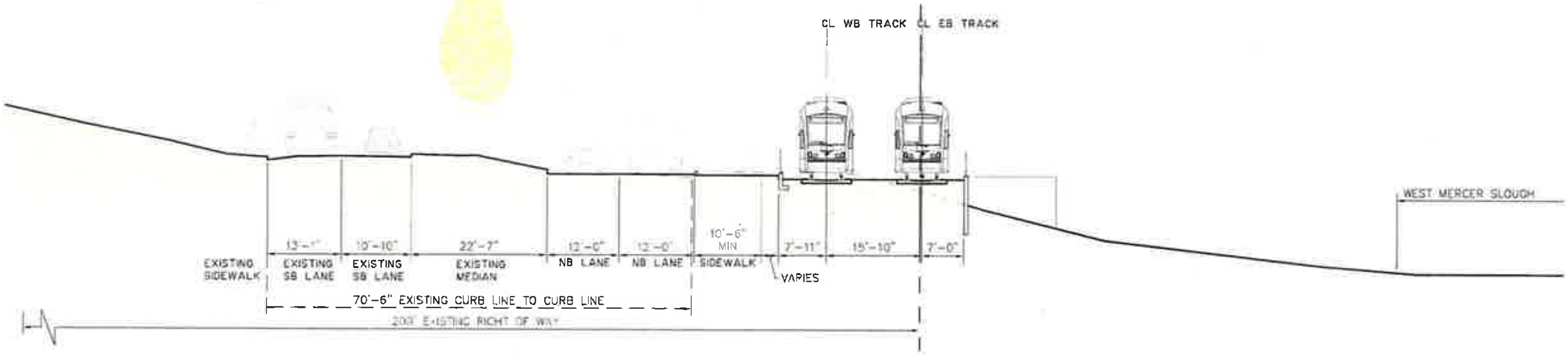
STREET VIEW

Existing Conditions

View Area: 5.0

Nearest Intersection:
112th Ave SE and
NE 2nd St.

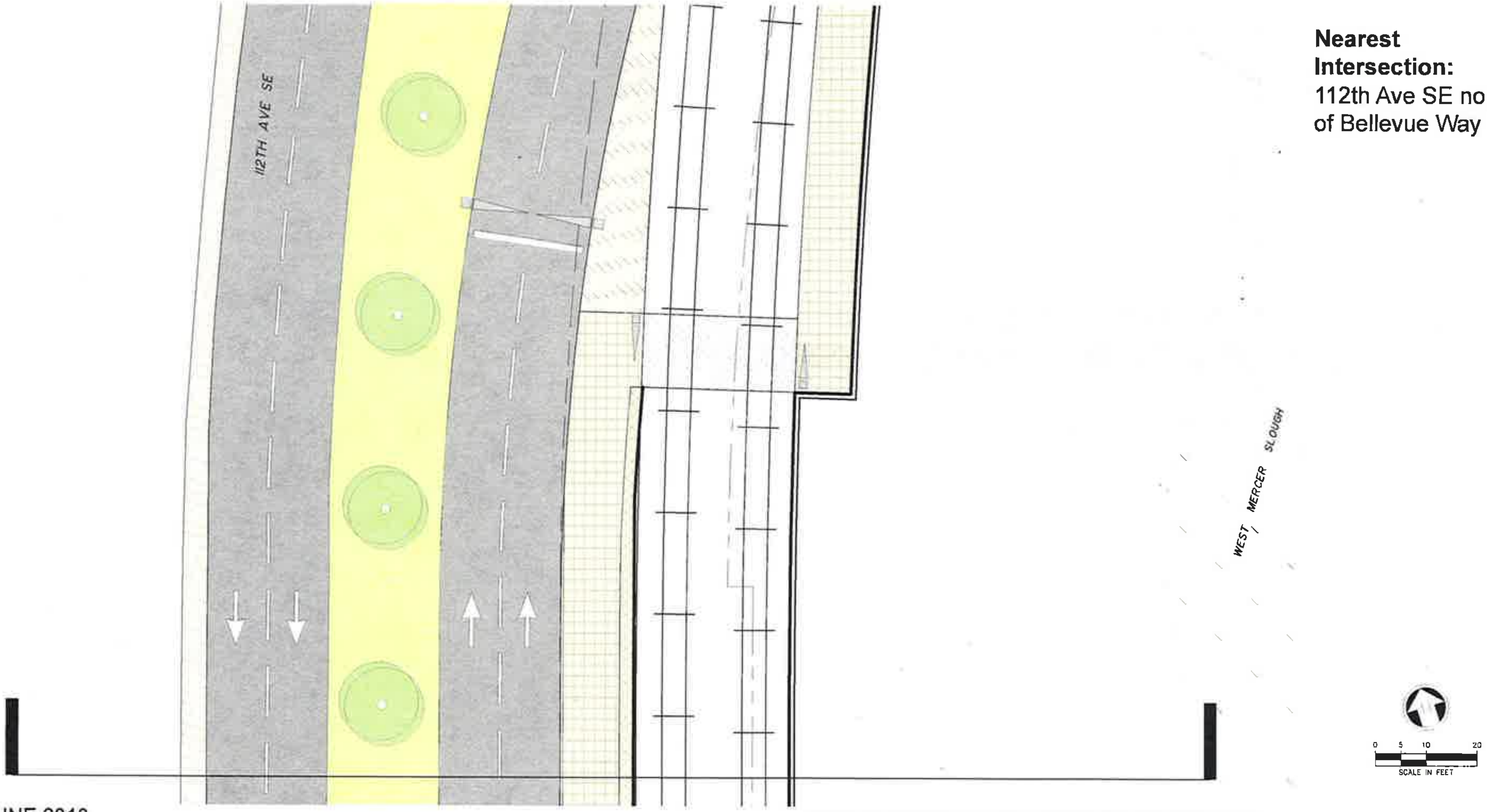
Option 1: Center Running to Main Street Tunnel
Plan, Section and Conceptual Illustrations


CL WB TRACK
CL EB TRACK
WEST MERCER SLOUGH
13'-1"
10'-10"
22'-7"
12'-0"
12'-0"
10'-6" MIN
7'-11"
15'-10"
7'-0"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING MEDIAN
NB LANE
NB LANE
SIDEWALK
VARIES
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY

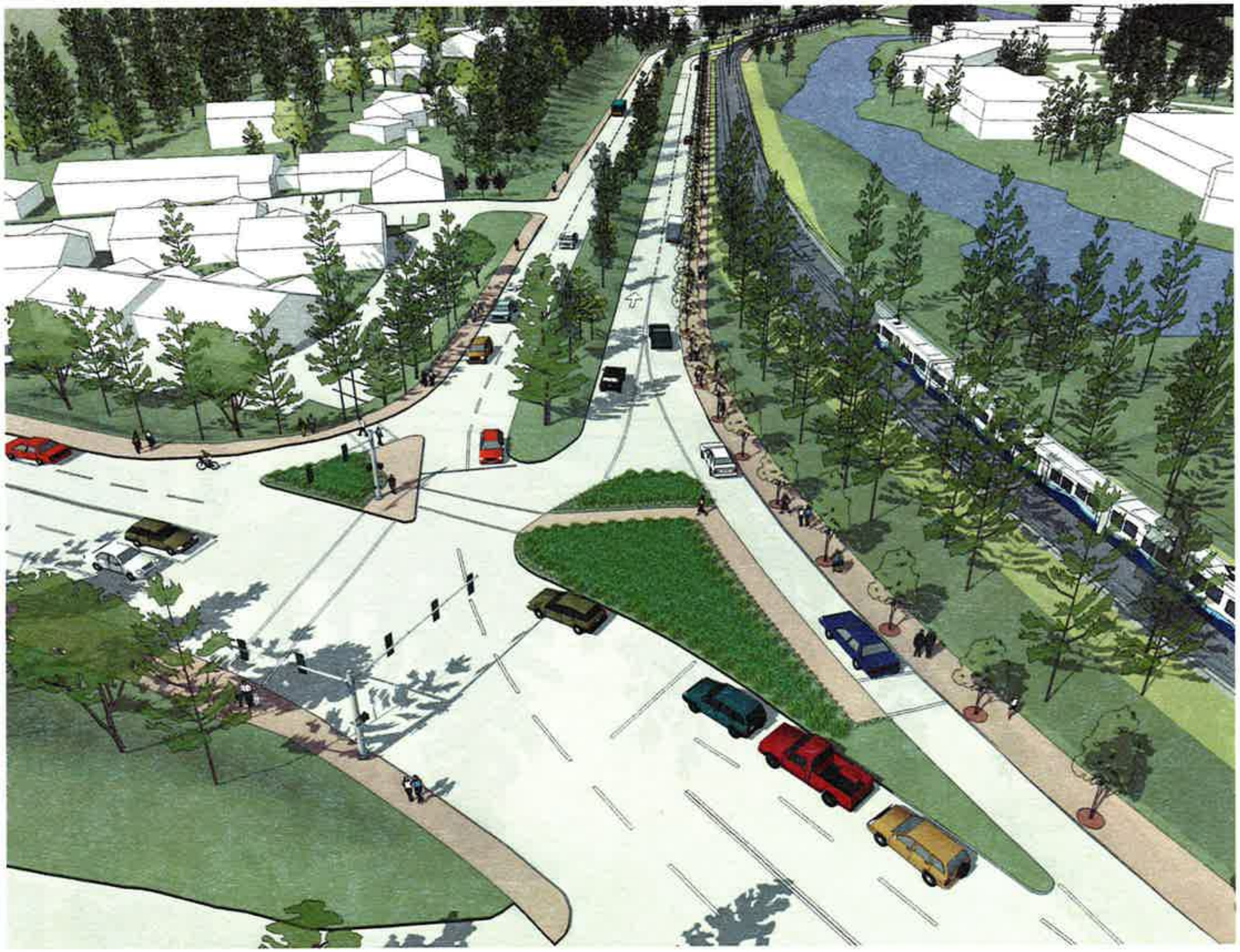
SECTION AND PLAN VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 1.0


112TH AVE SE
WEST MERCER SLOUGH
0 5 10 20
SCALE IN FEET

Nearest Intersection:
112th Ave SE north of Bellevue Way

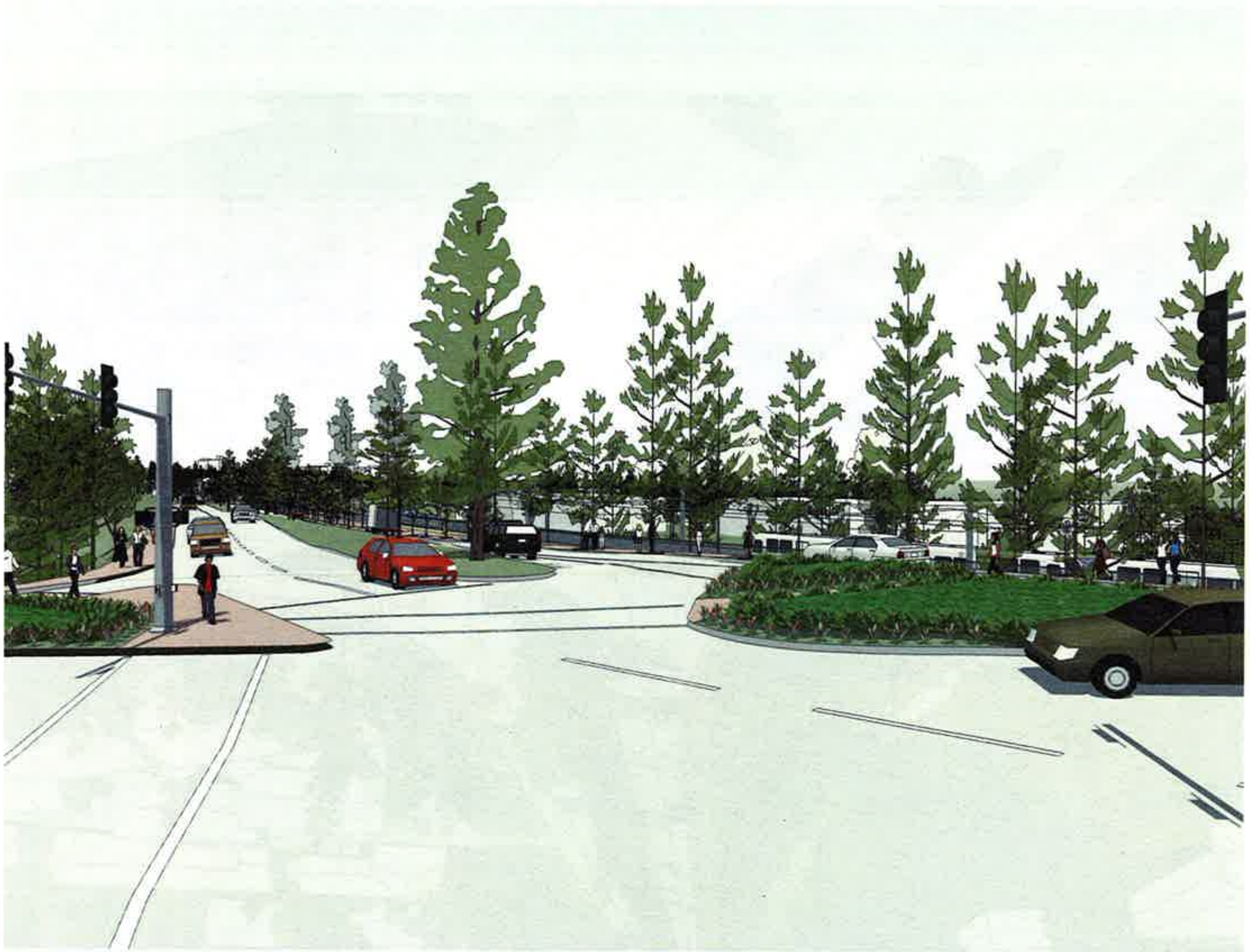


OVERHEAD VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

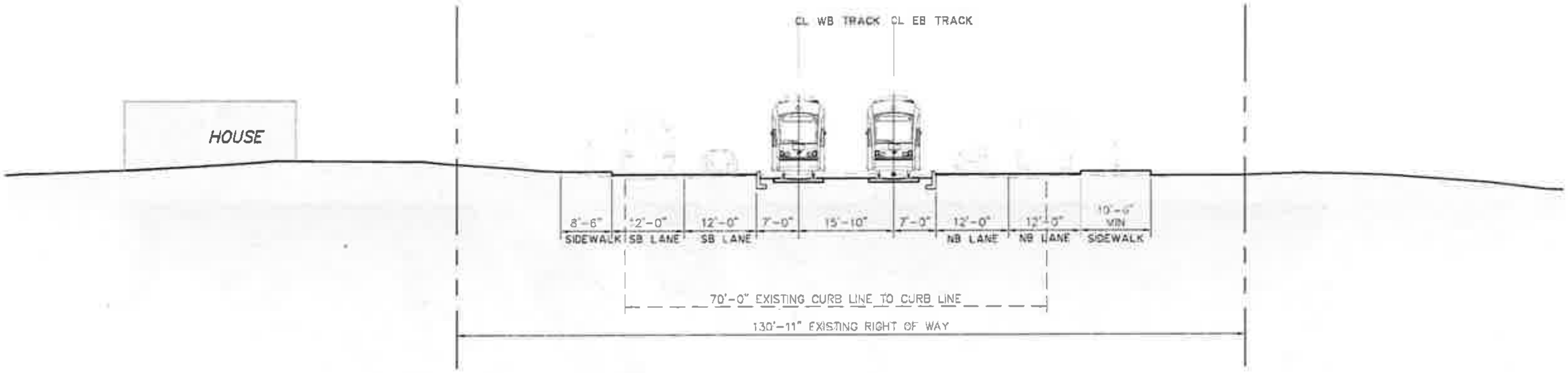


STREET VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 1.0

Nearest Intersection: 112th Ave SE and Bellevue Way

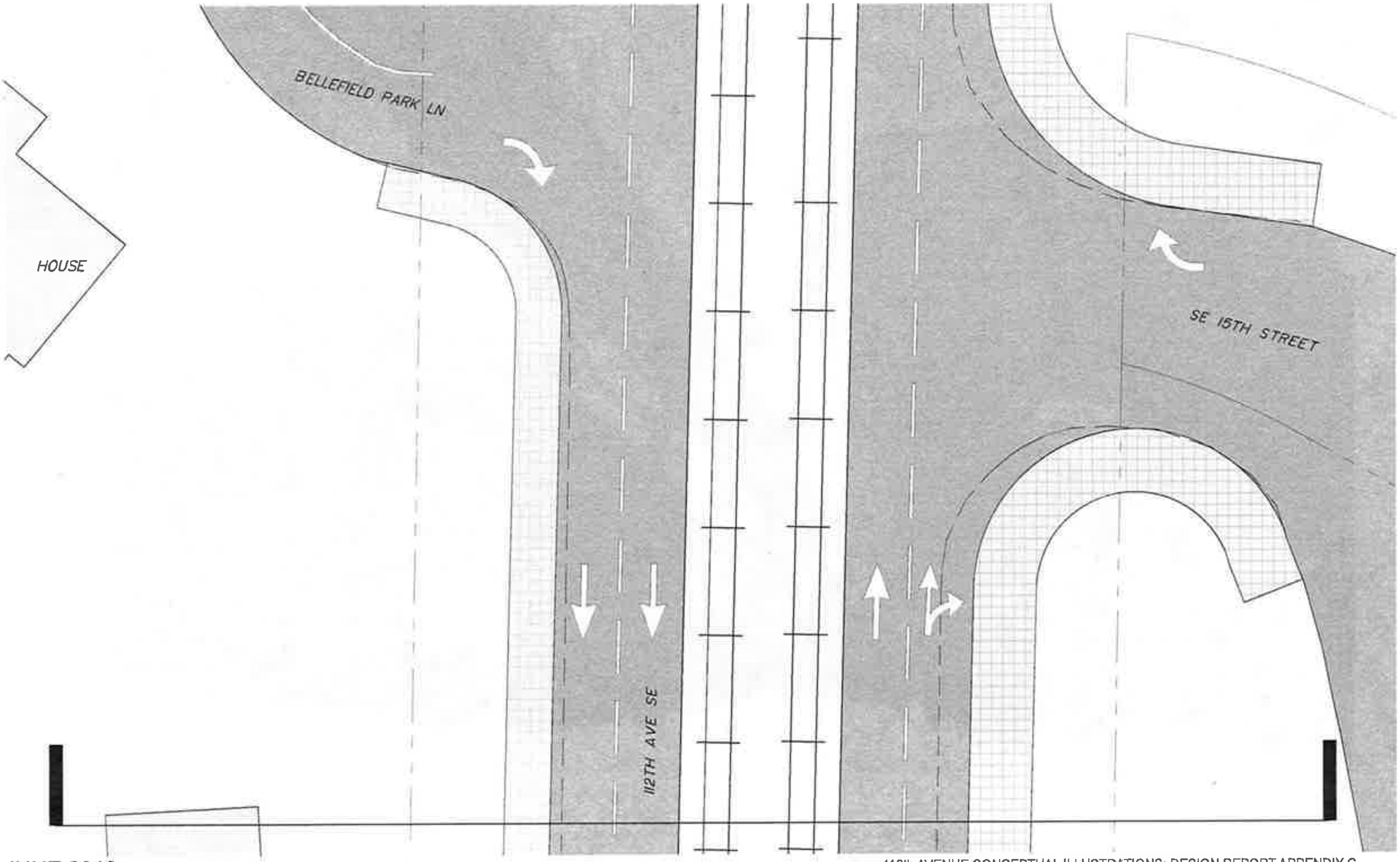

CL WB TRACK
CL EB TRACK
HOUSE
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
7'-0"
15'-10"
7'-0"
12'-0"
NB LANE
12'-0"
NB LANE
10'-0" MIN
SIDEWALK
70'-0" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY

SECTION AND PLAN VIEW

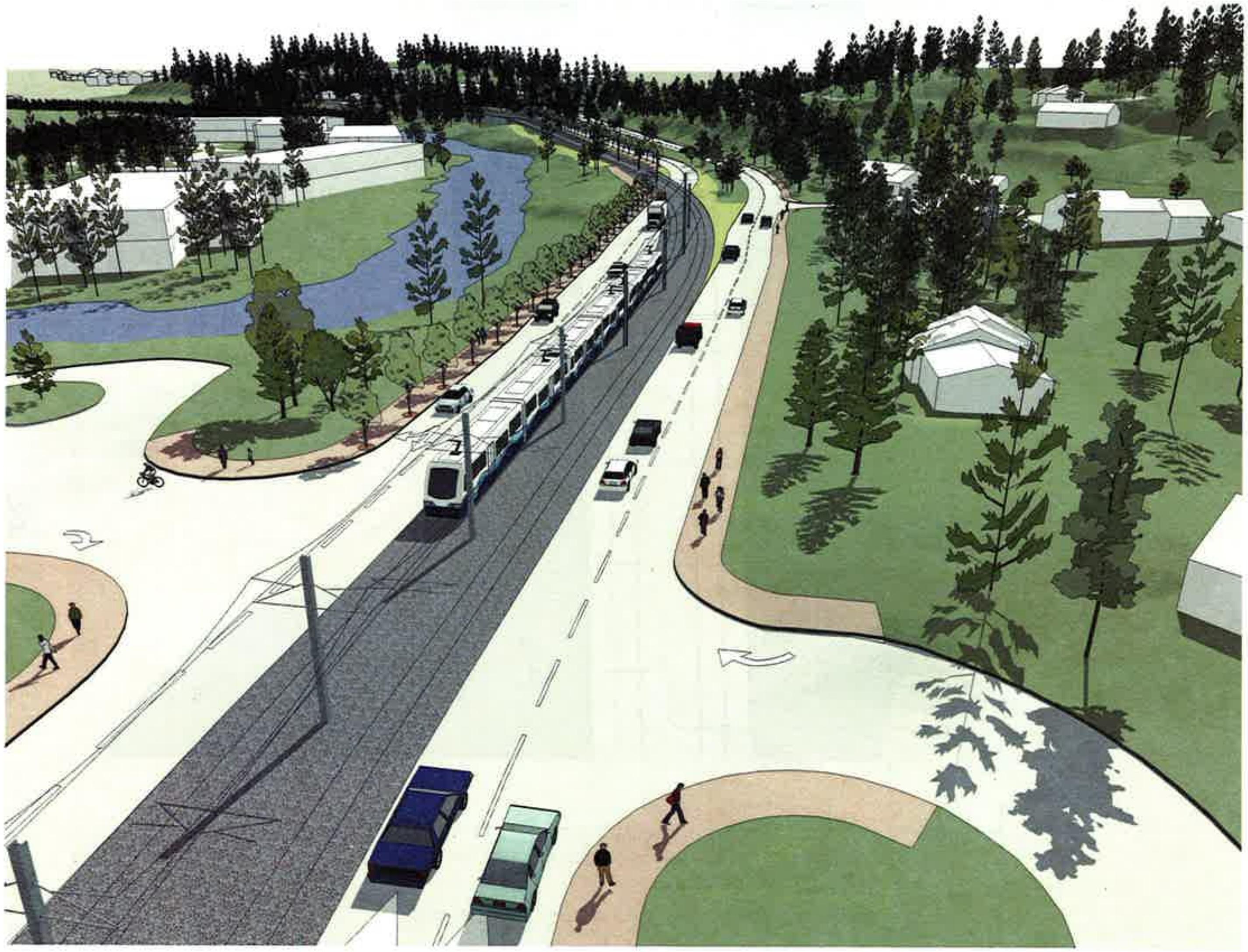
Option 1: Center Running to Main Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St


BELLEFIELD PARK LN
HOUSE
SE 15TH STREET
112TH AVE SE
0 5 10 20
SCALE IN FEET

JUNE 2010

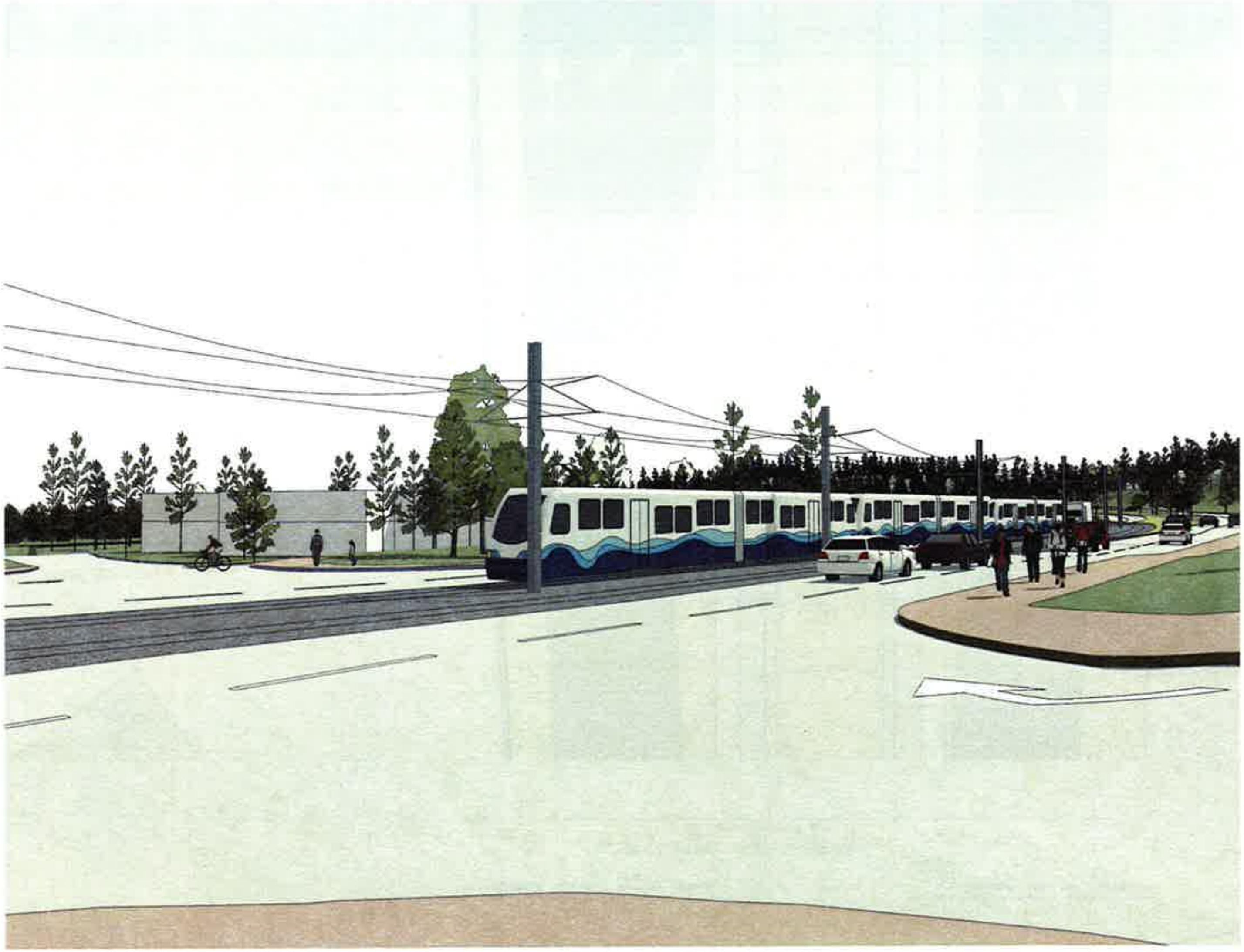


OVERHEAD VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St

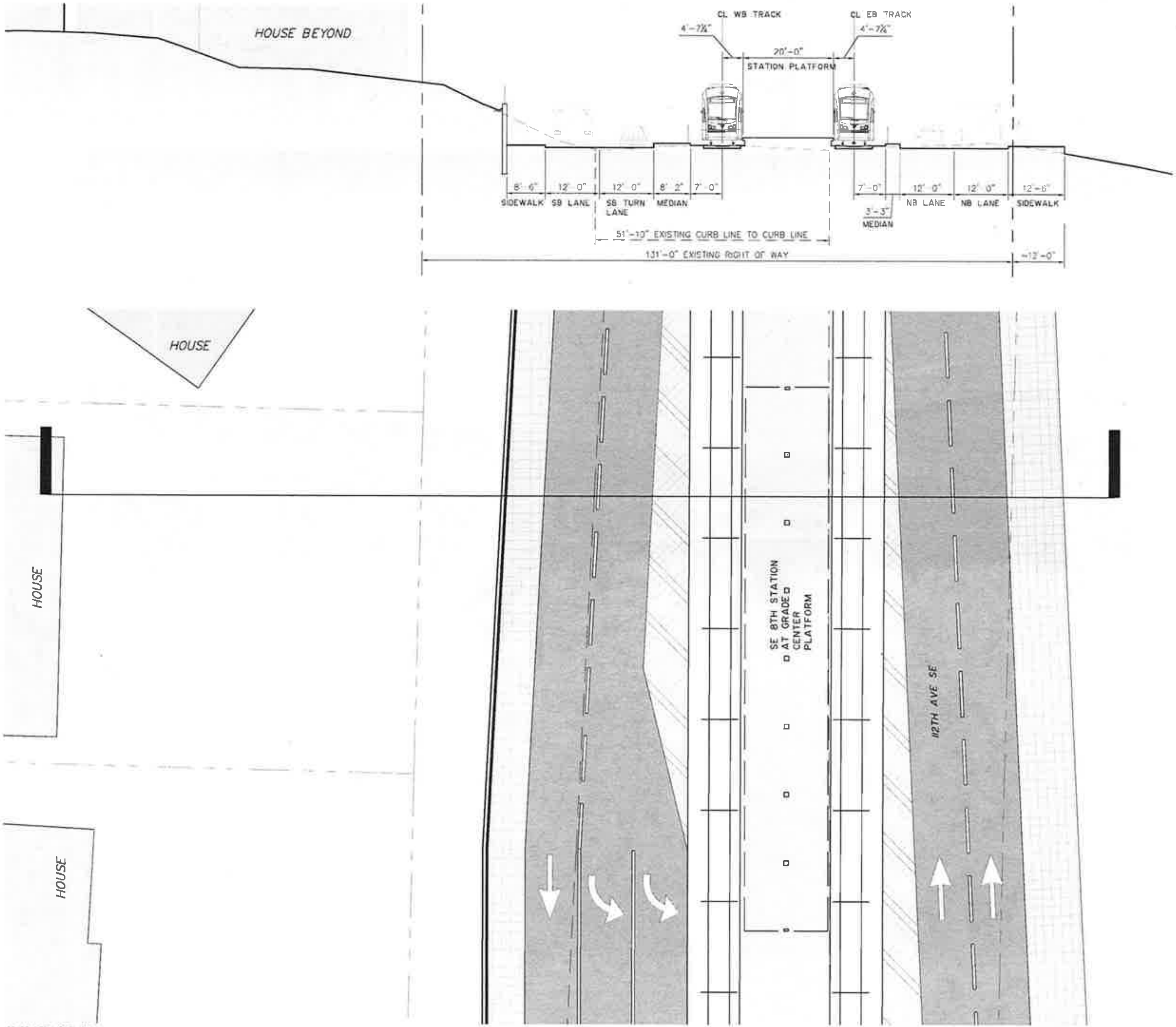


STREET VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St


HOUSE BEYOND
CL WB TRACK
4'-7¾"
20'-0"
STATION PLATFORM
CL EB TRACK
4'-7¾"
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB TURN LANE
8'-2"
MEDIAN
7'-0"
7'-0"
3'-3"
MEDIAN
12'-0"
NB LANE
12'-0"
NB LANE
12'-6"
SIDEWALK
51'-10" EXISTING CURB LINE TO CURB LINE
131'-0" EXISTING RIGHT OF WAY
~12'-0"
HOUSE
HOUSE
HOUSE
SE 8TH STATION AT GRADE CENTER PLATFORM
112TH AVE SE

SECTION AND PLAN VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 2.0

Nearest Intersection:
112th Ave SE north of SE 8th St

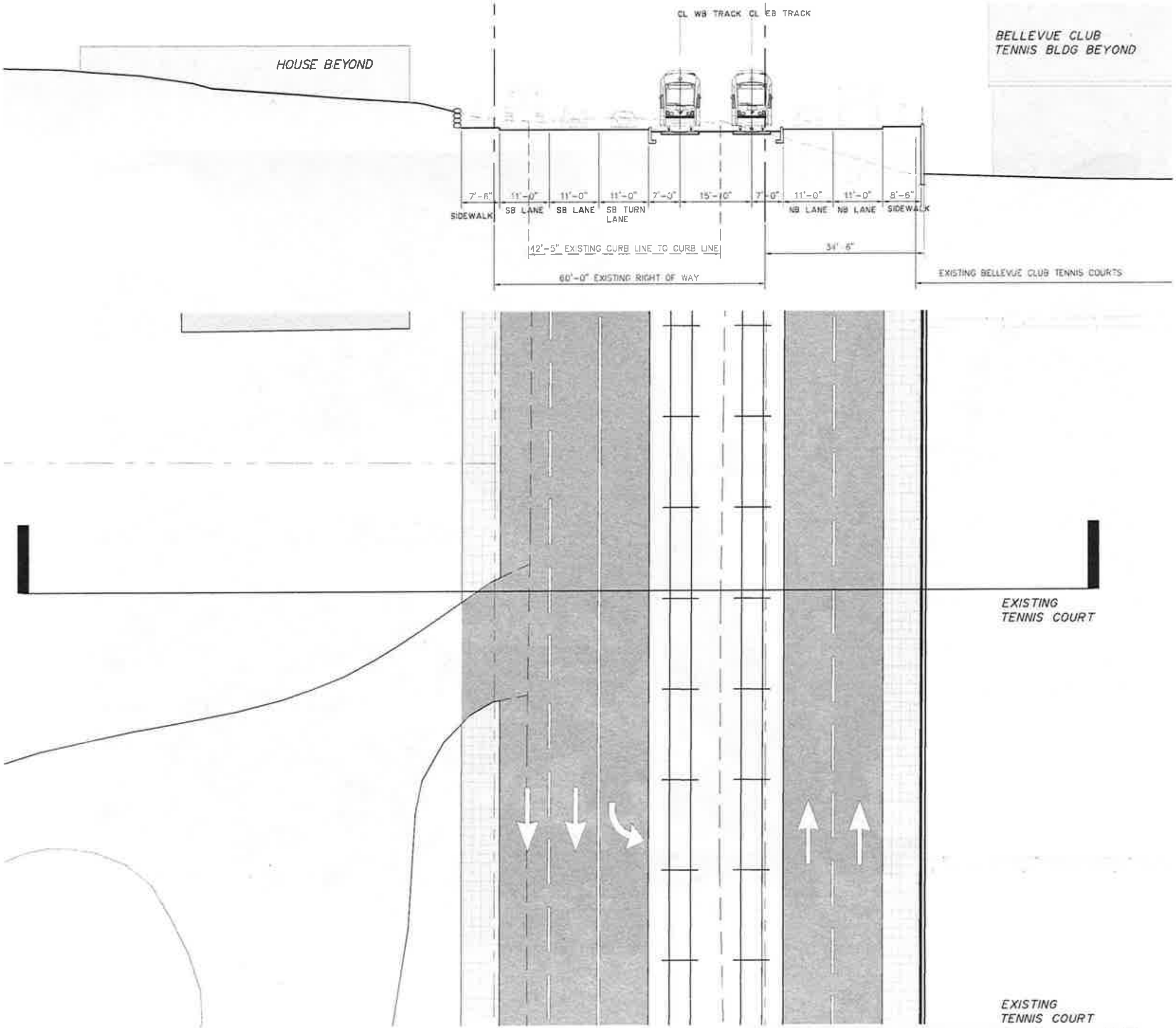
N
0
5
10
20
SCALE IN FEET

SECTION AND PLAN VIEW

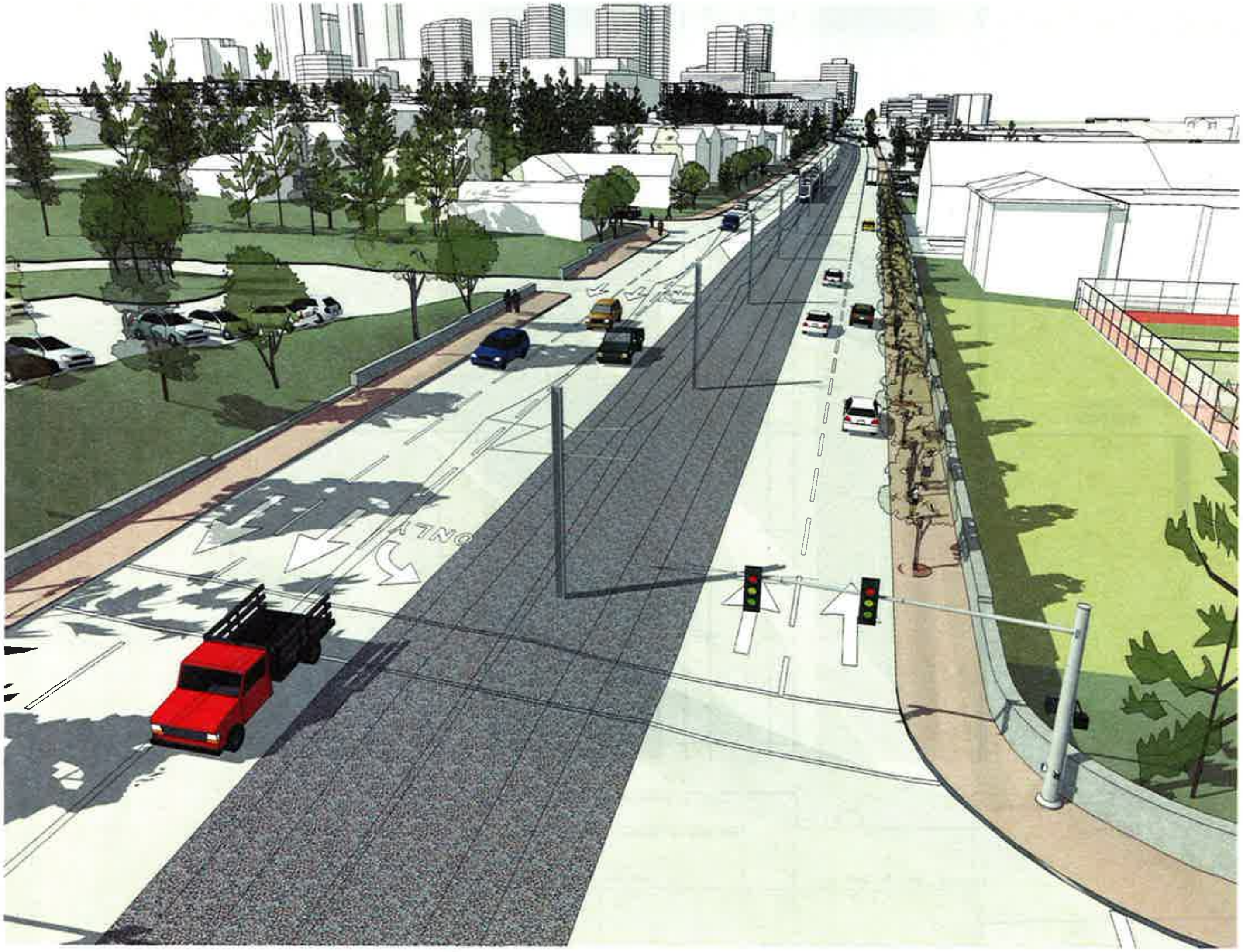
Option 1: Center Running to Main Street Tunnel

View Area: **3.0**

Nearest Intersection:
112th Ave SE north of SE 6th St


CL WB TRACK
CL EB TRACK
HOUSE BEYOND
BELLEVUE CLUB TENNIS BLDG BEYOND
7'-6"
11'-0"
11'-0"
11'-0"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
SB TURN LANE
NB LANE
NB LANE
SIDEWALK
42'-5" EXISTING CURB LINE TO CURB LINE
34'-6"
60'-0" EXISTING RIGHT OF WAY
EXISTING BELLEVUE CLUB TENNIS COURTS
EXISTING TENNIS COURT
EXISTING TENNIS COURT

N
0
5
10
20
SCALE IN FEET

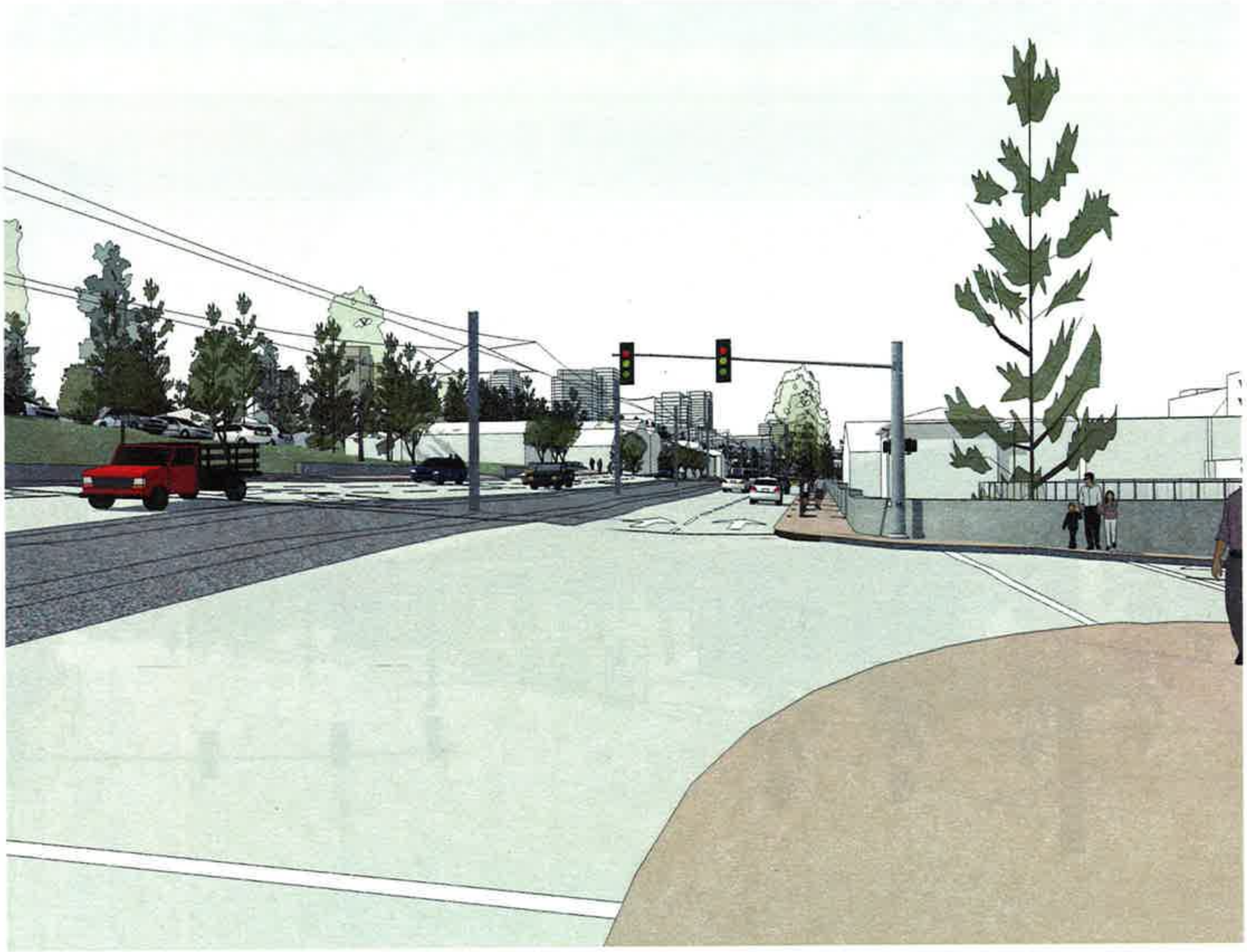


OVERHEAD VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St

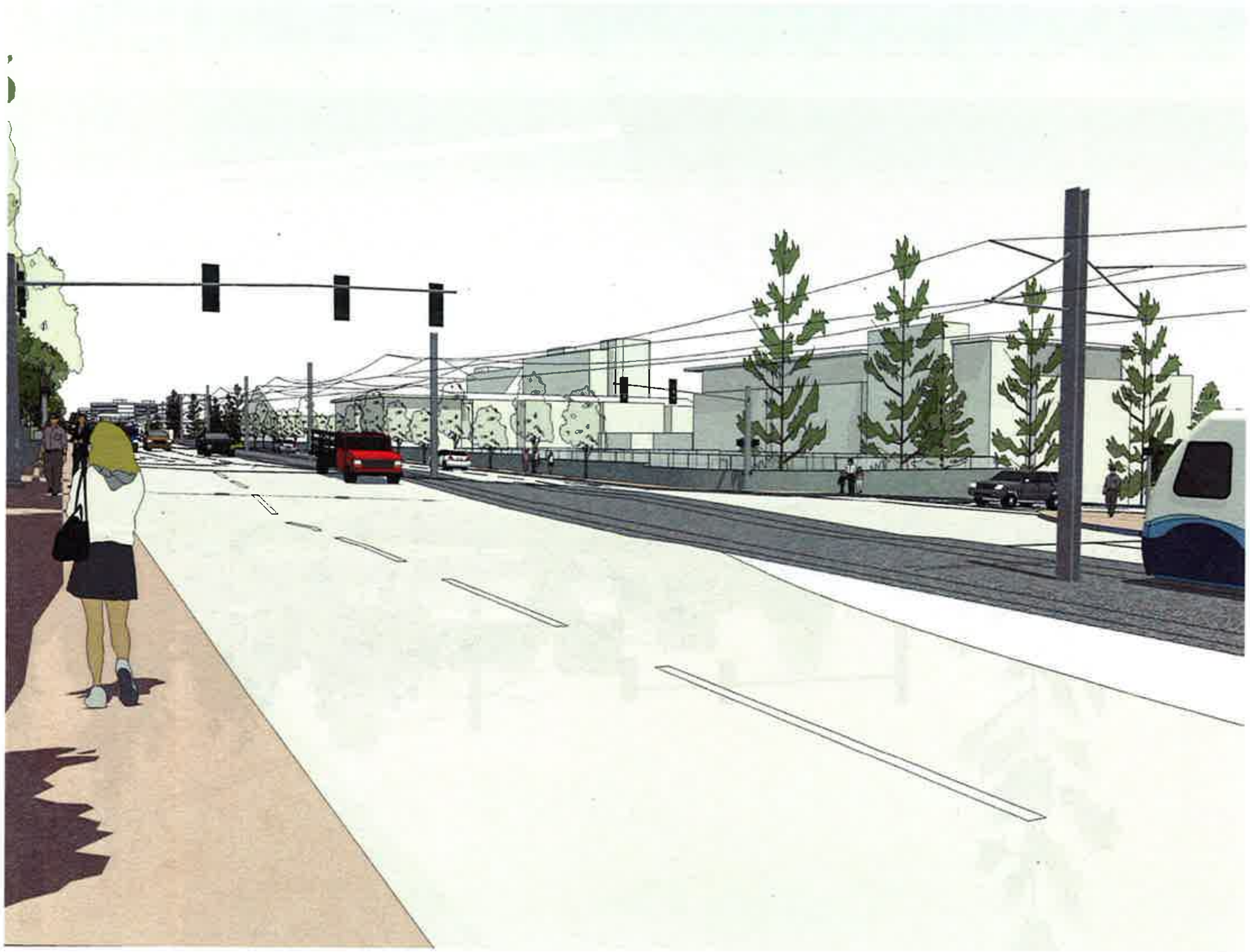


STREET VIEW EAST

Option 1: Center Running to Main Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St

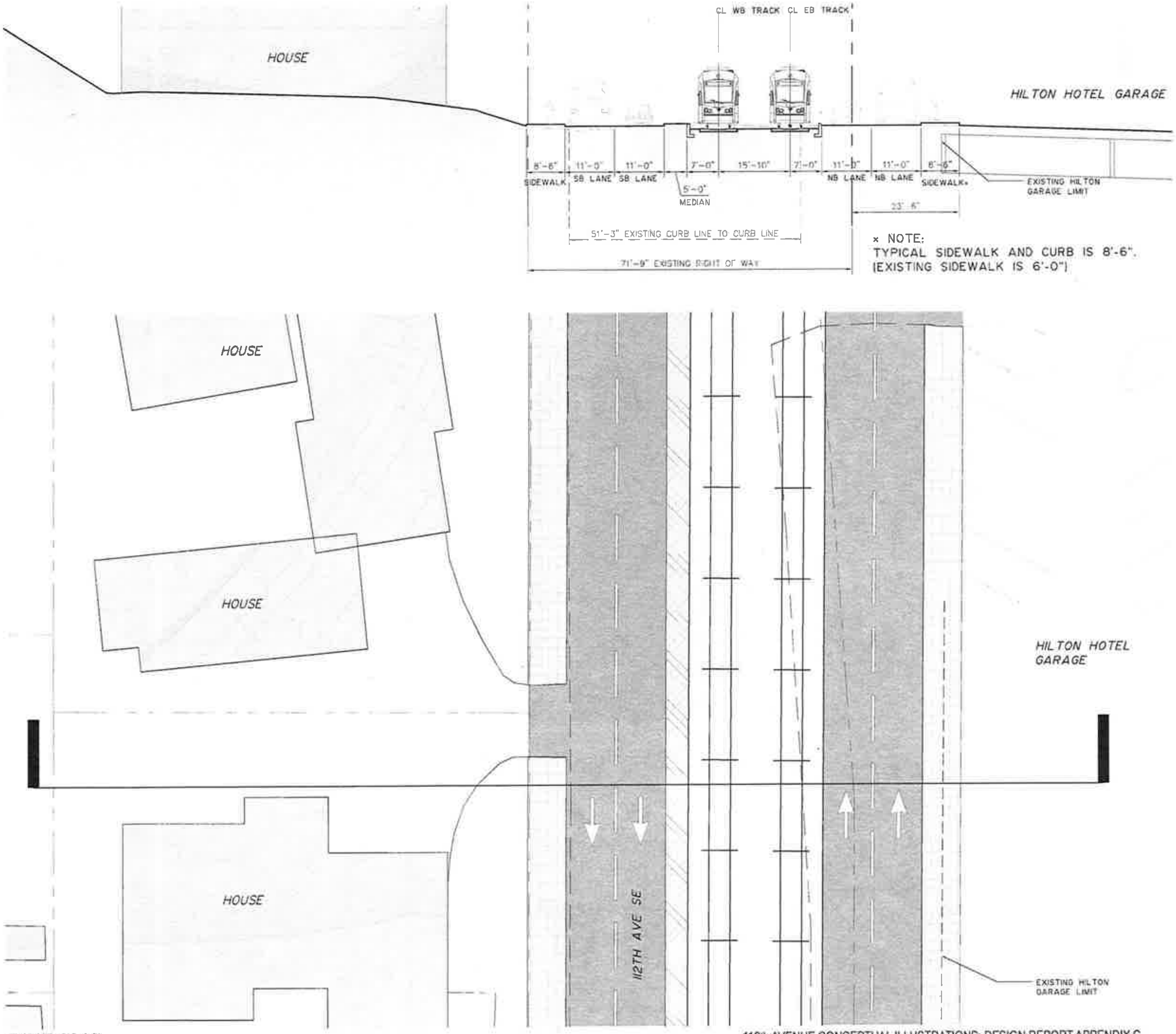


STREET VIEW WEST

Option 1: Center Running to Main Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St


HOUSE
CL WB TRACK
CL EB TRACK
HILTON HOTEL GARAGE
8'-6"
11'-0"
11'-0"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
5'-0"
MEDIAN
NB LANE
NB LANE
SIDEWALK×
EXISTING HILTON GARAGE LIMIT
23'-6"
51'-3" EXISTING CURB LINE TO CURB LINE
71'-9" EXISTING RIGHT OF WAY
× NOTE:
TYPICAL SIDEWALK AND CURB IS 8'-6".
(EXISTING SIDEWALK IS 6'-0")
HOUSE
HOUSE
HOUSE
112TH AVE SE
HILTON HOTEL GARAGE
EXISTING HILTON GARAGE LIMIT

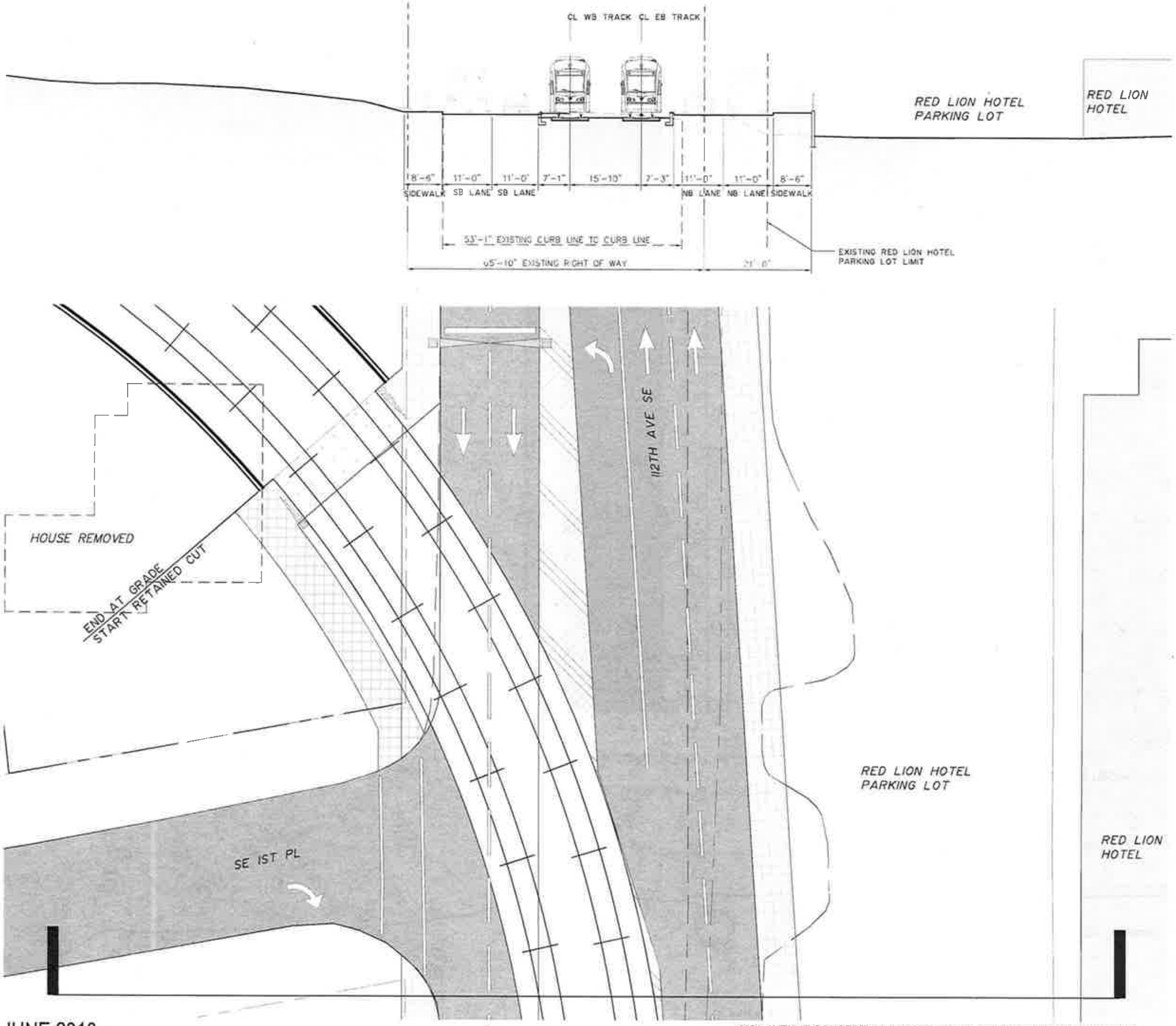
SECTION AND PLAN VIEW

Option 1: Center Running to Main Street Tunnel

View Area: **3.1**

Nearest Intersection:
112th Ave SE north of SE 4th St

0
5
10
20
SCALE IN FEET


CL WB TRACK
CL EB TRACK
RED LION HOTEL PARKING LOT
RED LION HOTEL
8'-6"
11'-0"
11'-0"
7'-1"
15'-10"
7'-3"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
NB LANE
NB LANE
SIDEWALK
53'-1" EXISTING CURB LINE TO CURB LINE
65'-10" EXISTING RIGHT OF WAY
21'-0"
EXISTING RED LION HOTEL PARKING LOT LIMIT
HOUSE REMOVED
END AT GRADE
START RETAINED CUT
112TH AVE SE
SE 1ST PL
RED LION HOTEL PARKING LOT
RED LION HOTEL

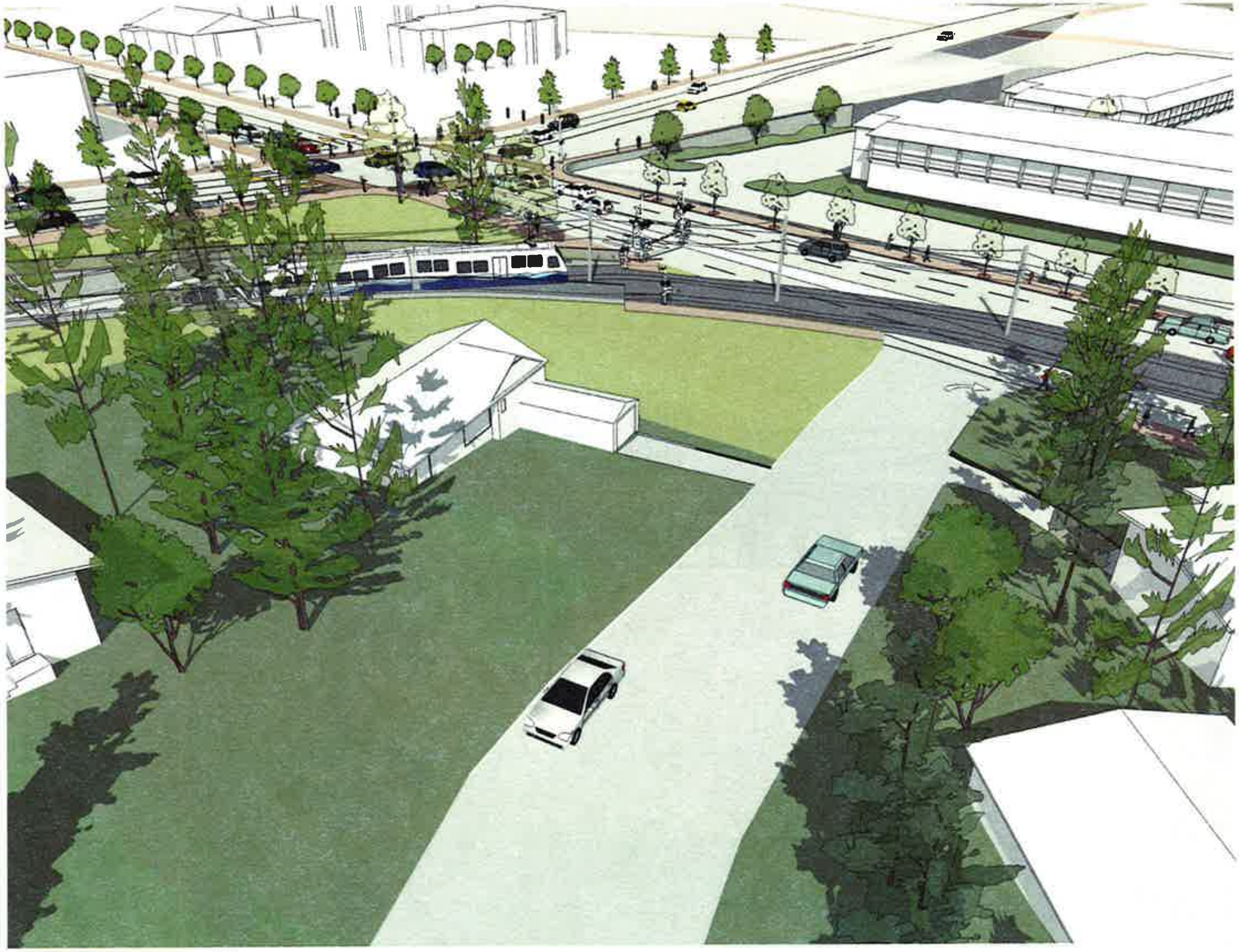
SECTION AND PLAN VIEW

Option 1: Center Running to Main Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place

N
0
5
10
20
SCALE IN FEET

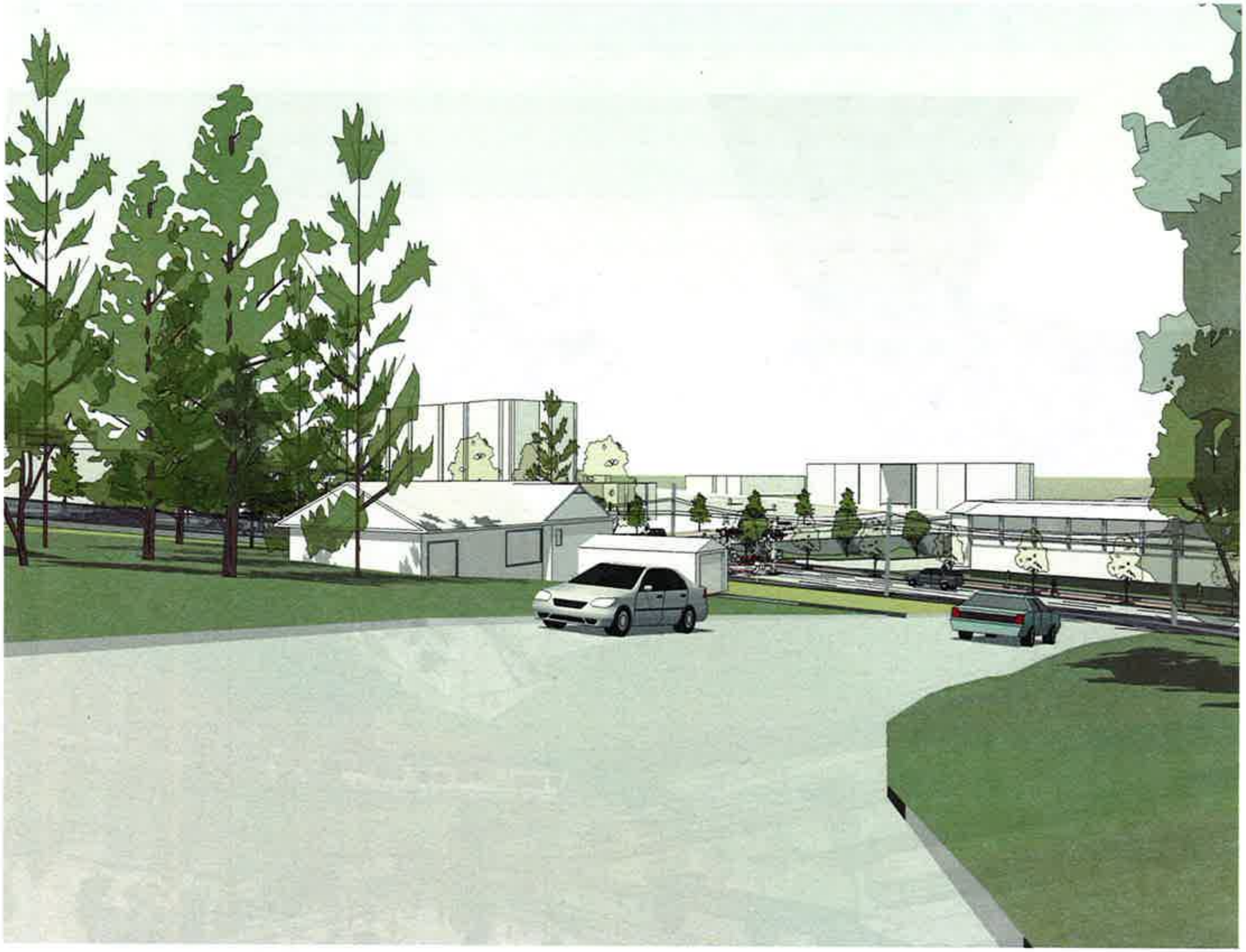


OVERHEAD VIEW

Option 1: Center Running to Main Street Tunnel

View Area: **4.0**

Nearest Intersection:
112th Ave SE and SE 1st Place



STREET VIEW

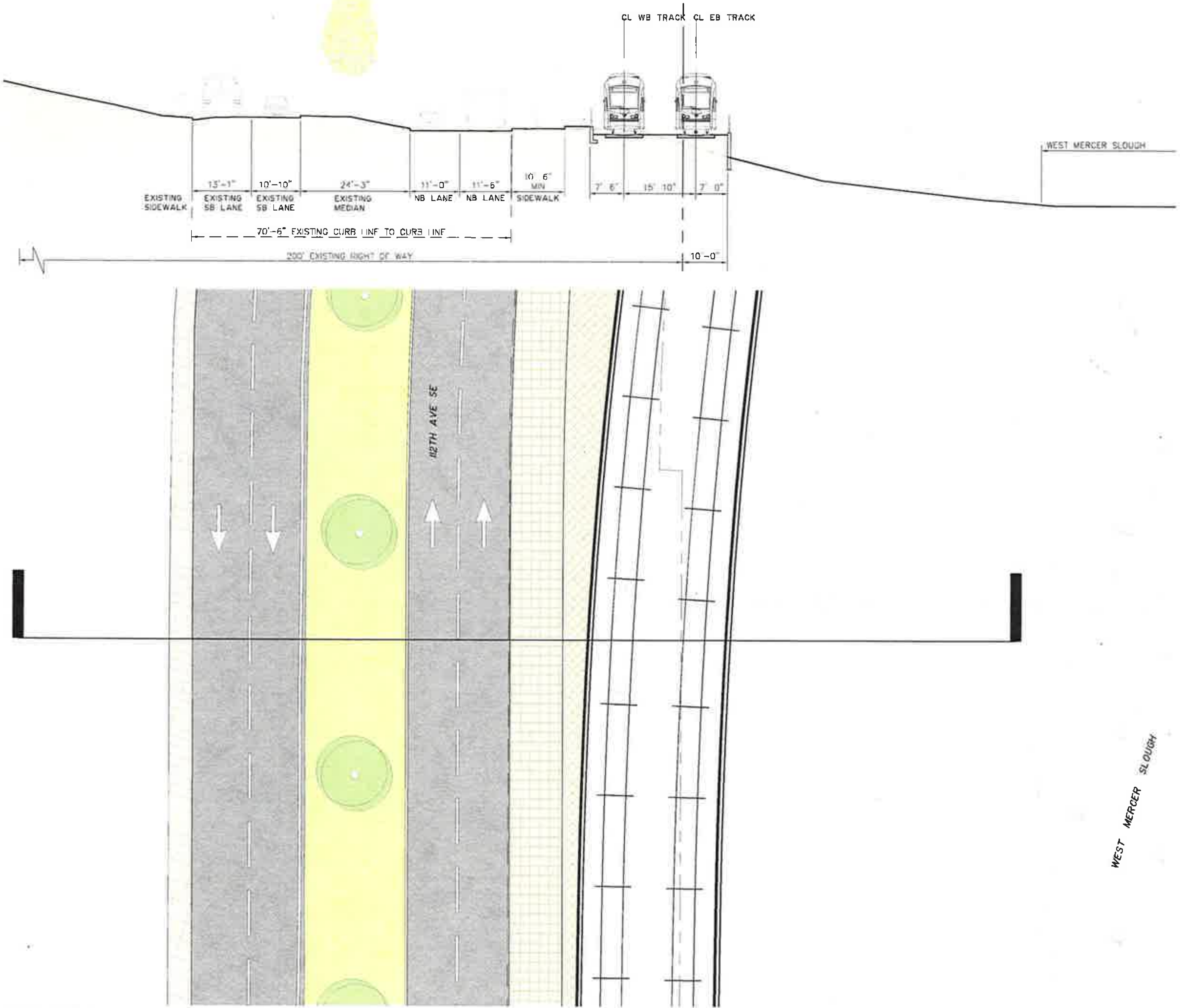
Option 1: Center Running to Main Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place

Option 2: Westside Running to Main Street Tunnel

Plan, Section and Conceptual Illustrations

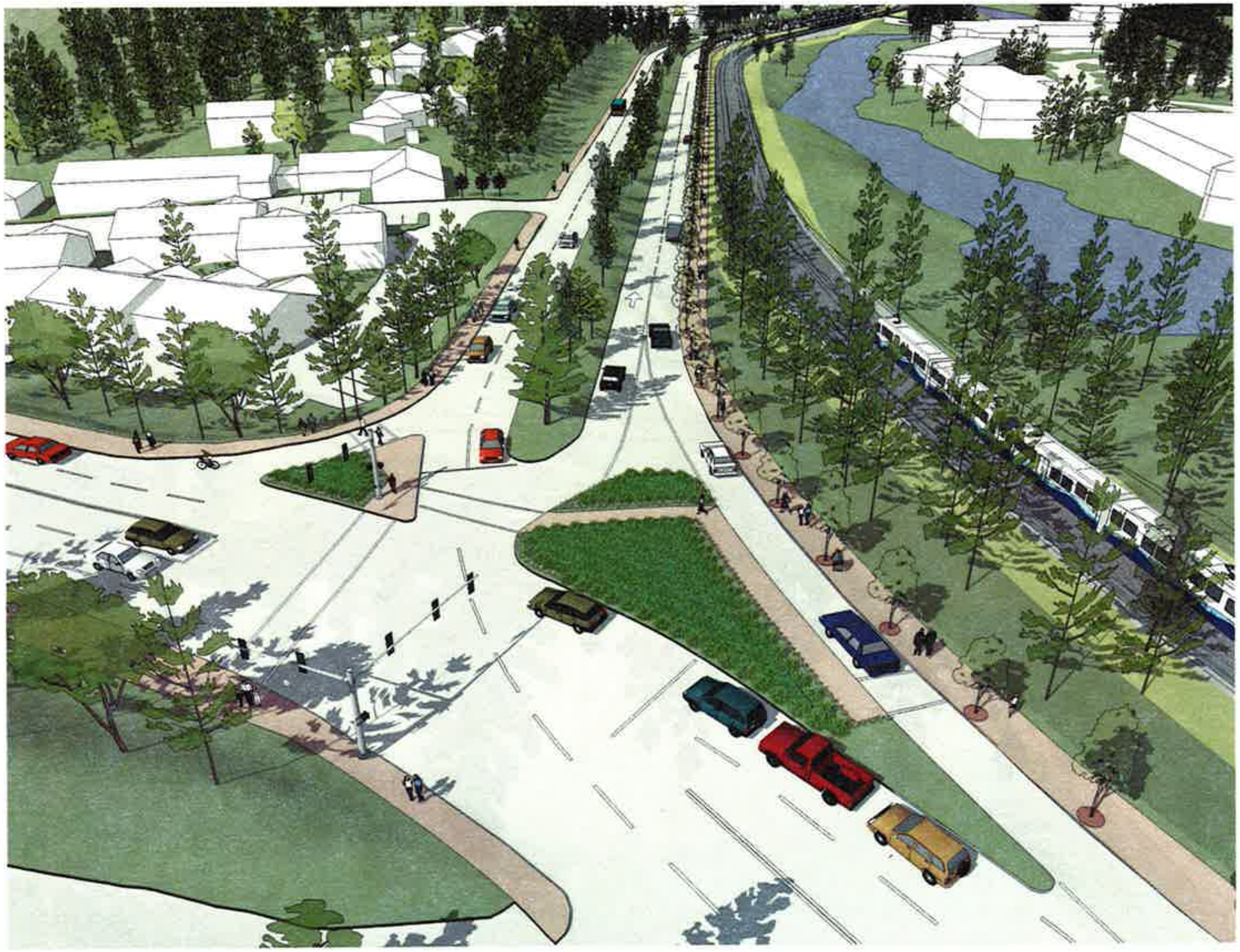

CL WB TRACK
CL EB TRACK
EXISTING SIDEWALK
13'-1"
EXISTING SB LANE
10'-10"
EXISTING SB LANE
24'-3"
EXISTING MEDIAN
11'-0"
NB LANE
11'-6"
NB LANE
10'-6" MIN
SIDEWALK
7'-6"
15'-10"
7'-0"
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY
10'-0"
WEST MERCER SLOUGH
112TH AVE SE
WEST MERCER SLOUGH
0 5 10 20
SCALE IN FEET

SECTION AND PLAN VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 1.0

Nearest Intersection:
112th Ave SE north of Bellevue Way



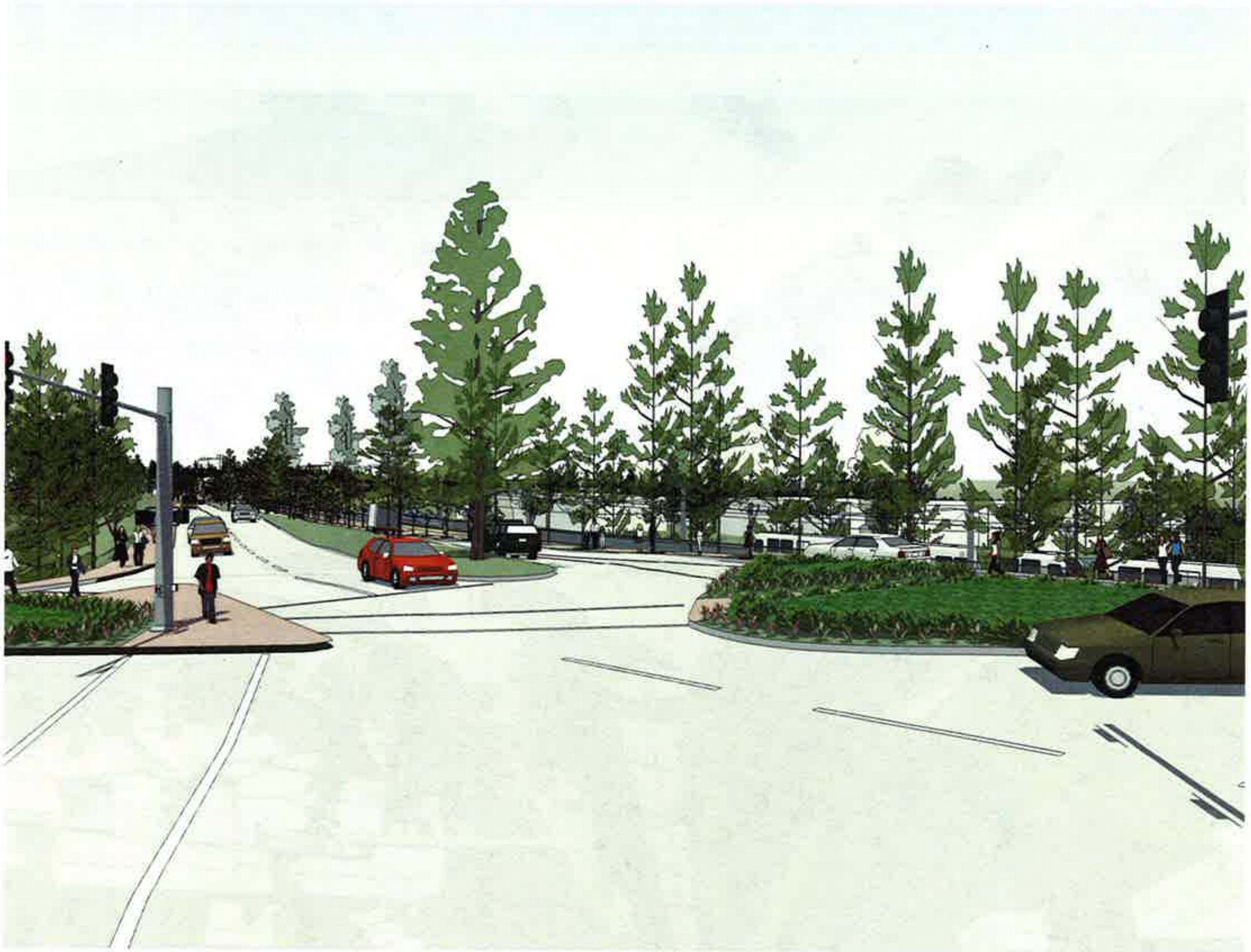
OVERHEAD VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

Note: this view is the same as Option 1



STREET VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 1.0

Nearest Intersection: 112th Ave SE and Bellevue Way

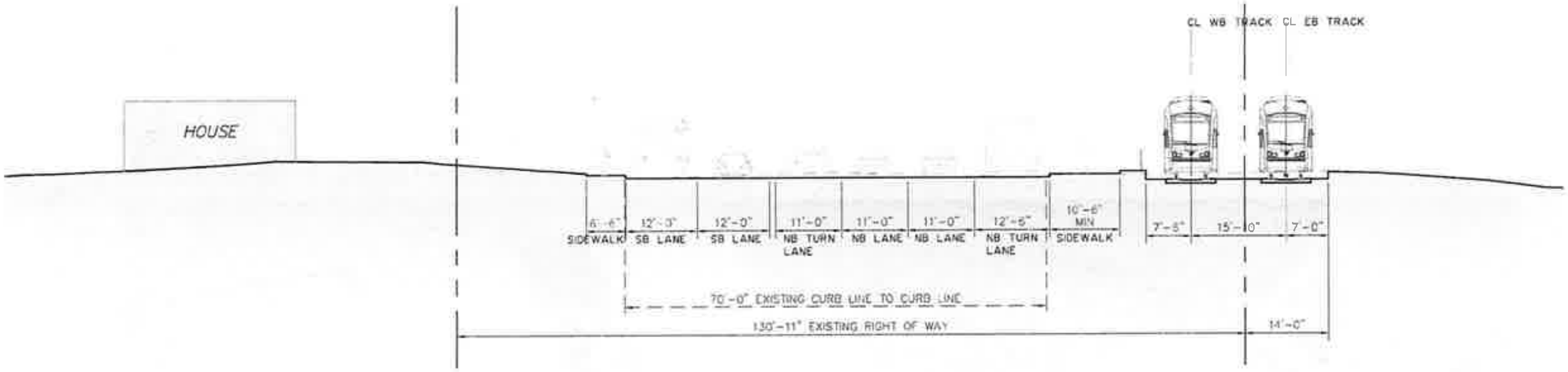
Note: this view is the same as Option 1

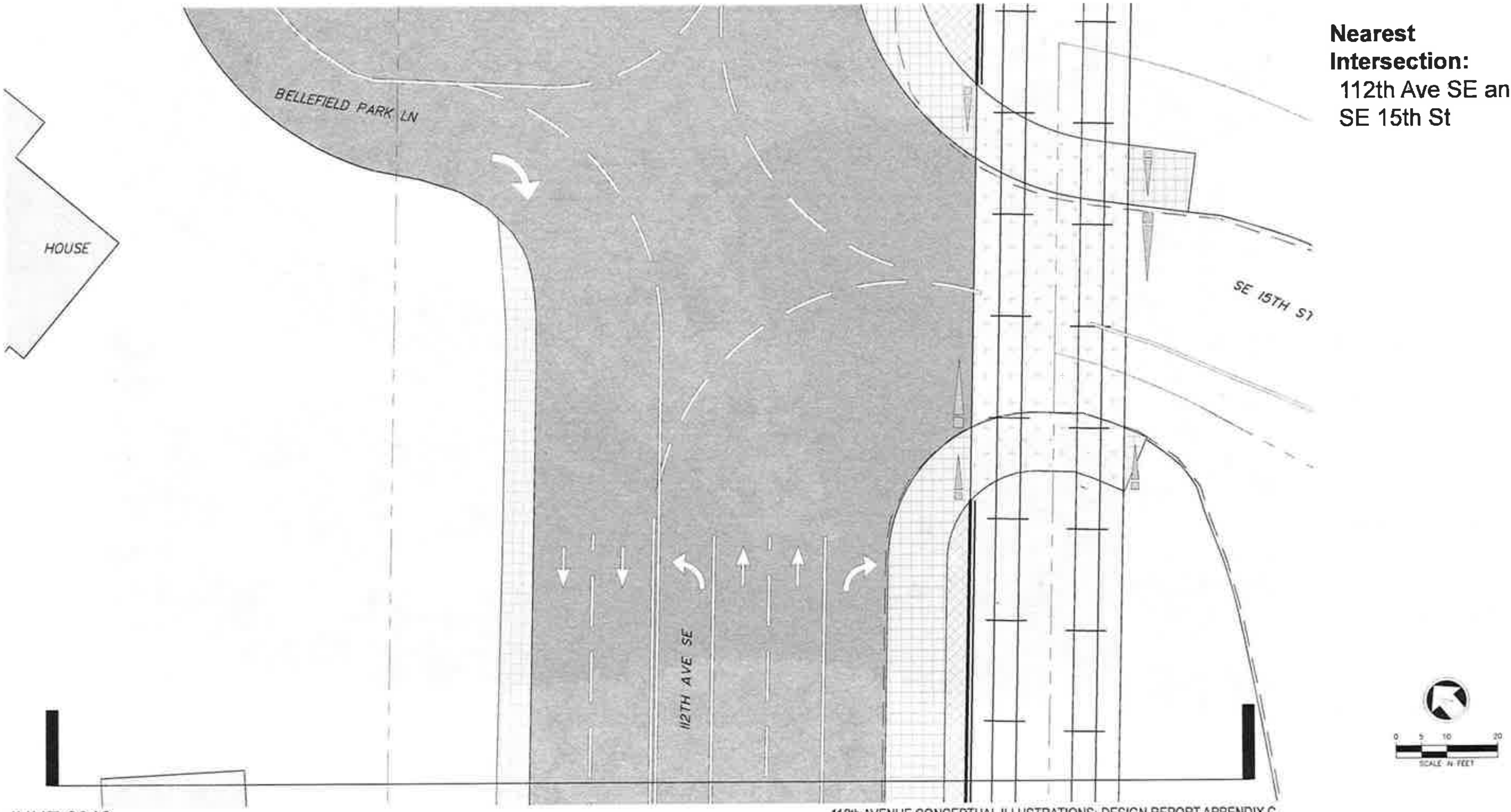
SECTION AND PLAN VIEW

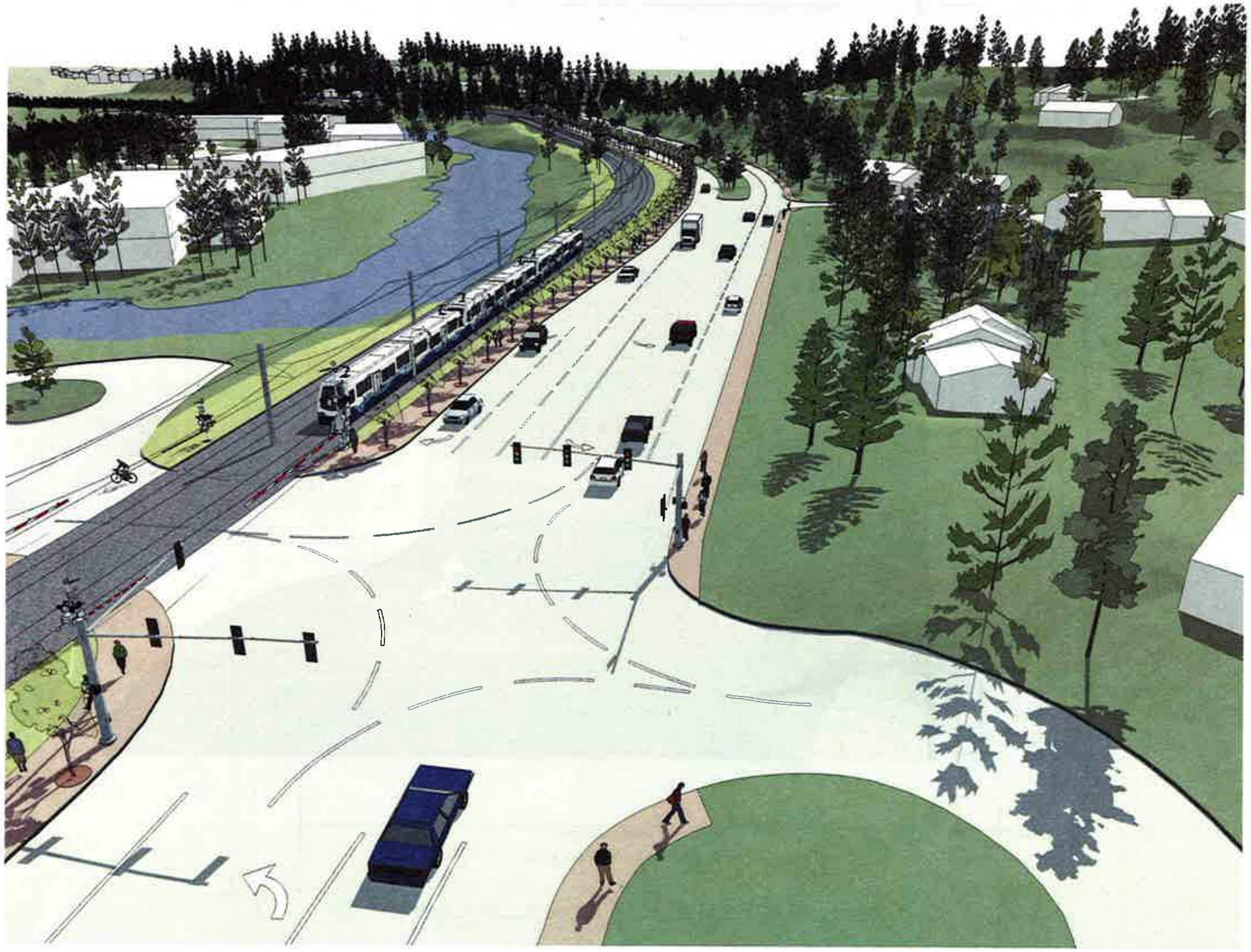
Option 2: Westside Running to Main Street Tunnel

View Area: **1.1**

Nearest Intersection:
112th Ave SE and
SE 15th St


HOUSE
CL WB TRACK
CL EB TRACK
6'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
11'-0"
NB TURN LANE
11'-0"
NB LANE
11'-0"
NB LANE
12'-6"
NB TURN LANE
10'-6" MIN
SIDEWALK
7'-5"
15'-0"
7'-0"
70'-0" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY
14'-0"


BELLEFIELD PARK LN
HOUSE
SE 15TH ST
112TH AVE SE
0
5
10
20
SCALE IN FEET

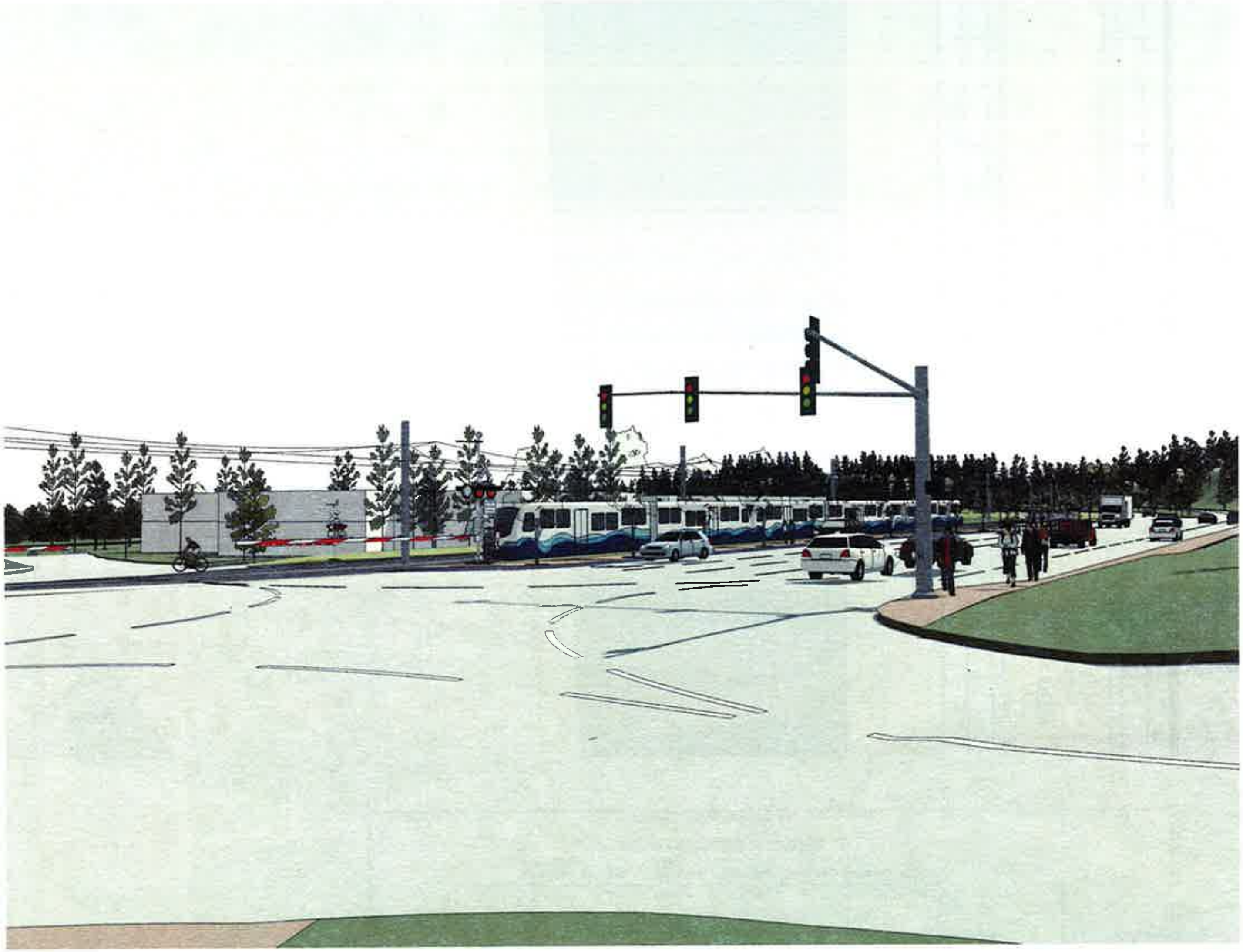


OVERHEAD VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St



STREET VIEW

Option 2: Westside Running to Main Street Tunnel

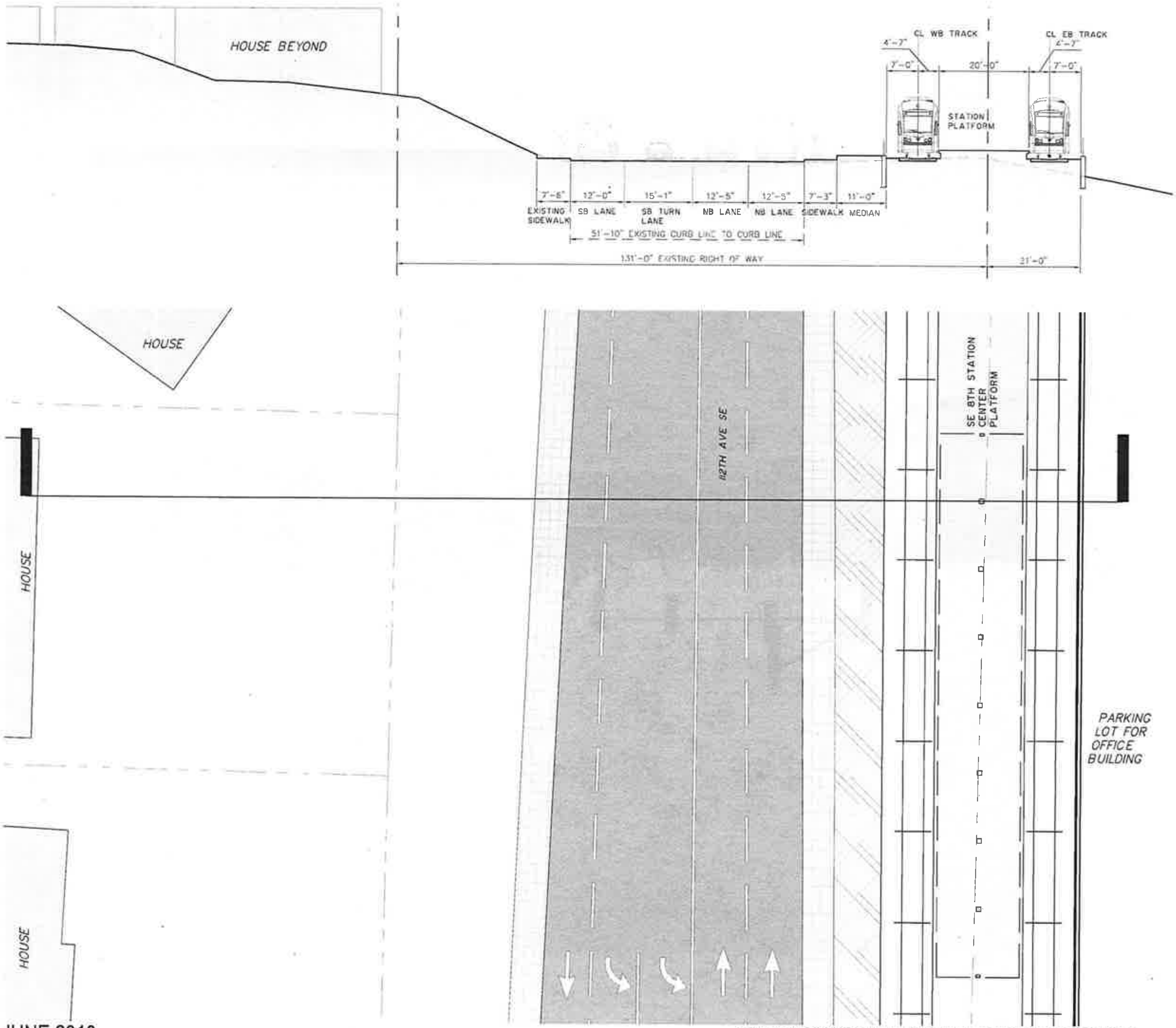
View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St

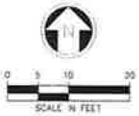
SECTION AND PLAN VIEW

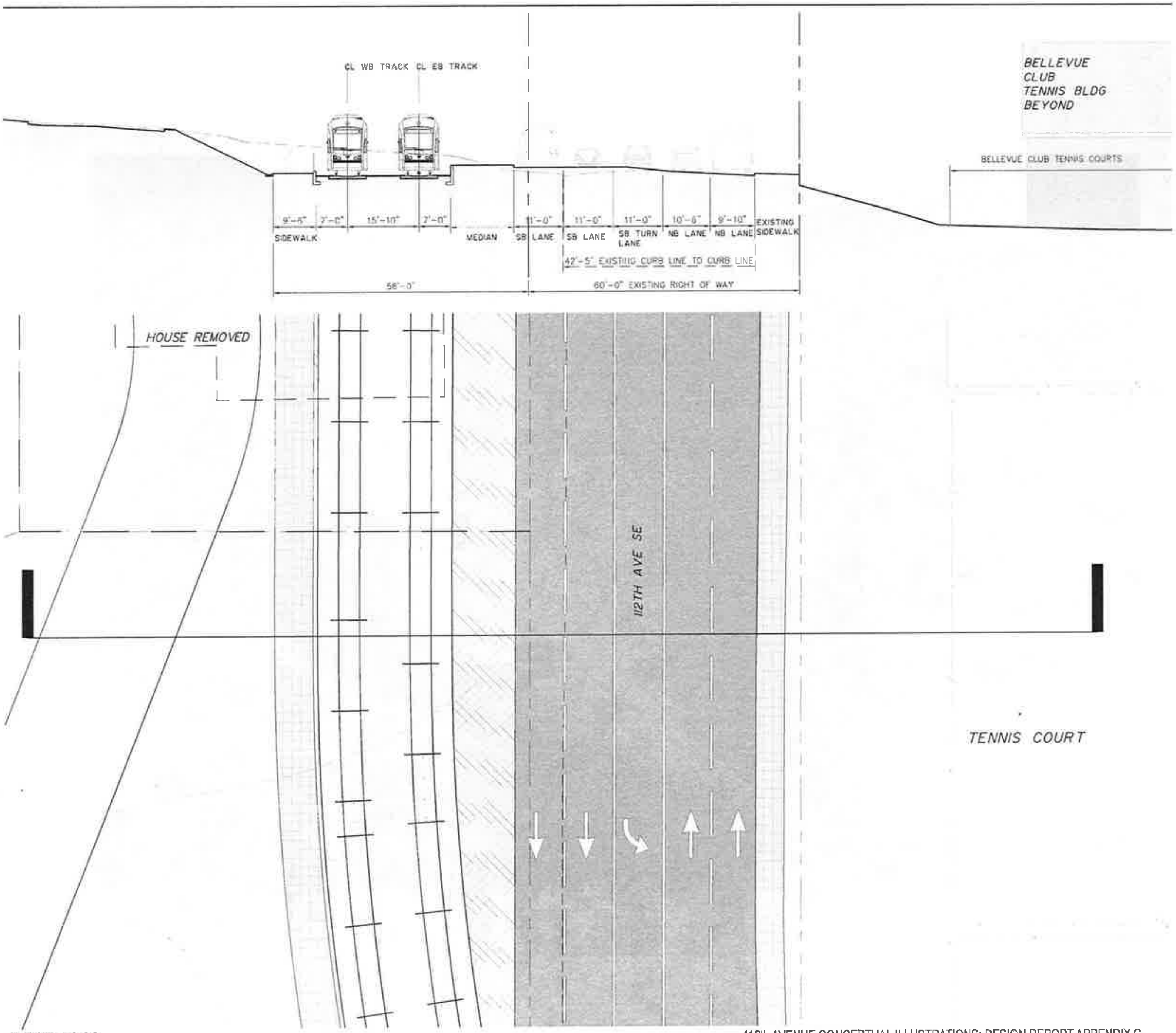
Option 2: Westside Running to Main Street Tunnel

View Area: **2.0**


HOUSE BEYOND
CL WB TRACK
CL EB TRACK
4'-7"
4'-7"
7'-0"
20'-0"
7'-0"
STATION PLATFORM
7'-6"
12'-0"
15'-1"
12'-5"
12'-5"
7'-3"
11'-0"
EXISTING SIDEWALK
SB LANE
SB TURN LANE
NB LANE
NB LANE
SIDEWALK
MEDIAN
51'-10" EXISTING CURB LINE TO CURB LINE
131'-0" EXISTING RIGHT OF WAY
21'-0"
HOUSE
HOUSE
HOUSE
112TH AVE SE
SE 8TH STATION CENTER PLATFORM
PARKING LOT FOR OFFICE BUILDING

Nearest Intersection:
112th Ave SE north of SE 8th St


N
0
5
10
20
SCALE IN FEET

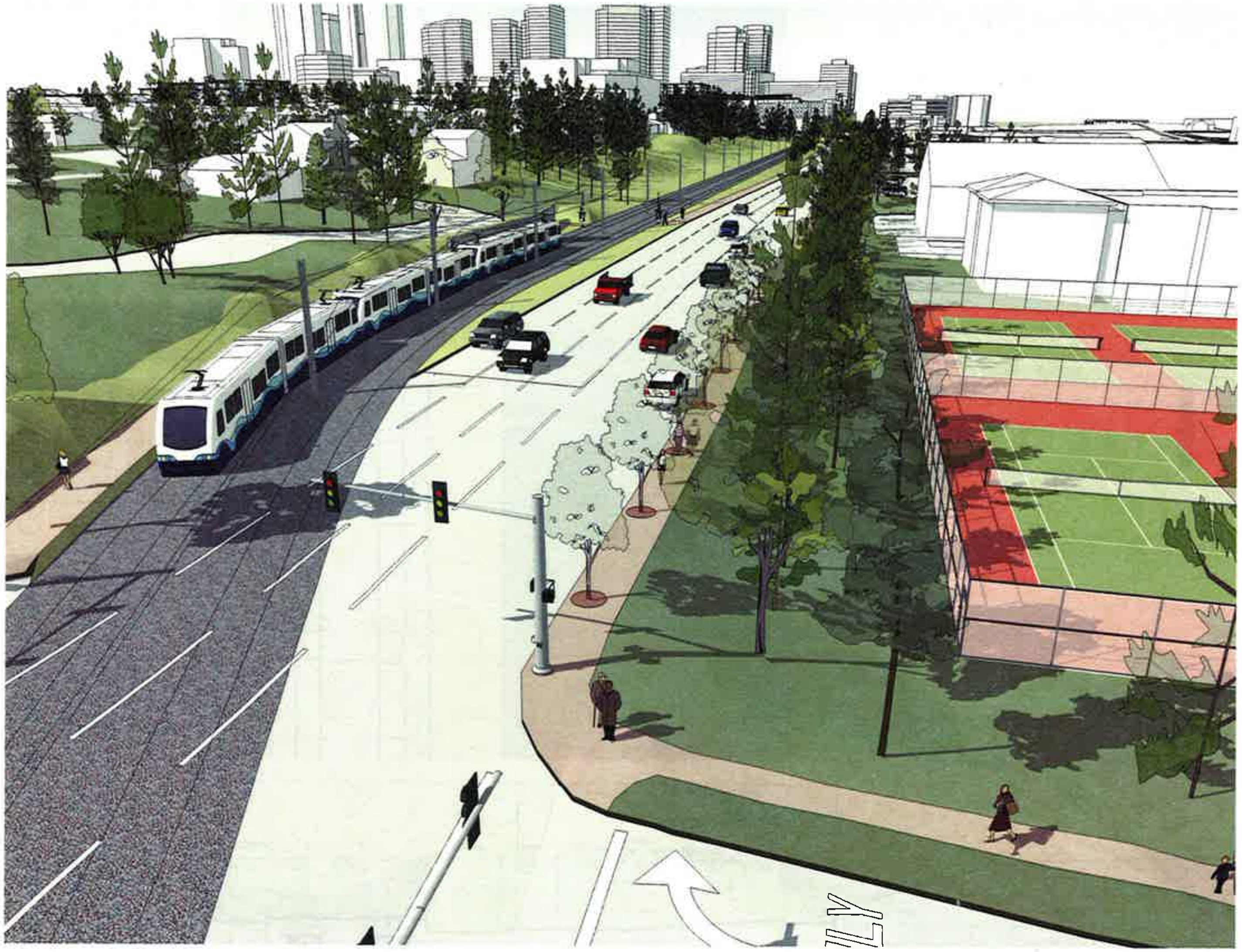

CL WB TRACK
CL EB TRACK
BELLEVUE CLUB TENNIS BLDG BEYOND
BELLEVUE CLUB TENNIS COURTS
9'-6"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
11'-0"
10'-6"
9'-10"
SIDEWALK
MEDIAN
SB LANE
SB LANE
SB TURN LANE
NB LANE
NB LANE
EXISTING SIDEWALK
42'-5" EXISTING CURB LINE TO CURB LINE
58'-0"
60'-0" EXISTING RIGHT OF WAY
HOUSE REMOVED
112TH AVE SE
TENNIS COURT
0
5
10
20
SCALE IN FEET

SECTION AND PLAN VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: **3.0**

Nearest Intersection:
112th Ave SE north of SE 6th St

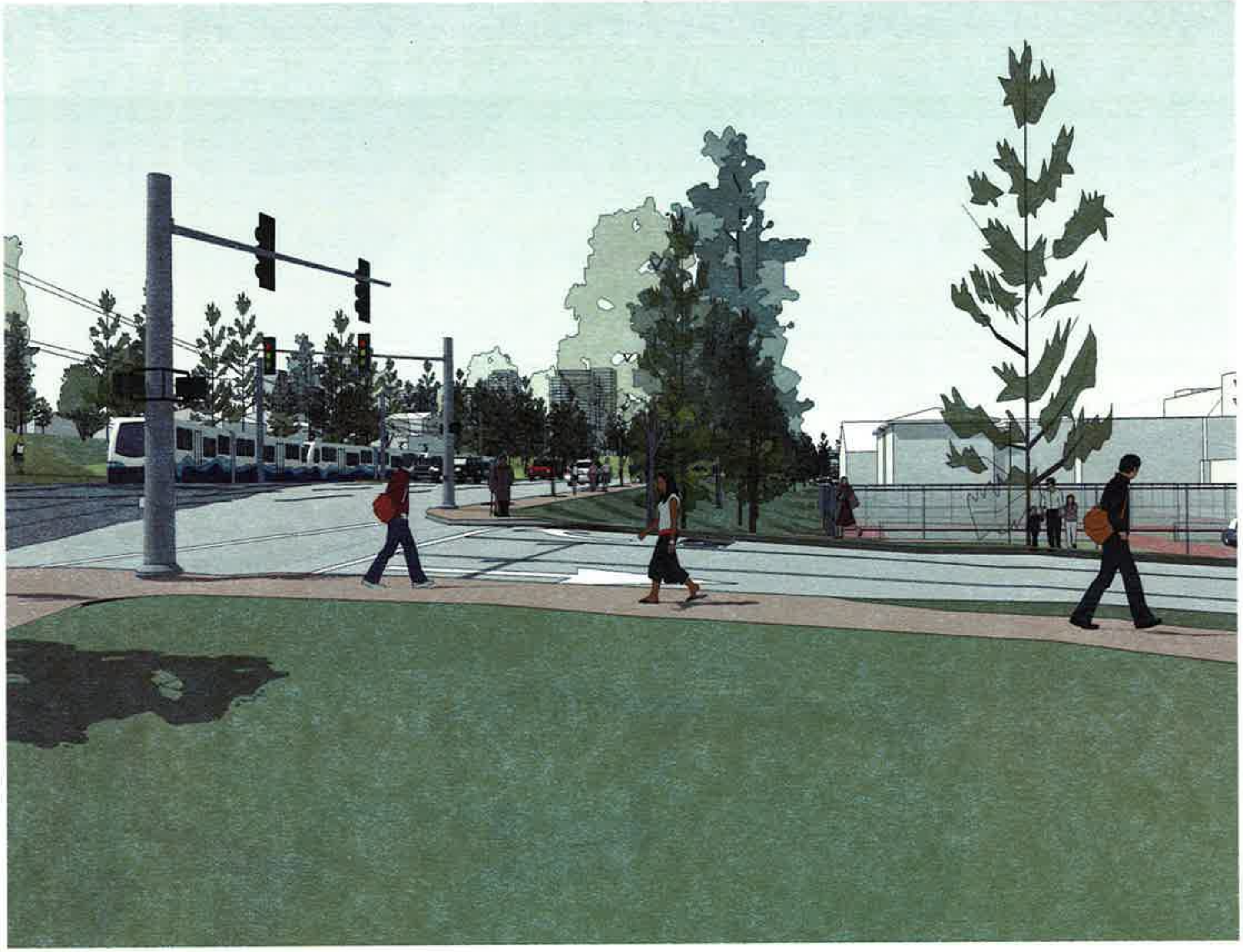


OVERHEAD VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St

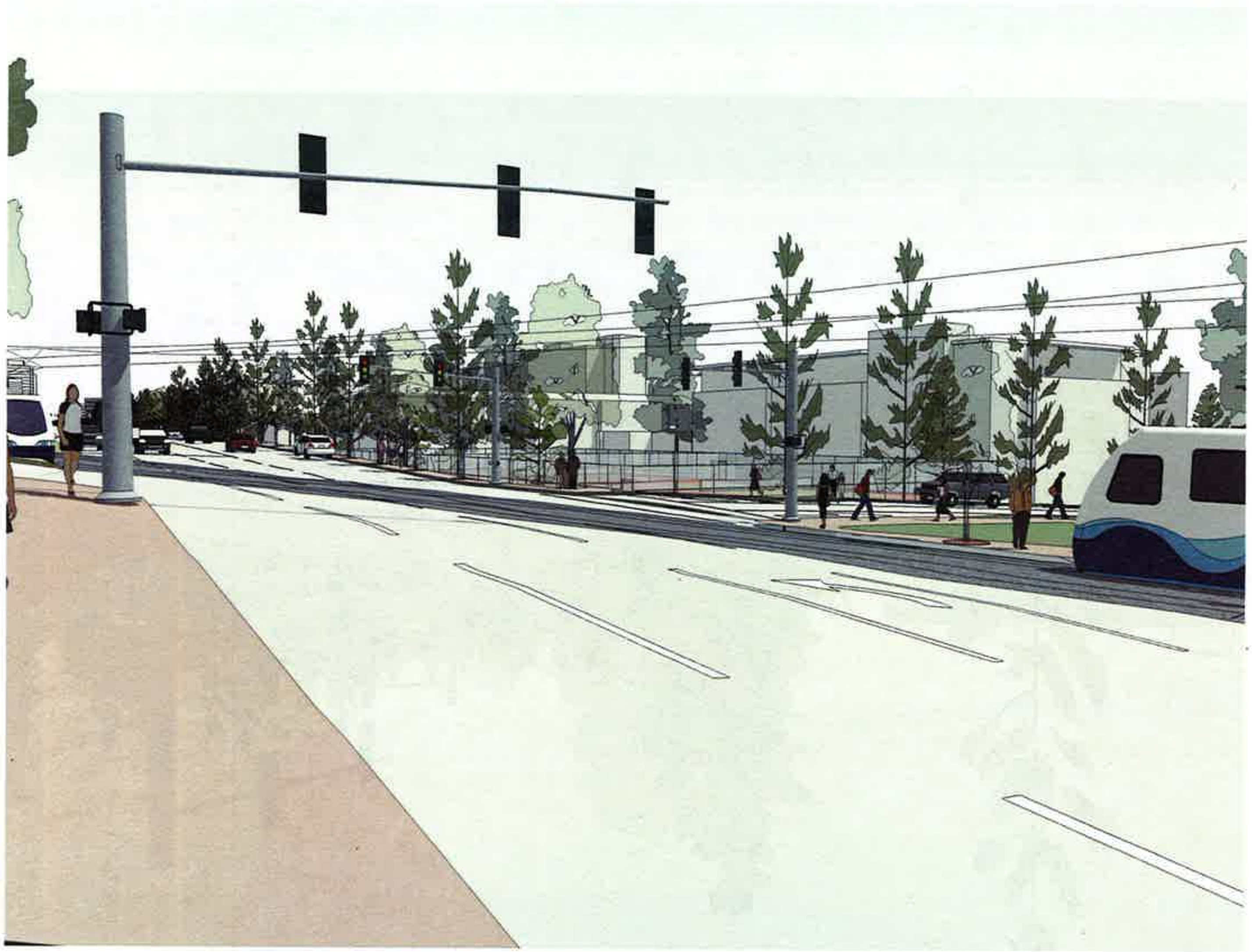


STREET VIEW EAST

Option 2: Westside Running to Main Street Tunnel

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

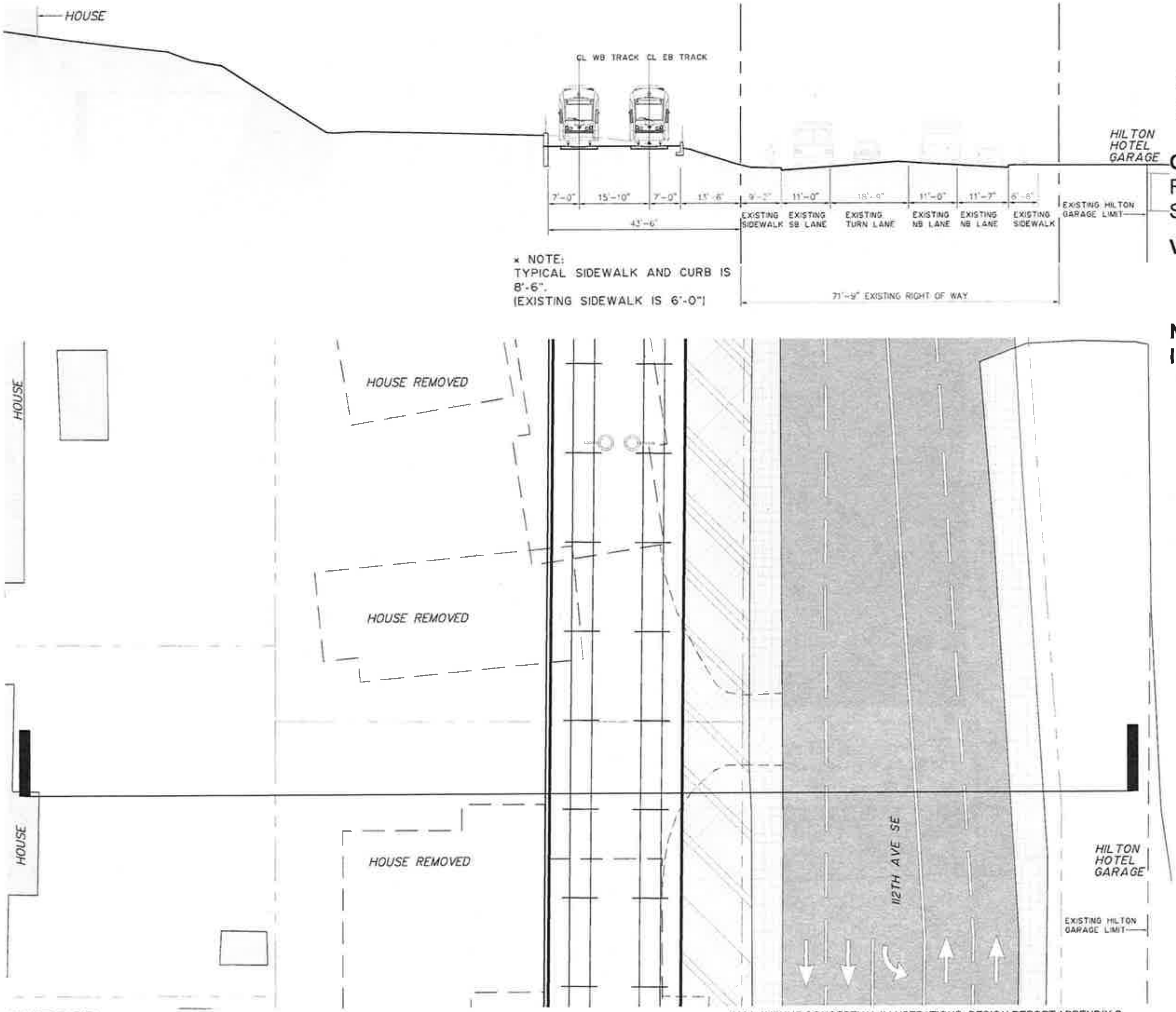


STREET VIEW WEST

Option 2: Westside Running to Main Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St


HOUSE
CL WB TRACK
CL EB TRACK
HILTON HOTEL GARAGE
7'-0"
15'-10"
7'-0"
13'-6"
9'-2"
11'-0"
18'-9"
11'-0"
11'-7"
6'-8"
43'-6"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING TURN LANE
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
EXISTING HILTON GARAGE LIMIT
* NOTE:
TYPICAL SIDEWALK AND CURB IS 8'-6".
(EXISTING SIDEWALK IS 6'-0")
71'-9" EXISTING RIGHT OF WAY
HOUSE
HOUSE REMOVED
HOUSE REMOVED
HOUSE
HOUSE REMOVED
112TH AVE SE
HILTON HOTEL GARAGE
EXISTING HILTON GARAGE LIMIT

SECTION AND PLAN VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: **3.1**

Nearest Intersection:
112th Ave SE north of SE 4th St

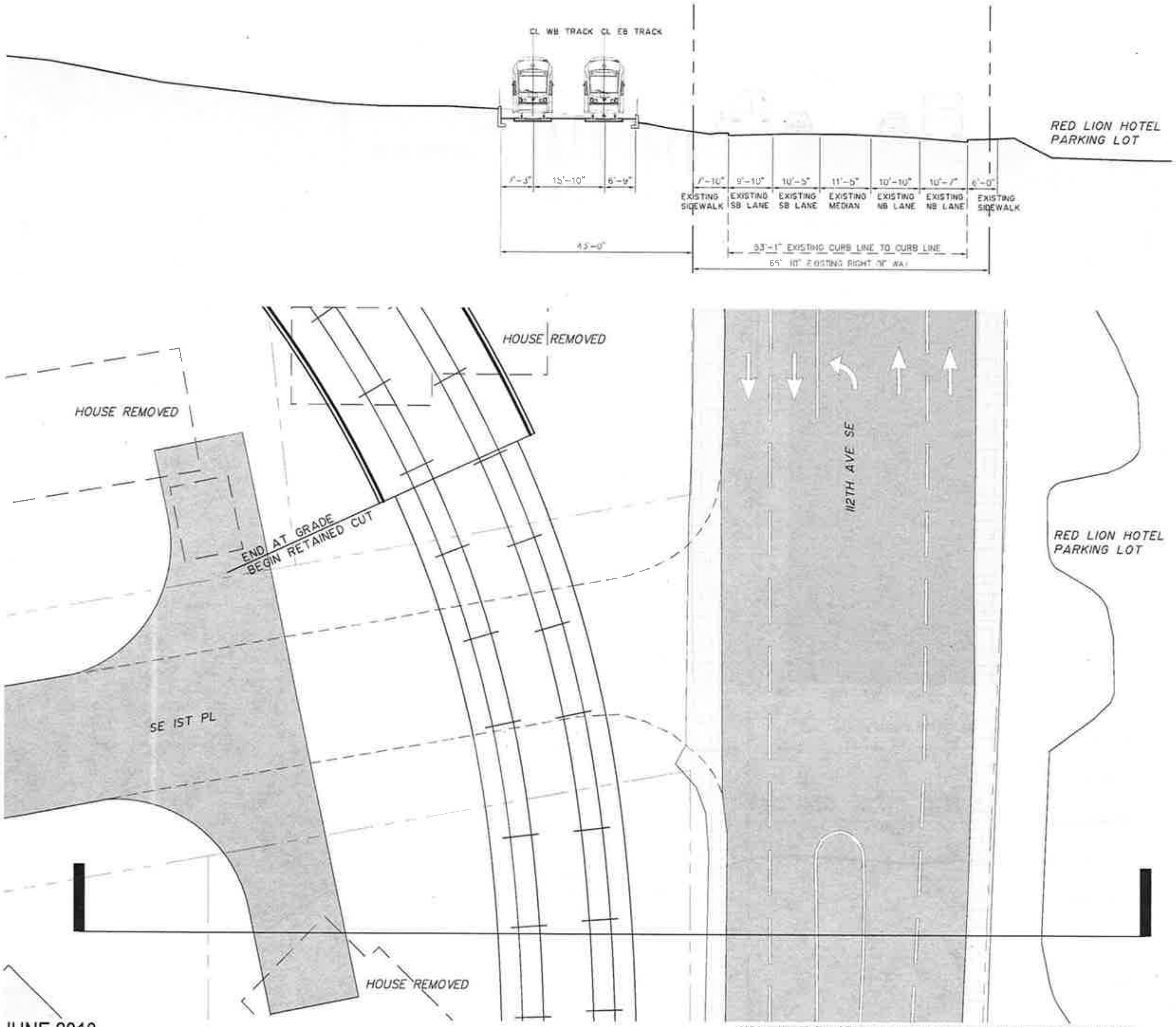
0 5 10 20
SCALE IN FEET

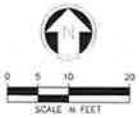
SECTION AND PLAN VIEW

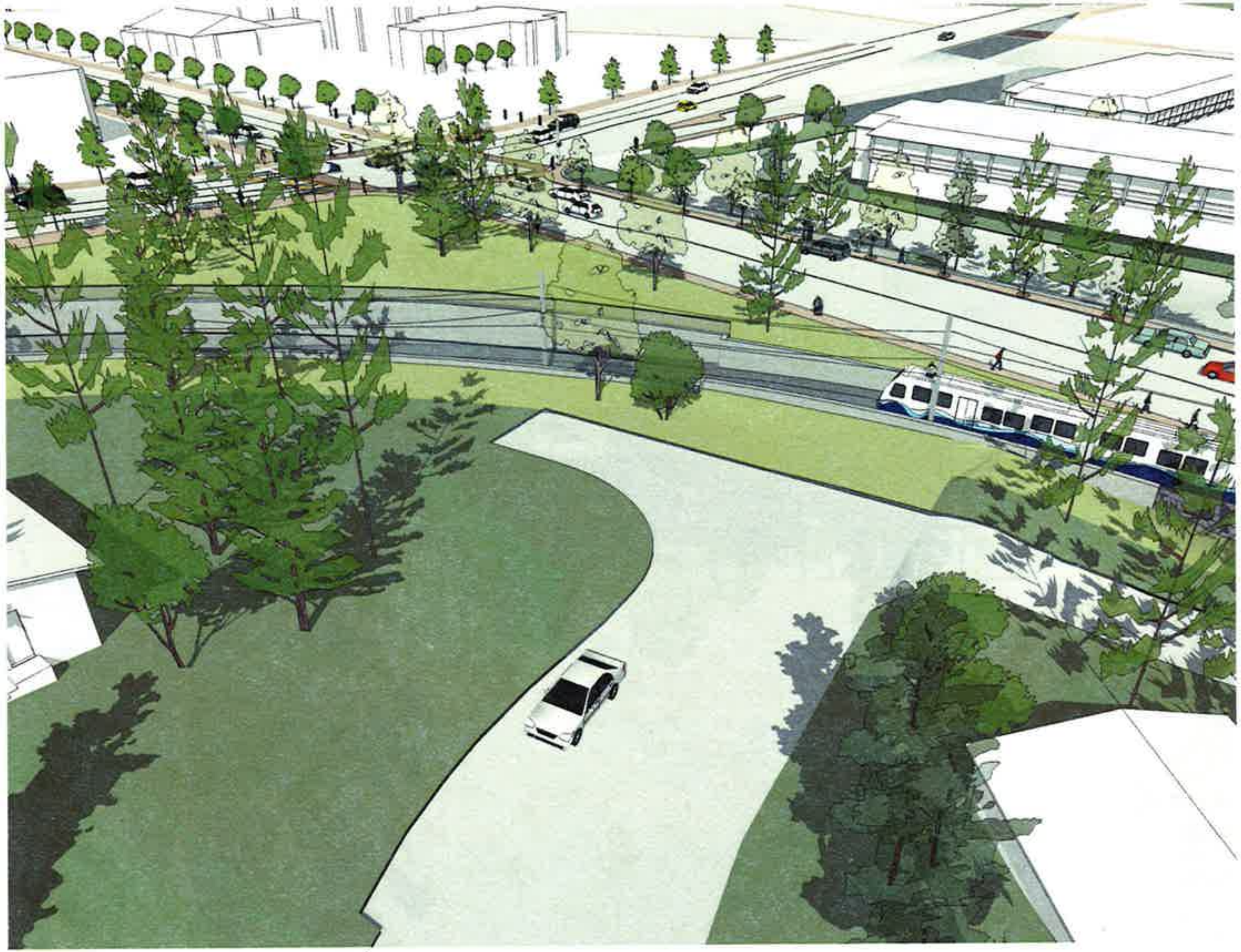
Option 2: Westside Running to Main Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place


CL WB TRACK CL EB TRACK
7'-3"
15'-10"
6'-9"
45'-0"
7'-10"
EXISTING SIDEWALK
9'-10"
EXISTING SB LANE
10'-5"
EXISTING SB LANE
11'-5"
EXISTING MEDIAN
10'-10"
EXISTING NB LANE
10'-7"
EXISTING NB LANE
6'-0"
EXISTING SIDEWALK
53'-1" EXISTING CURB LINE TO CURB LINE
65' 10" EXISTING RIGHT OF WAY
RED LION HOTEL PARKING LOT
HOUSE REMOVED
HOUSE REMOVED
END AT GRADE
BEGIN RETAINED CUT
112TH AVE SE
RED LION HOTEL PARKING LOT
SE 1ST PL
HOUSE REMOVED


N
0
5
10
20
SCALE IN FEET

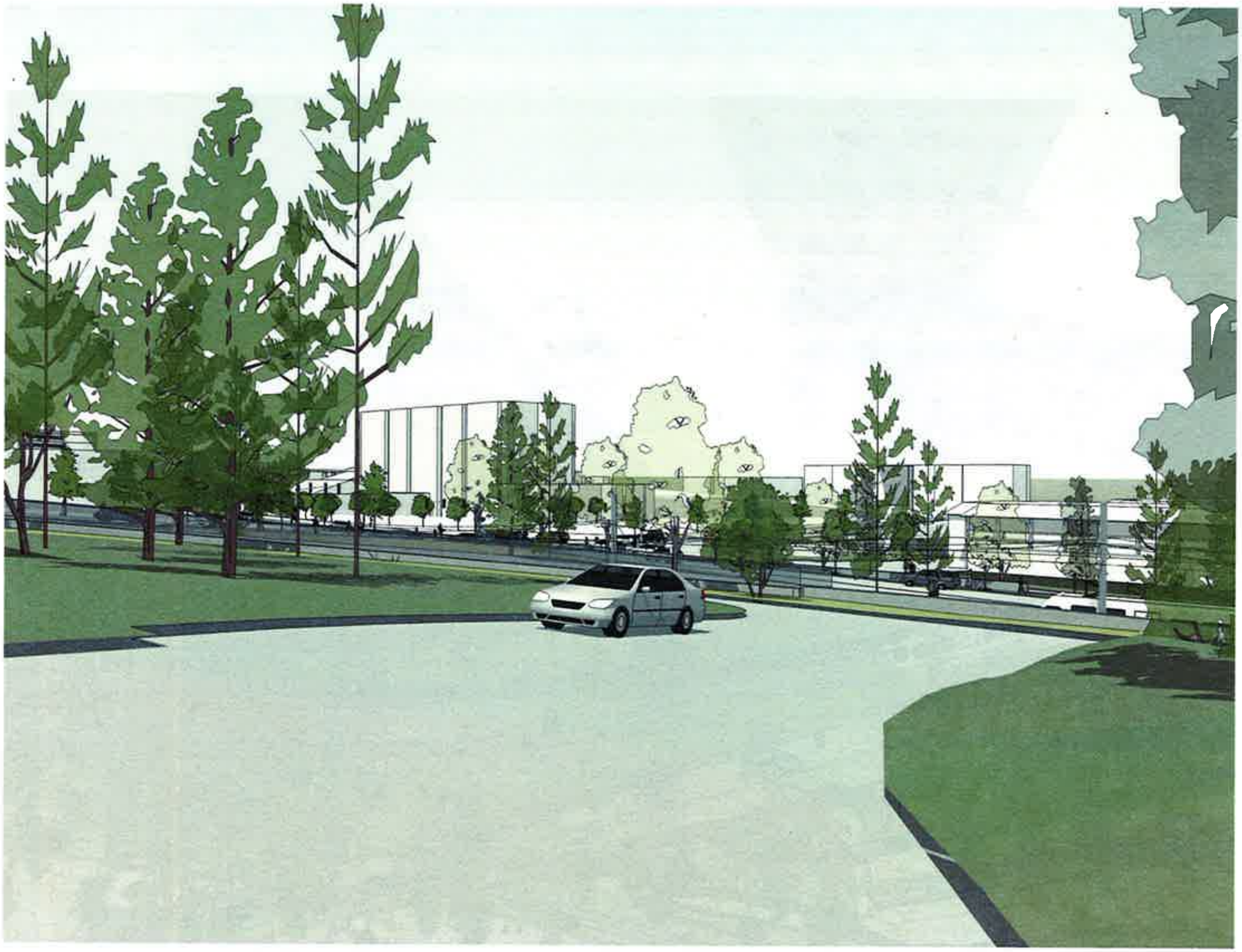


OVERHEAD VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place



STREET VIEW

Option 2: Westside Running to Main Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place

Option 3: Center Running to 2nd Street Tunnel

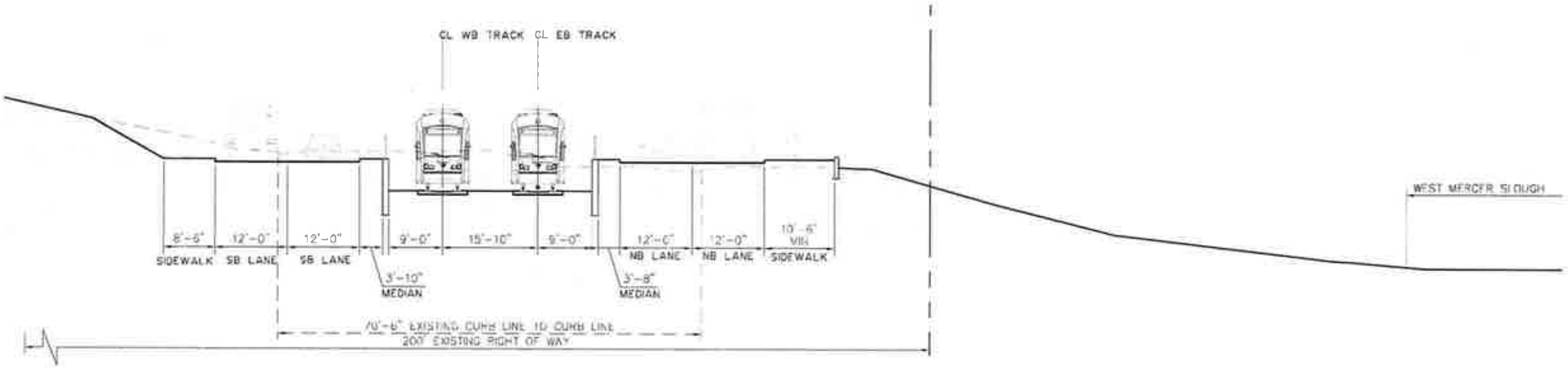
Plan, Section and Conceptual Illustrations

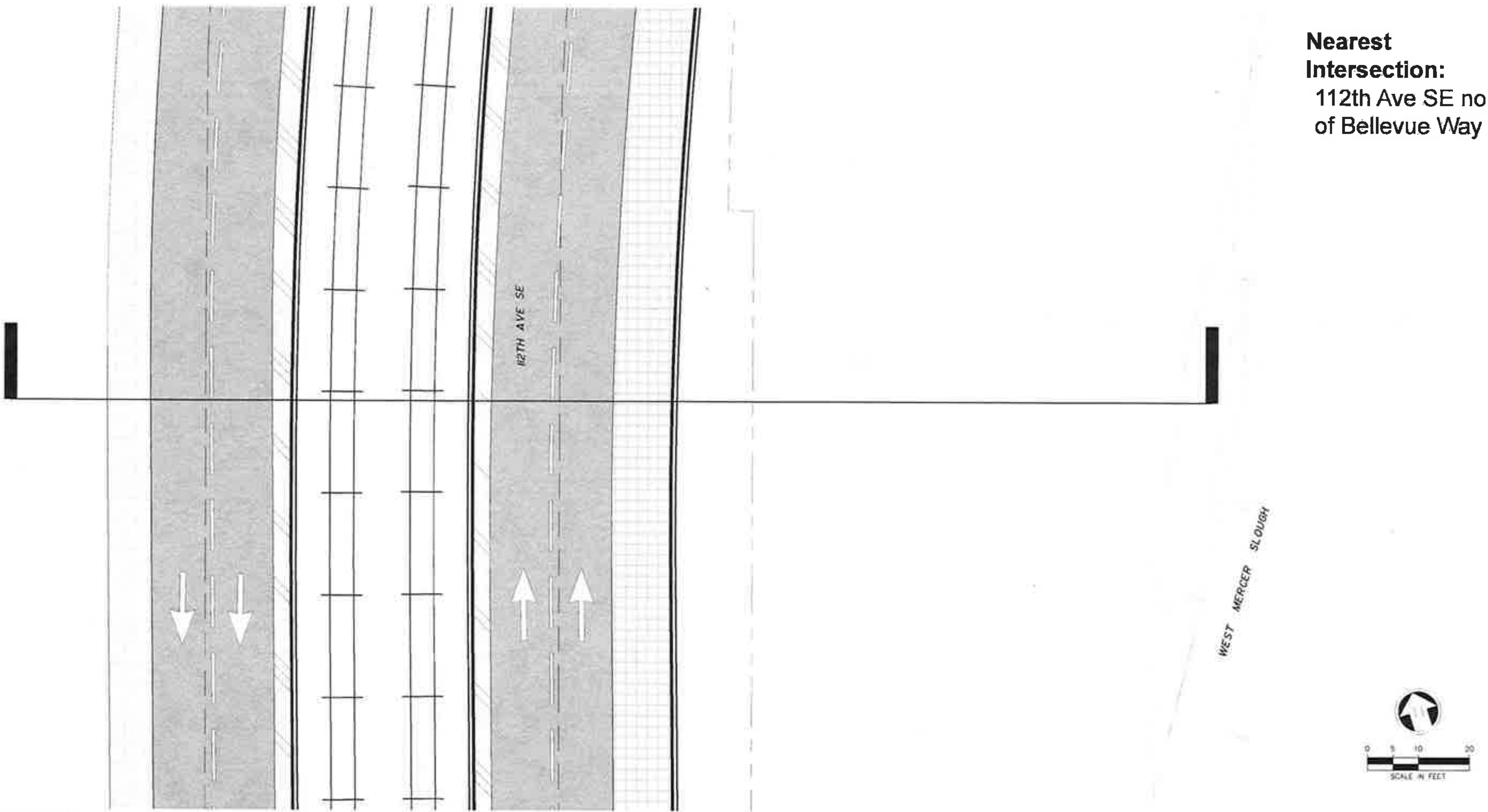
SECTION AND PLAN VIEW

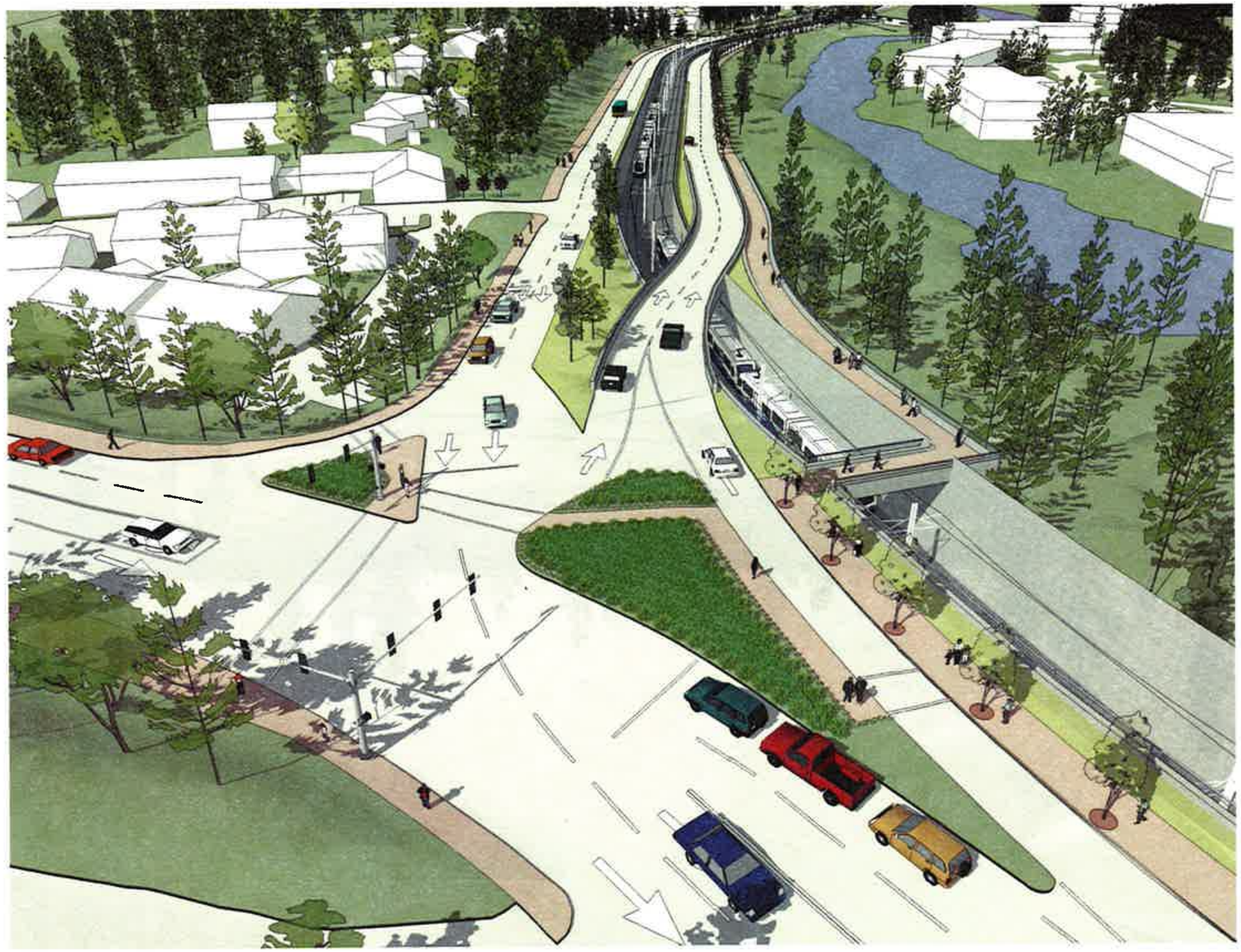
Option 3: Center Running to 2nd Street Tunnel

View Area: **1.0**

Nearest Intersection:
112th Ave SE north of Bellevue Way


CL WB TRACK CL EB TRACK
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
3'-10"
MEDIAN
9'-0"
15'-10"
9'-0"
3'-8"
MEDIAN
12'-0"
NB LANE
12'-0"
NB LANE
10'-6"
VIN
SIDEWALK
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY
WEST MERCER SLOUGH


112TH AVE SE
WEST MERCER SLOUGH
0
5
10
20
SCALE IN FEET

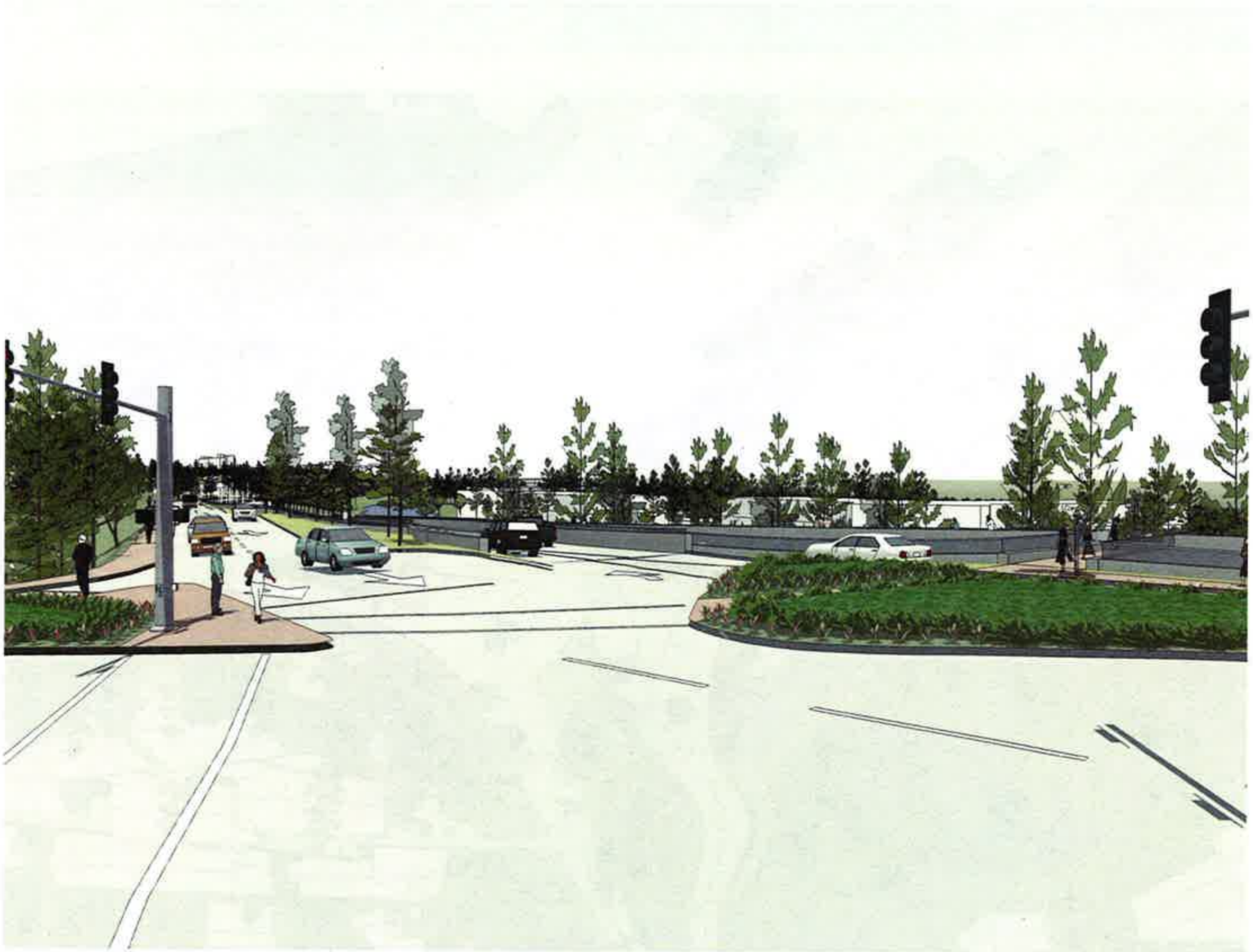


OVERHEAD VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

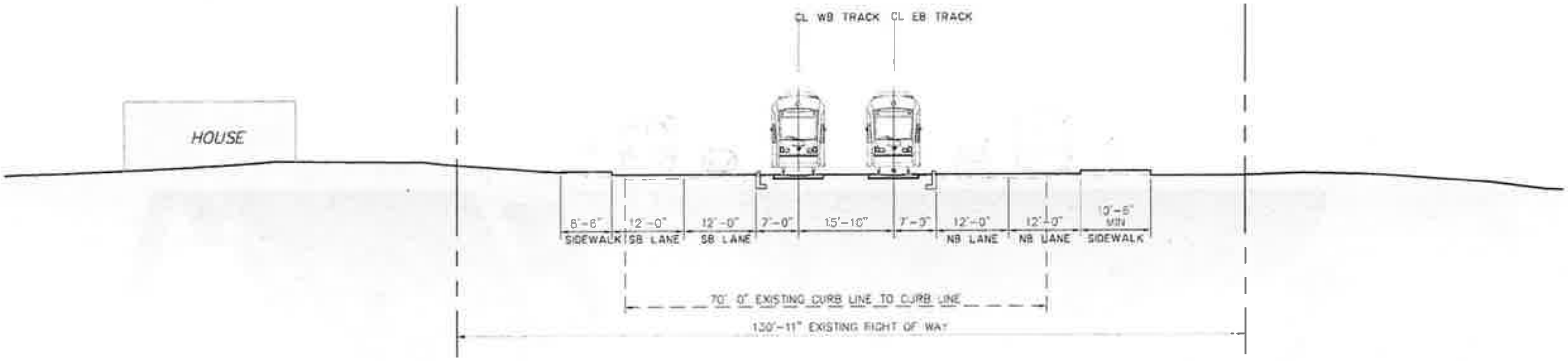


STREET VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

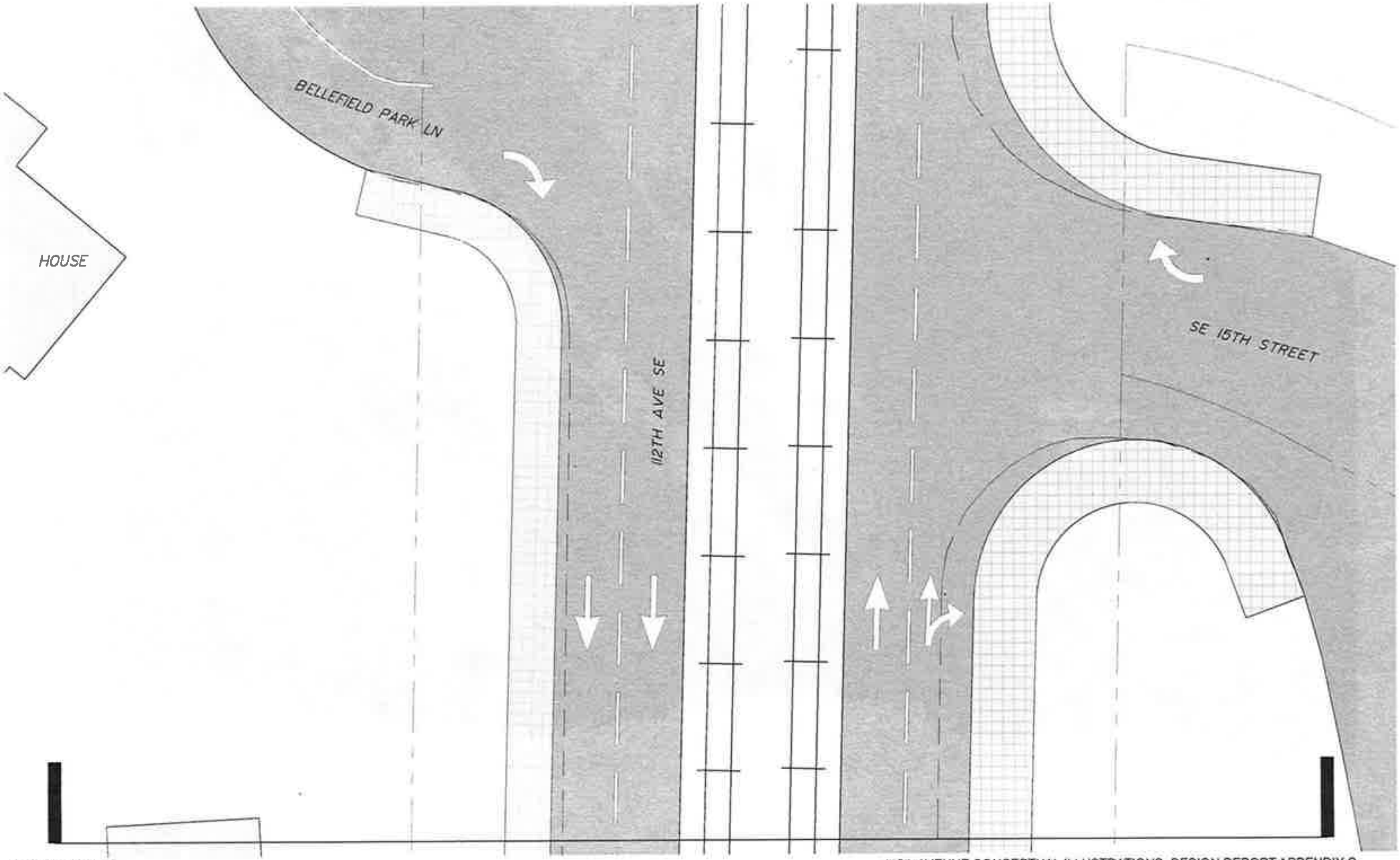

CL WB TRACK
CL EB TRACK
HOUSE
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
7'-0"
15'-10"
7'-0"
12'-0"
NB LANE
12'-0"
NB LANE
10'-6" MIN
SIDEWALK
70'-0" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY

SECTION AND PLAN VIEW

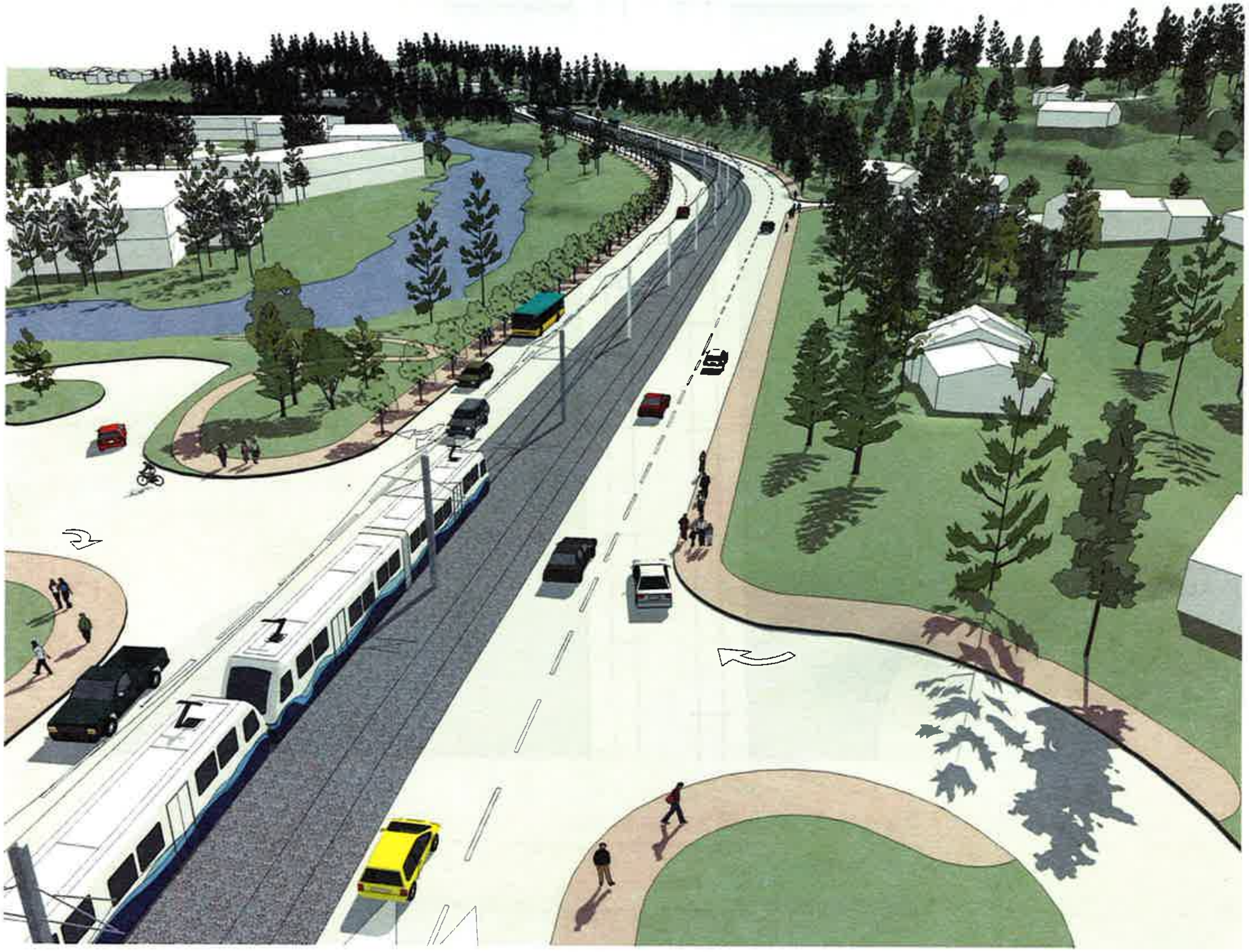
Option 3: Center Running to 2nd Street Tunnel

View Area: **1.1**

Nearest Intersection:
112th Ave SE and
SE 15th St


BELLEFIELD PARK LN
HOUSE
112TH AVE SE
SE 15TH STREET

0
5
10
20
SCALE IN FEET

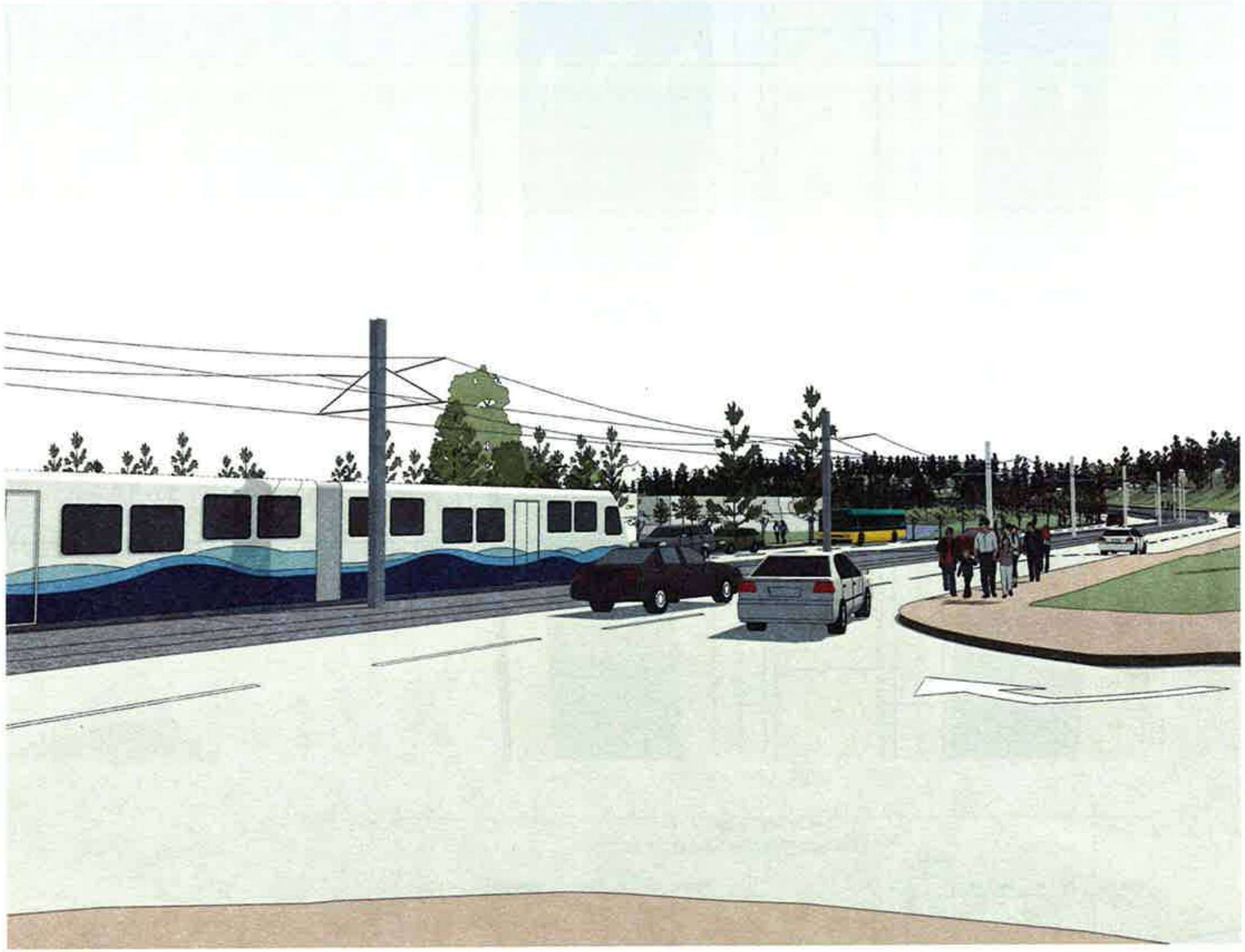


OVERHEAD VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St



STREET VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 1.1

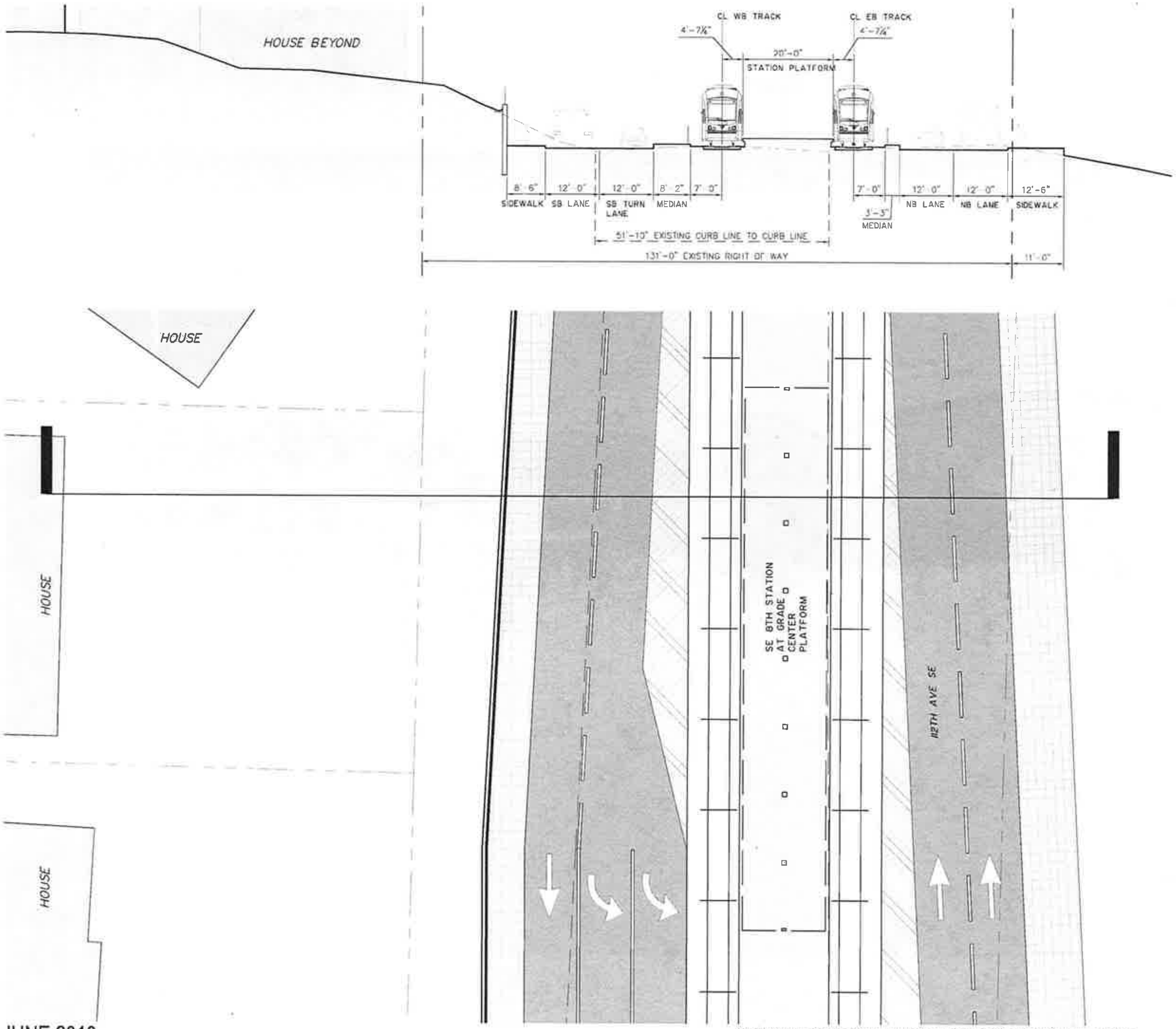
Nearest Intersection:
112th Ave SE and SE 15th St

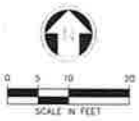
SECTION AND PLAN VIEW

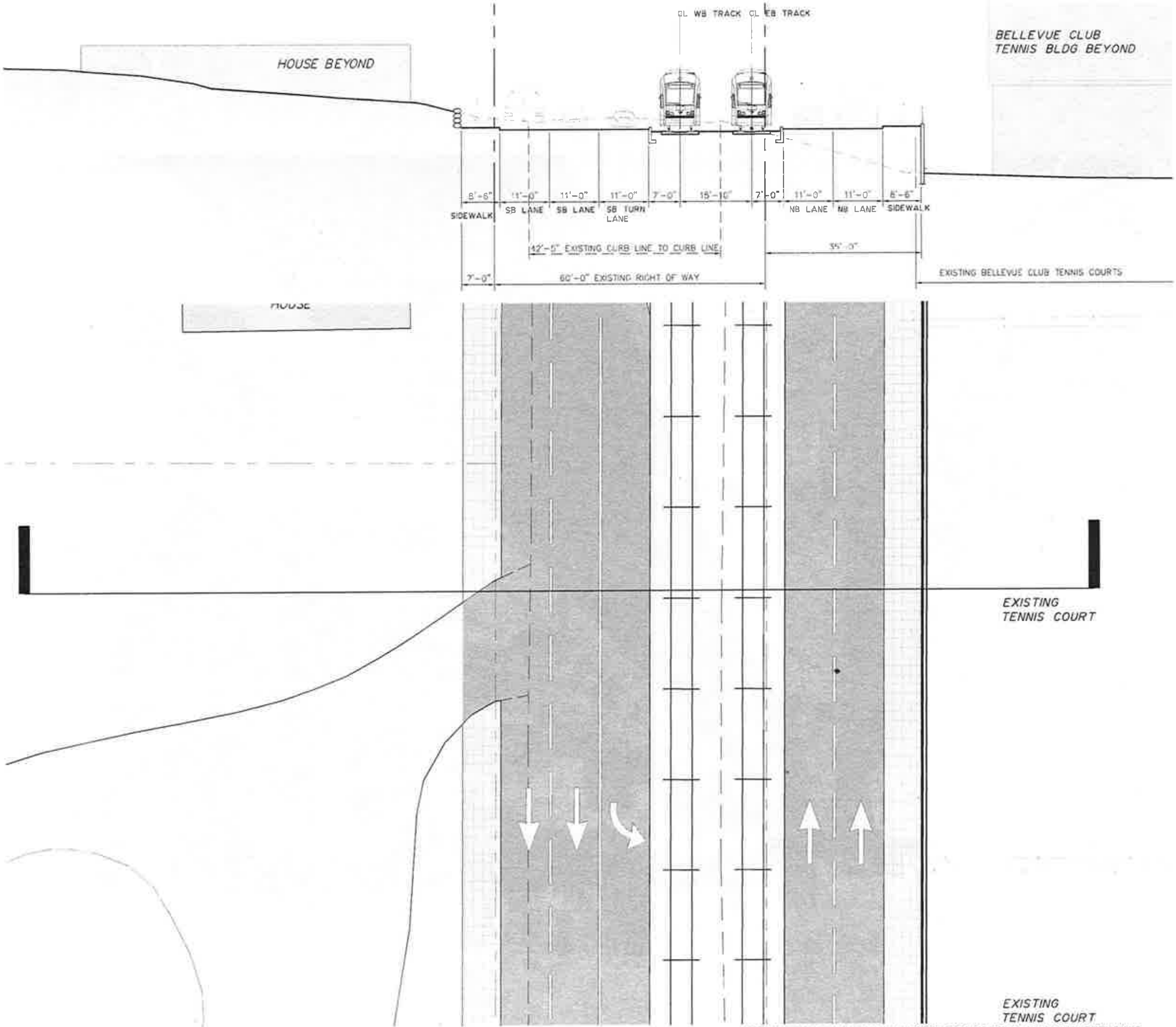
Option 3: Center Running to 2nd Street Tunnel

View Area: **2.0**

Nearest Intersection:
112th Ave SE north of SE 8th St


HOUSE BEYOND
CL WB TRACK
4'-7¼"
CL EB TRACK
4'-7¼"
20'-0"
STATION PLATFORM
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB TURN LANE
8'-2"
MEDIAN
7'-0"
7'-0"
3'-3"
MEDIAN
12'-0"
NB LANE
12'-0"
NB LANE
12'-6"
SIDEWALK
51'-10" EXISTING CURB LINE TO CURB LINE
131'-0" EXISTING RIGHT OF WAY
11'-0"
HOUSE
HOUSE
HOUSE
SE 8TH STATION AT GRADE CENTER PLATFORM
112TH AVE SE


N
0
5
10
20
SCALE IN FEET


CL WB TRACK
CL EB TRACK
HOUSE BEYOND
BELLEVUE CLUB TENNIS BLDG BEYOND
8'-6"
11'-0"
11'-0"
11'-0"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
SB TURN LANE
NB LANE
NB LANE
SIDEWALK
42'-5" EXISTING CURB LINE TO CURB LINE
35'-0"
7'-0"
60'-0" EXISTING RIGHT OF WAY
EXISTING BELLEVUE CLUB TENNIS COURTS
HOUSE
EXISTING TENNIS COURT
EXISTING TENNIS COURT

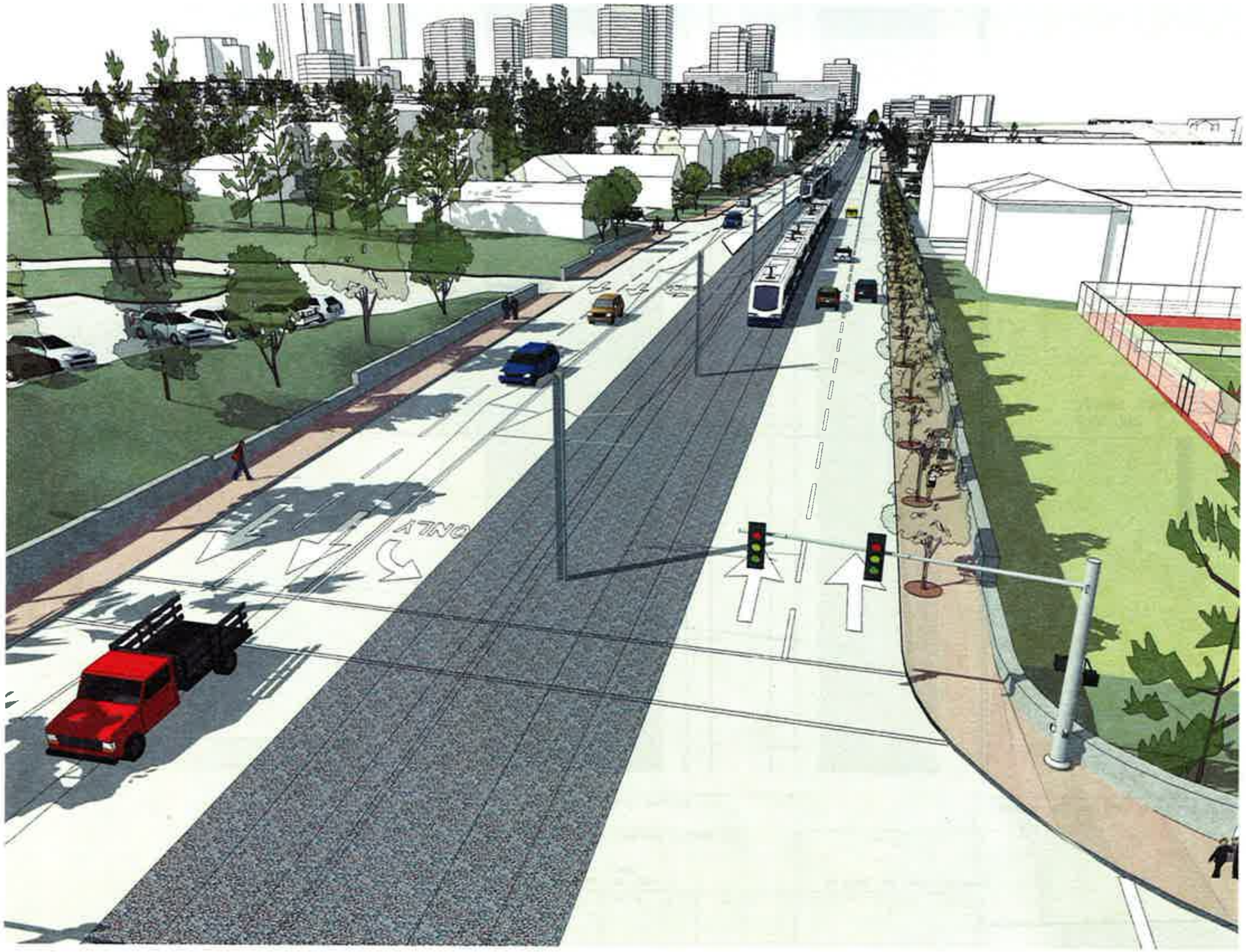
SECTION AND PLAN VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 3.0

Nearest Intersection:
112th Ave SE north of SE 6th St

N
0 5 10 20
SCALE IN FEET

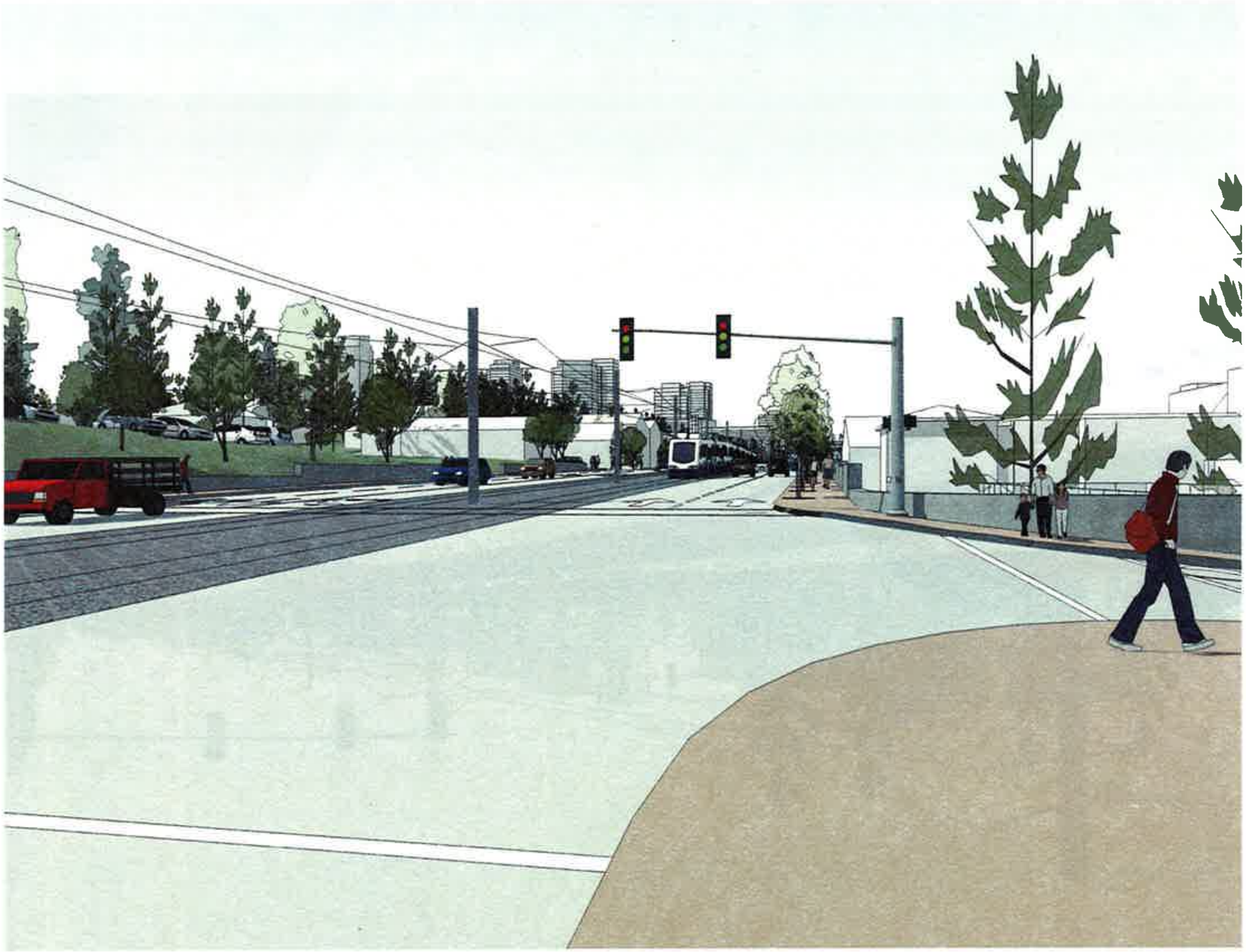


OVERHEAD VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

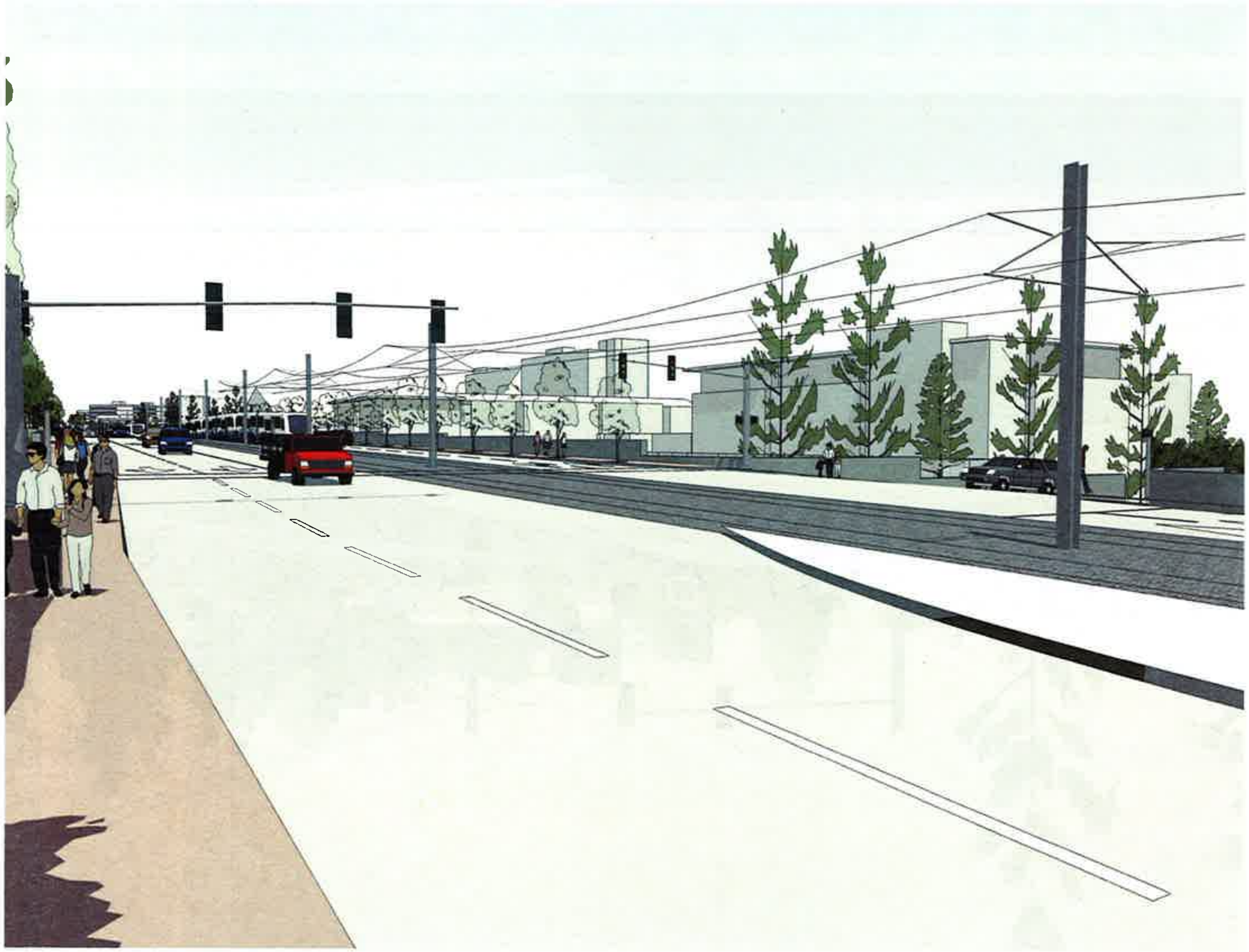


STREET VIEW EAST

Option 3: Center Running to 2nd Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St



STREET VIEW WEST

Option 3: Center Running to 2nd Street Tunnel

View Area: 3.0

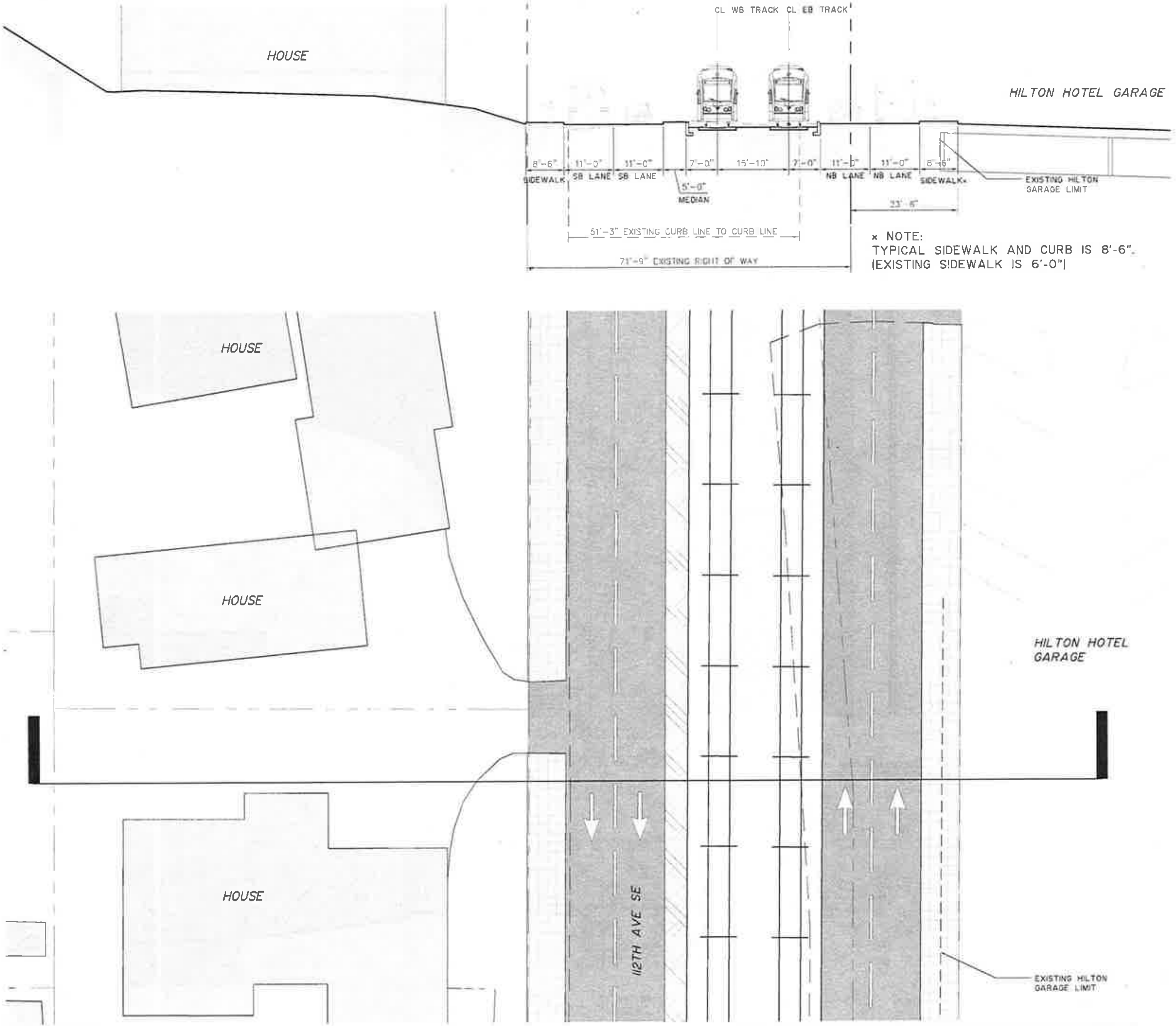
Nearest Intersection: 112th Ave SE and SE 6th St

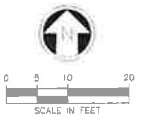
SECTION AND PLAN VIEW

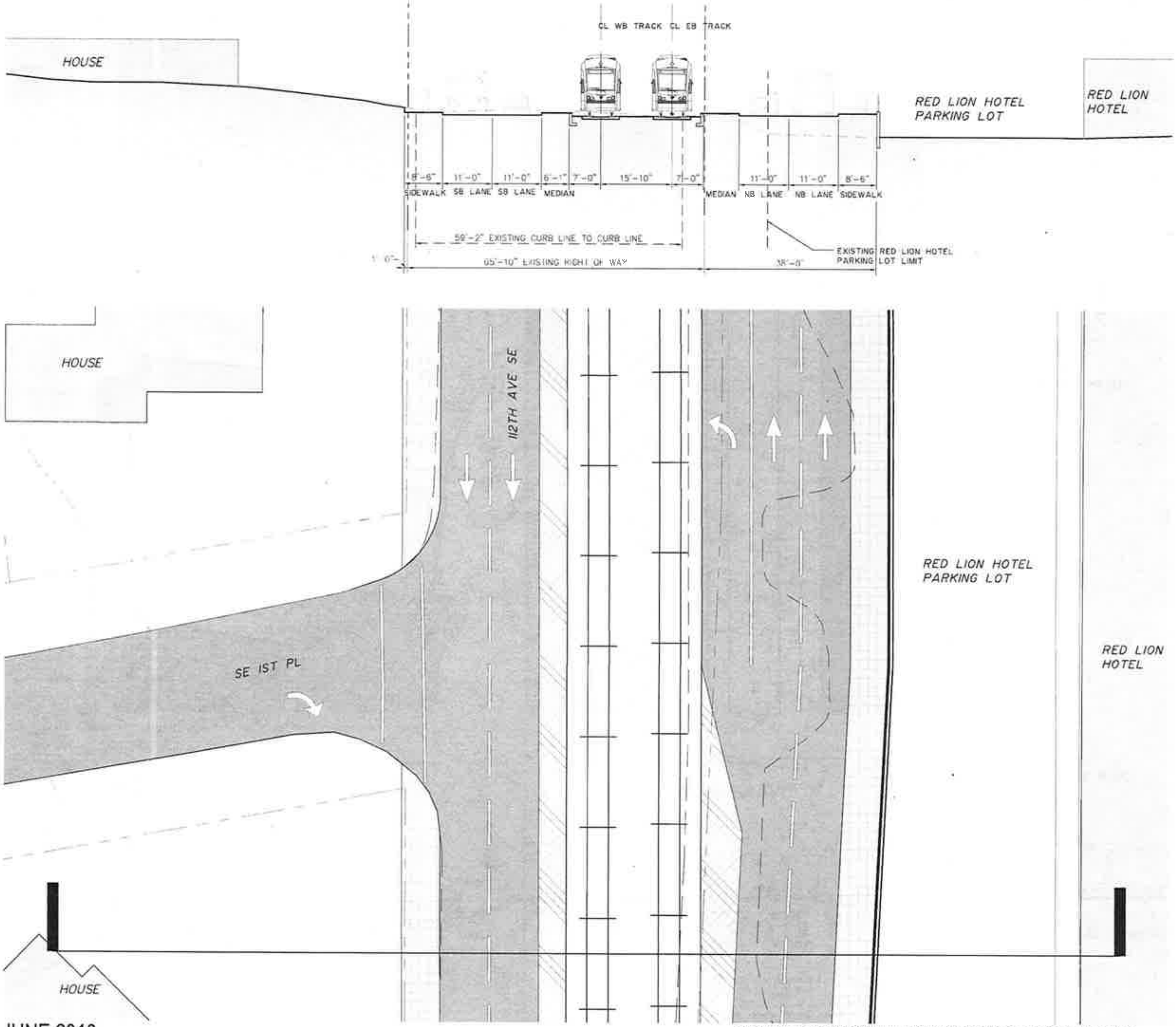
Option 3: Center Running to 2nd Street Tunnel

View Area: 3.1

Nearest Intersection:
112th Ave SE north of SE 4th St


HOUSE
CL WB TRACK
CL EB TRACK
HILTON HOTEL GARAGE
8'-6"
11'-0"
11'-0"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
5'-0" MEDIAN
NB LANE
NB LANE
SIDEWALK*
EXISTING HILTON GARAGE LIMIT
23'-6"
51'-3" EXISTING CURB LINE TO CURB LINE
71'-9" EXISTING RIGHT OF WAY
* NOTE:
TYPICAL SIDEWALK AND CURB IS 8'-6".
(EXISTING SIDEWALK IS 6'-0")
HOUSE
HOUSE
HOUSE
112TH AVE SE
HILTON HOTEL GARAGE
EXISTING HILTON GARAGE LIMIT


N
0
5
10
20
SCALE IN FEET


CL WB TRACK
CL EB TRACK
HOUSE
RED LION HOTEL PARKING LOT
RED LION HOTEL
8'-6"
11'-0"
11'-0"
6'-1"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
MEDIAN
MEDIAN
NB LANE
NB LANE
SIDEWALK
59'-2" EXISTING CURB LINE TO CURB LINE
1'-0"
65'-10" EXISTING RIGHT OF WAY
38'-0"
EXISTING RED LION HOTEL PARKING LOT LIMIT
HOUSE
112TH AVE SE
SE 1ST PL
RED LION HOTEL PARKING LOT
RED LION HOTEL
HOUSE

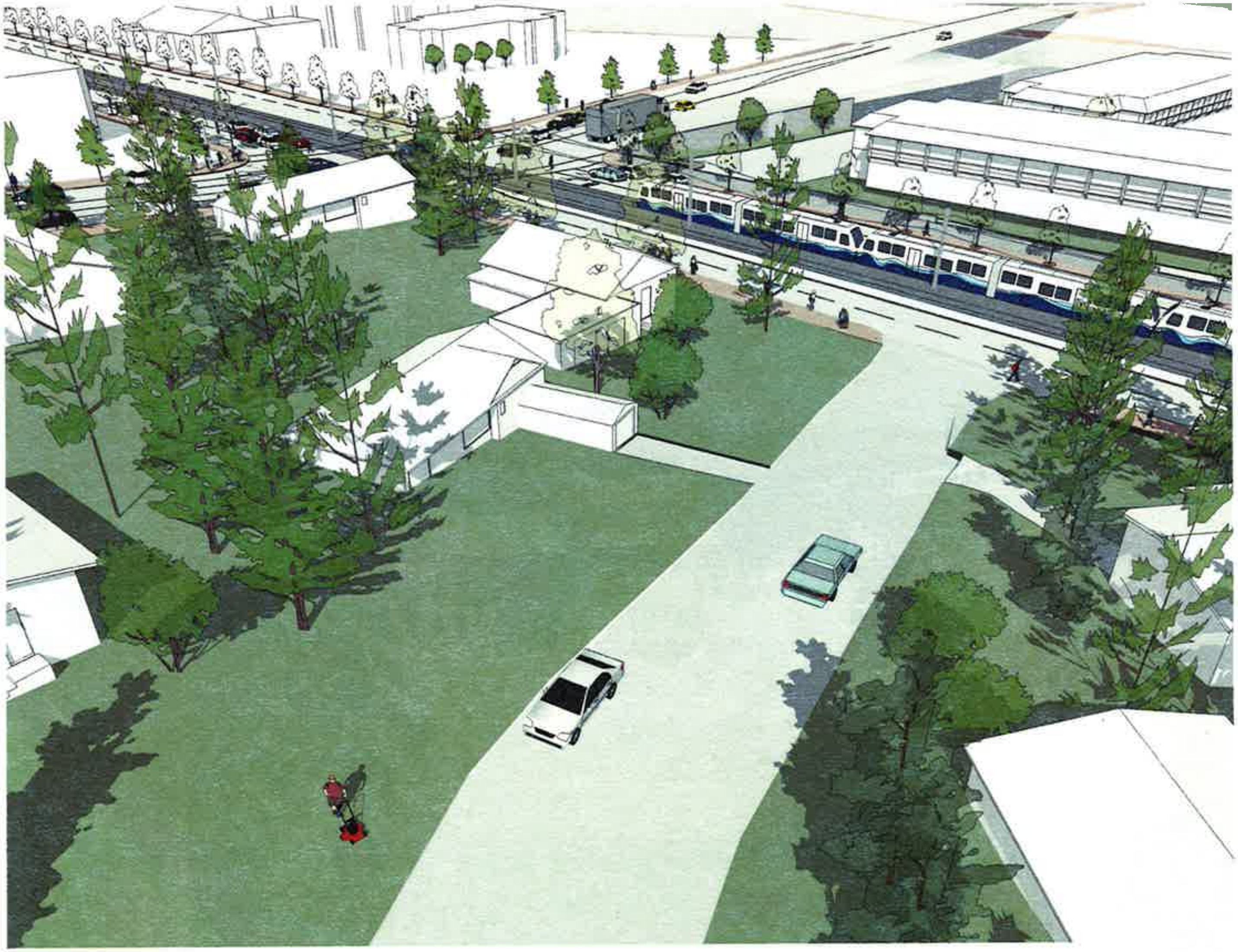
SECTION AND PLAN VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: **4.0**

Nearest Intersection:
112th Ave SE and SE 1st Place

N
0
5
10
20
SCALE IN FEET

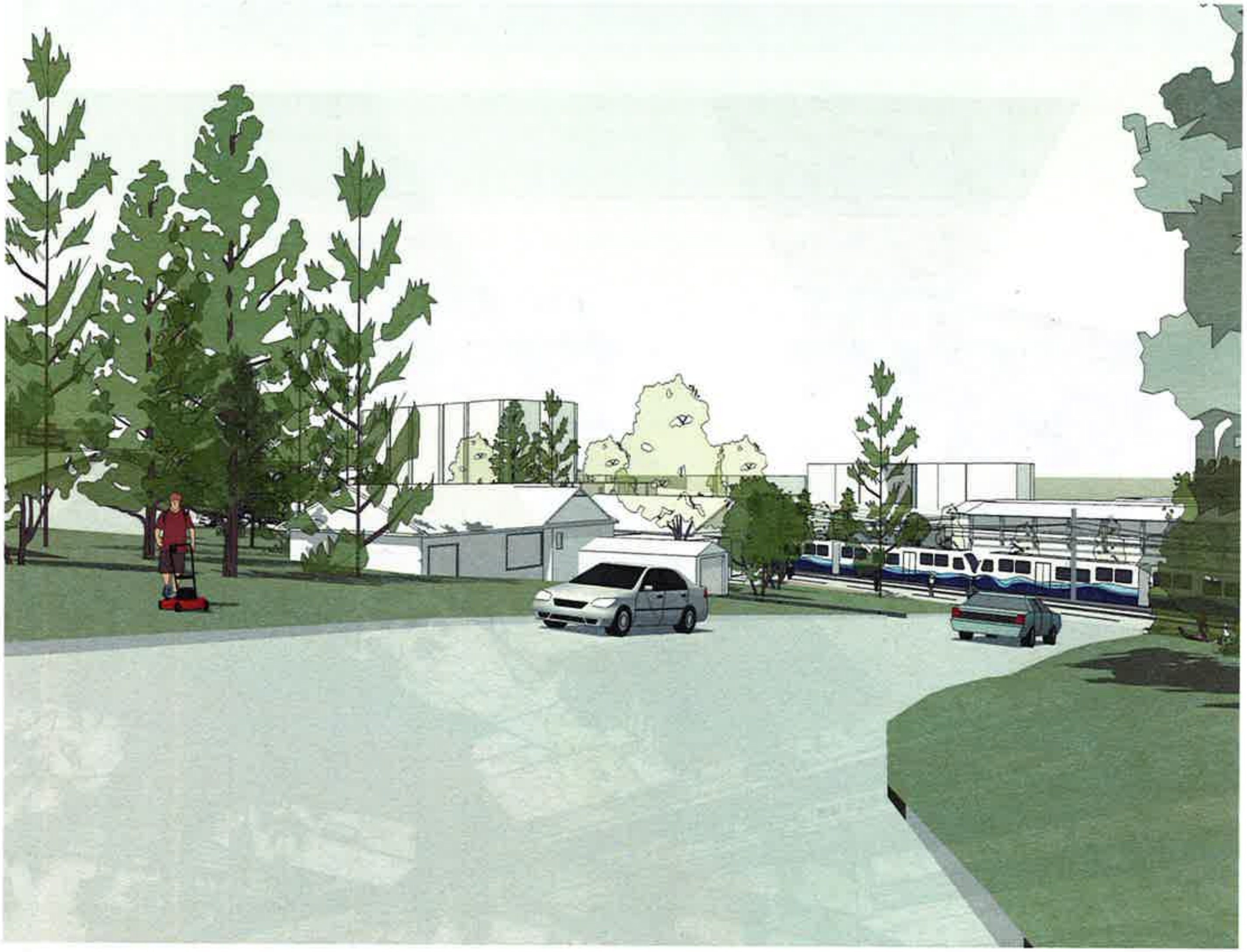


OVERHEAD VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place



STREET VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 4.0

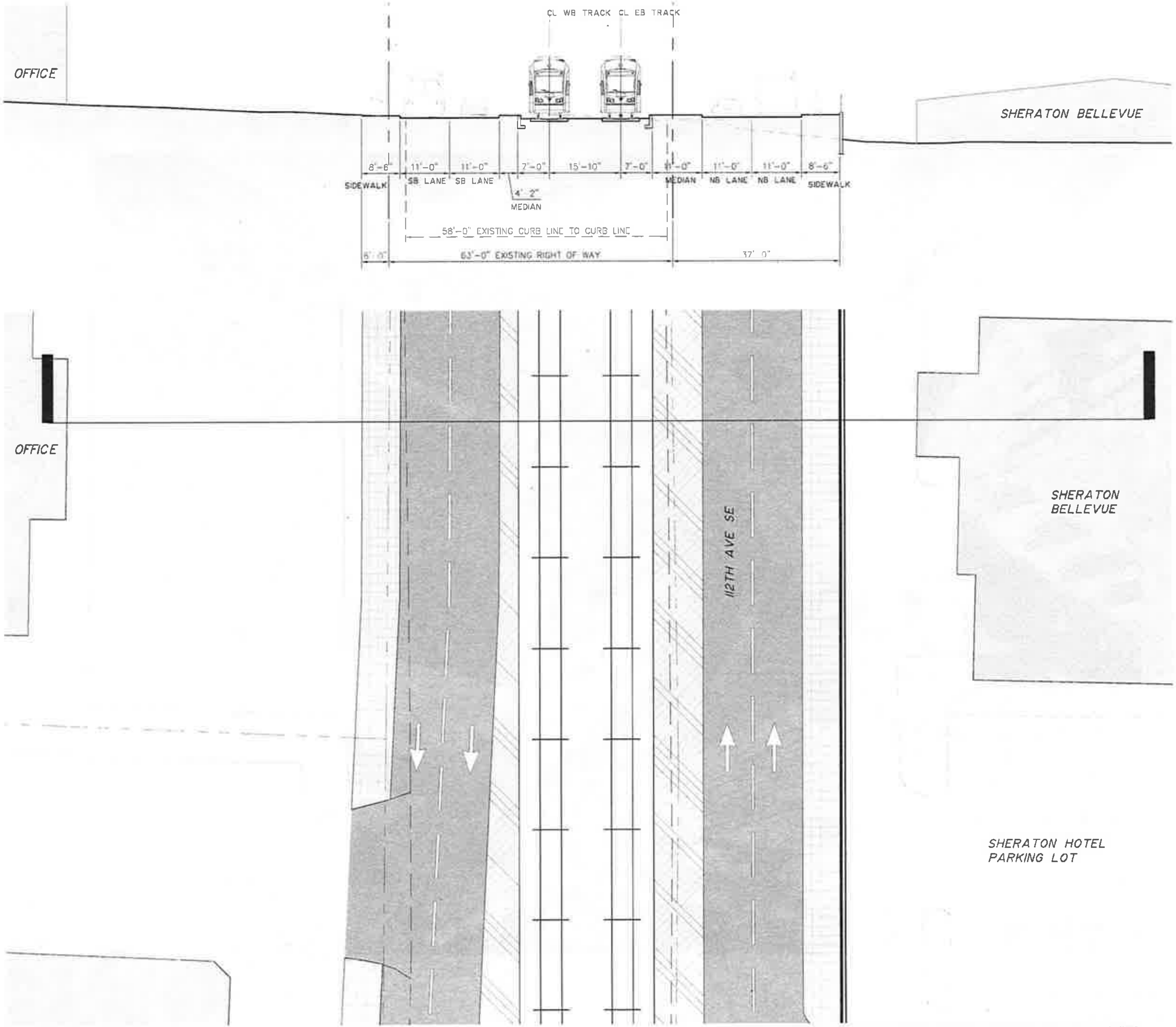
Nearest Intersection:
112th Ave SE and SE 1st Place

SECTION AND PLAN VIEW

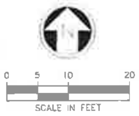
Option 3: Center Running to 2nd Street Tunnel

View Area: 5.0

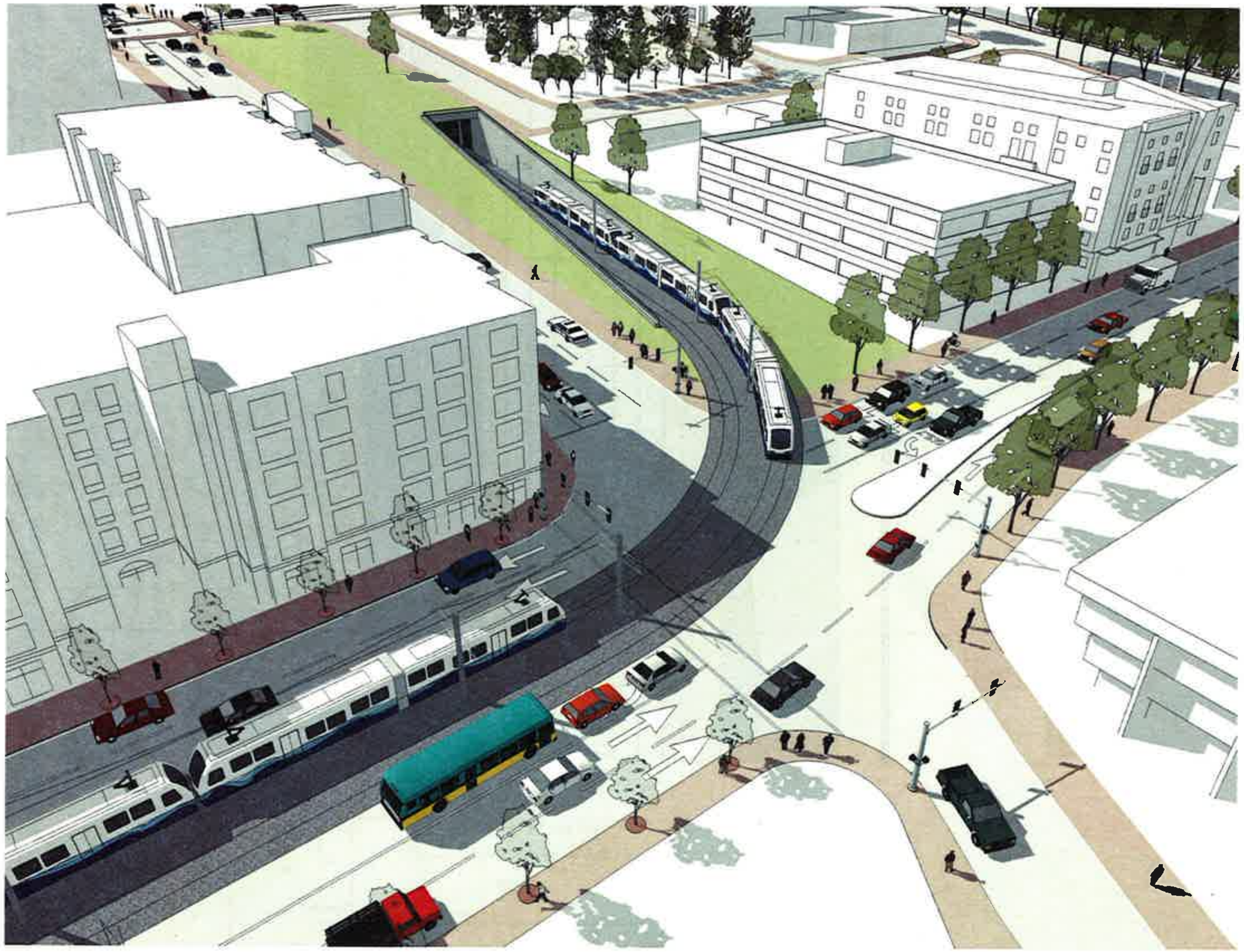
Nearest Intersection:
112th Ave SE north of Main St



CL WB TRACK
CL EB TRACK
OFFICE
SHERATON BELLEVUE
8'-6"
11'-0"
11'-0"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
4'-2"
MEDIAN
MEDIAN
NB LANE
NB LANE
SIDEWALK
58'-0" EXISTING CURB LINE TO CURB LINE
6'-0"
63'-0" EXISTING RIGHT OF WAY
37'-0"
OFFICE
112TH AVE SE
SHERATON BELLEVUE
SHERATON HOTEL PARKING LOT



N
0
5
10
20
SCALE IN FEET

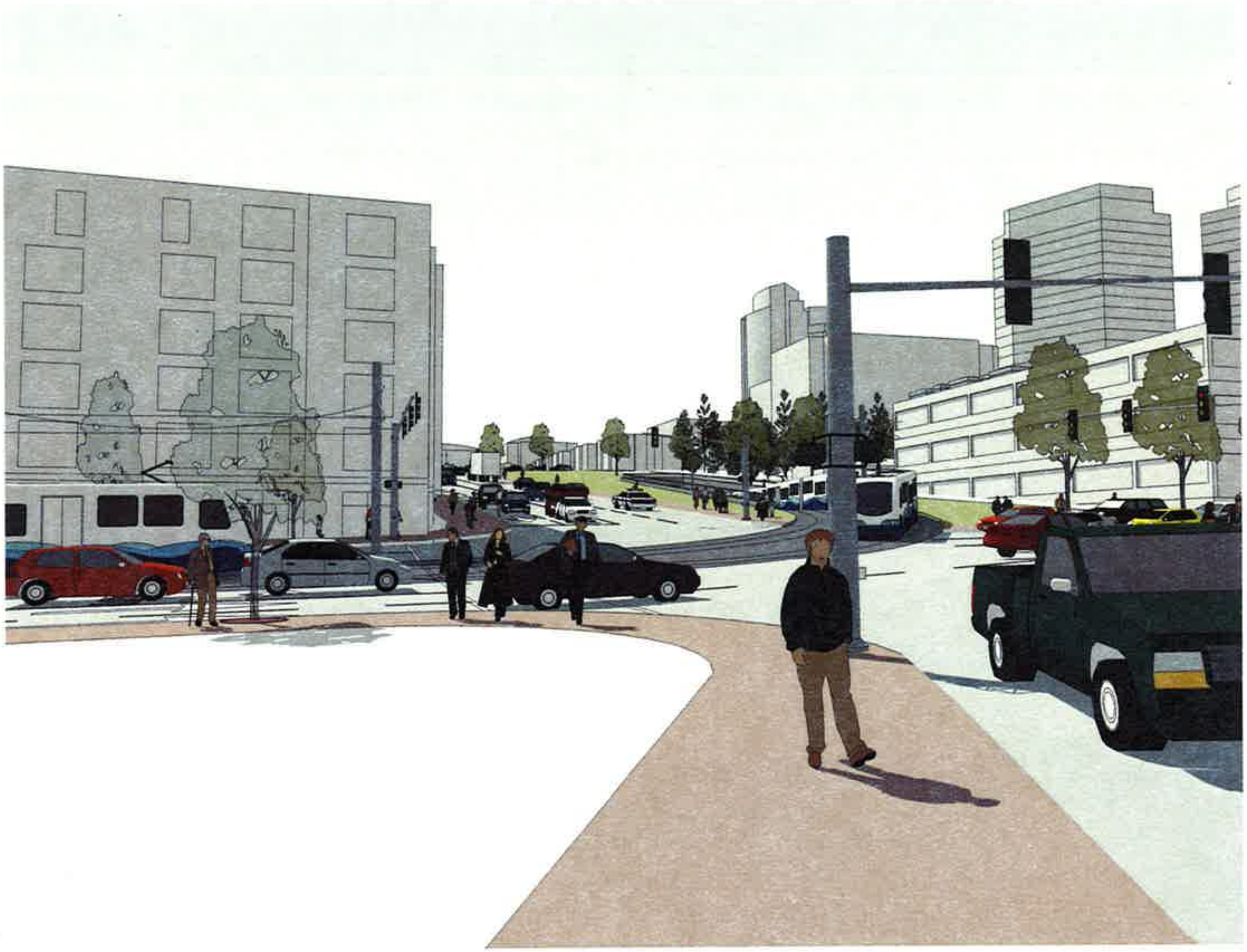


OVERHEAD VIEW

Option 3: Center Running to 2nd Street Tunnel

View Area: 5.0

Nearest Intersection: 112th Ave SE and NE 2nd St.



STREET VIEW

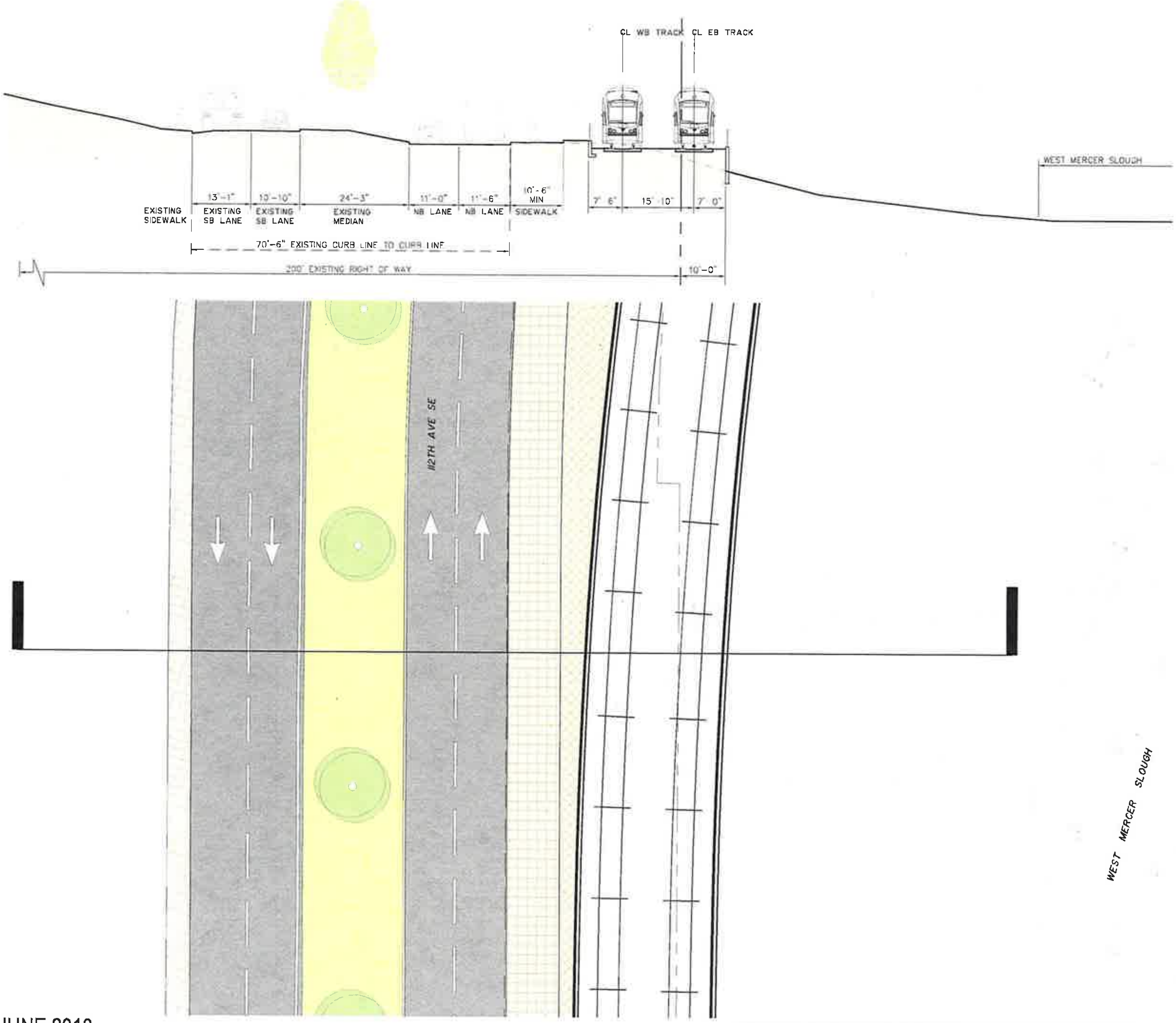
Option 3: Center Running to 2nd Street Tunnel

View Area: 5.0

Nearest Intersection:
112th Ave SE and NE 2nd St.

Option 4: Eastside Running to 2nd Street Tunnel

Plan, Section and Conceptual Illustrations


CL WB TRACK
CL EB TRACK
13'-1"
10'-10"
24'-3"
11'-0"
11'-6"
10'-6" MIN
7' 6"
15' 10"
7' 0"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING MEDIAN
NB LANE
NB LANE
SIDEWALK
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY
10'-0"
WEST MERCER SLOUGH
112TH AVE SE
WEST MERCER SLOUGH

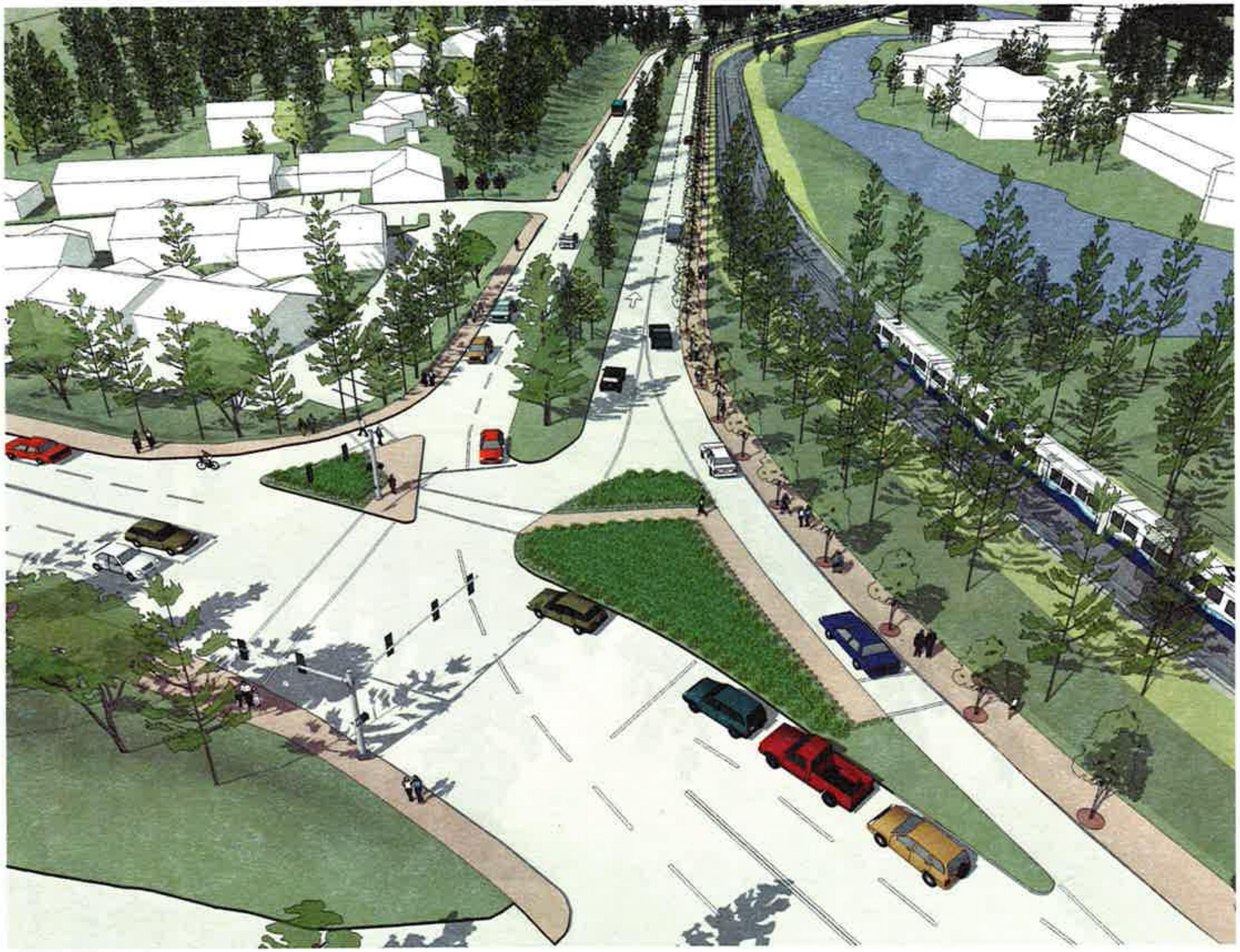
SECTION AND PLAN VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: **1.0**

Nearest Intersection:
112th Ave SE north of Bellevue Way

0
5
10
20
SCALE IN FEET



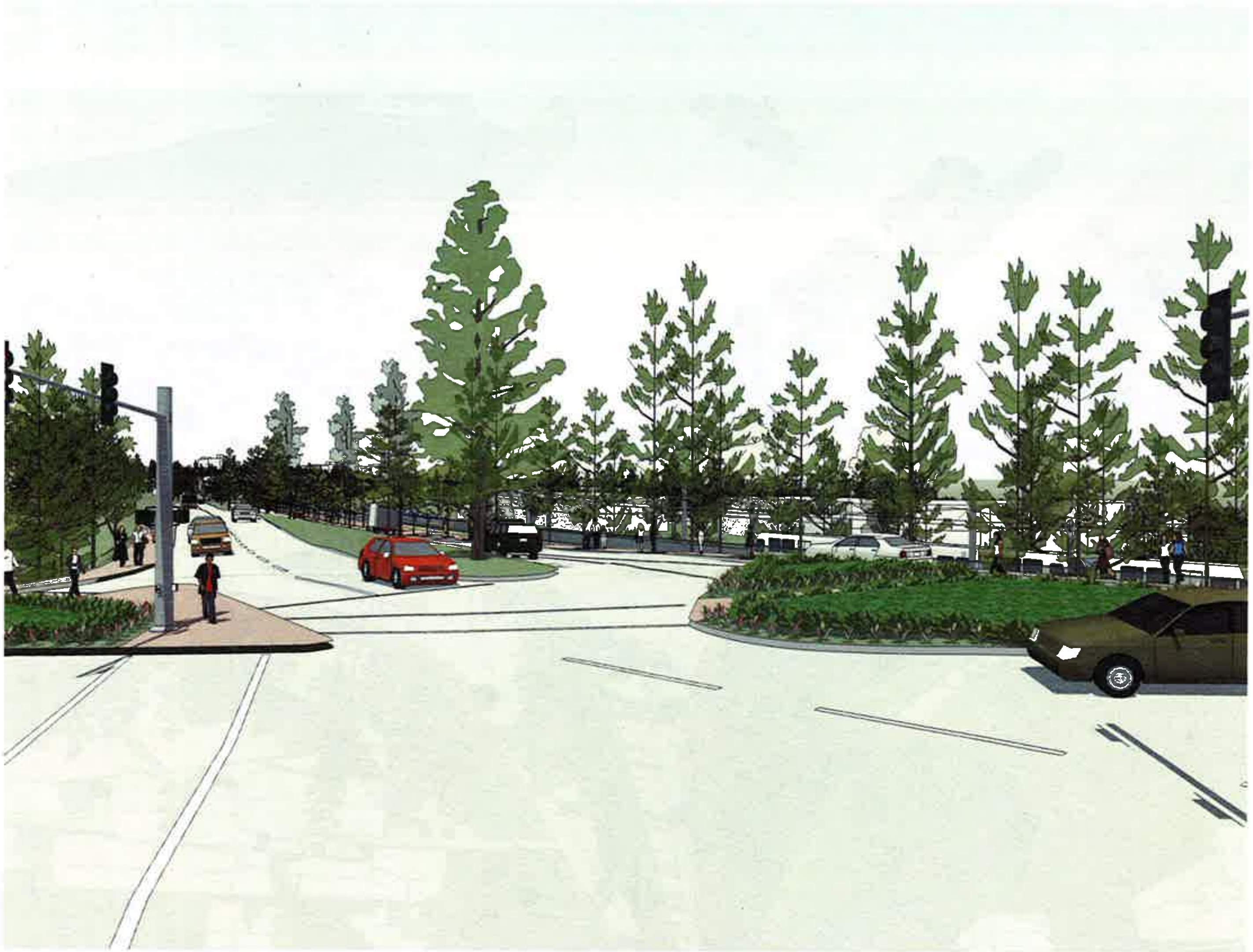
OVERHEAD VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

Note: this view is the same as Option 1



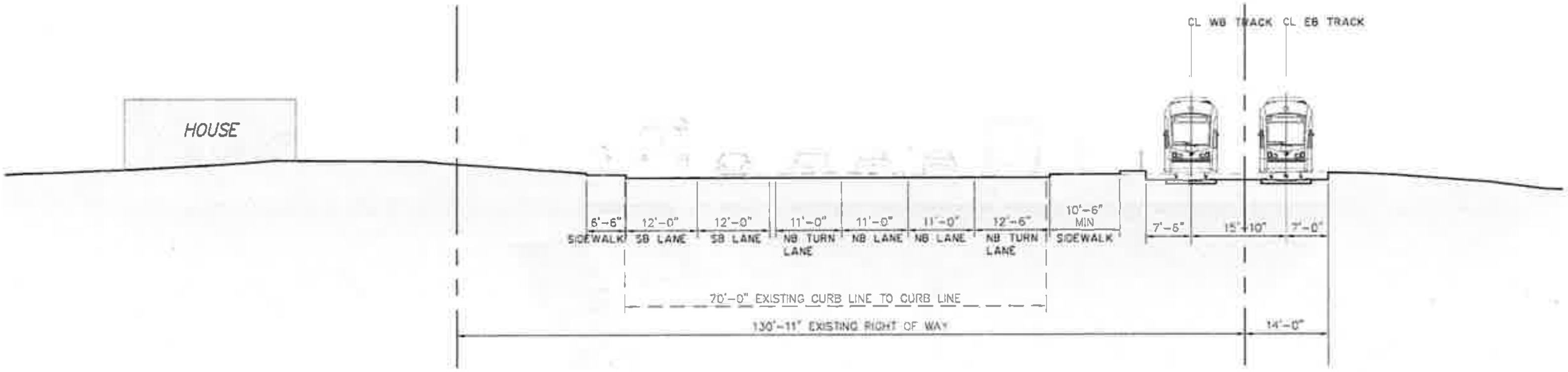
STREET VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 1.0

Nearest Intersection: 112th Ave SE and Bellevue Way

Note: this view is the same as Option 1

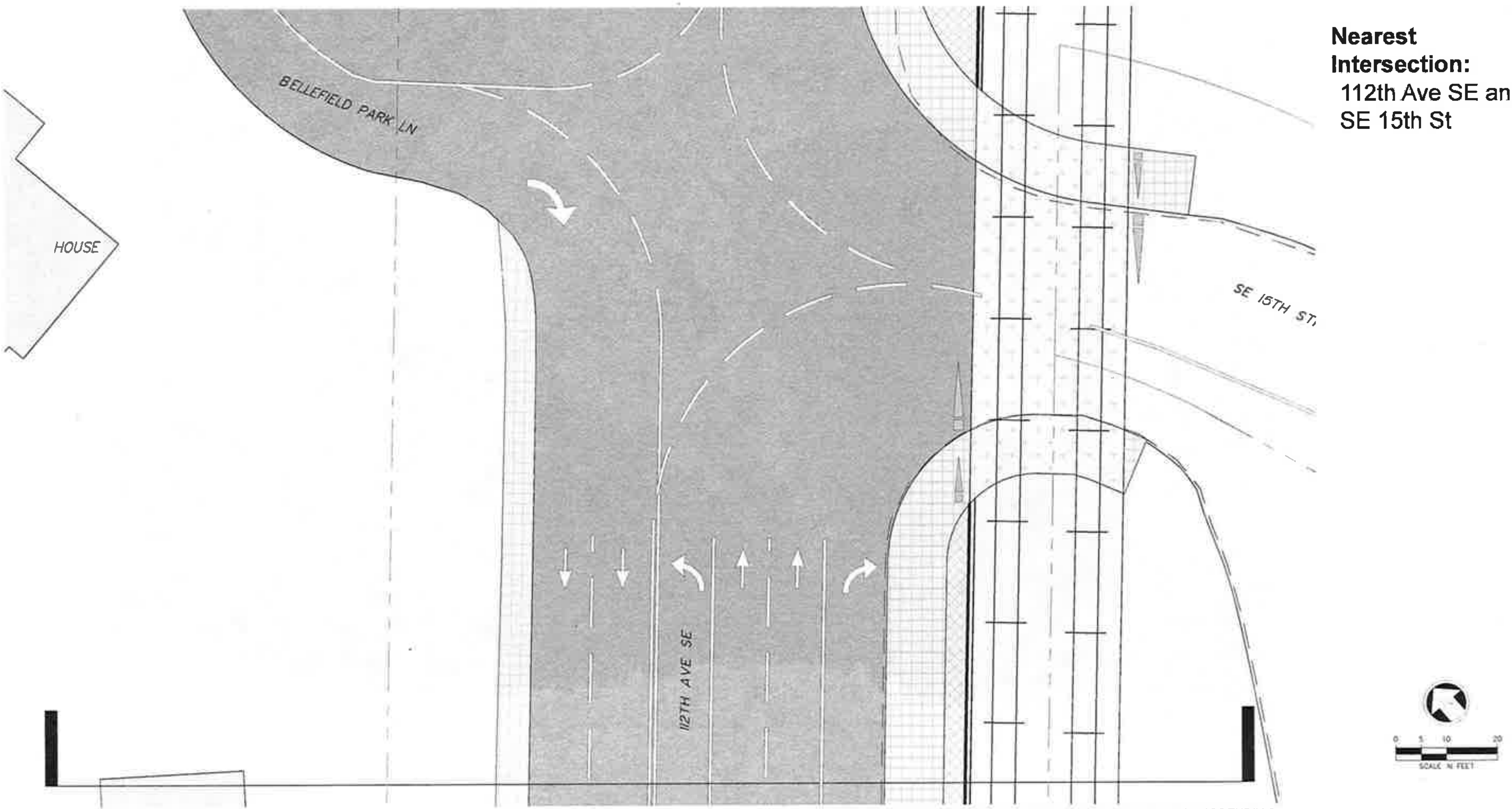

HOUSE
CL WB TRACK
CL EB TRACK
6'-6" SIDEWALK
12'-0" SB LANE
12'-0" SB LANE
11'-0" NB TURN LANE
11'-0" NB LANE
11'-0" NB LANE
12'-6" NB TURN LANE
10'-6" MIN SIDEWALK
7'-5"
15'-10"
7'-0"
70'-0" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY
14'-0"

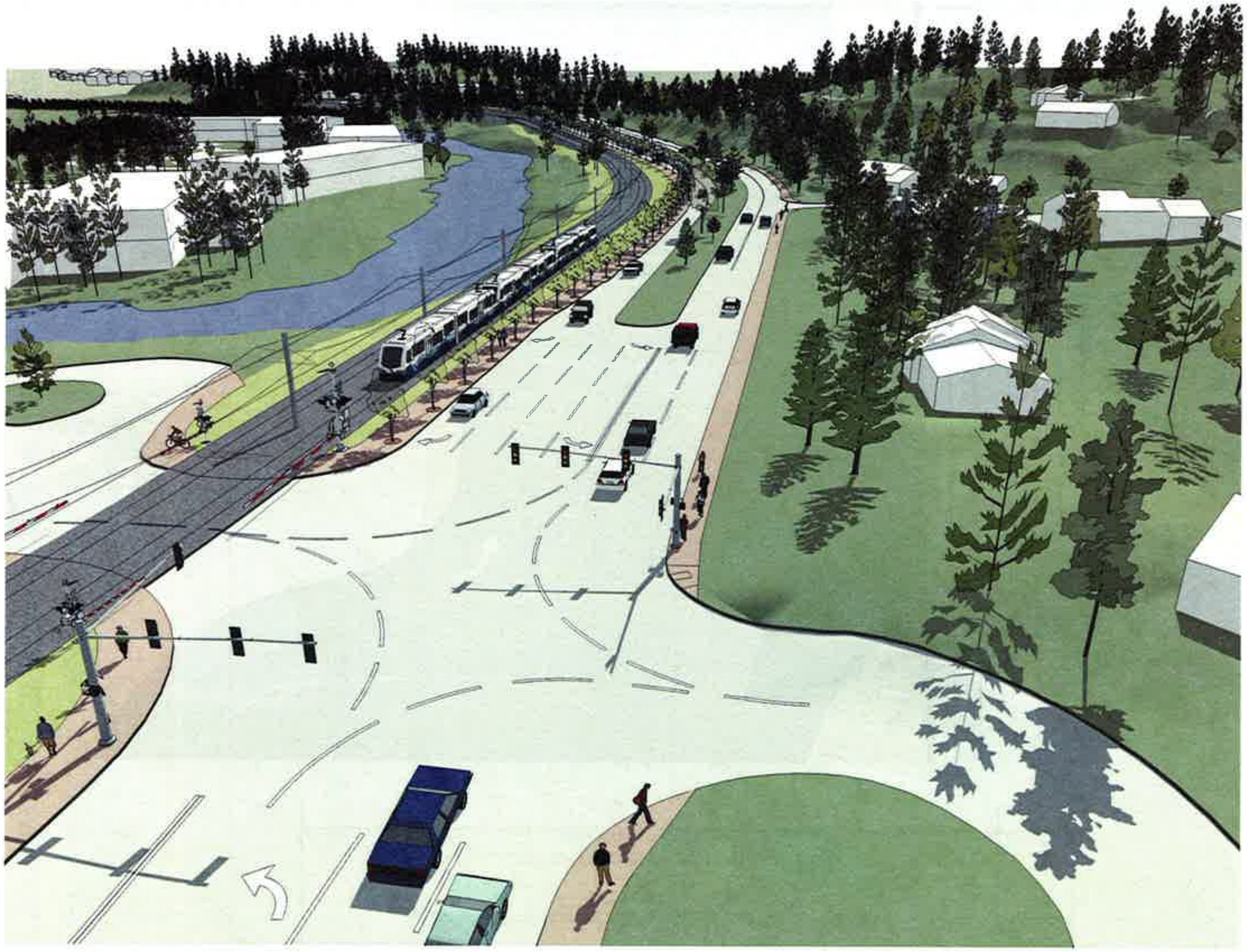
SECTION AND PLAN VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and
SE 15th St


BELLEFIELD PARK LN
HOUSE
SE 15TH ST
112TH AVE SE
0 5 10 20
SCALE IN FEET

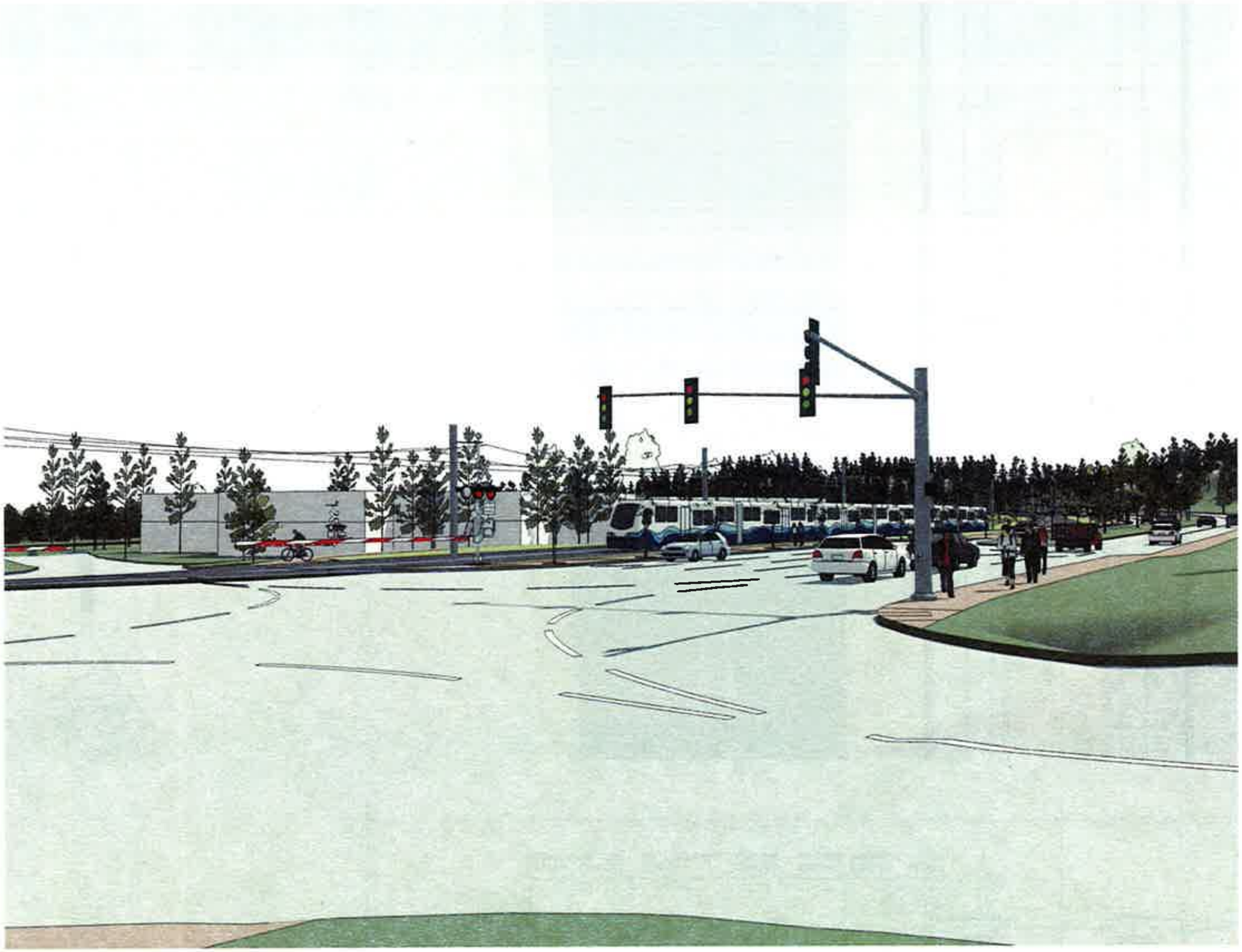


OVERHEAD VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St



STREET VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 1.1

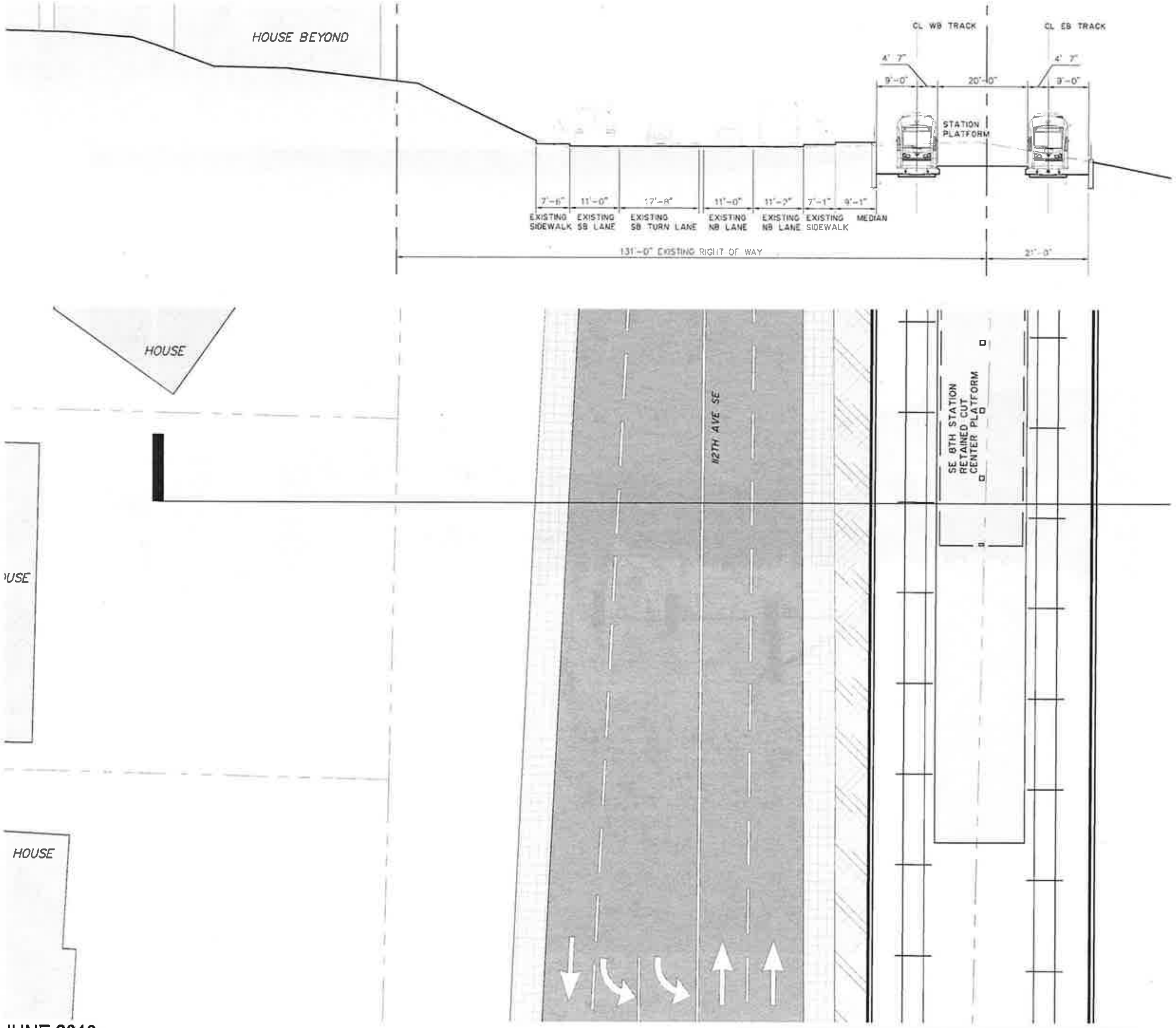
Nearest Intersection:
112th Ave SE and SE 15th St

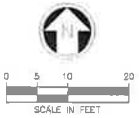
SECTION AND PLAN VIEW

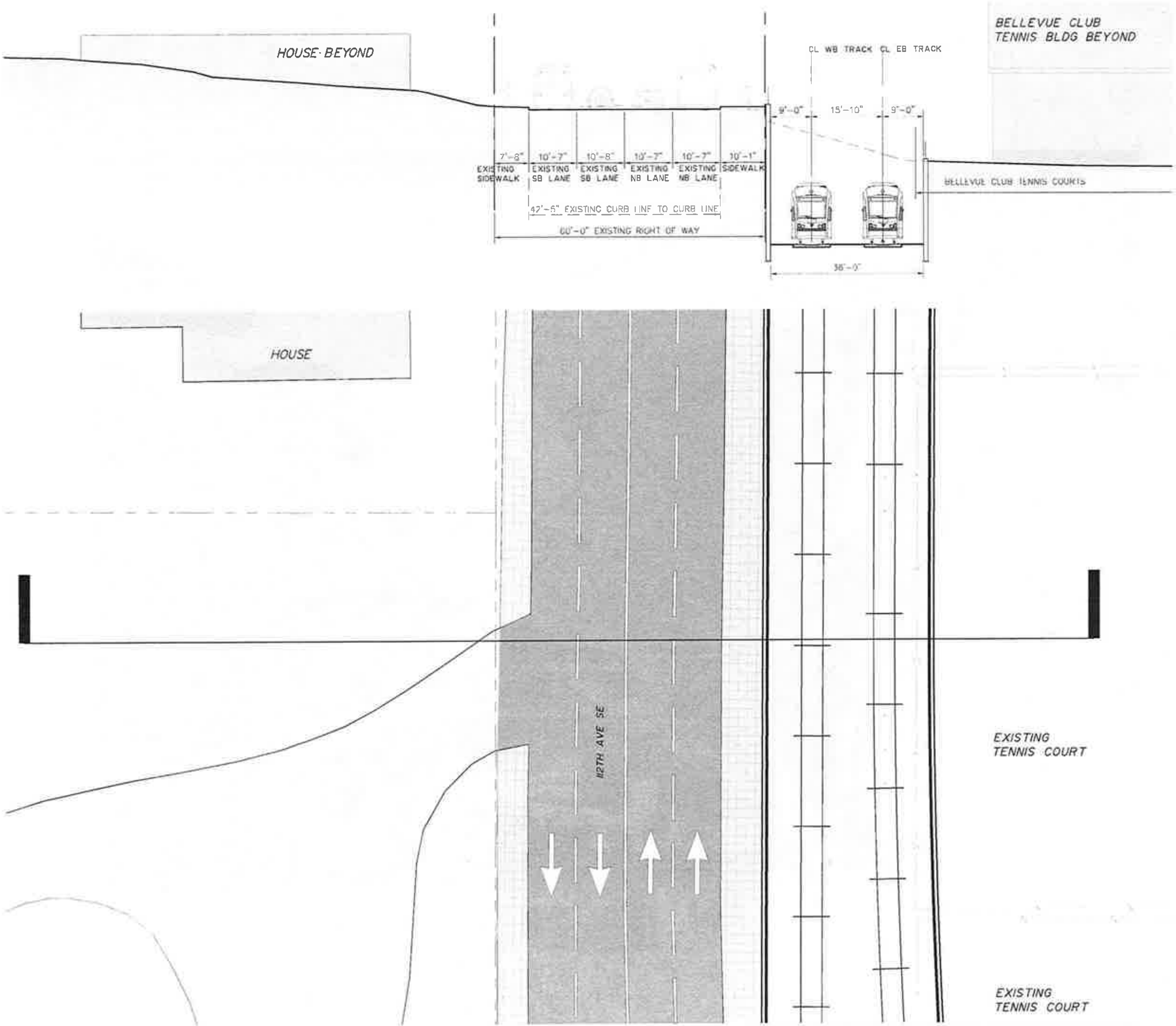
Option 4: Eastside Running to 2nd Street Tunnel

View Area: 2.0

Nearest Intersection:
112th Ave SE north of SE 8th St


HOUSE BEYOND
CL WB TRACK
CL EB TRACK
4' 7"
9'-0"
20'-0"
4' 7"
9'-0"
STATION PLATFORM
7'-6"
11'-0"
17'-8"
11'-0"
11'-2"
7'-1"
9'-1"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB TURN LANE
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
MEDIAN
131'-0" EXISTING RIGHT OF WAY
21'-0"
HOUSE
USE
HOUSE
112TH AVE SE
SE 8TH STATION RETAINED CUT CENTER PLATFORM


N
0
5
10
20
SCALE IN FEET

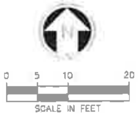

HOUSE BEYOND
BELLEVUE CLUB TENNIS BLDG BEYOND
CL WB TRACK
CL EB TRACK
9'-0"
15'-10"
9'-0"
7'-8"
10'-7"
10'-8"
10'-7"
10'-7"
10'-1"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING NB LANE
EXISTING NB LANE
SIDEWALK
42'-6" EXISTING CURB LINE TO CURB LINE
60'-0" EXISTING RIGHT OF WAY
38'-0"
BELLEVUE CLUB TENNIS COURTS
HOUSE
112TH AVE SE
EXISTING TENNIS COURT
EXISTING TENNIS COURT

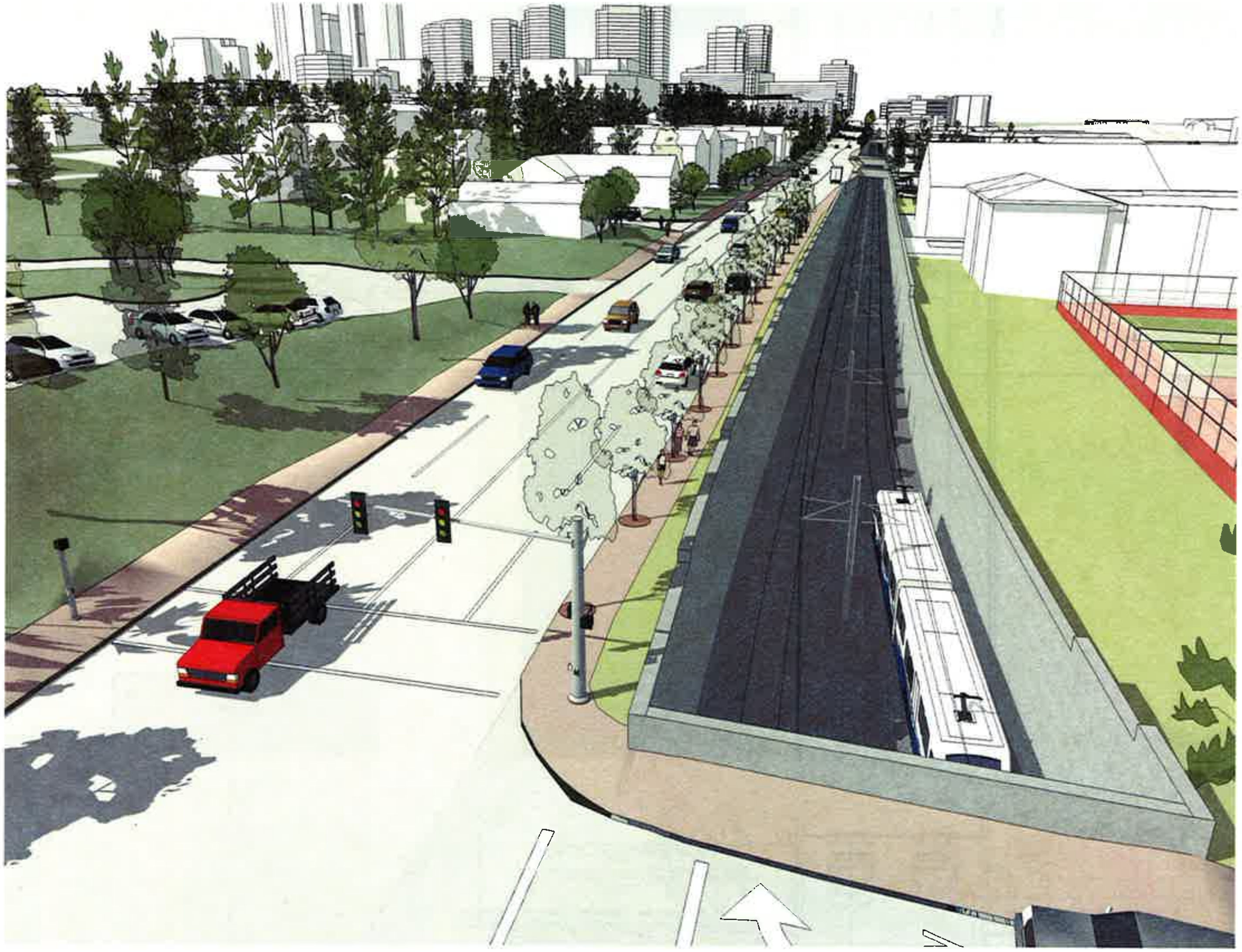
SECTION AND PLAN VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: **3.0**

Nearest Intersection:
112th Ave SE north of SE 6th St


N
0
5
10
20
SCALE IN FEET

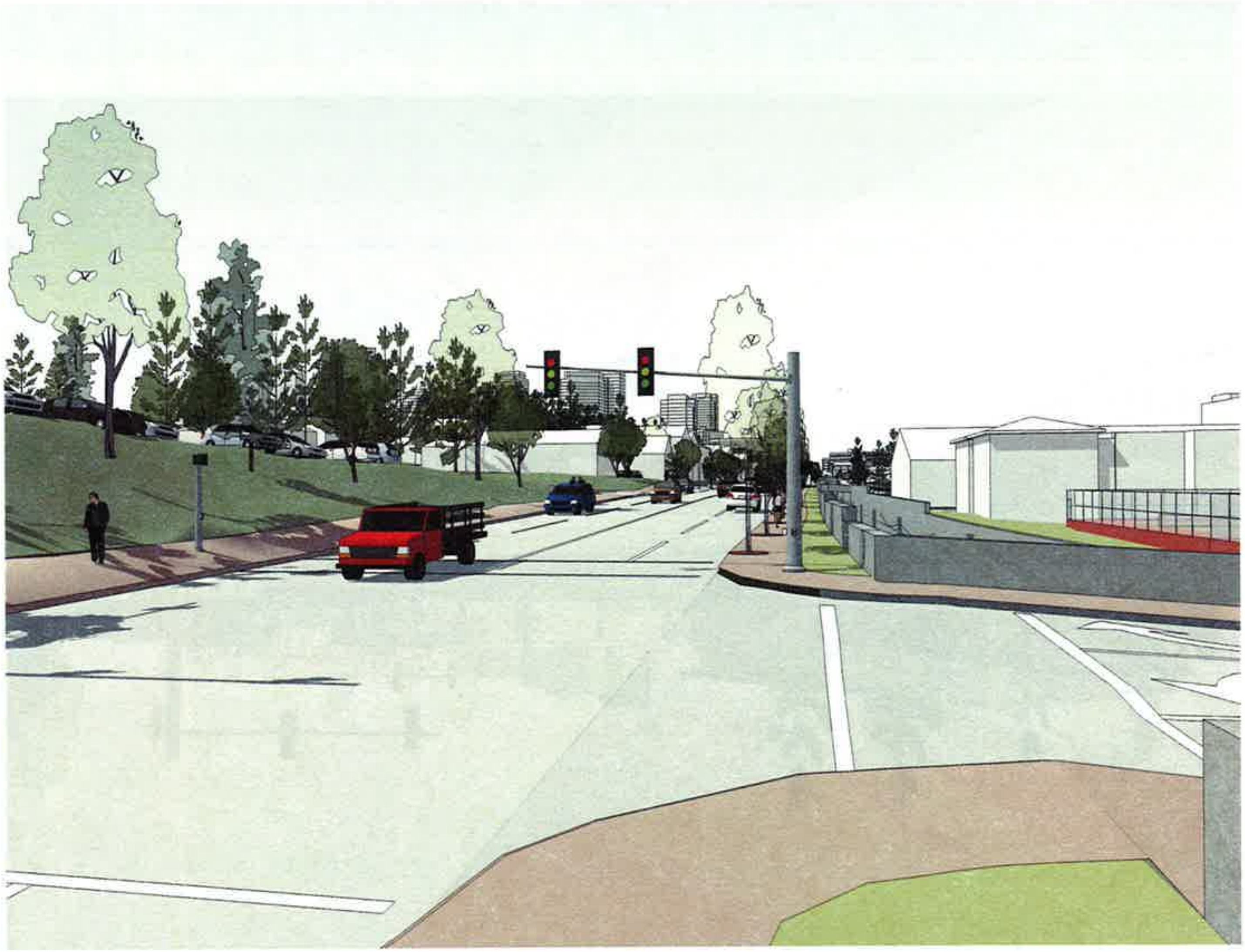


OVERHEAD VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

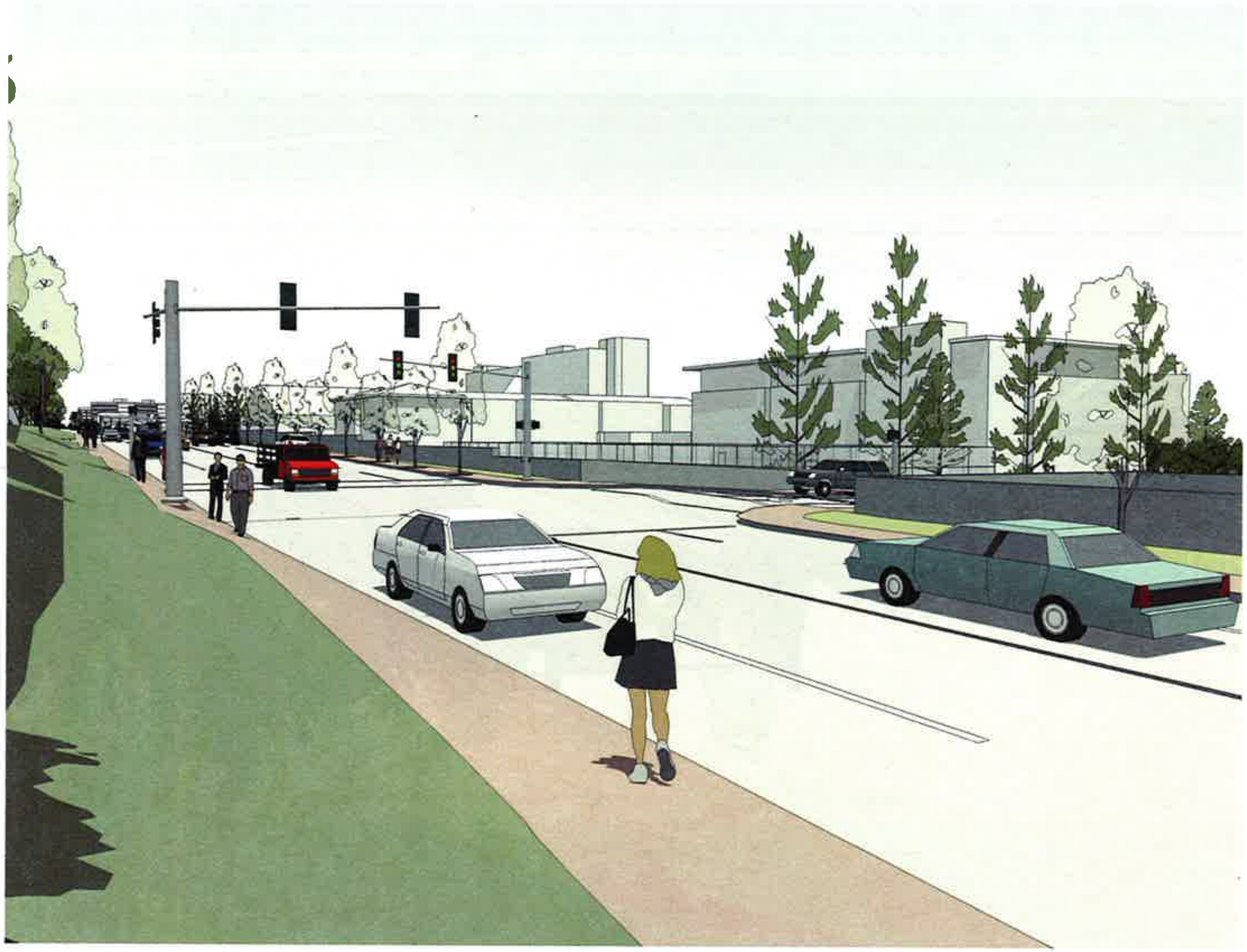


STREET VIEW EAST

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 3.0

Nearest Intersection: 112th Ave SE and SE 6th St

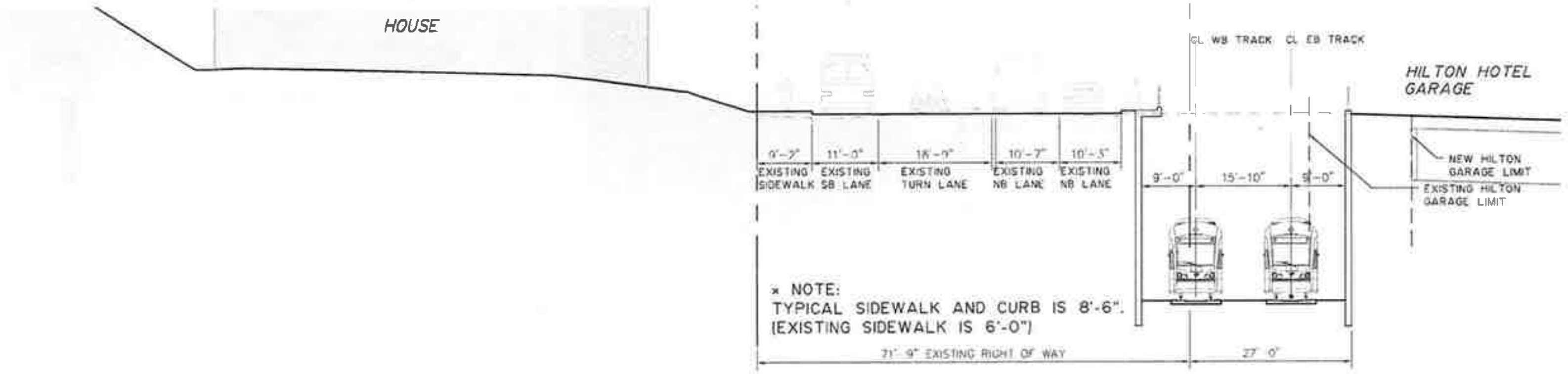


STREET VIEW WEST

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

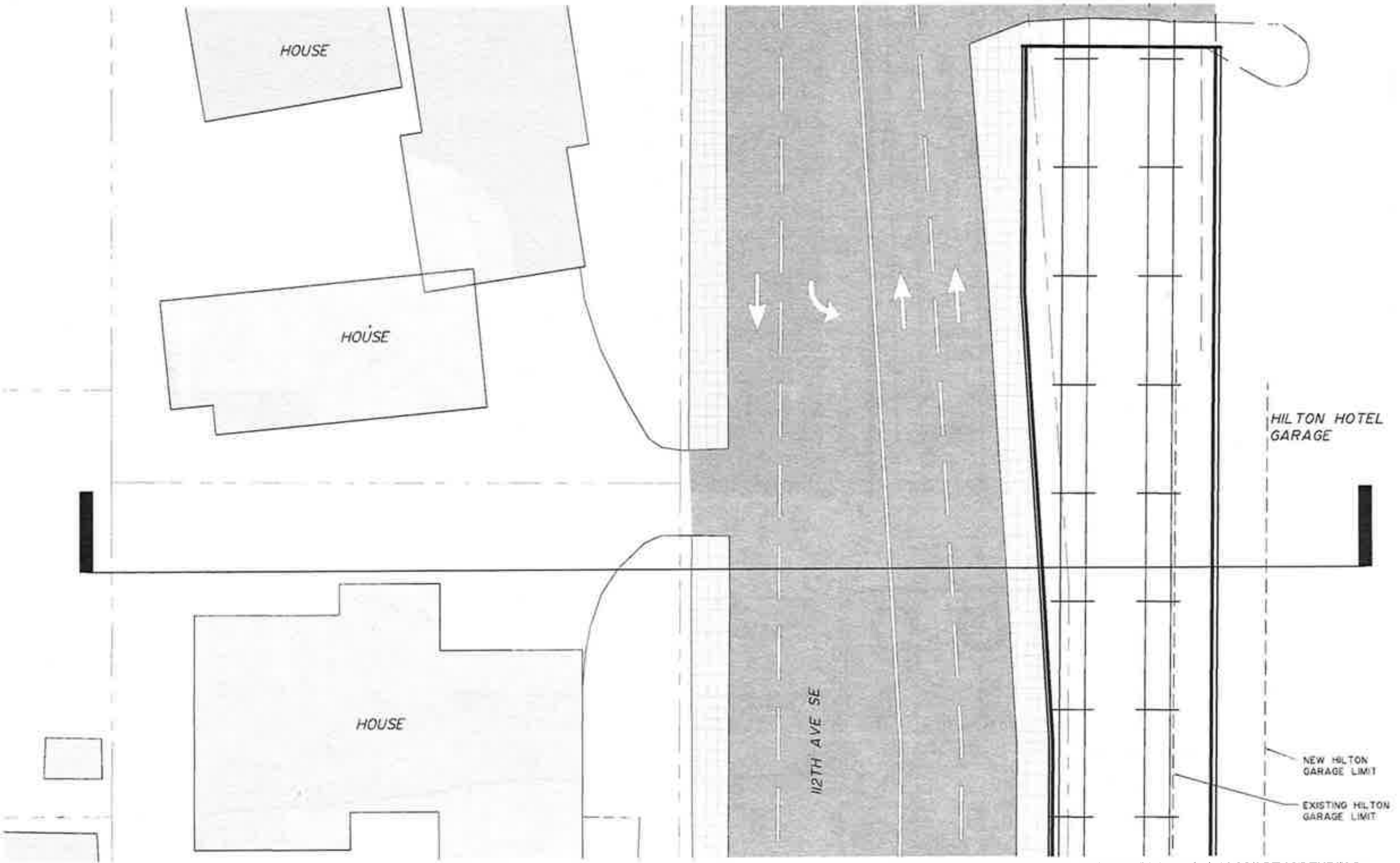

HOUSE
CL WB TRACK
CL EB TRACK
HILTON HOTEL GARAGE
9'-2"
11'-0"
18'-9"
10'-7"
10'-3"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING TURN LANE
EXISTING NB LANE
EXISTING NB LANE
9'-0"
15'-10"
9'-0"
NEW HILTON GARAGE LIMIT
EXISTING HILTON GARAGE LIMIT
× NOTE:
TYPICAL SIDEWALK AND CURB IS 8'-6".
(EXISTING SIDEWALK IS 6'-0")
71'-9" EXISTING RIGHT OF WAY
27'-0"

SECTION AND PLAN VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: **3.1**

Nearest Intersection:
112th Ave SE north of SE 4th St


HOUSE
HOUSE
HOUSE
HILTON HOTEL GARAGE
112TH AVE SE
NEW HILTON GARAGE LIMIT
EXISTING HILTON GARAGE LIMIT

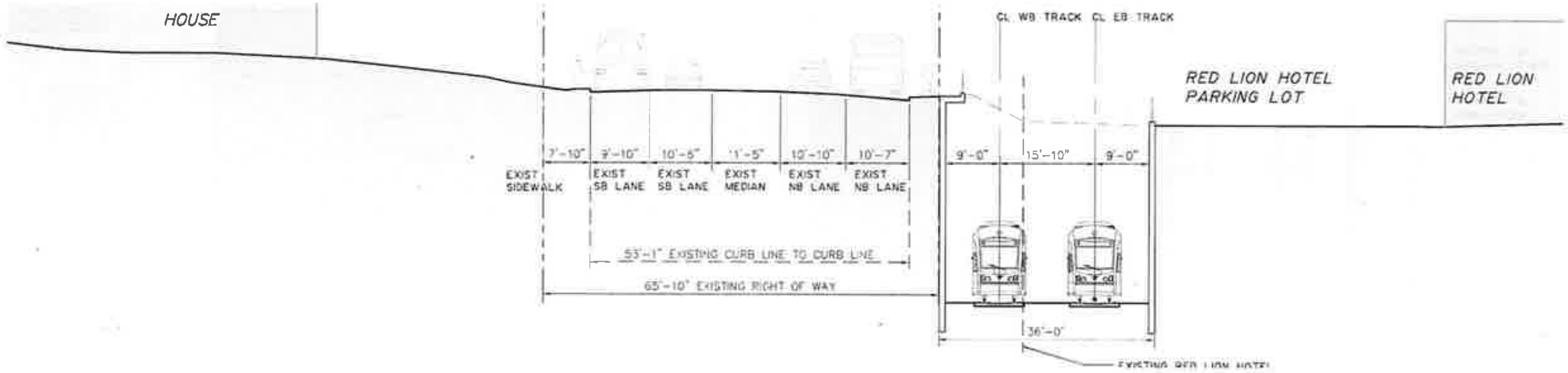
0 5 10 20
SCALE IN FEET

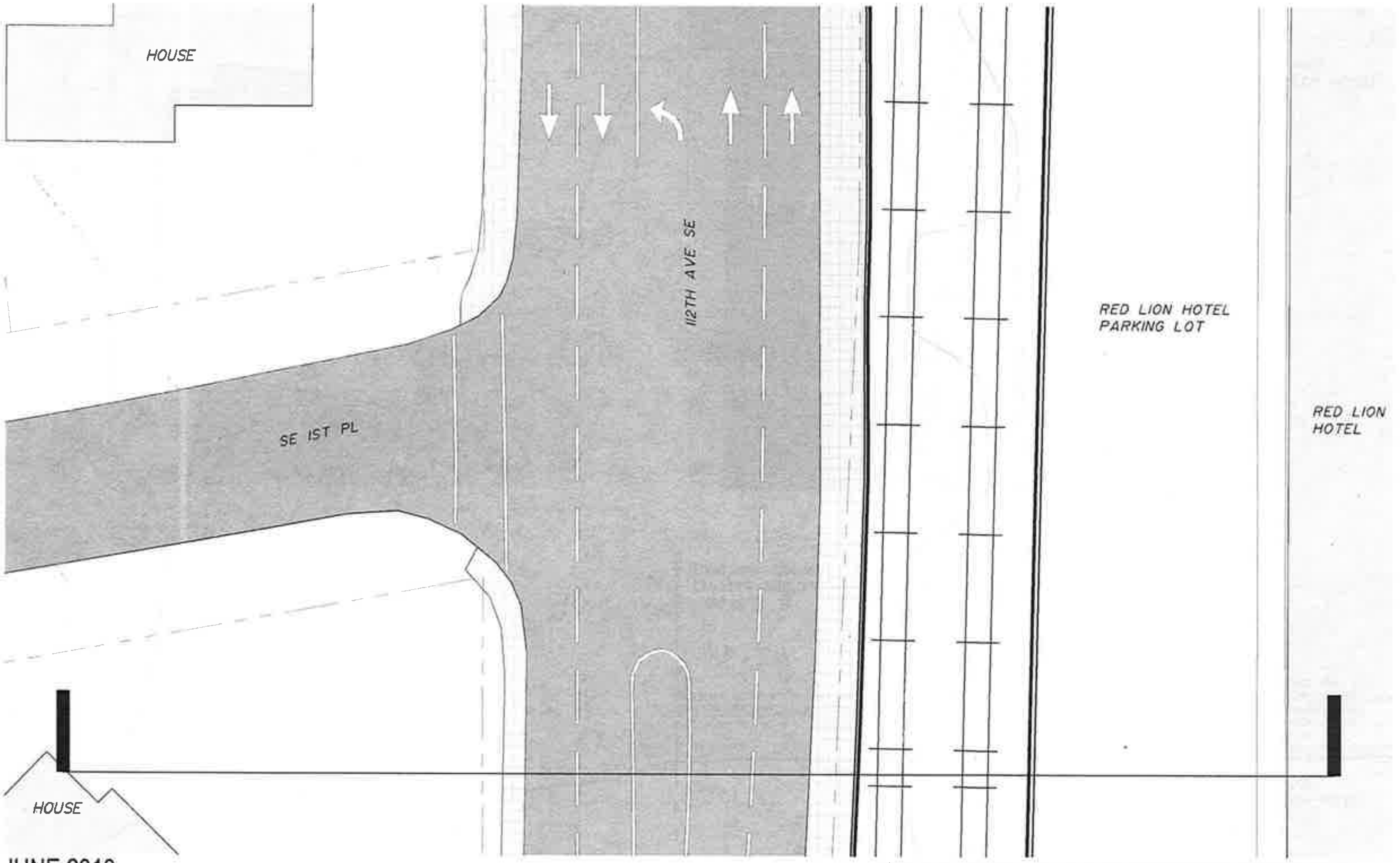
SECTION AND PLAN VIEW

Option 4: Eastside Running to 2nd Street Tunnel

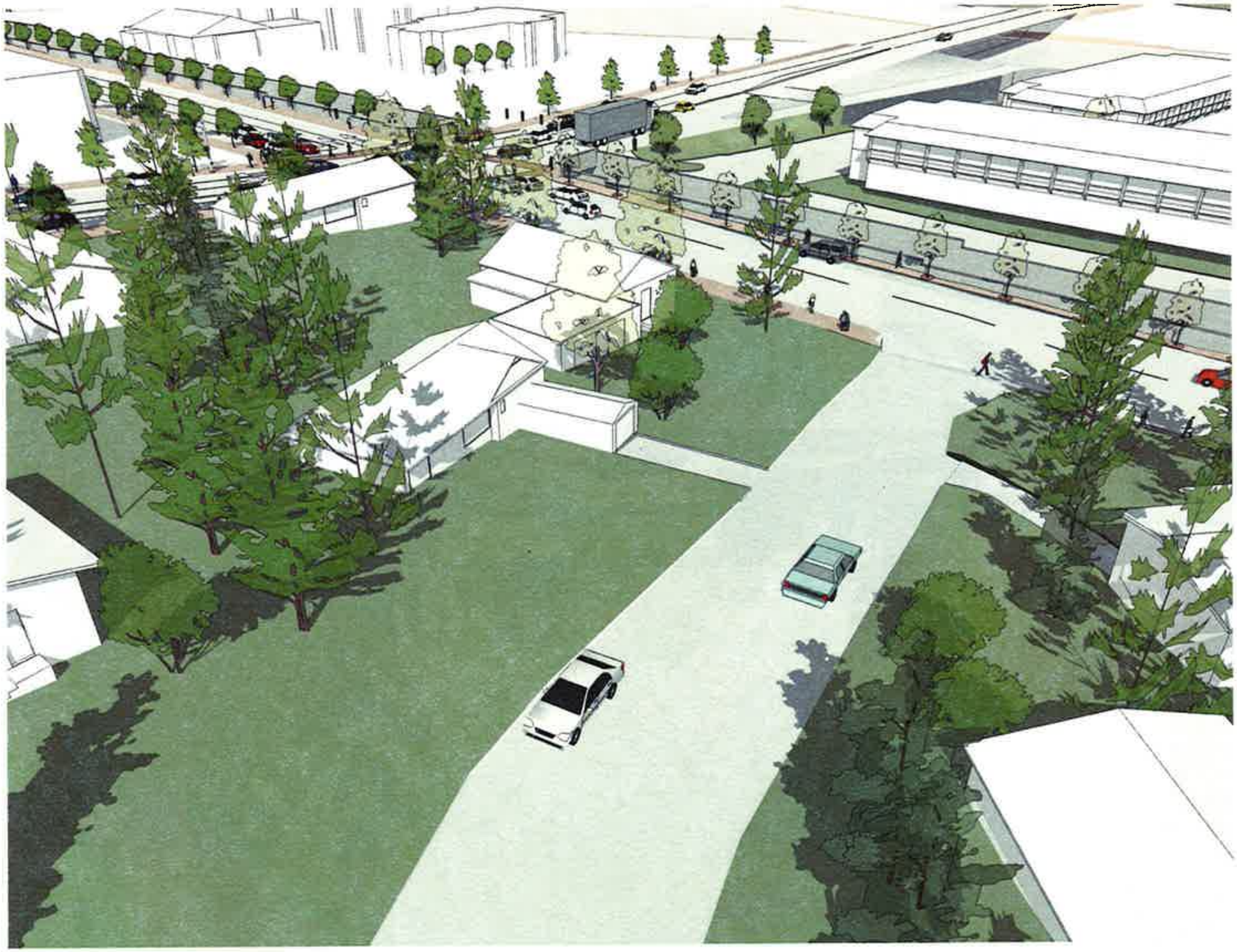
View Area: **4.0**

Nearest Intersection:
112th Ave SE and
SE 1st Place


HOUSE
CL WB TRACK
CL EB TRACK
RED LION HOTEL PARKING LOT
RED LION HOTEL
7'-10"
9'-10"
10'-5"
1'-5"
10'-10"
10'-7"
9'-0"
15'-10"
9'-0"
EXIST SIDEWALK
EXIST SB LANE
EXIST SB LANE
EXIST MEDIAN
EXIST NB LANE
EXIST NB LANE
53'-1" EXISTING CURB LINE TO CURB LINE
65'-10" EXISTING RIGHT OF WAY
36'-0"
EXISTING RED LION HOTEL


HOUSE
112TH AVE SE
SE 1ST PL
RED LION HOTEL PARKING LOT
RED LION HOTEL
HOUSE

N
0
5
10
20
SCALE IN FEET

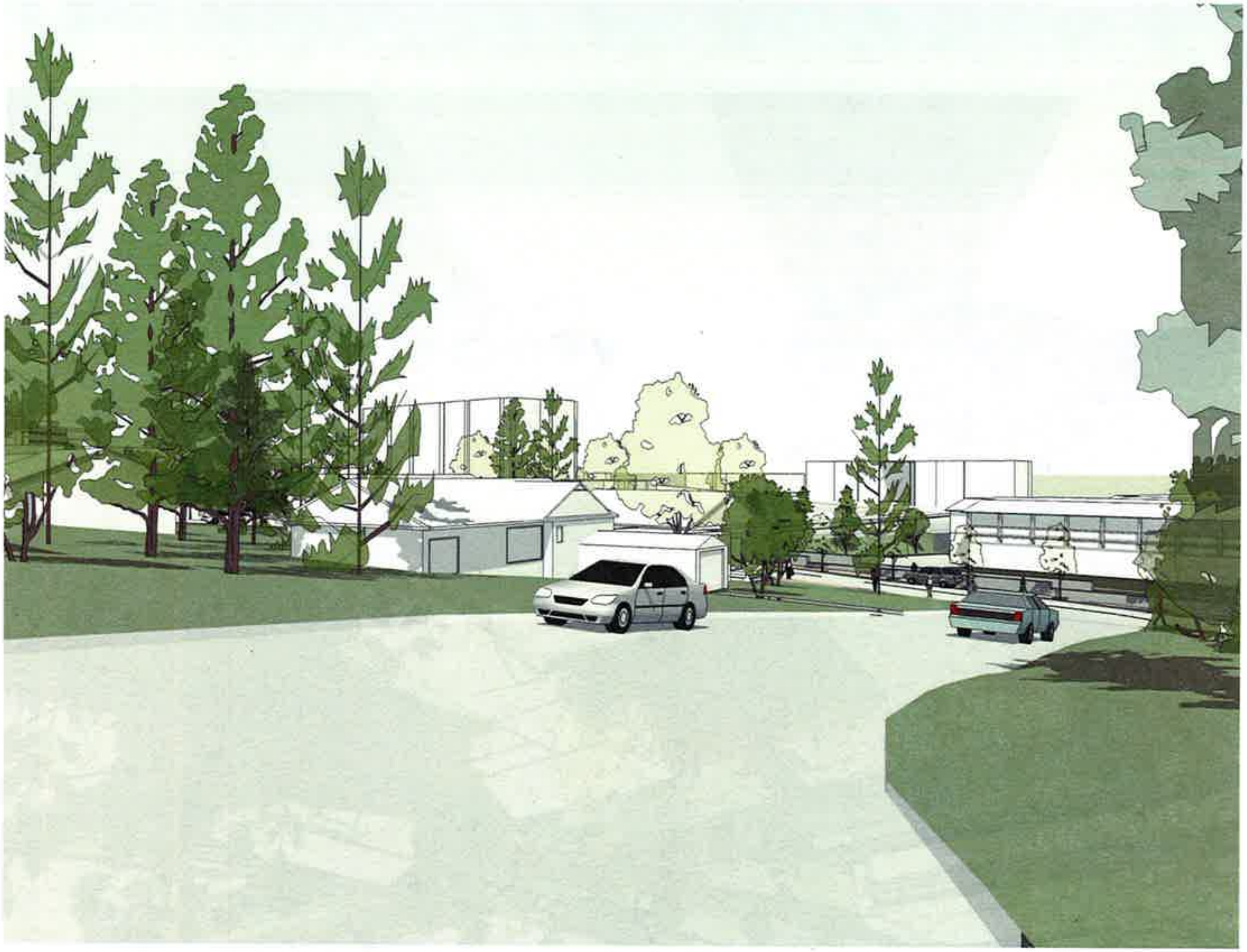


OVERHEAD VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place

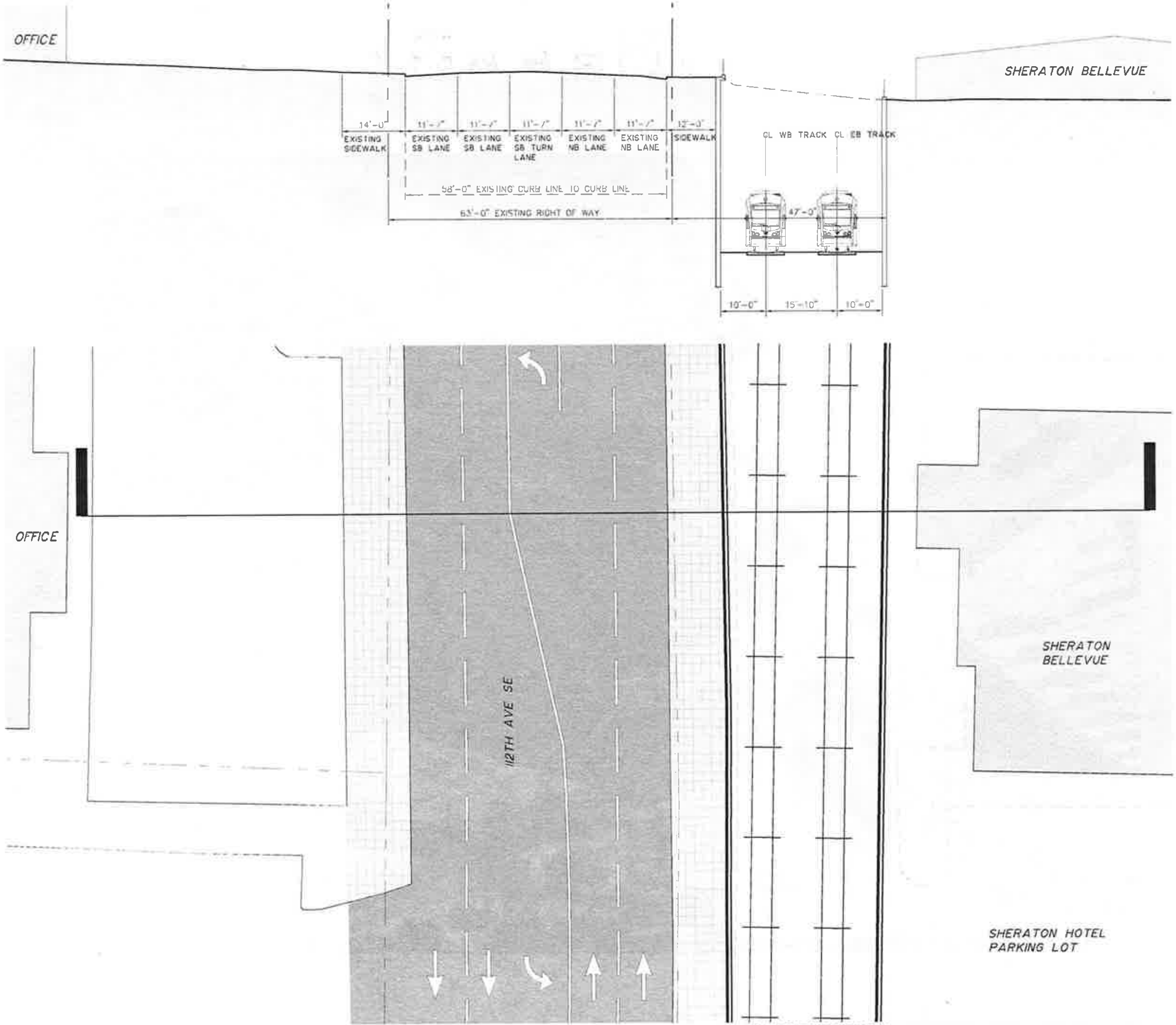


STREET VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place


OFFICE
SHERATON BELLEVUE
14'-0"
11'-7"
11'-7"
11'-7"
11'-7"
11'-7"
12'-0"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING SB TURN LANE
EXISTING NB LANE
EXISTING NB LANE
SIDEWALK
CL WB TRACK
CL EB TRACK
58'-0" EXISTING CURB LINE TO CURB LINE
63'-0" EXISTING RIGHT OF WAY
47'-0"
10'-0"
15'-10"
10'-0"
OFFICE
112TH AVE SE
SHERATON BELLEVUE
SHERATON HOTEL PARKING LOT

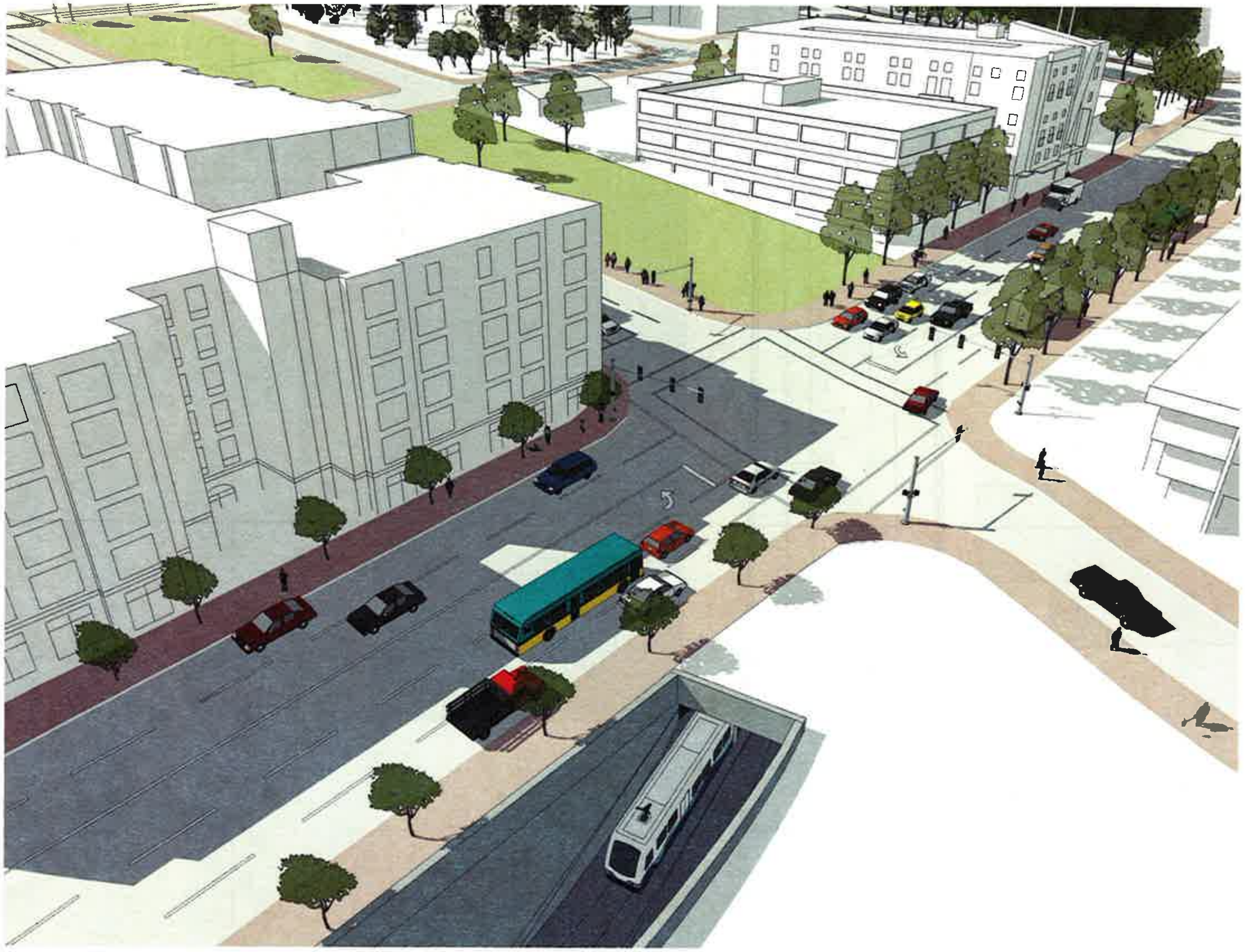
SECTION AND PLAN VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 5.0

Nearest Intersection:
112th Ave SE north of Main St

0
5
10
20
SCALE IN FEET

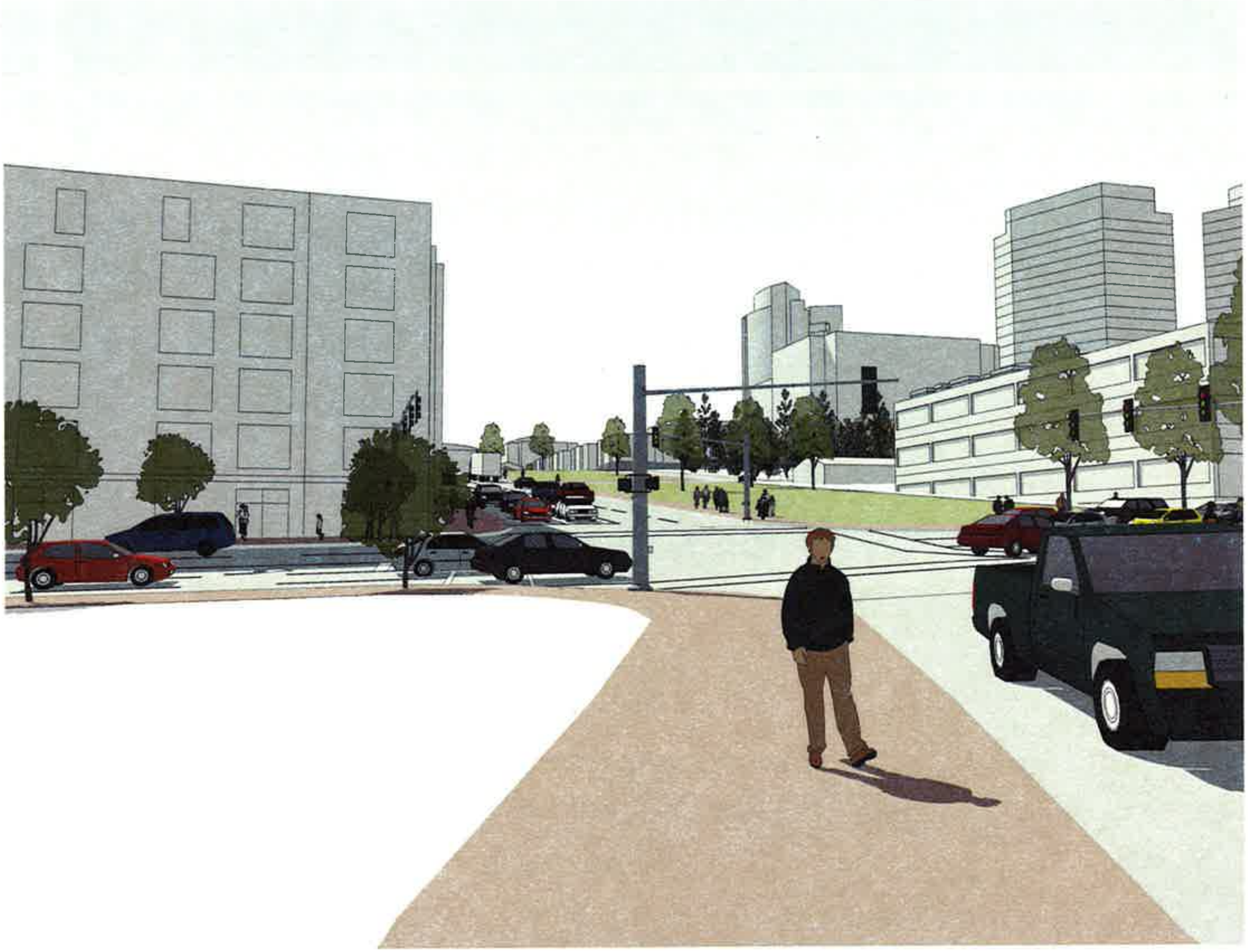


OVERHEAD VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 5.0

Nearest Intersection:
112th Ave SE and NE 2nd St



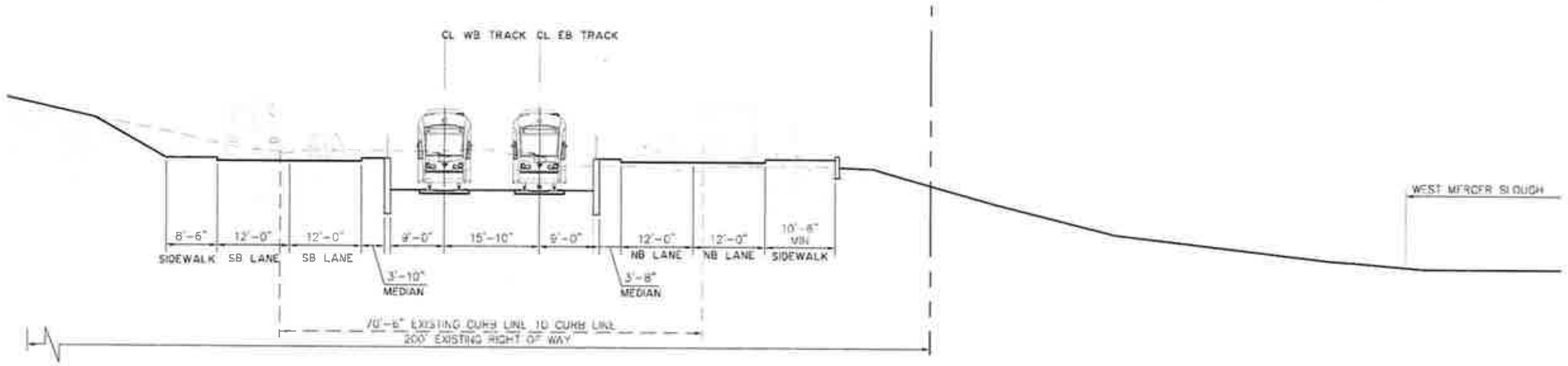
STREET VIEW

Option 4: Eastside Running to 2nd Street Tunnel

View Area: 5.0

Nearest Intersection:
112th Ave SE and NE 2nd St

Option 5: Center Running to At-Grade
Plan, Section and Conceptual Illustrations

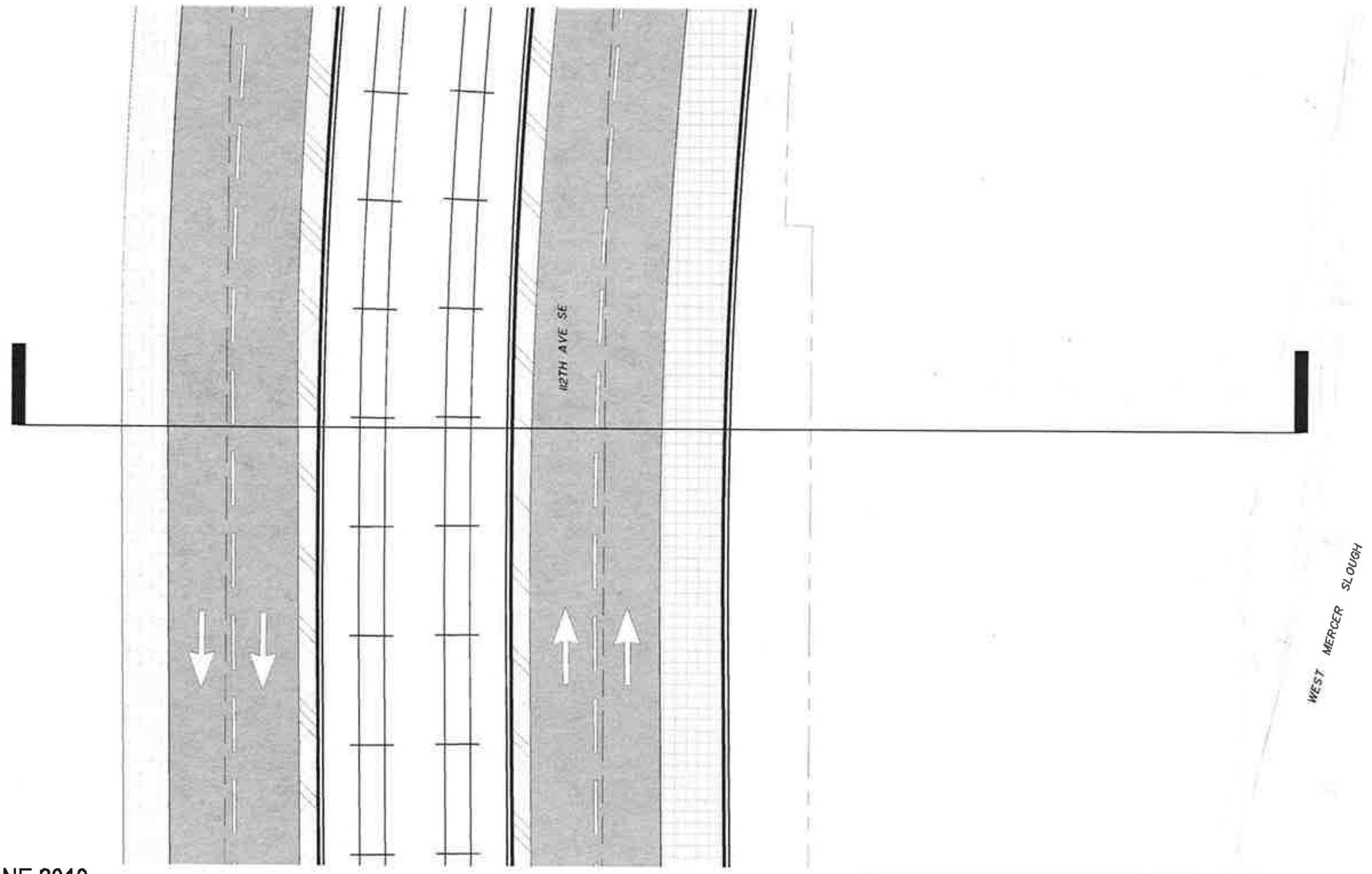

CL WB TRACK
CL EB TRACK
WEST MERCER SLOUGH
6'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
3'-10"
MEDIAN
9'-0"
15'-10"
9'-0"
3'-8"
MEDIAN
12'-0"
NB LANE
12'-0"
NB LANE
10'-6"
MIN
SIDEWALK
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY

SECTION AND PLAN VIEW

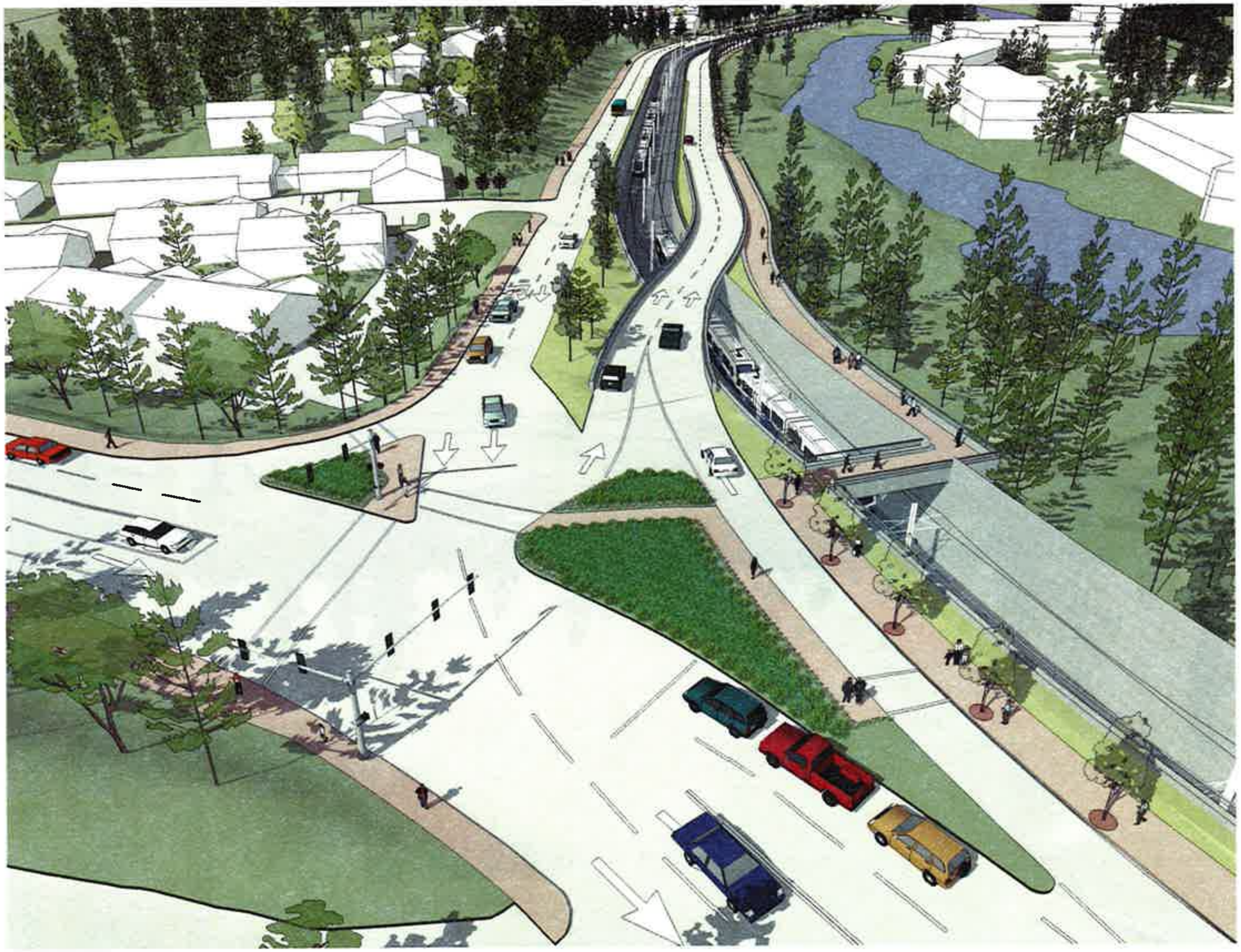
Option 5: Center Running to At-Grade

View Area: 1.0

Nearest Intersection:
112th Ave SE north of Bellevue Way


112TH AVE SE
WEST MERCER SLOUGH

0
5
10
20
SCALE IN FEET



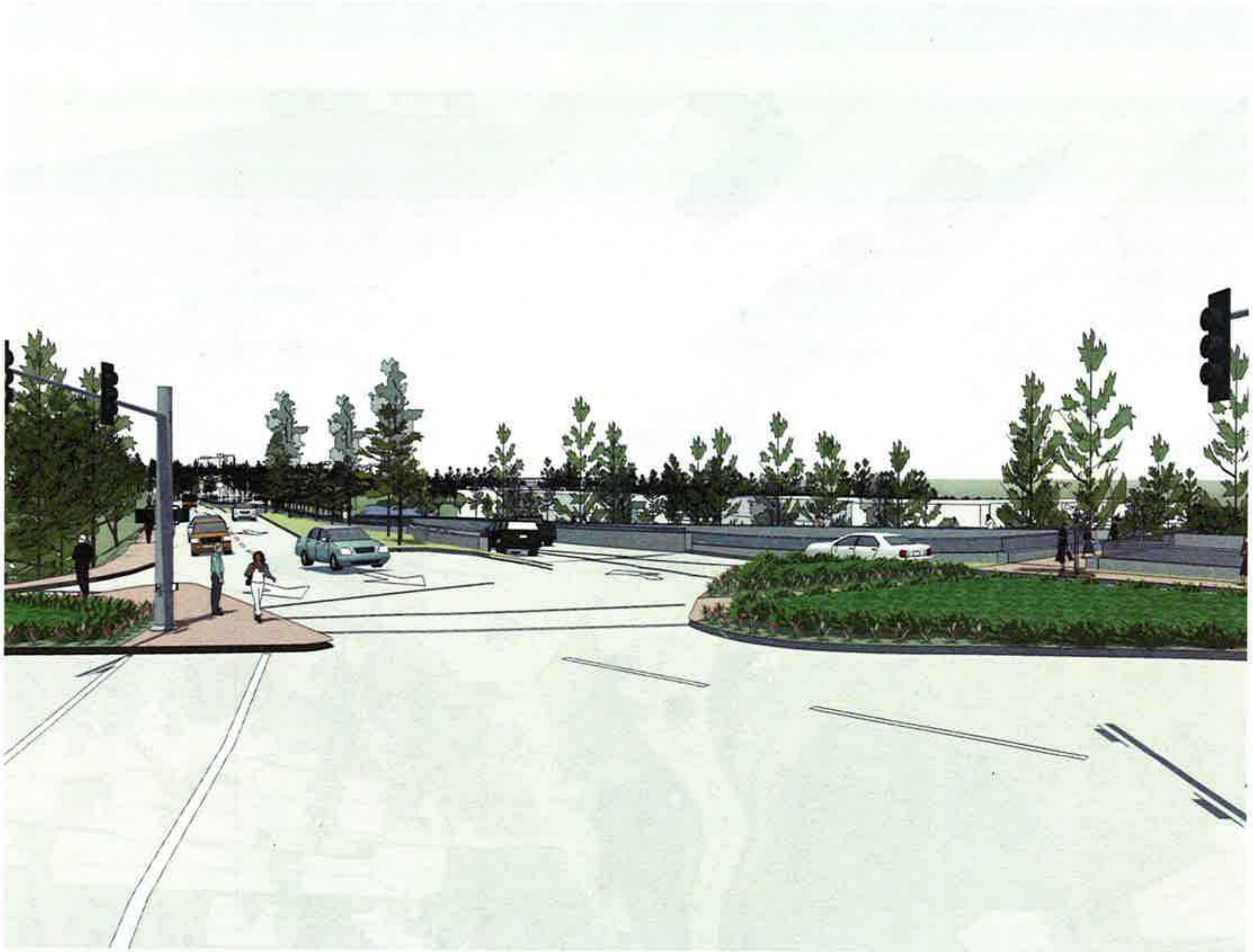
OVERHEAD VIEW

Option 5: Center Running to At-Grade

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

Note: this view is the same as Option 3



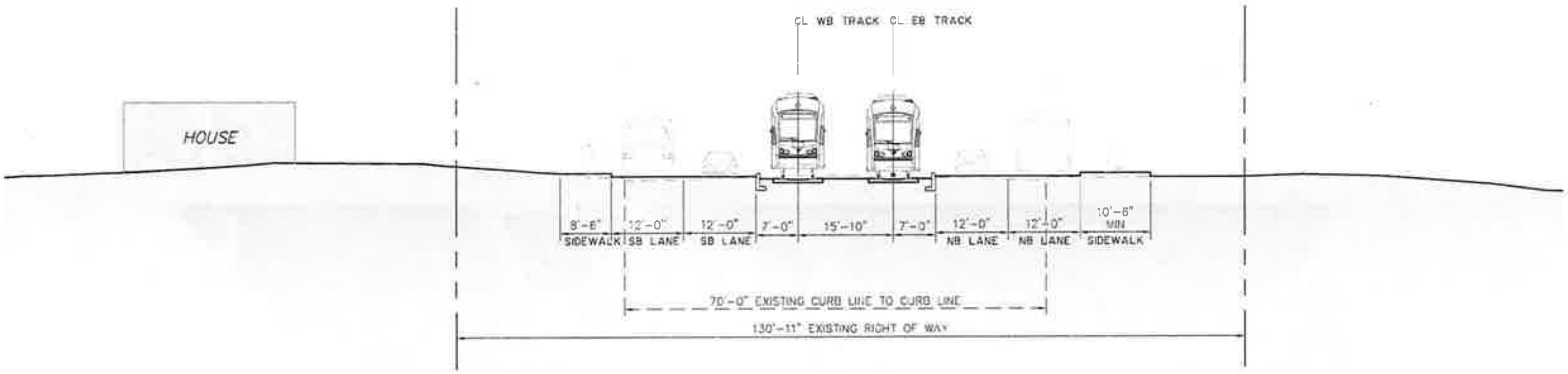
STREET VIEW

Option 5: Center Running to At-Grade

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

Note: this view is the same as Option 3

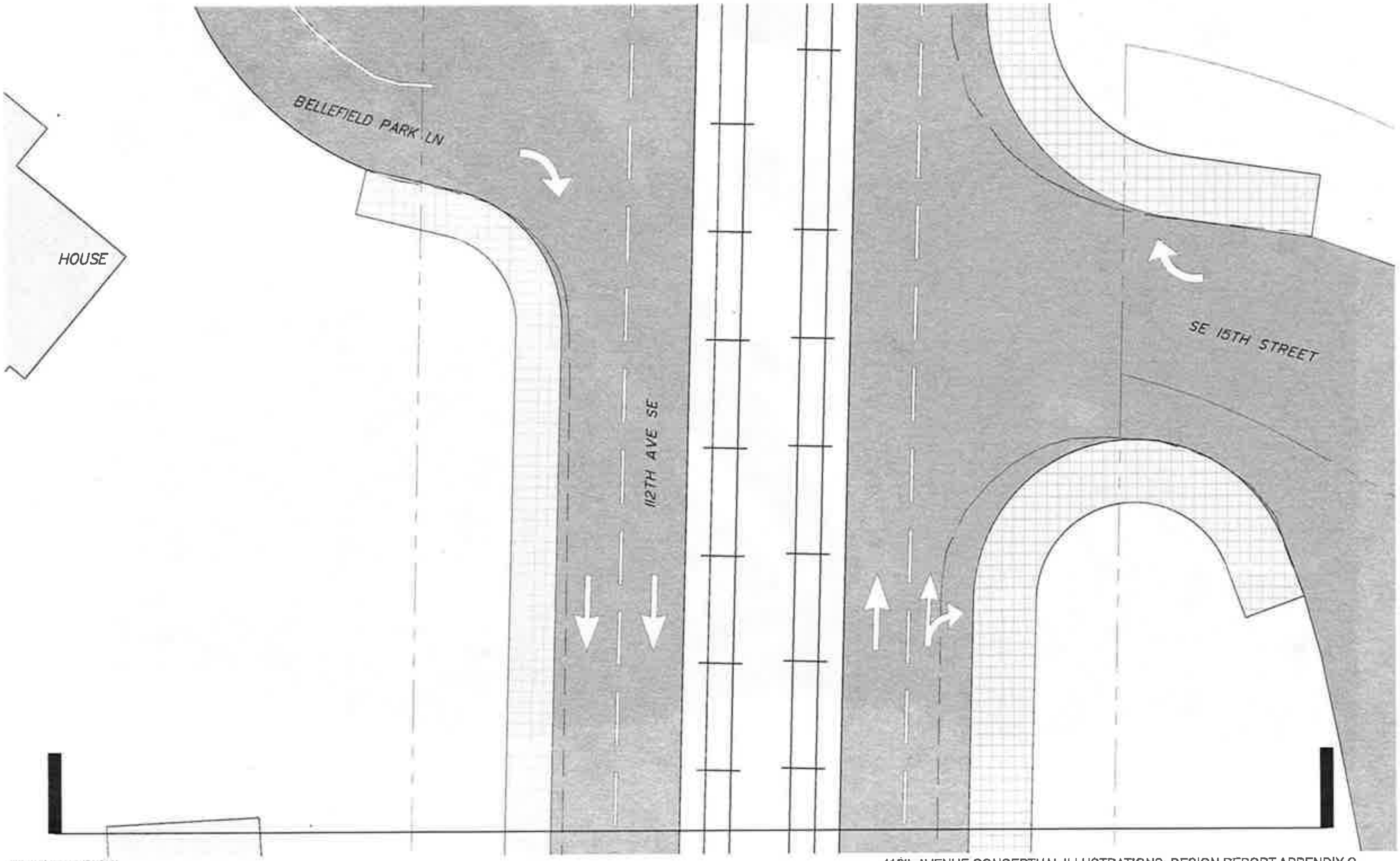

CL WB TRACK
CL EB TRACK
HOUSE
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
7'-0"
15'-10"
7'-0"
12'-0"
NB LANE
12'-0"
NB LANE
10'-6"
MIN
SIDEWALK
70'-0" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY

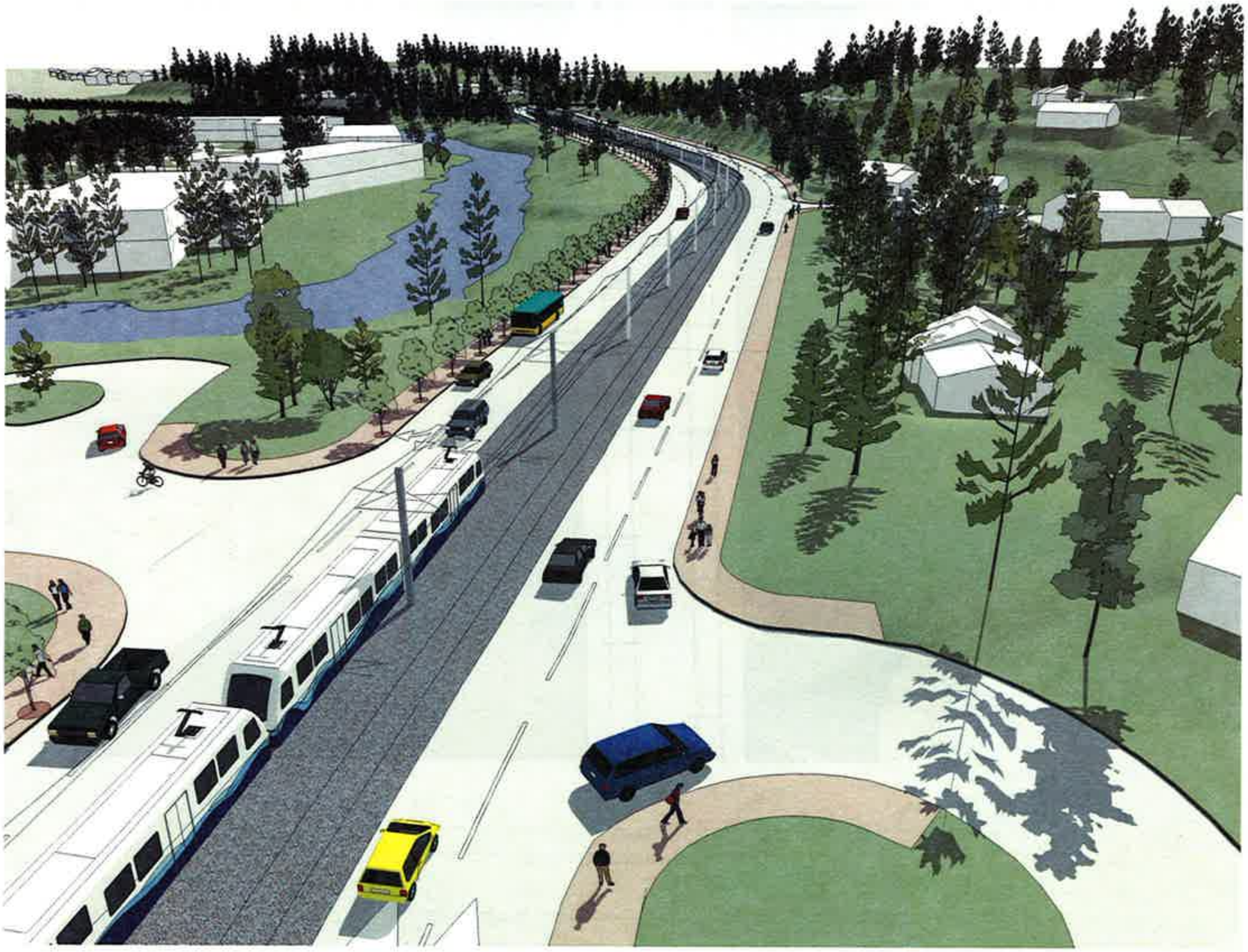
SECTION AND PLAN VIEW

Option 5: Center Running to At-Grade

View Area: 1.1

Nearest Intersection:
112th Ave SE and
SE 15th St


BELLEFIELD PARK LN
HOUSE
112TH AVE SE
SE 15TH STREET

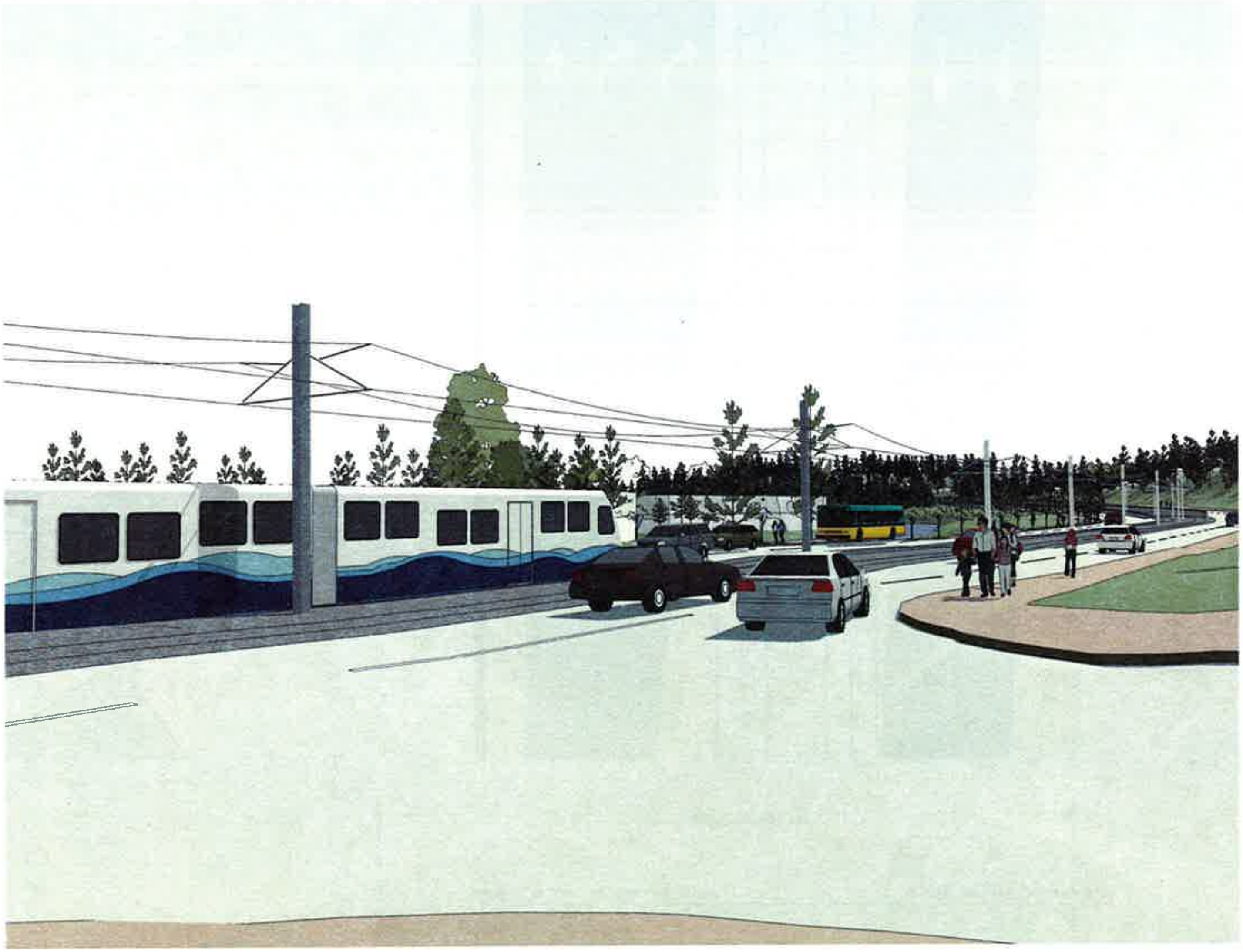


OVERHEAD VIEW

Option 5: Center Running to At-Grade

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St

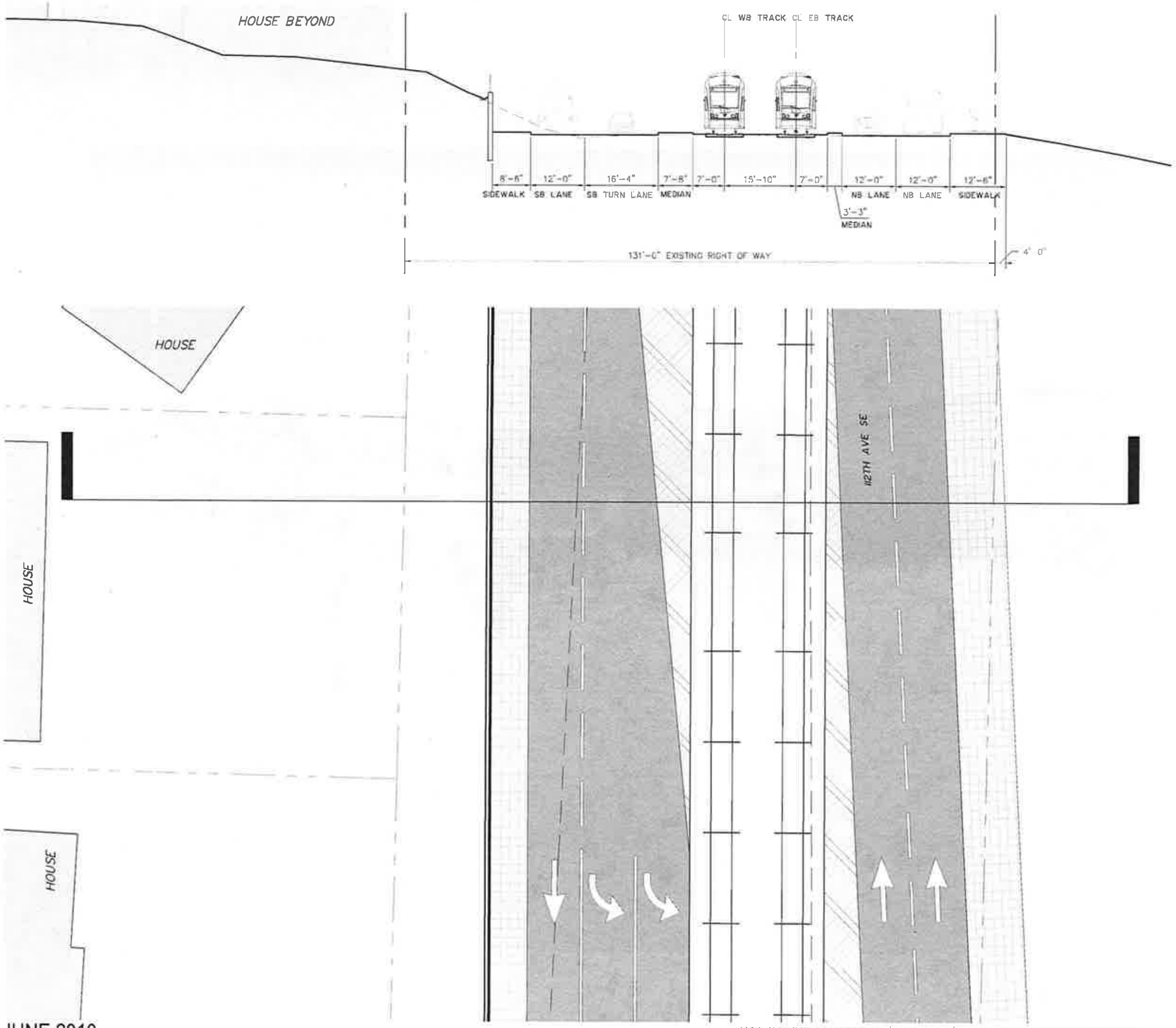


STREET VIEW

Option 5: Center Running to At-Grade

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St

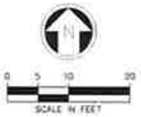

HOUSE BEYOND
CL WB TRACK
CL EB TRACK
8'-6"
12'-0"
16'-4"
7'-8"
7'-0"
15'-10"
7'-0"
12'-0"
12'-0"
12'-6"
SIDEWALK
SB LANE
SB TURN LANE
MEDIAN
NB LANE
NB LANE
SIDEWALK
3'-3"
MEDIAN
131'-0" EXISTING RIGHT OF WAY
4' 0"
HOUSE
HOUSE
HOUSE
112TH AVE SE

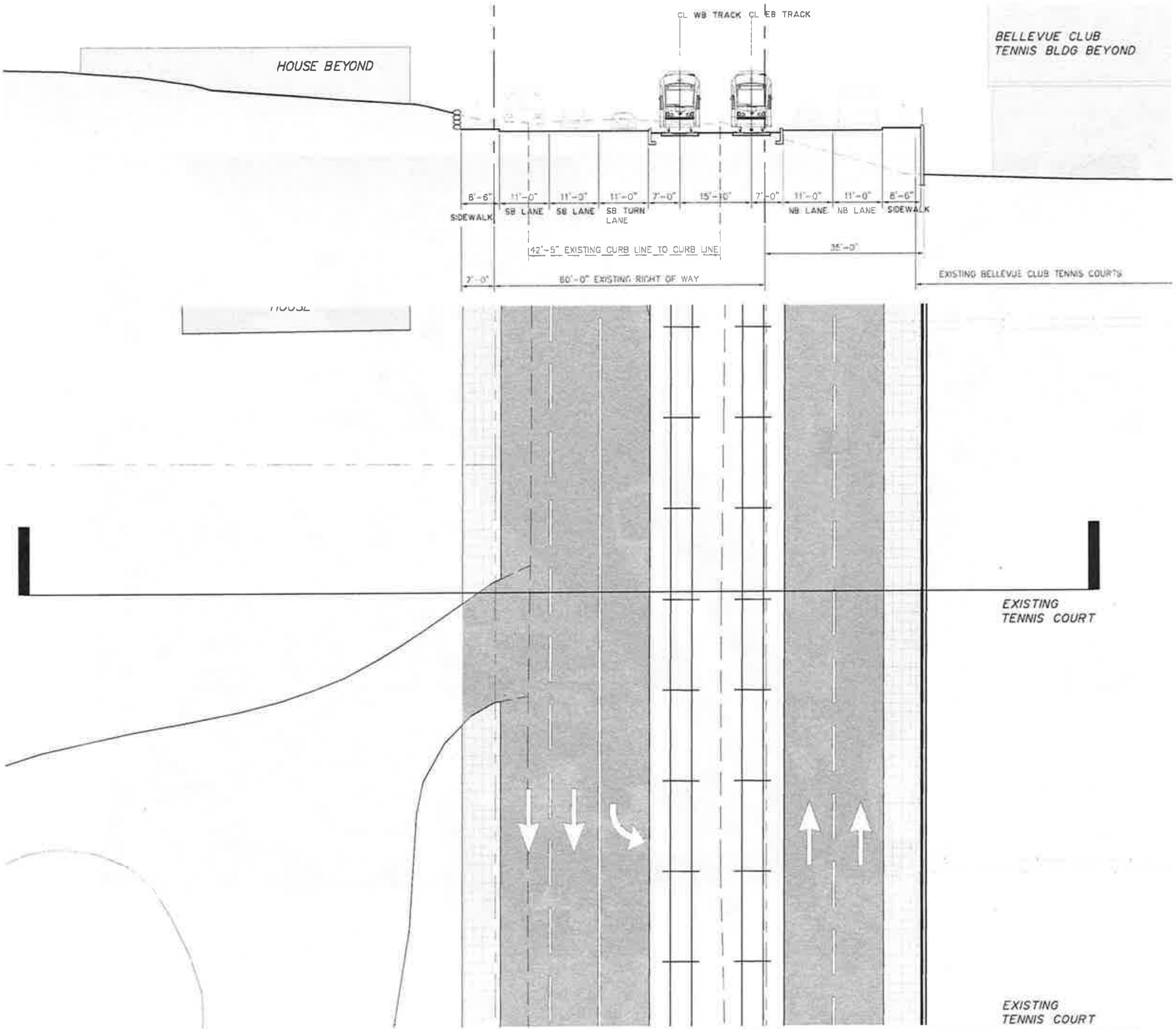
SECTION AND PLAN VIEW

Option 5: Center Running to At-Grade

View Area: **2.0**

Nearest Intersection:
112th Ave SE north of SE 8th St


N
0
5
10
20
SCALE IN FEET

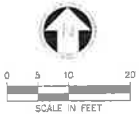

CL WB TRACK
CL EB TRACK
HOUSE BEYOND
BELLEVUE CLUB TENNIS BLDG BEYOND
8'-6"
11'-0"
11'-0"
11'-0"
7'-0"
15'-10"
7'-0"
11'-0"
11'-0"
8'-6"
SIDEWALK
SB LANE
SB LANE
SB TURN LANE
NB LANE
NB LANE
SIDEWALK
42'-5" EXISTING CURB LINE TO CURB LINE
35'-0"
7'-0"
60'-0" EXISTING RIGHT OF WAY
EXISTING BELLEVUE CLUB TENNIS COURTS
HOUSE
EXISTING TENNIS COURT
EXISTING TENNIS COURT

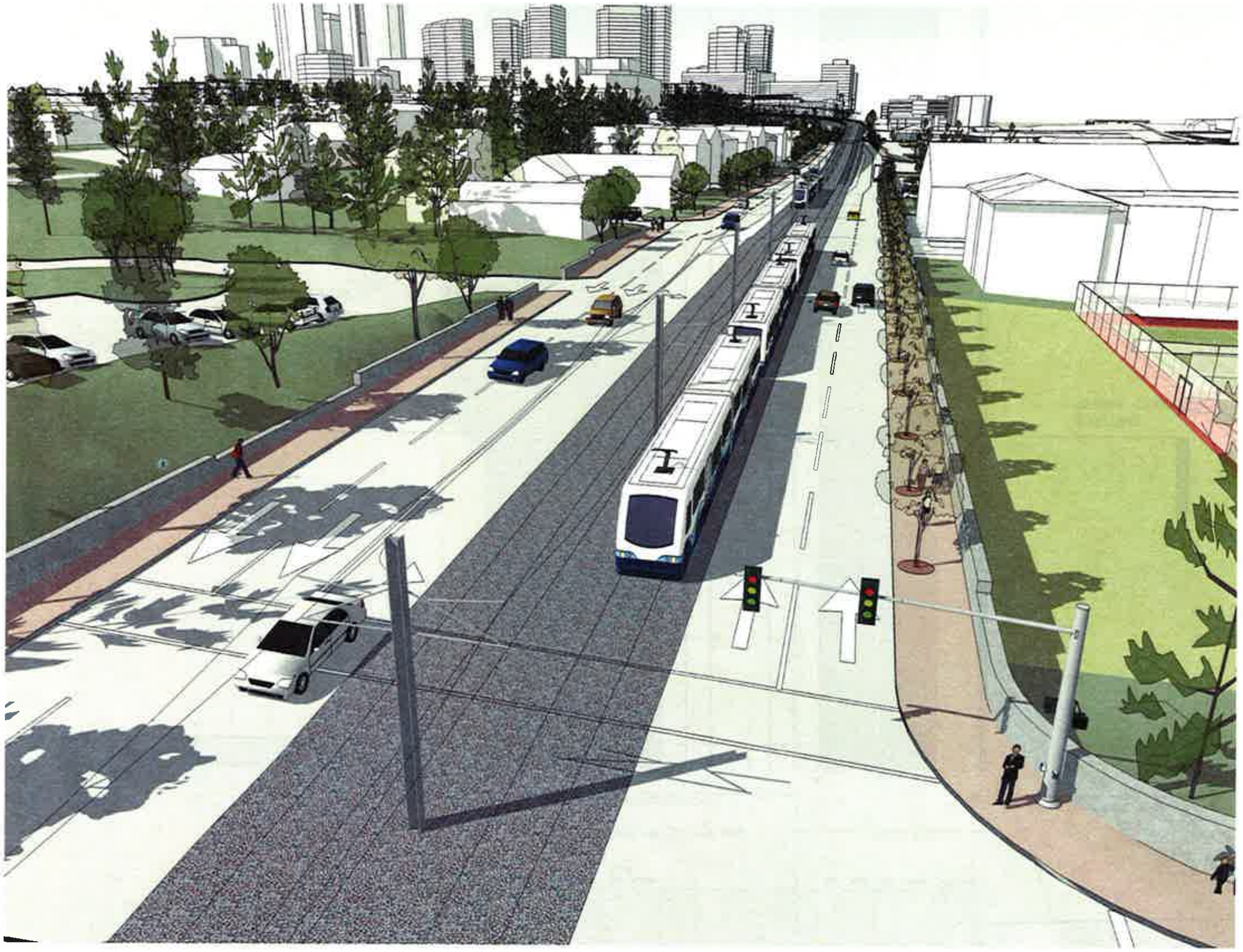
SECTION AND PLAN VIEW

Option 5: Center Running to At-Grade

View Area: 3.0

Nearest Intersection:
112th Ave SE north of SE 6th St


0
5
10
20
SCALE IN FEET

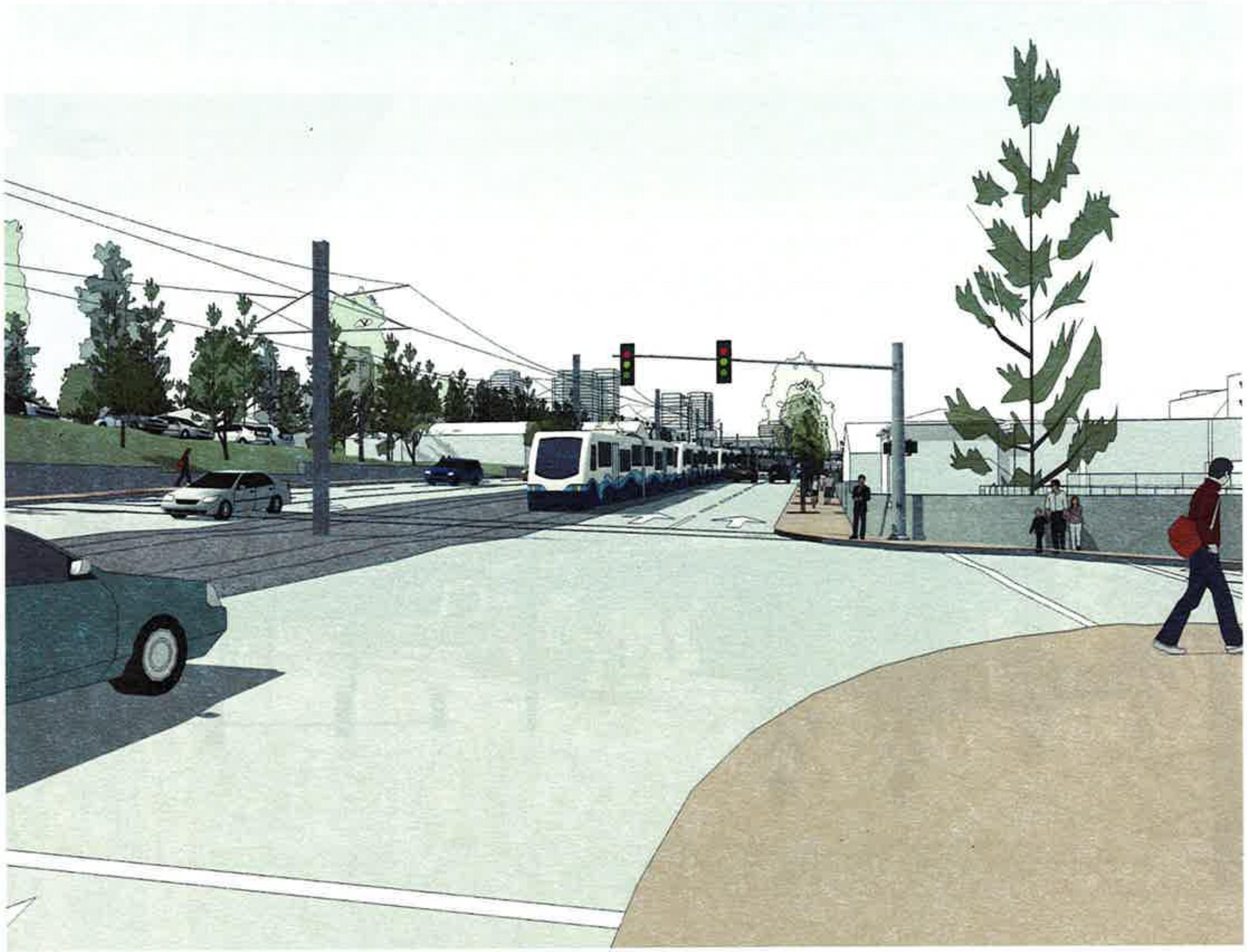


OVERHEAD VIEW

Option 5: Center Running to At-Grade

View Area: **3.0**

Nearest Intersection:
112th Ave SE and SE 6th St

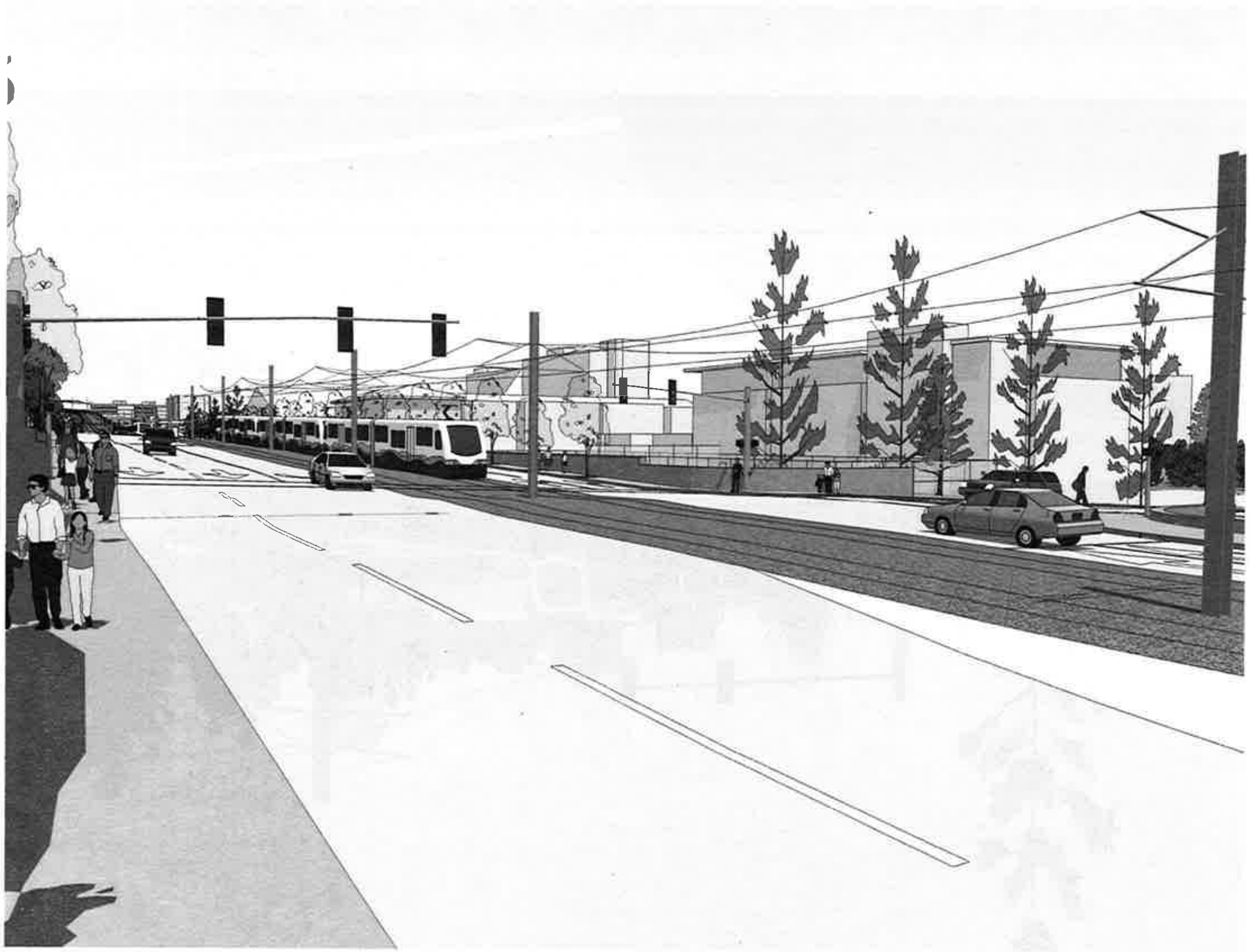


STREET VIEW EAST

Option 5: Center Running to At-Grade

View Area: 3.0

Nearest Intersection:
112th Ave SE and
SE 6th St

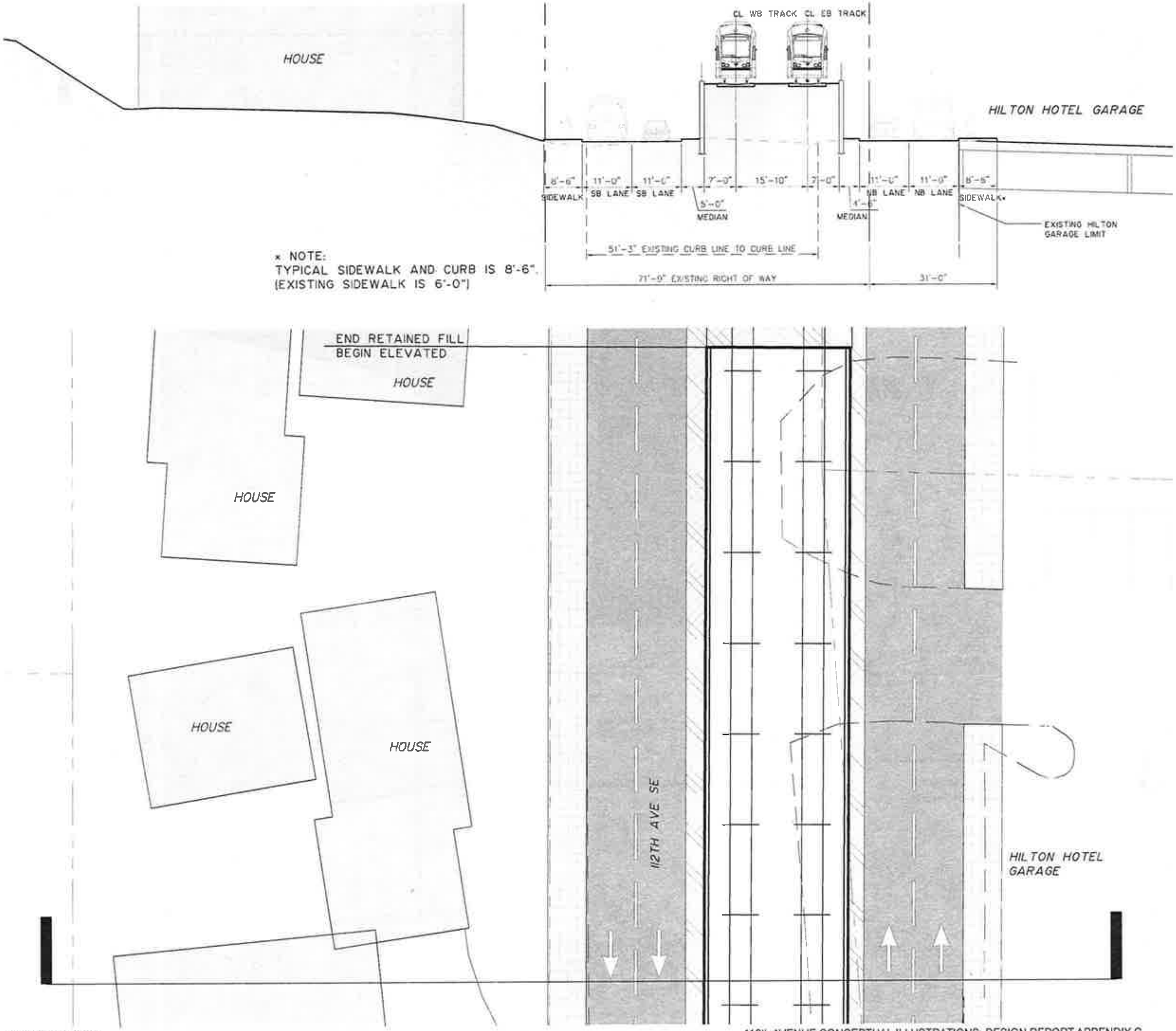


STREET VIEW WEST

Option 5: Center Running to At-Grade

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

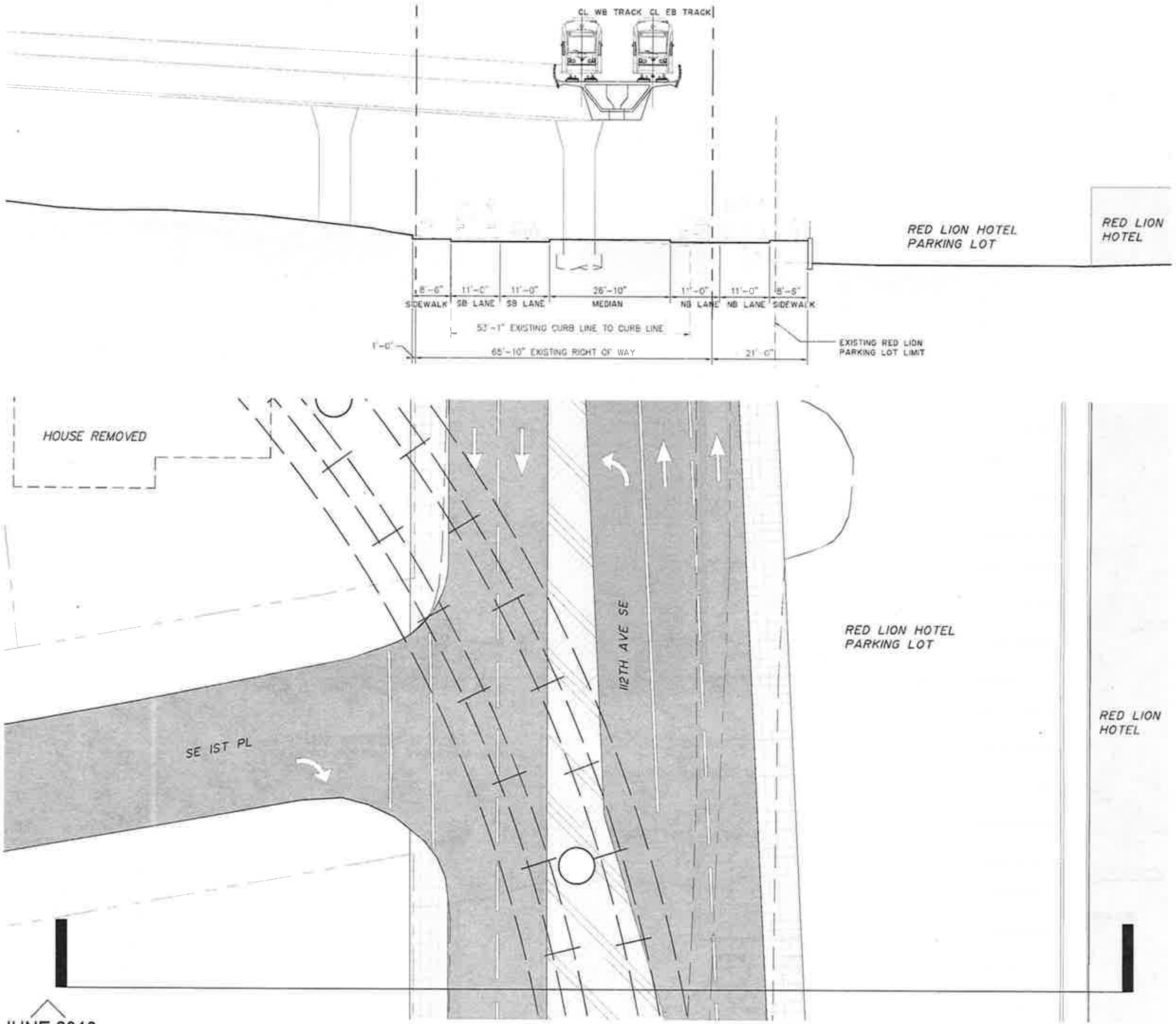

HOUSE
CL WB TRACK CL EB TRACK
HILTON HOTEL GARAGE
8'-6"
SIDEWALK
11'-0"
SB LANE
11'-0"
SB LANE
5'-0"
MEDIAN
7'-0"
15'-10"
7'-0"
4'-6"
MEDIAN
11'-0"
NB LANE
11'-0"
NB LANE
8'-5"
SIDEWALK*
EXISTING HILTON GARAGE LIMIT
51'-3" EXISTING CURB LINE TO CURB LINE
71'-9" EXISTING RIGHT OF WAY
31'-0"
* NOTE:
TYPICAL SIDEWALK AND CURB IS 8'-6".
(EXISTING SIDEWALK IS 6'-0")
END RETAINED FILL
BEGIN ELEVATED
HOUSE
HOUSE
HOUSE
HOUSE
112TH AVE SE
HILTON HOTEL GARAGE
0 5 10 20
SCALE IN FEET

SECTION AND PLAN VIEW

Option 5: Center Running to At-Grade

View Area: **3.1**

Nearest Intersection:
112th Ave SE north of SE 4th St

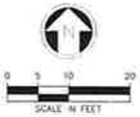

CL WB TRACK CL EB TRACK
RED LION HOTEL PARKING LOT
RED LION HOTEL
8'-6"
SIDEWALK
11'-0"
SB LANE
11'-0"
SB LANE
26'-10"
MEDIAN
11'-0"
NB LANE
11'-0"
NB LANE
8'-5"
SIDEWALK
53'-1" EXISTING CURB LINE TO CURB LINE
1'-0"
65'-10" EXISTING RIGHT OF WAY
21'-0"
EXISTING RED LION PARKING LOT LIMIT
HOUSE REMOVED
112TH AVE SE
RED LION HOTEL PARKING LOT
RED LION HOTEL
SE 1ST PL

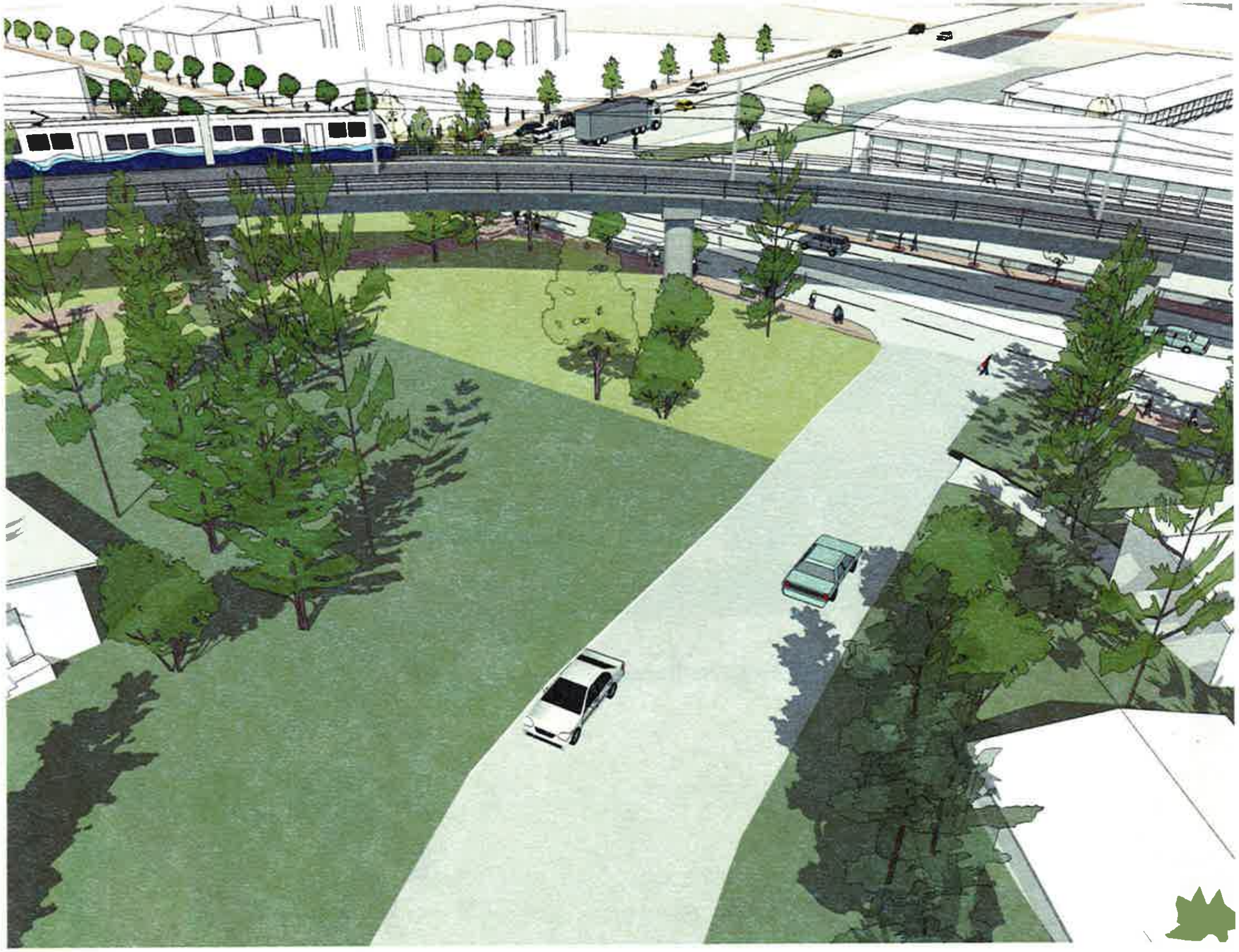
SECTION AND PLAN VIEW

Option 5: Center Running to At-Grade

View Area: **4.0**

Nearest Intersection:
112th Ave SE and
SE 1st Place


N
0
5
10
20
SCALE IN FEET

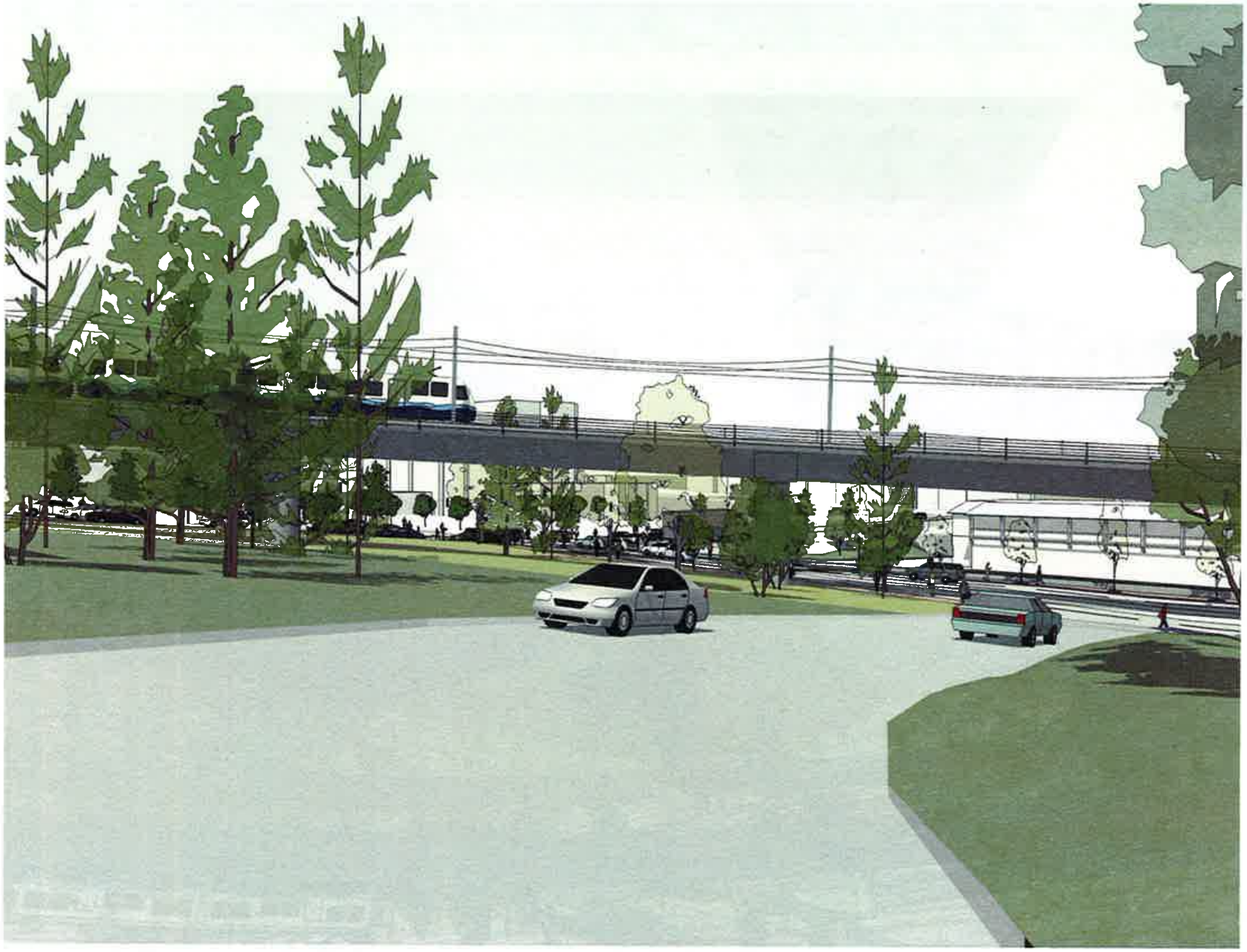


OVERHEAD VIEW

Option 5: Center Running to At-Grade

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place



STREET VIEW

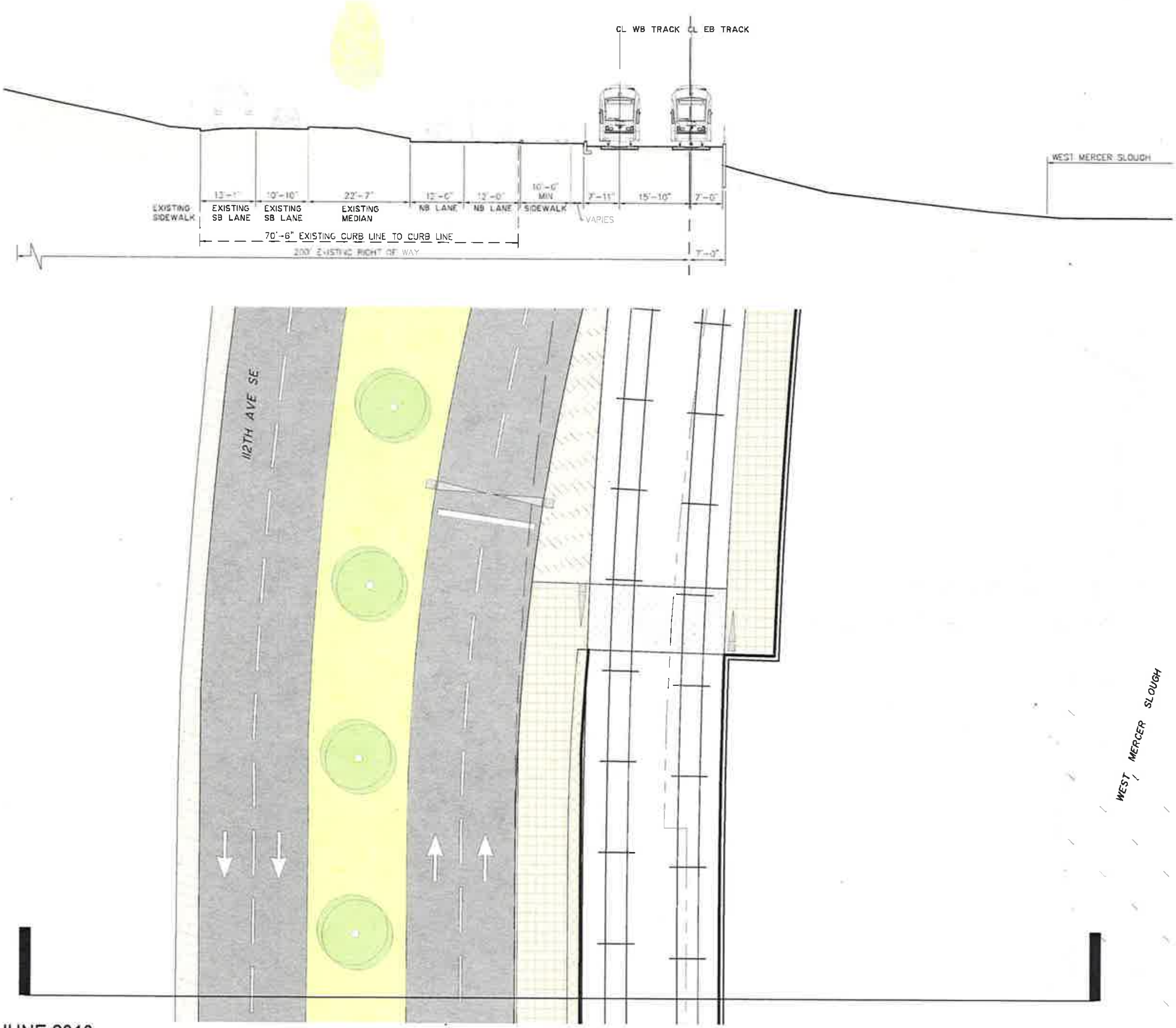
Option 5: Center Running to At-Grade

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place

Option 6: Westside Running to At-Grade

Plan, Section and Conceptual Illustrations

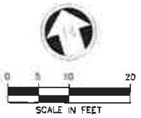

CL WB TRACK
CL EB TRACK
WEST MERCER SLOUGH
13'-1"
10'-10"
22'-7"
12'-0"
12'-0"
10'-0" MIN
7'-11"
15'-10"
7'-0"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING MEDIAN
NB LANE
NB LANE
SIDEWALK
VARIES
70'-6" EXISTING CURB LINE TO CURB LINE
200' EXISTING RIGHT OF WAY
7'-0"
112TH AVE SE
WEST MERCER SLOUGH

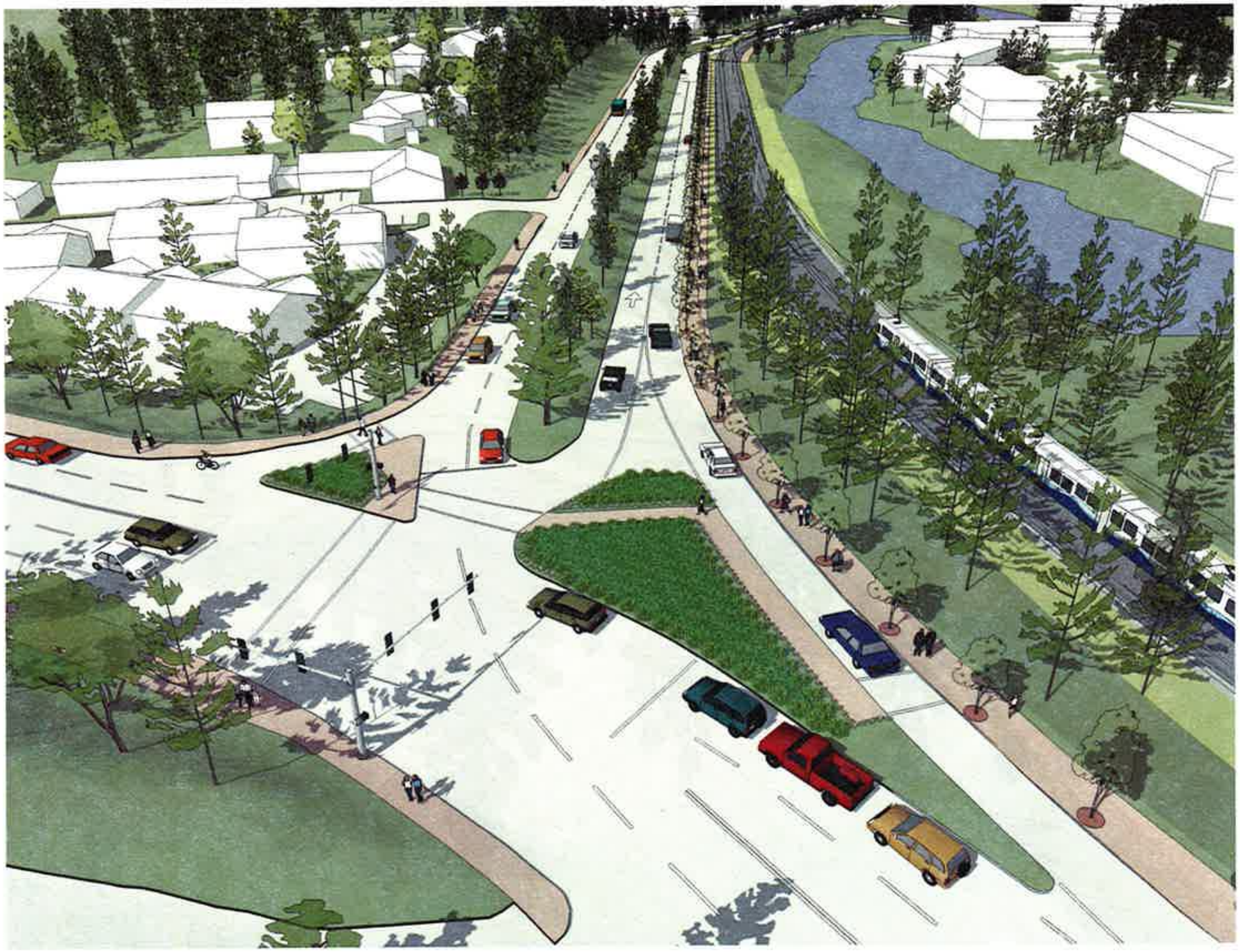
SECTION AND PLAN VIEW

Option 6: Westside Running to At-Grade

View Area: 1.0

Nearest Intersection:
112th Ave SE north of Bellevue Way


0
5
10
20
SCALE IN FEET



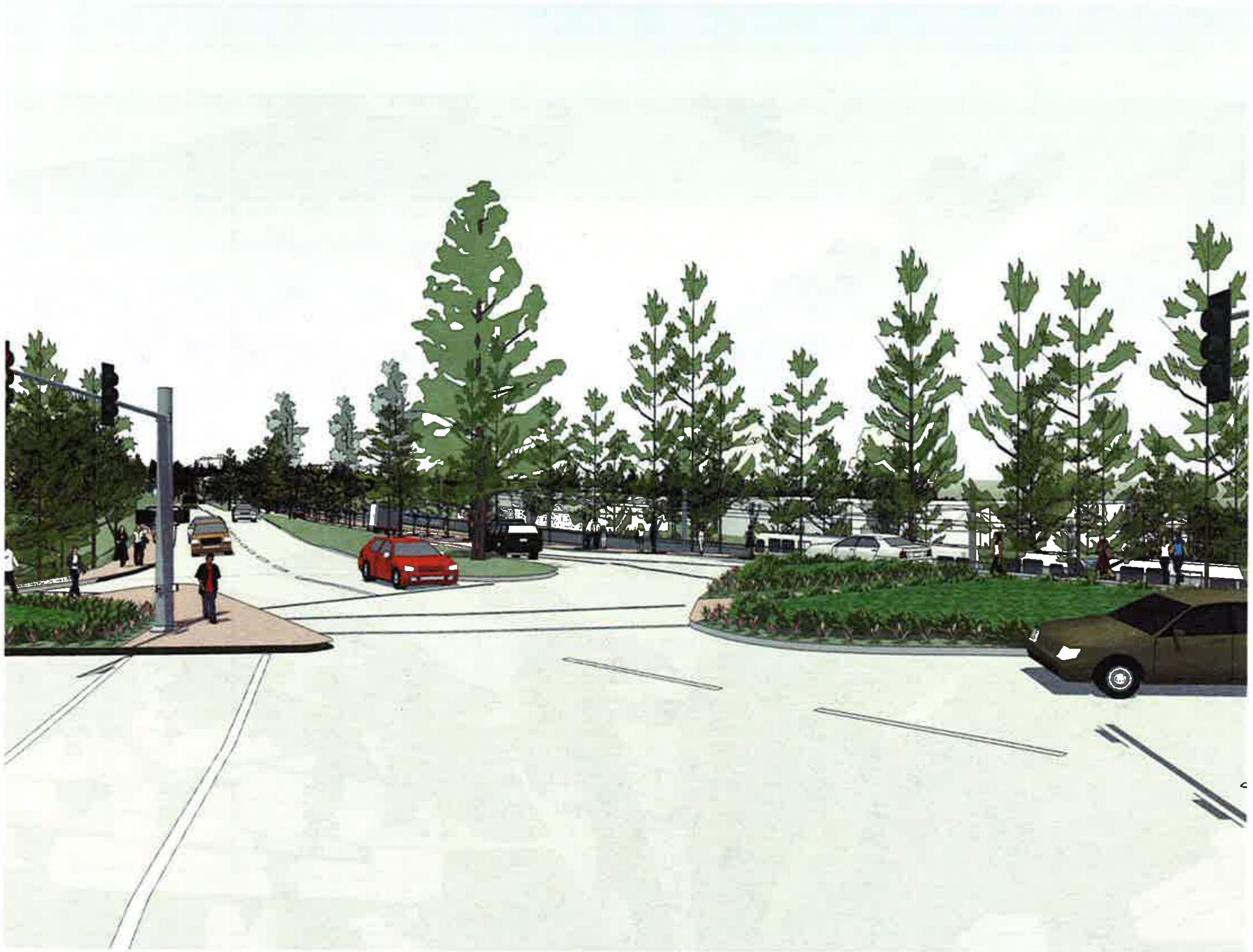
OVERHEAD VIEW

Option 6: Westside Running to At-Grade

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

Note: this view is the same as Option 1



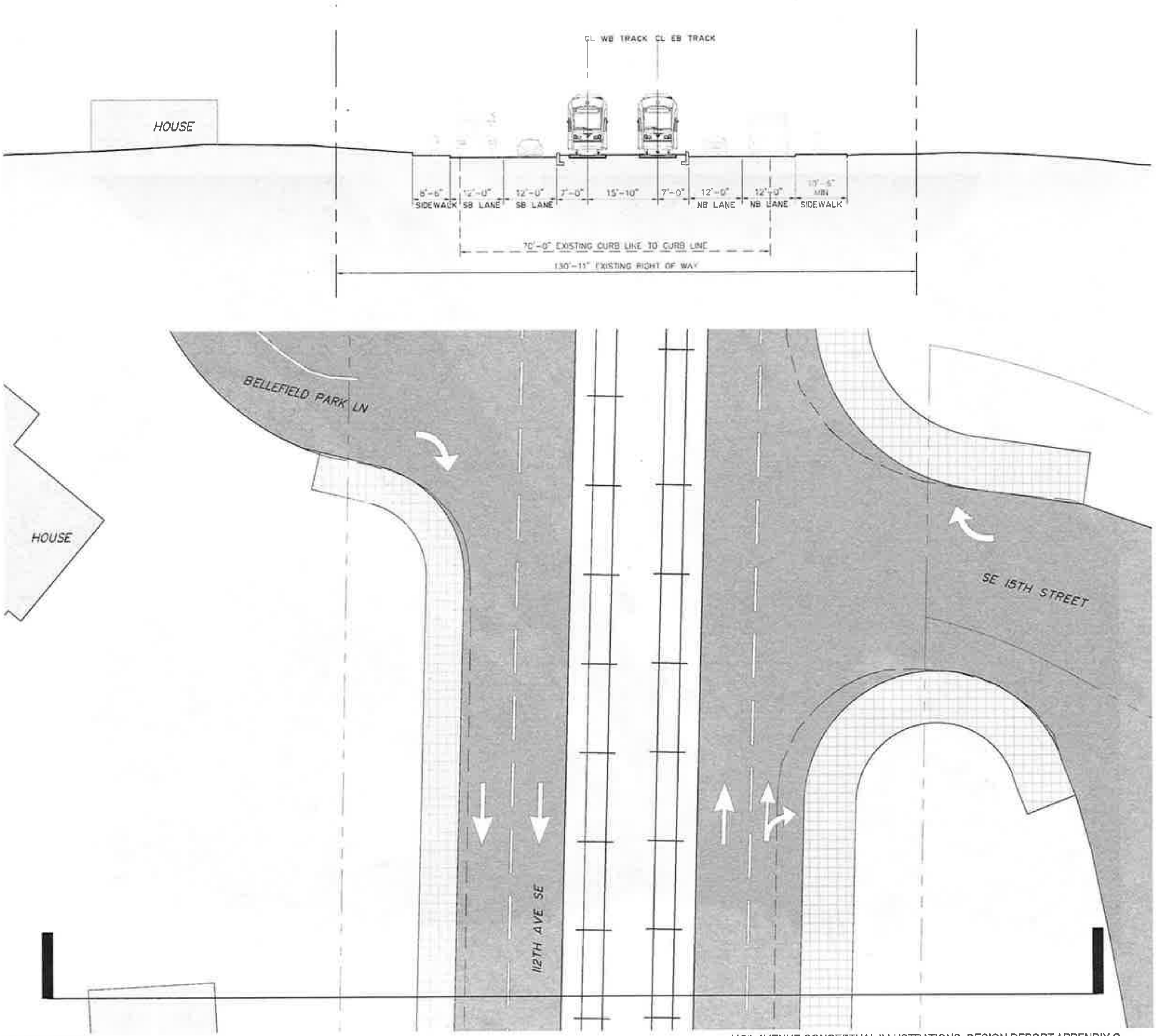
STREET VIEW

Option 6: Westside Running to At-Grade

View Area: 1.0

Nearest Intersection:
112th Ave SE and Bellevue Way

Note: this view is the same as Option 1


CL WB TRACK
CL EB TRACK
HOUSE
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB LANE
7'-0"
15'-10"
7'-0"
12'-0"
NB LANE
12'-0"
NB LANE
10'-6"
MIN
SIDEWALK
70'-0" EXISTING CURB LINE TO CURB LINE
130'-11" EXISTING RIGHT OF WAY
BELLEFIELD PARK LN
HOUSE
SE 15TH STREET
112TH AVE SE

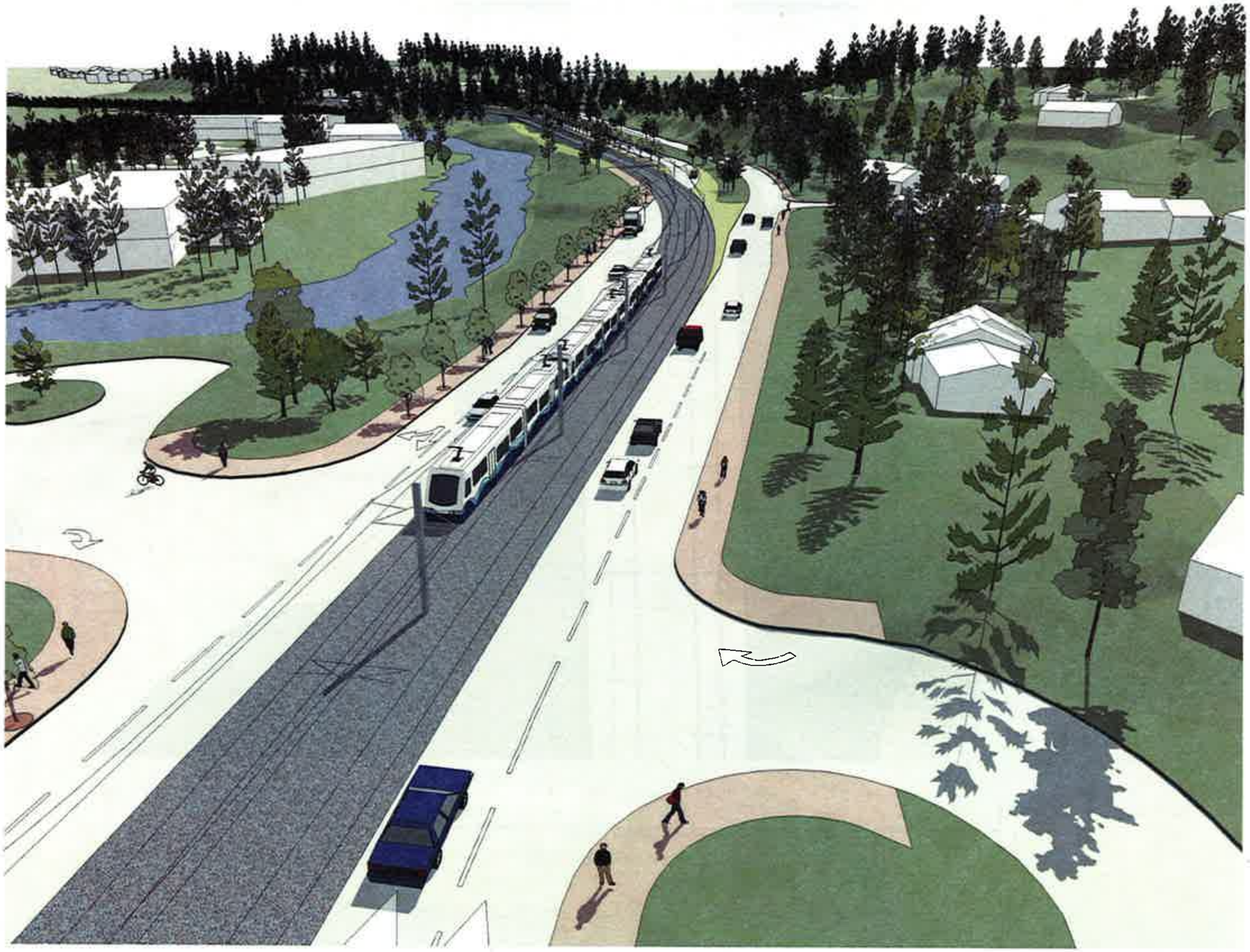
SECTION AND PLAN VIEW

Option 6: Westside Running to At-Grade

View Area: **1.1**

Nearest Intersection:
112th Ave SE and SE 15th St

0 5 10 20
SCALE IN FEET

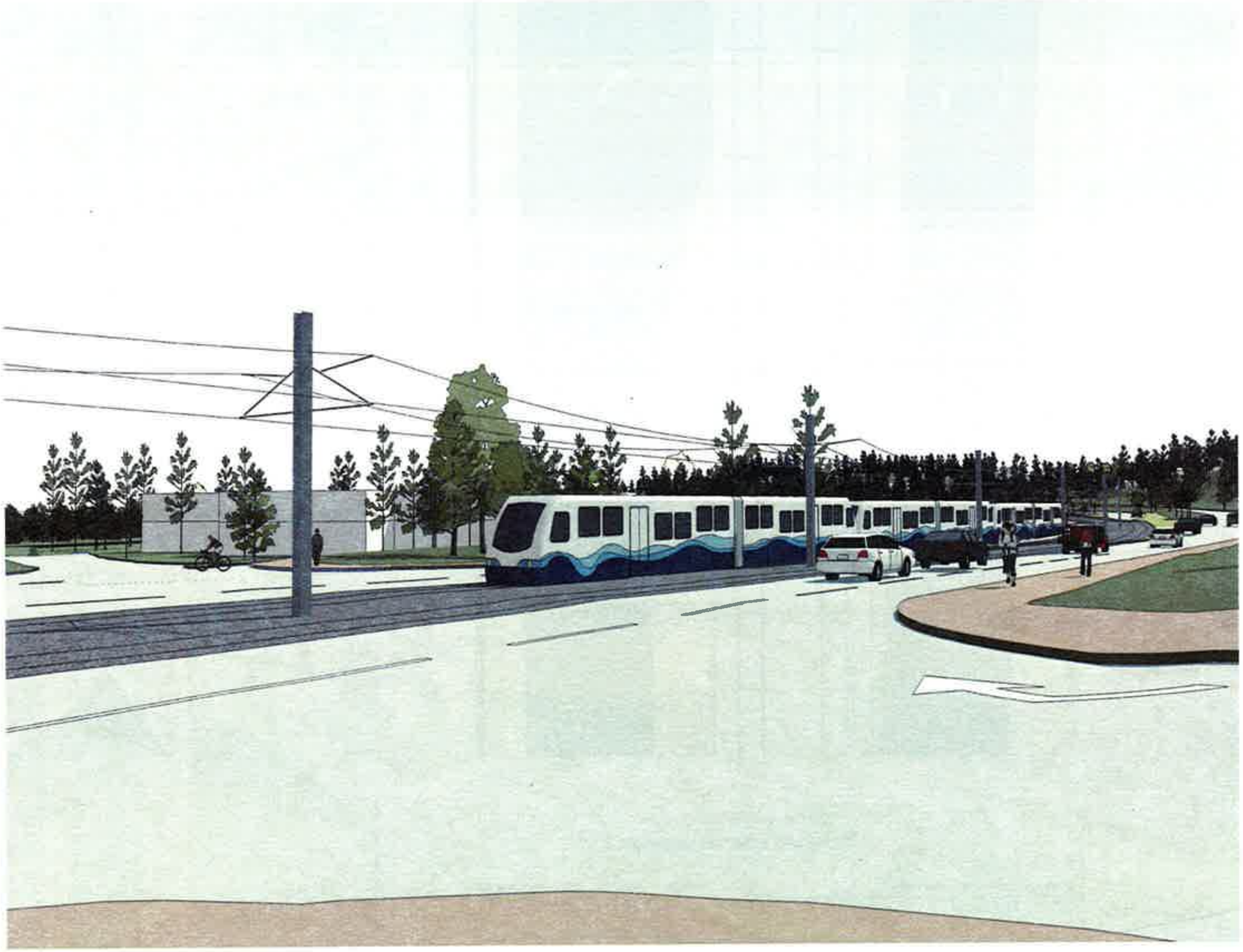


OVERHEAD VIEW

Option 6: Westside Running to At-Grade

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St

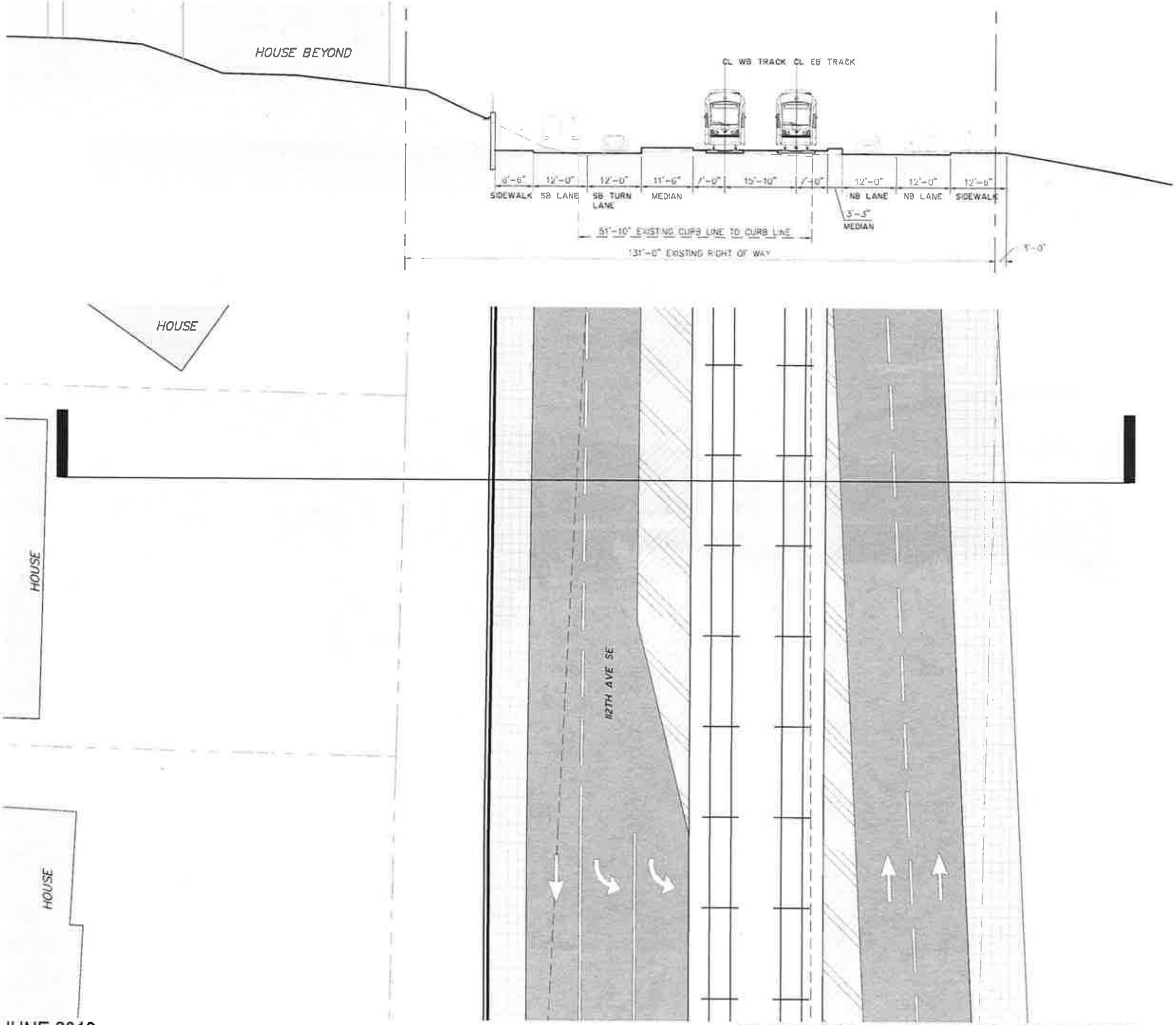


STREET VIEW

Option 6: Westside Running to At-Grade

View Area: 1.1

Nearest Intersection:
112th Ave SE and SE 15th St

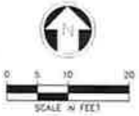

HOUSE BEYOND
CL WB TRACK
CL EB TRACK
8'-6"
SIDEWALK
12'-0"
SB LANE
12'-0"
SB TURN LANE
11'-6"
MEDIAN
7'-0"
15'-10"
7'-10"
12'-0"
NB LANE
12'-0"
NB LANE
12'-6"
SIDEWALK
3'-3"
MEDIAN
51'-10" EXISTING CURB LINE TO CURB LINE
131'-0" EXISTING RIGHT OF WAY
5'-0"
HOUSE
HOUSE
HOUSE
112TH AVE SE

SECTION AND PLAN VIEW

Option 6: Westside Running to At-Grade

View Area: **2.0**

Nearest Intersection:
112th Ave SE north of SE 8th St

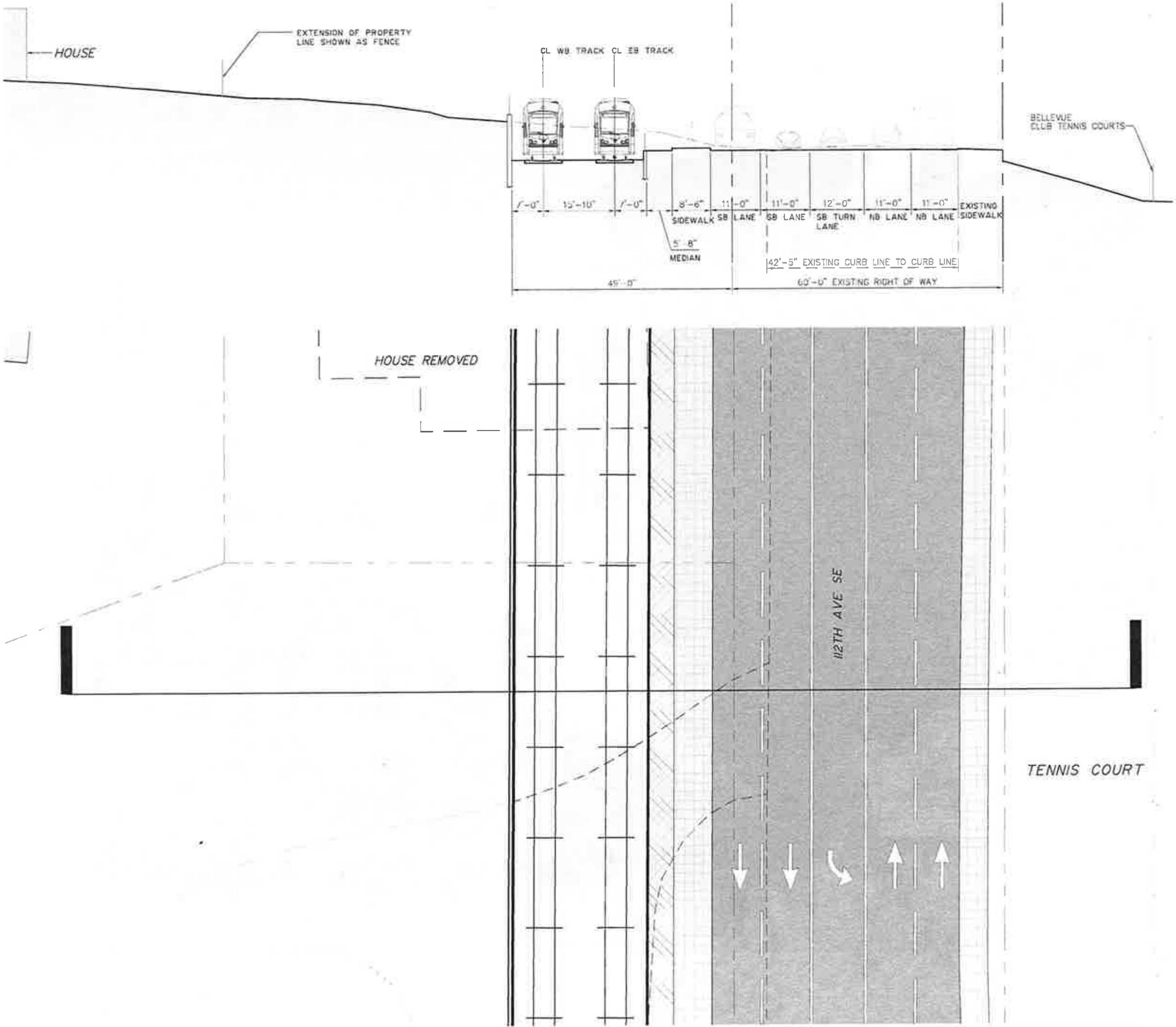

N
0
5
10
20
SCALE IN FEET

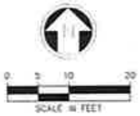
SECTION AND PLAN VIEW

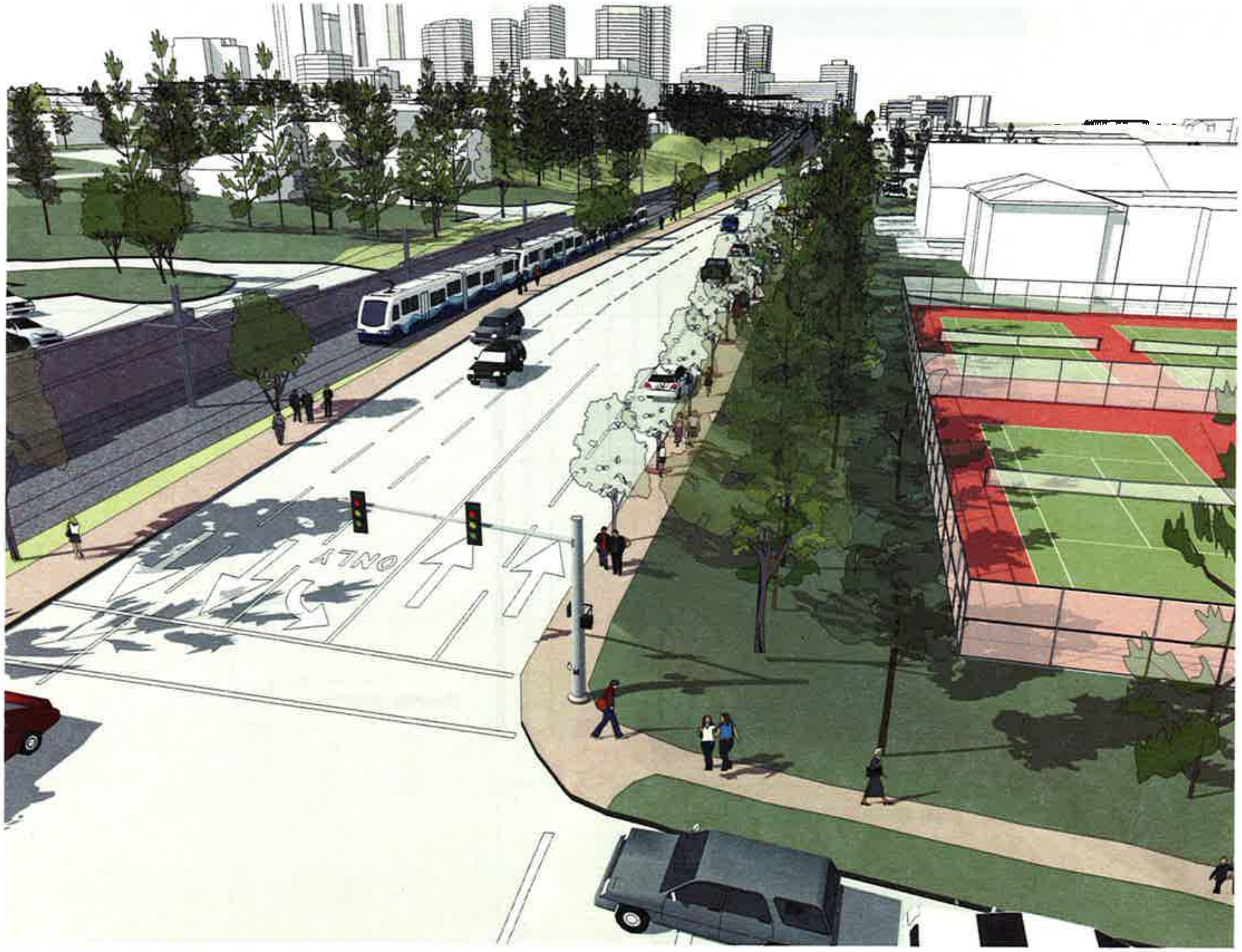
Option 6: Westside Running to At-Grade

View Area: **3.0**

Nearest Intersection:
112th Ave SE north of SE 6th St


HOUSE
EXTENSION OF PROPERTY LINE SHOWN AS FENCE
CL WB TRACK
CL EB TRACK
BELLEVUE CLUB TENNIS COURTS
7'-0"
15'-10"
7'-0"
8'-6"
SIDEWALK
5'-8"
MEDIAN
11'-0"
SB LANE
11'-0"
SB LANE
12'-0"
SB TURN LANE
11'-0"
NB LANE
11'-0"
NB LANE
EXISTING SIDEWALK
42'-5" EXISTING CURB LINE TO CURB LINE
49'-0"
60'-0" EXISTING RIGHT OF WAY
HOUSE REMOVED
112TH AVE SE
TENNIS COURT


0
5
10
20
SCALE IN FEET

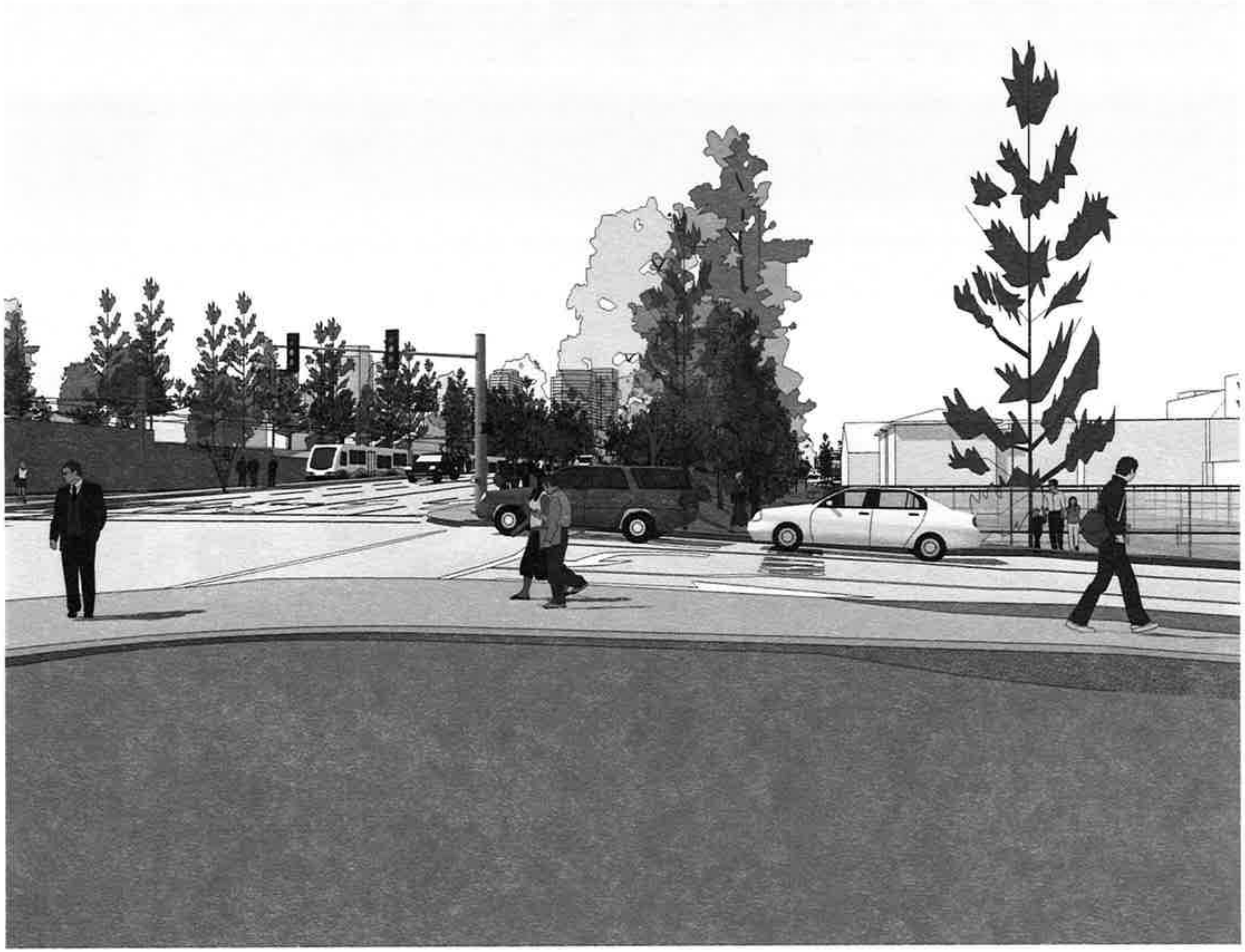


OVERHEAD VIEW

Option 6: Westside Running to At-Grade

View Area: **3.0**

Nearest Intersection:
112th Ave SE and
SE 6th St

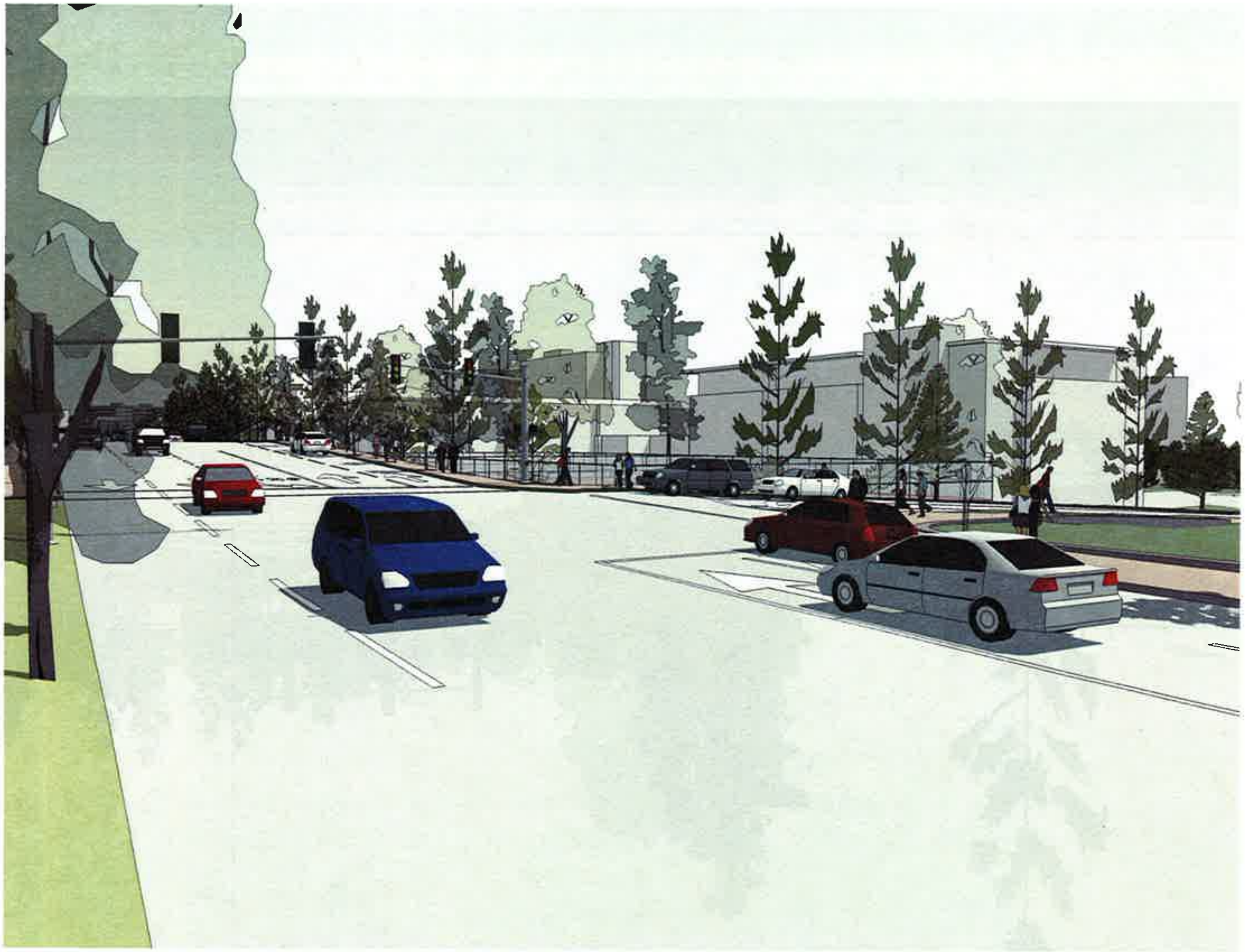


STREET VIEW EAST

Option 6: Westside Running to At-Grade

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

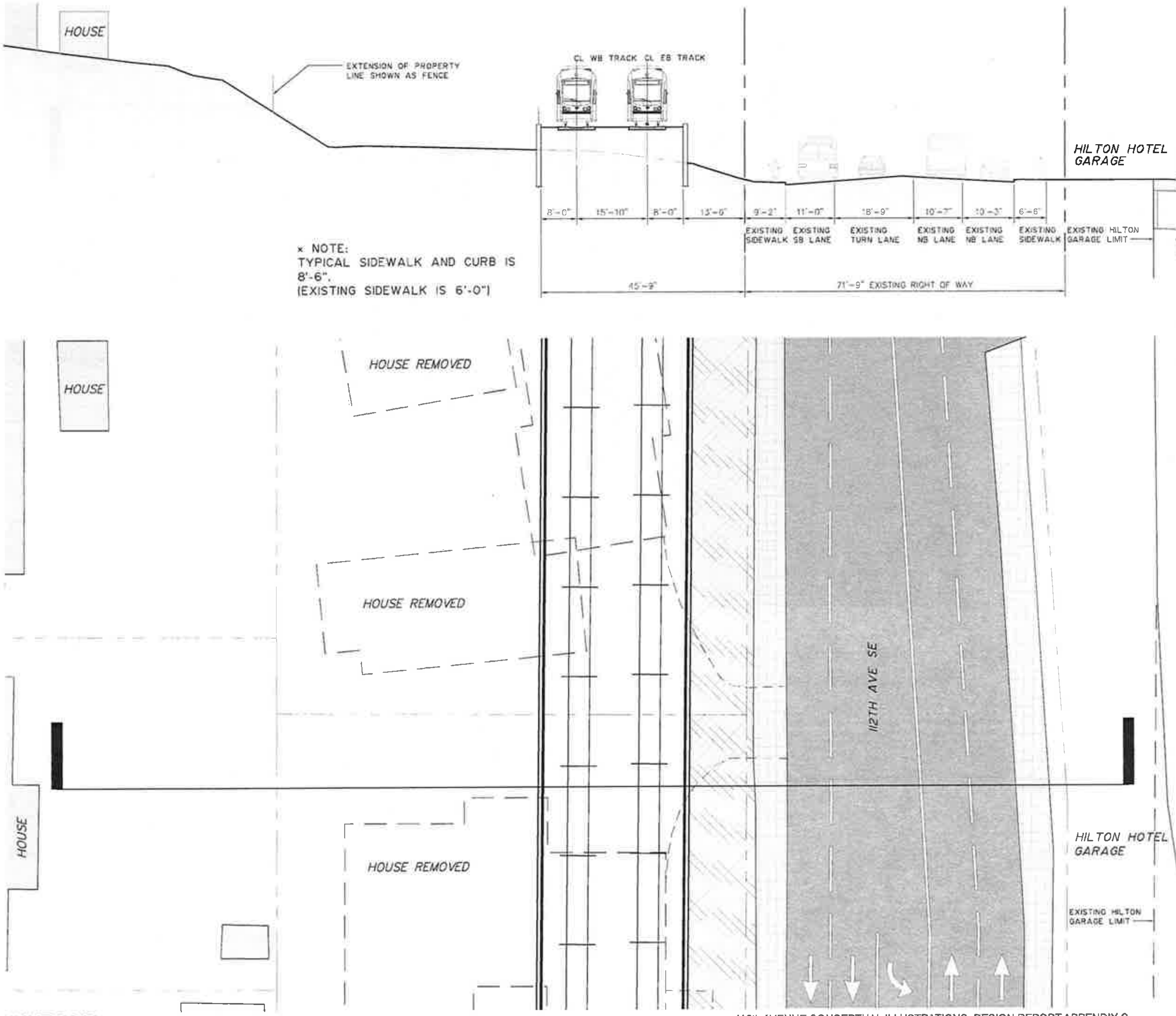


STREET VIEW WEST

Option 6: Westside Running to At-Grade

View Area: 3.0

Nearest Intersection:
112th Ave SE and SE 6th St

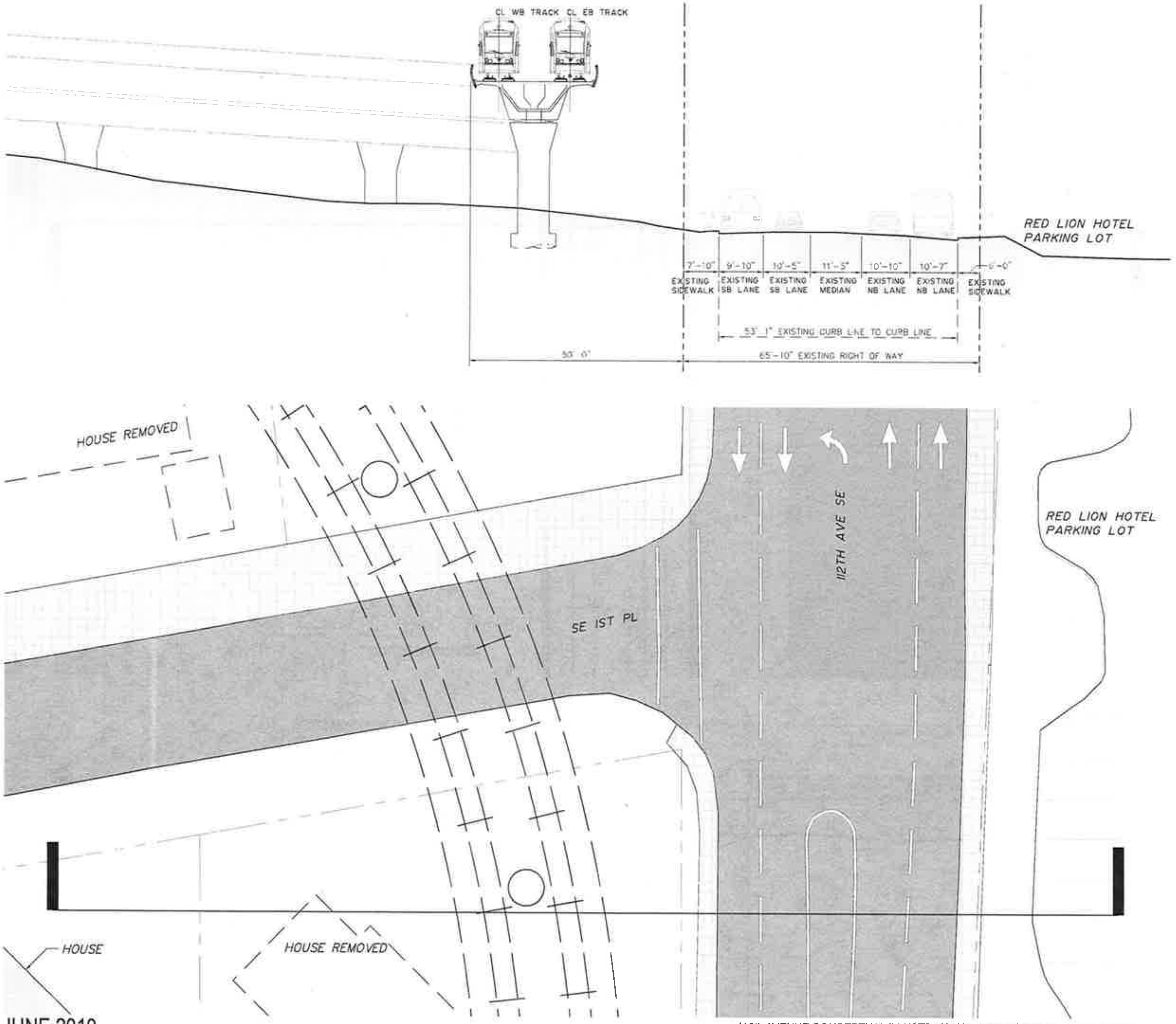

HOUSE
EXTENSION OF PROPERTY LINE SHOWN AS FENCE
CL WB TRACK
CL EB TRACK
HILTON HOTEL GARAGE
8'-0"
15'-10"
8'-0"
13'-0"
9'-2"
11'-0"
18'-9"
10'-7"
10'-3"
6'-6"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING TURN LANE
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
EXISTING HILTON GARAGE LIMIT
× NOTE:
TYPICAL SIDEWALK AND CURB IS 8'-6".
(EXISTING SIDEWALK IS 6'-0")
45'-9"
71'-9" EXISTING RIGHT OF WAY
HOUSE
HOUSE REMOVED
HOUSE REMOVED
HOUSE REMOVED
HOUSE
112TH AVE SE
HILTON HOTEL GARAGE
EXISTING HILTON GARAGE LIMIT
0
5
10
20
SCALE IN FEET

SECTION AND PLAN VIEW

Option 6: Westside Running to At-Grade

View Area: 3.1

Nearest Intersection:
112th Ave SE north of SE 4th St

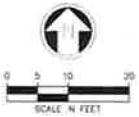

CL WB TRACK CL EB TRACK
RED LION HOTEL PARKING LOT
7'-10"
9'-10"
10'-5"
11'-5"
10'-10"
10'-7"
6'-0"
EXISTING SIDEWALK
EXISTING SB LANE
EXISTING SB LANE
EXISTING MEDIAN
EXISTING NB LANE
EXISTING NB LANE
EXISTING SIDEWALK
53'-1" EXISTING CURB LINE TO CURB LINE
50'-0"
65'-10" EXISTING RIGHT OF WAY
HOUSE REMOVED
SE 1ST PL
112TH AVE SE
RED LION HOTEL PARKING LOT
HOUSE
HOUSE REMOVED

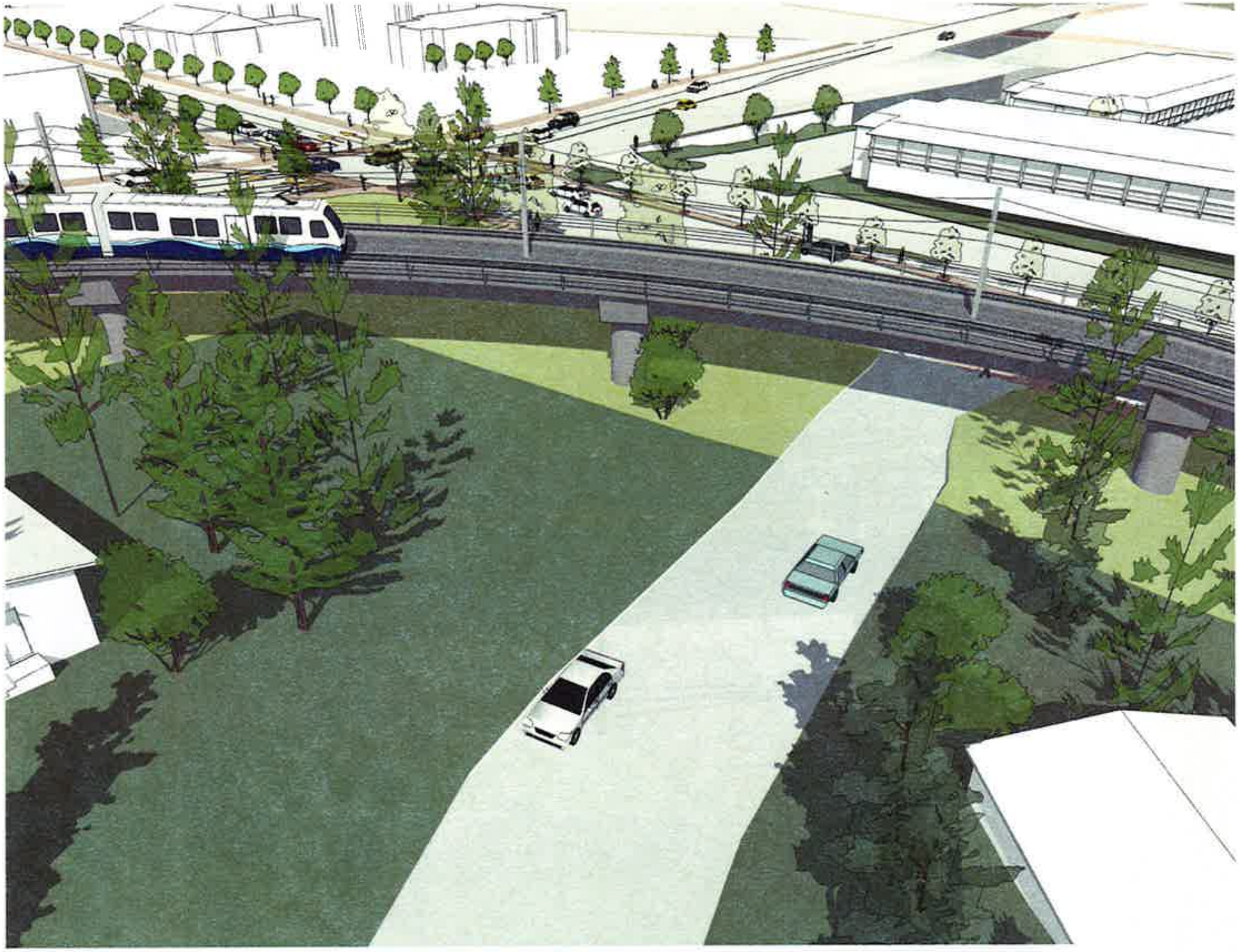
SECTION AND PLAN VIEW

Option 6: Westside Running to At-Grade

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place


0 5 10 20
SCALE IN FEET

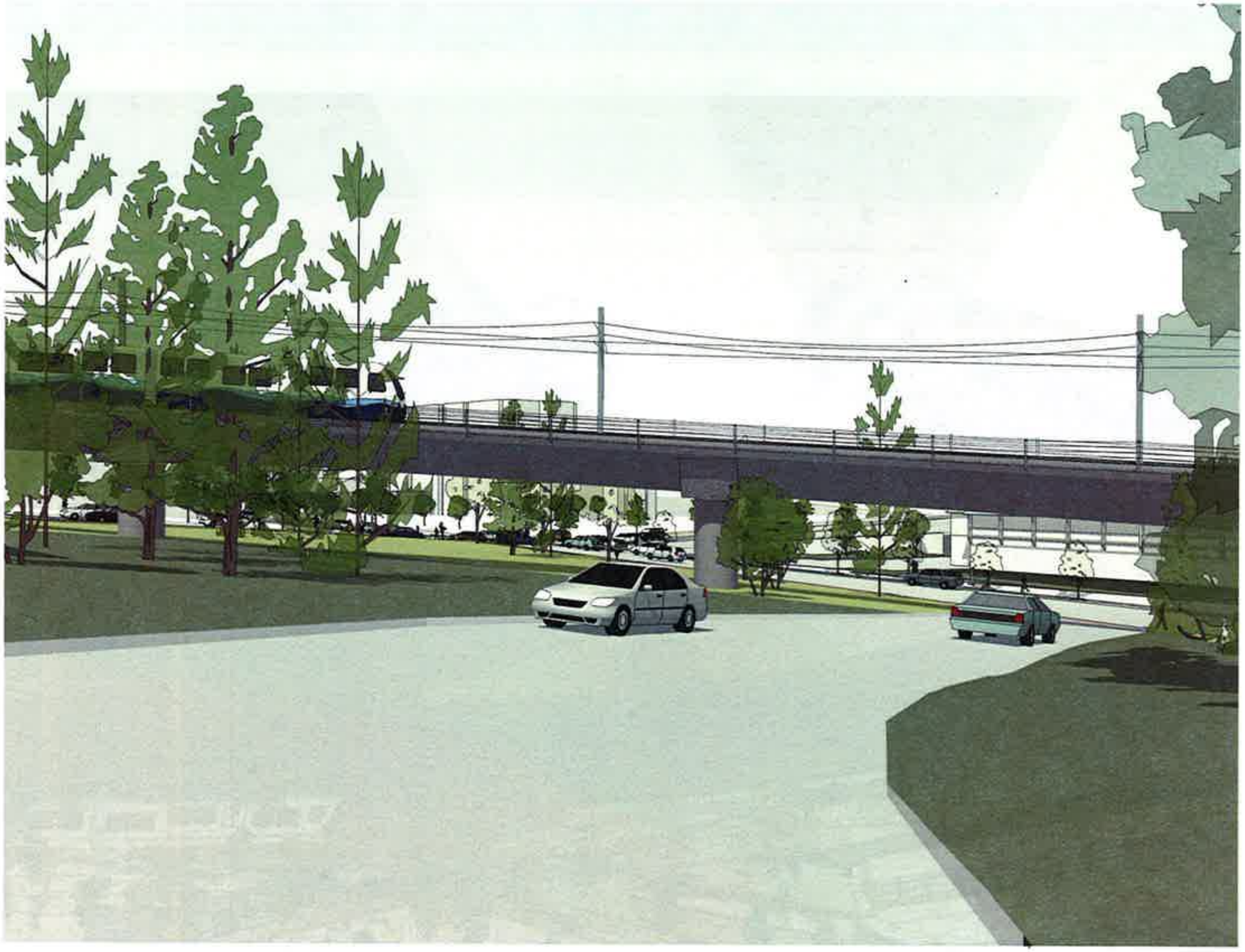


OVERHEAD VIEW

Option 6: Westside Running to At-Grade

View Area: 4.0

Nearest Intersection:
112th Ave SE and SE 1st Place



STREET VIEW

Option 6: Westside Running to At-Grade

View Area: 4.0

Nearest Intersection:
112th Ave SE and
SE 1st Place

DRAFT Technical Memorandum

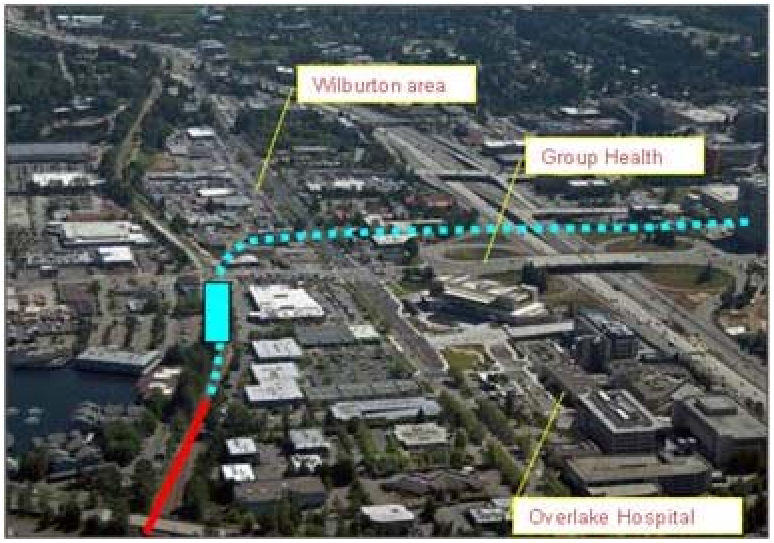
Segment C – Evaluation of Hospital Station Options

June 2010

Prepared For:

SOUNDTRANSIT

CITY OF BELLEVUE WASHINGTON


Wilburton area
Group Health
Overlake Hospital

Prepared By:

CH2MHILL

Sound Transit East Link
Segment C – Evaluation of Hospital Station Options

1. INTRODUCTION

Sound Transit is studying an extension of the region's light rail system from downtown Seattle east to Bellevue and Redmond. The East Link Project would connect the Eastside's biggest population and employment centers, serving 45,000 – 50,000 daily riders, on one of the region's most congested travel corridors. Sound Transit is preparing a Supplemental Draft Environmental Impact Statement (SDEIS) to address new or changed project alternatives. The SDEIS is anticipated to be issued in fall 2010. A final EIS for the East Link Project is scheduled to be issued in spring 2011.

In May 2009 the Sound Transit Board identified a preferred alternative for the East Link project including in Segment C- Downtown Bellevue. Segment C represents the portion of the East Link project that travels and provides service from the dense downtown core of Bellevue to the east side of I-405 along the BNSF corridor (*see Vicinity Map on page 2)*. On April 22, 2010, the Board revised the preferred alternative in Segment C to the C9T – 110th NE Tunnel and C11A-108th At-grade alternatives, which both include a Hospital Station in the BNSF corridor. The April Board Motion also contained the following language:

> "Design options for the location of the Hospital Station in the BNSF corridor at or near NE 8th will be studied and brought back to the Board for consideration."

The Draft EIS published in 2008 presented one option, C1T, for locating the Hospital Station along the BNSF, just north of NE 8th Street. As part of the public involvement process, community comments, value analysis review workshops of the project and a collaborative evaluation by Sound Transit and City of Bellevue staff to screen further refinements, new locations for the Hospital Station were identified for evaluation.

Sound Transit has prepared this Technical Memorandum to present the results of the evaluation of design options for locating the Hospital Station. The findings represented herein are the result of a collaborative process among Sound Transit and the City of Bellevue,. This memorandum provides a basis for comparing the options to one another. It does not include a recommendation, but rather, represents an evaluation of conceptual designs, including estimated order-of-magnitude costs, based on existing data and information.

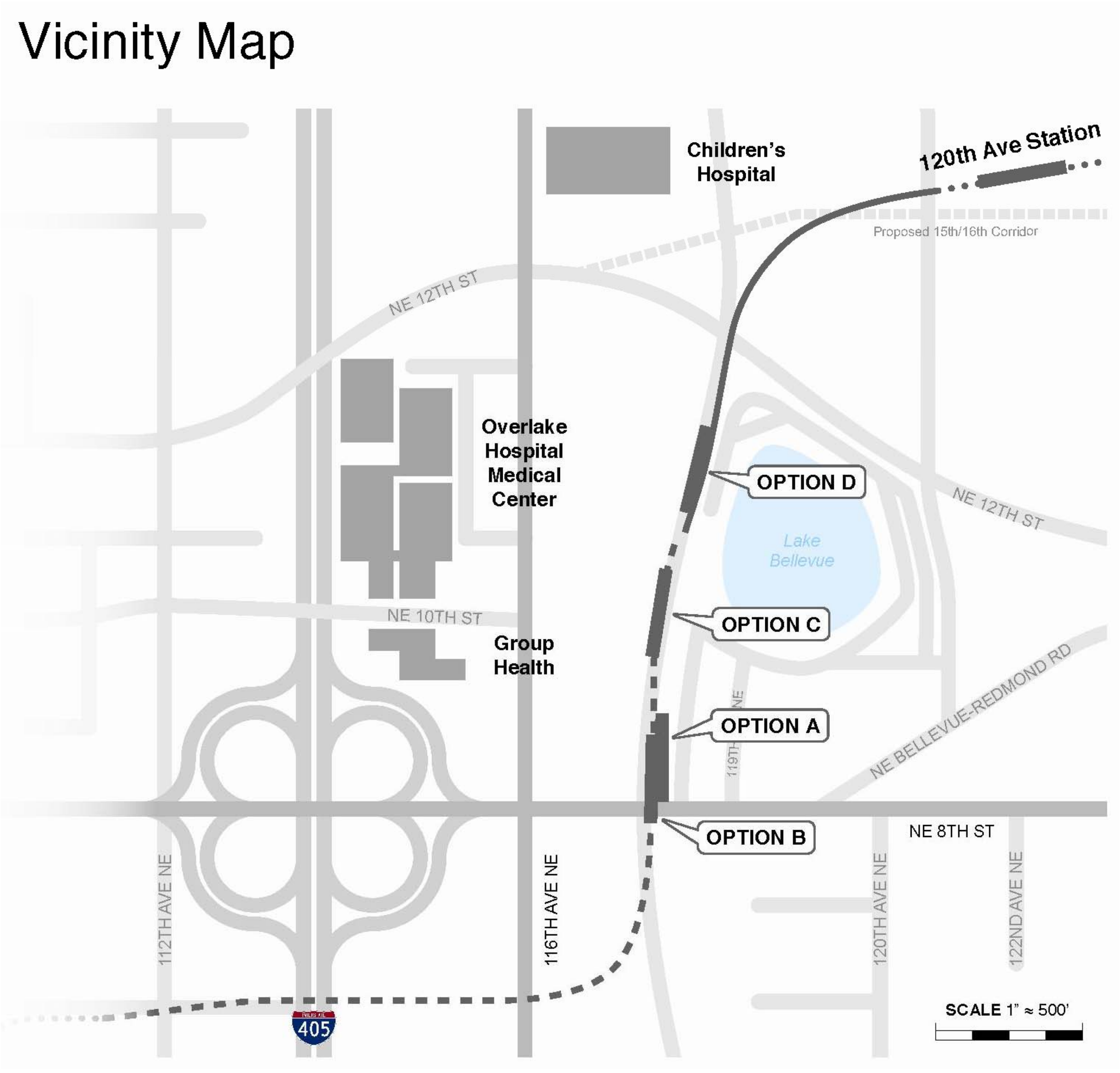
On July 22, 2010, the Sound Transit Board is expected to identify a preferred option for the Hospital Station after reviewing the information in this memorandum and other input from the City of Bellevue and the community. If the Board's identified preferred location of the Hospital Station is different from the option presented in the DEIS, it would be further studied as part of the Supplemental DEIS. Sound Transit will then complete preliminary engineering and environmental review for the project.

While identifying a preferred option is an important step in the process, it is not a final decision. All of the alternatives in the Draft EIS will continue to be carried forward and evaluated. The Sound Transit Board will select the final East Link route in 2011 after completion of the Final EIS. After the Final EIS, Sound Transit will complete final design, permitting, and construction.

This memorandum includes an overview of each option and the factors that can be used in assessing their relative merits. A summary matrix of the evaluation is provided along with graphics that illustrate the associated features of the station sites along with a discussion of other considerations and tradeoffs that may help with the selection of the preferred Hospital Station location.

2. DESCRIPTION OF OPTIONS

Four potential sites, all located within the BNSF right-of-way, have been identified for the Hospital Station:


Vicinity Map
Children's Hospital
120th Ave Station
Proposed 15th/16th Corridor
NE 12TH ST
Overlake Hospital Medical Center
OPTION D
Lake Bellevue
NE 12TH ST
NE 10TH ST
OPTION C
Group Health
119TH NE
OPTION A
NE BELLEVUE-REDMOND RD
OPTION B
NE 8TH ST
112TH AVE NE
116TH AVE NE
120TH AVE NE
122ND AVE NE
405
SCALE 1" ≈ 500'

Option A: North of NE 8th Street

In this option the elevated center platform station is sited immediately north of NE 8th Street. Access up to the station platform is provided through a set of stairway, escalator and elevator facilities located on an entry plaza directly below. No pedestrian crossing of NE 8th Street at the BNSF corridor for this station is provided as a part of the light rail project. (A pedestrian crossing of NE 8th Street is anticipated as part of the planned King County multi-use trail). Emergency and paratransit access and turnaround is provided from 118th Avenue NE just north of NE 8th Street.

An additional pedestrian access (applicable to Options A, B, and C) could be provided by acquiring property easements for an east-west walkway from 116th Avenue NE to the BNSF right-of-way in the vicinity of the north end of Whole Foods. This additional pedestrian access is reflected as an add-on and is not included in the base cost estimates.

Option A was the station location shown in the Draft Environmental Impact Statement (DEIS) and is the baseline station site against which the other three location options are compared, including differences in estimated cost.

Option B: Span NE 8th Street

In this option the elevated center platform station straddles NE 8th Street and access is provided from both sides of the street. Vertical circulation – stairway, escalator and two elevators - is provided for each entry point at ground level. Emergency and paratransit access is provided from the 118th Avenue NE right-of-way just north of NE 8th Street. Additional pedestrian access could be provided with and east-west easement in the vicinity of Whole Foods (*see Option A above*).

Option C: South of NE 10th Street

In this option the elevated center platform station is sited approximately 300 feet north of NE 8th Street. The primary access is provided from the north side of NE 8th Street along the BNSF corridor through a pedestrian walk that connects to the ground level entry plaza. Emergency and paratransit access is provided with a driveway from the north side of NE 8th Street through the 118th Avenue NE right-of-way to a turnaround adjacent to the east side of the station. Additional pedestrian access could be provided with an east-west easement in the vicinity of Whole Foods (*see Option A above*).

Option D: At-Grade North of NE 10th Street

In this option an at-grade station is sited approximately 800 feet north of NE 8th Street. Due to track alignment constraints immediately north of the station, side platforms are used with this option. Access is provided from 116th Avenue NE by a ground-level pedestrian walkway that connects to the westbound and eastbound platforms. Emergency and paratransit access is provided from 116th Avenue NE by a driveway and turnaround immediately adjacent to and north of the pedestrian walkway.

Other Corridor Facilities

Existing facilities in the BNSF corridor that will need to be accommodated with the siting of the Hospital Station include a 72-inch King County Metro sanitary sewer interceptor, a fiber-optics conduit owned by Allstream, and Sturtevant Creek, which flows from the south end of Lake Bellevue southerly along the east side of the corridor in an open channel and crosses to enter a culvert just north of NE 8th Street. The creek would be protected during construction and be restored to its open channel condition once construction is complete. Additional piping of the creek is not allowed under the City of Bellevue's current Code. This area is also adjacent to a floodplain, and measures will need to be taken so that flood capacity would not be reduced with station facilities or fill. Cascade Water Alliance plans to construct a 72-inch water transmission line in the corridor and an envelope for potential freight rail operations or a regional multi-use trail must be provided. King County has purchased an easement along the BNSF corridor for the purpose of providing a regional pedestrian and bicycle trail. This easement could be converted to freight rail at some future time. (*see Typical Corridor Cross Section on p. 5*).

These elements represent constraints on the location of the light rail alignment that determine the siting of the Hospital Station facilities and the subsequent impacts to adjacent properties. Sturtevant Creek would need to be maintained as an open channel and, based on feasibility, it is possible that Sturtevant Creek could ultimately be relocated along the proposed water transmission line.

3. EVALUATION CRITERIA

In the analysis of station options Sound Transit established a set of criteria against which the station options can be measured for comparison purposes. The methodologies presented here are preliminary and are useful only for comparisons among the options studied. The Final EIS and Supplemental Draft EIS will present more complete impact analyses and mitigation strategies for the preferred option.

Cost

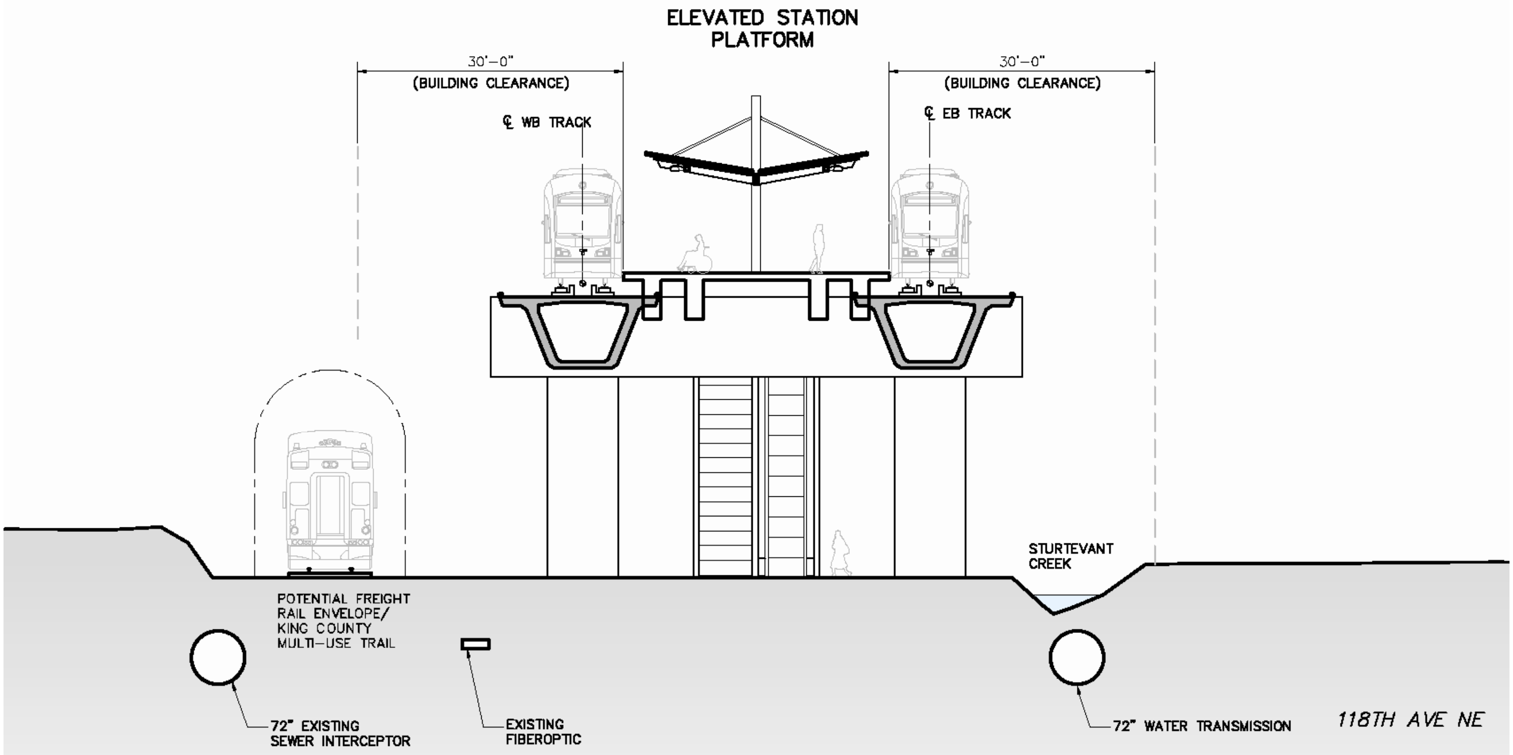
A qualitative comparison of the costs is provided in this memorandum. The comparison is to Option A: North of NE 8th Street. The differences reflect whether the station is at-grade, elevated north of NE 8th or spanning NE 8th; the length of elevated guideway; and the extent of right-of-way acquisition.

Station Characteristics

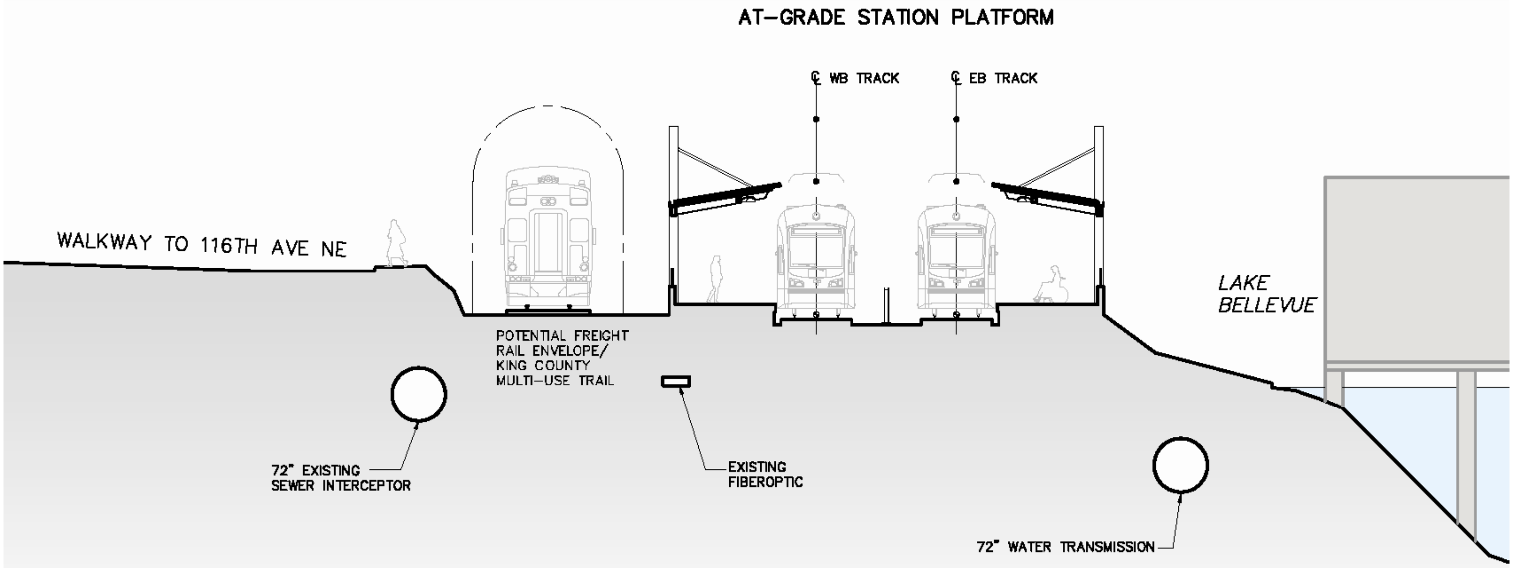
Elements which define a station and may be used to compare the different site options include: 1) vertical orientation (elevated or at-grade); 2) quality of the patron experience (access, walk time, perceived safety and comfort); 3) spacing between adjacent stations in the light rail line; and 4) visibility of the station from the street (pedestrian connectivity and security of passengers and facility).

1. The elevated stations with a center platform afford direct access to either eastbound or westbound light rail with no crossing of the light rail tracks required. The at-grade station in Option D is a side platform station which requires passengers to cross the light rail tracks to access the north(east) bound platform.

2. The quality of patron access to a station is affected not only by the walk time, but also by the directness of the route, crossing of major streets, the quality of the pedestrian environment, and any grades encountered. The BNSF right-of-way crosses NE 8th Street


ELEVATED STATION PLATFORM
30'-0"
(BUILDING CLEARANCE)
30'-0"
(BUILDING CLEARANCE)
℄ WB TRACK
℄ EB TRACK
STURTEVANT CREEK
POTENTIAL FREIGHT RAIL ENVELOPE/ KING COUNTY MULTI-USE TRAIL
72" EXISTING SEWER INTERCEPTOR
EXISTING FIBEROPTIC
72" WATER TRANSMISSION
118TH AVE NE

Elevated Station


AT-GRADE STATION PLATFORM
℄ WB TRACK
℄ EB TRACK
WALKWAY TO 116TH AVE NE
LAKE BELLEVUE
POTENTIAL FREIGHT RAIL ENVELOPE/ KING COUNTY MULTI-USE TRAIL
72" EXISTING SEWER INTERCEPTOR
EXISTING FIBEROPTIC
72" WATER TRANSMISSION

At-Grade Station

Typical Corridor Cross Section

at a perpendicular angle at the same grade. Further north along the BNSF right-of-way the grade difference between the light rail alignment and connection to the parallel 116th Avenue NE becomes an important consideration (the elevation difference between 116th Avenue and the station platform of Option D is 21.5 feet). As the station is located further away from public streets the perception of accessibility diminishes and potentially becomes non- apparent.

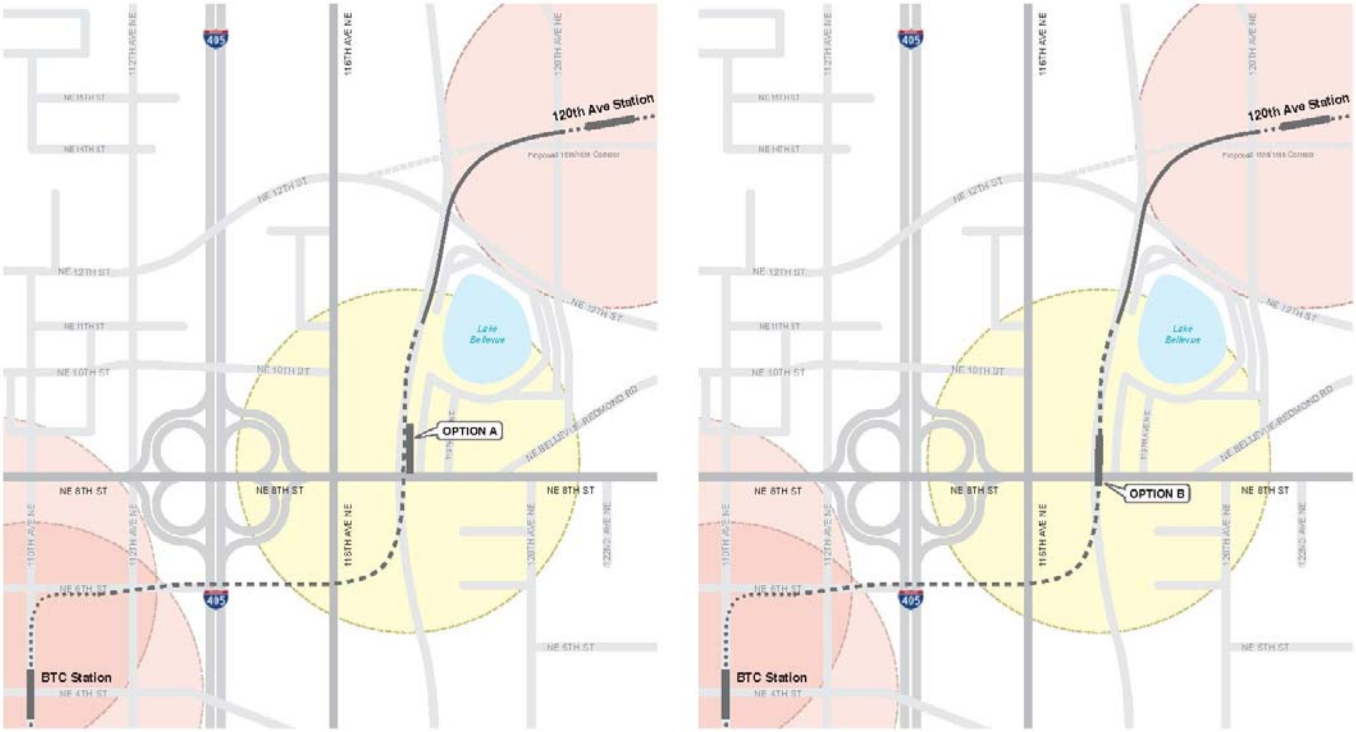
3. The siting of station Option D potentially creates an overlap of ridership capture with the 120th Avenue Station to the northeast, which may diminish the effectiveness of system operation. (*see Station Spacing Diagram on p. 7*). This siting also diminishes access from ridership south of NE 8th. (see following discussion on walking distance).
4. Patron security can be enhanced by the techniques of "Crime Prevention through Environmental Design" (CPTED), which influences the visibility and orientation of a station to emphasize "eyes on the station". The station options that are closer to major public areas, closer to higher activity areas, or provide a greater sense of being visible provide a greater sense of security. They also facilitate the opportunity for security personnel as well as local police to efficiently monitor the station areas. Visibility of a station can also affect ridership, as greater visibility enhances ridership by attracting more riders to use the transit mode.

Walk Analysis

A walk distance analysis was performed to better understand the differences in land use accessibility for each of the station options. (*see Walk Analysis Maps on p. 8*). The City of Bellevue analyzed the percent of 2030 Wilburton/Medical Office area employment and residential population within a 5-minute and 10-minute walk distance of each station location. The 5-minute walk represents a higher-capture, roughly 1/4-mile distance for transit users. The 10-minute walk represents an approximate 1/2-mile distance as identified in the Bellevue Light Rail Best Practices Report and reflected in the City's Comprehensive Plan. (The Downtown Subarea and Spring District are not included in the land use calculations because they would be served more directly by other planned stations.)

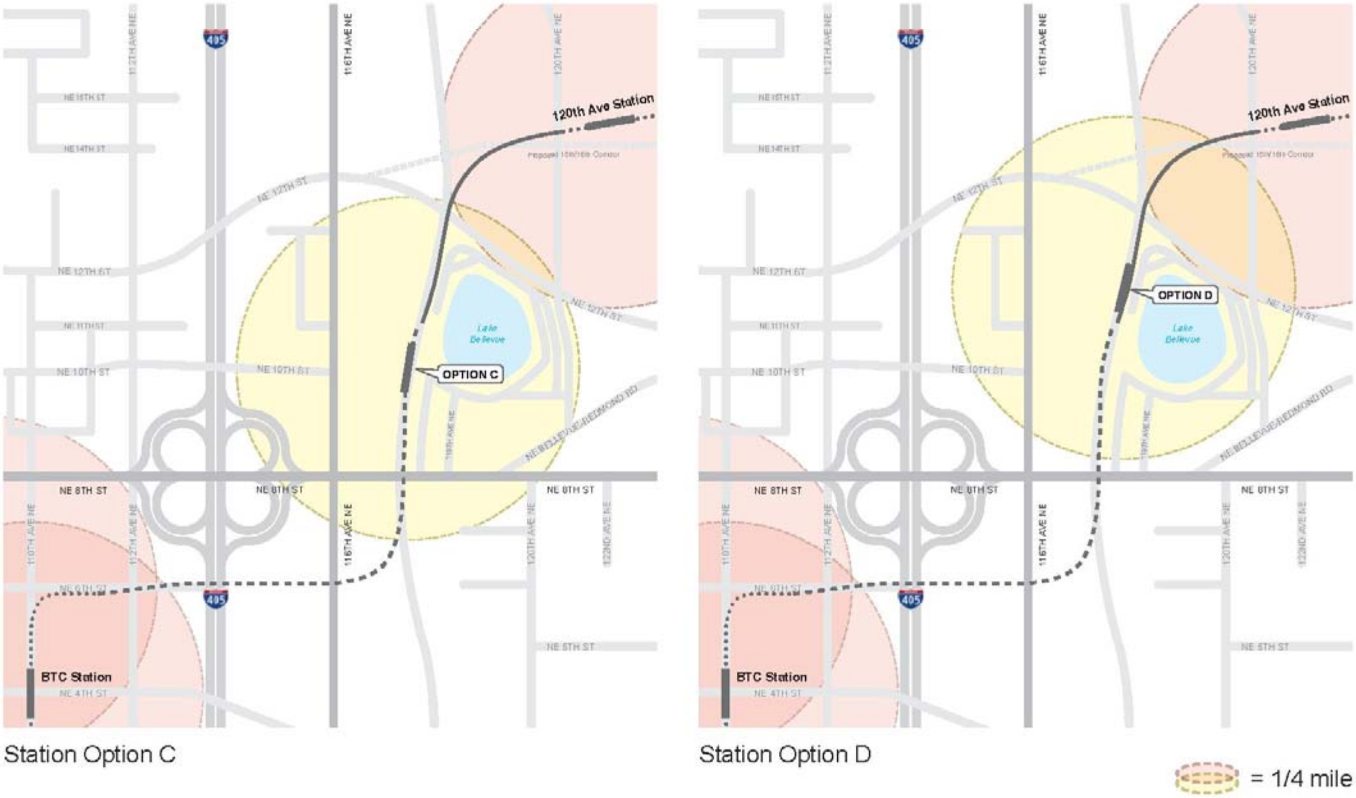
Vertical circulation time penalties of 30 to 60 seconds were included in the analysis of the four station options (representing the time it would take to travel from the platform to the pedestrian network connecting to the station). The walk distances follow a pedestrian network assumed to be in place by 2030. Sidewalks and off-street pedestrian paths, including use of an anticipated multi-use path in the BNSF corridor, are included as pedestrian routes. The analysis includes use of the two east-west pedestrian connections from the stations on the BNSF to 116th Avenue. An east-west connection north of the Design Center in Option D is used to provide access to 116th Avenue. An optional east-west connection through the northern part of Whole Foods provides pedestrians direct access to 116th Avenue in lieu of traveling south, then east-west along NE 8th Street.

The analysis does not include travel distance reductions for intersection delay. Much of the intersection delay would occur at NE 8th Street and 116th Avenue crosswalks. Pedestrian crossing of NE 8th Street at the BNSF right-of-way would occur as part of the station in Option B. For the other three options, it is assumed this crossing would be addressed separately


120th Ave Station
Proposed 16th/18th Corridor
OPTION A
OPTION B
BTC Station
Lake Bellevue
405
NE 16TH ST
NE 14TH ST
NE 12TH ST
NE 11TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 5TH ST
NE 4TH ST
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
122ND AVE NE
NE BELLEVUE-REDMOND RD

Station Option A

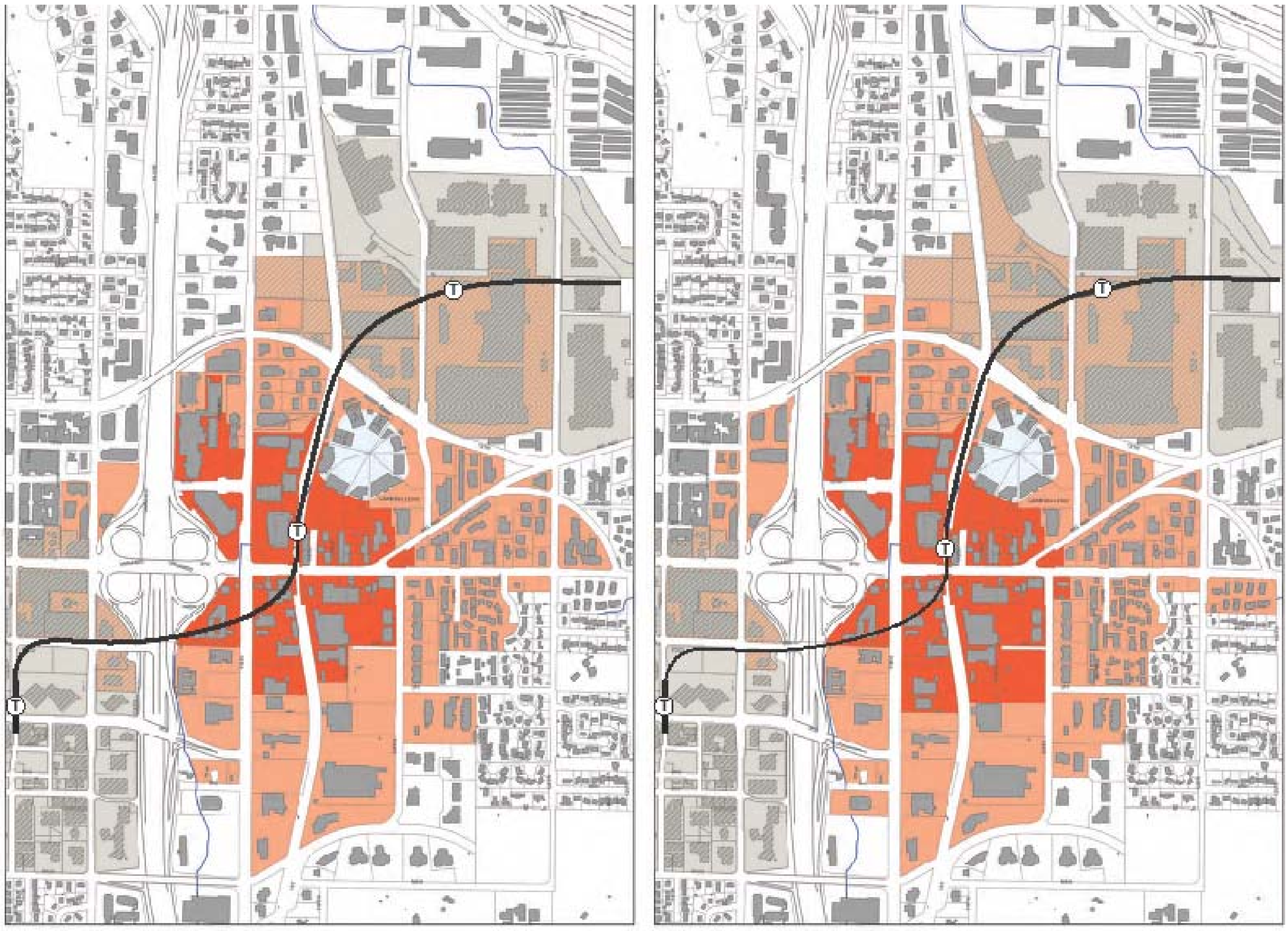
Station Option B


120th Ave Station
Proposed 16th/18th Corridor
OPTION C
OPTION D
BTC Station
Lake Bellevue
405
NE 16TH ST
NE 14TH ST
NE 12TH ST
NE 11TH ST
NE 10TH ST
NE 8TH ST
NE 6TH ST
NE 5TH ST
NE 4TH ST
110TH AVE NE
112TH AVE NE
116TH AVE NE
120TH AVE NE
122ND AVE NE
NE BELLEVUE-REDMOND RD
= 1/4 mile

Station Option C

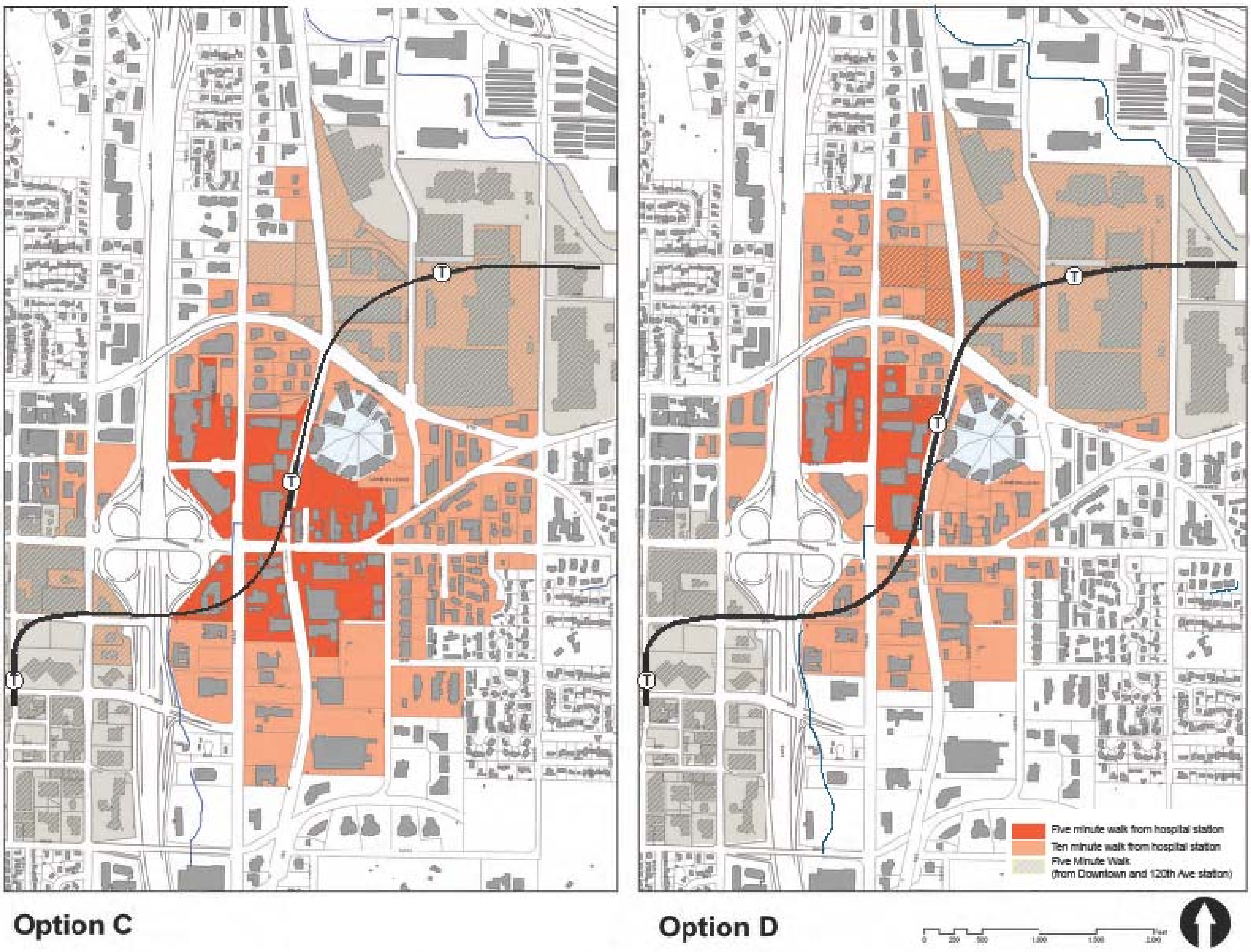
Station Option D

Station Spacing Diagram



Option A

Option B


Five minute walk from hospital station
Ten minute walk from hospital station
Five Minute Walk (from Downtown and 120th Ave station)
0
250
500
1,000
1,500
2,000
Feet

Option C

Option D

Walk Analysis Maps

through the planned regional multi-use trail development in the BNSF corridor (and not part of the Sound Transit work plan).

Hospital Access

The three existing hospitals located on the east side of I-405 along 116th Avenue NE (Overlake Hospital, Group Health and Children's Hospital) all have the potential to be served by light rail. To gauge the differences in how well each hospital could be served, an analysis was performed to measure the shortest walk distance from the front door of each hospital to the closest station entrance by option. As with the land use accessibility analysis, the hospital analysis uses the east-west pedestrian connections from the station entrances to 116th Avenue. The shortest walk distances to Children's Hospital from the Hospital Station options are shown for two distinct routes: one that uses 116th Avenue for primary access; and another that uses an anticipated multi-use path in the BNSF corridor. The walk distance from the 120th Avenue Station via a new NE 15th Street connection is also shown because of its proximity to Children's Hospital. (*see figures on p. 10*).

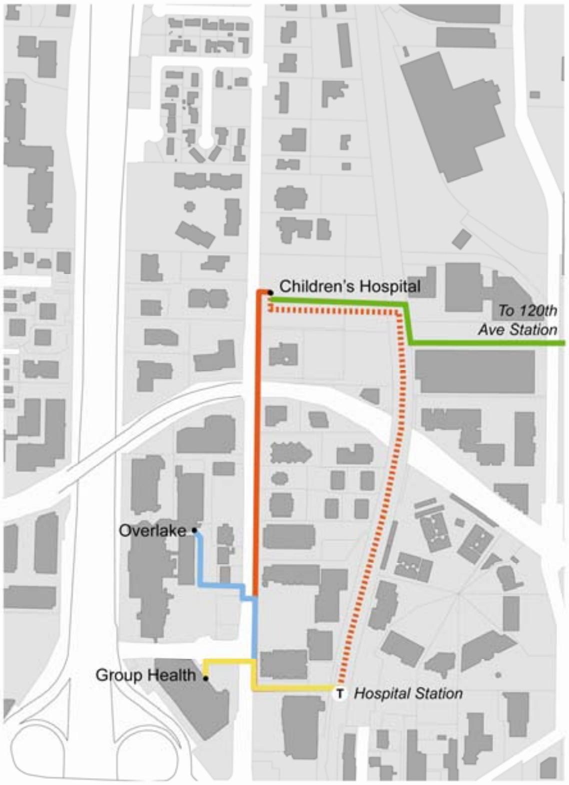
Potential Environmental Impacts

Property impacts associated with the Hospital Station options include full and partial property acquisitions from commercial and residential properties for the project and its construction.

Sound Transit counts displacements based on properties identified through the design process.. The number of affected businesses adjacent to the BNSF corridor was determined based on property site visits conducted for the Draft EIS. The number of businesses affected includes the number of individual businesses located in a single building or on a single property. Between 1 and 5 business displacements have been identified but no residential displacements are anticipated for any of the four Hospital Station options.

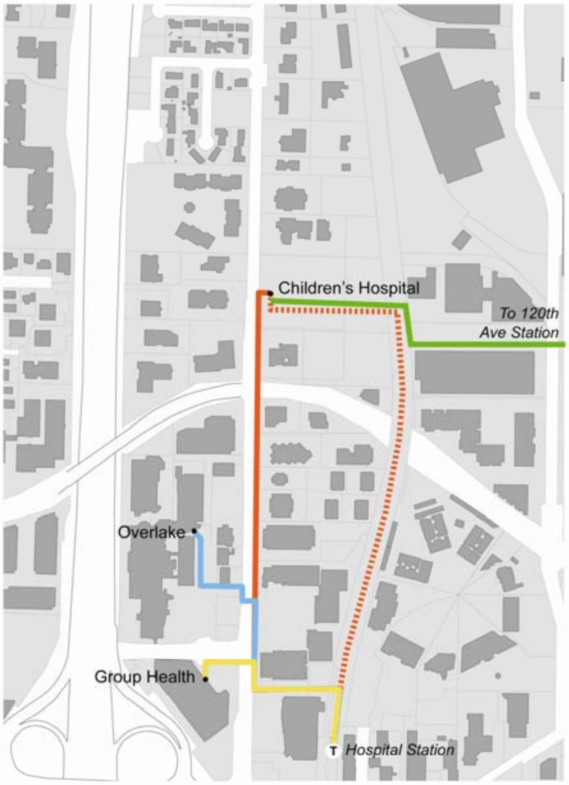
Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines and would comply with the appropriate provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the State of Washington's relocation and property acquisition regulations (Washington Administrative Code 468-100 and Revised Code of Washington 8.26).

Adjacent to the light rail alignment immediately to the east are several multifamily residences on Lake Bellevue. While the Draft EIS predicted that these units would have noise impacts from the project, after mitigation it was predicted that the impacts would be reduced to meet FTA standards. For the new options under consideration, the noise analysis has not been updated because the location of the light rail alignment does not substantially change. However, Sound Transit operating procedures require that the bell on the train be rung when entering and exiting a station. Given that the Option D station is located the closest to the multifamily residences, noise from train bells may affect the multifamily buildings more with this option compared to the other options. Also, the side platform station configuration requires passengers to cross the light rail tracks to access the station, whereas the elevated center platform options do not. This would require additional crossing bells and signals to ensure passenger safety that are not required at the other station options.


Children's Hospital
To 120th Ave Station
Overlake
Group Health
T Hospital Station

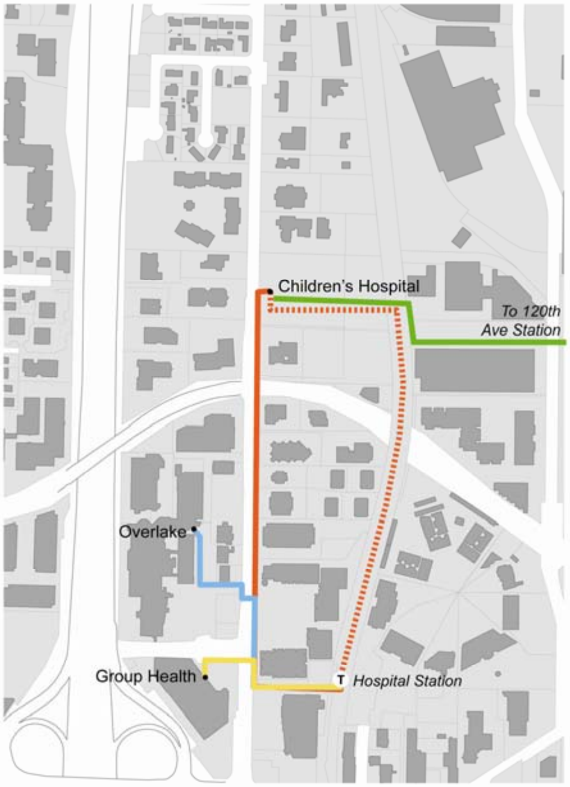
Option A

Uses additional access north of Whole Foods


Children's Hospital
To 120th Ave Station
Overlake
Group Health
T Hospital Station

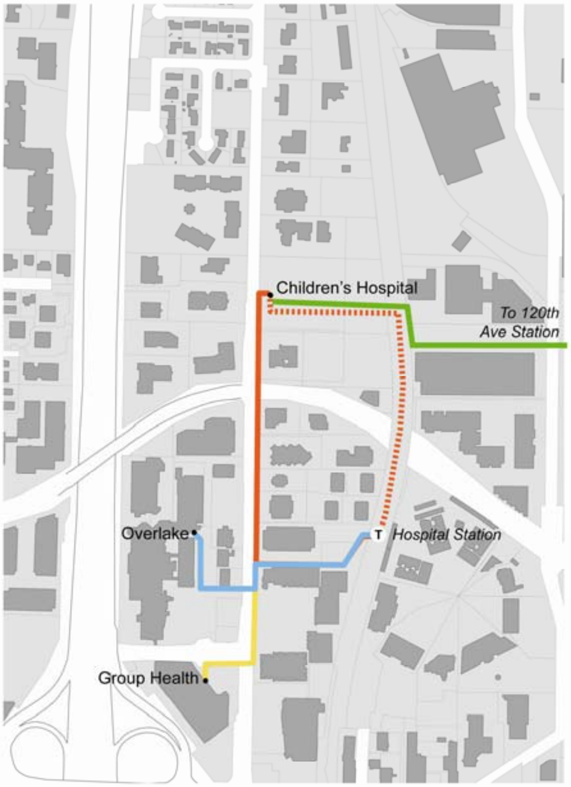
Option B

Uses additional access north of Whole Foods


Children's Hospital
To 120th Ave Station
Overlake
Group Health
T Hospital Station

Option C

Uses additional access north of Whole Foods


Children's Hospital
To 120th Ave Station
Overlake
T Hospital Station
Group Health
0 125 250 500 750 1,000 Feet

Option D

Hospital Access

As previously discussed, measures would be developed to protect Sturtevant Creek during construction. After construction, the creek would remain in an open channel, consistent with City of Bellevue regulations.

Construction Risk and Effects

Sound Transit has developed a qualitative assessment of the disruption to residents, businesses, and street-level activity associated with each option. This measure is intended to highlight the differences between the most intense construction phases for each option during the time that those who live, work, or do business in the surrounding environs would most likely be affected by construction activities.

Construction duration is determined by construction type and typical production rates for each type. The reported qualitative comparison is based on assessment of a typical project comprising the different types. The actual construction schedule will depend on the type of construction, timing of the start of construction, and other factors that will not be known until final design. The size and location of property designated for construction staging relative to the station site will have a bearing on the temporary impacts to adjacent properties and ease and duration of construction.

4 TRANSIT-ORIENTED DEVELOPMENT

The City of Bellevue has identified six specific areas in the vicinity of the hospital Station options that have the potential to support existing and future transit-oriented development (TOD) (*see TOD Areas Map on p. 12*). The current forecast is for approximately 10,300 total jobs in these six areas by 2030 along with roughly 1,425 residents. High, Medium and Low rankings have been used to assess each of the areas by station location options (*see TOD Assessment on p. 13*).

Area 1: Medical Institution District and Medical Office area north of NE 12th Street, including Children's Hospital.

Area 2: Medical Institution District west of 116th Avenue south of NE 12th Street, including Group Health and Overlake Hospital Medical Center.

Area 3: Medical Office east of 116th Avenue NE south of NE 12th Street, primarily zoned for high-rise medical office.

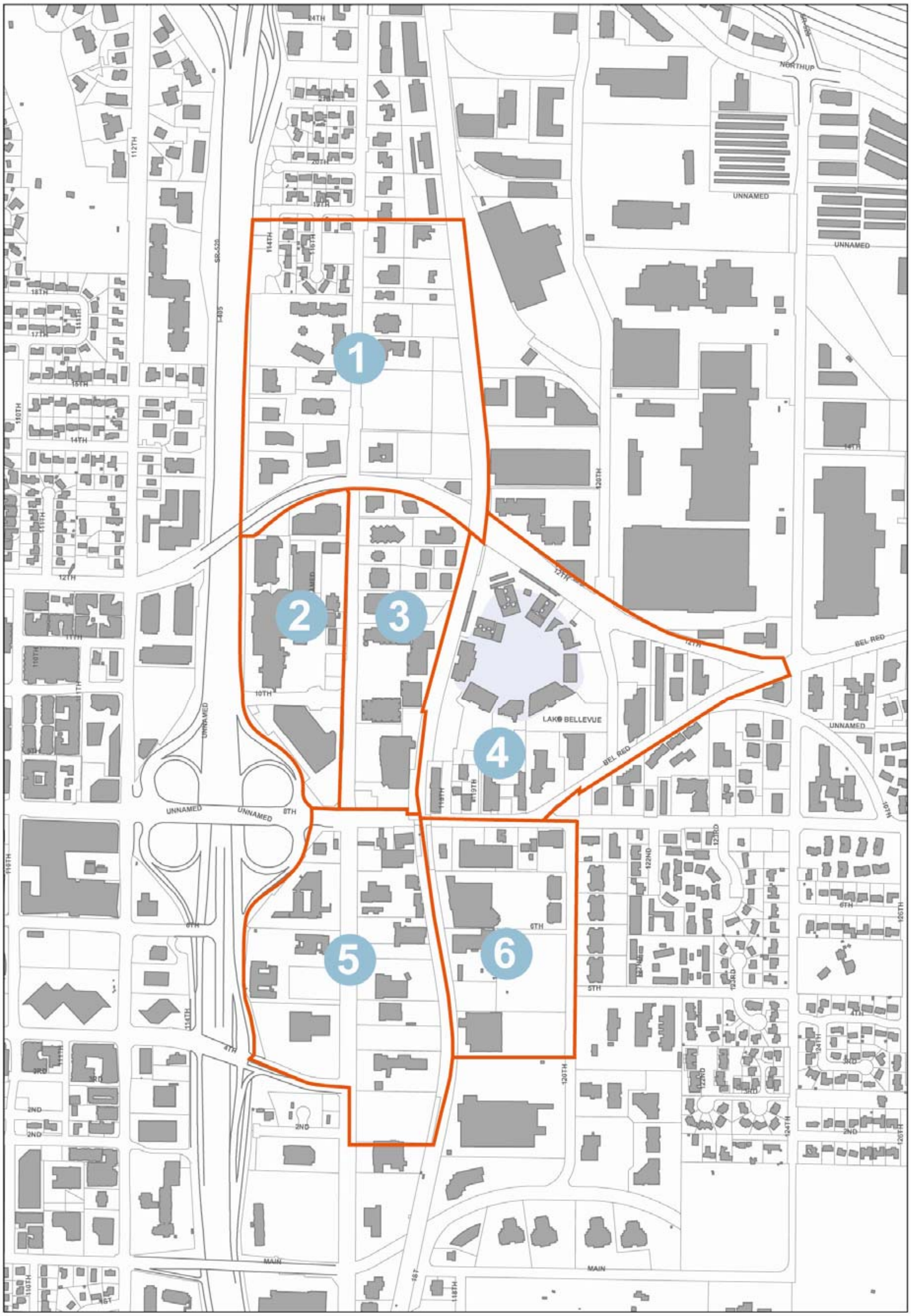
Area 4: Lake Bellevue/Brierwood Center, zoned for low-rise commercial and mid-rise mixed use development.

Area 5: Wilburton Opportunity Are west of BNSF; the City's Comprehensive Plan anticipates transit supportive land uses.

Area 6: Wilburton Village east of BNSF; the City's Comprehensive Plan supports mid-rise, mixed use redevelopment.

5. SUMMARY OF STATION OPTIONS

The *Summary Matrix on page 15* presents the measures and qualitative ratings for each option according to the evaluation criteria. The following is a discussion of the key differentiating features for each station location. (*see Station Plans on pages. 18-21*).


1
2
3
4
5
6
NORTHUP
SR-520
I-405
114TH
116TH
120TH
12TH
BEL RED
LAKE BELLEVUE
UNNAMED
8TH
6TH
5TH
4TH
2ND
MAIN
112TH
110TH
1ST
0
250
500
1,000
1,500
2,000
Feet

TOD Areas

TOD Assessment

Criteria	Measure	Option A: North of NE 8th St	Option B: Span NE 8th St	Option C: South of NE 10th St	Option D: At-Grade, North of 10th
Transit-Oriented Development (TOD) Ability of station location to support existing or potential TOD in specific areas (see map)	AREA 1: Medical Institution District and Medical Office area north of NE 12th St; includes Children's Hospital.	Low	Low: similar to Option A	Low: similar to Option A	Medium
	AREA 2: Medical Institution District west of 116th Ave south of NE 12th St; includes Group Health and Overlake Hospital Medical Center.	High	High: similar to Option A	High: similar to Option A	Medium
	AREA 3: Medical Office east of 116th Ave south of NE 12th St; primarily zoned for high-rise medical office.	High	High: similar to Option A.	High: similar to Option A.	High
	AREA 4: Lake Bellevue / Brierwood Center; zoned for low-rise commercial and mid-rise mixed use development.	Medium	Medium: similar to Option A.	Medium: similar to Option A.	Low to Medium
	AREA 5: Wilburton Opportunity Area west of BNSF; City's Comprehensive Plan anticipates transit supportive land uses.	Medium to High	High	Medium to High	Low
	AREA 6: Wilburton Village east of BNSF; City's Comprehensive Plan supports mid-rise, mixed use redevelopment.	Medium to High	High	Medium to High	Low

Option A: North of NE 8th Street

The elevated station is visible from NE 8th Street, served by a ground level entry plaza on the north side of NE 8th Street on which the vertical access facilities are located. This is accompanied by a paved emergency vehicle and paratransit access driveway and turnaround connecting to NE 8th Street. For the station plaza area, vehicle access and turnaround, and construction staging, adjacent property on the east side of the corridor would need to be acquired. Several businesses are displaced, while parking for other businesses that remain is reduced. The sanitary sewer interceptor would remain within the existing BNSF right-of-way; however, a portion of the proposed water transmission line is anticipated to lie within property to be acquired by Sound Transit for the project.

While the primary station entry is from the north side of NE 8th Street, an additional station entry could be provided from NE 116th Avenue, north of Whole Foods. Right-of-way would be acquired to accommodate a 14-foot wide walkway that connects to the ground level station plaza by ramp to make up the elevation difference. A second set of fare vending equipment would be required to serve this secondary entry. All costs would be considered add-on.

- Option A is the baseline for the comparison of alternatives. Option A would provide a high degree of visibility with its location adjacent to NE 8th Street (one of the City's primary arterials) and reasonable access to Wilburton areas south of NE 8th. Hospital access would be moderate via NE 8th Street and could be enhanced with a secondary station entry north of Whole Foods, at additional cost.

Option B: Span NE 8th Street

The elevated station is the most visible from NE 8th Street (as it is directly above the street), and is served by ground level plazas on both the north and south sides of NE 8th. Similar to Option A an alternate station entry could be provided from NE 116th Avenue by a pedestrian access right-of-way. The pedestrian walkway would be more extensive as the station is shifted farther south, with approximately 320 feet paralleling the area reserved for freight rail or multi-use trail; however, no additional ticket vending equipment would be necessary. As with the alternative entry in Option A this pedestrian walkway would cross the potential freight rail track west of the station plaza. Due to the more restrictive alignment geometry to accommodate shifting the station south to straddle NE 8th Street, the operating train speed for the south approach would be reduced from 30 mph to 20 mph.

Right-of-way acquisition for the entry plaza, vehicle access and turnaround, and construction staging is reduced from that required for Option A; however, property would be acquired south of NE 8th Street for staging construction of the southern portion of the station. There would be additional construction risk and impacts to the public for building the station over 8th Street. More extensive traffic control and construction sequencing of station elements over the street, coupled with public and worker safety, create greater complexity for this option.

- Option B's location straddling NE 8th with access points on both sides of the street provides it with the greatest visibility and the broadest land use accessibility. The more complex design of locating the station over the street results in higher cost than Option A. It provides the most direct access to the Wilburton area south of NE 8th Street and its additional northern station entrance provides access to the hospitals. Like Option A, hospital access could be further enhanced with an alternative station entry north of

SUMMARY – Evaluation of Hospital Station Options

Criteria	Measure	Option A: North of NE 8th St	Option B: Span NE 8th St	Option C: South of NE 10th St	Option D: At-Grade, North of 10th
Cost	Difference from baseline (Option A)	---	*Slightly more*	*Slightly more*	*Less*
Station Characteristics (Options A, B, C elevated)	Station spacing (from 120th Avenue Station)	3000 ft	3200 ft	2800 ft	2100 ft
	Station visibility	High	Highest	Moderate	Low
	Quality of connection (safety, comfort, design of pedestrian environment)	Moderate	High	Moderate	Low
Walk Analysis Wilburton/Medical Office area land use accessibility (based on 2030 forecast for TOD areas – see map)	Percent of jobs within 5-minute walk	50%	53%	50%	35%
	Percent of jobs within 10-minute walk	83%	84%	84%	84%
	Percent of population within 5-minute walk	28%	42%	28%	0%
	Percent of population within 10-minute walk	99%	99%	99%	53%
Hospital Access Shortest distance from station entrance to front door of specific medical facility	Group Health - assumes use of additional pedestrian access for connection from BNSF to 116th Ave for Options A, B and C	900 ft	1,175 ft	825 ft	1.450 ft
	Overlake Hospital - assumes use of one of two potential pedestrian connections from BNSF to 116th Ave	1,475 ft	1,750 ft	1,400 ft	1,300 ft
	Children's Hospital – (1) via 116th Ave with connection from BNSF; (2) via BNSF corridor assuming connection to Children's Hospital; and (3) distance from 120th Avenue Station via new NE 15th Street	2,500 ft 2,575 ft *(1,700 ft)	2,775 ft 2,850 ft *(1,700 ft)	2,425 ft 2,500 ft *(1,700 ft)	2,100 ft 1,750 ft *(1,700 ft)
Environmental impacts	Displacements	5 businesses	5 businesses	1 business	0
Construction risk	Relative risk to schedule and budget	Moderate	Higher	Moderate to Higher	Lower
Construction effects	Intensity of impacts to existing activities	Moderate	Moderate to High	Moderate	Moderate to Low
	Construction duration	Intermediate	Longest	Intermediate	Shortest

Whole Foods, at additional cost. Option B may increase the complexity of a future grade-separated crossing of NE 8th Street by the planned multi-use trail.

Option C: South of NE 10th Street

The south end of this elevated station is located approximately 300 feet north of NE 8th Street with lower visibility than Options A or B. Access to the station is provided by a walkway that would parallel the area reserved for freight rail operations (or a multi-use trail) for approximately 500 feet before crossing to the entry plaza. Similar to Options A and B an alternative station entry connecting the plaza to 116th Avenue NE by walkway and ramp could be added on. The emergency vehicle and paratransit access serving the station is connected to NE 8th Street by a 300-foot long driveway within the 118th Avenue NE right-of-way.

Although property would be acquired for the emergency and paratransit turnaround and construction staging, this station option would preserve the property and businesses located at the northeast quadrant of NE 8th Street and the BNSF. However, due to the slightly more skewed approach to the BNSF corridor for the LRT alignment, acquisition of property at the southwest quadrant of the NE 8th/BNSF intersection and displacement of one business would be required. Additionally, because of a pinch point created by the alignment within the BNSF corridor north of the station, a portion of the 72-inch sanitary sewer interceptor would need to be relocated, including acquisition of right-of-way or easement by the project. It should also be noted that a portion of the planned water transmission line would potentially require an easement or right-of-way across the property at the northeast quadrant at the utility owner's cost.

- Option C, consisting of an elevated station north of NE 8th Street, would have costs, advantages and disadvantages similar to Option A. Its more northern location avoids four business displacements. Without the additional station entry the access to the hospital facilities is made worse than Options A and B. This station is less visible and provides less access to the Wilburton areas south of NE 8th.

Option D: At-Grade, North of NE 10th Street

The at-grade station is located approximately 1,100 feet north of NE 8th Street, with pedestrian access provided by a 500-foot long walkway from 116th Avenue NE that would share the paved right-of-way to be acquired with emergency and paratransit access. Although the station is described as "at-grade", since no elevators or stairs are required, there is a substantial grade difference between the existing elevation of the BNSF corridor and the adjacent property on the west and the station would actually be situated on several feet of fill.

The entry plaza for the station would be sited immediately west of the BNSF and contain bicycle parking, paratransit shelter, and emergency vehicle access. Because of geometric requirements of the alignment north of the station location (routing under the NE 12th Street overpass for connection to Segment D as well as location of the junction for a potential future extension to Kirkland), the separation between the light rail tracks must be minimized and side platforms are thereby required. Pedestrians would need to cross both the area reserved for freight rail operations or multi-use trail and the light rail tracks in order to access the platforms.

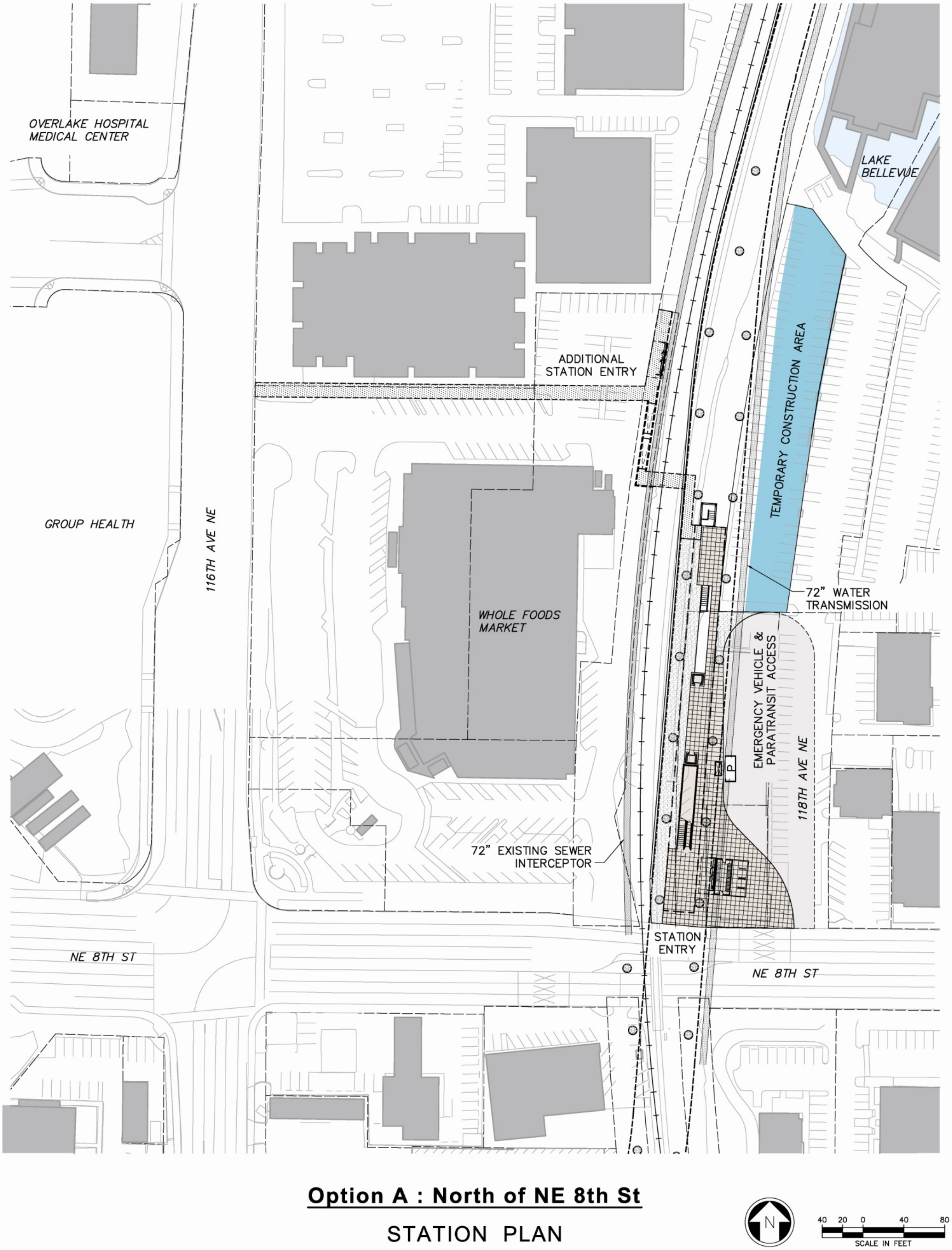
Property adjacent to the west side of the corridor would be acquired for construction staging as well as the entry plaza and vehicle access and turnaround. The walkway is defined as 14-feet wide while the vehicular access is 22 feet; the resulting 36-foot wide right-of-way would likely eliminate the row of surface parking adjacent to the existing parking structure to the north. On the east side of the BNSF right-of-way space is very constrained; although there would be sufficient width for the proposed 72-inch water transmission line construction may be challenging and temporary easements may be required. The proximity of Lake Bellevue to the station and water line may be an issue and special considerations (shoring, dewatering, etc) would need to be investigated for final design and construction.

- Option D is the lowest cost option and provides the most direct access to Overlake Hospital and Children's Hospital. Located approximately 1,100 feet north of NE 8th Street in the BNSF corridor, the station would be accessed by a 500-foot long entry way connecting to 116th Avenue NE, making the station the least visible. The station would also provide the least access to Wilburton areas south of NE 8th and result in a substantial overlap in service with the 120th Avenue Station. The side platform configuration dictated by the alignment geometry requires passengers to cross the light rail tracks to access the station, whereas the elevated center platform options do not. This would require additional crossing bells and signals to ensure passenger safety that are not required at the other station options. Given that the Option D station is located the closest to the multi-family residences, noise from bells on trains entering and exiting the station may affect the nearby multi-family building the most with this option compared to the other options.

6. NEXT STEPS

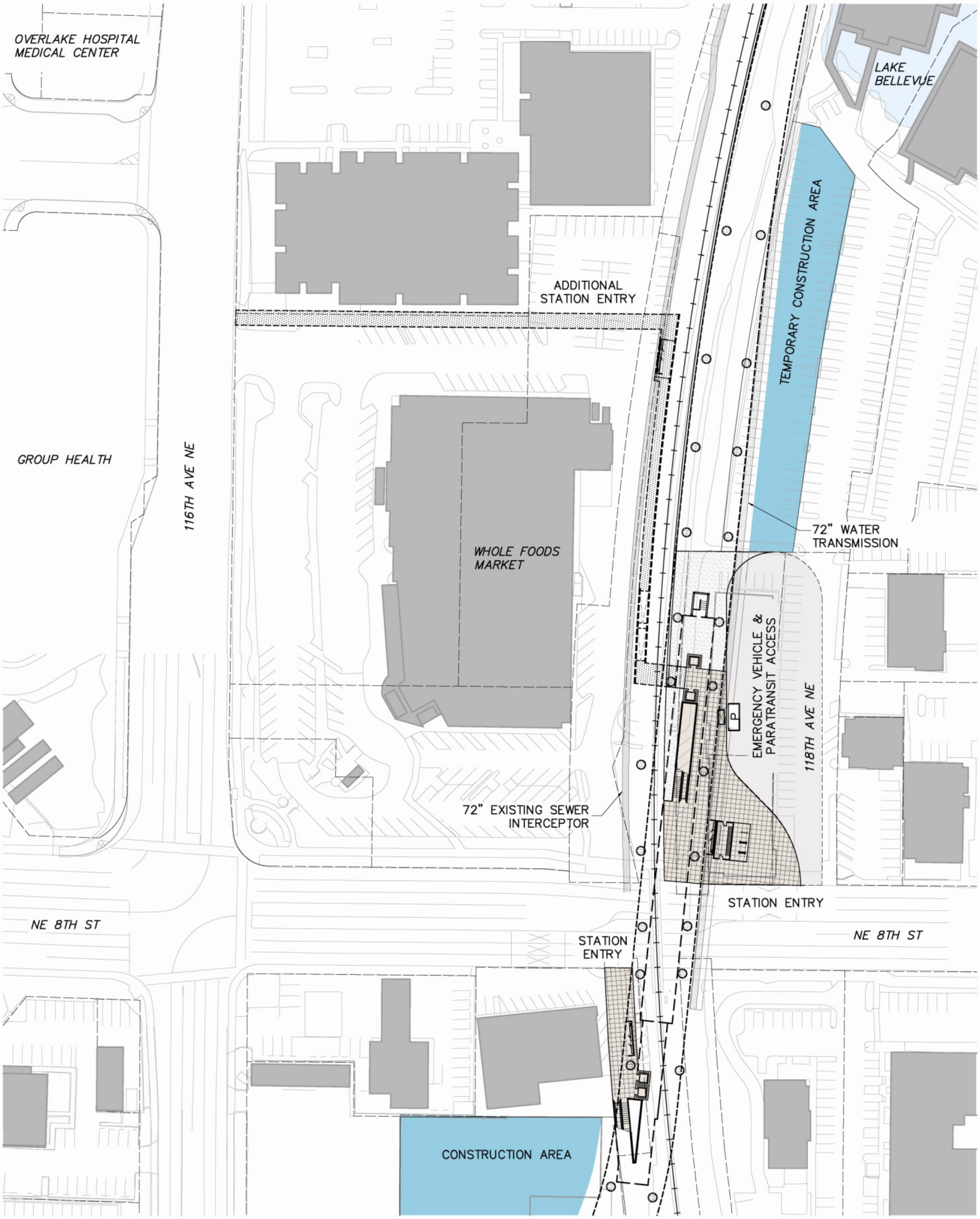
The Sound Transit Board is expected to identify a preferred station option on July 22, 2010. If the Board's preferred location of the Hospital Station is different from that considered in the DEIS, it would be further studied in a Supplemental DEIS, which is scheduled to be published in fall 2010. The Final EIS and Supplemental DEIS will present more refined costs and more complete impact analyses for the preferred option.

In addition to technical work, Sound Transit and the City of Bellevue will engage community members and stakeholders in public outreach meetings and opportunities to provide comment.


OVERLAKE HOSPITAL MEDICAL CENTER
LAKE BELLEVUE
ADDITIONAL STATION ENTRY
TEMPORARY CONSTRUCTION AREA
GROUP HEALTH
116TH AVE NE
WHOLE FOODS MARKET
72" WATER TRANSMISSION
EMERGENCY VEHICLE & PARATRANSIT ACCESS
118TH AVE NE
P
72" EXISTING SEWER INTERCEPTOR
STATION ENTRY
NE 8TH ST
NE 8TH ST
N
40 20 0 40 80
SCALE IN FEET

Option A : North of NE 8th St

STATION PLAN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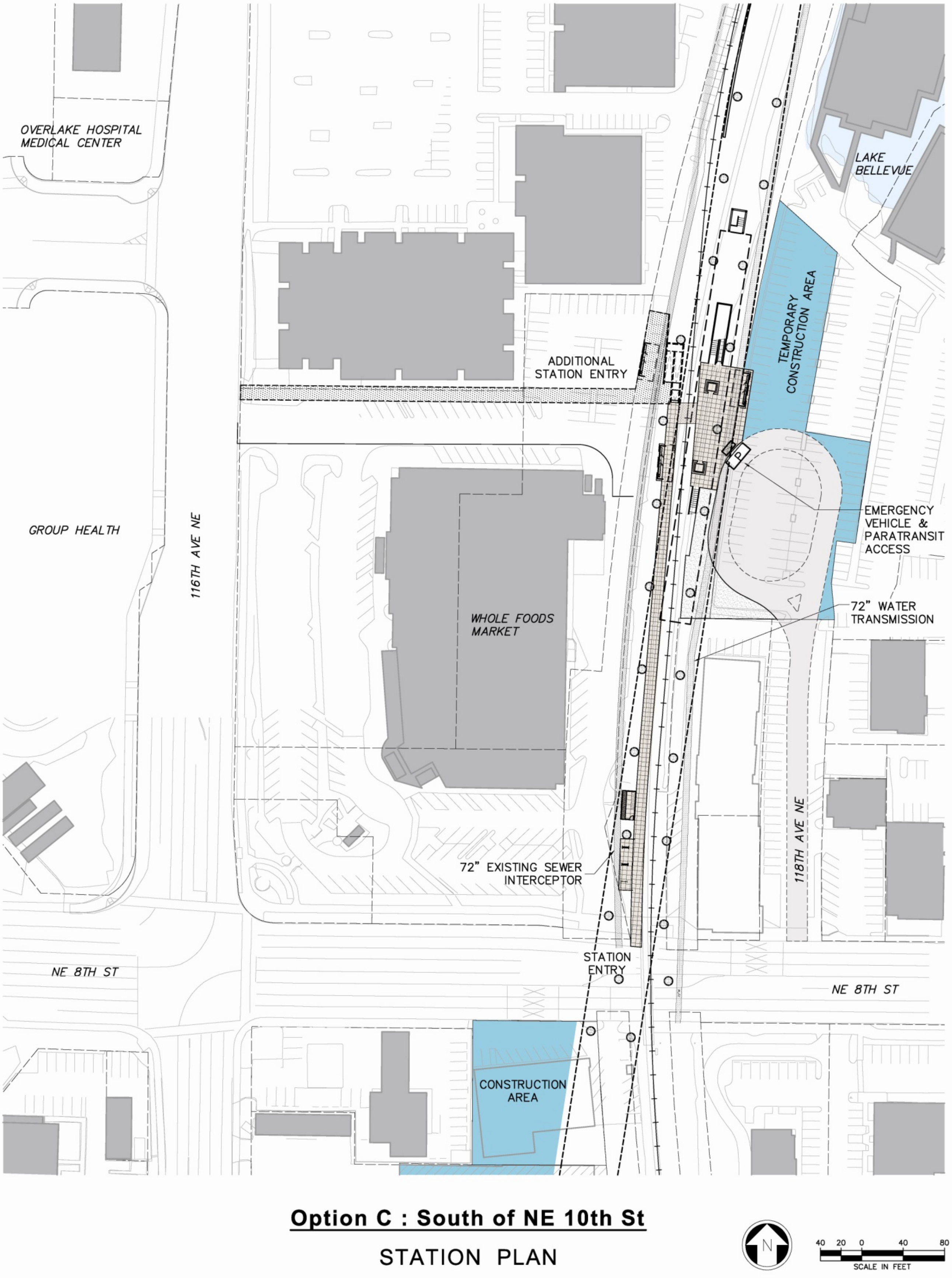
LAKE BELLEVUE
TEMPORARY CONSTRUCTION AREA
ADDITIONAL STATION ENTRY
GROUP HEALTH
116TH AVE NE
WHOLE FOODS MARKET
72" WATER TRANSMISSION
EMERGENCY VEHICLE & PARATRANSIT ACCESS
118TH AVE NE
P
72" EXISTING SEWER INTERCEPTOR
STATION ENTRY
NE 8TH ST
STATION ENTRY
NE 8TH ST
CONSTRUCTION AREA

Option B : Span NE 8th St

STATION PLAN

N
40 20 0 40 80
SCALE IN FEET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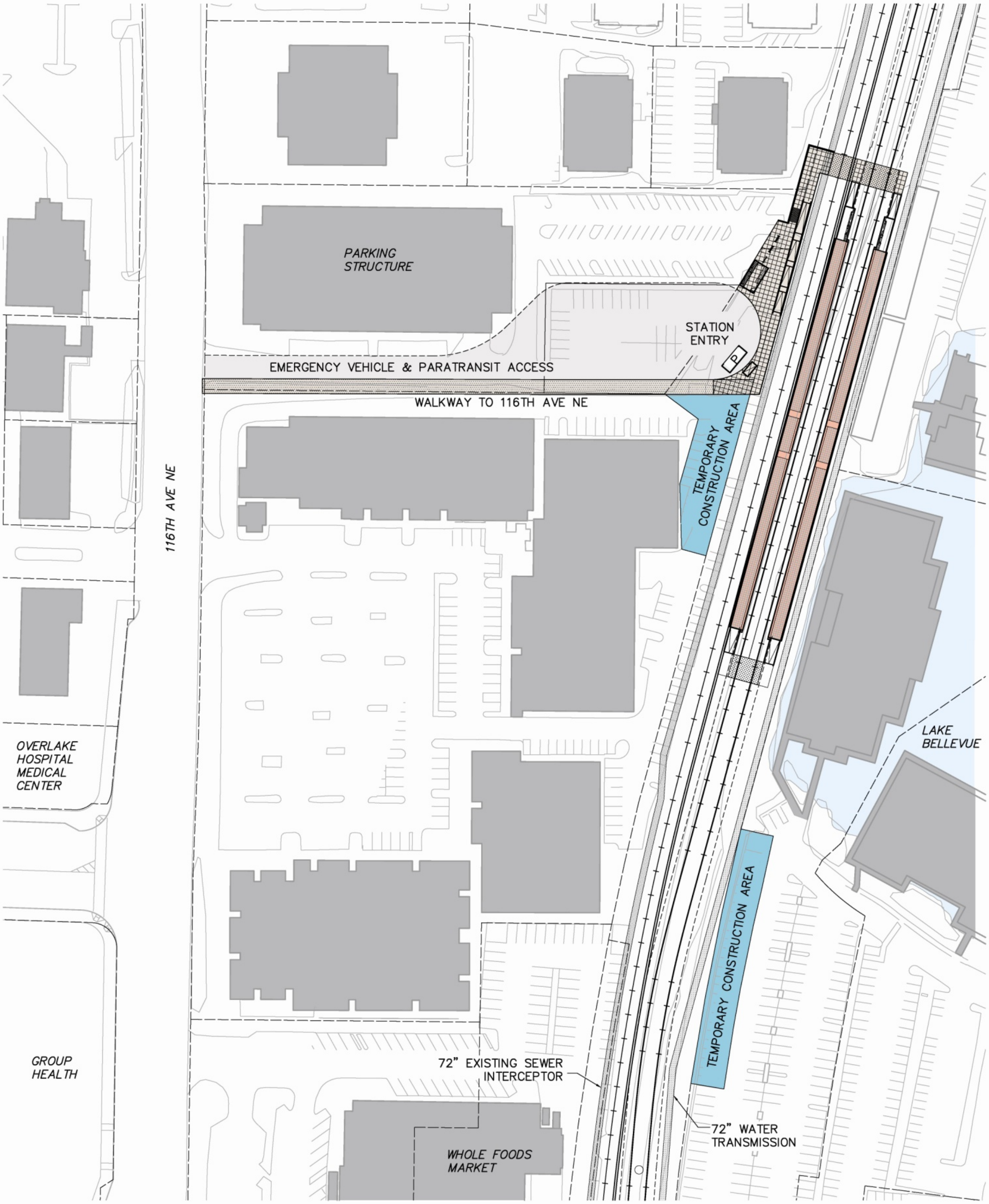
LAKE BELLEVUE
TEMPORARY CONSTRUCTION AREA
ADDITIONAL STATION ENTRY
GROUP HEALTH
116TH AVE NE
WHOLE FOODS MARKET
EMERGENCY VEHICLE & PARATRANSIT ACCESS
72" WATER TRANSMISSION
118TH AVE NE
72" EXISTING SEWER INTERCEPTOR
STATION ENTRY
NE 8TH ST
NE 8TH ST
CONSTRUCTION AREA
N
40 20 0 40 80
SCALE IN FEET

Option C : South of NE 10th St

STATION PLAN


PARKING STRUCTURE
STATION ENTRY
P
EMERGENCY VEHICLE & PARATRANSIT ACCESS
WALKWAY TO 116TH AVE NE
TEMPORARY CONSTRUCTION AREA
116TH AVE NE
LAKE BELLEVUE
OVERLAKE HOSPITAL MEDICAL CENTER
TEMPORARY CONSTRUCTION AREA
GROUP HEALTH
72" EXISTING SEWER INTERCEPTOR
72" WATER TRANSMISSION
WHOLE FOODS MARKET

Option D: At Grade, North of NE 10th St

STATION PLAN

N
40 20 0 40 80
SCALE IN FEET

City of Bellevue

East Link Light Rail B7/C9T to NE 2nd Portal (B7 – Revised) Alternative

RP03 – Interim Analysis Report

215382/RP03

Review Draft 3 | May 2011

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 215382-00

ARUP

Document Verification

ARUP

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		Name			
		Signature			

Issue Document Verification with Document ☑

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Appendices

Appendix A

Alignment drawings

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Executive summary

Bellevue City Council has initiated the development of a concept design for an alternative to the B7 and C9T alternatives studied by Sound Transit in the DEIS and SDEIS for the East Link project. The objectives of the additional analysis are to improve performance, to reduce impacts, and to reduce costs, as compared with the Sound Transit B7 and C9T alternatives. The revisions to the B7 and C9T alternatives that Council requested be incorporated into the new alignment are identified in the Figure 1 below.

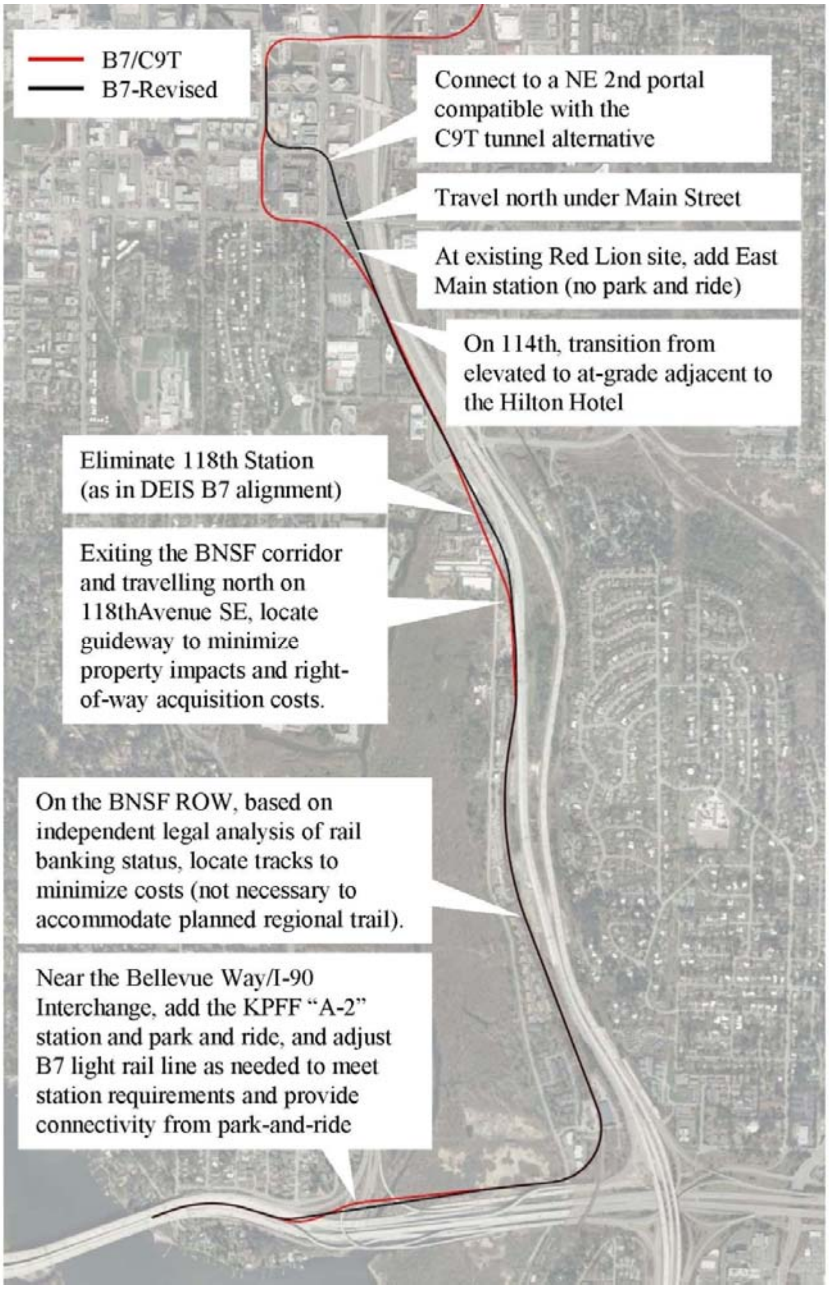
B7/C9T
B7-Revised
Connect to a NE 2nd portal compatible with the C9T tunnel alternative
Travel north under Main Street
At existing Red Lion site, add East Main station (no park and ride)
On 114th, transition from elevated to at-grade adjacent to the Hilton Hotel
Eliminate 118th Station (as in DEIS B7 alignment)
Exiting the BNSF corridor and travelling north on 118thAvenue SE, locate guideway to minimize property impacts and right-of-way acquisition costs.
On the BNSF ROW, based on independent legal analysis of rail banking status, locate tracks to minimize costs (not necessary to accommodate planned regional trail).
Near the Bellevue Way/I-90 Interchange, add the KPFF "A-2" station and park and ride, and adjust B7 light rail line as needed to meet station requirements and provide connectivity from park-and-ride

Figure 1 - B7-Revised revisions to B7 and C9T alternatives

The alignment for the alternative, the B7-Revised alternative, commences on the east side of the I-90 Lake Washington Bridge and follows the north side of I-90 to the I-405 where it turns north, parallel with the I-405. At NE 2nd Street the alignment turns west towards the proposed Bellevue Transit Center Station. The northern terminus of the study is at the south end of the proposed Bellevue Transit Center Station. A new station and park-and-ride will be located at the south end of Bellevue Way, and a second new station will be located near the Red Lion Hotel site.

The alternative has been developed to optimize ridership while minimizing construction costs, property impacts and environmental impacts.

Following an optimization meeting with City staff in which a number of options for each segment of the alignment were discussed and preferred options identified, a concept alignment, and station designs, were developed.

Two alignment options were developed for the BNSF corridor adjacent to the I-405, in which a future freight operator would either share the light rail tracks or establish a dedicate freight line in a prepared corridor alongside the light rail tracks.

The concept design was subject to an early environmental screening to allow an early assessment of the alternative and to provide early comparison with the Sound Transit B7 and C9T alternatives. This screening includes:

- Cost Estimate
- Right of Way and property impacts
- Ridership
- Transportation impacts at the A-2 Station
- Environmental/ecology impacts

The team reached out to stakeholders (Sound Transit, WSDOT, King County) to obtain base information along the corridor and relevant input on the development of the alternative.

A public involvement program was established and two well-attended public open houses were held to obtain community input and comment.

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Key Findings

- The B7-Revised is a feasible alternative that improves ridership over the B7/C9T alternative but has a higher project cost. The alternative has similar property impacts and has a number of additional environmental impacts relative to the B7 and C9T alternatives. A summary of the early screening analysis is provided below.

Features	B7-Revised	B7/C9T
Estimated cost (millions, 2007 $)	$894.00	$883.80
2030 Daily Ridership (project-wide)	50,500	49,000
Noise-impacted receptors - unmitigated (mitigated)	237 (0)	182 (0)
Residential displacements (number of housing units)	12	0
Business displacements (number of employees)	215	268
Full/partial property acquisitions	35	34
Wetlands/wetland buffer affected (acres)	1.8/0.8	2.1/1.0
Parks/Section 4(f) and 6(f) (acres before mitigation)	1.1	1.3

- The most substantial environmental differentiators of B7-Revised compared with B7/C9T are the following:
  - More wetland and park impacts associated with the A-2 Station and park-and-ride.
  - More pollutant-generating impervious surface related to A-2 Station and park-and-ride.
  - Change in visual quality overall at the A-2 Station and park-and-ride.
  - More disturbance of special-status fish species and good quality stream habitat in Sturtevant Creek.
- The A-2 Station requires a number of traffic mitigation measures at Bellevue Way:
  - Ramp access to station from east side of Bellevue Way.
  - Additional right-turn lane at north end of SE 30th Street.
  - Traffic signal to control the southbound and eastbound movements at the intersection of Bellevue Way and SE 30th Street.
  - Third lane on the southbound approach on Bellevue Way to SE 30th Street.
  - Pocket lane on Bellevue Way northbound south of station access.
  - Acceleration lane onto Bellevue Way northbound.
- The provision of a dedicated freight corridor in the BNSF corridor represents a similar cost to the shared track scheme and provides fewer restrictions on Sound Transit and the freight operator in operating in the corridor.
- The construction method and foundation scheme for the Mercer Slough crossing will require further work to develop a robust solution and to address WSDOTs concerns regarding risks to their existing I-90 facilities.

1 Introduction

1.1 Project description

The East Link project is an extension to Sound Transit’s Link light rail system that will provide light rail service across Lake Washington, linking Seattle, Bellevue, and Redmond (Overlake).

For the segment of East Link between the Lake Washington crossing and downtown Bellevue, Sound Transit has developed the B7 alternative to a conceptual engineering level of design (approximately five percent design) as part of the Draft Environmental Impact Statement (DEIS) for the project which was issued in December 2008.

A Supplemental Draft EIS, which analyzes new alternatives developed since the DEIS, was published in November 2010. That supplemental document includes updated conceptual engineering for the Sound Transit B7 alternative and a C9T alternative that could connect B7 to a station at the Bellevue Transit Center. A Final EIS is expected in the summer of 2011.

At the September 13, 2010, Bellevue City Council Study Session, the council discussed the need for design variations and for additional analysis of revised East Link B7 and C9T alternatives. The objectives of the additional analysis would be to improve performance, to reduce impacts, and to reduce costs, as compared with the Sound Transit B7 and C9T alternatives. As a result of that discussion the council initiated the development of a modified B7 alternative (“B7-Revised”). The council directed City staff to develop an “apples-to-apples” comparison of the Sound Transit B7 and C9T alternatives with a B7-Revised alternative. ARUP were commissioned by the City to develop the B7-Revised alternative.

The B7-Revised alternative begins at the transition from East Link Segment A to Segment B at the east shore of Lake Washington and connects with a new elevated station (A-2 Station) over south Bellevue Way/I-90 ramps. The alignment continues east from the station along the north side of I-90 and turns north into the BNSF corridor with an at-grade profile. The alignment transitions to elevated as it leaves the BNSF corridor, crosses over SE 8th Street, and transitions back to at-grade prior to a new station (East Main Station) just south of Main Street on the current Red Lion Hotel site. The alignment crosses under Main Street and turns west on the current Sheraton Hotel site before entering a tunnel portal at NE 2nd Street. The B7-Revised alternative is approximately three miles long with a combination of at-grade, elevated, and open-cut sections.

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1.2 Scope of report

1.2.1 The study

The scope of the study is to develop a concept alignment for the B7-Revised alternative, and a concept design for an associated station on South Bellevue Way, and to carry out environmental screening of the alternative with assessments of the following:

- Ridership
- Property and right-of-way (RoW) impacts
- Transportation and traffic impacts
- Visual impacts
- Noise impacts
- Environmental/ecology impacts
- Cost estimate
- Constructability

The scope also includes the development of a public involvement program comprising up to three open houses to engage the community in the study.

After commencement, the extent of the study was extended in two areas:

BNSF Corridor

In the BNSF corridor two options were developed and screened:

- Shared Track Option – This provides two light rail tracks that could be shared in the future with a freight operation. A regional trail was not considered in this option.
- Additional Freight Corridor Option – This option would provide an 18-foot corridor alongside the light rail tracks, in which a dedicated freight operation could be established in the future. As an interim use of the 18-foot future freight rail corridor, a regional trail could be established.

Extension to Bellevue Transit Center Station

To allow a comparison of the B7-Revised with the B7 and C9T alternatives the northern extent of the study area was extended to the south end of the Bellevue Transit Center station where the B7-Revised alignment ties in with the C9T alignment.

1.2.2 Report objectives

This report represents an interim analysis of the work carried out to date to assess the feasibility of the alternative and to provide the City of Bellevue with early

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information to determine the viability of the alternative. The report summarizes the work completed to date. In particular, it presents the following information:

- A summary of the development of the alignment
- A summary of the planning of the A-2 Station
- A summary of the findings of early screening:
  - Cost estimate
  - Ridership
  - Environmental impacts
  - Property and RoW impacts
  - Noise impacts
  - Transportation and traffic impacts at the station location
- The finding of the study of options in the BNSF corridor
- Overview of stakeholder and public involvement in the study

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1.3 "Apples-to-apples" comparison

Direction from the City Council is to develop a B7-Revised alternative that can be compared directly with the B7 and C9T alternatives developed by Sound Transit in the DEIS and SDEIS. To achieve this, the alignment uses Sound Transit's design criteria and was screened using similar methodologies to Sound Transit's. Sound Transit worked with the project team to run the ridership model and to provide input to, and review of, all aspects of the study.

Areas of the study for which the project team was directed to adopt a different approach to that adopted by Sound Transit are as follows:

Traffic modeling – The City directed the team to adopt the BKR model for traffic generation rather than the Puget Sound Regional Council model adopted by Sound Transit because the BKR Model has greater detail for the localized road network and traffic analysis zones. The BKR Model was used on both B7/C9T and B7-Revised alternatives to allow an "Apples to Apples" comparison between the two alternatives.

- BNSF Corridor – the City directed the team to develop two alternatives
  1. Shared tracks, in which future freight operations would share the light rail tracks
  2. Freight corridor, in which a freight corridor is provided alongside the light rail tracks to allow a dedicated freight line in the future

  Option 1 does not provides a future trail through the corridor. Option 2 provides the space to allow a trail to be established alongside the light rail tracks.

1.4 Supporting documents

The concept design and early assessments, the comparison of options in the BNSF corridor, and reports on the open houses are presented in a series of technical memos and reports that should be referred to in conjunction with this report:

- Open House 1 Report (RP01)
- Open House 2 Report (RP02)
- Existing Information (TM01)
- Design Deviations (TM02)
- A-2 Station Concept (TM03)
- South Bellevue Traffic Impact Analysis (TM04)
- A-2 Station Cost Estimate (TM05)
- Early Concept Alignment (TM06)
- LRT Ridership (TM07)
- Right of Way (TM08)
- Noise Impact Assessment (TM09)
- Early Environmental Screening (TM10)
- Early Cost Estimate (TM11)
- Shared Track with Freight Rail (TM12)
- B7-Revised Optimization (TM13)
- BNSF Corridor: Additional Freight Corridor Option (TM14)

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2 Alternative development

2.1 Council direction

Council direction for the development of the B7-Revised alternative is to identify the optimum location for an alignment utilizing the East Link DEIS B7 alignment and the C9T with a NE 2nd Street portal as a base, with the following modifications:

- Near the Bellevue Way/I-90 interchange, add the KPFF “A-2” Station and park-and-ride and adjust the B7 light rail line as needed to meet station requirements and to provide connectivity from park-and-ride
- On the BNSF RoW, based on independent legal analysis of rail banking status, locate tracks to minimize costs (not necessary to accommodate planned regional trail)
- Exiting the BNSF corridor and traveling north on 118th Avenue SE, locate the guideway to minimize property impacts and RoW costs
- Eliminate the 118th Avenue SE Station (as in the DEIS B7 alignment)
- Add East Main Station at the existing Red Lion site, (no park-and-ride)
- On 114th Avenue SE, transition from elevated to at-grade adjacent to the Hilton Hotel and travel north under Main Street to connect to a NE 2nd Street portal compatible with the C9T tunnel alternative

2.2 B7-Revised optimization

An early review of the B7 and C9T alternatives was completed and an Optimization Meeting held with the City’s staff to identify opportunities for improving the alternative and to discuss the constraints along the corridor. This review considered both the alignment and the A-2 Station.

2.2.1 Alignment

The alignment was discussed in five sections and the following recommendations made:

1. **South Bellevue Way/Station location:** A number of alignment alternatives were proposed to accommodate potential station locations and, for the A-2 Station, balance the proximity to the park-and-ride location with alignment criteria. The selected option seeks to minimize the length of the connection to the park-and-ride and to reduce the span of the viaduct over I-90.
2. **Mercer Slough Crossing:** The B7 alterative runs within a few feet of the I-90 structures across the slough. As such, the impact on the

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wetland was identified in the DEIS as de minimis. To maintain this rating, the B7-Revised alignment should be similarly close.

3 **BNSF Corridor:** the alignment through the BNSF corridor, in accordance with Council direction, is to be largely at-grade and to be optimized to reduce earthworks and retaining structures.

4 **I-405 Viaduct:** From the BNSF corridor to the East Main Station, the alignment is to consider reductions of impacts on the STOR-House property and on the Greenbaum furniture store.

5 **East Main Station:** Alternatives that were discussed for the alignment in this area included an at-grade option with a grade crossing of Main Street, an elevated alternative over Main Street, and a depressed alignment beneath Main Street. The depressed option was selected for further study to accord with the Council's direction.

2.2.2 South Bellevue Station

An Alternative Location Analysis previously commissioned by the City identified the preferred location for a station at the south of Bellevue Way between 113th Avenue SE and Bellevue Way. This location was labeled as the A-2 Station location.

A number of alternative station and park-and-ride locations and layouts were reviewed at the Optimization Meeting:

1. **Relocate the station and the park-and-ride facilities to the intersection of SE 34th Street and 112th Avenue SE:** Although this relocation would reduce the walking distance from the park-and-ride to the station platform, it was rejected for the following reasons:
    - Traffic impacts along 113th Avenue SE and potentially through Enatai would be significant
    - The parking structure would potentially be more expensive to comply with zoning
    - The bridge over I-90 would have a longer span
2. **Split the park-and-ride facilities between a 118th Avenue SE and an A-2 Station:** This alternative would remove the proposed East Main Station and reduce the size and the impact of the A-2 Station. This option was rejected for the following reasons:
    - Poorer walk/bike access to 118th, as compared with East Main
    - Potentially increased construction cost as a result of developing two sites and two elevated stations
    - Full taking of Greenbaum furniture store and adjacent properties
    - Potential traffic issues at SE 8th Street interchange with I-405

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3. **Develop the A-2 Station concept at the 113th Avenue SE and South Bellevue Way location:** This option was selected as the preferred option for the following reasons:

   - Potentially lower construction costs
   - Reduced impacts on 113th Avenue SE, as compared with the SE 34th Street option
   - Less acquisition of commercial property

   The key constraints and requirements to be addressed in the development of the station were agreed in the meeting:

   - Locate the transit center on top of the structure to minimize the size of the building and to provide an open and accessible facility
   - Minimize the height of the building to reduce visual impacts from 113th Avenue SE
   - Avoid additional traffic on 113th Avenue SE

2.3 Concept design

The concept design developed for the alignment and the A-2 Station is based on the direction from council and the agreements made at the Optimization Meeting.

2.3.1 Early concept alignment

The development of the early concept alignment is described in the following eight sections (see Figure 1):

1. **I-90 Medians**

   - The I-90 crossing is optimized to minimize the span of the crossing and to locate columns in the positions that were agreed between Sound Transit and WSDOT for the B7 alternative. The A-2 Station platform is above the I-90 on- and off-ramps.

2. **A-2 Station/Park-and-Ride**

   - The alignment is adjusted to serve a center platform configuration.
   - The alignment is optimized within constraints of the station track alignment criteria to reduce platform height.
   - The station location will require additional safety measures to protect running traffic while construction work is completed overhead.

3. **Mercer Slough Crossing**

   - The alignment is located close to the I-90 structures to minimize environmental impacts. East of the station, the alignment is lowered to reduce the height of the structure and reduce cost.

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- The construction of the viaduct across Mercer Slough either uses a trestle, as proposed by Sound Transit for the B7 alternative, or an overhead gantry, which minimizes the impacts of construction on the wetland.
- WSDOT has expressed concern regarding the temporary and permanent impacts of construction of a new viaduct close (within 50 feet) to the existing I-90 bridges, which appear to have been damaged by movement of the peat in the slough. Further analysis will be required to finalize the foundation solution to avoid impacts to the existing I-90 structures.

4. BNSF Corridor

- Two options are considered in this section:
    - Shared tracks – Light rail tracks are provided. Provision is made to allow future freight to share these tracks.
    - Freight corridor – An 18-foot-wide corridor alongside the light rail tracks is provide to allow development of a dedicated future freight line.
- The vertical and horizontal alignments are optimized to minimize the extent of earthworks, retaining walls, and property impacts.

5. I-405 Viaduct

- The alignment at the STOR-House self-storage unit is located alongside the I-405, crossing the east side of the property. It avoids direct impact on the building and piers are placed to avoid impact on the building's access. The piers impact the I-405 gabion retaining wall, which will require stabilization and local replacement.
- Several options were considered to minimize impacts on the Greenbaum furniture store. However, the constraints of the I-405 masterplan, and the efficiencies gained through reducing the span of the skew crossings of 118th Avenue SE, combined to dictate an alignment that passes over the eastern edge of the building. Sound Transit's policy is not to cross over existing buildings, and therefore modifications of the building will be required to maintain the business in place.

6. Sturtevant Creek

- Both at-grade/retained fill and elevated options were considered in the area of the creek. The assessment presented to the City indicated significant cost savings associated with the at-grade option and indicated that impacts and permitting issues were similar. As a result, the City agreed to proceed with the at-grade option.

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- The at-grade/retained fill alignment requires some relocation of streambed and environmental mitigation, and a short bridge across the stream to avoid extension of the I-405 culvert.

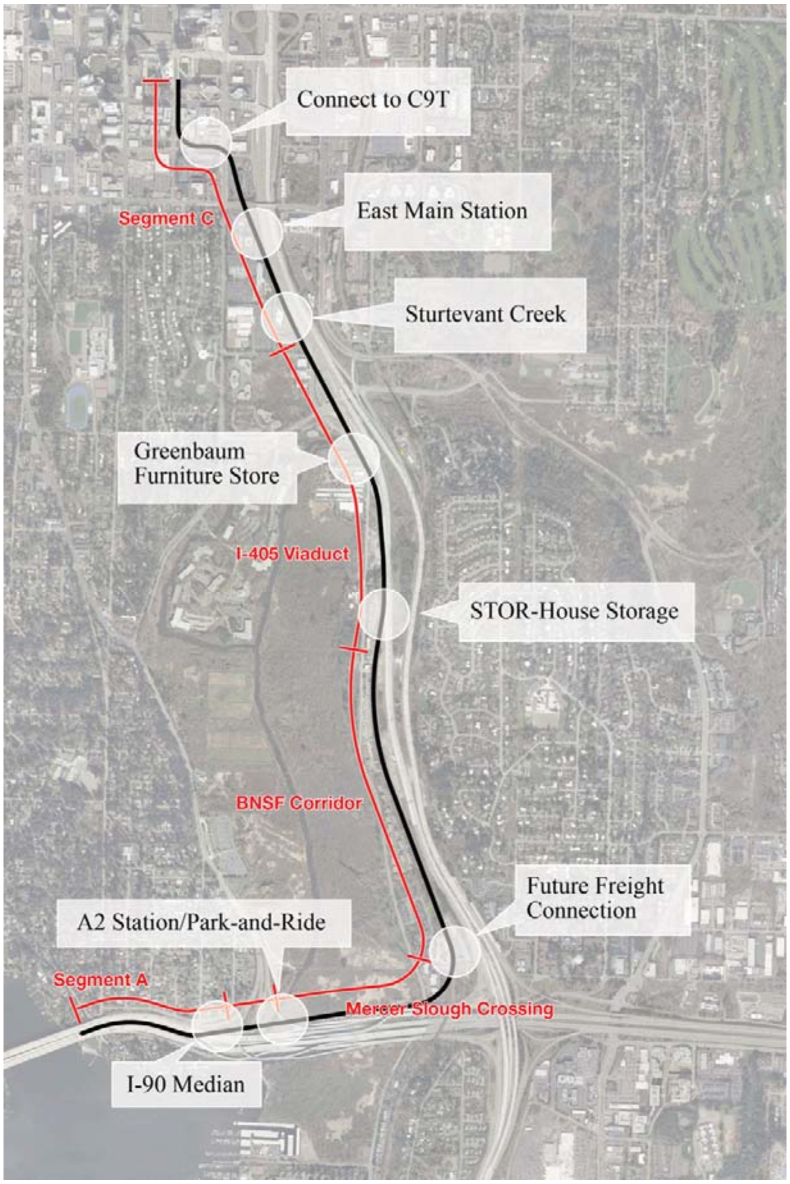
Connect to C9T
Segment C
East Main Station
Sturtevant Creek
Greenbaum Furniture Store
I-405 Viaduct
STOR-House Storage
BNSF Corridor
Future Freight Connection
A2 Station/Park-and-Ride
Segment A
Mercer Slough Crossing
I-90 Median

Figure 2 - B7-Revised alternative

7. East Main Station and Portal

- Locations considered for the East Main Station included the Red Lion Hotel and the Sheraton Hotel Site. Options were considered to avoid full takings of the hotels. However, alignment criteria that apply at station platforms and the constrained nature of the sites resulted in impacts to the buildings and would result in significant construction impacts. Because the acquisitions of the hotels cannot be avoided if the station is located in this area, the alignment across the Red Lion and Sheraton Hotel Sites is selected to provide a direct alignment and to locate the portal for the cut-and-cover tunnel, at the corner of 112th Avenue NE and NE 2nd Street.

8. **Link to Segment C**
    - The area of study is extended beyond the tunnel portal to tie into the C9T alignment at the proposed Bellevue Transit Center station.
    - The vertical alignment is constrained on the west side of 112th Avenue NE by the minimum depth required to accommodate the tunnel structure, utilities and road construction. The vertical alignment has a 6% grade, climbing to meet the C9T alignment at the south end of the Bellevue Transit Center station.
    - The cut-and-cover tunnel alignment is along the north side of NE 2nd Street and turns north along 110th Avenue NE to the Bellevue Transit Center station.

2.3.2 A-2 Station concept design

The elements of the A-2 Station program provided in this concept are similar to those adopted in the SDEIS for the B2M South Bellevue Station.

The following are the key elements of the station and of the park-and-ride:

- A five-level structure that includes a transit center and parking.
- A transit center on the top level (Level 5) with bus/van layover, bus/van bays, and kiss-and-ride facilities.
- Four levels of parking to accommodate up to 1,450 vehicles.
- A terraced parking structure, with a structure height above ground of less than 15 feet, to reduce visual impacts along 113th Avenue SE.
- A new road bridge over the I-90 ramps to tie into A-2 Station and 113th Avenue SE, without crossing Bellevue Way at-grade.
- A ramp on the east side of the facility to link to the Level 5 transit center.
- A pedestrian/bicycle path attached to the road bridge and a ramp to provide access from the east side of Bellevue Way. One dedicated entry/exit point at Level 4 from the east side ramp, one entry point at Level 3 on the north end of the facility that allows “right-in” movements only, and an exit point at Level 3 onto 113th Avenue SE.
- A partially signalized junction of SE 30th Street and Bellevue Way that controls the southbound Bellevue Way traffic and the eastbound SE 30th Street movements onto the I-90 on-ramps.
- An acceleration lane on Bellevue Way for northbound traffic leaving the parking facility.

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- A pocket lane on Bellevue Way for northbound traffic entering the parking facility.
- Access to the Mercer Slough Park and to the boat ramp.

A visualization of the concept for the station is presented in Figure 3.

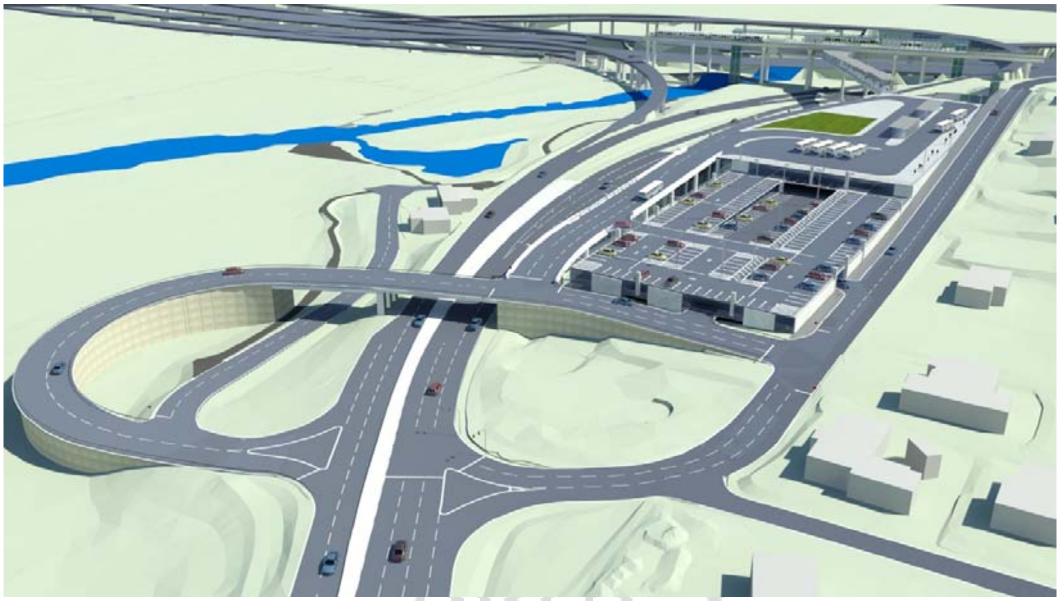

Figure 3- Visualization of A-2 Station concept looking south-east from above Bellevue Way towards I-90

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2.4 BNSF corridor options

The BNSF corridor along I-405 is typically 100 feet wide, except at the south end where it reduces to 50 feet wide. When the corridor was abandoned, it became subject to a rail banking agreement that requires the corridor to be maintained so that rail services can use the corridor in the future and a trail can be accommodated in the interim.

Two options are considered through the BNSF corridor.

- **Shared tracks:** Two light-rail tracks are provided (to accommodate LRT in both directions), and future freight operations would use one of the light rail tracks. Although shared tracks such as this have been used on other systems, such use is relatively rare.

  The need for temporal separation of light rail operations and freight operations on the track would impose significant operational constraints on both Sound Transit and on any future freight operator. Additional cost are applied to the typical light rail costs to provide infrastructure that will accommodate both operations, and future costs will be required to upgrade rail systems and rolling stock when the freight operation is implemented.

- **Light rail with freight corridor:** A corridor is established alongside the light rail tracks to allow a dedicated freight line to be established in the future.

  An 18-foot corridor, typically with 27.5 feet between track centers is adopted for this option. The provision of this wider corridor allows light rail and freight to operate simultaneously but increases construction costs and impacts an additional property at the south end of the corridor where the RoW is narrower.

  The 18-foot corridor is available for a trail prior to implementation of freight rail. However, a permanent trail along this corridor is not provided.

The two options are compared for cost, property impacts, environmental impacts and noise impacts in the relevant sub-sections of Section 3.

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3 Early environmental screening

3.1 Introduction

The early concept alignment and A-2 Station concept has been the subject of an initial screening to determine how it compares with the Sound Transit B7 and C9T alternatives. The purpose of the screening is to allow the City Council to determine whether the study should continue to the completion of a Concept Report. For an “apples-to-apples” comparison, the screening extends north of the portal at the junction of NE 2nd Street and 112th Avenue NE, to the proposed Bellevue Transit Center station where the alignment meets the Sound Transit C9T alignment.

The following are key areas of comparison for this initial assessment:

- Project Cost (construction and RoW costs)
- Ridership
- Environmental impacts (qualitative analysis)
- Property impacts
- Traffic impacts at the A-2 Station

Further screening will be completed for the final concept report:

- Final cost estimate
- Environmental/ecology (quantitative analysis)
- Transportation for full alignment
- Visual impacts
- Constructability

A summary of the findings from the early screening is presented in the following sections. The base option considered here is for the shared track option through the BNSF corridor. Where appropriate, a comparison between the shared track and the additional freight corridor option is provided under each section.

3.2 Cost estimate

The construction cost estimate was developed in accordance with the methods used by Sound Transit for the DEIS and the SDEIS and uses the same unit rates, lump sums, contingencies and soft costs. The RoW costs were developed by Sound Transit using the property impacts identified by the project team. This approach allows an “apples-to-apples” comparison between the alternatives.

For comparison purposes, the base construction costs and RoW costs, without unallocated contingency or soft costs, are presented for the B7-Revised alternative and for the B7/C9T alternative.

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$M 2007	Construction		RoW[1]	
	B7-Revised	**ST B7/C9T**	**B7-Revised**	**ST B7/C9T**
Segment B (excl. stations)	174.3	200.9	33.8	63.5
118th Avenue SE Station		63.6		27.5
A-2 Station	119.8		14.0	
Segment B Total	**294.1**	**264.5**	**47.8**	**91.0**
Segment C (to Bellevue Transit Center Station)	**148.1**	**170.8**	**$136.9**	**94.4**
Total	**442.1**	**435.3**	**184.7**	**185.3**

Note 1: ST Estimate (2007 dollars)

Table 1 - Base construction costs and RoW costs (without unallocated contingency or soft costs)

The following are the preliminary findings of this analysis.

3.2.1 Construction cost

- The construction cost for the B7-Revised Segment B alignment excluding stations is 14% less than that of the Sound Transit B7 alternative. These cost differences are related to a narrower width in the BNSF corridor and an alternative construction techniques for the Mercer Slough crossing.
- The A-2 Station represents a significant cost as a result of the following:
    - The location of the rail platform above existing highway on- and off-ramps
    - The excavation required to place a parking structure largely below ground to minimize visual impacts to residences along 113th Avenue SE
    - The requirement to minimize additional traffic along 113th Avenue SE resulting in the need for a bus ramp on the east side of the station
    - The grade separation of Bellevue Way crossings for northbound movements off the I-90 off-ramps.
- The cost of the A-2 Station is significantly higher than the cost savings achieved by removing 118th Station.
- The B7-Revised alternative in Segment C comprises less viaduct and tunnel length than the C9T alternative, and this represents approximately $22M savings in construction costs.

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3.2.2 RoW cost

- The B7-Revised RoW costs in Segment B are lower than for B7 as a result of a reduction in full takings particularly relating to the 118th Avenue SE station and the STOR-House building
- The RoW costs in Segment C are significantly higher largely as a result of the additional acquisition of the Sheraton Hotel property
- While not part of the cost analysis, significant surplus property will remain following completion of construction in the Segment C.

The overall project cost for the B7-Revised alternatives and the cost for the B7 and C9T alternatives, including soft costs and contingency calculated in the same manner as Sound Transit, are presented below for Segment B and for the portion of Segment C that is south of the Bellevue Transit Center Station. These indicate a cost approximately 1% in excess of Sound Transit's B7 and C9T alternatives.

(millions, 2007 $)	**B7-Revised**	**ST B7/C9T**	**Delta**
Segment B (excl. Stations)	311.1	384.5	(73.5)
118th Avenue SE Station		129.6	(129.6)
A-2 Station	204.0		204.0
Segment B Totals	**515.10**	**$514.10**	**0.9**
Segment C Total (to Bellevue Transit Center Station)	**378.9**	**369.7**	**9.2**
Total	**894.0**	**883.8**	**10.2**

Table 2 - Overall project cost (including soft costs and contingency)

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3.2.3 Additional costs

3.2.3.1 Bus operations

Maintenance and operational costs for the light rail are not considered in this analysis. However, the location of the A-2 Station increases travel times for bus service, which increases operating costs and the number of vehicles required to provide the service. The following are Sound Transit's estimates for this:

- Operating costs increases by $750,000 to $1,000,000 annually.
- Two additional buses are required to maintain headway on the service. The cost to procure the two vehicles is $1.7m (2007$). The lifespan of these vehicles is 12 years, so this capital expense is incurred every 12 years.

King County metro buses will also experience additional operational cost associated with this additional travel time. However, an estimate of these costs has not been provided.

3.2.3.2 Shared track costs

Within the BNSF corridor, the light rail tracks may be shared with a future rail operator. The civil engineering works, such as additional structural provisions and trackbed requirements, are incorporated as part of the light rail construction. Trackwork and systems equipment will be retrofitted when the freight rail is established. Such equipment includes the following:

- Turnouts north and south of the corridor
- Catenaries that can accommodate freight rail envelopes
- Integrated signaling and communication systems

These elements represent a potential future construction cost of approximately $7m. It is also possible, dependent on the type of freight rolling stock that Sound Transit rolling stock will be need to be retrofitted with new pantographs.

3.2.4 Additional freight corridor option

The provision of a dedicated freight corridor alongside the light rail tracks would increase the required earthworks and retaining structures and would increase the RoW required. The estimated additional construction cost to the project is approximately $4m. However, in comparing this with the shared track option, these costs are offset by the additional costs described above associated with accommodating two train types.

The incremental cost of providing a separate freight corridor is small compared with the operational restrictions that would be placed on the rail operators.

3.3 Ridership

Sound Transit undertook an assessment of the ridership for the B7-Revised alternative based on the input and review of the project team. The Sound Transit Ridership Model used is the same model used for the alternatives presented in the DEIS and SDEIS. For this study it is used to forecast ridership for B7-Revised and for a combined B7/C9T alternative not presented in the DEIS or SDEIS.

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	B7-Revised	B7/C9T
Segment A	**5,000**	**6,000**
Segment B		
A-2 Station	4,500	
118th Station		1,500
South Bellevue Station		
SE 8th		
Segment Total	**4,500**	**1,500**
Segment C		
East Main Station	2,500	3,000
Bellevue Transit Center Station	4,500	5,000
Hospital Station	1,000	1,000
Segment Total	**8,000**	**9,000**
Segment D	**7,000**	**7,000**
Segment E	**3,500**	**3,500**
Project-wide ridership	**50,500**	**49,000**

Source: B7-Revised and B7/C9T ridership from Sound Transit Ridership Model, 2011.

Table 3 - Year 2030 East Link LRT daily boardings

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The ridership forecasts presented above indicate that the B7-Revised alternative achieves a higher ridership, as compared with B7/C9T, largely because of higher ridership at A-2 Station.

3.4 Environmental impacts

3.4.1 Environmental and ecology

To provide an initial comparison of the B7-Revised alternative with the B7 and C9T alternatives, a largely qualitative screening of the environmental/ecological issues is presented.

Feature	B7-Revised Impacts (relative to B7 and C9T)	
	Increased impact	Reduced impact
Ecosystems resources	**A-2 Station** – Impact to additional 0.26 acres of wetland and 0.18 acres of wetland buffer at vehicle ramp. About 0.26 acres of additional shading from station platform. **A-2 Station** – Aquatic habitat: potential runoff during construction to Slough **Sturtevant Creek** – Greater impact to fish habitat and increased mitigation required	**Mercer Slough** – Proposed gantry construction would reduce construction impacts
Water resources	**A-2 Station** – Adds 4.1 acres of pollutant-generating impervious surface (PGIS)	**Removal of 118th Station** – Reduction is less than 2.9 acres – exact number not obtained from ST.
Visual	**A-2 Station** – Impact from 113th Avenue SE, including light spillover	**Removal of 118th Station** – reduces visual impacts **East Main Station** – placing station partly below grade reduces visual impacts
Section 4(f) and 6(f)	**A-2 Station** – Additional 0.26 acres of Mercer Slough Nature Park impacted by vehicle ramp	

Table 4 - B7-Revised environmental ecological impacts (relative to B7/C9T)

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3.4.2 Noise

To identify the noise impacts and the required mitigations for the alternative, independent noise monitoring was carried out to compare with and to supplement the monitoring carried out by Sound Transit. An independent noise model was developed in accordance with FTA guidelines and was used to predict noise levels along the route. These predictions were then used to identify mitigations that would be necessary.

The analysis shows 237 impacts compared with 182 for B7 and C9T. These are related to new areas of impacts not identified in the DEIS/SDEIS and to variations in the alignment increasing impacts. Some additional mitigation will be required and will reduce the mitigated impacts to zero.

3.4.3 Additional freight corridor option

The wider corridor proposed for the freight option represents no significant change in impacts to environmental resources.

At SE 32nd Street, the alignment is up to 25 feet closer to a business to the west of the corridor. This would increase the unmitigated impacts to the property but is unlikely to change the mitigation requirements proposed for the shared track option.

3.5 Property impacts and Right of Way

The alignment has been developed where possible, to reduce the impacts on existing property. A comparison of property impacts between the B7-Revised alternative and the B7 and C9T alternatives is provided below:

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	B7-Revised (to Bellevue Transit Center)				**B7/C9T (to Bellevue Transit Center)**		
	Segment B		**Segment C**	**Total**	**Segment B**	**Segment C**	**Total**
	Excluding A-2 Station	**A-2 Station**					
Total Impacted Private Properties	8	13	14	35	17	17	34
Partial Acquisitions	7	0	3	10	9	8	17
Full Acquisitions	1	13	11	25	8	9	17
Business Relocations	1	0	8	9	6	8	14
No. Employees Displaced	15	0	200	215	180	88	268
Residential Relocations	0	12	0	12	0	0	0
Acres of Public Park Land Impacted	1.86 ac	0.47 ac	0 ac	2.33 ac	0.9 ac perm. 1.6 ac temp. [Mercer Slough Nature Park]	0.1 ac perm. 0.1 ac temp. [NE 2nd Place Pocket Park]	1.0 ac perm. 1.7 ac temp.
Acres of BNSF Corridor	8.42 ac	0	0	8.42 ac	8.42 ac	0	0

Table 5 - Table of property impacts

The key differences between the B7-Revised and B7/C9T alternatives are as follows:

- The property impacts of the B7-Revised alterative as categorized in the table above are similar to the B7 and C9T alternatives.
- Twelve additional residential properties would be acquired at the A-2 Station.

- Additional WSDOT RoW is required at the A-2 Station site
- The alignment is relocated to the east of the B7 alignment to avoid a full acquisition of the STOR-House storage unit north of the BNSF corridor.
- The alignment is moved to the east of the B7 alignment to reduce impact on the Greenbaum property. The new alignment crosses over the extreme east corner and will require some reconstruction to the property to satisfy Sound Transit requirements and access issues.
- The removal of the 118th Avenue SE station removes three commercial property acquisitions.
- Alignment criteria associated with the East Main Station require full acquisition of the Red Lion and Sheraton Hotels and the Azteca Restaurant.
- Properties along the north side of NE 2nd Street will be acquired. These acquisitions are partially offset by those required along Main Street for the C9T alternative.

3.6 Transportation and traffic impacts

At this interim stage in the project, traffic impacts are assessed only around A-2 Station for the B7-Revised alternative and the B7 and C9T alternatives. At the request of the City of Bellevue, traffic analysis was conducted using the Bellevue/Kirkland/Redmond (BKR) model (the DEIS/SDEIS traffic analyses used the Puget Sound Regional Council model). The year analysis adopted for the study was 2030 which is consistent with Sound Transit's analysis. Synchro was then applied to determine the level of service (LOS) at each of the three intersections studied around the A-2 Station.

Key traffic findings are as follows:

- Without traffic enhancements for the B7-Revised alternative, traffic from SE 30th Street onto the I-90 ramps would experience significant delays from heavy southbound Bellevue Way volumes in the PM peak period.
- Several traffic enhancements are recommended to improve traffic operations and to achieve City of Bellevue LOS standards once the A-2 Station becomes functional:
  - A ramp access from the east side of Bellevue Way into the station to avoid left turns on Bellevue Way
  - Partial signal at Bellevue Way / SE 30th Street for the southbound movements onto the I-90 on-ramps (the northbound movement from the I-90 off-ramps would be unaffected)
  - Second right-turn lane from SE 30th Street onto southbound Bellevue Way
  - Third southbound travel lane on Bellevue Way both north and south of the SE 30th Street intersection

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  - Right turn pocket on northbound Bellevue Way prior to the new road bridge over the I-90 ramps
  - Acceleration lane in the northbound Bellevue Way direction north of the new road bridge over the I-90 ramps
- These improvements were discussed with WSDOT. Further analysis will be required to justify these improvements, particularly the signalization; however, no fatal flaw were identified at this stage.

The proposed traffic enhancements would achieve the following:

- The new partial signal at SE 30th Street and Bellevue Way would operate at LOS B. Southbound traffic on Bellevue Way would be delayed by an average of 16 seconds, whereas previously traffic operated at free-flow conditions in the PM peak.
- Travel time from SE 10th Street to SE 30th Street would increase by an average of 20 seconds
- Bus travel times for B7-Revised would be longer than those for B7/C9T. The longer travel times would increase operating costs and would require two additional buses to provide service. Northbound buses would experience a 3.5-minute increase in travel time, while southbound buses would experience a 2.5-minute increase in travel time.
- Neighborhood cut through traffic to A-2 Station through Enatai is not expected to be significant based on the modeling completed.

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4 Stakeholder and community involvement

4.1 Sound Transit

Sound Transit is an important stakeholder in the development of the study. A cooperative relationship was established to facilitate an ‘Apples-to-Apples” comparison between the B7-Revised alternative and the Sound Transit B7 and C9T alternatives. In particular Sound Transit:

- Provided base information including alignments files, design criteria and RoW and cost estimating approach
- Operated the ridership model
- Attended a number of meetings to discuss issues of ridership, cost estimating, RoW and A-2 Station and park-and-ride planning
- Reviewed draft technical memoranda and estimates
- Provided input to the A-2 transit center design to address the requirements of Sound Transit Express bus operations, and provided data on additional operational costs

4.2 King County Metro

King County operates a number of the buses that will serve the A-2 Station. A joint meeting with Sound Transit was held to discuss the planning of the transit center. The key elements of the discussion related to:

- Travel delays for bus services
- Layout of the transit center and park-and-ride

4.3 WSDOT

Much of the alignment runs alongside, through or over WSDOT property and facilities. Three meetings were held with WSDOT to discuss the alignment and the potential impacts to WSDOT property. The key elements of the discussion were:

- Traffic operations on Bellevue Way
- Construction of the A-2 Station over the I-90/Bellevue Way ramps
- Construction of the viaduct over the Mercer Slough and potential impacts to the existing I-90 structures
- Construction adjacent to the I-405 and potential impacts to the retaining wall adjacent to the STOR-House property
- Coordination with the I-405 masterplan.

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4.4 Public involvement

Two public Open Houses were conducted to inform the community and to obtain community input on the study. The first Open House was held at City Hall on January 25, 2011. It attracted 185 attendees and generated over 220 comments. The Open House was held early in the study and presented the broad alignment. The public provided comments in several ways, including post-it notes on the plans/maps, on comment forms, and in subsequent correspondences such as email.

The second Open House was held at City Hall on March 8, 2011 and presented the early conceptual alignment and planning of the A-2 Station and the park-and-ride. A 15-minute presentation highlighted the key areas of the completed work. A total of 230 members of the public from various neighborhoods attended; over 210 comments were received.

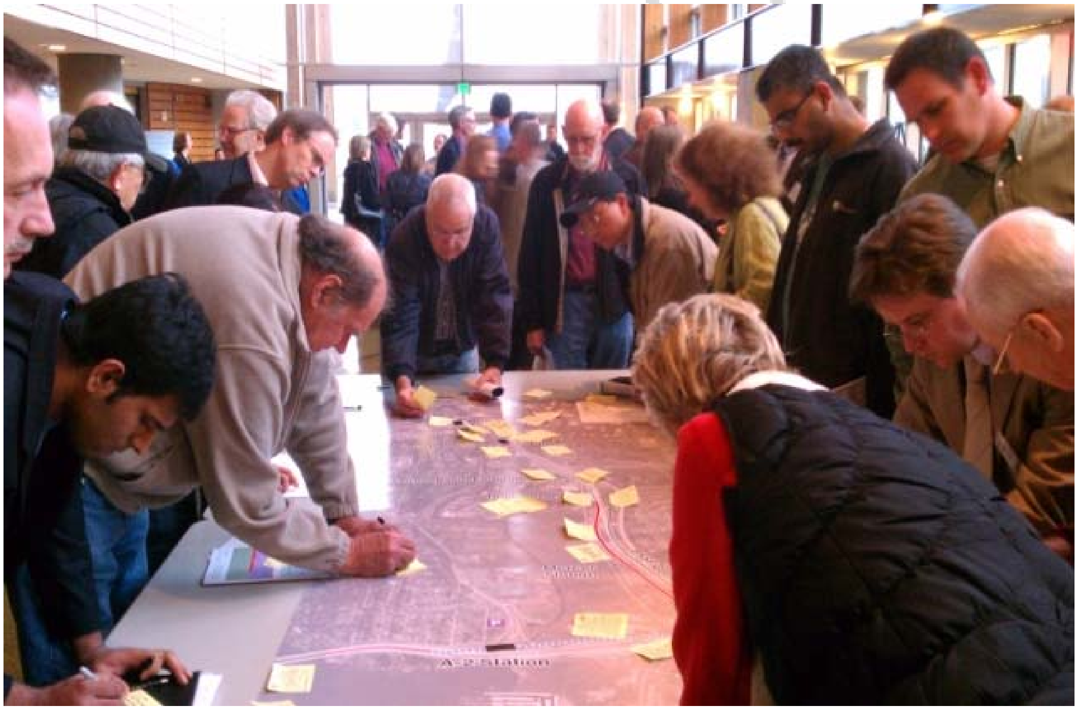

Figure 4 - March 2011 Open House

5 Risk and opportunities

In developing the Early Concept Alignment, a number of risks and opportunities have been identified that may impact the project schedule or project costs.

5.1 Risks

A-2 Station – The construction of the A-2 Station above the Bellevue Way/I-90 ramps will require careful planning and liaison with WSDOT to agree closures etc. This could affect the project schedule.

Mercer Slough – The crossing of the Mercer Slough is challenging as a result of: the environmentally sensitive nature of the Slough; the poor foundation materials; the movement of the peat as documented by WSDOT; and WSDOTs concerns regarding protection of their existing I-90 structures. While two construction methods have been developed, further analysis will be required to define the appropriate solution and to satisfy WSDOT concerns. This could potentially delay the project and add construction cost.

Sturtevant Creek – The permitting issues associated with the relocation and mitigation of the creek bed could increase the project schedule and cost

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5.2 Opportunities

The following adjustments to the alternative requested by Council could potentially reduce the cost of the project.

Opportunity	**Impacts**	**Approximate Potential Cost Savings**
Adjust I-405 Masterplan's location of 118th Avenue to allow alignment to avoid Greenbaum site	Negotiation with WSDOT required	Potential RoW savings $1m
Remove East Main Station	Reduces ridership by approx. 1000 May allows improved alignment at Red Lion and reduce impacts on Sheraton Hotel	Station cost =~ $40m RoW (Sheraton) = ~$20m
Use mechanically stabilized walls for retained fill	Reduced cost, but not "apples to apples" with ST	$5m
Use corridor estimate approach for BNSF corridor	Not "apples-to-apples" with ST	$10m
Assess residual value	Not "apples-to-apples" with ST	At 2 hotels and along NE 2nd Street ~ 50m

Table 6 - Potential opportunities

6 Preliminary findings

Preliminary findings are as follows:

The B7-Revised is a feasible alternative that improves ridership over the B7/C9T alternative but has a higher overall project cost. The alternative has similar property impacts and has a number of additional environmental impacts relative to the B7 and C9T alternatives. A summary of the early screening analysis is provided below.

Features	**B7-Revised**	**B7/C9T**
Estimated cost (millions, 2007 $)	$894.0	$883.8
2030 Daily Ridership (project-wide)	50,500	49,000
Noise-impacted receptors - unmitigated (mitigated)	237 (0)	182 (0)
Residential displacements (number of housing units)	12	0
Business displacements (number of employees)	215	268
Full/partial property acquisitions	35	34
Wetlands/wetland buffer affected (acres)	1.8/0.8	2.1/1.0
Parks/Section 4(f) and 6(f) (acres before mitigation)	1.1	1.3

Table 7 - Summary of B7-Revised preliminary findings

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- The most substantial environmental differentiators of B7-Revised compared with B7/C9T are the following:
    - More wetland and park impacts associated with the A-2 Station and park and ride
    - More pollutant-generating impervious surface related to A-2 Station and park-and-ride
    - Change in visual quality overall at the A-2 Station and park-and-ride
    - More disturbance of special-status fish species and good quality stream habitat in Sturtevant Creek
- The A-2 Station requires a number of mitigation measures at Bellevue Way:
    - Ramp access into station from east side of Bellevue Way
    - Additional right-turn lane at north end of SE 30th Street
    - Traffic signal to control the southbound and eastbound movements at the intersection of Bellevue Way and SE 30th Street
    - Third lane on the southbound approach on Bellevue Way to SE 30th Street

  - Pocket lane on Bellevue Way northbound south of station access
  - Acceleration lane onto Bellevue Way northbound
- The provision of a dedicated freight corridor in the BNSF corridor represents a similar cost to the shared track scheme and provides fewer restrictions on Sound Transit and the freight operator in operating in the corridor.
- The construction method for the Mercer Slough crossing will require further work to develop a robust solution and to address WSDOTs concerns regarding risk to their existing facilities.

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Appendix A

Alignment drawings

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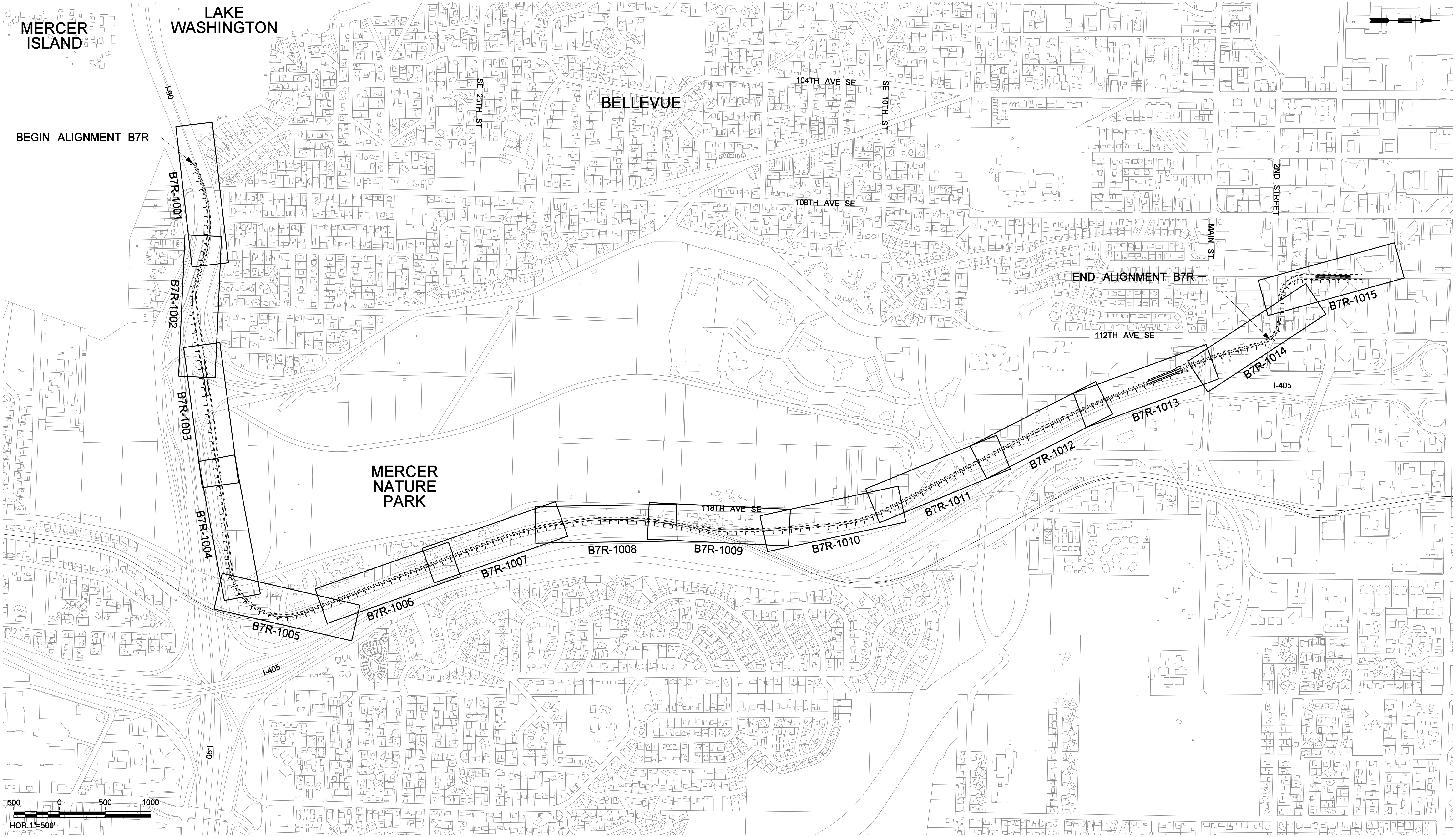
MERCER ISLAND
LAKE WASHINGTON
BELLEVUE
I-90
BEGIN ALIGNMENT B7R
SE 25TH ST
104TH AVE SE
SE 10TH ST
108TH AVE SE
2ND STREET
MAIN ST
END ALIGNMENT B7R
112TH AVE SE
I-405
MERCER NATURE PARK
118TH AVE SE
B7R-1001
B7R-1002
B7R-1003
B7R-1004
B7R-1005
B7R-1006
B7R-1007
B7R-1008
B7R-1009
B7R-1010
B7R-1011
B7R-1012
B7R-1013
B7R-1014
B7R-1015
I-405
I-90
500
0
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HOR.1"=500'

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

REVISED
1% SUBMITTAL

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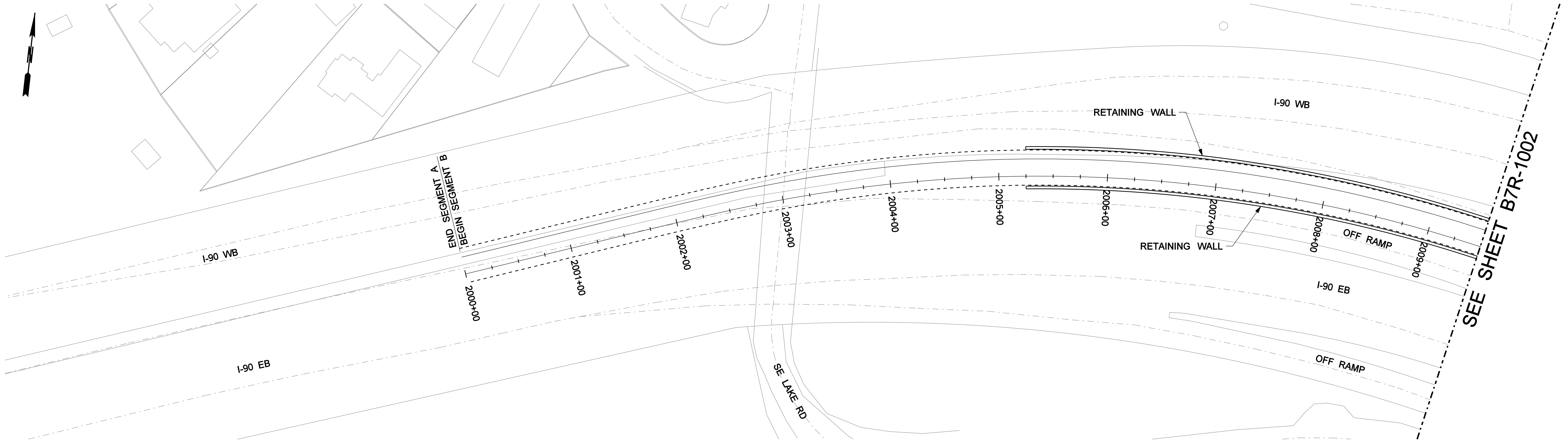
APPROVED
DATE

CITY OF BELLEVUE WASHINGTON

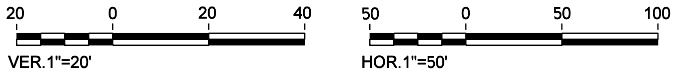
EAST LINK LIGHT RAIL

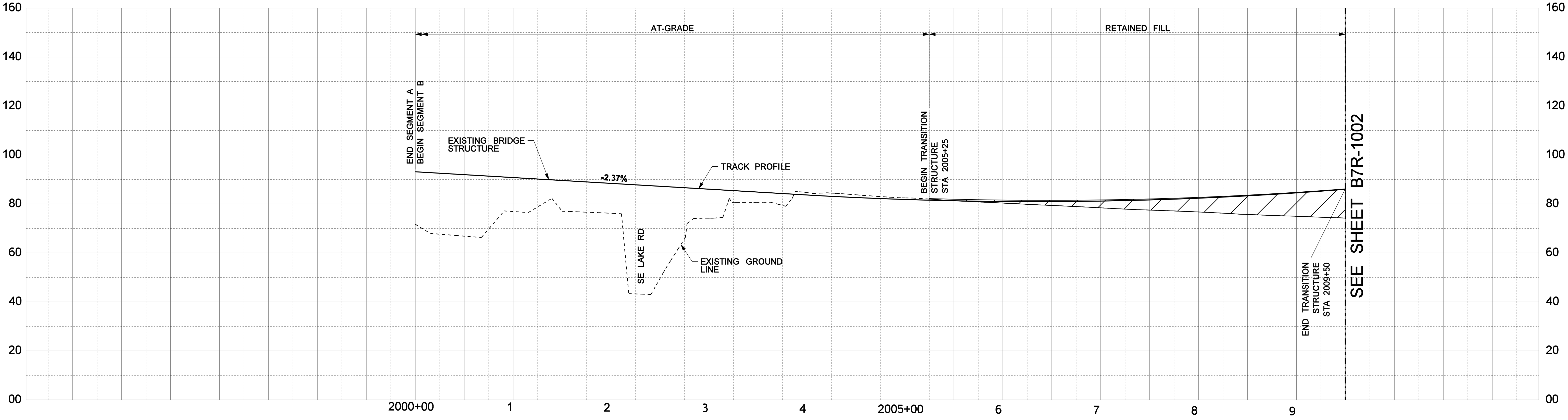
B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2000+00 TO 2184+74.07

CONTRACT NO. 215382
DRAWING NO. B7R-1000
SCALE AS SHOWN
SHEET NO. SHEET 1


I-90 WB
RETAINING WALL
I-90 WB
END SEGMENT A
BEGIN SEGMENT B
2000+00
2001+00
2002+00
2003+00
2004+00
2005+00
2006+00
2007+00
2008+00
2009+00
RETAINING WALL
OFF RAMP
I-90 EB
I-90 EB
SE LAKE RD
OFF RAMP
SEE SHEET B7R-1002

PLAN


20
0
20
40
VER.1"=20'
50
0
50
100
HOR.1"=50'


160
140
120
100
80
60
40
20
00
AT-GRADE
RETAINED FILL
END SEGMENT A
BEGIN SEGMENT B
EXISTING BRIDGE STRUCTURE
-2.37%
TRACK PROFILE
BEGIN TRANSITION STRUCTURE STA 2005+25
SE LAKE RD
EXISTING GROUND LINE
END TRANSITION STRUCTURE STA 2009+50
SEE SHEET B7R-1002
2000+00
1
2
3
4
2005+00
6
7
8
9

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

REVISED
1% SUBMITTAL

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DATE
APPROVED
DATE

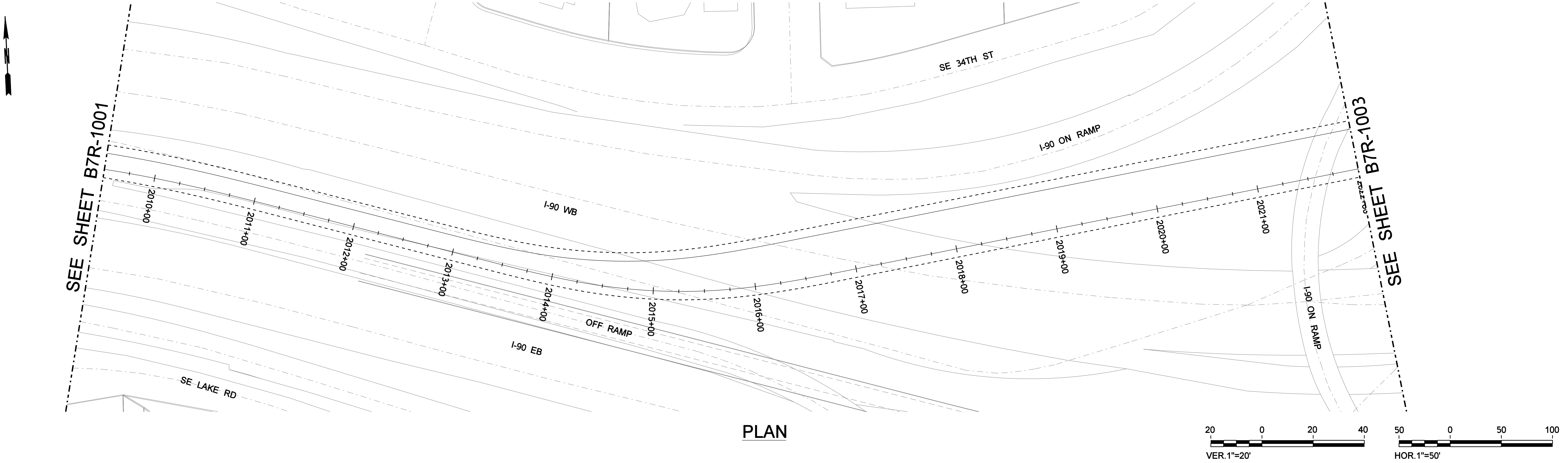
CITY OF BELLEVUE WASHINGTON

EAST LINK LIGHT RAIL

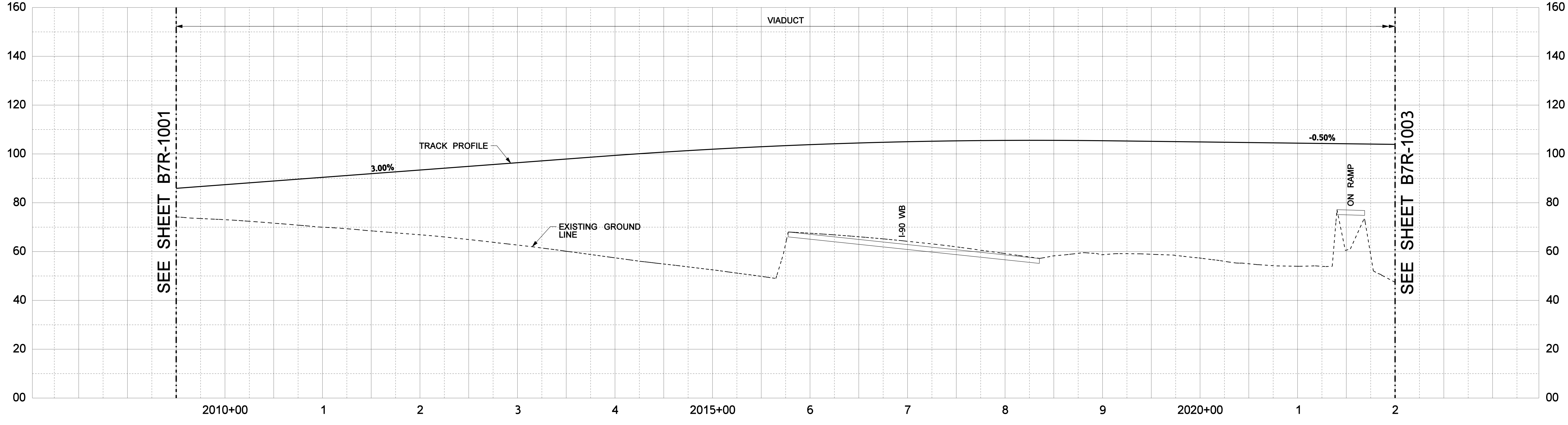
B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2000+00 TO 2009+50

CONTRACT NO. 215382
DRAWING NO. B7R-1001
SCALE AS SHOWN
SHEET NO. SHEET 2

thomas.natwick 4/28/2011 10:42:05 AM Q:\215382-00\4 Internal Project Data\4-03 Drawings\Rail\Drawing Sheets\B7R-1001.dgn


N
SEE SHEET B7R-1001
SEE SHEET B7R-1003
SE 34TH ST
I-90 ON RAMP
I-90 WB
OFF RAMP
I-90 EB
SE LAKE RD
I-90 ON RAMP
2010+00
2011+00
2012+00
2013+00
2014+00
2015+00
2016+00
2017+00
2018+00
2019+00
2020+00
2021+00
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN


160
140
120
100
80
60
40
20
00
VIADUCT
SEE SHEET B7R-1001
SEE SHEET B7R-1003
TRACK PROFILE
3.00%
-0.50%
EXISTING GROUND LINE
I-90 WB
ON RAMP
2010+00
1
2
3
4
2015+00
6
7
8
9
2020+00
1
2

PROFILE

Q:\215382-00\4 Internal Project Data\4-03 Drawings\Rail\Drawing Sheets\B7R-1002.dgn

5:29:30 PM

4/27/2011

eron.sudhausen

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% DRAFT SUBMITTAL

DESIGNED BY
T. NATWICK
DRAWN BY
P. TONKIN
CHECKED BY
D. HUNT
IN CHARGE
R. PRUST
DATE
04/29/11

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1% SUBMITTAL

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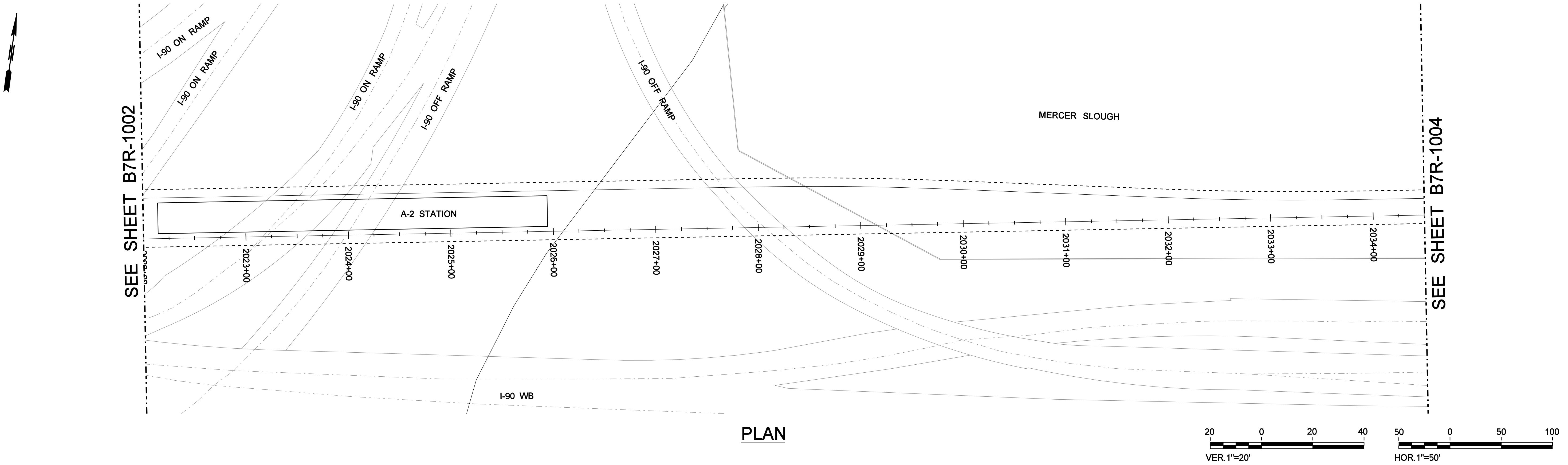
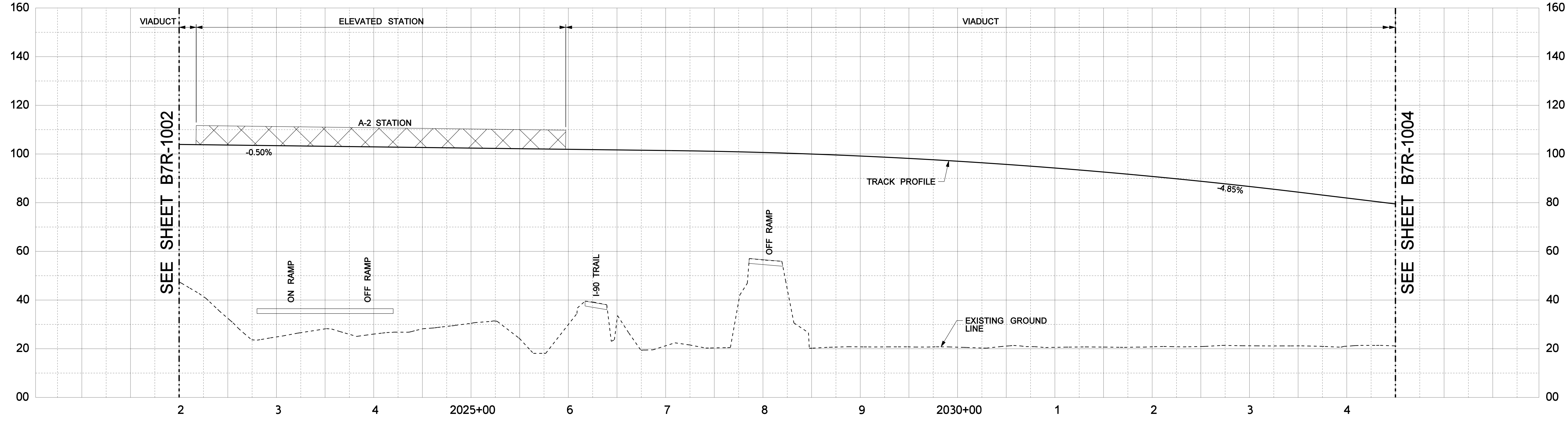
TRACK PLAN & PROFILE
STA. 2009+50 TO 2022+00

CONTRACT NO.
215382
DRAWING NO.
B7R-1002
SCALE
AS SHOWN
SHEET NO.
SHEET 3


I-90 ON RAMP
I-90 ON RAMP
I-90 ON RAMP
I-90 OFF RAMP
I-90 OFF RAMP
MERCER SLOUGH
SEE SHEET B7R-1002
SEE SHEET B7R-1004
A-2 STATION
2023+00
2024+00
2025+00
2026+00
2027+00
2028+00
2029+00
2030+00
2031+00
2032+00
2033+00
2034+00
I-90 WB
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN


160
140
120
100
80
60
40
20
00
VIADUCT
ELEVATED STATION
VIADUCT
A-2 STATION
-0.50%
TRACK PROFILE
-4.85%
SEE SHEET B7R-1002
SEE SHEET B7R-1004
ON RAMP
OFF RAMP
I-90 TRAIL
OFF RAMP
EXISTING GROUND LINE
2
3
4
2025+00
6
7
8
9
2030+00
1
2
3
4

PROFILE

						DESIGNED BY T. NATWICK
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL	DRAWN BY P.TONKIN
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL	CHECKED BY D. HUNT
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL	IN CHARGE R. PRUST
A	02/16/11	PT	DH	RP	1% SUBMITTAL	DATE 04/29/11
REV	DATE	BY	CHK	APP	DESCRIPTION	

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TRACK PLAN & PROFILE
STA. 2022+00 TO 2034+50

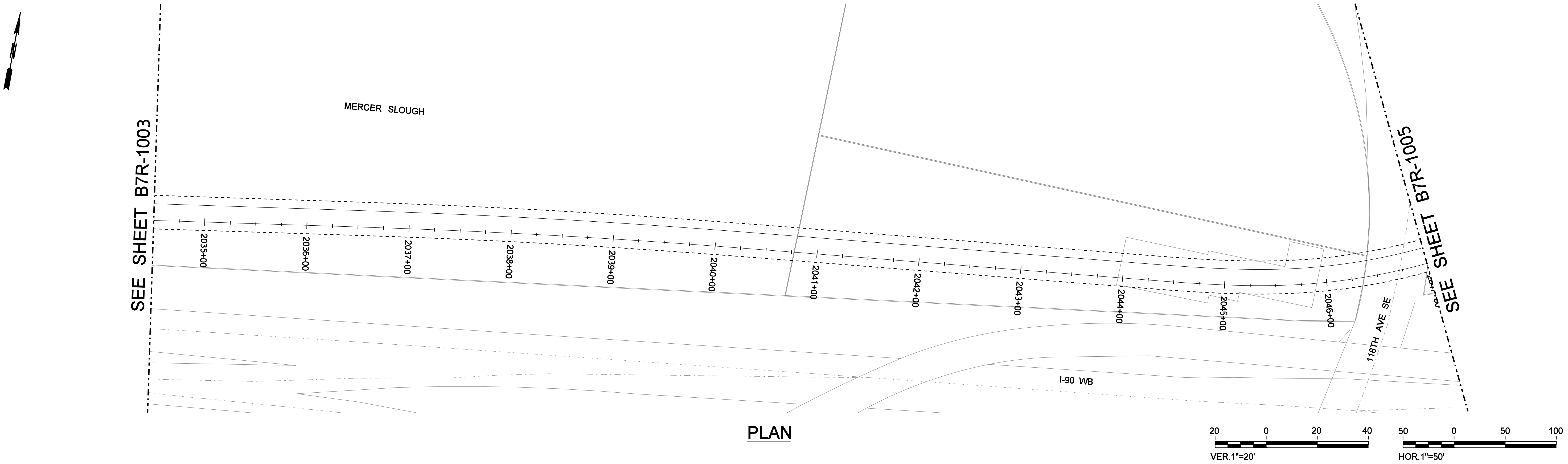
CONTRACT NO.
215382

DRAWING NO.
B7R-1003

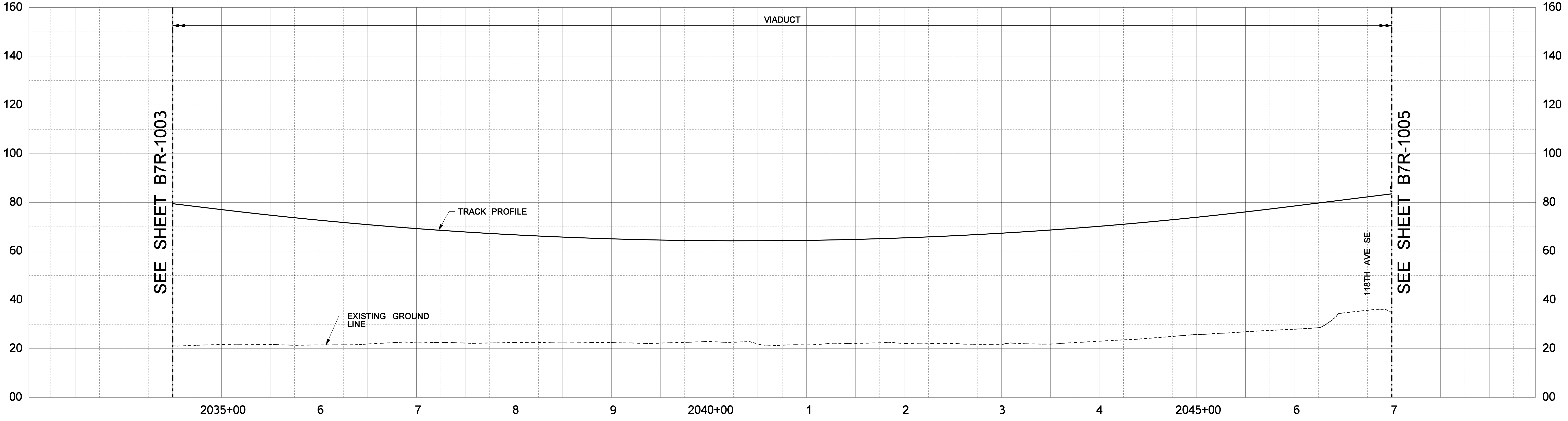
SCALE
AS SHOWN

SHEET NO.
SHEET 4

eron.sudhausen 4/27/2011 5:30:42 PM Q:\215382-00\4 Internal Project Data\4-03 Drawings\Rail\Drawing Sheets\B7R-1003.dgn


SEE SHEET B7R-1003
MERCER SLOUGH
2035+00
2036+00
2037+00
2038+00
2039+00
2040+00
2041+00
2042+00
2043+00
2044+00
2045+00
2046+00
118TH AVE SE
I-90 WB
SEE SHEET B7R-1005
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN



PROFILE

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5:32:06 PM
4/27/2011
eron.sudhausen

REV	DATE	BY	CHK	APP	DESCRIPTION
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C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

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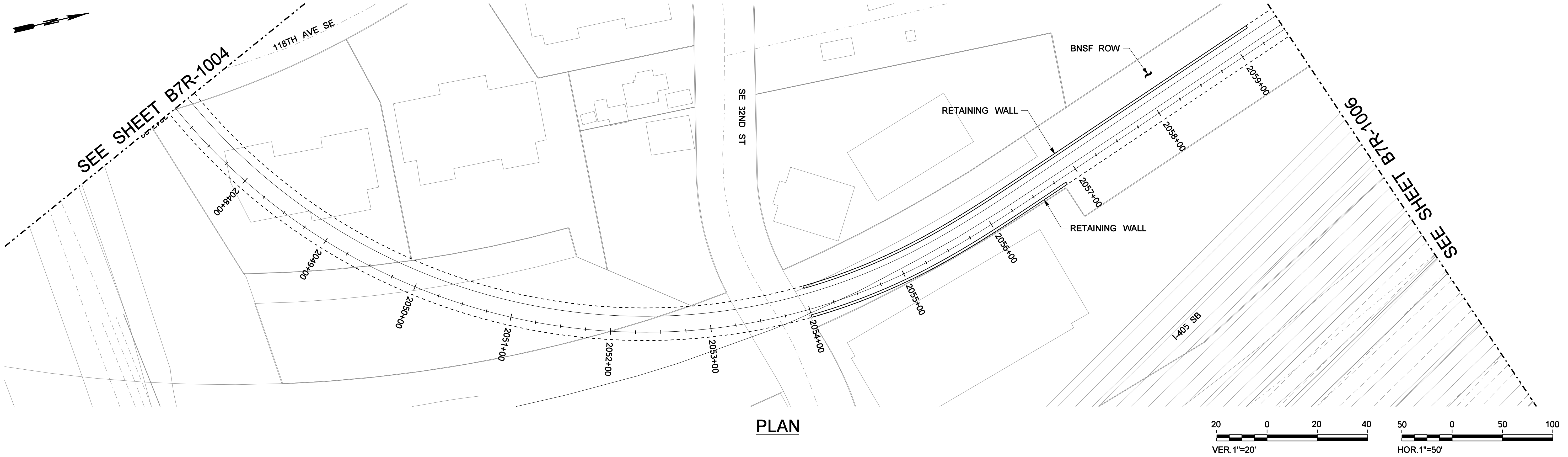
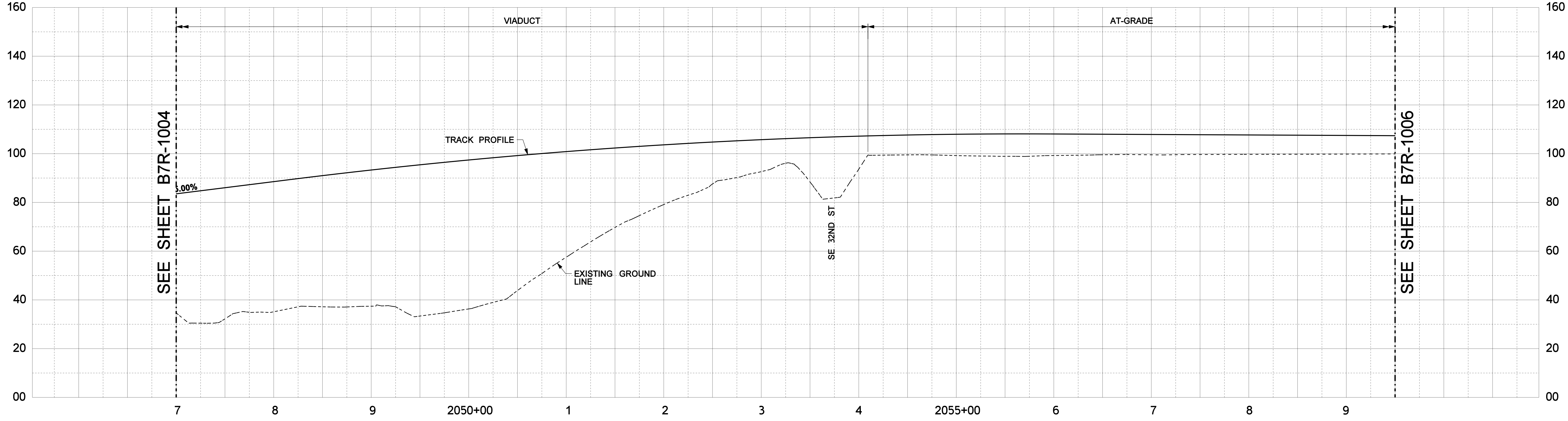
STA. 2034+50 TO 2047+00

CONTRACT NO. 215382
DRAWING NO. B7R-1004
SCALE AS SHOWN
SHEET NO. SHEET 5


118TH AVE SE
SEE SHEET B7R-1004
SE 32ND ST
BNSF ROW
RETAINING WALL
RETAINING WALL
I-405 SB
SEE SHEET B7R-1006
2048+00
2049+00
2050+00
2051+00
2052+00
2053+00
2054+00
2055+00
2056+00
2057+00
2058+00
2059+00
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN



PROFILE

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REV	DATE	BY	CHK	APP	DESCRIPTION
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C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY
T. NATWICK
DRAWN BY
P. TONKIN
CHECKED BY
D. HUNT
IN CHARGE
R. PRUST
DATE
04/29/11

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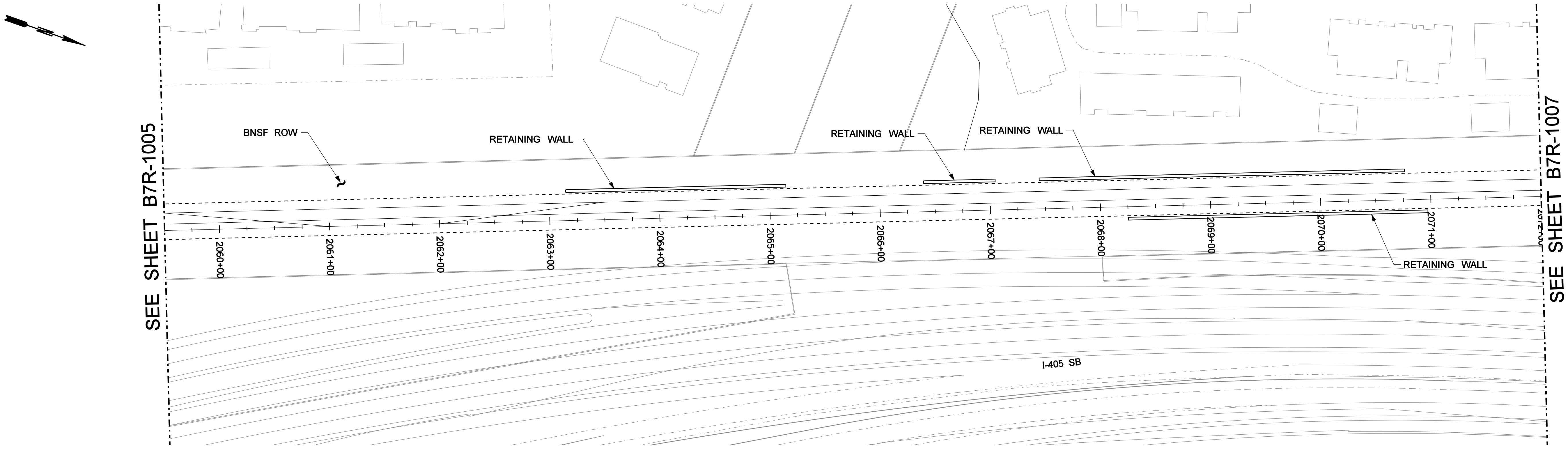
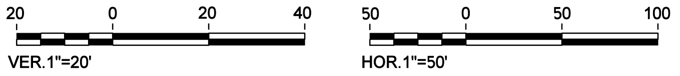
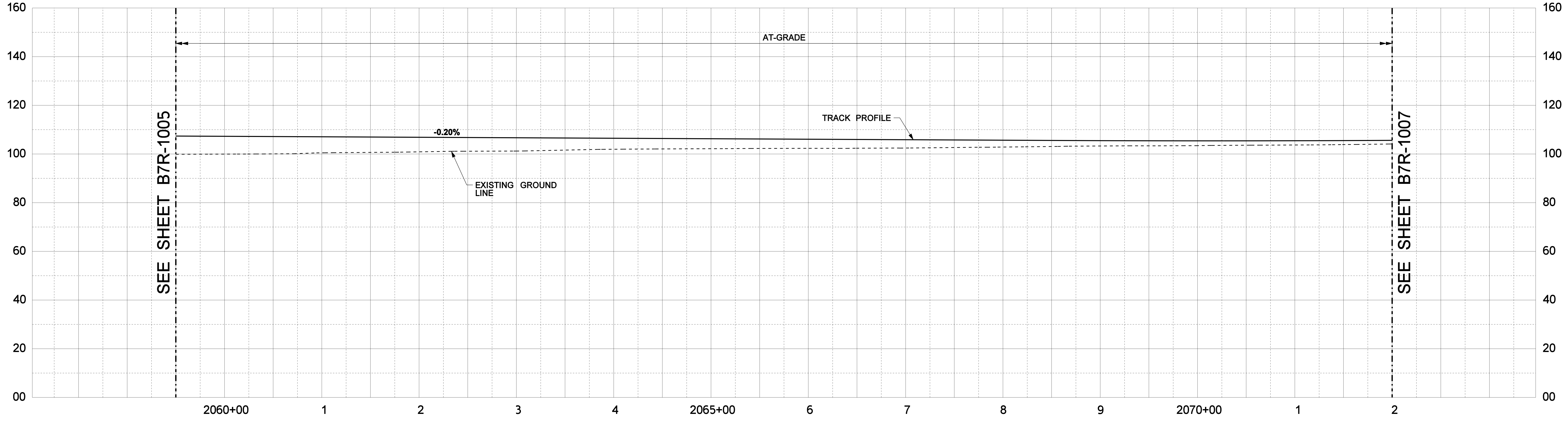
TRACK PLAN & PROFILE
STA. 2047+00 TO 2059+50

CONTRACT NO.
215382
DRAWING NO.
B7R-1005
SCALE
AS SHOWN
SHEET NO.
SHEET 6


SEE SHEET B7R-1005
BNSF ROW
RETAINING WALL
RETAINING WALL
RETAINING WALL
RETAINING WALL
2060+00
2061+00
2062+00
2063+00
2064+00
2065+00
2066+00
2067+00
2068+00
2069+00
2070+00
2071+00
I-405 SB
SEE SHEET B7R-1007

PLAN


20
0
20
40
VER.1"=20'
50
0
50
100
HOR.1"=50'



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

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STA. 2059+50 TO 2072+00

CONTRACT NO. 215382
DRAWING NO. B7R-1006
SCALE AS SHOWN
SHEET NO. SHEET 7

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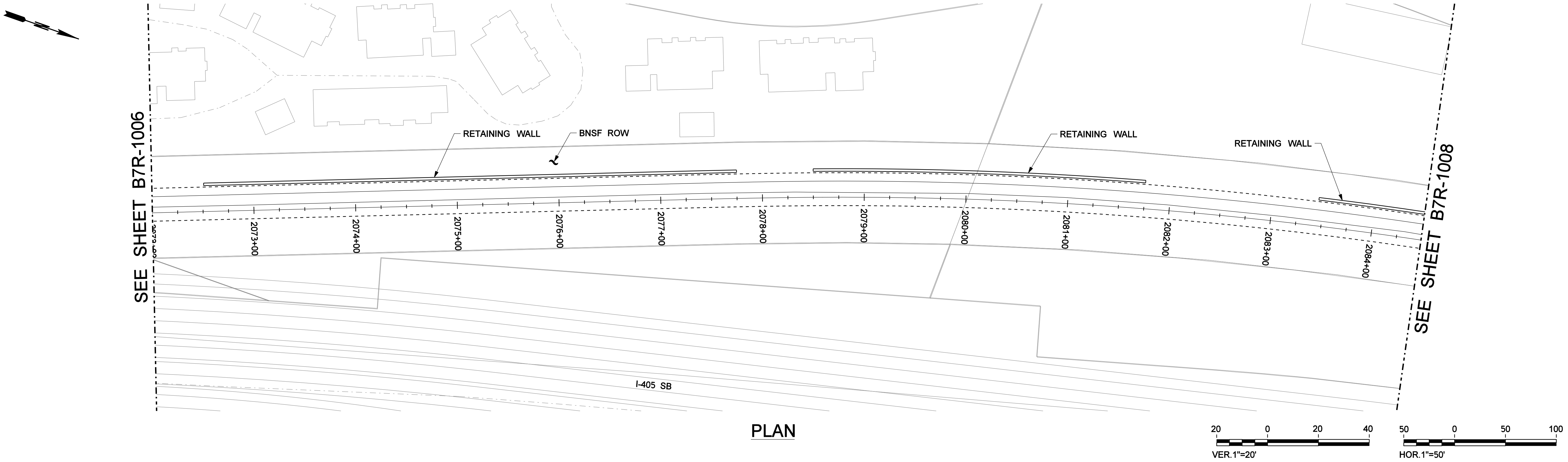
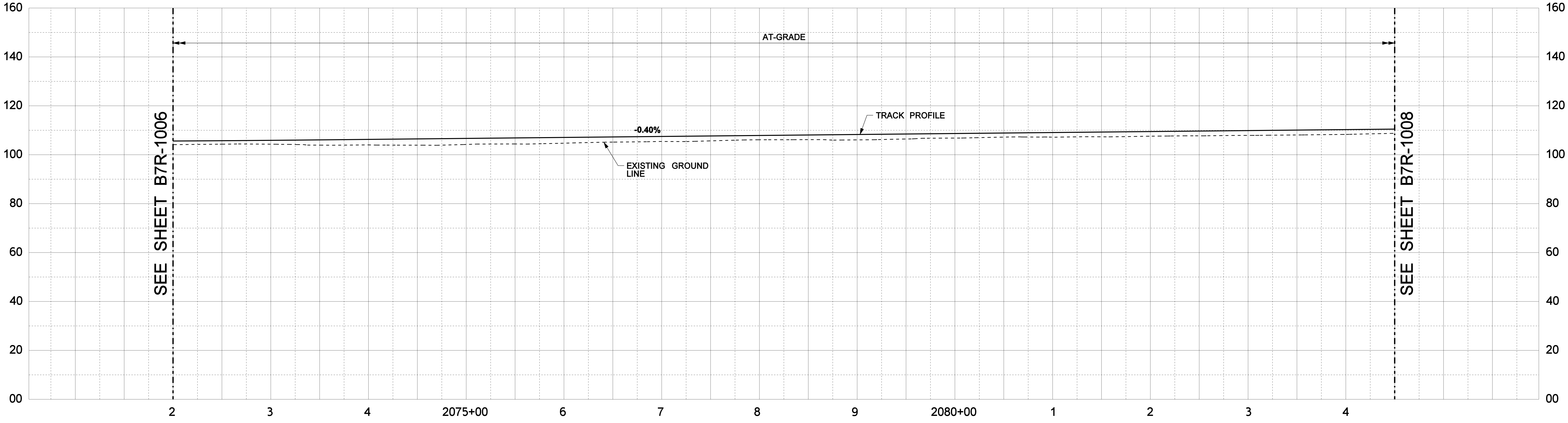

SEE SHEET B7R-1006
SEE SHEET B7R-1008
RETAINING WALL
BNSF ROW
RETAINING WALL
RETAINING WALL
2073+00
2074+00
2075+00
2076+00
2077+00
2078+00
2079+00
2080+00
2081+00
2082+00
2083+00
2084+00
I-405 SB
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN



PROFILE

eron.sudhausen 4/27/2011 5:43:56 PM Q:\215382-00\4 Internal Project Data\4-03 Drawings\Rail\Drawing Sheets\B7R-1007.dgn

REV	DATE	BY	CHK	APP	DESCRIPTION
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C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

REVISED 1% SUBMITTAL

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DATE
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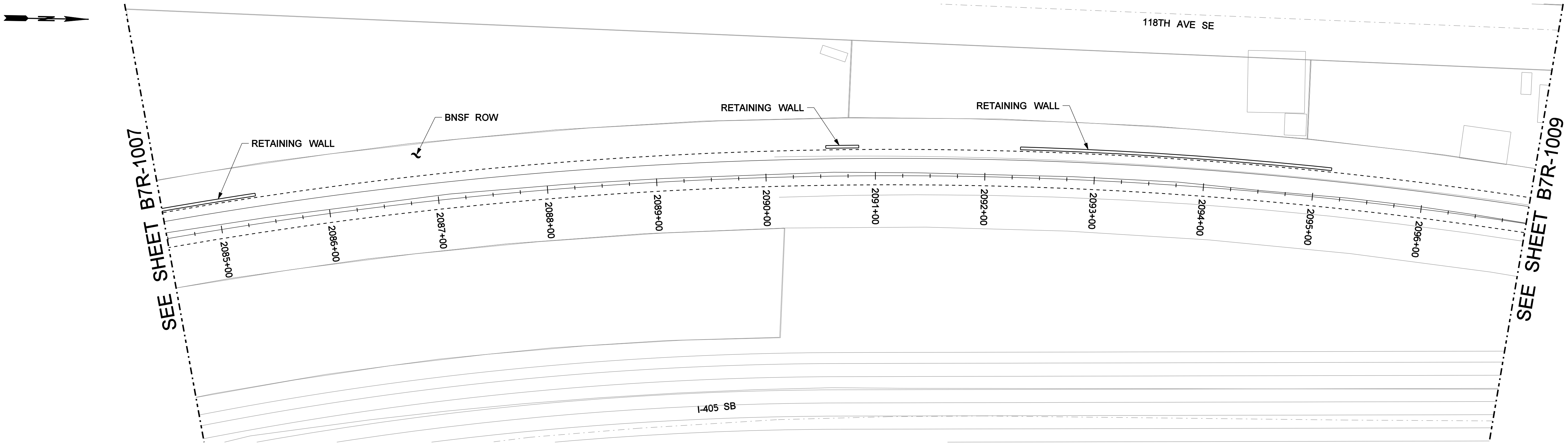
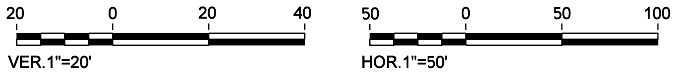
TRACK PLAN & PROFILE
STA. 2072+00 TO 2084+50

CONTRACT NO. 215382
DRAWING NO. B7R-1007
SCALE AS SHOWN
SHEET NO. SHEET 8


N
118TH AVE SE
BNSF ROW
RETAINING WALL
RETAINING WALL
RETAINING WALL
SEE SHEET B7R-1007
SEE SHEET B7R-1009
2085+00
2086+00
2087+00
2088+00
2089+00
2090+00
2091+00
2092+00
2093+00
2094+00
2095+00
2096+00
I-405 SB

PLAN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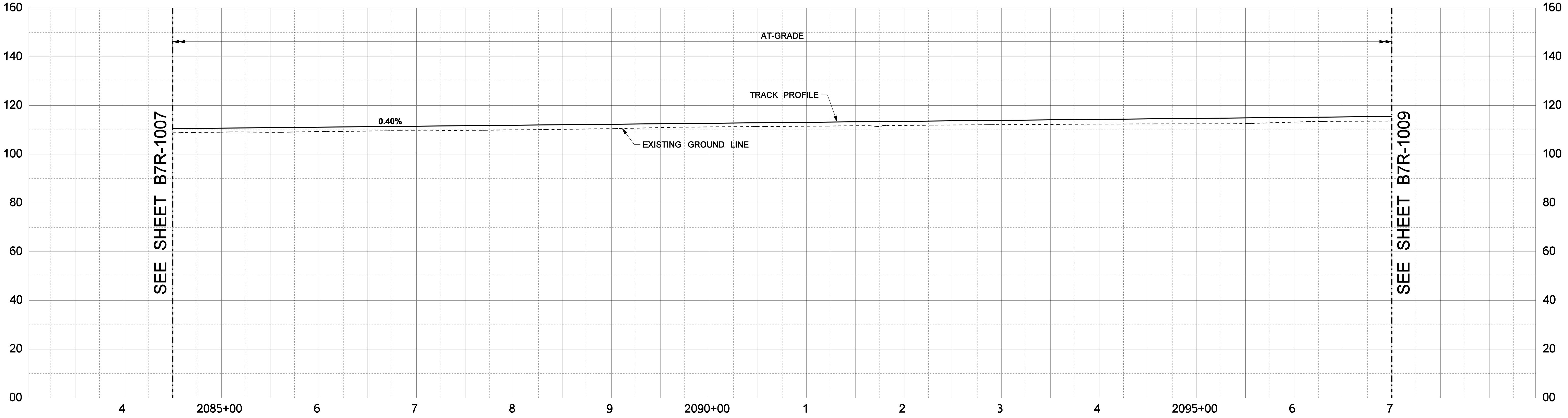
VER.1"=20'
50 0 50 100
HOR.1"=50'



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

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1% SUBMITTAL

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EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2084+50 TO 2097+00

CONTRACT NO. 215382
DRAWING NO. B7R-1008
SCALE AS SHOWN
SHEET NO. SHEET 9

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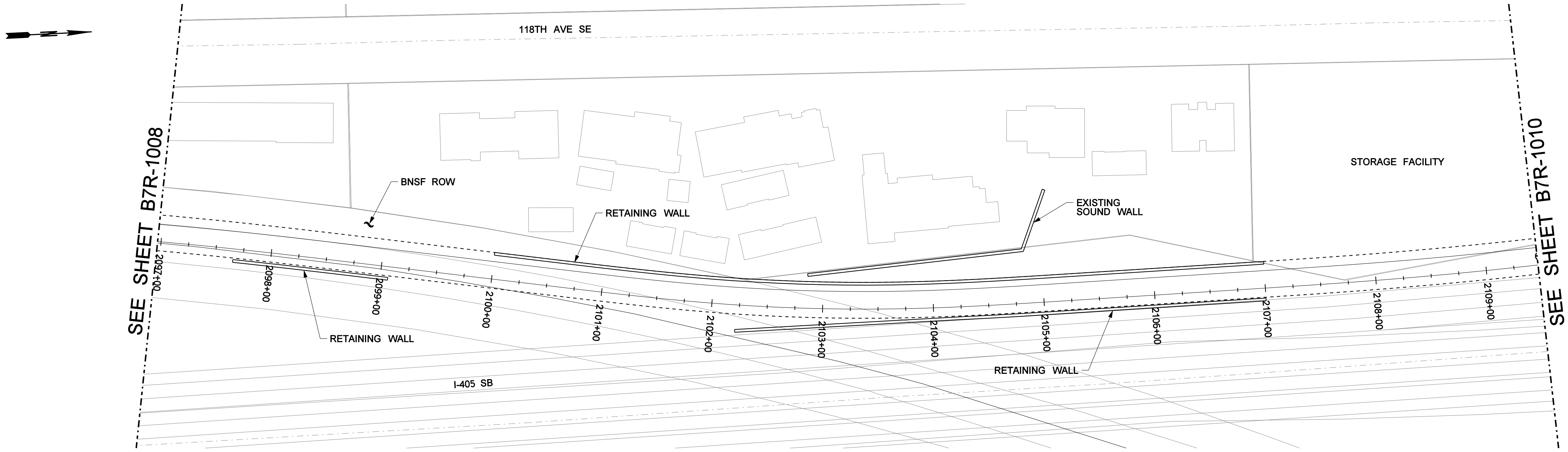
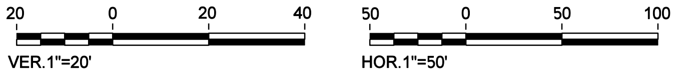

118TH AVE SE
STORAGE FACILITY
BNSF ROW
RETAINING WALL
EXISTING SOUND WALL
SEE SHEET B7R-1008
SEE SHEET B7R-1010
2097+00
2098+00
2099+00
2100+00
2101+00
2102+00
2103+00
2104+00
2105+00
2106+00
2107+00
2108+00
2109+00
RETAINING WALL
RETAINING WALL
I-405 SB

PLAN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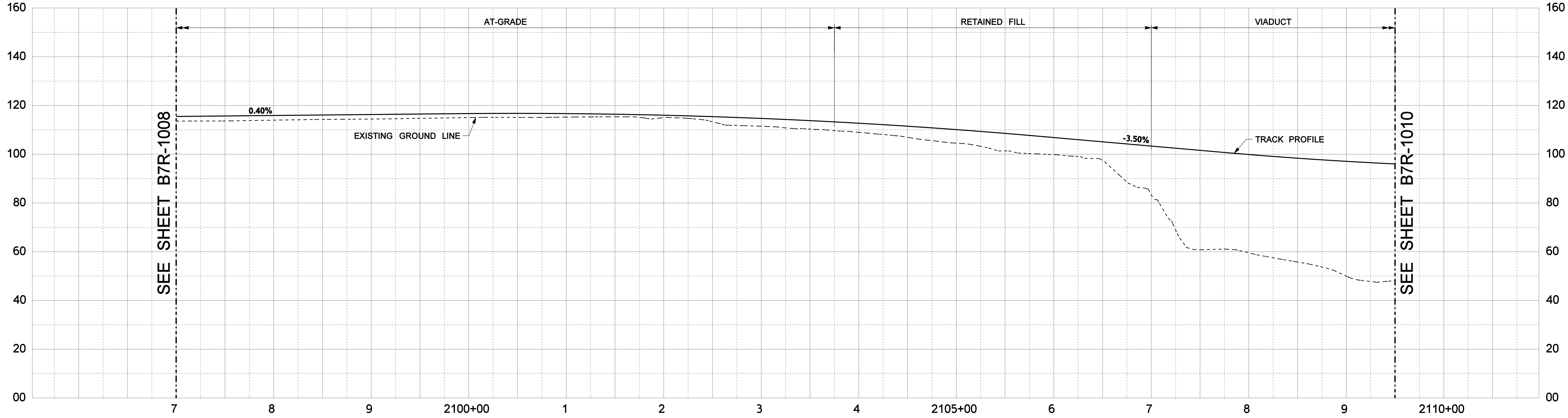
VER.1"=20'
50 0 50 100
HOR.1"=50'



PROFILE

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6:00:47 PM

4/27/2011

eron.sudhausen

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

REVISED 1% SUBMITTAL

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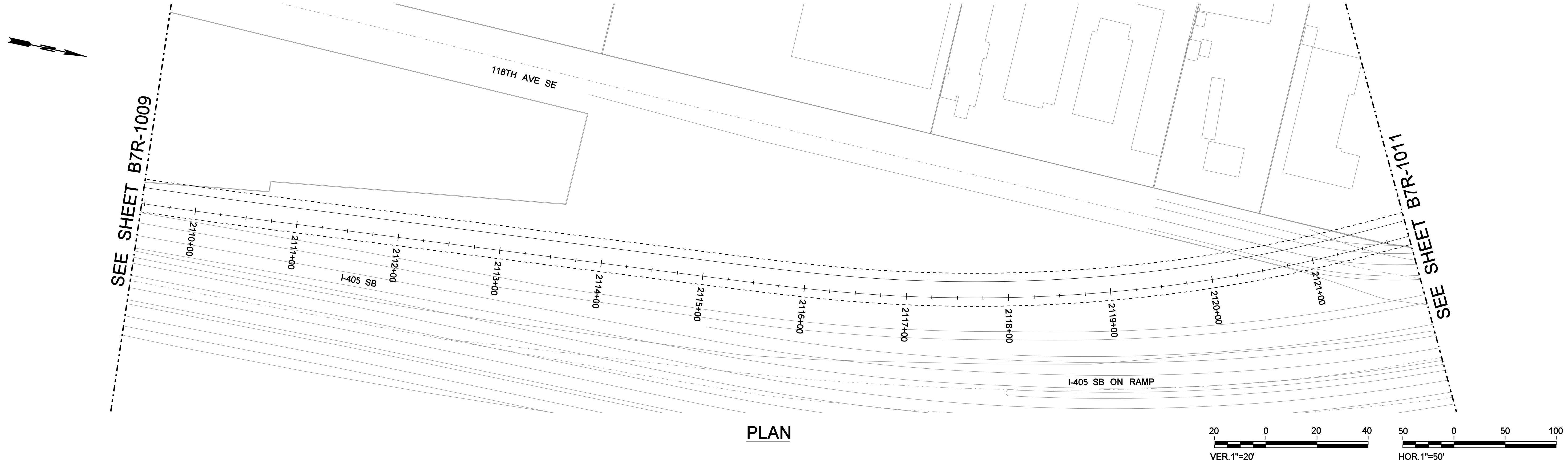
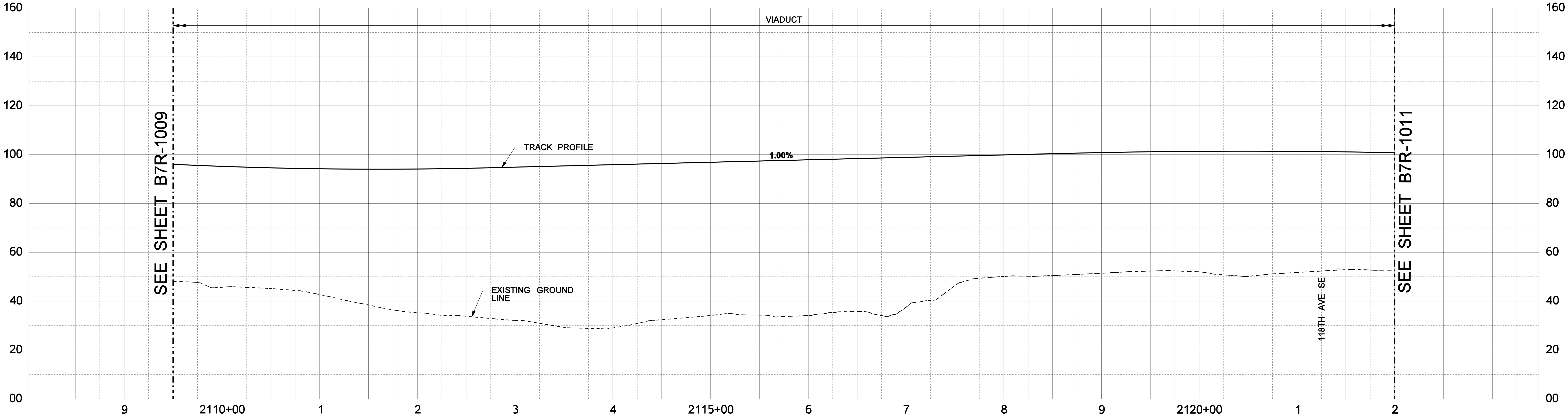
EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2097+00 TO 2109+50

CONTRACT NO. 215382
DRAWING NO. B7R-1009
SCALE AS SHOWN
SHEET NO. SHEET 10


SEE SHEET B7R-1009
118TH AVE SE
I-405 SB
2110+00
2111+00
2112+00
2113+00
2114+00
2115+00
2116+00
2117+00
2118+00
2119+00
2120+00
2121+00
I-405 SB ON RAMP
SEE SHEET B7R-1011
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN



PROFILE

eron.sudhausen 4/27/2011 6:03:16 PM Q:\215382-00\4 Internal Project Data\4-03 Drawings\Rail\Drawing Sheets\B7R-1010.dgn

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C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

REVISED
1% SUBMITTAL

NOT FOR
CONSTRUCTION

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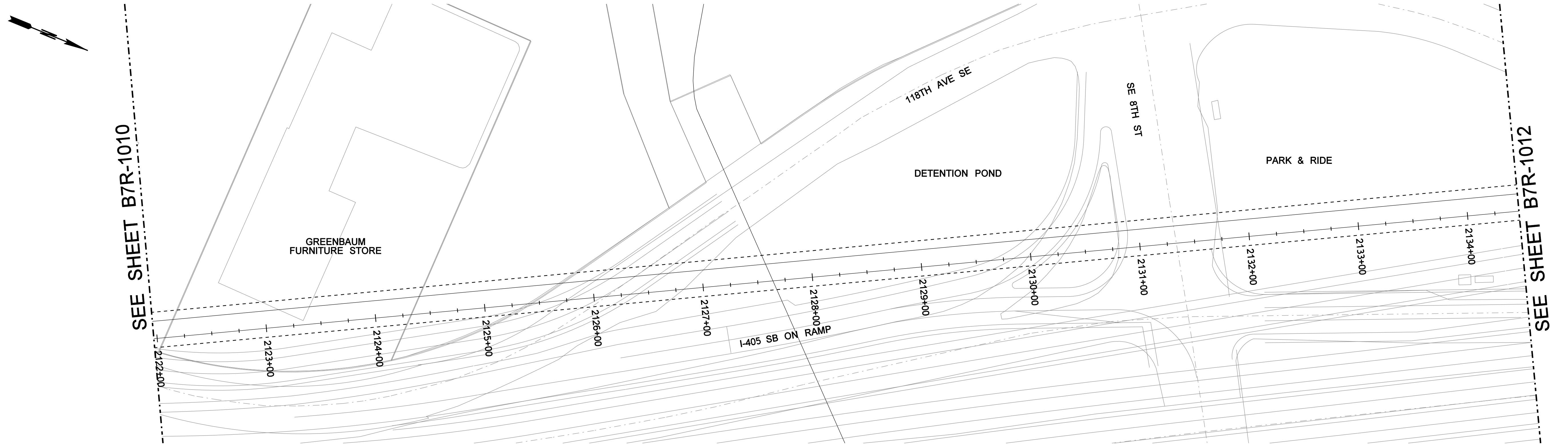
DATE
APPROVED
DATE

CITY OF BELLEVUE WASHINGTON

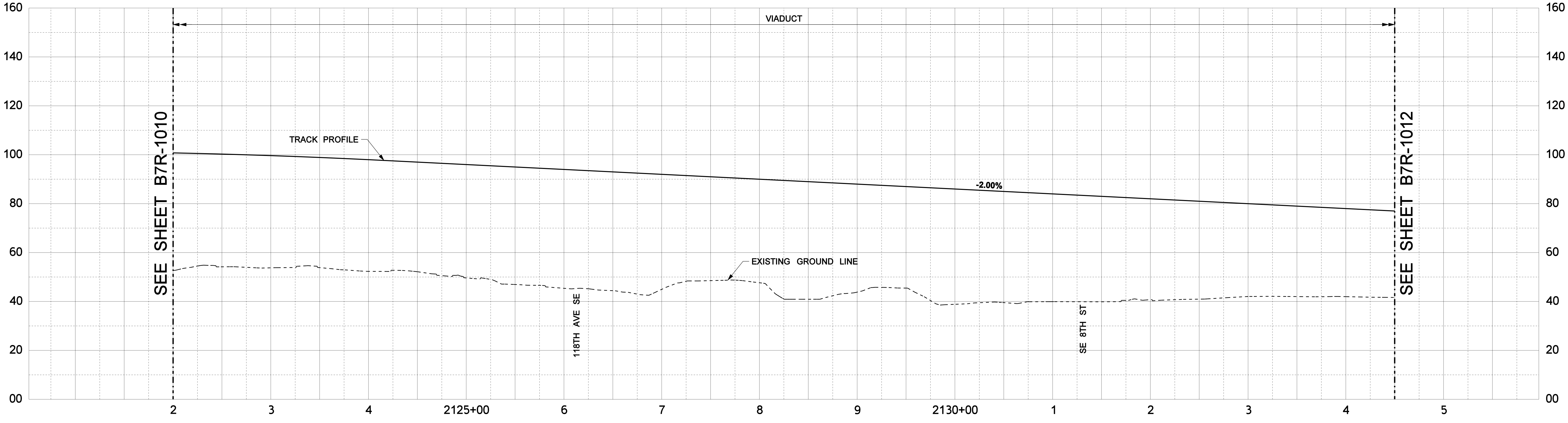
EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2109+50 TO 2122+00

CONTRACT NO. 215382
DRAWING NO. B7R-1010
SCALE AS SHOWN
SHEET NO. SHEET 11


SEE SHEET B7R-1010
SEE SHEET B7R-1012
GREENBAUM FURNITURE STORE
118TH AVE SE
DETENTION POND
SE 8TH ST
PARK & RIDE
I-405 SB ON RAMP
2122+00
2123+00
2124+00
2125+00
2126+00
2127+00
2128+00
2129+00
2130+00
2131+00
2132+00
2133+00
2134+00
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
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C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
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DATE
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DATE

EAST LINK LIGHT RAIL
B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2122+00 TO 2134+50

CONTRACT NO. 215382
DRAWING NO. B7R-1011
SCALE AS SHOWN
SHEET NO. SHEET 12

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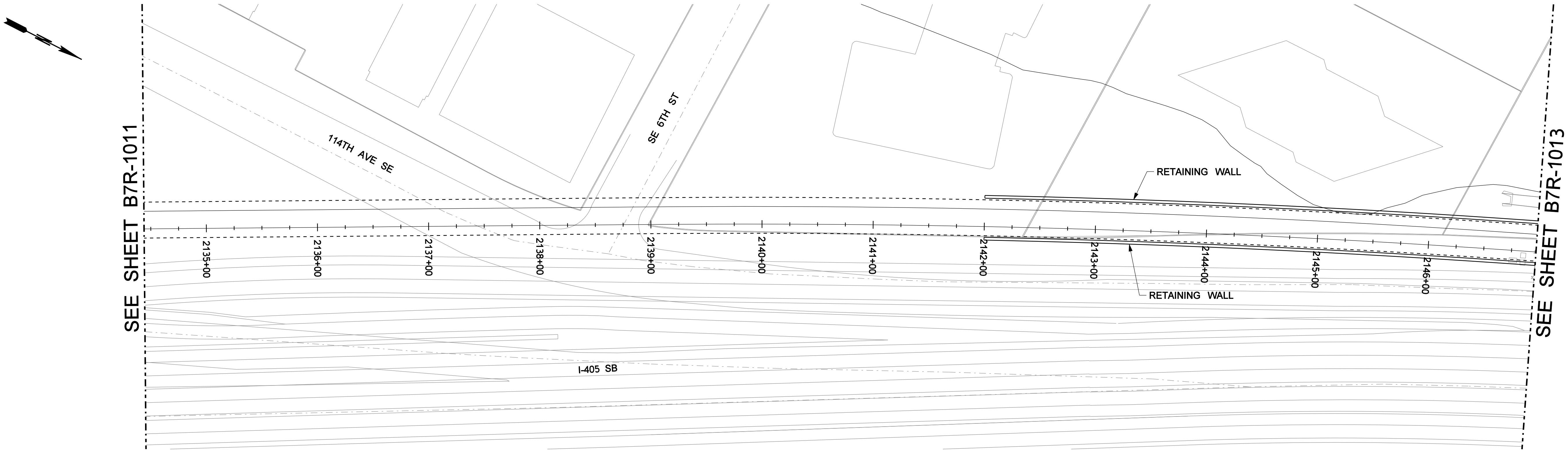
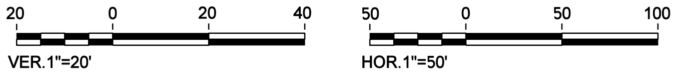
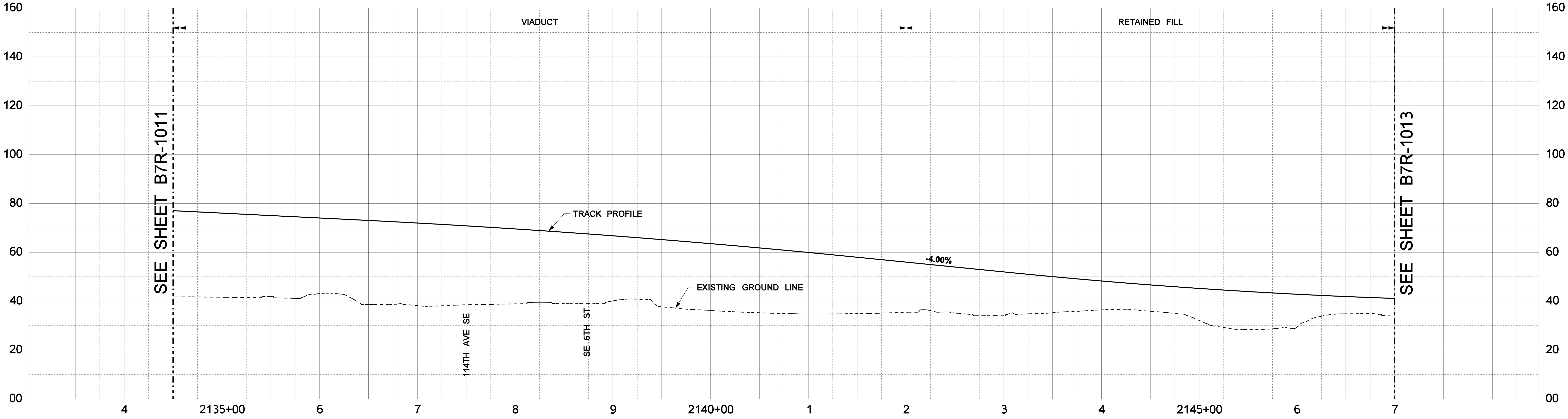
4/28/2011
thomas.natwick


SEE SHEET B7R-1011
SEE SHEET B7R-1013
114TH AVE SE
SE 6TH ST
RETAINING WALL
RETAINING WALL
I-405 SB
2135+00
2136+00
2137+00
2138+00
2139+00
2140+00
2141+00
2142+00
2143+00
2144+00
2145+00
2146+00

PLAN


20
0
20
40
VER.1"=20'
50
0
50
100
HOR.1"=50'



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

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DATE
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CITY OF BELLEVUE WASHINGTON

EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2134+50 TO 2147+00

CONTRACT NO. 215382
DRAWING NO. B7R-1012
SCALE AS SHOWN
SHEET NO. SHEET 13

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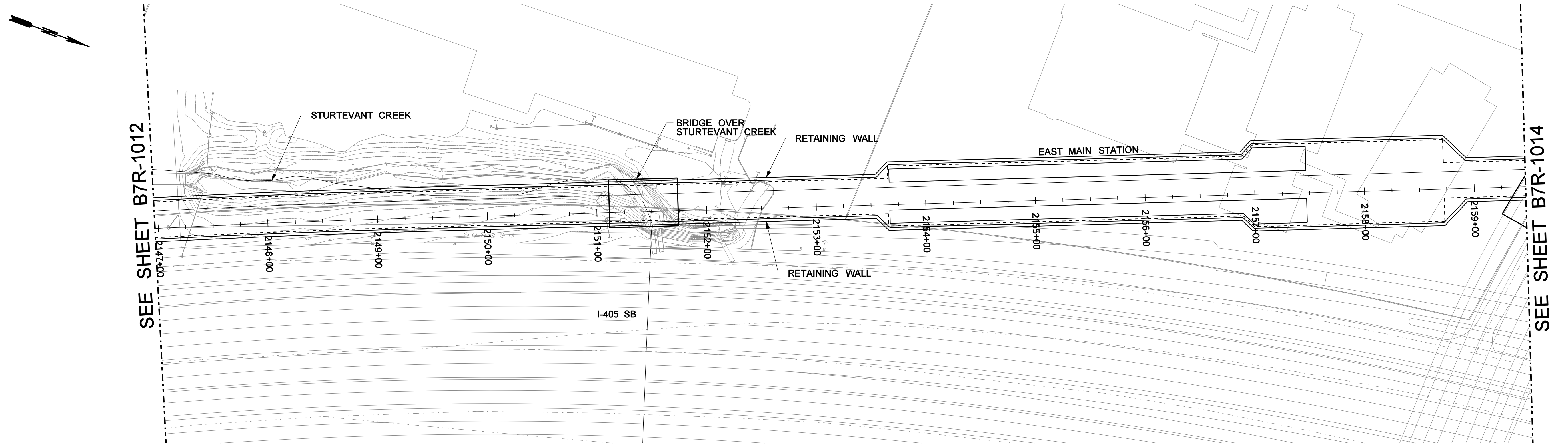
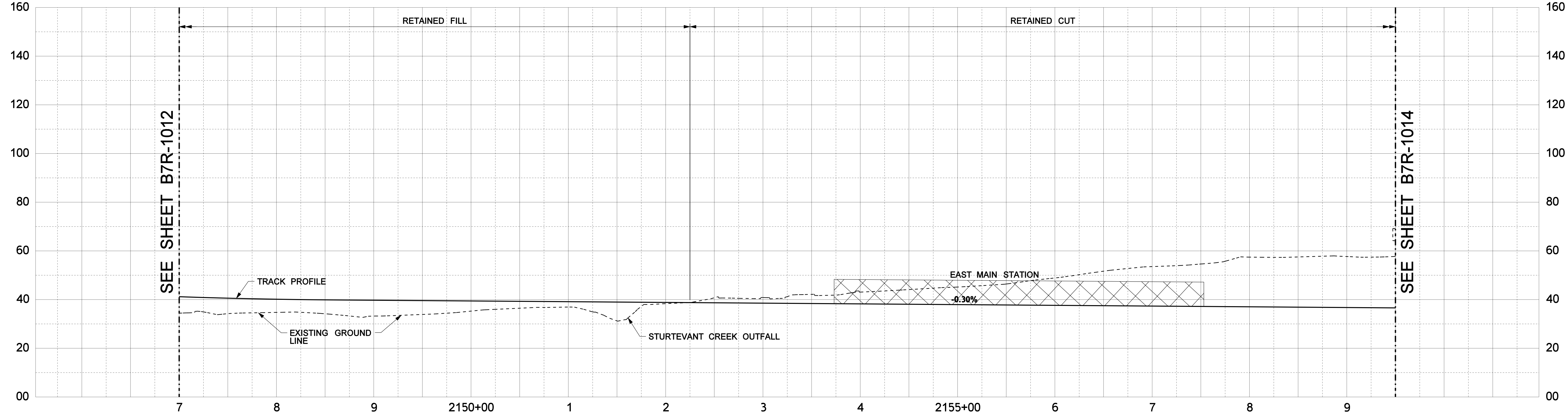
4/27/2011
eron.sudhausen


SEE SHEET B7R-1012
SEE SHEET B7R-1014
STURTEVANT CREEK
BRIDGE OVER STURTEVANT CREEK
RETAINING WALL
EAST MAIN STATION
RETAINING WALL
I-405 SB
2147+00
2148+00
2149+00
2150+00
2151+00
2152+00
2153+00
2154+00
2155+00
2156+00
2157+00
2158+00
2159+00
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN


160
140
120
100
80
60
40
20
00
SEE SHEET B7R-1012
SEE SHEET B7R-1014
RETAINED FILL
RETAINED CUT
EAST MAIN STATION
TRACK PROFILE
-0.30%
EXISTING GROUND LINE
STURTEVANT CREEK OUTFALL
7
8
9
2150+00
1
2
3
4
2155+00
6
7
8
9

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
CHECKED BY D. HUNT
IN CHARGE R. PRUST
DATE 04/29/11

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DATE

CITY OF BELLEVUE WASHINGTON

EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2147+00 TO 2159+50

CONTRACT NO. 215382
DRAWING NO. B7R-1013
SCALE AS SHOWN
SHEET NO. SHEET 14

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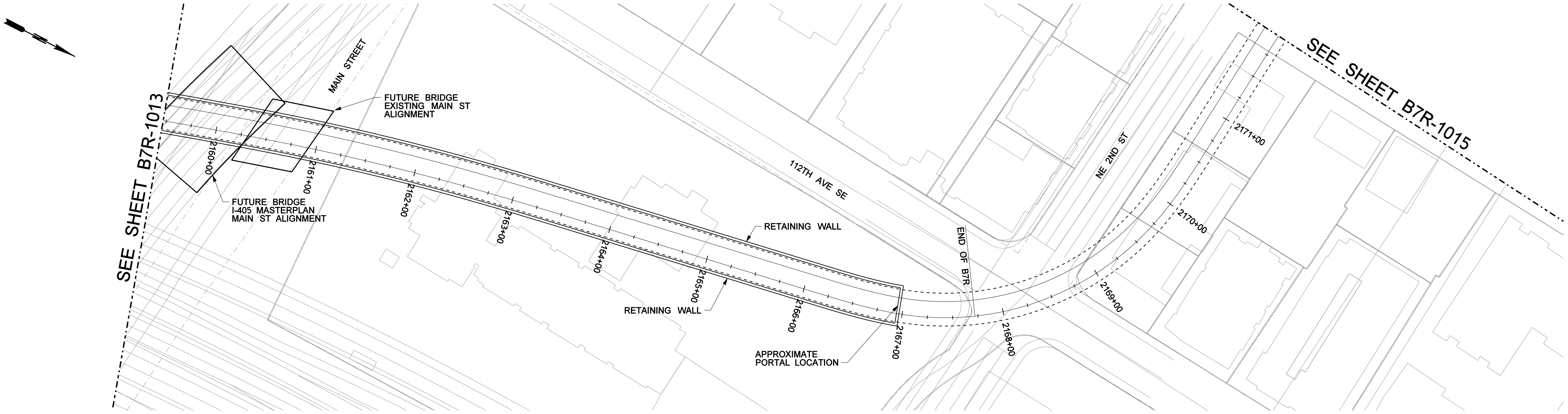
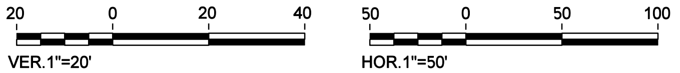
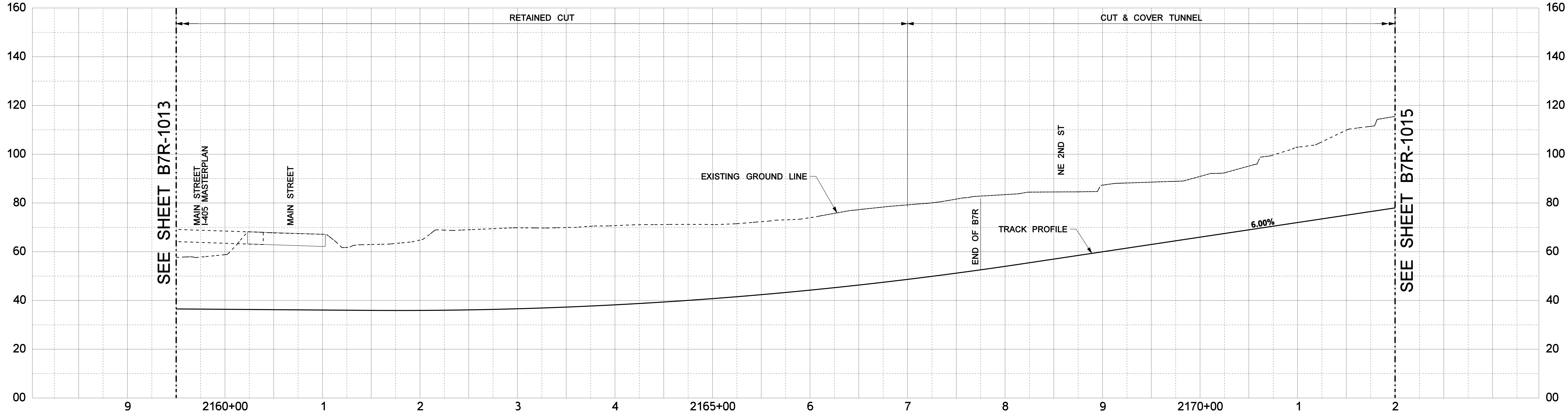
4/28/2011
thomas.natwick


SEE SHEET B7R-1013
MAIN STREET
FUTURE BRIDGE
EXISTING MAIN ST
ALIGNMENT
FUTURE BRIDGE
I-405 MASTERPLAN
MAIN ST ALIGNMENT
2160+00
2161+00
2162+00
2163+00
2164+00
2165+00
2166+00
2167+00
2168+00
2169+00
2170+00
2171+00
RETAINING WALL
RETAINING WALL
APPROXIMATE
PORTAL LOCATION
112TH AVE SE
END OF B7R
NE 2ND ST
SEE SHEET B7R-1015

PLAN


20
0
20
40
VER.1"=20'
50
0
50
100
HOR.1"=50'



PROFILE

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thomas.natwick

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY
T. NATWICK
DRAWN BY
P. TONKIN
CHECKED BY
D. HUNT
IN CHARGE
R. PRUST
DATE
04/29/11

REVISED
1% SUBMITTAL

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DATE
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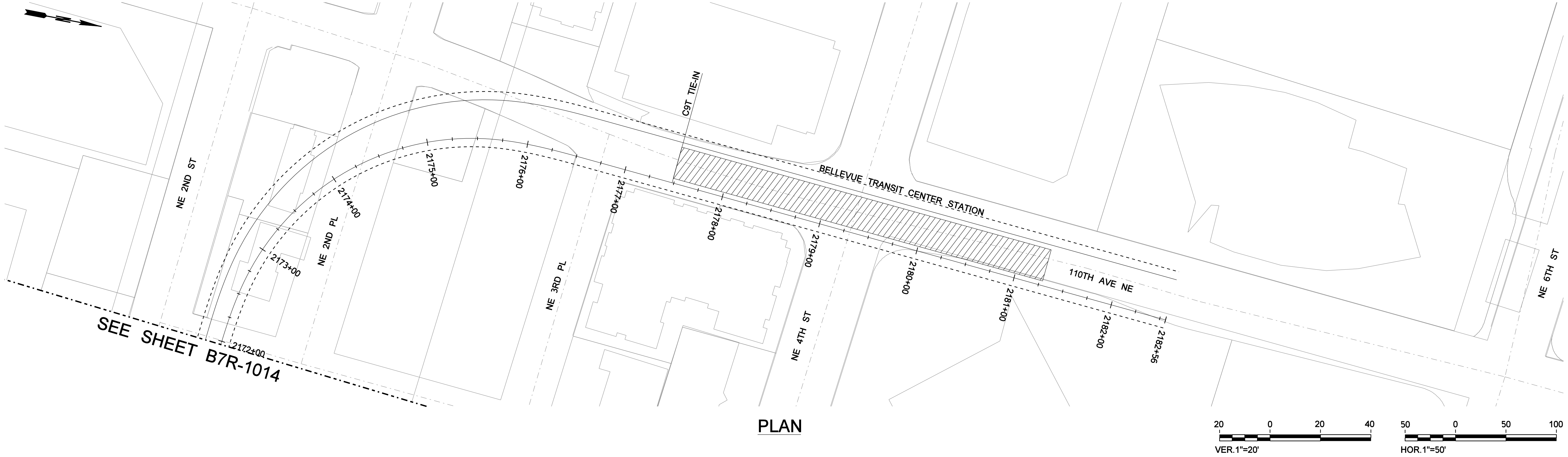
DATE

CITY OF BELLEVUE WASHINGTON

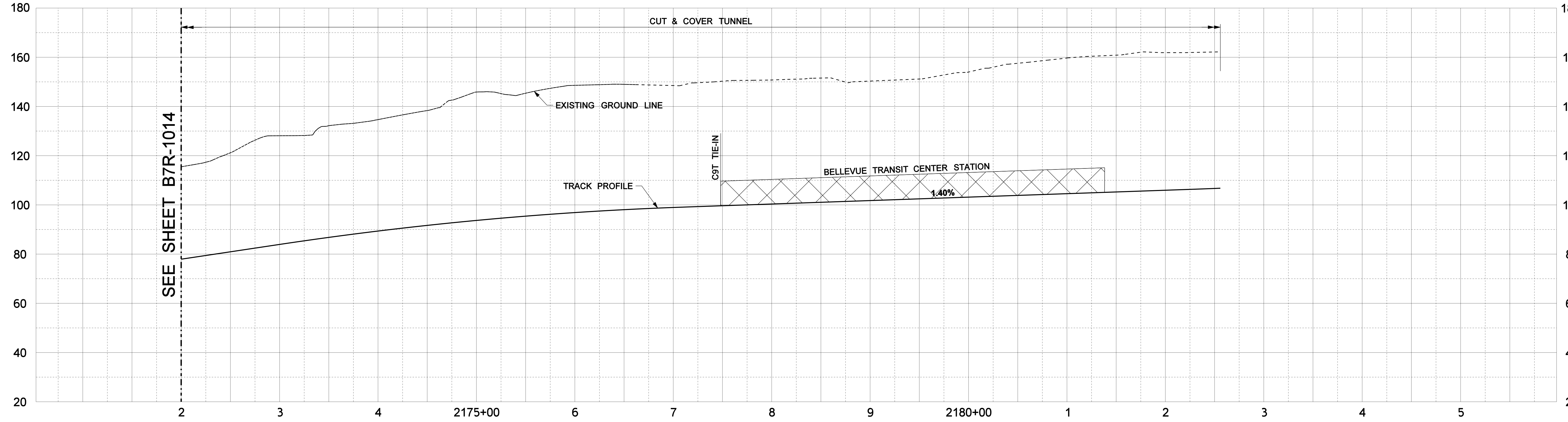
EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7 REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2159+50 TO 2172+00

CONTRACT NO.
215382
DRAWING NO.
B7R-1014
SCALE
AS SHOWN
SHEET NO.
SHEET 15


C9T TIE-IN
BELLEVUE TRANSIT CENTER STATION
110TH AVE NE
NE 2ND ST
NE 2ND PL
NE 3RD PL
NE 4TH ST
NE 6TH ST
2172+00
2173+00
2174+00
2175+00
2176+00
2177+00
2178+00
2179+00
2180+00
2181+00
2182+00
2182+56
SEE SHEET B7R-1014
20 0 20 40
VER.1"=20'
50 0 50 100
HOR.1"=50'

PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION
D	04/29/11	PT	NW	RP	EARLY CONCEPT RE-SUBMITTAL
C	03/15/11	PT	NW	RP	EARLY CONCEPT ALIGNMENT SUBMITTAL
B	03/07/11	PT	NW	RP	REVISED 1% SUBMITTAL
A	02/16/11	PT	DH	RP	1% SUBMITTAL

DESIGNED BY T. NATWICK
DRAWN BY P. TONKIN
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DATE 04/29/11

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DATE

EAST LINK LIGHT RAIL

B7/C9T TO NE 2nd PORTAL
(B7-REVISED) ALTERNATIVE
TRACK PLAN & PROFILE
STA. 2172+00 TO 2184+74.07

CONTRACT NO. 215382
DRAWING NO. B7R-1015
SCALE AS SHOWN
SHEET NO. SHEET 16

thomas.natwick 4/28/2011 10:22:06 AM Q:\215382-00\4 Internal Project Data\4-03 Drawings\Rail\Drawing Sheets\B7R-1015.dgn